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Consulting Engineers

Proposed Lidl Foodstore, Bradberry Balk Lane, Wombwell.

Transport Assessment

July 2015

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1 Introduction

1.1 Background

Lidl UK GmbH have appointed EJS Associates (EJSA) to assess the transport and highway implications of a proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell. The site is bounded by Bradberry Balk Lane to the west, and Mitchell's Way to the south. A planning application is to be submitted for a Foodstore with a Gross Internal Area (GIA) of 2,470m^2 , a Retail Sales Area of 1,424m^2, and 132 car parking spaces (5 of which are for disabled users and 4 of which are for "parent & child" users).

The site is currently unoccupied.

1.2 Purpose of the Report

This Transport Assessment has been produced in accordance with the guidance provided in “Guidance on Transport Assessment” (GTA), published by the Department for Transport in March 2007, which, although now withdrawn, still remains a source of much useful guidance. Appendix B of that guidance shows that a Transport Assessment is required for a Food Retail use (Use Class A1) of greater than 800m^2 Gross Floor Area (GFA). The proposed new Lidl Foodstore is to have a GIA of 2,470m^2. Hence, this report is in the form of a full Transport Assessment.

The scope of the Transport Assessment has been agreed with Barnsley MBC (Barbara Wilson) at a pre-application meeting on 13 January 2015.

This report has been prepared to support the planning application for the proposed Foodstore. The purpose of this report is to comment on the accessibility of the site in terms of public transport, pedestrians and cyclists and to consider the feasibility of the proposals in traffic and highway terms. The report describes the proposed access arrangements and shows that changes to the existing road network, other than the creation of the new access junction, are not required.

1.3 Structure of the Document

This report contains the following sections:

Section 2 – Policy Context - reviews the National and Local policies which are appropriate to this development.

Section 3 – Existing Conditions - describes the existing site and how it operates.

Section 4 – Public Transport Accessibility - reviews the current level of public transport in the vicinity of the development.

Section 5 – Walking / Cycling Accessibility & Inclusive Mobility - reviews the existing walking and cycling routes to the site as well as features designed to make the site available to all users.

Section 6 – Accident Analysis – investigates accidents around the site commenting on frequency, severity, and any causal issues.

Section 7 – Proposed Development - describes how the site will be laid out and operate.

Section 8 – Vehicular Access – looks at the access to the proposed Foodstore from the surrounding road network and details the impact it will have on the surrounding highway network and any mitigation measures required.

Section 9 – Conclusion - concludes the report and details the findings of the Transport Assessment.

Various Figures and Appendices referred to in this report are included at the end of this document.

2 Policy Context

2.1 Introduction

This chapter covers the planning policies relevant to the nature and location of the proposed development. It outlines the policies which have defined the design of the site and comments on how the proposed development fits within the guidelines set within the planning policies. The policies actually noted are those which refer to 'highways' and/or 'transportation' matters: those dealing with other issues will be dealt with by others.

2.2 National Planning Policy

2.2.1 National Planning Policy Framework (NPPF).

Published in March 2012 the NPPF abolished much of the national planning guidance. Instead, NPPF gives broad outlines of policy guidance and expects local authorities and local people to produce their own policies. NPPF replaced *PPG 13 Transport*, which is no longer cited, but not Guidance on Transport Assessment (GTA) which itself has been withdrawn even though its provisions remain the source of more detailed guidance.

NPPF promotes sustainable transport. It confirms that "all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment." It notes that 'opportunities for sustainable transport modes should be taken up', and that 'safe and suitable access to the site should be achieved for all people'. Decisions should ensure that 'the need to travel will be minimised and the use of sustainable transport modes maximised'. Developments should 'give priority to pedestrians and cycle movements, and have access to high quality public transport facilities'.

However, NPPF notes that "development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe." This appears to 'raise the bar' on previous guidance – "significant" impacts are no longer to be viewed as fatal to proposed developments, they must be (at least) "severe".

2.2.2 National Planning Policy Guidance (NPPG).

NPPG was issued to supplement NPPF. It contains 15 paragraphs under the heading "Travel plans, transport assessments and statements in decision making".

Paragraph 002 of NPPG notes that Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainability, and that they are required for developments which generate significant amounts of movements.

Paragraph 006 of NPPG notes that Travel Plans, Transport Assessments and Statements can positively contribute to:

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

Paragraph 007 of NPPG notes that Travel Plans, Transport Assessments and Statements should be:

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

Paragraph 013 of NPPG notes that In determining whether a Transport Assessment or Statement will be needed for a proposed development local planning authorities should take into account the following considerations:

- the Transport Assessment and Statement policies (if any) of the Local Plan;

- the scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Transport Assessment or Statement);
- existing intensity of transport use and the availability of public transport;
- proximity to nearby environmental designations or sensitive areas ;
- impact on other priorities/strategies (such as promoting walking and cycling);
- the cumulative impacts of multiple developments within a particular area; and
- whether there are particular types of impacts around which to focus the Transport Assessment or Statement (e.g. assessing traffic generated at peak times).

Paragraph 014 of NPPG notes that key issues to consider at the start of preparing a Transport Assessment or Statement may include:

- the planning context of the development proposal;
- appropriate study parameters (i.e. area, scope and duration of study);
- assessment of public transport capacity, walking/ cycling capacity and road network capacity;
- road trip generation and trip distribution methodologies and/or assumptions about the development proposal;
- measures to promote sustainable travel;
- safety implications of development; and
- mitigation measures (where applicable) – including scope and implementation strategy.

Paragraph 015 of NPPG notes that the scope and level of detail in a Transport Assessment or Statement will vary from site to site but the following should be considered when settling the scope of the proposed assessment:

- information about the proposed development, site layout, (particularly proposed transport access and layout across all modes of transport)
- information about neighbouring uses, amenity and character, existing functional classification of the nearby road network;

- data about existing public transport provision, including provision/ frequency of services and proposed public transport changes;
- a qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from the development and in the vicinity of the site;
- an assessment of trips from all directly relevant committed development in the area (i.e. development that there is a reasonable degree of certainty will proceed within the next three years);
- data about current traffic flows on links and at junctions (including by different modes of transport and the volume and type of vehicles) within the study area and identification of critical links and junctions on the highways network;
- an analysis of the injury accident records on the public highway in the vicinity of the site access for the most recent three-year period, or five-year period if the proposed site has been identified as within a high accident area;
- an assessment of the likely associated environmental impacts of transport related to the development, particularly in relation to proximity to environmentally sensitive areas (such as air quality management areas or noise sensitive areas);
- measures to improve the accessibility of the location (such as provision/enhancement of nearby footpath and cycle path linkages) where these are necessary to make the development acceptable in planning terms;
- a description of parking facilities in the area and the parking strategy of the development;
- ways of encouraging environmental sustainability by reducing the need to travel; and
- measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads etc.

2.3 Local Planning Policy

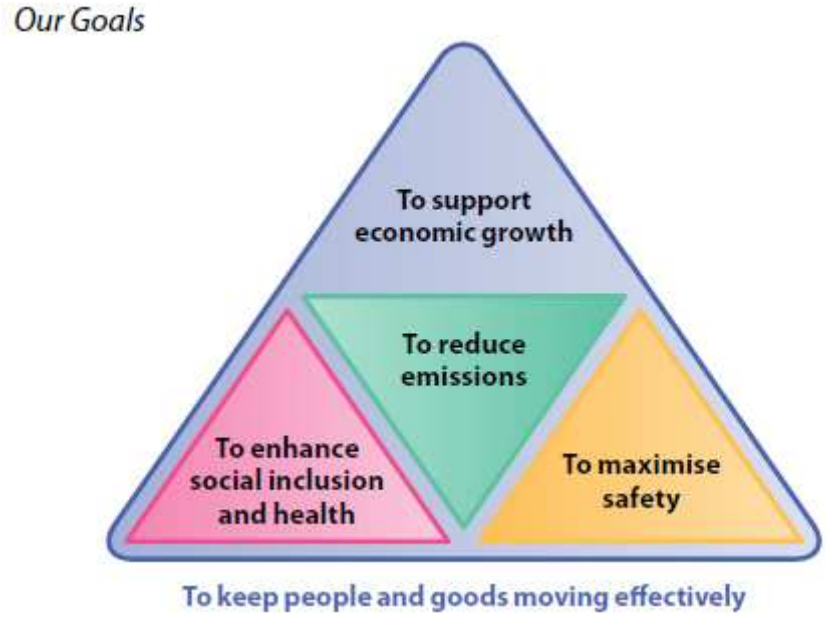
2.3.1 South Yorkshire Local Transport Plan 3.

The local authorities within South Yorkshire: Sheffield City Council, Doncaster Metropolitan Borough Council, Barnsley Metropolitan Borough Council, and Rotherham Metropolitan Borough Council make up the participating organisations which are responsible for the South Yorkshire Local Transport Plan. However, due to more recent Government Policy, a body called the "Sheffield City Region" is

recognised as the driving force behind the economic well-being of the South Yorkshire area, including the Councils covering Derbyshire Dales, North East Derbyshire, Chesterfield, Bolsover and Bassetlaw.

Therefore the Sheffield City Region Transport Strategy 2011 to 2026 is the document which forms the Policy background in this area.

The Strategy has 4 Goals:



To meet the 4 Goals, the Strategy has an A to Z of 26 Policies which summarise the highest priorities for transport improvements over the 15 year period.

They are expressed as:

To support economic growth	
A	To improve surface access to international gateways
B	To improve the reliability and resilience of the national road network using a range of management measures
C	To promote efficient and sustainable means of freight distribution, while growing SCR's logistics sector
D	To improve rail services and access to stations, focusing on interventions that can be delivered in the short term
E	To ensure SCR is served by High Speed Rail
F	To improve connectivity between major settlements
G	To deliver interventions required for development and regeneration
H	To develop high-quality public places
I	To focus new development along key public transport corridors and in places adjacent to existing shops and services
J	To apply parking policies to promote efficient car use, while remaining sensitive to the vulnerability of urban economies
K	To develop public transport that connects people to jobs and training in both urban and rural areas
L	To reduce the amount of productive time lost on the strategic road network and improve its resilience and reliability
M	To ensure our networks are well-maintained

To enhance social inclusion and health	
N	To develop user-friendly public transport, covering all parts of SCR, with high quality of integration between different modes
O	To ensure public transport is accessible to all
P	To work with operators to keep fares affordable, especially for travellers in need
Q	To provide efficient and sustainable access to our green and recreational spaces, so that they can be enjoyed by all residents and attract tourism

To reduce emissions	
R	To work to improve the efficiency of all vehicles and reduce their carbon emissions
S	To encourage active travel and develop high-quality cycling and walking networks
T	To provide information and travel advice for the users of all modes of transport, so that they can make informed travel choices
U	To support the generation of energy from renewable sources, and use energy in a responsible way
V	To improve air quality, especially in designated AQMA areas

To maximise safety	
W	To encourage safer road use and reduce casualties on our roads
X	To work with the Police to enforce traffic laws
Y	To focus safety efforts on vulnerable groups
Z	To improve safety and the perception of safety on public transport

The symbols to the right of each policy represent the cross-cutting topics as follows:

Squeezing more from our existing assets

Ensuring our growth is sustainable

Giving people choice

Encouraging a cultural change

To implement the Policies, the Strategy notes a number of Actions as follows:

OUR ACTIONS

The policies are designed so that they can be translated into actions. We have carried out work to forecast the likely impacts of these actions, and this has provided further justification to the full policy framework. The following are actions of a strategic nature that derive directly from our policies. Additional actions are presented in detail in the implementation plan and annual delivery programmes.

To support business growth in SCR, we will **improve interurban connectivity** by strengthening rail links to London, Manchester, Leeds and Nottingham on the Midland Main Line, East Coast Main Line and Trans Pennine routes. To facilitate employment opportunities we will also **create new links to major regeneration areas**, for example in East Doncaster, the Dearne Valley, Rossington, Waverley, the Lower Don Valley, Markham Vale and Junctions 36-37 of the M1.

Opening up opportunities for economic growth results in additional car trips and potentially increased levels of congestion. Enhanced activity on our transport networks is a welcome sign of economic vitality but might also give rise to levels of congestion that would thwart the efforts to make our area prosper.

A significant improvement to the performance of our networks will therefore be achieved via **active traffic management** on the motorways and the use of **intelligent traffic control systems** in both our road and rail networks. A **boost to the capacity and reliability** of these networks will be achieved through contingency planning and real-time event handling. As part of the effort to **relieve congestion hotspots**, we will also embark on a series of targeted improvements on routes such as the A57, A61 and Junction 34 on the M1.

There is clear evidence that the likely impact of population growth over the lifespan of the strategy, coupled with a considerable rise in car ownership, would be greater than the mitigating effect of these interventions. Extensive work to **provide a choice between car and other modes of travel**, especially for short-distance trips, would therefore be required in order to tackle further increase in congestion, loss of productive time, air pollution and high carbon emissions.

We will give people more travel options using a range of **public transport enhancements**, including the introduction of additional train and tram vehicles, improved links between Barnsley and Doncaster, the "tram-train" project between Sheffield and Rotherham, improved access to the redevelopment area around the Robin Hood Airport, and Park and Ride schemes on selected corridors.

We will also **design pedestrian-friendly streets and footpaths, create a continuous cycling network**, support car clubs and car sharing schemes, and make information about all these travel options easier to find and use. We will take action to **make a wiser use of energy** through assisting drivers in becoming more fuel-efficient, enforcing speed limits and encouraging the use of less polluting vehicles.

Our analysis indicates that even when all the measures listed above are combined, their joint effect is still not large enough to prevent the natural evolution of congestion and the associated risks to SCR's economy and environment. For our actions to become truly effective, we will seek to **influence land use planning processes** so that the location of new development **reduces the need to travel** long distances. This will allow people to undertake most of their activities in central places, such as Barnsley's Accessibility Improvement Zone, which are convenient for the users of all transport modes.

Our approach to traffic management in urban centres will acknowledge the **importance of parking provision** to local businesses, and the vulnerability of local economies to restricted access by car. Nevertheless, we will remain alert to increasing congestion in these centres, and will consider applying **measures to reduce congestion** over time.

There is strong evidence that the success of these actions depends on our ability to **apply them consistently and jointly as a combined package**. By introducing improvements to all travel modes, better management of our networks and an integrated spatial planning approach, transport will play a central role in helping SCR to thrive and flourish.

Certain policies of the Strategy are of particular relevance to these development proposals.

Policy I:
To focus new development along key public transport corridors and in places adjacent to existing shops and services

This policy is supported by text

Transport and land use

4.89. Our analysis gives clear evidence[79] that improving connectivity through building new infrastructure alone is not sufficient to achieve our goals. The more we grow and prosper, the higher the risk of increased car use, congestion and pollution. To secure long-term gains we therefore need to ensure that SCR's spatial development is aligned with its capability to accommodate its own growth.

4.90. The most effective way for an area to experience growth without bearing consequences such as congestion and an increase in emissions is through prioritising development in areas that already have the capacity to contain this growth. Controlled growth along existing transport corridors and near transport interchanges can make SCR denser, with more intense activity in central locations. Such growth layout reduces the need to travel long distances, and as a result, it reduces traffic and further encourages travel by walking and cycling.

4.91. Concentrated growth also enables public transport operators to offer attractive high-frequency routes, serving high levels of demand at clearly-defined locations. It therefore also intensifies business activity in these locations and generates agglomeration benefits.

4.92. This long-established planning concept[80], which became formal guidance in the 1990's, also encourages the mixture of specific combinations of land uses in adjacent sites or in the same site. Mixing housing, office and light retail developments reduces the length and duration of commuting or shopping trips, and reduces traffic, especially during peak periods.

The location of the proposed Lidl Foodstore is along a route well served by public transport, and in a mixed use area.

Another document published by the South Yorkshire Local Plan Partnership, called the "South Yorkshire Strategic Network" (October 2010) shows the roads of major significance within this the area. Mitchell's Way/Barnsley Road (A633) is shown to be part of the Strategic Network (SN20).

Another document published by the South Yorkshire Local Plan Partnership, called the "South Yorkshire Cycle Action Plan" (April 2011) notes the current situation and the aspirations with regard to cycling in the area. It notes the situation in Barnsley as:

BARNSLEY

3.3 BMBC is at present developing an Active Travel Strategy, which includes an action plan for cycling and one for walking. This strategy is accompanied by a joined up programme which illustrates the plans for Barnsley in terms of cycle routes that could be funded through the LTP; publicity and promotions; potential routes that are in the vicinity of development sites; and routes that are targeted at the communities in the Barnsley Dearne.

3.4 NHS Barnsley have funded a specific post (Wider Determinants of Health Officer) to support the Transportation unit to develop active travel (including cycling) across Barnsley and strengthen the links with the authority's planning service.

3.5 BMBC are the lead authority in the UK for the Trans Pennine Trail (TPT) hosting the co-ordination of the TPT partnership. The TPT has formed key element in the nurturing of active travel in the borough over the last 20 years and with over a million users annually, will provide a major supporting role in the development of the Active Travel Strategy.

3.6 To date 3205 year 6 pupils have been trained to level 2 Bikeability since 2007. 70% of these pupils are year 5, giving them the opportunity to use the skills gained throughout year 6 and before starting secondary school. 97% of Schools have an active travel plan and 26 schools have safe, secure cycle parking.

3.7 Key cycle routes linking communities with the Town Centre have been developed e.g. a signed safe cycle route from Kingstone School to the Town Centre. Also, safe, secure and covered cycle parking has been put in at Dodworth, Silkstone, Barnsley Interchange, Bolton on Dearne and Elsecar rail stations.

3.8 The Building Schools for the Future Programme for Barnsley is putting in place world class educational facilities namely Advanced Learning Centres (ALC). A total of 9 ALCs will be constructed in over the period 2010 to 2013. To encourage sustainable travel to school, Framework Travel Plans have been produced for all 9 ALCs all of which have identified a number of cycling/walking routes, highway infrastructure interventions and promotional material/incentives.

3.9 The first ALC to be constructed as part of this programme was Carlton Community College ALC which brings together pupils from Royston High School and Edward Sheerien School. A successful bid through the Sustrans Safe Routes to school grant mechanism secured over £350k of funding for this ALC. The location of the ALC required new routes to be constructed to enable pupils to continue cycling and walking as safely as possible, and with minimal impact on other community users. The completed routes are:-

- Route 1 - Ollerton Road to Roystone Lane
- Route 2 - Laithes Lane, Carlton Road, Crookes Lane
- Route 3 - Carlton Road to Royston Lane
- Route 4 - Royston Lane
- Route 5 - Pinfold Lane

3.10 Furthermore all Year 6 pupils from the surrounding feeder schools identified above have received Bikeability accredited cycle training to levels 1 and 2. To accommodate and encourage cycling Carlton Community College will have a total of 160 safe and secure cycle facilities, which will be available to students, staff and visitors.

3.11 In addition BMBC is bidding for European Regional Development Funding (ERDF) to provide a suite of safe cycling and walking routes in the Dearne Valley. This will allow for sustainable travel to employment sites and the new Dearne ALC.

The provision of cycle parking as part of the proposals will help to achieve the wider use of cycling as a transport mode.

2.3.2 Barnsley MBC Statutory Development Plan

According to Barnsley MBC, the Statutory Development Plan for Barnsley consists of several elements. These are "The Core Strategy, The Barnsley Education Sites DPD (both of which form part of the Local Development Framework) the remaining saved policies of the Unitary Development Plan and the Regional Spatial Strategy."

2.3.3 The Core Strategy.

This was adopted in September 2011. It has 8 Strategic Objectives:

1. To be the spatial interpretation of the Sustainable Community Strategy;
2. To improve access, movement and connectivity with sustainable travel;
3. To secure safe, healthy and inclusive communities and promote wellbeing;
4. To make efficient use of land and infrastructure;
5. To accelerate economic growth;
6. To ensure all new development is sustainably designed and built to the highest standards;
7. To deliver a sufficient supply of housing to provide balanced mixed communities and support economic growth; and
8. To protect and improve the countryside and natural environment.

There are 43 Core Policies. The Transport Strategy starts at paragraph 9.6 and includes the following Policies which relate to transport and development:

CSP 25 New Development and Sustainable Travel

New development will be expected to:

- be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists
- provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people, and should not provide more than the maximum number of car parking spaces set out in a Supplementary Planning Document
- provide a transport statement or assessment in line with the thresholds and guidance set out in Department for Transport 'Guidance on Transport Assessments' as published March 2007 (or any subsequent version)
- provide a travel plan statement or a travel plan in accordance with the thresholds and guidance set out in Department for Transport 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process' as published April 2009 (or any subsequent version). Travel plans will be secured through a planning obligation or a planning condition

Where levels of accessibility through public transport, cycling and walking are unacceptable, we will expect developers to take action or make financial contributions in accordance with policy CSP 42.

If it is not possible or appropriate for the minimum amount of parking for cycles motorbikes, scooters and mopeds to be met on site, the developer must provide, or contribute towards, off-site parking, or improve or provide other forms of travel.

CSP 26 New Development and Highway Improvement

New development will be expected to be designed and built to provide safe, secure and convenient access for all road users.

If a development is not suitably served by the existing highway, or would create or add to highway safety problems or the efficiency of the highway for all road users, we will expect developers to take mitigating action or to make a financial contribution to make sure the necessary improvements go ahead. Any contributions will be secured through a planning obligation or planning condition.

CSP 27 Parking Strategy

We will develop a parking strategy that will help to influence people's travel choices in line with the challenges set out in 'Delivering a Sustainable Transport System' (Department for Transport, November 2008).

The strategy will include:

- a review of the number and location of short and long term car parking spaces, taking account of development proposals in Barnsley town centre
- an action plan to improve the management of new and existing car parks
- maximum car parking standards
- variable car parking charges dependant on location
- parking permits including residential parking schemes
- a programme for monitoring car park usage

And will consider:

- the potential contribution of park and ride, particularly at railway stations
- the potential for shared management of car parks between the council and the private sector
- the potential for dedicated car sharing spaces and other schemes to encourage change in travel behaviour
- developing parking strategies to cover the Principal Towns.

CSP 28 Reducing the Impact of Road Travel

We will reduce the impact of road travel by:

- developing and implementing robust, evidence based air quality action plans to improve air quality
- working with our sub regional partners, fleet and freight operators to improve the efficiency of vehicles and goods delivery, and reduce exhaust emissions
- implementing measures to ensure the current road system is used efficiently.

2.3.4 The Unitary Development Plan.

The following Policies saved from the UDP do not appear to have been superseded by the Core Strategy and hence, appear to be still in force:

T3 Existing Strategic Highway Network

T4 Strategic Highways Proposals

T5 Protected Highway Alignments

T8 Highways Maintenance

T10 Bus and Rail Infrastructure.

2.3.5 The Regional Spatial Strategy.
The Regional Spatial Strategy is no longer supported by Government and so no further reference is made to it.

2.4 Travel Planning

The Government wish to raise awareness of the impacts of travel decisions, and to promote the widespread use of Travel Plans. Therefore, as part of this proposed development a bespoke Travel Plan has been developed and is contained in a stand-alone document. It covers in greater detail the issues of accessibility to the site by non-car modes of transport, and considers local, and national, policies with regard to the development of Objectives and the setting of Targets for modal shift for the proposed development.

NPPF notes the importance of Travel Plans at paragraph 32, and NPPG devotes 4 paragraphs to Travel Plans.

2.5 Compliance

This Transport Assessment document, and the associated Travel Plan document show that the proposed development fully complies with the current transport related policies of National Government, Barnsley Council (the Highway Authority), and the Local Authorities who subscribe to the South Yorkshire Local Transport Plan, and those who form the Sheffield City Region.

3 Existing Conditions

3.1 Existing Site and Location

The site is currently unoccupied. It is accessed off Bradberry Balk Lane - which also gives access to the township of Darfield to the north.

The site is within the township of Wombwell, and approximately 6.5km to the south-east of Barnsley Town Centre.

The M1 runs north-south approximately 6km to the west of Wombwell; the A635 runs east-west approximately 2km north of Wombwell, and the A6195 runs southwest-northeast approximately 1.5km to the south of the site. Mitchell's Way forms part of a high standard route (partly A633) running northwest-southeast, connecting the A635 at Stairfoot to the A6195 at Brampton.

A plan of the location is shown at Figure 1.

Bradberry Balk Lane and Mitchell's Way meet at a roundabout junction. This is a recently constructed roundabout to a high, modern standard. It is called the White Rose Roundabout.

3.2 Surrounding Highway Network

3.2.1 Bradberry Balk Lane

Bradberry Balk Lane is a single carriageway road, mostly of a rural nature. There is a footway on its western side, and street lighting in place, as is a 30mph speed limit. It gives access to commercial premises on its western side, opposite the site, and to Mitchells Industrial Park further north.

3.2.2 Mitchell's Way

Mitchell's Way forms part of a longer route, part of which is designated A633. It is a high standard single carriageway road with a combined footway/cycletrack on its northern side. Street lighting is in place, as is a 40mph speed limit. It is a Clearway.

Bradberry Balk Lane and Mitchell's Way meet at a roundabout junction, and the site is bounded by them and the roundabout.

3.2.3 Barnsley Road (A633)

The continuation westwards of Mitchell's Way, through the roundabout, is called Barnsley Road, and it continues the same modern, high standard of provision. There is a pedestrian island in Barnsley Road to the west of the roundabout which allows pedestrians to cross the carriageway in a "staggered" route. Street lighting is in place, as is a 30mph speed limit.

3.2.4 Barnsley Road

The arm of the roundabout opposite Bradberry Balk Lane is also called Barnsley Road. This is clearly the "old route" before the construction of Mitchell's Way. This section of Barnsley Road provides access to a large area of residential properties, which Mitchell's Way bypasses. Street lighting is in place, as is a 30mph speed limit. Further to the south, (half a mile away) there is a 7.5T weight restriction in place.

3.3 Existing Traffic Operations

A traffic count was undertaken on behalf of Lidl UK GmbH on Friday 26 June 2015 and Saturday 27 June 2015, to determine the current traffic flow characteristics of Bradberry Balk Lane and the White Rose roundabout. The weather was fine and dry on both days. The Traffic Counts are attached at Appendix A.

The assessment in this TA has been carried out for a Friday evening peak hour and a Saturday peak hour.

4 Public Transport Accessibility

4.1 Introduction

Public Transport is useful in ensuring that social exclusion is minimised and that a choice of transport modes is available. The following sections give a brief summary of the public transport accessibility of the proposed development.

4.2 Buses

The nearest public bus stops are located on Barnsley Road, just to the south of the White Rose roundabout. There are also bus stops on Barnsley Road (A633) to the northwest of the site. Further bus stops on Barnsley Road and Wilson Street provide access to the 67 and 203 bus routes. Table 4.1 below, details the bus services which use these bus stops, and their frequencies.

Table 4-1 – Bus Services

Service Number	Services From / To	Frequency Monday to Saturday	Frequency Sundays
22/22M/22X	Barnsley - Wombwell - Wath upon Dearne - Thorpe Hesley - Manvers - Rawmarsh - Rotherham - Meadowhall Service run by Stagecoach.	4 per hour in each direction.	Hourly in each direction.
67/67A	Barnsley - Worsbrough - Worsbrough Common - Birdwell - Hoyland - jump - Cortonwood - Wombwell Service run by Stagecoach.	Hourly in each direction.	Hourly in each direction.
203	Doncaster - Scawthorpe - Hooton Pagnell - Clayton - Thurnscoe - Goldthorpe - Brampton - Stairfoot - Barnsley Service run by Tates Travel.	Hourly in each direction (but only one way on Saturday).	Every 2 hours (one way).
222	Barnsley - Wombwell - West Melton - Wath upon Dearne - Manvers - Swinton - Mexborough - Denaby Main - Conisbrough - Doncaster Service run by Stagecoach.	2 per hour in each direction.	Hourly in each direction.
226	Barnsley - Stairfoot - Wombwell - Wath upon Dearne - Bolton upon Dearne - Goldthorpe - Thurnscoe Service run by Stagecoach.	2 per hour in each direction.	Hourly in each direction.
X20	Barnsley - Wombwell - Old Moor - Manvers - Mexborough - Denaby Main - Conisbrough - Warmsworth - Balby Doncaster Service run by Stagecoach.	Hourly in each direction.	No service.

Hence, it can be seen that a minimum of 11 buses per hour are within easy walking distance of the site giving access to a wide area. Therefore, access by bus is excellent and readily available.

4.3 Railway Network

The nearest railway station is in Wombwell Town centre - approximately 1.5km from the site.

Trains on the Nottingham and Sheffield - Barnsley - Huddersfield and Leeds line stop at Wombwell Station. However, given the distance between the station and the site it is considered that rail travel will not be significant for this development.

4.4 Taxi Provision

Taxis operate throughout the town and will be a useful source of transport for most journeys.

4.5 Summary

Existing public transport to the proposed store is located close to the site – for both directions of travel, with a minimum of 11 buses per hour. Hence, excellent public transport facilities are available to serve the site.

5 Walking / Cycling Accessibility and Inclusive Mobility

5.1 Introduction

The provision of a new Lidl Foodstore provides the opportunity to promote sustainable travel patterns in the local area. The provision of improved accessibility to the site is intended to encourage customers to use sustainable transport modes, and even to alter their current travel patterns. This chapter reviews the proposed site's accessibility by both walking and cycling as well as for those with special needs to ensure inclusive mobility to the proposed development.

5.2 Multi-Modal Assessment

Although now withdrawn, the Department for Transport's "Guidance on Transport Assessments" stated that the initial step of assessing Trip Generation for a proposal is to provide an estimation of how many person trips are likely to be generated. These trips should be derived from industry standard databases such as TRICS, in which multi-modal assessments can be carried out to identify the number of person trips by mode and time period.

In line with this guidance, an interrogation of the TRICS database (version 7.2.1) for all Discount Foodstores has been carried out. (No Irish sites have been included as their characteristics are different from those of Great Britain.) All the TRICS data is attached at Appendix C. TRICS category 01/C – "Retail – Discount Foodstores" has been used over the full range of store size and date range. The assessment has been carried out based on "Friday" and for "Saturday" only.

The filtering noted above left only one site in TRICS for the Friday assessment, but 3 sites for the Saturday assessment.

The results of this analysis (using only multi-modal counts) are noted below, at Tables 5-1 and 5-2.

Table 5.1 – Percentage of Person Trips by Mode – all day Friday.

Time Period 07.00 – 19.00	Car trips		Pedestrians		Cyclists		Public Transport	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Lidl store	83%	84%	14%	130%	1%	1%	3%	3%

Table 5.2 – Percentage of Person Trips by Mode – all day Saturday.

Time Period 07.00 – 19.00	Car trips		Pedestrians		Cyclists		Public Transport	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Lidl store	64%	63%	33%	35%	1%	1%	1%	2%

5.3 Access for Pedestrians

The proposed development site is easily accessed by pedestrians. There is a footway on the western side of Bradberry Balk Lane, and the development proposals include for continuing the combined footway/cycletrack from Mitchell's Way to the new site access, and for a further extension (as footway only) to the north of the site access. There will be dropped kerbs installed north of the site access to facilitate crossing of Bradberry Balk Lane on that side.

There is a footway/cycletrack on the site (north) side of Mitchell's Way and there are footways on both sides of all the other roads in the vicinity. There are dropped kerbs and physical pedestrian islands in all 4 arms of the White Rose roundabout, and there is a pedestrian island in the Barnsley Road (A633) immediately to the north of the roundabout.

The Trans-Pennine Trail crosses Bradberry Balk Lane approximately 200m north of the site.

Guidance, offered by the Chartered Institution of Highways and Transportation (CIHT), suggests a maximum acceptable walking distance of 400m (and preferable distance of less than 300m) to access the nearest bus stop *('Planning for Public Transport in Developments 1999'*), as well as general figures as follows:

Table 5.3 – Walking Distances.

	Town Centres (m)	Commuting (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred	800	2000	1200

The bus stops on Barnsley Road (A633), Barnsley Road and Wilson Street are all within 400m and are, therefore, well within the desirable walking distance.

Transport Statistics Great Britain (TSGB) provides an accurate, comprehensive and meaningful picture of transport patronage within Great Britain. The document includes data relating to the average distances people are prepared to travel by varying modes. TSGB shows that people are prepared to walk on average a distance of 1km. It is normally accepted that walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometers. It is clear that, the 1km walking catchment includes almost the whole of urban Wombwell – see Figure 2, which shows the 400m, 800m and 1,200m radii around the site, and the locations of the nearest bus stops.

Hence, it can be seen that pedestrian connectivity is good and walking distances reasonable. This will ensure that pedestrians will be able to use the new

development, and that walking will form a substantial proportion of staff and customer trips.

5.4 Access for Cyclists

There are several specific cycle facilities on the Highway network in the area. There is a shared use footway/cycletrack on the north side of Mitchell's Way, and the development proposals include for continuing the combined footway/cycletrack from Mitchell's Way to the new access junction. There is also a shared use footway/cycletrack along the north side of Barnsley Road running into Barnsley Road (A633).

It is normally accepted that cycling is a feasible alternative mode of transport particularly for journeys of up to 2km length, and that 5km is the normal maximum which might be expected for a cycle journey. Figure 3 shows the 2km and 5km radii from the site, and it can be seen that all of urban Wombwell and large proportions of the surrounding townships out to Worsbrough, Blacker Hill, Hoyland, Jump, Hemmingfield, Elsecar, Brampton Bierlow, Brampton, Darfield, Little Houghton and Billingley as well as parts of Barnsley itself are within cycling distance of the site.

Cycle parking will be provided as part of the development.

5.5 Inclusive Mobility

To conform to national guidance, and local plan policy, the development will provide sufficient and adequate accessibility for all users. Disabled parking will be provided at 5 spaces, and 4 further spaces are to be allocated for "parent & child" use. Pedestrian routes are to be clearly delineated within the site. Dropped kerbs will also be provided throughout the site on key pedestrian desire lines and at the site access.

5.6 Summary

This section has demonstrated that the proposed development will provide excellent accessibility for pedestrians and cyclists. As shown, the site lies within 1,200m walking distance of a large catchment, and the surrounding settlements are within cycling distance. There are bespoke cycling facilities around the site and these will be extended to the site access junction – and suitable cycle parking will be provided.

Additionally, the development will provide sufficient and adequate accessibility to all users. Disabled parking will be provided in accordance with both National and Local standards and key pedestrian routes will be clearly delineated and feature dropped kerbs.

6 Accident Analysis

6.1 Introduction

In order to determine whether the proposed development is likely to have any impact upon accident rates local to the site, an accident analysis has been undertaken. The area covered by the accident assessment has been agreed with DMBC. This analysis assesses 'Personal Injury Accidents' (PIAs) in the vicinity of the proposed development. Accident data for reported PIAs within this study area has been provided by Barnsley Metropolitan Borough Council for the latest 5 year period - 1 January 2010 to 31 December 2014 (60 months).

This section summarises the results of the accident analysis, before examining in detail the PIAs by location. A number of conclusions are then made. The raw accident data and a plan are located within Appendix A, at the rear of this report.

6.2 Summary of Accident Analysis

Table 6-1 below summarises the accidents in proximity to the site over the period. The table shows that only 2 personal injury accidents occurred during the five year period. Both the accidents were slight. There have been no serious or fatal accidents.

Figure 6-1 – Number of accidents per year and severity

Severity	2010	2011	2012	2013	2014	Total
Slight	0	0	0	1	1	2
Serious	0	0	0	0	0	0
Fatal	0	0	0	0	0	0
Total	0	0	0	1	1	2

6.3 Detailed Accident Analysis

The recorded accident details have been collated to identify any specific trends

Accident reference B-00891-13 occurred in bad weather with rain and high winds, and the road surface was wet, at 5.35 am on Monday 16 December 2013. A car entered the roundabout from Mitchell's Way and collided with a motorcycle which was travelling on the circulating carriageway, knocking the rider to the ground. The 62 year old male motorcyclist was slightly injured.

Accident reference B-01206-14 occurred in fine and dry weather, at 9.10 am on Monday 8 December 2014. A car entered the roundabout from Barnsley Road (A633) and collided with a cyclist who was travelling on the circulating carriageway, knocking the rider to the ground. The car driver was arrested after a positive breath test. The 32 year old male cyclist was slightly injured.

6.4 Summary

The number of accidents which have occurred is very low, and there do not appear to be any causal factors common to them, although both involved a "vulnerable" road user, and occurred in December.

There are no defects with the existing road network which can be said to have caused these accidents, and the proposed development will not have a detrimental impact on the number or severity of accidents in the area.

7 Proposed Development

7.1 Proposed site layout

The development proposals are to construct a new Lidl Foodstore of 2,470m^2 GIA , 1,424m^2 Sales Area, and with 132 parking spaces (5 of which will be marked for Disabled users, and a further 4 as "Parent & Child" spaces).

Covered parking is to be provided for bicycles. The proposed layout of the site is shown attached, which includes indicatively the landscaping within and around the site which is to be incorporated in to the development.

The existing footpath/cycletrack on Mitchell's Way will be brought to the site access, and new footways will be created either side of the site access, and for a short length north of it on Bradberry Balk Lane.

7.2 Site Access

It is proposed that access will be via a new junction off Bradberry Balk Lane - as shown on the attached plan.

7.3 Car Parking

Parking requirements are shown in the BMBC Supplementary Planning Document (Adopted March 2012) which notes the following:

Overall car parking for food retail should be no more than:

- 1 space per 20m^2 (which would equal 124 spaces), up to 1 per 14m^2 (which would equal 176 spaces).

Therefore, the number of spaces proposed (132) is acceptable.

Disabled parking should be at 4% of the total. Therefore, a minimum of 5 spaces is required - which are provided.

Cycle parking should be provided at 1 per 400m^2 for short stay and 1 per 1,000m^2 for long stay uses. That equates to a total of 10 spaces here.

Motorcycle parking should be at 1 per 20 of the total, and so is 7 in this case.

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8 Vehicular Access

8.1 Vehicular Accessibility to the Development

As detailed within Section 7 above, access to the site will be made via a new access off Bradberry Balk Lane. This will be a new, high standard access with radiused kerbs.

8.2 Traffic Flows and Peak Hours

To ascertain the level of vehicular activity in the area, Lidl UK GmbH commissioned a traffic count. This took place on Friday 26 June 2015 and Saturday 27 June 2015.

The normal hours for assessing the effect of a food retail development are the Friday evening peak hour and the Saturday peak hour. To ensure that the most onerous hours are being tested, the traffic count data and the TRICS data were collated for a number of hours as follows:

Table 8.1 – Friday Evening - two way total flows.

	Friday		
	16.00-17.00	17.00-18.00	18.00-19.00
Flows on Mitchell's Way	508	498	413
	518	483	370
Flows on Bradberry Balk Lane	112	118	97
	168	120	129
Flows on Barnsley Road (A663)	703	691	608
	802	711	575
Flows on Barnsley Road	334	327	284
	469	364	326
Total	3614	3312	2802
Lidl Generated Flows	142	197	120
Grand Total	3756	3509	2922

It can be seen that the maximum flow on the road network is between 16.00 and 17.00, but the maximum flow generated by the proposed development is between 17.00 and 18.00. However, the maximum combined flow is between 16.00 and 17.00, and so that hour is the one assessed further below.

Table 8.2 – Saturday- two way total flows.

	Saturday			
	10.00-11.00	11.00-12.00	12.00-13.00	13.00-14.00
Flows on Mitchell's Way	383	415	414	353
	387	397	473	380
Flows on Bradberry Balk Lane	112	112	136	133
	147	132	137	127
Flows on Barnsley Road (A663)	663	632	653	575
	629	701	780	683
Flows on Barnsley Road	342	303	330	307
	347	410	399	382
Total	3010	3102	3322	2940
Lidl Generated Flows	178	230	212	224
Grand Total	3188	3332	3534	3164

It can be seen that the maximum flow on the road network is between 12.00 and 13.00, but the maximum flow generated by the proposed development is between 11.00 and 12.00. However, the maximum combined flow is between 12.00 and 13.00, and so that hour is the one assessed further below.

8.3 Trip Types

The Department for Transport's Guidance on Transport Assessment identifies five different categories of trip:

8.3.1 New Trips

These are trips that do not appear anywhere on the road network prior to the opening of the development. For a new Foodstore, this element of generated trips is minimal (food shopping trips are all already on the network) as most additional trips will be generated by better/newer facilities than at existing sites. Most are more likely to be considered as Transferred Trips (see below).

8.3.2 Transferred Trips

These are trips that are already present on the local road network, accessing similar existing sites in the locality of the proposed development and will have the potential to transfer their destination to the proposed development. Slightly different to Diverted Trips, these wholly transfer from using an existing development, to a new development; e.g. users switching to a new supermarket from an existing one.

8.3.3 Linked Trips

These are trips that will have multiple destinations either within the proposed development site, (examples include trips to food and non-food retail); between both the development site and existing adjacent sites: or between the development site and an established town centre. Where there is a high probability that there will be a proportion of linked trips between two uses on a development, it is customary to only 'count' those trips once for the development as a whole, and not effectively double-count them by attributing two visits and departures affecting the sections of highway network being assessed. The proposed Foodstore site at Bradberry Balk Lane is within easy walking distance of two other, local, retail facilities, therefore, some Linked Trips are expected. However, it is not possible to quantify these, and so no advantage has been taken of this by, for example, reducing the number of vehicle trips in the assessments.

8.3.4 Pass-by Trips

These are trips that are already present on the road network directly adjacent to the point(s) of access to the site, which will turn into the site.

8.3.5 Diverted Trips

These are trips that are already present on the local road network, but not the road(s) from which site access is taken, and will divert from their existing route to access the site. These are similar to Pass-by Trips, but they have to deviate to make use of the development under consideration. Diverted Trips will tend to return to their original route after visiting the development under consideration.

8.3.6 Existing Trips

In this particular case, the site is not currently used and so no allowance for any existing trips has been made.

8.3.7 Conclusion on Trips

In this particular case, even though most (or perhaps, all) trips are already on the network, Transferred Trips are likely, and there will be a proportion of Linked Trips. But, **to ensure a highly robust assessment**, all the predicted trips generated by the proposed Foodstore will be considered to be "New" to the network surrounding the site in the assessment below.

8.4 Trip Generation

The Lidl foodstore has been searched in TRICS category 01/C – "Retail – Discount Foodstores" for the full range of store size (quoted as being from 649m^2 to 1,350m^2 GFA). All multi-modal surveys have been used between 1 January 2005 and 27 November 2012.

The total number of vehicle trips generated by the proposed development at the Friday evening peak hour and the Saturday peak hour are as follows:

Table 8.3 – Vehicle Trips for Proposed Lidl Foodstore 16.00-17.00 Friday

Unit	Arrivals	Departures
Lidl Foodstore 1,424m^2 RSA	72	70

Table 8.4 – Vehicle Trips for Proposed Lidl Foodstore 12.00-13.00 Saturday

Unit	Arrivals	Departures
Lidl Foodstore 1,424m^2 RSA	104	108

The outputs from TRICS are attached at Appendix B.

8.5 Committed Development

BMBC have confirmed that there are no committed developments which need to be included in this assessment.

8.6 "Base" Traffic Flows for Assessment

The 2015 traffic count data has been growthed to a proposed opening year of 2016 and a design year of 2021 (ie 5 years after opening) using standard TEMPRO factors local to the Wombwell area, for all modes based on origin and destination, as this will give the most representative growth in general traffic. These are shown at Appendix C.

8.7 Trip Distribution

It has been noted above that all the trips will be already on the network in some form or other. However, as it is not possible to determine how many trips will be "Diverting/Transferring" and how many will be "Pass By", the most robust method of assessment is to allow all the development related trips to be considered as "New". This is a very robust method, but if the analysis shows the junctions to operate adequately under these conditions, there is a certainty that they will perform even better in reality.

Although the existing traffic flows on Bradberry Balk Lane are reasonably "balanced", it is considered unlikely that customer traffic will be attracted in the same way. There is little development on Bradberry Balk Lane, and with rival developments in Darfield, it is considered that little traffic will come from that direction to the proposed

Foodstore. Therefore, only 10% has been allocated to Bradberry Balk Lane north of the site.

The remaining generated trips have been distributed in the same proportion as the arrivals/departures at the White Rose Roundabout into/out of Bradberry Balk Lane. For the Friday evening peak hour this equates to 13% of departures turn left into Mitchell's Way; 55% of departures go straight ahead to Barnsley Road; and 32% of departures turn right to Barnsley Road (A633). In terms of arrivals, 10% turn right from Mitchell's Way; 61% go straight ahead from Barnsley Road; and 31% turn left from Barnsley Road (A633).

For the Saturday peak hour this equates to 6% of departures turn left into Mitchell's Way; 39% of departures go straight ahead to Barnsley Road; and 55% of departures turn right to Barnsley Road (A633). In terms of arrivals, 4% turn right from Mitchell's Way; 37% go straight ahead from Barnsley Road; and 59% turn left from Barnsley Road (A633).

8.8 Traffic Growth

It is anticipated that the new development will be open in 2016, therefore, for the assessment of traffic impact that is the “Base Year”. The TEMPRO factor has been used to growth the 2015 count figures to 2016 Base Flows. Similarly, the 2015 count figures have been growthed to 2021 Base Flows.

The generated flows (from TRICS) have been added to the 2016 base flows and to the 2021 Base Flows, to provide the scenarios of “Base + Development 2016” and “Base + Development 2021”- see Appendix C.

8.9 Access Junction Capacity Assessment

The computer programme PICADY was used to assess the Access Road junction with Bradberry Balk Lane. The programme's parameters were set such that if any more than 1 vehicle was to be queuing to turn right from Bradberry Balk Lane into the site, it would block the straight ahead flow. Thus, if any such blocking was to occur, with consequent queuing on Bradberry Balk Lane, its potential effect on the White Rose Roundabout would be determined. Then. if such queuing did occur, and threatened to back up to the roundabout, a right turn facility would be shown to be required. Obviously, if no such queuing is predicted, then no such right turn facility in Bradberry Balk Lane will be needed.

The junction's performance in 2021, with the development in place, at the Friday evening peak hour (16.00-17.00) and the Saturday peak hour (12.00-13.00) was tested, and all the results are at Appendix D.

It can be seen from the PICADY results that the RFC's are low, with the highest on Friday being 0.135 for the right turn from Bradberry Balk Lane into the site. This is coupled with no queues.

It is a similar case with the Saturday results. The highest RFC is 0.195 for the site exit. This is coupled with no queues..

Given that this assessment has been very robust - taking all the development related traffic as "New" to the network, and making no allowance for "Transferred Trips", nor "Linked Trips" - these results show that the junction will perform well within its capacity in reality. The results also show that the right turning traffic into the site will not block straight ahead traffic, nor will it cause queuing to back up towards the White Rose Roundabout, and so it shows that no specific right turning facility is required in Bradberry Balk Lane.

8.10 White Rose Roundabout Capacity Assessment

The computer programme ARCADY was used to assess the capacity of the White Rose Roundabout. The junction's performance in 2021, with the development in place, at the Friday evening peak hour (16.00-17.00) and the Saturday peak hour (12.00-13.00) was tested, and all the results are at Appendix E.

It can be seen from the ARCADY results that the RFC's are low, with the highest on Friday being 0.53 for Mitchell's Way, but this is coupled with only 1 vehicle queuing.

It is a similar case with the Saturday results. The highest RFC is 0.70 for Mitchell's Way, but this is coupled with only 2 vehicles queuing.

Given that this assessment has been very robust - taking all the development related traffic as "New" to the network, and making no allowance for "Transferred Trips", nor "Linked Trips" - these results show that the White Rose Roundabout junction will perform well within its capacity in reality. The results also show that the development will not cause undue queuing, and so it shows that no improvements are required to the current layout.

8.11 Conclusion on Vehicular Access

It can be clearly seen that the effects of the proposed development are not "severe" in NPPF terms.

9 Conclusions

9.1 Conclusions

This report has assessed the impact of a new Lidl Foodstore off Bradberry Balk Lane, Wombwell.

The site is well served by public transport, and walking and cycling are attractive alternative modes to the private car. The development proposals include extensions to the footways and cycletracks in the vicinity of the site to ensure excellent connectivity by these modes.

The local road network has experienced few accidents in recent years, and the development will not increase them in terms of numbers or severity.

A detailed, but very robust, numerical analysis of future traffic conditions with the development in place, has demonstrated that a new junction can be created to access the Foodstore off Bradberry Balk Lane, and the resulting junction will operate well within its capacity: and that the existing White Rose roundabout will also not be adversely effected. Moreover, no Highway Works are required other than to create the new access junction. There are no "severe" effects in terms of NPPF.

The Travel Plan supplied under separate cover will assist in providing advice to staff and customers on how to access the site in a more sustainable manner, therefore, reducing the carbon footprint of the development.

There are no Highways or Transportation grounds for refusing the planning application.

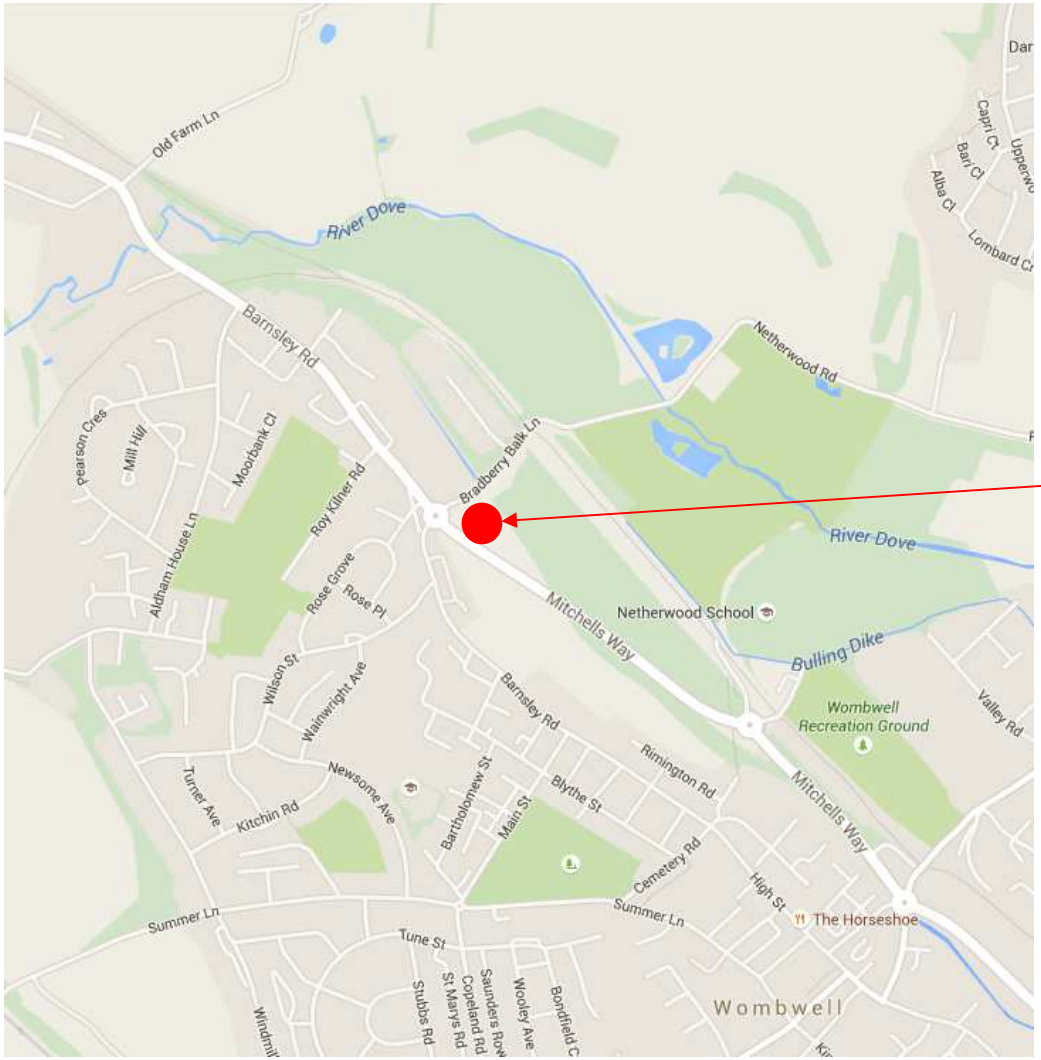
Figures

Figure 1- Location Plan.

Figure 2 – 400m, 800m and 1,200m walking radius.

Figure 3 – 2km and 5km cycling radius.

Site layout plan - 1849-10 rev N by HTCArchitects.



Notes:

Project::

Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell.

Client::

Lidl UK GmbH.

EJSAssociates
Consulting Engineers

Leathley House
New Street
Clifton
Brighouse
HD6 4HN

Tel: 07841 870477
Email: spivey.edward@gmail.com

Figure 1 – Location Plan

Notes:

400m
800m
1,200m

Bus Stop

Project::

Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell.

Client::

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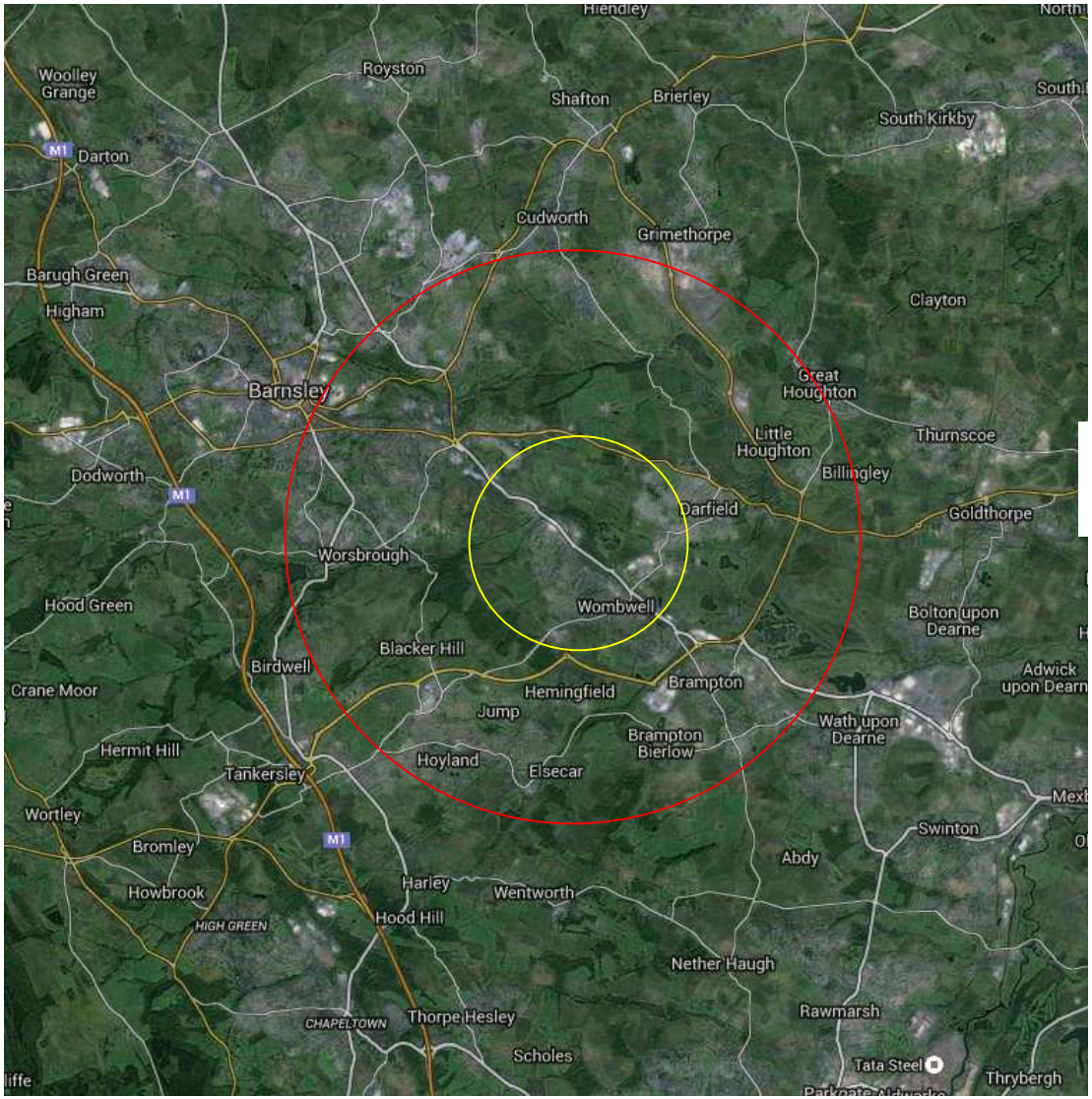
Figure 2 – Walking Distances



Notes:

2km
5km

Project::

Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell.

Client::

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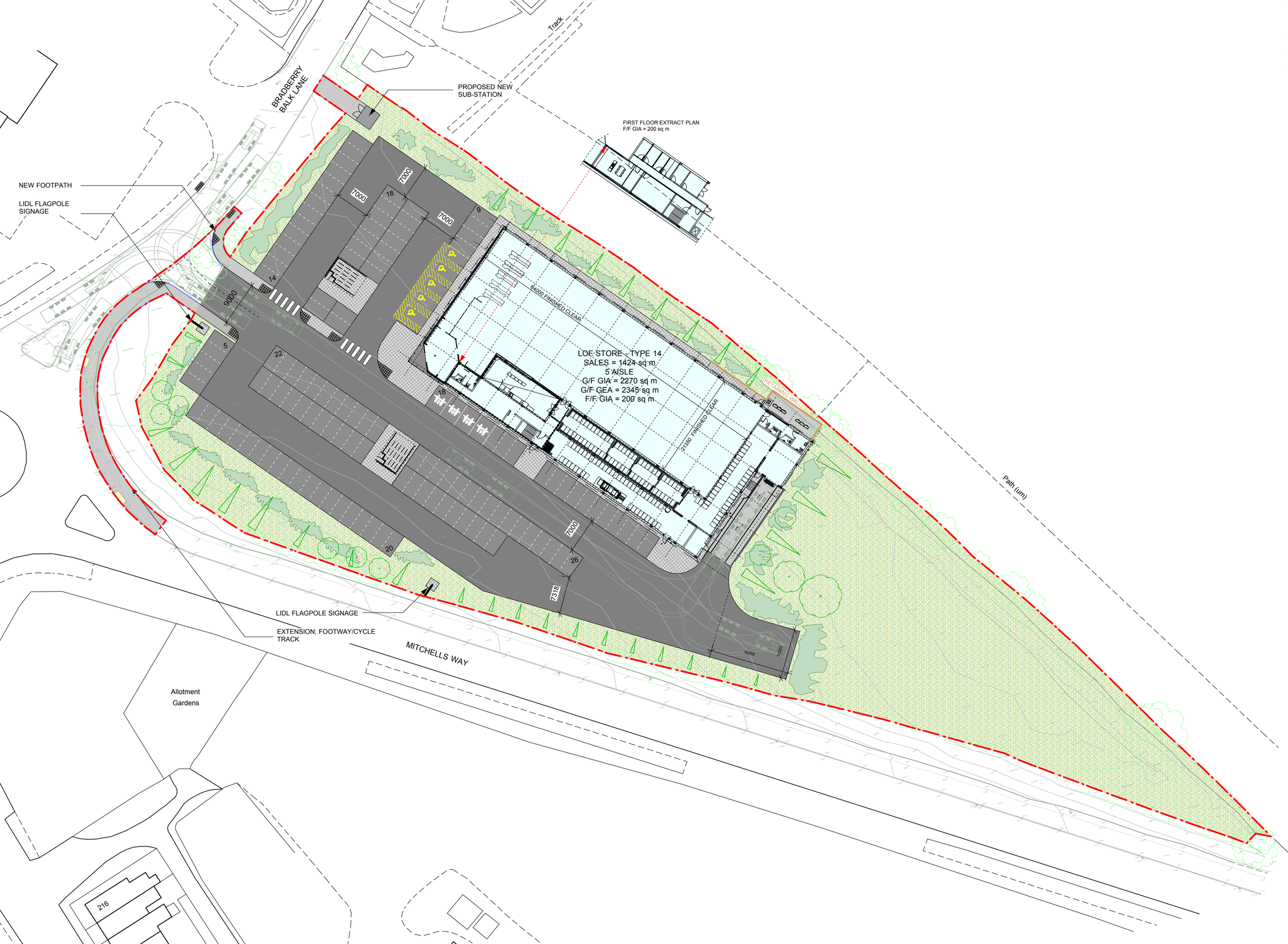
Figure 3 – Cycling Distances

ALL DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE WORK COMMENCES

DRAWING SUBJECT TO VEHICLE TRACKING CHECK



N

S

Site Area (sq m)	13,154.5 sq m
Store Type	LOF Type 14
Reference	(19.03.15)
Sales Areas (sq m)	1,424 sq m
Number of Aisles	5 Aisle
G/F GIA (sq m)	2,270 sq m
G/F GEA (sq m)	2,345 sq m
F/F GIA (sq m)	200 sq m EST
Car Park Spaces	132

Rev.	Date	Description	Drawn
N.	30.07.15	Parking spaces reordered to include fifth disabled space inline with client instruction	DW
M.	29.07.15	Boundary Amended inline with planning consultant comments to include highways works. Drawing size amended show all site area and scheme rotated.	DW
L.	27.07.15	Updates in accordance with Highways Consultant	LS
K.	23.07.15	Site Access amended in accordance with Highways Consultant	LS
J.	21.05.15	Access into site widened to 9m. Flagpoles labelled. Tracking added. Scale changed to 1:500 @ A3	MH
H.	13.05.15	Layout updated as per previous sketch.	NJV
G.	13.05.15	Sketch - car park updated for discussion	MH
F.	08.05.15	Retaining wall adjacent to Mitchells Way omitted. Parking layout amended accordingly.	DW
E.	29.04.15	Scheme updated for planning issue	DW
D.	27.04.15	FF added	LS
C.	27.04.15	Sales area increased from 1421 to 1424 sq m	MH
B.	23.04.15	Updated with proposed EGL's and retaining wall requirements	MH
A.	13.04.15	2 Trolleybays + landscaping added	LS

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client

Lidl UK GmbH

project

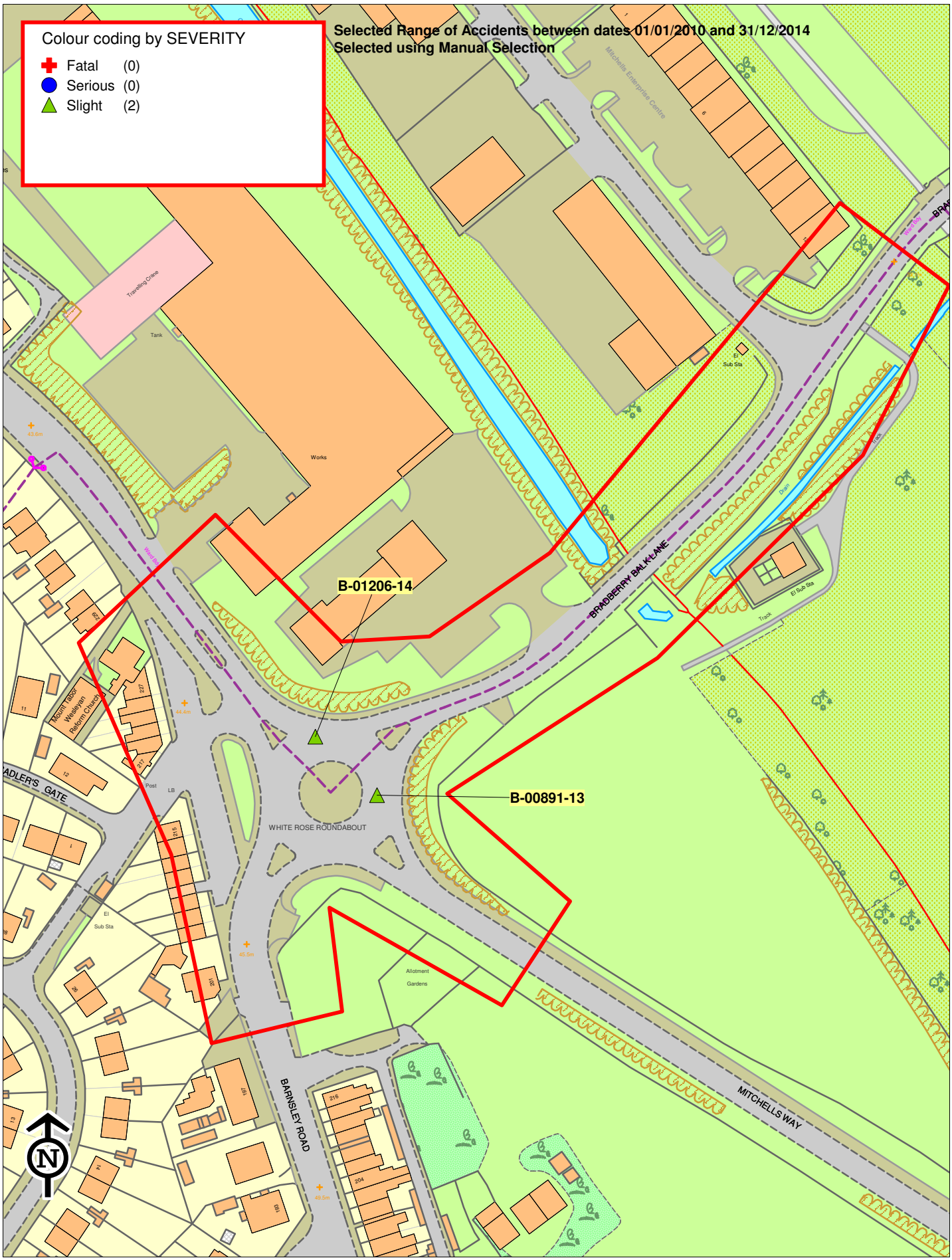
New Store
Mitchells Way, Wombwell,
Barnsley

drawing title

Proposed Site Plan

date	April 2015				
status	Planning Issue				
scale	1:500 @ A2				
drawn	DW	checked	JH		
job no.	1849	dwg no.	10	rev.	N

Appendix A – Accident Data.



MAKING SOUTH YORKSHIRE ROADS SAFER

Selected map area

SCALE	1 : 1550
DATE	01/07/2015
DRWG No.	
DRN BY	

Accidents between dates **01/01/2010 and 31/12/2014 (60) months**
Selection: **Notes:**
Selected using Build Query : Local_auth = 'Barnsley' **EJS Associates**

B-00891-13 16/12/2013 Monday Time: 0535 Vehicles 2 Casualties 1 Slight
Easting: 439,243 Northing: 403,852
Raining with high winds Road Surface: Wet/Damp Darkness: street lights present and lit
Road Type: Roundabout Speed Limit: 30

Location: MITCHELLS WAY WOMBWELL ON RNDBT BARNSLEY ROAD
Description: VEH2[M/CYCLE] NEGOTIATING RNDBT. VEH1 ENTERS AND COLLIDES WITH N/SIDE VEH2 KNOCKING RIDER TO GROUND

Vehicle Reference: 1 Car Moving off
First point of impact: Front
Vehicle direction: NE to SW Journey: Commuting to/from work
Age of Driver : 52 Breath test: Negative

Contributory Factors : 405 707

Vehicle Reference: 2 Motorcycle over 50cc and up Going ahead
First point of impact: Nearside
Vehicle direction: NW to SW Journey: Commuting to/from work
Age of Driver : 62 Breath test: Not requested

Contributory Factors : 405 707

Casualty Reference: 1 Age: 62 Male Driver/rider Severity: Slight
Ped Dir: Ped Movement :
Ped Location:

Accidents between dates **01/01/2010 and 31/12/2014 (60) months**
Selection: **Notes:**
Selected using Build Query : Local_auth = 'Barnsley' **EJS Associates**

B-01206-14 08/12/2014 Monday Time: 0910 Vehicles 2 Casualties 1 Slight
Easting: 439,224 Northing: 403,870
Fine without high winds Road Surface: Dry Daylight
Road Type: Roundabout Speed Limit: 30

Location: WHITE ROSE ROUNDABOUT WOMBWELL J/W BARNSLEY ROAD
Description: V1 APPROACHED ROUNDABOUT , ENTERED AND COLLIDED WITH A CYCLIST (V2 C1) DRIVER OF V1 ARRESTED OPL

Vehicle Reference: 1 Car Moving off
First point of impact: Offside
Vehicle direction: NW to SE Journey: Other
Age of Driver : 43 Breath test: Positive

Contributory Factors : 405 501

Vehicle Reference: 2 Pedal cycle Going ahead
First point of impact: Nearside
Vehicle direction: SW to NE Journey: Journey as part of work
Age of Driver : 32 Breath test: Not requested

Contributory Factors : 405 501

Casualty Reference: 1 Age: 32 Male Driver/rider Severity: Slight
Ped Dir: Ped Movement :
Ped Location:

Accidents between dates **01/01/2010** **and** **31/12/2014** **(60) months**

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

EJS Associates

Accidents involving:

	Fatal	Serious	Slight	Total
Motor vehicles only excluding 2-wheels	0	0	0	0
2-wheeled motor vehicles	0	0	1	1
Pedal cycles	0	0	1	1
Horses & other	0	0	0	0
Total	0	0	2	2

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	0	0	0
Passenger	0	0	0	0
Motorcycle rider	0	0	1	1
Cyclist	0	0	1	1
Pedestrian	0	0	0	0
Other	0	0	0	0
Total	0	0	2	2

Appendix B – TRICS Outputs.

TRICS 7.2.1
Trip Rate Parameter: Retail floor area

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 01 - RETAIL
Category C - DISCOUNT FOOD STORES
MULTI-MODAL VEHICLES - Friday

Selected regions and areas:

10	WALES		
	GW	GWYNEDD	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Retail floor area
Actual Range:	1100 to 1100 (units: sqm)
Range Selected by User:	649 to 1350 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 27/11/12

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

Selected survey days:

Friday	1 days

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

Selected survey types:

Manual count	1 days
Directional ATC Count	0 days

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

Selected Locations:

Town Centre	0
Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	0
Edge of Town	0
Neighbourhood Centre (PPS6 Local Centre)	0
Free Standing (PPS6 Out of Town)	0
Not Known	0

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known

.

Selected Location Sub Categories:

Industrial Zone	0
Commercial Zone	0
Development Zone	0
Residential Zone	0
Retail Zone	0
Built-Up Zone	0
Village	0
Out of Town	0
High Street	0
No Sub Category	1

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

Filtering Stage 3 selection:

Use Class:

Not Known	1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose which can be found within the Library module of TRICS®.

Population within 1 mile:

15,001 to 20,000	1 days

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

Population within 5 miles:

25,001 to 50,000	1 days

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

Car ownership within 5 miles:

1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling within a radius of 5-miles of selected survey sites.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	1 days

This data displays the number of surveys within the selected set that include petrol filling station activity and the number of surveys that do not .

Travel Plan:

No	1 days

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

LIST OF SITES relevant to selection parameters

1 GW-01-C-01 LIDL GWYNEDD
HIGH STREET

BANGOR
Edge of Town Centre
No Sub Category
Total Retail floor area: 1100 sqm
Survey date: FRIDAY 10/07/2009 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site it displays a unique site reference code and site address the selected trip rate calculation parameter and its value the day of the week and date of each survey and whether the survey was a manual classified count or an ATC count

.

Manually Deselected Sites

Site Ref	Reason for Deselection
DO-01-C-01	Irish

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: VEHICLES **Friday**

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	1	1100	0.545	1	1100	0	1	1100	0.545
08:00-09:00	1	1100	1.727	1	1100	0.818	1	1100	2.545
09:00-10:00	1	1100	3.182	1	1100	2.182	1	1100	5.364
10:00-11:00	1	1100	6.091	1	1100	4.636	1	1100	10.727
11:00-12:00	1	1100	6.818	1	1100	6.818	1	1100	13.636
12:00-13:00	1	1100	6.091	1	1100	6.545	1	1100	12.636
13:00-14:00	1	1100	4.545	1	1100	5.364	1	1100	9.909
14:00-15:00	1	1100	7.364	1	1100	8	1	1100	15.364
15:00-16:00	1	1100	5.545	1	1100	5.182	1	1100	10.727
16:00-17:00	1	1100	5.091	1	1100	4.909	1	1100	10
17:00-18:00	1	1100	6.818	1	1100	7	1	1100	13.818
18:00-19:00	1	1100	3.545	1	1100	4.909	1	1100	8.454
19:00-20:00	1	1100	2.727	1	1100	3.364	1	1100	6.091
20:00-21:00	1	1100	0	1	1100	0.364	1	1100	0.364
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			60.089			60.091			120.18

TRICS 7.2.1
Trip Rate Parameter: **Retail floor area**

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: PEDESTRIANS **Friday**

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	RFA	Rate	Days	RFA	Rate	Days	RFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	1225	0	2	1225	0	2	1225	0
08:00-09:00	2	1225	0.49	2	1225	0.367	2	1225	0.857
09:00-10:00	2	1225	0.449	2	1225	0.408	2	1225	0.857
10:00-11:00	2	1225	0.735	2	1225	0.408	2	1225	1.143
11:00-12:00	2	1225	1.02	2	1225	0.898	2	1225	1.918
12:00-13:00	2	1225	1.184	2	1225	1.551	2	1225	2.735
13:00-14:00	2	1225	0.653	2	1225	0.571	2	1225	1.224
14:00-15:00	2	1225	0.98	2	1225	1.02	2	1225	2
15:00-16:00	2	1225	0.898	2	1225	0.776	2	1225	1.674
16:00-17:00	2	1225	0.816	2	1225	0.571	2	1225	1.387
17:00-18:00	2	1225	1.102	2	1225	0.857	2	1225	1.959
18:00-19:00	2	1225	0.857	2	1225	0.898	2	1225	1.755
19:00-20:00	2	1225	0.857	2	1225	0.857	2	1225	1.714
20:00-21:00	2	1225	0	2	1225	0.041	2	1225	0.041
21:00-22:00	1	1350	0	1	1350	0	1	1350	0
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			10.041			9.223			19.264

TRICS 7.2.1
Trip Rate Parameter: **Retail floor area**

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: CYCLISTS **Friday**

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	RFA	Rate	Days	RFA	Rate	Days	RFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	1225	0	2	1225	0	2	1225	0
08:00-09:00	2	1225	0.041	2	1225	0	2	1225	0.041
09:00-10:00	2	1225	0.082	2	1225	0.082	2	1225	0.164
10:00-11:00	2	1225	0.041	2	1225	0.041	2	1225	0.082
11:00-12:00	2	1225	0	2	1225	0	2	1225	0
12:00-13:00	2	1225	0	2	1225	0	2	1225	0
13:00-14:00	2	1225	0.041	2	1225	0.041	2	1225	0.082
14:00-15:00	2	1225	0	2	1225	0	2	1225	0
15:00-16:00	2	1225	0	2	1225	0	2	1225	0
16:00-17:00	2	1225	0.082	2	1225	0.082	2	1225	0.164
17:00-18:00	2	1225	0	2	1225	0.041	2	1225	0.041
18:00-19:00	2	1225	0.041	2	1225	0	2	1225	0.041
19:00-20:00	2	1225	0.082	2	1225	0.082	2	1225	0.164
20:00-21:00	2	1225	0	2	1225	0.041	2	1225	0.041
21:00-22:00	1	1350	0	1	1350	0	1	1350	0
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.41			0.41			0.82

TRICS 7.2.1
Trip Rate Parameter: Retail floor area

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: PUBLIC TRANSPORT USERS Friday

			ARRIVALS			DEPARTURES			TOTALS
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	RFA	Rate	Days	RFA	Rate	Days	RFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	1225	0	2	1225	0	2	1225	0
08:00-09:00	2	1225	0.449	2	1225	0.367	2	1225	0.816
09:00-10:00	2	1225	0.122	2	1225	0.082	2	1225	0.204
10:00-11:00	2	1225	0.163	2	1225	0.204	2	1225	0.367
11:00-12:00	2	1225	0.163	2	1225	0.163	2	1225	0.326
12:00-13:00	2	1225	0.449	2	1225	0.653	2	1225	1.102
13:00-14:00	2	1225	0.122	2	1225	0.163	2	1225	0.285
14:00-15:00	2	1225	0.041	2	1225	0	2	1225	0.041
15:00-16:00	2	1225	0.327	2	1225	0.367	2	1225	0.694
16:00-17:00	2	1225	0.041	2	1225	0.041	2	1225	0.082
17:00-18:00	2	1225	0.041	2	1225	0.041	2	1225	0.082
18:00-19:00	2	1225	0	2	1225	0	2	1225	0
19:00-20:00	2	1225	0	2	1225	0	2	1225	0
20:00-21:00	2	1225	0	2	1225	0	2	1225	0
21:00-22:00	1	1350	0	1	1350	0	1	1350	0
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.918			2.081			3.999

TRICS 7.2.1
Trip Rate Parameter: Retail floor area

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 01 - RETAIL
Category C - DISCOUNT FOOD STORES
MULTI-MODAL VEHICLES - Saturday

Selected regions and areas:

6	WEST MIDLANDS		
	HE	HEREFORDSHIRE	1 days
7	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
10	WALES		
	CP	CAERPHILLY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Retail floor area
Actual Range: 700 to 1050 (units: sqm)
Range Selected by User: 649 to 1350 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 27/11/12

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

Selected survey days:
Saturday 3 days
This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 3 days
Directional ATC Count 0 days
This data displays the number of manual classified surveys and the number of unclassified ATC surveys the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	0
Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	0
Free Standing (PPS6 Out of Town)	0
Not Known	0

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	0
Commercial Zone	1
Development Zone	0
Residential Zone	0
Retail Zone	0
Built-Up Zone	1
Village	0
Out of Town	0
High Street	0
No Sub Category	1

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

Filtering Stage 3 selection:

Use Class:

A1	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days
20,001 to 25,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
125,001 to 250,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling within a radius of 5-miles of selected survey sites.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	3 days

This data displays the number of surveys within the selected set that include petrol filling station activity and the number of surveys that do not.

Travel Plan:

No	3 days

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

LIST OF SITES relevant to selection parameters

1 CP-01-C-01 KWIK SAVE CAERPHILLY
FIELDS ROAD
PONTYMINSTER
RISCA
Edge of Town
No Sub Category
Total Retail floor area: 700 sqm
Survey date: SATURDAY 03/09/2005 Survey Type: MANUAL

2 HE-01-C-01 ALDI HEREFORDSHIRE
EIGN STREET
HEREFORD
Edge of Town Centre
Built-Up Zone
Total Retail floor area: 750 sqm
Survey date: SATURDAY 04/03/2006 Survey Type: MANUAL

3	NY-01-C-01	NETTO	NORTH YORKSHIRE		
	LAYERTHORPE				
	YORK				
	Suburban Area (PPS6 Out of Centre)				
	Commercial Zone				
	Total Retail floor area:		1050	sqm	
	Survey date:	SATURDAY	21/05/2005	Survey Type:	MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site it displays a unique site reference code and site address the selected trip rate calculation parameter and its value the day of the week and date of each survey the day of the week and date of each survey

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: VEHICLES **Saturday**

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	900	1.333	2	900	0.222	2	900	1.555
08:00-09:00	3	833	3	3	833	1.32	3	833	4.32
09:00-10:00	3	833	5.56	3	833	3.4	3	833	8.96
10:00-11:00	3	833	6.76	3	833	5.76	3	833	12.52
11:00-12:00	3	833	8.12	3	833	8	3	833	16.12
12:00-13:00	3	833	7.28	3	833	7.6	3	833	14.88
13:00-14:00	3	833	7.84	3	833	7.88	3	833	15.72
14:00-15:00	3	833	7.24	3	833	6.56	3	833	13.8
15:00-16:00	3	833	6.8	3	833	7.52	3	833	14.32
16:00-17:00	3	833	5.36	3	833	7	3	833	12.36
17:00-18:00	3	833	3.84	3	833	5.24	3	833	9.08
18:00-19:00	3	833	2.32	3	833	3	3	833	5.32
19:00-20:00	1	700	1.429	1	700	2.429	1	700	3.858
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			66.882			65.931			132.813

TRICS 7.2.1
Trip Rate Parameter: **Retail floor area**

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: PEDESTRIANS **Saturday**

	ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate	Trip Rate
00:00-01:00							
01:00-02:00							
02:00-03:00							
03:00-04:00							
04:00-05:00							
05:00-06:00							
06:00-07:00							
07:00-08:00	2	900	0.111	2	900	0.111	0.222
08:00-09:00	3	833	0.96	3	833	0.48	1.44
09:00-10:00	3	833	1.32	3	833	1.96	3.28
10:00-11:00	3	833	4.04	3	833	3.8	7.84
11:00-12:00	3	833	4.08	3	833	4.16	8.24
12:00-13:00	3	833	4.04	3	833	4.52	8.56
13:00-14:00	3	833	3.48	3	833	3.24	6.72
14:00-15:00	3	833	4.36	3	833	5	9.36
15:00-16:00	3	833	5.08	3	833	4.44	9.52
16:00-17:00	3	833	2.64	3	833	3.2	5.84
17:00-18:00	3	833	2.76	3	833	3.56	6.32
18:00-19:00	3	833	1.52	3	833	1.12	2.64
19:00-20:00	1	700	0.143	1	700	0.714	0.857
20:00-21:00							
21:00-22:00							
22:00-23:00							
23:00-24:00							
Daily Trip Rates:			34.534			36.305	70.839

TRICS 7.2.1
Trip Rate Parameter: **Retail floor area**

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: CYCLISTS **Saturday**

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	900	0	2	900	0	2	900	0
08:00-09:00	3	833	0.04	3	833	0	3	833	0.04
09:00-10:00	3	833	0.12	3	833	0.04	3	833	0.16
10:00-11:00	3	833	0.16	3	833	0.12	3	833	0.28
11:00-12:00	3	833	0	3	833	0.12	3	833	0.12
12:00-13:00	3	833	0	3	833	0.04	3	833	0.04
13:00-14:00	3	833	0.28	3	833	0.2	3	833	0.48
14:00-15:00	3	833	0.16	3	833	0.12	3	833	0.28
15:00-16:00	3	833	0.32	3	833	0.24	3	833	0.56
16:00-17:00	3	833	0.04	3	833	0.16	3	833	0.2
17:00-18:00	3	833	0.08	3	833	0.2	3	833	0.28
18:00-19:00	3	833	0.04	3	833	0.04	3	833	0.08
19:00-20:00	1	700	0	1	700	0	1	700	0
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.24			1.28			2.52

TRICS 7.2.1
Trip Rate Parameter: Retail floor area

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
Calculation Factor: 100 sqm
Count Type: PUBLIC TRANSPORT USERS Saturday

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate	No. Days	Ave. RFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	2	900	0	2	900	0	2	900	0
08:00-09:00	3	833	0	3	833	0	3	833	0
09:00-10:00	3	833	0.12	3	833	0.28	3	833	0.4
10:00-11:00	3	833	0.28	3	833	0.08	3	833	0.36
11:00-12:00	3	833	0.36	3	833	0.28	3	833	0.64
12:00-13:00	3	833	0.04	3	833	0.16	3	833	0.2
13:00-14:00	3	833	0.28	3	833	0.28	3	833	0.56
14:00-15:00	3	833	0.12	3	833	0.2	3	833	0.32
15:00-16:00	3	833	0.08	3	833	0.16	3	833	0.24
16:00-17:00	3	833	0	3	833	0.12	3	833	0.12
17:00-18:00	3	833	0	3	833	0.04	3	833	0.04
18:00-19:00	3	833	0	3	833	0	3	833	0
19:00-20:00	1	700	0	1	700	0	1	700	0
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.28			1.6			2.88

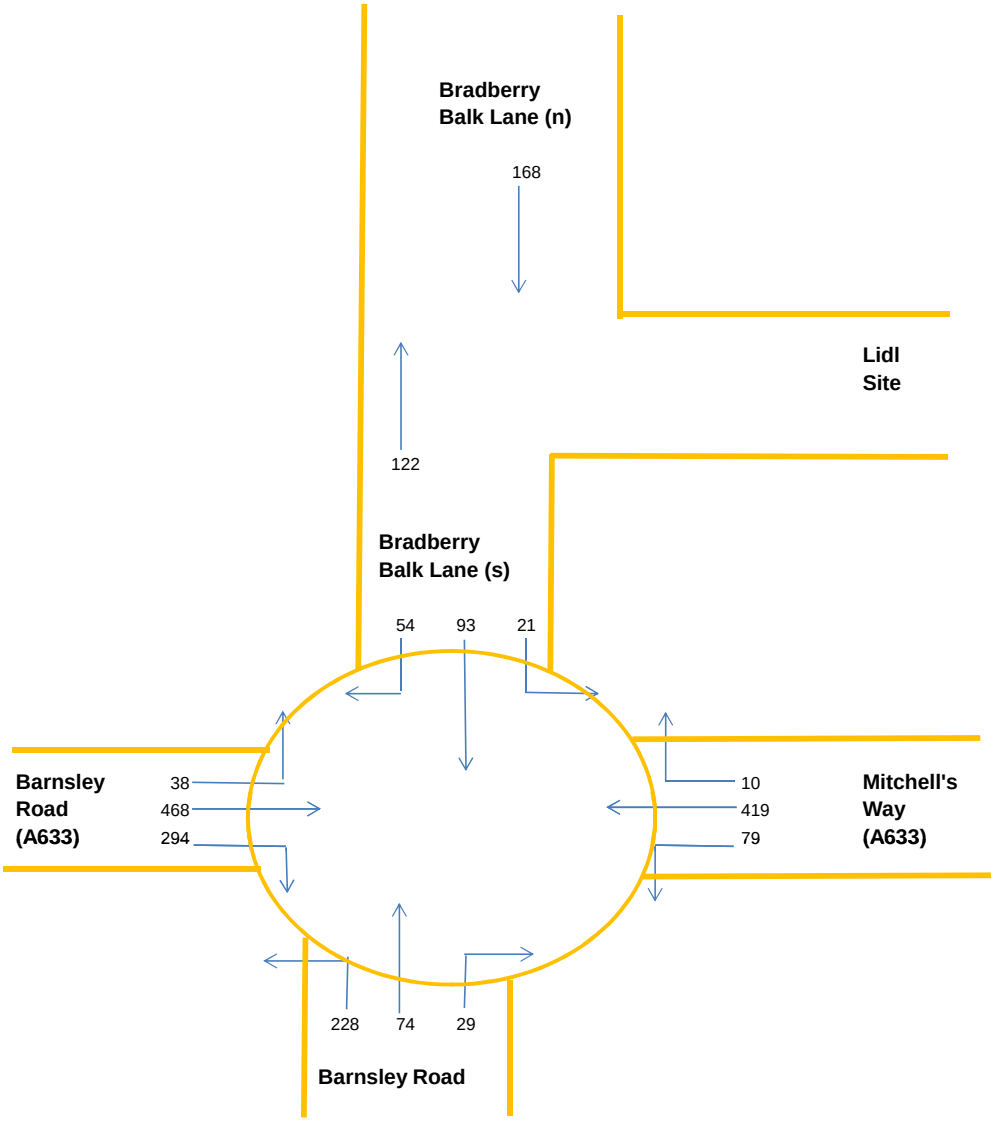
Appendix C – Traffic Flow Diagrams.

Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Traffic Count Friday 26 June 2015

16.00-17.00

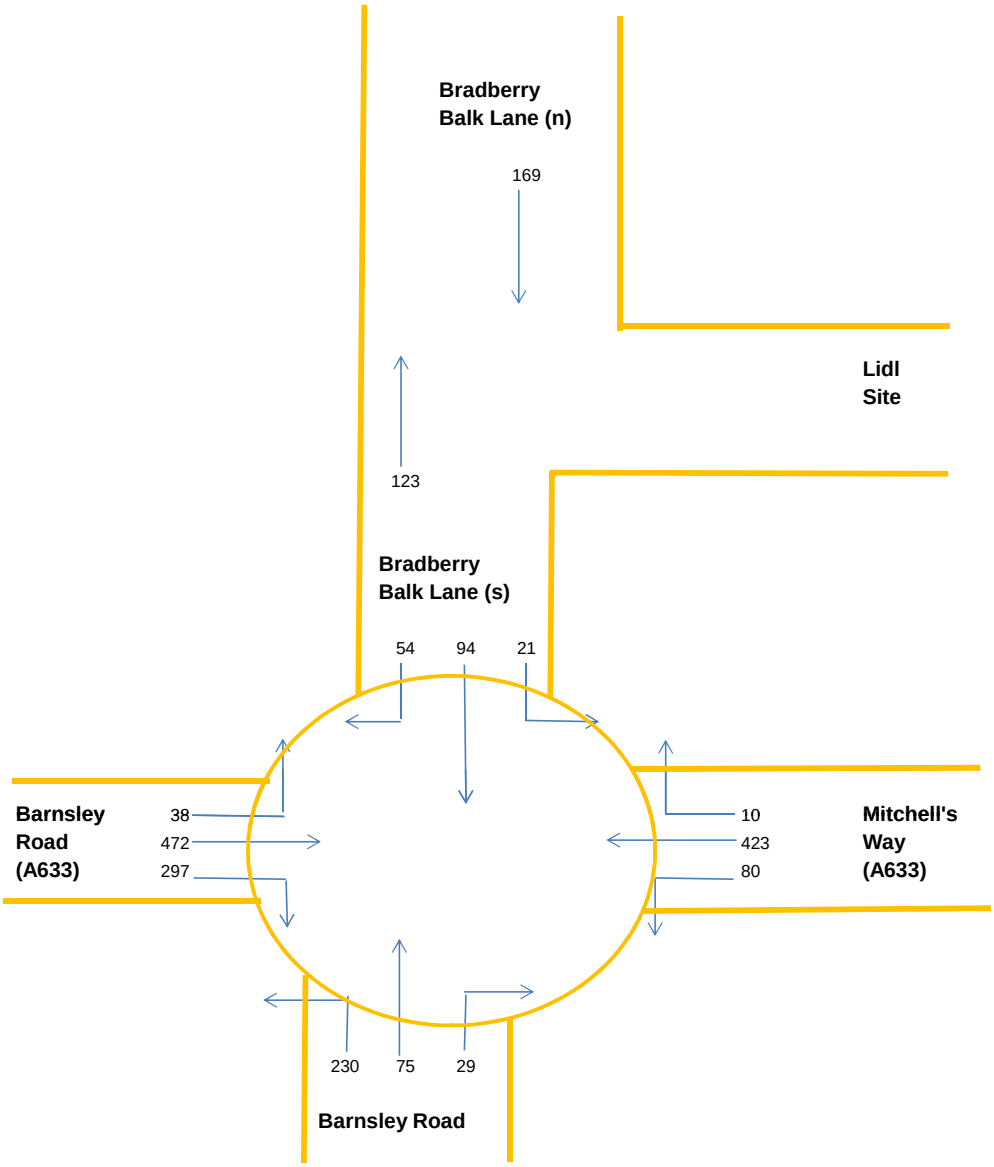


Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Traffic Count Friday 26 June 2015 growthed to 2016 (x 1.0089)

16.00-17.00

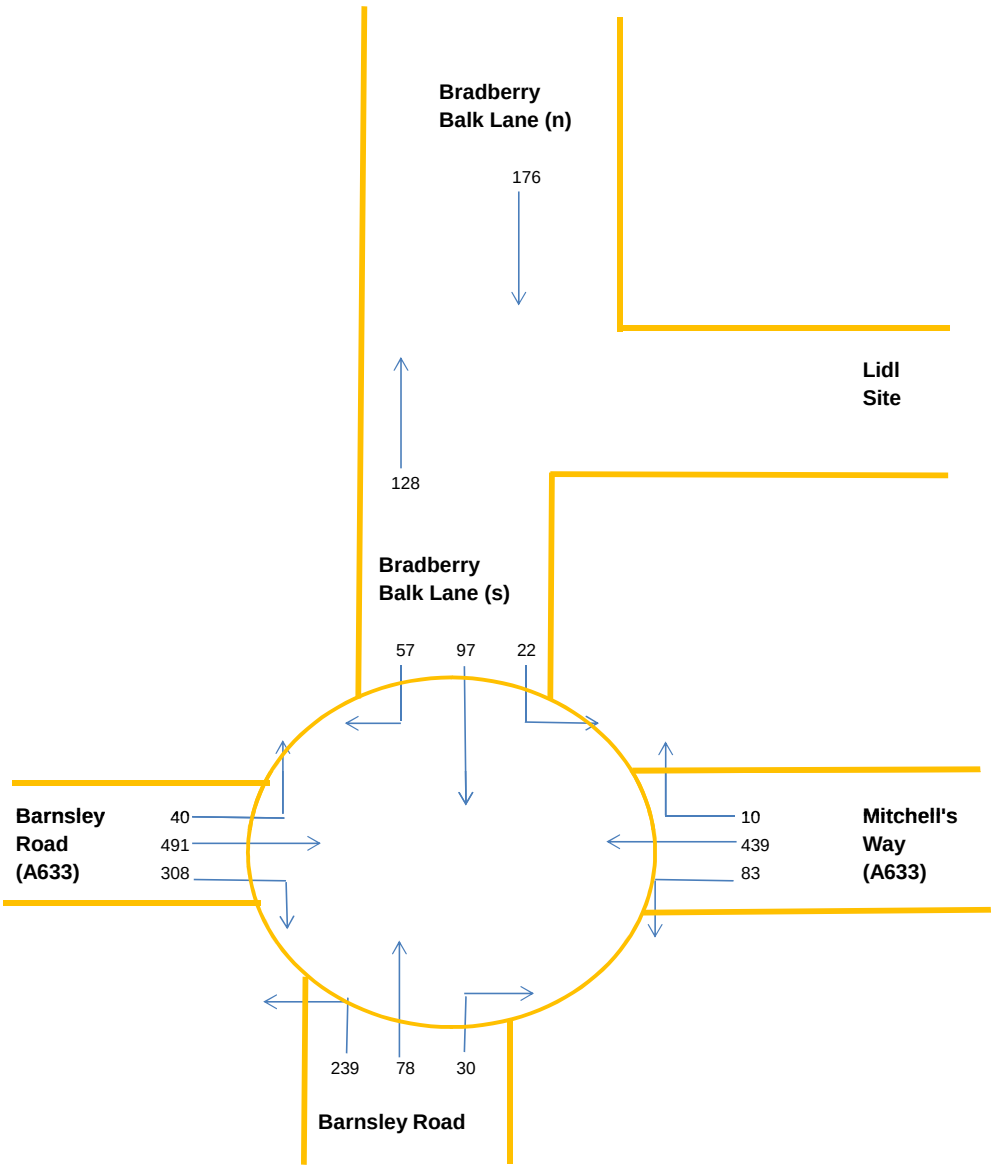


Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

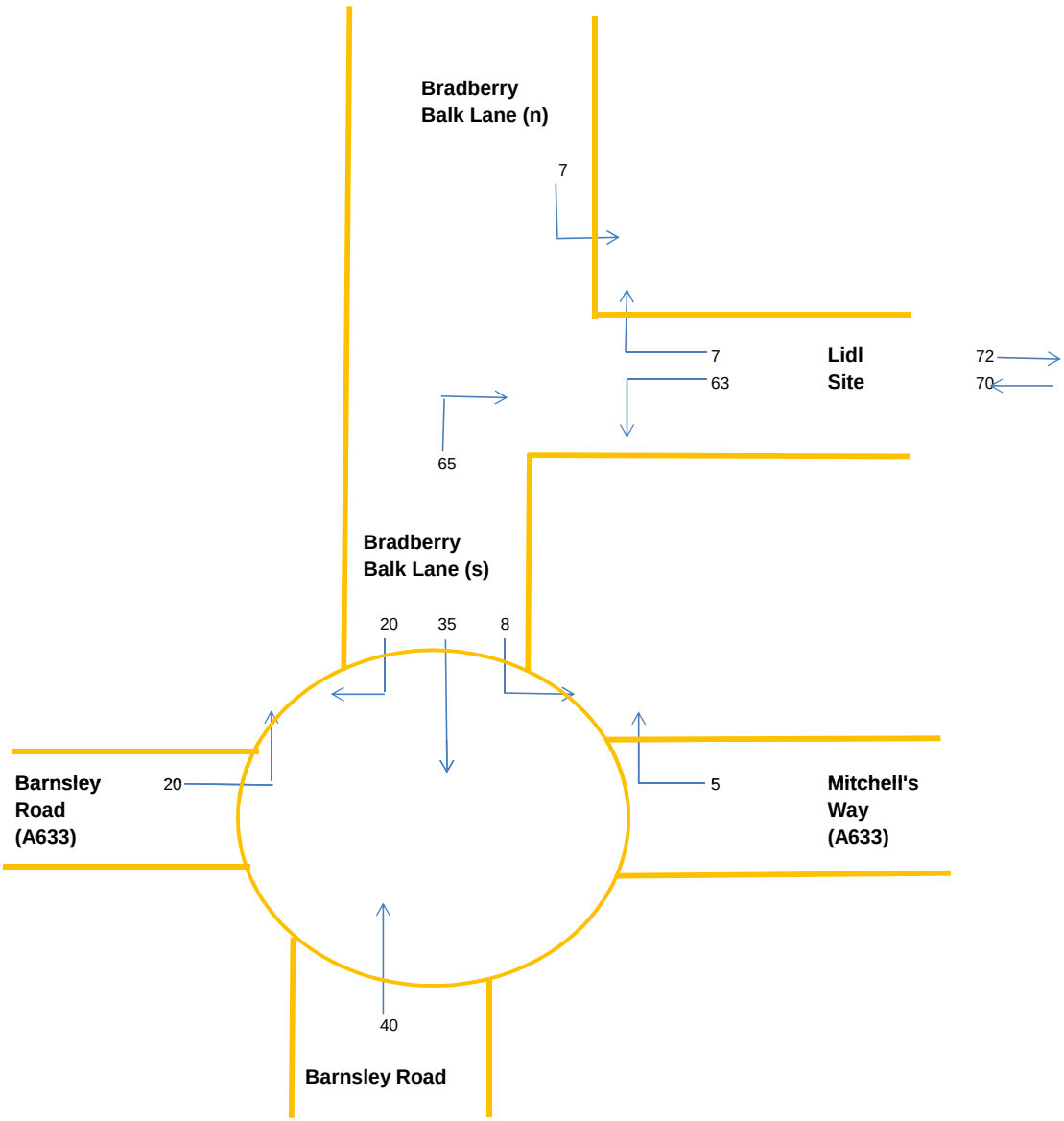
Traffic Count Friday 26 June 2015 growthed to 2021 (x 1.04825)

16.00-17.00



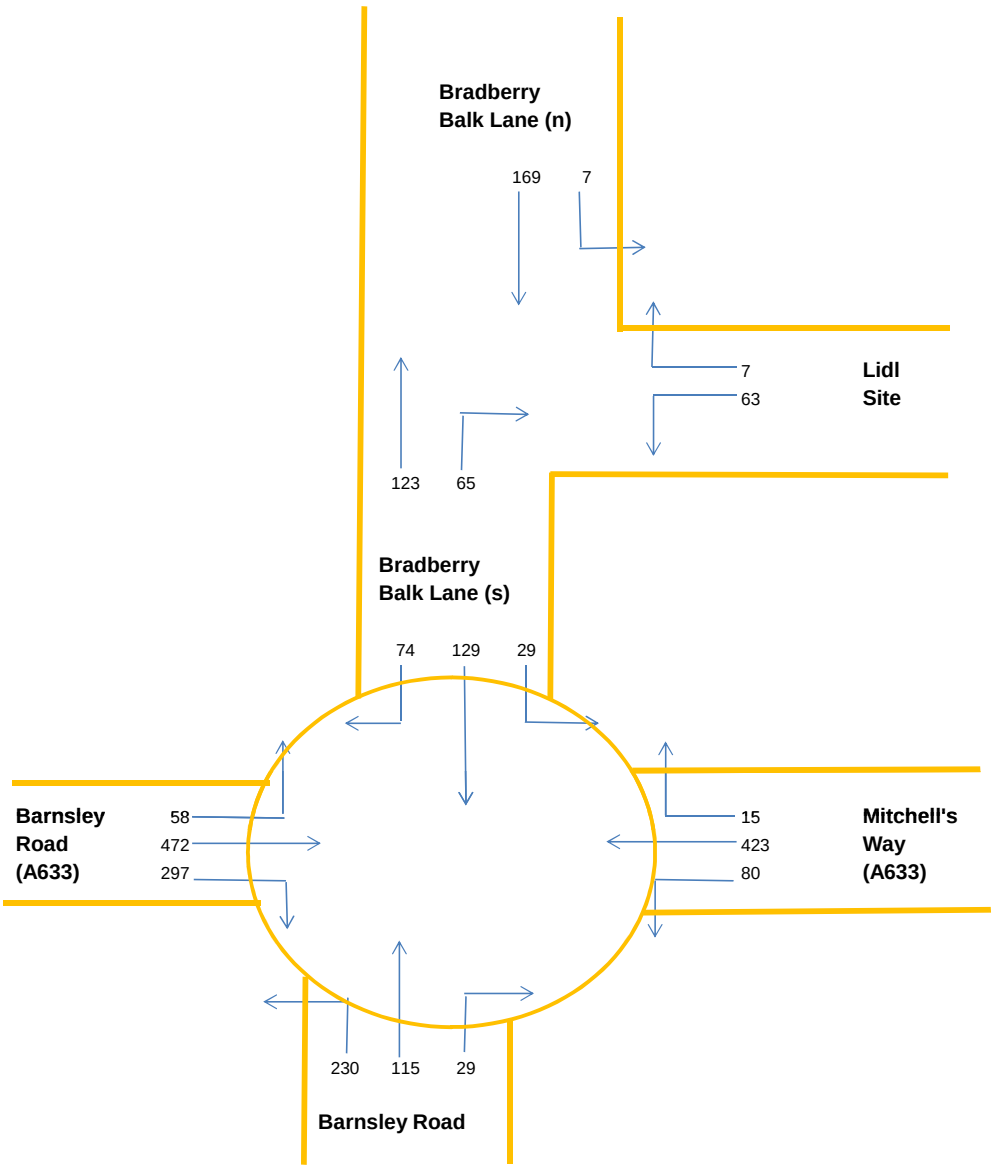
Traffic Generated by Proposed Lidl Foodstore - Friday

16.00-17.00



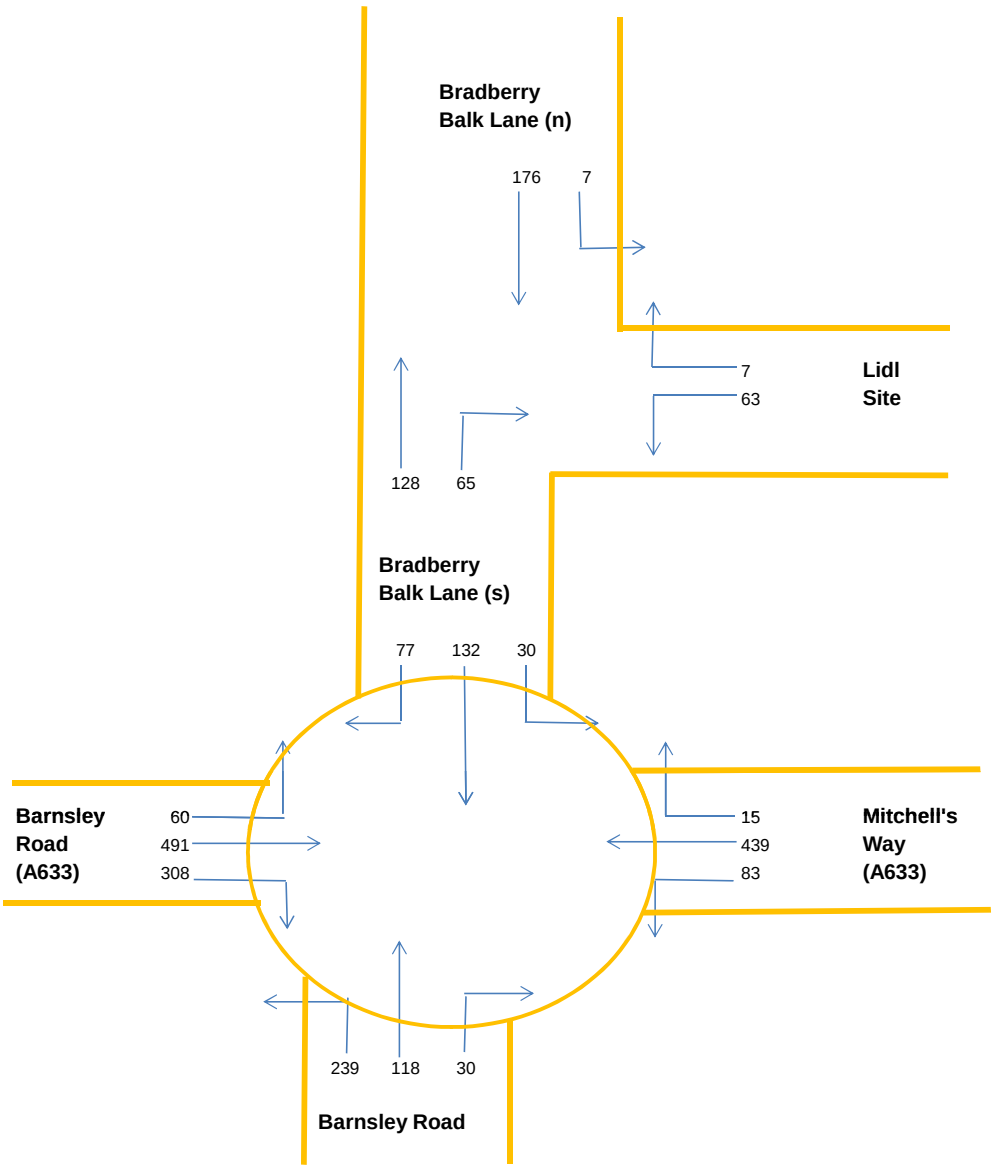
Base + Generated Traffic 2016 - Friday

16.00-17.00



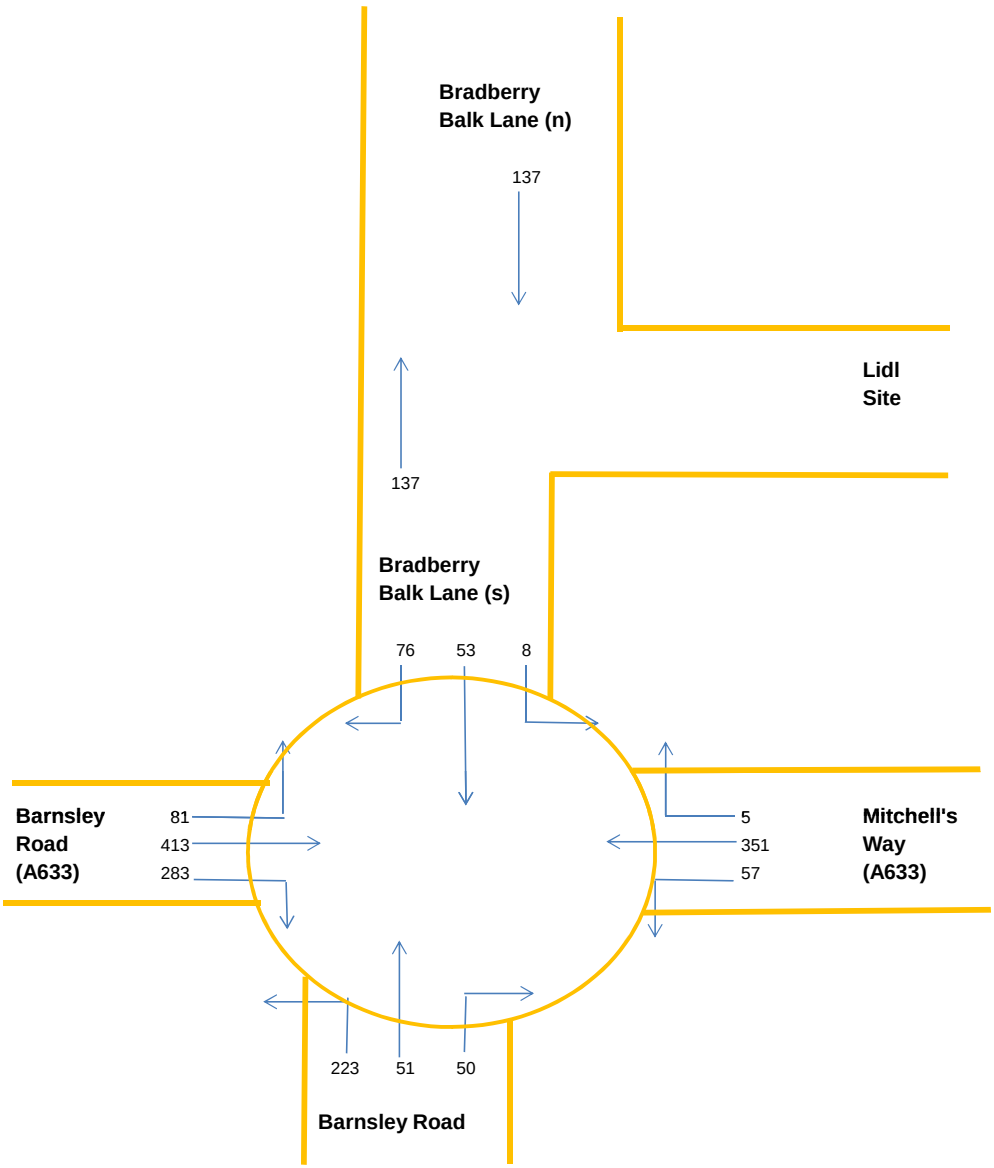
Base + Generated Traffic 2021 - Friday

16.00-17.00



Traffic Count Saturday 27 June 2015

12.00-13.00

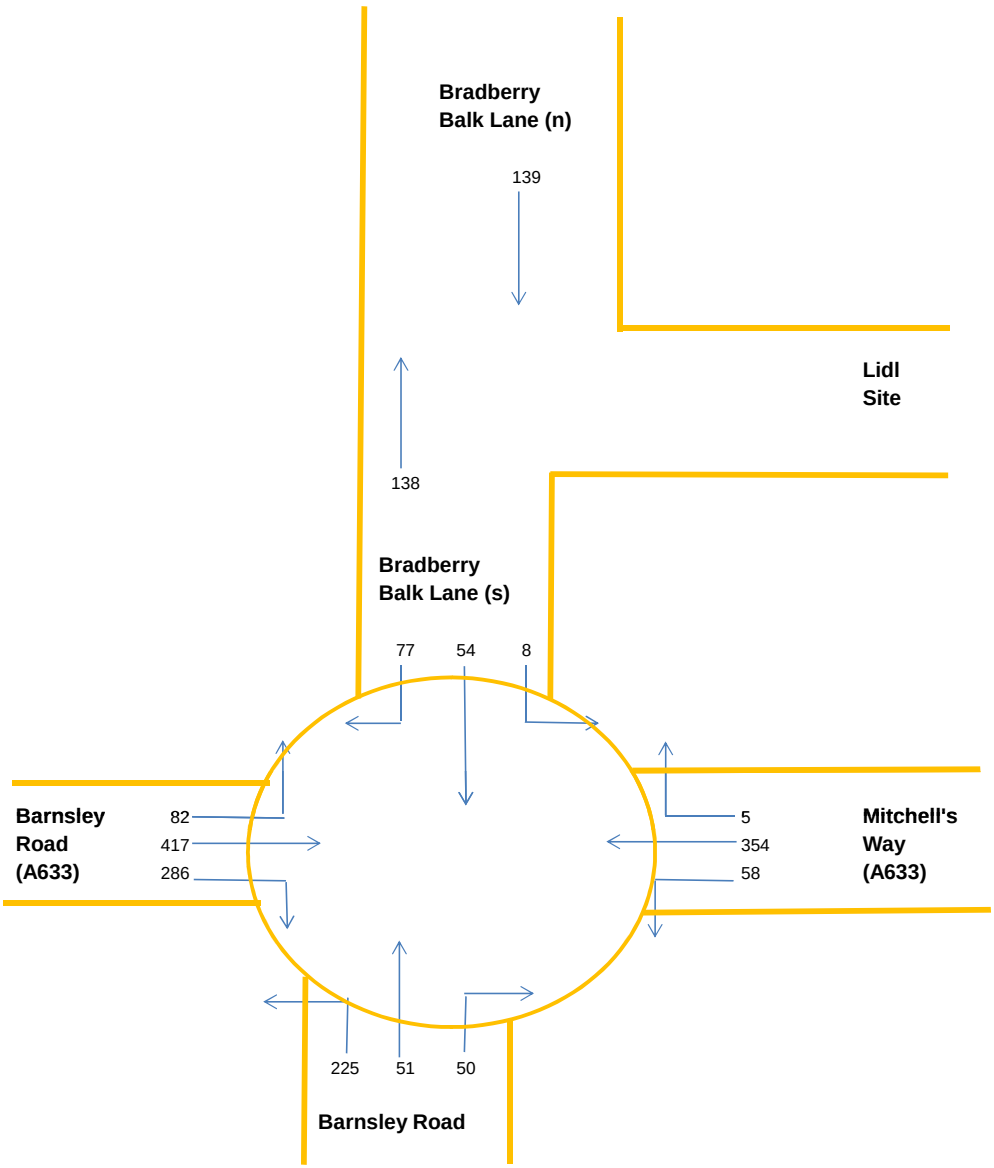


Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Traffic Count Saturday 27 June 2015 growthed to 2016 (x 1.00955)

12.00-13.00

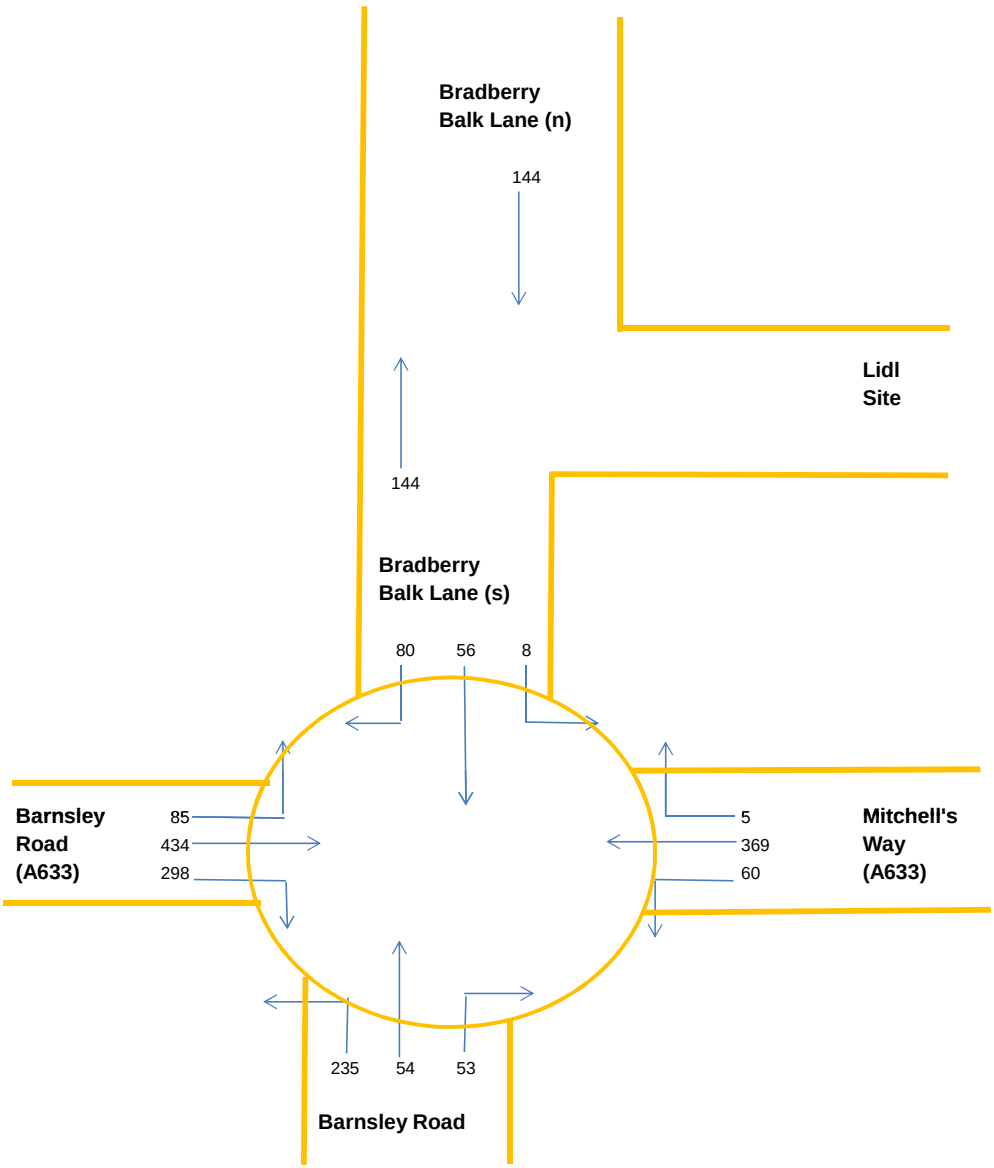


Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Traffic Count Saturday 27 June 2015 growthed to 2021 (x 1.052)

12.00-13.00

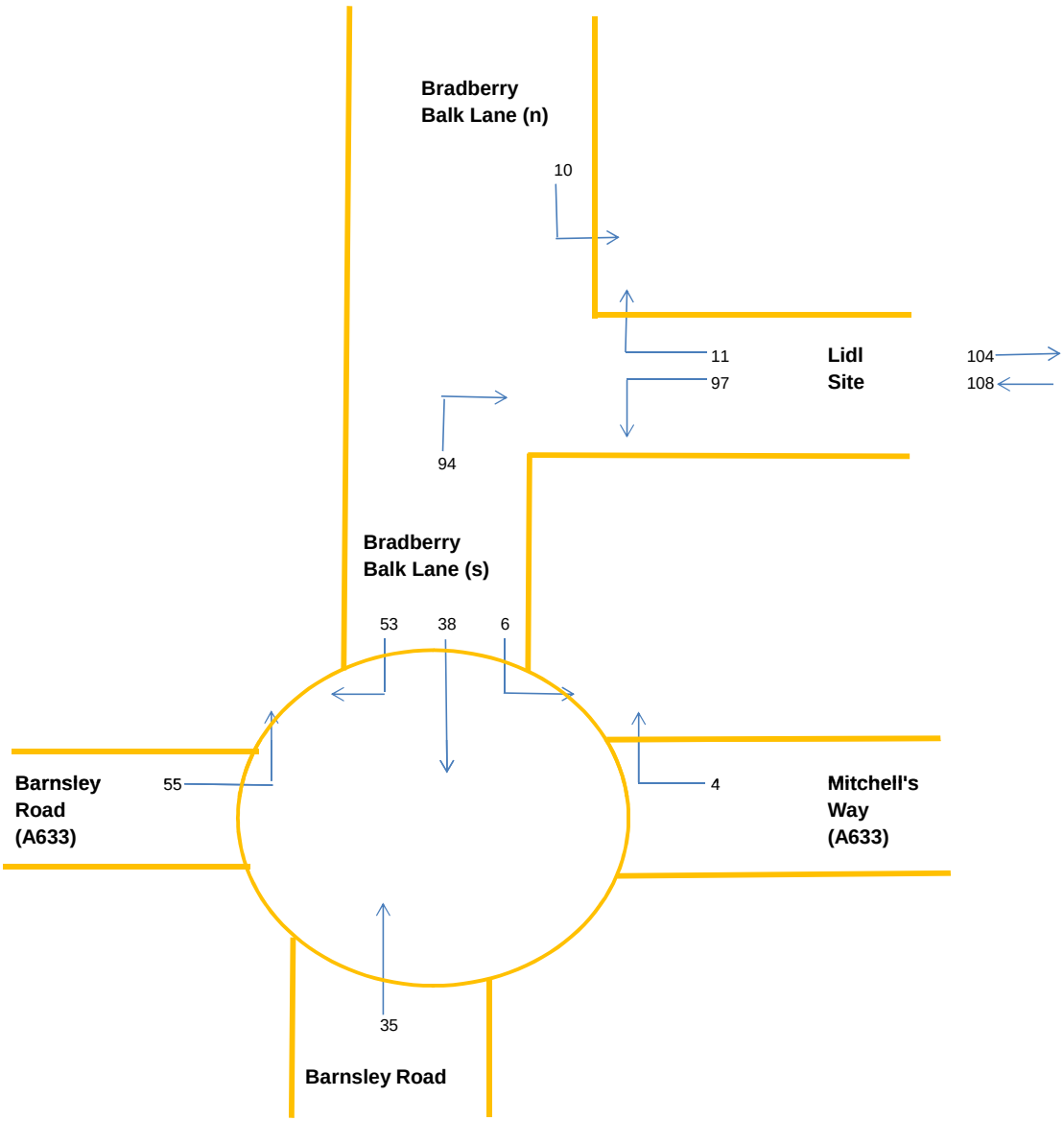


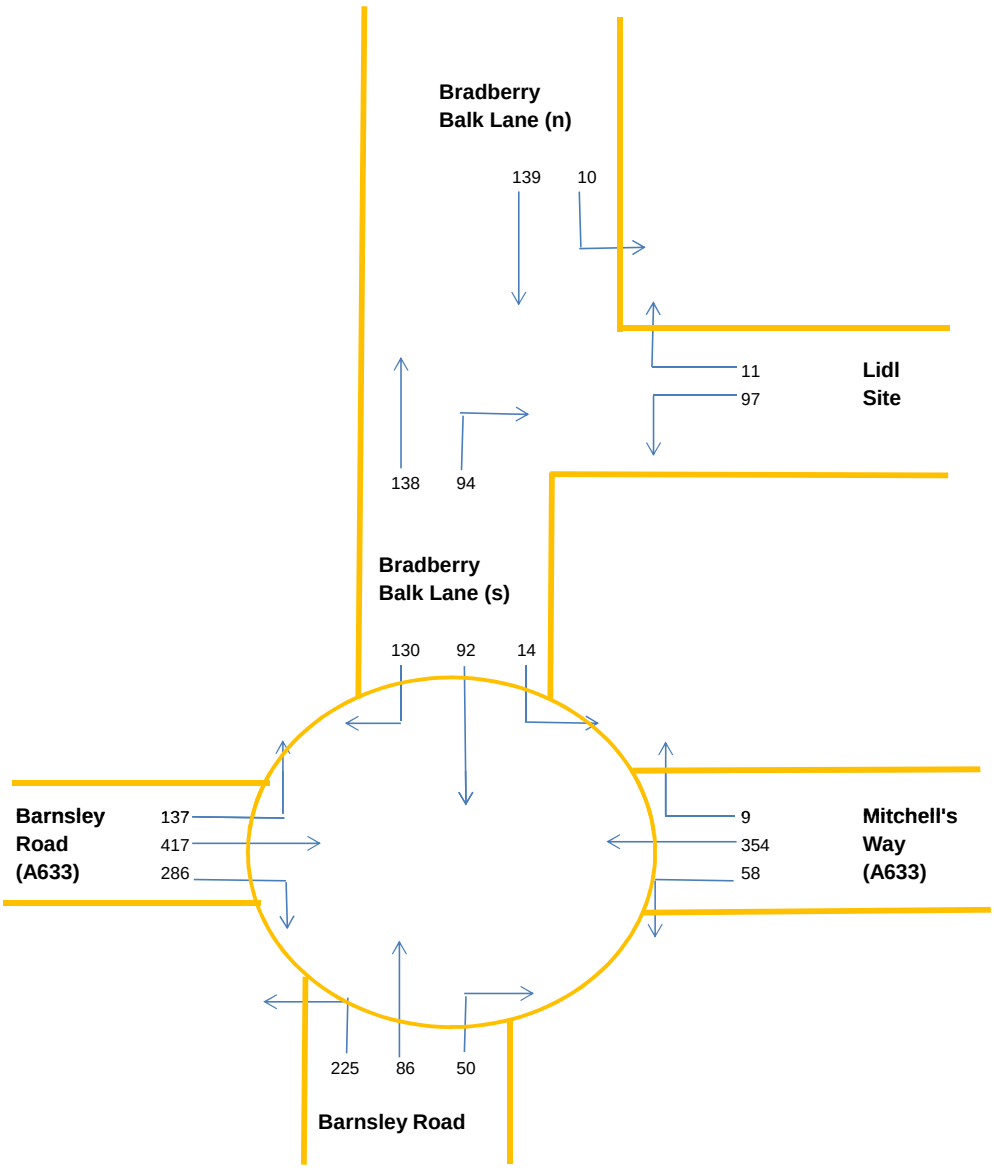
Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Traffic Generated by Proposed Lidl Foodstore - Saturday

12.00-13.00



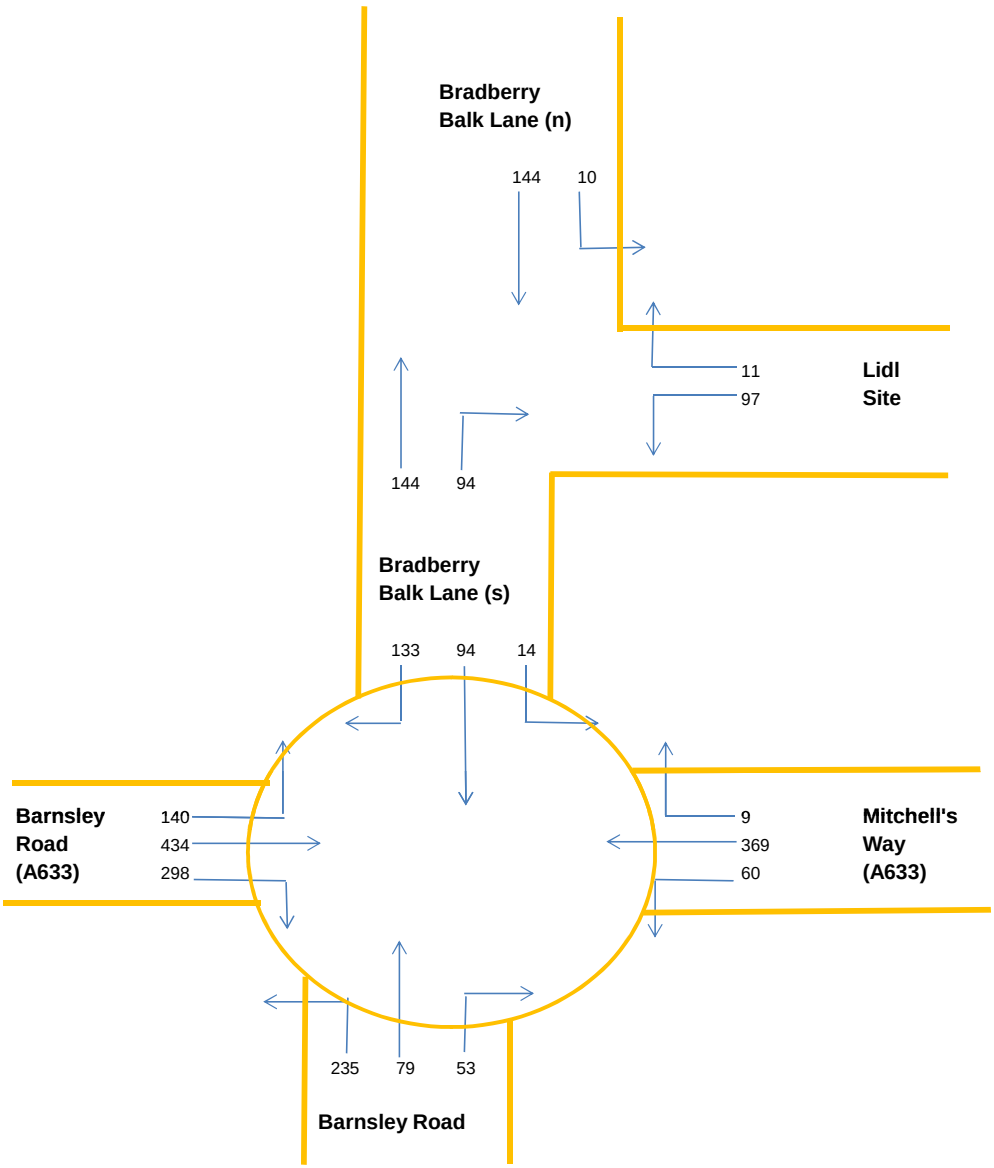


Proposed Lidl Foodstore at Bradberry Balk Lane, Wombwell

EJSAssociates
Consulting Engineers

Base + Generated Traffic 2021 - Saturday

12.00-13.00



Appendix D – PICADY Outputs.

PICADY
GUI Version: 5.1 AE Analysis Program Release: 5.0 (MAY 2010)
For sales and distribution information, program advice and maintenance, contact:
TRL Limited Crowthorne House Nine Mile Ride Wokingham, Berks. RG40 3GA, UK Tel: +44 (0)1344 770758 Fax:+44 (0)1344 770864 E-mail: software@trl.co.uk Web: www.trlsoftware.co.uk
The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution

Run Analysis

Parameter	Values
File Run	C:\Program Files\PICADY 5\wombwell site access.vpi
Date Run	15 July 2015
Time Run	13:33:54
Driving Side	Drive On The Left

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Bradberry Balk Lane (n)	100
Arm B	Lild Site Access	100
Arm C	Bradberry Balk Lane (s)	100

Stream Labelling Convention

Stream A-B contains traffic going from A to B etc.

Run Information

Parameter	Values
Run Title	Wombwell - Site Access junction
Location	Bradberry Balk Lane
Date	15 July 2015
Enumerator	Admin [PC-080908]
Job Number	2014-1-15
Status	TIA
Client	Lidl UK GmbH
Description	2021 Base + Development Friday pm peak

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

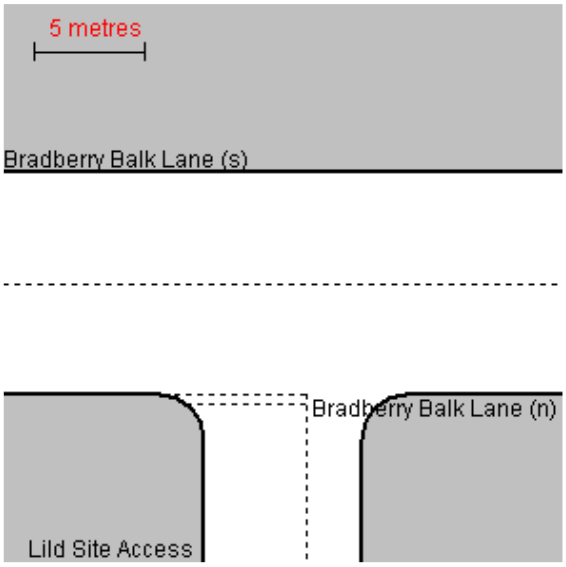
Parameter	Minor Arm B
Major Road Carriageway Width (m)	7.70
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	4.50
Minor Road Visibility To Right (m)	45
Minor Road Visibility To Left (m)	45
Major Road Right Turn Visibility (m)	100
Major Road Right Turn Blocks Traffic	Yes (if over 1 veh)

Slope and Intercept Values

Stream	Intercept for Stream	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	591.615	0.100	0.252	0.159	0.360
B-C	750.220	0.106	0.269	-	-
C-B	631.874	0.227	0.227	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Junction Diagram



Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	15:45-17:15	90	15

ODTAB Turning Counts

Demand Set: Wombwell - Site Access junction
Modelling Period: 15:45-17:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	7.0	176.0
Arm B	7.0	0.0	63.0
Arm C	128.0	65.0	0.0

ODTAB Synthesised Flows

Demand Set: Wombwell - Site Access junction
Modelling Period: 15:45-17:15

Arm	Rising Time	Rising Flow (veh/min)	Peak Time	Peak Flow (veh/min)	Falling Time	Falling Flow (veh/min)
Arm A	16:00	2.287	16:30	3.431	17:00	2.287
Arm B	16:00	0.875	16:30	1.313	17:00	0.875
Arm C	16:00	2.412	16:30	3.619	17:00	2.412

Heavy Vehicles Percentages

Demand Set: Wombwell - Site Access junction
Modelling Period: 15:45-17:15

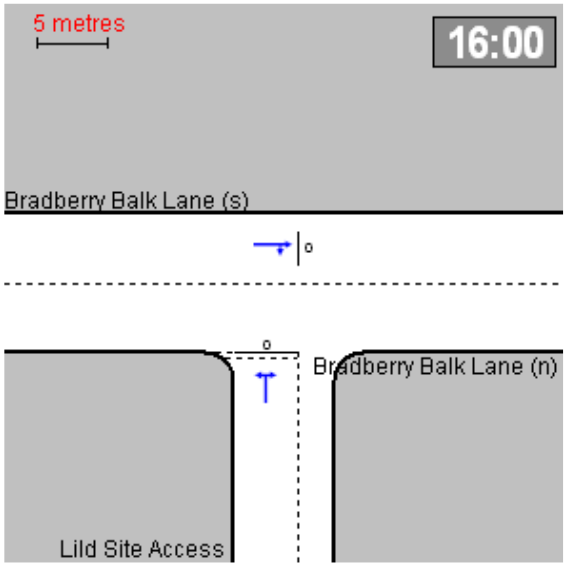
From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

Default proportions of heavy vehicles are used

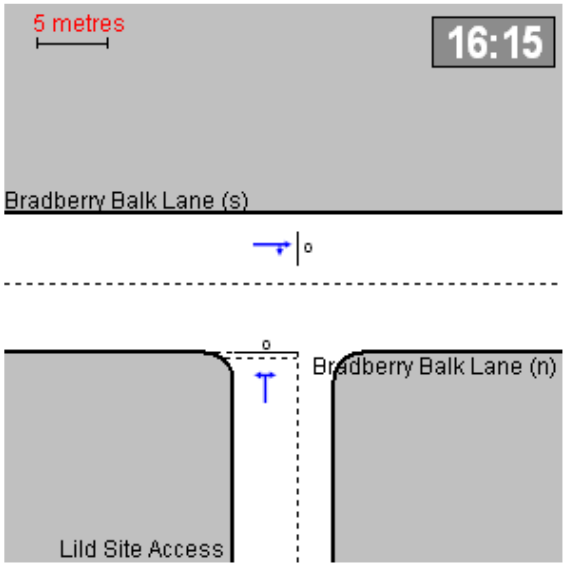
Queue Diagrams

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15
View Extent: 40m

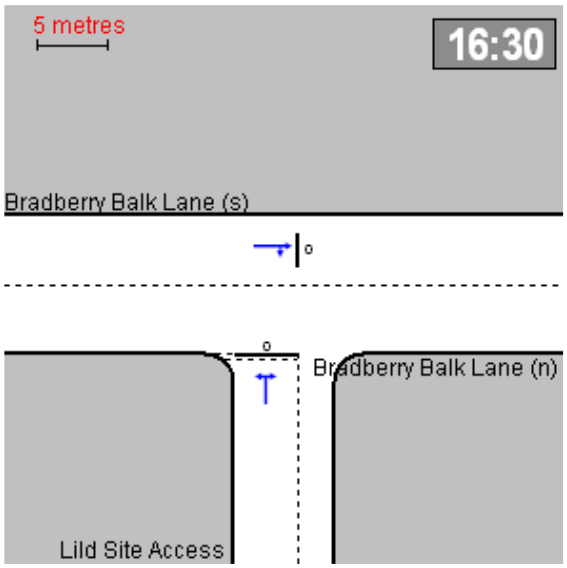
Queue Interval 1: 15:45-16:00



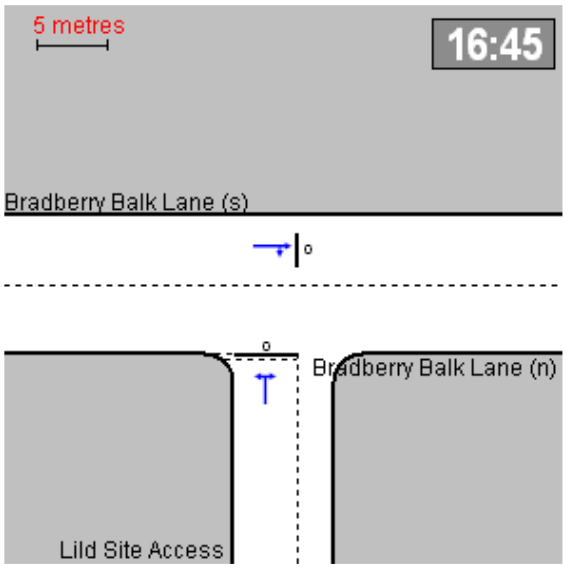
Queue Interval 2: 16:00-16:15



Queue Interval 3: 16:15-16:30

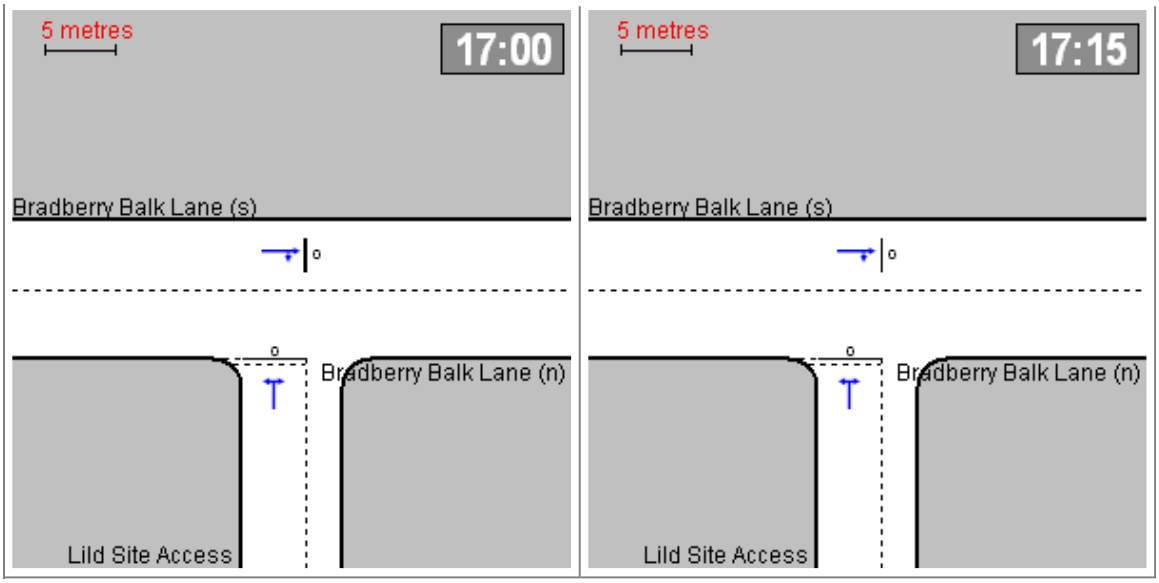


Queue Interval 4: 16:30-16:45



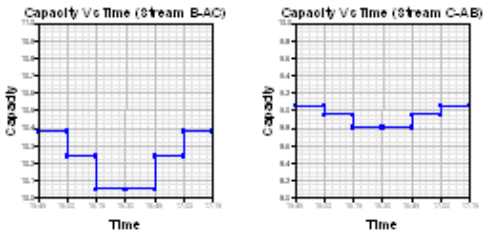
Queue Interval 5: 16:45-17:00

Queue Interval 6: 17:00-17:15



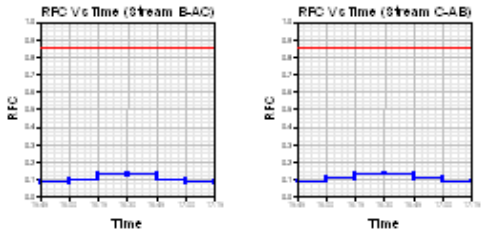
Capacity Graph

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15



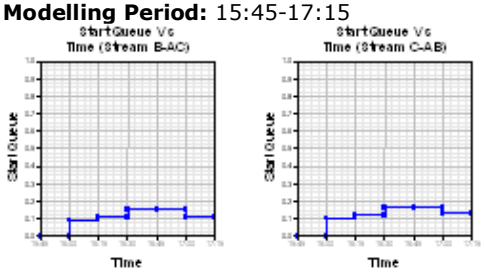
RFC Graph

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15



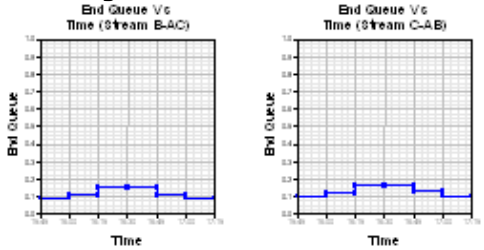
Start Queue Graph

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15



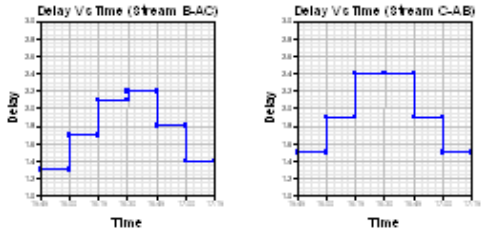
End Queue Graph

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15



Delay Graph

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15



Queues & Delays

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
15:45-16:00	B-AC	0.88	10.38	0.085	-	0.00	0.09	-	1.3	0.11
	C-AB	0.82	9.05	0.090	-	0.00	0.10	-	1.5	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	2.21	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:00-16:15	B-AC	1.05	10.24	0.102	-	0.09	0.11	-	1.7	0.11
	C-AB	0.97	8.95	0.109	-	0.10	0.12	-	1.9	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	2.64	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:15-16:30	B-AC	1.28	10.05	0.128	-	0.11	0.15	-	2.1	0.11
	C-AB	1.19	8.81	0.135	-	0.12	0.16	-	2.4	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	3.23	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:30-16:45	B-AC	1.28	10.05	0.128	-	0.15	0.15	-	2.2	0.11
	C-AB	1.19	8.81	0.135	-	0.16	0.16	-	2.4	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	3.23	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
16:45-17:00	B-AC	1.05	10.24	0.102	-	0.15	0.11	-	1.8	0.11
	C-AB	0.97	8.95	0.109	-	0.16	0.13	-	1.9	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.10	-	-	-	-	-	-	-	-
	A-C	2.64	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
17:00-17:15	B-AC	0.88	10.38	0.085	-	0.11	0.09	-	1.4	0.11
	C-AB	0.82	9.05	0.090	-	0.13	0.10	-	1.5	0.12
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.09	-	-	-	-	-	-	-	-
	A-C	2.21	-	-	-	-	-	-	-	-

Entry capacities marked with an '(X)' are dominated by a pedestrian crossing in that time segment.
In time segments marked with a '(B)', traffic leaving the junction may block back from a crossing so impairing normal operation of the junction.
Delays marked with '##' could not be calculated.

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 15:45 - 17:15
Modelling Period: 15:45-17:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	96.3	64.2	10.5	0.1	10.5	0.1
C-AB	89.5	59.6	11.6	0.1	11.6	0.1
C-A	-	-	-	-	-	-
A-B	9.6	6.4	-	-	-	-
A-C	242.3	161.5	-	-	-	-
All	**613.9**	**409.3**	**22.1**	**0.0**	**22.1**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

PICADY 5 Run Successful

PICADY
GUI Version: 5.1 AE Analysis Program Release: 5.0 (MAY 2010)
For sales and distribution information, program advice and maintenance, contact:
TRL Limited Crowthorne House Nine Mile Ride Wokingham, Berks. RG40 3GA, UK Tel: +44 (0)1344 770758 Fax:+44 (0)1344 770864 E-mail: software@trl.co.uk Web: www.trlsoftware.co.uk
The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution

Run Analysis

Parameter	Values
File Run	C:\Program Files\PICADY 5\wombwell site access.vpi
Date Run	15 July 2015
Time Run	13:39:58
Driving Side	Drive On The Left

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Bradberry Balk Lane (n)	100
Arm B	Lild Site Access	100
Arm C	Bradberry Balk Lane (s)	100

Stream Labelling Convention

Stream A-B contains traffic going from A to B etc.

Run Information

Parameter	Values
Run Title	Wombwell - Site Access junction
Location	Bradberry Balk Lane
Date	15 July 2015
Enumerator	Admin [PC-080908]
Job Number	2014-1-15
Status	TIA
Client	Lidl UK GmbH
Description	2021 Base + Development Saturday pm peak

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

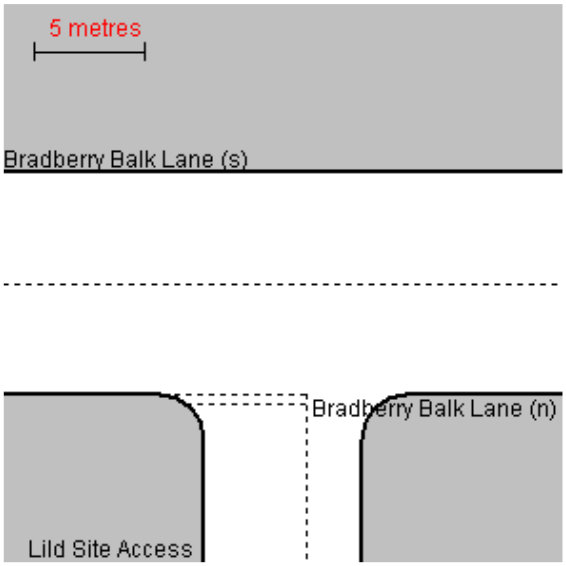
Parameter	Minor Arm B
Major Road Carriageway Width (m)	7.70
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	4.50
Minor Road Visibility To Right (m)	45
Minor Road Visibility To Left (m)	45
Major Road Right Turn Visibility (m)	100
Major Road Right Turn Blocks Traffic	Yes (if over 1 veh)

Slope and Intercept Values

Stream	Intercept for Stream	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	591.615	0.100	0.252	0.159	0.360
B-C	750.220	0.106	0.269	-	-
C-B	631.874	0.227	0.227	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Junction Diagram



Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	11:45-13:15	90	15

ODTAB Turning Counts

Demand Set: Wombwell - Site Access junction
Modelling Period: 11:45-13:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	10.0	144.0
Arm B	11.0	0.0	97.0
Arm C	144.0	94.0	0.0

ODTAB Synthesised Flows

Demand Set: Wombwell - Site Access junction
Modelling Period: 11:45-13:15

Arm	Rising Time	Rising Flow (veh/min)	Peak Time	Peak Flow (veh/min)	Falling Time	Falling Flow (veh/min)
Arm A	12:00	1.925	12:30	2.887	13:00	1.925
Arm B	12:00	1.350	12:30	2.025	13:00	1.350
Arm C	12:00	2.975	12:30	4.462	13:00	2.975

Heavy Vehicles Percentages

Demand Set: Wombwell - Site Access junction
Modelling Period: 11:45-13:15

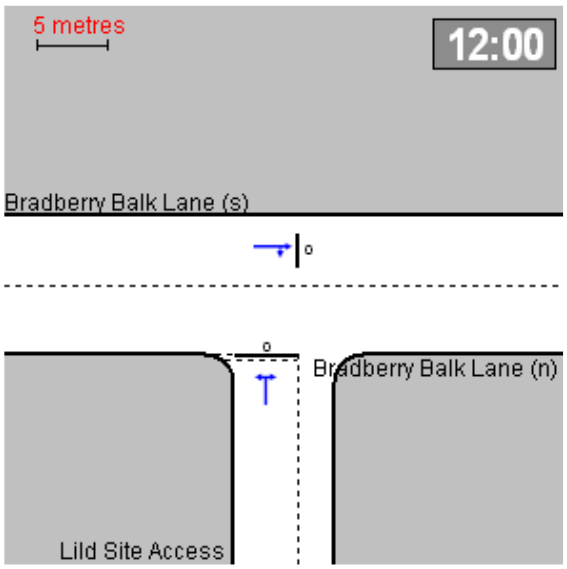
From/To	Arm A	Arm B	Arm C
Arm A	-	10.0	10.0
Arm B	10.0	-	10.0
Arm C	10.0	10.0	-

Default proportions of heavy vehicles are used

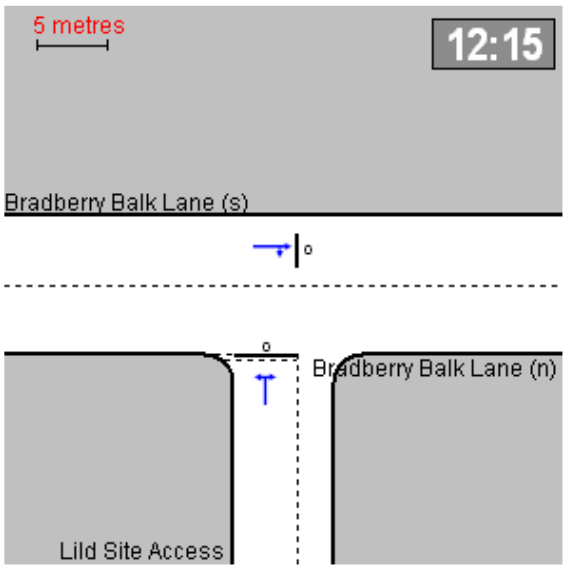
Queue Diagrams

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15
View Extent: 40m

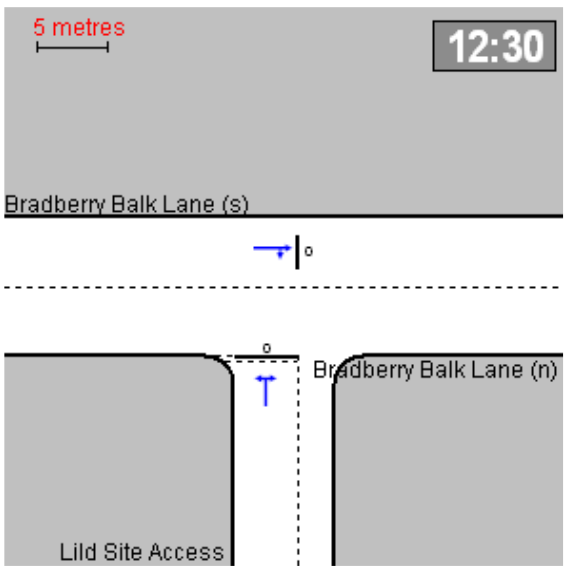
Queue Interval 1: 11:45-12:00



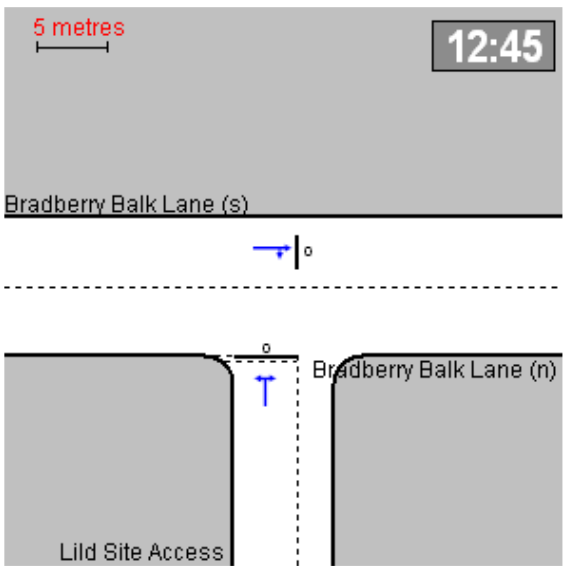
Queue Interval 2: 12:00-12:15



Queue Interval 3: 12:15-12:30

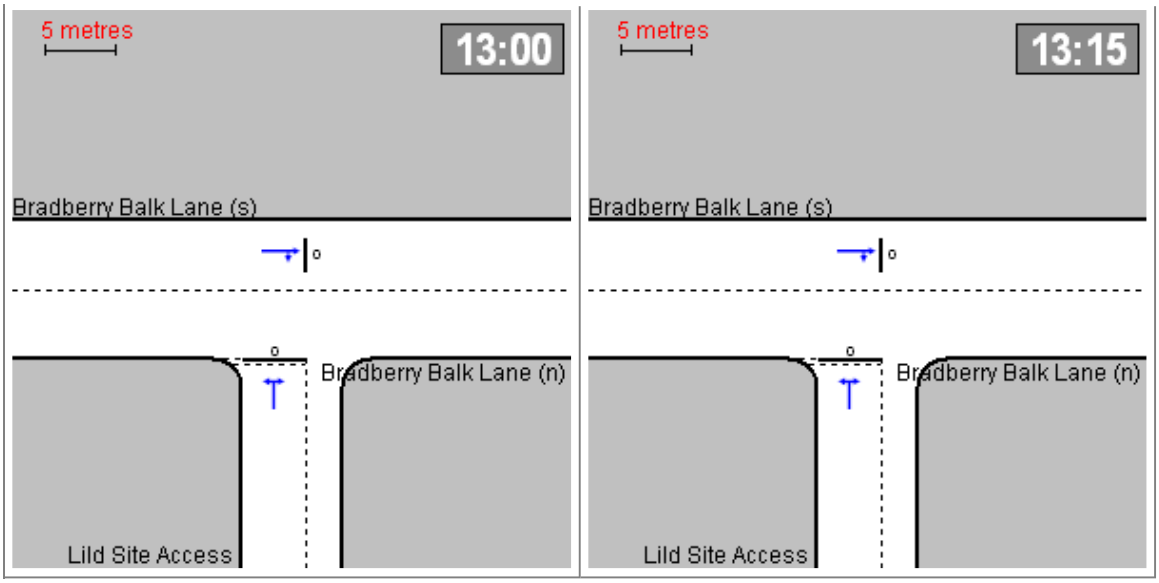


Queue Interval 4: 12:30-12:45



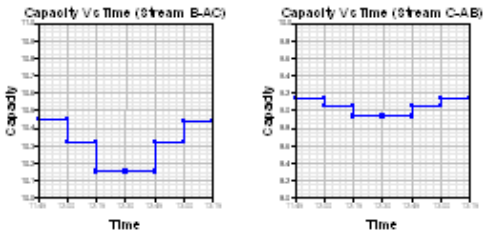
Queue Interval 5: 12:45-13:00

Queue Interval 6: 13:00-13:15



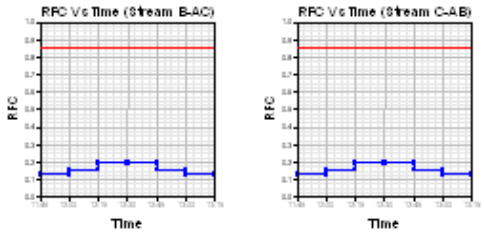
Capacity Graph

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15



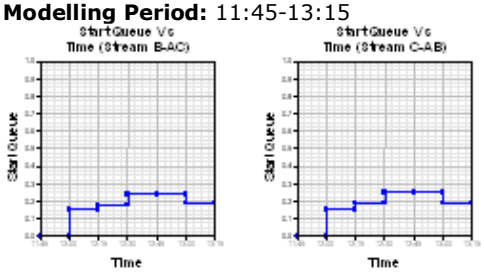
RFC Graph

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15



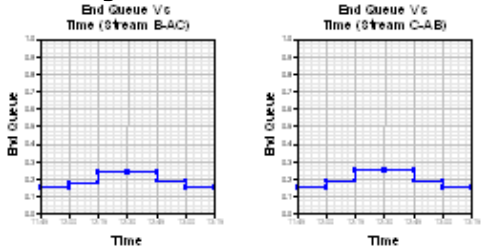
Start Queue Graph

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15



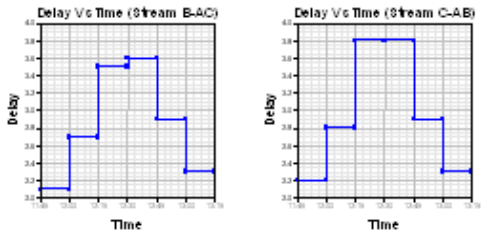
End Queue Graph

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15



Delay Graph

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15



Queues & Delays

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
11:45-12:00	B-AC	1.36	10.45	0.130	-	0.00	0.15	-	2.1	0.11
	C-AB	1.18	9.14	0.129	-	0.00	0.15	-	2.2	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	1.81	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
12:00-12:15	B-AC	1.62	10.32	0.157	-	0.15	0.18	-	2.7	0.11
	C-AB	1.41	9.05	0.156	-	0.15	0.19	-	2.8	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.15	-	-	-	-	-	-	-	-
	A-C	2.16	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
12:15-12:30	B-AC	1.98	10.15	0.195	-	0.18	0.24	-	3.5	0.12
	C-AB	1.72	8.93	0.193	-	0.19	0.25	-	3.8	0.14
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.18	-	-	-	-	-	-	-	-
	A-C	2.64	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
12:30-12:45	B-AC	1.98	10.15	0.195	-	0.24	0.24	-	3.6	0.12
	C-AB	1.72	8.93	0.193	-	0.25	0.25	-	3.8	0.14
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.18	-	-	-	-	-	-	-	-
	A-C	2.64	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
12:45-13:00	B-AC	1.62	10.32	0.157	-	0.24	0.19	-	2.9	0.12
	C-AB	1.41	9.05	0.156	-	0.25	0.19	-	2.9	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.15	-	-	-	-	-	-	-	-
	A-C	2.16	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/ segment)	Delay (veh.min/ segment)	Mean Arriving Vehicle Delay (min)
13:00-13:15	B-AC	1.36	10.44	0.130	-	0.19	0.15	-	2.3	0.11
	C-AB	1.18	9.14	0.129	-	0.19	0.15	-	2.3	0.13
	C-A	-	-	-	-	-	-	-	-	-
	A-B	0.13	-	-	-	-	-	-	-	-
	A-C	1.81	-	-	-	-	-	-	-	-

Entry capacities marked with an '(X)' are dominated by a pedestrian crossing in that time segment.
In time segments marked with a '(B)', traffic leaving the junction may block back from a crossing so impairing normal operation of the junction.
Delays marked with '##' could not be calculated.

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 11:45 - 13:15
Modelling Period: 11:45-13:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	148.7	99.1	17.2	0.1	17.2	0.1
C-AB	129.4	86.3	17.8	0.1	17.8	0.1
C-A	-	-	-	-	-	-
A-B	13.8	9.2	-	-	-	-
A-C	198.2	132.1	-	-	-	-
All	**688.2**	**458.8**	**35.0**	**0.1**	**35.0**	**0.1**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

PICADY 5 Run Successful

Appendix E – ARCADY Outputs.

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

Filename: (new file)
Path:
Report generation date: 15/07/2015 15:23:17

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Scenario 1			
Arm 1	0.40	5.45	0.29	A
Arm 2	1.11	6.79	0.53	A
Arm 3	0.48	4.06	0.32	A
Arm 4	0.88	3.35	0.47	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Scenario 1, AM " model duration: 15:45 - 17:15

Run using Junctions 8.0.1.305 at 15/07/2015 15:23:16

File summary

File Description

Title	Wombwell
Location	Bradberry Balk Lane
Site Number	
Date	15/07/2015
Version	
Status	(new file)
Identifier	
Client	Lidl UK GmbH
Jobnumber	2014--15
Enumerator	PC-080908\Admin
Description	White Rose Roudabout Friday pm peak Base + Development

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
Scenario 1, AM	Scenario 1	AM		ONE HOUR	15:45	17:15	90	15		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4			4.65	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bradberry Balk Lane	
2	Mitchell's Way	
3	Barnsley Road	
4	Barnsley Road (A633)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.85	5.00	10.00	25.70	46.00	26.00	
2	3.65	5.70	10.00	21.40	46.00	38.00	
3	3.65	6.70	10.00	54.30	46.00	18.00	
4	6.00	7.40	10.00	35.70	46.00	31.00	

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.584	1456.406
2		(calculated)	(calculated)	0.568	1444.665
3		(calculated)	(calculated)	0.643	1687.772
4		(calculated)	(calculated)	0.717	2149.027

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	239.00	100.000
2	ONE HOUR	✓	537.00	100.000
3	ONE HOUR	✓	387.00	100.000
4	ONE HOUR	✓	859.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	30.000	132.000	77.000
	2	15.000	0.000	83.000	439.000
	3	118.000	30.000	0.000	239.000
	4	60.000	491.000	308.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To

		1	2	3	4
From	1	0.00	0.13	0.55	0.32
	2	0.03	0.00	0.15	0.82
	3	0.30	0.08	0.00	0.62
	4	0.07	0.57	0.36	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.29	5.45	0.40	A
2	0.53	6.79	1.11	A
3	0.32	4.06	0.48	A
4	0.47	3.35	0.88	A

Main Results for each time segment

Main results: (15:45-16:00)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	179.93	179.15	622.34	0.00	1092.74	0.165	0.20	3.937	A
2	404.28	402.32	387.89	0.00	1224.51	0.330	0.49	4.368	A
3	291.35	290.34	397.86	0.00	1431.81	0.203	0.25	3.150	A
4	646.70	644.88	122.27	0.00	2061.37	0.314	0.46	2.538	A

Main results: (16:00-16:15)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	214.86	214.58	744.68	0.00	1021.26	0.210	0.26	4.462	A

2	482.75	481.97	464.32	0.00	1181.13	0.409	0.68	5.144	A
3	347.91	347.58	476.61	0.00	1381.15	0.252	0.34	3.483	A
4	772.22	771.63	146.39	0.00	2044.08	0.378	0.60	2.827	A

Main results: (16:15-16:30)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	263.14	262.62	911.70	0.00	923.66	0.285	0.40	5.441	A
2	591.25	589.60	568.38	0.00	1122.07	0.527	1.10	6.741	A
3	426.09	425.53	583.08	0.00	1312.65	0.325	0.48	4.055	A
4	945.78	944.70	179.20	0.00	2020.56	0.468	0.87	3.343	A

Main results: (16:30-16:45)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	263.14	263.14	912.73	0.00	923.05	0.285	0.40	5.454	A
2	591.25	591.21	569.22	0.00	1121.59	0.527	1.11	6.787	A
3	426.09	426.09	584.61	0.00	1311.66	0.325	0.48	4.064	A
4	945.78	945.76	179.46	0.00	2020.37	0.468	0.88	3.349	A

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	214.86	215.37	746.29	0.00	1020.31	0.211	0.27	4.474	A
2	482.75	484.38	465.60	0.00	1180.40	0.409	0.70	5.185	A
3	347.91	348.47	478.90	0.00	1379.67	0.252	0.34	3.494	A
4	772.22	773.29	146.79	0.00	2043.79	0.378	0.61	2.835	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	179.93	180.21	624.70	0.00	1091.36	0.165	0.20	3.952	A
2	404.28	405.09	389.69	0.00	1223.49	0.330	0.50	4.402	A
3	291.35	291.68	400.54	0.00	1430.09	0.204	0.26	3.162	A
4	646.70	647.31	122.86	0.00	2060.95	0.314	0.46	2.549	A

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

Filename: (new file)
Path:
Report generation date: 15/07/2015 15:28:21

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Scenario 1			
Arm 1	0.39	5.25	0.28	A
Arm 2	2.27	10.66	0.70	B
Arm 3	0.55	4.93	0.36	A
Arm 4	0.89	3.34	0.47	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - Scenario 1, AM " model duration: 11:45 - 13:15

Run using Junctions 8.0.1.305 at 15/07/2015 15:28:21

File summary

File Description

Title	Wombwell
Location	Bradberry Balk Lane
Site Number	
Date	15/07/2015
Version	
Status	(new file)
Identifier	
Client	Lidl UK GmbH
Jobnumber	2014--15
Enumerator	PC-080908\Admin
Description	White Rose Roudabout Saturday peak Base + Development

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
Scenario 1, AM	Scenario 1	AM		ONE HOUR	11:45	13:15	90	15		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4			6.18	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bradberry Balk Lane	
2	Mitchell's Way	
3	Barnsley Road	
4	Barnsley Road (A633)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.85	5.00	10.00	25.70	46.00	26.00	
2	3.65	5.70	10.00	21.40	46.00	38.00	
3	3.65	6.70	10.00	54.30	46.00	18.00	
4	6.00	7.40	10.00	35.70	46.00	31.00	

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.584	1456.406
2		(calculated)	(calculated)	0.568	1444.665
3		(calculated)	(calculated)	0.643	1687.772
4		(calculated)	(calculated)	0.717	2149.027

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	241.00	100.000
2	ONE HOUR	✓	708.00	100.000
3	ONE HOUR	✓	367.00	100.000
4	ONE HOUR	✓	872.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	14.000	94.000	133.000
	2	9.000	0.000	60.000	639.000
	3	79.000	53.000	0.000	235.000
	4	140.000	434.000	298.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To

		1	2	3	4
From	1	0.00	0.06	0.39	0.55
	2	0.01	0.00	0.08	0.90
	3	0.22	0.14	0.00	0.64
	4	0.16	0.50	0.34	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.28	5.25	0.39	A
2	0.70	10.66	2.27	B
3	0.36	4.93	0.55	A
4	0.47	3.34	0.89	A

Main Results for each time segment

Main results: (11:45-12:00)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	181.44	180.66	589.29	0.00	1112.06	0.163	0.19	3.862	A
2	533.02	529.95	393.89	0.00	1221.11	0.437	0.77	5.186	A
3	276.30	275.23	584.74	0.00	1311.58	0.211	0.27	3.471	A
4	656.49	654.64	105.73	0.00	2073.23	0.317	0.46	2.534	A

Main results: (12:00-12:15)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	216.65	216.39	705.14	0.00	1044.36	0.207	0.26	4.347	A

2	636.48	634.91	471.51	0.00	1177.05	0.541	1.16	6.622	A
3	329.93	329.54	700.52	0.00	1237.09	0.267	0.36	3.965	A
4	783.91	783.31	126.60	0.00	2058.27	0.381	0.61	2.822	A

Main results: (12:15-12:30)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	265.35	264.85	863.28	0.00	951.95	0.279	0.38	5.236	A
2	779.52	775.25	577.20	0.00	1117.06	0.698	2.23	10.402	B
3	404.07	403.33	855.72	0.00	1137.25	0.355	0.55	4.900	A
4	960.09	959.00	154.92	0.00	2037.96	0.471	0.88	3.333	A

Main results: (12:30-12:45)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	265.35	265.34	864.29	0.00	951.36	0.279	0.39	5.247	A
2	779.52	779.35	578.02	0.00	1116.60	0.698	2.27	10.660	B
3	404.07	404.06	859.74	0.00	1134.66	0.356	0.55	4.927	A
4	960.09	960.08	155.24	0.00	2037.74	0.471	0.89	3.339	A

Main results: (12:45-13:00)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	216.65	217.14	706.71	0.00	1043.44	0.208	0.26	4.358	A
2	636.48	640.76	472.79	0.00	1176.32	0.541	1.20	6.773	A
3	329.93	330.66	706.29	0.00	1233.38	0.268	0.37	3.990	A
4	783.91	784.99	127.07	0.00	2057.93	0.381	0.62	2.832	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
1	181.44	181.71	591.56	0.00	1110.73	0.163	0.20	3.875	A
2	533.02	534.68	395.71	0.00	1220.07	0.437	0.78	5.264	A
3	276.30	276.69	589.64	0.00	1308.43	0.211	0.27	3.492	A
4	656.49	657.10	106.31	0.00	2072.81	0.317	0.47	2.545	A