PROPOSED LIDL FOODSTORE

Former Hayes Pool and Fitness Centre,
Central Avenue, Hayes Town

Addendum Transport Assessment
On behalf of Lidl UK

September 2016

Gateway TSP

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1 INTRODUCTION

1.1 Gateway TSP is instructed by Lidl UK to prepare this Addendum Transport Assessment (ATA) to provide an updated Transport Assessment to address a number of aspects that have been raised in post-application discussions with the Highway Officer at the London Borough of Hillingdon in association with a planning application (reference 1942/APP/2015/4127) for a new foodstore at the former Hayes Pool and Fitness Centre site, Central Avenue, Hayes Town. This ATA should be read in conjunction with the submitted Transport Assessment.

1.2 The development proposals have been altered as a result of ongoing post-application discussions and feedback from Members and public comments. To summarise, the key changes are as follows:

- Access to the site is now taken from Central Avenue, not Church Lane;
- A package of off-site highway improvements is proposed for Central Avenue, including a new access to the Botwell Lane Pay & Display car park and resurfacing of the car park; and
- Provision of 2 active rapid electric charging spaces and 2 passive rapid charging points spaces.

1.3 Given that the access location has altered, there is a need to reassess the impacts of the development utilising Central Avenue. There were a number of points raised during post-application discussions that have been incorporated into this ATA reassessment of the proposed development, including:

- Updated 5-year personal injury accident study for the identified network;
- New access design and Stage 1 Road Safety Audit;
- Updated trip assessment utilising recent surveys undertaken at Tooting and Wallington;
- Updated parking accumulation assessment; and

- Updated local capacity modelling and VISSIM microsimulation town centre modelling.

1.4 The remainder of this Transport Assessment will be set out as follows:

i) Section 2 considers relevant transport policy at a national, regional and local level;

ii) Section 3 provides a description of the existing site, transport networks and traffic conditions relevant to the development proposals;

iii) Section 4 explains the development proposals for the site;

iv) Section 5 sets out the transport impact of the development proposals;

v) Section 6 provides the junction capacity assessment;

vi) Section 7 outlines the mitigation measures proposed; and

vii) Section 8 provides the summary and conclusions.

2 TRANSPORT POLICY

2.1 Statutory transport policy and guidance relevant to the proposed development is found within the following documents:

i) The National Planning Policy Framework (NPPF);

ii) The London Plan, Spatial Development Strategy for Greater London; and

iii) The London Borough of Hillingdon Local Plan: Part 1 – Strategic Policies and saved polices within the Unitary Development Plan.

National Policy

2.2 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied.

2.3 The NPPF presumes in favour of sustainable development and is a material consideration in planning decisions. The NPPF identifies that local planning authorities should *"positively seek opportunities to meet the development needs of their area".* Twelve core land-use planning principles are put forward to underpin both plan-making and decision-taking, one of which is to:

> *"encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value;*
>
> *…actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable."*

2.4 Paragraph 32 addresses the relationship between development and sustainable transport as follows:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

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

2.5 Paragraph 35 suggests that developments should be located and designed where practical to, among other things, give priority to pedestrian and cycle movements, have access to high quality public transport facilities, create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians and consider the needs of people with disabilities by all modes of transport.

2.6 It is noted at paragraph 36 that travel plans will provide a key tool in facilitating these objectives and all developments that generate significant amounts of movement should provide one.

2.7 Paragraph 37 encourages planning policies that aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.

2.8 Off-street parking provision is referred to by paragraph 39, which says that in setting local parking standards for development, local planning authorities should take into account accessibility; the type, mix and use of the development; the availability of and opportunities for public transport; local car ownership levels; and an overall need to reduce the use of high-emission vehicles.

2.9 In addition to paragraph 39 of the NPPF, a statement by Eric Pickles on the 25th March 2015 stated that at a National level it is now considered that:

> *"Local planning authorities should only impose local parking standards for residential and non-residential development where there is clear and compelling justification that it is necessary to manage their local road network."*

Regional Policy

2.10 'The London Plan; spatial development strategy for London consolidated with alterations since 2011' including the Further Alterations to the London Plan (FALP) document was adopted by the Mayor of London in March 2015. It sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.

2.11 One of the Mayor's six objectives for London, which is reiterated in Policy 1.1 in terms of delivering the strategic vision and objectives for London is:

> *"A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all the objectives of this Plan."*

2.12 Policy 6.1 identifies the strategic approach to integrating transport and development and states that the Mayor will work with relevant patterns to encourage the closer integration of transport and development by:

a. *"Encouraging patterns and nodes of development that reduce the need to travel, especially by car;*

b. *Seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greatest demand;*

c. *Supporting development that generates high levels of trips at locations with high levels of public transport accessibility and/or capacity, either currently or via committed, funded improvements including, where appropriate, those provided by developers through the use of planning obligations; and*

g. *supporting measure that encourage shifts to more sustainable modes and appropriate demand management."*

2.13 Policy 6.3 considers the assessment of effects of development on transport capacity and states:

"A. Development proposals should ensure that impacts on transport capacity and the transport network, at both a corridor and local level, are fully assessed. Development should not adversely affect safety on the transport network…

C. Transport assessments will be required in accordance with TfL's Transport Assessment Best Practice Guidance for major planning applications. Workplace and/or residential travel plans should be provided for planning applications exceeding the thresholds in, and produced in accordance with, the relevant TfL guidance. Construction logistics plans and delivery and servicing plans should be secured in line with the London Freight Plan and should be co-ordinated with travel plans."

2.14 In addition, the 'Parking Standards Minor Alterations to the London Plan' were also adopted in March 2016, to reflect the statement made by Eric Pickles to alter the national guidance on parking standards.

2.15 Policy 6.13 of the Minor Alterations notes the need for an appropriate balance to be struck between promoting new development and preventing excessive parking. It is also noted that parking policy "*can also affect patterns of development and play an important part in the economic success and liveability of places, particularly town centres.*"

Local Policy

2.16 Local policy is contained within the emerging Hillingdon Local Plan, with Part 1 the Strategic Policies document adopted in November 2012.

2.17 Policy T1 relates to accessible local destinations, which is the policy behind Strategic Objective 18 which identifies the Council objective to improve access to a variety of land uses within the Borough. Policy T1 states:

> *"The Council will steer development to the most appropriate locations in order to reduce their impact on the transport network. All development should encourage access by sustainable travel modes and include good cycling and walking provision.*
>
> *The Council will ensure access to local destinations which provide services and amenities."*

2.18 In respect of public transport interchanges, policy T2 states:

> *"The Council will facilitate improved public transport interchanges at Uxbridge, Hayes, West Drayton, Heathrow Airport, West Ruislip and other locations as appropriate in the future. These interchanges will*

accommodate measures to encourage subsequent shorter journeys to be completed on foot or by cycle."

2.19 Policy T3 relates to improving sustainable transport links and states the Council objective to:

> *"Improve north-south public transport links in the borough and link residential areas directly with employment areas and transport interchanges."*

2.20 Specific transport related polices are also provided within the Hillingdon Unitary Development Plan saved policies.

2.21 Policy AM2 relates to new development proposals and states:

> *"All proposals for development will be assessed against:*
>
> *(i) Their contribution to traffic generation and their impact on congestion, particularly on the principal road network as defined in paragraph 14.14 of the plan; and*
>
> *(ii) The present and potential availability of public transport and its capacity to meet increased demand."*

2.22 In respect of cycling, policy AM9 states that the Council will:

> *"Promote secure, attractive and adequate cycle parking facilities in the borough's town centres, public transport interchanges and at other major attractions and will require development proposals to include clearly visible, well-designed, covered, secure and accessible bicycle parking for users of the development and, where appropriate, for the general public."*

2.23 In respect of car parking, policy AM14 states that developments should accord with the Council's adopted car parking standards and AM15 identifies the need to provide conveniently located reserved spaces for disabled persons in accordance with the Council's adopted parking standards.

Overview

2.24 National, regional and local level transport policy clearly encourages new development to be located in areas that are readily accessible on foot, cycle and by public transport, making use of available sites within built up locations.

2.25 The proposed Lidl foodstore offers a realistic choice of access by public transport, walking and cycling. A new food retail offer here would also reduce the need for travel to other, more distant stores, and facilitate more efficient 'top-up' shopping. The site further benefits from its location close to the principal road network, enabling easy access for commercial vehicles away from sensitive local access roads.

3 EXISTING CONDITIONS

Site Location

3.1 The site is located in Hayes town centre, within the London Borough of Hillingdon. Hayes is a district town which is centrally located with Southall to the east, Harlington to the south, West Drayton to the west, Yeading to the north and Hillingdon and Uxbridge to the north-west. The strategic site location is shown in Figure 3.1.

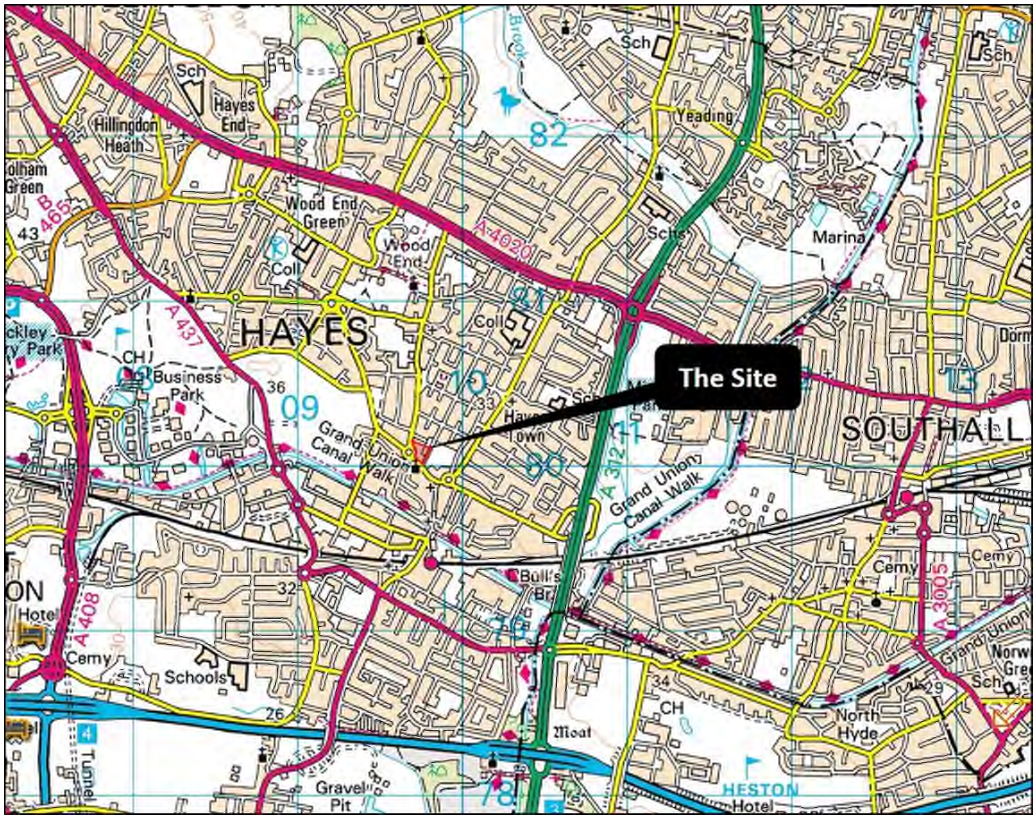


Figure 3.1: Strategic Location Plan

3.2 The site is located in an area of mixed land uses, with Hayes principal shopping area along Station Road and Botwell Lane located to the south-east of the site. Residential developments are located to the north and west, the Botwell Green Sports and Leisure Centre to the east along with Hayes Bowls Club and a primary school, church and mixed industrial buildings to the south/south-west.

3.3 The site has an existing frontage onto Central Avenue, a local road connecting Botwell Green to the south with the A4020 Uxbridge Road to the north via a left-in/left-out junction arrangement. Central Avenue is a 20mph traffic calmed road which runs parallel to Coldharbour Lane located to the east. Coldharbour Lane provides an all movements access onto the A4020 Uxbridge Road and connects to Botwell Lane at a roundabout junction to the south.

3.4 Central Avenue meets Botwell Lane at a priority junction located immediately to the west of a pedestrian signalised crossing over Botwell Lane. Botwell Lane continues in a north-west direction to a roundabout with Church Road, which heads north to the A4020 Uxbridge Road. Beyond this roundabout Botwell Lane continues north-west into Hayes. A further roundabout junction is present with Botwell Common Road, which provides a link south-west to the A437 Dawley Road.

3.5 To the south and west, the site is bounded by Botwell Lane, which connects to Coldharbour Lane and Pump Lane at a mini-roundabout in the east. Pump Lane provides a strategic connection to the principal road network of the A312 The Parkway to the east whilst Coldharbour Lane provides a connection to the A4020 Uxbridge Road to the north. The Parkway (A312) provides a connection south to the M4 at junction 3, the A4 and A30 whilst to the north it connects to the A4020 and A40.

3.6 Botwell Lane passes through the northern section of Hayes town centre and provides two signalised pedestrian crossings over the carriageway to connect to the principal shopping area along Station Road to the south. Emergency access only is permitted through a gate between Botwell Lane and Station Road (at present) although the link is fully accessible for pedestrians and cyclists. Hayes & Harlington railway station is located along Station Road to the south of the shopping area. The site in relation to the local area is shown in Figure 3.2.

Figure 3.2: Local Area Plan

3.7 The London Borough of Hillingdon and Transport for London are committed to delivering a town centre improvement scheme in Hayes, which is phased over 2 years and commenced in February 2015. The scheme will provide streetscaping works along Station Road, Coldharbour Lane and Pump Lane with alterations to the parking layouts and the installation of dedicated cycle lanes. The Phase 3 improvements include the opening of Station Road to two-way vehicle movements through the installation of a roundabout junction.

Surrounding Area

3.8 The surrounding area is mixed given the location on the edge of Hayes town centre. Botwell Green Sports and Leisure Centre is located to the east with the centre's egress located just to the south of the application site access on Central Avenue. Hayes Bowls Club is located to the south-east of the site.

3.9 To the south and west, the site is bounded by Botwell Lane and beyond this a mixture of residential, Botwell House Roman Catholic Primary School, a church and industrial uses.

3.10 Immediately to the north of the site is the Hayes Pool (Central Avenue) Pay & Display public car park, accessed from Central Avenue via a shared access arrangement with the former Hayes Pool site. Historically, the junction has provided access to the Hayes Pool car park along with the pay and display car park.

Accessing the Site by Non-Car Modes

Accessibility on Foot

3.11 There is a network of interconnected pedestrian footways that link the site to the surrounding residential areas and to the parade of shops along Station Road, via signalised pedestrian crossings over Botwell Lane.

3.12 A zebra crossing is provided over Central Avenue to the north of the existing site access. A second crossing is provided over Central Avenue to the south of the existing site access adjacent to the junction with Botwell Lane. This crossing benefits from dropped kerbs, tactile paving and is block paved over the Central Avenue carriageway. Footways along Central Avenue are wide and tree lined on both sides of the carriageway.

3.13 A signalised pedestrian crossing is provided in close proximity to the junction of Botwell Lane and Central Avenue offering an opportunity to cross Botwell Lane adjacent to Botwell House Catholic Primary School. A second signalised crossing is provided approximately 100 metres to the south-east along Botwell Lane adjacent to Station Road.

Accessibility by Cycle

3.14 Transport for London (TfL) provides detailed cycle guides of signed cycle routes, recommended quiet on-road routes and off-road routes. Cycle routes in Hayes are covered in Local Cycling Guide 6. These guides can be ordered for free from the TfL website.

3.15 Central Avenue provides a route signed or marked for use by cyclists on a mixture of quiet and busier roads. Central Avenue provides a route north, to the A4020 Uxbridge Road, with Shakespeare Avenue continuing this signed or marked route north into Yeading. To the south, Central Avenue and Station Road, linked by Botwell Lane, provide a signed or marked route to Hayes & Harlington railway station.

3.16 To the north of the site, Glebe Road and Longmead Road provide a cycle route along roads which have been recommended by cyclists to Church Road. Church Road is also a recommended cycle route and provides links to Wood End Green and residential areas to the west of the site.

Accessibility by Bus

3.17 The closest bus stops to the proposed development access are located along Botwell Lane with the eastbound bus stops approximately 85 metres from the site access and the west bound bus stop approximately 180 metres via the signalised pedestrian crossing over Botwell Lane. These stops provide access to bus service numbers 195, H98, U4 and U5.

3.18 There are additional bus services accessible from Coldharbour Lane to the east of the site. These bus stops provide access to service numbers 90, 140, and E6. The northbound bus stop is approximately 300 metres from the site access, along Central Avenue and Botwell Lane and the southbound bus stop is approximately 350 metres from the site access. Although both are accessible from a more direct route through the Botwell Green Sports and Leisure Centre parkway, which would reduce the overall walking distance to these bus stops.

3.19 A summary of the frequent bus services at the local stops identified above is summarised in Table 3.1.

Service	Route/Destination	Weekday Daytime Frequency	Saturday Daytime Frequency	Sunday Daytime Frequency
90	Feltham - Lansbury Avenue – Hatton Cross Station – Hayes and Harlington Station - Coldharbour Lane -Uxbridge County Court - Northolt	Every 9-11 mins	Every 9-11 mins	Every 15 mins
140	Heathrow Central Bus Station – Hays & Harlington Station - Coldharbour Lane – Hayes – Yeading – Northolt – South Harrow – Harrow – Harrow & Wealdstone – Harrow Weald	Every 7-8 mins	Every 7-8 mins	Every 10 mins
195	Romney Road - Charville School – Botwell Lane – Botwell Green – Hayes & Harlington Station – Southall Station – Boston Manor Station – Brentford County Court	Every 10-13 mins	Every 12-13 mins	Every 15 mins
H98	Wood End Green Road – Hayes End – Botwell Lane – Botwell Green – Hayes & Harlington Station – Harlington Corner – Hounslow West – Hounslow Bus Station	Every 6-10 mins	Every 7-10 mins	Every 15 mins
E6	Greenford Station – Yeading – Hayes – Coldharbour Lane – Station Road – Hayes & Harlington Station – Crowland Avenue – Bulls Bridge Tesco	Every 8-11 mins	Every 8-12 mins	Every 15 mins
U4	Prologis Park – Pinkwell Park — Hayes & Harlington Station – Botwell Common – Hillingdon Hospital – Brunel University - Uxbridge	Every 6-8 mins	Every 7-10 mins	Every 15 mins
U5	Uxbridge Station – Cowley – Mill Road – West Drayton – Stockley Road – The Square – Botwell Common – Clayton Road – Hayes & Harlington Station – Fairey Corner	Every 10-13 mins	Every 12-14 mins	Every 20 mins

Table 3.1: Summary of Bus Services Available

3.20 Table 3.1 indicates that the site is well served by bus services, with the majority of services operating approximately every 10 minutes, with some more frequent than this. The bus services available provide access to the rail and Underground network, with each service providing a link to Hayes & Harlington railway station.

3.21 The TfL bus spider map of routes in this area is included at **Appendix A**.

Accessibility by Rail

3.22 The closest railway station to the site is Hayes & Harlington, located approximately 750 metres to the south of the site. It is also accessible by bus with all of the local bus services stopping at the station.

3.23 At present, Hayes & Harlington railway station serves the Heathrow Connect service between Heathrow airport and London Paddington along with other longer distance journeys operated by First Great Western to Oxford or Reading. Table 3.2 provides a summary of the rail services and frequencies available.

Service	Destinations Served	Weekday Daytime Frequency	Saturday Daytime Frequency	Sunday Daytime Frequency
Heathrow Connect	London Paddington – Ealing Broadway – West Ealing – Hanwell – Southall – Hayes & Harlington – Heathrow Terminals 1, 2 & 3	Every 30 minutes	Every 30 minutes	Hourly service
London Paddington – Reading	London Paddington – Ealing Broadway – Southall – Hayes & Harlington – West Drayton – Slough – Burnham – Taplow – Maidenhead – Twyford – Reading	Every 30 minutes	Every 30 minutes	Hourly service
London Paddington - Oxford	London Paddington – Ealing Broadway – Southall – Hayes & Harlington – West Drayton – Iver – Langley – Slough – Maidenhead – Twyford – Reading – Tilehurst – Pangbourne – Goring & Streatley – Cholsey – Didcot Parkway – Appleford – Culham – Radley – Oxford	Every 30 minutes	Every 30 minutes	Hourly service
Hayes & Harlington – London Paddington*	Southall – Ealing Broadway – London Paddington	Every 15 minutes	Every 30 minutes	Every 30 minutes

***Not including Heathrow Connect services**

Table 3.2: Rail Services from Hayes & Harlington Railway Station

3.24 Hayes & Harlington will also form one of the Crossrail stations to the west of London, when it is completed in approximately 2018. The Crossrail line will provide an additional 4 rail services per hour from the east to Central London. It will also provide access to local stations of West Drayton, Southall, Hanwell and Langley.

Transport Connectivity

3.25 Transport for London (TfL) assesses the connectivity of areas based on the WebCAT Toolkit, which includes an assessment of the PTAL, travel time mapping and catchment analysis to provide an overview of the transport network for a location.

Public Transport Accessibility Level (PTAL)

3.26 Public Transport Accessibility Levels (PTALs) are a theoretical measure of the accessibility of a given point to the public transport network, taking into account walk access time and service availability. This method is a way of measuring the density of the public transport network at a particular point.

3.27 Walk times are calculated from the specified point of interest to all public transport access points including bus stops and stations within pre-defined catchments. The PTAL incorporates a measure of service frequency to calculate an average wait time based on the frequency of service at each public transport access point. A reliability factor is added and the total access time is calculated. A measure known as an Equivalent Doorstep Frequency (EDF) is then derived for each point. These are summed for all routes within the catchment and the PTALs for the different modes are then added together to give a single value. The PTAL is categorised in nine levels, 1a to 6b where 6b represents a high level of accessibility and 1a, a low level of accessibility.

3.28 The PTAL rating of the site is 4, which represents a good level of accessibility by public transport modes. The PTAL output for the 2011 base year is included at **Appendix B**. The addition of Crossrail services to Hayes & Harlington station along with an uplift in bus service frequencies serves to increase the PTAL value of the site in the 2021 forecast year to a PTAL level of 5. The PTAL output for the 2021 forecast year is included at **Appendix C**.

3.29 It should be noted that TfL acknowledges the limitations of the PTAL assessment in the 'Assessing Transport Connectivity in London' guidance document, noting that it cannot differentiate within each category and this can result in significant variations and also it is an overall measure and cannot be used for individual public transport modes.

3.30 Whilst PTAL provides a theoretical measure for public transport accessibility taking account of access to all public transport modes, it should be noted that this type of development does not necessarily attract people to travel by all public transport modes available. Surveys from other Lidl stores around London indicate that access by bus is the key public transport mode used. In this instance, the proximity of the site to bus stops on Church Road and Botwell Lane and the range and frequency of service availability makes the site highly accessible by this mode.

Travel Time Mapping (TIM)

3.31 Travel time mapping offers an opportunity to review the connectivity of a site by specific travel mode or across all public transport modes and is available via the WebCAT TIM online calculator.

3.32 A Lidl foodstore generates a relatively high proportion of bus trips to the and from the store, which is one of the main reasons why considering an overall PTAL in isolation is not appropriate for this type of development. However, TIM plans have been produced for travel from the store during both the weekday evening peak and the daytime inter-peak periods, with the outputs included at **Appendix D**.

3.33 The outputs identify that there are significant residential areas within a 30-minute bus travel time from the site. Access is provided to Harlington to the south, Hayes and eastwards towards Southall. To the north the travel distance extends north to the A40 Western Avenue towards Northolt.

Baseline Transport Data

3.34 Manual classified turning counts were undertaken at the priority junction of Central Avenue and Botwell Lane on Friday 20th September 2013 (16:00 – 19:00 hours) and Saturday 21st September 2013 (11:00 – 15:00 hours). Additional surveys were undertaken at the Nield Road/Botwell Lane priority junction and the Church Road/Botwell Lane roundabout junction on Friday 20th March 2015 (16:00 – 19:00 hours) and Saturday 21st March 2015 (11:00 – 15:00 hours). These time periods were chosen as these are the periods when traffic on the highway is at its busiest and traffic associated with the proposed development is predicted to have the highest impact.

3.35 From these traffic surveys, the weekday evening peak hour is identified as 16:45 to 17:45 hours, with the Saturday peak hour identified as 12:45 to 13:45 hours. The associated 2013 observed peak hours are shown in **Figures 3.3** and **3.4** for the weekday evening and Saturday peak hours respectively and **Figures 3.5** and **3.6** providing the same for the 2015 observed peak hour traffic flows.

Committed Development

3.36 As part of the post-application discussions, the Highway Officer provided a list of committed development site for consideration in background traffic flows via an email sent on the 23rd December 2015.

3.37 The committed development sites identified were as follows:

- Redevelopment of the Old Vinyl Factory with UTC instead of Cinema (refer to the latest TA);
- 20 Blyth Road (application ref. 1425/APP/2011/3040);
- Land East of the Former EMI Site Blyth Road Hayes (application ref. 51588/APP/2011/2253);
- Enterprise House, 133 Blyth Road Hayes (application ref. 67283/APP/2010/2112);

- Trident House (application ref. 3151/APP/2014/2408, allowed on appeal);
- Union House, 23 Clayton Road (application ref. 35250/APP/2014/3506);
- Lake Farm School (application ref. 68911/APP/2012/2983); and
- Golden Cross Botwell Lane Hayes (application ref. 4607/APP/2013/3144).

3.38 A Technical Note was prepared to respond to comments raised in the email, including a full review of all committed development sites requested. For ease of reference the Technical Note is included at **Appendix E**. A review has been undertaken of the planning application register at the time of preparing this ATA and there are no further sites identified as committed development for consideration.

3.39 An additional committed development for consideration is the consented foodstore at the development site. As this development is consented, the flows can be included within the committed development assessment. For the purposes of the proposed development, these foodstore traffic flows will not be assessed, as the proposed and consented developments cannot be built on the same site. Therefore, the consented foodstore flows will only be used during the future year baseline assessments.

3.40 **Figures 3.7** and **3.8** provide the Lake Farm School committed development traffic flows for the weekday evening and Saturday peak periods respectively. **Figures 3.9** and **3.10** provide the consented Lidl traffic flows for the respective peak periods, based on the flow diagrams from the consented application. **Figures 3.11** and **3.12** provide the total committed development traffic flows.

3.41 All committed development traffic has been distributed through the network based on the observed turning proportions.

Assessment Years

3.42 The Transport Assessment undertaken in March 2015 to accompany this application assessed a future year of 2016 for the opening year and 2020, to represent 5 years following the registration of the planning application, in line with TfL Transport Assessment guidance. The TfL guidance states that future years should be agreed with TfL, and with TfL not being a consultee on this application the future years assessed within the consented Transport Assessment at the site remain valid.

3.43 To provide a robust assessment, it is considered that the 2016 opening year will remain, given the short build times Lidl require to construct a foodstore. The future assessment year of 2021 will be used, to provide a robust assessment of 5 years following the opening of the foodstore.

3.44 Traffic growth figures have been derived from the TEMPRO database version 6.2 for the area and adjusted with reference to the National Transport Model (NTM) AF09 dataset. Within TEMPRO there are two area categories for Hillingdon (main), both area selections have been used with an average of both outputs considered to represent the predicted growth for the area with the growth factors summarised in Table 3.3 below.

Time Period	Weekday PM Growth Factor	Saturday Daytime Growth Factor
2013 - 2016	1.0264	1.0289
2013 - 2021	1.1174	1.1264
2015 - 2016	1.0174	1.0182
2015 - 2021	1.1077	1.1148

Table 3.3: TEMPRO Growth Factors

3.45 **Figures 3.13** and **3.14** provide the 2016 uplifted weekday evening and Saturday peak hour traffic flows respectively. The 2016 baseline traffic flows are included in **Figures 3.15** and **3.16** for the weekday evening and Saturday peak hours respectively, and include the committed development traffic flows. **Figures 3.17** and **3.18** provide the 2021 uplifted traffic flows for the respective peak hours, with **Figures 3.19** and **3.20** contain the 2021 future year baseline traffic flows for the weekday evening and Saturday peak hours respectively.

Road Safety

3.46 At the request of the Highway Officer at the London Borough of Hillingdon, the up-to-date accident record data has been obtained from Transport for London, up to the 29th February 2016. The accident records refer only to road traffic accidents that resulted in personal injury (PIA). The PIA study area remains the same as assessed within the Transport Assessment, and includes sections of Church Road, Botwell Lane, Coldharbour Lane and Central Avenue, up to Glebe Road to the north of the site.

3.47 During the five-year period, 40 accidents were recorded within the study area. Of these, 24 accidents occurred in daylight hours on a dry road surface, with four accidents occurring on a wet road surface. During darkness hours, nine accidents occurred on a dry road surface and three on a wet road surface. Of the 40 accidents, 38 resulted in 'slight' injuries, with the remaining two resulting in 'serious' injuries. The two serious injuries both occurred on Coldharbour Lane, as a pedestrian was hit by a motorcycle and seriously injured whilst crossing the road, and as a bus passenger attempted to board a bus whilst the doors were closing.

3.48 Three accidents were recorded along Central Avenue, all resulting in slight injuries. One accident occurred at the junction with Glebe Road, in which a driver lost control of their vehicle and hit a bollard, with the accident causation listed as illness or disability. The remaining two accidents occurred along the Central Avenue link, between the Botwell Lane junction to the south and the Glebe Road junction to the north. One of these accidents involved a pedal cyclist, who was injured as a vehicle reversed over the pavement and hit the cyclist, attributed as failed to look properly. The remaining accident was a shunt accident, as one vehicle went into the back of another vehicle approximately 70 metres north of the Botwell Lane junction.

3.49 A full summary of the accident descriptions and causation factors is provided at **Appendix F** whilst an accident causation summary is provided in Table 3.4 below.

Accident Cause/Description	Number of PIA's	% PIA's
Dangerous Action in Carriageway (e.g. Playing)	1	2.5%
Failed to Look Properly	10	25.0%
Incidents Involving Bus Passengers	7	17.5%
Other - Pedestrian Slipped into Road	1	2.5%
Following too Close	3	7.5%
Impaired by Alcohol	1	2.5%
Illness or Disability, Mental or Physical	1	2.5%
Loss of Control	1	2.5%
Aggressive Driving	1	2.5%
Careless/Reckless/In a Hurry	2	5.0%
Poor Turn or Manoeuvre	2	5.0%
Failed to Judge Other Person's Path or Speed	4	10.0%
Vehicle Door Opened or Closed Negligently	1	2.5%
Travelling too Fast for Conditions	1	2.5%
Vision Affected – Stationary or Parked Vehicles	2	5.0%
Vision Affected – Dazzling Sun	1	2.5%
Sudden Braking	1	2.5%
TOTAL	**40**	**100%**

Table 3.4: Summary PIA Data

3.50 Generally, the types of accidents which have occurred on the study network are typical of a town centre network, where there is a high demand from vulnerable road users such as pedestrians, cyclists and a high number of bus services passing through the area.

3.51 There is no reason to suggest that the development proposals would cause an increase in the number of severity of road accidents in the area.

4 PROPOSED DEVELOPMENT

4.1 The development proposals comprise the redevelopment of the site to provide a Lidl foodstore. A foodstore of 2,639 square metres gross external area is proposed (1,687 square metres net sales area) on the site. The architect's revised site layout drawings are included at **Appendix G**.

4.2 The Lidl foodstore would occupy the full former Hayes Pool and Fitness Centre site bounding Central Avenue, Botwell Lane and Church Road, with a revised foodstore access now proposed from Central Avenue.

Access Arrangements

Vehicular Access

4.3 The planning application was submitted with an access into the Lidl foodstore from a proposed new access on Church Road. Whilst an independent Stage 1 Road Safety Audit of the scheme design did not raise any safety problems or comments, the Highway Officers at the London Borough of Hillingdon advised that access along either Church Road or Botwell Lane to the site would not be considered acceptable.

4.4 Whilst no justification was given for this position statement on access into the site, the Applicants are keen to commence development at the site, which was initially due to start in the summer of 2016. As a result, plans were reviewed with the intention of providing an access from Central Avenue. The proposed Lidl foodstore size, the car parking provision proposed and the shape of the land parcel, all collectively mean that access options into the site are limited.

4.5 As part of the design process, it was identified that in order to provide a connection to Hayes town centre, the Lidl foodstore building needed to be in the south-eastern corner of the site, with frontage access provided from Botwell Lane. On this basis, the options for situating the access along Central Avenue are limited and access has to be taken from the area to the north of the site boundary with Central Avenue in the vicinity of the former Hayes Pool and car park access.

4.6 This location is considered acceptable given that Central Avenue is a lightly-trafficked straight tree-lined avenue with only two existing accesses provided along this section (Botwell Green Sports and Leisure Centre egress and the existing Hayes Pool and Pay & Display car park access).

4.7 To improve junction separation, it is proposed to relocate the existing access to the Central Avenue pay and display car park further north along Central Avenue. This would improve the existing access arrangement to the car park, which remains outstanding from the former pool building and site layout. At present there are two areas of the Pay & Display car park and the priority arrangements are considered to be confusing. Providing a single point of access to the full London Borough of Hillingdon owned car park could allow for the public car park to be improved and a more efficient use of the Council owned land to take place. The existing pay and display car park access will be stopped up with full height kerb and footway reinstated over the access.

4.8 To accommodate the new car park access, the pay & display car park will be reconfigured to ensure that no spaces are lost. The existing car park layout accommodates 71 car parking spaces, of which four are designated for Blue Badge Holders and two for Brown Badge Holders. The reconfigured car park has been designed to accommodate 76 car parking spaces, a net increase over the existing layout, of which five are designated for Blue Badge Holders and four for Brown Badge Holders. The car park will be surfaced and repainted as part of the off-site highway works associated with the proposed development.

4.9 **Appendix H** provides the proposed access arrangement drawings, with 43 metre visibility splays provided along Central Avenue in accordance with Manual for Streets visibility requirements for a 30 miles per hour road. These visibility splays are provided to robustly show what can be achieved in visibility terms, whilst noting that Central Avenue is subject to a 20 miles per hour speed limit along the site frontage.

4.10 The site access arrangements have been subject to a Stage 1 Road Safety Audit, which along with the Designer's Response, is included at **Appendix I**.

Pedestrian Access

4.11 Pedestrian access to the site will be taken from Central Avenue, adjacent to the paved crossing provided over Central Avenue connecting the footway network along Botwell Lane. The Botwell Lane frontage will be partially opened along the Lidl store frontage to provide ease of pedestrian access from Botwell Lane and road connections extending form this.

4.12 The pedestrian desire line is likely to extend from Hayes town centre, over the signalised Botwell Lane pedestrian crossing and over Central Avenue into the Lidl store frontage. Provision has been made to accommodate pedestrian access along the frontage as far as possible with the retention of some of the vegetation to further enhance the site design.

4.13 An additional pedestrian access will be provided along the northern side of the site access road. This will provide a route into the site, with a crossing incorporated on the access road within the site to enable customers to cross the site access road safely.

4.14 Dropped kerbs and tactile paving will be provided across the site access bellmouth, on the desire line for pedestrians walking along Central Avenue past the site.

Parking Standards

Car Parking

4.15 Car parking standards for new developments are provided in Annex 1 of the Council's UDP. Parking standards for foodstore developments adopt the standards stated within the London Plan 2004. The London Plan has since been consolidated with alterations and a revised version adopted in March 2016. The car parking standards for foodstore development remain the same across all versions of the Plan.

4.16 The London Plan states that parking for retail uses is based on per square metres of gross internal floorspace.

4.17 The London Plan states that the maximum car parking provision for foodstore developments over 2,500 square metres GIA with a PTAL of between 4-2 is a range of between one space per 25-18 square metres.

4.18 Based on a gross internal area of 2,554 square metres, a range of between 102 and 142 spaces maximum could be provided in accordance with car parking standards.

4.19 The development proposals include 142 parking spaces within the car park, comprising the following:

- 112 standard parking spaces;
- 14 Blue Badge Holder spaces;
- 7 Brown Badge Holder spaces;
- 4 rapid charging electric vehicle parking spaces (2 active and 2 passive); and
- 5 Parent & Child spaces.

Blue/Brown Badge Provision

4.20 The Supplementary Planning Document 'Accessible Hillingdon' adopted in May 2013 requires Blue and Brown Badge parking spaces to be provided at new developments.

4.21 The SPD requires a minimum of 10% of the total parking provision to be designed for Blue Badge holders. Based on the proposed 142 parking spaces, 14 Blue Badge holder spaces would be required.

4.22 The Brown Badge scheme is available to residents aged over 65 who have restricted mobility but are not eligible for a Blue Badge. The SPD states that 5% of the total parking provision should be allocated to Brown Badge holders. Based on the proposed 142 parking spaces, 7 Brown Badge holder spaces would be required.

4.23 The development proposes 14 Blue Badge Holder parking spaces and 7 Brown Badge Holder spaces, in line with the standards above.

Electric Vehicle Charging Points

4.24 London Plan standards state that new retail development should provide 10% active electric vehicle parking provision, with 10% passive provision safeguarded for future use.

4.25 The Transport for London 'Land for Industry and Transport' Supplementary Planning Guidance document adopted in 2012 provides a guide for developers in terms of electric vehicle parking provision. It is recognised that there are three types of charging infrastructure; standard (full charge in 5 – 7 hours), fast (full charge in 2 – 3 hours) and rapid (full charge in circa 30 minutes).

4.26 It is proposed to provide rapid charging points within the site, alongside a new electricity substation to provide the necessary infrastructure to enable these charging points to operate.

4.27 There is a significant difference in cost in terms of the power supply required, charging time and overall cost of installation and maintenance of rapid charging systems over and above the 'slow' or 'fast' charging types.

4.28 On the basis of the above, 2 active (one dual charging unit) and 2 passive (one dual charging unit) electric vehicle charging spaces are proposed at the site.

4.29 Whilst the level of overall provision is low, these charging points provide a greater benefit to electric vehicle users than by providing charging points in quantity to the London Plan standard. These charging points support the overall aims set out by the Office for Low Emission Vehicles at the Department for Transport and also the Mayor's Air Quality Strategy and Electric Vehicle Delivery Plan.

4.30 Overall, rapid charging represents a net benefit to customers of the Lidl foodstore, since these will allow for a significant charge to take place whilst a food shop is being undertaken. On this basis, installation of rapid charging points results in charging points that are useful and useable for all customers with electric vehicles and would represent a boost to the existing electric vehicle charging points in the vicinity of Hayes town centre.

Car Park Management Plan

4.31 As stated within the TA, it is envisaged that the car park operational detail would be detailed within a Car Park Management Plan, which could be secured by way of Planning Condition.

Powered Two-wheeler Parking

4.32 The Parking Standards provided in Annex 1 of the Council's UDP state that powered two-wheeler parking should be provided as additional parking at a rate of 1 space per 20 car parking spaces, in car parks providing over 20 parking spaces.

4.33 Based on a 142 space car park, 7 spaces would be required to meet this standard. The development proposes 7 powered two-wheeler parking bays, and therefore meets the standard in this location.

Cycle Parking

4.34 Cycle parking standards are contained within the Further Alterations to the London Plan 2015. The FALP 2015 require development to differentiate between long and short stay cycle parking, with standards set for each parking type.

4.35 Table 4.1 below identifies the cycle parking standards applicable to an A1 food retail development, with the minimum cycle parking provision based on a 2,639 square metre gross external floor area.

Cycle Parking Type	Cycle Parking Minimum Standard	Development Quantum	Minimum Cycle Parking Provision for Site
Long Stay	1 space per 175 sqm	2,639	15
Short Stay	First 750 sqm: 1 space per 40 sqm	750	19
	Thereafter: 1 space per 300 sqm	1,889	6
TOTAL		**2,639**	**41**

Table 4.1: Cycle Parking Standards

4.36 Table 4.1 indicates that an A1 food retail store with a GEA of 2,639 square metres would need to provide a minimum of 15 long stay and 25 short stay cycle parking spaces.

4.37 The development proposals include 18 long stay cycle parking spaces and 26 short stay cycle parking spaces, both located adjacent to the store entrance and clearly differentiated on the site location plans included in Appendix G. On this basis, the development is considered to be policy compliant in terms of cycle parking provision.

Servicing Arrangements

4.38 The servicing arrangements detailed within the Transport Assessment remain valid for consideration within this scheme. The only alteration to the proposed servicing is that the access is now located off Central Avenue, and therefore servicing vehicles will access the site via Botwell Lane and along Central Avenue to the south of the site. This represents the same manoeuvres as accepted within the consented application at the site.

4.39 **Appendix J** provides vehicle swept path analysis of the proposed Central Avenue access, demonstrating a 16.5 metre articulate vehicle servicing the site.

4.40 The consented scheme was approved, with Condition 22 stating that:

> *"There shall be no loading or unloading of vehicles, including the collection of refuse, except between: 0700 and 2300, Mondays to Saturdays and 0900 to 1800 Sundays, Public or Bank Holidays."*

4.41 It is considered that these hours for delivery would apply to the proposed foodstore at the site.

4.42 In addition, compared to the consented scheme servicing arrangements, the proposed scheme provides a net benefit to the operation and safety of the Lidl car park, with the servicing vehicle no longer required to reverse past the site entrance to access the foodstore delivery area. Instead the current servicing manoeuvre enables vehicles to continue entering the car park whilst the vehicle manoeuvres into the loading bay within the site, without any potential delays along Central Avenue from vehicles waiting for the vehicle to manoeuvre past the site access.

4.43 Lidl would adopt the principles set out within the Department for Transport 'Quiet Deliveries Good Practice Guidance: Principles and Processes for Retailers' (April 2014) and the Transport for London 'Code of Practice for Quieter Deliveries' (September 2015). Details of the principles are provided within the Servicing Management Plan included as an appendix to the Transport Assessment remains valid, though reference should be made to the revised tracking included at Appendix J of this report.

5 CAR PARK OPERATION AND DEMAND

5.1 The Lidl foodstore car park would operate with a 90-minute free duration of stay for Lidl customers, monitored through an ANPR camera system and linked to a database that matches the arrival and departure time with vehicle registrations provided by customers at the check-out.

5.2 A 90-minute car park duration of stay enables customers time to complete their shopping trip, whilst also allowing time for linked trips to occur within Hayes town centre. Given the proximity of the proposed Lidl foodstore to the town centre and the ease of access on foot to Station Road, the Lidl car park is expected to form a valuable contribution to the overall available parking provision within Hayes town centre.

5.3 As part of the post-application discussions, the Highway Officer has requested that justification be provided in respect of the level of car parking provision at the proposed site.

5.4 The ANPR data for the following examples is included at **Appendix K**.

Example 1 - Existing Lidl Foodstore Town Centre Location

5.5 The existing Lidl foodstore on Upper Wickham Lane, Welling (London Borough of Bexley) provides a foodstore of 1,000 square metres (sales floor area) with a 90 space car park. The site is located on the edge of Welling town centre, in a similar proximity to the town centre which the Hayes proposed store is compared to Hayes town centre.

5.6 The Welling store operates an ANPR car park operation with a maximum duration of stay of 60-minutes. The duration of stay was 90-minutes up until early 2015, when the maximum duration of stay was reduced due to the demand on the car park.

5.7 The Welling store provides a useful example of how a smaller car park (90 spaces) in an edge of town centre location which allows customers free parking for a period of time, results in a high level of demand during 'normal' weekday/Saturday conditions. For the Welling store, the only solution to ensure that Lidl vehicular parking demand is contained to the store was to reduce the duration of stay, but that limits the benefit of the car park to be used for town centre purposes as well.

5.8 Lidl prefer to offer a 90-minute duration of stay as it allows for sufficient time to undertake a food shop (which typically takes up to an hour), whilst also allowing flexibility (and convenience) for customers to utilise nearby town centre uses and therefore seek to provide this level of comfort for customers at all stores.

5.9 To demonstrate the level of demand, Table 5.1 provides an average of neutral Friday and Saturday peak parking occupancy recorded within each store operational hour at the Welling store, this information is collated from an average of results collected between Thursday 29th October 2015 and Wednesday 25th November 2015.

Time Period	Lidl Welling Friday Peak Occupancy		Lidl Welling Saturday Peak Occupancy	
	Vehicles Parked	Occupancy %	Vehicles Parked	Occupancy %
08:00 – 09:00	26	28.9%	31	34.4%
09:00 – 10:00	43	47.8%	42	46.7%
10:00 – 11:00	64	71.1%	73	81.1%
11:00 – 12:00	73	81.1%	78	86.7%
12:00 – 13:00	74	82.2%	76	84.4%
13:00 – 14:00	62	68.9%	65	72.2%
14:00 – 15:00	47	52.2%	61	67.8%
15:00 – 16:00	29	32.2%	57	63.3%
16:00 – 17:00	47	52.2%	58	64.4%
17:00 – 18:00	47	52.2%	50	55.6%
18:00 – 19:00	39	43.3%	31	34.4%
19:00 – 20:00	30	33.3%	21	23.3%
20:00 – 21:00	23	25.6%	12	13.3%

Table 5.1: Lidl Welling Car Park Peak Occupancy

5.10 The results of Table 5.1 indicate that the Welling store, with a 60-minute duration of stay regularly records parking peak occupancy in excess of 80% at peak hours on both the Friday and Saturdays surveyed. On a Saturday, the car park peak occupancy is recorded at 60-80% throughout the typical peak trading of 10:00 – 17:00 hours. The demand in the car park leaves minimal capacity for seasonal variation in demand.

5.11 Table 5.1 indicates that the Welling store experience high car park demand throughout Friday and Saturday operation, with parking occupancy levels of 60 to 80%. By applying this level of occupancy to the proposed Hayes car park, it is possible to calculate the impact on the operation on the proposed car park of town centre and Lidl foodstore demand. A peak occupancy of 123 spaces could be experienced between 11:00 and 12:00 hours during a Saturday.

Example 2 – Existing Lidl New Format Store in a Town Centre Location

5.12 The Lidl store located on Sterling Way in Edmonton (London Borough of Enfield), provides a larger format Lidl store with 1,450 square metres of sales floor area and a 175 space car park.

5.13 The Lidl Edmonton store is located in close proximity to the main retail centre of Edmonton located along Fore Street. As such, the Lidl car park contributes to the public parking provision within the area. The Lidl Edmonton foodstore provides a 90-minute duration of stay and enables customers time to visit other retail offers in the vicinity of the store.

5.14 Data has been provided for the Lidl Edmonton store for Friday 1st and Saturday 2nd April 2016 and Friday 8th and Saturday 9th April 2016. Table 5.2 below summarises the peak occupancy for each hour period that the store is operational, taken as an average from the surveyed days. To put this into context with the Hayes proposal, the equivalent peak parking demand has been applied to the proposed 142 space car park. Table 5.3 provides the same assessment for a Saturday operation.

Time Period	Lidl Edmonton Store		Proposed Hayes Store	
	Vehicles Parked	Occupancy %	Vehicles Parked	Occupancy %
08:00 – 09:00	18	10.3%	15	10.3%
09:00 – 10:00	32	18.3%	26	18.3%
10:00 – 11:00	38	21.7%	31	21.7%
11:00 – 12:00	49	28.0%	40	28.0%
12:00 – 13:00	59	33.7%	48	33.7%
13:00 – 14:00	133	76.0%	108	76.0%
14:00 – 15:00	107	61.1%	87	61.1%
15:00 – 16:00	17	9.7%	14	9.7%
16:00 – 17:00	12	6.9%	10	6.9%
17:00 – 18:00	10	5.7%	8	5.7%
18:00 – 19:00	9	5.1%	7	5.1%
19:00 – 20:00	10	5.7%	8	5.7%
20:00 – 21:00	7	4.0%	6	4.0%

Table 5.2: Lidl Edmonton Friday Peak Car Park Occupancy and Comparison of Peak Demand on the Hayes Parking Provision

5.15 The survey data for Edmonton indicates that the store has a pronounced lunch-time period peak on a typical Friday between, 13:00-15:00 hours. Outside of these times, the car park peak demand is comfortably accommodated within the parking provision.

Time Period	Lidl Edmonton Store		Proposed Hayes Store	
	Vehicles Parked	Occupancy %	Vehicles Parked	Occupancy %
08:00 – 09:00	34	19.4%	28	19.4%
09:00 – 10:00	50	28.6%	41	28.6%
10:00 – 11:00	60	34.3%	49	34.3%
11:00 – 12:00	60	34.3%	49	34.3%
12:00 – 13:00	56	32.0%	45	32.0%
13:00 – 14:00	25	14.3%	20	14.3%
14:00 – 15:00	18	10.3%	15	10.3%
15:00 – 16:00	17	9.7%	14	9.7%
16:00 – 17:00	15	8.6%	12	8.6%
17:00 – 18:00	15	8.6%	12	8.6%
18:00 – 19:00	10	5.7%	8	5.7%
19:00 – 20:00	12	6.9%	10	6.9%
20:00 – 21:00	7	4.0%	6	4.0%

Table 5.3: Lidl Edmonton Peak Saturday Car Park Occupancy and Comparison of Peak Demand on the Hayes Parking Provision

5.16 The Lidl Edmonton store data indicates that the Friday trading period is the peak period of operation, and therefore the peak car park occupancy will be achieved on this day.

5.17 The Lidl Edmonton store operates with far less vehicular traffic during the Saturday trading period, though it should be noted that the Lidl London store data used within the Transport Assessment indicates that typically, Saturday represents the peak trading period. However, the Edmonton store represents a new format store, with a large car park provided, and therefore provides an indication on how a store with unconstrained parking operates. The data indicates that even if the Hayes store operates in a 'typical' manner, with Saturday trading above the Friday trading period, the Lidl car park would have an element of capacity to accommodate this traffic and any peak trading period, e.g. Christmas trading, parking required, whilst also allowing for town centre linked trips to occur.

5.18 By providing a car parking provision towards the lower end of the London Plan standard, at 102 spaces, the store would not be able to accommodate the required Friday and Saturday typical parking demand, and therefore parking would overspill into nearby roads and car parks. On this basis, providing the maximum possible parking provision at the site represents a robust car parking layout for the Hayes proposal.

Summary

5.19 The data indicates that for an existing Lidl foodstore within an edge of town location. As a result of the Lidl allowance for 90-minutes free parking, stores with lower levels of parking provision have higher overall occupancy levels during 'normal' trading periods. This leaves no allowance for seasonal variation which does have a significant impact on trade and parking demand, particularly in the lead up to Christmas.

5.20 By applying the occupancy percentage to the proposed Hayes store, parking occupancy would peak at 108 spaces during the Friday peak period of operation, due to the lower parking provision at the proposed Hayes store. This peak could be accommodated within the proposed Lidl car park at the store.

5.21 The data indicates that this provides the store with an element of capacity (34 spaces) to cope with peak trading demand periods and to allow for linked trips within the town centre, bearing in mind that the proposed Lidl car park is the only car park in the vicinity offering more than 30 minutes free parking for the town centre.

5.22 In terms of the vehicle trip assessment for the proposed foodstore, Section 6 provides the vehicle trip rates and trips calculated on the sales floorspace of the proposed foodstore. As the car park occupancy provides a maximum snapshot recorded during the time period, it can be considered a robust assessment of the vehicular trip profile of the store as the number of trips to the store are within the peak hour trips predicted through the trip rate analysis. This leaves a number of car park entry and exit movements which would be outside of this peak within the peak hour. On this basis, it is considered acceptable to provide no sensitivity assessments based on the car park parking provision.

6 NET IMPACT OF DEVELOPMENT PROPOSALS

6.1 This section describes the assessment of the net impact of the proposed foodstore on the highway network during the identified weekday evening peak hour of 16:45 – 17:45 and Saturday peak hour of 12:45 – 13:45.

6.2 The following paragraphs consider the trip generation and distribution of the proposed Lidl foodstore and the forecast impact that this will have on the local highway network in 2016, for the opening year, and 2021 for 5 years' post opening of the foodstore.

Existing/Consented Site

6.3 The assessment undertaken to accompany the consented foodstore at the site replicates the assessment undertaken in the initial Transport Assessment for this application. This involves assessing the impact of the store proposals based on sales floor area.

6.4 With the trip generation assessment undertaken below assessing the proposed development on the basis of gross floor area, the trip generation figures cannot be directly compared. As the figures used within the consented scheme Transport Assessment are considered accepted on the local highway network, through the consent of the planning application, this assessment cannot be amended to reflect an assessment based on the gross floor area of the consented store.

6.5 Despite this, the consented site use trip generation detailed within the Transport Assessment remains valid, with the consented foodstore trips to be included within the baseline modelling assessment scenarios.

Proposed Lidl Foodstore

6.6 Whilst it is considered that the proposed Lidl trip generation provided within the Transport Assessment remains valid, at the request of Highway Officers at the London Borough of Hillingdon an assessment has been undertaken using the gross external floor area (GEA) of the proposed Lidl store as the calculation factor.

6.7 As the previous Lidl London store data is calculated based on sales floor area, a direct comparison cannot be made, and therefore new store data for which the GEA is available will be used to assess the Hayes proposal. In addition, these new store surveys have been undertaken more recently than the previous data.

6.8 Since the original application, data has been obtained for the existing Lidl stores in Wallington and Tooting, with traffic surveys undertaken in November 2015 and June 2016 respectively. The store survey trip rates are included for reference at **Appendix L**.

6.9 The previous Lidl London store data will not be used within this assessment as at the time of writing. However, whilst the previous Lidl London store data used within the TA is not to be used within the vehicular assessment, this still remains a robust assessment of the multi-modal trip generation to the site. On this basis, the multi-modal assessment will utilise the average Friday and Saturday modal splits identified within the Transport Assessment. The Transport Assessment rationale regarding the use of the Lidl specific store trip rates and comparisons to the TRICS database remain valid.

Vehicular Trip Assessment

6.10 Table 6.1 below provides the applicable vehicular trip rates for the identified peak hours, however where the peak hours are both split between two hours (e.g. the weekday evening peak of 16:45 – 17:45 straddles the 16:00 – 17:00 and 17:00 – 18:00 categories) the higher of the two peak categories will be used for assessment purposes. The number of vehicle trips in Table 6.1 is calculated based on the 2,639 square metre gross external floor area at the store, to provide an assessment using the same parameters as those used to assess the car parking provision at the site. The identified store survey trip rates applied to the Hayes proposal are included at **Appendix M**.

	Friday Evening Peak Hour		Saturday Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Vehicle Trip Rates	4.280	4.600	6.350	6.940
Vehicle Movements	113	121	168	183

Table 6.1: Lidl Foodstore Vehicle Trip Rates (per 100 sqm) and Movements

Vehicular Trip Types

6.11 The trip type proportions identified within the Transport Assessment will remain in use for the assessment of this scheme. The proportions are the same as those used within the consented assessment at the site. Table 6.2 below summarises the vehicle movements per trip type.

Trip Type	Friday Evening Peak Hour		Saturday Peak Hour	
Primary New Trips	11	12	17	18
Primary Transferred Trips	57	61	101	110
Linked Pass-by Trips	23	24	25	27
Linked Diverted Trips	23	24	25	27
TOTAL	**113**	**121**	**168**	**183**

Table 6.2: Associated Vehicle Movements Based on Trip Type

Vehicular Trip Distribution

6.12 The development traffic flows have been distributed based on the observed turning proportions for new and transferred trips. Pass-by trips are considered to be vehicles travelling along Central Avenue past the site, and continue their journey in the direction in which they were heading and diverted trips are distributed 50/50 between Botwell Lane to the east and west. To the east, traffic is assumed to exit the study network via Coldharbour Lane, Pump Lane and Station Road (when opened), with a 20%, 10% and 20% split accordingly. To the west, traffic is distributed with 30% continuing along Botwell Lane with the remaining 20% routing along Church Road. These routes represent the main routes where drivers could divert into the foodstore.

Multi Modal Trip Assessment

6.13 **Figures 6.1** and **6.2** provide the peak hour development traffic flows for the weekday evening and Saturday peak hours respectively. **Figures 6.3** and **6.4** provide the 2016 baseline with proposed development traffic flows for the respective peak hours, with **Figures 6.5** and **6.6** providing the same for the 2021 future year. Table 6.3 below provides a multi-modal breakdown of the proposed foodstore trips, based on multi-modal surveys undertaken at a number of Lidl foodstores, as stated within the Transport Assessment.

Mode of Travel	Friday Evening Peak Hour			Saturday Peak Hour		
	Modal Split	Arr	Dep	Modal Split	Arr	Dep
Walk	35%	102	109	32%	125	136
Bus	17%	49	53	16%	63	68
Cycle	3%	9	9	2%	8	9
Car Driver (to the site)	39%	113	121	43%	168	183
Car Driver Off-site (e.g. linked trip)	4%	12	12	4%	16	17
Train	1%	3	3	2%	8	9
Tube	0%	0	0	0%	0	0
Other	1%	3	3	1%	4	4
TOTAL	**100%**	**290**	**310**	**100%**	**391**	**426**

Table 6.3: Peak Hour Proposed Lidl Hayes Multi-modal Trips

Proposed Lidl Foodstore Parking Accumulation

6.14 Based on the vehicular trip rates and projected trips provided in Appendix M, the parking accumulation profile for a neutral period based on the Lidl store demand is summarised in Table 6.4 for the weekday and Table 6.5 for the Saturday. This does not include an allowance for linked trips to the Hayes town centre, which could increase the duration of stay above that experienced at either of the surveyed stores.

Time Period	Arrivals	Departures	Parking Accumulation
08:00 – 09:00	105	78	31
09:00 – 10:00	117	102	46
10:00 – 11:00	92	98	40
11:00 – 12:00	123	115	48
12:00 – 13:00	133	129	52
13:00 – 14:00	117	133	36
14:00 – 15:00	116	102	50
15:00 – 16:00	106	117	39
16:00 – 17:00	114	117	36
17:00 – 18:00	109	117	28
18:00 – 19:00	95	104	19
19:00 – 20:00	84	93	10
20:00 - 21:00	75	85	0

Table 6.4: Proposed Hayes Foodstore Friday Parking Accumulation Profile

6.15 Table 6.4 indicates that the peak parking accumulation demand of 50 spaces could occur on a neutral weekday.

Time Period	Arrivals	Departures	Parking Accumulation
08:00 – 09:00	122	85	52
09:00 – 10:00	141	127	66
10:00 – 11:00	161	136	91
11:00 – 12:00	162	174	79
12:00 – 13:00	159	147	91
13:00 – 14:00	162	177	76
14:00 – 15:00	148	153	71
15:00 – 16:00	129	134	66
16:00 – 17:00	113	122	57
17:00 – 18:00	139	142	54
18:00 – 19:00	111	136	28
19:00 – 20:00	74	86	16
20:00 - 21:00	63	79	1

Table 6.5: Proposed Hayes Foodstore Saturday Parking Accumulation Profile

6.16 Table 6.5 indicates that on a Saturday, the foodstore would experience peak parking demand, with 91 spaces occupied between 10:00 – 11:00 and again at 12:00 – 13:00 hours. The table indicates that there is capacity within the car park to accommodate peak demand periods and extended durations of stay to utilise the 90-minutes available to undertake linked trips to the town centre.

7 JUNCTION CAPACITY ASSESSMENT

7.1 The highway network has been modelled for the anticipated opening year (2016) and five years following the foodstore opening (2021), including background growth, committed development, without and with the proposed Lidl development. Each scenario has been modelled for the two established assessment periods of 16:45 – 17:45 for the weekday evening peak and 12:45 – 13:45 for the Saturday peak.

Site Access/Central Avenue Junction

7.2 The capacity of the proposed site access junction onto Central Avenue has been modelled using the JUNCTIONS 9 (PICADY) modelling software. The full JUNCTIONS 9 (PICADY) report is included at **Appendix N**.

7.3 The outputs from Junctions 9 set out the relationship between traffic flow and the capacity of the junction as a ratio, the ratio of flow to capacity (RFC). RFCs are provided for each movement and values between 0 and 1 indicate that the highway is operating within capacity. For new junctions, it is widely accepted that the maximum RFC at the junction should not exceed 0.85. It is generally accepted that free-flowing conditions can be achieved where the RFC is less than or around 0.85.

7.4 The site access junction has been modelled for the 2016 with development and 2021 with development scenarios, due to the fact that the junction is proposed by the development. On this basis, the summary of the 2016 scenarios are included in Table 7.1 below, with Table 7.2 providing a summary of the 2021 modelling scenarios.

Link	2016 Friday Evening Peak Hour		2016 Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Site Access Left Turn	0.066	0.1	0.100	0.1
Site Access Right Turn	0.184	0.2	0.277	0.4
Central Avenue (n)	0.024	0.0	0.040	0.1

Table 7.1: Site Access/Central Avenue JUNCTIONS 9 (PICADY) 2016 with Development Summary

Link	2021 Friday Evening Peak Hour		2021 Saturday Peak Hour	
	RFC	Queue	RFC	Queue
Site Access Left Turn	0.066	0.1	0.101	0.1
Site Access Right Turn	0.186	0.2	0.280	0.4
Central Avenue (n)	0.024	0.0	0.041	0.1

Table 7.2: Site Access/Central Avenue JUNCTIONS 9 (PICADY) 2021 with Development Summary

7.5 Tables 7.1 and 7.2 indicate that the site access junction operates well within capacity and within the 0.850 RFC threshold for new junctions in all scenarios assessed.

7.6 Table 7.3 below provides a percentage impact of the development flows on Central Avenue. This compares the 2016 baseline and 2016 baseline with proposed development.

Link	Friday Evening Peak Hour			Saturday Peak Hour		
	2016 Baseline	2016 Baseline with Dev	Net Impact of Dev (%)	2016 Baseline	2016 Baseline with Dev	Net Impact of Dev (%)
Central Avenue Northbound	177	224	21.0%	153	228	32.9%
Central Avenue Southbound	252	286	11.9%	277	336	17.6%
TOTAL	**429**	**510**	**15.9%**	**430**	**564**	**23.8%**

Table 7.3: Net Impact of Development Traffic on Central Avenue

7.7 Table 7.3 indicates that the development would increase traffic along Central Avenue by 15.9% during the weekday evening peak hour. This high percentage is due to the low levels of existing traffic using Central Avenue, with this equating to an increase of 81 vehicle trips during the weekday evening peak hour. During the Saturday peak hour, the number of trips along Central Avenue is projected to increase by 134 movements, equating to a 23.8% increase.

Central Avenue/Botwell Lane Junction

7.8 To assess the junction capacity of the Central Avenue/Botwell Lane priority junction, the JUNCTIONS 9 (PICADY) modelling software has been used.

7.9 This junction has been modelled for the 2016 baseline and 2021 future year baseline scenarios and the 2016 baseline with development and 2021 future year baseline with development scenarios.

7.10 The modelling parameters within this model have been taken from the accepted values within the consented foodstore application. The only exception to this is the Central Avenue flare width at 15 and 20 metres from the give way line, as JUNCTIONS 9 does not allow the flare to widen at this distance from the give way line if the carriageway has narrowed closer to the give way line. On this basis, the value at 10 metres from the give way line has been used at 15 and 20 metres, to provide a robust assessment whilst removing the error from the model. This is robust as it assesses a narrower carriageway than is present at these distances.

2016 Assessment

7.11 The JUNCTIONS 9 (PICADY) report is included at **Appendix O**, with Table 7.4 below summarising the 2016 baseline and 2016 baseline with development weekday evening peak hour model results. Table 7.5 provides the same scenarios, albeit for the Saturday peak hour.

Link	2016 Baseline		2016 Baseline with Development	
	RFC	Queue	RFC	Queue
Central Avenue Left Turn	0.252	0.3	0.330	0.5
Central Avenue Right Turn	0.636	1.6	0.757	2.6
Botwell Lane (e)	0.175	0.5	0.277	0.9

Table 7.4: Central Avenue/Botwell Lane JUNCTIONS 9 (PICADY) 2016 Weekday Evening Peak Hour Summary

Link	2016 Baseline		2016 Baseline with Development	
	RFC	Queue	RFC	Queue
Central Avenue Left Turn	0.311	0.4	0.505	1.0
Central Avenue Right Turn	0.560	1.2	0.743	2.5
Botwell Lane (e)	0.176	0.5	0.310	0.8

Table 7.5: Central Avenue/Botwell Lane JUNCTIONS 9 (PICADY) 2016 Saturday Peak Hour Summary

2021 Assessment

7.12 Table 7.6 below summarises the 2021 future year baseline and 2021 future year baseline with development weekday evening peak hour model results. Table 7.7 provides the same scenarios, albeit for the Saturday peak hour.

Link	2021 Future Year Baseline		2021 Future Year Baseline with Development	
	RFC	Queue	RFC	Queue
Central Avenue Left Turn	0.309	0.4	0.541	1.1
Central Avenue Right Turn	0.756	2.6	0.877	4.4
Botwell Lane (e)	0.204	0.7	0.315	1.1

Table 7.6: Central Avenue/Botwell Lane JUNCTIONS 9 (PICADY) 2021 Weekday Evening Peak Hour Summary

Link	2021 Future Year Baseline		2021 Future Year Baseline with Development	
	RFC	Queue	RFC	Queue
Central Avenue Left Turn	0.402	0.7	0.773	2.7
Central Avenue Right Turn	0.672	1.8	0.900	4.8
Botwell Lane (e)	0.216	0.7	0.348	1.2

Table 7.7: Central Avenue/Botwell Lane JUNCTIONS 9 (PICADY) 2021 Saturday Peak Hour Summary

7.13 Tables 7.4 to 7.7 indicate that the Central Avenue/Botwell Lane junction would operate within capacity in all time periods and scenarios modelled. The maximum RFC is forecast on the Central Avenue arm in the 2021 weekday evening peak hour with development scenario of 0.876.

7.14 The development results in minor increases in RFC and queuing at this junction, though these are considered to be negligible to the operation of the junction operation.

Botwell Lane/Church Road Junction

7.15 To assess the junction capacity of the existing Botwell Lane/Church Road mini-roundabout junction, and assess the potential impacts of the proposed development, the JUNCTIONS 9 (ARCADY) modelling software has been used.

2016 Assessment

7.16 The JUNCTIONS 9 (ARCADY) report is included at **Appendix P**, with Table 7.8 below summarising the 2016 baseline and 2016 baseline with development weekday evening peak hour model results. Table 7.9 provides the same scenarios, albeit for the Saturday peak hour.

Link	2016 Baseline		2016 Baseline with Development	
	RFC	Queue	RFC	Queue
Botwell Lane (nw)	0.599	1.5	0.618	1.6
Church Road	0.282	0.4	0.293	0.4
Botwell Lane (to town centre)	0.626	1.7	0.643	1.8

Table 7.8: Church Road/Botwell Lane JUNCTIONS 9 (ARCADY) 2016 Weekday Evening Peak Hour Summary

Link	2016 Baseline		2016 Baseline with Development	
	RFC	Queue	RFC	Queue
Botwell Lane (nw)	0.473	0.9	0.501	1.0
Church Road	0.353	0.6	0.369	0.6
Botwell Lane (to town centre)	0.720	2.6	0.743	2.9

Table 7.9: Church Road/Botwell Lane JUNCTIONS 9 (ARCADY) 2016 Saturday Peak Hour Summary

2021 Assessment

7.17 Table 7.10 below summarises the 2021 future year baseline and 2021 future year baseline with development weekday evening peak hour model results. Table 7.11 provides the same scenarios, albeit for the Saturday peak hour.

Link	2021 Future Year Baseline		2021 Future Year Baseline with Development	
	RFC	Queue	RFC	Queue
Botwell Lane (nw)	0.651	1.9	0.670	2.0
Church Road	0.316	0.5	0.328	0.5
Botwell Lane (to town centre)	0.686	2.2	0.699	2.4

Table 7.10: Church Road/Botwell Lane JUNCTIONS 9 (ARCADY) 2021 Weekday Evening Peak Hour Summary

Link	2021 Future Year Baseline		2021 Future Year Baseline with Development	
	RFC	Queue	RFC	Queue
Botwell Lane (nw)	0.523	1.1	0.548	1.2
Church Road	0.398	0.7	0.415	0.7
Botwell Lane (to town centre)	0.796	3.8	0.815	4.2

Table 7.11: Church Road/Botwell Lane JUNCTIONS 9 (ARCADY) 2021 Saturday Peak Hour Summary

7.18 Tables 7.8 to 7.11 indicate that the Church Road/Botwell Lane roundabout junction will continue to operate within capacity in all modelled scenarios and time periods. The maximum RFC is recorded on the Botwell Lane (town centre) arm during the Saturday peak hour, with the maximum RFC value of 0.815 modelled.

7.19 The impact of the development is considered to be low on the operation of this junction, with minor increases in RFC and queuing recorded within the modelling outputs.

Hayes Town Centre VISSIM Model

7.20 To assess the impacts of the proposed development on the operation of the Hayes town centre highway network once Station Road has been opened for traffic, the Hayes town centre VISSIM model has been provided to us by Highway Officers at the London Borough of Hillingdon.

7.21 This model has been run with development traffic to provide a net impact of the development within the network. **Appendix Q** provides the VISSIM modelling report and modelling outputs.

Summary

7.22 This section provides evidence that the development would result in minor impacts on capacity and queuing in the local highway network, though these impacts are considered to be negligible.

7.23 The development flows have also been run in the Hayes town centre VISSIM model, indicating that with the potential traffic flows arising from opening Station Road to through traffic, the impact of the development would be minor.

8 MITIGATION MEASURES

8.1 The highway network impacts associated with the development of a foodstore at the proposed site have been shown not to have a material impact on the operation of the local highway network. Therefore, there is no justification for investment in capacity improvement works to the network.

8.2 Whilst capacity improvement works to the highway network are not considered justifiable, certain mitigation measures are proposed as part of the development proposals to improve safety and the surrounding environment for all highway users.

Promoting Smarter Choices via Travel Planning

8.3 A Draft Travel Plan has been produced and was included in the initial planning submission for this application. The core of the Travel Plan remains valid and should be read in conjunction with this Addendum Transport Assessment.

9 SUMMARY AND CONCLUSIONS

9.1 Gateway TSP is instructed by Lidl UK GmbH to prepare this Addendum Transport Assessment (ATA) to accompany a planning application to redevelop the site of the former Hayes Pool and Fitness Centre, Central Avenue, Hayes. This report considers the highways and transport matters relating to the proposed development and should be read in conjunction with the Draft Travel Plan (DTP), also prepared by Gateway TSP.

9.2 In summary, this Addendum Transport Assessment has identified the following:

- The development proposals would result in the redevelopment of a vacant Brownfield site;
- Planning consent has already been granted for a Lidl foodstore on a portion of the site, with the proposals seeking an increase in sales floor space and car parking as a result of the development proposals;
- The site benefits from good access on foot, cycle and public transport and is located with a PTAL 4 location;
- The development proposes a 1,687 square metre sales floorspace Lidl foodstore, representing an increase of 280 square metres sales floorspace when compared with the consented scheme;
- Car parking would be provided in accordance with London Borough of Hillingdon and London Plan standards, including motorcycle parking and accessible spaces for Brown and Blue Badge holders in accordance with 'Accessible Hillingdon' SPD requirements;
- Electric vehicle charging will be provided in the form of 2 active rapid charging spaces and provision for 2 passive rapid charging spaces in the future;
- Vehicular access would be taken from a new priority junction onto Central Avenue, providing an access for the Lidl foodstore with a new access provided to the north along Central Avenue for the pay and display car park;

- Capacity modelling of the proposed site access junction, Central Avenue/Botwell Lane junction and of the Botwell Lane/Church Road mini-roundabout junction indicate that the junctions operate within their theoretical capacity in the existing, 2016 and 2021 scenarios assessed. The results indicate that the proposed development would not have a material impact on queuing, delay or theoretical capacity on the highway network;
- The development proposals would not result in a material increase in vehicle movements on the surrounding highway network, with the majority of trips being pass-by, diverted, linked or transferred and therefore already present on the highway network; and
- A Draft Travel Plan has been prepared to promote sustainable travel modes to/from the site.

Conclusion

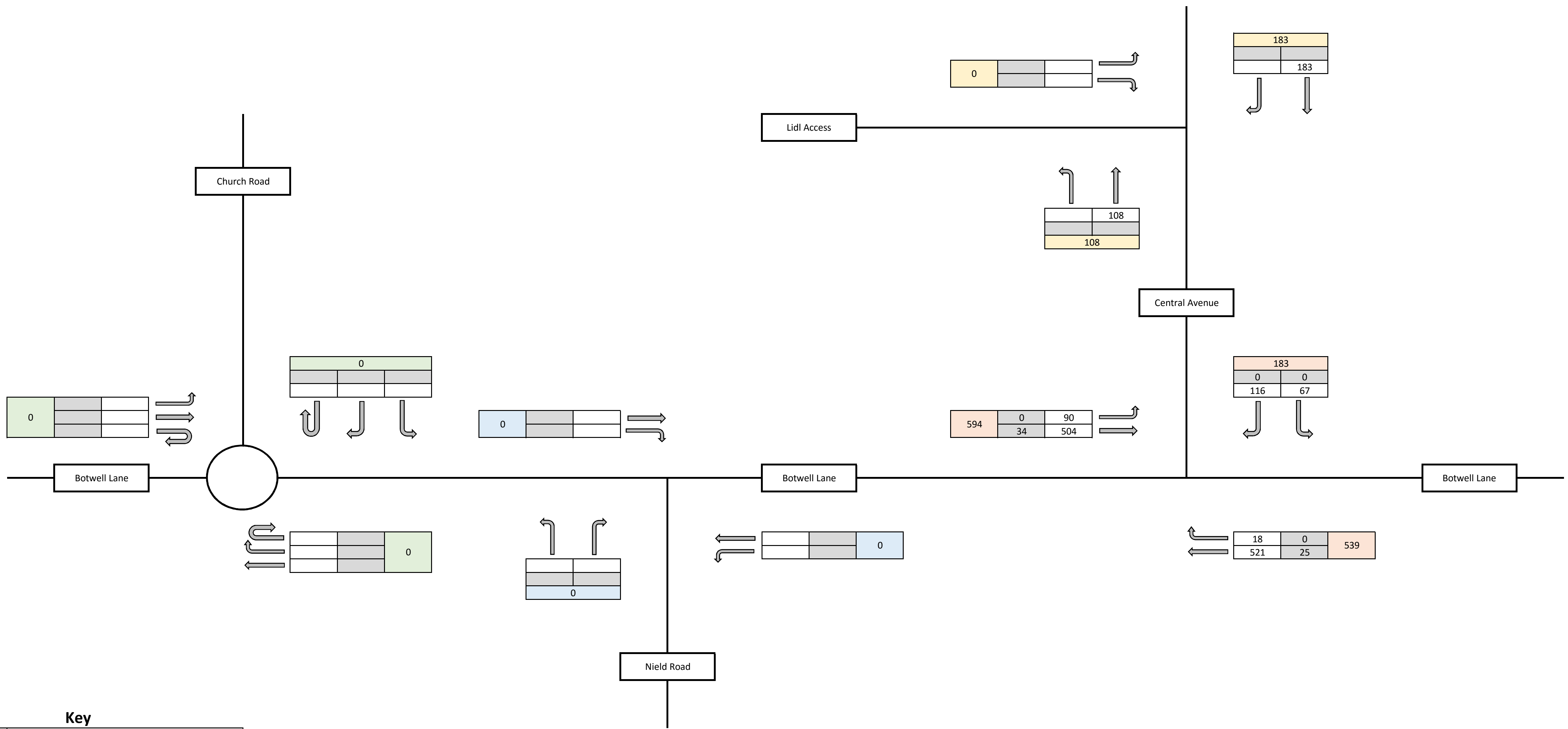
9.3 In view of the above, the proposed development is considered to be acceptable in transport terms and meets with local and national policy criteria. The assessment work undertaken has shown that there would not be any demonstrable harm arising from the proposed scheme and it will not cause any severe impacts. Therefore, there are no traffic and transport related reasons why the development should not be granted planning consent.

Gateway TSP

FIGURES

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2013 Observed Traffic Flows

Figure 3.3

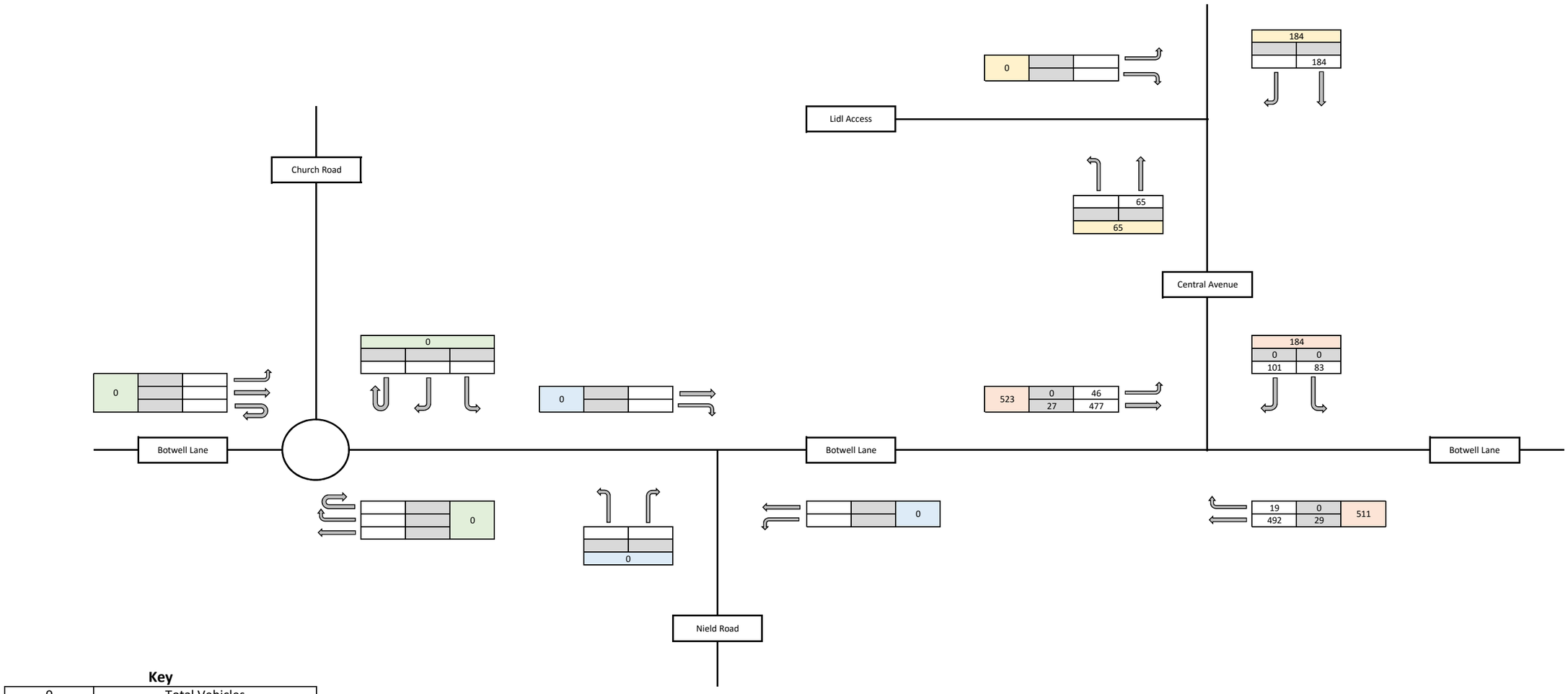


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2013 Observed Traffic Flows

Figure 3.4

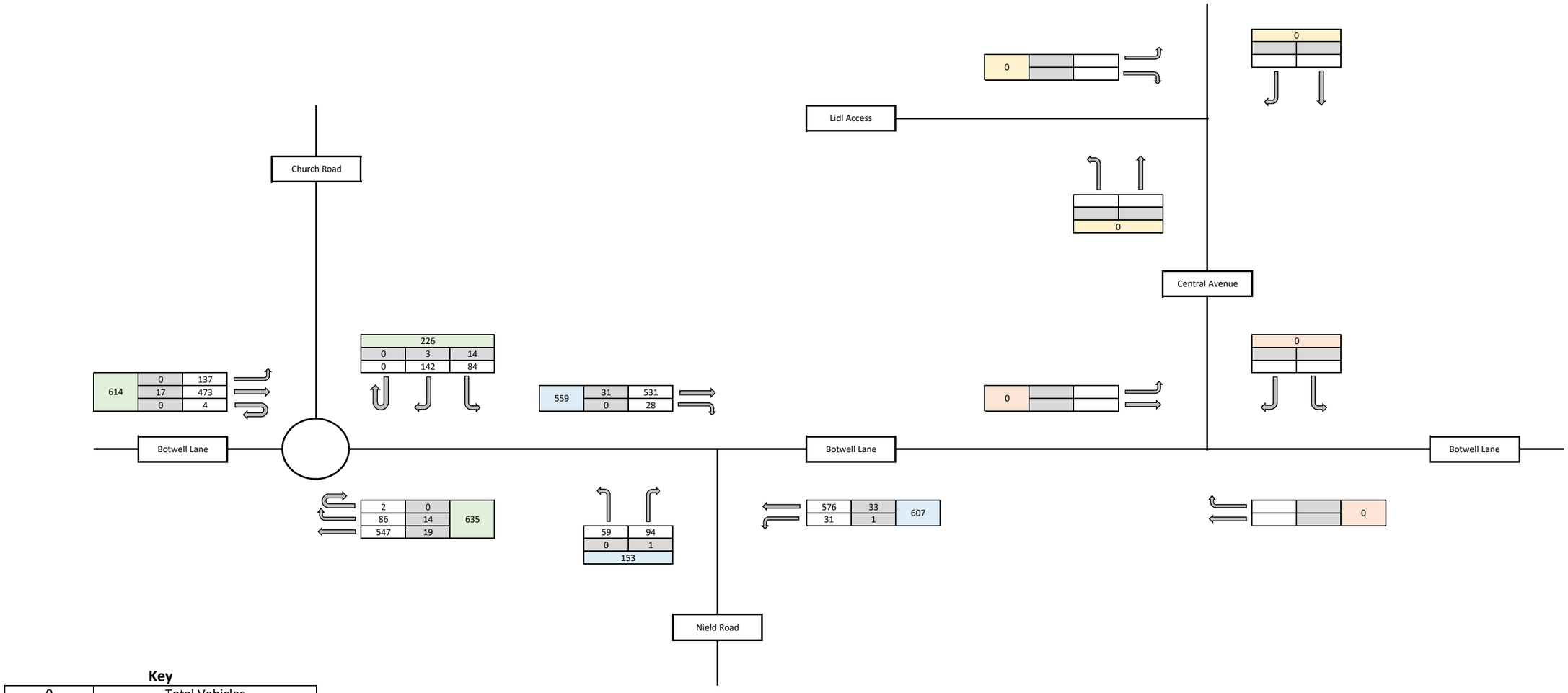


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2015 Observed Traffic Flows

Figure 3.5

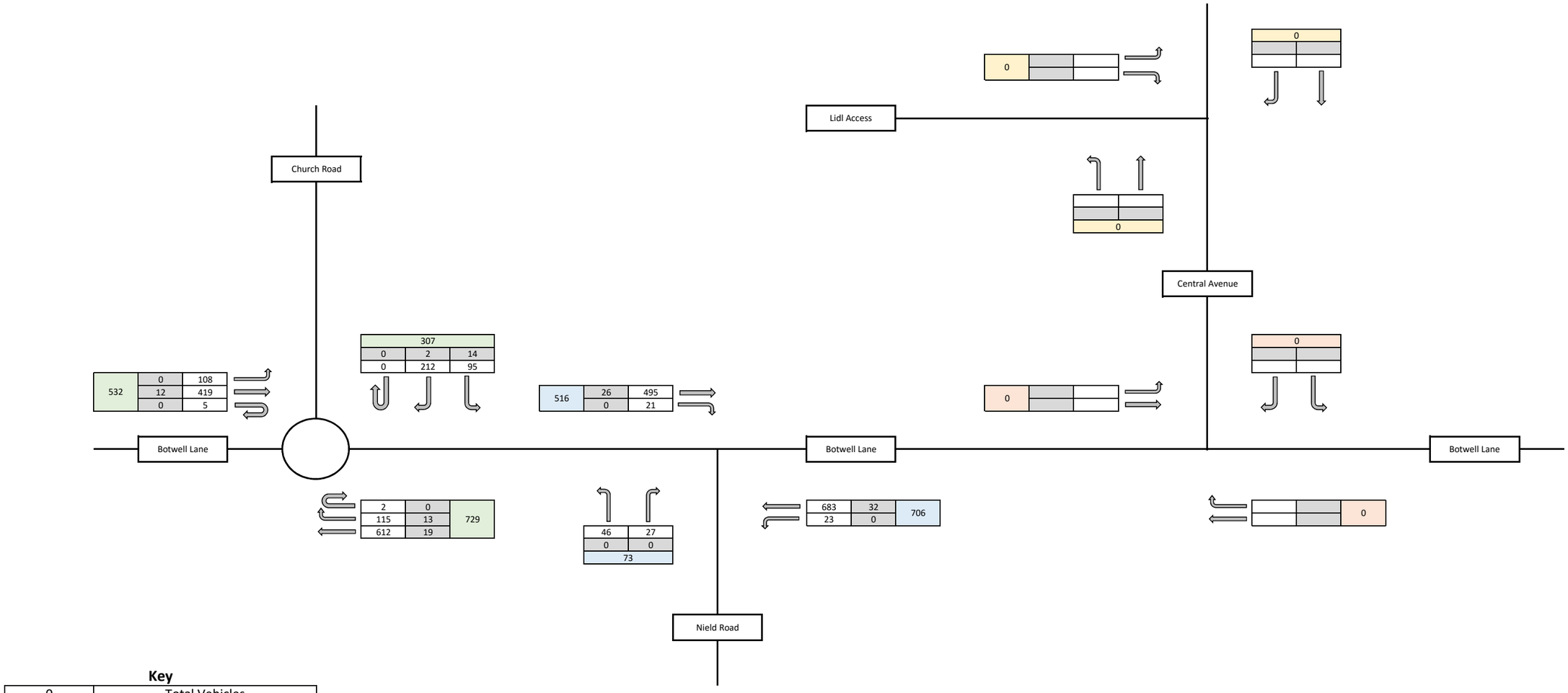


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2015 Observed Traffic Flows

Figure 3.6

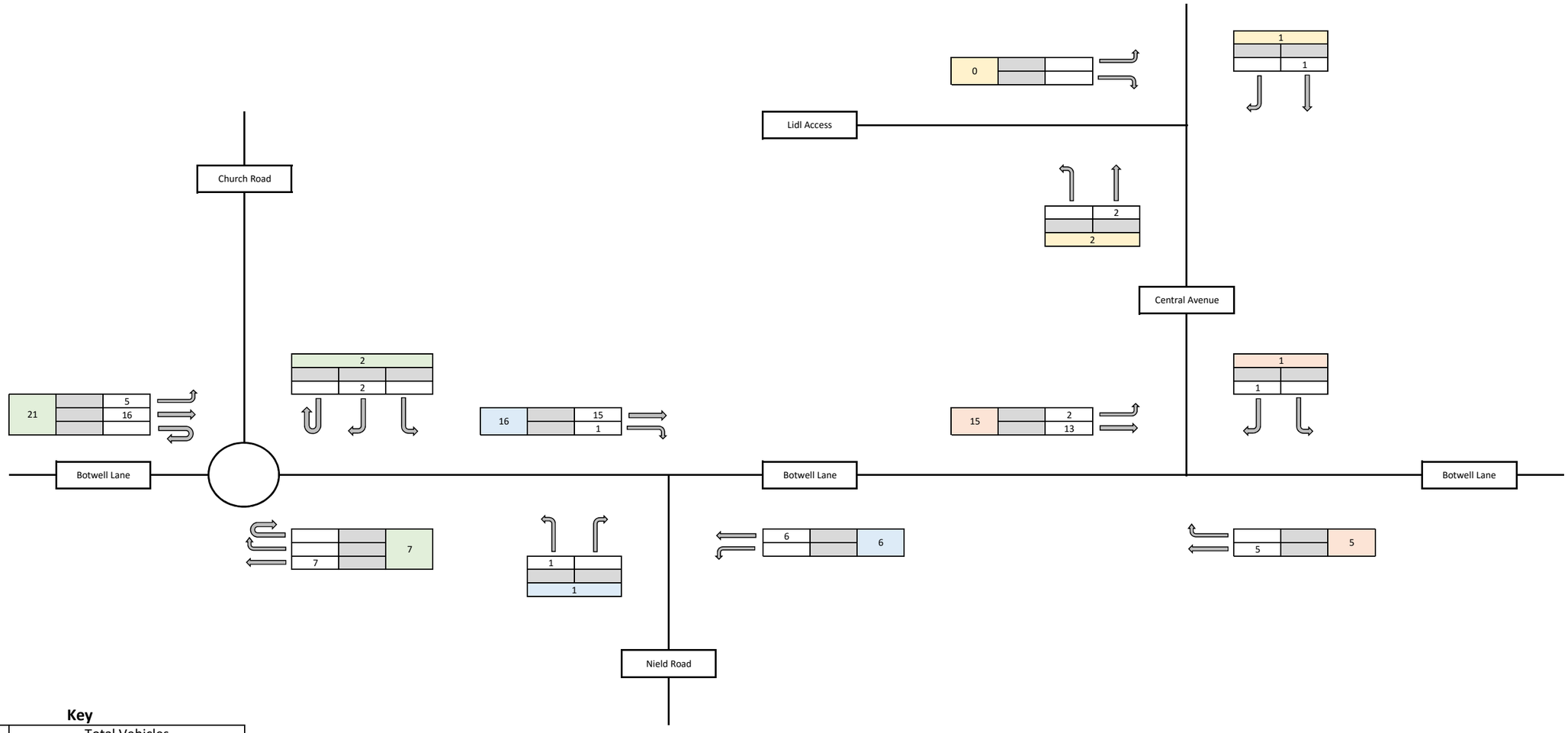


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - Lake Farm School Committed Development Traffic Flows

Figure 3.7

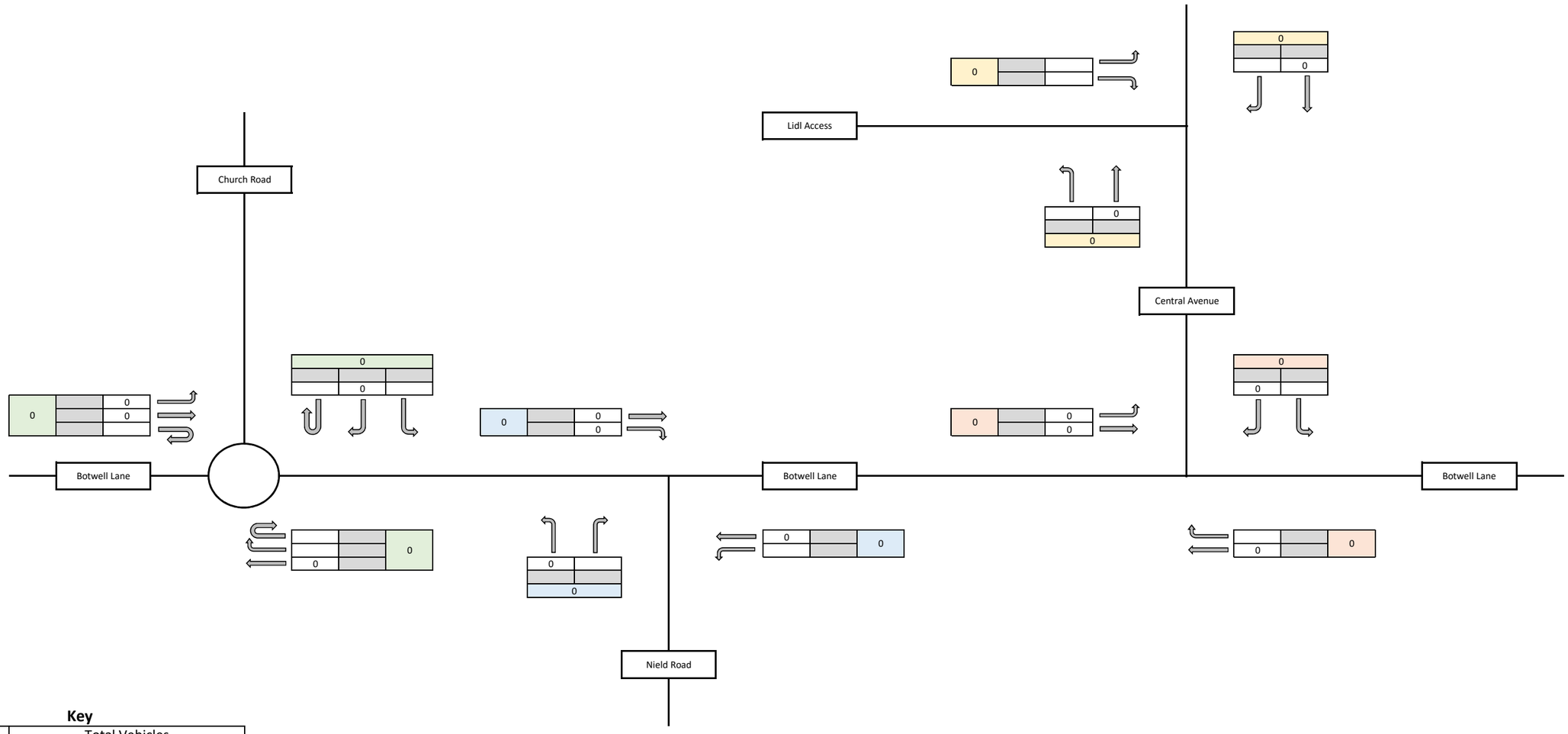


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - Lake Farm School Committed Development Traffic Flows

Figure 3.8

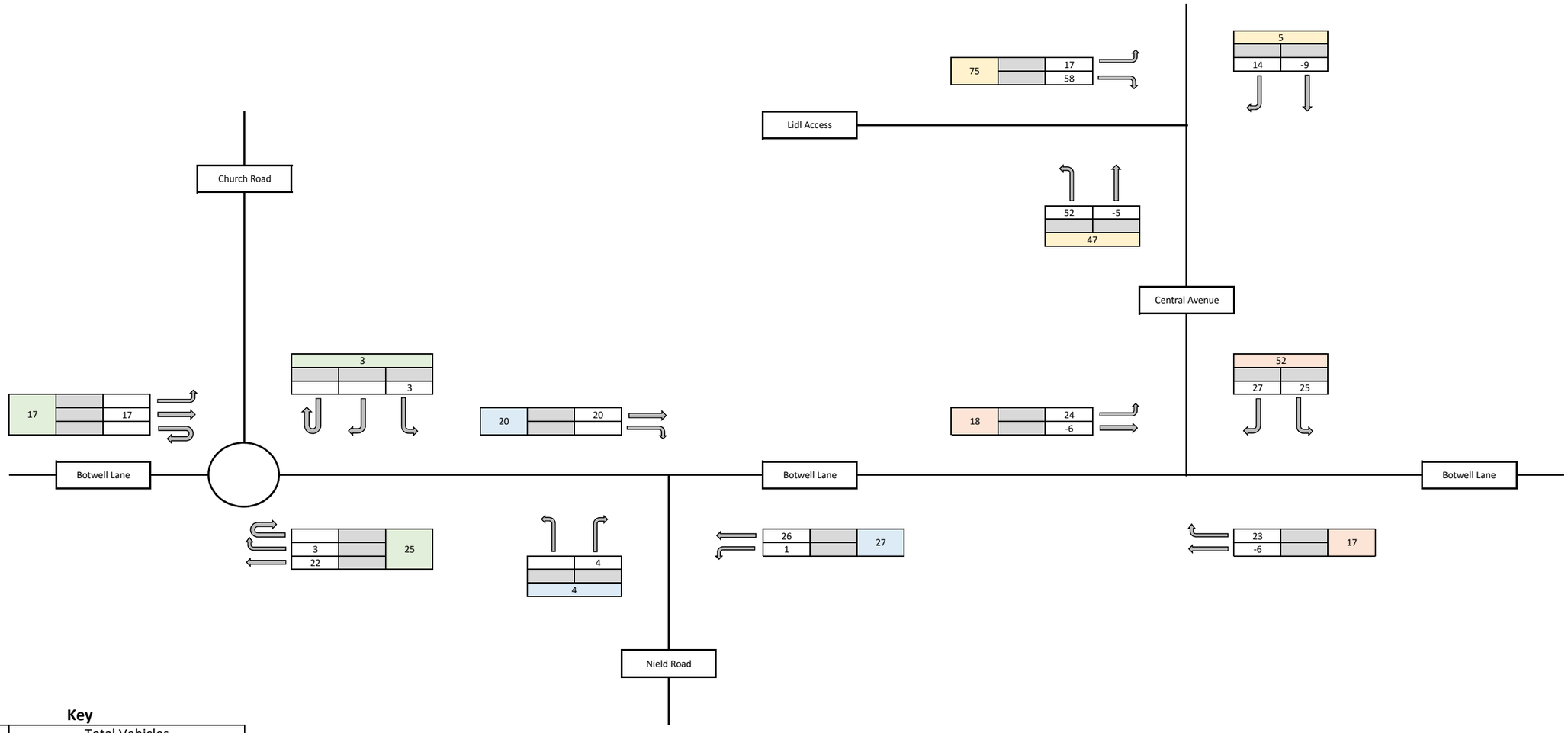


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - Consented Lidl Foodstore Committed Development Traffic Flows

Figure 3.9

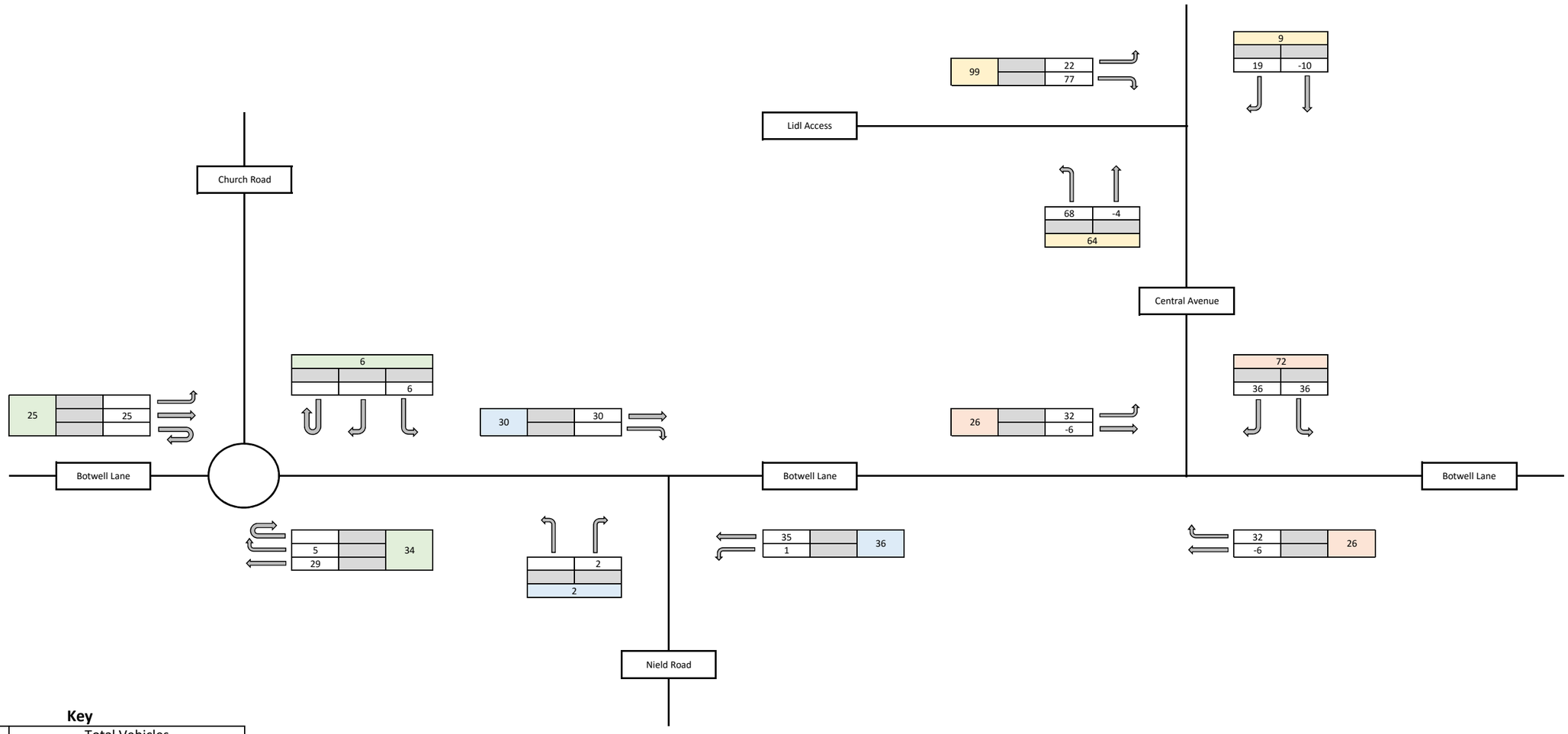


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - Consented Lidl Foodstore Committed Development Traffic Flows

Figure 3.10

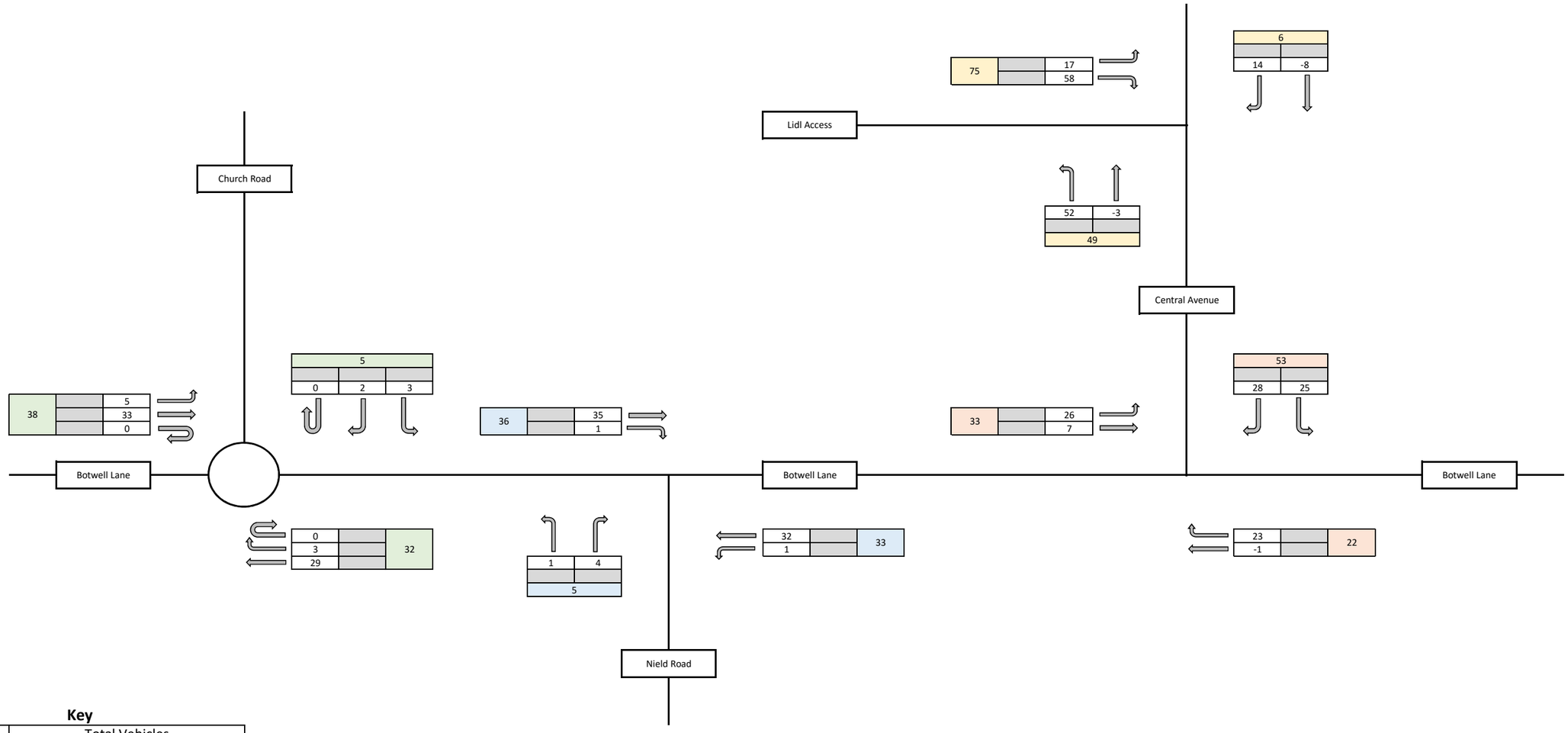


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - Total Committed Development Traffic Flows

Figure 3.11

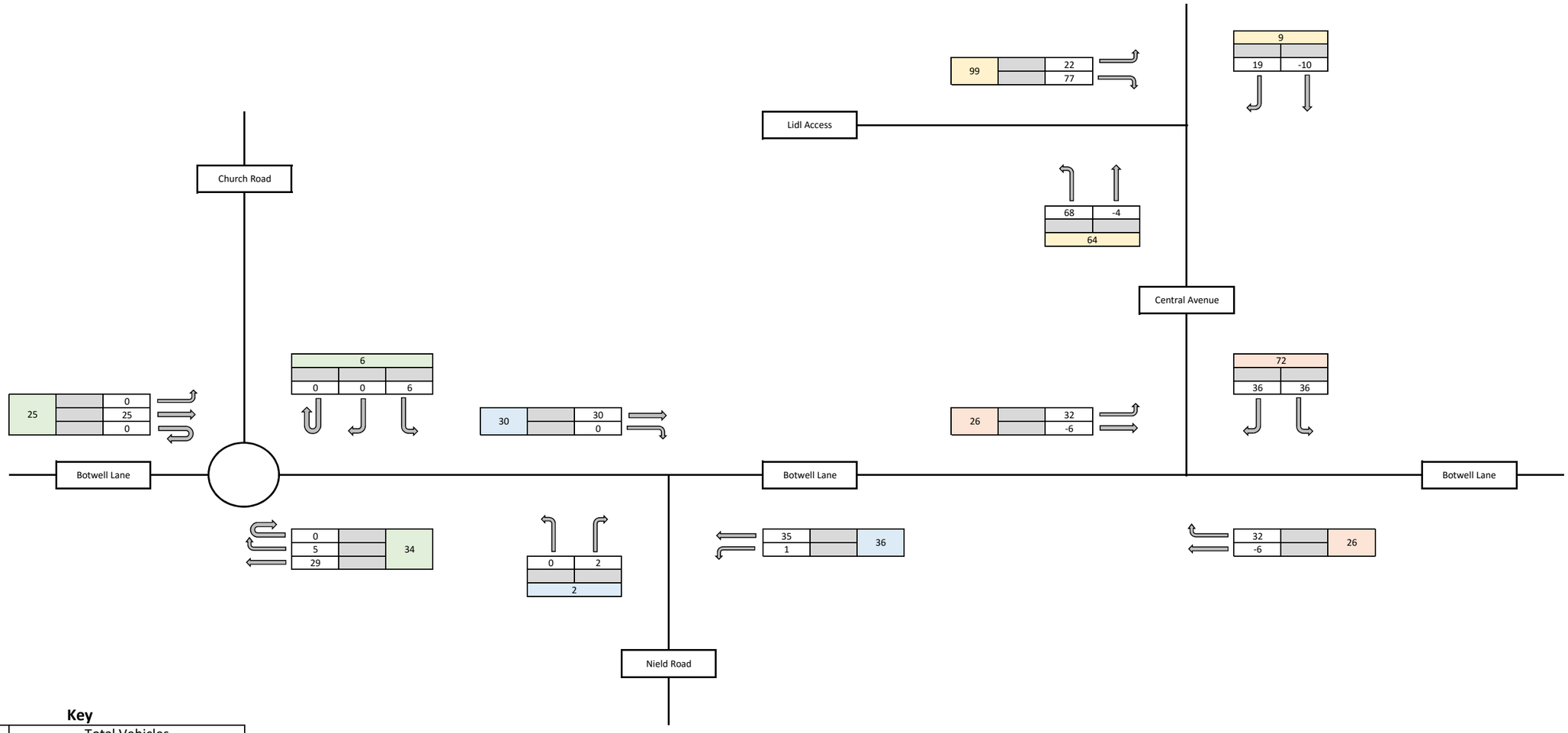


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - Total Committed Development Traffic Flows

Figure 3.12

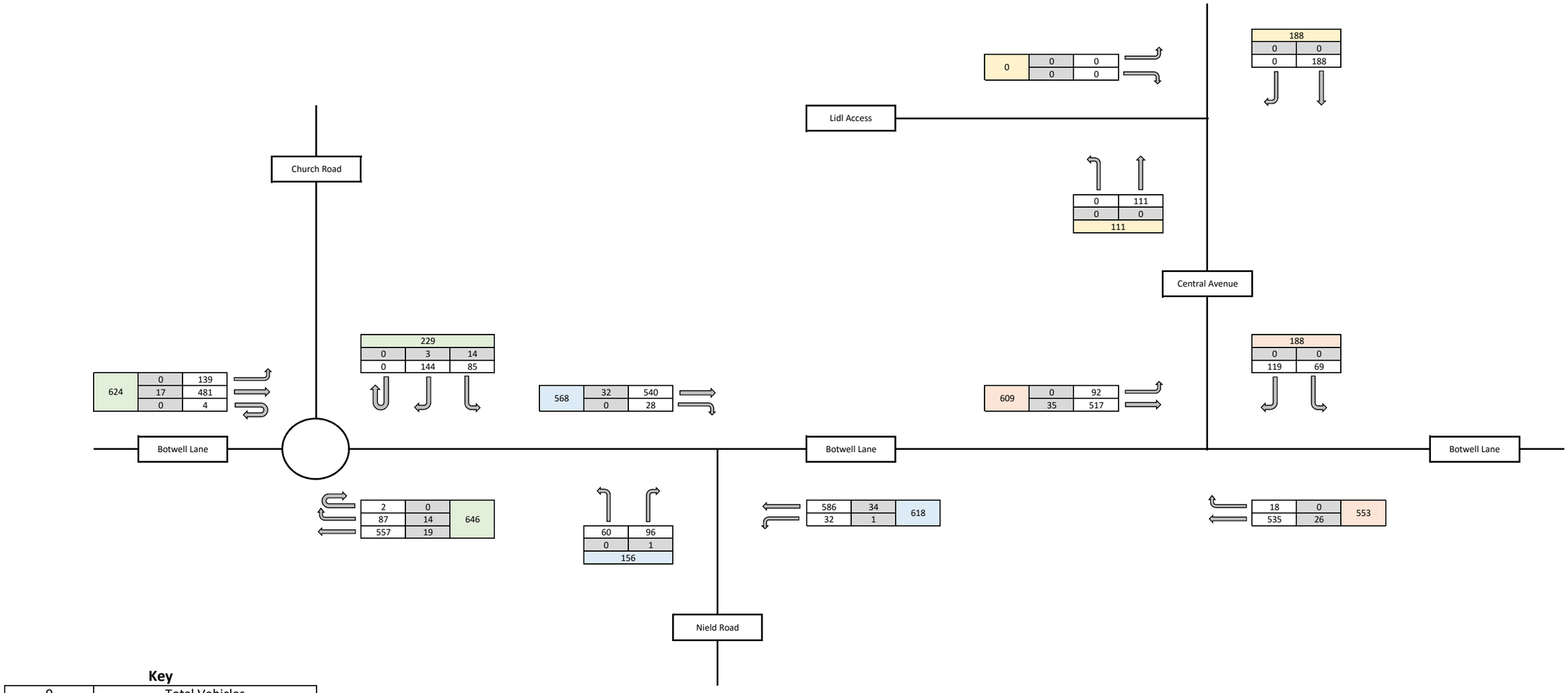


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2016 Uplifted Traffic Flows

Figure 3.13

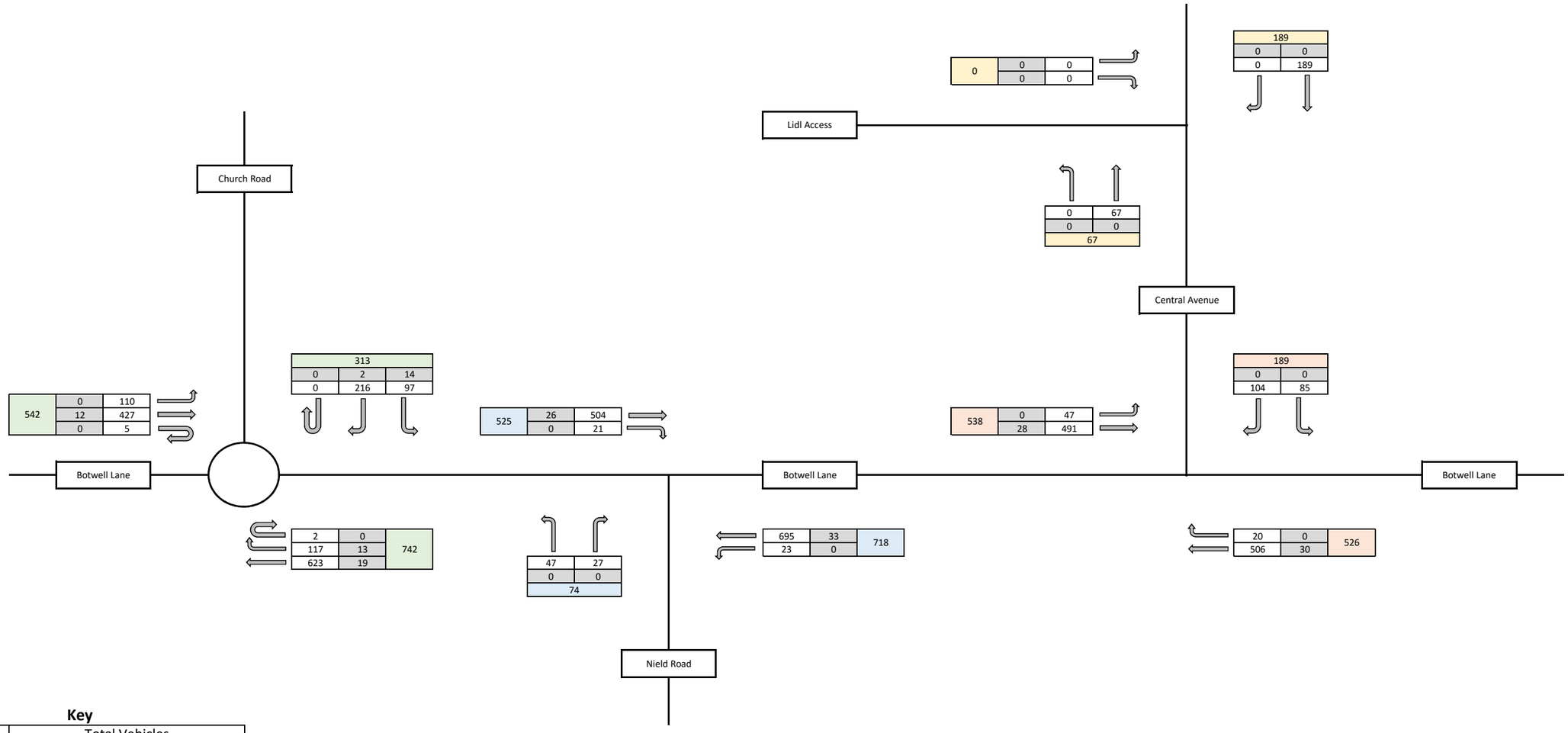


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm
1.0264	2013 - 2016 Tempro Growth Factor
1.0174	2015 - 2016 Tempro Growth Factor

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2016 Uplifted Traffic Flows

Figure 3.14

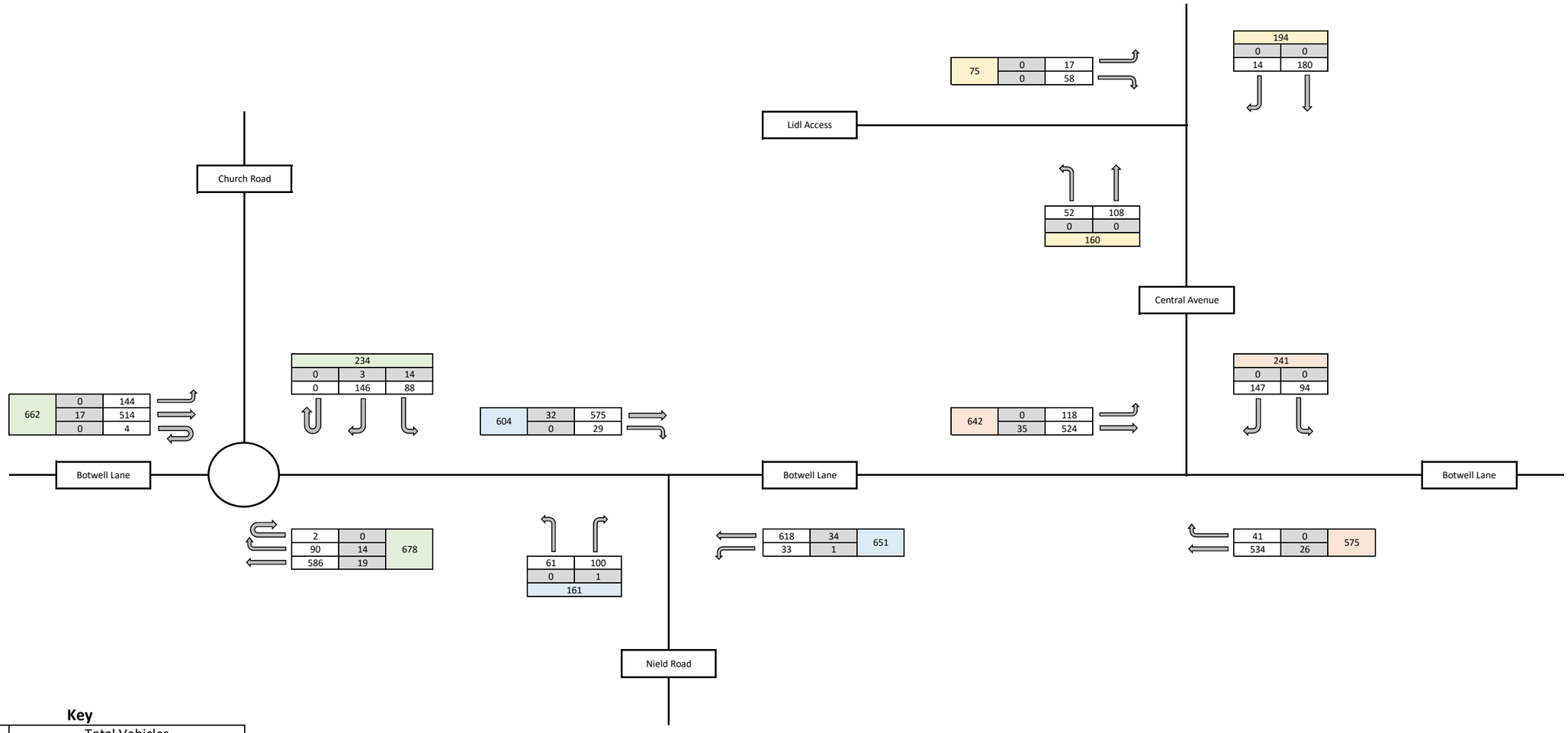


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm
1.0289	2013 - 2016 Tempro Growth Factor
1.0182	2015 - 2016 Tempro Growth Factor

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2016 Baseline Traffic Flows

Figure 3.15

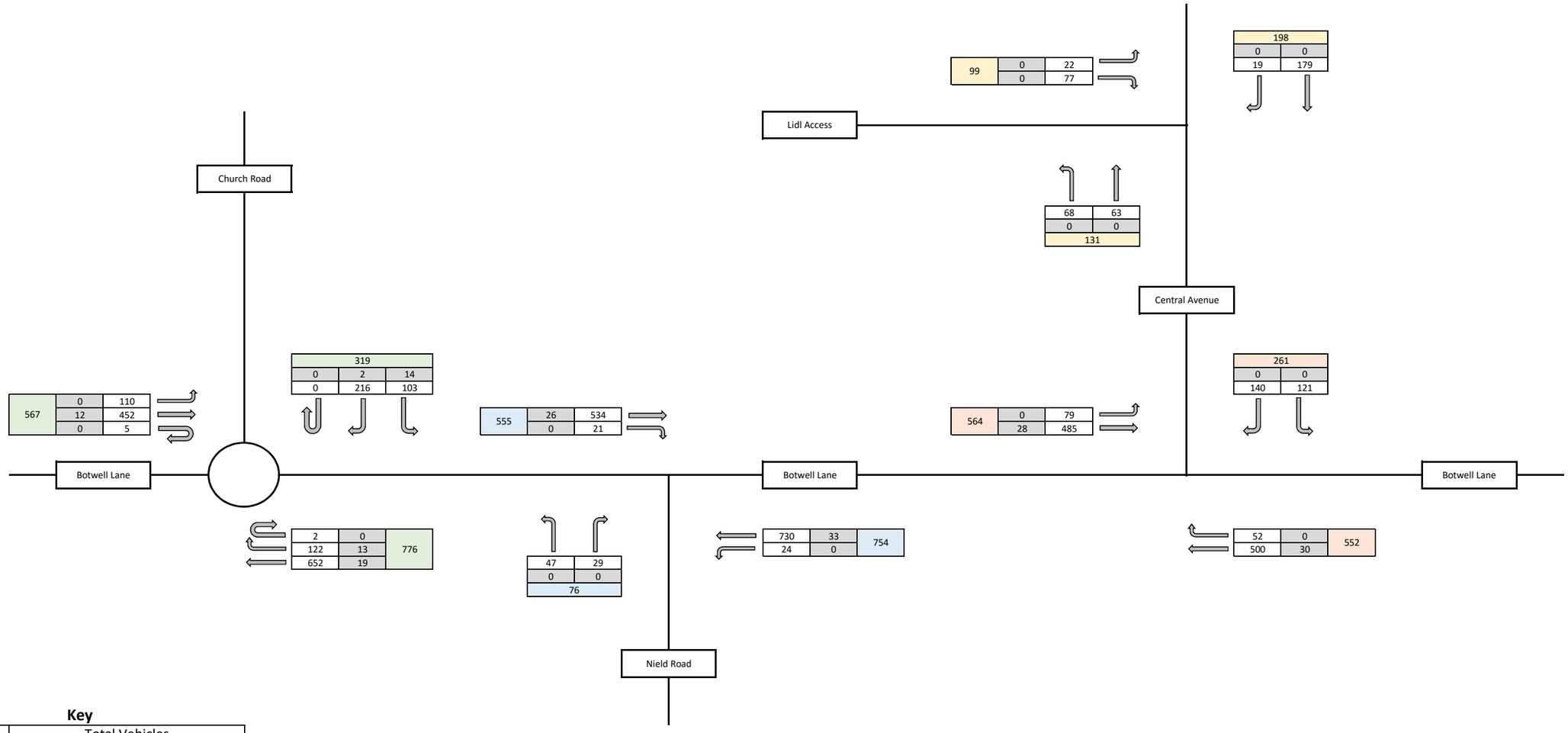


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2016 Baseline Traffic Flows

Figure 3.16

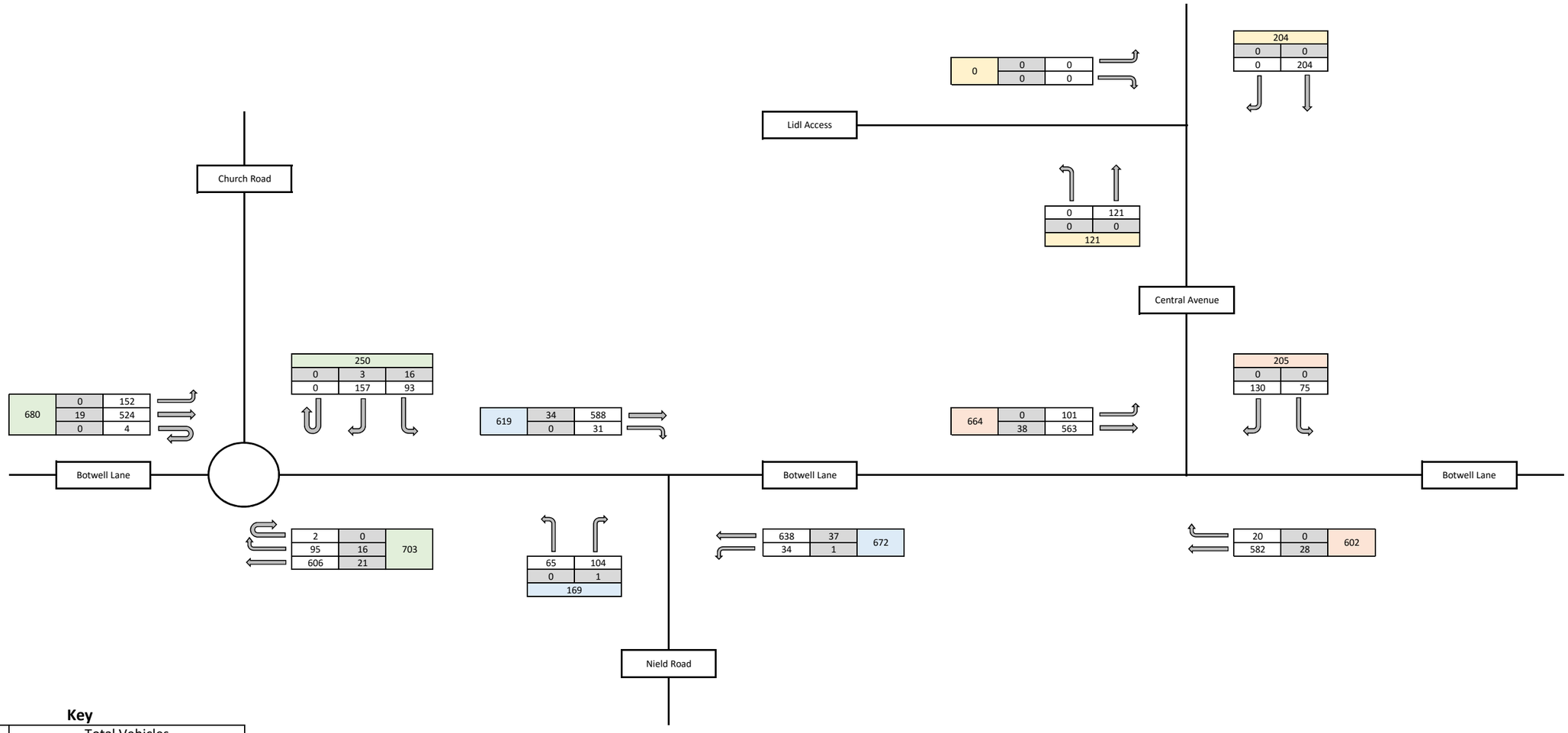


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2021 Uplifted Traffic Flows

Figure 3.17

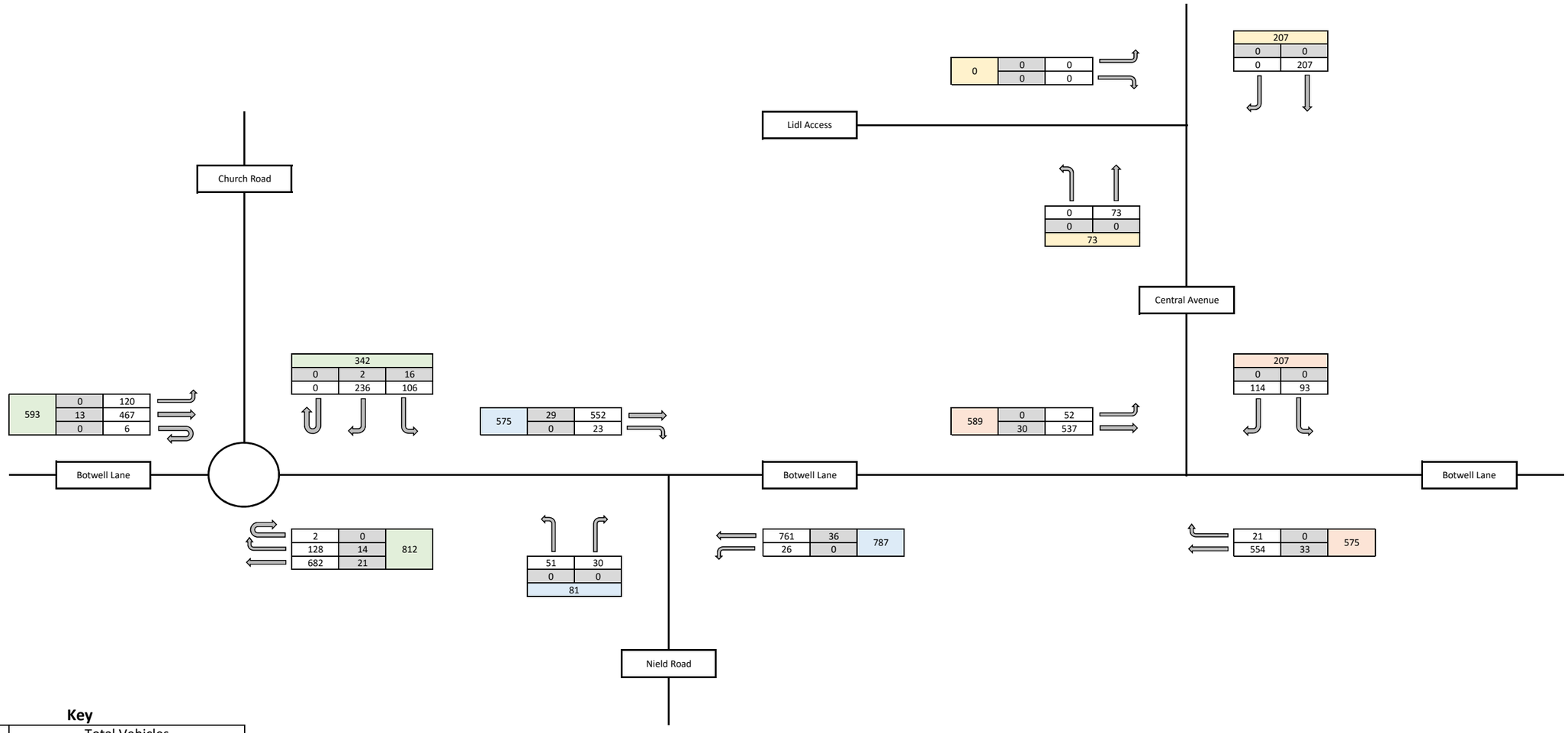


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm
1.1174	2013 - 2021 Tempro Growth Factor
1.1077	2015 - 2021 Tempro Growth Factor

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2021 Uplifted Traffic Flows

Figure 3.18

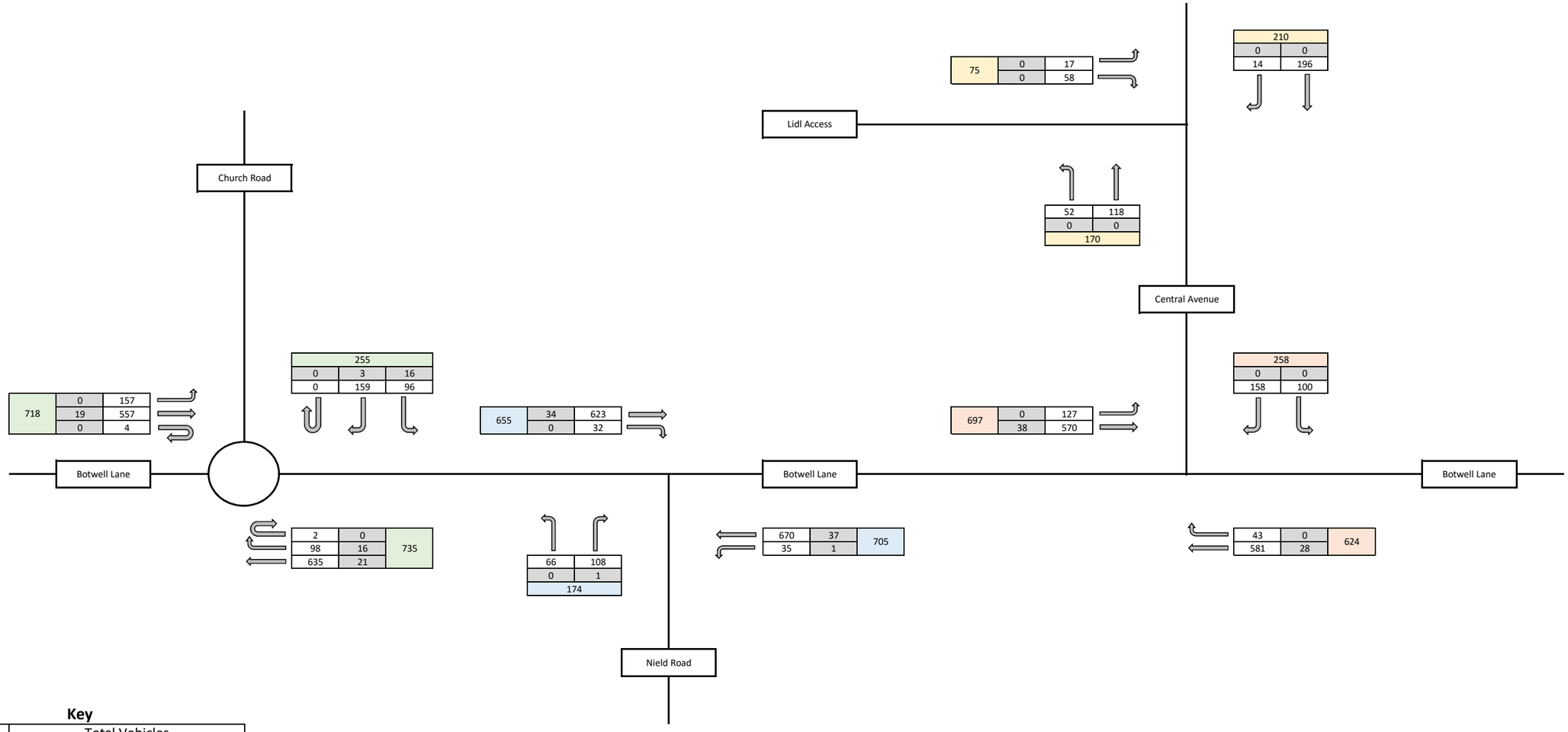


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm
1.1264	2013 - 2021 Tempro Growth Factor
1.1148	2015 - 2021 Tempro Growth Factor

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2021 Future Year Baseline Traffic Flows

Figure 3.19

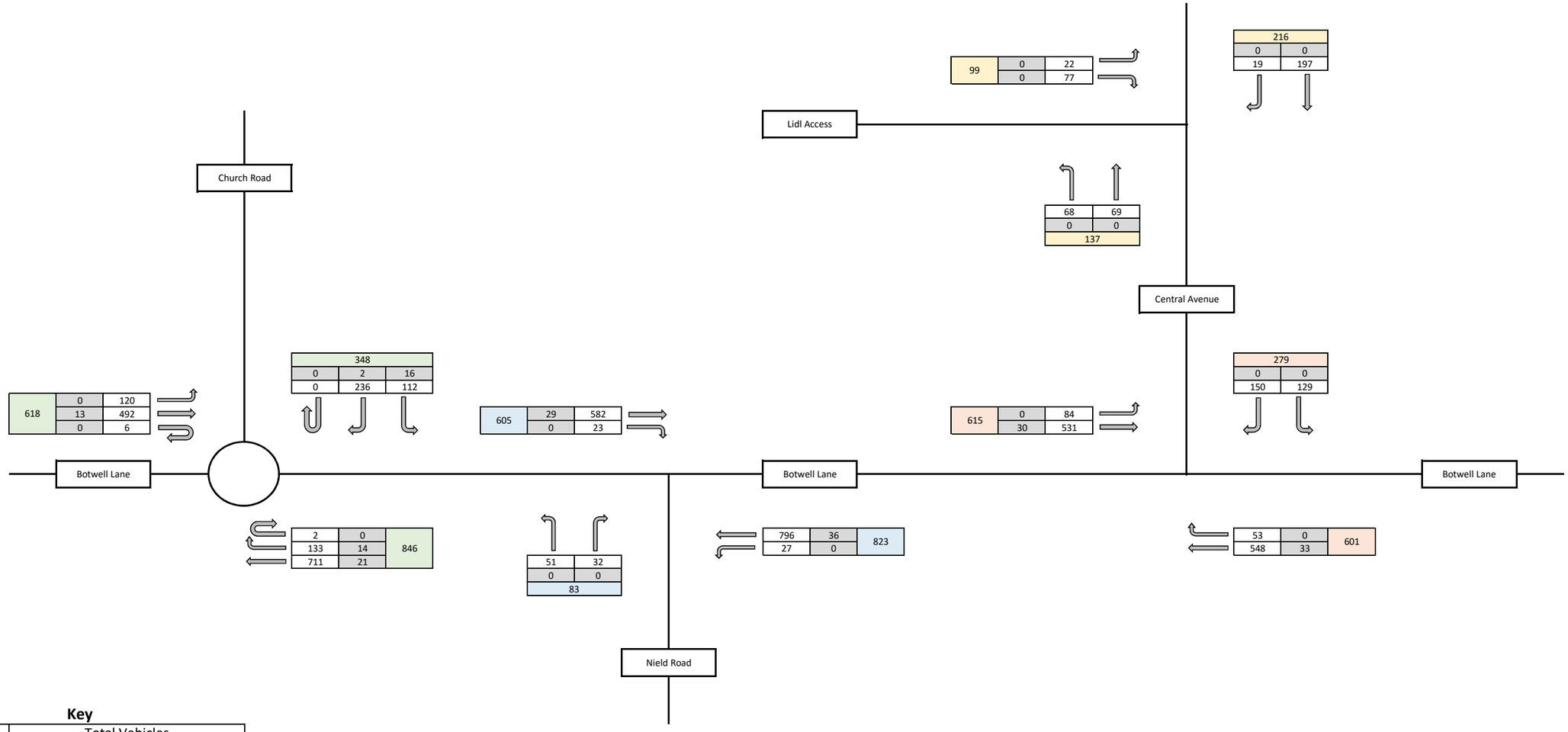


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2021 Future Year Baseline Traffic Flows

Figure 3.20

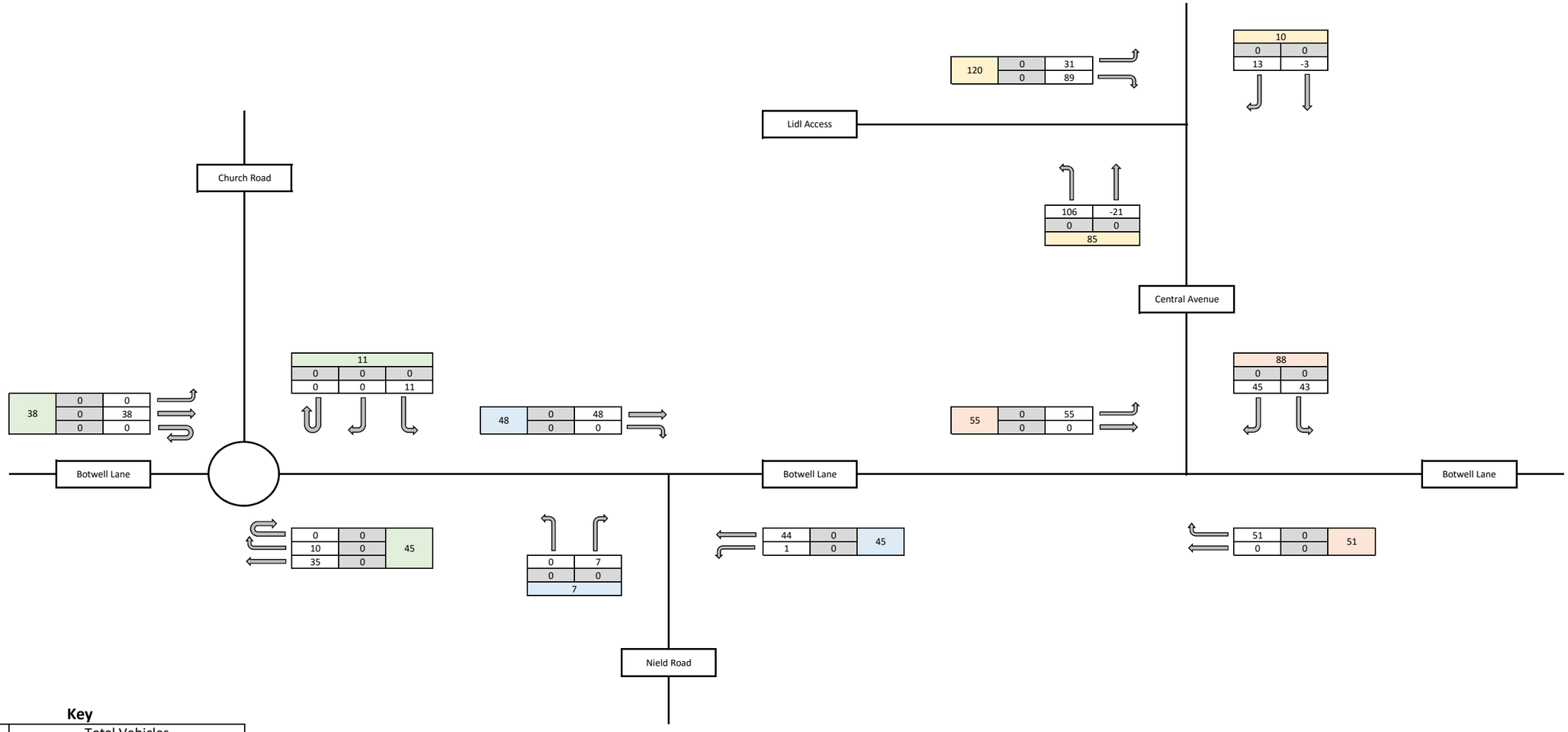


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - Foodstore Development Traffic Flows

Figure 6.1

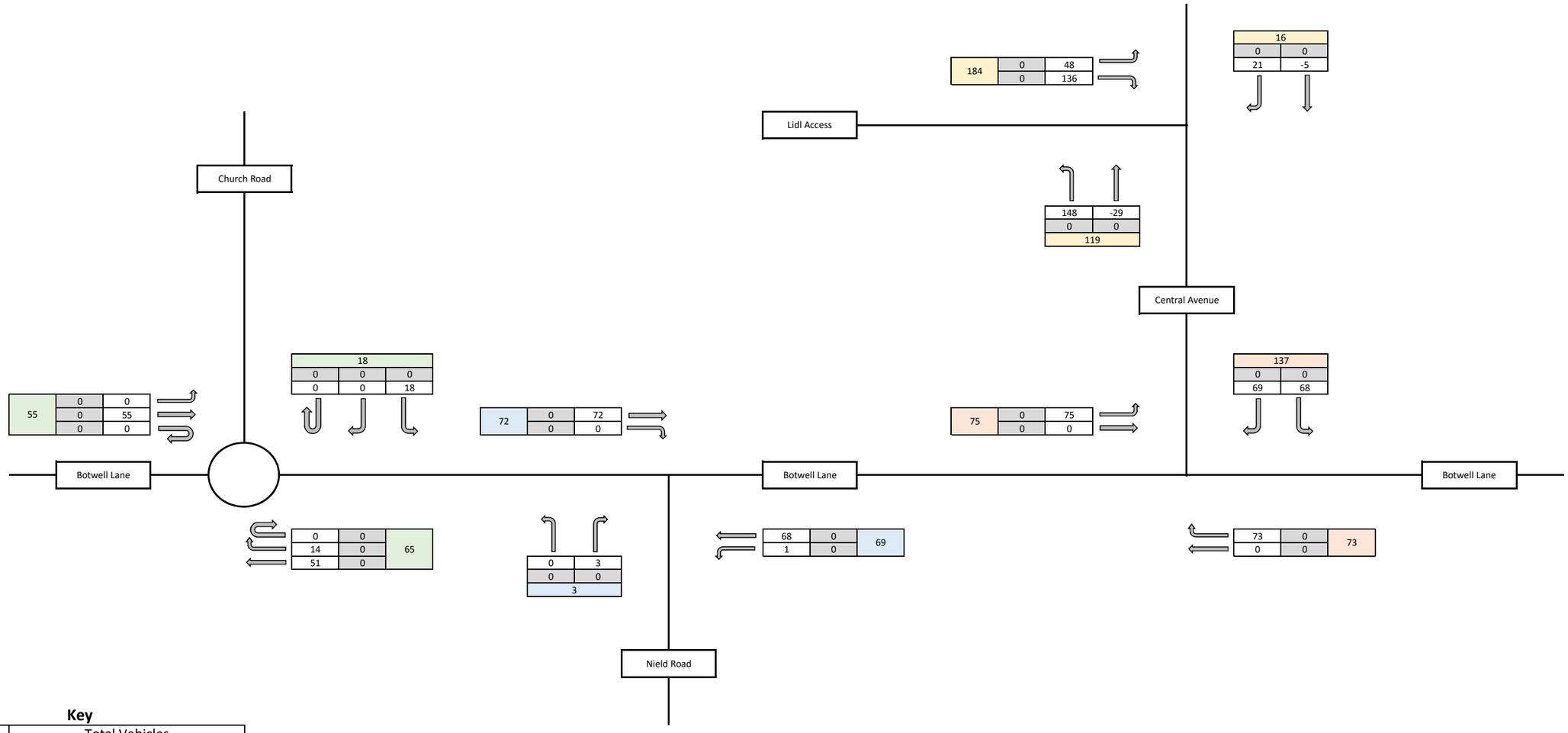


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - Foodstore Development Traffic Flows

Figure 6.2

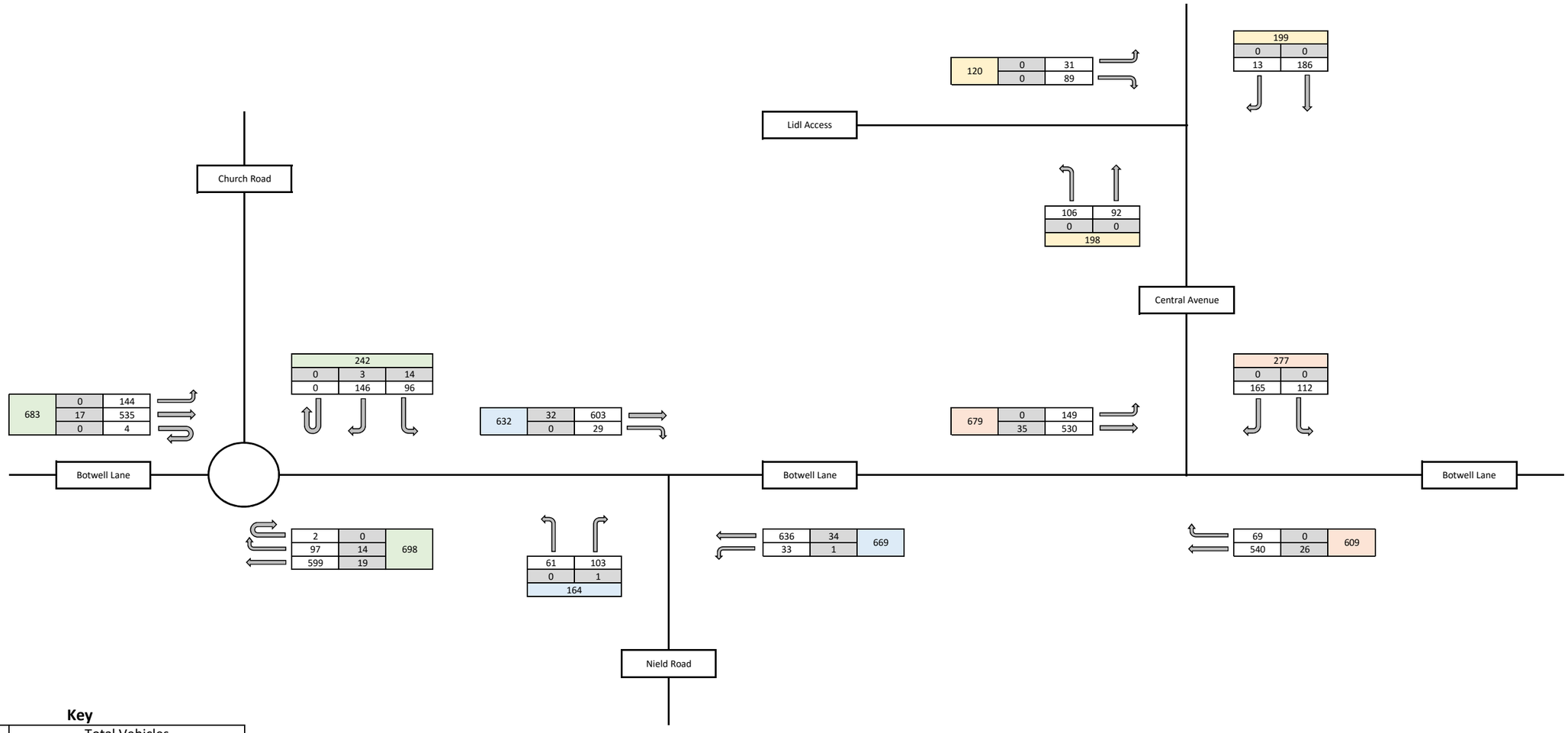


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2016 Baseline with Proposed Development (Excluding Consented Store)

Figure 6.3

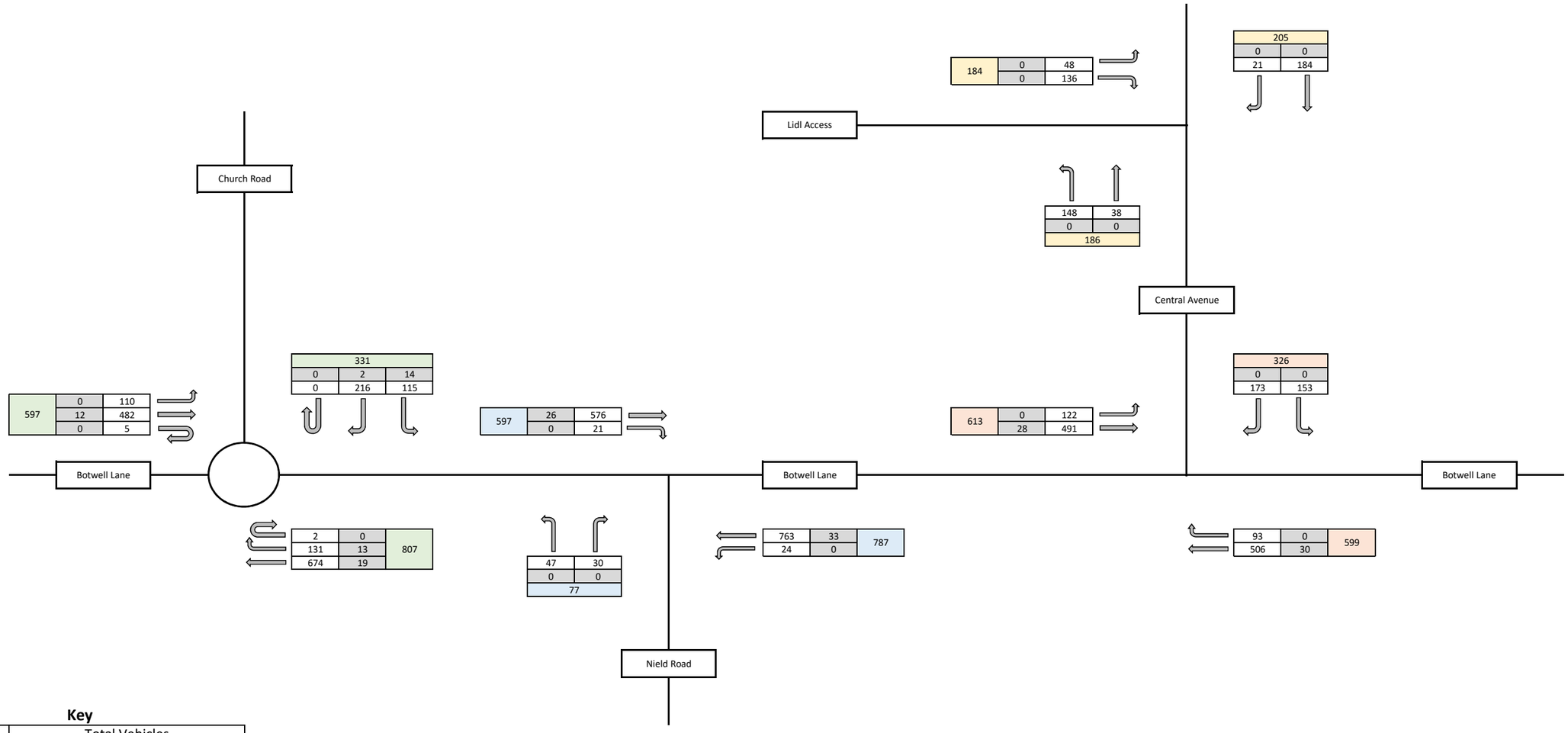


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2016 Baseline with Proposed Development (Excluding Consented Store)

Figure 6.4

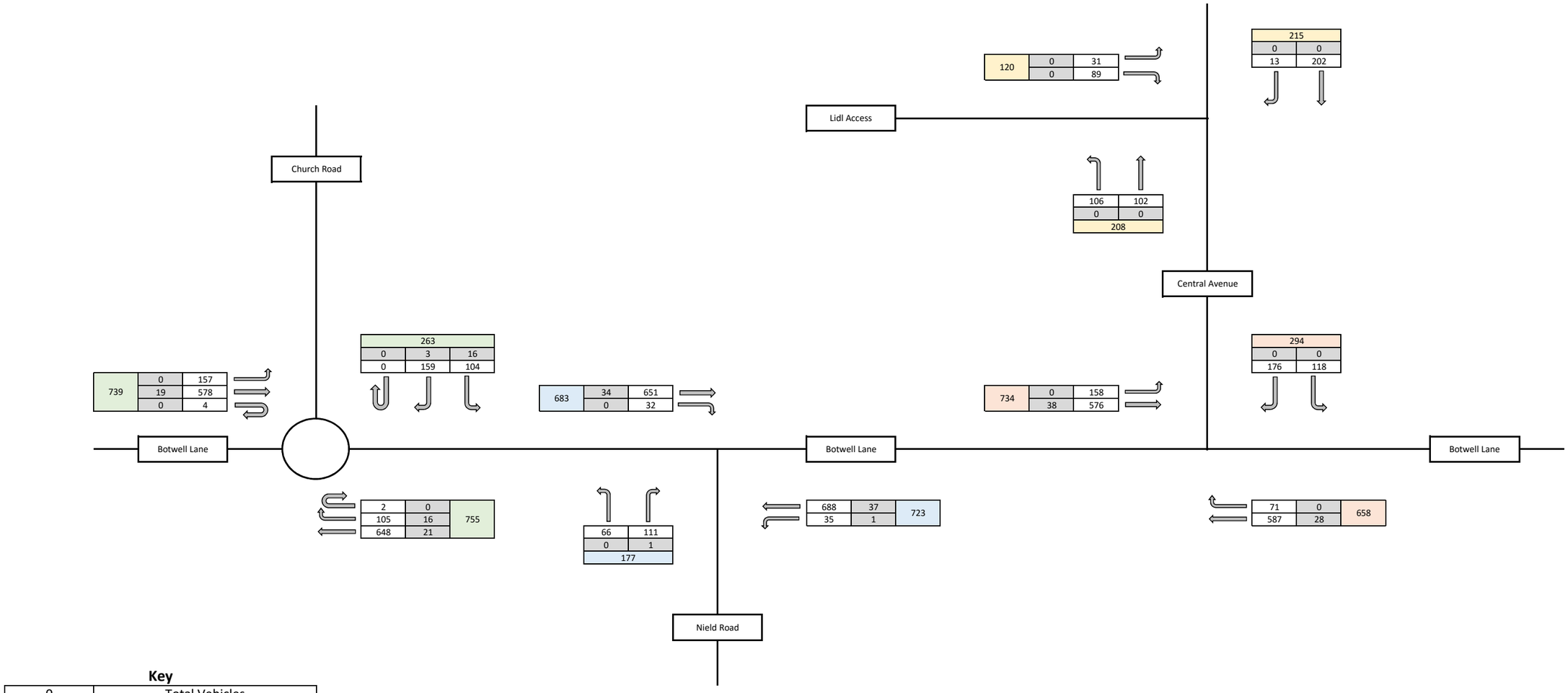


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Weekday Evening Peak Hour (16:45 - 17:45) - 2021 Future Year Baseline with Proposed Development (Excluding Consented Store)

Figure 6.5

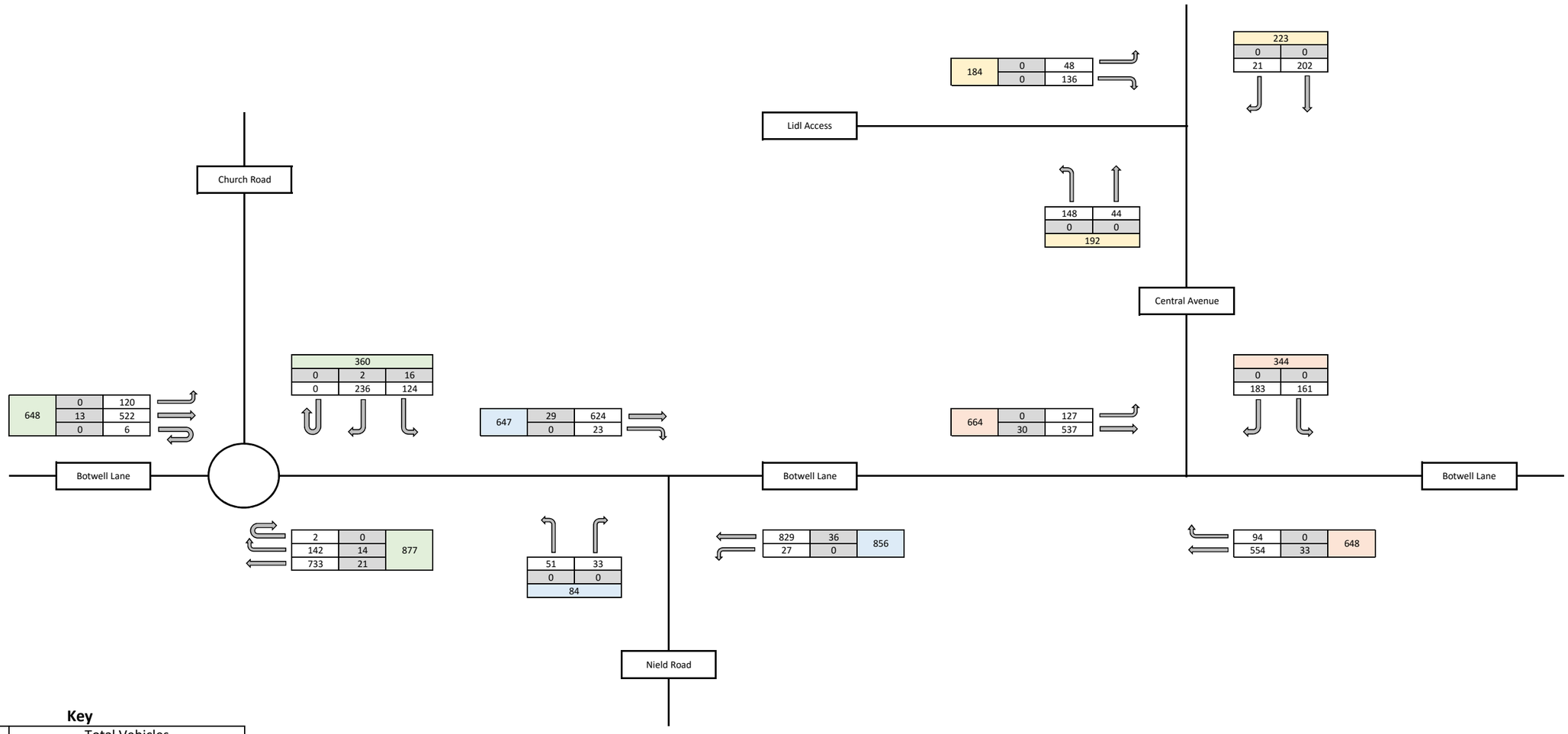


Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm

Botwell Lane, Hayes
Saturday Peak Hour (12:45 - 13:45) - 2021 Future Year Baseline with Proposed Development (Excluding Consented Store)

Figure 6.6



Key

0	Total Vehicles
0	HGV's
0	Total Vehicles on Arm