Watlington Neighbourhood Plan Core Committee (NPCC)

Watlington Traffic Study

November 2014

TPP
transport planning practice

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1. INTRODUCTION

1.1 Transport Planning Practice (TPP) have been commissioned by the Watlington Neighbourhood Plan Core Committee (NPCC) to prepare a traffic study for Watlington.

1.2 Watlington is a market town located approximately 25km south east of Oxford with a population of approximately 2,500 people. The B4009 and B480 pass through Watlington and the B4009 provides access to the M40 at Junction 6. The routes through Watlington are narrow and there is congestion through the centre of town during peak times. The level of Heavy Goods Vehicle (HGV) traffic through the town is a particular source of concern, given the sensitive nature of the town, and there is already a 7.5 tonne weight restriction in place. Watlington has a designated Air Quality Management Area (AQMA) as introduced by South Oxfordshire District Council (SODC).

Study brief

1.3 Watlington is currently developing its Neighbourhood Plan and the NPCC would like to have a better understanding of the traffic issues in order to properly assess sites put forward for development within the plan period 2015-2031. The Brief for this traffic study has been identified and agreed with NPCC to be as follows:

- Analyse what the traffic issues are currently;
- Without any additional development in Watlington itself, determine what the anticipated rise in traffic volumes generally in the region would mean for Watlington's roads;
- Assess which areas of Watlington would be better for development (without any additional road infrastructure) to minimise additional traffic flows within the town;
- If you could facilitate a relief road with new housing development, determine which roads it would be best to connect with;
- Establish how through traffic could be deterred, whilst still encouraging destination traffic which supports Watlington's shops and business community.

1.4 To prepare for this study, comprehensive traffic surveys were undertaken in September 2014 to understand the existing traffic patterns through the town. A

site visit was undertaken in the morning on the main survey day (Thursday 18th September 2014) by TPP. The survey results have been analysed and the existing highway conditions have been examined to address the issues in the study Brief. TPP have taken a pragmatic approach to this study based on the data, the knowledge of the town and professional judgement of the transport issues. This has been supported by the extensive local knowledge of members of the NPCC.

Report structure

1.5 This report is structured as follows:

- Chapter 2: Background information and policy context – provides some background information to Watlington and summarises the key policies which are relevant to Watlington.
- Chapter 3: Site visit observations – describes the existing transport conditions in Watlington as observed by TPP on a site visit in September 2014.
- Chapter 4: Traffic surveys - summarises the traffic surveys which were undertaken in September 2014.
- Chapter 5: Future background traffic growth – outlines the level of background traffic growth up to 2031 and the likely impacts on Watlington.
- Chapter 6: Location of future developments - assesses suitable development locations without further road infrastructure and also the sites which could effectively deliver a "relief road" for Watlington.
- Chapter 7: Options for improving traffic – sets out the range of options which could deter through-traffic and improve the existing conditions in Watlington.
- Chapter 8: Summary and conclusions – provides a summary and presents the conclusions to this report.

2. BACKGROUND INFORMATION AND POLICY CONTEXT

2.1 This chapter provides background information in respect of Watlington and summarises some of the relevant policies in the local area.

Site location

2.2 Watlington is one of the larger villages in South Oxfordshire, located approximately 25km south east of Oxford. It has the character of a market town and has a population of around 2,500 people. The Chilterns Area of Outstanding Natural Beauty borders the town to the east and south. The site location is shown in Figure 2.1.

Highway network

2.3 The B4009 meets the B480 in the centre of Watlington. The B4009 provides access to the M40 Junction 6 to the north, approximately 4.5km away. The M40 is a major strategic route between London and Birmingham. To the south, the B4009 provides access to Benson, Wallingford, Didcot and other local destinations. The B480 to the west provides access to Chalgrove and a route to Oxford. To the east, the B480 provides a route to Henley-on-Thames and Reading.

2.4 The B4009 towards Watlington is known as Shirburn Road which becomes Shirburn Street to the south of Love Lane, and Couching Street to the south of the junction with High Street and Hill Road. The B480 is known as Brook Street which becomes Howe Road to the east of Ingham Lane. Other routes in Watlington include Hill Road, High Street and Pyrton Lane. Both Hill Road and High Street have one-way sections. Hill Road is one-way eastbound between Couching Street and Spring Lane, High Street is one-way westbound between Couching End and Old School Place. Spring Lane is one-way southbound. Pyrton Lane, to the north and west of Watlington, provides an alternative route between the B4009 and B480. The local highway network is shown in Figure 2.2.

2.5 A range of local shops and amenities are provided in Watlington. There is a Co-op store, petrol station and employment uses along Couching Street. Other shops and amenities are located along the High Street, including a butchers, post office, library, bank and coffee shop. Watlington has two schools; Watlington primary school, the catchment of which is not much more than Watlington itself, and a secondary school (Icknield Community College), the catchment of which is much

larger, encompassing the satellite villages to Watlington, including as far afield as Chalgrove and part of Stokenchurch. Both of these schools are located to the north west of the town centre, accessed from Love Lane. Buses bring a large number of those pupils commuting to the school, and these themselves add to the congestion at certain specific times caused by large vehicles navigating the road network through Watlington.

2.6 A number of industrial developments and farms are located in and around Watlington which generates HGV movements. These include Watlington Industrial Estate which is accessed from the B480 Cuxham Road, Watlington Depot on Britwell Road and Lys Mill which is accessed from the B480 Howe Road. There is also Watcombe Manor Industrial Estate where some residential units are being developed.

2.7 Car parking is available on-street including at some locations on Couching Street and High Street and also at the car park located on Hill Road (93 spaces). All public car parking in Watlington is free of charge.

2.8 The whole of Watlington and the surrounding area are located within a 7.5 tonne weight restriction zone, except for access. However, the strategic routes through Watlington attract a significant level of through-movements to the M40, especially by HGVs. South Oxfordshire District Council (SODC)[1] recognises that:

> "Watlington suffers from the classic market town 'street canyon', narrow, high sided streets mean that pollution cannot disperse very easily. Congestion in the town, especially along the High Street [TPP believe this to be Couching Street] have led to the declaration of the Air Quality Management Area (AQMA) on 31 March 2009."

Policy context

2.9 Oxfordshire County Council (OCC) is the highway authority for Watlington and South Oxfordshire District Council (SODC) is the planning authority. SODC approved the Watlington Parish Council's application to be designated as a Neighbourhood Area in September 2013. The Watlington Neighbourhood Plan is being prepared which will give local residents more control over how the area will develop and will cover topics including housing and transport. This traffic study

[1] http://www.southoxon.gov.uk/services-and-advice/environment/pollution/air-quality/watlington-air-quality

has been prepared to inform the Neighbourhood Plan. Some of the key policy documents relevant to Watlington are summarised below.

Oxfordshire County Council Local Transport Plan (2012)

2.10 Oxfordshire's Local Transport Plan 2011 to 2030 (LTP3) focuses on attracting and supporting economic investment and growth, delivering transport infrastructure, tackling congestion and improving quality of life. The revised plan, which includes some changes, was adopted as policy by the council in July 2012. OCC are currently developing a new Local Transport Plan (LTP4) and will be consulting on a draft in early 2015.

2.11 The current Local Transport Plan 3 (LTP3) sets out the ambitions for transport which are:

- to support the local economy and the growth and competitiveness of the county;
- to make it easier to get around the county and improve access to jobs and services for all by offering real choice;
- to reduce the impact of transport on the environment and help tackle climate change; and
- to promote healthy, safe and sustainable travel.

2.12 With particular reference to lorry routes and freight movements, Table 2.1 summarises two policies which are within the OCC Local Transport Plan.

Table 2.1 – OCC Local Transport Policies on lorry routes and freight movements

Policy	Description
G8	The County Council will manage the classification and numbering of the roads in its control to direct traffic, and particularly lorry traffic, onto the most suitable roads as far as is practicable.
TC5	Oxfordshire County Council will identify suitable and unsuitable routes for freight movement, balancing the needs of businesses with protection of the local environment and maintaining the highway network.

2.13 The management of road classification and numbering, which up until now has been carried out by the Department for Transport, is largely to be devolved to local highway authorities for all roads not managed by the Highways Agency. The Primary Route Network (PRN) is a national system which designates routes

between major settlements and ports/airports. The PRN must provide unrestricted access to 40 tonne vehicles. Weight limits may be placed on other routes in appropriate cases provided that this does not, or is not likely to, transfer larger vehicles onto another route of similar or lower standard or classification and provided that it does not result in an undue inconvenience to the diverted drivers.

2.14 The proliferation of restrictions across the county has meant that the road numbering and classification systems are not always a good guide to the most preferred routes for lorries to take in travelling around or through the county. It is also recognised in the OCC Local Transport Plan that while lorries usually make up a small proportion of the overall traffic flow, they can play a major part in creating congestion as well as contributing to other environmental problems associated with it such as air pollution, noise and damage to road surfaces and verges. Where congestion occurs, though, lorries are often most affected, given that they are usually more constrained than general traffic in the routes they use. Problems caused by lorry traffic are seldom easy to remedy without potentially causing difficulties to the local and national economy.

2.15 As a result of this, Oxfordshire County Council has produced an Advisory Lorry Routes Map to guide lorry drivers onto suitable freight routes and diversion routes to help remove these trips from unsuitable rural roads and villages. This sets out four categories of route:

- Strategic road – through route
- Strategic road - link to larger towns
- Non-strategic road – link to smaller towns
- Non-strategic road – local access road

2.16 The latest lorry route map in the Watlington area is shown in Figure 2.3 and further information is included in Appendix A. Watlington is shown as an "environmentally sensitive area, avoid if at all possible".

2.17 It should be noted that consultation for a “relief road” for Watlington was mentioned in the previous Local Transport Plan (LTP2) but is not included in LTP3. No explanation is given as to why this has been deleted.

South Oxfordshire District Council, Core Strategy (2012)

2.18 The SODC Core Strategy was adopted in 2012 and it identifies issues and directions of growth for new development up to 2027.

2.19 It is recognised that South Oxfordshire is a mainly rural district in South East England covering an area of 253 square miles. Although the Core Strategy seeks to build on opportunities for sustainable travel, SODC recognises that the rural nature of the district means that many residents will be dependent on car travel for some or all of their journeys.

2.20 Watlington is designated as a "Larger Village" in the Core Strategy and one of the local centres serving its immediate rural area, as set out in Policy CST1 on Town Centres and Shopping. It is worth noting that in 2009, rural South Oxfordshire ranked very poorly on a national measure of accessibility[2] of services (including GPs, supermarkets, post offices and primary schools). Wards with the worst scores included Watlington, Chiltern Woods and Great Milton. This appears to be from a national index of geographical accessibility of services from the Department of Communities and Local Government (DCLG) but the exact criteria for this are not clear.

2.21 In terms of traffic growth, SODC have conducted a district-wide transport assessment to assess the impacts of their spatial strategy on the strategic and local transport network. With particular reference to Watlington, Table 5.1 of the Core Strategy shows that the section of B4009 between Watlington and Benson is predicted to experience 10% or more increase in traffic flows.

2.22 The SODC Core Strategy also sets out the planning housing allocation in the district. It is proposed that a minimum total of 1,154 homes will be allocated in the Site Allocations DPD for the larger villages which include Watlington and 11 other villages. Consultation events were held on how the new homes can be delivered in the larger villages. There are around 1,100 homes in the Watlington Neighbourhood Plan area and 83 new homes were built between 2001 and 2012. Watlington's proposed allocation is a minimum of 79 homes for up to 2027. The draft distribution for new homes was agreed by the council's Cabinet Committee in September 2013. This forms the basis for the "Local Plan: Sites and General Policies" document to be prepared.

[2] Rural South Oxfordshire Summary of Evidence (2009)

Air Quality Progress Report for South Oxfordshire District Council (2013)

2.23 Watlington has a designated Air Quality Management Areas (AQMAs) as introduced by SODC. The SODC 2013 Air Quality Progress Report highlights that there are generally no major changes in emissions from either the transport infrastructure or industrial sections within the South Oxfordshire District since the last annual report. However, there is a general increase in NO_2 across the district, with a number of sites exceeding the national annual objective levels.

2.24 Figure 2.4 extracted from the Progress Report indicates the extent of the Watlington AQMA (hatched in pink) and the diffusion tubes and continuous monitor locations.

Draft Air Quality Action Plan (2014)

2.25 The SODC Draft Air Quality Action Plan focuses on the three AQMAs (Henley, Wallingford and Watlington). Watlington has not previously had an Air Quality Action Plan. The consultation period for the document was in June 2014 and Watlington Parish Council has provided a response for the consultation. The finalised Action Plan is expected to be published towards the end of 2014.

2.26 The data in the draft action plan shows that in 2010, air quality levels in Watlington exceeded air quality standards by 28% (reaching 51Cg/m3 against the standard of 40Cg/m3). The traffic in Watlington has been identified to be made up of:

- 82% cars
- 15% LGVs
- 3% HGVs
- 1% buses

2.27 Although HGVs and buses make up just 4% of the traffic, it accounts for 44% of the NOx emissions. The cars in Watlington make up another 44% of the NOx emissions. To meet air quality standards, the road NOx emissions need to be reduced by 22%, or the total NOx emissions need to be reduced by 17%.

2.28 It was noted in the draft action plan that the main traffic issue in Watlington is the pinchpoint at the central crossroads, which is assumed to refer to the Shirburn Street / Hill Road / Couching Street / High Street junction.

2.29 The three proposed actions in the plan which are specific to Watlington are:

- Low emission zone feasibility study – This is currently underway and the target completion date is expected to be in 2016. This has been funded by a DEFRA grant.

- Increased enforcement and review of the weight restriction zone (WRZ) – Oxfordshire County Council (OCC), SODC and the police will be responsible for enforcing the WRZ more rigorously. It is also stated that there is anecdotal evidence of HGV drivers breaching the WRZ suggesting the signage at M40 Junction 6 is not clearly visible.

- Smoothing traffic flow (removal of on-street parking and measures such as lowering speed limits)– Research into the potential impacts of removing on-street parking on Couching Street and part of Shirburn Road and introducing measures based on the Dorset villages model. Actions are dependent on OCC support and funding.

2.30 Appendix 3 of the Draft Action Plan sets out the "Options considered but not viable at this time" for the three AQMAs. For Watlington, this includes:

- Bypass for Watlington

- Provision of turning area for HGVs near Watlington.

2.31 Both of the above were seen as not feasible because they are not in the OCC's Local Transport Plan which sets out how it will spend its transport budget over the next five years.

3. SITE VISIT OBSERVATIONS

3.1 This chapter summarises the traffic conditions observed by TPP during the site visit on Thursday 18th September 2014 which was the main survey day. During the site visit, observations were made on the operation of the highway network and junctions, the general patterns of travel through Watlington, pedestrian activity and the nature of any servicing activity and parking capacity.

3.2 The site visit has contributed to understanding the transport issues in the town and how they impact on the sense of place and character. Photographs were taken to record and capture the issues identified and enable further consideration during the later stages of the study. This chapter summarises the observations and where it is appropriate, swept path drawings have been included to illustrate the manoeuvring of large vehicles through the town. The observations are described starting from the north of the town.

B4009 Shirburn Street

3.3 The B4009 Shirburn Road is the route to Watlington from the M40 which becomes Shirburn Street to the south of Love Lane. There are some on-street parking locations which form natural chicanes and queueing was observed in the morning peak hour. The queueing was considered to be due to parked vehicles restricting traffic flows. There is a "Give Way to Oncoming Traffic" arrangement on the approach to the town which requires northbound traffic in Watlington to give-way to vehicles coming from the M40. The general highway arrangement on Shirburn Street is shown in Figure 3.1.

Shirburn Street / Hill Road / Couching Street / High Street priority junction

3.4 The "Give Way to Oncoming Traffic" arrangement is at the pinchpoint by the Shirburn Street / Hill Road / Couching Street / High Street junction. The pinchpoint is between the existing buildings as shown in Figure 3.2. The dimension width of the pinchpoint along the major arm (Shirburn Street / Couching Street) effectively only allows for one-way single file traffic. Most vehicle movements at this junction are travelling straight-ahead and both the minor arms (Hill Road and High Street) are one-way entry only from the junction.

3.5 Footways are narrow at this point and wooden bollards are in place to discourage vehicles from encroaching on the footway. However, the wooden bollard on the

eastern footway had been damaged and was removed on the day of the TPP site visit and vehicles were observed to drive over the dropped section of the footway. This is shown in Figure 3.3.

3.6 The physical constraints at the junction mean that large vehicles cannot easily turn left onto Hill Road from Shirburn Road. A large rigid vehicle was observed attempting to undertake this manoeuvre and had to reverse back on Shirburn Street in order to have adequate space to complete this manoeuvre. This is shown in Figure 3.4.

3.7 The Co-op service area is located on Watcombe Road which can be accessed off Hill Road or Brook Street. The Co-op is served by a rigid lorry and anecdotal evidence shows that because the vehicle cannot turn left into Hill Road from Shirburn Street, it travels down Couching Street, performs a U-turn manoeuvre at a location to the south, drives back up Couching Street and turns right into Hill Road. Upon leaving Watcombe Road, it exits onto Brook Street and drives up Couching Street to leave Watlington. The Co-op lorry is shown in Figure 3.5.

3.8 To illustrate the constraints in manoeuvring for large vehicles, Figure 3.6 shows the swept paths of a large rigid vehicle turning into Hill Road from Shirburn Street and from Couching Street. The vehicle used is a similar size to the Co-op lorry and shows that the manoeuvre is tight.

3.9 An accident occurred at the pinchpoint on the 16th May 2014 when a lorry and a caravan collided. The NPCC provided photographs of the damage to the carriageway and footway after the accident and this is shown in Figure 3.7.

B4009 Couching Street

3.10 There is a Zebra pedestrian crossing on Couching Street to the south of the junction with Hill Road and High Street. The crossing was observed to be regularly used, especially by school pupils, during the morning peak. However the road markings for the crossing have started to fade and it is not particularly visible from the driver's perspective, especially if there is a large vehicle blocking the view of the beacons for the Zebra crossing. Further south, Couching Street is narrow with on-street parking on the western side and vehicles have to slow down and give-way to traffic approaching from the opposite direction. This situation is intensified during the morning peak when there are HGVs, vehicles with trailers and also school buses and coaches arriving to serve the schools.

3.11 There are residential frontages along Couching Street and also a petrol station which can sometimes cause intermittent queueing as vehicles wait to enter. The petrol station is served by a tanker which is shown in Figure 3.8.

3.12 The on-street parking on Couching Street can be considered to be assisting in restricting traffic flows and reducing vehicle speeds, but given the level of traffic flows through the town, it frequently results in "stop-start" traffic. The pinchpoint and give-way arrangement at the Shirburn Street / Hill Road / Couching Street junction also lead to vehicles arriving in platoons, with vehicles leaving Watlington queueing back to give priority to vehicles from the M40. The general highway arrangement on Couching Street is shown in Figure 3.9 and examples of queueing are shown in Figures 3.10 and 3.11.

3.13 Footways are generally narrow along Couching Street and some wooden bollards are provided to improve safety for pedestrians, especially when large vehicles are passing. However, there are some sections along Couching Street where the footway is too narrow to install bollards.

Couching Street / Brook Street priority junction

3.14 The queueing on Couching Street has an impact on the priority junction with Brook Street, where the B4009 meets the B480. Couching Street is the minor arm, giving-way to the through-movements on the B480. A significant proportion of vehicles are travelling to and from the M40 which means most vehicles are turning into and out of Couching Street.

3.15 Long queues were observed during the morning peak on Brook Street as vehicles wait to turn into Couching Street. However, the queues are not the result of the junction itself by are largely caused by the on-street parking located on the western side of Couching Street within close proximity of the junction. This restricts traffic to one-way movements and vehicles entering Couching Street have to wait for oncoming traffic to pass. The existing traffic conditions at this location are illustrated in Figures 3.12 and 3.13.

3.16 Manual turning counts were undertaken at the Couching Street / Brook Street junction and a PICADY junction modelling analysis of the junction has been undertaken for the AM peak (0700-0800) and PM peak (1700-1800). PICADY is an industry-standard junction capacity developed by TRL which predicts capacities, queues, delays and accident risk at priority junctions. The AM peak hour for the

junction was identified to be 0700 to 0800 which had slightly higher traffic flows than the conventional AM peak hour of 0800 to 0900.

3.17 Based on the traffic flows and geometry of the junction, the PICADY results show that the maximum Ratio of Flow to Capacity (RFC) was 64% in the morning peak and 50% in the evening peak with queueing of less than two vehicles. For an unsignalised junction, a maximum RFC of 85% is considered to be operating within capacity. The PICADY results show that the junction should theoretically be operating within capacity and support TPP's observation queueing observed at this junction is caused by the on-street parking on Couching Street rather than the capacity of the junction itself. Furthermore, manual counts show more vehicles use Pyrton Lane to travel from the B480 to the B4009 in the morning peak hour. This could suggest that vehicles are avoiding the congestion at the Couching Street / Brook Street junction which is worse in the morning peak. Pyrton Lane is discussed later in this chapter.

3.18 It was observed that the geometry of the Couching Street junction did not fully accommodate for HGV movements. In particular, large vehicles leaving Couching Street have to overswing onto the other side of the road to complete the manoeuvre and can result in the vehicle mounting the footway. This was observed on-site with a large articulated vehicle turned left from Couching Street and mounted the footway, as shown in Figures 3.14 and 3.15. Swept path analysis has been undertaken for this junction as shown in Figure 3.16. The swept path shows that the large vehicles have to use the width of Brook Street to manoeuvre and there was queueing on Brook Street as vehicles waited to turn right into Couching Street. This caused delay as the HGVs have to wait until cars give way to let the HGV complete the manoeuvre. Improvements to the kerbline could potentially be undertaken to ease the manoeuvre and minimise the impact of HGVs travelling through the town and on pedestrian amenity. However, the limited width of the footway and carriageway along Brook Street will still mean a large vehicle having to overswing onto the other side of the road to some extent.

B480 Brook Street

3.19 On Brook Street west of Couching Street, long queues were observed in the morning peak as vehicles wait to enter Couching Street as shown in Figure 3.17. The traffic included school buses and coaches as well as HGVs. There is limited width on Brook Street and westbound vehicles were observed to mount the

footway as shown in Figure 3.18. Pedestrians were observed to cross in between the queued vehicles, including small children with bicycles and scooters. An example is illustrated in Figure 3.19.

3.20 To the west, Brook Street (B480) becomes Britwell Road (B4009) where it meets Cuxham Road (B480) at a priority junction. Cuxham Road is the minor arm at the priority junction. Cuxham Road to the west provides access to the A329 at Stadhampton and an alternative route to the M40. There is scope for the Cuxham Road route to be promoted as a route to the M40 at Junction 7, especially from Britwell Road. However, this route is currently constrained by the configuration of the Brook Street / Britwell Road / Cuxham Road priority junction. Swept path analysis illustrating a large vehicle manoeuvring to and from Britwell Road from Cuxham Road is shown in Figure 3.20. This shows the vehicle could require the entire width of the carriageway and overswing the kerbs. It should also be noted that M40 Junction 7 has no slip roads for access to and from the west but this traffic could use Junction 8A and the A40 to access the A329 and Cuxham Road.

3.21 To the east of Couching Street, Brook Street becomes B480 Howe Road. There are two bends in the road and large vehicles have to take up the width of the road to manoeuvre. This is illustrated in the swept paths shown in Figure 3.21. This suggests that when a large vehicle passes, other vehicles have to stop and give-way as it manoeuvres around the bends, and two large vehicles would not be able pass at the same time.

Other routes

3.22 Other routes in Watlington include Hill Road, High Street and Pyrton Lane. The existing conditions of these routes as observed during the TPP site visit are summarised below.

Hill Road

3.23 Hill Road provides access to the car park and the Co-op service area as well as for residential houses. Footways are provided which are generally narrow and there is no on-street parking along the one-way section of the road.

High Street

3.24 High Street to the west of Shirburn Street and Couching Street provides a range of local shops and amenities. There are footways and on-street parking are

provided along High Street. A bus stop is located outside the library and the High Street is also the route for pupils and school buses to travel to the schools on Love Lane. A number of vans were observed unloading on the High Street during the morning peak. NPCC have provided comments from a driver who makes frequent deliveries to Watlington's post office and delicatessen. It was noted that there are daily deliveries which are generally undertaken using a long van or a 7.5 tonne vehicle. There are currently no loading bays on the High Street and vehicles can be parked over a long period of time. Delivery vehicles sometimes park partly on the footway to allow for buses to pass. The on-street parking along High Street can benefit from some improvements which can help the current arrangement and minimise the impact on the highway and pedestrian amenity.

Pyrton Lane

3.25 Pyrton Lane can be accessed from Shirburn Road, approximately 800m north of the junction with Hill Road / Couching Street / High Street. It provides access to the village of Pyrton and also provides an alternative route to the B480 Cuxham Road. It is generally a country lane with the national speed limit until it approaches the priority junction with the B480 where there is a 30mph speed limit.

3.26 Manual counts on Pyrton Lane showed that 150 cars use this route to travel from the B480 to the B4009 in the morning peak compared to 75 cars in the same direction in the evening peak. This is likely to be due to vehicles avoiding the long queues at the Couching Street / Brook Street junction which is worse in the morning peak. This is less evident for vehicles travelling in the other direction, from the B4009 to the B480, on Pyrton Lane which had approximately 50 cars in both peak hours. This could be because these vehicles are given priority through the town and queueing was not observed to be as severe on the Couching Street arm at the Couching Street / Brook Street junction.

3.27 Although Pyrton Lane is used for cars as an alternative route to Couching Street to travel between the B4009 and B480, there are two bends on Pyrton Lane towards the B480 which means this route is generally unsuitable for large vehicles. Figure 3.22 shows the swept path analysis of a large vehicle manoeuvring around the chicanes on Pyrton Lane and at the Pyrton Lane / Pyrton Lane priority junction. The vehicle would require the entire width of the carriageway to manoeuvre.

4. TRAFFIC SURVEYS

4.1 This chapter summarises the traffic surveys which were undertaken in September 2014 to provide an indication of the existing traffic flows and patterns through Watlington. These were in the form of Automatic Number Plate Recognition (ANPR) surveys, manual counts and Automatic Traffic Counters (ATCs). Figure 4.1 shows the locations of the traffic surveys.

Automatic Number Plate Recognition (ANPR) survey

4.2 ANPR surveys were undertaken to establish traffic patterns and routes through Watlington. The surveys provided origin-destination matrices and provided an indication of the level of through-traffic in Watlington by cars and HGVs on a typical weekday. The ANPR survey was undertaken on Thursday 18th September for the morning (07.00-10.00) and evening (16.00-19.00) peak periods.

4.3 A cordon was identified around Watlington as shown in Figure 4.2. ANPR cameras were set up at the following four locations on the main routes:

- B4009 Shirburn Road
- B480 Howe Road
- B4009 Britwell Road
- B480 Cuxham Road

4.4 The ANPR surveys produce "matched" counts which show how many vehicles travelled between the four locations, i.e. through-traffic. These surveys are complemented by manual counts to show how many vehicles have not been matched.

4.5 Vehicles which have not been matched are those that either have an origin or destination within the town itself as opposed to through traffic and the trips via Hill Road and Pyrton Lane will also be excluded. Hill Road and Pyrton Lane have very low flows and did not warrant ANPR cameras. There is also a small degree of error for vehicle number plates which cannot be read. Manual counts were undertaken on Hill Road and Pyrton Lane by WATNEXT volunteers and the total cordon traffic taken from the manual counts is shown in Figure 4.2.

4.6 The AM peak hour for the ANPR counts was identified to be 0800 to 0900 when the total traffic was slightly higher than the hour before (0700 to 0800), which was identified as the peak hour from the manual counts for the Couching Street / Brook Street priority junction and used for the PICADY analysis. The PM peak hour was identified to be from 1700 to 1800. Tables 4.1 to 4.4 summarise the peak hour results for total vehicle movements and HGV movements. The ANPR matched origin-destination movements are also illustrated in Figures 4.3 to 4.6.

Table 4.1 – Total vehicle movements in the AM peak (0800-0900)

Total vehicles (AM)	To						
From	B4009 Shirburn Road	B480 Howe Road	B4009 Britwell Road	B480 Cuxham Road	Total	Manual Count	Difference
B4009 Shirburn Road	22	127	151	30	330	482	+152
B480 Howe Road	76	0	15	28	119	133	+14
B4009 Britwell Road	160	24	2	42	228	266	+38
B480 Cuxham Road	46	24	46	3	119	134	+15
Total	304	175	214	103	1,592	1,015	+219
Manual Count	318	192	241	124	875	1,890	-
Difference	+14	+17	+27	+21	+79	-	298

Table 4.2 - ANPR HGV movements in AM peak (0800-0900)

HGVs (AM)	To						
From	B4009 Shirburn Road	B480 Howe Road	B4009 Britwell Road	B480 Cuxham Road	Total	Manual Count	Difference
B4009 Shirburn Road	0	17	12	3	32	33	+1
B480 Howe Road	3	0	2	1	6	6	0
B4009 Britwell Road	13	1	0	2	16	17	+1
B480 Cuxham Road	6	2	1	0	9	9	0
Total	22	20	15	6	126	65	+2
Manual Count	25	21	16	6	68	133	-
Difference	+3	+1	+1	0	+5	-	7

Table 4.3 – Total vehicle movements in the PM peak (1700-1800)

Total vehicles (PM)	To						
From	B4009 Shirburn Road	B480 Howe Road	B4009 Britwell Road	B480 Cuxham Road	Total	Manual Count	Difference
B4009 Shirburn Road	11	122	156	19	308	461	+153
B480 Howe Road	64	0	34	44	142	173	+31
B4009 Britwell Road	200	22	3	34	259	290	+31
B480 Cuxham Road	96	13	25	4	138	170	+32
Total	371	157	218	101	1,694	1,094	+247
Manual Count	413	167	251	136	967	2,061	-
Difference	+42	+10	+33	+35	+120	-	367

Table 4.4 - ANPR HGV movements in PM peak (1700-1800)

HGVs (PM)	To						
From	B4009 Shirburn Road	B480 Howe Road	B4009 Britwell Road	B480 Cuxham Road	Total	Manual Count	Difference
B4009 Shirburn Road	0	1	5	0	6	8	+2
B480 Howe Road	6	0	4	0	10	10	0
B4009 Britwell Road	5	1	0	0	6	6	0
B480 Cuxham Road	2	0	0	0	2	2	0
Total	13	2	9	0	48	26	+2
Manual Count	15	2	10	0	27	53	-
Difference	+2	0	+1	0	+3	-	5

4.7 The above tables confirm that Shirburn Road accounts for the majority of the traffic, in the region of 40% to 50%. The above tables also show that in the AM peak hour, there were a total of 796 “matched” vehicles, i.e. total movement of 1,592. This is out of 1,890 manually counted movements which indicate that approximately 85% of traffic in Watlington is through-traffic. In the PM peak, a

slightly lower 82% of traffic was “matched”. This indicates a significant majority of traffic are through-movements and not serving the town.

4.8 The AM peak has noticeably higher HGV movements than the PM peak. It should also be noted that buses are also counted as HGVs in the ANPR classification but should not significantly skew the results. There were 63 "matched" HGVs, i.e. 126 movements, which travelled through Watlington in the AM peak. This is compared to 24 “matched” HGVs in the PM peak.

4.9 Shirburn Road had the highest HGV movements and most vehicles from Shirburn Road were travelling to Howe Road and Britwell Road. Very few HGVs were coming from or going to Cuxham Road, which could partly be explained by the fact that there is an alternative route to the M40 to the west of Cuxham Road which does not require passing through Watlington.

4.10 The manual counts show that there were two and five more HGVs arriving and leaving Watlington respectively in the AM peak which were not matched. A similar number of HGVs were not matched in the PM peak. These could be the Co-op delivery lorry, the petrol station tanker, HGVs serving the Watlington Industrial Estate located within the cordon, and also potentially school buses. These movements are serving and accessing the town and should be considered to be acceptable.

4.11 The ANPR manual counts show that around 7% of all vehicles on Shirburn Road in the AM peak are HGVs. This is noticeably higher than the 4% stated in the OCC Draft Air Quality Report. However, in the PM peak the proportion of HGVs was lower at 2%.

4.12 The ANPR survey also produced journey time data between the cordon points. The average journey times for the AM peak hour have been compared to those in the hour after to provide an indication of delay. The same assessment has been undertaken for the PM peak. The usual journey times between the four cordon points vary between two to four minutes. During peak times, there were delays of approximately one to two minutes. The journey from Cuxham Road to Shirburn Road for instance, took on average 3 minutes 29 seconds in the off-peak. In the morning peak, this was observed to take 6 minutes 4 seconds. This is a delay of 2 minutes 35 seconds which is consistent with the site observations of the queueing

at the Couching Street / Brook Street junction and vehicles waiting to turn left into Couching Street. The ANPR results are contained in Appendix B.

Manual counts

4.13 The traffic cordon around Watlington also crossed quieter roads which have not been included in the ANPR survey. Traffic flows were captured by manual counts were undertaken by WATNEXT volunteers. All manual counts took place on Thursday 18th September for the AM peak period (0700-1000) and PM peak period (1600-1900). The results from the manual counts are included in Appendix B.

4.14 Manual link counts took place at the following two locations and are summarised in Figure 4.2:

- Hill Road
- Pyrton Lane

4.15 The manual counts confirmed that Hill Road had relatively low traffic flows, i.e. approximately 100 vehicles per hour in total during both the AM and PM peak hours. There were some buses observed during the peak times and around one smaller goods vehicle (OGV1) was observed in the AM peak.

4.16 The manual counts at Pyrton Lane included link flows and also turning movements on Pyrton Lane for vehicles travelling between the B4009 and B480. This showed that the link flows towards Pyrton were very low, i.e. approximately 50 movements in total per hour during peak times. As mentioned in paragraph 3.26, there were around 150 vehicles using Pyrton Lane as an alternative route to the B4009 from the B480 in the AM peak and 75 vehicles in the PM peak. There were around 50 vehicles in both peak hours travelling in the opposite direction, i.e. to the B480 from the B4009.

4.17 Manual turning movement counts were also undertaken at the B4009 Couching Street / B480 Brook Street priority junction. These were used for the PICADY assessment which is summarised in paragraph 3.17.

Automatic Traffic Counters (ATC)

4.18 ATCs were installed to check that traffic flows on the ANPR survey day were not atypical. They were laid on the roads near the ANPR cameras from Wednesday 17th to Thursday 25th September (9 days).

4.19 There was a police weight restriction check on Wednesday 17th September in Watlington but the ATC counts confirmed this did not have a significant impact on the traffic flows on the main survey day on Thursday 18th September.

4.20 A comparison of the ATC results for the average weekday and the main survey day is shown in Table 4.5.

Table 4.5 – Comparison of ATC results

Link	AM Peak (0800-0900)		PM Peak (1700-1800)	
	Average weekday	Survey day	Average weekday	Survey day
B4009 Shirburn Road	993	983	986	981
B480 Howe Road	328	319	319	339
B4009 Britwell Road	524	507	561	543
B480 Cuxham Road	266	261	283	314

4.21 The above table shows that the traffic flows on the main survey day are comparable to the total average weekday peak hour traffic flows.

4.22 The total average weekday traffic flows are summarised in Table 4.6 for the AM peak, PM peak, 12-hour and 24-hour periods. The table shows that the average AM peak hour is 0700-0800 on Shirburn Road and Britwell Road, and 0800-0900 on Howe Road and Cuxham Road.

Table 4.6 - Average total weekday traffic flows

Link	AM Peak (0700-0800)	AM Peak (0800-0900)	PM Peak (1700-1800)	12-hour (0700-1900)	24-hour
B4009 Shirburn Road	1017	993	986	8,583	10,454
B480 Howe Road	302	328	319	2,978	3,495
B4009 Britwell Road	568	524	561	4,763	5,788
B480 Cuxham Road	247	266	283	2,455	2,937

4.23 The Saturday and Sunday flows were much lower than the weekday traffic flows. The 12-hour and 24-hour traffic flows for the weekend are summarised in Table 4.7.

Table 4.7 - Average total weekend traffic flows

Link	Saturday		Sunday	
	12-hour (0700-1900)	24-hour	12-hour (0700-1900)	24-hour
B4009 Shirburn Road	6,102	7,460	6,033	7,435
B480 Howe Road	2,405	2,845	2,365	2,844
B4009 Britwell Road	3,290	3,982	3,435	4,217
B480 Cuxham Road	1,614	2,001	1,415	1,698

4.24 The total number of vehicles counted using ATCs was broadly consistent with the manual counts from the other surveys on the main survey day which helped to validate the ATC results for the week. ATCs also provide vehicle classification data based on axle spans which can be useful in understanding the level of HGVs throughout the average weekday.

4.25 HGVs are counted in the ATC's vehicle classification as those with two or more axles and the axle span for a two-axle HGV is defined to be more than 3.2m. It was noted that long wheel base transit vans can also have axle spans of more than 3.2m and the ATC surveys appear to have overestimated the number of two-axle HGVs (ARX vehicle classification 4) in Watlington. The ATCs also provide counts of larger HGVs with more than two-axles (ARX vehicle classifications 5 to 10) which are likely to be over 7.5 tonnes and cause the most disruption through the town. The following table provides a summary of the number of HGVs with more than two axles during the average weekday.

Table 4.8 – Average weekday ATC counts of large HGVs (ARX Class 5 to 10)

Link	AM Peak (0700-0800)	AM Peak (0800-0900)	PM Peak (1700-1800)	12-hour (0700-1900)	24-hour
B4009 Shirburn Road	7	10	0	53	58
B480 Howe Road	2	1	0	10	11
B4009 Britwell Road	3	5	0	39	46
B480 Cuxham Road	3	3	0	13	15

4.26 The above table shows that Shirburn Road and Britwell Road in particular have the highest number of large HGVs. There were no large HGVs recorded in the PM peak.

5. FUTURE BACKGROUND TRAFFIC GROWTH

5.1 The study brief for this report includes an assessment of the anticipated rise in traffic volumes in the region without any additional development in Watlington itself, and the impact this would have on Watlington.

Background traffic growth

5.2 The neighbourhood plan period for Watlington is up to 2031. There will be some additional traffic in Watlington as a result of the 79 homes which are currently proposed to be allocated to Watlington. Individual proposed developments will be required to assess and mitigate their transport impacts on the existing highway network.

5.3 The TEMPRO (Trip End Model Presentation Program) database has been examined for traffic growth factors in the local area, without any development for the period between 2014 and 2031.

5.4 TEMPRO growth factors are in accordance to trips specific locations. Watlington is not specifically identified but would be considered to be within the 'Rural (South Oxfordshire)' category. The growth factors are summarised in the following table.

Table 5.1 – Summary of growth factors

Time period	Growth factor
Weekday AM peak (0700 - 0959)	1.059
Weekday PM peak (1600 - 1859)	1.069
Average weekday	1.076
Saturday	1.078
Sunday	1.079

5.5 The above table shows that there would be around 6% to 8% increase in background traffic up to 2031. The inter-peak and weekends are expected to experience more growth than during the weekday peak times. The growth factors have been applied to the Couching Street / Brook Street junction and the results are summarised in Table 5.2.

Table 5.2 – 2031 traffic flows

Link	AM peak		PM peak	
	2014	2031	2014	2031
Couching Street	816	864	819	876
Brook Street (East)	334	354	415	444
Brook Street (West)	624	660	650	695

5.6 The PICADY analysis for the Couching Street / Brook Street priority junction has been updated for the AM and PM peak hours using the growth factors. The results are summarised in Table 5.3.

Table 5.3 - Couching Street / Brook Street PICADY results with growth

Time period	2014 traffic		2031 traffic	
	Max RFC	Max Queue (vehs)	Max RFC	Max Queue (vehs)
AM peak	64%	1.65	70%	2.12
PM peak	50%	1.08	55%	1.28

5.7 The above table shows that taking into account background traffic growth up to 2031, the Couching Street / Brook Street junction would continue to operate within capacity with RFCs of under 85% and queueing of up to 2 vehicles. However, as discussed in Chapter 3, the existing congestion at the junction has been identified as being caused by the on-street parking on the western side of Couching Street which restricts northbound traffic flows and hence blocks the junction.

Impact of background traffic growth on Watlington

5.8 If it is assumed that there are no improvements undertaken to deter through-traffic or to improve the highway arrangements in Watlington, the impact of an additional 50 to 60 vehicles in the town could cause further delays and congestion. There is a potential that “gridlock” in the town during the busiest times could occur more frequently, especially with the existing arrangement of vehicles using space between parked cars to give-way to oncoming traffic from the M40 on Couching Street. More cars are also likely to use Pyrton Lane is avoid congestion at the Couching Street / Brook Street junction.

5.9 Although worsened traffic conditions could act as deterrence for through-traffic, the lack of alternative routes for large vehicles means the level of HGVs is unlikely to fall.

5.10 The increase in traffic is also expected to have an adverse impact on the pedestrian environment and air quality in Watlington. Footways are generally narrow and large vehicles sometimes have to mount the footway to manoeuvre. These incidents could occur more frequently with background traffic growth.

6. LOCATION OF FUTURE DEVELOPMENTS

6.1 This chapter examines the possible locations for future developments in Watlington (without any additional road infrastructure) to minimise additional traffic flows within the town. This chapter also assesses the potential for allocating e future development sites which could potentially deliver a "relief road" for the town. Figure 6.1 shows the plots of land identified for potential development from the SODC Strategic Housing Land Availability Assessment (SHLAA).

Future developments (without any additional road infrastructure)

6.2 Any future residential development at Watlington should be located within walking distance of the local shops and amenities on the High Street. This would help encourage local walking trips, reducing car use and avoid further pressure on car parking capacity.

6.3 The M40 is expected to be the major attractor for external vehicular trips. Therefore it would be beneficial for residential developments to be located to the north of the town (plots F, G, H), so that vehicles can access the M40 without travelling through Watlington. Pyrton Lane provides an alternative route to Shirburn Road and the M40 and therefore developments to the west and southwest (plots J, K, L, M) could also minimise traffic through Watlington.

6.4 Developments to the east (plots C, D, E) and south (plots A, B) are likely to have the greatest negative traffic impact on Watlington. This is because given the one-way arrangement on Hill Road and Spring Lane, vehicles to the M40 would need to travel through the Couching Street / Brook Street junction and the pinchpoint at Shirburn Street / Hill Road / Couching Street / High Street junction. Alternatively some of the traffic could use Hill Road and travel via Christmas Common. Direct access from plots D and E to Shirburn Road could minimise this impact.

6.5 There is a proposed option to provide an additional car park in plot F, off Shirburn Road to the north of the town. This is a sensible option to reduce visitor traffic entering the town. However, because of the distance from the town (approximately 300m from the High Street), adequate signage and a clear pedestrian route to the town centre will need to be provided to make it an attractive parking location. This is especially as the existing Hill Road car park is only around 70m from the High Street. Cars should be discouraged from travelling

to the Hill Road car park first in an attempt to find a car parking space and then travelling back on Couching Street to the new car park if there are spaces available.

6.6 The potential for a car park could be explored for plot E if direct vehicular and pedestrian access can be provided from Shirburn Street. This could result in a shorter walking distance of approximately 120m from the High Street.

6.7 There is scope for additional parking on plot E or F to be for residents / business use. This could help to remove on-street parking which can cause congestion and also provide more capacity at the Hill Road car park for shoppers and visitors. This could be implemented alongside a parking charge policy, for instance, with a short-term tariff for the Hill Road car park which discourages long-stay parking and for the new car parks to be free for overnight parking.

Future developments which could deliver a "relief road"

6.8 There is the opportunity for future developments to deliver sections of highway to effectively deliver a relief route so that vehicles, especially HGVs, can avoid travelling through Watlington. The ANPR surveys show that the predominant traffic movement is between Shirburn Road and Howe Road / Britwell Road. The following describes potential development plots which could deliver a "relief road".

6.9 There is limited scope for the potential of delivering a "relief road" between Shirburn Road and Howe Road because of the location of the existing residential developments along Hill Road, and the constrained roads in this area. A road could potentially be delivered between Shirburn Road and Hill Road through plots D and E. However, from Hill Road vehicles would need to manoeuvre to Spring Lane and the Spring Lane / Brook Street junction before they can access Howe Road. This does not adequately bypass the town and does not merit further consideration.

6.10 For the traffic between Shirburn Road and Britwell Road, Pyrton Lane is already being used by cars to avoid travelling through Watlington. The road is currently considered as not suitable for large vehicles because of the chicanes on Pyrton Lane as shown in Figure 3.22. However, there is the opportunity to deliver a section of highway between Pyrton Lane and Willow Close which would be suitable for large vehicles by delivering development plot J. There is already an "over designed" roundabout where Willow Close meets Cuxham Road. There is a further

opportunity to provide access to the schools from Pyrton Lane which can be used by school buses and this would help to remove some traffic through Watlington during peak times.

6.11 Future developments could also fund improvements to Pyrton Lane, especially at the priority junction to the north, to mitigate the impact of the increased traffic along this route. Alternatively, if there is strong challenge from Pyrton against additional traffic on Pyrton Lane, there is scope for a road to be delivered between Shirburn Road and Pyrton Lane through plots G and H joining with the road through J. However it should be noted that plots G and H are beyond the Watlington Neighbourhood Plan Area.

6.12 From Cuxham Road, vehicles can access Britwell Road. However, the Cuxham Road / Britwell Road junction is difficult to manoeuvre by large vehicles. Figure 3.20 shows the swept path analysis for the existing junction. Potential improvements to the junction arrangement have been considered but there is insufficient space available for large vehicles to manoeuvre given the angle of the alignment of the roads. An alternative route can be delivered between Cuxham Road and Britwell Road by developing plot M. This could bring benefits to Watlington prior to any other development plots coming forward. This is because HGVs can use the A329 from M40 to Cuxham Road and Britwell Road which avoids travelling through Watlington. At present, they may choose not to because of the Cuxham Road / Britwell Road junction. However, consideration will need to be given to the impact of additional HGVs along this route. In particular, the 7.5 tonne lorry restriction zone begins on Cuxham Road approximately 4km west of Watlington. In effect, a proportion of HGVs will be displaced from Couching Street to Cuxham Road which will mean increased HGV movements through the settlement of Cuxham. This would need to be agreed with SODC and OCC and future developments could also fund improvements on Cuxham Road to minimise the impact.

6.13 The potential of extending the “relief road” through plots A and B to provide an alternative route to Brook Street between Britwell Road and Howe Road has been considered. There are relatively low flows between Britwell Road and Howe Road which is unlikely to warrant the provision of a new road. The highest vehicle movements for Howe Road are between Howe Road and Shirburn Road and the extension of the “relief road” is not considered to be an attractive route compared to using Couching Street and Brook Street.

6.14 It should be noted that HGV movements through residential developments are not ideal and would be subject to careful design to mitigate any impact. Should any of the above options be taken forward, it would be necessary to establish "safeguarded" land to ensure that future developments are fully aware of the limitations on the land.

7. OPTIONS FOR IMPROVING TRAFFIC

7.1 This chapter addresses the options to deter through traffic, whilst still encouraging destination traffic which supports Watlington's shops and businesses as set out in the study Brief.

7.2 The options are broadly in two categories. One is to discourage HGVs travelling through the town which are not serving the town or accessing the industrial developments in Watlington. These measures would complement the 7.5t lorry restriction already in place and would need to be agreed with OCC as part of the wider lorry route strategy for the county.

7.3 The second is to recognise that some level of HGV traffic will require access to and through Watlington, such as to serve the Co-op, the petrol station, Watlington Industrial Estate and Watlington Depot. Therefore measures should be implemented in the town centre to provide a better environment for pedestrians, mitigate the impact of HGV movements, and also to better accommodate large vehicles, whilst not encouraging further through traffic. NPCC has also requested a review of the arrangement on High Street where delivery vehicles can cause congestion.

Discourage HGV through movements

7.4 The following measures have been identified as possible ways to discourage HGV movements through Watlington.

Signage

7.5 Watlington is located within a 7.5t weight restriction zone which only allows lorries for access. However, the ANPR results show that the majority of HGVs are travelling through Watlington and not serving the town. Better signage could be provided on the approach to Watlington. There are currently signs provided on entry to the weight restriction zone, including on Watlington Road by the M40 Junction 6 slip roads. The 7.5t weight restriction is also indicated on the motorway sign located on the M40 slip road from the east but not from the west. At the priority junctions where the slip roads meet Watlington Road, the restriction zone is not indicated on all of the signs. A more consistent signage strategy at the M40 Junction 6 could help deter HGVs travelling through Watlington.

7.6 There are also signs on the approach to Watlington from the west, where signs are located on the A329 near the junction with the B480, and also on the B480 to the west of Cuxham.

7.7 It should be noted that Couching Street is currently signposted to the M40 as well as to Lewknor and Chinnor at the Couching Street / Brook Street junction. These signs are located on both sides of Couching Street and although it is a local access route, the dominance of the signs would suggest that Couching Street is an acceptable main route to the M40. The removal of M40 from these signs, or the complete removal of both signposts, could be considered to avoid being seen as promoting Couching Street as a route to the M40 and a through-route. This would be subject to OCC approval.

7.8 Although the OCC lorry routes map recognises that Watlington is an environmentally sensitive area and should if avoided if possible, OCC's webpage also states that "sometimes there is no alternative to using less suitable roads, particularly for local access." The OCC lorry route map also show the B4009 through Watlington as a non-strategic "local access route" but it is in the same category as the A329 which does not have a 7.5t weight restriction. This can be misleading for HGV drivers who may assume from the map that the B4009 is a suitable through route.

7.9 Additional signage could be provided for lorries to increase awareness of the 7.5 tonne weight restriction. Alternative signage could also be provided subject to agreement with OCC. The following signs could be provided to help deter HGVs from travelling through Watlington:

- 7.5t weight restriction signs on the M40 before the slip roads at Junction 6. This would require approval from the Highways Agency with locations of these signs to be agreed. It should be noted that there is already precedent on the motorway sign on the westbound slip road into Watlington and there is a similar sign on the southbound approach to Junction 10 of the M40, as shown in the image below.

- Consistency in signage for the 7.5t weight restriction zone at the M40 Junction 6.
- Removal of “M40” from the signs at the Couching Street / Brook Street junction.
- Local access only signs could be considered, such as at the M40 junction towards Watlington.
- Black lorry routeing signs could be provided which to suggest routeings to specific estates, an example is shown in the image below.

Physical measures to restrict lorry access

7.10 Width and height restrictions could be considered to be more effective in restricting lorry access than weight restrictions. Physical width restrictions have been considered for Watlington together with the impact on HGV routeing. There is a lack of alternative routes available for HGVs at present and there are requirements for HGV access to serve Watlington. This includes access for the petrol station on Couching Street, Co-op off Hill Road, Watlington Industrial Estate off Cuxham Road, Watlington Depot off Britwell Road, and Lys Mill off Howe Road.

7.11 Any physical measures would restrict access for some of the existing developments in Watlington and restrictions on one route are expected to displace HGV movements onto other routes. Therefore physical measures to restrict lorry access are not considered to be appropriate at Watlington at this time but an opportunity might exist in the future.

Enforcement of 7.5 tonne weight restriction zone

7.12 Police checks have taken place in Watlington to enforce the 7.5 tonne weight restriction zone. These need to be undertaken on a regular basis to encourage HGV drivers to change habits.

Public realm improvements

7.13 The existing highway arrangements in Watlington (shown in Figure 7.1) can be improved to deter through-traffic and also to mitigate the impact of HGV movements through the town.

7.14 There is scope for the existing number of lorries through the town to fall with the delivery of future developments and measures to discourage HGVs travelling through Watlington. However, some level of HGV movement through Watlington will be required for access. A range of measures have been identified to deliver incremental improvements to the existing highway conditions. These can be implemented over time depending on future traffic levels. Some of the traffic issues in the town are caused by historical physical constraints, such as the pinchpoint at Shirburn Street / Couching Street, and others are “man-made”, such as on-street parking and junction arrangements. The following measures target the “man-made” factors.

Short-term measures

7.15 A package of measures have been identified which could improve highway conditions in the short-term, based on the existing traffic levels. These are summarised below and also indicated in Figure 7.2:

- Removal of on-street car parking on the western side of Couching Street. The priority will be for the three parking spaces by the Couching Street / Brook Street junction to be permanently removed. This would significantly improve the operation of the Couching Street / Brook Street junction. It appears that residential car parking might be limited in Watlington and a balance is required between the provision of residential car parking as an amenity and traffic and air quality in Watlington. There is the potential to have parking restrictions in place which prevents vehicles parked during peak times but allow for overnight and weekend residential parking. However, this would need to be enforced.

- Rearrangement of the "give-way to oncoming traffic" section at the pinchpoint by the Shirburn Street / Hill Road / Couching Street / High Street junction. This would change priority and allow traffic in Watlington to have priority to leave the town over those entering from the M40.

- Road markings to complement the above to improve the alignment and visibility for northbound traffic. The highway is particularly wide by the Town Hall immediately south of the pinchpoint. It appears that this is used by large vehicles to turn into Hill Road and a different surfacing material could be used to differentiate the runover area.

- Renewal of footways and kerb materials by the pinchpoint. In particular, the existing dropped kerbs on the corners can be easily driven over by large vehicles which intrude on the pedestrian space. There is the potential for the corners to have higher kerbs to discourage this behaviour.

- Realignment of the kerb to ease left-turning manoeuvres from Couching Street to Brook Street.

- For the parking arrangements on High Street, there is scope to convert one or two of the on-street parking bays into loading bays. There is also potential to implement loading restrictions, such as no loading between 8am and 9am to

improve manoeuvring of school buses. Any restrictions would need to be enforced.

Medium-term measures

7.16 Further to the short-term measures, additional incremental measures can be implemented to improve the highway conditions in the medium-term. These are indicated in Figure 7.3:

- Reconfiguration of the Shirburn Street / Hill Road / Couching Street / High Street junction. This could potentially involve installing traffic signals to formalise the arrangement at the pinchpoint and providing a buildout on Shirburn Street as indicated in Figure 7.3. Sensors for the traffic signals will need to be installed to avoid long queues through the town. The indicative design is based on OS mapping and topographical surveys are likely to be required if this option is taken forward.

- The potential for implementing a 20mph zone through Watlington could be explored. Traffic already travels slowly along Couching Street during peak times, but with the removal of on-street parking on Couching Street, a 20mph speed limit could help encourage drivers to drive more carefully.

- There is scope to provide a loading bay as shown in Figure 7.3. If an additional car park can be provided in the future, the on-street parking along High Street could be converted to be for residents / business permit and loading only. This would help to reduce traffic flows and congestion at this location.

Long-term measures

7.17 TPP considers the long-term aspiration for Watlington is to “reclaim” the town from the traffic which has become a dominant feature. With the potential of delivering a “relief road” via future developments, there is a real opportunity to reduce traffic flows along Shirburn Street and Couching Street and improve the highway arrangements in Watlington.

7.18 Watlington is an attractive historic town and this is recognised in the SODC Character Study of the Watlington Conservation Area (May 2009). The Character

Study described Watlington as a "very attractive settlement with a compact, urban-like centre" and it is "picturesque and tidy".

7.19 The SODC Character Study also recognises that "efforts should continue to be made to resolve the long standing problem of the heavy traffic flow through the town, which is a particular problem in the narrow streets, especially at the junction of High Street, Couching Street and Shirburn Street".

7.20 In the Draft Air Quality Action Plan, SODC identified one of the actions for Watlington was to introduce measures based on the Dorset Villages model, such as lowering speed limits, changing road markings and using different road surfaces. SODC supports this by recognising that:

> "The Dorset model has been successfully applied in a number of locations. It calms traffic by introducing a village like feel to an area, defining areas with features such as cobbles and coloured tarmac rather than road signs and lines. These features cause drivers to behave with more caution. There is evidence that by removing the white lines from the centre of the road reduces speeding by giving a narrowing feel to the road".

7.21 The response from the Watlington Parish Council to this point was:

> "The Dorset Villages model is attractive in terms of the improved appearance it offers, but does not offer much for reducing the impact of large vehicles negotiating pinch points. We have concerns that the narrowness of the roads will mean that blurring the distinction between pavements and roads will encourage more use of the pavement areas by vehicles rather than providing more protection for pedestrians".

7.22 TPP have reviewed the "Traffic in Villages, Safety and Civility for Rural Roads" report prepared by the Dorset AONB Partnership in conjunction with Hamilton-Baillie Associates (2011). This is also the document reviewed by the Watlington Parish Council regarding the Dorset Villages model.

7.23 The Traffic in Villages report presents a toolkit to assess and enhance the character of rural villages. It is based on elements of the "shared space" concept and some of the enhancements could be applied to Watlington. However, any changes to Watlington should be fit for purpose and recognise the constraints which Watlington faces. Watlington has narrow streets and Shirburn Street and

Couching Street are classified 'B' roads. Large vehicles currently travel through the town using this route and causes disruption to traffic and also impact on pedestrian amenity. Some of the large vehicles have to use this route to serve the town, such as the petrol station and Co-op, and there has to be a degree of acceptance for these vehicles.

7.24 In the long term, there is the potential for a reduction of traffic, especially as large vehicles could use the alternative "relief road" provided by future developments. Further improvements to lorry routeing should also be sought from OCC.

7.25 Shared space enhancements could be considered when there is a reduction in HGV through-traffic as the result of the other measures. A shared space public realm scheme will complement the other measures by deterring through movements through the town and encouraging HGVs to use the alternative route. This is important because there is a risk that as some HGVs use the future alternative "relief road", this reduces congestion through Watlington and the space capacity created could be quickly taken up by other large vehicles.

7.26 Table 7.1 reproduces the concept of the traffic world and social world as described by Hans Monderman[3]. Hans Monderman is considered as the founder of the shared space concept. The introduction of shared space, such that vehicles are at the same level as pedestrians, creates an environment in which motorists feel as though they are encroaching into what is primarily a pedestrian zone and therefore drive more carefully and at slower speeds. The shared space concept is widely used in mainland Europe and is growing in the UK. As vehicles move from the traffic world to the social world, i.e. a village or city, drivers are welcomed as guests and can no longer behave as they did in the traffic world.

[3] Mental Speed Bumps, The Smarter Way to Tame Traffic, David Engwicht (2005)

Table 7.1 – Traffic world vs. social world

Traffic world	Social world
Uniform	Diverse
Predictable	Unpredictable
Planned	Spontaneous
Compulsory	Voluntary
Anonymous	Personal
Vehicle oriented	People Oriented
Government oriented	Relationship oriented
Technical oriented	Community oriented
Avoids conflict	Embraces conflict
Speed oriented	Savours the moment

7.27 Traffic signs and road markings are seen by drivers to belong in the traffic world with promises of predictability and certainty. This can lead to increases in speeds and dominance over the public realm. Counter-intuitively, the introduction of shared space actually results in a reduction in personal injury accidents rather than an increase, highlighting that drivers respond in a more cautious manner. It is considered that "create a street environment with high levels of ambiguity and traffic speeds will drop and community life will blossom in this space".

7.28 There are some limitations to how far this concept can be applied to Watlington given its constraints. However, the streets in Watlington could be improved to fit more sympathetically with the town rather than creating an over-regulated, traffic-oriented space.

7.29 Figure 7.4 shows a potential public realm scheme which can further deter through-traffic in the longer term and create a better environment for residents. Further work would be required to develop the proposals if it is taken forward, including input from a landscape architect and conservation professional. The elements of the scheme are summarised below:

- The heart of Watlington could be considered to be along the High Street, between the War Memorial and the Town Hall. This could be demarcated by a different surface material for the indicative extent shown in Figure 7.4. Alternatively, the focus could be on the Town Hall and the extent of the surface material could be reduced along the High Street as indicated in Figure 7.4. There is also scope to extend the surface material to take into consideration the locations of listed buildings along Couching Street.

- The carriageway along this section could be raised to be the same level as the footways. The footways can have a different surface material to the highway to provide some differentiation, or the traditional stone kerb can remain to mark the boundary. For the pinchpoint along Shirburn Street and Couching Street, protection can be provided for pedestrians in the form of a series of wooden posts which are sensitive to the character of surrounding area.

- The materials used for the shared space should be inexpensive, easy to replace and sensitive to the historical character of the town. For example, the carriageway could be buff asphalt or tarmac and the footways could have more traditional paving material.

- The scheme would mean that vehicles passing along Shirburn Street and Couching Street would be made aware they are passing by the heart of the town, and would slow down and drive more carefully.

- Depending on the car parking demand in the future, there is the potential of removing yellow lines along the High Street and the extent shown in Figure 7.4 by implementing a Restricted Parking Zone. This could be implemented to allow for loading / delivery vehicles.

- There is further scope to implement other traffic management measures in the future depending on traffic flows. For instance, there could be a potential to implement a one-way system on Couching Street for vehicles to travel northbound only. This would introduce a one-way system around the town with southbound movement continuing via High Street or Hill Road.

7.30 There are some examples of where shared space has been implemented in restricted locations. These include the "woonerf" in the Netherlands and the implementation of home zones in the UK. A similar approach is also being undertaken for the villages of Porlock (Exmoor), Wellow (Cotswolds), Hursley (near Winchester) and Bamburgh (Northumberland).

8. SUMMARY AND CONCLUSIONS

8.1 Watlington is a historic town located approximately 25km south east of Oxford with a population of approximately 2,500 people. The B4009 passes through the centre of Watlington and provides access to the M40 at Junction 6. The B4009 and B480 in Watlington are narrow and there is congestion through the centre of town during peak times. The level of Heavy Goods Vehicle (HGV) traffic through the town is a particular source of concern, given the sensitive nature of the town, and there is already a 7.5 tonne weight restriction in place. Watlington also has a designated Air Quality Management Area (AQMA).

8.2 A site visit was carried out by TPP on Thursday 18th September 2014 to observe the existing traffic conditions. These observations are summarised in Chapter 3. Traffic surveys were also undertaken in September 2014 to understand the existing traffic patterns. The surveys indicate that the town suffers from a high proportion of through-traffic (approximately 85%) and HGV movements are mainly travelling between the M40 and Britwell Road or Howe Road.

8.3 Background traffic growth has been examined for Watlington up to 2031. The increase is expected to be between 6% and 8% depending on the time and day of the week. Traffic growth in the area is expected to intensify the existing congestion and air quality issues in the town.

8.4 The locations of future developments have been considered, both without any additional road infrastructure and also those which have the potential to deliver effectively a “relief road” to reduce through-movements in the town. In particular, it has been identified that potential short sections of highway could be delivered by future developments to provide a route between Shirburn Road and Britwell Road. This could reduce HGV movements on Couching Street.

8.5 Measures to deter through-traffic have been examined which fall broadly into two categories. One is to discourage HGVs through the town by signage and enforcements of the 7.5 tonne weight restriction zone. These measures would need to be agreed with OCC as the highway authority. Watlington could also benefit from signs on the M40 which would need to be agreed with the Highways Agency. The second category of measures is related to deterring through-traffic in the town and improving the public realm. The public realm improvements are likely to be incremental measures and have been presented for the short-term, medium-term and long-term.

Figures

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Site location plan

Figure 2.1

TPP
transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Glebe Farm
B480
Watlington Mill
B480
Caravan Park
CUXHAM ROAD
WILLOW CLOSE
CL
BEECH
ASH CL
PYRTON LANE
DS CL
ST LEONARDS
School
PW
Hall
Recreation Ground
Recn Gd
Recn Gd
B4009
SHIRBURN
B4009
SHIRBURN ROAD
LOVE LANE
PAULS WAY
Eastfield Farm
N
CHAPEL STREET
NEW RD
CHURCH STREET
Pav
BROOK SIDE
Industrial Estate
HIGH STREET
PO
PW
SHIRBURN STREET
Watlington
Liby
F Sta
GORWELL
B480
B4009
THE GOGGS
CHESTNUT PL
BROOK STREET
B4009 COUCHING STREET
PH
WATCOMBE ROAD
PW
SPRING LANE
SPRINGFIELD CL
CHILTERN
B480
HILL ROAD
Depot
BRITWELL ROAD
Watcombe Manor
STONOR GREEN
HOWE ROAD
White House Farm
Chiltern Farm
White Mark

T:\30000_projects\30704 Watlington Traffic Study\ACAD\018.dwg

Local highway network

Figure 2.2

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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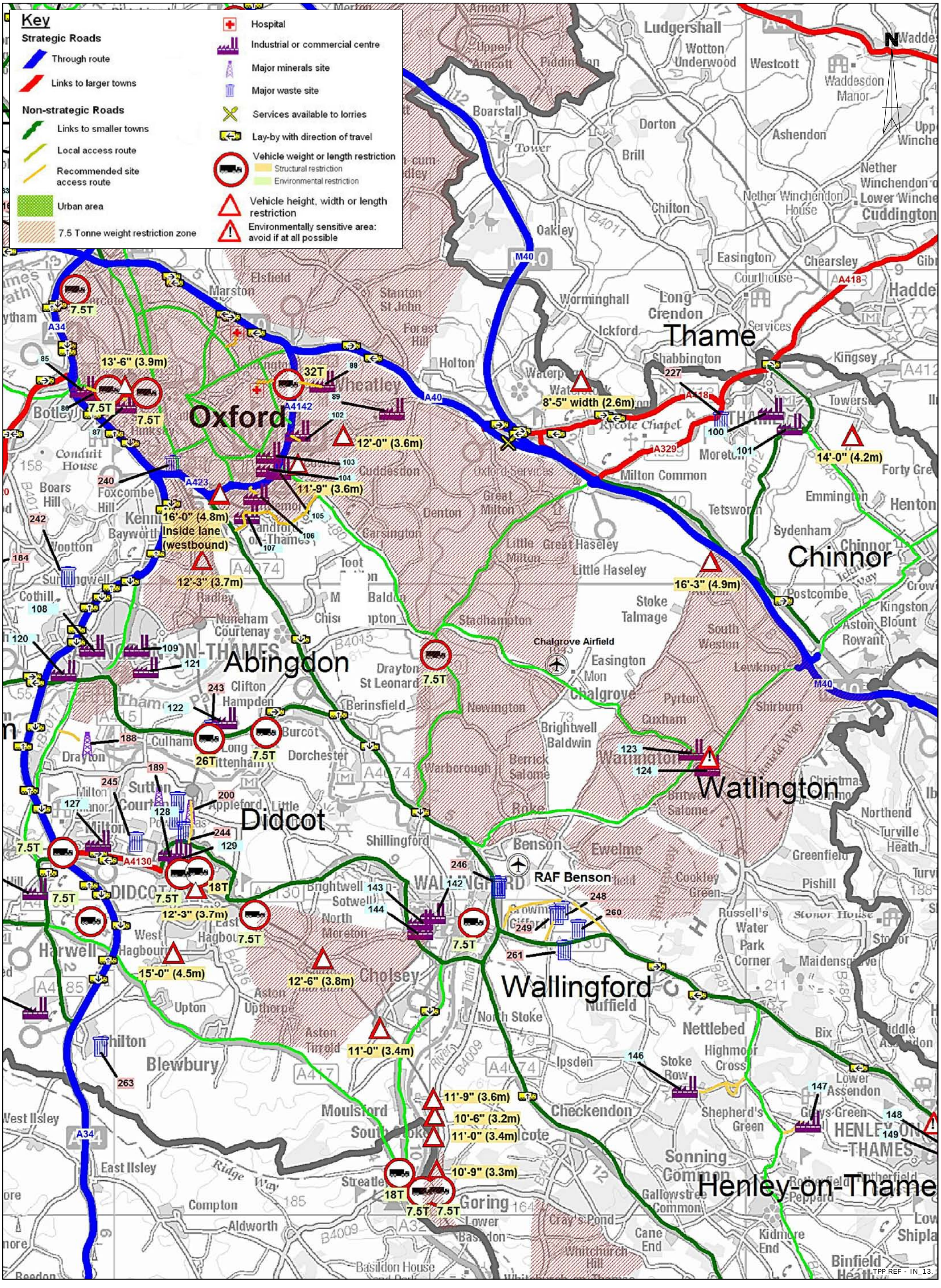

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Oxfordshire County Council Lorry Routes

Figure 2.3

TPP transport planning practice

70 Cowcross Street
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N

N

Watlington

TPP REF - IN_02.

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Watlington AQMA zone

Figure 2.4

TPP transport planning practice
70 Cowcross Street
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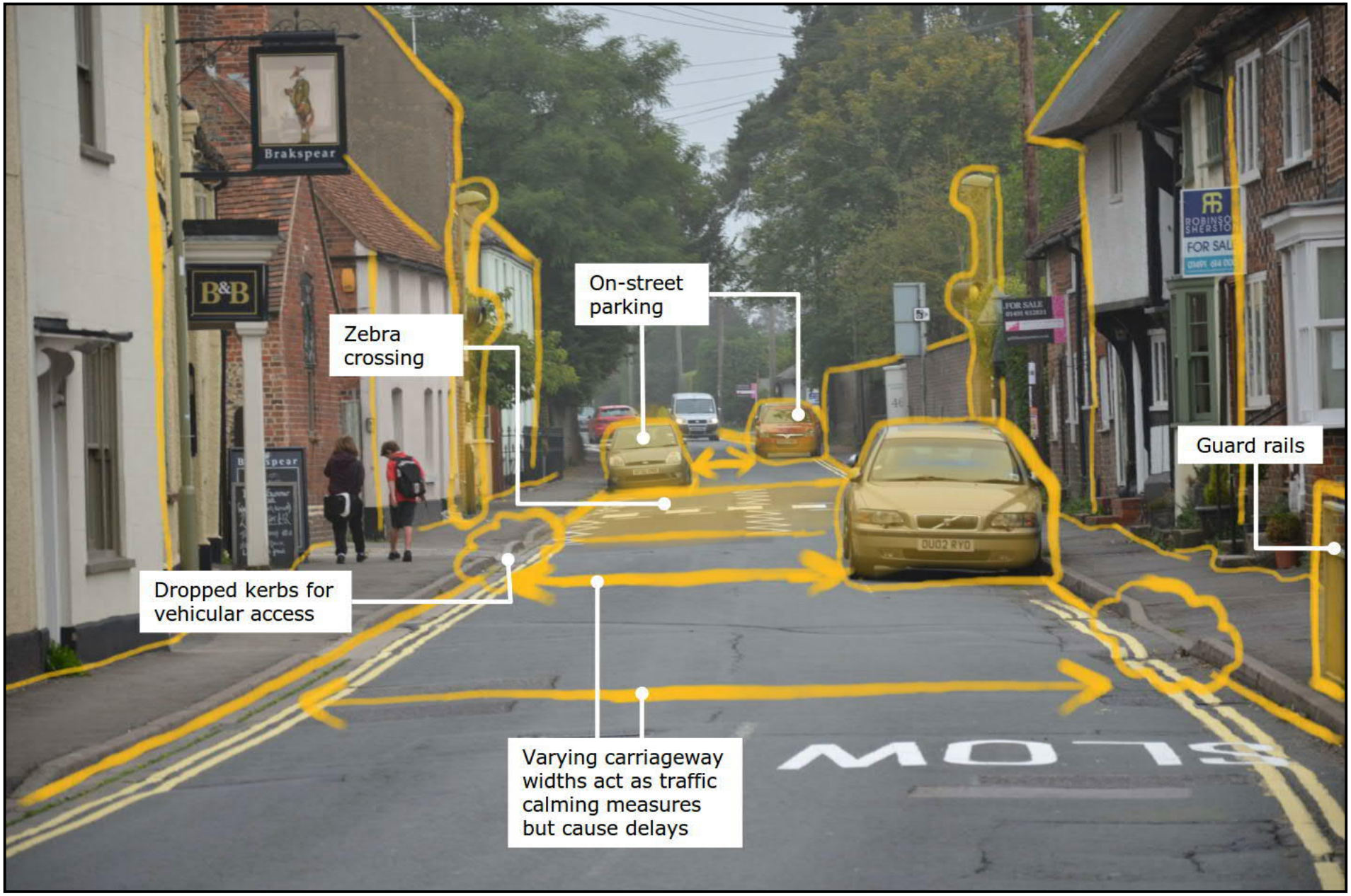

Existing highway arrangement on Shirburn Street

Figure 3.1

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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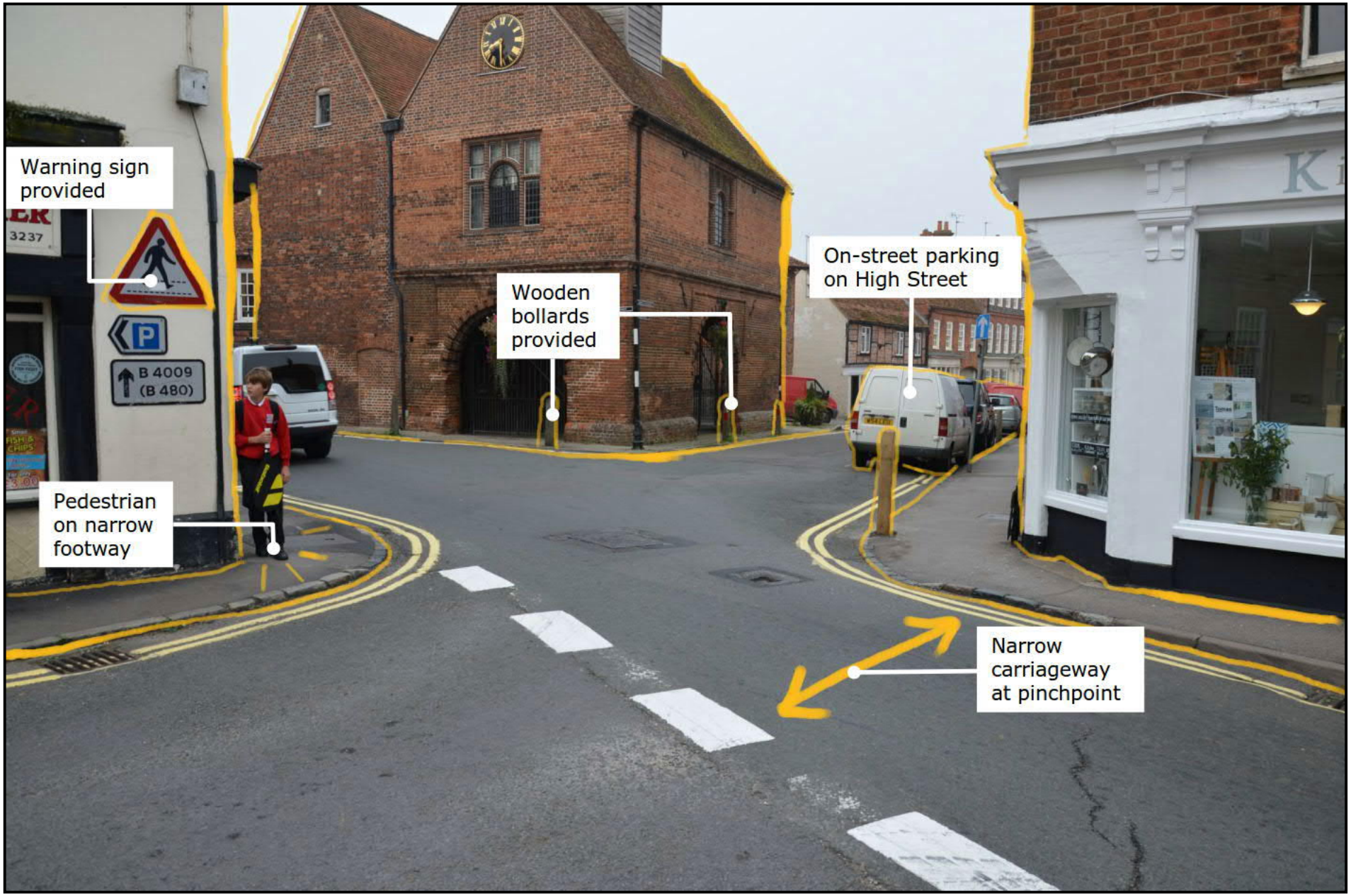
W: www.tppweb.co.uk



Pinchpoint on Shirburn Street / Couching Street

Figure 3.2

TPP transport planning practice
70 Cowcross Street
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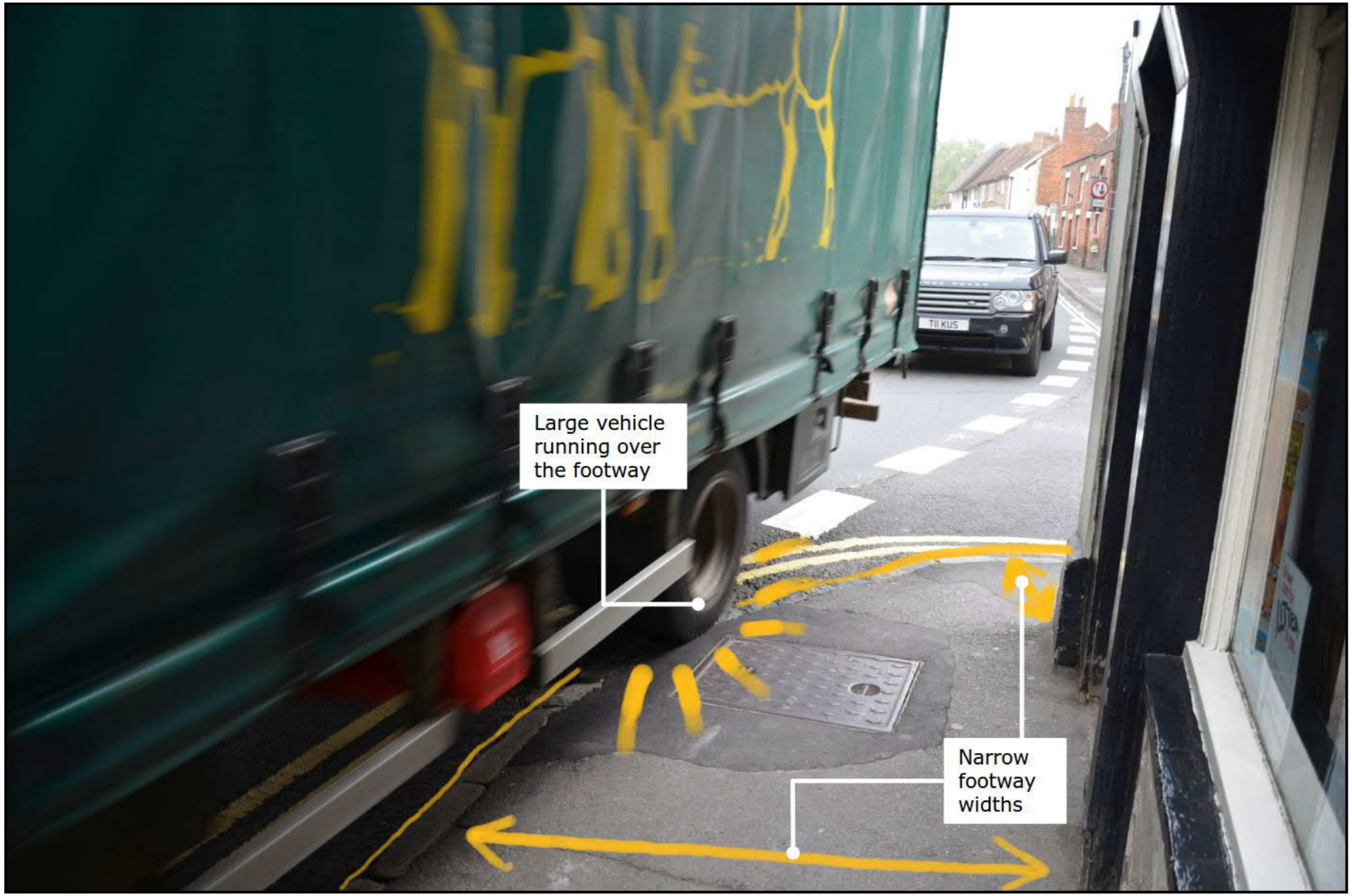

Large vehicle driving over kerb at pinchpoint

Figure 3.3

TPP transport planning practice
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Large vehicle attempting to enter Hill Road from Shirburn Street

Figure 3.4

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Co-op lorry

Figure 3.5

TPP
transport planning practice
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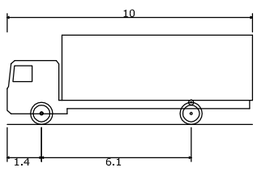
Vehicle used



FTA Design HG Rigid Vehicle (1998)	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	11.000m

SHIRBURN ST

HILL ROAD

FTA Design HG Rigid Vehicle (1998)

N

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Swept path analysis of a 10m rigid vehicle entering Hill Road

Figure 3.6

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Damage after lorry and caravan collision

Figure 3.7

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Petrol station tanker

Figure 3.8

TPP
transport planning practice
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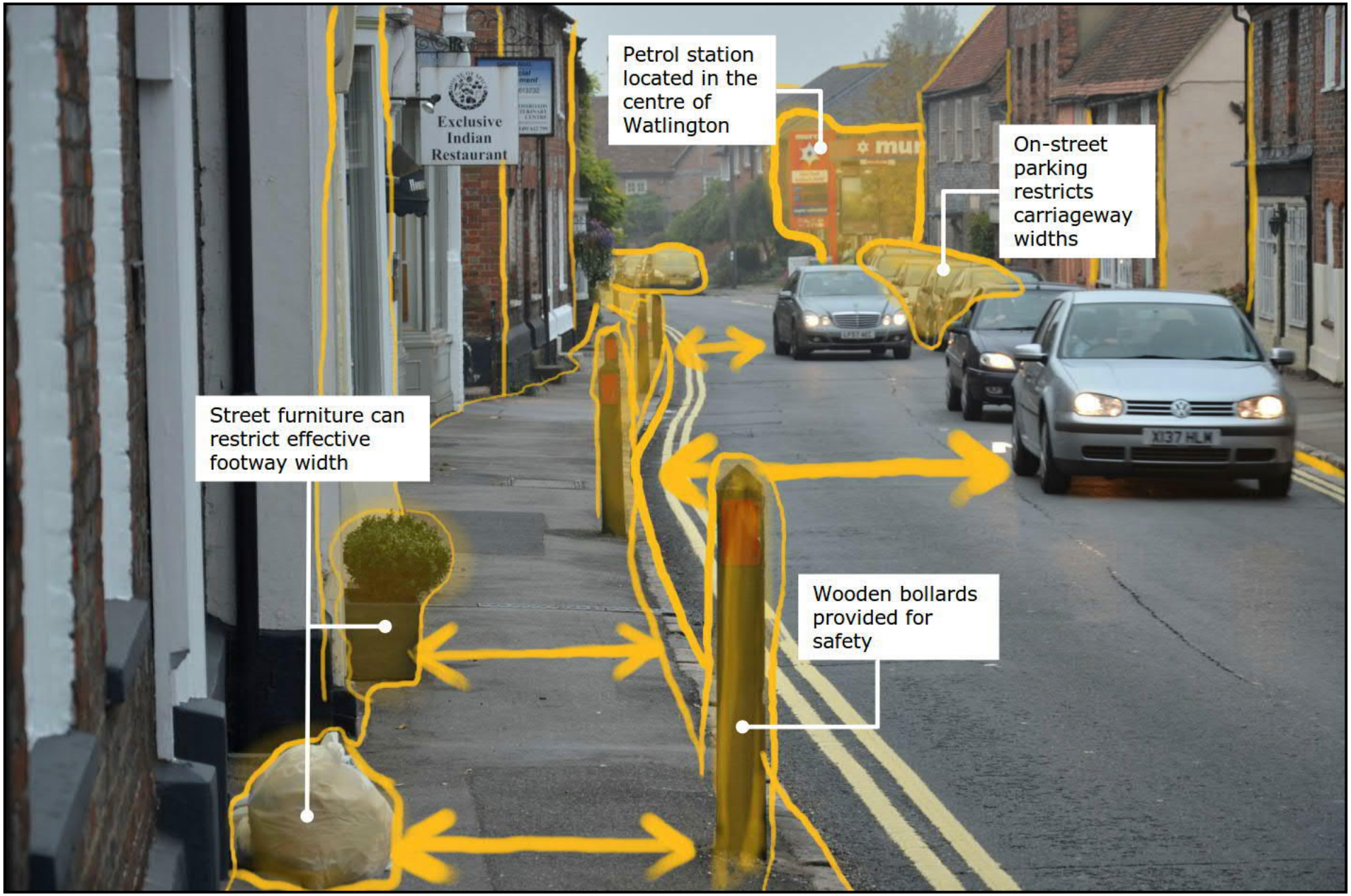

General arrangement on Couching Street

Figure 3.9

TPP transport planning practice
70 Cowcross Street
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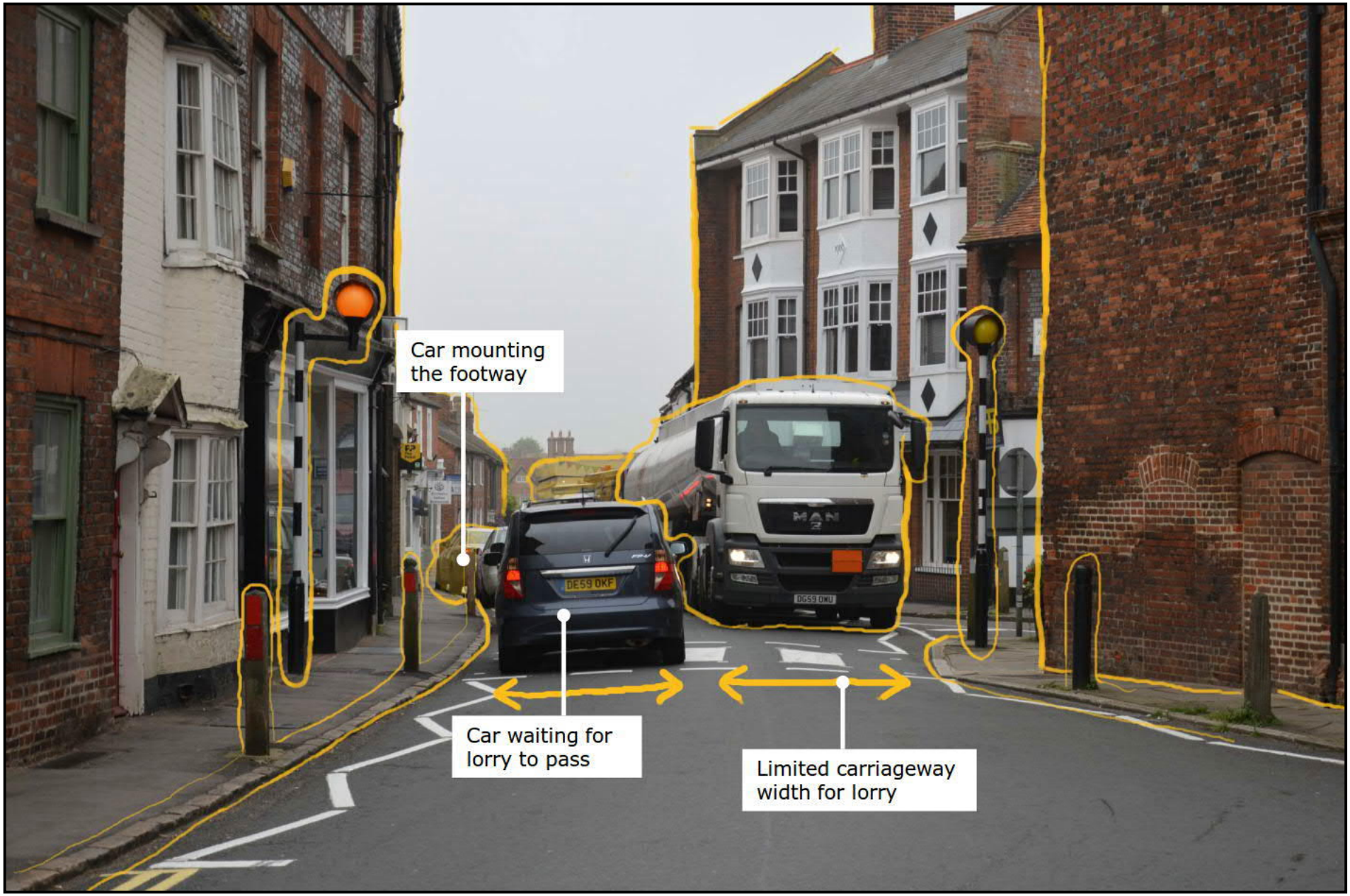

Queueing on Couching Street

Figure 3.10

TPP transport planning practice
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Queueing on Couching Street

Figure 3.11

TPP transport planning practice
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Queueing on Couching Street by the priority junction with Brook Street

Figure 3.12

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Queueing on Brook Street caused by parked vehicles on Couching Street

Figure 3.13

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HGV manoeuvring from Couching Street to Brook Street

Figure 3.14

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HGV mounting the footway on the corner of Couching Street / Brook Street

Figure 3.15

TPP transport planning practice
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London, EC1M 6EL
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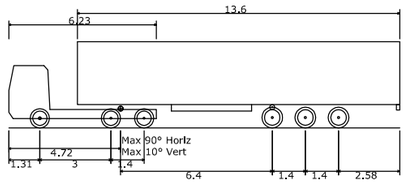
Vehicle used



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

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Swept path analysis of a 16.5m articulated vehicle entering/exiting Couching Street from Brook Street

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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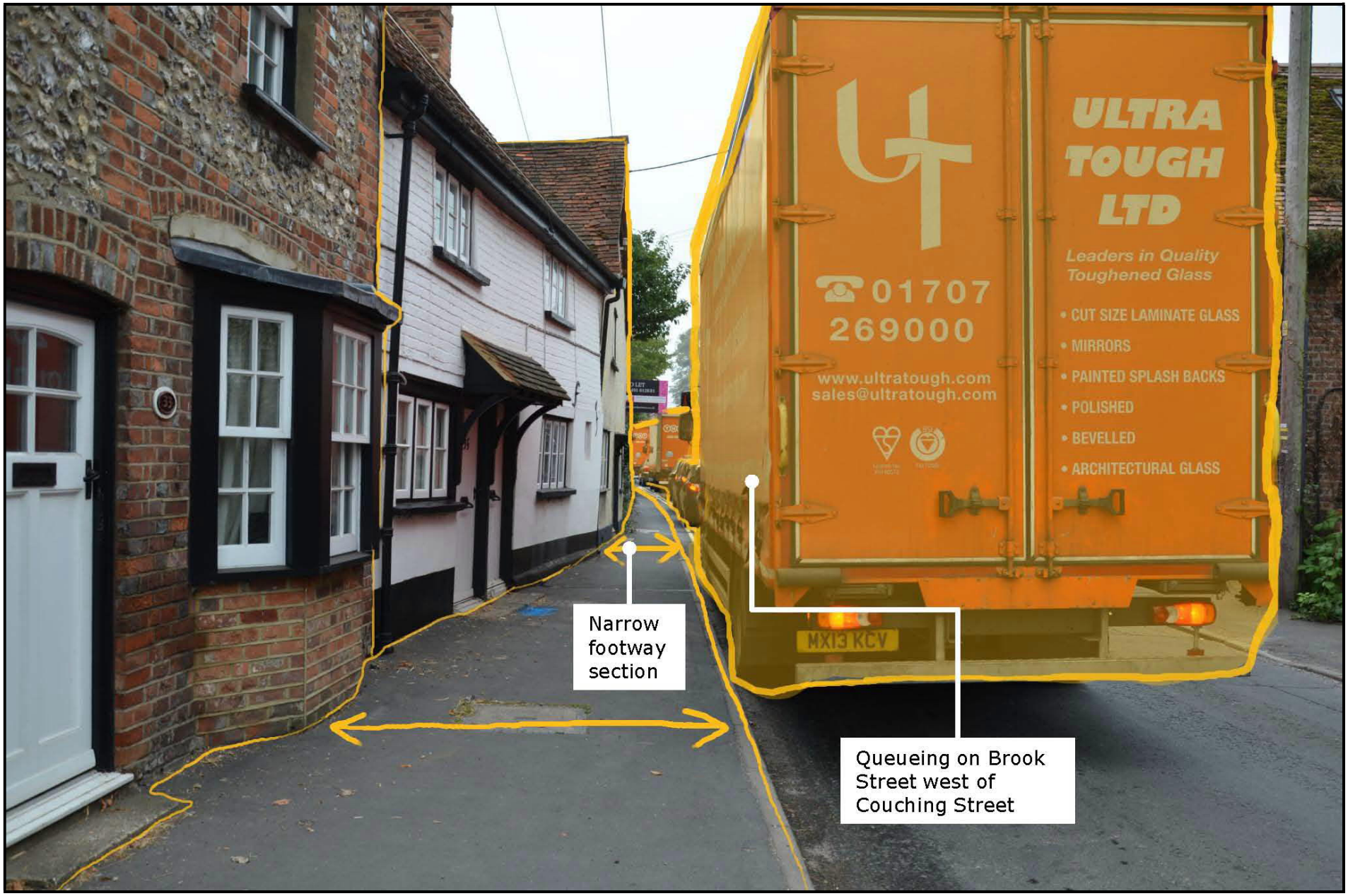
Figure 3.16



Queueing on Brook Street, west of Couching Street

Figure 3.17

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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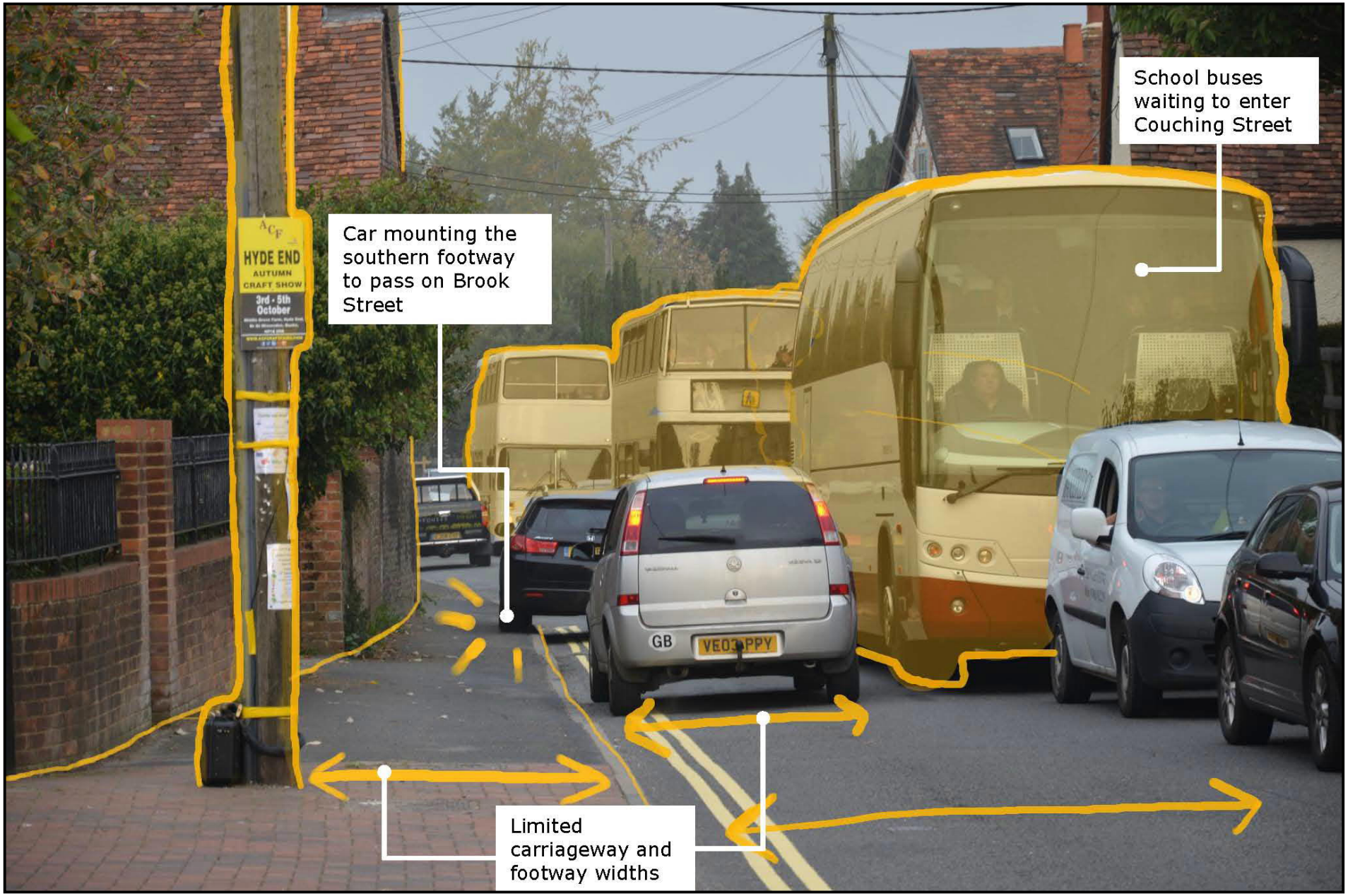
W: www.tppweb.co.uk



Vehicle mounting the footway on Brook Street

Figure 3.18

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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Pedestrians on Brook Street

Figure 3.19

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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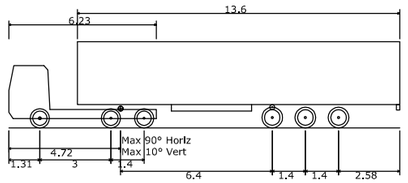
W: www.tppweb.co.uk

Vehicle used



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

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Swept path analysis of a 16.5m articulated vehicle turning into/out of Cuxham Road/Britwell Road

TPP transport planning practice
70 Cowcross Street
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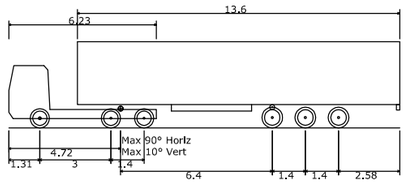
Figure 3.20

Vehicle used



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

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Swept path analysis of a 16.5m articulated vehicle on the bends of Brook Street/Howe Road

TPP transport planning practice
70 Cowcross Street
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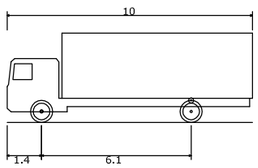
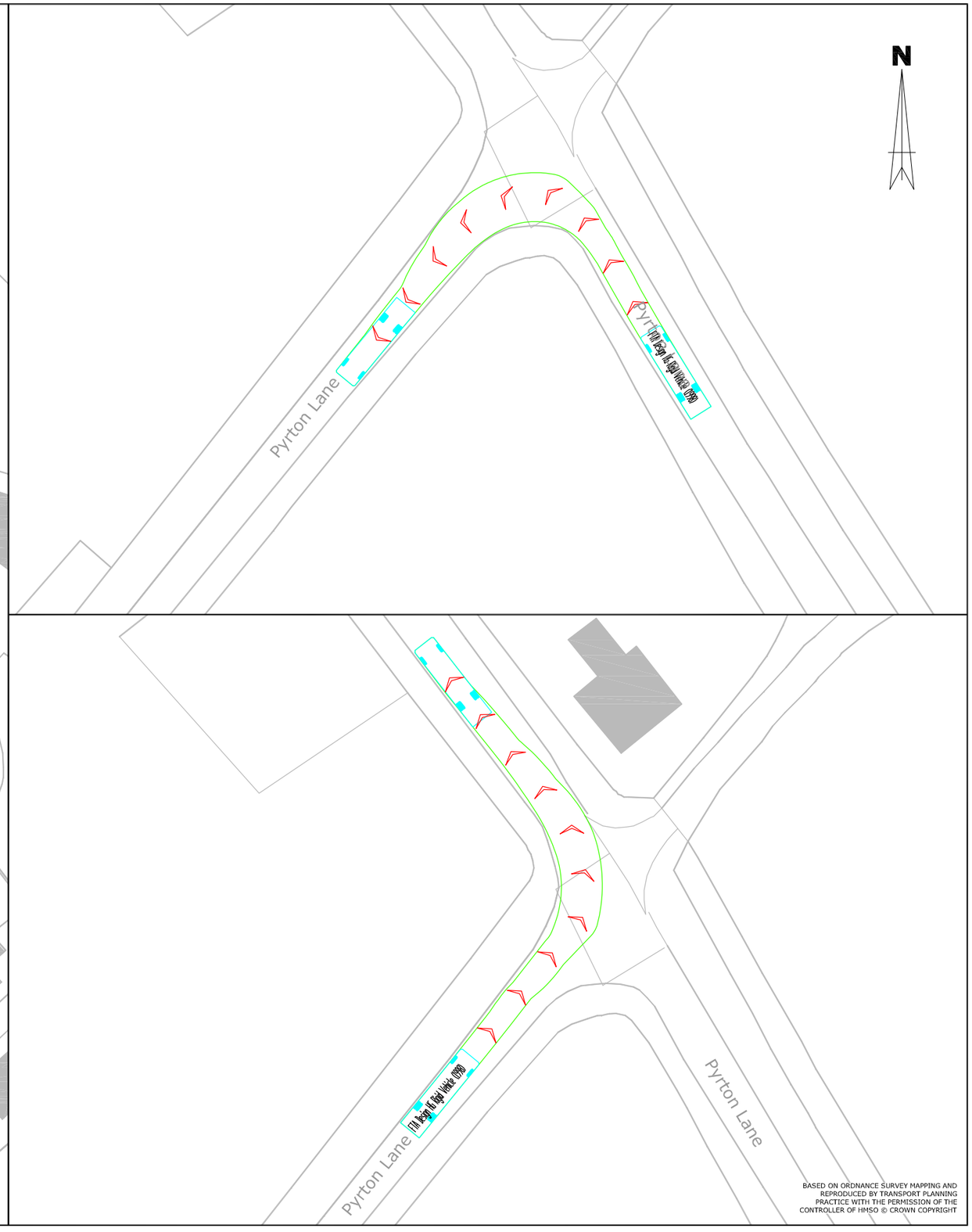
w: www.tppweb.co.uk

Figure 3.21

Vehicle used



FTA Design HG Rigid Vehicle (1998)	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	11.000m



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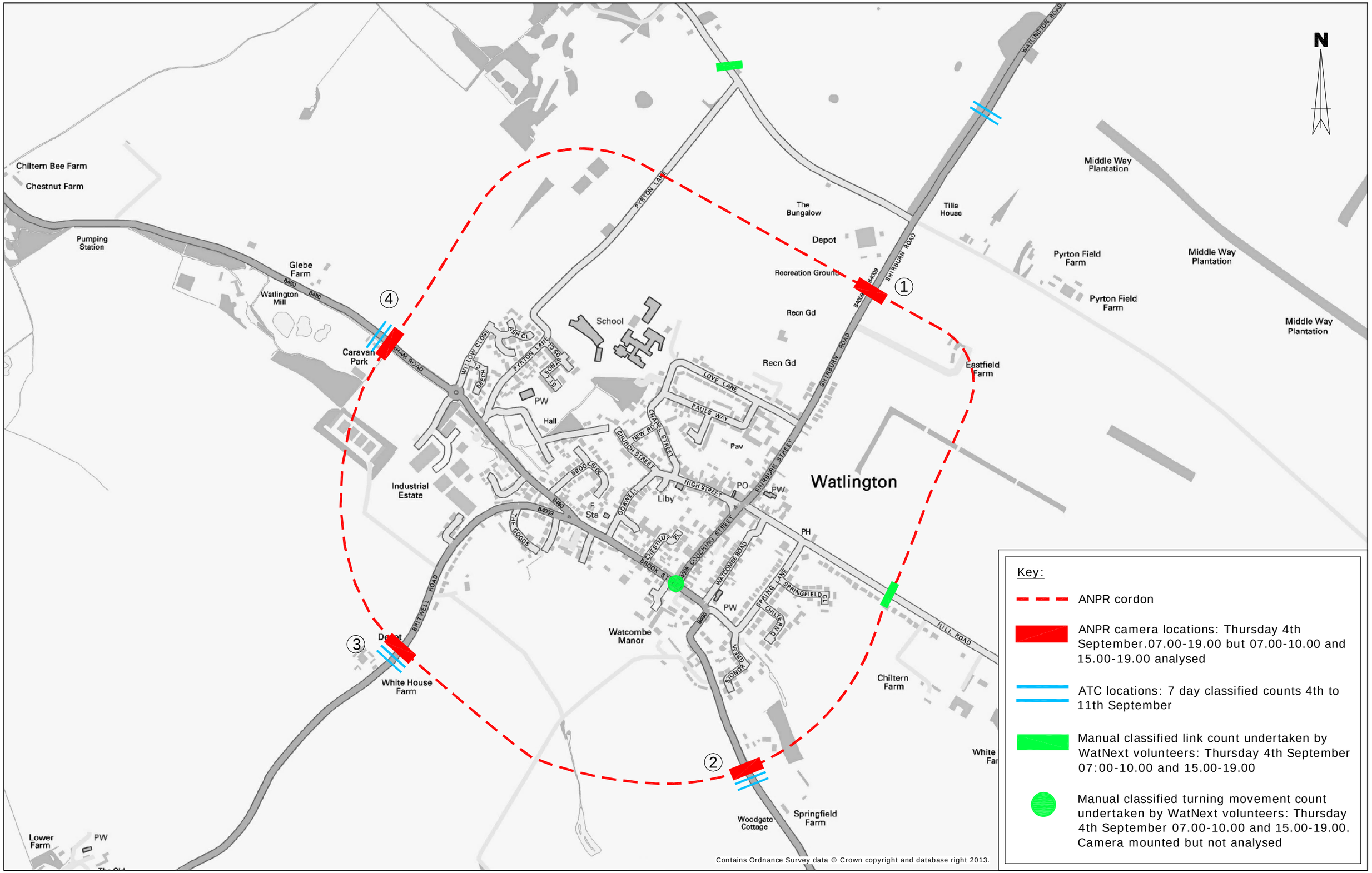
Swept path analysis of a 10m rigid vehicle on Pyrton Lane

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 3.22



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Location of traffic surveys

Figure 4.1

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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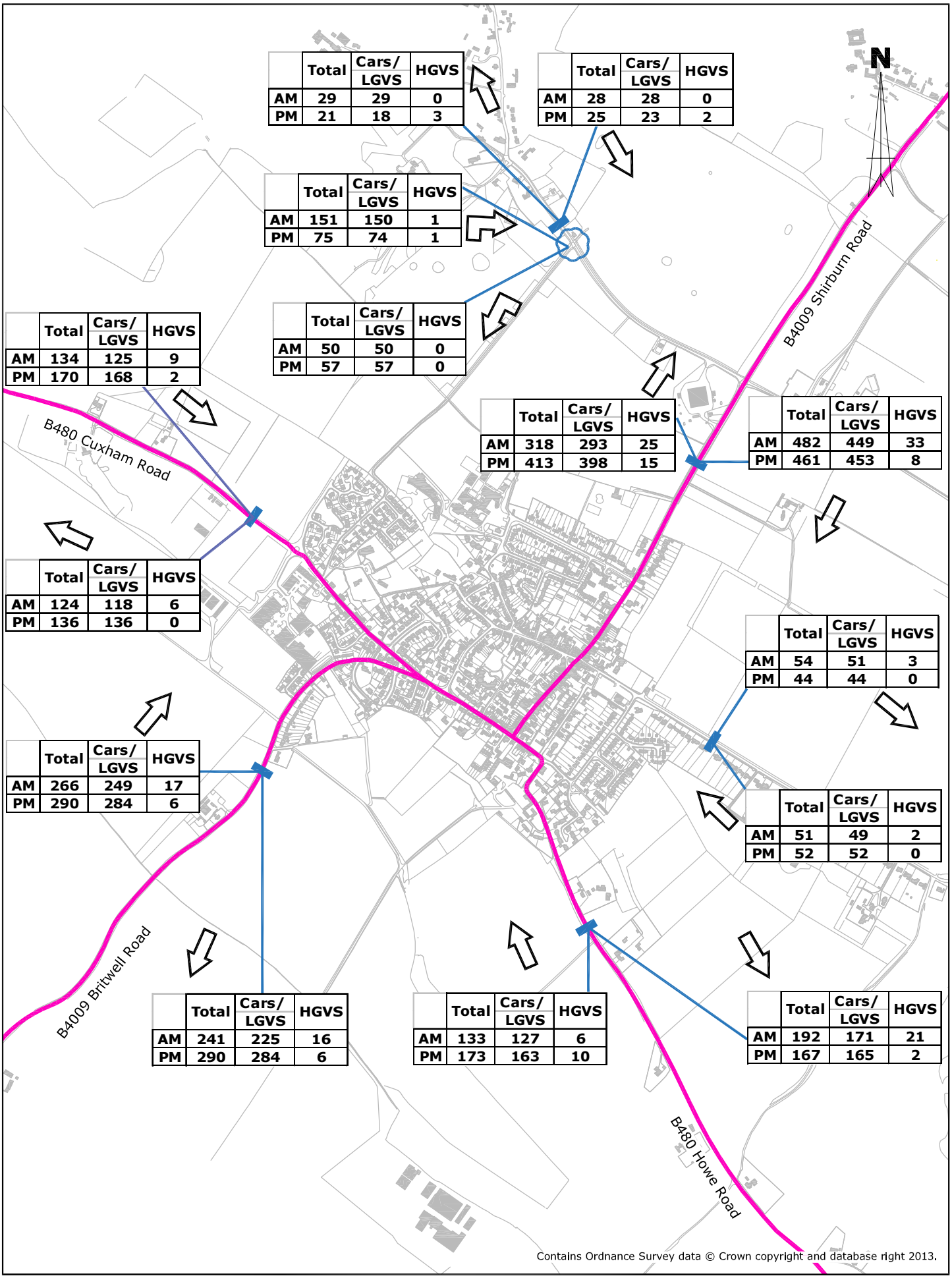
w: www.tppweb.co.uk



	Total	Cars/ LGVS	HGVS
AM	29	29	0
PM	21	18	3

	Total	Cars/ LGVS	HGVS
AM	28	28	0
PM	25	23	2

	Total	Cars/ LGVS	HGVS
AM	151	150	1
PM	75	74	1

	Total	Cars/ LGVS	HGVS
AM	50	50	0
PM	57	57	0

	Total	Cars/ LGVS	HGVS
AM	134	125	9
PM	170	168	2

	Total	Cars/ LGVS	HGVS
AM	318	293	25
PM	413	398	15

	Total	Cars/ LGVS	HGVS
AM	482	449	33
PM	461	453	8

	Total	Cars/ LGVS	HGVS
AM	124	118	6
PM	136	136	0

	Total	Cars/ LGVS	HGVS
AM	54	51	3
PM	44	44	0

	Total	Cars/ LGVS	HGVS
AM	266	249	17
PM	290	284	6

	Total	Cars/ LGVS	HGVS
AM	51	49	2
PM	52	52	0

	Total	Cars/ LGVS	HGVS
AM	241	225	16
PM	290	284	6

	Total	Cars/ LGVS	HGVS
AM	133	127	6
PM	173	163	10

	Total	Cars/ LGVS	HGVS
AM	192	171	21
PM	167	165	2

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Cordon traffic flows

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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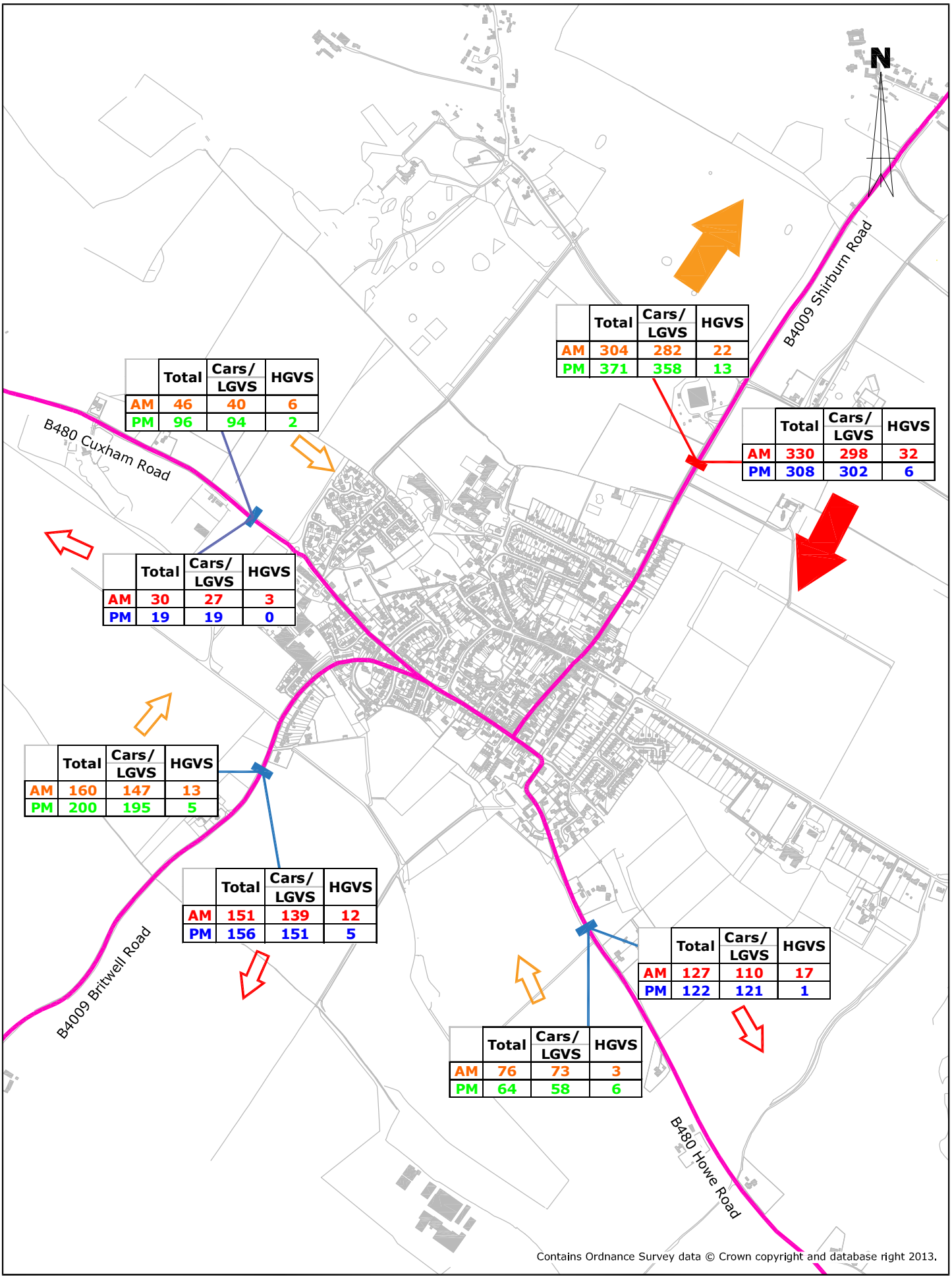
Figure 4.2



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ANPR matched traffic flows to / from Shirburn Road

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
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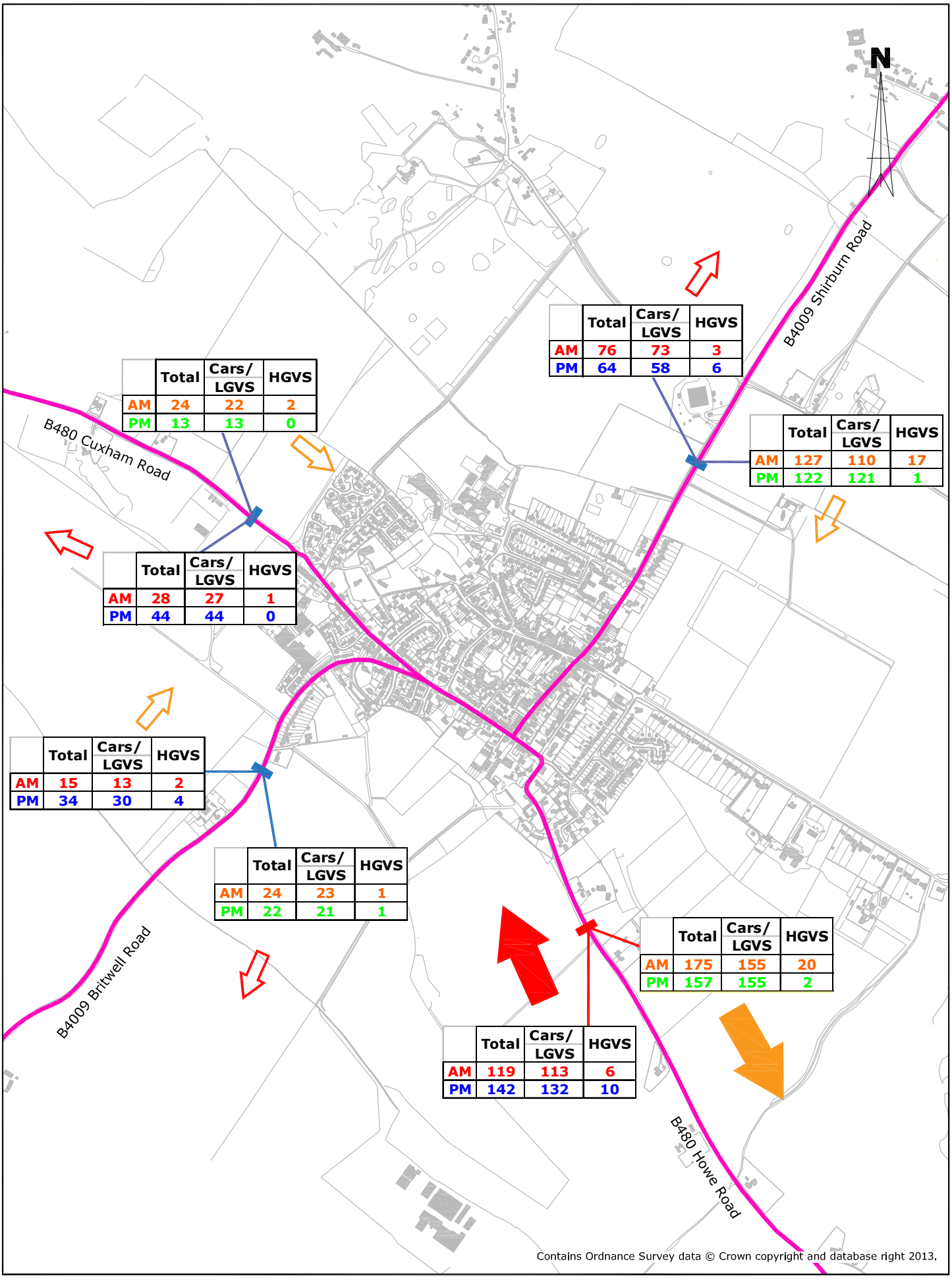
Figure 4.3



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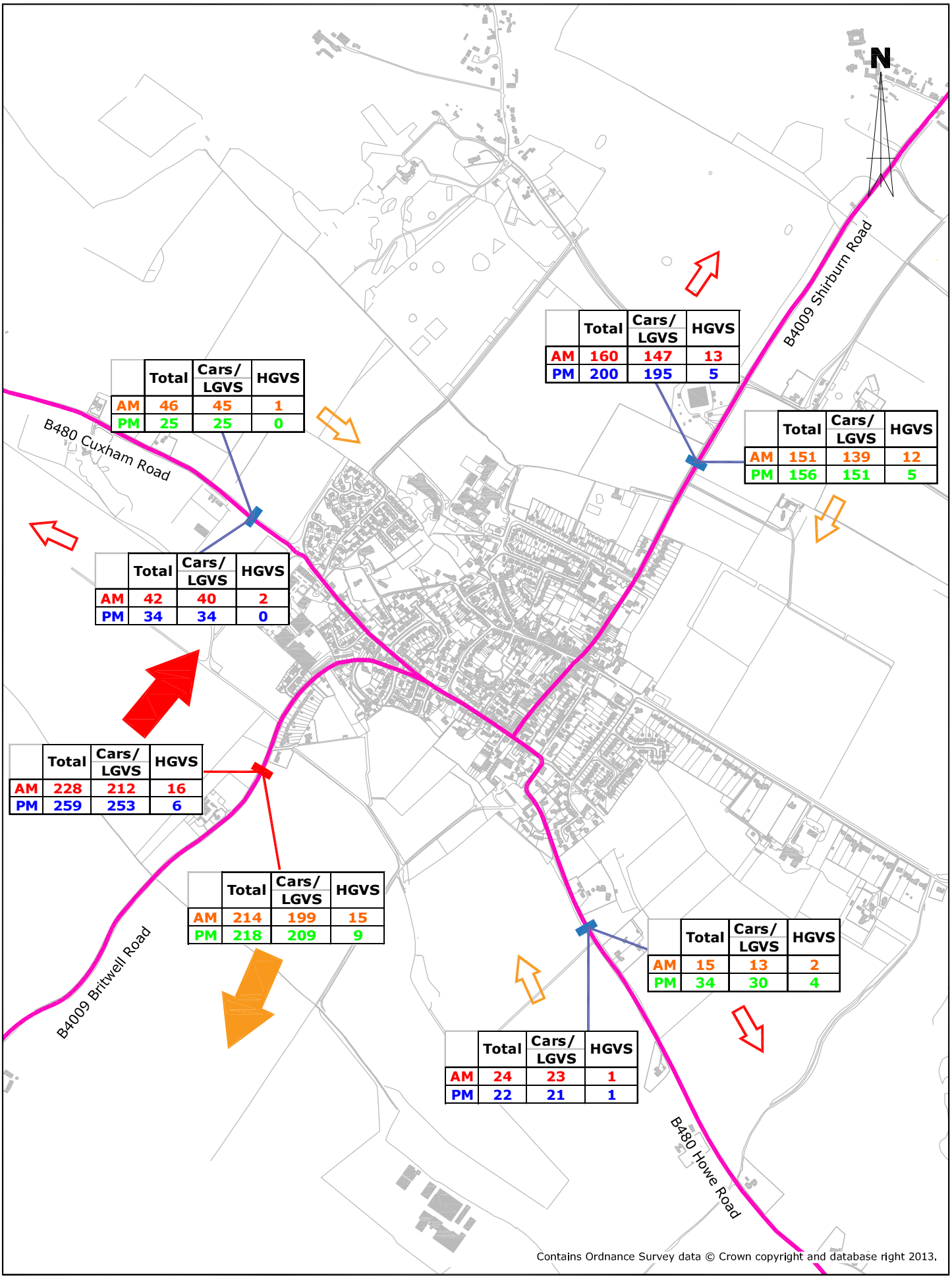
ANPR matched traffic flows to / from Howe Road

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 4.4



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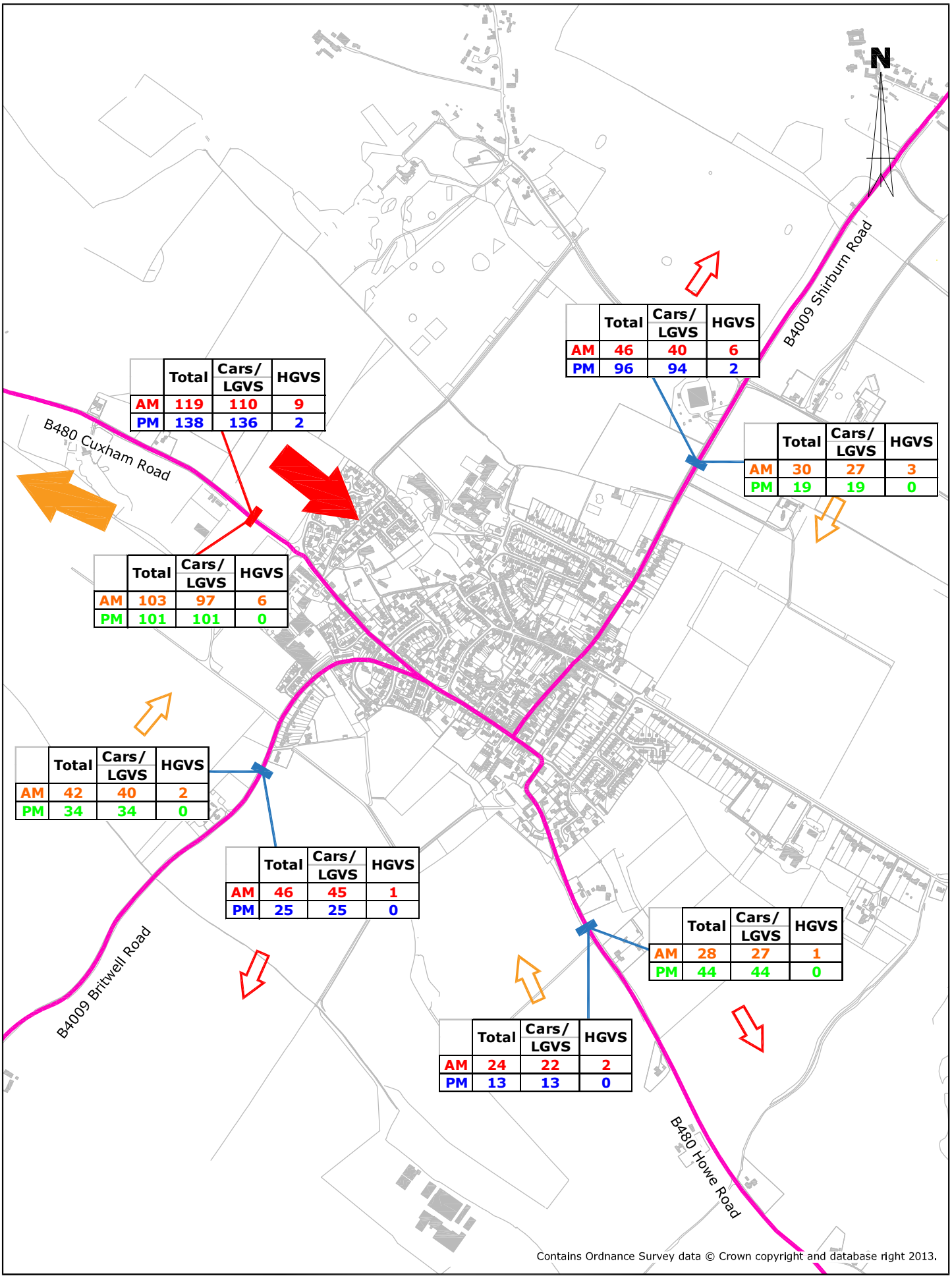
ANPR matched traffic flows to / from Britwell Road

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 4.5



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ANPR matched traffic flows to / from Cuxham Road

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 4.6

Development Sites

Watlington Neighbourhood Plan Area (Coincides with Parish Boundary)

SHLAA Site Development Area

Other sites for consideration

WNP Name	SODC Name	Location	Capacity	Timeframe (years)
A	WAT1	Britwell Road	_ - _ houses	_ - _
B	WAT2	Behind Lilacs Place	_ - _ houses	_ - _
C	WAT3	Beteen Howe Rd & Hill Rd	_ - _ houses	_ - _
D	WAT4	Hill Road	_ - _ houses	_ - _
E	WAT5	Between Hill Rd & Shirburn St	_ - _ houses	_ - _
F	WAT6	Shirburn Street	_ - _ houses	_ - _
G	WAT7	Shirburn Road / Pyrton Lane	_ - _ houses	_ - _
H	WAT8	Pyrton Lane	_ - _ houses	_ - _
J	WAT9	Pyrton Lane	_ - _ houses	_ - _
K	WAT10	Cuxham Road	_ - _ houses	_ - _
L	WAT11	Cuxham Road	_ - _ houses	_ - _
M	WAT12	Btn Cuxham Rd & Britwell Rd	_ - _ houses	_ - _
N	-	Industiral Estate	_ - _ houses	5 - 10
P	-	Prospect Place	_ - _ houses	_ - _
Q	-	Couching Street	_ - _ houses	_ - _
R	-	Howe Road	_ - _ houses	_ - _
S	-	Hill Road	_ - _ houses	_ - _
T	-	Hill Road	_ - _ houses	_ - _
U	-	Shirburn Road / Station Road	Alternative employment use	_ - _

N

Pyrton

Shirburn

Watlington

Britwell Salome

T:\30000_projects\30704 Watlington Traffic Study\ACAD\021.dwg

TPP REF - IN_14.

Location of development plots

Figure 6.1

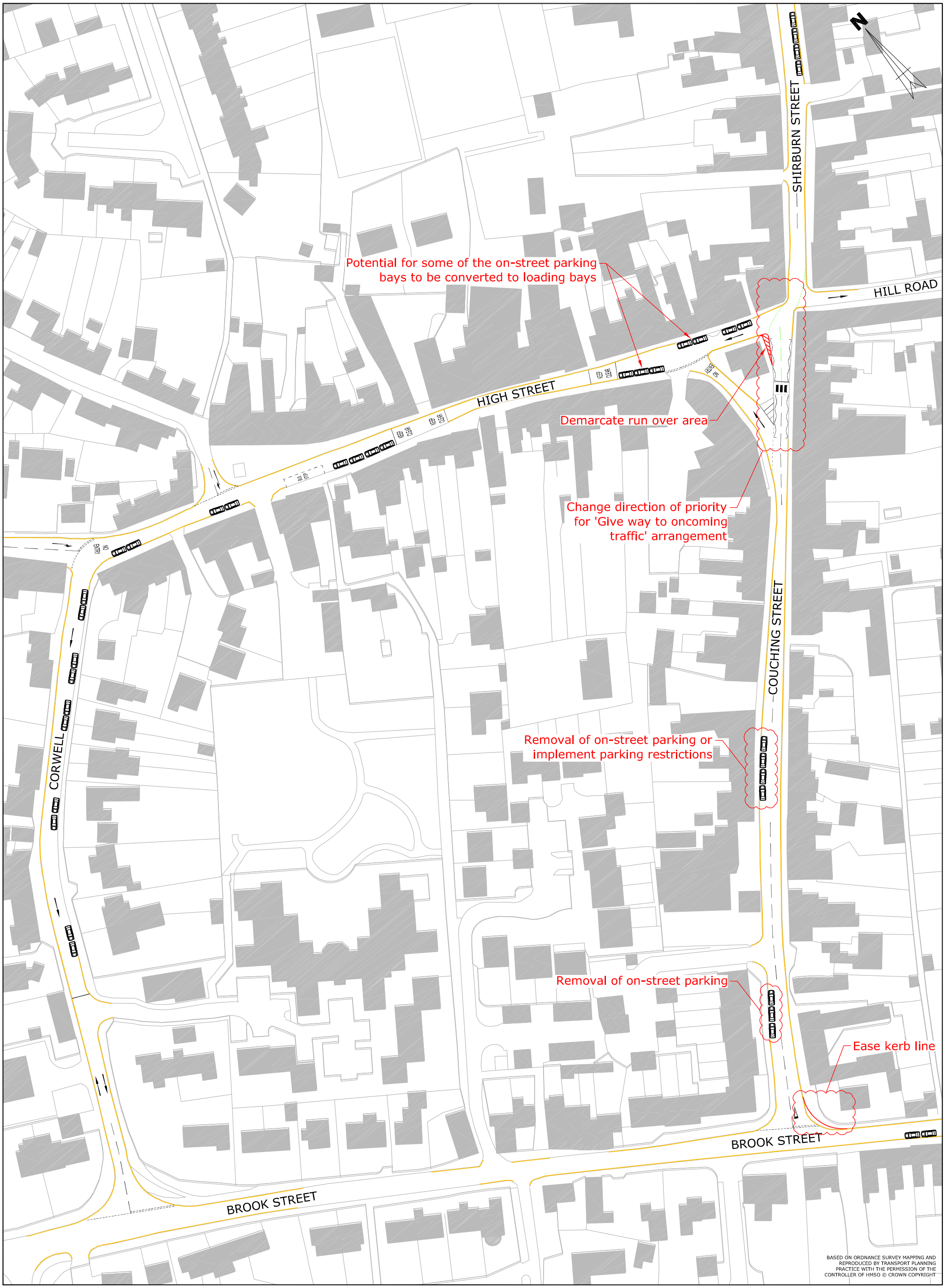
TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

T:\30000_projects\30704 Watlington Traffic Study\ACAD\012_A.dwg

Existing highway arrangements

Figure 7.1

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk



T:\30000_projects\30704 Watlington Traffic Study\ACAD\013_A.dwg

Short-term improvement measures

Figure 7.2

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

HIGH STREET

KEEP CLEAR

KEEP CLEAR

KEEP CLEAR

SHIRBURN STREET

N

NO ENTRY

Traffic signals could be installed

Build out

Possible loading bay

Run-over area

HILL ROAD

COUCHING STREET

T:\30000_projects\30704 Watlington Traffic Study\ACAD\014_A.dwg

Medium-term improvements measures

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 7.3

T:\30000_projects\30704 Watlington Traffic Study\ACAD\015.dwg

Long-term improvements measures

TPP
transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 7.4

Appendices

Appendix A

Information on Oxfordshire County Council Lorry Routes

TPP
transport planning practice

Oxfordshire County Council
Roads and transport

Lorry routes

The preferred routes to get to the major destinations across Oxfordshire.

Lorries and vans have a crucial role in the Oxfordshire economy, delivering a wide range of goods to shops, businesses and individuals. However, they can cause major problems for some of the communities through which they pass.

Temporary restrictions

From time to time it is necessary to put in temporary weight limits pending the repair or replacement of sub-standard bridges. Diversion routes are signed to allow vehicles to avoid the restriction. Currently such diversions are in place around bridges at:

- Ickford Road, Shabbington - 3T limit (pdf format, 2MB)
- Forest Road, Charlbury - 7.5T limit (pdf format, 1.5MB)

Lorry route maps

These maps are designed to help logistics managers and drivers of large goods vehicles to select the most appropriate routes for their journeys within Oxfordshire.

This is not always easy because sometimes there is no alternative to using less suitable roads, particularly for local access. However, following the maps should mean staying on the best roads for as much of the journey as possible - the best roads for lorries to make progress without difficult manoeuvres and obstructions and the best roads for minimising the impact on local communities.

Roads not defined in the maps as either 'strategic' or 'non-strategic' should be avoided except for access and delivery. Additional environmental weight limits, not shown on the maps, may be in force on these roads. Please obey the restrictions shown on road signs.

Please note

Access routes are not considered suitable for through lorry traffic, but we acknowledge that it will sometimes be necessary to use these to complete journeys.

The map also shows a number of small towns without bypasses which should be avoided if at all possible.

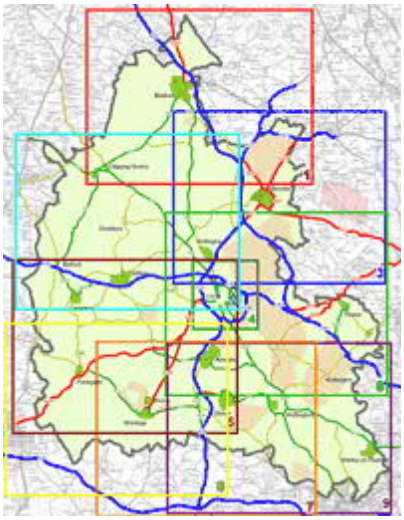
County map

The county map (pdf format, 828Kb) shows:

- **blue:** the strategic routes for through traffic (motorways, trunk roads and similar)
- **red:** main links to the larger towns (where, along with Oxford, most businesses are located)
- **dark green:** Links to smaller towns
- **light green:** more local access across the county

Detailed maps

These detailed maps focus on local areas which show other details such as lay-bys and services and the location of industrial estates and other large generators of lorry traffic, with local access routes shown in yellow.



Click on the map to see a larger version.

- Map 1 - Banbury area (pdf format, 781Kb)
- Map 2 - Chipping Norton, Woodstock, Burford (pdf format, 852Kb)
- Map 3 - Bicester, Kidlington (pdf format, 893Kb)
- Map 4 - Oxford area (pdf format, 855Kb)
- Map 5 - Witney, Carterton (pdf format, 881Kb)
- Map 6 - Wantage, Grove, Faringdon (pdf format, 818Kb)
- Map 7 - Abingdon, Didcot, Wantage (pdf format, 848Kb)
- Map 8 - Thame, Wheatley, Watlington (pdf format, 1MB)
- Map 9 - Wallingford, Henley-on-Thames, Goring (pdf format, 902Kb)
- Index of main Industrial, minerals and waste sites (pdf format, 37Kb)
- Oxford city centre deliveries (pdf format, 404Kb)

We hope this series of maps is helpful to lorry drivers and freight companies, their customers and local communities. Please contact us with any feedback on how it might be improved.

More information

The maps will also be used to determine the routes to serve new developments. The general principle will be that traffic should get on to strategic routes as easily and quickly as possible while minimising the length of trips using the non-coloured roads and avoiding, wherever possible, any identified environmentally sensitive areas.

Last reviewed
03 April 2014

Related pages

No related pages listed

External links

Traffic

- Speed limits
- Lift sharing
- Lorry routes
- Road closures for roadworks
- Safety cameras
- Traffic calming
- Vehicle activated signs
- Funding for traffic schemes
- Transport monitoring

Contact us

Appendix B

Traffic survey results (September 2014)

TPP
transport planning practice

Advanced Transport Research		Job Number & Name:	6224 Watlington
Watlington		Client:	TPP
Matching Matrix:	0800-0900	Date:	Thursday 18 September 2014

All Vehicles

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
002 Watlington Road	22	127	151	30	330	482	68.5%
004 Howe Road	76	0	15	28	119	133	89.5%
006 Britwell Road	160	24	2	42	228	266	85.7%
008 Cuxham Road	46	24	46	3	119	134	88.8%
Total	304	175	214	103	1592		
Manual Count	318	192	241	124		1890	
	95.6%	91.1%	88.8%	83.1%			84.2%

Class 1 (Cars & LGV)

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
002 Watlington Road	22	110	139	27	298	449	66.4%
004 Howe Road	73	0	13	27	113	127	89.0%
006 Britwell Road	147	23	2	40	212	249	85.1%
008 Cuxham Road	40	22	45	3	110	125	88.0%
Total	282	155	199	97	1466		
Manual Count	293	171	225	118		1757	
	96.2%	90.6%	88.4%	82.2%			83.4%

Class 2 (HGV)

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
002 Watlington Road	0	17	12	3	32	33	97.0%
004 Howe Road	3	0	2	1	6	6	100.0%
006 Britwell Road	13	1	0	2	16	17	94.1%
008 Cuxham Road	6	2	1	0	9	9	100.0%
Total	22	20	15	6	126		
Manual Count	25	21	16	6		133	
	88.0%	95.2%	93.8%	100.0%			94.7%

Advanced Transport Research		Job Number & Name:	6224 Watlington
Watlington		Client:	TPP
Matching Matrix:	1700-1800	Date:	Thursday 18 September 2014

All Vehicles

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
Watlington Road 002	11	122	156	19	308	461	66.8%
Howe Road 004	64	0	34	44	142	173	82.1%
Britwell Road 006	200	22	3	34	259	290	89.3%
Cuxham Road 008	96	13	25	4	138	170	81.2%
Total	371	157	218	101	1694		
Manual Count	413	167	251	136		2061	
	89.8%	94.0%	86.9%	74.3%			82.2%

Class 1 (Cars & LGV)

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
Watlington Road 002	11	121	151	19	302	453	66.7%
Howe Road 004	58	0	30	44	132	163	81.0%
Britwell Road 006	195	21	3	34	253	284	89.1%
Cuxham Road 008	94	13	25	4	136	168	81.0%
Total	358	155	209	101	1646		
Manual Count	398	165	241	136		2008	
	89.9%	93.9%	86.7%	74.3%			82.0%

Class 2 (HGV)

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road	Total	Manual Count	
Watlington Road 002	0	1	5	0	6	8	75.0%
Howe Road 004	6	0	4	0	10	10	100.0%
Britwell Road 006	5	1	0	0	6	6	100.0%
Cuxham Road 008	2	0	0	0	2	2	100.0%
Total	13	2	9	0	48		
Manual Count	15	2	10	0		53	
	86.7%	100.0%	90.0%	#DIV/0!			90.6%

Watlington
ANPR Average Journey Times: AM Peak (0800-0900)

AM peak: 0800-0900

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road	00:05:56	00:03:42	00:04:58	00:04:54
004 Howe Road	00:04:04	00:00:00	00:04:44	00:02:44
006 Britwell Road	00:04:41	00:04:15	00:01:04	00:02:36
008 Cuxham Road	00:06:04	00:04:09	00:02:18	00:02:36

Hour after: 0900-1000

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road	00:05:32	00:02:47	00:03:08	00:03:56
004 Howe Road	00:03:38	00:01:27	00:03:11	00:02:41
006 Britwell Road	00:03:01	00:03:21	00:00:00	00:02:05
008 Cuxham Road	00:03:29	00:02:12	00:02:56	00:05:44

Additional journey time in AM Peak

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road		00:00:55	00:01:50	00:00:57
004 Howe Road	00:00:26		00:01:33	00:00:03
006 Britwell Road	00:01:41	00:00:54		00:00:30
008 Cuxham Road	00:02:35	00:01:57	-00:00:38	

Watlington

ANPR Average Journey Times: PM Peak (1700-1800)

PM Peak: 1700-1800

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road	00:05:51	00:02:55	00:03:47	00:04:21
004 Howe Road	00:04:51	00:03:42	00:04:29	00:04:02
006 Britwell Road	00:04:14	00:03:35	00:01:52	00:02:09
008 Cuxham Road	00:04:06	00:02:59	00:04:41	00:04:28

Hour after: 1800-1900

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road	00:03:26	00:02:48	00:03:23	00:03:31
004 Howe Road	00:03:39	00:03:58	00:03:16	00:02:25
006 Britwell Road	00:03:57	00:03:33	00:03:12	00:02:54
008 Cuxham Road	00:03:22	00:02:53	00:03:02	00:04:28

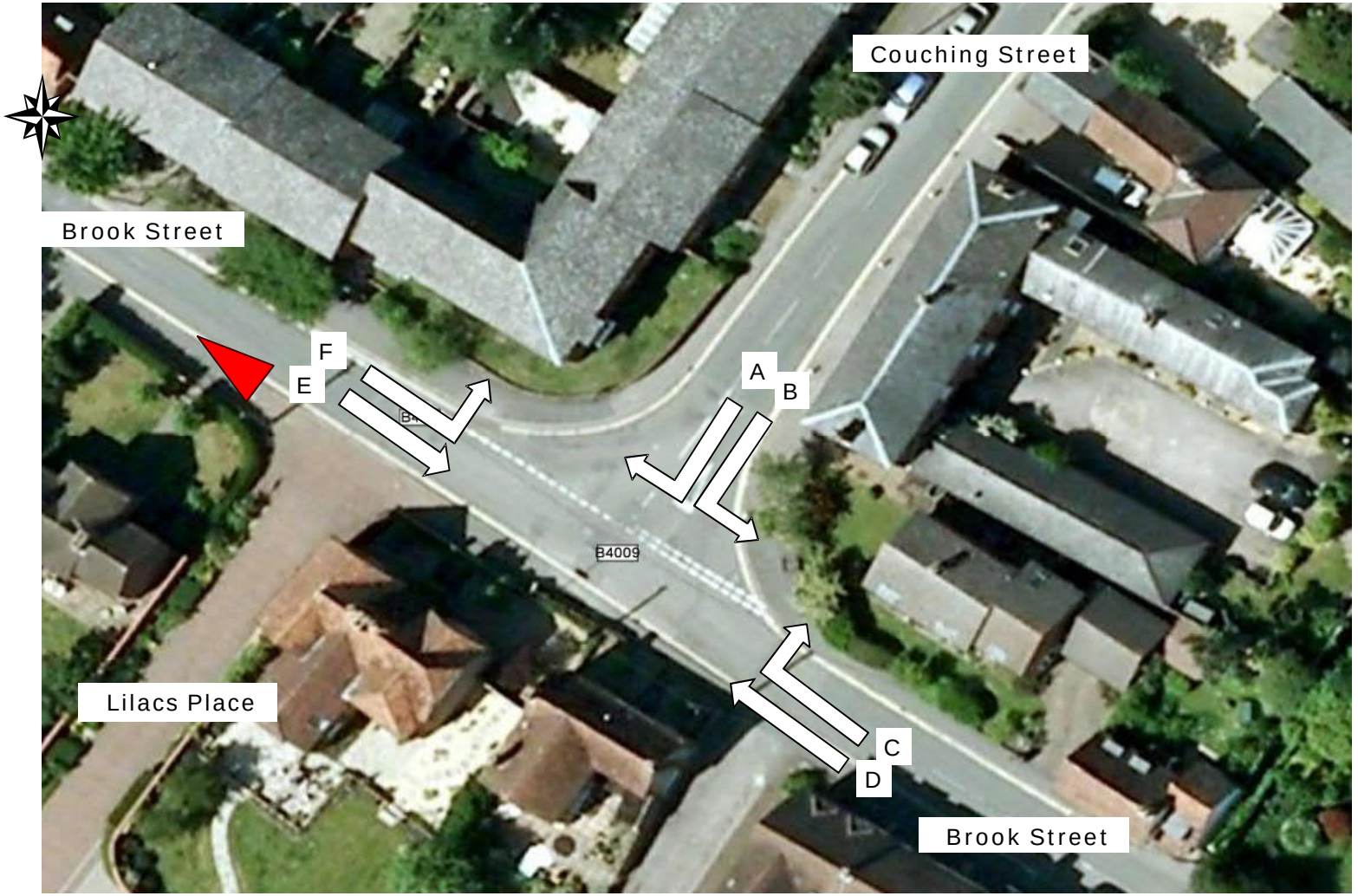
Additional journey time in PM Peak

From	To 001 Watlington Road	003 Howe Road	005 Britwell Road	007 Cuxham Road
002 Watlington Road		00:00:07	00:00:23	00:00:49
004 Howe Road	00:01:12		00:01:13	00:01:37
006 Britwell Road	00:00:16	00:00:02		-00:00:45
008 Cuxham Road	00:00:44	00:00:06	00:01:39	

advanced transport research

Job Number & Name:	6224 Watlington
Site Number/Name:	Brook Street/Couching Street
Client:	TPP
Date:	18/09/2014
Weather:	Cloudy, Dry
Comments:	Traffic jam from 08:08-08:14, 08:40-08:44, 09:17-09:18

Advanced Transport Research	Job Number & Name:	6224 Watlington
Brook Street/Couching Street	Client:	TPP
Site Plan	Date:	Thursday 18 Sep 2014



Advanced Transport Research	Job Number & Name:	6224 Watlington
Brook Street/Couching Street	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement A							Movement B						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
06:00 - 06:15	9	3	2	2	0	0	0	5	3	0	0	0	0	0
06:15 - 06:30	9	3	0	0	0	0	0	5	4	0	0	0	0	0
06:30 - 06:45	15	3	2	0	0	0	0	10	3	0	1	0	0	0
06:45 - 07:00	23	5	0	1	0	0	1	19	5	0	0	0	0	0
Hourly Total	56	14	4	3	0	0	1	39	15	0	1	0	0	0
07:00 - 07:15	44	6	0	0	0	0	0	19	8	0	0	0	1	0
07:15 - 07:30	43	17	2	0	0	1	0	31	5	1	0	0	0	0
07:30 - 07:45	41	17	1	0	3	0	0	29	9	2	0	1	0	0
07:45 - 08:00	31	5	2	1	0	0	0	19	4	0	0	0	1	0
Hourly Total	159	45	5	1	3	1	0	98	26	3	0	1	2	0
08:00 - 08:15	38	6	4	1	1	1	0	24	10	2	0	0	1	0
08:15 - 08:30	30	4	2	0	0	1	0	28	4	6	1	1	0	0
08:30 - 08:45	29	3	7	0	1	0	0	29	3	4	0	0	0	0
08:45 - 09:00	36	5	2	0	0	0	0	24	2	4	0	0	2	0
Hourly Total	133	18	15	1	2	2	0	105	19	16	1	1	3	0
09:00 - 09:15	32	5	0	0	0	0	0	25	4	3	0	0	0	1
09:15 - 09:30	39	5	5	0	0	0	0	22	2	3	2	0	0	0
09:30 - 09:45	22	4	3	0	0	0	0	15	4	1	0	0	0	0
09:45 - 10:00	19	4	2	1	0	1	0	22	3	1	0	0	0	0
Hourly Total	112	18	10	1	0	1	0	84	13	8	2	0	0	1
15:00 - 15:15	19	7	0	0	0	0	0	9	1	0	0	0	0	0
15:15 - 15:30	31	4	2	0	0	0	0	20	4	0	0	0	0	0
15:30 - 15:45	24	6	2	0	0	2	1	13	0	0	0	0	0	0
15:45 - 16:00	28	9	3	0	0	1	18	3	0	0	0	0	0	0
Hourly Total	102	26	7	0	0	3	19	45	5	0	0	0	0	0
16:00 - 16:15	30	10	0	0	0	1	0	27	0	0	0	0	0	0
16:15 - 16:30	25	4	3	0	0	0	0	17	2	0	0	0	0	0
16:30 - 16:45	32	4	0	0	1	0	0	11	3	0	0	0	0	0
16:45 - 17:00	32	7	1	0	0	0	0	28	0	0	0	0	2	0
Hourly Total	119	25	4	0	1	1	0	83	5	0	0	0	2	0
17:00 - 17:15	38	4	2	0	0	1	0	34	3	1	0	0	0	0
17:15 - 17:30	34	8	0	0	0	0	0	24	4	0	0	0	1	0
17:30 - 17:45	34	4	3	0	1	0	0	20	1	0	0	0	0	0
17:45 - 18:00	38	5	0	0	0	1	0	34	3	0	0	0	2	0
Hourly Total	144	21	5	0	1	2	0	112	11	1	0	0	3	0
18:00 - 18:15	22	1	1	0	0	0	0	33	0	0	0	0	1	0
18:15 - 18:30	37	6	1	0	0	2	0	37	1	2	1	0	0	0
18:30 - 18:45	53	4	1	0	1	0	0	22	3	1	0	0	0	0
18:45 - 19:00	46	3	2	0	0	2	0	23	0	0	0	0	0	0
Hourly Total	158	14	5	0	1	4	0	115	4	3	1	0	1	0

Advanced Transport Research	Job Number & Name:	6224 Watlington
Brook Street/Couching Street	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement C							Movement D						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
06:00 - 06:15	9	4	0	0	0	1	0	4	0	0	0	0	0	0
06:15 - 06:30	13	2	2	0	0	0	0	1	0	0	0	0	0	0
06:30 - 06:45	15	2	0	0	0	0	0	2	0	0	0	0	0	0
06:45 - 07:00	25	7	0	0	0	0	0	4	0	0	0	0	1	0
Hourly Total	62	15	2	0	0	1	0	11	0	0	0	0	1	0
07:00 - 07:15	19	6	0	0	0	0	1	11	3	0	0	1	0	0
07:15 - 07:30	28	4	0	1	0	0	0	5	3	0	0	0	0	0
07:30 - 07:45	27	6	2	1	0	0	0	12	4	0	0	0	0	0
07:45 - 08:00	34	4	0	0	0	0	0	0	4	0	0	0	0	0
Hourly Total	108	20	2	2	0	0	1	28	14	0	0	1	0	0
08:00 - 08:15	23	1	0	0	0	0	0	8	2	1	0	0	1	0
08:15 - 08:30	31	3	0	0	0	0	0	13	3	2	0	0	0	0
08:30 - 08:45	23	4	0	1	0	0	0	15	4	0	0	0	0	0
08:45 - 09:00	37	2	1	1	0	0	0	16	3	0	0	0	0	0
Hourly Total	114	10	1	2	0	0	0	52	12	3	0	0	1	0
09:00 - 09:15	18	3	3	0	0	0	0	22	3	0	2	0	1	0
09:15 - 09:30	25	3	0	0	0	1	0	12	1	1	0	0	0	0
09:30 - 09:45	25	1	1	0	0	0	0	10	0	2	0	0	0	1
09:45 - 10:00	16	5	0	0	0	0	0	10	1	0	0	0	0	0
Hourly Total	84	12	4	0	0	1	0	54	5	3	2	0	1	1
15:00 - 15:15	24	1	0	0	0	0	0	7	0	0	1	0	0	0
15:15 - 15:30	24	11	0	0	0	1	0	19	1	0	0	0	0	0
15:30 - 15:45	27	5	2	0	0	0	1	30	4	0	0	0	0	0
15:45 - 16:00	30	6	1	0	0	1	0	15	2	1	0	0	1	1
Hourly Total	105	23	3	0	0	2	1	71	7	1	1	0	1	1
16:00 - 16:15	43	15	1	0	3	0	0	10	8	0	0	0	0	0
16:15 - 16:30	26	10	0	0	0	0	0	17	1	0	0	0	0	0
16:30 - 16:45	24	7	1	0	1	2	0	13	0	0	0	1	1	1
16:45 - 17:00	50	9	1	0	1	1	0	12	7	0	0	0	1	0
Hourly Total	143	41	3	0	5	3	0	52	16	0	0	1	2	1
17:00 - 17:15	39	6	0	0	0	0	0	17	2	0	0	0	0	0
17:15 - 17:30	36	4	1	0	0	0	0	15	3	0	0	0	1	0
17:30 - 17:45	28	0	1	0	0	0	0	12	3	2	0	0	1	0
17:45 - 18:00	44	2	4	0	0	0	0	24	2	2	0	0	0	0
Hourly Total	147	12	6	0	0	0	0	68	10	4	0	0	2	0
18:00 - 18:15	33	0	2	0	0	0	0	13	1	0	0	0	0	0
18:15 - 18:30	32	0	0	0	0	1	0	25	1	1	0	0	1	0
18:30 - 18:45	41	1	3	0	0	0	1	18	0	0	0	0	0	0
18:45 - 19:00	31	0	1	0	0	0	1	12	3	2	0	0	0	0
Hourly Total	137	1	6	0	0	1	2	68	5	3	0	0	1	0

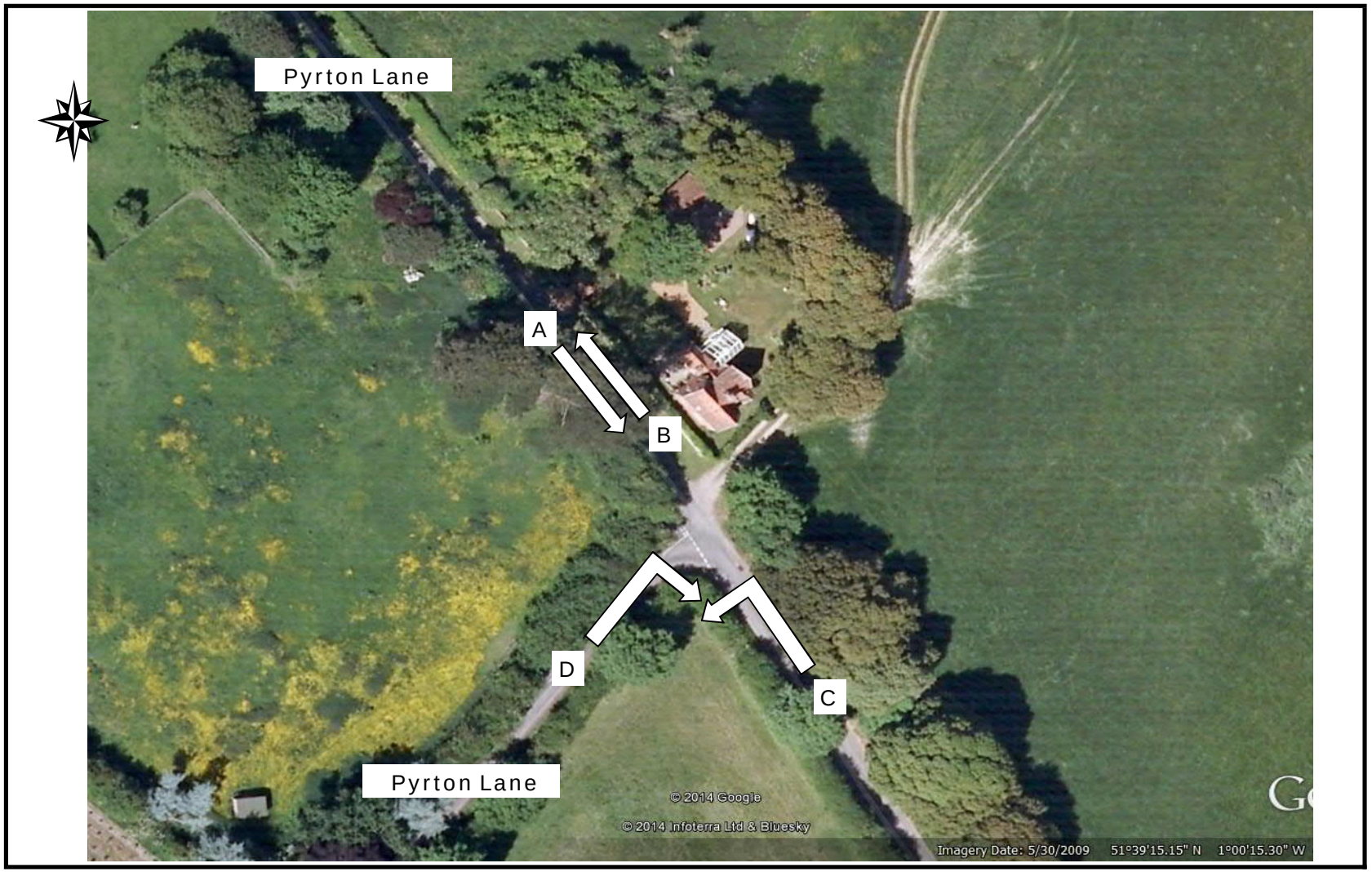
Advanced Transport Research	Job Number & Name:	6224 Watlington
Brook Street/Couching Street	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement E							Movement F						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
06:00 - 06:15	2	0	0	0	0	0	0	23	2	0	0	1	0	0
06:15 - 06:30	0	0	0	0	0	0	0	27	10	2	0	1	0	1
06:30 - 06:45	6	0	1	0	0	0	0	38	7	3	0	1	0	0
06:45 - 07:00	4	0	0	1	0	0	0	40	14	3	0	1	2	2
Hourly Total	12	0	1	1	0	0	0	128	33	8	0	4	2	3
07:00 - 07:15	4	2	0	0	0	0	0	69	7	0	0	0	3	0
07:15 - 07:30	5	2	1	0	0	0	1	64	18	1	0	1	0	0
07:30 - 07:45	3	1	0	0	0	0	0	58	11	2	0	2	0	0
07:45 - 08:00	4	5	0	0	0	0	0	74	22	5	0	1	1	0
Hourly Total	16	10	1	0	0	0	1	265	58	8	0	4	4	0
08:00 - 08:15	10	1	0	0	0	0	0	55	7	1	2	2	0	1
08:15 - 08:30	5	2	1	0	0	0	0	72	8	3	0	5	0	0
08:30 - 08:45	5	1	0	0	0	0	0	51	9	8	1	0	2	0
08:45 - 09:00	10	1	2	0	0	0	0	59	7	3	1	2	0	0
Hourly Total	30	5	3	0	0	0	0	237	31	15	4	9	2	1
09:00 - 09:15	8	0	0	0	0	0	0	47	4	6	1	2	2	0
09:15 - 09:30	11	0	0	0	0	0	0	42	8	4	0	3	0	0
09:30 - 09:45	18	2	0	0	0	0	0	46	10	2	0	0	0	0
09:45 - 10:00	5	2	0	0	1	0	0	47	8	7	0	0	1	0
Hourly Total	42	4	0	0	1	0	0	182	30	19	1	5	3	0
15:00 - 15:15	1	2	1	0	0	1	0	55	11	1	2	0	0	0
15:15 - 15:30	5	1	0	0	0	0	0	39	4	0	0	1	0	0
15:30 - 15:45	7	2	0	0	0	0	0	45	7	2	0	0	2	0
15:45 - 16:00	6	1	0	0	0	0	2	48	8	2	0	1	0	0
Hourly Total	19	6	1	0	0	1	2	187	30	5	2	2	2	0
16:00 - 16:15	11	1	0	0	0	0	0	64	5	0	0	0	0	1
16:15 - 16:30	5	0	0	0	0	0	0	58	11	0	0	1	0	0
16:30 - 16:45	6	0	0	0	0	0	1	77	7	0	0	0	1	0
16:45 - 17:00	6	0	0	0	1	0	0	84	10	0	1	0	0	0
Hourly Total	28	1	0	0	1	0	1	283	33	0	1	1	1	1
17:00 - 17:15	9	0	0	1	0	0	0	60	4	0	0	0	0	0
17:15 - 17:30	10	2	0	0	1	0	0	84	8	2	0	1	0	0
17:30 - 17:45	4	1	0	0	0	0	0	94	8	1	0	0	2	0
17:45 - 18:00	10	1	0	0	0	0	0	79	6	4	0	0	1	0
Hourly Total	33	4	0	1	1	0	0	317	26	7	0	1	3	0
18:00 - 18:15	3	2	0	0	0	0	0	77	6	0	1	1	0	0
18:15 - 18:30	7	0	0	0	0	0	1	72	8	0	0	1	3	0
18:30 - 18:45	9	1	0	0	0	0	0	64	9	0	0	0	1	0
18:45 - 19:00	3	1	0	0	0	0	0	41	4	0	0	1	1	2
Hourly Total	22	4	0	0	0	0	1	254	27	0	1	3	5	2

advanced transport research

Job Number & Name:	6224 Watlington
Site Number/Name:	Link 1 - Pyrton Lane
Client:	TPP
Date:	18/09/2014
Weather:	Cloudy, Dry
Comments:	None

Advanced Transport Research	Job Number & Name:	6224 Watlington
Link 1 - Pyrton Lane	Client:	TPP
Site Plan	Date:	Thursday 18 Sep 2014



Advanced Transport Research	Job Number & Name:	6224 Watlington
Link 1 - Pyrton Lane	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement A							Movement B						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	3	2	0	0	0	0	0	1	1	0	0	0	0	0
07:15 - 07:30	5	3	1	0	0	0	1	1	0	0	0	0	0	0
07:30 - 07:45	4	1	0	0	0	0	0	4	1	0	0	0	0	1
07:45 - 08:00	2	0	0	0	0	0	0	3	5	0	1	0	0	0
Hourly Total	14	6	1	0	0	0	1	9	7	0	1	0	0	1
08:00 - 08:15	5	2	1	0	0	0	0	5	4	0	0	0	0	0
08:15 - 08:30	5	0	0	0	0	0	1	4	2	0	0	0	0	0
08:30 - 08:45	6	2	0	0	0	0	0	10	2	0	0	0	0	0
08:45 - 09:00	6	1	0	0	0	0	0	2	0	0	0	0	0	0
Hourly Total	22	5	1	0	0	0	1	21	8	0	0	0	0	0
09:00 - 09:15	2	0	0	0	0	0	1	5	0	0	0	0	0	0
09:15 - 09:30	5	1	1	0	0	0	0	5	1	0	0	0	0	0
09:30 - 09:45	4	1	0	0	0	0	0	2	0	0	0	0	0	0
09:45 - 10:00	3	0	1	0	0	1	0	3	1	0	0	0	0	0
Hourly Total	14	2	2	0	0	1	1	15	2	0	0	0	0	0
15:00 - 15:15	4	0	0	0	0	0	0	4	1	0	0	0	0	1
15:15 - 15:30	3	0	0	0	0	0	0	3	1	1	0	0	0	0
15:30 - 15:45	6	2	0	0	1	0	0	1	0	0	0	0	0	0
15:45 - 16:00	3	0	0	0	0	0	0	4	1	0	0	0	0	0
Hourly Total	16	2	0	0	1	0	0	12	3	1	0	0	0	1
16:00 - 16:15	2	1	0	0	0	0	0	3	2	0	0	0	0	0
16:15 - 16:30	7	0	0	0	0	0	0	6	1	0	0	0	0	0
16:30 - 16:45	4	1	0	0	0	0	0	2	4	0	0	0	1	0
16:45 - 17:00	7	2	0	0	0	1	0	1	2	1	0	0	0	1
Hourly Total	20	4	0	0	0	1	0	12	9	1	0	0	1	1
17:00 - 17:15	2	1	1	0	0	0	0	5	0	1	0	0	0	0
17:15 - 17:30	5	0	0	0	0	0	0	6	0	1	0	0	0	1
17:30 - 17:45	7	0	1	0	0	0	1	5	0	1	0	0	0	0
17:45 - 18:00	8	0	0	0	0	1	0	2	0	0	0	0	1	0
Hourly Total	22	1	2	0	0	1	1	18	0	3	0	0	1	1
18:00 - 18:15	2	1	0	0	0	0	0	5	1	0	0	0	0	1
18:15 - 18:30	2	2	0	0	0	0	0	6	1	1	0	0	0	0
18:30 - 18:45	1	0	0	0	0	0	1	2	1	0	0	0	0	1
18:45 - 19:00	3	0	0	0	0	0	0	4	0	0	0	0	1	0
Hourly Total	8	3	0	0	0	0	1	17	3	1	0	0	1	2

Advanced Transport Research	Job Number & Name:	6224 Watlington
Link 1 - Pyrton Lane	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement C							Movement D						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	10	5	0	0	0	0	0	18	4	1	0	0	0	0
07:15 - 07:30	14	2	0	0	0	0	1	20	4	0	0	0	0	0
07:30 - 07:45	17	0	0	0	0	0	0	40	11	0	0	0	0	1
07:45 - 00:00	8	3	0	0	0	0	0	27	8	0	0	0	0	0
Hourly Total	49	10	0	0	0	0	1	105	27	1	0	0	0	1
08:00 - 00:15	10	1	0	0	0	0	0	34	4	0	0	0	0	0
08:15 - 00:30	7	1	0	0	0	0	0	37	4	1	0	0	0	0
08:30 - 00:45	14	0	0	0	0	1	0	31	6	0	0	0	0	0
08:45 - 01:00	17	0	0	0	0	0	0	32	2	0	0	0	0	0
Hourly Total	48	2	0	0	0	1	0	134	16	1	0	0	0	0
09:00 - 01:15	12	0	0	0	0	0	0	15	2	0	0	0	0	0
09:15 - 01:30	8	2	0	0	0	0	0	7	4	0	0	0	0	0
09:30 - 01:45	3	2	0	0	0	0	0	6	0	0	0	0	0	1
09:45 - 02:00	2	1	0	0	0	0	0	7	5	0	0	0	0	0
Hourly Total	25	5	0	0	0	0	0	35	11	0	0	0	0	1
15:00 - 15:15	4	5	0	0	0	0	0	9	1	0	0	0	0	0
15:15 - 15:30	5	1	0	0	0	0	0	1	0	1	0	0	0	0
15:30 - 15:45	2	0	0	0	0	0	0	5	0	1	0	0	0	0
15:45 - 16:00	3	1	0	0	0	0	1	9	0	1	0	0	0	0
Hourly Total	14	7	0	0	0	0	1	24	1	3	0	0	0	0
16:00 - 16:15	7	2	1	0	0	0	0	11	1	0	0	0	0	0
16:15 - 16:30	7	5	0	0	0	0	2	7	1	1	0	0	1	0
16:30 - 16:45	7	0	1	0	1	0	0	14	4	0	0	0	0	0
16:45 - 17:00	12	4	0	0	0	0	0	13	3	2	0	0	0	0
Hourly Total	33	11	2	0	1	0	2	45	9	3	0	0	1	0
17:00 - 17:15	9	1	1	0	0	0	1	12	0	1	0	0	0	0
17:15 - 17:30	12	2	0	0	0	0	0	10	1	0	0	0	1	1
17:30 - 17:45	14	0	0	0	0	0	0	22	4	0	0	0	0	0
17:45 - 18:00	17	0	1	0	0	0	0	24	1	0	0	0	0	0
Hourly Total	52	3	2	0	0	0	1	68	6	1	0	0	1	1
18:00 - 18:15	16	0	0	0	0	0	0	22	2	0	0	0	0	0
18:15 - 18:30	14	1	0	0	0	0	0	9	0	0	0	0	0	0
18:30 - 18:45	13	1	0	0	0	0	0	7	1	0	0	0	0	0
18:45 - 19:00	12	1	0	0	0	0	0	6	1	0	0	0	0	1
Hourly Total	55	3	0	0	0	0	0	44	4	0	0	0	0	1

Job Number & Name:	6224 Watlington
Site Number/Name:	Link 2 - Hill Road
Client:	TPP
Date:	18/09/2014
Weather:	Cloudy, Dry
Comments:	None

Advanced Transport Research	Job Number & Name:	6224 Watlington
Link 2 - Hill Road	Client:	TPP
Site Plan	Date:	Thursday 18 Sep 2014

Advanced Transport Research	Job Number & Name:	6224 Watlington
Link 2 - Hill Road	Client:	TPP
Classified Counts	Date:	Thursday 18 September 2014

	Movement A							Movement B						
Times	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc	Cars	LGV	OGV1	OGV2	PSV	M/B	Cyc
07:00 - 07:15	4	2	0	0	0	0	0	5	1	0	0	0	0	0
07:15 - 07:30	3	1	0	0	0	0	0	13	1	0	0	0	0	0
07:30 - 07:45	8	0	0	0	0	0	0	8	0	0	0	0	0	1
07:45 - 08:00	7	0	0	0	2	0	0	14	3	0	0	0	0	0
Hourly Total	22	3	0	0	2	0	0	40	5	0	0	0	0	1
08:00 - 08:15	7	2	0	0	0	0	1	4	6	0	0	0	0	1
08:15 - 08:30	6	1	0	0	0	1	0	6	4	0	0	0	0	0
08:30 - 08:45	13	4	0	0	0	0	0	9	2	0	0	1	0	0
08:45 - 09:00	13	3	0	0	2	0	2	16	4	0	1	1	0	1
Hourly Total	39	10	0	0	2	1	3	35	16	0	1	2	0	2
09:00 - 09:15	8	2	0	1	0	1	0	5	1	0	0	0	1	1
09:15 - 09:30	7	3	0	0	1	0	0	19	3	1	0	0	0	1
09:30 - 09:45	14	1	1	0	0	0	0	8	2	0	0	0	0	1
09:45 - 10:00	6	0	0	0	0	0	1	18	4	1	0	0	1	1
Hourly Total	35	6	1	1	1	1	1	50	10	2	0	0	2	4
15:00 - 15:15	11	0	0	0	0	0	0	8	2	0	0	0	0	0
15:15 - 15:30	11	2	0	0	0	0	0	10	0	0	0	0	0	0
15:30 - 15:45	14	1	0	0	0	0	0	11	1	0	0	0	0	0
15:45 - 16:00	4	2	0	0	0	0	0	1	0	0	0	1	0	1
Hourly Total	40	5	0	0	0	0	0	30	3	0	0	1	0	1
16:00 - 16:15	12	10	0	0	2	0	0	11	0	0	0	0	0	0
16:15 - 16:30	11	0	0	0	0	0	0	7	1	0	0	0	0	1
16:30 - 16:45	9	1	0	0	1	1	2	15	1	0	0	0	0	0
16:45 - 17:00	13	2	0	0	1	0	1	7	1	0	0	1	0	2
Hourly Total	45	13	0	0	4	1	3	40	3	0	0	1	0	3
17:00 - 17:15	8	4	0	0	0	0	0	9	3	0	0	0	0	0
17:15 - 17:30	11	2	0	0	0	0	0	6	1	0	0	0	0	0
17:30 - 17:45	10	2	0	0	0	0	1	11	2	0	0	0	0	0
17:45 - 18:00	15	0	0	0	0	0	0	10	2	0	0	0	0	0
Hourly Total	44	8	0	0	0	0	1	36	8	0	0	0	0	0
18:00 - 18:15	13	0	0	0	0	0	1	15	0	0	0	0	0	0
18:15 - 18:30	9	2	0	0	0	1	1	5	2	0	0	0	0	0
18:30 - 18:45	12	0	0	0	0	0	0	11	0	0	0	0	0	0
18:45 - 19:00	12	1	0	0	0	0	2	2	1	0	0	0	1	0
Hourly Total	46	3	0	0	0	1	4	33	3	0	0	0	1	0