



Proposed Lidl Foodstore, Crieff Road, Perth

Transport Assessment

September 2022

ECS Transport Planning Limited

Centrum Offices, 38 Queen Street, Glasgow, G1 3DX
www.ECSTransportPlanning.com



Client Name: Lidl Great Britain Ltd
Document Reference: 01
Project Number: 21049

Issue	Date	Prepared by	Checked by	Approved by
03	27.09.22	Steven Scott	Michael Summers	Michael Summers

Comments [REDACTED]
Traditional Modelling & Site Layout Updates Included

Comments

Content

- 1. Introduction.....6**
- 2. Development Proposals.....7**
 - Existing Site & Surrounding Area7
 - Proposed Development8
 - Development & Access Overview.....8
 - Development Parking Provision.....9
 - Servicing Arrangements9
- 3. Local & National Transport Policy10**
 - National / Central Government Transport Planning Policy10
 - Scottish Planning Policy11
 - Planning Advice Note 75: Planning for Transport.....11
 - Scottish Executive Development Department:12
 - Transport Assessment Guidance (TAG).....12
 - Local Transport Planning Policy12
- 4. Sustainable Accessibility16**
 - Local & National Transport Planning Policy16
 - Accessibility Criteria.....16
 - Multi-Modal / People Trip Assessment17
 - Sustainable Travel Opportunities.....17
 - Walking (Pedestrian).....17
 - Cycle (Bicycle)19
 - Public Transport.....20
 - Summary.....24
- 5. Existing & Future Traffic Conditions25**
 - Surrounding Road Network25
 - Baseline Conditions25
 - Committed Development Traffic26
 - Traditional Analysis.....29
 - Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Arrangement30
- 6. Summary & Conclusions32**
 - Summary.....32
 - Conclusions33

Figures

Figure 1: Site Location7
Figure 2: View of site from Crieff Road8
Figure 3: Crieff Road8
Figure 4: Walking Isochrones.....19
Figure 5: Existing Cycle Routes21
Figure 6: Public Transport Infrastructure.....23

Tables

Table 1: Person Trip Generation17
Table 2: Food (Discount) Retail Pedestrian Trip Generation18
Table 3: Food (Discount) Retail Cycle Trip Generation20
Table 4: Bus Services Adjacent to the Site21
Table 5: Food (Discount) Retail Public Transport Trip Generation22
Table 6: Proposed Food Retail Development Vehicle Trip Rates / Generation.....26
Table 7: Journey Time Comparisons - Lidl Store28
Table 8: Newton Farm Residential Vehicle Trip Rates / Generation.....28
Table 9: Journey Time Comparisons - Residential Scheme29
Table 10: Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Model.....30
Table 11: Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Model.....30

Appendices

- A. Scoping Correspondence
- B. Development Site Layout / Access / Vehicle Swpet Paths
- C. TRICS Output & RIA Information
- D. Background Traffic Comparison
- E. Flow Comparison
- F. Paramics Modelling Report & Results
- G. Linsing Modelling Results

1. Introduction

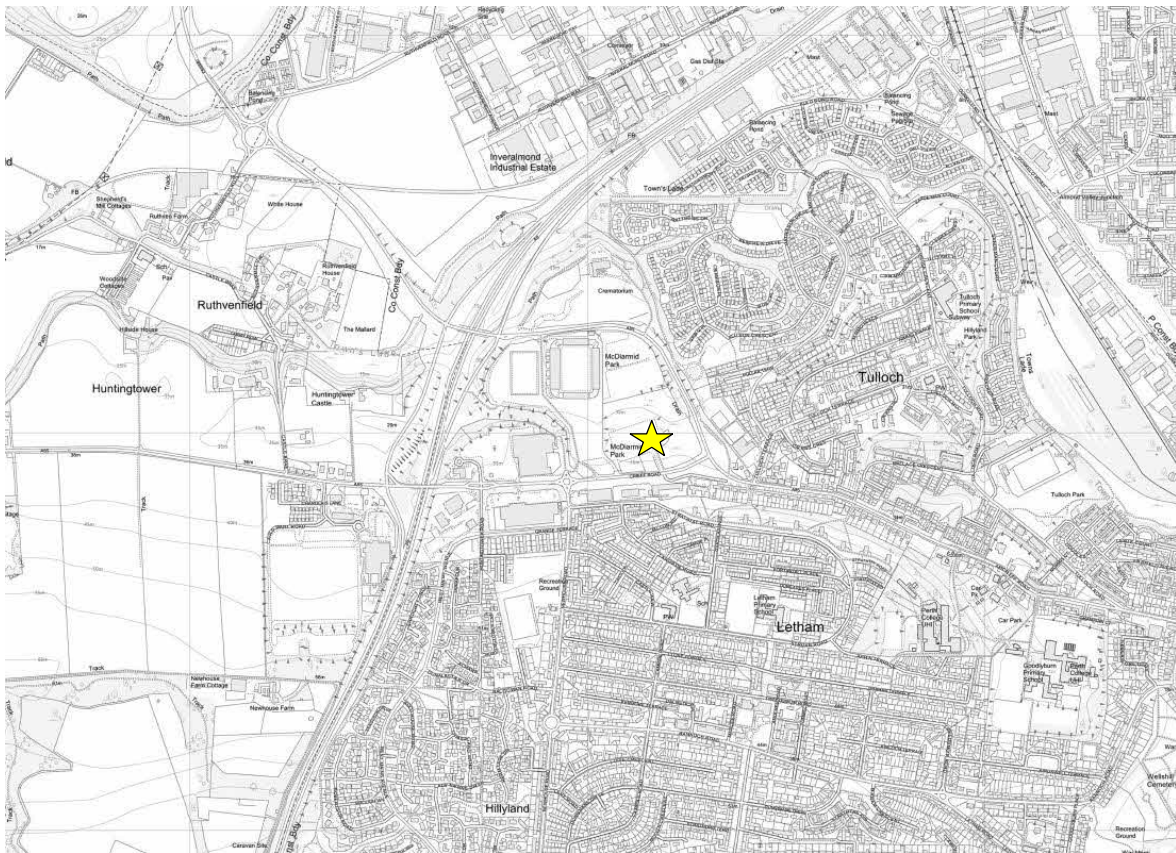
- 1.1. ECS Transport Planning (ECS) has been commissioned by Lidl Great Britain Ltd to prepare a Transport Assessment (TA) in support of a planning application for a food retail store with associated parking, access roads and landscaping adjacent to Crieff Road, Perth.
- 1.2. Discussions were undertaken with Perth & Kinross Council Transport Planning (P&KC) with regard to the study parameters and a network for undertaking detailed capacity analysis to support the proposals which were agreed within scoping correspondence and meetings. A copy of the scoping dialogue is outlined within *Appendix A*.
- 1.3. The findings of this study, which support the proposals, are based on a review of the existing site and surrounding travel opportunities, while also taking cognisance of Transport Scotland's "Transport Assessment Guidance". Consideration has also been given to the requirements of local and national government planning policies, including the Scottish Government document 'Scottish Planning Policy' (SPP).
- 1.4. The subsequent chapters of this report are structured as follows: -
 - Development Proposals;
 - Sustainable Accessibility;
 - Existing & Future Traffic Conditions; and,
 - Summary & Conclusions.

2. Development Proposals

Existing Site & Surrounding Area

- 2.1. The developable area historically operated as part of Newton Farm, however, the farm buildings have been demolished with general farm operations discontinued. The proposed site for the foodstore is located in the south eastern corner of the land known as Newton Farm which borders Crieff Road to the south and east.
- 2.2. To the north and west of the site is the remaining land of Newton Farm which, along with the proposed site, is allocated for housing in the current Local Development Plan (LDP) with reference H71. The location of the site, in a local context, is highlighted in red within *Figure 1* below.

Figure 1: Site Location



Based upon the Ordnance Survey's (1:1250) Map of 2013 with permission of the controller of Her Majesty's Stationery Office, Crown copyright reserved. ECS Transport Planning Ltd Centrum Offices, 38 Queen Street, Glasgow, G1 3DX. License No: 100055056

- 2.3. Access to the site is available direct from Crieff Road via a simple priority junction which historically served the farm and associated buildings. The access is located directly opposite a residential standard junction which serves a small number of dwellings to the south of Crieff Road.
- 2.4. The site has been the subject of numerous discussion with P&KC regarding access to the wider Newton farm site for residential and food retail development. It was agreed that the preferred access strategy would be a four arm signal crossroads provided at the current access junction location.

- 2.5. Figures 2 & 3 below present the site in its current form. Figure 2 displays a view of the site and Crieff Road frontage, with Figure 3 illustrating Crieff Road to the west of the access junction.

Figure 2: View of site from Crieff Road



Figure 3: Crieff Road



- 2.6. In general terms, the site is located in a mixed neighbourhood which benefits for a range of land uses including, immediately adjacent to the site, leisure, commercial and retail but within a short walk there are large areas of residential development.

Proposed Development

Development & Access Overview

- 2.7. The development proposals consist of a 1,984msq GFA discount food retail unit with associated parking and access. The discount food store will be positioned on the eastern boundary with parking positioned centrally. Access to the site will be provided via a signal controlled junction with Crieff Road on the southern boundary of the site.
- 2.8. The access road will serve the proposed Lidl store and the wider site which will ultimately be developed for housing and the subject of a separate application in due course. As a result, the internal access road will be designed to adoptable standards and promoted for adoption in due course.
- 2.9. Pedestrian and cycle access will be provided via the access junction and a separate direct link to the northern footway on Crieff Road. Due to the levels of the site, it is not possible to create a pedestrian link to Crieff Road on the eastern boundary of the site.
- 2.10. The site was originally located in the northern area of the site with parking extending south to the Crieff Road frontage. However, P&KC expressed concerns over the junction spacing between the proposed Crieff Road signal junction and the store access. As a result, the internal layout has been reconfigured to provide additional separation leading to the store being located on the eastern boundary.
- 2.11. The layout of the proposed development, including internal operation, is indicated on Yeoman McAllister Architects plans contained within *Appendix B*.

Development Parking Provision

- 2.12. SCOTS National Roads Development Guide indicates the parking provision which should be considered for each land use when proposing new development. It is suggested that a maximum parking ratio of 6.5 spaces per 100sqm should be provided for food retail which would equate to a maximum of 129 spaces.
- 2.13. Lidl are aware of the parking demands at similar size stores across Scotland and are confident that the proposed provision of 6 disabled, 2 electric charging, 10 parent & child and 93 standard spaces (111 total) will be more than adequate.
- 2.14. Parking will predominately be located centrally with an aisle circulating an island of parking. Bays will also be positioned on the outer perimeter, with disabled spaces along the southern boundary of the site, adjacent to the entrance, with parent and child on the front elevation.
- 2.15. Cycle parking should be provided at a rate of 1 space per 400 sqm for staff and 1 space per 400 sqm for customers which equates to a minimum of 10 spaces. A total of 6 sheffield cycle stands will be provided under the canopy on the eastern elevation of the store providing 12 spaces.

Servicing Arrangements

- 2.16. As is common practice for discount food retail stores, the service vehicle will share the car park entrance and manoeuvre in to the loading bay using the internal car park aisles. Servicing will be undertaken outwith store opening times to ensure the potential for a customer / service vehicle conflict is controlled. In addition, Lidl only require one service vehicle movement per day which offloads goods and takes away waste thereby ensuring that the risk of conflict is negligible.
- 2.17. Vehicle swept paths were undertaken with the maximum legal articulated vehicle for the Lidl site to provide a robust assessment of the proposed arrangements. Yeoman McAllister drawings contained within *Appendix B* illustrate service vehicle manoeuvres associated with proposed on-site operations. The vehicle will enter the site from the proposed spine road, utilise the internal parking aisle to manoeuvre into position and reverse into the loading bay. From the docking station, the service vehicle will exit the site in a forward gear. It should be recognised that the manoeuvres can be undertaken without overrunning any car parking spaces.

3. Local & National Transport Policy

- 3.1. The planning system is used to make decisions about the future development and use of land in our towns, cities and countryside. It considers where development should happen and how development affects its surroundings. The system balances different interests, including transport, to make sure that land is used and developed in a way that creates high quality, sustainable places.
- 3.2. To inform this process, National and Local Government have developed a series of policy documents / statements and guidance in terms of transportation. As most forms of transport are fundamental to modern life, whether moving people to school, work, shopping or recreation, the integration of transport and land use is a key element to support economic growth, as well as, social inclusion. In reducing Scotland's carbon footprint, the promotion of public transport is seen as key for new developments with walking and cycling taking an important role.
- 3.3. The following provides an overview of the current national / central and local government policies and guidelines, which the development proposals and site will be reviewed against within this report.

National / Central Government Transport Planning Policy

National Transport Strategy (NTS2)

- 3.4. The White Paper 'The Future of Transport: A Network for 2030, Executive Summary, Paragraph 6' states that the following:

This Strategy advocates a Vision for Scotland's transport system, that will help create great places – a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. It sets out Priorities to support that Vision: reduces inequalities; takes climate action; helps deliver inclusive economic growth; and improves our health and wellbeing. Within these Priorities there is greater focus on reducing inequalities and taking climate action to ensure we address the key challenges we face.

This Transport Strategy is for all of Scotland, recognising the different needs of our cities, towns, remote and rural areas and islands. It draws heavily on the latest evidence and has been developed through a collaborative approach involving a wide range of partners. An extensive engagement exercise comprising individuals, businesses and third sector organisations has been essential to its development. A consultation on the draft Strategy has also been carried out, with views invited from individuals and organisations across Scotland. The responses have played a key role in informing the content of the Strategy.

The Strategy presents our Vision for Scotland's transport system over the next 20 years, which is: We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

Our Vision is underpinned by four Priorities, each with three associated Outcomes. The Vision, Priorities and Outcomes are at the heart of the Strategy and will be the basis upon which we take decisions and evaluate the success of Scotland's transport policies going forward.

Our Vision

We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

Reduce Inequalities

*Will provide fair access to services we need
Will be easy to use for all
Will be affordable for all*

Take Climate Action

*Will help deliver our net-zero target
Will adapt to the effects of climate change
Will enable greener, cleaner choices*

Helps Deliver Inclusive Economic Growth

*Will get people and goods where they need to get to
Will be reliable, efficient and high quality
Will use beneficial innovation*

Improves Our Health and Wellbeing

*Will be safe and secure for all
Will enable us to make healthy travel choices
Will help make our communities great places to live*

While the Priorities can be complementary, it is recognised that there can also be tensions between transport policies and these may need to be carefully managed. We must aim for economic growth that is inclusive, where there are opportunities for all to participate and benefit. Growth, also, must not have net adverse impacts on our climate or affect people's health through poorer air quality. When planning transport, decision makers will need to consider how their decisions will impact across all of the Vision, Priorities and Outcomes.

Scottish Planning Policy

- 3.5. National policy for transport is detailed in Scottish Planning Policy (SPP). The relevant aim of planning policy is to support and accommodate new investment and development in locations accessible by a range of means of transport which seek to minimise the impact on existing transport networks and the environment.

Planning Advice Note 75: Planning for Transport

- 3.6. Planning Advice Note (PAN) 75 accompanies SPP and provides a good practice guide for planning authorities and developers in relation to carrying out policy development, proposal assessment and project delivery. The aim of the document focuses on how planning and transport can be managed; the role of different bodies / professions in the planning process and provides reference to other sources of information.
- 3.7. Respectively, paragraphs 7 and 24 of the document state the following in terms of transport:

“The intention is for new developments to be user focused and for the transport element to promote genuine choice, so that each mode contributes its full potential and people can move easily between different modes. Consideration should be given to freight logistics as well as person travel.”

“Development plan policy should encourage development of significant travel generating proposals at locations which are key nodes on the public transport network that have a potential for higher density

development and a potential for mixed use development with an emphasis on high quality design and innovation. These locations should encourage modal shift of people and freight by providing good linkages to rail, walking and cycling networks and with vehicular considerations, including parking, having a less significant role. Mixed use development, for example the inclusion of local shops and services within larger housing developments can encourage multi-purpose trips and reduce overall distances travelled by car by bringing together related land uses.”

- 3.8. Furthermore, maximum travel distances for walking and cycling, as well as, establishing how far people would be prepared to walk to access public transport are contained within PAN 75. From paragraph B13, the document states the following:-

“Accessibility to public transport services:

- For accessibility of housing to public transport the recommended guidelines are less than 400m to bus services and up to 800m to rail services.”*

“Accessibility to local facilities by walking and cycling:

- A maximum threshold of 1,600m for walking is broadly in line with observed travel behaviour.”*

Scottish Executive Development Department: Transport Assessment Guidance (TAG)

- 3.9. The above document was published in 2012 and seeks to provide a best practice guide to help identify and deal with the likely impacts of development proposals in-terms of transport. As with SPP, this guidance focuses on the overall accessibility of the development. Detailed below are the key aims of a Transport Assessment.

- Reducing the need to travel, especially by private vehicle;
- Reducing environmental impact of development;
- Encouraging accessibility of development / location; and
- Promotion of measures that influence sustainable travel behaviour.

- 3.10. TAG provides recommendations for pedestrians, cyclists and public transport accessibility in relation to new development, defining mechanisms for identifying the location and measures.

- 3.11. Paragraph 2.9 of the document states:

“Accessibility analysis and location considerations will lead the process of assessment. Person trips will form the platform for all numerical and computational work with numbers associated with car and non-car modes being appropriately addressed in accordance with current policy.”

“In many cases, vehicle impacts will still be important and, in terms of the principals involved in the analytical process, will generally follow the well-established IHT procedures...”

Local Transport Planning Policy

Local Transport Strategy

- 3.12. Local Transport Strategies (LTS) are intended to set out a local authority's objectives, strategies and implementation plans for the development of an integrated transport system. Whilst Perth & Kinross

Council have not published a strategy document, PKC employ a transport planning team responsible for the long term planning of the transport network in Perth and Kinross. In addition, PKC is a member of TACTRAN the Regional Transport Strategy (RTS) that covers the Angus, Dundee City, Stirling and Perth & Kinross areas. TACTRAN produce a RTS that covers a 15 year period and is refreshed every four years.

TACTRAN Regional Transportation Strategy (RTS)

3.13. TACTRAN's RTS has six overarching objectives:

Economy: to ensure transport helps to deliver regional prosperity;

Accessibility: Equity and Social Inclusion: to improve accessibility for all particularly those suffering from social inclusion;

Environment: to ensure that the transport system contributes to safeguarding the environment and promotes opportunities for improvement;

Health and Well Being: to promote the health and well-being of communities;

Safety & Security: to improve the real and perceived safety and security of the transport network; and

Integration: to improve integration, both within transport and between transport and other policy areas

3.14. The following sections of this report describe how the proposed development and network enhancements achieve the above policy objectives.

Local Development Plan

3.15. The Local Development Plan (LDP), The Perth & Kinross Local Development Plan 2 (November 2019), sets out the Local Authority's objectives, strategies and implementation plans for development. The LDP should flow from and in turn be incorporated into the relevant document plan. The document sets out how Perth & Kinross Council aims to guide development and investment in the area.

3.16. The following extracts outline the transportation policies adopted in the LDP which are applicable to the proposed development.

Policy 60: Transport Standards and Accessibility Requirements

Policy 60A: Existing Infrastructure

The Plan identifies existing transport infrastructure; encouragement will be given to the retention and improvement of these facilities provided the improvements are compatible with adjoining land uses.

Policy 60B: New Development Proposals

All development proposals that involve significant travel generation should be well-served by, and easily accessible to all modes of transport. In particular the sustainable modes of walking, cycling and public transport should be considered, prior to private car journeys. The aim of all development should be to reduce travel demand by car, and ensure a realistic choice of access and travel modes is available, including opportunities for active travel and green networks.

All development proposals (including small-scale proposals) should:

(a) be designed for the safety and convenience of all potential users;

- (b) incorporate appropriate mitigation on-site and/or off-site, provided through developer contributions where appropriate, which might include improvements and enhancements to the walking/cycling network and public transport services including railway and level crossings, road improvements and new roads;*
- (c) incorporate appropriate levels of parking provision not exceeding the maximum parking standards laid out in SPP, including application of maximum on-site parking standards to help encourage and promote a shift to the more sustainable modes of travel of walking, cycling and public transport;*
- (d) fit with the strategic aims and objectives of the Regional Transport Strategy and the Tay Cities Deal;*
- (e) support the provision of infrastructure necessary to support positive changes in Low and Ultra Low Emission Vehicle transport technologies, such as charging points for electric vehicles, hydrogen refuelling facilities and car clubs, including for residential development.*

In certain circumstances developers may be required to:

- (a) prepare and implement travel plans to support all significant travel generating developments;*
- (b) prepare a Transport Assessment and implement appropriate mitigation measures where required.*

Development for significant travel generating uses in locations which would encourage reliance on the private car will only be supported where:

- (a) direct links to the core paths networks are or can be made available;*
- (b) access to local bus routes with an appropriate frequency of service which involve walking no more than 400m are available;*
- (c) it would not have a detrimental effect on the safe and efficient operation of the strategic road and/or rail network including level crossings;*
- (d) the transport assessment identifies satisfactory mechanisms for meeting sustainable transport requirements, including the implementation of a site travel plan.*

Developers should include consideration of the impact of proposals on the core paths network and local and strategic transport network.

Cycling and Walking

New developments should provide access from the development to off-road walking and cycling provision as part of the green network, and contribute to its enhancement and improved connectivity. Existing active travel routes will be safeguarded and incorporated into development. Cycle parking facilities should be provided.

Car Parking

Development proposals should not exceed maximum on-site parking standards, including disabled parking, to help encourage and promote a shift to the more sustainable modes of travel of walking, cycling and public transport. Where an area is well served by sustainable transport modes, more restrictive standards may be considered appropriate. In rural areas where public transport is infrequent, less restrictive standards may be applied.

Developers of town centre sites will be required to contribute to the overall parking requirement for the centre in lieu of individual parking provision.

Summary

- 3.17. Both Local and National Government policy highlight the need to consider sustainable transportation modes when considering the likely impacts of development sites.
- 3.18. The promotion and connection to public transport is seen as key to providing an access strategy for new development, with walking and cycling taking an important role. The policies all highlight transport sustainability in terms of social inclusion, environmental impact, successful integration and safety.
- 3.19. In addition, the Scottish Government document “Transport Assessment Guidance” supports the need for consideration of a sustainable approach to transportation planning.

4. Sustainable Accessibility

- 4.1. This chapter examines the existing sustainable transport network and considers if the application site will offer a genuine choice of transport mode; facilitate a reduction in car use and support greater use of walking, cycling and public transport. This achievement would lead to social inclusion whilst supporting the local economy and promoting better health and fitness.
- 4.2. The following also provides an overview of the likely travel demand for sustainable modes of travel created by the proposed development. The predicted uplift in walking, cycling and public transport trips has been assessed in line with the existing provision and facilities in the surrounding area, with improvements to enhance accessibility by each mode considered where necessary.

Local & National Transport Planning Policy

- 4.3. Both local and national government planning policies aim to promote travel by sustainable modes, with the overarching objective of reducing reliance on travel by private vehicle, promoting social inclusion and improving health and wellbeing of the local community. Policies all highlight transport sustainability under the banners of Economic Growth, Accessibility & Social Inclusion, Environment, Safety & Personal Security and Sustainability and Integration.
- 4.4. The promotion of public transport is seen as key to providing an access strategy for new development, with walking and cycling taking an important role. The Transport Scotland document "Transport Assessment Guidance", and Scottish Government policy documents 'Scottish Planning Policy' (SPP) and 'Planning Advice Note (PAN) 75' also supports the need for consideration of a sustainable approach to transportation planning.
- 4.5. The following sections provide an overview of the existing walking, cycling and public transport opportunities, ahead of private car access, in line with the hierarchy of travel modes set out in SPP, demonstrating that the site is compliant with these policies and is ideally located to be accessible by a range of travel modes, regardless of any additional infrastructure introduced as a result of the proposals.

Accessibility Criteria

- 4.6. There are various measures of accessibility and methods of calculation. Determining the accessibility of a site generally requires calculating the travel time by different modes; i.e. walking, cycling, public transport and private car. From 'Transport Assessment Guidance' Journey times of up to 20-30 mins are appropriate for walking and 30-40 mins for cycling.
- 4.7. PAN 75 sets maximum travel distances when assessing a development site for walking and cycling, as well as, establishing how far people would be prepared to walk to access local amenities, such as, retail outlets and public transport interchanges. These acceptable walking distances are as follows; however, it is important to note that in areas of frequent affordable public transport it is not uncommon for these walking distances to be exceeded:-
 - 400m to bus services;
 - 800m to rail services; and
 - 1,600m to local facilities / amenities.

Multi-Modal / People Trip Assessment

- 4.8. It is stated within 'Transport Assessment Guidance' that *"Accessibility analysis and location considerations will lead the process of assessment. Person trips will form the platform for all numerical and computational work with numbers associated with car and non-car modes being appropriately addressed in accordance with current policy."*
- 4.9. To determine the future person trips and travel choice of people associated with the proposed development reference has been made to the Trip Rate Information and Computer System (TRICS) database. This database collates survey data for various developments types and based on the available information a selection of food retail stores has been used to provide an indication for the proposed development.
- 4.10. The multi-modal travel information extracted from this database is contained within *Appendix C* with the resulting peak hour person trips for a typical weekday detailed in *Table 1* below.

Table 1: Person Trip Generation

Mode	Peak Hour	Arrivals	Departures	Total
Total People	Weekday 14:00-15:00	163	158	321

- 4.11. From the parameters adopted for the person trips detailed above, the following presents a breakdown of the peak related future travel demand by each mode of transport generated by the proposed development. Each mode is classified according to the development peak related movements and measured in line with the existing transport provision.

Sustainable Travel Opportunities

Walking (Pedestrian)

Existing

- 4.12. The proposed site is situated adjacent to Crieff Road, in the western area of Perth. Adjacent to the site, Crieff Road hosts footways on both sides of the carriageway which are of a good standard and benefit from street lighting and dropped kerbs at crossing points. The infrastructure directly adjacent to the site frontage was recently delivered as part of the A85 / A9 Interchange works which ensures they meet current adoptable standards.
- 4.13. The footway on the northern side of the carriageway is shared with cyclists and is therefore in excess of 3m wide to the western extent of the site boundary. Beyond this point and continuing west, the footway reverts to 2m which is similar to the footway on the southern side of the carriageway.
- 4.14. On the south eastern boundary of the site, Crieff Road forms a signal controlled T-junction which benefits from controlled crossing facilities for both pedestrians and cyclists. The crossing facilities ensure that pedestrians can access all routes adjacent to the site safely.
- 4.15. To the north, the footways on Crieff Road provide access to bus stops, Perth Crematorium and the extensive residential area accessed from Allison Crescent

- 4.16. To the east, the footways on Crieff Road provide a continuous link to the numerous residential streets, Perth College and various commercial sites before ultimately connecting to Dunkeld Road. The footway network to the north and east provides an excellent level of provision which allows pedestrians to access the wider settlement to the east safely and efficiently.
- 4.17. To the west, the footways provide access to St Johnstone FC Stadium, McDiarmid Park, B&Q, Tesco, Dobbies and many other commercial and residential sites. In essence, the site is located within a mixed neighbourhood which includes a wide range of land uses which is consistent with the aspirations of emerging planning policy.
- 4.18. As would be expected in an urban location, the site is well connected by a series of adopted standard footways which benefit from crossing facilities at regular intervals. The footways provide continuous links to the wider settlement ensuring that access from residential and employment areas is available.

Proposed

- 4.19. From *Table 2* below, the peak increase in pedestrian activity generated by the proposed development for a typical weekday is expected to be in the region of 27 two-way movements. These walk-in trips will likely originate from the surrounding residential areas and shared trips with the amenities in the wider area. As the development site is accessible to a large proportion of the cities residential sectors it is expected that the predicted level of walk-in trade could be exceeded.

Table 2: Food (Discount) Retail Pedestrian Trip Generation

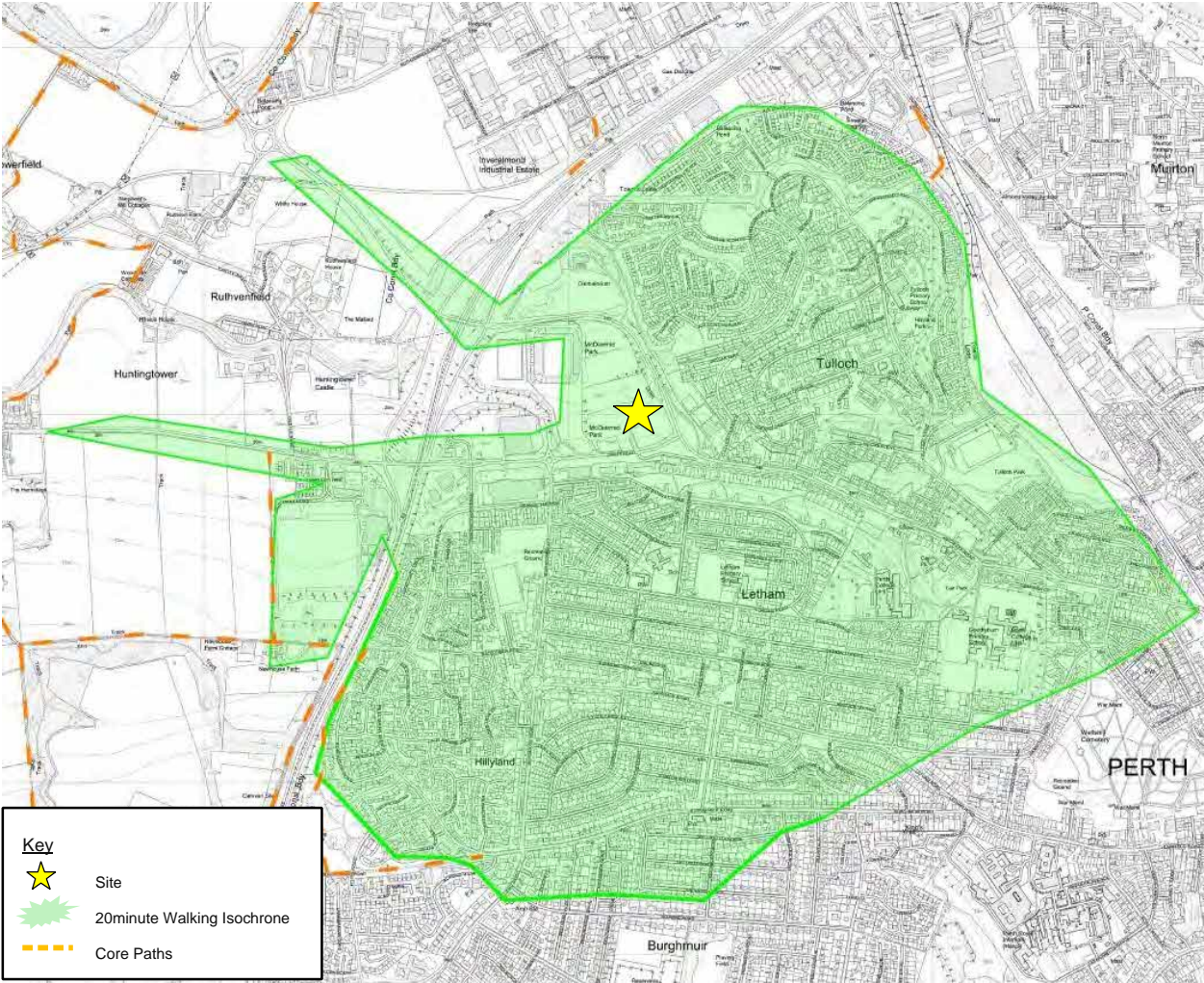
Mode	Peak Hour	Arrivals	Departures	Total
Walking	Weekday 11:00-12:00	14	13	27

- 4.20. The main desire lines for pedestrians will be to and from the residential areas which are located in all directions given the location of the site. The proposed development will introduce direct footway links to the store entrance direct from Crieff Road and additional footways links from the internal spine road which also connects to Crieff Road and, in the future, the allocated residential development.
- 4.21. The proposed footway connections to Crieff Road provide a direct link to the adopted footway network which ensures that all key desire lines to the wider community can be reached. As discussed previously, Crieff Road already benefits from regular pedestrian crossing facilities which ensures that the proposed store can be accessed safely.
- 4.22. From 'Transport Assessment Guidance' journey times of 20 – 30 minutes (circa. 1,600m – 2,500m based on an average walking speed of 1.4m/s) are considered to be appropriate for walking. These figures are broadly in line with the guidance set out in PAN75 which indicates a maximum walking catchment of 1,600m for local facilities and amenities. *Figure 4* presents 20 minute (1,600m) walking isochrones in relation to the proposed development indicating that all of the western area of Perth and a large portion of surrounding districts are accessible on foot.
- 4.23. As expected in an urban area the footways are of a reasonable standard and present on most streets, enabling connections between the proposed development and the surrounding residential population, in addition to nearby employment and healthcare facilities. Therefore, the current level of pedestrian facilities on offer, in conjunction with the measures promoted as part of the proposed development, will support the

expected future peak related pedestrian demand by customers and staff and also ensure permeability from the anticipated walk-in catchment.

4.24. The main desire lines for pedestrians to the store will be to and from the residential areas which are predominantly to the north and east.

Figure 4: Walking Isochrones



Based upon the Ordnance Survey's (1:1250) Map of 2021 with permission of the controller of Her Majesty's Stationery Office, Crown copyright reserved. ECS Transport Planning Ltd Centrum Offices, 38 Queen Street, Glasgow, G1 3DX. License No: 100055056

Cycle (Bicycle)

Existing

4.25. As detailed previously, the northern footway on Crieff Road, adjacent to the site, is designated as a shared foot / cycleway. A crossing facility has been introduced at the western edge of the proposed site to channel cyclists to the opposite side of Crieff Road where a link is available to Strathay Road to the south.

- 4.26. The shared foot /cycleway extends across Crieff Road to the eastern footway, heading north. The shared facility provides access to the residential estates located to the north and east of the site and continues west to toward the Bertha Park area.
- 4.27. Many of the surrounding streets will be attractive to cyclists given they benefit from 30mph speed limits and there is a considerable number of residential streets near to the site. Distributor standard routes may only be attractive to experienced cyclists but the mix of on-street and shared foot / cycleways do provide a good level of provision.
- 4.28. The location of the local cycle routes in relation to the site is shown on *Figure 5* overleaf.

Proposed

- 4.29. As presented in *Table 3* below, the predicted increase in cycle based trips generated by the proposed retail unit is expected to be in the region of 10 two-way movements per hour during weekday peak. It is anticipated that any increase in cycling trips associated with the retail will primarily be associated with staff at the proposed development given the nature of the intended use.

Table 3: Food (Discount) Retail Cycle Trip Generation

Mode	Peak Hour	Arrivals	Departures	Total
Cycling	Weekday 10:00-11:00	5	5	10

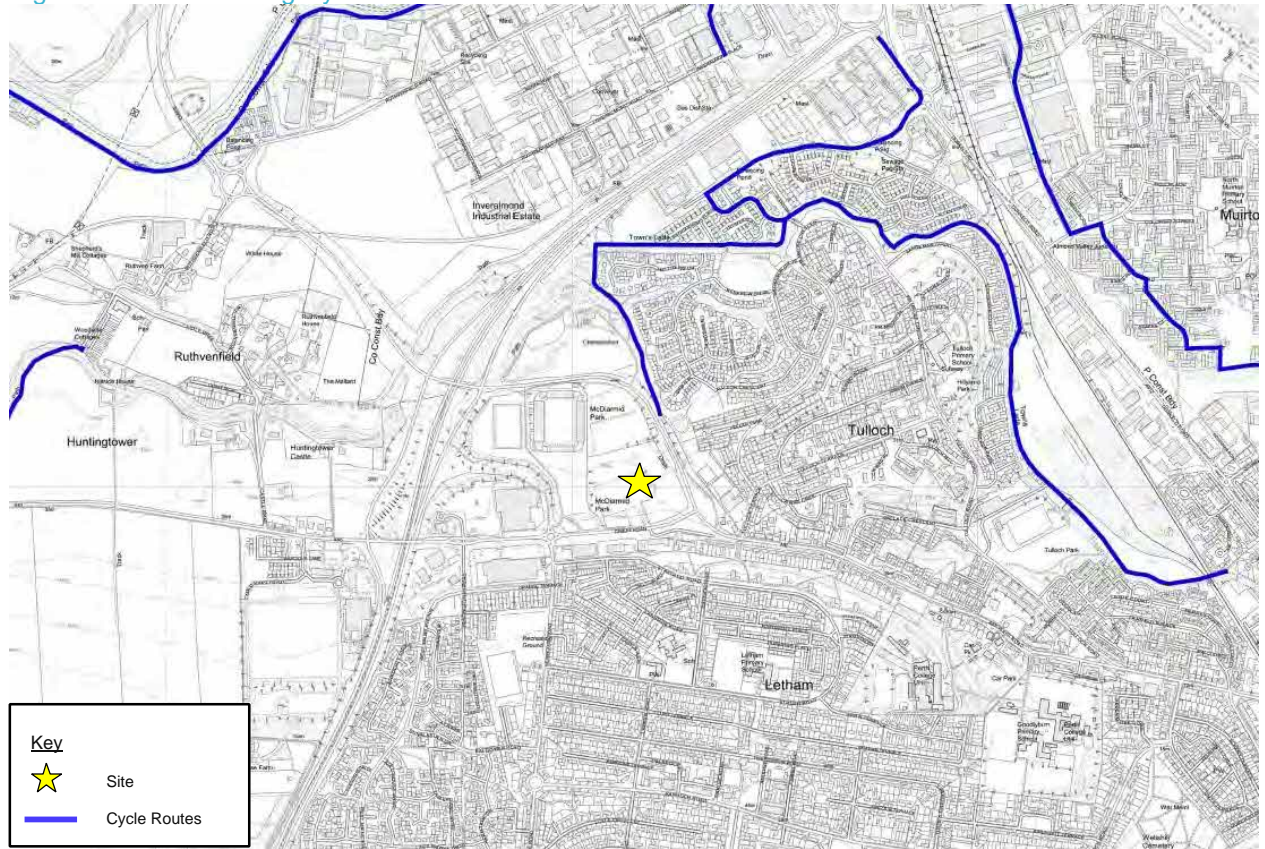
- 4.30. From 'Transport Assessment Guidance', an appropriate journey time for cycling is considered to be 30 - 40 minutes, which equates to a cycle distance of 5km to 13km based on an average cycling speed of 10 to 20kph. This cycle catchment will encompass all of Perth and neighbouring settlements such as Ruthvenfield, Almondbank, Pitcairngreen and Scone.
- 4.31. As detailed in *Chapter 2*, Cycle parking should be provided at a rate of 1 space per 400 sqm for staff and 1 space per 400 sqm for customers which equates to a minimum of 10 spaces. A total of 6 sheffield cycle stands will be provided under the canopy on the easter elevation of the store providing 12 spaces.
- 4.32. Based on the existing cycle opportunities, nature of the local road network and proximity of residential areas, in addition to the provision of cycle facilities at the site, it is considered that the anticipated demand for cycling can be accommodated and will be a feasible mode choice for customers and staff.

Public Transport

Existing

- 4.33. The site is well located to access existing public transport facilities with bus stops located on Crieff Road to the east and west of the site which are well within the recommended walk distance of 400m to bus infrastructure.
- 4.34. At present, 8 bus services are accessible from the site which are provided by Stagecoach and Docherty Midland Coaches as demonstrated in *Table 4* below. The current provision enables links to the city centre, surrounding residential areas within the west of Perth, and nearby settlements.

Figure 5: Existing Cycle Routes



Based upon the Ordnance Survey's (1:1250) Map of 2022 with permission of the controller of Her Majesty's Stationery Office, Crown copyright reserved. ECS Transport Planning Ltd Centrum Offices, 38 Queen Street, Glasgow, G1 3DX. License No: 100055056

Table 4: Bus Services Adjacent to the Site

Operator	Service	Route	Frequency (mins)					
			Monday-Friday		Saturday		Sunday	
			Day	Night	Day	Night	Day	Night
Stagecoach	1	Perth - Letham and Tulloch	15	35	15	35	30	35
Stagecoach	2	Perth - Letham and Tulloch	15	30	15	35	30	35
Stagecoach	13 / 13A	Perth - Perth Mart	3 services	-	2 services	-	-	-
Stagecoach	15	Perth - St Fillans or Stirling	60	3 services	60	2 services	60	1 Service
Stagecoach	23	Perth - Aberfeldy or Pitlochry	60	60	60	-	120	-
Stagecoach	27	Perth - Aberfeldy or Pitlochry	60	60	60	-	120	-
Stagecoach	34	Perth - Blairgowrie	30	2 services	30	2 services	120	1 service
Docherty Midland Coaches	155	Crieff - Madderty - Perth	5 services	-	2 services	-	-	-

- 4.35. Stagecoach provides regular services throughout the day and evening during the weekday and weekend which provides a good level of service at key demand times for the site
- 4.36. *Figure 6*, overleaf, illustrates the existing public transport infrastructure surrounding the development site.

Proposed

- 4.37. From *Table 5* below, the development is expected to increase demand for public transport travel on the local road network by 5 (two-way) trips per hour during a typical weekday. As a result, it is beneficial that connections to / from public transport facilities are available to the site.
- 4.38. The site is well located to take advantage of the frequent bus services which access much of the residential areas within the catchment of the proposed development and thereby provide an excellent alternative to the private car.

Table 5: Food (Discount) Retail Public Transport Trip Generation

Mode	Peak Hour	Arrivals	Departures	Total
Public Transport	Weekday 11:00-12:00	3	2	5

Travel Plan Framework (Employment)

- 4.39. In line with Transport Assessment Guidance, Travel Plans should first be introduced within the TA. However, a Travel Plan cannot be fully developed until the development is operational, therefore, the Travel Plan Framework below will be used to establish the requirements of the future Travel Plan for the employment element of the development.
- 4.40. The framework detailed below is not intended to represent a Travel Plan, but is intended to allow consideration of what may be required and is aimed primarily at staff travelling to the development site.
- 4.41. The Department of Transport (DoT) 'A guide on travel plans for developers' states:

'A travel plan is a strategy for managing all travel and transport within an organisation. It seeks to improve access to a site or development by sustainable models of transport. A travel plan contains both physical and behavioural measures to increase travel choices and reduce reliance on single-occupancy car travel'

- 4.42. The aim of travel plans, as outlined by Central Government Guidelines, is to address potential means of reducing reliance on staff single-occupancy car use and encouraging the use of alternative forms of travel.
- 4.43. A Travel Plan involves the development of a set of mechanisms, initiatives and targets that together enable organisations to reduce the impact of travel.

Objectives

- 4.44. There are a number of objectives, both at national and local level, that the implementation of the Travel Plan is intended to help fulfil:

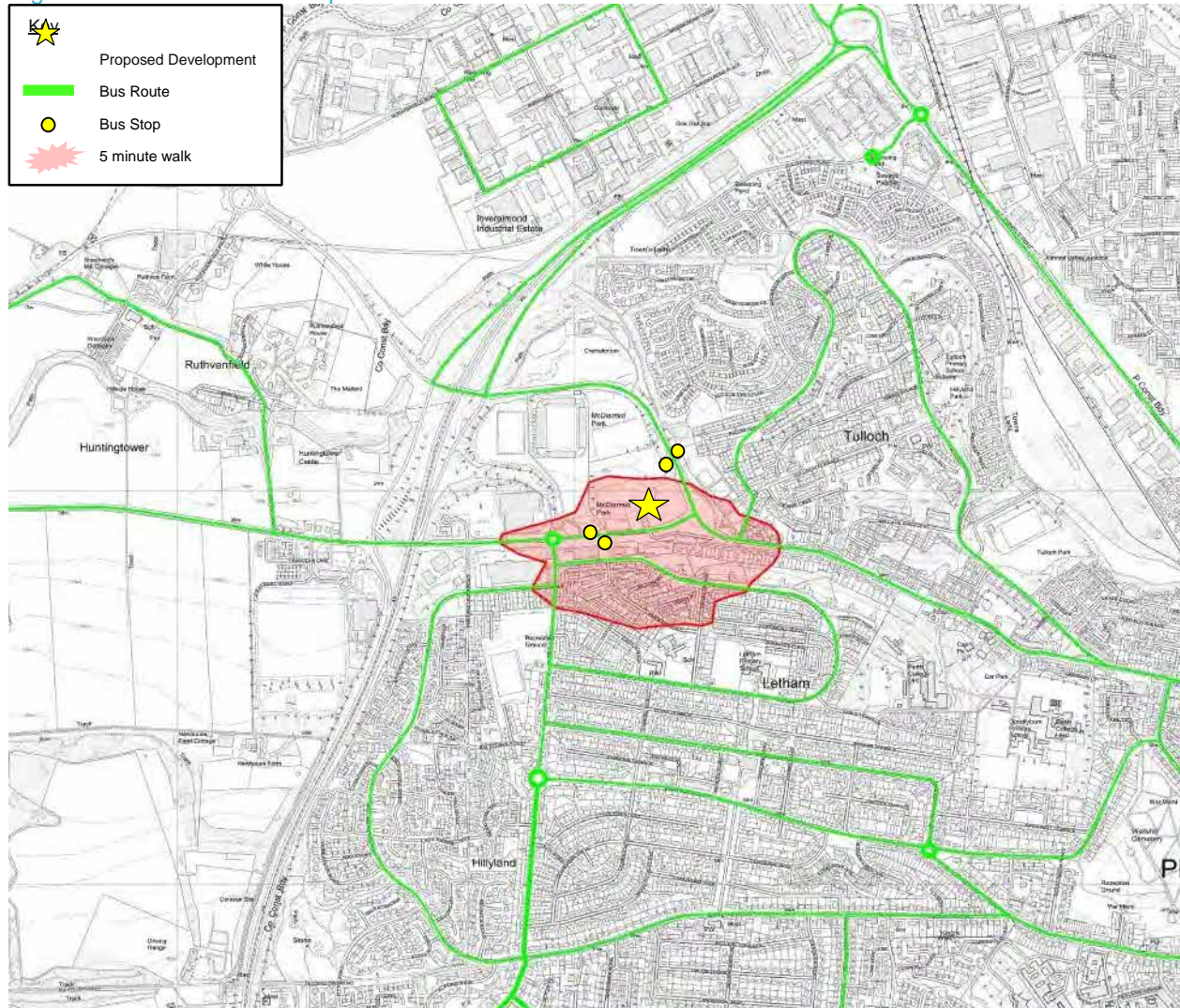
Influence travel behaviour;

Generate fewer single-occupancy car trips than would otherwise be the case by encouraging a modal shift in travel to the site;

Reduce the need for unnecessary journeys;

Reduction in overall mileage;
 Help improve the health of staff; and,
 Accommodating those journeys that need to be made by car.

Figure 6: Public Transport Infrastructure



Based upon the Ordnance Survey's (1:1250) Map of 2021 with permission of the controller of Her Majesty's Stationery Office, Crown copyright reserved. ECS Transport Planning Ltd Centrum Offices, 38 Queen Street, Glasgow, G1 3DX. License No: 100055056

Targets

4.45. The objectives given above provide the framework for the Travel Plan measures. Where applicable, targets can be included to help achieve the objectives and there are two main types that are applicable. The most easily demonstrated is a commitment to deliver the package of measures set out in the plan. These measures include initiatives to promote increases in the use of walking, cycling, car-sharing and public transport use.

- 4.46. The second form of target is aspirational and related to proportional changes in the travel modes used to access the site. At this stage, there are no aspirational targets given in the plan as, in advance of the development opening, the modal split of staff for the office development is not known. Results of a staff travel survey (normally undertaken within 6 months of the development opening) would provide information on the prevailing travel choices of employees and a basis for the setting of aspirational targets in a later revision of the Travel Plan.
- 4.47. The Travel Plan will be implemented by the developer, who will work in conjunction with P&KC and other interested parties in its continuing progression and be responsible for managing and implementing.

Initiatives

- 4.48. In order to ensure that the opportunities for modal shift can be realised there are a number of measures that will be considered and encouraged by the occupier(s) of the development:
- Provision of travel information - e.g. bus timetable information on staff notice boards;
 - Measures to promote walking / cycling - washing and changing facilities, bicycle users group, information on walk / cycle routes; and,
 - Car sharing - Promote a staff car sharing scheme as a means of reducing single occupancy car trips.
- 4.49. Travel Plans are primarily focussed on staff and therefore the majority of measures proposed within a plan are intended to encourage staff to use more sustainable modes of transport when travelling to the development.

Monitoring & Review

- 4.50. An objective of the Travel Plan is that there will be an on-going improvement process including periodic monitoring, where necessary.

Summary

- 4.51. In accordance with local and national transport policy, an assessment of the development proposals has been undertaken for all sustainable modes of travel. Connections to the existing walking and cycling provision in the area will be provided to accommodate the expected future demand from the site.
- 4.52. As part of the internal site design, connections to the existing footway networks will be introduced. These connections to the existing footway network will provide links to the existing public transport facilities and will enhance connectivity with the surrounding area.
- 4.53. The site is accessible to a range of sustainable modes of transport, integrates well with the surrounding residential area and is compliant with the principles of Designing Streets thereby ensuring that the site is compliant with the national and local policies highlighted within *Chapter 3*.

5. Existing & Future Traffic Conditions

- 5.1. The following presents the existing traffic conditions on the surrounding road network, and likely level of private car use generated by the proposed development. In addition, key junctions have been identified for assessment with and without the proposals in place, detailing the requirement for any infrastructure improvements.

Surrounding Road Network

Existing

- 5.2. The following provides an overview of the key route corridors comprising the agreed study network, indicating the site is ideally located for accessing key strategic route corridors; such as, the A85 and A9.
- 5.3. Crieff Road (A85), adjacent to the site, has been subject to improvements in recent years as part of the A9 / A85 Interchange and Bertha Park Link infrastructure scheme. The Bertha Park Link passes to the east of the site and continues north to the rear of McDiarmid Park, crosses the A9 and provides access to Ruthvenfield Road and the Bertha Park development area. Access to / from the A9, with the exception of the A9 northbound exit, is available on this section of the route providing a direct link to the strategic road network.
- 5.4. Immediately adjacent to the site, the route connects with Crieff Road in the form of a signalised T-junction. Crieff Road, to the west of the site, provides access to various commercial premises including Tesco and B&Q as well as connecting to key residential streets such as Newhouse Road. Crieff Road also crosses the A9 where it connects with the A9 northbound slip and the connector road to the Bertha Park Link in the form of a crossroads signal controlled junction.
- 5.5. To the east of the site, Crieff Road provides a key link between Dunkeld Road and the western area of the settlement. The route is a single carriageway distributor road which provides access to numerous residential streets, employment areas and education facilities such as Perth College.
- 5.6. Dunkeld Road is a primary link to the city centre and an attractive route for motorists from the west of the city and the strategic road network, namely, the A9.

Proposed

- 5.7. Access to the site will be provided via a signal controlled junction with Crieff Road on the southern boundary of the site. The signal junction will link to an access road which will serve the proposed Lidl store and the wider site which will ultimately be developed for housing and the subject of a separate application in due course. As a result, the internal access road, adjacent to the store, will be designed to an adoptable standard of 7.3m and promoted for adoption in due course.

Baseline Conditions

- 5.8. As agreed during scoping discussions, the development impact will be assessed utilising the P&KC Perth Paramics Micro-simulation model. As the model is calibrated and thereby considered fit for development control purposes, the baseline assessment will be reported from the model base year (2024).
- 5.9. The model, which has been utilised to assess local development plan allocations and key infrastructure in the surrounding area focuses on the AM and PM peak periods as these are considered to times that the network is busiest.

Committed Development Traffic

5.10. All committed development and infrastructure are included within the model which ensures that this aspect is addressed.

Development Traffic

5.11. Proposed vehicular traffic generation has been established using the TRICS database, which takes account of similar sites during the weekday AM / PM peak period with the full TRICS output included within *Appendix C* for reference. The chosen time sections from the TRICS outputs are the most robust selection for correspondence with background peaks.

5.12. The Retail Impact Assessment indicates that 100% of trade will be drawn from existing retail stores. However, the main trade will be generated from Tesco on Crieff Road and from Aldi at Inveralmond. Following discussions with Systra, it would be extremely difficult to model trade draw from stores outwith the model limits as they are likely to appear as new trips to that section of the model. As such, we propose that trade draw focuses on Tesco with the following breakdown of trips:-

New Trips 35%

Pass-by Trips 30%

Trade Draw 35%

5.13. A 5-minute drive time is considered to be appropriate as this doesn't encompass the existing Lidl stores and the more rural communities, outwith the 5 minute catchment, are unlikely to make peak hour trips. Based on the agreed catchment, census data was downloaded, and populations allocated to zones within the study area. The distribution indicates the populations within the various areas and the likely routes to / from the site based on the extent of the study network and is included within *Appendix C*.

5.14. *Table 6* below presents the proposed breakdown of the new foodstore trips.

Table 6: Proposed Food Retail Development Vehicle Trip Rates / Generation

1,984m ² GFA	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Trip Rate	2.458	1.587	4.045	4.301	4.122	8.423
New Trips (35%)	17	11	28	30	29	58
Passby Trips (30%)	15	9	24	25	25	50
Trade Draw (35%)	17	11	28	30	29	58
Total Generation	49	31	80	85	82	167

5.15. The above is considered to be an extremely robust scenario as a large percentage of the Aldi trips, which would be drawn to this proposed Lidl Store, are likely to be travelling through the A85 corridor from the south to access the store at Inveralmond. Nevertheless, given the complexity of the model and route assignment, it is considered that the above is suitable for analysis purposes within the Paramics model.

- 5.16. Transport Scotland requested that a Saturday review was undertaken to ensure that the composite weekend peak didn't require detailed capacity analysis. Data extracted from the TRICS database indicates that the peak foodstore operating hour at the weekend would be between the hours of 1100 – 1200. A two-way trip rate of 11.605 would result in a total generation of 230 two-way movements, 80 of which would be new to the network. This equates to a total of 22 additional new two-way trips at the weekend when compared to the midweek generation. TRICS output for a discount foodstore on a Saturday afternoon has been enclosed within *Appendix C*.
- 5.17. Further to the above, a review was undertaken of the Traffic Scotland Traffic Database to determine the busiest background peak periods. A review of JTC00005 A9 – Perth Western By-pass (south) was undertaken with extracts included within *Appendix D*. The node summary data indicates that the busiest times of the week are Wednesday between 1600 – 1700 northbound and Tuesday 0800 – 0900 southbound. The Daily Volumes graphic illustrates a line graph with the various days of the week in different colours. It can be clearly seen from the purple line that traffic on a Saturday is significantly lower than the midweek commuter peaks. As such, it is considered that the AM and PM assessment cover the highest composite peak periods.
- 5.18. As agreed, Systra will utilise an agreed residential trip rate and distribution profile within the model for the potential future housing element of the site for sensitivity test purposes.
- 5.19. Traffic flow diagrams contained within Appendix E illustrate the following scenarios:-
- 2024 AM & PM Base
 - 2024 AM & PM Base + Lidl
 - 2024 AM & PM Base + Lidl + Residential (Sensitivity Test)
 - Lidl Generation Distribution
 - Lidl + Residential Generation Distribution
 - Lidl + Residential Threshold Impact
- 5.20. It should be noted that the flows are based on extracts from the paramics model, and the various scenarios have been run with random seeds, as such, there are minor differences between the volumes of traffic on the network during the peak periods. Furthermore, percentages impacts appear to be high in locations due to low background flows. Nevertheless, as requested by Transport Scotland, a review of trunk road trips was undertaken. The highest trunk road manoeuvres were recorded at the A85 / A9 slips as 18 and 27, during the AM and PM peaks, respectively, for the combined development. Further to a review of the background traffic, it is considered that the level of uplift could be easily accommodated on the existing junction arrangement.

Operational Analysis

- 5.21. An assessment of the road network was undertaken utilising the Council's Perth Paramics microsimulation model. The study area focuses on the A85 and Crieff Road corridor journey times and queues in the '2024 Base + Comm' and the '2024 Base + Comm + Development' scenarios between Tulloch Terrace and Huntingtower.
- 5.22. A three arm signalised junction with right turn lane and pedestrian stage was included within the base + Comm + Dev network as an indicative site access layout. Given the background flow on Crieff Road and

the need for pedestrian access to the site it was agreed that a traffic signal controlled access with controlled pedestrian facilities would be the appropriate form of junction.

- 5.23. Results of journey times from the base + Comm and Base + Comm + Development scenarios described above are detailed within *Table 7* below, with a full copy of the PARMICS model outputs and report included within *Appendix F*.

Table 7: Journey Time Comparisons - Lidl Store

	2024 Base	2024 Base + Lidl
AM - eastbound	05:19	05:19
AM - westbound	04:16	04:25
PM - eastbound	05:24	05:32
PM - westbound	05:01	05:12

- 5.24. The maximum journey time increase as a result of the proposed development is 11 seconds which is likely to be associated with the introduction of the proposed signal controlled access junction rather than a specific impact associated with the development traffic within the study network.
- 5.25. A comparison of queues of the with and without development scenarios at all the junctions on the route has been undertaken and is included within *Appendix F*. The results demonstrate that there will be a minimal impact on queueing as a result of the proposed development which is to be expected given that additional traffic is being added to the network. However, the traffic does not result in a material increase in queueing for any extended period of time as a result of the proposed foodstore.

Sensitivity Test

- 5.26. P&KC requested that a modelling sensitivity test be undertaken which included the 100 allocated houses on the wider site. Lidl agreed to provide this sensitivity test for information only as any requirement to mitigate the impact of development traffic associated with the residential scheme is the responsibility of the promoter of that scheme should it come forward.
- 5.27. The vehicle trip rates used to assess the residential development are detailed within *Table 8* below. The trip rates are the standard trip rate used by Systra on all residential scheme contained within the council's approved model. The trip rates are for a 3hrs period associated with the relevant model period.

Table 8: Newton Farm Residential Vehicle Trip Rates / Generation

100 Units	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Trip Rate	0.356	0.9505	1.3065	1.0315	0.6645	1.696
Total Generation	36	95	131	103	66	170

- 5.28. The distribution of the residential trips has again been undertaken by Systra using the agreed distribution methodology utilised within the wider model.
- 5.29. Results of journey times from the base + Comm and Base + Comm + Lidl + Residential Development scenarios described above are detailed within *Table 9* below, with a full copy of the PARMICS model outputs included within *Appendix D*.

Table 9: Journey Time Comparisons - Residential Scheme

	2024 Base	2024 Base + Lidl
AM - eastbound	05:19	05:19
AM - westbound	04:16	04:25
PM - eastbound	05:24	05:32
PM - westbound	05:01	05:12

- 5.30. The maximum journey time increase as a result of the proposed development is 10 seconds which is likely to be associated with the introduction of the proposed signal controlled access junction rather than a specific impact associated with the development traffic within the study network.
- 5.31. As with the Lidl assessment, a comparison of queues of the with and without development scenarios at all the junctions on the route has been undertaken and is included within *Appendix D*. The results demonstrate that there will be a minimal impact on queueing as a result of the proposed development which is to be expected given that additional traffic is being added to the network. However, the traffic does not result in a material increase in queuing for any extended period of time as a result of the proposed foodstore.

Traditional Analysis

- 5.32. The purpose of the traditional assessment is to confirm stage sequences and timings of the proposed junction and ensure queuing can be adequately managed within the allocated link lengths. Whilst microsimulation modelling is standard junction assessment tool and provides an overview of journey times through networks, traditional packages are better for determining capacity. As such, it was agreed with PK&C that the impact of development generated vehicles on the surrounding road network and subsequent impact on existing road users would be considered within LINSIG.
- 5.33. JCT's computer programme LINSIG 3 will be used to assess the capacity of the proposed signalised access junction. The performance of signalised junctions is measured using two standard outputs; Degree of Saturation (DoS) and Mean Max Queue (MMQ). Signalised junctions are considered to be operating satisfactorily, when the maximum DoS is less than the practical capacity threshold of 90.0% or within operational capacity of 100.0%.
- 5.34. Results of the operational analysis undertaken to support the development proposals is summarised below within tables 10 & 11, a full copy of the analysis outputs files for this scenario are contained within *Appendix G*.

Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Arrangement

- 5.35. Given the proximity of the A85 Crieff Road Link Road Signalised Junction, a combined model has been prepared to ensure the interaction between the stoplines is fully assessed in detail. The southern minor arm of the proposed site access junction will operate with minimal traffic and green time will be activated on demand. The southern arm was not included in the paramics model and has been excluded from the linsig model. Staging and timings from the paramics model have been utilised as a guide to optimise the operation of the combined signals. Pedestrian crossings stages have been included every cycle at both junctions to ensure a robust assessment. Both junction have been run with a 120 second cycle, which mirrors the timings in the paramics model.
- 5.36. The results of the network operational assessment during the 2024 future year with Lidl and the residential development operational are indicated in *Tables 10 & 11* below and overleaf.

Table 10: Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Model

2024 Design

	AM Peak	
	DoS (%)	Queue (PCU)
Crieff Road / A85 Link Road		
Crieff Road	63.8	16.8
A85 (East)	54.9	7.2
A85 (West)	60.2	3.3
Site Access / Crieff Road		
Crieff Road (West)	44.1	9.8
Site Access (Left Turn)	44.5	2.0
Site Access (Right Turn)	15.4	0.7
Crieff Road (East)	32.1	4.9

Table 11: Proposed Site Access / Crieff Road / A85 Link Road Combined Signal Model

2024 Design

	PM Peak	
	DoS (%)	Queue (PCU)
Crieff Road / A85 Link Road		
Crieff Road	63.7	12.2
A85 (East)	42.7	5.6
A85 (West)	62.9	4.9
Site Access / Crieff Road		
Crieff Road (West)	37.9	7.5
Site Access (Left Turn)	52.2	2.6

Site Access (Right Turn)	28.8	1.5
Crieff Riad (East)	51.1	12.4

5.37. The results presented in *Tables 10 & 11* demonstrate the site access junction and adjacent A85 signals will operate well within practical capacity during both commuter peak periods. A maximum DoS of 63.8% with a queue of 16.8 PCU's was recorded during the weekday morning peak on the Crieff Road approach to the A85 Link Road signals. The results confirm that the recorded queues can be accommodate within the allocated link lengths. The model results present a robust scenario with pedestrian stages called every cycle at both junctions. The model outputs including staging and timings are enclosed within *Appendix G*.

Summary

- 5.38. The Paramics modelling of the proposed development traffic has indicated that there is a marginal impact as a result of the development related traffic which does not require further mitigation on the wider road network.
- 5.39. The traditional modelling exercise confirms that the proposed site access junction will operate well within practical capacity during both commuter peak periods once the foodstore and residential development have been built out and are operational. Results confirm that queues can be managed within the allocated link lengths.

6. Summary & Conclusions

Summary

- 6.1. ECS Transport Planning (ECS) has been commissioned by Lidl Great Britain Ltd to prepare a Transport Assessment (TA) in support of a planning application for a food retail store with associated parking, access roads and landscaping adjacent to Crieff Road, Perth.
- 6.2. Discussions were undertaken with Perth & Kinross Council Transport Planning (P&KC) with regard to the study parameters and a network for undertaking detailed capacity analysis to support the proposals which were agreed within scoping correspondence and meetings.
- 6.3. The findings of this study, which support the proposals, are based on a review of the existing site and surrounding travel opportunities, while also taking cognisance of Transport Scotland's "Transport Assessment Guidance". Consideration has also been given to the requirements of local and national government planning policies, including the Scottish Government document 'Scottish Planning Policy' (SPP).
- 6.4. The development proposals consist of a 1,984msq GFA discount food retail unit with associated parking and access. The discount food store will be positioned on the eastern boundary with parking positioned centrally. Access to the site will be provided via a signal controlled junction with Crieff Road on the southern boundary of the site.
- 6.5. The access road will serve the proposed Lidl store and the wider site which will ultimately be developed for housing and the subject of a separate application in due course. As a result, the internal access road will be designed to adoptable standards and promoted for adoption in due course.
- 6.6. Pedestrian and cycle access will be provided via the access junction and a separate direct link to the northern footway on Crieff Road. Due to the levels of the site it is not possible to create a pedestrian link to Crieff Road on the eastern boundary of the site.
- 6.7. The site was originally located in the northern area of the site with parking extending south to the Crieff Road frontage. However, P&KC expressed concerns over the junction spacing between the proposed Crieff Road signal junction and the store access. As a result, the internal layout has been reconfigured to provide additional separation leading to the store being located on the eastern boundary.
- 6.8. Lidl are aware of the parking demands at similar size stores across Scotland and are confident that the proposed provision of 6 disabled, 2 electric charging, 10 parent & child and 93 standard spaces (111 total) will be more than adequate.
- 6.9. Parking will predominately be located centrally with an aisle circulating an island of parking. Bays will also be positioned on the outer perimeter, with disabled spaces along the southern boundary of the site, adjacent to the entrance, with parent and child on the front elevation.
- 6.10. Cycle parking should be provided at a rate of 1 space per 400 sqm for staff and 1 space per 400 sqm for customers which equates to a minimum of 10 spaces. A total of 6 sheffield cycle stands will be provided under the canopy on the easter elevation of the store providing 12 spaces.
- 6.11. In accordance with local and national transport policy, an assessment of the development proposals has been undertaken for all sustainable modes of travel. This indicates that the current walking cycling, and public transport provision in the area is sufficient to accommodate the expected future demand from the

site. As part of the development proposals, additional pedestrian and cycle parking facilities will be introduced internally to further promote connectivity with the surrounding area. Furthermore, a Travel Plan Framework will be considered for staff focused on reducing reliance on single vehicle occupancy.

- 6.12. The Paramics modelling of the proposed development traffic has indicated that there is a marginal impact as a result of the development related traffic which does not require further mitigation on the wider road network.
- 6.13. The traditional modelling exercise confirms that the proposed site access junction will operate well within practical capacity during both commuter peak periods once the foodstore and residential development have been built out and are operational. Results confirm that queues can be managed within the allocated link lengths.

Conclusions

- 6.14. This Transport Assessment demonstrates that the development site will be accessible by sustainable modes of travel and integrate well within the existing transport network with the introduction of additional non-car promoting measures. In addition, the site can be accessed safely from the adjacent road network by private vehicles without compromising the safety or efficiency of existing road users.

APPENDICES

A. Scoping Correspondence

Direct Tel: 0844 443 0934
Direct Email: michael.summers@ecstransport.co.uk

Our Ref: 21088 Crieff Road, Perth
Your Ref:

Date: 26th April 2022

Transport Planning
Planning & Development
Communities
Perth & Kinross Council
Pullar House
35 Kinnoull Street
Perth PH1 5GD

(Email Only)

Dear Sirs,

PROPOSED DISCOUNT FOOD RETAIL DEVELOPMENT, CRIEFF ROAD, PERTH

ECS Transport Planning (ECS) has been commissioned by Lidl Great Britain Ltd to prepare a Transport Assessment (TA) in support of a planning application for a discount foodstore development with associated parking adjacent to Crieff Road, Perth.

The following presents an overview of the proposed development, including access strategy proposals, and our intended approach / methodology for undertaking the TA which has been prepared in accordance with the Transport Scotland document "Transport Assessment Guidance".

Development Proposals

The developable area historically operated as Newton Farm, however, the farm buildings have been demolished with general farm operations discontinued. The site is allocated for housing in the current Local Development Plan – reference H71.

The proposed site for the foodstore is located in the south eastern corner of the site which borders Crieff Road to the south and east. Access is proposed from the current farm access with Crieff Road albeit upgraded to form a signal controlled crossroads, with the fourth arm being the minor residential access road.

The access road will serve the proposed Lidl store and the wider site which will ultimately be developed for housing and the subject of a separate application in due course. As a result, the internal access road will be designed to adoptable standards and promoted for adoption in due course.

Pedestrian and cycle access will be via the footways which will be provided as part of the new access road to the site direct from Crieff Road in addition to a segregated footway direct from Crieff Road toward the centre of the site. The proposed signal controlled junction will benefit from controlled pedestrian crossing facilities which will enhance access to the proposed store.

The layout of the access arrangement has been designed with pedestrian desire lines and capacity in mind. The arrangement provides crossings on the northern, eastern and southern approaches, with a left turn flare introduced on the western approach. Discussions will be undertaken with P&KC with regard to pedestrian demand and the opportunity to introduce an additional angled crossing on the western approach, if necessary.

Continued...

The location of the site and proposed development are presented on the Yeoman McAllister Architects drawing enclosed with this letter.

1. Methodology

Given the development area is allocated for development in the LDP and previously accommodated a commercial land use, it has been considered appropriate for development in planning and transportation terms. Notwithstanding the status of the site, the development proposals will be assessed against national and local transport policy to establish the sites sustainability.

A review of existing walk, cycle and public transport availability in the surrounding area will be undertaken to ensure the current provision is supportive of the development proposals. Improvements to encourage travel by alternative modes will be identified, if considered necessary.

As agreed, assessment of the proposals and the access junction to be undertaken utilising the council's 2019 Paramics model along the frontage of the site on the A85 between Tulloch Road in the east and Castle Brae in the west. Model testing will include a sensitivity test of the future residential developable land to the north of the proposed site. The following scenarios will be considered, with NRFT Low growth utilised to local traffic to an opening year of 2024 and NRFT High growth applied to trunk road traffic:-

2024 Base

2024 Base + Lidl

2024 Base + Lidl + 100 Unit Residential Development (Sensitivity Test)

2. Trip Generation & Distribution

Proposed vehicular traffic generation has been established using the TRICS database, which takes account of similar sites during the weekday AM / PM peak period. The full TRICS output is enclosed with this letter for reference. The chosen time sections from the TRICS outputs are the most robust selection for correspondence with background peaks.

The Retail Impact Assessment indicates that 100% of trade will be drawn from existing retail stores. However, the main trade will be generated from Tesco on Crieff Road and from Aldi at Inveralmond. Following discussions with Systra, it would be extremely difficult to model trade draw from stores outwith the model limits as they are likely to appear as new trips to that section of the model. As such, we propose that trade draw focuses on Tesco with the following breakdown of trips:-

New Trips 35%

Passby Trips 30%

Trade Draw 35%

We have been advised a RIA catchment of a five minute drive time doesn't encompass the existing Lidl stores and, as discussed, the more rural communities are unlikely to make peak hour trips. As such the 5-minute drive time is considered to be appropriate. Based on that catchment, census data was downloaded, and populations allocated to zones within the study area. The distribution enclosed indicates the populations within the various areas and the likely routes to / from the site based on the extent of the study network.

Continued...

Table 1 below presents the proposed breakdown of the new foodstore trips.

Table 1: Proposed Discount Food Retail Development Trip Rates & Traffic Generation

1,984m ² GFA	PM Peak			SAT Peak		
	In	Out	Total	In	Out	Total
Trip Rate	2.458	1.587	4.045	4.301	4.122	8.423
New Trips (35%)	17	11	28	30	29	58
Passby Trips (30%)	15	9	24	25	25	50
Trade Draw (35%)	17	11	28	30	29	58
Total Generation	49	31	80	85	82	167

The above is considered to be an extremely robust scenario as a large percentage of the Aldi trips, which would be drawn to this proposed Lidl Store, are likely to be travelling through the A85 corridor from the south to access the store at Inveralmond. Nevertheless, given the complexity of the model and route assignment, it is considered that the above is suitable for analysis purposes within the Paramics model.

As agreed, Systra will utilise an agreed residential trip rate and distribution profile within the model for the potential future housing element of the site for sensitivity test purposes.

4. Study Area

The impact of the development will be considered within the Paramics model area with reporting based on journey times and queuing at junctions.

Where junctions are identified as operating in excess of practical capacity during base traffic conditions, mitigation will be proposed to offset the impact of development related traffic to achieve a nil detriment result (i.e. no further increase in capacity when compared to the baseline result).

5. Parking & Servicing

SCOTS National Roads Development Guide indicates the parking provision which should be considered for each land use when proposing new development. It is suggested that a maximum parking ratio of 6.5 spaces per 100sqm should be provided for food retail which would equate to a maximum of 129 spaces.

Lidl are aware of the parking demands at similar size stores across Scotland and are confident that the proposed provision of 6 disabled, 2 electric charging, 10 parent & child and 94 standard spaces (111 total) will be more than adequate. Ducting will also be introduced to permit the upgrade of the western aisle of parking to electric spaces in the future, if necessary.

Cycle parking should be provided at a rate of 1 space per 400 sqm for staff and 1 space per 400 sqm for customers which equates to a minimum of 10 spaces. A total of 6 sheffield cycle stands will be provided under the canopy on the easter elevation of the store providing 12 spaces.

Servicing will be undertaken outwith key operating times and will typically occur once per day. A loading will be introduced on the northern elevation. Vehicle swept paths will be presented within the Transport Assessment demonstrating that a HGV can be accommodated without impacting on the car parking layout.

Continued...

6. Travel Plan Framework

The travel plan framework will contain information on walking / cycle routes, storage and changing facilities and public transport information, such as, location of bus stops and timetables with the aim of encouraging travel by sustainable modes and to reduce the reliance on the private car. The travel plan will be focused on encouraging staff to consider sustainable modes of travel as it is far more difficult to influence customer travel.

Should you wish to discuss any aspect of the above please don't hesitate to get in touch.

Yours Sincerely,

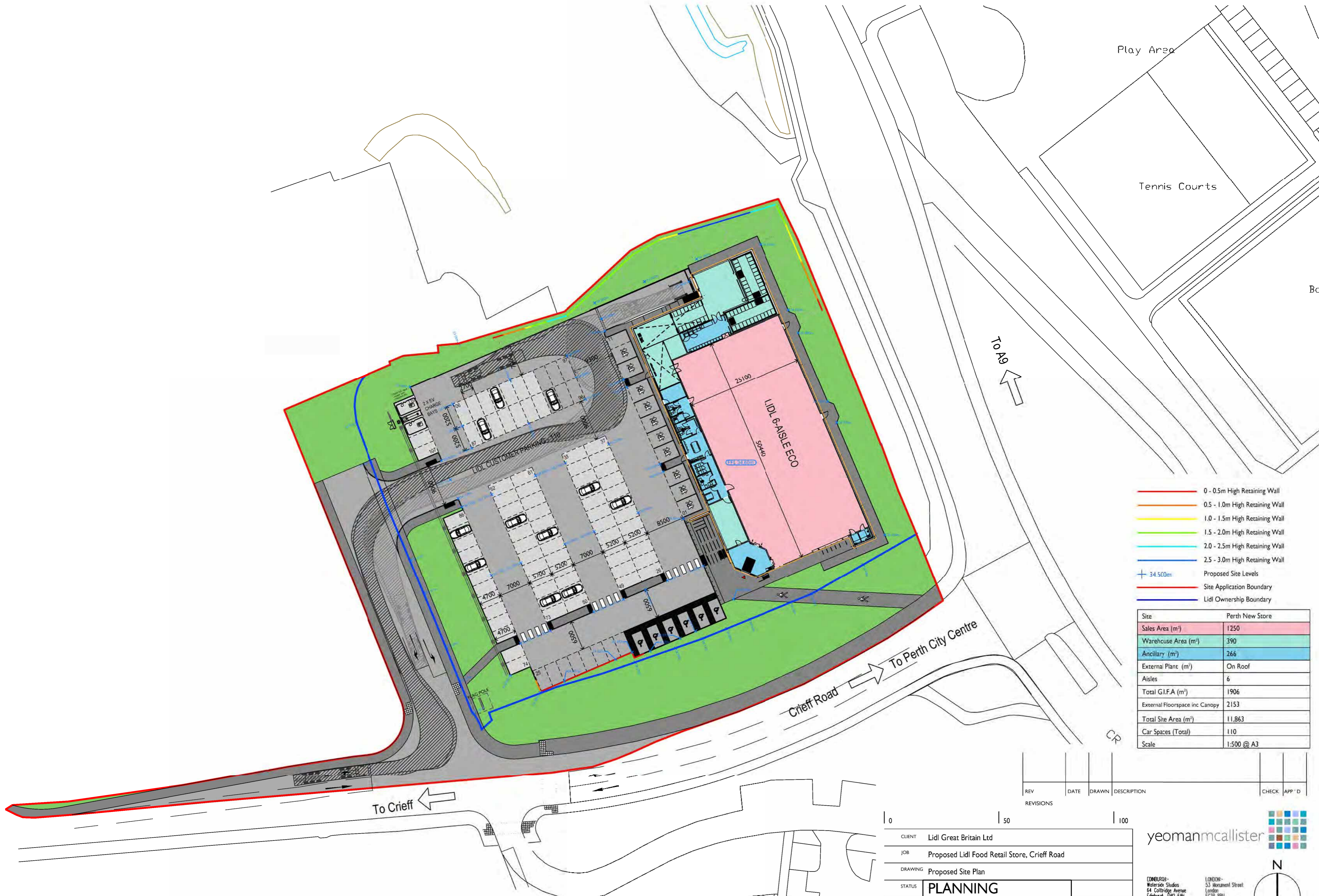


Michael Summers

Director

Encls.

B. Development Site Layout / Access / Vehicle Swpet Paths



- 0 - 0.5m High Retaining Wall
- 0.5 - 1.0m High Retaining Wall
- 1.0 - 1.5m High Retaining Wall
- 1.5 - 2.0m High Retaining Wall
- 2.0 - 2.5m High Retaining Wall
- 2.5 - 3.0m High Retaining Wall
- + 34.500m Proposed Site Levels
- Site Application Boundary
- Lidl Ownership Boundary

Site	Perth New Store
Sales Area (m ²)	1250
Warehouse Area (m ²)	390
Ancillary (m ²)	266
External Plant (m ²)	On Roof
Aisles	6
Total G.I.F.A (m ²)	1906
External Floorspace inc Canopy	2153
Total Site Area (m ²)	11,863
Car Spaces (Total)	110
Scale	1:500 @ A3

REV	DATE	DRAWN	DESCRIPTION	CHECK	APP'D
REVISIONS					

CLIENT	Lidl Great Britain Ltd
JOB	Proposed Lidl Food Retail Store, Crieff Road
DRAWING	Proposed Site Plan
STATUS	PLANNING
Drawn SM	Checked ... Approved ... DATE APR 22 JOB NO sj/4618 DR NO PL-02 REV /
This drawing and its data are the copyright of Yeoman McAllister Architects and must not be used for any purpose other than that for which it is intended. Yeoman McAllister accepts no responsibility for any inaccuracy in printing of this drawing by any parties.	
SCALE	1:500 SHEET SIZE A2

yeomanmcallister

EDINBURGH: Waterside Studios, 64 Collieston Avenue, Edinburgh EH2 6AH, Tel: 0131 346 1145, Fax: 0131 346 1189, info@ym-architects.com

LONDON: 53 Monument Street, London EC3R 8BJ, Tel: 020 7623 1515, Fax: 020 7623 8038, info@ym-london.com



Based upon the Ordnance Survey's (1:1250) Map of 2014 with permission of the controller of Her Majesty's Stationery Office, Crown copyright reserved. ECS Transport Planning Ltd, 38, Queen Street, Glasgow, G1 3DX. License No: AL 100055056.

Key:-
 Extent of New Carriageway
 Extent of New Footway

C	27.09.22	3m Footway & Lane Alignment Alterations	SS	SS	MS
B	24.05.22	Footway Adjustment	SS	SS	MS
A	27.04.22	Spine Road Adjustment	SS	SS	MS
REV	DATE	AMENDMENTS	DRAWN	CHK	APP

ECS Transport Planning Ltd
 Centrum Offices
 38 Queen Street
 Glasgow
 G1 3DX
 Telephone: 0844 443 0934
 Email: info@ecstransport.co.uk



Client
 LIDL UK LTD

Project
 NEWTON FARM,
 CRIEFF ROAD, PERTH

Title
 INDICATIVE SIGNALISED ACCESS

Team	Drawn	Checked	Approved
-	SS	MS	MS

Scale @ A3	Date
1:500	31.03.21

Project No.	Drawing No.	Rev
21049	21049_001	C

Purpose of Issue	<input type="checkbox"/> Preliminary	<input type="checkbox"/> For Tender	<input type="checkbox"/> For Construction
	<input checked="" type="checkbox"/> For Information	<input type="checkbox"/> For Approval	<input type="checkbox"/> As Built

ECS Transport Planning Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions are to be worked to. Do not scale from this drawing.

C. TRICS Output & RIA Information

Calculation Reference: AUDIT-654801-200721-0753

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	1 days

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

Primary Filtering 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: Gross floor area
 Actual Range: 1466 to 2440 (units: sqm)
 Range Selected by User: 900 to 2635 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 09/06/19

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 2 days

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

Selected survey types:

Manual count	2 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 undertaken using machines.

Selected Locations:

Edge of Town 2

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	1
Retail Zone	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.

Secondary Filtering selection:

Use Class:

A1 2 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	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
50,001 to 75,000	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	2 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	2 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:

Yes	1 days
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.

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CA-01-C-01	LIDL		CAMBRIDGESHIRE
	CROMWELL ROAD			
	WISBECH			
	Edge of Town			
	Retail Zone			
	Total Gross floor area:		1466 sqm	
	Survey date: FRIDAY		21/10/16	Survey Type: MANUAL
2	NT-01-C-01	LIDL		NOTTINGHAMSHIRE
	CHAPEL LANE			
	BINGHAM			
	Edge of Town			
	Industrial Zone			
	Total Gross floor area:		2440 sqm	
	Survey date: FRIDAY		15/07/16	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.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.384	2	1953	0.230	2	1953	0.614
08:00 - 09:00	2	1953	2.458	2	1953	1.587	2	1953	4.045
09:00 - 10:00	2	1953	3.712	2	1953	3.328	2	1953	7.040
10:00 - 11:00	2	1953	4.352	2	1953	4.327	2	1953	8.679
11:00 - 12:00	2	1953	4.480	2	1953	4.352	2	1953	8.832
12:00 - 13:00	2	1953	4.685	2	1953	4.224	2	1953	8.909
13:00 - 14:00	2	1953	4.788	2	1953	5.248	2	1953	10.036
14:00 - 15:00	2	1953	5.120	2	1953	5.274	2	1953	10.394
15:00 - 16:00	2	1953	4.813	2	1953	5.223	2	1953	10.036
16:00 - 17:00	2	1953	4.301	2	1953	4.122	2	1953	8.423
17:00 - 18:00	2	1953	4.224	2	1953	3.917	2	1953	8.141
18:00 - 19:00	2	1953	2.995	2	1953	3.379	2	1953	6.374
19:00 - 20:00	2	1953	2.791	2	1953	2.816	2	1953	5.607
20:00 - 21:00	2	1953	1.869	2	1953	2.125	2	1953	3.994
21:00 - 22:00	2	1953	0.307	2	1953	1.075	2	1953	1.382
22:00 - 23:00	2	1953	0.102	2	1953	0.307	2	1953	0.409
23:00 - 24:00									
Total Rates:			51.381			51.534			102.915

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	1466 - 2440 (units: sqm)
Survey date range:	01/01/12 - 09/06/19
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL CYCLISTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.026	2	1953	0.000	2	1953	0.026
08:00 - 09:00	2	1953	0.051	2	1953	0.026	2	1953	0.077
09:00 - 10:00	2	1953	0.205	2	1953	0.026	2	1953	0.231
10:00 - 11:00	2	1953	0.230	2	1953	0.230	2	1953	0.460
11:00 - 12:00	2	1953	0.102	2	1953	0.282	2	1953	0.384
12:00 - 13:00	2	1953	0.051	2	1953	0.154	2	1953	0.205
13:00 - 14:00	2	1953	0.128	2	1953	0.102	2	1953	0.230
14:00 - 15:00	2	1953	0.128	2	1953	0.128	2	1953	0.256
15:00 - 16:00	2	1953	0.077	2	1953	0.077	2	1953	0.154
16:00 - 17:00	2	1953	0.051	2	1953	0.026	2	1953	0.077
17:00 - 18:00	2	1953	0.077	2	1953	0.077	2	1953	0.154
18:00 - 19:00	2	1953	0.051	2	1953	0.077	2	1953	0.128
19:00 - 20:00	2	1953	0.000	2	1953	0.000	2	1953	0.000
20:00 - 21:00	2	1953	0.000	2	1953	0.000	2	1953	0.000
21:00 - 22:00	2	1953	0.000	2	1953	0.000	2	1953	0.000
22:00 - 23:00	2	1953	0.000	2	1953	0.000	2	1953	0.000
23:00 - 24:00									
Total Rates:			1.177			1.205			2.382

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL PEDESTRIANS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.026	2	1953	0.000	2	1953	0.026
08:00 - 09:00	2	1953	0.256	2	1953	0.230	2	1953	0.486
09:00 - 10:00	2	1953	0.538	2	1953	0.461	2	1953	0.999
10:00 - 11:00	2	1953	0.563	2	1953	0.461	2	1953	1.024
11:00 - 12:00	2	1953	0.691	2	1953	0.666	2	1953	1.357
12:00 - 13:00	2	1953	0.410	2	1953	0.512	2	1953	0.922
13:00 - 14:00	2	1953	0.640	2	1953	0.538	2	1953	1.178
14:00 - 15:00	2	1953	0.307	2	1953	0.384	2	1953	0.691
15:00 - 16:00	2	1953	0.282	2	1953	0.307	2	1953	0.589
16:00 - 17:00	2	1953	0.410	2	1953	0.307	2	1953	0.717
17:00 - 18:00	2	1953	0.435	2	1953	0.410	2	1953	0.845
18:00 - 19:00	2	1953	0.179	2	1953	0.256	2	1953	0.435
19:00 - 20:00	2	1953	0.282	2	1953	0.256	2	1953	0.538
20:00 - 21:00	2	1953	0.205	2	1953	0.230	2	1953	0.435
21:00 - 22:00	2	1953	0.026	2	1953	0.128	2	1953	0.154
22:00 - 23:00	2	1953	0.000	2	1953	0.026	2	1953	0.026
23:00 - 24:00									
Total Rates:			5.250			5.172			10.422

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.000	2	1953	0.000	2	1953	0.000
08:00 - 09:00	2	1953	0.051	2	1953	0.000	2	1953	0.051
09:00 - 10:00	2	1953	0.077	2	1953	0.051	2	1953	0.128
10:00 - 11:00	2	1953	0.154	2	1953	0.077	2	1953	0.231
11:00 - 12:00	2	1953	0.102	2	1953	0.128	2	1953	0.230
12:00 - 13:00	2	1953	0.026	2	1953	0.077	2	1953	0.103
13:00 - 14:00	2	1953	0.026	2	1953	0.051	2	1953	0.077
14:00 - 15:00	2	1953	0.051	2	1953	0.077	2	1953	0.128
15:00 - 16:00	2	1953	0.026	2	1953	0.000	2	1953	0.026
16:00 - 17:00	2	1953	0.051	2	1953	0.051	2	1953	0.102
17:00 - 18:00	2	1953	0.026	2	1953	0.077	2	1953	0.103
18:00 - 19:00	2	1953	0.051	2	1953	0.026	2	1953	0.077
19:00 - 20:00	2	1953	0.026	2	1953	0.051	2	1953	0.077
20:00 - 21:00	2	1953	0.154	2	1953	0.077	2	1953	0.231
21:00 - 22:00	2	1953	0.000	2	1953	0.077	2	1953	0.077
22:00 - 23:00	2	1953	0.000	2	1953	0.000	2	1953	0.000
23:00 - 24:00									
Total Rates:			0.821			0.820			1.641

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.538	2	1953	0.282	2	1953	0.820
08:00 - 09:00	2	1953	3.738	2	1953	2.611	2	1953	6.349
09:00 - 10:00	2	1953	6.119	2	1953	5.248	2	1953	11.367
10:00 - 11:00	2	1953	7.552	2	1953	6.861	2	1953	14.413
11:00 - 12:00	2	1953	7.271	2	1953	7.399	2	1953	14.670
12:00 - 13:00	2	1953	7.143	2	1953	6.733	2	1953	13.876
13:00 - 14:00	2	1953	7.552	2	1953	7.860	2	1953	15.412
14:00 - 15:00	2	1953	8.218	2	1953	7.962	2	1953	16.180
15:00 - 16:00	2	1953	7.476	2	1953	7.988	2	1953	15.464
16:00 - 17:00	2	1953	6.964	2	1953	6.836	2	1953	13.800
17:00 - 18:00	2	1953	6.784	2	1953	6.682	2	1953	13.466
18:00 - 19:00	2	1953	5.095	2	1953	5.914	2	1953	11.009
19:00 - 20:00	2	1953	4.608	2	1953	4.711	2	1953	9.319
20:00 - 21:00	2	1953	2.944	2	1953	3.661	2	1953	6.605
21:00 - 22:00	2	1953	0.410	2	1953	1.562	2	1953	1.972
22:00 - 23:00	2	1953	0.102	2	1953	0.333	2	1953	0.435
23:00 - 24:00									
Total Rates:			82.514			82.643			165.157

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
MULTI-MODAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1953	0.384	2	1953	0.230	2	1953	0.614
08:00 - 09:00	2	1953	0.450	2	1953	1.507	2	1953	1.945
09:00 - 10:00	2	1953	0.710	2	1953	0.000	2	1953	0.710
10:00 - 11:00	2	1953	1.050	2	1953	1.007	2	1953	0.730
11:00 - 12:00	2	1953	4.480	2	1953	4.352	2	1953	8.832
12:00 - 13:00	2	1953	4.685	2	1953	4.224	2	1953	8.909
13:00 - 14:00	2	1953	4.788	2	1953	5.248	2	1953	10.036
14:00 - 15:00	2	1953	5.120	2	1953	5.274	2	1953	10.394
15:00 - 16:00	2	1953	4.813	2	1953	5.223	2	1953	10.036
16:00 - 17:00	2	1953	4.004	2	1953	4.100	2	1953	0.100
17:00 - 18:00	2	1953	4.004	2	1953	0.047	2	1953	0.144
18:00 - 19:00	2	1953	0.005	2	1953	0.070	2	1953	0.074
19:00 - 20:00	2	1953	2.791	2	1953	2.816	2	1953	5.607
20:00 - 21:00	2	1953	1.869	2	1953	2.125	2	1953	3.994
21:00 - 22:00	2	1953	0.307	2	1953	1.075	2	1953	1.382
22:00 - 23:00	2	1953	0.102	2	1953	0.307	2	1953	0.409
23:00 - 24:00									
Total Rates:			51.381			51.534			102.915

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected: 1466 - 2440 (units: sqm)
 Survey date range: 01/01/12 - 09/06/19
 Number of weekdays (Monday-Friday): 2
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

05	EAST MIDLANDS	
	LN LINCOLNSHIRE	3 days
	NR NORTHAMPTONSHIRE	1 days
09	NORTH	
	NB NORTHUMBERLAND	1 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	SR STIRLING	1 days

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

Primary Filtering 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: Gross floor area
 Actual Range: 1485 to 2624 (units: sqm)
 Range Selected by User: 900 to 2635 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 09/06/19

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 7 days

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

Selected survey types:

Manual count 7 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 undertaken using machines.

Selected Locations:

Edge of Town Centre 4
 Suburban Area (PPS6 Out of Centre) 3

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:

Development Zone 1
 Residential Zone 1
 Built-Up Zone 2
 High Street 1
 No Sub Category 2

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.

Secondary Filtering selection:

Use Class:

A1 7 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:

10,001 to 15,000 2 days
 15,001 to 20,000 3 days
 20,001 to 25,000 1 days
 25,001 to 50,000 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
 75,001 to 100,000 2 days
 125,001 to 250,000 3 days
 250,001 to 500,000 1 days

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

Car ownership within 5 miles:

0.5 or Less 2 days
 1.1 to 1.5 5 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 7 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:

Yes 1 days
 No 6 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.

PTAL Rating:

No PTAL Present 7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CF-01-C-01	LIDL		CARDIFF
	EAST TYNDALL STREET CARDIFF			
	Suburban Area (PPS6 Out of Centre) Development Zone			
	Total Gross floor area:		2568 sqm	
	Survey date:	SATURDAY	01/07/17	Survey Type: MANUAL
2	LN-01-C-01	LIDL		LINCOLNSHIRE
	RICHMOND DRIVE SKEGNESS			
	Edge of Town Centre Built-Up Zone			
	Total Gross floor area:		2398 sqm	
	Survey date:	SATURDAY	16/07/16	Survey Type: MANUAL
3	LN-01-C-02	LIDL		LINCOLNSHIRE
	DIXON STREET LINCOLN NEW BOULTHAM			
	Suburban Area (PPS6 Out of Centre) No Sub Category			
	Total Gross floor area:		2233 sqm	
	Survey date:	SATURDAY	28/10/17	Survey Type: MANUAL
4	LN-01-C-03	ALDI		LINCOLNSHIRE
	NEWARK ROAD LINCOLN BRACEBRIDGE			
	Suburban Area (PPS6 Out of Centre) High Street			
	Total Gross floor area:		1485 sqm	
	Survey date:	SATURDAY	28/10/17	Survey Type: MANUAL
5	NB-01-C-01	LIDL		NORTHUMBERLAND
	SCHALKSMUHLE ROAD BEDLINGTON			
	Edge of Town Centre No Sub Category			
	Total Gross floor area:		2450 sqm	
	Survey date:	SATURDAY	10/06/17	Survey Type: MANUAL
6	NR-01-C-02	LIDL		NORTHAMPTONSHIRE
	NEWTON ROAD RUSHDEN			
	Edge of Town Centre Residential Zone			
	Total Gross floor area:		2624 sqm	
	Survey date:	SATURDAY	16/07/16	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

7	SR-01-C-01 PLAYERS ROAD STIRLING	LIDL	STIRLING
	Edge of Town Centre Built-Up Zone		
	Total Gross floor area:	2442 sqm	
	Survey date: SATURDAY	03/06/17	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.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2511	0.219	2	2511	0.080	2	2511	0.299
07:00 - 08:00	7	2314	0.599	7	2314	0.154	7	2314	0.753
08:00 - 09:00	7	2314	2.691	7	2314	1.994	7	2314	4.685
09:00 - 10:00	7	2314	3.549	7	2314	3.117	7	2314	6.666
10:00 - 11:00	7	2314	4.704	7	2314	4.049	7	2314	8.753
11:00 - 12:00	7	2314	6.012	7	2314	5.593	7	2314	11.605
12:00 - 13:00	7	2314	5.346	7	2314	5.753	7	2314	11.099
13:00 - 14:00	7	2314	5.728	7	2314	5.549	7	2314	11.277
14:00 - 15:00	7	2314	5.327	7	2314	5.407	7	2314	10.734
15:00 - 16:00	7	2314	5.259	7	2314	5.432	7	2314	10.691
16:00 - 17:00	7	2314	4.642	7	2314	5.043	7	2314	9.685
17:00 - 18:00	7	2314	3.759	7	2314	3.784	7	2314	7.543
18:00 - 19:00	7	2314	2.167	7	2314	2.901	7	2314	5.068
19:00 - 20:00	7	2314	1.716	7	2314	2.290	7	2314	4.006
20:00 - 21:00	7	2314	1.006	7	2314	1.130	7	2314	2.136
21:00 - 22:00	7	2314	0.648	7	2314	0.821	7	2314	1.469
22:00 - 23:00	7	2314	0.105	7	2314	0.284	7	2314	0.389
23:00 - 24:00									
Total Rates:			53.477			53.381			106.858

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	1485 - 2624 (units: sqm)
Survey date range:	01/01/12 - 09/06/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	7
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL CYCLISTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2511	0.020	2	2511	0.000	2	2511	0.020
07:00 - 08:00	7	2314	0.019	7	2314	0.006	7	2314	0.025
08:00 - 09:00	7	2314	0.068	7	2314	0.056	7	2314	0.124
09:00 - 10:00	7	2314	0.080	7	2314	0.080	7	2314	0.160
10:00 - 11:00	7	2314	0.080	7	2314	0.062	7	2314	0.142
11:00 - 12:00	7	2314	0.111	7	2314	0.086	7	2314	0.197
12:00 - 13:00	7	2314	0.056	7	2314	0.056	7	2314	0.112
13:00 - 14:00	7	2314	0.074	7	2314	0.031	7	2314	0.105
14:00 - 15:00	7	2314	0.080	7	2314	0.049	7	2314	0.129
15:00 - 16:00	7	2314	0.056	7	2314	0.037	7	2314	0.093
16:00 - 17:00	7	2314	0.074	7	2314	0.105	7	2314	0.179
17:00 - 18:00	7	2314	0.074	7	2314	0.111	7	2314	0.185
18:00 - 19:00	7	2314	0.062	7	2314	0.080	7	2314	0.142
19:00 - 20:00	7	2314	0.068	7	2314	0.068	7	2314	0.136
20:00 - 21:00	7	2314	0.056	7	2314	0.062	7	2314	0.118
21:00 - 22:00	7	2314	0.031	7	2314	0.080	7	2314	0.111
22:00 - 23:00	7	2314	0.000	7	2314	0.012	7	2314	0.012
23:00 - 24:00									
Total Rates:			1.009			0.981			1.990

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL PEDESTRIANS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2511	0.319	2	2511	0.000	2	2511	0.319
07:00 - 08:00	7	2314	0.191	7	2314	0.080	7	2314	0.271
08:00 - 09:00	7	2314	0.475	7	2314	0.525	7	2314	1.000
09:00 - 10:00	7	2314	0.722	7	2314	0.796	7	2314	1.518
10:00 - 11:00	7	2314	1.160	7	2314	1.012	7	2314	2.172
11:00 - 12:00	7	2314	1.525	7	2314	1.562	7	2314	3.087
12:00 - 13:00	7	2314	1.796	7	2314	1.667	7	2314	3.463
13:00 - 14:00	7	2314	1.494	7	2314	1.488	7	2314	2.982
14:00 - 15:00	7	2314	1.673	7	2314	1.636	7	2314	3.309
15:00 - 16:00	7	2314	1.481	7	2314	1.722	7	2314	3.203
16:00 - 17:00	7	2314	1.593	7	2314	1.401	7	2314	2.994
17:00 - 18:00	7	2314	1.377	7	2314	1.383	7	2314	2.760
18:00 - 19:00	7	2314	1.080	7	2314	0.944	7	2314	2.024
19:00 - 20:00	7	2314	0.593	7	2314	0.704	7	2314	1.297
20:00 - 21:00	7	2314	0.568	7	2314	0.586	7	2314	1.154
21:00 - 22:00	7	2314	0.352	7	2314	0.537	7	2314	0.889
22:00 - 23:00	7	2314	0.080	7	2314	0.185	7	2314	0.265
23:00 - 24:00									
Total Rates:			16.479			16.228			32.707

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES
MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2511	0.060	2	2511	0.020	2	2511	0.080
07:00 - 08:00	7	2314	0.074	7	2314	0.043	7	2314	0.117
08:00 - 09:00	7	2314	0.198	7	2314	0.148	7	2314	0.346
09:00 - 10:00	7	2314	0.302	7	2314	0.284	7	2314	0.586
10:00 - 11:00	7	2314	0.259	7	2314	0.296	7	2314	0.555
11:00 - 12:00	7	2314	0.265	7	2314	0.235	7	2314	0.500
12:00 - 13:00	7	2314	0.241	7	2314	0.216	7	2314	0.457
13:00 - 14:00	7	2314	0.284	7	2314	0.265	7	2314	0.549
14:00 - 15:00	7	2314	0.265	7	2314	0.204	7	2314	0.469
15:00 - 16:00	7	2314	0.228	7	2314	0.210	7	2314	0.438
16:00 - 17:00	7	2314	0.228	7	2314	0.235	7	2314	0.463
17:00 - 18:00	7	2314	0.160	7	2314	0.216	7	2314	0.376
18:00 - 19:00	7	2314	0.154	7	2314	0.136	7	2314	0.290
19:00 - 20:00	7	2314	0.111	7	2314	0.148	7	2314	0.259
20:00 - 21:00	7	2314	0.068	7	2314	0.117	7	2314	0.185
21:00 - 22:00	7	2314	0.043	7	2314	0.056	7	2314	0.099
22:00 - 23:00	7	2314	0.006	7	2314	0.031	7	2314	0.037
23:00 - 24:00									
Total Rates:			2.946			2.860			5.806

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 01 - RETAIL/C - DISCOUNT FOOD STORES

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

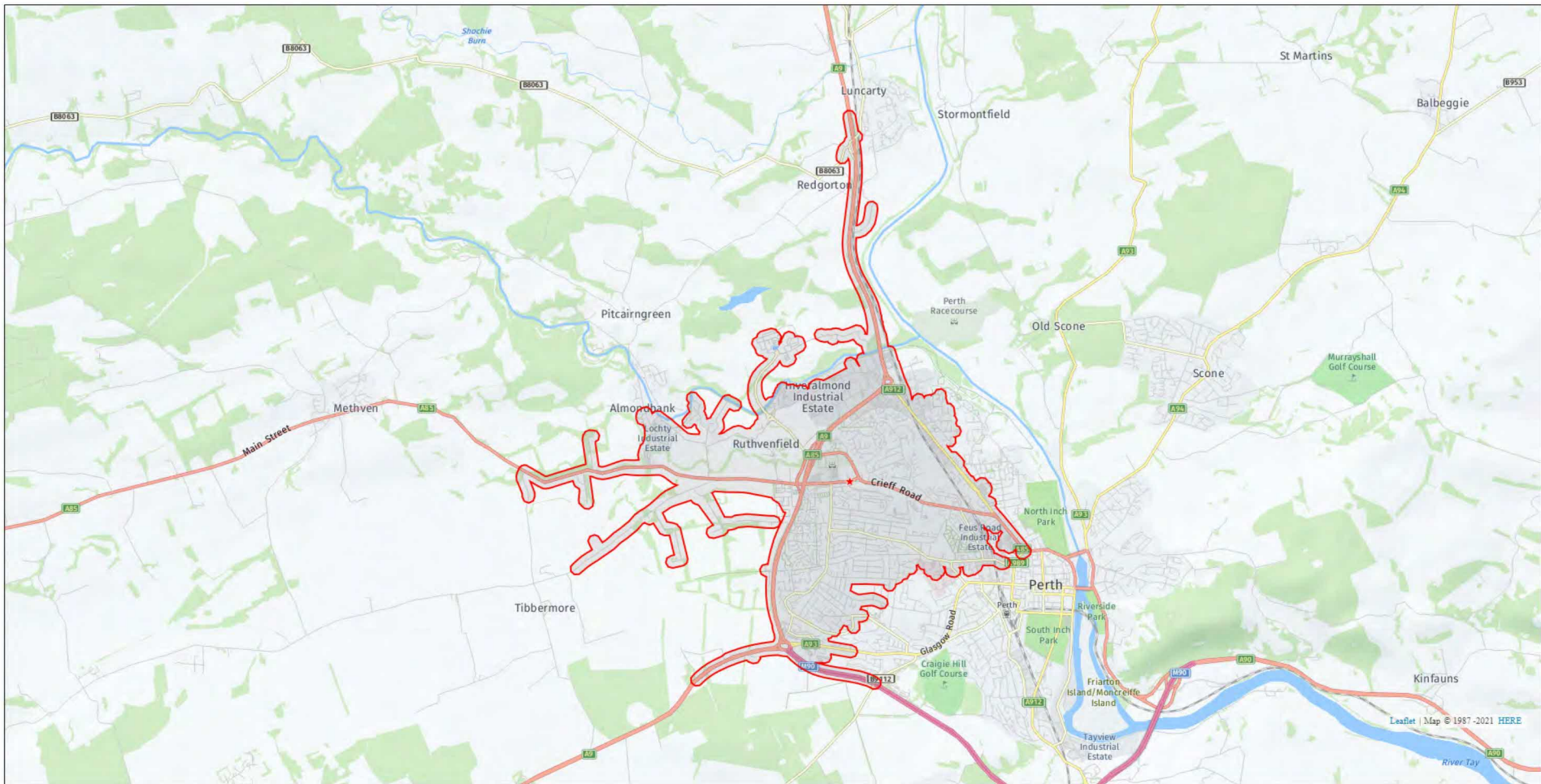
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2511	0.617	2	2511	0.100	2	2511	0.717
07:00 - 08:00	7	2314	1.235	7	2314	0.358	7	2314	1.593
08:00 - 09:00	7	2314	5.056	7	2314	3.932	7	2314	8.988
09:00 - 10:00	7	2314	7.068	7	2314	6.241	7	2314	13.309
10:00 - 11:00	7	2314	9.531	7	2314	7.969	7	2314	17.500
11:00 - 12:00	7	2314	11.543	7	2314	11.012	7	2314	22.555
12:00 - 13:00	7	2314	10.506	7	2314	11.599	7	2314	22.105
13:00 - 14:00	7	2314	11.580	7	2314	10.895	7	2314	22.475
14:00 - 15:00	7	2314	11.272	7	2314	11.414	7	2314	22.686
15:00 - 16:00	7	2314	10.667	7	2314	11.049	7	2314	21.716
16:00 - 17:00	7	2314	9.889	7	2314	10.401	7	2314	20.290
17:00 - 18:00	7	2314	8.148	7	2314	8.574	7	2314	16.722
18:00 - 19:00	7	2314	5.105	7	2314	6.006	7	2314	11.111
19:00 - 20:00	7	2314	3.790	7	2314	4.735	7	2314	8.525
20:00 - 21:00	7	2314	2.284	7	2314	2.660	7	2314	4.944
21:00 - 22:00	7	2314	1.438	7	2314	2.049	7	2314	3.487
22:00 - 23:00	7	2314	0.216	7	2314	0.636	7	2314	0.852
23:00 - 24:00									
Total Rates:			109.945			109.630			219.575

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

	A85 (N) Via A9 North	A85 East	Tuilloch Terrace	Newhouse Road	A85 West via A9 North	A85 West	
S01011873	575					575	
S01011874	468					468	
S01011878	1046				1046		
S01011894	437	437					
S01011899	479				479		
S01011900	507				507		
S01011902	664			664			
S01011903	482			482			
S01011904	485				485		
S01011905	585			585			
S01011906	270			270			
S01011907	552			552			
S01011908	287					287	
S01011909	853		853				
S01011910	554			554			
S01011911	407			407			
S01011912	487			487			
S01011913	453			453			
S01011914	573			573			
S01011915	529			529			
S01011916	390	390					
S01011917	324			324			
S01011918	472	472					
S01011919	635	635					
S01011920	418		418				
S01011921	369			369			
S01011922	490		490				
S01011923	564		564				
S01011924	297		297				
S01011925	611	611					
S01011927	389	389					
S01011928	443	443					
S01011929	445	445					
S01011932	443	443					
S01011933	433	433					
S01011935	581	581					
S01011937	436	436					
	18433	1888	3827	2622	6249	2517	1330
		10.24%	20.76%	14.22%	33.90%	13.65%	7.22%
		A85 (N) Via A9 North	A85 East	Tuilloch Terrace	Newhouse Road	A85 West via A9 North	A85 West



Legend

Lidl Perth 5 minutes
(5 Minutes)

Copyright © Experian 2020.
Date: 17/09/21

Steven Scott

From: Daniel Wheelwright <[REDACTED]>
Sent: 18 February 2022 12:42
To: Michael Summers
Subject: Trade draw patterns - Perth

Importance: High

Hi Michael,

Sorry for the slight delay - a few further adjustments were required. Please see trade draw pattern for Perth below.

Town Centres / Shops in Catchment (Zone 2)	Highway %
Perth Town Centre	
Tesco Express	0.00%
Other Convenience Stores	0.00%
Other Comparison Stores	2.50%
Total	2.50%
Craigie Local Centre	
Other Local Stores	0.00%
Total Turnover	0.00%
Rannoch Road Local Centre	
Co-op, Rannoch Road	0.50%
Other Local Stores	0.00%
Total	0.50%
Crieff Road (Commercial Centre)	
Tesco Extra	35.38%
Other Stores	0.50%
Total	35.88%

Asda area on Dunkeld Road	
Asda area on Dunkeld Road	7.00%
Other Local Stores	0.00%
Total	7.00%
Inveralmond Retail Park (Commercial Centre)	
Aldi	31.75%
M&S Foodhall	2.38%
Other Stores	0.00%
Total	34.13%
St. Catherine's Retail Park (Commercial Centre)	
Londis	0.00%
Morrisons	5.00%
The Food Warehouse	0.00%
Other Stores	0.00%
Total	5.00%
Bridgend Local Centre	
Co-op, Main Street	0.00%
Other Local Stores	0.00%
Total	0.00%
Relevant Edge/ Out of Centre Foodstores	
Aldi, Glasgow Road	2.25%
Lidl, Riggs Road	5.00%
Farmfoods, Crieff Road	2.25%
Other Local Stores	0.50%
Total	10.00%
TOTAL WITHIN CATCHMENT	95.00%
Inflow beyond catchment	5.00%

Thanks

Daniel

Daniel Wheelwright
BA (Hons) MA MRTPI
Senior Associate
Town Planning
07980 871070



RAPLEYS LLP

0370 777 6292 | www.rapleys.com
London | Birmingham | Bristol | Cambridge | Edinburgh | Huntingdon | Manchester



TOWN PLANNING CONSULTANCY

Audits | Feasibility | Applications | Appeals/Expert Witness
Environmental Impact Assessment | Policy | Site Search
Sector/Specialist Assessments | Section 106 Agreements/CIL



Rapleys LLP is registered as a Limited Liability Partnership in England and Wales. Registration No: OC308311
Registered Office at Unit 3a The Incubator, Enterprise Campus, Alconbury Weald, Huntingdon, Cambridgeshire, England, PE28 4XA

A full list of Members is available on our website or at any of our offices during normal business hours.
Regulated by RICS.

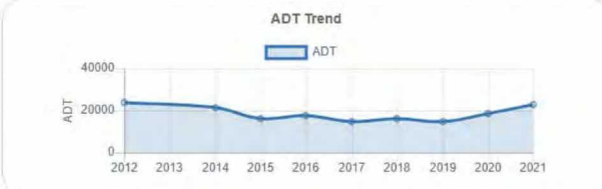
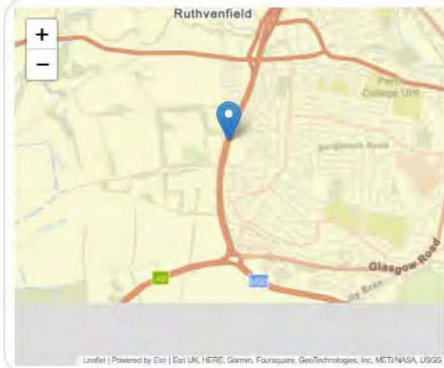
Rapleys LLP operates an Environmental Management System which complies with the requirements of ISO 14001:2004
Certificate No. EMS 525645

This email is not intended, nor shall it form part of any legally enforceable contract and any contract shall only be entered into by way of an exchange of correspondence by each party's solicitor. Where this Email message is sent in connection with a contentious issue, the contents are Without Prejudice.

This email has been scanned for email related threats and delivered safely by Mimecast.
For more information please visit <http://www.mimecast.com>

D. Background Traffic Comparison

Tabular Calendar



7-day Average Traffic Count: **19,017**

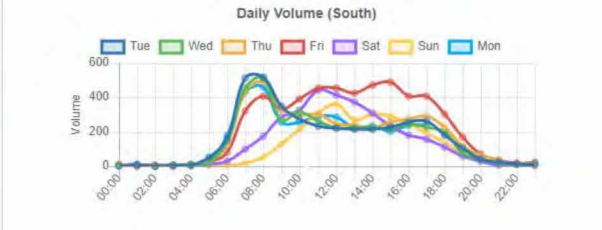
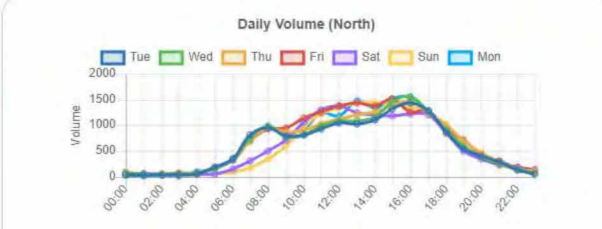
Weekly Traffic Count: **133,119**

Weekday Average Traffic Count: **19,764**

7-day 85th %ile Speed 2022: **70.7 mph**

7-day Average Speed 2022: **61.3 mph**

000000000005 - JTC00005
 Description: A9 - Perth Western By-pass (South)
 Coordinates: 56.39941, -3.48804



Traffic Statistics by Direction

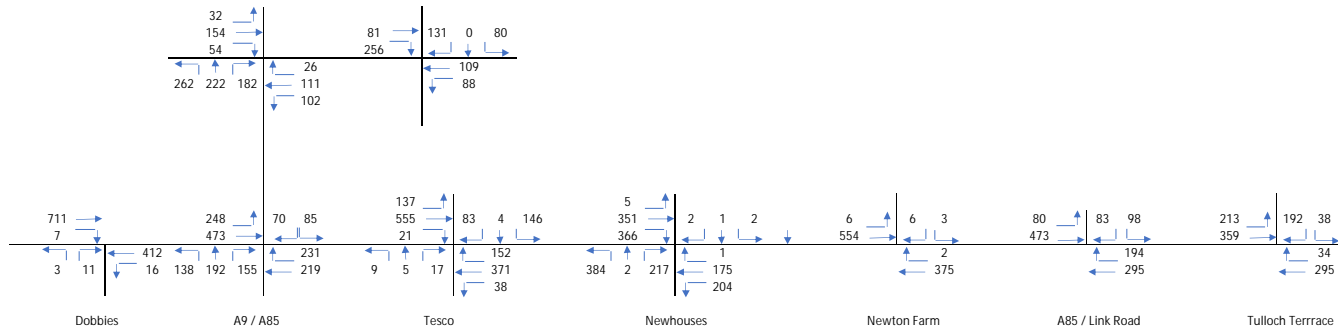
Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
North	15,646	15,215	106,508
South	4,118	3,802	26,611

Vehicle Classification

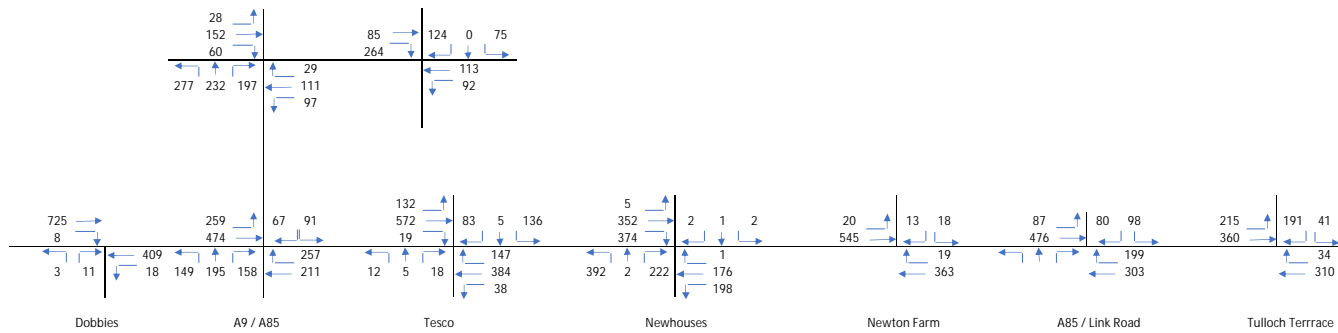
Car		89.04%
HGV		9.67%
PSV		0.39%
LGV		0%
MCL		0.89%
PED		0%
Other Non-Vehicle		0%

E. Flow Comparison

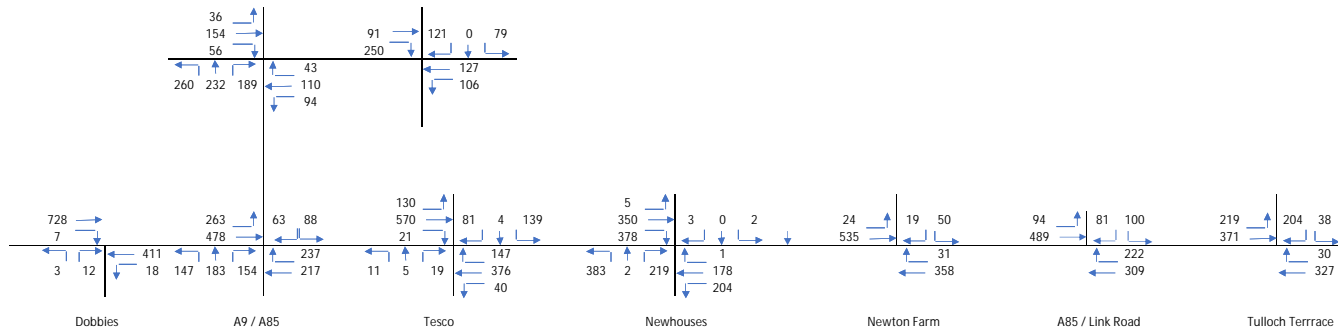
AM REF CASE



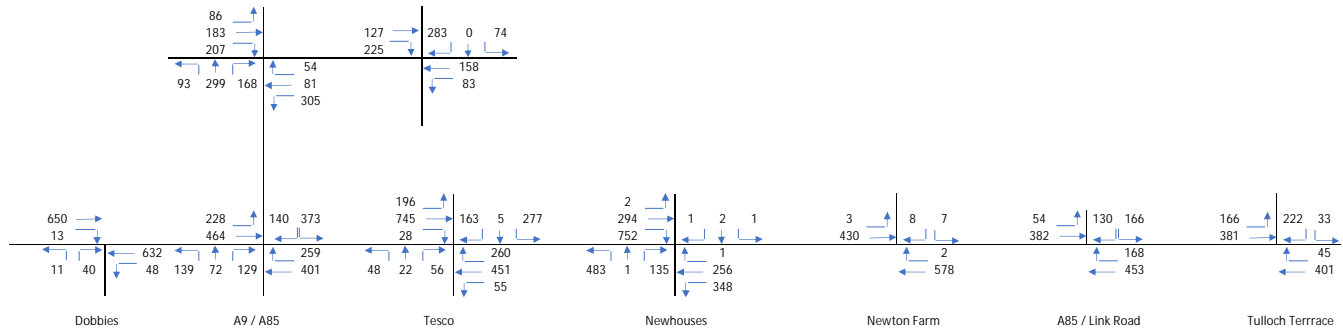
AM REF CASE + LIDL



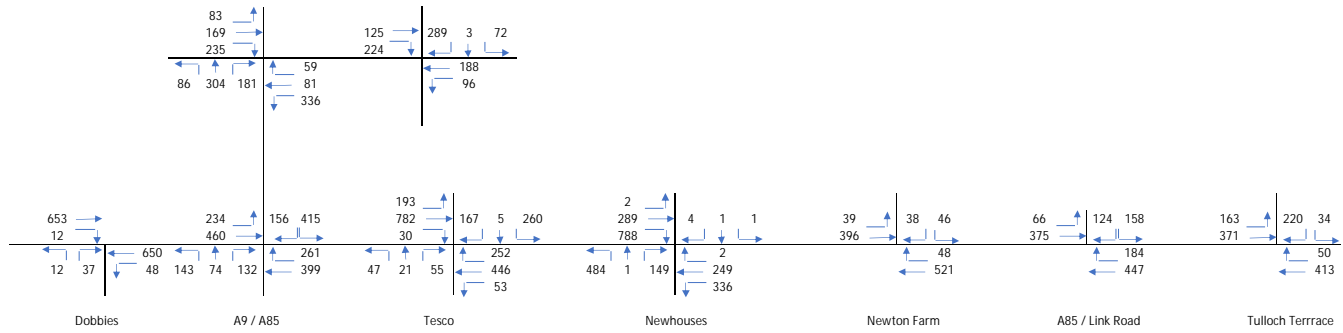
AM REF CASE + LIDL + HOUSING



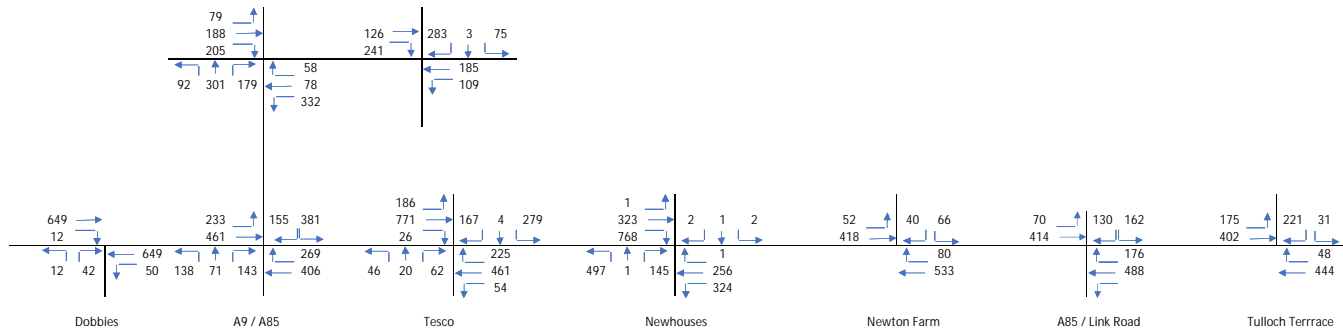
PM REF CASE



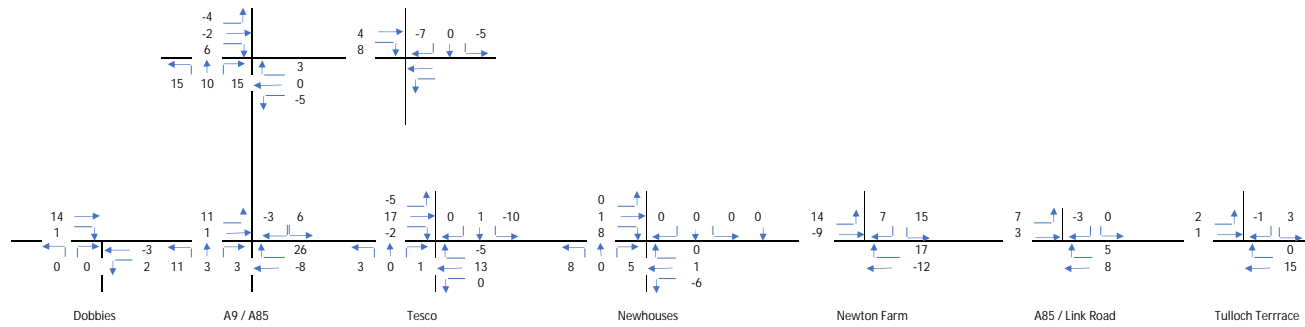
PM REF CASE + LIDL



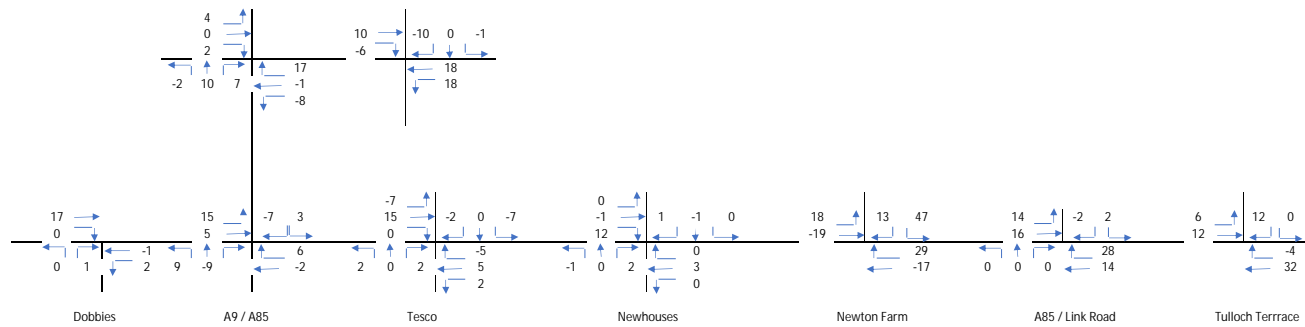
PM REF CASE + LIDL + HOUSING



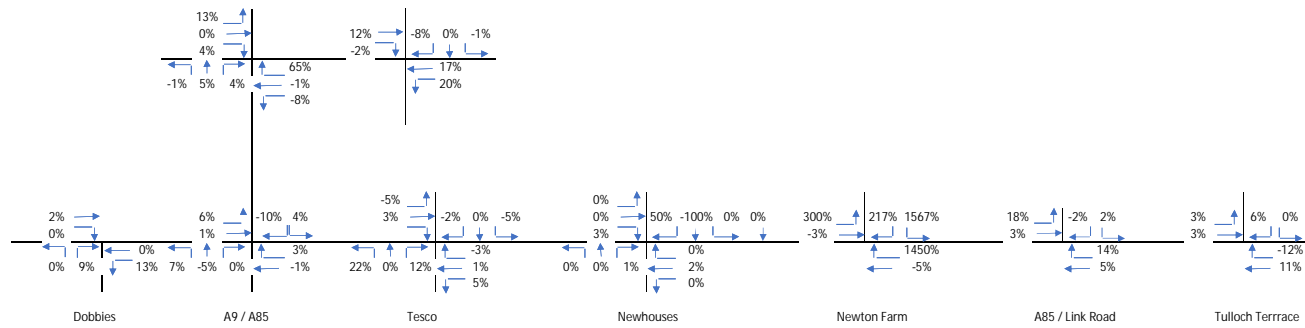
Lidl Flows - AM



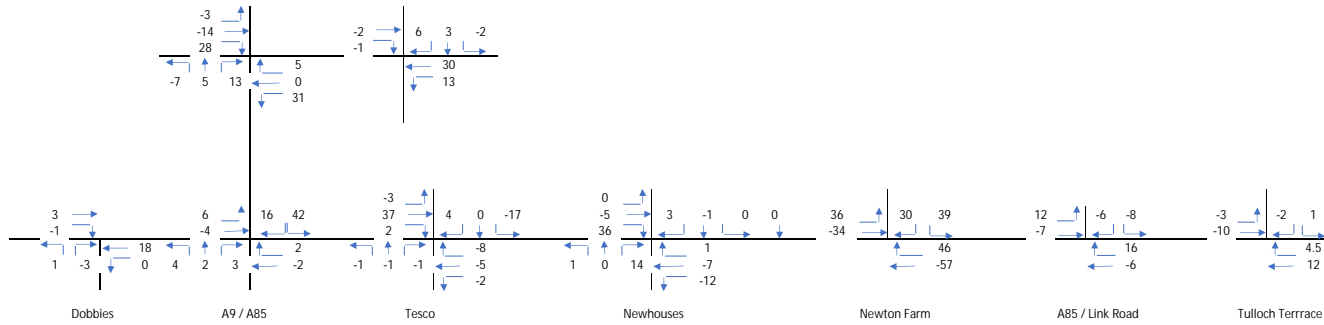
Lidl & Resi - AM



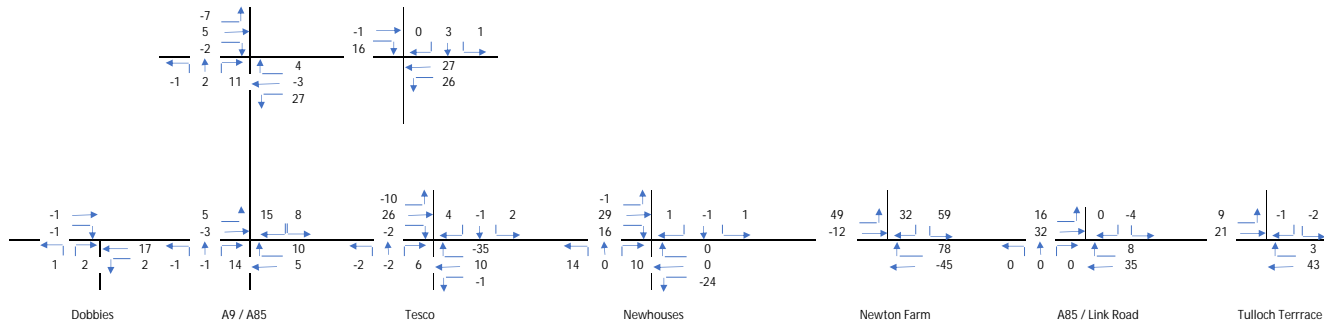
Percentage Impact - AM



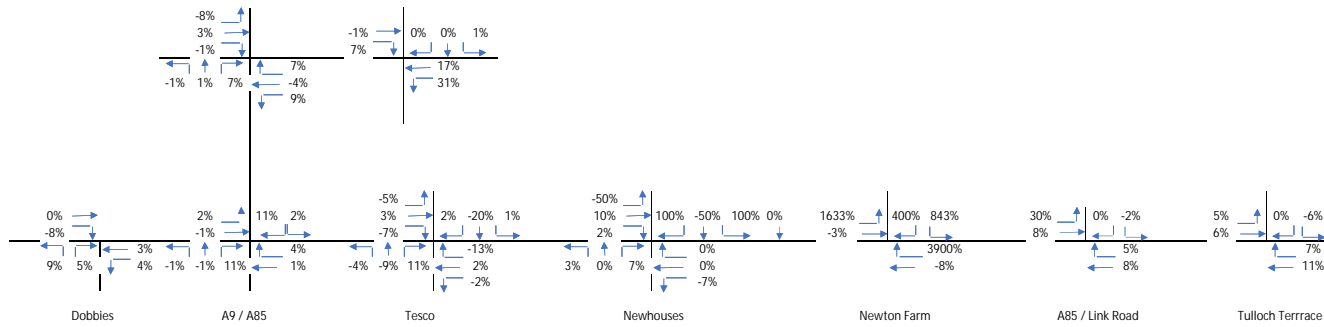
Lidl Flows - PM



Lidl & Resi - PM



Percentage Impact - PM



F. Paramics Modelling Report & Results

DRAFT MODELLING NOTE UPDATE

NEWTON FARM, PERTH

TRAFFIC MODELLING NOTE

IDENTIFICATION TABLE

Client/Project owner	ECS Transport
Project	Newton Farm
Title of Document	Traffic Modelling Note
Type of Document	Draft Modelling Note Update
Date	12/09/2022
Reference number	GB01T21C06\11059727\002
Number of pages	15

1. INTRODUCTION

1.1 Background

1.1.1 SYSTRA Limited (SYSTRA) has been requested by ECS Transport to undertake a traffic modelling assessment reviewing the potential impacts of a development at Newton Farm, a site just off the A85 Crieff Road in Perth, Perth & Kinross.

1.1.2 This Note details the modelling exercise undertaken and presents results from the assessment.

2. TRAFFIC MODELLING SCENARIOS

2.1 Introduction

2.1.1 A scoping meeting was held with ECS Transport / Perth & Kinross Council and SYSTRA to establish and agree the basis for the assessment. The study area was defined as largely the A85 corridor between the A85 Dobbies junction and A85 Tulloch Terrace junction.

2.1.2 The following modelling Scenarios were agreed to be assessed:

- 2024 Do Minimum
- 2024 Do Minimum + Lidl Foodstore
- 2024 Do Minimum + Lidl Foodstore + 100 Unit Residential Development (Sensitivity Test)

2.1.3 The following section below outline each scenario in more detail.

2.2 2024 Do Minimum

2.2.1 The 2019 Perth Base Model was utilised as the assessment platform for this assessment. The model was developed using 2019 observed survey data. In order to forecast to the projected opening year of the development traffic growth was applied to the model as follows:

- RTF 'Low' Growth (extrapolated from rft18-scenario-5-low-migration) applied to all local area zones
- RTF 'High' Growth (extrapolated from rft18-scenario-1-reference) applied to trunk road / strategic traffic zones.

2.3 2024 Do Minimum + Lidl Foodstore

2.3.1 The above scenario allows for the 2024 Do Minimum scenario as detailed in Section 2.2 with the proposed Lidl Foodstore and new signalised access junction in place. Trip generation and distribution details for the Foodstore were provided by ECS Transport.

2.4 2024 Do Minimum + Lidl Foodstore + 100 Units

2.4.1 The above scenario allows for the 2024 Do Minimum + Lidl Foodstore scenario as detailed in Section 2.3 with the addition of a potential residential development of 100 units in place. Trip generation and distribution details for the Foodstore were provided by ECS Transport.

3. DEVELOPMENT TRIP DETAILS

3.1 Introduction

3.1.1 Table 1 below shows the proposed Foodstore peak hour trip generation totals, as provided by ECS. ECS also provided full three hour totals for both AM and PM peaks which were utilised in the modelling assessment.

	Rate per House		New Trips		Passby Trips		Trade Draw		Total	
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
AM	2.458	1.587	17	11	15	9	17	11	49	31
PM	4.301	4.122	30	29	25	25	30	29	85	82

Table 1. Proposed Lidl Foodstore, Newton Farm – Trip Generation Totals

3.1.2 Note, although Saturday trip rates were provided, as agreed with PKC, no Saturday assessment was undertaken due to the lack of a Saturday Perth model.

3.1.3 Table 2 below shows the residential peak hour trip generation totals, as provided by ECS. Again, ECS also provided full three hour totals which were utilised in the modelling assessment.

	Rate per House		Trip Generation	
	Arrivals	Departures	Arrivals	Departures
AM	0.151	0.432	15	43
PM	0.414	0.254	41	25

Table 2. Proposed Residential Development, Newton Farm - Trip Generation Totals

3.1.4 ECS Transport provided potential catchment details for the Foodstore detailing numerous areas within the PKC area. These were applied to the Paramics model in an aggregate fashion so that the development trips assigned to the network, as per the ECS distribution, were closely matched in the study area.

3.1.5 Residential trip distribution is based on the previous 2016 assessment undertaken for ECS Transport. The approximate distribution for the housing is as follows:

Area	% Assigned
Perth	54.0%
Inverlamond / Broxden Ind Estates	27.0%
A90 East	2.5%
M90 South	9.0%
A9 South	7.5%

Table 3. Proposed Residential Development, Newton Farm - Trip Distribution

4. TRAFFIC MODELLING ASSESSMENT

4.1 A85 Corridor - Journey Time Results

4.1.1 Figure 1 below shows the A85 eastbound journey times between the Huntingtower and Tulloch Terrace junctions for each scenario in the AM peak period.

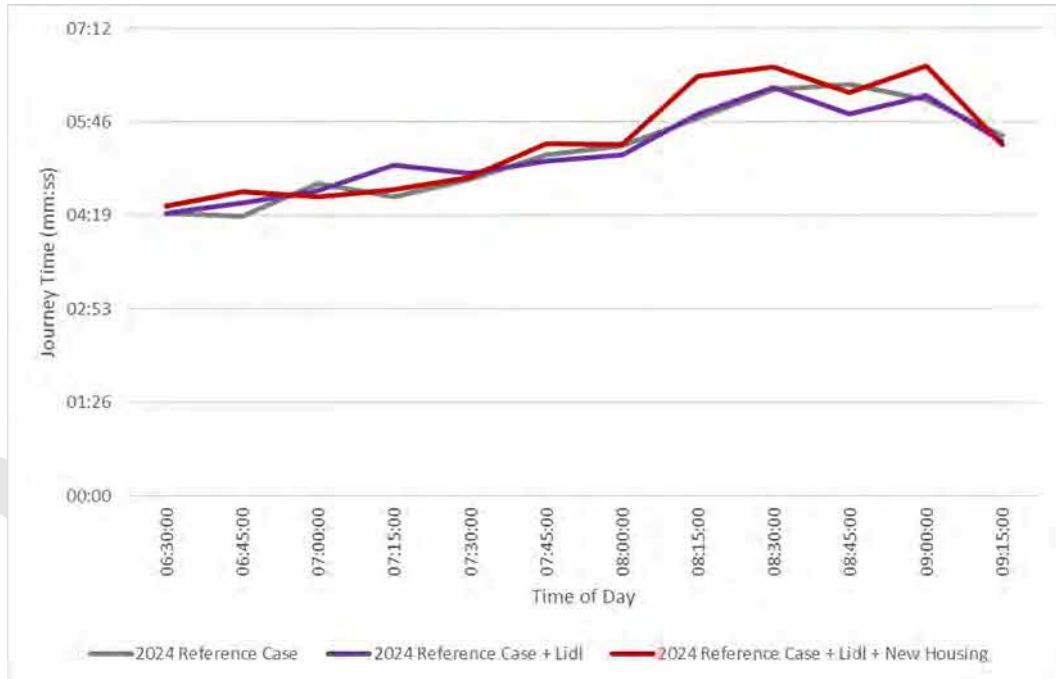


Figure 1. A85 Huntingtower to Tulloch Terrace Eastbound - AM Peak Journey Times

4.1.2 Figure 1 indicates that in the AM peak the maximum journey time in the 2024 Reference Case on the A85 Eastbound is 6 mins 13 secs. The 2024 Reference Case + Lidl scenario also records a peak journey time of 6 mins 13 secs while the 2024 Reference Case + Lidl + Housing records a peak journey time of 6 mins 37 secs.

4.1.3 Figure 2 below shows the A85 westbound journey times between the Tulloch Terrace and Huntingtower junctions for each scenario in the AM peak period.

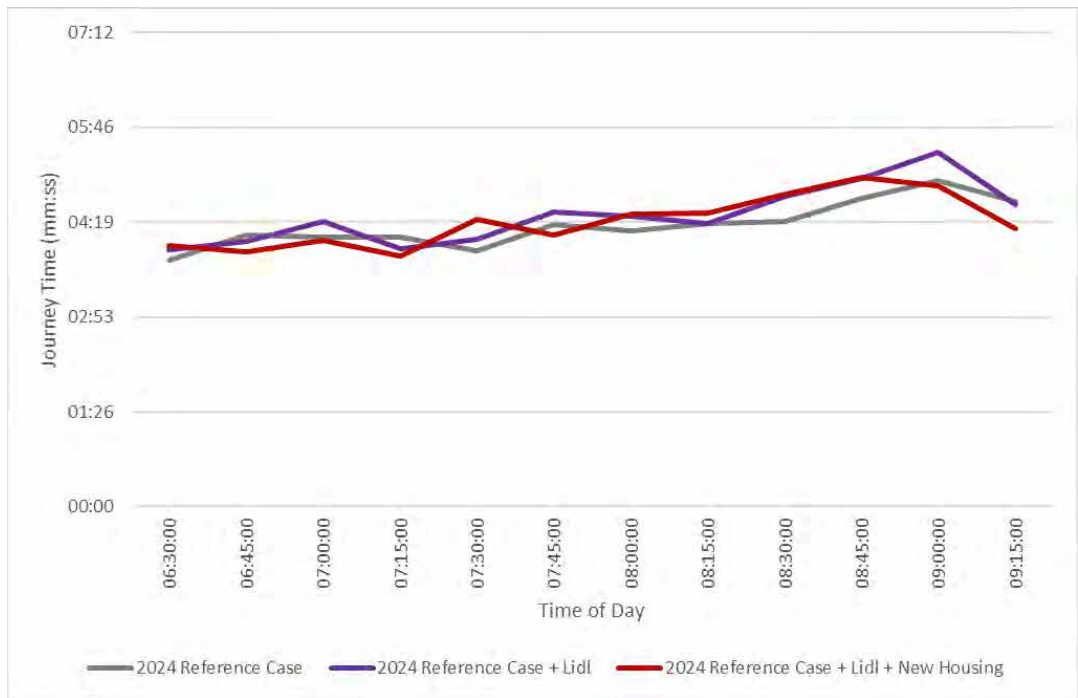


Figure 2. A85 Tulloch Terrace to Huntingtower Westbound - AM Peak Journey Times

4.1.4 Figure 2 indicates that in the AM peak the maximum journey time in the 2024 Reference Case on the A85 Westbound is 4 mins 52 secs. The 2024 Reference Case + Lidl scenarios records a peak journey time of 5 mins 23 secs while the 2024 Reference Case + Lidl + Housing records a peak journey time of 5 mins 00 secs.

4.1.5 Figure 3 below shows the A85 eastbound journey times between the Huntingtower and Tulloch Terrace junctions for each scenario in the PM peak period.

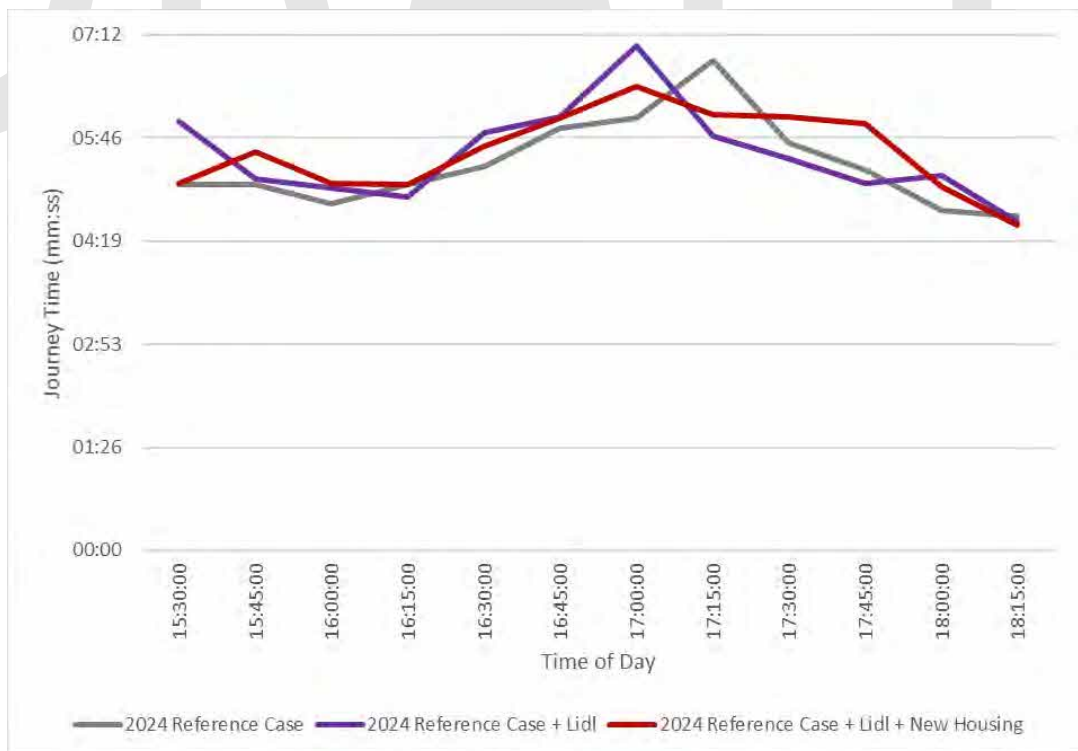


Figure 3. A85 Huntingtower to Tulloch Terrace Eastbound - PM Peak Journey Times

4.1.6 Figure 3 indicates that in the AM peak the maximum journey time in the 2024 Reference Case on the A85 Eastbound is 6 mins 51 secs while the 2024 Reference Case + Lidl scenario

records a peak journey time of 7 mins 2 secs while the 2024 Reference Case + Lidl + Housing records a peak journey time of 6 mins 29 secs.

4.1.7 Figure 4 below shows the A85 westbound journey times between the Tulloch Terrace and Huntingtower junctions for each scenario in the PM peak period.

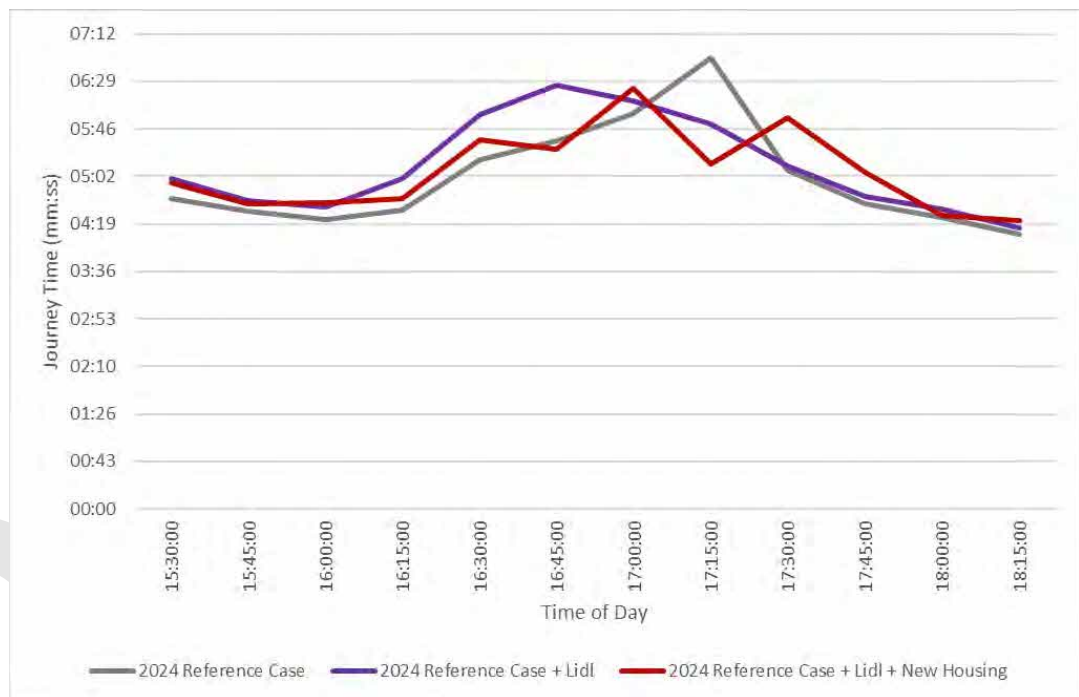


Figure 4. A85 Tulloch Terrace to Huntingtower Westbound - PM Peak Journey Times

4.1.8 Figure 4 indicates that in the PM peak the maximum journey time in the 2024 Reference Case on the A85 Eastbound is 6 mins 51 secs while the 2024 Reference Case + Lidl scenario records a peak journey time of 6 mins 26 secs while the 2024 Reference Case + Lidl + Housing records a peak journey time of 6 mins 23 secs.

4.2 A85 Corridor – Queue Length Results

4.2.1 Tables A1 – A3 in Appendix A provide a breakdown of queuing on each approach to each junction in the study area for the AM and PM peak period.

4.3 A85 Corridor – Peak Hour Turning Counts

4.3.1 Figures B1 – B6 in Appendix B provide a comparison of turning counts flows for each scenario for the AM and PM peak hour.

4.4 A85 Corridor – Network Performance Snapshots

4.4.1 Figures C1 – C6 in Appendix C provide a snapshot of network operation the AM and PM peak hour.

B. APPENDIX B – PEAK HOUR TURNING COUNTS

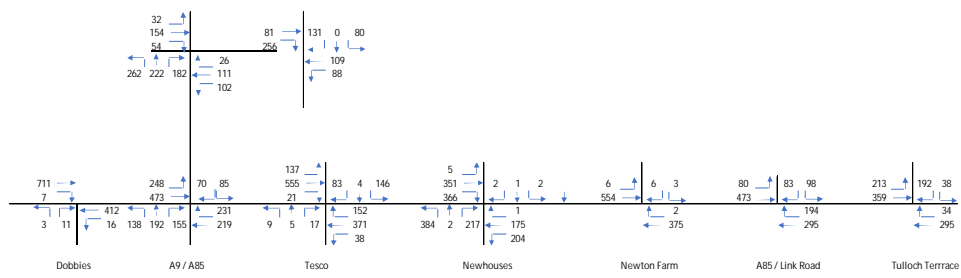


Figure B1. Reference Case Turning Flows AM Peak – (0800 – 0900)

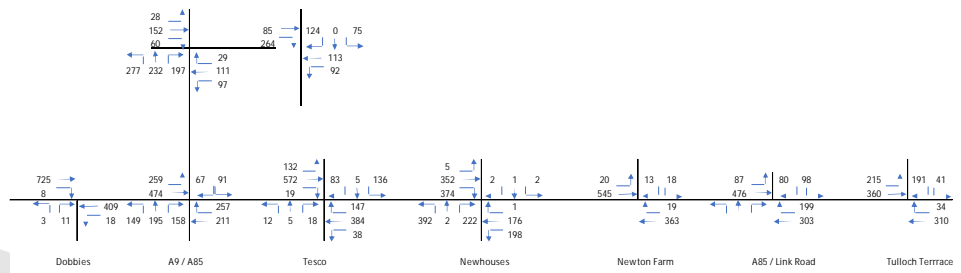


Figure B2. Reference Case + LIDL Turning Flows AM Peak – (0800 – 0900)

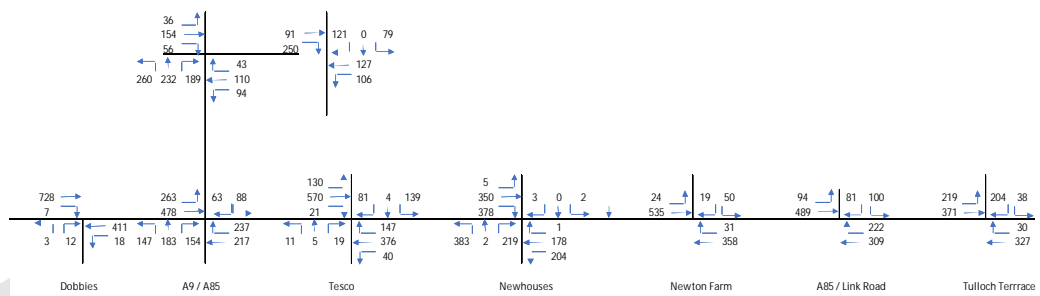


Figure B3. Reference Case + LIDL + Housing Turning Flows AM Peak – (0800 – 0900)

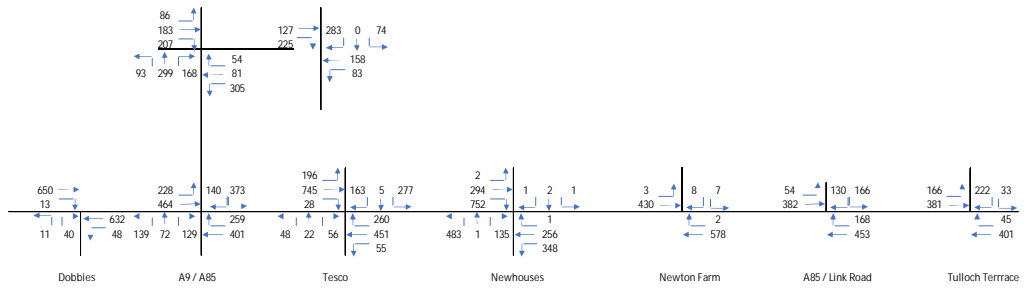


Figure B4. Reference Case Turning Flows PM Peak – (1630 – 1730)

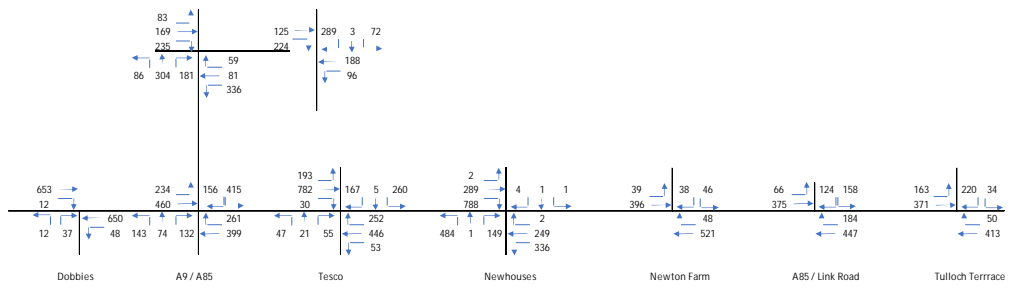


Figure B5. Reference Case + LIDL Turning Flows PM Peak – (1630 – 1730)

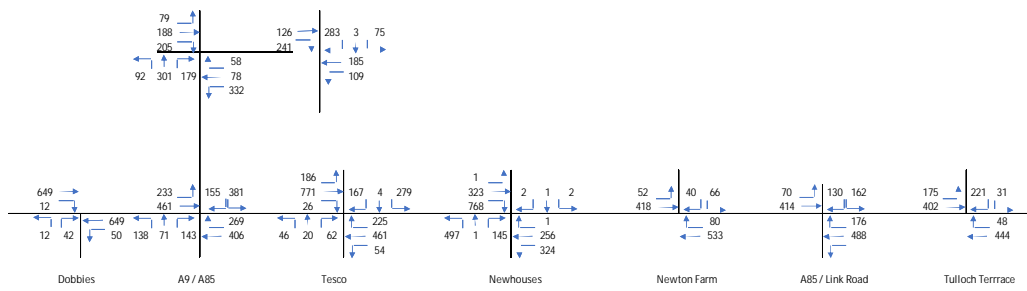


Figure B6. Reference Case + LIDL + Housing Turning Flows PM Peak – (1630 – 1730)

C. APPENDIX C – NETWORK SNAPSHOTS



Figure C1. Reference Case Turning Flows AM Peak – (0830)



Figure C2. Reference Case + LIDL Turning Flows AM Peak – (0830)

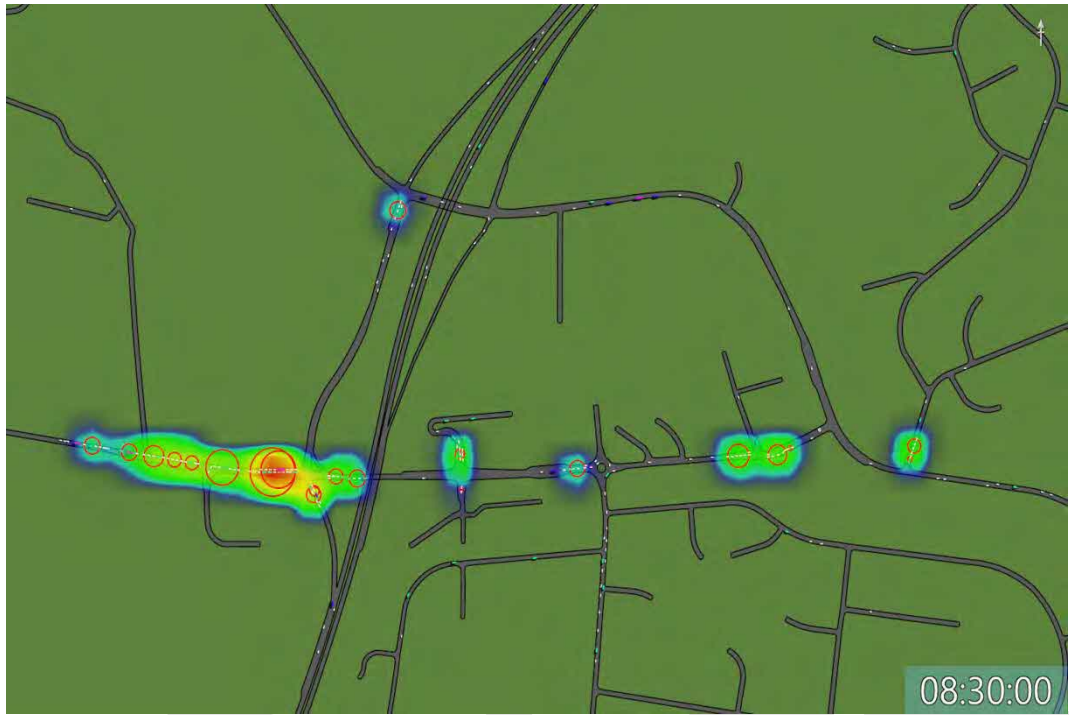


Figure C3. Reference Case + LIDL + Housing Turning Flows AM Peak – (0830)

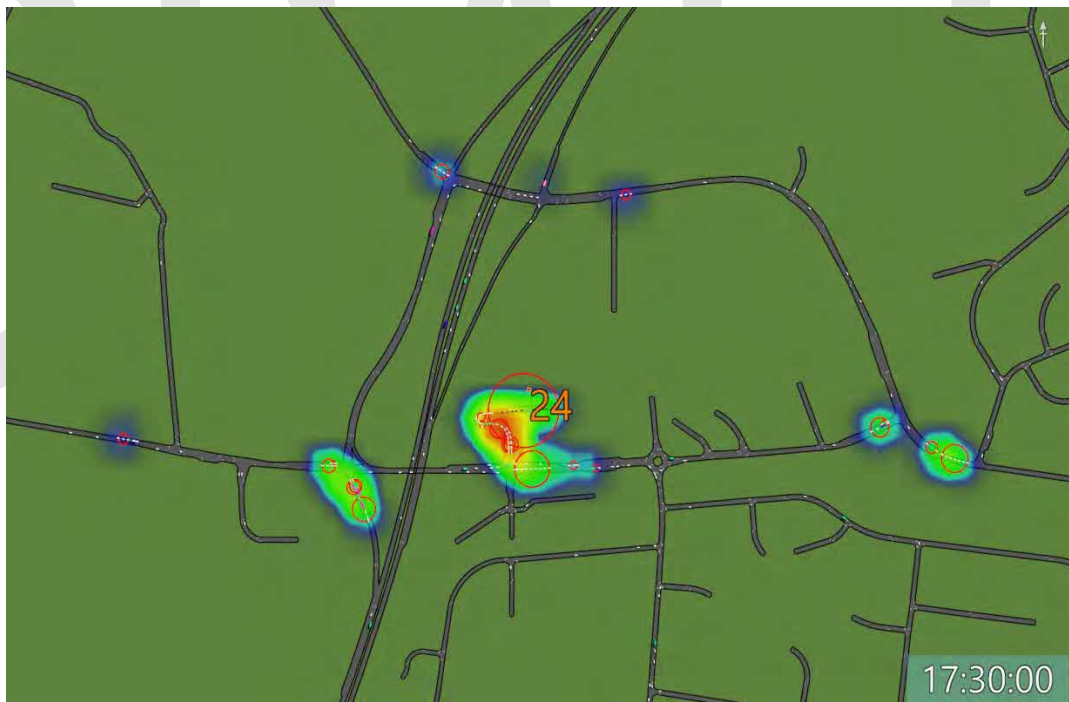


Figure C4. Reference Case Turning Flows PM Peak – (1730)



Figure C5. Reference Case + LIDL Turning Flows PM Peak – (1730)

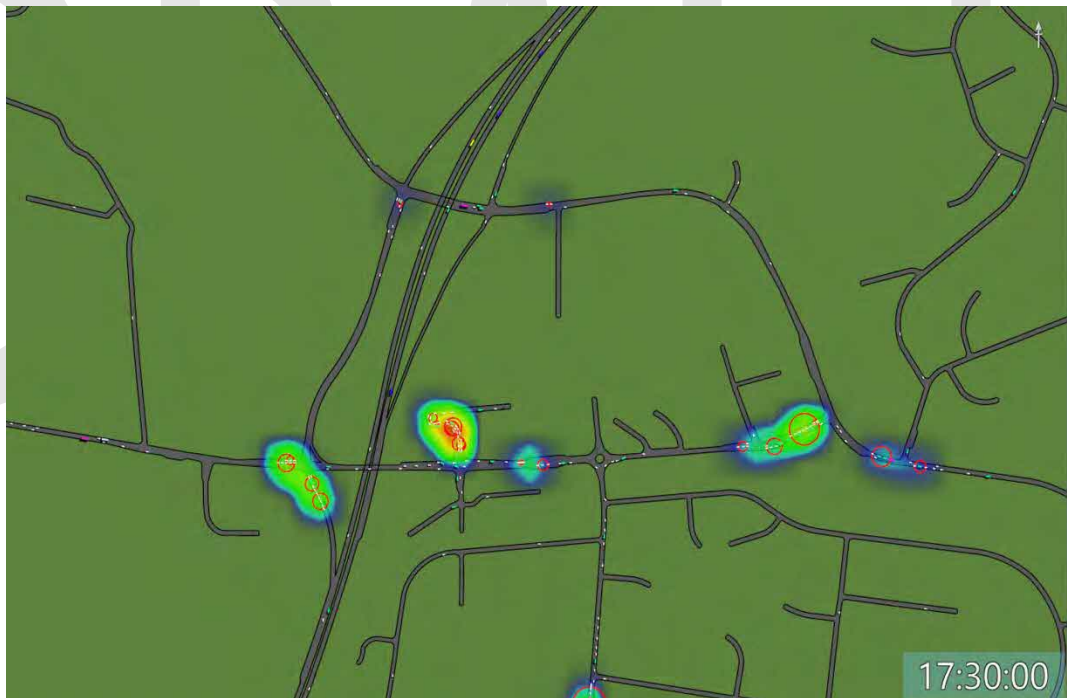


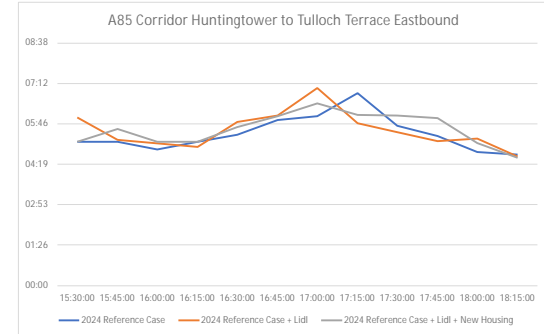
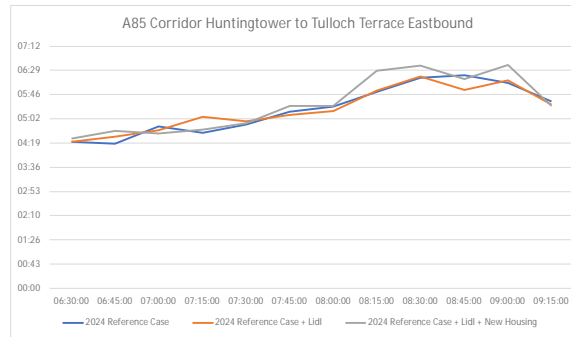
Figure C6. Reference Case + LIDL + Housing Turning Flows PM Peak – (1730)

APPROVAL

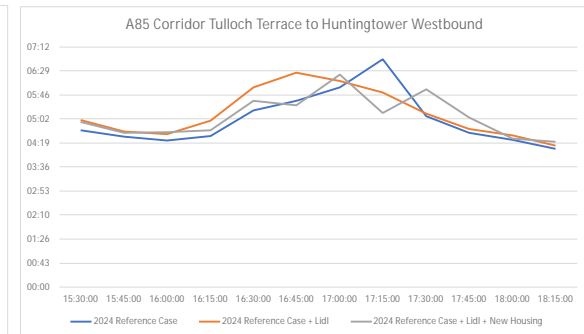
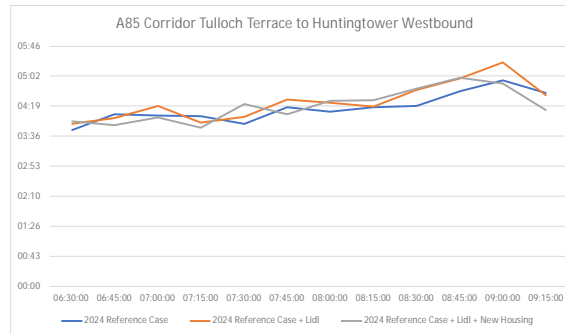
Version	Name	Position	Date	Modifications
1	Author	M Campbell	Associate	25/08/2022
	Checked by	M Campbell	Associate	25/08/2022
	Approved by	M Campbell	Associate	25/08/2022
2	Author	M Campbell	Associate	12/09/2022
	Checked by	M Campbell	Associate	12/09/2022
	Approved by	M Campbell	Associate	12/09/2022

Updated with client comments

	2024 Reference Case	2024 Reference Case + Lidl	2024 Reference Case + Lidl + New Housing
06:30:00	04:22	04:22	04:28
06:45:00	04:18	04:30	04:41
07:00:00	04:49	04:42	04:43
07:15:00	04:37	05:06	04:43
07:30:00	04:52	04:58	04:54
07:45:00	05:15	05:09	05:26
08:00:00	05:24	05:15	05:25
08:15:00	05:50	05:53	06:28
08:30:00	06:15	06:18	06:37
08:45:00	06:21	05:53	06:13
09:00:00	06:06	06:10	06:38
09:15:00	05:34	05:28	05:25
Average	05:19	05:19	05:28
15:30:00	05:07	05:59	05:08
15:45:00	05:07	05:12	05:34
16:00:00	04:50	05:04	05:07
16:15:00	05:06	04:57	05:06
16:30:00	05:22	05:50	05:38
16:45:00	05:54	06:03	06:02
17:00:00	06:02	07:02	06:29
17:15:00	06:51	05:47	06:05
17:30:00	05:42	05:28	06:03
17:45:00	05:19	05:08	05:58
18:00:00	04:45	05:14	05:05
18:15:00	04:40	04:36	04:33
Average	05:24	05:32	05:34



	2024 Reference Case	2024 Reference Case + Lidl	2024 Reference Case + Lidl + New Housing
06:30:00	03:45	03:54	03:58
06:45:00	04:07	04:01	03:52
07:00:00	04:05	04:19	04:03
07:15:00	04:05	03:55	03:48
07:30:00	03:53	04:03	04:22
07:45:00	04:17	04:29	04:08
08:00:00	04:11	04:24	04:27
08:15:00	04:18	04:18	04:28
08:30:00	04:20	04:43	04:45
08:45:00	04:40	04:59	05:00
09:00:00	04:57	05:23	04:52
09:15:00	04:38	04:35	04:13
Average	04:16	04:25	04:19
15:30:00	04:42	05:01	04:57
15:45:00	04:31	04:40	04:38
16:00:00	04:23	04:35	04:39
16:15:00	04:32	05:00	04:43
16:30:00	05:18	05:59	05:36
16:45:00	05:35	06:26	05:27
17:00:00	06:00	06:11	06:23
17:15:00	06:51	05:50	05:13
17:30:00	05:08	05:12	05:56
17:45:00	04:37	04:44	05:06
18:00:00	04:25	04:32	04:27
18:15:00	04:10	04:15	04:22
Average	05:01	05:12	05:07



	2024 Base	2024 Base + Lidl	2024 Base + Lidl + Resi
AM - eastbound	05:19	05:19	05:28
AM - westbound	04:16	04:25	04:19
PM - eastbound	05:24	05:32	05:34
PM - westbound	05:01	05:12	05:07

	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	J5_East	J5_West	J6_East	J6_North	J6_South	J6_West	J7_East	J7_West	J8_East	J8_South	J8_West	Lidl_East	Lidl_West	J9_East	J9_North	J9_West	J10_East	J10_North	J10_West	
	A85/Dobbies	A85/Dobbies	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/Tesco	A85/Tesco	A85/Newhouse Road	A85/Newhouse Road	A85/Newhouse Road	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/7 Tulloch Terrace	A85/7 Tulloch Terrace	A85/7 Tulloch Terrace	
	A85 East	A85 West	A85 East	New Road from Bertha Park	A9 Nb Off Slip	A85 West	A85 Weast	A85 West	A85 East	Newhouse Road	A85 West	A85 East	A85 West	A85 East	A85 West	A85 East	A85 East	Tulloch Terrace	Tulloch Terrace	A85 West
06:30:00	0	0	0	0	0	-1	1	-1	0	0	0	4	2	1	0	-2	1	0	-1	
06:35:00	0	0	0	0	0	0	0	-1	0	0	0	0	1	0	1	-1	0	0	1	
06:40:00	0	0	-1	0	-1	0	0	1	1	0	1	3	4	-2	1	-4	-1	0	-2	
06:45:00	0	-1	0	0	-1	0	0	0	1	0	0	3	5	0	1	-2	-1	-1	-1	
06:50:00	0	0	-2	-1	1	0	1	0	0	0	0	3	5	-1	0	-2	0	0	0	
06:55:00	1	-1	-1	0	0	1	0	2	0	-1	1	2	4	2	-1	-3	2	-1	0	
07:00:00	1	1	0	0	0	2	1	-1	0	0	0	2	5	1	0	-2	2	1	2	
07:05:00	0	1	-1	-1	-2	1	1	-2	0	0	1	3	6	0	0	-5	-1	0	0	
07:10:00	1	1	0	1	0	1	-2	2	0	1	0	2	6	-1	0	-4	0	0	1	
07:15:00	0	0	0	1	0	1	0	0	-1	0	1	4	5	0	0	-1	0	-1	1	
07:20:00	0	0	0	0	1	2	0	-1	0	-1	0	4	4	0	1	0	0	-1	1	
07:25:00	0	-1	0	0	-2	0	-1	0	1	0	1	5	5	2	0	-4	1	1	0	
07:30:00	0	1	-1	1	1	0	-2	1	0	-1	0	5	5	1	0	-6	-1	0	-2	
07:35:00	-1	1	0	0	-1	1	1	1	0	0	0	5	6	0	1	-7	0	0	0	
07:40:00	0	0	0	0	2	0	1	4	-1	-1	-1	5	7	1	0	-8	0	-2	2	
07:45:00	1	1	3	1	0	-1	1	4	0	1	0	6	6	0	0	-6	1	0	-3	
07:50:00	0	-1	0	0	-2	-4	-1	-1	2	-2	-1	5	7	1	0	-7	0	0	-2	
07:55:00	0	0	0	-1	2	-1	2	-2	-2	1	1	5	6	0	1	-8	1	1	-2	
08:00:00	-2	1	2	-1	2	-1	0	-1	-3	1	1	6	6	-1	0	-7	0	-3	-1	
08:05:00	-1	2	-1	0	2	-1	1	-1	-1	-1	-1	7	6	0	-1	-8	0	1	-2	
08:10:00	1	3	0	2	1	0	1	-2	1	-2	-1	7	6	1	-1	-7	-2	0	1	
08:15:00	0	1	0	0	-2	-1	-1	2	1	1	0	5	7	1	1	-6	-1	0	-1	
08:20:00	-1	0	0	-2	-4	-1	0	0	1	-3	0	8	7	0	0	-7	-1	0	-1	
08:25:00	-1	-3	0	-2	-2	-1	-2	1	1	0	0	5	7	-3	0	-7	0	1	0	
08:30:00	0	-2	0	1	-1	0	-2	1	2	2	2	7	7	-1	1	-8	0	0	-2	
08:35:00	1	0	1	0	6	-1	2	-3	-1	2	0	8	8	0	-1	-7	-1	1	1	
08:40:00	1	0	1	3	8	0	3	1	1	0	0	10	9	0	0	-7	0	1	-2	
08:45:00	0	-1	0	1	6	-1	-1	4	1	-1	-1	7	7	2	-1	-7	1	3	0	
08:50:00	0	2	1	-1	4	3	-1	1	2	0	0	6	7	2	0	-8	1	2	-3	
08:55:00	0	-1	4	0	2	0	1	-4	0	2	0	5	7	0	0	-8	1	0	1	
09:00:00	-1	1	-2	0	0	0	-1	-2	0	1	1	6	7	0	0	-7	3	-1	-1	
09:05:00	0	1	0	0	1	5	-1	0	1	2	-1	8	8	-1	0	-6	1	-2	1	
09:10:00	1	0	3	1	0	3	2	-4	0	0	1	6	7	0	0	-4	-1	0	2	
09:15:00	-1	-1	7	1	1	6	1	-1	0	-1	-1	6	7	-2	1	-5	0	-1	-2	
09:20:00	0	-1	0	1	3	-1	-2	-3	3	-2	0	4	8	-1	-1	-6	-2	0	-3	
09:25:00	-1	1	1	-1	0	-1	0	1	1	1	0	5	7	-1	-1	-7	0	0	-7	
09:30:00	2	-1	1	0	-7	-1	1	-2	1	0	1	8	8	-1	1	-2	-2	1	1	
15:30:00	5	0	-1	1	1	5	1	3	1	-1	0	11	6	0	1	-1	-2	0	1	
15:35:00	0	-2	1	1	0	-1	1	-3	7	0	2	9	6	0	1	-7	-1	0	-1	
15:40:00	1	0	-1	0	0	-1	-1	3	2	5	-3	5	6	2	1	-7	1	1	0	
15:45:00	1	-1	-1	0	2	0	1	-1	0	-1	0	7	6	-1	1	-6	3	0	0	
15:50:00	0	2	0	2	1	-1	-1	0	5	-1	-1	10	6	-2	2	-8	-2	-1	-2	
15:55:00	1	2	0	0	2	1	-1	-3	-3	-5	-3	8	8	-1	2	-6	0	1	4	
16:00:00	0	2	1	0	0	0	-2	2	3	1	0	10	6	0	-1	-7	-1	0	2	
16:05:00	-1	2	3	-1	0	0	1	0	1	0	0	6	7	0	0	-5	0	0	-2	
16:10:00	0	0	0	-1	2	-1	1	0	1	-1	-2	8	7	0	0	-4	0	-1	-1	
16:15:00	0	0	-1	1	1	0	2	0	-2	0	0	7	7	1	1	-6	1	0	0	
16:20:00	0	0	-1	-1	2	1	0	1	4	1	1	9	7	0	1	-4	-3	0	4	
16:25:00	-2	1	1	2	-1	-1	0	0	3	2	1	11	6	-1	2	-7	-2	0	-2	
16:30:00	1	1	0	1	-1	0	0	0	3	4	0	11	6	-1	0	-6	-2	0	0	
16:35:00	-1	-5	0	1	0	-2	-2	2	-1	-1	1	11	7	0	-1	-7	-1	4	1	
16:40:00	0	-3	-1	2	1	-3	-1	1	2	-1	1	15	6	0	3	-4	4	8	-3	
16:45:00	0	-4	1	3	2	-1	0	3	14	-2	0	14	7	3	4	-5	-1	4	1	
16:50:00	-1	-1	-1	1	2	-1	-3	1	15	-3	1	12	7	1	0	-8	1	0	-3	
16:55:00	-1	2	1	1	0	0	1	2	4	-1	1	8	6	1	2	-5	0	-3	-1	
17:00:00	1	-2	-1	1	1	-1	0	-2	-3	-9	1	12	6	0	2	-6	-2	-4	2	
17:05:00	1	4	0	2	-1	1	-2	0	7	-1	1	9	6	1	-1	-5	3	-3	0	
17:10:00	-3	0	0	0	3	-1	0	-1	2	5	-1	12	4	-2	-2	-4	1	-1	5	
17:15:00	0	1	0	1	2	0	1	-1	-6	-1	0	12	6	-1	-2	-5	1	3	-1	
17:20:00	0	-1	0	-2	1	3	-1	-2	-7	5	2	12	6	-1	-1	-5	2	4	0	
17:25:00	1	2	1	0	2	0	1	2	-8	1	-2	10	7	-1	0	-4	1	0	-4	
17:30:00	2	-1	-1	0	-2	-2	-3	-2	-4	-1	-1	8	6	1	2	-3	2	-1	2	
17:35:00	1	-1	0	0	0	-1	-4	0	-6	0	0	7	7	0	0	-6	3	-1	0	
17:40:00	-2	2	0	-1	-1	0	-1	0	-1	0	0	12	7	-1	3	-6	2	0	1	
17:45:00	-1	0	0	1	2	0	-1	0	-6	-1	-1	12	6	0	2	-5	0	-1	-1	
17:50:00	-1	1	2	0	-1	0	0	0	1	-1	1	8	6	0	-1	-6	-1	1	2	
17:55:00	0	0	1	-2	1	4	1	-1	1	0	0	11	6	1	1	-4	1	1	4	
18:00:00	1	0	2	1	1	0	1	1	1	-3	2	12	6	0	1	-3	-1	-1	4	
18:05:00	1	1	2	1	0	2	2	0	0	1	-1	6	5	0	0	-6	-2	0	-2	
18:10:00	0	1	0	-1	-1	-1	0	1	0	1	-1	9	5	-1	0	-4	4	0	-4	
18:15:00	0	0	0	1	0	-1	0	-1	0	1	-1	15	5	0	-1	-3	0	1	1	
18:20:00	1	-1	1	0	0	0	0	-2	1	1	-1	8	7	1	1	-4	0	-1	0	
18:25:00	-2	0	-1	0	2	-1	1	2	0	-1	0	7	5	1	-1	-5	0	1	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	J5_East	J5_West	J6_East	J6_North	J6_South	J6_West	J7_East	J7_West	J8_East	J8_South	J8_West	Lidl_East	Lidl_West	J9_East	J9_North	J9_West	A85/Tulloch Terrace	A85/Tulloch Terrace	A85/Tulloch Terrace
	A85/Dobbies	A85/Dobbies	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/A9 Nb Off Slip	A85/Tesco	A85/Tesco	A85/Newhouse Road	A85/Newhouse Road	A85/Newhouse Road	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/Proposed Lidl	A85/Tulloch Terrace	A85/Tulloch Terrace	A85/Tulloch Terrace
	A85 East	A85 West	A85 East	New Road from Bertha Park	A9 Nb Off Slip	A85 West	A85 West	A85 West	A85 East	Newhouse Road	A85 West	A85 East	A85 West	A85 East	Road to Bertha Park	A85 West	A85 East	Tulloch Terrace	A85 West
06:30:00	0	0	0	0	0	-1	1	0	0	0	0	3	2	0	-1	-2	0	0	-2
06:35:00	0	1	1	0	1	0	0	-1	0	0	0	0	2	0	0	-1	0	-1	0
06:40:00	1	1	1	0	2	0	2	0	1	1	1	3	4	0	0	-3	1	0	-1
06:45:00	0	-1	0	0	-2	2	-1	1	2	1	0	2	4	0	0	-3	-1	0	1
06:50:00	0	1	-1	0	3	-1	0	0	1	0	0	2	3	-1	0	-4	1	0	-2
06:55:00	0	-2	-2	0	0	0	0	-1	0	-1	0	2	5	1	0	-4	2	-1	3
07:00:00	1	0	-2	2	1	1	1	-1	0	0	0	3	3	1	1	-3	1	0	-1
07:05:00	1	1	0	1	-4	1	0	-2	0	0	1	4	5	-1	1	-4	-2	1	0
07:10:00	0	-1	2	0	-2	2	2	1	2	1	0	5	5	0	-2	-5	-1	-1	1
07:15:00	1	1	-1	2	1	0	0	1	-1	0	0	5	6	-1	-1	-3	0	-1	2
07:20:00	-1	1	1	0	-2	2	-1	-3	-1	0	0	5	5	0	0	-3	0	1	0
07:25:00	0	-1	-2	-1	1	1	1	0	0	0	1	5	4	0	0	-3	2	0	-1
07:30:00	0	0	-1	1	1	1	-1	0	0	-1	0	5	6	0	-2	-4	0	0	1
07:35:00	-1	0	0	-1	0	2	0	-1	-1	1	1	4	6	2	1	-7	1	0	2
07:40:00	0	1	2	1	4	-1	2	1	0	0	1	7	6	1	1	-8	1	-1	-1
07:45:00	1	0	1	0	-2	-2	0	2	-1	1	0	5	6	0	0	-6	1	1	-1
07:50:00	2	1	0	1	-3	0	-1	0	2	-1	0	6	7	1	1	-6	-1	0	-1
07:55:00	0	0	1	-1	-2	-3	3	-3	-1	0	0	6	6	-1	0	-4	0	0	1
08:00:00	-1	-1	2	0	-2	1	-1	-1	-1	1	-1	6	6	-1	0	-6	2	-3	0
08:05:00	-1	2	0	1	3	-2	0	3	-2	-1	0	7	6	0	-1	-7	1	3	0
08:10:00	0	3	0	0	0	4	-1	-2	1	-2	-1	8	7	0	0	-7	-1	3	2
08:15:00	-1	4	-1	-1	-4	-1	-1	2	1	-1	-1	6	7	0	2	-5	1	0	-2
08:20:00	2	1	0	0	-1	-3	1	1	-1	-1	1	6	7	-1	0	-3	1	0	2
08:25:00	-1	0	1	0	-3	2	0	0	2	1	-2	6	7	2	1	-4	-3	1	-4
08:30:00	0	0	0	0	-1	0	1	0	1	1	1	7	6	-2	0	-5	0	1	-1
08:35:00	2	0	1	1	6	-3	-2	-2	-1	1	3	5	8	1	-1	-8	-1	3	-1
08:40:00	2	1	1	2	4	-1	3	2	-2	0	1	7	7	2	1	-7	0	5	-1
08:45:00	0	-2	-1	0	-3	1	0	1	-2	0	0	5	9	4	-1	-5	0	6	2
08:50:00	-1	-1	0	0	-5	1	0	1	0	1	0	6	7	2	0	-6	3	4	-2
08:55:00	-1	1	5	0	0	1	3	-4	1	7	1	6	7	2	1	-5	0	5	0
09:00:00	-1	4	3	1	0	6	-1	1	0	2	1	5	8	-1	0	-3	6	0	2
09:05:00	2	1	4	1	0	2	-1	-1	-1	3	-1	8	9	0	1	-1	1	-3	2
09:10:00	2	-2	-7	0	-2	-1	-3	-1	-2	-1	1	7	10	-2	0	1	2	-2	-1
09:15:00	-1	0	-4	1	2	0	-1	0	0	0	1	6	6	0	0	-4	-1	-2	-1
09:20:00	0	1	1	1	4	2	1	-5	1	1	0	4	8	4	1	-4	0	0	0
09:25:00	-1	1	0	0	-2	-2	1	2	0	-1	1	4	7	1	0	-6	1	0	4
09:30:00	-1	0	0	1	-6	0	0	4	-2	-2	-1	4	6	-2	0	-2	0	1	0
15:30:00	4	-1	-1	-1	2	5	0	2	4	2	0	12	5	0	1	-1	-1	-1	2
15:35:00	-1	0	0	1	1	0	1	1	2	-1	0	10	6	1	1	-6	2	2	-2
15:40:00	-2	0	1	1	-2	1	-1	3	1	2	-1	10	6	1	1	-6	2	3	-2
15:45:00	0	-1	1	1	2	0	0	-2	-1	-1	0	5	6	1	-1	-5	1	0	-1
15:50:00	2	0	0	1	2	0	0	0	1	1	0	7	7	-3	0	-3	-2	-1	3
15:55:00	2	-1	0	2	1	1	-1	-1	1	-5	0	8	6	0	2	-7	3	0	2
16:00:00	1	-2	0	-1	1	-2	1	1	2	1	0	7	6	-1	0	-7	0	0	2
16:05:00	0	1	1	0	0	0	1	0	1	3	2	7	6	0	-1	-5	-1	0	-2
16:10:00	0	0	1	1	1	0	1	2	3	2	0	8	6	0	1	-5	1	0	-2
16:15:00	1	3	1	0	-1	2	3	2	4	1	2	9	5	-1	2	-4	2	0	-4
16:20:00	0	0	-1	-1	4	1	-1	2	1	-1	1	6	6	0	0	-6	-2	0	1
16:25:00	0	-1	-1	0	0	-1	0	-3	2	1	0	10	7	1	1	-7	-3	0	0
16:30:00	0	3	1	-1	1	2	-2	-1	1	0	0	7	6	-1	0	-5	-1	0	-2
16:35:00	0	0	-1	-1	0	-1	-1	2	7	-2	1	14	7	0	0	-6	2	-1	-1
16:40:00	0	-2	0	-1	-1	1	2	1	0	0	1	17	6	1	1	-5	1	1	-2
16:45:00	3	-3	0	-1	1	-1	3	1	8	-4	0	14	7	0	1	-5	-4	-1	2
16:50:00	0	-6	0	-2	1	-3	-1	-5	5	3	0	8	7	1	1	-8	1	-3	-2
16:55:00	-1	-3	-1	1	1	0	1	1	2	-1	0	10	8	3	1	-4	1	-3	0
17:00:00	0	-2	-1	3	-1	-1	-1	1	10	-7	0	15	7	-1	1	-6	2	-5	0
17:05:00	0	6	-1	6	-2	2	-3	-1	14	-3	0	15	6	1	-1	-5	0	-1	5
17:10:00	2	0	-1	-1	0	2	-2	-2	2	6	0	8	6	-1	-2	-4	1	4	0
17:15:00	-1	2	1	2	0	2	4	-2	-11	0	0	9	6	-1	-1	-4	-1	1	1
17:20:00	0	-6	0	-2	0	-1	-1	-2	-12	6	0	7	8	-3	0	-4	-1	-2	4
17:25:00	1	-2	0	-1	1	-1	-2	-3	-14	-1	-1	12	6	-1	3	-2	1	-1	2
17:30:00	2	-1	-1	1	1	1	0	1	-9	-1	0	11	6	0	4	-3	1	-2	-1
17:35:00	-1	2	0	0	2	-1	-2	0	1	-4	1	15	6	1	4	-4	4	1	1
17:40:00	1	-1	-1	0	-2	0	1	-1	10	-1	1	16	6	-1	3	-5	3	3	-2
17:45:00	-2	4	-2	1	1	2	0	0	11	-1	1	12	6	4	2	-5	0	2	-1
17:50:00	-1	-1	-1	3	0	0	-1	1	3	-1	2	10	6	-1	1	-4	-1	-1	6
17:55:00	0	0	0	2	0	2	1	1	3	0	1	11	6	1	2	-2	1	4	2
18:00:00	-1	0	2	1	2	2	1	3	6	-3	2	11	7	2	2	-2	-1	2	4
18:05:00	-1	1	3	0	3	2	1	1	10	-2	0	5	6	3	0	-5	-4	0	1
18:10:00	-1	1	1	0	0	0	1	2	-1	0	-2	8	6	2	0	-3	2	-2	1
18:15:00	1	0	-1	0	-1	1	1	2	0	-1	1	5	7	1	-1	-5	1	-1	3
18:20:00	2	0	1	-1	2	0	-1	0	-2	0	0	8	6	1	0	-6	0	0	-3
18:25:00	-4	-2	1	0	-2	-2	3	2	3	0	0	8	5	1	-1	-4	1	1	-2
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

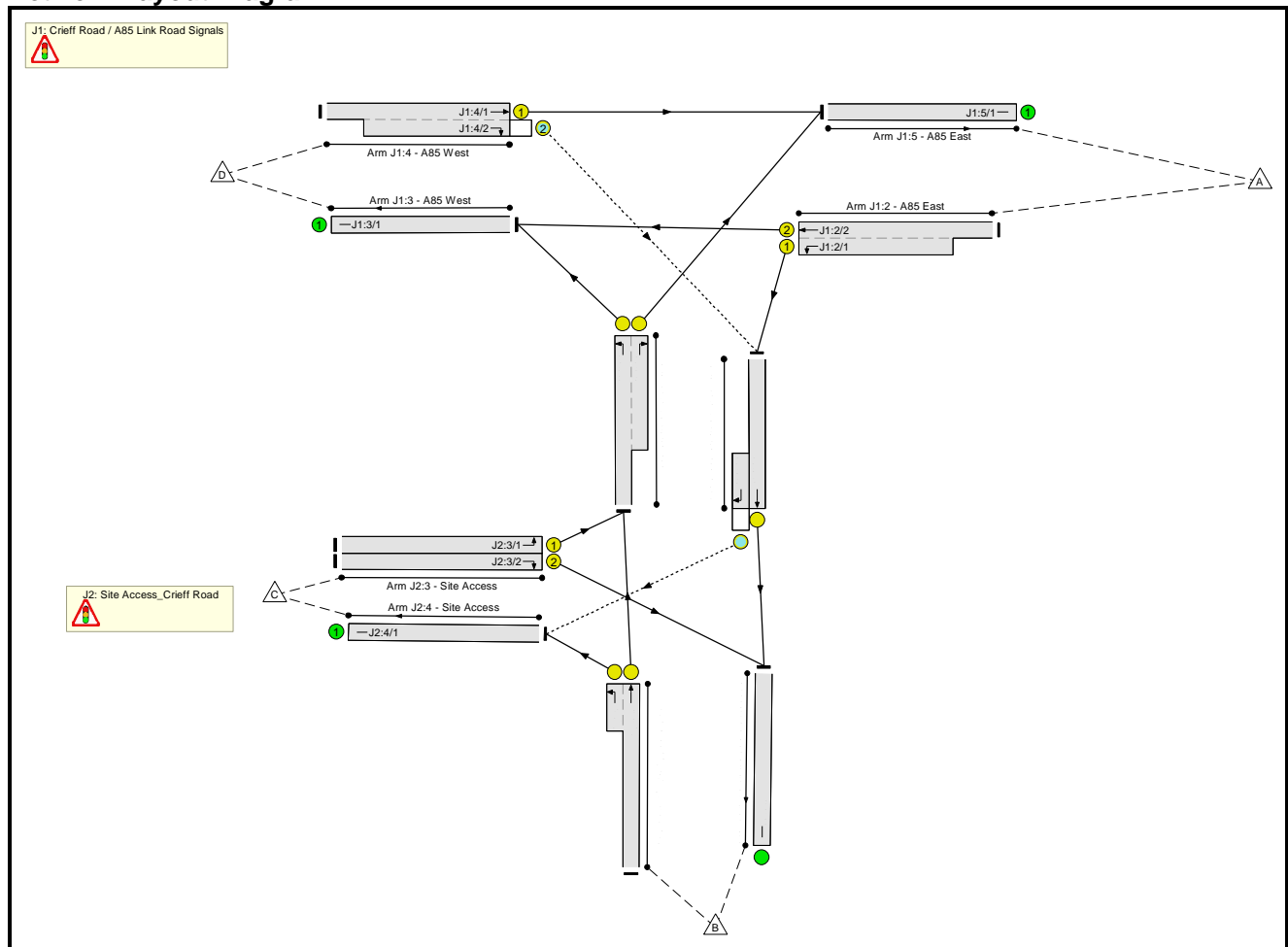
G. Linsing Modelling Results

Full Input Data And Results
Full Input Data And Results

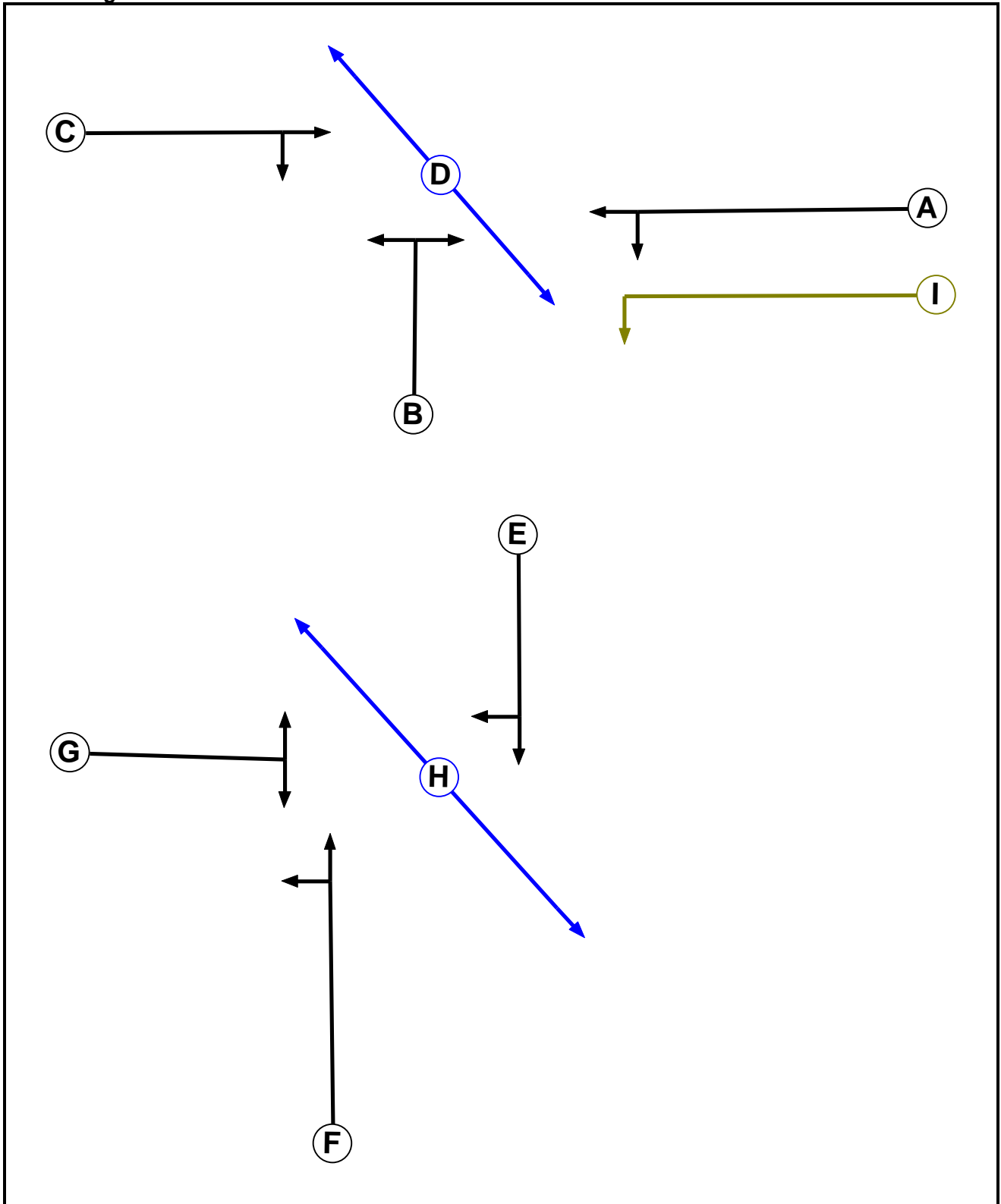
User and Project Details

Project:	Lidl Crieff Road, Perth
Title:	
Location:	
Client:	Lidl
Checked By:	SS
Additional detail:	
File name:	Crieff Road_Site Access.lsg3x
Author:	SS
Company:	ECS
Address:	

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Pedestrian	1		12	12
E	Traffic	2		7	7
F	Traffic	2		7	7
G	Traffic	2		7	7
H	Pedestrian	2		12	12
I	Filter	1	A	4	0

Phase Intergreens Matrix

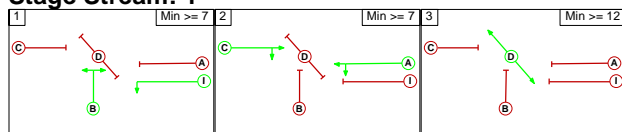
		Starting Phase									
		A	B	C	D	E	F	G	H	I	
Terminating Phase	A		6	-	12	-	-	-	-	-	-
	B	6		6	12	-	-	-	-	-	-
	C	-	6		12	-	-	-	-	-	6
	D	10	10	10		-	-	-	-	-	6
	E	-	-	-	-		-	6	12	-	-
	F	-	-	-	-	-		6	12	-	-
	G	-	-	-	-	6	6		12	-	-
	H	-	-	-	-	10	10	10		-	-
	I	-	-	6	6	-	-	-	-		-

Phases in Stage

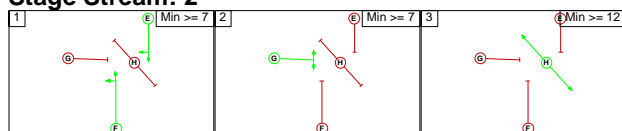
Stream	Stage No.	Phases in Stage
1	1	B I
1	2	A C
1	3	D
2	1	E F
2	2	G
2	3	H

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

		To Stage		
		1	2	3
From Stage	1		12	X
	2	6		12
	3	10	10	

Stage Stream: 2

		To Stage		
		1	2	3
From Stage	1		6	12
	2	6		12
	3	10	10	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Crieff Road / A85 Link Road Signals											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J1:4/2 (A85 West)	J2:5/1 (Right)	1439	0	J1:2/1	1.09	All	2.00	-	0.50	2	2.00
				J1:2/2	1.09	All					

Junction: J2: Site Access_Crieff Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J2:5/2 (Crieff Road East)	J2:4/1 (Right)	1439	0	J2:1/1	1.09	All	2.00	-	0.50	2	2.00
				J2:1/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Crieff Road / A85 Link Road Signals												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J1:1/1 (Crieff Road)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm J1:3 Left	15.00
J1:1/2 (Crieff Road)	U	B	2	3	10.4	Geom	-	3.40	0.00	Y	Arm J1:5 Right	15.00
J1:2/1 (A85 East)	U	A I	2	3	17.4	Geom	-	3.25	0.00	Y	Arm J2:5 Left	15.00
J1:2/2 (A85 East)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm J1:3 Ahead	Inf
J1:3/1 (A85 West)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/1 (A85 West)	U	C	2	3	34.8	Geom	-	3.25	0.00	Y	Arm J1:5 Ahead	Inf
J1:4/2 (A85 West)	O	C	2	3	22.6	Geom	-	3.25	0.00	Y	Arm J2:5 Right	20.00
J1:5/1 (A85 East)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: Site Access_Crieff Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Crieff Road West)	U	F	2	3	4.3	Geom	-	3.00	0.00	Y	Arm J2:4 Left	7.50
J2:1/2 (Crieff Road West)	U	F	2	3	60.0	Geom	-	3.00	0.00	N	Arm J1:1 Ahead	Inf
J2:2/1 (Crieff Road westbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:3/1 (Site Access)	U	G	2	3	60.0	Geom	-	3.25	0.00	Y	Arm J1:1 Left	10.00
J2:3/2 (Site Access)	U	G	2	3	60.0	Geom	-	3.25	0.00	N	Arm J2:2 Right	12.00
J2:4/1 (Site Access)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:5/1 (Crieff Road East)	U	E	2	3	60.0	Geom	-	3.50	0.00	Y	Arm J2:2 Ahead	Inf
J2:5/2 (Crieff Road East)	O	E	2	3	5.0	Geom	-	3.25	0.00	Y	Arm J2:4 Right	10.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 AM Design Sensitivity'	08:15	09:15	01:00	
2: '2024 PM Design Sensitivity'	16:45	17:45	01:00	

Scenario 1: '2024 AM Design Sens' (FG1: '2024 AM Design Sensitivity', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	281	27	222	530
	B	443	0	24	90	557
	C	46	19	0	4	69
	D	100	77	4	0	181
	Tot.	589	377	55	316	1337

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2024 AM Design Sens
Junction: J1: Crieff Road / A85 Link Road Signals	
J1:1/1 (with short)	583(In) 94(Out)
J1:1/2 (short)	489
J1:2/1 (short)	308
J1:2/2 (with short)	530(In) 222(Out)
J1:3/1	316
J1:4/1 (with short)	181(In) 100(Out)
J1:4/2 (short)	81
J1:5/1	589
Junction: J2: Site Access_Crieff Road	
J2:1/1 (short)	24
J2:1/2 (with short)	557(In) 533(Out)
J2:2/1	377
J2:3/1	50
J2:3/2	19
J2:4/1	55
J2:5/1 (with short)	389(In) 358(Out)
J2:5/2 (short)	31

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Crieff Road / A85 Link Road Signals								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Crieff Road)	3.25	0.00	Y	Arm J1:3 Left	15.00	100.0 %	1764	1764
J1:1/2 (Crieff Road)	3.40	0.00	Y	Arm J1:5 Right	15.00	100.0 %	1777	1777
J1:2/1 (A85 East)	3.25	0.00	Y	Arm J2:5 Left	15.00	100.0 %	1764	1764
J1:2/2 (A85 East)	3.25	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (A85 West Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/1 (A85 West)	3.25	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1940	1940
J1:4/2 (A85 West)	3.25	0.00	Y	Arm J2:5 Right	20.00	100.0 %	1805	1805
J1:5/1 (A85 East Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Site Access_Crieff Road									
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)	
J2:1/1 (Crieff Road West)	3.00	0.00	Y	Arm J2:4 Left	7.50	100.0 %	1596	1596	
J2:1/2 (Crieff Road West)	3.00	0.00	N	Arm J1:1 Ahead	Inf	100.0 %	2055	2055	
J2:2/1 (Crieff Road westbound Lane 1)	Infinite Saturation Flow						Inf	Inf	
J2:3/1 (Site Access)	3.25	0.00	Y	Arm J1:1 Left	10.00	100.0 %	1687	1687	
J2:3/2 (Site Access)	3.25	0.00	N	Arm J2:2 Right	12.00	100.0 %	1849	1849	
J2:4/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf	
J2:5/1 (Crieff Road East)	3.50	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1965	1965	
J2:5/2 (Crieff Road East)	3.25	0.00	Y	Arm J2:4 Right	10.00	100.0 %	1687	1687	

Full Input Data And Results

Scenario 2: '2024 PM Design Sens' (FG2: '2024 PM Design Sensitivity', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	416	69	177	662
	B	353	0	52	64	469
	C	61	40	0	5	106
	D	163	117	11	0	291
	Tot.	577	573	132	246	1528

Traffic Lane Flows

Lane	Scenario 2: 2024 PM Design Sens
Junction: J1: Crieff Road / A85 Link Road Signals	
J1:1/1 (with short)	483(In) 69(Out)
J1:1/2 (short)	414
J1:2/1 (short)	485
J1:2/2 (with short)	662(In) 177(Out)
J1:3/1	246
J1:4/1 (with short)	291(In) 163(Out)
J1:4/2 (short)	128
J1:5/1	577
Junction: J2: Site Access_Crieff Road	
J2:1/1 (short)	52
J2:1/2 (with short)	469(In) 417(Out)
J2:2/1	573
J2:3/1	66
J2:3/2	40
J2:4/1	132
J2:5/1 (with short)	613(In) 533(Out)
J2:5/2 (short)	80

Lane Saturation Flows

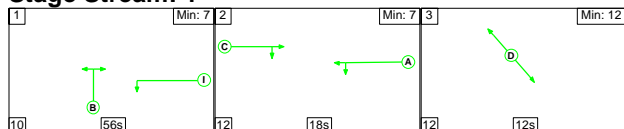
Junction: J1: Crieff Road / A85 Link Road Signals								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Crieff Road)	3.25	0.00	Y	Arm J1:3 Left	15.00	100.0 %	1764	1764
J1:1/2 (Crieff Road)	3.40	0.00	Y	Arm J1:5 Right	15.00	100.0 %	1777	1777
J1:2/1 (A85 East)	3.25	0.00	Y	Arm J2:5 Left	15.00	100.0 %	1764	1764
J1:2/2 (A85 East)	3.25	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (A85 West Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/1 (A85 West)	3.25	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1940	1940
J1:4/2 (A85 West)	3.25	0.00	Y	Arm J2:5 Right	20.00	100.0 %	1805	1805
J1:5/1 (A85 East Lane 1)	Infinite Saturation Flow						Inf	Inf

Junction: J2: Site Access_Crieff Road									
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)	
J2:1/1 (Crieff Road West)	3.00	0.00	Y	Arm J2:4 Left	7.50	100.0 %	1596	1596	
J2:1/2 (Crieff Road West)	3.00	0.00	N	Arm J1:1 Ahead	Inf	100.0 %	2055	2055	
J2:2/1 (Crieff Road westbound Lane 1)	Infinite Saturation Flow						Inf	Inf	
J2:3/1 (Site Access)	3.25	0.00	Y	Arm J1:1 Left	10.00	100.0 %	1687	1687	
J2:3/2 (Site Access)	3.25	0.00	N	Arm J2:2 Right	12.00	100.0 %	1849	1849	
J2:4/1 (Site Access Lane 1)	Infinite Saturation Flow						Inf	Inf	
J2:5/1 (Crieff Road East)	3.50	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1965	1965	
J2:5/2 (Crieff Road East)	3.25	0.00	Y	Arm J2:4 Right	10.00	100.0 %	1687	1687	

Scenario 1: '2024 AM Design Sens' (FG1: '2024 AM Design Sensitivity', Plan 1: 'Network Control Plan 1')

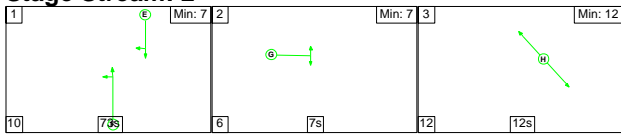
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

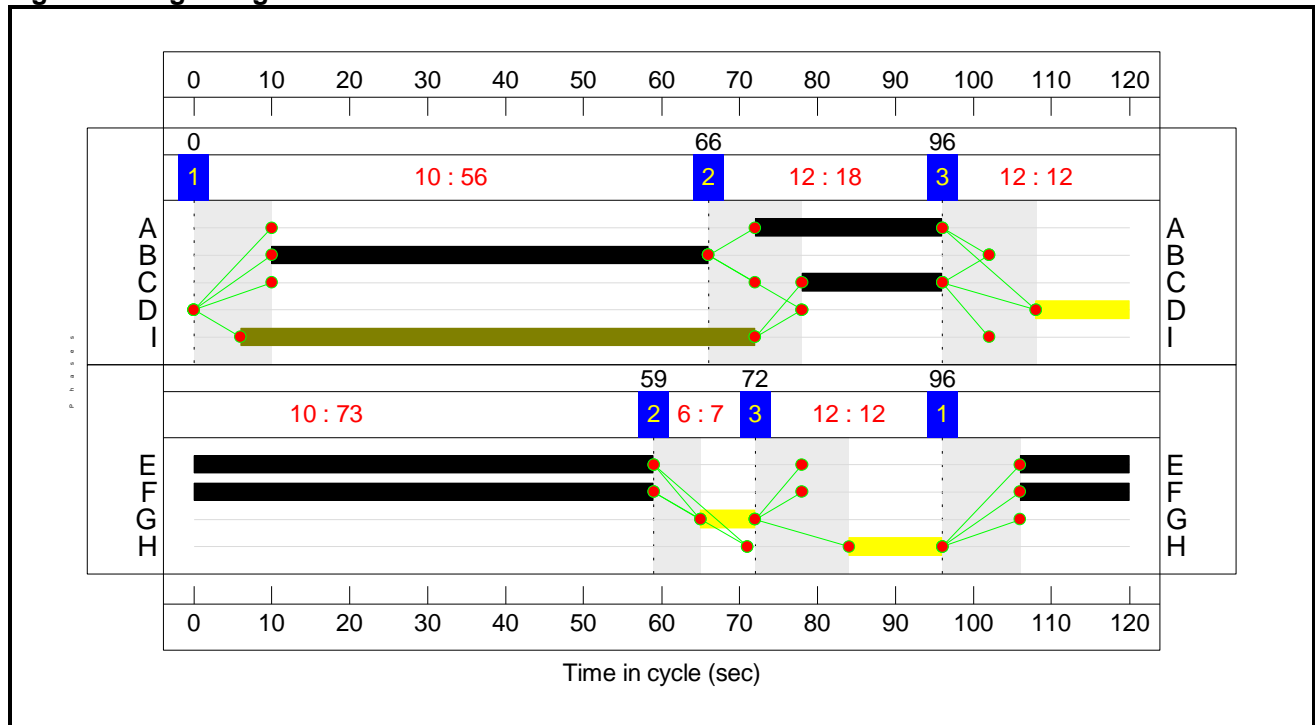
Stage Stream: 1

Stage	1	2	3
Duration	56	18	12
Change Point	0	66	96

Stage Stream: 2

Stage	1	2	3
Duration	73	7	12
Change Point	96	59	72

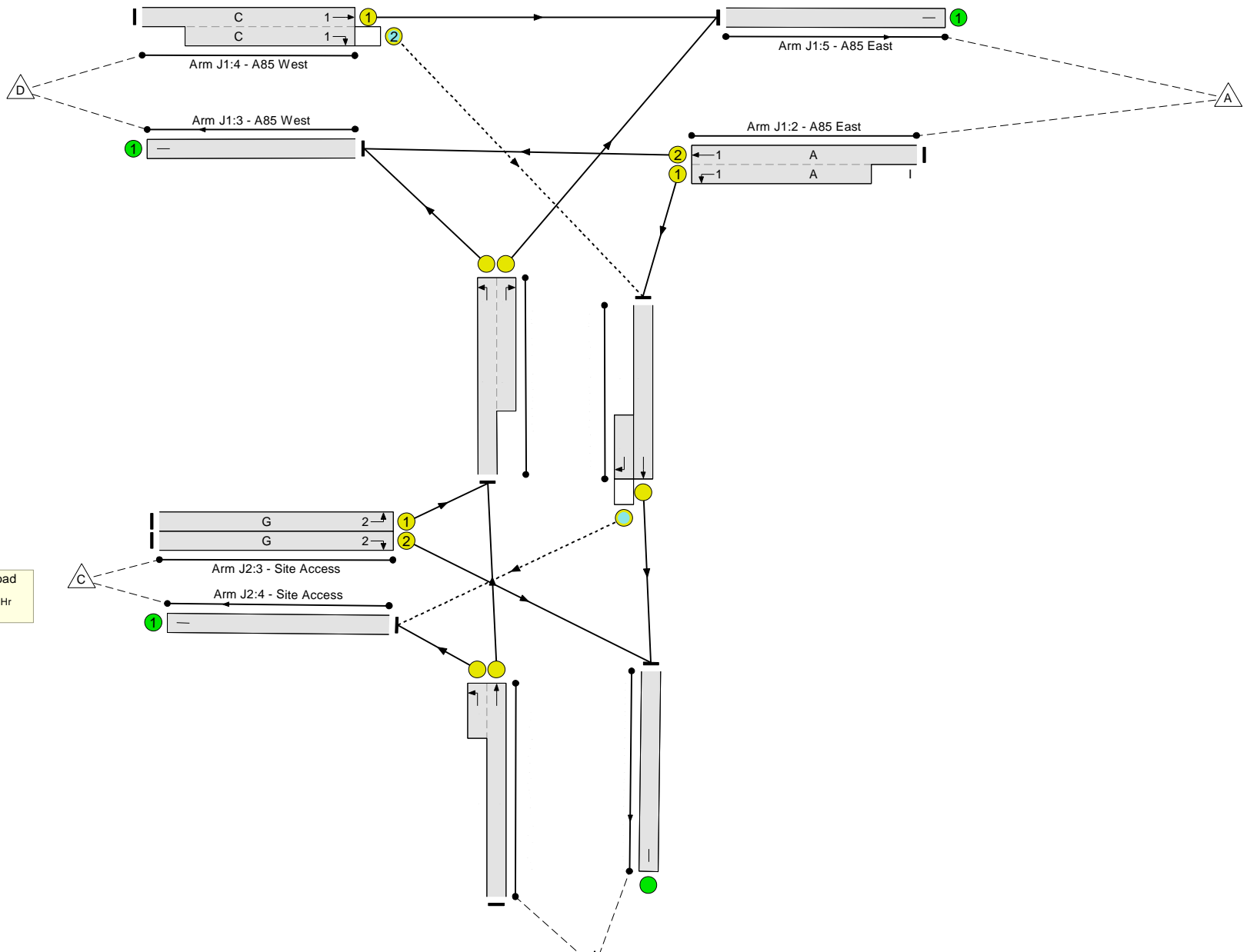
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

J1: Crieff Road / A85 Link Road Signals
PRC: 41.1 %
Total Traffic Delay: 9.5 pcuHr



J2: Site Access_Crieff Road
PRC: 102.4 %
Total Traffic Delay: 4.9 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	63.8%
J1: Crieff Road / A85 Link Road Signals	-	-	N/A	-	-		-	-	-	-	-	-	63.8%
1/1+1/2	Crieff Road Left Right	U	1	N/A	B		1	56	-	583	1764:1777	147+767	63.8 : 63.8%
2/2+2/1	A85 East Ahead Left	U	1	N/A	A	I	1	24:90	66	530	1940:1764	404+561	54.9 : 54.9%
3/1	A85 West	U	N/A	N/A	-		-	-	-	316	Inf	Inf	0.0%
4/1+4/2	A85 West Ahead Right	U+O	1	N/A	C		1	18	-	181	1940:1805	307+135	32.6 : 60.2%
5/1	A85 East	U	N/A	N/A	-		-	-	-	589	Inf	Inf	0.0%
J2: Site Access_Crieff Road	-	-	N/A	-	-		-	-	-	-	-	-	44.5%
1/2+1/1	Crieff Road West Ahead Left	U	2	N/A	F		1	73	-	557	2055:1596	1209+54	44.1 : 44.1%
2/1	Crieff Road westbound	U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
3/1	Site Access Left	U	2	N/A	G		1	7	-	50	1687	112	44.5%
3/2	Site Access Right	U	2	N/A	G		1	7	-	19	1849	123	15.4%
4/1	Site Access	U	N/A	N/A	-		-	-	-	55	Inf	Inf	0.0%
5/1+5/2	Crieff Road East Ahead Right	U+O	2	N/A	E		1	73	-	389	1965:1687	1117+97	32.1 : 32.1%

Full Input Data And Results

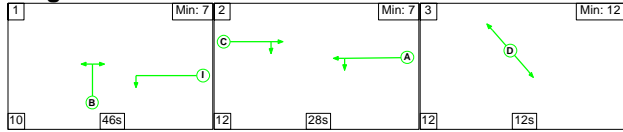
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	112	0	0	11.3	2.9	0.2	14.5	-	-	-	-
J1: Crieff Road / A85 Link Road Signals	-	-	81	0	0	7.5	1.8	0.2	9.5	-	-	-	-
1/1+1/2	583	583	-	-	-	2.3	0.9	-	3.2	19.5	16.0	0.9	16.8
2/2+2/1	530	530	-	-	-	3.0	0.6	-	3.6	24.4	6.6	0.6	7.2
3/1	316	316	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1+4/2	181	181	81	0	0	2.3	0.3	0.2	2.8	55.5	2.9	0.3	3.3
5/1	589	589	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Site Access_Crieff Road	-	-	31	0	0	3.8	1.1	0.1	4.9	-	-	-	-
1/2+1/1	557	557	-	-	-	1.8	0.4	-	2.2	14.4	9.4	0.4	9.8
2/1	377	377	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	50	50	-	-	-	0.7	0.4	-	1.1	82.4	1.6	0.4	2.0
3/2	19	19	-	-	-	0.3	0.1	-	0.4	70.1	0.6	0.1	0.7
4/1	55	55	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1+5/2	389	389	31	0	0	0.9	0.2	0.1	1.2	11.1	4.7	0.2	4.9
			C1 Stream: 1 PRC for Signalled Lanes (%): 41.1		Total Delay for Signalled Lanes (pcuHr): 9.53		Cycle Time (s): 120						
			C1 Stream: 2 PRC for Signalled Lanes (%): 102.4		Total Delay for Signalled Lanes (pcuHr): 4.94		Cycle Time (s): 120						
			PRC Over All Lanes (%): 41.1		Total Delay Over All Lanes(pcuHr): 14.47								

Full Input Data And Results

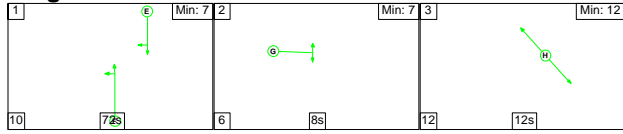
Scenario 2: '2024 PM Design Sens' (FG2: '2024 PM Design Sensitivity', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

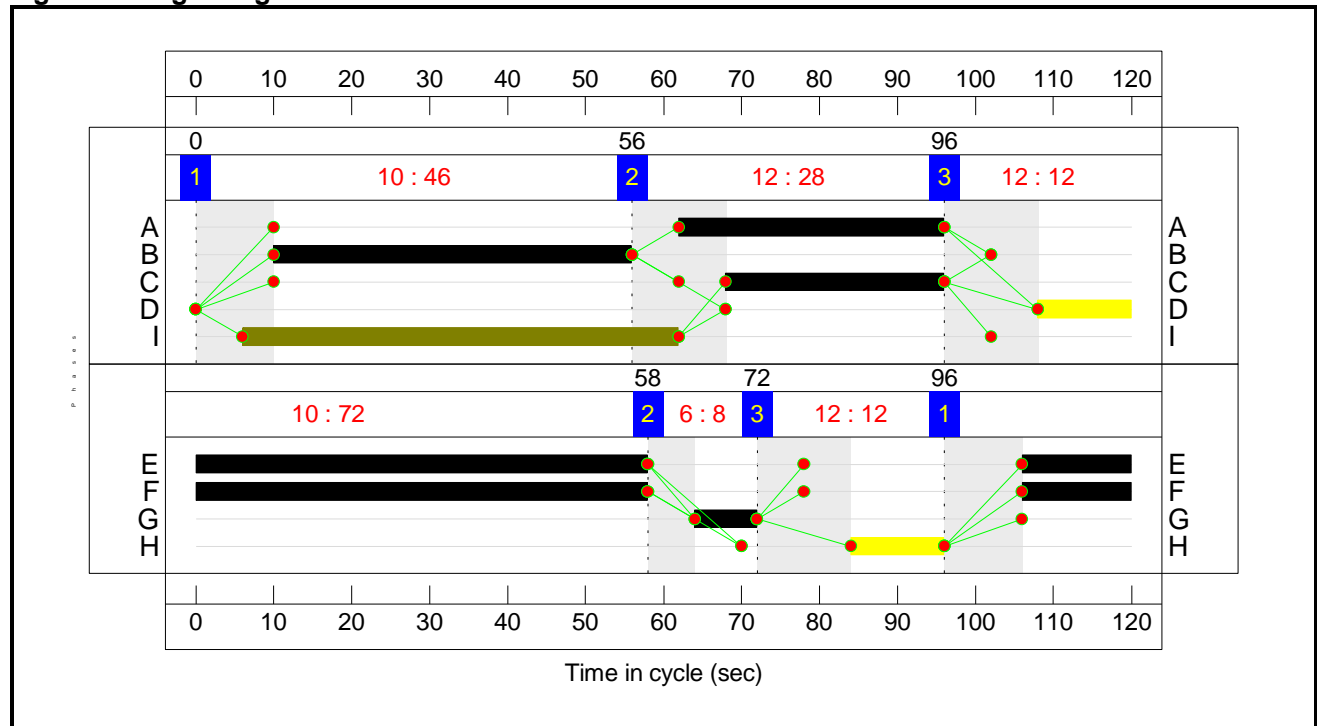
Stage Stream: 1

Stage	1	2	3
Duration	46	28	12
Change Point	0	56	96

Stage Stream: 2

Stage	1	2	3
Duration	72	8	12
Change Point	96	58	72

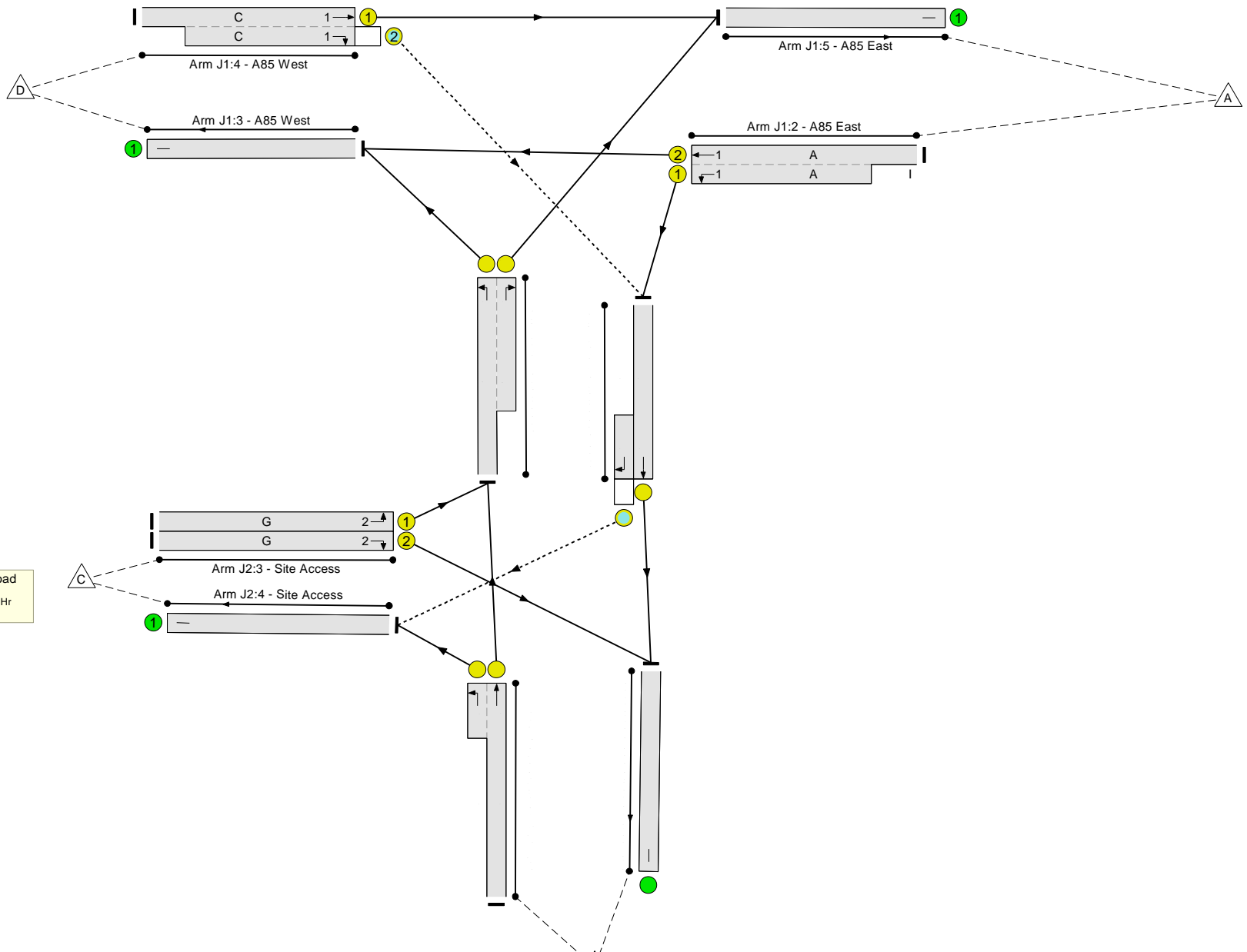
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

J1: Crieff Road / A85 Link Road Signals
PRC: 41.2 %
Total Traffic Delay: 10.1 pcuHr



J2: Site Access_Crieff Road
PRC: 72.5 %
Total Traffic Delay: 6.8 pcuHr

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	63.7%
J1: Crieff Road / A85 Link Road Signals	-	-	N/A	-	-		-	-	-	-	-	-	63.7%
1/1+1/2	Crieff Road Left Right	U	1	N/A	B		1	46	-	483	1764:1777	108+650	63.7 : 63.7%
2/2+2/1	A85 East Ahead Left	U	1	N/A	A	I	1	34:90	56	662	1940:1764	415+1136	42.7 : 42.7%
3/1	A85 West	U	N/A	N/A	-		-	-	-	246	Inf	Inf	0.0%
4/1+4/2	A85 West Ahead Right	U+O	1	N/A	C		1	28	-	291	1940:1805	469+203	34.8 : 62.9%
5/1	A85 East	U	N/A	N/A	-		-	-	-	577	Inf	Inf	0.0%
J2: Site Access_Crieff Road	-	-	N/A	-	-		-	-	-	-	-	-	52.2%
1/2+1/1	Crieff Road West Ahead Left	U	2	N/A	F		1	72	-	469	2055:1596	1099+137	37.9 : 37.9%
2/1	Crieff Road westbound	U	N/A	N/A	-		-	-	-	573	Inf	Inf	0.0%
3/1	Site Access Left	U	2	N/A	G		1	8	-	66	1687	127	52.2%
3/2	Site Access Right	U	2	N/A	G		1	8	-	40	1849	139	28.8%
4/1	Site Access	U	N/A	N/A	-		-	-	-	132	Inf	Inf	0.0%
5/1+5/2	Crieff Road East Ahead Right	U+O	2	N/A	E		1	72	-	613	1965:1687	1042+156	51.1 : 51.1%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)																					
Network	-	-	208	0	0	13.3	3.2	0.3	16.8	-	-	-	-																					
J1: Crieff Road / A85 Link Road Signals	-	-	128	0	0	8.2	1.6	0.2	10.1	-	-	-	-																					
1/1+1/2	483	483	-	-	-	2.9	0.9	-	3.7	27.8	11.3	0.9	12.2																					
2/2+2/1	662	662	-	-	-	2.3	0.4	-	2.7	14.4	5.3	0.4	5.6																					
3/1	246	246	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																					
4/1+4/2	291	291	128	0	0	3.1	0.4	0.2	3.7	45.5	4.5	0.4	4.9																					
5/1	577	577	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																					
J2: Site Access_Crieff Road	-	-	80	0	0	5.1	1.6	0.1	6.8	-	-	-	-																					
1/2+1/1	469	469	-	-	-	1.5	0.3	-	1.8	13.8	7.2	0.3	7.5																					
2/1	573	573	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																					
3/1	66	66	-	-	-	1.0	0.5	-	1.5	82.7	2.1	0.5	2.6																					
3/2	40	40	-	-	-	0.6	0.2	-	0.8	70.7	1.3	0.2	1.5																					
4/1	132	132	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0																					
5/1+5/2	613	613	80	0	0	2.0	0.5	0.1	2.7	15.7	11.9	0.5	12.4																					
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%;">C1 Stream: 1 PRC for Signalled Lanes (%):</td> <td style="width: 10%;">41.2</td> <td style="width: 30%;">Total Delay for Signalled Lanes (pcuHr):</td> <td style="width: 10%;">10.06</td> <td style="width: 10%;">Cycle Time (s):</td> <td style="width: 10%;">120</td> </tr> <tr> <td></td> <td>C1 Stream: 2 PRC for Signalled Lanes (%):</td> <td>72.5</td> <td>Total Delay for Signalled Lanes (pcuHr):</td> <td>6.77</td> <td>Cycle Time (s):</td> <td>120</td> </tr> <tr> <td></td> <td>PRC Over All Lanes (%):</td> <td>41.2</td> <td>Total Delay Over All Lanes(pcuHr):</td> <td>16.84</td> <td></td> <td></td> </tr> </table>															C1 Stream: 1 PRC for Signalled Lanes (%):	41.2	Total Delay for Signalled Lanes (pcuHr):	10.06	Cycle Time (s):	120		C1 Stream: 2 PRC for Signalled Lanes (%):	72.5	Total Delay for Signalled Lanes (pcuHr):	6.77	Cycle Time (s):	120		PRC Over All Lanes (%):	41.2	Total Delay Over All Lanes(pcuHr):	16.84		
	C1 Stream: 1 PRC for Signalled Lanes (%):	41.2	Total Delay for Signalled Lanes (pcuHr):	10.06	Cycle Time (s):	120																												
	C1 Stream: 2 PRC for Signalled Lanes (%):	72.5	Total Delay for Signalled Lanes (pcuHr):	6.77	Cycle Time (s):	120																												
	PRC Over All Lanes (%):	41.2	Total Delay Over All Lanes(pcuHr):	16.84																														