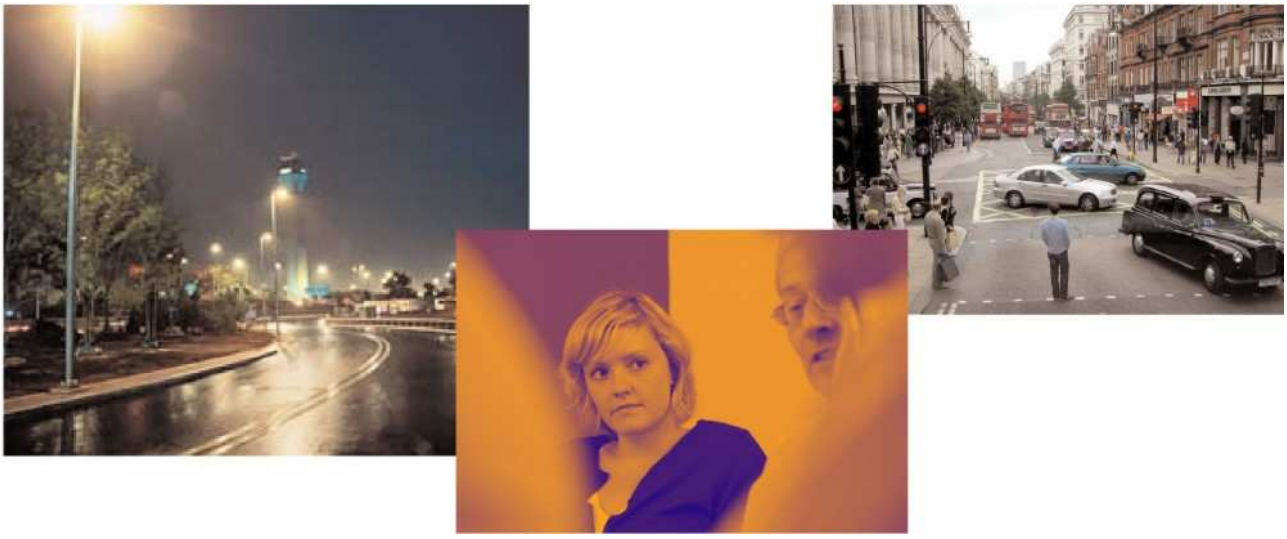
Barnsley Markets Redevelopment

Transport Assessment

In Association With 1249 Regeneration Partnership

June 2011



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1 Introduction

1.1 Background

1.1.1 In 2001 Barnsley was designated a 'Renaissance Town' by Yorkshire Forward, the Regional Development Agency (RDA) for Yorkshire and Humber. The overarching strategy that emerged from the Renaissance Town process for rejuvenating Barnsley was to create a 21st Century Market Town with a redeveloped, modern town centre market area a critical element in achieving this vision.

1.1.2 The RDAs have recently been disbanded with responsibility for leading and driving local economies passing to the newly formed Local Enterprise Partnerships (LEPs). In late 2010 LEPs for both the Sheffield and Leeds 'City Regions' were established, with Barnsley located within both of these LEP areas. In relation to Barnsley, the emerging vision continues to focus on creating a 21st Century Market Town and the redevelopment of the existing markets site remains a key element of the vision for the town.

1.1.3 Redevelopment proposals for the markets site were originally prepared by the '1249 Regeneration Partnership', who were identified as 'preferred developers' in December 2004, and planning approval was granted by Barnsley Metropolitan Borough Council (BMBC) in 2006. Working on behalf of 1249, MVA Consultancy produced the Transport Assessment that supported the original development proposals.

1.1.4 The economic downturn that began in 2007 resulted in the delay and eventual redesign of the markets redevelopment scheme. The revised scheme continues to offer a step-change improvement in the retail and leisure offering within Barnsley Town Centre and ensures the vision of a creating 21st Century Market Town is progressed.

1.1.5 In 2010 MVA Consultancy was commissioned to provide transport and traffic advice to the development team and to produce this Transport Assessment in relation to the revised Barnsley Markets development proposals.

1.2 Transport Assessment Scope and Methodology

1.2.1 In December 2010, a Transport Scoping Note was produced that set out how MVA proposed to undertake the Transport Assessment. This included an overview of proposed trip generation and distribution methodologies; an outline car parking and access strategy; proposed assessment periods, future years and methodology used to growth background traffic; and the area of impact to be considered in the assessment. In summary, it was proposed to undertake the assessments of the following scenarios:

- weekday evening peak hour; and
- Saturday peak hour.

1.2.2 It was also proposed to undertake the traffic impact assessments for the assumed year of opening and the assumed year of opening plus 10 years. The year of opening is assumed to be 2013. Agreement was reached in early 2011 with officers from Barnsley Metropolitan Borough Council (BMBC) that the proposed scope and methodologies laid out within the Scoping Note were acceptable and should form the basis of this Transport Assessment.

1.2.3 The Transport Scoping Note is included as Appendix A of this report. Further detail on the scope and methodologies used are reproduced and discussed in more detail throughout this report.

1.2.4 The assessment has been undertaken as agreed in the scoping exercise and in accordance with the 'Guidance on Transport Assessment' published by the Department for Transport (DfT) and Department for Communities and Local Government (DCLG).

1.2.5 In January and February 2011, a proposed access strategy was developed and assessed by MVA. This included the two proposed access junctions, which were demonstrated to be capable of providing future year highway capacity with the additional traffic generated by the development. An 'in principle' agreement regarding the access proposals was reached with all attendees at a meeting with BMBC held on 17 February and the access strategy was formalised in an Access Strategy Note. Minutes from the 17 February meeting and a copy of the Access Strategy Note is included as Appendix B of this report.

1.3 The Development Site

1.3.1 The location of the Site is shown in Figure 1.1.

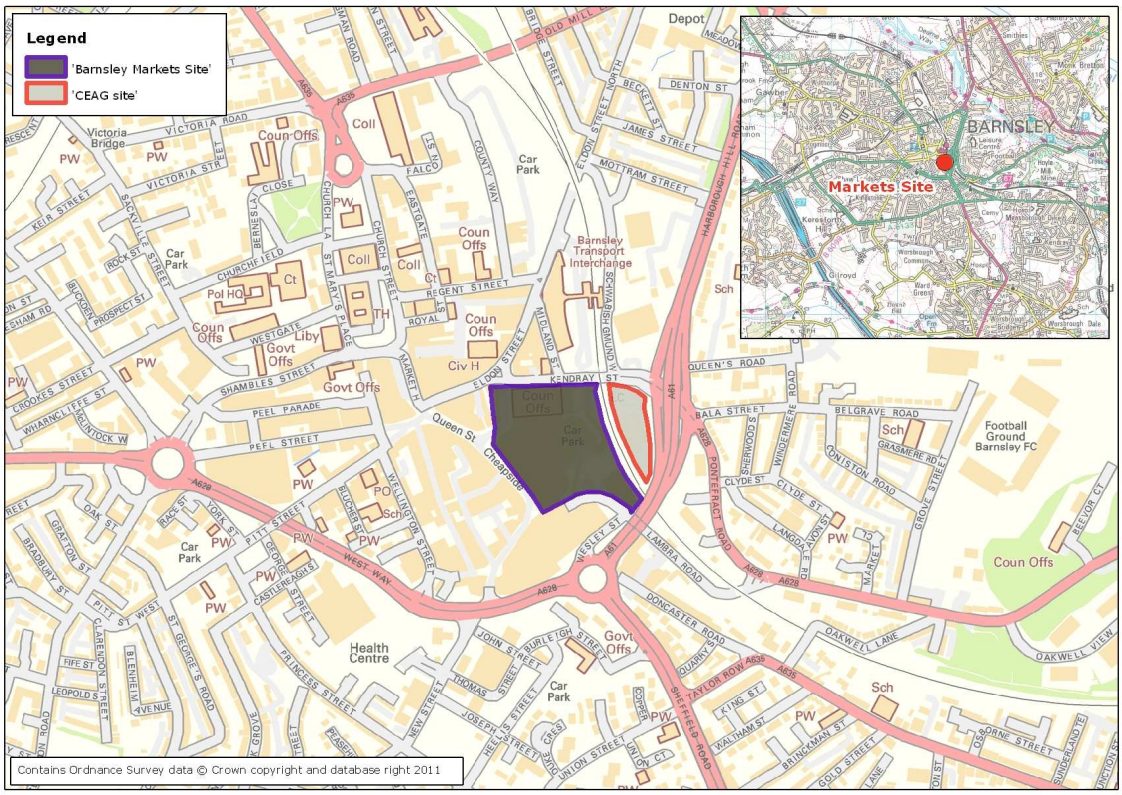


Figure 1.1: Development Site Location

1.3.2 The site is located in Barnsley Town Centre and the proposed development area comprises two related sites. The existing 'Barnsley Markets site' is located between Kendray Street; May Day Green; Cheapside; The Alhambra Car Park and the railway line. A secondary site, located to the east of the railway line and known as the 'CEAG site', is proposed to be used as a development surface level car park.

1.3.3 The proposals are for the redevelopment of the Barnsley Markets site for mixed retail, markets and leisure (cinema) usage and the development of a surface level car park on the CEAG site.

2 Proposed Development

2.1 Existing Land Uses

2.1.1 The development site currently consists of the Metropolitan Shopping Centre, Barnsley Markets complex and the associated multi-storey car park. Situated above the market units is the former BMBC offices and associated car parking deck, and there is a further 1,500m² of disused retail floorspace within the site at 1 Lambra Road.

2.1.2 The existing retail offering within the site comprises approximately 15,000m² of retail floor area within the Metropolitan Shopping Centre and 7,500m² of the markets and therefore the total retail provision is 22,500m². The MSCP has a capacity of approximately 600 spaces, this does not include the spaces associated with the BMBC offices.

2.1.3 The market consists of a range of stalls, some of which are semi-permanent and some of which are rented on a shorter term basis. The stalls sell a wide range of goods, including second hand toys and clothes, fresh food, carpets and other large items of furniture. There is a 'lock-up' facility within the site which enables some of the traders to keep their stock on site and only undertake servicing approximately once per week.

2.1.4 The existing markets comprise of the following three main areas:

- Main market hall and meat and fish markets – open every day, except Thursday and Sunday;
- Open market – open Wednesday, Friday and Saturday; and
- Semi open market – open Tuesday, Wednesday, Friday and Saturday.

2.1.5 There is also a car boot sale at the site every Sunday morning.

2.1.6 The CEAG building, located to the east of the railway line, previously housed the CEAG Lighting Company but is now vacant.

2.2 Proposed Land Uses

2.2.1 An overview of the proposed development plans is presented in Appendix C.

2.2.2 The application proposals are for the complete demolition and redevelopment of the existing buildings on the main markets site. The existing uses will be replaced by a new mixed leisure and retail development with associated multi-storey car park with the primary purpose of serving visitors from the south, southeast and west. The CEAG building will also be demolished and replaced by a surface level car park to primarily serve visitors from the north and east.

2.2.3 The type and quantum of the proposed development land uses are summarised in Table 2.1. The floor areas presented in the table are not strictly Retail Floor Areas (RFA) or Gross Floor Areas (GFA). They are not strictly RFA's (ie only areas usable by shoppers) because they represent the total area assigned for retail, market or cinema units and therefore include areas that will be used for storage by occupiers. Neither are they GFA's (ie total floor areas) because they exclude other 'back of house' uses (including plant rooms and servicing areas)

and public circulation areas. For the purposes of trip generation forecasting (see Chapter 6), we have assumed all the figures in Table 2.1 represent RFA, which will provide a more robust approach.

Table 2.1: Proposed Floor Areas (sqm)

	Level				
Land Use	**Interchange**	**Cheapside**	**Upper**	**Leisure**	**Total**
Retail	1,475	12,032	10,271	0	23,778
Dept. Store	0	3,296	3,242	0	6,538
Market	2,974	2,468	1,018	0	6,460
Cinema	0	0	0	2,519	2,519
Total	**4,449**	**17,796**	**14,531**	**2,519**	**39,295**

2.2.4 It is proposed that the development will be served by a total of approximately 810 car parking spaces; 560 in a MSCP and 250 in a surface level car park on the CEAG site.

2.2.5 A number of food and drinks outlets will be provided within the redeveloped site but the precise floor areas for this usage is currently not known. For the purposes of trip generation forecasting (see Chapter 6), the food and drink outlets are incorporated within the total floor area. As food and drink outlets within retail developments are unlikely to generate many trips in their own right, classifying their floor areas as retail areas adds greater robustness to the trip generation methodology.

2.2.6 Compared to the previously approved planning application for the redevelopment of the site, the latest proposals represent a reduction in size and scope. There is no bowling complex or residential elements proposed and the retail and car parking provision has been reduced. The changes to the development proposals are a result of the economic downturn and will reduce the volumes of traffic generated by the development. However, the revised development proposals continue to represent an improvement in retail and leisure offering within Barnsley, both in terms of size and quality.

3 Transport Policy

3.1 Introduction

3.1.1 This chapter provides a summary of the key local and regional transport-related policies, strategies and planning documents that the proposed redevelopment of Barnsley Town Centre is to support and comply with.

3.2 Local Transport Plans

3.2.1 Local authorities and Integrated Transport Authorities are currently in the process of preparing their Local Transport Plans (LTPs) for the period between 2011 and 2026. This represents a change from previous LTPs, which were produced for shorter periods of 5 years. The first stage of this process is the production of an overarching Transport Strategy, followed by an implementation plan, underpinned by annual delivery programmes. Transport Strategies are being produced by City Region Partnerships with Barnsley falling within the boundaries of both the **Sheffield City Region** and the **Leeds City Region**. Final draft versions of the Transport Strategy documents were available at the time of writing and are summarised below. The finalised Local Transport Plan will be published later in 2011, for this reason, a summary of the second plan published in 2006 is also included in this chapter.

3.2.2 Central Government has identified the following five goals for transport which the Transport Strategies should aim to achieve:

- reduce carbon emissions;
- support economic growth;
- promote equality of opportunity;
- contribute to better safety, security and health; and
- improve quality of life and healthy natural environment.

Sheffield City Region (SCR) Transport Strategy

3.2.3 The final draft of the SCR Transport Strategy sets out a range of policies in order to meet the following goals:

- supporting economic growth;
- enhancing social inclusion and health;
- reducing emissions; and
- maximising safety.

3.2.4 As part of the Transport Strategy, the vision for Barnsley is for the town to become "a borough with strong economic links to both City Regions, which regenerates itself as a 21st-Century Market Town and focuses on improving skills and offering high quality housing."

3.2.5 It is acknowledged within the report that transport interventions must support the wider regeneration and policy agenda and a number of plans in Barnsley are identified:

- access from the M1 to employment and development sites in Barnsley and potential for the Barnsley Orbital Route, to facilitate the delivery of Barnsley's growth strategy, focused on its Accessibility Improvement Zone;
- work with partners to improve the public realm in Barnsley linking the transport interchange, market and surrounding area;
- the Barnsley Accessibility Improvement Zone, which covers the core urban part of the borough and in which future development should be focused; and
- a South Yorkshire Integrated Traffic System.

Leeds City Region (LCR) Transport Strategy

3.2.6 The strategy sets out a list of seven 'priority challenges' in the LCR which must be overcome if the national goals are to be met, these are to:

- deliver quantified reductions in greenhouse gas emissions within cities and regional networks, taking account of cross network policy measures;
- reduce lost productive time by maintaining or improving the reliability of journey times on key local routes for business, commuting and freight;
- improve the connectivity and access to labour markets of key business centres;
- deliver the transport improvements required to support the sustainable provision of housing, and in particular the PSA target of increasing supply to 240,000 net additional dwellings nationally per annum by 2016;
- enhance social inclusion and the regeneration of deprived or remote areas by enabling disadvantaged people to connect with employment opportunities, key local services, social networks and goods through improving accessibility, availability, affordability and acceptability;
- contribute to the reduction in the gap between economic growth rates for different English regions; and
- reduce the risk of death or injury due to transport accidents.

3.2.7 The majority of transport constraints to achieving these goals are identified in the report at the City Region-level and relate to improving interurban connectivity utilising key corridors and into neighbouring areas including the Sheffield City Region. Key to this objective will be improvements to the railway line between Sheffield and Leeds via Barnsley and hard shoulder running on the M1.

3.2.8 Transport and development schemes specific to Barnsley should complement the Barnsley Accessibility Improvement Zone and New Growth Point Proposals. Feasibility studies and business cases to reinstating passenger services on disused or underused rail alignments are also medium to long term objectives.

South Yorkshire 2nd Local Transport Plan (LTP2) (2006 to 2011)

3.2.9 The LTP2 for South Yorkshire was published in March 2006 having been produced jointly between the four districts of Barnsley, Doncaster, Rotherham and Sheffield, and the South Yorkshire Passenger Transport Executive (SYPTE). The document sets out the objectives and strategy in which more detailed local level transport proposals are developed.

3.2.10 The Plan describes the wider strategic objectives, which aim to address wider social and economic objectives for the area, including:

- improving and protecting the environment;
- improving transport to areas of poor accessibility, and job creation as an integral part of regeneration;
- providing a genuine choice of travel mode;
- meeting the needs of the socially and physically disadvantaged;
- reducing the need to travel while improving the efficiency of the transport system;
- improving safety for all travellers; and
- ensuring the safe and efficient movement of goods and people.

3.2.11 In order to address the above strategic objectives, the following transport objectives were identified as part of the LTP2:

- tackling congestion;
- delivering accessibility;
- safer roads;
- better air quality; and
- other quality of life issues.

3.2.12 Within the regional context, the 'Vision' for the region as identified in the LTP2 document, is to be "a recognisably world class and international region where the economic, environmental, and social well being of our entire region and its people advances rapidly and sustainably".

3.2.13 In relation to Barnsley, the LTP identified the following three key ambitions:

- to create a modern dynamic economy with an innovative and vibrant 21st century market town at its heart;
- for Barnsley to become a centre of learning and innovation; and
- to create attractive, healthy, safe and sustainable communities where people want to live with convenient access to good quality local services and amenities.

3.3 Barnsley Core Strategy – Local Development Framework

3.3.1 The Barnsley Core Strategy is a statutory document providing a spatial strategy for the future development of Barnsley up to the year 2026, forming part of the emerging Local Development Framework (LDF). Barnsley's Core Strategy document was submitted in 2010 and, at the time of writing, is subject to the standard examination process.

3.3.2 The Barnsley Core Strategy is made up of a series of strategic objectives with core policies used to guide development and deliver investment. An integral part of the strategy is sustainability and how this can be achieved through a coherent spatial plan.

3.3.3 Barnsley's plan has the town centre as the focus for shopping, indoor leisure, culture and business creating 'a 21st century market town'. Development should be accessible and inclusive, which means focusing it in urban Barnsley and the principal towns.

3.3.4 An Accessibility Improvement Zone (AIZ) is to be created where transport resources will be focused, enabling growth in the most sustainable locations. Covering the core urban part of the borough, it focuses future development plans within this zone. Outside the urban core area, new housing is developed at sites adjacent to railway stations, such as Wombwell, Elsecar and Darton, adhering to the principles of transit-oriented development.

3.3.5 This will include investment in walking, cycling and public transport and could be in the form of infrastructure or 'softer' measures such as smarter choices. Other policies include the safeguarding of former railway lines and the development of a car parking strategy.

3.3.6 The Barnsley Markets redevelopment project is identified as a key commitment of the council in LDF documents published to date.

3.4 Barnsley Sustainable Community Strategy (2008 to 2020)

3.4.1 Published by Barnsley's Local Strategic Partnership, the Community Strategy sets out a strategic vision for the borough with Barnsley as a '21st century market town' at its heart. Transport plays a role in that strategy by supporting:

- the economy by improving access to jobs and services;
- inclusion through the support of community regeneration and quality of life; and
- the environment by reducing carbon footprint.

3.4.2 The strategy aims to reduce congestion and car dependency, whilst increasing walking, cycling and public transport use through the use of park and ride initiatives and travel planning.

3.5 Planning Policy Guidance

3.5.1 The Department for Communities and Local Government (DCLG) publishes guidance notes on planning issues. The objectives of Planning Policy Guidance: Transport (PPG13) are to integrate planning and transport at the national, regional and local levels to:

- promote more sustainable transport choices;
- promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- reduce the need to travel, especially by car.

3.5.2 The proposed redevelopment of Barnsley Town Centre will incorporate proposed measures which, when implemented, will comply with these objectives.

4 Highway Access

4.1 Overview of Local Highway Network

4.1.1 Access to the site is currently taken from both Kendray Street in the north and Lambra Road in the south (see section 4.3 below). The short section of Kendray Street between its junction with Midland Street and the existing markets access operates as an eastbound-only, one-way and taxi-only road. Therefore, the only vehicles travelling eastbound across the railway line are taxis and service vehicles leaving the markets site. This section of Kendray Street is to be closed to all traffic as part of the redevelopment proposals; this will result in a traffic-free, pedestrian friendly environment between the site and the Barnsley Interchange. The only traffic that will travel eastbound over the railway at this time will be service vehicles leaving the new markets basement service yard.

4.1.2 Kendray Street forms a signal controlled junction with Schwäbisch Gmünd Way (Interchange Way) and the former CEAG building access. Schwäbisch Gmünd Way is a two-way single carriageway road that was built at the time of the new Barnsley Interchange and that runs parallel with the railway line, connecting to Eldon Street at its northern end.

4.1.3 To the east of the Kendray Street / Schwäbisch Gmünd Way junction are a series of priority junctions that, as a whole, form the grade-separated junction with the A61 Harborough Hill Road dual-carriageway and Pontefract Road. The A628 Pontefract Road is the main route into Barnsley from northeast areas of the town and settlements such as Cudworth.

4.1.4 The A61 Harborough Hill Road forms the eastern side of the town centre ring road and joins with the Alhambra Roundabout in the south. The ring road continues to the west of the town via the A628 West Way dual-carriageway and the Town End roundabout. From the Town End roundabout the A628 connects the town with Junction 37 of the M1.

4.1.5 The Alhambra Roundabout is the main gateway junction for traffic that enters the town from the south along the A61 Sheffield Road dual-carriageway. In addition to traffic from the south, Sheffield Road also caters for traffic from the wider area from both the east (from A635 Doncaster Road and A6133 Cemetery Road) and from the west (from A6133 Park Road). The Alhambra Roundabout is known to experience regular congestion and, in its unsignalised layout, is understood to be operating at or close to its capacity in the peak hours. However, part-time traffic signals have been installed and when operational will help to 'meter' traffic at the junction and to more effectively manage queues on the four approach arms.

4.1.6 Wesley Street forms the northern arm of the Alhambra Roundabout and is a two-way single carriageway road with a short flare to two lanes on its approach to both the roundabout and Lambra Road in the north. It is approximately 90 metres long and connects the roundabout to Lambra Road and the accesses to the Alhambra Centre and Barnsley Markets sites. Wesley Street and Lambra Road form a priority controlled T-junction and, at busy times, queues form along Wesley Street that can block back to the Alhambra Roundabout. The eastern end of Lambra Road connects to Pontefract Road at another priority controlled T-junction.

4.2 Base Traffic Flows

4.2.1 A selection of data has been compiled and analysed. Further information, including presentation of base year traffic flows are provided in Chapter 6.

4.3 Existing Access Arrangements

4.3.1 The site is currently served by a MSCP with approximately 600 spaces and further spaces associated with the former BMBC offices.

4.3.2 Vehicles enter the existing MSCP using ramps accessed either from a mini-roundabout at the end of Lambra Road or from Kendray Street via the Jumble Lane level crossing. The ramp down to Lambra Road is the only egress route for vehicles leaving the MSCP. The parking spaces associated with the former BMBC offices are accessed via a ramp off Eldon Street that leads to a bridge that traverses Kendray Street.

4.3.3 Servicing vehicles can currently access and egress the site from both the north (Kendray Street via Jumble Lane) and the south (via the Lambra Road mini-roundabout and under the MSCP access ramp).

4.3.4 Access to the CEAG site is from an arm at the signalised Schwäbisch Gmünd Way (Interchange Way) and Kendray Street junction. The access is currently closed as the site is disused at present.

4.4 Proposed Parking Strategy

4.4.1 It is proposed to have two car parks serving the redeveloped site and providing a total of approximately 810 parking spaces:

- Multi-storey car park accessed via a ramp from the junction of Wesley Street and Lambra Road – approximately 560 spaces; and
- Surface level car park on the CEAG site accessed from the Schwäbisch Gmünd Way and Kendray Street junction – approximately 250 spaces.

4.4.2 Given the respective locations of the proposed car parks, the surface level car park will predominantly serve people travelling to the site from the north and north-east, whilst the larger MSCP will attract people from the south, west and south-east.

4.4.3 The car parks will be controlled by barriers that, in the case of the MSCP, will be located at the top of the ramps in order to reduce the likelihood of queuing vehicles blocking back onto the highway at busy times. In order to provide sufficient entry and exit capacities, the MSCP will be served by two barriers in each direction.

4.4.4 Both car parks will operate with a 'Pay on Foot' payment system, which has the benefit of reducing enforcement requirements and will contribute to reducing delays as users are not required to wait at barriers as they insert money into payment machines.

4.4.5 A key element of the access strategy will be the development of an overarching 'control strategy' and parking guidance system at the Alhambra Roundabout and Harborough Hill Road junction with Kendray Street / Pontefract Road.

4.4.6 With the use of VMS signs it is possible to advise drivers which car parks to use so as to avoid busier car parks and to reduce queuing on congested approaches. This control strategy will be finalised as part of the subsequent S278 agreements, as agreed at the meeting with BMBC on 17 February and proposed in the Access Strategy Note.

4.5 Proposed Car Park Access Strategy

MSCP Access

4.5.1 The markets MSCP will be accessed via an elongated spiral ramp, which will be accessed at the existing junction of Wesley Street and Lambra Road. It is proposed that this junction, which is currently a priority controlled T-junction, will be signalised to incorporate the fourth arm and enable better coordination with the new traffic signals at the adjacent Alhambra Roundabout,. The proposed access junction is presented in Figure 4.1

4.5.2 Signalised pedestrian crossings will be provided on the Wesley Street and the Lambra Road (east) approaches and it was agreed with BMBC during the TA scoping period that this provision was sufficient in this area given the existing and likely future pedestrian desire lines. An informal, unsignalised crossing will be provided over the MSCP access arm.

4.5.3 An assessment into the capacity of this proposed layout is presented in Chapter 7.

Surface Level Car Park Access

4.5.4 The markets surface level car park, located on the existing CEAG site, will be accessed from the junction of Schwäbisch Gmünd Way and Kendray Street. The proposed alterations to this junction are presented in Figure 4.2

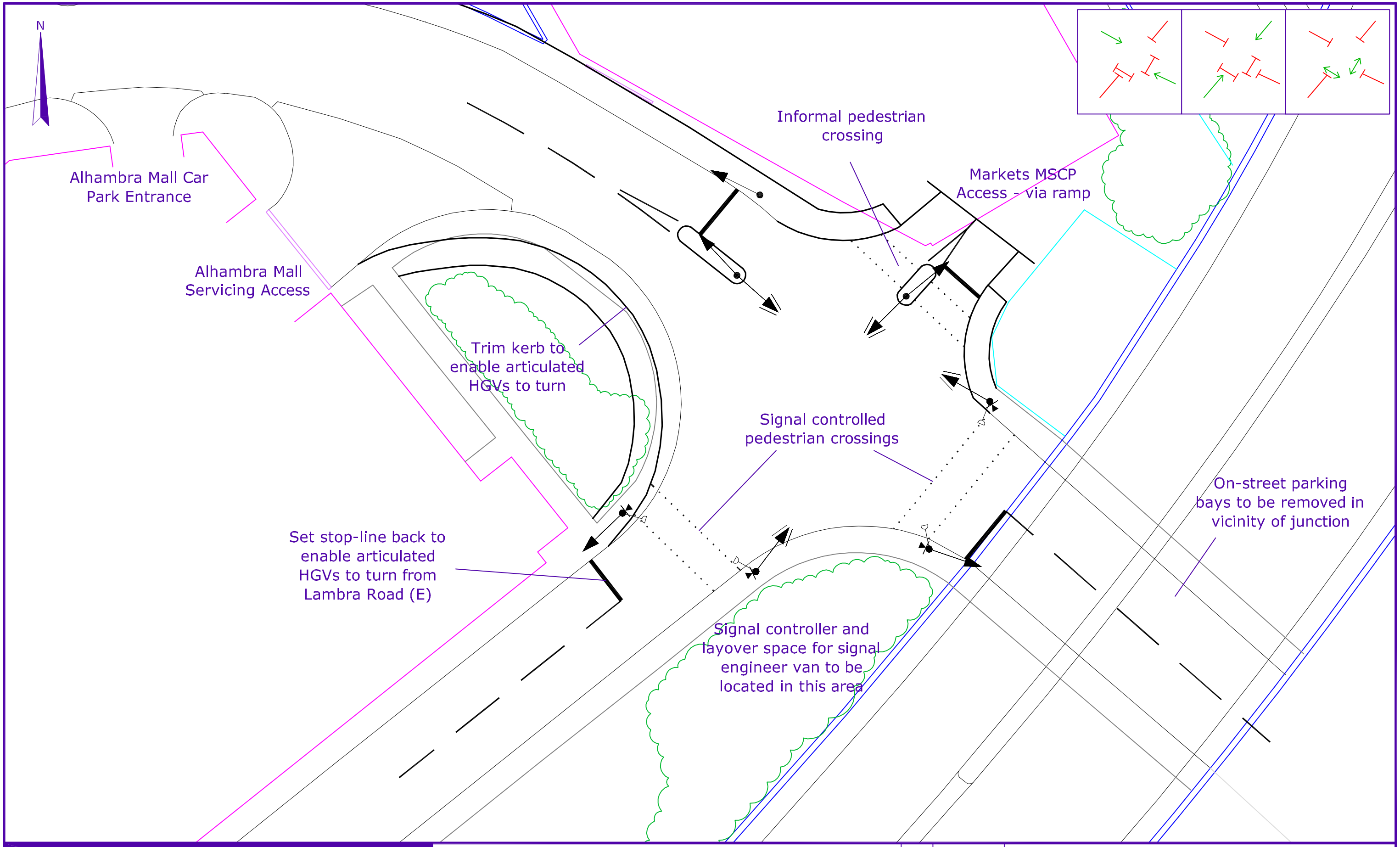
4.5.5 The layout is based on a proposed design produced when the Barnsley Interchange was being planned. The layout includes an additional lane for southbound Schwäbisch Gmünd Way traffic (one lane for left turners and one for traffic entering the markets car park). This has the advantage of being able to provide the two main traffic movements (the right turn from Kendray Street and the left turn from Schwäbisch Gmünd Way) with a green signal concurrently. It also requires minimal modification from the current layout and, as such, will have negligible impact on the operation of the Jumble Lane level crossing.

4.5.6 As part of the completed markets scheme, it is proposed that the only vehicular traffic using the Jumble Lane level crossing will be service vehicles leaving the development site. No traffic will be able to travel westbound over the Jumble Lane level crossing.

4.5.7 An assessment of the performance of the proposed surface car park access is presented in Chapter 7.

4.6 Proposed Deliveries and Servicing Access Arrangements

4.6.1 As shown in figures within Appendix C, access to the underground servicing area is proposed to be taken from a ramp off Lambra Road (opposite the Alhambra Centre service access). This will be the primary service route for the new retail stores, the department store and the market traders.



Barnsley Markets Transport Assessment

May 2011

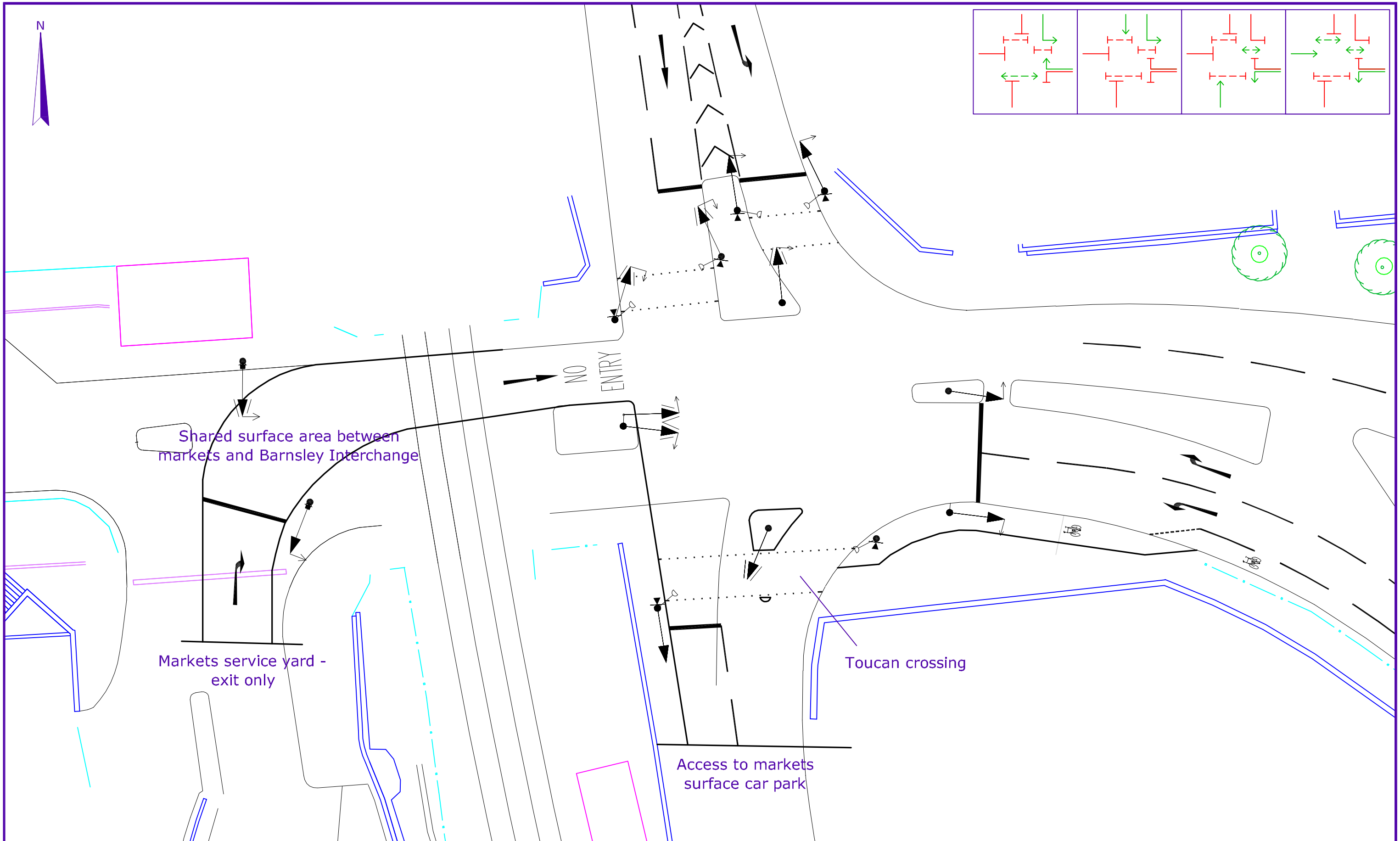
Title: Junction of Wesley Street, Lambra Road and MSCP car park access

No.	Date	Revision
1	18/02/11	Signal engineer layover area added following meeting on 17/02/11

Project No.	Figure No./Drawing No.	Scale	Rev No.		
C3A309	Figure 4.1	1:125 at A1 (1:250 at A3)	1	Drawn	GM
				Designed	GM/DI
				Approved	DI

mvaconsultancy

T:\C3A309 Barnsley Markets 2010-11\AutoCAD\MVA_AccessStrategy_v2.0.dwg



Barnsley Markets

May 2011

Title: Junction of Interchange Way, Kendray Street and surface-level car park access (Jumble Lane crossing)					
				1 (No.)	18/02/11 (Date)	Based on 2004 interchange proposed layout (Revision)
Project No.: C3A309	Figure No./Drawing No.: Figure 4.2	Scale: 1:125 at A1 (1:250 at A3)	Rev No.: 1	Drawn GM; Designed GM/DI; Approved DI	mvaconsultancy

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4.6.2 This access will accommodate inbound movements only with the service basement operating with a one-way circulation through the site that brings vehicles out of the development via an up-ramp onto Kendray Street in the north. Vehicles will leave the basement at a traffic signal controlled exit within the Jumble Lane crossing and Schwäbisch Gmünd Way junction (as occurs for existing service egress arrangements). The traffic signals will be positioned so to locate any queues along the ramp rather than on the pedestrian-friendly Kendray Street. Exiting vehicles will turn immediately right onto Kendray Street and over the Jumble Lane crossing.

5 Access by Sustainable Travel Modes

5.1 Introduction

5.1.1 This section provides an overview of access to the Markets site via sustainable travel modes. Given the location of the development site in the centre of Barnsley and adjacent to the Barnsley Interchange, it can be concluded that the site is in a highly sustainable location with excellent public transport connections.

5.1.2 In addition to the public transport connectivity, a range of measures have been identified as part of an outline Travel Plan for the site. Although the final occupiers/end-users, and therefore staff and visitors, of the development are not yet known, the Travel Plan identifies a series of possible measures that will promote more sustainable travel choices and reduce the reliance and impact of travel by private car. The Travel Plan is appended to this Transport Assessment as Appendix D.

5.2 Access by Public Transport

Barnsley Interchange

5.2.1 The award winning[1] Barnsley Interchange opened in 2007. It provides a clean, modern and safe public transport facility with covered waiting areas for bus and rail passengers. It is split between bus and rail interchange facilities with a footbridge connecting the concourse of the bus interchange with the rail station.

5.2.2 There are a range of passenger facilities including a travel information centre, rail ticket office, commercial units (including retail, chemist and café) as well as public toilets, baby changing areas, public telephones, cash machines, luggage lockers and cycle racks.

5.2.3 The interchange also provides state of the art passenger technology with up to the minute information including real time passenger information display screens, electronic passenger information kiosks, help points, public announcement system, CCTV and vehicle activated doors.

5.2.4 Additional facilities include drop-off facilities on Schwäbisch Gmünd Way with car parking spaces allocated for rail users (74 cars, 6 disabled and 2 'parent and child' parking spaces).

5.2.5 It is located adjacent to the Barnsley Markets site on the northern side of Kendray Street and so is ideally placed for visitors to the new development.

[1] 2008 Award for Excellence at the Institute of Civil Engineers' Yorkshire & Humber Awards ceremony.

5.3 Access by Bus

5.3.1 The bus interchange facility accommodates 24 bus stands accommodating 75 bus services[2]. Bus routes from the Interchange serve a wide variety of areas including all areas of urban Barnsley, other towns in the Barnsley district and also neighbouring towns and cities, including Sheffield, Meadowhall, Doncaster and Rotherham. There is also service to Doncaster-Sheffield Robin Hood Airport (via Doncaster Town Centre) that operates an hourly daytime service on weekdays. Stagecoach UK is the largest bus operator in Barnsley.

5.3.2 National coach services (operated by National Express) are also available from Barnsley Interchange and connect the town to other regional and national destinations including London.

5.4 Access by Rail

5.4.1 Access to the proposed market development by rail is provided via the rail interchange facility within the new Barnsley Interchange. The rail station comprises of two platforms, which are connected via footbridge accessed from the first floor concourse.

5.4.2 There are a range of passenger facilities including ticket machines, ticket office, toilets, baby changing facilities, lift access, public telephones and cycle rack/storage on each platform. There is also an interchange facility for taxis which incorporates a taxi rank.

5.4.3 The station is served by the Leeds to Sheffield, Sheffield to Huddersfield and Leeds to Nottingham services. These services provide a total of **four services an hour to Sheffield**, **three an hour to Leeds and one an hour to both Huddersfield and Nottingham**. Longer distance services, for example to Manchester, London and Birmingham, are available by changing at either Leeds or Sheffield.

5.5 Taxis

5.5.1 The closest taxi rank to the development site is located outside Barnsley Interchange on Midland Street. At present, taxis are able to turn either left onto Kendray Street and cross the Jumble Lane level crossing or right onto Kendray Street towards Eldon Street.

5.5.2 As part of the development proposals, the eastern end of Kendray Street is to be closed, which will mean taxis will be required to use Kendray Street to join Eldon Street only.

5.6 Walking and Cycling

5.6.1 Walking and cycling are the most sustainable modes of travel with little or no negative environmental effects. Travel by these modes also has the advantage of improving the health of individuals who travel by these means.

[2] Correct at May 2007, http://www.sypte.co.uk/corporate.aspx?id=522

5.6.2 Being situation in the town centre, the development site is ideally located to encourage retail customers and employees to walk or cycle as the average travel distances from the rest of the town are reduced.

5.6.3 The vast majority of trips rely on some element of walking; whether this is the initial walk to a bus stop or the walk from the car park to the final destination or, indeed, the entire journey. A high quality environment, both at the destination itself and along the route, can help to promote access on foot as people are made to feel safer and less vulnerable.

5.6.4 The redeveloped markets site will form part of an improved town centre environment with improved landscaping and public realm. For example, the area between the markets site and Barnsley Interchange will be improved and made more pedestrian-friendly by removing traffic on this part of Kendray Street. People will be able to walk in a traffic-free environment between the Interchange and the development.

5.6.5 Within the development itself, the layout has been designed to promote circulation throughout the development and also to provide a safe and pleasant environment for those passing through the site to other destinations. The site will be intersected by two new pedestrianised routes or streets, which are identified as Market Parade and New Street / Midland Street on the figures shown in Appendix C.

5.6.6 The main pedestrian accesses into the site will be provided via 'Market Square' on Kendray Street and from Market Parade and New Street, both of which will connect Cheapside to Kendray Street.

5.6.7 In order to facilitate cycle usage to and from the site, secure cycle parking facilities will be provided in the site for staff and visitors. It is proposed to provide approximately 114 spaces for long-stay use, and thus these will be covered spaces, and stands/racks for a further 46 cycles for shorter stay usage. The proposed junction improvements at the surface level car park access include provision for the proposed cycle route along Kendray Street; this includes a Toucan crossing to enable cyclists to cross the access to the car park before entering the site via the Jumble Lane level crossing.

5.7 Barnsley Shopmobility

5.7.1 The Barnsley Shopmobility service, located a short distance from the markets site on Market Street, is available to support visitors to the town centre with mobility impairments. Short-term loans (hourly/daily) of mobility scooters and wheelchairs are available for visitors who require help in travelling around the town centre.

6 Trip Generation and Distribution

6.1 Introduction

6.1.1 In order to assess the impact that the development has on the surrounding highway network, it is necessary to forecast the additional volume of traffic generated by the development.

6.1.2 This chapter of the report summarises the methodology used to forecast the number of vehicle trips generated by the proposed development in the weekday evening and Saturday peak hours and also to distribute these trips onto the local highway network.

6.2 Scope of Assessment

6.2.1 As discussed within the Introduction chapter, the scope of the assessment was agreed with BMBC following the production of MVA's Transport Scoping Note. Further detail on the agreed scope is provided in the following paragraphs.

Assessment Periods and Traffic Data

6.2.2 It was agreed during the scoping exercise that the assessments for the Transport Assessment will be undertaken for a weekday evening peak hour and a Saturday peak hour.

6.2.3 In order to identify the relevant peak hours, MVA analysed Automatic Traffic Count (ATC) data provided by BMBC for various sites around Barnsley Town Centre. Figure 6.1 summarises the total daily traffic flows from six ATC sites located closest to the markets site.

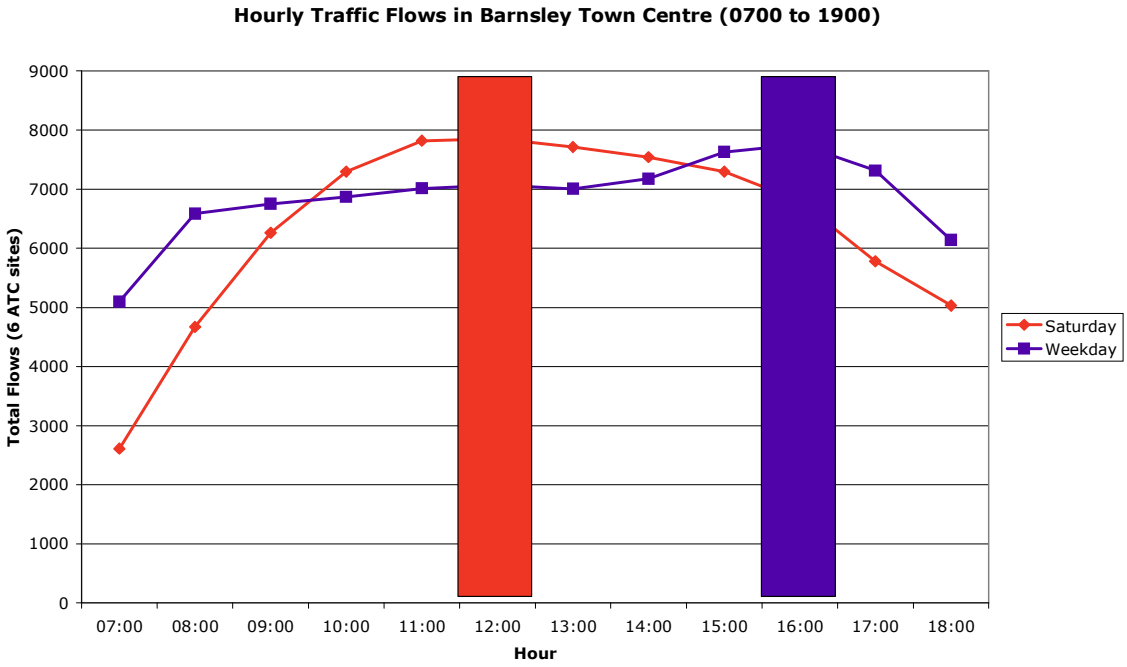


Figure 6.1: Local ATC Traffic Flows

6.2.4 As can be seen in Figure 6.1, the hour between **16:00 and 17:00 represents the weekday evening peak** and the hour between **12:00 and 13:00 represents the Saturday peak**.

6.2.5 For the purposes of assessing the impact of the development, MVA also commissioned new turning counts at the junctions of Wesley Street with Lambra Road and Schwäbisch Gmünd Way with Kendray Street. These counts were undertaken in the evening peak (16:00 to 18:00) on Wednesday 26th January 2011 and between 10:00 and 16:00 on Saturday 29th January 2011 (all elements of the markets are open on Wednesday and Saturday's). New ATCs were also undertaken on the existing markets MSCP access ramp, for a full week starting on Monday 31st January.

6.2.6 Additional traffic data covering turning counts at the Alhambra Centre, West Way / Morrisons Access, Sheffield Road / Taylor Row and Sheffield Road / Cemetery Road was also supplied by BMBC. As only weekday counts were available for these locations, the turning counts for Saturday were derived by factoring each arm by a weekday-to-Saturday ATC factor. Raw traffic data from all counts is included within Appendix E.

6.2.7 Figures 6.2 and 6.3 present the base year (2011) traffic flows across the local highway network. The traffic flows presented in these figures have been 'normalised' in order for flows between neighbouring junctions to be consistent. This has involved factoring of flows at junctions where the data is older in order to match the adjacent junctions where data is from 2011. This ensures the base traffic flows shown in the figures are for 2011.

Assessment Years and Future Year Traffic Growth

6.2.8 As proposed in the Scoping Note, the impact of the development has been assessed in a future year scenario that represents the forecast year of opening and the year of opening

Figure 6.2 - Base Year (2011) Traffic Flows - Weekday evening peak hour

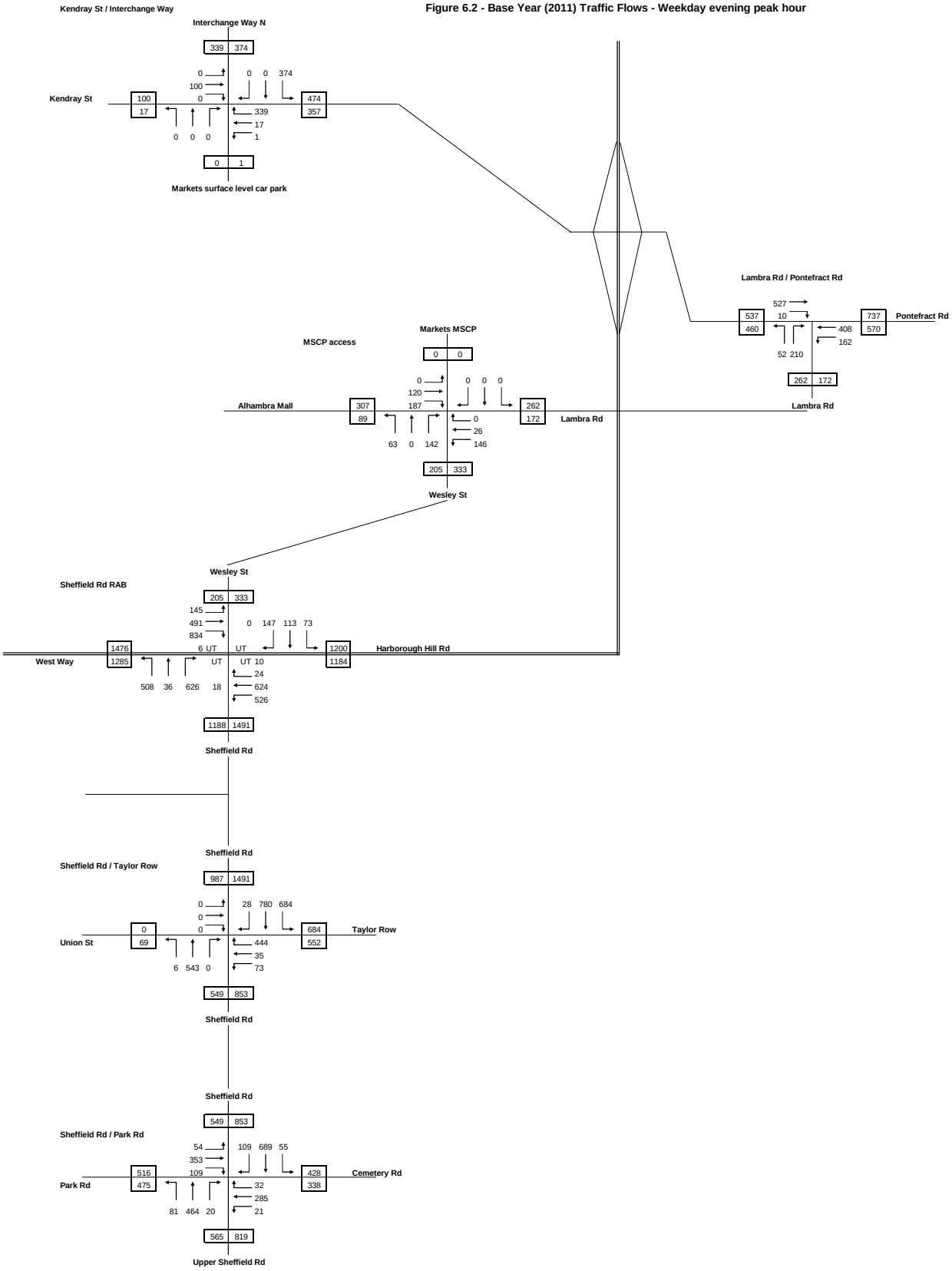
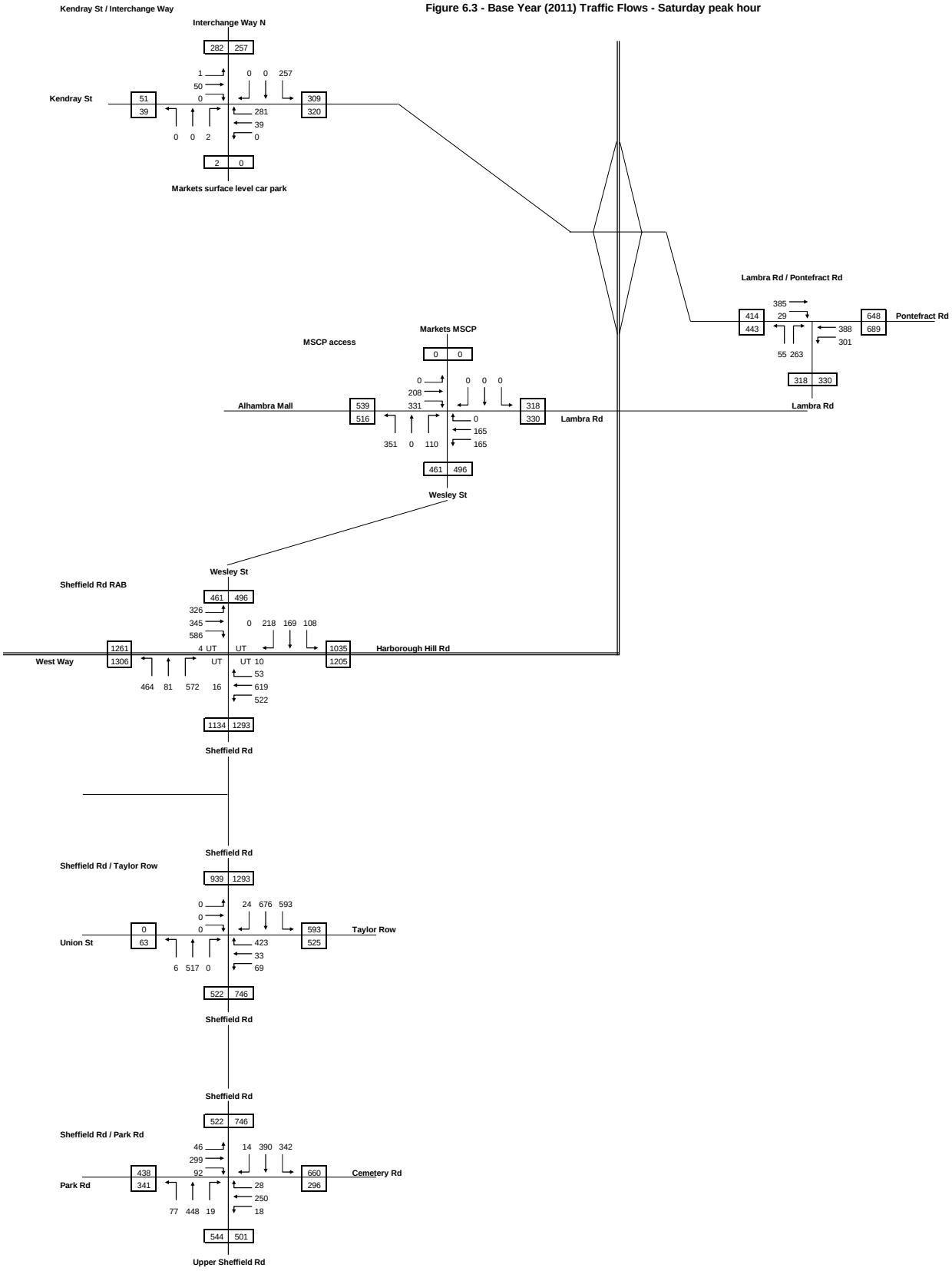


Figure 6.3 - Base Year (2011) Traffic Flows - Saturday peak hour



plus 10 years. This is to provide comfort that the new access junctions will provide sufficient growth capacity for the future.

6.2.9 The current year of opening is assumed to be 2013 so assessments of both 2013 and 2023 have been undertaken.

6.2.10 Base background traffic flows have been 'growthed' using industry-standard DfT local TEMPRO forecasts. The latest approved version of TEMPRO is Version 5.4, which was released before the current economic downturn. TEMPRO forecasts also include the growth from assumed developments and, therefore, the growth factors effectively already include for developments such as the Barnsley Markets redevelopment. Barnsley Markets development traffic (see following paragraphs sections) is added to the future year background traffic and this approach is therefore likely to overestimate the level of traffic growth. The TEMPRO forecasts adopted in this assessment assume growth rates of between 11% and 12% between 2011 and 2023 (in both the evening peak and Saturday peak periods).

6.3 Trip Generation Methodology

6.3.1 MVA's Transport Scoping Note proposed using a combination of two methods to forecast trip generation for the Markets redevelopment. The two methods were proposed to account for the two main land-uses (retail and cinema) within the development. The following paragraphs describe the methodologies used to generate forecast trips for each of the main elements of the development.

Retail Trips

6.3.2 As detailed in the Transport Scoping Note and the Access Strategy Note, trip generation for the retail element of the development has been based on factoring existing demand to account for the proposed increase in retail floorspace.

6.3.3 Existing demand for the Markets MSCP has been obtained from an Automatic Traffic Count (ATC) survey, which was undertaken on the access ramp for a full week starting on 31 January 2011 and from a Manual Classified Count (MCC) at the Jumble Lane crossing, which was undertaken on Wednesday 26th and Saturday 29th January 2011.

6.3.4 Table 6.1 presents the total existing demand for the existing MSCP for the weekday evening peak hour (16:00 to 17:00) and for the Saturday peak hour (12:00 to 13:00). The weekday existing usage is based on data from the ATC recorded on the Tuesday, Wednesday and Friday as all elements of the markets are only open on these days.

Table 6.1: Barnsley Markets Existing Multi-Storey Car Park Usage

Period	Arrivals	Departures	Total
Weekday PM peak	31	114	145
Saturday peak	262	238	500

6.3.5 In the busier period (ie Saturday peak), over 85% of traffic was observed to enter the site via the MSCP access ramp. During the weekday evening peak, more traffic entered via the Jumble Lane crossing, which is a result of the market traders entering the site to clear away their stalls and very few shoppers arriving during this period.

6.3.6 The existing MSCP demand, shown in Table 6.1, has been factored by the proportionate increase in retail floorspace to take into account the expansion of the retail offering at the site and its increased attractiveness. The development proposals envisage a 63.4% increase in total retail and markets floorspace; from 22,500m² to 36,776m² (both figures exclude retail 'back of house' and service areas). The proposed floor areas are presented in Table 2.1.

6.3.7 It has also been assumed that the net increase in retail floorspace would not create new trips at the same ratio as the increase in floorspace (ie a 50% increase in retail floorspace will not create 50% more trips). As agreed in the Transport Scoping Note, a 50% reduction of the net floorspace increase has been applied as this assumes existing visitors will stay longer than they would previously have done. The effect of this assumption is that the 63.4% increase in retail floorspace would result in a 31.7% increase in trips (ie 'new trips'). These assumptions were applied in the Transport Assessment of the previously approved planning application.

6.3.8 It should also be noted that the existing MSCP will be used for other purposes than retail (eg commuting, business etc) and therefore factoring existing demand may overestimate demand for the new car parks, particularly in the weekday evening peak.

Cinema Trips

6.3.9 For trips associated with the proposed cinema, the trip generation forecasts have utilised the TRICS database.

6.3.10 Average person trip rates for the weekday evening and Saturday peak hours were derived from surveys of cinemas within the TRICS database. Average rates have been used, as opposed to 85th percentile rates, as only three suitable multi-modal cinema surveys were identified in TRICS. These trip rates are presented in Table 6.2.

Table 6.2: Cinema Average Person Trip Rates (rate per 100m²)

Period	Arrivals	Departures
Weekday PM peak	2.945	2.082
Saturday peak	7.587	6.461

6.3.11 The proposed cinema floorspace (2,519m²) is applied to these trip rates to obtain forecast person trips in the weekday evening and Saturday peak hours.

6.3.12 In order to convert these person trips to vehicle trips, a car mode share of 69% and average car occupancy of 2.20 have been applied. These factors were both derived from TRICS

multi-model cinema surveys. TRICS trip rate, mode share and average car occupancy data is included within Appendix F.

6.4 Combined Trip Generation Forecasts

6.4.1 Based on the two methodologies outlined above, vehicle trips generated forecast to be generated by the proposed development have been calculated for the weekday evening and Saturday peak hours. Table 6.3 presents the total numbers of vehicles forecast to arrive and depart from the site.

Table 6.3: Forecast Development Trip Generation

Period	Existing		Development				Difference	
			Retail		Cinema			
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Weekday PM	31	114	41	150	23	16	+33	+53
Saturday	262	238	345	314	60	51	+143	+127

6.4.2 As can be seen in Table 6.3, the redevelopment of Barnsley Markets is forecast to have a relatively minor impact, in terms of absolute numbers, on total traffic generation in the weekday evening peak. There is a more significant absolute increase in the Saturday peak hour due to the higher existing retail demand and the higher levels of trips generated by the cinema in this period.

6.4.3 It should be noted that no existing trips are assumed to be generated from the 1,500m² of disused retail space at 1 Lambra Road or the 6,400m² of former BMBC office space, both of which are located within the development site and were included in the previous Transport Assessment. These land-uses were vacant at the time of the new traffic counts in early 2011.

6.5 Trip Distribution

Methodology

6.5.1 As agreed in the Transport Scoping Note and the Access Strategy Note, vehicle trip distribution has been based on existing traffic flows as they approach and leave the site. Existing trips were first removed from the network using the base traffic patterns before development trips were added.

6.5.2 The process of adding development trips was made more complex as development traffic must be distributed to and from two separate car parks. Therefore, the first step in distributing development traffic is to assign the traffic to either the MSCP or the surface level car park. Using existing distribution percentages, traffic from the north have been assigned

to the surface level car park. This includes traffic from the north at Alhambra Roundabout; from the north at Pontefract Road / Lambra Road junction; all traffic using the Jumble Lane level crossing; and a proportion of traffic from the east along Pontefract Road (weighted by the size of each car park). All other traffic is assumed to use the MSCP. Development traffic is then distributed to and from the respective car parks based on existing traffic flows.

6.5.3 Finally, as there were very few existing arrivals in the PM peak, which results in a very small sample size, we have based arrival distributions solely on the Saturday peak.

Trip Distribution Results

6.5.4 Flow diagrams are presented in Appendix G that show vehicle percentage distributions for the existing and the proposed developments. The following additional flow diagrams are also presented in Appendix G for each peak hour:

- Impact (in absolute numbers) of development vehicles for all scenarios;
- 'without development' flows for all scenarios; and
- 'with development' flows for all scenarios.

7 Traffic Impact Assessment

7.1 Area of Impact

7.1.1 It was agreed in the scoping exercise that junctions where changes in traffic flows as a result of the redevelopment are forecast to be in excess of 5% will be assessed in detail using appropriate junction modelling programs (eg ARCADY, PICADY, LinSig, TRANSYT). Figures 7.1 to 7.4 present the forecast percentage change in traffic flows as a result of the proposed markets redevelopment (for the evening and Saturday peak hours in 2013 and 2023).

7.1.2 The following junctions have at least one approach where traffic forecast to increase by more than 5% (in 2013 and/or 2023) as a result of the development in either the evening or Saturday peak hours:

- Wesley Street / Lambra Road (and proposed access to MSCP);
- Schwäbisch Gmünd Way / Kendray Street / Pontefract Road (and proposed access to the surface car park);
- Sheffield Road (Alhambra) roundabout; and
- Lambra Road / Pontefract Road.

7.1.3 Detailed junction modelling has therefore been undertaken for these junctions to assess the impact of the additional development traffic. The junctions have been assessed using the 'with development' and 'without development' evening and Saturday peak hour traffic flows for the assumed year of opening (2013) and year of opening plus 10 years (2023).

7.1.4 The following sections present the results of the junction modelling. As the two access junctions require modifications to enable development traffic to access the new car parks, the modelling for these junctions focus on the proposed layouts, rather than the existing layouts.

7.1.5 All junction modelling results are included within Appendix H.

7.2 Wesley Street and Lambra Road (and proposed MSCP access)

7.2.1 In order to provide access to the new markets multi-storey car park, it is proposed to signalise this junction. The proposed alterations to this junction are presented in Figure 4.1. In summary, the MSCP will be accessed from a new arm and it will be necessary to trim the kerb on the south-west corner of the junction in order to allow articulated goods vehicles to turn left from Wesley Street into the existing Alhambra Mall service yard.

7.2.2 These proposals were initially summarised in MVA's Access Strategy Note, which also presented LinSig junction modelling results for the 2023 'with development' scenario. The assessments showed that the junction would operate within capacity in both the evening and Saturday peak hours in 2023. It has been necessary to update the LinSig models with revised development traffic flows as the proposed development floor areas have slightly changed since the production of the Access Strategy in March 2011.

Figure 7.1 - % Flow Impact of Development - Evening Peak 2013

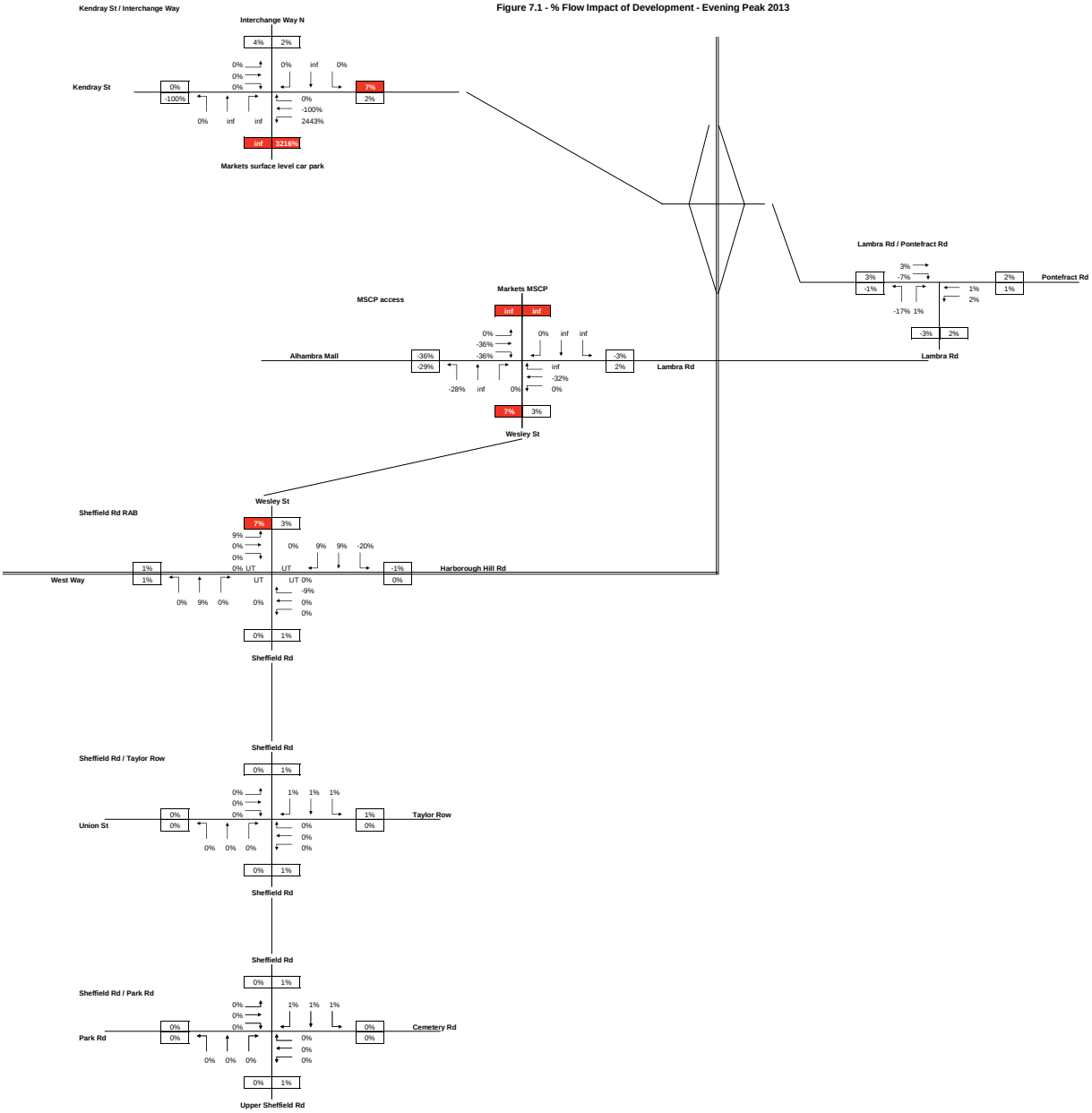


Figure 7.2 - % Flow Impact of Development - Saturday Peak 2013

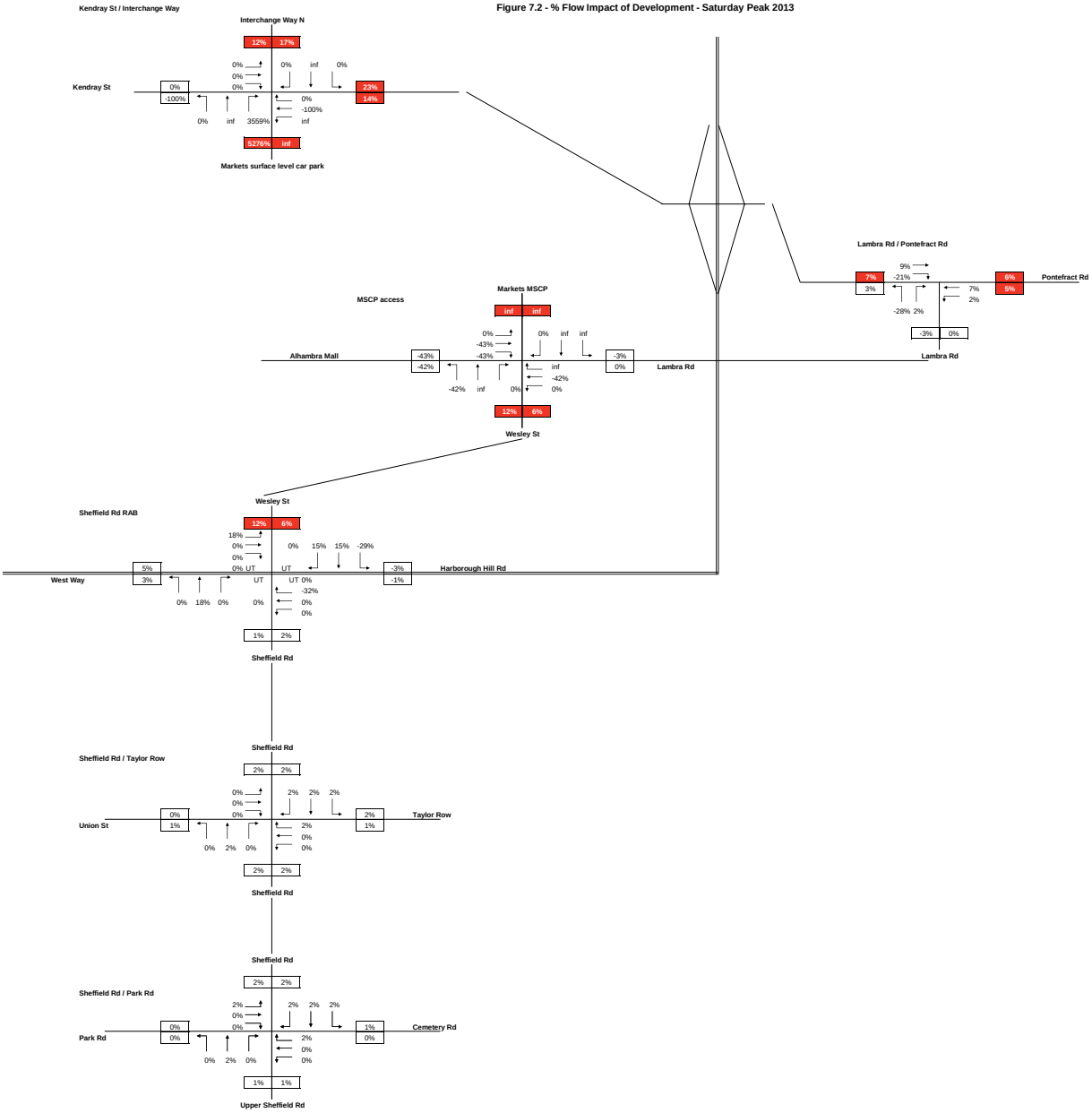


Figure 7.3 - % Flow Impact of Development - Weekday Peak 2023

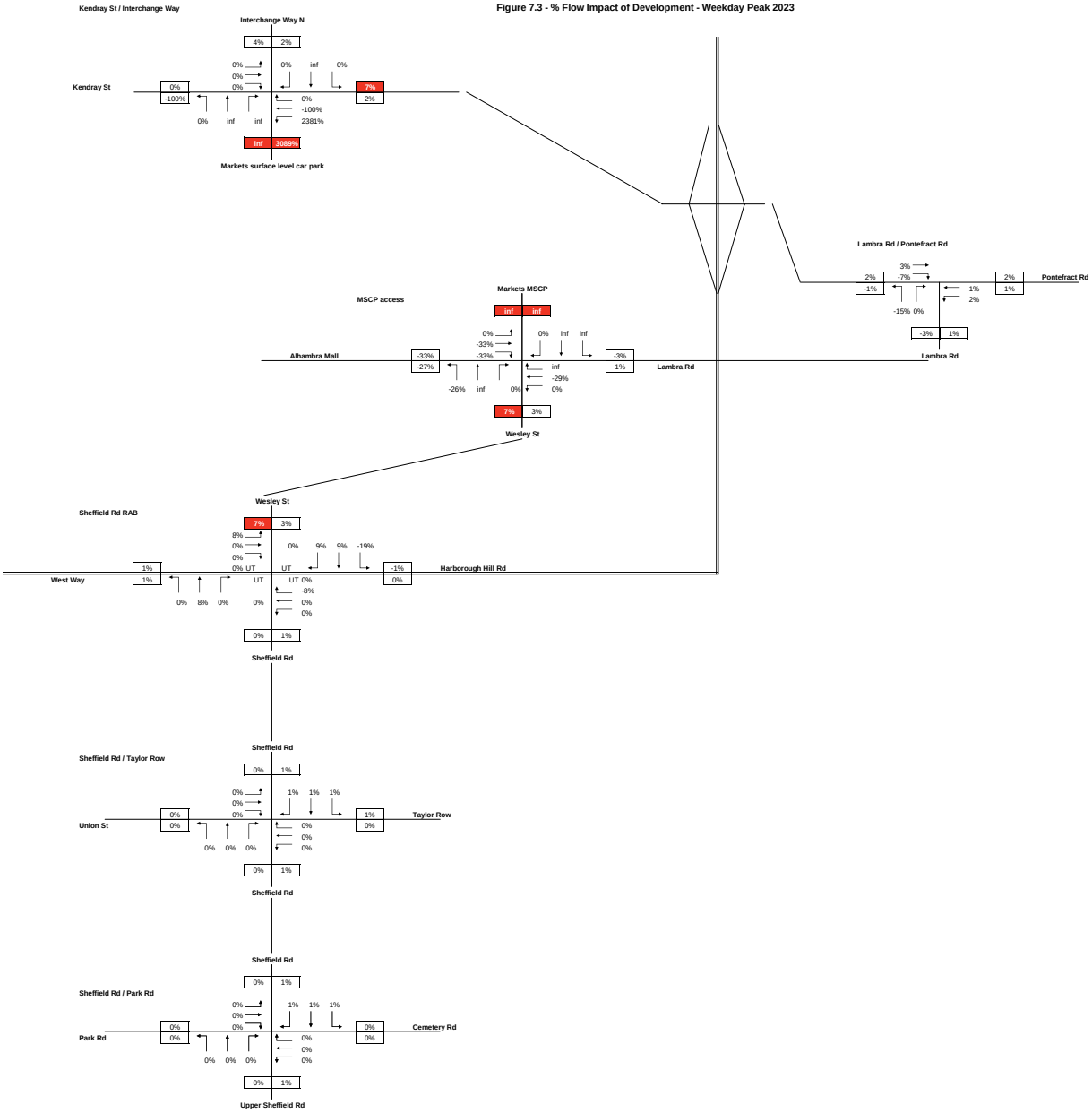
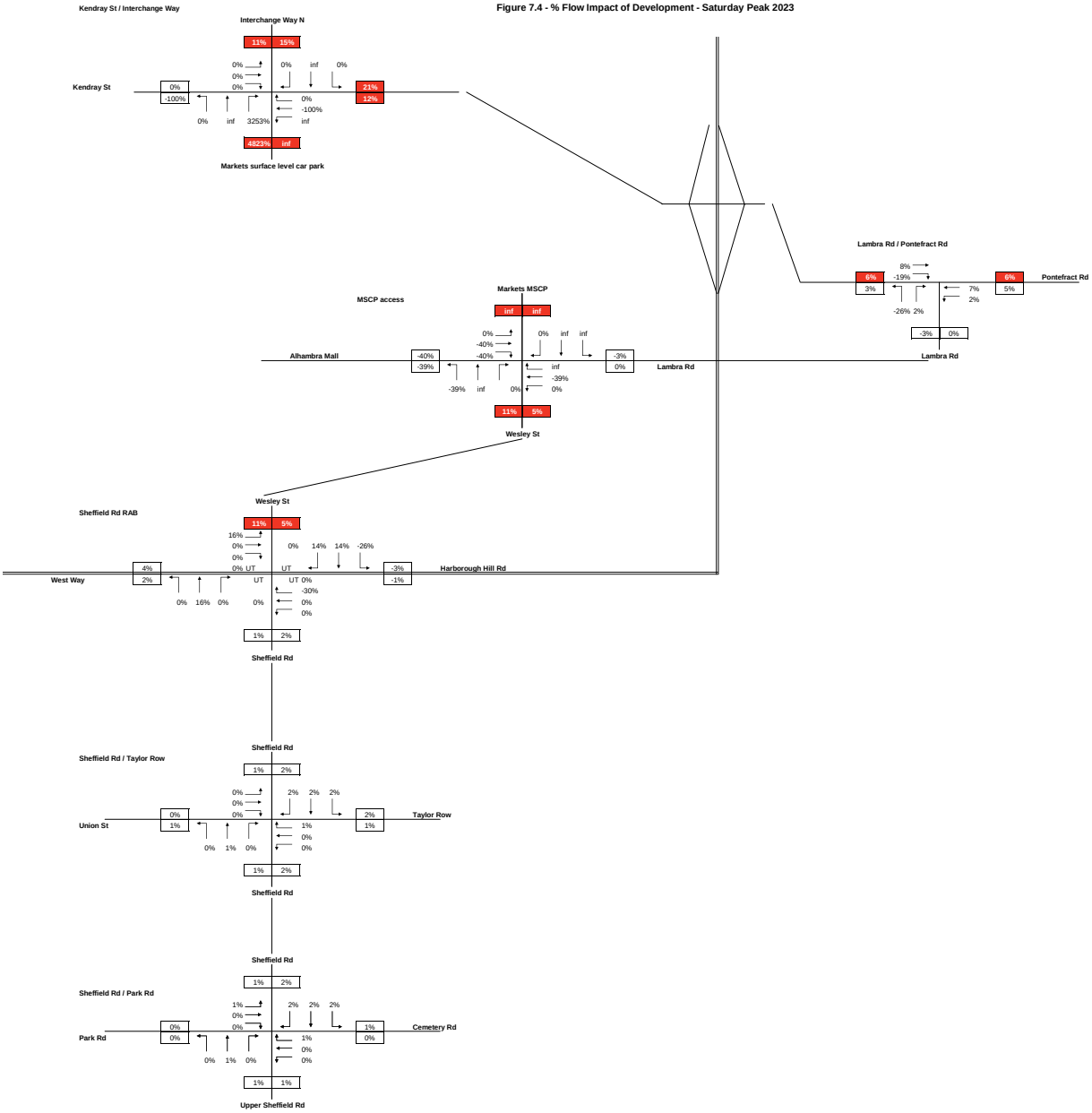


Figure 7.4 - % Flow Impact of Development - Saturday Peak 2023



7.2.3 Tables 7.1 to 7.4 present the weekday evening peak and Saturday peak LinSig results for 2013 and 2023. Results are presented for the 'without development' and the 'with development' scenarios. The LinSig modelling assumes a simple three-stage signal plan (consisting of two traffic stages following by a demand dependent all-red pedestrian stage). For the purposes of this modelling we have assumed that the pedestrian stage is called every other 60-second cycle which, given the very low volumes of pedestrian activity in this area, is likely to represent a worst-case scenario. In addition, an Excess Queue Limit has been included on the Wesley Street arm in order to 'force' LinSig to optimise the signal timings to reduce the length of the queue on this critical approach.

7.2.4 The key indicator of the performance of junctions from LinSig models is the Practical Reserve Capacity (PRC). A PRC of 0% indicates that all arms at the junction are 90% saturated (ie the Degree of Saturation (DoS) for all arms equals 90%) and that no more traffic could pass through the junction without the practical capacity being exceeded. The Mean Maximum Queue (MMQ) also provides information on the forecast queue length during the modelled period (presented in Passenger Car Units (PCU's).

Table 7.1: MSCP Access Junction LinSig results – 2013 Weekday PM Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Alhambra Centre	41.5%	4.3	35.4%	2.7
MSCP Access	0%	0	20.6%	1.6
Lambra Road	22.9%	2.1	29.8%	2.4
Wesley Street	40.8%	3.4	36.3%	3.3
Junction Totals	**117% (PRC)**	**-**	**148.1% (PRC)**	**-**

Table 7.2: MSCP Access Junction LinSig results – 2013 Saturday Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Alhambra Centre	91.1%	18.3	72.1%	7.3
MSCP Access	0%	0	42.8%	3.4
Lambra Road	45.9%	5.6	60.9%	5.7
Wesley Street	82.0%	10.3	73.7%	8.8
Junction Totals	**-1.3% (PRC)**	**-**	**22.2% (PRC)**	**-**

Table 7.3: MSCP Access Junction LinSig results – 2023 Weekday PM Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Alhambra Centre	45.3%	5.1	3.8%	3.8
MSCP Access	0%	0	1.7%	1.7
Lambra Road	24.8%	2.4	3.1%	3.1
Wesley Street	44.5%	3.6	4.1%	4.1
Junction Totals	**98.8% (PRC)**	**-**	**122.0% (PRC)**	**-**

Table 7.4: MSCP Access Junction LinSig results – 2023 Saturday Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Alhambra Centre	134.1%	100.8	92.5%	12.9
MSCP Access	0%	0	43.7%	3.6
Lambra Road	53.6%	7.2	65.6%	6.8
Wesley Street	83.2%	11.1	95.2%	10.9
Junction Totals	**-49.0% (PRC)**	**-**	**-2.7% (PRC)**	**-**

7.2.5 The LinSig results indicate that the MSCP access junction will operate within its reserve capacity in all 'with development' scenarios, except for in the 2023 Saturday peak when it is forecast to slightly exceed its reserve capacity but will operate within its absolute capacity (ie more than 90% saturated but less than 100%). These results assume the all-red pedestrian stage would be called every other cycle, which is likely to result in the vehicle capacity being underestimated.

7.2.6 The addition of development traffic is actually shown to improve the performance of the junction when compared to the 'without development' scenarios. This is because, despite total traffic through the junction increasing with the development, the flows on each arm are better balanced.

7.2.7 Importantly, queues on the Wesley Street approach are forecast to be accommodated within the storage capacity of the link in all 'with development' scenarios (the largest MMQ is 10.9 PCUs, which equates to approximately 63 metres). On the occasions that the queue begins to encroach on the Alhambra Roundabout, it will be possible to provide the Wesley Street approach with a period of unopposed green time in order to clear the vehicle queue. The ability to control queues on this link is unavailable in the current give-way layout.

7.3 Schwäbisch Gmünd Way / Kendray Street / Pontefract Road (proposed access to surface level car park)

7.3.1 The markets surface level car park, located on the existing CEAG site, will be accessed from the junction of Schwäbisch Gmünd Way and Kendray Street junction, which is adjacent to the Jumble Lane level crossing.

7.3.2 The existing junction operates under traffic signal control with an existing access provided into the CEAG site; however, this is only for vehicles turning left in and right out of the site. The access is currently not in use.

7.3.3 Figure 4.2 presents the proposed modified junction layout. The layout is based on a proposed design produced when the Barnsley Interchange was being planned. The layout enables traffic to enter and exit the site from Schwäbisch Gmünd Way as well as Pontefract Road.

7.3.4 As part of the completed Barnsley Markets scheme, it is proposed that the only vehicular traffic using the Jumble Lane level crossing will be service vehicles leaving the development site. The easternmost section of Kendray Street will be closed to traffic which will create a pedestrianised area between Barnsley Interchange and the markets site. No traffic will be able to travel westbound over the Jumble Lane level crossing. The reduction in traffic crossing the Jumble Lane level crossing will reduce delays when the level crossing is closed and enable a simpler traffic signal plan.

7.3.5 As identified by BMBC, there are proposals for a westbound cycle route along Kendray Street over the Jumble Lane crossing and into the town centre and these are incorporated within proposed layout.

7.3.6 Tables 7.5 to 7.8 present the weekday evening peak and Saturday peak LinSig results for 2013 and 2023. Results are presented for the 'without development' and the 'with development' scenarios and all models assume a 90-second cycle time and that the exit from

the markets service yard receives a green stage every other cycle. Due to the proposed closure of the Kendray Street arm to westbound traffic, the traffic associated with the existing markets is allocated to turn into the CEAG site in the 'without development' scenario.

Table 7.5: Surface Car Park Access LinSig results – 2013 Weekday PM Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Schwäbisch Gmünd Way	36.0%	5.3	36.5%	5.3
Kendray St East Left Turn	3.9%	0.4	5.4%	0.5
Kendray St East Right Turn	46.5%	6.7	46.5%	6.7
Car Park Access	0%	0.0	32.1%	1.4
Markets service exit	47.8%	2.8	47.8%	2.8
Junction Totals	**88.2% (PRC)**	**-**	**88.2% (PRC)**	**-**

Table 7.6: Surface Car Park Access LinSig results – 2013 Saturday Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Schwäbisch Gmünd Way	23.4%	3.1	28.4%	3.5
Kendray St East Left Turn	9.9%	0.8	16.8%	1.7
Kendray St East Right Turn	35.6%	5.0	40.7%	5.5
Car Park Access	1.3%	0.1	39.4%	2.8
Markets service exit	32.5%	1.4	36.6%	1.5
Junction Totals	**153.0% (PRC)**	**-**	**121.4% (PRC)**	**-**

Table 7.7: Surface Car Park Access LinSig results – 2023 Weekday PM Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Schwäbisch Gmünd Way	39.3%	6.0	39.8%	6.0
Kendray St East Left Turn	4.3%	0.4	5.9%	0.5
Kendray St East Right Turn	50.7%	7.4	50.7%	7.4
Car Park Access	0.0%	0.0	32.1%	1.4
Markets service exit	52.0%	3.1	52.0%	3.1
Junction Totals	**73.0% (PRC)**	**-**	**73.0% (PRC)**	**-**

Table 7.8: Surface Car Park Access LinSig results – 2023 Saturday Peak

Arm	'Without Development'		'With Development'	
	DoS	MMQ	DoS	MMQ
Schwäbisch Gmünd Way	25.6%	3.4	30.3%	3.9
Kendray St East Left Turn	10.7%	0.9	18.1%	1.8
Kendray St East Right Turn	38.9%	5.5	43.3%	6.0
Car Park Access	1.3%	0.1	42.5%	2.9
Markets service exit	35.6%	1.6	40.1%	1.7
Junction Totals	**131.2% (PRC)**	**-**	**108.1% (PRC)**	**-**

7.3.7 The LinSig results show that the junction is forecast to operate well within capacity in all assessment scenarios.

7.3.8 The car park exit has been designed so that queues in the busiest period (Saturday peak) can be accommodated between the barrier and the stop-line at the traffic signals.

7.4 Sheffield Road (Alhambra) Roundabout

7.4.1 Overall volumes of traffic at the Alhambra Roundabout are forecast to increase by less than 1% in the weekday evening peak and by approximately 2% in the Saturday peak hours as a

result of the development. However, flows on the Wesley Street approach are forecast to increase by approximately 5% in the Saturday peak and therefore we have undertaken ARCADY capacity assessments of the roundabout in a non-signalised layout.

7.4.2 The addition of traffic signal metering on the approaches was expected to go 'live' in 2011 and this will improve the operation of the junction beyond that presented below. The capacity assessments presented in Tables 7.9 to 7.12 therefore represent a 'worst case' scenario as the addition of signal control will certainly improve the performance of the junction.

7.4.3 The key measures of junction performance in ARCADY are the Ratio of Flow to Capacity (RFC). When the RFC begins to exceed 0.85, the junction is considered to be approaching its 'reserve capacity', with queues and delays likely to occur.

Table 7.9: Alhambra Roundabout ARCADY Results – 2013 Weekday PM Peak

Approach	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
West Way	0.902	8.3	0.911	9.0
Wesley Street	0.599	1.5	0.617	1.6
Harborough Hill	0.843	5.0	0.850	5.3
Sheffield Road	0.732	2.7	0.737	2.7

Table 7.10: Alhambra Roundabout ARCADY Results – 2013 Saturday Peak

Approach	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
West Way	0.774	3.4	0.810	4.1
Wesley Street	0.642	1.8	0.679	2.1
Harborough Hill	0.812	4.2	0.820	4.4
Sheffield Road	0.723	2.6	0.737	2.7

Table 7.11: Alhambra Roundabout ARCADY Results – 2023 Weekday PM Peak

Approach	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
West Way	1.008	31.9	1.017	36.2
Wesley Street	0.750	2.8	0.763	3.0
Harborough Hill	0.954	13.7	0.961	14.9
Sheffield Road	0.820	4.4	0.826	4.5

Table 7.12: Alhambra Roundabout ARCADY Results – 2023 Saturday Peak

Approach	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
West Way	0.869	6.2	0.906	8.5
Wesley Street	0.768	3.1	0.808	3.9
Harborough Hill	0.922	9.9	0.934	11.0
Sheffield Road	0.818	4.3	0.833	4.7

7.4.4 As expected, in the evening peak the junction exceeds reserve capacity in 2013 and exceeds absolute capacity by 2023. By 2023 the junction exceeds reserve capacity in the Saturday peak hour. However, it is the background traffic growth (approximately 11% growth forecast in TEMPRO), rather than the addition of development traffic, that causes the junction to exceed capacity in both peak hours. The negligible increase in traffic caused by the development is reflected in the minor impact on capacity results in all situations.

7.4.5 It should be reiterated that the above results are based on the junction in its current form (ie with no signal control). Therefore, the junction can be expected to operate more efficiently, and with more control over the locations of queues, once the traffic signal metering scheme is in operation.

7.5 Lambra Road / Pontefract Road

7.5.1 This junction is currently a priority controlled T-junction with Lambra Road traffic required to give-way to Pontefract Road traffic. Total traffic volumes at this junction are forecast to increase by approximately 1% in the weekday evening peak hour and by less than 4% in the Saturday peak hour as a result of the development.

7.5.2 However, flows on individual approaches are forecast to increase by more than 5% in some scenarios and therefore PICADY models have been created and used to assess the capacity of the junction. 2013 and 2023 'with development' and 'without development' scenarios have been assessed.

7.5.3 Tables 7.13 to 7.16 present the PICADY results for the junction. As with ARCADY results, the key measures of junction performance in PICADY is the RFC.

Table 7.13: Lambra Road / Pontefract Road PICADY Results – 2013 Weekday PM Peak

Movement	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
Lambra Rd Left	0.145	0.2	0.123	0.1
Lambra Rd Right	0.589	1.4	0.595	1.4
Ponte. Rd (W) Right	0.030	0.0	0.031	0.0

Table 7.14: Lambra Road / Pontefract Road PICADY Results – 2013 Saturday Peak

Movement	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
Lambra Rd Left	0.201	0.2	0.170	0.2
Lambra Rd Right	0.731	2.6	0.773	3.1
Ponte. Rd (W) Right	0.095	0.2	0.079	0.1

Table 7.15: Lambra Road / Pontefract Road PICADY Results – 2023 Weekday PM Peak

Movement	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
Lambra Rd Left	0.186	0.2	0.160	0.2
Lambra Rd Right	0.681	2.0	0.683	2.0
Ponte. Rd (W) Right	0.035	0.0	0.035	0.0

Table 7.16: Lambra Road / Pontefract Road PICADY Results – 2023 Saturday Peak

Movement	'Without Development'		'With Development'	
	Max. PRC	Max. Queue	Max. PRC	Max. Queue
Lambra Rd Left	0.354	0.5	0.446	0.7
Lambra Rd Right	0.849	4.7	0.895	6.2
Ponte. Rd (W) Right	0.111	0.2	0.092	0.2

7.5.4 The PICADY analysis has shown that the junction will operate within its reserve capacity in all traffic flow scenarios, except in the 'with development' 2023 Saturday peak by which time it operates slightly above the reserve capacity but within its absolute capacity. This represents a slight worsening in performance compared to the 'without development' situation but, considering the assessment is for the year 2023, it is considered acceptable that the junction is within its absolute capacity.

7.6 Traffic Impact Assessment Summary

7.6.1 The impact of the proposed redevelopment of Barnsley Markets, in terms of percentage increases in traffic at local junctions, has shown to be negligible in the weekday evening and Saturday peak hours.

7.6.2 As a result, the redevelopment proposals are not shown to have any significant impact on junctions within the agreed 'Area of Impact'.

7.6.3 In order to provide access to the two new car parks modifications to existing junctions are required as summarised below:

- Firstly, the MSCP will be accessed by adding a fourth arm to the Wesley Street / Lambra Road junction, which is proposed to be signalised as part of the development. The addition of traffic signals at this location will enable queues to be better managed at this location, therefore reducing the issue of vehicles blocking back to the Alhambra

Roundabout. This proposed junction is forecast to operate within capacity in 2013 and within absolute capacity in 2023. Queues are not forecast to block back to the roundabout in any assessment scenario.

- Secondly, the surface level car park will be accessed from the Schwäbisch Gmünd Way / Kendray Street / Pontefract Road signalised junction, which operates under traffic signal control. The junction requires minor modifications to enable vehicles to enter and exit the car park from the direction of Schwäbisch Gmünd Way (the existing layout only caters for vehicles from Pontefract Road). The proposed junction layout is shown to operate well within capacity in all assessment scenarios.

8 Construction Period

8.1 Construction Traffic

8.1.1 At this stage it is not possible to accurately predict the site movements during the construction. However, during the construction period it is anticipated that associated traffic flows will not compromise the efficiency of the existing highway network.

8.1.2 Not withstanding the above, the following measures are recommended in order to further reduce the impact of the development traffic:

- preferred routes for heavy goods vehicles (HGVs) to and from the site to be identified and agreed with the local highways authority (ie BMBC);
- tracking of mud from site entrances to be addressed by on-site wheel cleaning;
- efforts to be made to minimise dust and mud emissions generated from HGV movements (HGVs to be sheeted);
- the highway in the vicinity of all site accesses to be kept free from dirt generated by the site clearance activities;
- any abnormal loads to be scheduled in consultation with both the local highway authority and the local Constabulary and to be advertised well in advance in order to minimise possible disruption;
- HGV movements to be confined to a designated operational period, the precise hours to be agreed with BMBC;
- the operator should ensure that all drivers are informed of the requirement to drive slowly and safely on approaches to the site. Supplementary road signs enforcing such restrictions could also be erected;
- warning signs indicating the presence of the site entrances and directing HGV traffic to be erected;
- car parking to be provided on-site, or in another suitable location, for contractors vehicles;
- specific measures to ensure the safety of pedestrians by means of barriers to segregate the site from pedestrian routes and to introduce procedures for the safe access and aggress of vehicles from the site; and
- instructing HGV drivers that they are not to arrive at the site outside of the site's permitted period of operation and on no account should they park/layover on the adjacent highway network.

9 Summary and Conclusions

9.1 Overview

9.1.1 This Transport Assessment has forecast the potential impact on the local highway network resulting from the proposed redevelopment of the Barnsley Markets site. The scope of assessment and the methodologies used to assess the development have been the subject of discussions, and subsequently were agreed, with officers from BMBC.

9.1.2 Data analysis has been undertaken to forecast the trip generation and distribution of the development and evidence has been presented to establish the impact of development traffic on junctions within the vicinity of the site.

9.1.3 It has also been demonstrated that the development is situated in a highly accessible location, which offers excellent accessibility to the rail and local bus networks. The accessibility of the site by these sustainable travel modes helps to provide a genuine alternative to travel by the private car.

9.2 Traffic Impact Assessment Summary

9.2.1 It has been forecast that the redevelopment will have relatively minor impact, in terms of percentage increases in traffic flows, on the local highway network. As agreed in the scoping exercise, detailed junction capacity assessments have been undertaken of junctions where forecast traffic flows on least one approach arm increases by more than 5%. The following junctions were therefore assessed in the evening and Saturday peak hours:

- Wesley Street / Lambra Road – to be modified and signalised to provide access to the proposed development multi-storey car park;
- Schwäbisch Gmünd Way / Kendray Street / Pontefract Road – to be modified to provide access to the development surface level car park;
- Alhambra (Sheffield Road) Roundabout; and
- Pontefract Road / Lambra Road give-way junction.

9.2.2 The two access junctions are shown to operate within absolute capacity in all scenarios (up to and including 2023). Although the MSCP access is starting to approach capacity by 2023, it is forecast that queues on the Wesley Street approach can be accommodated on the short link without blocking back to the upstream roundabout.

9.2.3 The Alhambra Roundabout itself is forecast to exceed capacity although the increase in background traffic, and not the minor increase due to development traffic, is the cause of these capacity issues. The assessment of the roundabout has been based on its non-signalised 'standard' layout and therefore represents a worst-case scenario as the scheme to add traffic signal metering at the junction will improve capacity and provide means to control queues on each approach at busy times.

Appendices

Appendix A – Transport Scoping Note

Transport Scoping Note

Project Title:	Barnsley Markets
MVA Project Number:	C3A309
Subject:	Scoping Exercise for Transport Assessment and General Traffic and Transport Issues
Note Number:	001 Version: 1.5
Author(s):	Geraint Moore
Reviewer(s):	Duncan Irons
Date:	23 December 2010

1 Introduction

1.1 MVA Consultancy has been commissioned to produce a Transport Assessment in relation to the revised Barnsley Markets planning application, which is due to be submitted in early Summer 2011.

1.2 Following a meeting with highways officers from Barnsley Metropolitan Borough Council (BMBC) on the 14th December 2010, it was agreed that a Scoping Note should be produced before work on the Transport Assessment commenced.

1.3 Therefore, this Scoping Note has been produced in order to set out how MVA propose to undertake the Transport Assessment and which other relevant traffic and transport-related issues will need be considered in advance of the planning application submission and in the period following its submission. The Note will form the basis of discussions with BMBC in early 2011 as the scope and extent of the required Transport Assessment is agreed.

1.4 The Transport Assessment will be produced in accordance with the 'Guidance on Transport Assessments' published by the Department for Transport (DfT) and Department for Communities and Local Government (DCLG).

2 Background

Site Location

2.1 The location of the site is shown in Figure 1 below.

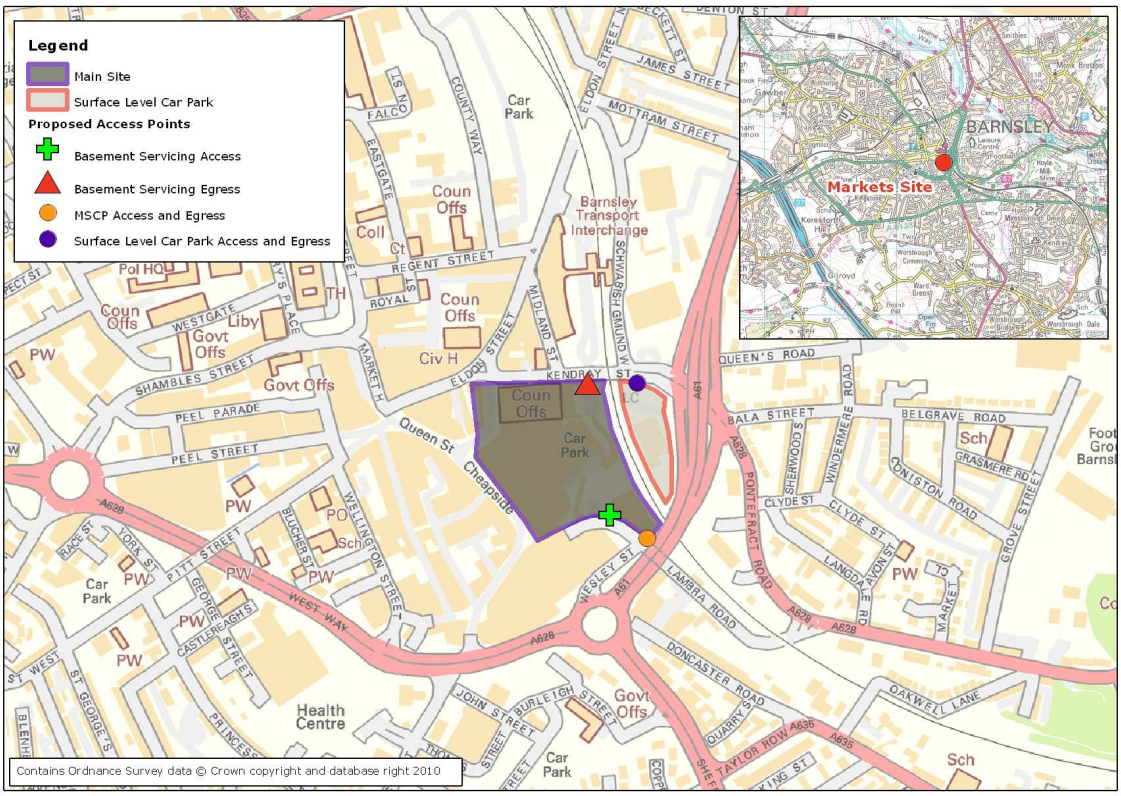


Figure 1: Barnsley Markets Site Location

2.2 The site is located in Barnsley Town Centre and the proposed development site comprises two related sites. The main markets site is located between Kendray Street; May Day Green; Cheapside; The Alhambra Car Park and the railway line. A secondary site, located to the east of the railway line and known as the CEAG site, is proposed to be used as a development surface level car park.

2.3 The existing markets multi-storey car park (MSCP) has a capacity of approximately 600 spaces. Access into the car park is from both the north (over the Jumble Lane level crossing) or from the south (from Lambra Road) though it is understood that the southern entry is used by a majority of visitors in order to avoid possible delays whilst the railway crossing is down. Egress from the car park is to the south only.

Previous Application

2.4 An outline planning application for the redevelopment of the Barnsley Markets site was submitted in 2006 and subsequently received planning approval, subject to various conditions. At this time, the development included provision of additional retail space, a new markets hall, a cinema, bowling alley and residential units.

2.5 A 1,200 space multi-storey car park was proposed on the old CEAG site to the east of the Jumble Lane level crossing and this was to be connected to the main development via a new railway pedestrian link bridge. It was proposed that the car park would be accessed from the Interchange Way / Pontefract Road / Kendray Street junction. Servicing of the retail and market areas would have been undertaken from an underground basement accessed from the

Wesley Street / Lambra Road junction with an exit onto Kendray Street and over the Jumble Lane level crossing.

2.6 Working with the development team, MVA produced a Transport Assessment that assessed the impact that the redevelopment would have on the local highway network. It was shown that, with junction improvements at the Wesley Street / Lambra Road and Interchange Way / Pontefract Road / Kendray Street junctions, the proposed development would not have a significant impact on the highway network. This was undertaken using a combination of the Barnsley SATURN model and individual junction assessments.

Latest Development Proposals

2.7 A planning application is being prepared for a revised scheme for the redevelopment of the Barnsley Markets site. 'Work in progress' drawings of the latest development proposals are appended to this Note.

2.8 The latest development proposals, which are subject to modification before the submission of the revised planning application, are summarised in the following table.

- Retail units (small, medium and Department Store units) – 31,000m² Gross Floor Area (GFA);
- Markets – 7,400m² GFA;
- Six screen Cinema – 3,600m² GFA;
- Retail and markets 'back of house' area – 14,000m² GFA;
- Retail and markets public circulation, including external landscaping – 14,600m² GFA;
- 600 space multi-storey car park, accessed from Lambra Road; and
- 250 space surface car park on CEAG site.

2.9 This sums to approximately 70,500m² when the markets, cinema and retail and markets 'back of house' and public circulating areas are included (but excluding car parking space). There will also be food and drink outlets within the development and the floor areas of these are included within the above figures for the retail and markets elements.

2.10 Compared to the previous proposals, the revised scheme represents an overall reduction in development quantum. There has been a reduction of approximately 14,000m² of non-markets retail, the markets and cinema proposals are reduced in size and there is also a reduction of approximately 350 public car parking spaces. No residential units are proposed as part of the revised scheme, which results in a further reduction of some 110 car parking spaces.

3 Car Parking and Access Strategy

3.1 It is proposed to have two car parks serving the development site:

- Multi-storey car park (MSCP) accessed via a ramp from the junction of Wesley Street / Lambra Road – approximately 600 spaces; and
- Surface level car park on the CEAG site accessed from the Interchange Way / Kendray Street / Pontefract Road junction – approximately 250 spaces.

3.2 Given the respective locations of the proposed car parks, it is likely that the surface level car park will predominantly serve people travelling to the site from the north and north-east, whilst the larger MSCP will attract people from the east, south and west.

3.3 Initial reaction at the BMBC highways meeting on 14th December was that this level of parking provision would be suitable and it is MVA's current understanding that there is currently ample supply of public car parking within the town centre. However, as part of the Transport Assessment, MVA will undertake a car parking assessment to investigate whether the proposed parking supply is sufficient. This assessment will be informed by the forecast vehicle arrivals and departures (see 'Trip Generation' section below) and by discussions with BMBC staff with responsibility for parking in the town centre.

3.4 The current proposals envisage access to the MSCP will be via an elongated spiral ramp which will be accessed at the Wesley Street / Lambra Road junction. This junction, which is currently a priority controlled T-junction, will be signalised. This will enable better coordination with the adjacent Sheffield Road (Alhambra) roundabout, which is due to have recently installed traffic signals activated in order to 'meter' traffic entering the junction.

3.5 The CEAG surface level car park will be accessed from Interchange Way / Pontefract Road / Kendray Street junction (which was to be the access point for the MSCP in the previous application). Given that the surface level car park will be significantly smaller than the previously proposed MSCP, it is likely that the access junction will require less modifications but this will be assessed as part of the access strategy and Transport Assessment.

3.6 It will be proposed that the car parks are controlled by barriers that, in the case of the MSCP, will be located at the top of the ramps in order to reduce the likelihood of queuing vehicles blocking back onto the highway at busy times. Both car parks will operate with a 'Pay on Foot' payment system, which has the benefit of reducing enforcement requirements and will contribute to reducing delays.

3.7 MVA are due to assess the above access strategy early in 2011 in advance of the Transport Assessment production. Following the scheduled meeting with BMBC on 18th January, traffic data will be received that will be used when assessing the feasibility of the access strategy. Subject to obtaining relevant data, it is anticipated that the access strategy, including an initial assessment of the access junctions and presentation of outline junction layouts, will be complete in February 2011.

4 Accessibility by Sustainable Modes and Travel Plan

4.1 The Transport Assessment will include an assessment of the accessibility of the site by a range of sustainable travel modes.

4.2 Given that the site is located within the town centre and is directly adjacent to the Barnsley Interchange, which has been completed since the previous application, it is likely that the assessment will conclude that the site is highly accessible by non-car modes of transport.

4.3 It was highlighted by Barbara Wilson (BMBC Highways) that there will be a requirement for coaches to drop off and pick up parties and that there is likely to be insufficient space at the

Barnsley Interchange. It was agreed at the meeting on 14th December that Barbara would contact SYPTE to discuss this issue.

4.4 MVA will also produce an accompanying site Outline Travel Plan, which will identify a set of measures and initiatives that could be implemented to encourage staff and visitors to the site to make sustainable travel choices.

5 Trip Generation and Distribution

5.1 In order to forecast the number of vehicle trips generated by the redeveloped site, our proposed methodology is likely to include a combination of the following two methods:

TRICS Based Approach

5.2 Using the TRICS survey database we will obtain trip rates for both the existing and proposed land uses within the site. Applying the trip rates to the net difference in floor areas for each land use will provide forecasts of trips generated by the site.

5.3 Depending on the number of relevant sites in TRICS, it may prove possible to obtain *person* rates, to which assumptions on mode splits and car occupancies can be applied to forecast the total number of *vehicle* trips generated by the site; this is the recommended approach within the latest Transport Assessment guidance. The alternative approach would be to obtain vehicle rates directly and this is necessary when the TRICS system contains few relevant multi-modal surveys.

5.4 We will assume that the net increase in retail floorspace would not create new trips at the same ratio as the increase in floorspace (ie a 50% increase in retail floorspace will not create 50% more trips). In our experience, a 50% reduction of the net floorspace increase is a more appropriate approach as this assumes existing visitors will stay longer than they would previously have done. The effect of this assumption would be that a 50% increase in retail floorspace would result in a 25% increase in visitor trips (ie 'new trips'). These assumptions were applied in the Transport Assessment of the previously approved planning application.

5.5 If there are a sufficient number of sites within TRICS, we will utilise 85th percentile trip rates; otherwise we will use average rates (as was done in the previous TA).

5.6 Finally, it may prove that the TRICS approach is only suitable to certain elements of the scheme (eg cinema) as the TRICS survey database is often lacking in suitable town centre retail sites.

Existing Car Park Usage (including servicing areas)

5.7 Traffic counts of vehicles entering and exiting the existing car park and servicing areas at the Markets site will clearly ascertain the existing trips generated by the site. In addition, they can form the basis of forecasting trips to the redeveloped site as explained below. At present it is uncertain whether this information is available and this will be discussed with BMBC at the meeting in early January.

5.8 The existing demand for vehicle trips to the site can be factored up to take into account the expansion of the retail offering at the site and its increased attractiveness. Applying the increase in floorspace would be the most appropriate method of factoring existing demand. As

explained in the TRICS based approach section, we will assume that the net increase in retail floorspace would not create new trips at the same ratio as the increase in floorspace (ie a 50% increase in retail floorspace will not create 50% more trips).

Trip Distribution

5.9 Assuming that the SATURN model approach to the assessment is not used, we will manually distribute traffic to and from the car parks.

5.10 The manual distribution would be based on existing traffic flows (as they approach and leave the site).

Trip Generation and Distribution Summary

5.11 The trip generation methodology cannot be completely fixed until a review of the latest TRICS database and a review of the existing car park information. However, it is likely that the adopted methodology will be a combination of the two methods outlined above. At this stage, we consider it most likely that we will use the following methods for the respective land uses:

- Retail and markets elements – factoring of existing demand; and
- Cinema – TRICS based approach.

5.12 We will assume that the food and drink outlets will not generate trips solely for that purpose (ie people using the retail and/or cinema land uses will also use the food and drink land uses). Floorspace for these uses will therefore be discounted from the trip generation process.

5.13 We will be in dialogue with BMBC throughout the trip generation and distribution process in order to ensure the adopted methodology has general support in advance of the Transport Assessment submission.

6 Traffic Impact Assessment

6.1 Before the traffic impact of the development is assessed, it will be necessary to agree a broad approach and methodology for undertaking the assessment. The following sections present MVA's proposed approach and highlights issues, such as relevant traffic data, that will require agreement before the work commences.

Traffic Data Sources

6.2 There are several potential sources from which traffic data for the impact assessment can be used. These are as follows:

- Forecast modelled traffic flows – from the Barnsley SATURN highway model. It is our understanding that an update to the model is being undertaken by Aecom and its latest update is currently a 'work in progress';
- Traffic counts (including vehicle turning movements) – it is our understanding that some existing count data will be available in the town centre but this is not comprehensive and will not include all junctions to be assessed. **We request that BMBC compile a list of traffic counts undertaken in the last 3 years at the junctions identified in the 'Area of Impact' section of this Note**; and
- Urban Traffic Control (UTC) automated traffic data – this could provide potentially useful link count data and information that shows how traffic changes throughout the day and over longer periods of time (which would be used to factor other traffic data).

6.3 The SATURN model approach, which involved adding the development traffic onto 2011 and 2021 future year networks, was used to assess the change in traffic flows and to highlight areas of the network where capacity was forecast to become an issue. Traffic flows were then extracted from the model and used in the individual detailed junction assessments. Whilst this approach had its advantages at the time of the previous assessment, it is our understanding that the latest version is not ready for this purpose and, given the required timescales for the markets assessment, it is unlikely to be complete in time. In addition, there will be no SATURN model representing Saturday traffic conditions. **Therefore, it is concluded that the SATURN model approach is not appropriate for this assessment.**

6.4 Therefore we are likely to use the generally more conventional approach, which is to obtain traffic data from surveys and/or UTC. UTC data will be insufficient on its own as it will not provide information on individual turning movements at each junction but it could supplement other data and is likely to be of some use. There may be a requirement to undertake new traffic counts in the New Year. However, this will be established on receipt of the existing data.

Assessment Periods

6.5 It is proposed that MVA will undertake assessments of the following periods:

- Weekday evening peak hour; and
- Saturday peak hour.

6.6 As the development proposals are now purely for retail and leisure uses, which generate minimal traffic volumes in the morning peak, it is considered that a morning peak assessment is not warranted.

6.7 New traffic data will be collected on a representative 'average' day and will therefore exclude dates when football matches are being played at Oakwell, Bank Holiday weekends and school holidays.

Assessment Years and Traffic Growth

6.8 As is common practice in TA's, MVA propose to undertake 'base' and 'with development' assessments of the proposed year of opening and year of opening plus 10 years. The opening year is assumed to be 2013.

6.9 Base year background traffic flows will be 'growthed' using industry-standard DfT local TEMPRO forecasts.

Committed Developments and Schemes

6.10 It was agreed at the initial highways meeting on 14th December that no committed developments need to be taken into account when assessing the impact of the scheme. It was noted that the markets team need to be kept aware of a development to the south west of Sheffield Road roundabout but that because the development has not received planning approval and the Barnsley Markets redevelopment has received approval there is no requirement to treat this development as a 'committed' development.

6.11 The only committed transport scheme that MVA are aware of is the 'metering' signals on the Sheffield Road roundabout, which have been installed but are yet to be switched on. Details of this scheme are to be provided by the Council together with any models of the performance of the scheme. We understand there are aspirations for a new highway link between the town centre and the M1 motorway and this could alleviate some traffic congestion in and around the town centre. However, given that this is not a committed scheme and that modelling its impact would require a strategic transport model (ie SATURN), our assessments of the impact of the Barnsley Markets redevelopment will not take this proposal into account.

Area of Impact

6.12 At the initial highways meeting on 14th December it was agreed that the following junctions need to be considered during the assessment:

- Wesley Street / Lambra Road;
- Sheffield Road (Alhambra) roundabout;
- West Way / Upper New Street (Morrisons access);
- Town End roundabout;
- Sheffield Road / Taylor Row;
- Sheffield Road / Park Road;
- Interchange Way / Kendray Street / Pontefract Road; and

- Harborough Hill Road / Kendray Street.

6.13 Those junctions where changes in traffic flows as a result of the redevelopment are forecast to be in excess of 5% will be assessed in detail using appropriate junction modelling programs (eg ARCADY, LinSig, TRANSYT). As stated earlier, there may be a need to undertake new traffic count surveys at some of these junctions, depending on whether counts have previously been undertaken.

6.14 Depending on the outcome of the junction assessments, it may be necessary to propose improvements to mitigate against the impact the development traffic. As part of the assessment, we will propose and assess any mitigation measures as required. For the purposes of the TA, drawings of junction modifications will be produced in outline detail by MVA. It is anticipated that full detailed designs of junctions will be conditioned as part of any planning approval and will be produced by White Young Green (WYG).

7 Other Issues

7.1 There are a series of other transport related issues that need consideration and/or action either in advance of the planning application or in the period following the planning decision. These include:

- Traffic Regulation Orders (TROs) – these may need to be changed in light of the revised scheme;
- Road Closure Notices / Stopping Up Orders – as with the TROs, these may need to be changed in light of the revised scheme. The Stopping Up drawings from the previous application are appended to this Note;
- Section 278 drawings and agreements;
- Highways operation during construction periods; and
- Phasing of the development and implications these may have on highways operation and routing of construction vehicles.

7.2 White Young Green will lead on the technical and detailed aspects of these elements relating to these requirements.

8 Information to be provided and/or Enquiries to be made by BMBC

8.1 We would request that BMBC attempt to undertake the following tasks in advance of the highways meeting scheduled for 18th January:

- **Scoping Note** – review and comment on;
- **Existing traffic count data** – specifically in the locations set out in the 'Area of Impact' section of this Note. May include automated UTC link count data and manual turning counts;
- **Demand for existing markets multi-storey car park** – may include counts of vehicles and/or car park ticket data;

- **VISSIM micro-simulation models of the Town Centre** – ascertain whether any VISSIM models are fit for purpose and available for use in the assessment of the scheme;
- **Barnsley SATURN model** – ascertain the current status of the SATURN model and whether it could be used within the assessment. A potential use for the SATURN model could be to extract modelled turning proportions at junctions with which UTC link count data can be applied;
- **Traffic signals on town centre roundabouts** – provide information on the 'metering' signals on the Sheffield Road (Alhambra) roundabout and any other roundabouts in the town centre. This should include a description of the scheme and associated plans and, if possible, information on proposed signal timings and any traffic models used to assess the proposals;
- **Traffic Regulation Orders (TROs)** – information on the procedure required to arrange any necessary TROs; and
- **Road Closures / Stopping Up Orders** – information on whether new orders will be required or whether the previous orders will be sufficient.

8.2 It would be useful if these issues have at least been considered or delegated in advance of the first meeting in January so that the relevant data / information can be obtained in a timely manner. This will help to ensure the initial assessment of the access strategy is complete in time for the second meeting in February.

9 Next Steps

9.1 A meeting between MVA and BMBC highways has been scheduled for 18th January. This Note and the proposed approach outlined within it will form the basis of discussion at this meeting.

9.2 In the days following the meeting, traffic data will be obtained (either existing counts or new ones) and an initial assessment of the access strategy (focusing on those junctions in the immediate vicinity of the proposed car parks) will be undertaken.

9.3 The findings of this assessment will form the basis of a further meeting, which is provisionally booked for February 10th.

Appendix B – Access Strategy Note & Minutes

Access Strategy Note

Project Title:	Barnsley Markets
MVA Project Number:	C3A309
Subject:	Barnsley Markets – Proposed Access Strategy
Note Number:	002 Version: 1
Author(s):	Geraint Moore
Reviewer(s):	Duncan Irons
Date:	02 March 2011

1 Introduction

1.1 MVA Consultancy presented the proposed Access Strategy for the Barnsley Markets development to officers from Barnsley Metropolitan Borough Council (BMBC) at a meeting on 17 February 2011. This included the presentation of outline layouts for the access junctions to the two car parks proposed as part of the markets development.

1.2 Subject to relatively minor modifications to the proposed layouts an 'in principle' agreement regarding the access proposals was reached with all attendees at the meeting. Minutes from the access strategy meeting are appended to this Note and the requested modifications to the layouts have been undertaken.

1.3 This Note formalises the access strategy with focus on the following two proposed access junctions (proposed layouts of which are appended to this Note):

- Markets multi-storey car park (MSCP) with Wesley Street and Lambra Road; and
- Markets surface level car park with Schwäbisch Gmünd Way (Interchange Way) and Kendray Street.

1.4 Following this introductory section, the structure of the Note is as follows:

- Section 2 outlines the proposed access strategy and presents the proposed permanent access junctions;
- Section 3 presents the methodology used to assess the access strategy and includes detail on the chosen assessment periods and year, the trip generation and distribution methodologies;
- Section 4 provides an overview of the future year junction modelling results for the access junctions;
- Section 5 identifies the further assessment that will be undertaken as part of the Transport Assessment; and
- Section 6 provides a Summary and Conclusion of the Note.

1.5 **MVA Consultancy requests that BMBC provide a written response to this Note (by 18th March 2011) so that any agreement or, alternatively, any disagreement regarding the proposals is documented.**

2 Proposed Access Strategy

2.1 This section provides an overview of the proposed access strategy and also presents the proposed layouts for the two access junctions.

Access Strategy Overview

2.2 It is proposed to have two car parks serving the redeveloped Barnsley Markets site:

- Multi-storey car park (MSCP) accessed via a ramp from the junction of Wesley Street and Lambra Road – approximately 600 spaces; and
- Surface level car park on the CEAG site accessed from the Schwäbisch Gmünd Way and Kendray Street junction – approximately 250 spaces.

2.3 Given the respective locations of the proposed car parks, the surface level car park will predominantly serve people travelling to the site from the north and north-east, whilst the larger MSCP will attract people from the south, west and south-east.

2.4 The car parks will be controlled by barriers that, in the case of the MSCP, will be located at the top of the ramps in order to reduce the likelihood of queuing vehicles blocking back onto the highway at busy times. Both car parks will operate with a 'Pay on Foot' payment system, which has the benefit of reducing enforcement requirements and will contribute to reducing delays.

2.5 A key element of the access strategy will be the development of an overarching 'control strategy' and parking guidance system at the Alhambra Roundabout and Harborough Hill Road junction with Kendray Street / Pontefract Road. With the use of VMS signs it is possible to advise drivers which car parks to use so as to avoid busier car parks and to reduce queuing on congested approaches. This control strategy will be finalised as part of the subsequent S278 agreements, as agreed at the meeting on 17 February.

MSCP Access

2.6 The markets MSCP will be accessed via an elongated spiral ramp, which will be accessed at the existing junction of Wesley Street and Lambra Road. It is proposed that this junction, which is currently a priority controlled T-junction, will be signalised to incorporate the fourth arm and enable better coordination with the adjacent Sheffield Road (Alhambra) roundabout, which is due to have the recently installed traffic signals activated in order to 'meter' traffic entering the junction.

2.7 The proposed alterations to this junction are presented in Figure 1 (C3A309/D/01v2.0), which is appended to this Note.

2.8 In summary, the MSCP will be accessed from a new arm at the junction and it will be necessary to trim the kerb on the south-west corner of the junction in order to allow articulated goods vehicles to turn left from Wesley Street into the existing Alhambra Mall service yard.

2.9 Signalised pedestrian crossings will be provided on the Wesley Street and the Lambra Road (east) approaches and it was agreed at the meeting on 17 February that this provision was sufficient in this area given the existing and likely future pedestrian desire lines. An informal, unsignalised crossing will be provided over the MSCP access arm.

2.10 Future year capacity assessments of this proposed layout is presented in Section 4.

Surface level car park access

2.11 The markets surface level car park, located on the existing CEAG site, will be accessed from the junction of Schwäbisch Gmünd Way and Kendray Street junction, which is adjacent to the Jumble Lane level crossing. There is an existing access at this junction into the CEAG site but this is only for vehicles turning left in and right out of the site. The access is currently not in use.

2.12 Following the meeting held on 17 February, two different proposed layouts, each with slight variations on the other, have been produced. These are presented in accompanying Figure 2a (C3A309/D/02v2.0a) and Figure 2b (C3A309/D/02v2.0b), both of which are appended to this Note.

2.13 Figure 2b is based on a proposed design produced when the Barnsley Interchange was being planned. The main difference between this option and the one shown in Figure 2a is that it includes two lanes for southbound Schwäbisch Gmünd Way traffic (one lane for left turners and one for traffic entering the markets car park). This has the advantage of being able to provide the two main traffic movements (the right turn from Kendray Street and the left turn from Schwäbisch Gmünd Way) with a green signal concurrently.

2.14 As part of the completed Barnsley Markets scheme, it is proposed that the only vehicular traffic using the Jumble Lane level crossing will be service vehicles leaving the development site. The easternmost section of Kendray Street will be closed to traffic which will create a pedestrianised area between Barnsley Interchange and the markets site. No traffic will be able to travel westbound over the Jumble Lane level crossing. This is proposed in both variants of the proposed access junction.

2.15 As identified by BMBC, there are proposals for a westbound cycle route along Kendray Street over the Jumble Lane crossing and into the town centre and these are incorporated within both of the proposed access layouts.

2.16 Future year capacity assessments of these proposed layouts are presented in Section 4. Due to the different proposed traffic signal staging arrangements and layout geometries, each option has different capacity results.

3 Assessment Methodology

3.1 This Section of the Note summarises the methodologies used to assess the proposed development access junctions. The assessment of the access strategy has followed the general methodology as proposed in MVA's 'Transport Scoping Note', dated 23 December 2010.

3.2 Further assessment of the impact of the development on the existing highway network will be undertaken and presented in the Transport Assessment, which will accompany the Markets planning application.

Assessment Periods and Traffic Data

3.3 As agreed in MVA's Transport Scoping Note, the assessments for both the access strategy and the Transport Assessment will be undertaken for a weekday evening peak hour and a Saturday peak hour.

3.4 In order to identify the relevant peak hours, MVA analysed Automatic Traffic Count (ATC) data provided by BMBC for various sites around Barnsley town centre. Figure 3.1 summarises the total daily traffic flows from six ATC sites located closest to the markets site.

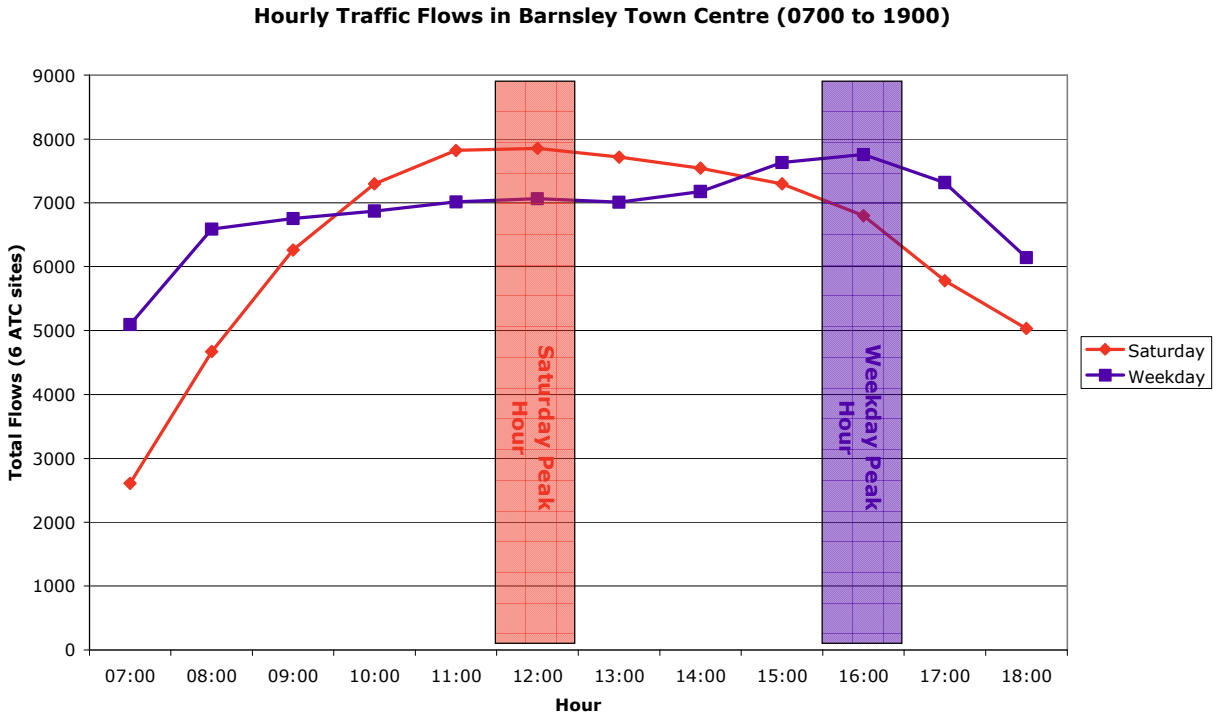


Figure 3.1: ATC Traffic Flows

3.5 As can be seen in Figure 3.1, the hour between **16:00 and 17:00 represents the weekday evening peak** and the hour between **12:00 and 13:00 represents the Saturday peak**.

3.6 For the purposes of assessing the access strategy, MVA also commissioned new turning counts at the junctions of Wesley Street with Lambra Road and Schwäbisch Gmünd Way with Kendray Street. These counts were undertaken in the evening peak (16:00 to 18:00) on Wednesday 26th January 2011 and between 10:00 and 16:00 on Saturday 29th January 2011 (all elements of the markets are open on Wednesday and Saturday's). New ATCs were also undertaken on the existing markets MSCP access ramp, for a full week starting on Monday 31st January. Traffic data from these counts is appended to this Note.

Assessment Years and Future Year Traffic Growth

3.7 As proposed in the Scoping Note, the access strategy has been assessed in a future year scenario that represents the forecast year of opening plus 10 years. This is to provide comfort that the new access junctions will provide sufficient growth capacity for the future.

3.8 The current year of opening is assumed to be 2013 so the assessment of the access strategy is for the year 2023.

3.9 Base background traffic flows have been 'growthed' using industry-standard DfT local TEMPRO forecasts. The latest approved version of TEMPRO is Version 5.4, which was released before the current economic downturn. TEMPRO forecasts also include the growth from assumed developments and, therefore, the growth factors effectively already include for developments such as the Barnsley Markets redevelopment. Barnsley Markets development traffic (see 'Trip Generation' and 'Trip Distribution' sections) is added to the future year background traffic and this approach is therefore likely to overestimate the level of traffic growth. The TEMPRO forecasts adopted in this assessment assume growth rates of between 11% and 12% between 2011 and 2023 (in both the evening peak and Saturday peak periods).

Trip Generation

3.10 In order to assess the proposed Markets access junctions, it has been necessary to forecast the additional volume of traffic generated by the development. The additional traffic has been distributed across the highway network and the methodology used to do this is summarised in the 'Trip Distribution' section.

3.11 Existing demand for the MSCP, which has been derived from the ATC data on the access ramp and the turning counts at Jumble Lane crossing, has been factored by the proportionate increase in retail floorspace to take into account the expansion of the retail offering at the site and its increased attractiveness. For the purposes of undertaking this trip generation exercise, we have used the ATC data from days in which the full market offering was open for business (Tuesday, Wednesday, Friday and Saturday). The latest development proposals envisage a 61.3% increase in total retail and markets floorspace; from 22,500m² to 36,294m² (both figures exclude retail 'back of house' and service areas).

3.12 It has also been assumed that the net increase in retail floorspace would not create new trips at the same ratio as the increase in floorspace (ie a 50% increase in retail floorspace will not create 50% more trips). As proposed in the Transport Scoping Note, a 50% reduction of the net floorspace increase has been applied as this assumes existing visitors will stay longer than they would previously have done. The effect of this assumption is that the 61.3% increase in retail floorspace would result in a 30.7% increase in trips (ie 'new trips'). These assumptions were applied in the Transport Assessment of the previously approved planning application.

3.13 For trips associated with the proposed cinema, the trip generation forecasts have utilised the TRICS database. Average person trip rates were derived from surveys of cinemas within the TRICS database; it has not been possible to use 85th percentile trip rates as only three suitable multi-modal cinema surveys were identified in TRICS. A car mode share of 69% and average car occupancy of 2.20, both of which were derived from TRICS multi-model cinema surveys, were both applied to convert person trips to vehicle trips.

3.14 Table 3.1 summarises the forecast vehicle trip generation for the existing site and the proposed development.

Table 3.1: Existing and Development Trip Generation

Peak Period	Existing		Development				Difference	
			Retail		Cinema			
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Weekday PM	25	85	33	111	23	17	+31	+43
Saturday	262	238	342	311	60	52	+140	+125

3.15 It should be noted that no existing trips are assumed to be generated from the 1,500m² of disused retail space at 1 Lambra Road or the 6,400m² of former BMBC office space, both of which are located within the development site and were included in the previous Transport Assessment. These land-uses were vacant at the time of the new traffic counts in early 2011.

Trip Distribution

3.16 Existing trips were manually distributed based on existing traffic flows and were removed from the network before the development trips were added.

3.17 The first step in distributing development traffic is to assign the traffic to either the MSCP or the surface level car park. Using existing distribution percentages, traffic from the north have been assigned to the surface level car park. This includes traffic from the north at Alhambra Roundabout; from the north at Pontefract Road / Lambra Road junction; all traffic using the Jumble Lane level crossing; and a proportion of traffic from the east along Pontefract Road (weighted by the size of each car park). All other traffic is assumed to use the MSCP.

3.18 Development traffic is then distributed to and from the respective car parks based on existing traffic flows.

3.19 Finally, as there were very few existing arrivals in the PM peak, which gives a very small sample size, we have based arrival distributions solely on the Saturday peak.

3.20 Flow diagrams are appended to this Note and show vehicle percentage distributions for the existing and the proposed developments, absolute vehicle distribution from the proposed development and the modelled 2023 plus development flows.

4 Access Strategy Assessment

4.1 This section summarises the results of 2023 future year junction modelling undertaken for the two access junctions. As both junctions are to be signalised, they have been assessed using LinSig.

4.2 Assessment of the Alhambra Roundabout has also been undertaken and the findings presented in this Section. Although part-time traffic signals are shortly to go 'live' on the entries to the junction in order to 'meter' traffic and queues, at this stage the assessment has been undertaken of the junction in its existing, non-signalised situation (using ARCADY). This assessment is sufficient at this stage as the additional of signal control will considerably improve the operation of this junction and therefore we have assessed a worst case scenario.

4.3 LinSig and ARCADY modelling results are appended to this Note.

MSCP Access

4.4 As discussed in Section 2, access to the MSCP will be taken at the existing Wesley Street and Lambra Road junction, which will become a signalised crossroads.

4.5 The weekday evening peak and Saturday peak LinSig results are summarised in Table 4.1 and Table 4.2 respectively. The LinSig modelling assumes a simple three-stage signal plan (consisting of two traffic stages following by a demand dependent all-red pedestrian stage). For the purposes of this modelling we have assumed that the pedestrian stage is called every other 60-second cycle which, given the volume of pedestrian activity in this area, is likely to represent a worst-case scenario.

Table 4.1: MSCP Access Junction LinSig results – Weekday Evening Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Alhambra Centre	41.3	3.4	1.5
MSCP Access	17.4	1.1	0.4
Lambra Road	29.4	2.5	0.9
Wesley Street	42.7	3.5	1.5
Junction totals	**111.0 (PRC)**	**n/a**	**4.34**

Table 4.2: MSCP Access Junction LinSig results – Saturday Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Alhambra Centre	87.9	11.3	6.4
MSCP Access	43.6	3.5	1.3
Lambra Road	66.5	6.7	2.9

Wesley Street	81.0	10.6	4.7
Junction totals	**2.4 (PRC)**	**n/a**	**15.36**

4.6 The LinSig results show that the junction is predicted to operate well within capacity in the weekday evening peak. It will operate closer to its reserve capacity in the Saturday peak but, importantly, the Wesley Street queue can still be accommodated within the storage capacity of the link. On the occasions that the queue begins to encroach on the Alhambra Roundabout, it will be possible to provide the Wesley Street approach with a period of unopposed green time in order to clear the vehicle queue.

Surface Level Car Park Access

4.7 As discussed in Section 2, access to the surface level car park will be taken at the Schwäbisch Gmünd Way and Kendray Street signalised junction. Two variants of the proposed access junction layout have been produced and the capacity assessment results from each are summarised in the following paragraphs and tables.

4.8 For the layout as shown in Figure 2a, the evening peak and Saturday peak LinSig results are summarised in Table 4.3 and Table 4.4 respectively.

Table 4.3: Surface Level Car Park Access Junction Option A LinSig results – Weekday Evening Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Schwäbisch Gmünd Way	73.2	11.0	4.6
Kendray St East Left Turn	2.3	0.2	0.1
Kendray St East Right Turn	73.0	10.6	4.4
Car Park Access	19.7	1.1	0.5
Markets service exit	73.5	6.7	3.7
Junction totals	**22.5 (PRC)**	**n/a**	**13.42**

Table 4.4: Surface Level Car Park Access Junction Option A LinSig results – Saturday Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Schwäbisch Gmünd Way	55.4	7.8	3.0
Kendray St East Left Turn	23.0	2.5	0.9
Kendray St East Right Turn	54.6	7.2	2.8
Car Park Access	53.4	3.3	1.7
Markets service exit	53.4	3.3	1.8
Junction totals	**62.5 (PRC)**	**n/a**	**10.32**

4.9 The Option A is layout predicted to provide sufficient capacity for future year plus development traffic. The modelling on which the above results are based assumes a 90-second cycle time and that the exit from the markets service yard receives a green stage every other cycle. However, the junction is also predicted to operate within capacity if the service yard was called every cycle (PRCs of 11.8% and 41.9% in the PM and Saturday peak's respectively).

4.10 For the layout as shown in Figure 2b, the evening peak and Saturday peak LinSig results are summarised in Table 4.5 and Table 4.6 respectively.

Table 4.5: Surface Level Car Park Access Junction Option B LinSig results – Weekday Evening Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Schwäbisch Gmünd Way	39.8	6.0	1.6
Kendray St East Left Turn	2.6	0.2	0.1
Kendray St East Right Turn	53.2	7.9	2.8
Car Park Access	23.9	1.0	0.6
Markets service exit	52.0	3.1	1.7
Junction totals	**69.0 (PRC)**	**n/a**	**6.68**

Table 4.6: Surface Level Car Park Access Junction Option B LinSig results – Saturday Peak Hour 2023 'with development' scenario

Arm	Deg. Sat. (%)	Mean Max Queue (pcus)	Total Delay (pcu/hr)
Schwäbisch Gmünd Way	30.3	3.9	1.5
Kendray St East Left Turn	26.2	2.6	1.1
Kendray St East Right Turn	43.3	6.0	2.1
Car Park Access	42.1	2.8	1.4
Markets service exit	40.1	1.7	0.9
Junction totals	**108.1 (PRC)**	**n/a**	**6.99**

4.11 The Option B is layout predicted to operate well within capacity in the 2023 plus development scenario. The layout of the junction enables the exit from the markets service yard to receive a period of green every cycle and the modelling from which the above results have been derived, assumes this signal plan arrangement with a 90-second cycle time.

4.12 Unless otherwise stated by BMBC, we will assume that the Option B layout (based on the original design produced at the time of the interchange proposals) is to be adopted as the preferred layout. This option provides more capacity and requires fewer modifications to the existing layout.

Alhambra Roundabout

4.13 This Section presents 2023 ARCADY capacity assessments of the roundabout in its existing, non-signalised layout. ARCADY modelling of the roundabout with base year traffic counts has shown that it is operating close to capacity, particularly in the evening peak, and therefore when background traffic is growthed to 2023 it is to be expected that the junction will begin to exceed capacity. However, it is the background traffic growth (approximately 11% growth forecast in TEMPRO), rather than the addition of development traffic, that causes the junction to exceed capacity in the evening peak.

4.14 The addition of traffic signal metering on the approaches, scheduled to go 'live' in Spring 2011, will improve the operation of the junction beyond that presented below. The assessment in this Note therefore represents a 'worst case' scenario as the addition of signal control will certainly improve the performance of the junction.

Table 4.7: Alhambra Roundabout ARCADY results – Weekday Evening Peak Hour base and 'with development' scenarios

Arm	2023 Base		2023 With Development	
	RFC	Queue	RFC	Queue
West Way	1.008	31.9	1.016	35.9
Wesley Street	0.750	2.8	0.762	3.0
Harborough Hill	0.954	13.7	0.959	14.5
Sheffield Road	0.820	4.4	0.825	4.5

Table 4.8: Alhambra Roundabout ARCADY results – Saturday Peak Hour base and 'with development' scenarios

Arm	2023 Base		2023 With Development	
	RFC	Queue	RFC	Queue
West Way	0.869	6.2	0.905	8.5
Wesley Street	0.768	3.1	0.806	3.9
Harborough Hill	0.922	9.9	0.933	11.0
Sheffield Road	0.818	4.3	0.833	4.7

4.15 As expected, in the evening peak the junction exceeds capacity in both the 'base' and the 'with development' scenarios. The additional of development traffic has a negligible impact compared to the addition of background traffic growth.

4.16 In the Saturday peak, the junction exceeds its reserve capacity (the maximum RFC's exceed 0.85) but, again, this is a result of background growth rather than the addition of development traffic.

4.17 It should be reiterated that the above results are based on the junction in its current form (ie with no signal control). Therefore, the junction can be expected to operate more efficiently, and with more control over the locations of queues, once the traffic signal metering scheme is in operation.

5 Next Steps

Agreement on Access Strategy

5.1 MVA Consultancy requests that BMBC provide a written response to this Note so that any agreement (or disagreement) regarding the proposals is documented.

Transport Assessment

5.2 This Note has focused on assessing the proposed access strategy and the two access junctions in particular. Initial assessment of the Alhambra Roundabout has also been undertaken due to its proximity to the proposed MSCP access junction.

5.3 As agreed in the Scoping Note, the Transport Assessment will assess the impact on the following junctions, with detailed junction modelling undertaken at locations where traffic flows are forecast to increase by more than 5% as a result of the development:

- Wesley Street / Lambra Road (assessed in this Access Strategy Note);
- Schwäbisch Gmünd Way / Kendray Street (assessed in this Access Strategy Note);
- Alhambra roundabout;
- Pontefract Road / Lambra Road;
- West Way / Upper New Street (Morrisons access);
- Town End roundabout;
- Sheffield Road / Taylor Row;
- Sheffield Road / Park Road; and
- Harborough Hill Road / Kendray Street.

5.4 The TA will cover all other elements as proposed in the Transport Scoping Note. It is intended that the TA will be produced in March and April to enable BMBC to review draft copies in advance of the submission of the development planning application. This will give opportunity for any issues to be resolved in a timely manner.

6 Summary and Conclusions

6.1 This Access Strategy Note has formally presented the access proposals as part of the Barnsley Markets development.

6.2 Proposed layouts of the two access junctions have been presented, together with junction modelling results that demonstrate both junctions will provide sufficient capacity to accommodate future year traffic volumes.

6.3 For the surface level car park access, two potential layouts have been presented and both are shown to provide acceptable options with minimal junction modifications required. Unless otherwise stated by BMBC, we will assume that the Option B layout (based on the original design produced at the time of the interchange proposals) is to be adopted as the preferred

layout. This option provides more capacity and requires fewer modifications to the existing layout.

6.4 **MVA Consultancy requests that BMBC provide a written response to this Note (by 18th March 2011) so that any agreement or, alternatively, any disagreement regarding the proposals is documented.**

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Minutes

Notes from Barnsley Markets - Highways Meeting held on 17 February 2011

Notes taken by Geraint Moore

Venue: BMBC

MVA Reference No: C3A309

Present:	Luke Athey	BMBC
	Joe Jenkinson	BMBC
	Richard King	BMBC
	Gary McNaught	BMBC
	Barbara Wilson	BMBC
	Ian Wilson	BMBC
	Chrissie Mittenshaw-Hodge	WYG
	Duncan Irons	MVA
	Geraint Moore	MVA
Apologies:	Dave Pownall	BMBC

Distribution: As above

Action

1 Introduction

1.1 Introductions.

1.2 GM and DI explained:

- Meeting purpose is to present proposed access strategy including outline proposals for access junctions and preliminary modelling results.
- Access proposals outline in nature but need to demonstrate access concept and that it will work in general. This level of detail will be included in the planning application (Transport Assessment) with detailed designs to be undertaken by White Young Green.
- Modelling results for 2023 'with development' scenario whereby background traffic 'growthed' to future year using latest approved version of Tempro (5.4). Development trips forecast using trip generation and distribution method as agreed in MVA's Scoping Note of December 2010.
- Access strategy, including modelling results, will be formalised in a Note by MVA next week and will form basis of Transport Assessment.

2 MSCP access junction with Lambra Road and Wesley Street

2.1 GM / DI presented outline access junction proposal (MVA drawing C3A309/D/01v1.0) and preliminary 2023 'with development' LinSig modelling results.

2.2 Modelling results indicate junction will operate within capacity in 2023 in the evening peak and Saturday peak hours. Queuing on Wesley Street can be incorporated without blocking back to Alhambra Roundabout but signals at MSCP access junction can be designed to enable Wesley Street queues to be cleared should they build up.

2.3 In principle agreement from all regarding proposed junction layout.

2.4 Comments / actions:

- Acceptance of proposed provision for pedestrians and acknowledgement that pedestrian volumes at this location likely to be relatively low;
- RK questioned whether controlled pedestrian crossing should be provided over Alhambra Mall approach but it was explained that only pedestrian access into site at this location was for staff of the department store and thus likely to be few pedestrians crossing over this arm of the junction;
- Unsure whether strip of land on southwest corner of junction (adjacent to Alhambra Mall service yard) is adopted land. BW to check; — BW
- LA noted that consideration should be given to location of signal controller and an area for BMBC traffic signal engineer to layover their van should be provided. Land between Harborough Hill Road flyover and Wesley Street identified as probably being the most suitable; — MVA
- LA / GMcN noted that consideration should be given to blocking back of vehicles queuing to get into Alhambra car park and also queuing on Wesley Street between junction and roundabout; — MVA
- CMH – development team will need to speak to gas board about gas governor adjacent to proposed access junction. **Post-meeting comment – MVA note that governor is fenced with sufficient space for maintenance etc**; — WYG
- GMcN – strategy / control still to be sorted out. Agreed that this will be sorted as part of S278 agreements. DI requested indication of likely Siemens costs for strategy work and parking guidance system. GMcN to look into this; — GMcN
- MVA to amend layout to reflect above comments and reissue with accompanying note. **Post-meeting comment – MVA issued revised layout on 18 February.** — MVA

3 Surface car park access with Interchange Way and Kendray Street

3.1 GM / DI presented outline access junction proposal (MVA drawing C3A309/D/02v1.0) and preliminary 2023 'with development' LinSig modelling results.

3.2 In principle agreement from all regarding proposed junction layout.

3.3 Comments / actions:

- LA to send layout as proposed in 2004 for the interchange scheme for MVA — LA

information **(layout received 17 February 2011)**;

- Removal (or reduction in size) of pedestrian island on car park access arm and crossing of pedestrians in single stage (when markets service yard receives green period); MVA
- Incorporate proposed cycle way along Kendray Street at the junction; MVA
- Area on west side of railway line around the markets service exit to be a 'shared surface' layout with direct pedestrian linkage between Barnsley Interchange and markets;
- GMcN - Emergency fire access westbound over railway and through gate into interchange needs to be maintained. Agreement that this layout does not compromise this access;
- BW noted that it isn't clear who owns strip of land between railway and car park access arm (southwest corner of junction) but that it isn't adopted. Dev team
- MVA to amend layout to reflect above comments and reissue with accompanying note. **Post-meeting comment – MVA issued two options for layout on 18 February for BMBC comment.** MVA

4 Alhambra Roundabout

4.1 GM explained that ARCADY model of Alhambra Roundabout shows junction close to capacity in current year but will remain within absolute capacity with development traffic. Roundabout will exceed capacity in future year due to background growth.

4.2 LA – metering signals at roundabout likely to be activated in March.

4.3 DI – assessment of roundabout without signals (using ARCADY) will represent worst case as signals will improve operation.

4.4 Further consideration of junction to be included as part of Transport Assessment. MVA

5 Stopping Up Orders, TROs, Temporary Traffic Orders etc

5.1 CMH introduced herself and explained she'd be working on these areas for WYG.

5.2 BW – still no response from GOYH regarding requirements for new Stopping Up Order(s). CMH to assume that new orders will be required.

5.3 BW – to send CMH copy of highway boundaries, adopted areas etc. BW

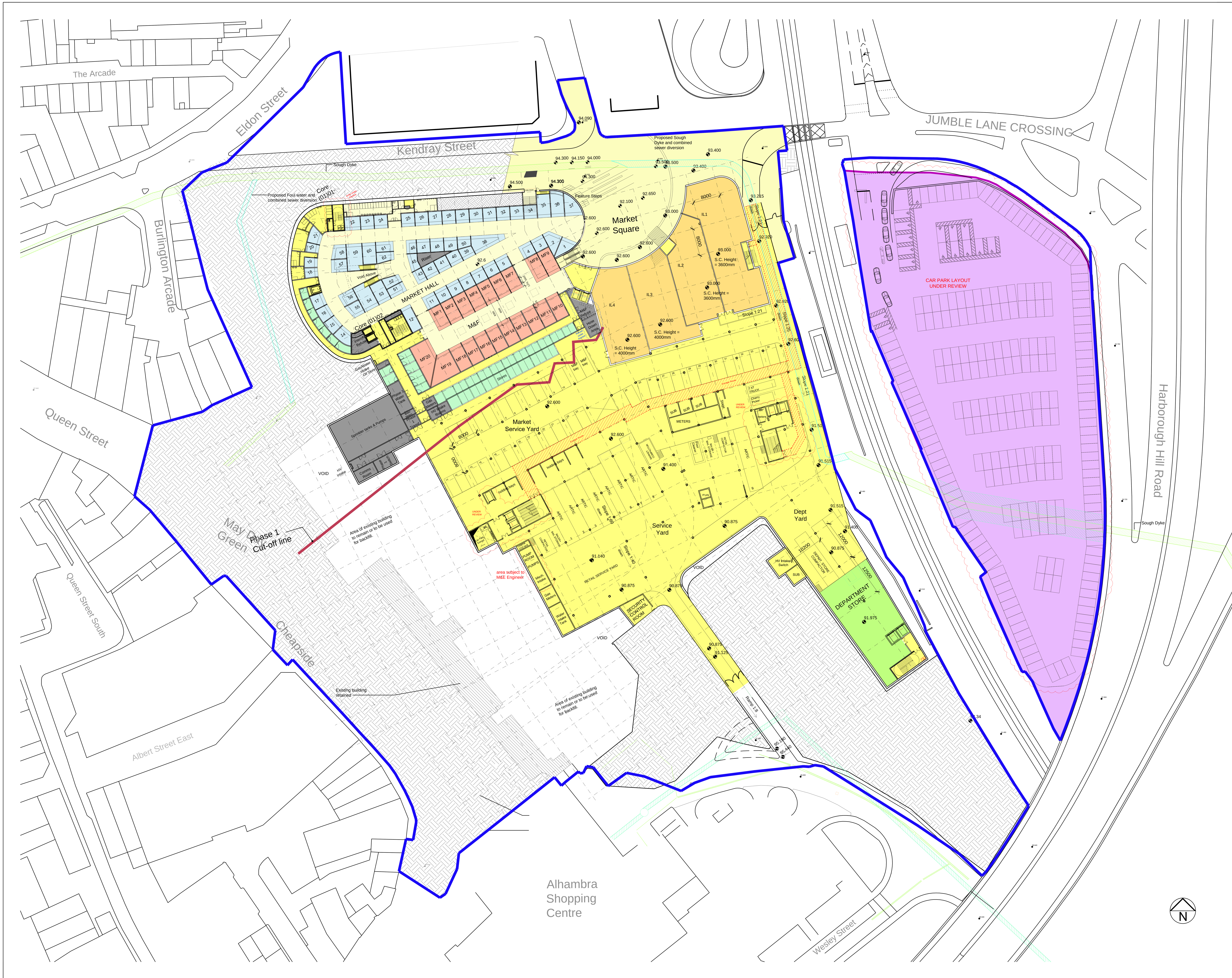
5.4 BW and GMcN provided CMH with names of BMBC staff who will deal with Stopping Up Orders, temporary and permanent traffic arrangements.

5.5 GMcN – to provide CMH and MVA with copies of TROs produced for previous markets scheme. GMcN

18 February 2011
gwm

Appendix C – Proposed Development Drawings

Date:	Comments:	Dn:	Ch:	App:	Rev:
24/12/10	Drawing updated to reflect 2010 scheme changes. Status changed to DRAFT	JD	BM		AA
09/03/11	Layout revised in response to S.E, M&EE and specialist consultant comments	JD	BM		AB
26/04/11	general layout update	bm	***		AC



Area Key:

Public Areas	Market Stalls		
Retail Units	Internal Circulation Market		
Common Areas/ Loading / Service / Plant / Cores	Open Market		
Department Store	Market Shop Units		
Cinema	Market Storage		
Car Park/ Car Park Access	Food Drink Market		
Roof	Management Suite Market		
Plant	Meat & Fish		
(+94.00) Existing Level	Site Boundary		
+94.00 Proposed Level			

Notes:

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Dimensions to be checked on site before fabrication
Site plan based on topographical data (refer to survey data)

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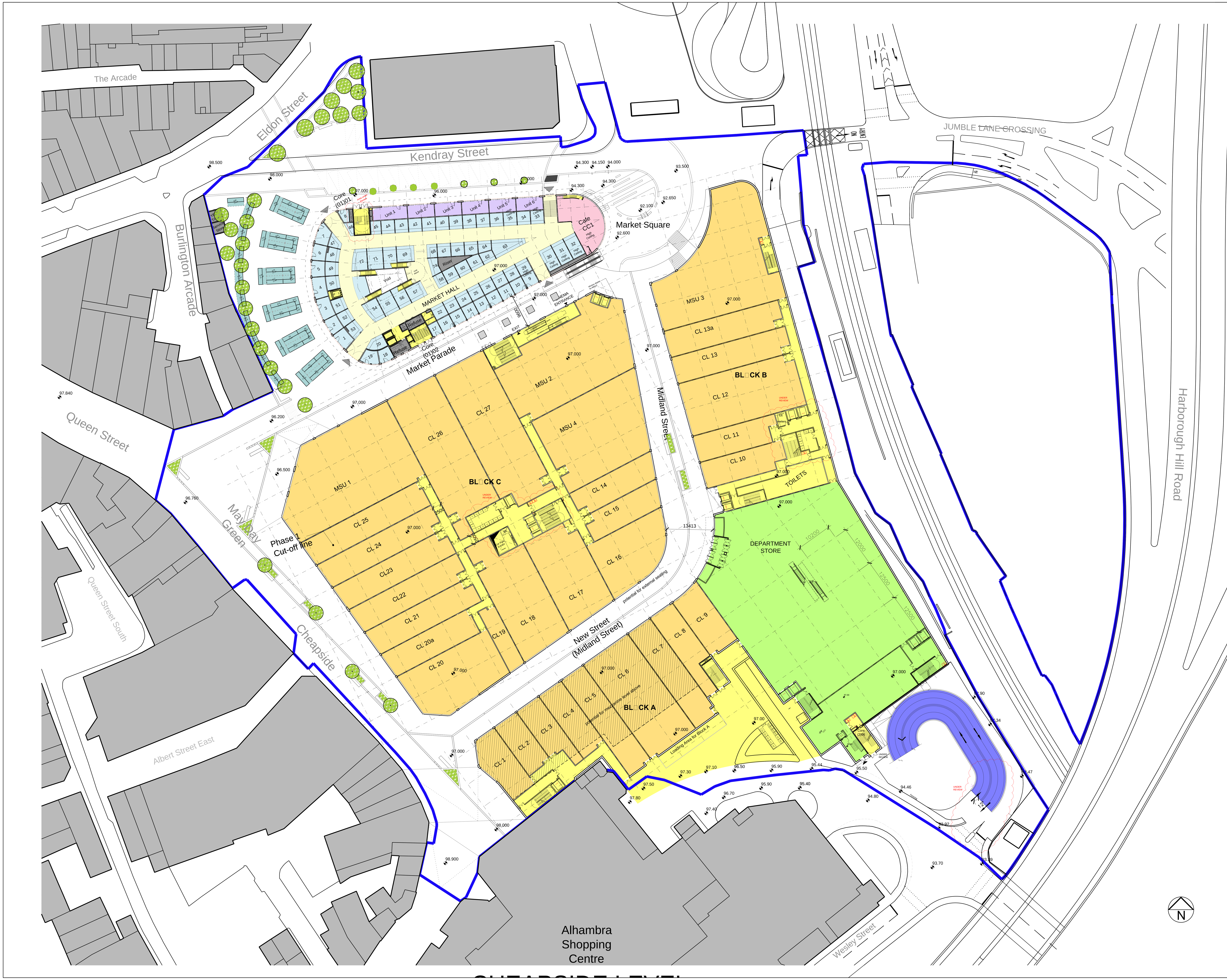
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Barnsley Town Centre
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General Arrangement (Plan), Interchange Level	1451 / 3158
DWG No:	Rev:
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Date:	Drawn:	Check:	Status:	Scale:
27/04/2007	MA	MP	DRAFT	1/500 @ A1

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24/12/10	Drawing updated to reflect 2010 scheme changes. Status changed to DRAFT	JD	BM		AA
09/03/11	Layout revised in response to S.E, M&EE and specialist consultant comments	JD	BM		AB
26/04/11	general layout update	bm	***		AC



Area Key:

Public Areas	Market Stalls	Retail Units	Internal Circulation Market
Common Areas/ Loading / Service / Plant / Cores	Open Market	Department Store	Market Shop Units
Cinema	Market Storage	Car Park/ Car Park Access	Food Drink Market
Roof	Management Suite Market	Plant	Meat & Fish

(+94.00) Existing Level
+94.00 Proposed Level
Site Boundary

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09/03/11	Layout revised in response to S.E, M&EE and specialist consultant comments	JD	BM		AB
26/04/11	general layout update	bm	***		AC

The Arcade

Eldon Street

Kendray Street

JUMBLE LANE CROSSING

Harborough Hill Road

Burlington Arcade

Queen Street

Queen Street South

May Day Green

Phase 1 Cut-off line

Cheapside

Albert Street East

Midland Street

New Street (Midland Street)

Wesley Street

Alhambra Shopping Centre

Core (01)01

Cafe UC1

Cafe UC2

Cafe UC3

Cafe UC4

M.S

Plant

MARKET HALL

Core (01)02

MARKET PARADE

Cinema

MSU 1

MSU 2

MSU 3

MSU 4

BLOCK B

BLOCK C

BLOCK A

UL 10

UL 11

UL 12

UL 13

UL 14

UL 15

UL 16

UL 17

UL 18

UL 20

UL 20a

UL 21

UL 22

UL 23

UL 24

UL 25

UL 26

UL 27

CL 1

CL 2

CL 3

CL 4

CL 5

CL 6

CL 7

Retail Unit Shop Area

Plant Area

DEPARTMENT STORE

Department Store Plant

Comp Core

UNDER REVIEW

102.225

103.525

101.4

102.0

8000

10200

12000

12500

9750

1500

1200

N

Area Key:

- Public Areas
- Retail Units
- Common Areas/ Loading / Service / Plant / Cores
- Department Store
- Cinema
- Car Park/ Car Park Access
- Roof
- Plant
- (+94.00) Existing Level
- +94.00 Proposed Level
- Market Stalls
- Internal Circulation Market
- Open Market
- Market Shop Units
- Market Storage
- Food Drink Market
- Management Suite Market
- Meat & Fish
- Site Boundary

Notes:

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Dimensions to be checked on site before fabrication
Site plan based on original ordnance survey data

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09/03/11	Layout revised in response to S.E, M&EE and specialist consultant comments	JD	BM		AB
26/04/11	general layout update	bm	***		AC

The Arcade

Eldon Street

Kendray Street

JUMBLE LANE CROSSING

Harborough Hill Road

Burlington Arcade

Queen Street

Queen Street South

Albert Street East

May Day Green

Cheapside

Market Parade

Midland Street

New Street (Midland Street)

Wesley Street

Alhambra Shopping Centre

Plant

Voids

ENTRANCE

CINEMA FOYER

Screen 1 135 +2

Screen 2 271+4

Screen 3 272+4

Screen 4 251+4

Screen 5 152+4

Screen 6 111+2

Store

Office/Admin

WC Male

WC Female

Dis WC's

Core CV09

Core CV10

Core CV08

Core CV07

Core CV06

Car Park Magnet Office

Escape Route

Escape Route

Balustrades with lid over escape route

Balustrades with lid over escape route

Cinema storefront to be solid wall with glazed door by landlord

Central stair core to be shelled with landlord and tenants for accessing roof plants

ROOF PLANT

Phase 1 Cut-off line

UNDER REVIEW

107.705

102.0

101.4

7.175

9.120

14.350

7.175

N

Area Key:

- Public Areas
- Retail Units
- Common Areas/ Loading / Service / Plant / Cores
- Department Store
- Cinema
- Car Park/ Car Park Access
- Roof
- Plant
- Market Stalls
- Internal Circulation Market
- Open Market
- Market Shop Units
- Market Storage
- Food Drink Market
- Management Suite Market
- (+94.00) +94.00 Existing Level / Proposed Level
- Site Boundary

Notes:

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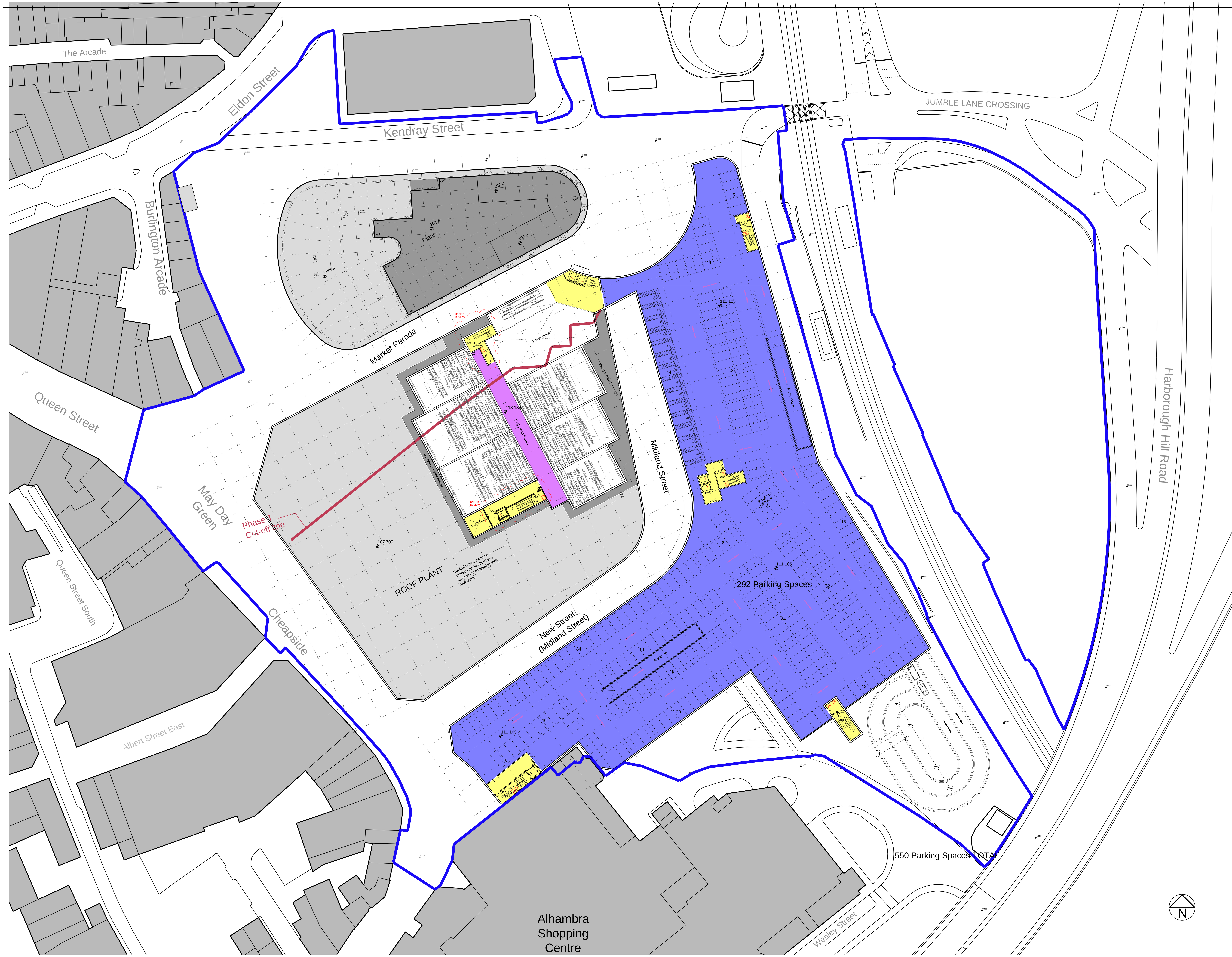
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24/12/2010	Drawing updated to reflect 2010 scheme changes. Status changed to DRAFT	JD	BM		AA
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26/04/11	general layout update	bm	***		AC



Area Key:

Public Areas		Market Stalls	
Retail Units		Internal Circulation Market	
Common Areas/ Loading / Service / Plant / Cores		Open Market	
Department Store		Market Shop Units	
Cinema		Market Storage	
Car Park/ Car Park Access		Food Drink Market	
Roof		Management Suite Market	
		Plant	

(+94.00) Existing Level
+94.00 Proposed Level
Site Boundary

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Appendix D – Outline Travel Plan

Barnsley Markets Redevelopment

Outline Travel Plan

In Association With 1249 Regeneration Partnership

June 2011



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Reviewer(s):	Geraint Moore and Duncan Irons
Formatted by:	Ajay Patel and Geraint Moore

Distribution

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2	23/05/2011	Development team	Draft for review
3	10/06/2011	Signet Planning	Final for submission; Appendix to TA

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1 Introduction

1.1 Introduction

1.1.1 In 2010 MVA Consultancy was commissioned to provide transport and traffic advice to the Barnsley Markets redevelopment team and to produce a Transport Assessment in relation to the latest redevelopment proposals.

1.1.2 A planning application for the development is being submitted in summer 2011.

1.2 Background

1.2.1 This travel plan has been developed as part of the development's overall approach to promote and create a sustainable end-use at the Barnsley markets site.

1.2.2 It should be noted that this is an Outline Travel Plan for the site; once this site has been redeveloped and is occupied this document will require updating in order to identify which of the proposals contained within this plan are priorities for the tenants. Following the completion of the development, the end-users of Barnsley Markets, in conjunction with Barnsley Metropolitan Borough Council, will be required to develop an implementation strategy and monitoring plan to accompany an updated travel plan.

1.3 National Policy

1.3.1 The central Government's White Paper "The Future of Transport – A Network for 2030" , issued in July 2004, set out the Government's aspirations and commitment for the future of sustainable transport and the importance of shared responsibility in promoting and encouraging greener and more sustainable travel.

1.3.2 The sentiment is echoed in the Government's 1998 transport White Paper, entitled 'A New Deal for Transport - Better for Everyone', which changed the emphasis of transport planning. It demanded that a sustainable approach to managing travel was used to reduce the rising levels of car usage and congestion and instead increase the use of public transport, cycling and walking and to consider the need to travel at all.

1.3.3 This policy is detailed in Planning Policy Guidance Note (PPG) 13 'Transport'. The objectives are as follows:

- integrate planning and transport policies;
- promote more sustainable transport choices for both people and freight movements;
- promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- reducing the need to travel, especially by car.

1.3.4 PPG 13 identifies the provision of a travel plan as being one of the initiatives that should be implemented for developments or organisations which have or are likely to have significant transport implications in order to assist in achieving the national policy objectives.

1.4 Regional and Local Policies

Local Transport Plans / Strategies

1.4.1 Local authorities and Integrated Transport Authorities are currently in the process of preparing their Local Transport Plans (LTPs) for the period between 2011 and 2026. The first stage of this process is the production of an overarching Transport Strategy, followed by an implementation plan, underpinned by annual delivery programmes. Transport Strategies are being produced by City Region Partnerships with Barnsley falling within the boundaries of both the **Sheffield City Region** and the **Leeds City Region**. Central Government has identified the following five goals for transport which the Transport Strategies should aim to achieve:

- reduce carbon emissions;
- support economic growth;
- promote equality of opportunity;
- contribute to better safety, security and health; and
- improve quality of life and healthy natural environment.

1.4.2 The Transport Strategies follow the planning period that was covered in the Local Transport Plan's 2 (LTP2: 2006 to 2011). The LTP2 for South Yorkshire was published in March 2006 having been produced jointly between the four districts of Barnsley, Doncaster, Rotherham and Sheffield, and the South Yorkshire Passenger Transport Executive (SYPTE). The document sets out the objectives and strategy in which more detailed local level transport proposals are developed. In order to address the above strategic objectives, the following transport objectives were identified as part of the LTP2:

- tackling congestion;
- delivering accessibility;
- safer roads;
- better air quality; and
- other quality of life issues.

1.4.3 In summary, the need to reduce the negative impacts of travel by private car, such as congestion and poor air quality, are identified as key objectives of local and regional transport policies. The identification of achievable measures and initiatives that can form a Travel Plan can play an important role in achieving these wider objectives.

1.5 The Purpose and Aims of the Travel Plan

1.5.1 A travel plan is defined as a package of measures aimed at promoting sustainable travel choices and reducing reliance on the private car. It involves the identification and implementation of a set of measures and initiatives that are aimed at reducing the impact of travel on the environment by promoting a reduction in the need to travel and an increase in the use of sustainable transport modes.

1.5.2 The aims of a Travel Plan are to:

- Reduce the need to travel to and from the sites by private car;
- Reduce the number of vehicles attending the site;
- Reduce the volume of traffic and pollution in the vicinity of the site;
- Improve the safety and security of people who travel to the site;
- Promote the use of more sustainable modes of transport and therefore healthier living;
- Make positive changes to attitudes in relation to the use of alternative modes of transport;
- Inform employees of the social, environmental and economic costs of their travel choices;
- Provide clear information to employees on the alternative modes of transport to the site; and
- Improve accessibility for the non-car users.

1.5.3 Therefore a travel plan should consist of the following main elements:

- An audit of existing transport access to the site including both sustainable modes and car parking provision;
- identification of measures and initiatives to achieve the objectives;
- the implementation process and the identification and responsibilities of stakeholders; and
- identification of objectives and set of targets to measure performance after the travel plan is implemented;
- a monitoring programme to assess the performance of the travel plan.

1.6 A Travel Plan Manager (TPM)

1.6.1 The need for an individual to take ownership of the plan is essential for its successful implementation. The specification for this role is detailed further within Chapter 7; however the early identification of this person is integral to every section of the plan.

1.7 Structure of the Plan

1.7.1 Following this introductory chapter, this travel plan is structured as follows:

- the site and the proposed development is summarised in Chapter 2;
- Chapter 3 examines the requirements of users of the development and identifies their specific travel needs;
- Chapter 4 looks at the existing provision available to road users and the local highway network, public transport, walking and cycling. The existing provision is identified followed by proposals to be included within the plan;

- Chapter 5 provides a series of measures and initiatives which are recommendations to form part of the travel plan;
- Chapter 6 looks at the marketing of the plan;
- Chapter 7 looks at how the plan can be managed and implemented;
- the targets of the plan and a monitoring strategy are set out in Chapter 8; and finally
- a summary is provided in Chapter 9.

2 The Existing Site and Future Development

2.1 Site Location

2.1.1 The site is located in Barnsley Town Centre and the proposed development area comprises two related sites. The existing 'Barnsley Markets site' is located between Kendray Street; May Day Green; Cheapside; The Alhambra Car Park and the railway line. A secondary site, located to the east of the railway line and known as the 'CEAG site', is proposed to be used as a development surface level car park.

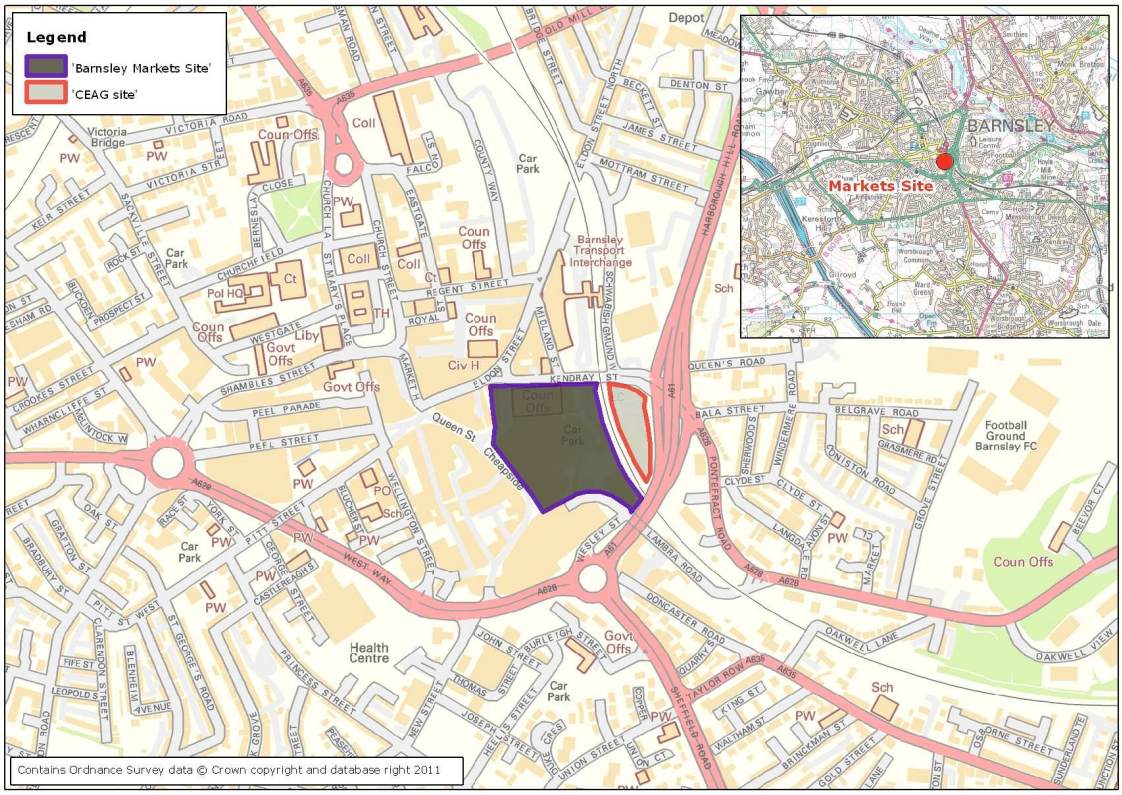


Figure 2.1: Development Site Location

2.1.2 The location of the Site is shown in Figure 2.1. Full details of the site and its access are detailed within the Transport Assessment undertaken by MVA Consultancy.

2.2 Existing Land Use

2.2.1 The development site currently consists of the Metropolitan Shopping Centre, Barnsley Markets complex and the associated multi-storey car park. Situated above the market units is the former BMBC offices and associated car parking deck, and there is a further 1,500m² of disused retail floorspace within the site at 1 Lambra Road.

2.2.2 The CEAG building, located to the east of the railway line, previously housed the CEAG Lighting Company but is now vacant and access to the site is prohibited.

2.3 Future Land Use Proposals

2.3.1 The existing uses will be replaced by a new market area, retail units, department store, multiplex cinema and associated food and drink outlets. The site will include a multi-storey car park with the primary purpose of serving visitors from the south, southeast and west. The CEAG building will also be demolished and replaced by a surface level car park to primarily serve visitors from the north and east.

2.3.2 Further detail on the proposed land-uses, including approximately floor areas, are presented within the Transport Assessment document.

3 Reducing the Need to Travel by Car

3.1 Reducing the Need to Travel

3.1.1 A key feature in the development of travel plans is the assessment of the question 'does the journey really need to be made by car?' By carefully considering the facilities within close proximity to the site and the provision of on-site amenities the developer, in conjunction with the tenants in the development, can reduce the need for car journeys to be made.

3.2 Changing Trip Patterns

3.2.1 The proposed development offers a number of benefits to the surrounding area. There are a large number of people working in the town centre, visiting the town centre or live close to the town centre site who currently use, or could use in the future, the retail offering within the Barnsley Markets site.

3.2.2 It is expected that market employees, shoppers and visitors will form the majority of those who may choose to drive car to access and shop at the site. These trips to the site can be broken down further into three main categories:

- Market Traders travelling to the market;
- Retail and Market employees commuting to the market site for work; and
- Shopping trips to the market site to access the market and other retail facilities.

3.2.3 Taking these individually, there are a number of proposals which can be built into the market to attempt to discourage private car use in favour of more sustainable travel modes.

3.3 Travelling for Market Trading Purposes

3.3.1 It is expected that market traders will need to travel by car or transit vans in order to transport market stalls equipment and goods to the market premises. Therefore, it is highly unlikely that a large mode shift in vehicle based movements for journeys of this type can be achieved.

3.3.2 However, by including suitable facilities to store traders' goods, it may be possible to reduce the need to undertake some deliveries and therefore reduce vehicle trips to and from the site.

3.4 Travelling for Commuting Purposes

3.4.1 For a service industry such as the retail offering within the markets site, commuting is essential as staff must be on site in order to perform their role. This travel plan will ensure measures are introduced to encourage where possible the commuting is undertaken using sustainable modes. More detail on potential initiatives and measures to encourage sustainable travel choices is contained later within this Travel Plan.

3.5 Travelling for Shopping Purposes

3.5.1 The redevelopment of the site and provision of improved retail facilities is likely to result in increases in journeys from the surrounding area to access the redeveloped site. Initiatives will be developed to encourage people to undertake these journeys by non-car modes in order to reduce the car based shopping journeys to the site. More detail on potential initiatives and measures to encourage sustainable travel choices is contained later within this Travel Plan.

4 Existing Analysis

4.1 Introduction

4.1.1 This section of the plan provides an overview of access to the Barnsley Markets site via sustainable travel modes.

4.1.2 A detailed summary of the local highway network, traffic generation and parking proposals is provided within the Transport Assessment.

4.2 Public Transport

Barnsley Interchange

4.2.1 The award winning[1] Barnsley Interchange opened in 2007. It provides a clean, modern and safe public transport facility with covered waiting areas for bus and rail passengers. It is split between bus and rail interchange facilities with a footbridge connecting the concourse of the bus interchange with the rail station.

4.2.2 There are a range of passenger facilities including a travel information centre, rail ticket office, commercial units (including retail, chemist and café) as well as public toilets, baby changing areas, public telephones, cash machines, luggage lockers and cycle racks.

4.2.3 The interchange also provides state of the art passenger technology with up to the minute information including real time passenger information display screens, electronic passenger information kiosks, help points, public announcement system, CCTV and vehicle activated doors.

4.2.4 Additional facilities include drop-off facilities on Schwäbisch Gmünd Way with car parking spaces allocated for rail users (74 cars, 6 disabled and 2 'parent and child' parking spaces).

4.2.5 It is located adjacent to the Barnsley Markets site on the northern side of Kendray Street and so is ideally placed for visitors to the new development.

4.3 Access by Bus

4.3.1 Access to the proposed Market development by bus is provided via the bus interchange facility within Barnsley Interchange. The bus facility provides a high quality passenger concourse and passenger waiting area which is fully enclosed with seating located at each bus stand. It also provides raised kerbs at bus stop bays to help passengers board and alight off the buses safely and easily.

4.3.2 The bus interchange facility accommodates 24 bus stands accommodating 75 bus services[2]. Bus routes from the Interchange serve a wide variety of areas including all areas of urban Barnsley, other towns in the Barnsley district and also neighbouring towns and cities,

[1] 2008 Award for Excellence at the Institute of Civil Engineers' Yorkshire & Humber Awards ceremony.

[2] Correct at May 2007, http://www.sypte.co.uk/corporate.aspx?id=522

including Sheffield, Meadowhall, Doncaster and Rotherham. There is also service to Doncaster-Sheffield Robin Hood Airport (via Doncaster Town Centre) that operates an hourly daytime service on weekdays. Stagecoach UK is the largest bus operator in Barnsley.

4.3.3 National coach services (operated by National Express) are also available from Barnsley Interchange and connect the town to other regional and national destinations including London.

4.4 Access by Rail

4.4.1 Access to the proposed market development by rail is provided via the rail interchange facility within the new Barnsley Interchange. The rail station comprises of two platforms, which are connected via footbridge accessed from the first floor concourse.

4.4.2 There are a range of passenger facilities including ticket machines, ticket office, toilets, baby changing facilities, lift access, public telephones and cycle rack/storage on each platform. There is also an interchange facility for taxis which incorporates a taxi rank.

4.4.3 As discussed, the rail interchange facility provides two platforms with regular rail services calling at the station, which is situated on the Hallam and Penistone lines. The station is served by the Leeds to Sheffield, Sheffield to Huddersfield and Leeds to Nottingham services. These services provide a total of **four services an hour to Sheffield**, **three an hour to Leeds and one an hour to both Huddersfield and Nottingham**. Longer distance services, for example to Manchester, London and Birmingham, are available by changing at either Leeds or Sheffield.

Leeds to Sheffield Service

4.4.4 There are two services running between Leeds and Sheffield that stop at Barnsley; one stops at fewer stations and is therefore quicker than the other.

4.4.5 The faster service connects Barnsley to Leeds within approximately 35 minutes and to Sheffield within approximately 25 minutes and also calls at Meadowhall and Westfield Kirkgate.

4.4.6 The slower services includes more stops enroute and calls at Woodlesford, Castleford, Normanton, Wakefield Kirkgate, Darton, Barnsley, Wombwell, Elsecar, Chapeltown, Meadowhall and Sheffield. Journey times from Barnsley to Leeds and Sheffield are approximately 50 minutes and 30 minutes respectively.

4.4.7 Both Leeds to Sheffield services operate a daytime frequency of one train an hour in each direction, therefore giving a combined frequency of two trains per hour in each direction between Leeds and Sheffield.

4.4.8 The Nottingham to Leeds service provides additional trains to Leeds and Sheffield from Barnsley (one an hour in each direction), while the Sheffield to Huddersfield service provides a further one train an hour to Sheffield. Both of these services are discussed below.

Nottingham to Leeds Service

4.4.9 The Nottingham to Leeds services started operating in recent years and provides additional services to Barnsley from Sheffield, Leeds and further afield. The service calls at Leeds, Wakefield Kirkgate, Barnsley, Meadowhall, Sheffield, Dronfield, Chesterfield, Alfreton, Langley Mill and Nottingham and runs once an hour in each direction.

4.4.10 Journey times are approximately 35 minutes to Leeds, 20 minutes to Sheffield and 80 minutes to Nottingham.

Sheffield to Huddersfield Service

4.4.11 This service runs once an hour in each direction and connects Barnsley to Sheffield in approximately 30 minutes and to Huddersfield in approximately 50 minutes.

4.4.12 The service also calls at Meadowhall, Chapeltown, Wombwell, Dodworth, Silkstone Common, Penistone, Denby Dale, Shepley, Stocksmoor, Brockholes, Honley, Berry Brow, Lockwood and Huddersfield.

4.5 Taxis

4.5.1 The closest taxi rank to the development site is located outside Barnsley Interchange on Midland Street. At present, taxis are able to turn either left onto Kendray Street and cross the Jumble Lane level crossing or right onto Kendray Street towards Eldon Street.

4.5.2 As part of the development proposals, the eastern end of Kendray Street is to be closed, which will mean taxis will be required to use Kendray Street to join Eldon Street only.

4.6 Walking and Cycling

4.6.1 Walking and cycling are the most sustainable modes of travel with little or no negative environmental effects. Travel by these modes also has the advantage of improving the health of individuals who travel by these means.

4.6.2 Being situation in the town centre, the development site is ideally located to encourage market visitors and employees to walk or cycle as the average travel distances from the rest of the town are reduced.

4.6.3 The vast majority of trips rely on some element of walking; whether this is the initial walk to a bus stop or the walk from the car park to the final destination or, indeed, the entire journey. A high quality environment, both at the destination itself and along the route, can help to promote access on foot as people are made to feel safer and less vulnerable.

4.6.4 The Barnsley Markets Development will form part of an improved town centre environment with improved landscaping and public realm. For example, the area between the markets site and Barnsley Interchange will be improved and made more pedestrian-friendly by removing traffic on this part of Kendray Street. People will be able to walk in a traffic-free environment between the Interchange and the development.

4.6.5 Within the development itself, the layout has been designed to promote circulation throughout the development and also to provide a safe and pleasant environment for those passing through the site to other destinations. The site will be intersected by two new pedestrianised routes or streets, which are proposed to be named Market Parade and New Street.

4.6.6 The main pedestrian accesses into the site will be provided via an area called 'Market Square' on Kendray Street and from Market Parade and New Street, both of which will connect Cheapside to Kendray Street.

4.6.7 In order to facilitate cycle usage to and from the site, secure cycle parking facilities will be provided in the site for staff and visitors. It is proposed to provide approximately 114 spaces for long-stay use, and thus these will be covered spaces, and stands/racks for a further 46 cycles for shorter stay usage. The proposed junction improvements at the surface level car park access include provision for the proposed cycle route along Kendray Street; this includes a Toucan crossing to enable cyclists to cross the access to the car park before entering the site via the Jumble Lane level crossing.

5 Travel Plan

5.1 Introduction

5.1.1 A number of sustainable transport measures can be introduced as part of market development proposals. These are hoped to encourage modal shift away from the use of car to more sustainable modes of transport. At this stage these are indicative proposals and the preparation of a full travel plan will be the responsibility of the occupier following the occupation of the site.

5.1.2 There are measures and initiatives which should be focused more towards encouraging shoppers (eg public transport information provision) to use more sustainable modes of travel as these will form the vast majority of trips to the markets. These measures would not be limited to shoppers only but available to market staff audience also.

5.1.3 However other measures and initiatives can also be implemented that are aimed specifically at market employees.

5.1.4 Therefore measures and initiatives recommended as part of the travel plan are categorised between those focused or aimed between shoppers / visitors and market employees.

5.2 Measures and Initiatives Primarily for Shoppers / Visitors

PT Information Provision

5.2.1 To encourage use of public transport to the site, local bus routes and timetable information will be provided throughout Barnsley Market to all market traders, employees and shoppers. These would have to be regularly checked to ensure they are up to date.

5.2.2 Particular emphasis should be placed on the excellent transport links to the town centre bus and rail services at Barnsley Interchange.

5.2.3 It would also be suitable to provide information on local walking and cycling routes in the vicinity of the site and the wider Barnsley area.

Public Information Display Board

5.2.4 A public information display board information system would help provide easy and convenient access to important public transport and travel information and could be linked to the timetable information, including arrivals and departures of buses and trains, at Barnsley Interchange.

General Promotional and Information Campaigns

5.2.5 The implementation of a campaign to inform staff and customers about alternative travel modes that could be used to access the site can result in a significant increase in the use of public transport, cycle and pedestrian modes. Possible promotional and information campaigns could include:

- The provision of staff start up packs with information on public transport, cycle and

pedestrian routes and facilities;

- General poster, internet and leaflet campaigns promoting all non-car modes;
- Information on personal security issues; and
- The health, time and cost benefits of being less reliant on a car should also be promoted to all market traders, market employees and shoppers.

Cycle Parking

5.2.6 Secure short-term cycle parking is to be provided as part of the proposed market development in addition to the existing facilities within Barnsley Interchange.

5.3 Measures and Initiatives for Market Employees

Loans for Yearly Bus Pass

5.3.1 Loans could be made available to market traders and other employees who wish to purchase long term bus passes. These could be provided by the Barnsley Market management team.

Flexible Working Patterns

5.3.2 This initiative is aimed at encouraging market traders to provide flexible working patterns to allow greater flexibility of arrival and departure times outside of the peak travel times (i.e. morning 0800 and 0900 hours am and afternoon 1700 and 1800 hours) in co-ordination with less congested periods in public transport.

5.3.3 Market employees would travel outside peak times and avoid congestion and delay experienced on the public transport and the highway network during these peak time periods. This also reduces the need for travel by car modes.

5.3.4 It is acknowledged that retail industries such as these are more limited in their ability to implement genuinely flexible working patterns to employees.

Car Sharing

5.3.5 Encouraging staff to participate in car sharing schemes is likely to be the most effective initiative of any Travel Plan in relation to future developments in the Barnsley areas.

5.3.6 The car sharing scheme could be achieved by setting up a car share club within the town centre. Employees could register their home postcode and seek to car share their commuter journey with others with similar home postcodes. Details of such could be provided on a notice board, through an electronic database available to all through an intranet system or through a travel plan coordinator for the site (or wider town centre area).

5.3.7 Initiatives to be considered to encourage market employees to participate in car sharing schemes include:

- Providing entry to 'free draws' or other financial incentives to employees who are prepared to car share;
- Providing 'priority' car parking spaces in prime spots;

- Providing a guaranteed ride home (eg taxi) in the event that the lift home is not available; and
- Providing free car parking spaces for users of car sharing schemes (only applicable where employees are charged for parking).

Provision of a Works bus

5.3.8 Due to the close proximity of the Barnsley Interchange, which is the hub of public transport provision in the town, then the site is already very well served by public transport.

5.3.9 However, particularly for the cinema and food and drink land-uses, then it is recognised that some members of staff will be working late and the available public transport may be limited.

5.3.10 Therefore, as an alternative to scheduled services, firms should consider providing a works bus service, linking the main residential areas to the development. The bus service could be provided by an individual employer or there may also be the opportunity to co-operate with other employers to provide a shared service, serving several different area of the town.

Cycle Initiatives

5.3.11 In addition to the general BMBC policy measures to promote walking and cycling in the town centre, measures should still be introduced to encourage employees and visitors to cycle or walk to the site.

5.3.12 As well as cycle parking there is a potential to investigate the setup of subsidised company loans for market employees for the purchase of cycle equipment. Measures to be considered include:

- Provision of secure cycle shelters and lockers (for employees) close to the entrance to the development;
- Participation in the government tax free leasing scheme or provision of interest free loans to employees to assist in the purchase of cycles;
- Provision of showers and changing facilities for employee cyclists. These could also be used for pedestrians or joggers;
- Holding promotional events, such as Bike2Work days or cyclists breakfasts etc to encourage staff to cycle;
- Implementation of cycle promotional and awareness campaigns;
- Provision of cycle route maps showing the local routes;
- Bicycle user groups;
- Cycle club promotions;
- Arranging staff discounts with local suppliers in relation to the purchase of cycling equipment and repairs; and
- Provision of cycle hire.

5.3.13 The aim would be to encourage greater cycle use by market employees who live within 2 km of the site as cycling this distance should be achievable for the majority of even infrequent cyclists.

5.4 Summary

5.4.1 These measures can be applied to try and reduce the dependency on car travel by employees and shoppers to and from the redeveloped market site. The co-ordination between the needs and priorities of the individual units in the development will be somewhat of a challenge, and require the active promotion of the schemes from a central point.

5.4.2 The impetus for the schemes could come from the shopping centre management team, and the successes demonstrated could be used to encourage more active participation from the smaller independent units.

5.4.3 The measures listed will need to be co-ordinated and it is envisaged that a dedicated travel plan manager for the proposed market development will be required to take on this responsibility. It is therefore essential that management supports the travel plan manager in delivering and maintaining the travel plan. This is discussed further in Chapter 7.

5.4.4 The measures could also be marketed by organising a travel plan launch event where market traders and their employees can have the opportunity to find out and sign up for various travel plan initiatives such as the car share database and cycle user group.

5.4.5 In terms of travel by public transport, walking and cycling an event could be organised targeting shoppers also who could as well as receiving bus and rail information have cycle advice and cycle maps to take away.

5.4.6 It maybe advantageous both financially and through sharing of travel plan benefits to investigate the potential of working with other organisations and companies in the area.

6 Marketing the Plan

6.1 The Importance of Information

6.1.1 The implementation of information to inform employees and shoppers about alternative travel modes that could be used to access the site can result in a significant use of public transport, cycle and pedestrian modes.

6.1.2 There may be a proportion of people that visit the site that may not be aware that there is a viable and easily accessible alternative to the use of the car for their journey purpose and the clear display, provision and access of timetables, route maps and access to information services may identify possible alternatives.

6.1.3 Throughout this process, it is important to emphasise that the travel plan is not anti-car, but is offering greater transport choice and should be encouraging people to consider all of their options.

6.1.4 The health, time and cost benefits should also be promoted to all staff and shoppers.

6.2 Methods of Imparting Information

6.2.1 Although many of these options have already been considered in previous chapters, the travel plan marketing strategy for the site will include the following options:

- Provision of bus and rail timetables and promotional material, these would have to be regularly checked to ensure they are up to date;
- The provision of information on public transport, cycle and pedestrian routes and facilities with the staff welcome packs;
- Promotion of shops and services offering collection and delivery services to nearby sites; and
- Maps showing locations of local facilities.

6.2.2 To ensure a consistent message is provided and that all promotional material is relevant and effective, the travel plan manager should implement the campaigns. The implementation of a standard style for all promotional material is also recommended, as this would ensure that the material will be recognisable as being associated with the travel plan.

6.2.3 It is essential that all site employees and shoppers are provided with the information needed in order to make informed choices. This should include the development of an employee travel pack which will be issued to new starters. This pack would include details of all the transport opportunities which have been already detailed, along with details of local facilities and how to access them.

Table 6.1: Marketing Proposals

Proposal	Benefit
Produce site specific travel information for site employees and shoppers on the dedicated market websites.	Use of the internet to reach employees and shoppers, and to hold plentiful up to date information.
Display bus/rail timetables and cycle/pedestrian route maps	Improves the availability of information.
Produce travel information leaflet detailing ways of accessing the market to be issued to employees and shoppers.	Hard copy information for all employees and shoppers to the site, even during the construction phase.

7 Management and Implementation

7.1 Travel Plan Management

7.1.1 A travel plan manager (TPM) is an essential part of any travel plan. This person is vital to the implementation and, therefore, the success of the plan and should be the main driving force behind it.

7.1.2 The retail tenants and the market traders' representatives should identify a TPM who would be responsible for introducing, promoting and monitoring such a plan at the site. It should be noted, that this need not be a specific full time appointment but could be an extension of the responsibilities of the site's Centre Manager for example.

7.1.3 The TPM should be based within, or close to, the development as they would be best placed and would have frequent contact with both the staff on site and the visitors. It is recommended that the TPM would need to ensure that this role is listed within their duties and time allocated to this work is adequate for the amount of work required.

7.1.4 The TPM would liaise externally and internally with others involved with delivery of the travel plan, especially with other coordinators on the site.

7.1.5 The TPM could either be a dedicated part time post or be part of the role of one of the site occupiers. The TPM would liaise externally and internally with others involved with delivery of the travel plan. Responsibilities could typically include:

- overseeing the further development and implementation of the travel plan;
- maintaining commitment and support from employees and senior managers;
- designing and implementing effective marketing and awareness raising campaigns to promote the travel plan;
- setting up and coordinating user groups;
- coordinating employee and visitor information;
- providing a contact with other external organisations, transport operators and local council;
- liaising across organisations to coordinate action; and
- coordinating the monitoring programme including setting and reviewing of targets.

7.1.6 The person that would be appointed needs to be committed to the travel plan, demonstrate enthusiasm, negotiating skills and an ability to communicate effectively with people at all levels. They would need to be able to promote sustainable travel measures and initiatives effectively to all.

7.1.7 A TPM would be identified before the first occupation of the development to ensure that travel planning infrastructure is in place so that sustainable travel habits are expected and possible from the outset.

7.2 Management and Implementation Proposals

7.2.1 Table 7.1 shows a 3 stage programme for the management and implementation proposals.

Table 7.1: Management and Implementation Proposals

Proposal	Benefit
Investigate any local Travelwise organisation and join if possible.	Provides assistance in the setting up and delivery of the travel plan and provides some promotional literature.
Assign, appoint and/or fund a designated travel plan manager.	To act as focal point for the plan and be responsible for overseeing and implementation of travel plan actions.
Develop an Implementation Plan.	Gives a fixed timescale for the TPM to adhere to, detailing their requirements over time.

7.3 Implementation

7.3.1 When developing an implementation plan, the TPM should ensure that the document is clear, concise and outlines who will be responsible for the delivery of the initiative and where if necessary funding will be found.

7.3.2 A four stage implementation programme is proposed as follows in Table 7.2. This would be designed by the TPM and incorporates the initiatives to be introduced. A monitoring plan would tie in with this in order to measure the impact of the initiatives.

Table 7.2: Implementation Plan

Stage	Action	Timing
Stage 1	Identification of travel plan coordinator for the site from the main tenant.	Upon occupation
Stage 2	Undertake baseline travel surveys of staff and visitors.	Within six months of first occupation.
Stage 3	Develop a detailed travel plan and implementation schedule (based on the initiatives developed within this document) to be agreed with the Local Authority, and then implement the plan.	Within six months of first occupation.
Stage 4	Monitor travel plan.	Twelve months after the implementation of the travel plan and ongoing on an annual basis.

8 Targets and Monitoring

8.1 Development of Targets

8.1.1 At this stage of the development process it is difficult to set hard and fast mode split targets as the actual 'end-users' of the site are not known.

8.1.2 Once the site has been occupied and initial baseline surveys have been undertaken, mode share targets for the Barnsley Markets site can be set. These will need to be discussed and agreed in consultation with the local authority. These targets need to be easily measurable in order to gauge progress.

8.2 Monitoring

8.2.1 The travel plan is a living document, and an on-going process of monitoring and review would ensure that this is the case. Once the site is occupied we recommend a baseline survey of employees (and customers) would need to be undertaken, to find out their main origins and modes of choice.

8.2.2 Ongoing monitoring would take place on a frequent basis amongst retailers, market traders and shoppers. These regular surveys would be in the form of a snapshot survey, which should generate a high response rate and is straightforward to analyse and measure the travel plan against targets. Should targets not be met then remedial measures may be insisted upon by the council.

8.2.3 A full survey, similar to that undertaken for the baseline, should be carried out every year after the launch of the travel plan to assess progress against the targets.

8.2.4 These surveys will assist in the development of the travel plan, in order to gauge whether it is meeting the needs of employees and visitors.

8.2.5 Reporting arrangements between the travel plan manager and the Council would need to be agreed. It is expected that a short annual document, reporting the modal splits and the progress and success of measures that have been implemented against an agreed future programme of works along with any revision of schemes would be sufficient.

9 Conclusion

9.1 Conclusion

9.1.1 Table 9.1 brings together all the proposals detailed in earlier chapters, the table also details a recommended timescale for the intervention and who is responsible for ensuring that it is considered; in most cases this will be the travel plan manager. This list should be revisited once the site is occupied and the travel plan has been completed to ensure that the plans are consistent and that a relevant and practical implementation programme can be developed.

Table 9.1: Complete Table of Proposals

Scheme	Timescale	Responsibility
Proposals to Reduce the Need for Car Travel		
Visually accessible market fronts	During build	Developer
Short term cycle parking	During build	Developer
Offering pick up and delivery of goods to nearby employment sites	On occupation	TPM
Public Transport Proposals		
Provision of PT information boards within site	During build	Developer
Maps and route information given to potential and new employees	On occupation	TPM
Walking and Cycling Proposals		
Visible cycle lockers for employees included within the plans for the site	During build	Developer
Ensure showers are available for staff	During build	Developer
Maps and route information given to potential and new employees	On occupation	TPM
Develop a Bicycle User Group	Within 6 months of occupation	TPM
Look into loans for cycle equipment	Within 6 months of occupation	TPM
Develop a relationship with a nearby cycle shop	Within 6 months of occupation	TPM

Marketing Proposals		
Produce site specific travel information for market employees and shoppers on the markets website	On opening	TPM
Display bus/rail timetables and cycle/pedestrian route maps	On opening	TPM
Produce travel information leaflet detailing ways of accessing the development to be issued to market employees and shoppers	On opening	TPM
Management Proposals		
Investigate local Travelwise organisation and register if possible	On occupation	TPM
Assign, appoint and/or fund a designated travel plan manager	On occupation	Occupier
Develop an implementation plan	Within 6 months of occupation	TPM
Develop a monitoring plan	Within 6 months of occupation	TPM

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Appendix E – Raw Traffic Count Data

SKY HIGH TRAFFIC SURVEYS

A DIVISION OF SKY HIGH PLC

Job Number	7607
Client	MVA
Project	Barnsley ATC Report
Location	Barnsley
Site No.	1
Road	Barnsley Markets Car Park
Start Date	31-Jan-11
Direction	Entering

Volume Summary

	Day of Week							Ave	7 Day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	W'day	Ave
Time	31-Jan	01-Feb	02-Feb	03-Feb	04-Feb	05-Feb	06-Feb		
AM Peak	**109**	**139**	**151**	**57**	**157**	**262**	**135**		
PM Peak	**73**	**109**	**98**	**59**	**110**	**223**	**31**		
00:00	0	1	0	1	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	1	0	0
05:00	0	0	1	0	0	1	11	0	2
06:00	2	8	13	5	19	20	45	9	16
07:00	13	33	24	7	29	73	58	21	34
08:00	38	103	98	41	105	245	87	77	102
09:00	101	121	150	57	157	262	135	117	140
10:00	109	139	151	53	154	226	103	121	134
11:00	72	120	137	55	123	247	66	101	117
12:00	73	109	97	59	110	223	31	90	100
13:00	56	75	98	44	78	213	28	70	85
14:00	54	52	48	31	63	175	19	50	63
15:00	26	30	49	30	41	123	1	35	43
16:00	10	11	15	12	15	25	0	13	13
17:00	0	1	1	0	3	2	1	1	1
18:00	1	0	0	0	2	1	0	1	1
19:00	0	0	0	0	0	1	0	0	0
20:00	0	0	0	0	0	0	0	0	0
21:00	0	0	0	1	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0
Total	**555**	**803**	**882**	**396**	**899**	**1837**	**586**	**707**	**851**

0700-1900	553	794	868	389	880	1815	529	697	833
0600-2200	555	802	881	395	899	1836	574	706	849
0600-2400	555	802	881	395	899	1836	574	706	849
0000-2400	555	803	882	396	899	1837	586	707	851

SKY HIGH TRAFFIC SURVEYS

A DIVISION OF SKY HIGH PLC

Job Number	7607
Client	MVA
Project	Barnsley ATC Report
Location	Barnsley
Site No.	1
Road	Barnsley Markets Car Park
Start Date	31-Jan-11
Direction	Exiting

Volume Summary

	Day of Week							Ave	7 Day
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	W'day	Ave
Time	31-Jan	01-Feb	02-Feb	03-Feb	04-Feb	05-Feb	06-Feb		
AM Peak	**108**	**140**	**158**	**53**	**148**	**261**	**147**		
PM Peak	**97**	**138**	**152**	**74**	**152**	**296**	**137**		
00:00	0	0	0	0	0	0	0	0	0
01:00	0	1	0	1	0	0	0	0	0
02:00	0	0	0	0	0	1	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	0	0
05:00	0	1	0	0	1	0	7	0	1
06:00	1	2	5	3	4	3	8	3	4
07:00	7	10	7	6	8	10	34	8	12
08:00	7	26	19	8	33	40	71	19	29
09:00	33	68	45	22	80	128	104	50	69
10:00	73	110	101	51	136	199	125	94	114
11:00	108	140	158	53	148	261	147	121	145
12:00	97	138	152	74	152	238	137	123	141
13:00	85	120	137	58	139	253	54	108	121
14:00	83	122	148	64	135	249	34	110	119
15:00	65	108	121	53	102	293	15	90	108
16:00	68	105	130	55	107	296	11	93	110
17:00	46	54	55	39	56	95	1	50	49
18:00	8	0	2	6	7	6	0	5	4
19:00	0	1	1	2	0	2	0	1	1
20:00	3	3	1	0	1	0	0	2	1
21:00	0	1	0	2	1	0	2	1	1
22:00	0	0	1	0	0	0	0	0	0
23:00	1	0	0	1	0	0	0	0	0
Total	**685**	**1010**	**1084**	**498**	**1110**	**2074**	**750**	**877**	**1030**

0700-1900	680	1001	1075	489	1103	2068	733	870	1021
0600-2200	684	1008	1082	496	1109	2073	743	876	1028
0600-2400	685	1008	1083	497	1109	2073	743	876	1028
0000-2400	685	1010	1084	498	1110	2074	750	877	1030

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : A - A628 Pontefract Road (w)

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	0	0	0	0	0	0	48	4	1	2	0	55	2	0	0	0	0	2	57
10:15	0	0	0	0	0	0	74	7	0	3	0	84	4	0	0	0	0	4	88
10:30	0	0	0	0	0	0	60	2	0	4	0	66	4	0	0	0	0	4	70
10:45	0	0	0	0	0	0	75	4	0	3	1	83	3	1	0	0	0	4	87
1 Hr	0	0	0	0	0	0	257	17	1	12	1	288	13	1	0	0	0	14	302
Check						0						288						14	302
11:00	0	0	0	0	0	0	75	9	0	4	1	89	8	1	0	0	0	9	98
11:15	0	0	0	0	0	0	62	3	1	3	0	69	6	0	0	0	0	6	75
11:30	0	0	0	0	0	0	64	6	0	4	1	75	5	0	0	0	0	5	80
11:45	0	0	0	0	0	0	68	11	0	3	1	83	4	2	0	0	0	6	89
1 Hr	0	0	0	0	0	0	269	29	1	14	3	316	23	3	0	0	0	26	342
Check						0						316						26	342
12:00	0	0	0	0	0	0	99	6	0	3	2	110	6	0	0	0	0	6	116
12:15	0	0	0	0	0	0	90	8	0	3	1	102	5	0	0	0	0	5	107
12:30	0	0	0	0	0	0	79	4	0	5	0	88	10	1	0	0	0	11	99
12:45	0	0	0	0	0	0	67	5	0	2	0	74	5	2	0	0	0	7	81
1 Hr	0	0	0	0	0	0	335	23	0	13	3	374	26	3	0	0	0	29	403
Check						0						374						29	403
13:00	0	0	0	0	0	0	73	7	0	3	0	83	9	0	0	0	0	9	92
13:15	0	0	0	0	0	0	74	3	0	4	0	81	3	0	0	0	0	3	84
13:30	0	0	0	0	0	0	63	4	0	1	0	68	5	1	0	0	0	6	74
13:45	0	0	0	0	0	0	81	10	0	4	0	95	1	0	0	0	0	1	96
1 Hr	0	0	0	0	0	0	291	24	0	12	0	327	18	1	0	0	0	19	346
Check						0						327						19	346
14:00	0	0	0	0	0	0	84	7	0	4	0	95	6	0	0	0	1	7	102
14:15	0	0	0	0	0	0	66	5	0	1	0	72	3	0	0	0	0	3	75
14:30	0	0	0	0	0	0	83	6	0	3	0	92	3	0	0	0	0	3	95
14:45	0	0	0	0	0	0	57	2	0	3	0	62	2	1	0	0	0	3	65
1 Hr	0	0	0	0	0	0	290	20	0	11	0	321	14	1	0	0	1	16	337
Check						0						321						16	337
15:00	0	0	0	0	0	0	95	7	0	4	0	106	5	0	0	0	0	5	111
15:15	0	0	0	0	0	0	76	7	0	2	0	85	4	1	0	0	0	5	90
15:30	0	0	0	0	0	0	80	2	1	2	0	85	6	0	0	0	1	7	92
15:45	0	0	0	0	0	0	88	10	0	2	2	102	1	1	0	0	0	2	104
1 Hr	0	0	0	0	0	0	339	26	1	10	2	378	16	2	0	0	1	19	397
Check						0						378						19	397
Total	0	0	0	0	0	0	1781	139	3	72	9	2004	110	11	0	0	2	123	2127
Check						0						2004						123	2127

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : B - A628 Pontefract Road (e)

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	68	10	2	5	2	87	0	0	0	0	0	0	61	3	0	0	1	65	152
10:15	70	6	1	3	0	80	0	0	0	0	0	0	74	6	1	0	0	81	161
10:30	75	9	1	3	1	89	0	0	0	0	0	0	90	2	1	0	1	94	183
10:45	81	5	1	2	0	89	0	0	0	0	0	0	65	2	0	0	0	67	156
1 Hr	294	30	5	13	3	345	0	0	0	0	0	0	290	13	2	0	2	307	652
Check						345						0						307	652
11:00	82	5	1	3	0	91	0	0	0	0	0	0	73	6	0	0	0	79	170
11:15	91	5	0	5	0	101	0	0	0	0	0	0	71	3	0	0	0	74	175
11:30	92	8	0	2	0	102	0	0	0	0	0	0	75	6	0	0	2	83	185
11:45	80	7	1	3	0	91	0	0	0	0	0	0	74	2	0	0	0	76	167
1 Hr	345	25	2	13	0	385	0	0	0	0	0	0	293	17	0	0	2	312	697
Check						385						0						312	697
12:00	73	7	0	5	0	85	0	0	0	0	0	0	72	2	0	0	1	75	160
12:15	92	7	1	3	0	103	0	0	0	0	0	0	67	2	0	0	3	72	175
12:30	79	7	1	3	0	90	0	0	0	0	0	0	80	3	0	0	0	83	173
12:45	86	6	0	2	0	94	0	0	0	0	0	0	64	5	0	0	0	69	163
1 Hr	330	27	2	13	0	372	0	0	0	0	0	0	283	12	0	0	4	299	671
Check						372						0						299	671
13:00	75	6	0	4	0	85	0	0	0	0	0	0	65	3	0	0	1	69	154
13:15	61	4	0	4	2	71	0	0	0	0	0	0	78	3	0	0	2	83	154
13:30	64	8	0	3	0	75	0	0	0	0	0	0	51	2	0	0	0	53	128
13:45	79	6	0	3	2	90	0	0	0	0	0	0	56	4	0	0	0	60	150
1 Hr	279	24	0	14	4	321	0	0	0	0	0	0	250	12	0	0	3	265	586
Check						321						0						265	586
14:00	72	8	0	3	1	84	0	0	0	0	0	0	54	7	0	0	0	61	145
14:15	64	5	0	2	0	71	0	0	0	0	0	0	55	3	0	0	0	58	129
14:30	61	5	0	3	0	69	0	0	0	0	0	0	65	2	0	0	1	68	137
14:45	75	6	1	2	0	84	0	0	0	0	0	0	44	3	0	0	0	47	131
1 Hr	272	24	1	10	1	308	0	0	0	0	0	0	218	15	0	0	1	234	542
Check						308						0						234	542
15:00	75	10	0	4	0	89	0	0	0	0	0	0	45	2	0	0	2	49	138
15:15	60	8	0	1	1	70	0	0	0	0	0	0	46	3	0	0	0	49	119
15:30	43	5	0	3	2	53	0	0	0	0	0	0	40	2	0	0	0	42	95
15:45	55	8	0	2	0	65	0	0	0	0	0	0	32	4	0	0	1	37	102
1 Hr	233	31	0	10	3	277	0	0	0	0	0	0	163	11	0	0	3	177	454
Check						277						0						177	454
Total	1753	161	10	73	11	2008	0	0	0	0	0	0	1497	80	2	0	15	1594	3602
Check						2008						0						1594	3602

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : C - Lambra Road

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	7	0	0	0	0	7	39	3	0	0	0	42	0	0	0	0	0	0	49
10:15	11	1	0	0	1	13	38	4	0	0	0	42	0	0	0	0	0	0	55
10:30	10	0	0	0	0	10	51	3	0	0	0	54	0	0	0	0	0	0	64
10:45	8	1	0	0	1	10	56	1	0	0	1	58	0	0	0	0	0	0	68
1 Hr	36	2	0	0	2	40	184	11	0	0	1	196	0	0	0	0	0	0	236
Check						40						196						0	236
11:00	15	1	0	0	0	16	52	2	0	0	1	55	0	0	0	0	0	0	71
11:15	9	1	0	0	0	10	65	3	0	0	0	68	0	0	0	0	0	0	78
11:30	12	0	0	0	0	12	57	0	0	0	1	58	0	0	0	0	0	0	70
11:45	19	1	0	0	0	20	57	4	0	0	0	61	0	0	0	0	0	0	81
1 Hr	55	3	0	0	0	58	231	9	0	0	2	242	0	0	0	0	0	0	300
Check						58						242						0	300
12:00	8	3	0	0	0	11	76	1	0	0	2	79	0	0	0	0	0	0	90
12:15	11	1	0	0	1	13	59	5	0	0	1	65	0	0	0	0	0	0	78
12:30	14	1	0	0	1	16	52	1	0	0	1	54	0	0	0	0	0	0	70
12:45	15	0	0	0	0	15	59	2	0	0	0	61	0	0	0	0	0	0	76
1 Hr	48	5	0	0	2	55	246	9	0	0	4	259	0	0	0	0	0	0	314
Check						55						259						0	314
13:00	16	0	0	0	0	16	63	3	0	0	0	66	0	0	0	0	0	0	82
13:15	18	1	0	0	0	19	57	1	0	0	1	59	0	0	0	0	0	0	78
13:30	26	1	0	0	0	27	73	3	0	0	0	76	0	0	0	0	0	0	103
13:45	12	1	0	0	0	13	52	2	0	0	0	54	0	0	0	0	0	0	67
1 Hr	72	3	0	0	0	75	245	9	0	0	1	255	0	0	0	0	0	0	330
Check						75						255						0	330
14:00	12	0	0	0	0	12	65	5	0	0	0	70	0	0	0	0	0	0	82
14:15	17	3	0	0	0	20	56	1	0	0	0	57	0	0	0	0	0	0	77
14:30	10	0	0	0	0	10	67	4	0	0	0	71	0	0	0	0	0	0	81
14:45	16	1	0	0	0	17	57	1	0	0	0	58	0	0	0	0	0	0	75
1 Hr	55	4	0	0	0	59	245	11	0	0	0	256	0	0	0	0	0	0	315
Check						59						256						0	315
15:00	23	1	0	0	0	24	61	2	0	0	0	63	0	0	0	0	0	0	87
15:15	10	2	0	0	0	12	77	2	0	0	0	79	0	0	0	0	0	0	91
15:30	19	1	0	0	0	20	63	2	0	0	0	65	0	0	0	0	0	0	85
15:45	13	2	0	0	0	15	54	2	0	0	3	59	0	0	0	0	0	0	74
1 Hr	65	6	0	0	0	71	255	8	0	0	3	266	0	0	0	0	0	0	337
Check						71						266						0	337
Total	331	23	0	0	4	358	1406	57	0	0	11	1474	0	0	0	0	0	0	1832
Check						358						1474						0	1832

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

ORIGIN SUMMARY

	Origin :	A - A628 Pontefract Road (w)					Origin :	B - A628 Pontefract Road (e)					Origin :	C - Lambra Road					Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	50	4	1	2	0	57	129	13	2	5	3	152	46	3	0	0	0	49	258
10:15	78	7	0	3	0	88	144	12	2	3	0	161	49	5	0	0	1	55	304
10:30	64	2	0	4	0	70	165	11	2	3	2	183	61	3	0	0	0	64	317
10:45	78	5	0	3	1	87	146	7	1	2	0	156	64	2	0	0	2	68	311
1 Hr	270	18	1	12	1	302	584	43	7	13	5	652	220	13	0	0	3	236	1190
Check						302						652						236	1190
11:00	83	10	0	4	1	98	155	11	1	3	0	170	67	3	0	0	1	71	339
11:15	68	3	1	3	0	75	162	8	0	5	0	175	74	4	0	0	0	78	328
11:30	69	6	0	4	1	80	167	14	0	2	2	185	69	0	0	0	1	70	335
11:45	72	13	0	3	1	89	154	9	1	3	0	167	76	5	0	0	0	81	337
1 Hr	292	32	1	14	3	342	638	42	2	13	2	697	286	12	0	0	2	300	1339
Check						342						697						300	1339
12:00	105	6	0	3	2	116	145	9	0	5	1	160	84	4	0	0	2	90	366
12:15	95	8	0	3	1	107	159	9	1	3	3	175	70	6	0	0	2	78	360
12:30	89	5	0	5	0	99	159	10	1	3	0	173	66	2	0	0	2	70	342
12:45	72	7	0	2	0	81	150	11	0	2	0	163	74	2	0	0	0	76	320
1 Hr	361	26	0	13	3	403	613	39	2	13	4	671	294	14	0	0	6	314	1388
Check						403						671						314	1388
13:00	82	7	0	3	0	92	140	9	0	4	1	154	79	3	0	0	0	82	328
13:15	77	3	0	4	0	84	139	7	0	4	4	154	75	2	0	0	1	78	316
13:30	68	5	0	1	0	74	115	10	0	3	0	128	99	4	0	0	0	103	305
13:45	82	10	0	4	0	96	135	10	0	3	2	150	64	3	0	0	0	67	313
1 Hr	309	25	0	12	0	346	529	36	0	14	7	586	317	12	0	0	1	330	1262
Check						346						586						330	1262
14:00	90	7	0	4	1	102	126	15	0	3	1	145	77	5	0	0	0	82	329
14:15	69	5	0	1	0	75	119	8	0	2	0	129	73	4	0	0	0	77	281
14:30	86	6	0	3	0	95	126	7	0	3	1	137	77	4	0	0	0	81	313
14:45	59	3	0	3	0	65	119	9	1	2	0	131	73	2	0	0	0	75	271
1 Hr	304	21	0	11	1	337	490	39	1	10	2	542	300	15	0	0	0	315	1194
Check						337						542						315	1194
15:00	100	7	0	4	0	111	120	12	0	4	2	138	84	3	0	0	0	87	336
15:15	80	8	0	2	0	90	106	11	0	1	1	119	87	4	0	0	0	91	300
15:30	86	2	1	2	1	92	83	7	0	3	2	95	82	3	0	0	0	85	272
15:45	89	11	0	2	2	104	87	12	0	2	1	102	67	4	0	0	3	74	280
1 Hr	355	28	1	10	3	397	396	42	0	10	6	454	320	14	0	0	3	337	1188
Check						397						454						337	1188
Total	1891	150	3	72	11	2127	3250	241	12	73	26	3602	1737	80	0	0	15	1832	7561
Check						2127						3602						1832	7561

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	75	10	2	5	2	94	87	7	1	2	0	97	63	3	0	0	1	67	258
10:15	81	7	1	3	1	93	112	11	0	3	0	126	78	6	1	0	0	85	304
10:30	85	9	1	3	1	99	111	5	0	4	0	120	94	2	1	0	1	98	317
10:45	89	6	1	2	1	99	131	5	0	3	2	141	68	3	0	0	0	71	311
1 Hr	330	32	5	13	5	385	441	28	1	12	2	484	303	14	2	0	2	321	1190
Check						385						484						321	1190
11:00	97	6	1	3	0	107	127	11	0	4	2	144	81	7	0	0	0	88	339
11:15	100	6	0	5	0	111	127	6	1	3	0	137	77	3	0	0	0	80	328
11:30	104	8	0	2	0	114	121	6	0	4	2	133	80	6	0	0	2	88	335
11:45	99	8	1	3	0	111	125	15	0	3	1	144	78	4	0	0	0	82	337
1 Hr	400	28	2	13	0	443	500	38	1	14	5	558	316	20	0	0	2	338	1339
Check						443						558						338	1339
12:00	81	10	0	5	0	96	175	7	0	3	4	189	78	2	0	0	1	81	366
12:15	103	8	1	3	1	116	149	13	0	3	2	167	72	2	0	0	3	77	360
12:30	93	8	1	3	1	106	131	5	0	5	1	142	90	4	0	0	0	94	342
12:45	101	6	0	2	0	109	126	7	0	2	0	135	69	7	0	0	0	76	320
1 Hr	378	32	2	13	2	427	581	32	0	13	7	633	309	15	0	0	4	328	1388
Check						427						633						328	1388
13:00	91	6	0	4	0	101	136	10	0	3	0	149	74	3	0	0	1	78	328
13:15	79	5	0	4	2	90	131	4	0	4	1	140	81	3	0	0	2	86	316
13:30	90	9	0	3	0	102	136	7	0	1	0	144	56	3	0	0	0	59	305
13:45	91	7	0	3	2	103	133	12	0	4	0	149	57	4	0	0	0	61	313
1 Hr	351	27	0	14	4	396	536	33	0	12	1	582	268	13	0	0	3	284	1262
Check						396						582						284	1262
14:00	84	8	0	3	1	96	149	12	0	4	0	165	60	7	0	0	1	68	329
14:15	81	8	0	2	0	91	122	6	0	1	0	129	58	3	0	0	0	61	281
14:30	71	5	0	3	0	79	150	10	0	3	0	163	68	2	0	0	1	71	313
14:45	91	7	1	2	0	101	114	3	0	3	0	120	46	4	0	0	0	50	271
1 Hr	327	28	1	10	1	367	535	31	0	11	0	577	232	16	0	0	2	250	1194
Check						367						577						250	1194
15:00	98	11	0	4	0	113	156	9	0	4	0	169	50	2	0	0	2	54	336
15:15	70	10	0	1	1	82	153	9	0	2	0	164	50	4	0	0	0	54	300
15:30	62	6	0	3	2	73	143	4	1	2	0	150	46	2	0	0	1	49	272
15:45	68	10	0	2	0	80	142	12	0	2	5	161	33	5	0	0	1	39	280
1 Hr	298	37	0	10	3	348	594	34	1	10	5	644	179	13	0	0	4	196	1188
Check						348						644						196	1188
Total	2084	184	10	73	15	2366	3187	196	3	72	20	3478	1607	91	2	0	17	1717	7561
Check						2366						3478						1717	7561

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : A - A628 Pontefract Road (w)

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	0	0	0	0	0	0	93	15	3	4	1	116	1	0	0	0	0	1	117
16:15	0	0	0	0	0	0	99	8	0	1	3	111	1	1	0	0	0	2	113
16:30	0	0	0	0	0	0	125	15	0	3	1	144	1	0	0	0	0	1	145
16:45	0	0	0	0	0	0	128	11	1	3	0	143	6	0	0	0	0	6	149
1 Hr	0	0	0	0	0	0	445	49	4	11	5	514	9	1	0	0	0	10	524
Check						0						514						10	524
17:00	0	0	0	0	0	0	131	13	0	2	1	147	5	1	0	0	0	6	153
17:15	0	0	0	0	0	0	153	12	0	3	0	168	4	1	0	0	0	5	173
17:30	0	0	0	0	0	0	108	7	0	3	2	120	4	0	0	0	0	4	124
17:45	0	0	0	0	0	0	105	6	0	3	0	114	1	0	0	0	0	1	115
1 Hr	0	0	0	0	0	0	497	38	0	11	3	549	14	2	0	0	0	16	565
Check						0						549						16	565
Total	0	0	0	0	0	0	942	87	4	22	8	1063	23	3	0	0	0	26	1089
Check						0						1063						26	1089

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : B - A628 Pontefract Road (e)

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	89	15	0	3	1	108	0	0	0	0	0	0	37	6	0	0	0	43	151
16:15	72	13	2	3	2	92	0	0	0	0	0	0	32	3	0	0	1	36	128
16:30	81	9	0	4	3	97	0	0	0	0	0	0	35	3	0	0	0	38	135
16:45	88	6	1	3	0	98	0	0	0	0	0	0	42	1	0	0	1	44	142
1 Hr	330	43	3	13	6	395	0	0	0	0	0	0	146	13	0	0	2	161	556
Check						395						0						161	556
17:00	88	5	1	1	1	96	0	0	0	0	0	0	46	3	0	0	0	49	145
17:15	77	5	0	5	0	87	0	0	0	0	0	0	33	3	0	0	1	37	124
17:30	72	4	0	1	1	78	0	0	0	0	0	0	22	3	0	0	0	25	103
17:45	91	11	1	3	1	107	0	0	0	0	0	0	27	5	0	0	0	32	139
1 Hr	328	25	2	10	3	368	0	0	0	0	0	0	128	14	0	0	1	143	511
Check						368						0						143	511
Total	658	68	5	23	9	763	0	0	0	0	0	0	274	27	0	0	3	304	1067
Check						763						0						304	1067

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : C - Lambra Road

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	12	2	0	0	0	14	42	1	0	0	0	43	0	0	0	0	0	0	57
16:15	8	2	0	0	0	10	52	5	2	0	0	59	0	0	0	0	0	0	69
16:30	7	0	0	0	0	7	40	7	0	0	2	49	0	0	0	0	0	0	56
16:45	19	3	0	0	0	22	55	4	0	0	2	61	0	0	0	0	0	0	83
1 Hr	46	7	0	0	0	53	189	17	2	0	4	212	0	0	0	0	0	0	265
Check						53						212						0	265
17:00	9	0	0	0	0	9	35	3	0	0	0	38	0	1	0	0	0	1	48
17:15	10	0	0	0	0	10	35	2	0	0	0	37	0	0	0	0	0	0	47
17:30	7	0	0	0	1	8	32	4	0	0	0	36	0	0	0	0	0	0	44
17:45	4	0	0	0	0	4	28	0	0	0	0	28	0	0	0	0	0	0	32
1 Hr	30	0	0	0	1	31	130	9	0	0	0	139	0	1	0	0	0	1	171
Check						31						139						1	171
Total	76	7	0	0	1	84	319	26	2	0	4	351	0	1	0	0	0	1	436
Check						84						351						1	436

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

ORIGIN SUMMARY

	Origin : A - A628 Pontefract Road (w)						Origin : B - A628 Pontefract Road (e)						Origin : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	94	15	3	4	1	117	126	21	0	3	1	151	54	3	0	0	0	57	325
16:15	100	9	0	1	3	113	104	16	2	3	3	128	60	7	2	0	0	69	310
16:30	126	15	0	3	1	145	116	12	0	4	3	135	47	7	0	0	2	56	336
16:45	134	11	1	3	0	149	130	7	1	3	1	142	74	7	0	0	2	83	374
1 Hr	454	50	4	11	5	524	476	56	3	13	8	556	235	24	2	0	4	265	1345
Check						524						556						265	1345
17:00	136	14	0	2	1	153	134	8	1	1	1	145	44	4	0	0	0	48	346
17:15	157	13	0	3	0	173	110	8	0	5	1	124	45	2	0	0	0	47	344
17:30	112	7	0	3	2	124	94	7	0	1	1	103	39	4	0	0	1	44	271
17:45	106	6	0	3	0	115	118	16	1	3	1	139	32	0	0	0	0	32	286
1 Hr	511	40	0	11	3	565	456	39	2	10	4	511	160	10	0	0	1	171	1247
Check						565						511						171	1247
Total	965	90	4	22	8	1089	932	95	5	23	12	1067	395	34	2	0	5	436	2592
Check						1089						1067						436	2592

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 1 - Lambra Road / A628 Pontefract Road
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - A628 Pontefract Road (w)						Destination : B - A628 Pontefract Road (e)						Destination : C - Lambra Road						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	101	17	0	3	1	122	135	16	3	4	1	159	38	6	0	0	0	44	325
16:15	80	15	2	3	2	102	151	13	2	1	3	170	33	4	0	0	1	38	310
16:30	88	9	0	4	3	104	165	22	0	3	3	193	36	3	0	0	0	39	336
16:45	107	9	1	3	0	120	183	15	1	3	2	204	48	1	0	0	1	50	374
1 Hr	376	50	3	13	6	448	634	66	6	11	9	726	155	14	0	0	2	171	1345
Check						448						726						171	1345
17:00	97	5	1	1	1	105	166	16	0	2	1	185	51	5	0	0	0	56	346
17:15	87	5	0	5	0	97	188	14	0	3	0	205	37	4	0	0	1	42	344
17:30	79	4	0	1	2	86	140	11	0	3	2	156	26	3	0	0	0	29	271
17:45	95	11	1	3	1	111	133	6	0	3	0	142	28	5	0	0	0	33	286
1 Hr	358	25	2	10	4	399	627	47	0	11	3	688	142	17	0	0	1	160	1247
Check						399						688						160	1247
Total	734	75	5	23	10	847	1261	113	6	22	12	1414	297	31	0	0	3	331	2592
Check						847						1414						331	2592

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : A - Lambra Road (w)

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	0	0	0	0	0	0	30	2	0	0	0	32	48	4	0	0	0	52	84
10:15	0	0	0	0	0	0	35	1	0	0	0	36	54	2	0	0	0	56	92
10:30	0	0	0	0	0	0	40	1	0	0	0	41	63	0	0	0	0	63	104
10:45	0	0	0	0	0	0	46	1	0	0	1	48	52	3	0	0	0	55	103
1 Hr	0	0	0	0	0	0	151	5	0	0	1	157	217	9	0	0	0	226	383
Check						0						157						226	383
11:00	0	0	0	0	0	0	42	3	0	0	1	46	82	0	0	0	0	82	128
11:15	0	0	0	0	0	0	58	1	0	0	0	59	86	1	0	0	1	88	147
11:30	0	0	0	0	0	0	41	1	0	0	0	42	68	3	0	0	0	71	113
11:45	0	0	0	0	0	0	48	2	0	0	0	50	81	1	0	0	0	82	132
1 Hr	0	0	0	0	0	0	189	7	0	0	1	197	317	5	0	0	1	323	520
Check						0						197						323	520
12:00	0	0	0	0	0	0	64	1	0	0	1	66	85	4	0	0	0	89	155
12:15	0	0	0	0	0	0	39	4	0	0	0	43	69	3	0	0	1	73	116
12:30	0	0	0	0	0	0	50	0	0	0	1	51	70	2	0	0	1	73	124
12:45	0	0	0	0	0	0	48	1	0	0	0	49	96	1	0	0	0	97	146
1 Hr	0	0	0	0	0	0	201	6	0	0	2	209	320	10	0	0	2	332	541
Check						0						209						332	541
13:00	0	0	0	0	0	0	54	0	0	0	0	54	86	0	0	0	0	86	140
13:15	0	0	0	0	0	0	50	0	0	0	1	51	63	2	0	0	1	66	117
13:30	0	0	0	0	0	0	67	0	0	0	0	67	76	2	0	0	0	78	145
13:45	0	0	0	0	0	0	42	1	0	0	0	43	84	1	0	0	0	85	128
1 Hr	0	0	0	0	0	0	213	1	0	0	1	215	309	5	0	0	1	315	530
Check						0						215						315	530
14:00	0	0	0	0	0	0	53	1	0	0	0	54	79	1	0	0	2	82	136
14:15	0	0	0	0	0	0	37	1	0	0	0	38	72	4	0	0	0	76	114
14:30	0	0	0	0	0	0	44	3	0	0	0	47	94	2	0	0	1	97	144
14:45	0	0	0	0	0	0	47	3	0	0	0	50	77	3	0	0	1	81	131
1 Hr	0	0	0	0	0	0	181	8	0	0	0	189	322	10	0	0	4	336	525
Check						0						189						336	525
15:00	0	0	0	0	0	0	61	1	0	0	0	62	91	3	0	0	0	94	156
15:15	0	0	0	0	0	0	58	3	0	0	0	61	84	2	0	0	1	87	148
15:30	0	0	0	0	0	0	55	2	0	0	1	58	92	2	0	0	0	94	152
15:45	0	0	0	0	0	0	40	2	0	0	1	43	85	2	0	0	0	87	130
1 Hr	0	0	0	0	0	0	214	8	0	0	2	224	352	9	0	0	1	362	586
Check						0						224						362	586
Total	0	0	0	0	0	0	1149	35	0	0	7	1191	1837	48	0	0	9	1894	3085
Check						0						1191						1894	3085

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : B - Lambra Road (e)

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	45	1	0	0	1	47	0	0	0	0	0	0	15	1	0	0	0	16	63
10:15	48	2	0	0	0	50	0	0	0	0	0	0	24	3	0	0	0	27	77
10:30	40	0	0	0	0	40	0	0	0	0	0	0	47	3	2	0	0	52	92
10:45	36	1	0	0	1	38	0	0	0	0	0	0	34	1	0	0	0	35	73
1 Hr	169	4	0	0	2	175	0	0	0	0	0	0	120	8	2	0	0	130	305
Check						175						0						130	305
11:00	56	3	0	0	0	59	1	0	0	0	0	1	24	4	0	0	0	28	88
11:15	43	0	0	0	0	43	0	0	0	0	0	0	32	2	0	0	0	34	77
11:30	47	1	0	0	1	49	0	0	0	0	0	0	32	6	0	0	0	38	87
11:45	41	2	0	0	0	43	0	0	0	0	0	0	41	2	0	0	1	44	87
1 Hr	187	6	0	0	1	194	1	0	0	0	0	1	129	14	0	0	1	144	339
Check						194						1						144	339
12:00	44	1	0	0	0	45	0	0	0	0	0	0	35	2	0	0	0	37	82
12:15	38	1	0	0	1	40	0	0	0	0	0	0	36	1	0	0	1	38	78
12:30	43	0	0	0	0	43	0	0	0	0	0	0	43	4	0	0	1	48	91
12:45	38	0	0	0	0	38	0	0	0	0	0	0	36	7	0	0	0	43	81
1 Hr	163	2	0	0	1	166	0	0	0	0	0	0	150	14	0	0	2	166	332
Check						166						0						166	332
13:00	44	1	0	0	1	46	0	0	0	0	0	0	32	3	0	0	0	35	81
13:15	37	1	0	0	0	38	0	0	0	0	0	0	46	3	0	0	0	49	87
13:30	29	2	0	0	0	31	0	0	0	0	0	0	27	2	0	0	0	29	60
13:45	27	2	0	0	0	29	0	0	0	0	0	0	33	2	0	0	0	35	64
1 Hr	137	6	0	0	1	144	0	0	0	0	0	0	138	10	0	0	0	148	292
Check						144						0						148	292
14:00	24	0	0	0	0	24	0	0	0	0	0	0	35	6	0	0	0	41	65
14:15	32	3	0	0	0	35	0	0	0	0	0	0	25	3	0	0	0	28	63
14:30	26	1	0	0	0	27	0	0	0	0	0	0	42	2	0	0	1	45	72
14:45	23	1	0	0	0	24	0	0	0	0	0	0	24	2	0	0	0	26	50
1 Hr	105	5	0	0	0	110	0	0	0	0	0	0	126	13	0	0	1	140	250
Check						110						0						140	250
15:00	25	0	0	0	1	26	0	0	0	0	0	0	30	1	0	0	1	32	58
15:15	16	2	0	0	0	18	0	0	0	0	0	0	30	3	0	0	1	34	52
15:30	16	0	0	0	1	17	0	0	0	0	0	0	33	4	0	0	0	37	54
15:45	15	2	0	0	0	17	0	0	0	0	0	0	21	3	0	0	1	25	42
1 Hr	72	4	0	0	2	78	0	0	0	0	0	0	114	11	0	0	3	128	206
Check						78						0						128	206
Total	833	27	0	0	7	867	1	0	0	0	0	1	777	70	2	0	7	856	1724
Check						867						1						856	1724

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : C - Wesley Street

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	101	3	0	0	0	104	14	4	0	0	0	18	0	0	0	0	0	0	122
10:15	101	1	0	0	0	102	20	3	0	0	0	23	0	0	0	0	0	0	125
10:30	80	1	0	0	0	81	19	1	0	0	0	20	0	0	0	0	0	0	101
10:45	85	1	0	0	0	86	21	2	0	0	0	23	0	0	0	0	0	0	109
1 Hr	367	6	0	0	0	373	74	10	0	0	0	84	0	0	0	0	0	0	457
Check						373						84						0	457
11:00	100	1	0	0	0	101	25	2	0	0	0	27	0	0	0	0	0	0	128
11:15	91	2	0	0	0	93	21	4	0	0	0	25	0	0	0	0	0	0	118
11:30	76	3	0	0	1	80	26	0	0	0	0	26	0	0	0	0	0	0	106
11:45	90	3	0	0	0	93	26	4	0	0	0	30	1	0	0	0	0	1	124
1 Hr	357	9	0	0	1	367	98	10	0	0	0	108	1	0	0	0	0	1	476
Check						367						108						1	476
12:00	84	2	0	0	1	87	25	1	0	0	0	26	0	0	0	0	0	0	113
12:15	70	1	0	0	0	71	26	1	0	0	0	27	0	0	0	0	0	0	98
12:30	105	1	0	0	0	106	19	3	0	0	0	22	0	0	0	0	0	0	128
12:45	87	0	0	0	1	88	34	1	0	0	0	35	0	0	0	0	0	0	123
1 Hr	346	4	0	0	2	352	104	6	0	0	0	110	0	0	0	0	0	0	462
Check						352						110						0	462
13:00	79	4	0	0	0	83	20	4	0	0	1	25	0	0	0	0	0	0	108
13:15	89	2	0	0	0	91	32	1	0	0	0	33	0	0	0	0	0	0	124
13:30	94	2	0	0	0	96	30	5	0	0	0	35	0	0	0	0	0	0	131
13:45	97	0	0	0	0	97	23	3	0	0	0	26	0	0	0	0	0	0	123
1 Hr	359	8	0	0	0	367	105	13	0	0	1	119	0	0	0	0	0	0	486
Check						367						119						0	486
14:00	89	2	0	0	1	92	24	3	0	0	0	27	1	0	0	0	0	1	120
14:15	68	2	0	0	0	70	29	0	0	0	0	29	0	0	0	0	0	0	99
14:30	77	4	0	0	0	81	38	2	0	0	0	40	0	0	0	0	0	0	121
14:45	51	1	0	0	0	52	21	0	0	0	2	23	0	0	0	0	0	0	75
1 Hr	285	9	0	0	1	295	112	5	0	0	2	119	1	0	0	0	0	1	415
Check						295						119						1	415
15:00	62	1	0	0	1	64	24	2	0	0	0	26	0	0	0	0	0	0	90
15:15	38	0	0	0	0	38	33	1	0	0	0	34	0	0	0	0	0	0	72
15:30	36	2	0	0	0	38	22	3	0	0	0	25	0	0	0	0	0	0	63
15:45	33	0	0	0	1	34	25	2	0	0	0	27	0	0	0	0	0	0	61
1 Hr	169	3	0	0	2	174	104	8	0	0	0	112	0	0	0	0	0	0	286
Check						174						112						0	286
Total	1883	39	0	0	6	1928	597	52	0	0	3	652	2	0	0	0	0	2	2582
Check						1928						652						2	2582

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

ORIGIN SUMMARY

	Origin :	A - Lambra Road (w)					Origin :	B - Lambra Road (e)					Origin :	C - Wesley Street					Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	78	6	0	0	0	84	60	2	0	0	1	63	115	7	0	0	0	122	269
10:15	89	3	0	0	0	92	72	5	0	0	0	77	121	4	0	0	0	125	294
10:30	103	1	0	0	0	104	87	3	2	0	0	92	99	2	0	0	0	101	297
10:45	98	4	0	0	1	103	70	2	0	0	1	73	106	3	0	0	0	109	285
1 Hr	368	14	0	0	1	383	289	12	2	0	2	305	441	16	0	0	0	457	1145
Check						383						305						457	1145
11:00	124	3	0	0	1	128	81	7	0	0	0	88	125	3	0	0	0	128	344
11:15	144	2	0	0	1	147	75	2	0	0	0	77	112	6	0	0	0	118	342
11:30	109	4	0	0	0	113	79	7	0	0	1	87	102	3	0	0	1	106	306
11:45	129	3	0	0	0	132	82	4	0	0	1	87	117	7	0	0	0	124	343
1 Hr	506	12	0	0	2	520	317	20	0	0	2	339	456	19	0	0	1	476	1335
Check						520						339						476	1335
12:00	149	5	0	0	1	155	79	3	0	0	0	82	109	3	0	0	1	113	350
12:15	108	7	0	0	1	116	74	2	0	0	2	78	96	2	0	0	0	98	292
12:30	120	2	0	0	2	124	86	4	0	0	1	91	124	4	0	0	0	128	343
12:45	144	2	0	0	0	146	74	7	0	0	0	81	121	1	0	0	1	123	350
1 Hr	521	16	0	0	4	541	313	16	0	0	3	332	450	10	0	0	2	462	1335
Check						541						332						462	1335
13:00	140	0	0	0	0	140	76	4	0	0	1	81	99	8	0	0	1	108	329
13:15	113	2	0	0	2	117	83	4	0	0	0	87	121	3	0	0	0	124	328
13:30	143	2	0	0	0	145	56	4	0	0	0	60	124	7	0	0	0	131	336
13:45	126	2	0	0	0	128	60	4	0	0	0	64	120	3	0	0	0	123	315
1 Hr	522	6	0	0	2	530	275	16	0	0	1	292	464	21	0	0	1	486	1308
Check						530						292						486	1308
14:00	132	2	0	0	2	136	59	6	0	0	0	65	114	5	0	0	1	120	321
14:15	109	5	0	0	0	114	57	6	0	0	0	63	97	2	0	0	0	99	276
14:30	138	5	0	0	1	144	68	3	0	0	1	72	115	6	0	0	0	121	337
14:45	124	6	0	0	1	131	47	3	0	0	0	50	72	1	0	0	2	75	256
1 Hr	503	18	0	0	4	525	231	18	0	0	1	250	398	14	0	0	3	415	1190
Check						525						250						415	1190
15:00	152	4	0	0	0	156	55	1	0	0	2	58	86	3	0	0	1	90	304
15:15	142	5	0	0	1	148	46	5	0	0	1	52	71	1	0	0	0	72	272
15:30	147	4	0	0	1	152	49	4	0	0	1	54	58	5	0	0	0	63	269
15:45	125	4	0	0	1	130	36	5	0	0	1	42	58	2	0	0	1	61	233
1 Hr	566	17	0	0	3	586	186	15	0	0	5	206	273	11	0	0	2	286	1078
Check						586						206						286	1078
Total	2986	83	0	0	16	3085	1611	97	2	0	14	1724	2482	91	0	0	9	2582	7391
Check						3085						1724						2582	7391

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
10:00	146	4	0	0	1	151	44	6	0	0	0	50	63	5	0	0	0	68	269
10:15	149	3	0	0	0	152	55	4	0	0	0	59	78	5	0	0	0	83	294
10:30	120	1	0	0	0	121	59	2	0	0	0	61	110	3	2	0	0	115	297
10:45	121	2	0	0	1	124	67	3	0	0	1	71	86	4	0	0	0	90	285
1 Hr	536	10	0	0	2	548	225	15	0	0	1	241	337	17	2	0	0	356	1145
Check						548						241						356	1145
11:00	156	4	0	0	0	160	68	5	0	0	1	74	106	4	0	0	0	110	344
11:15	134	2	0	0	0	136	79	5	0	0	0	84	118	3	0	0	1	122	342
11:30	123	4	0	0	2	129	67	1	0	0	0	68	100	9	0	0	0	109	306
11:45	131	5	0	0	0	136	74	6	0	0	0	80	123	3	0	0	1	127	343
1 Hr	544	15	0	0	2	561	288	17	0	0	1	306	447	19	0	0	2	468	1335
Check						561						306						468	1335
12:00	128	3	0	0	1	132	89	2	0	0	1	92	120	6	0	0	0	126	350
12:15	108	2	0	0	1	111	65	5	0	0	0	70	105	4	0	0	2	111	292
12:30	148	1	0	0	0	149	69	3	0	0	1	73	113	6	0	0	2	121	343
12:45	125	0	0	0	1	126	82	2	0	0	0	84	132	8	0	0	0	140	350
1 Hr	509	6	0	0	3	518	305	12	0	0	2	319	470	24	0	0	4	498	1335
Check						518						319						498	1335
13:00	123	5	0	0	1	129	74	4	0	0	1	79	118	3	0	0	0	121	329
13:15	126	3	0	0	0	129	82	1	0	0	1	84	109	5	0	0	1	115	328
13:30	123	4	0	0	0	127	97	5	0	0	0	102	103	4	0	0	0	107	336
13:45	124	2	0	0	0	126	65	4	0	0	0	69	117	3	0	0	0	120	315
1 Hr	496	14	0	0	1	511	318	14	0	0	2	334	447	15	0	0	1	463	1308
Check						511						334						463	1308
14:00	113	2	0	0	1	116	77	4	0	0	0	81	115	7	0	0	2	124	321
14:15	100	5	0	0	0	105	66	1	0	0	0	67	97	7	0	0	0	104	276
14:30	103	5	0	0	0	108	82	5	0	0	0	87	136	4	0	0	2	142	337
14:45	74	2	0	0	0	76	68	3	0	0	2	73	101	5	0	0	1	107	256
1 Hr	390	14	0	0	1	405	293	13	0	0	2	308	449	23	0	0	5	477	1190
Check						405						308						477	1190
15:00	87	1	0	0	2	90	85	3	0	0	0	88	121	4	0	0	1	126	304
15:15	54	2	0	0	0	56	91	4	0	0	0	95	114	5	0	0	2	121	272
15:30	52	2	0	0	1	55	77	5	0	0	1	83	125	6	0	0	0	131	269
15:45	48	2	0	0	1	51	65	4	0	0	1	70	106	5	0	0	1	112	233
1 Hr	241	7	0	0	4	252	318	16	0	0	2	336	466	20	0	0	4	490	1078
Check						252						336						490	1078
Total	2716	66	0	0	13	2795	1747	87	0	0	10	1844	2616	118	2	0	16	2752	7391
Check						2795						1844						2752	7391

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : A - Lambra Road (w)

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	0	0	0	0	0	0	22	2	0	0	0	24	45	15	0	0	0	60	84
16:15	0	0	0	0	0	0	31	0	0	0	1	32	41	7	0	0	1	49	81
16:30	0	0	0	0	0	0	19	1	0	1	0	21	40	11	0	0	1	52	73
16:45	0	0	0	0	0	0	39	4	0	0	0	43	27	0	0	0	0	27	70
1 Hr	0	0	0	0	0	0	111	7	0	1	1	120	153	33	0	0	2	188	308
Check						0						120						188	308
17:00	0	0	0	0	0	0	15	0	0	0	0	15	28	1	0	0	0	29	44
17:15	0	0	0	0	0	0	14	0	0	0	0	14	30	0	0	0	0	30	44
17:30	0	0	0	0	0	0	19	0	0	0	1	20	16	0	0	0	0	16	36
17:45	0	0	0	0	0	0	2	0	0	0	0	2	13	0	0	0	0	13	15
1 Hr	0	0	0	0	0	0	50	0	0	0	1	51	87	1	0	0	0	88	139
Check						0						51						88	139
Total	0	0	0	0	0	0	161	7	0	1	2	171	240	34	0	0	2	276	447
Check						0						171						276	447

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : B - Lambra Road (e)

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	6	0	0	0	0	6	0	0	0	0	0	0	32	7	0	0	0	39	45
16:15	8	1	0	0	0	9	0	0	0	0	0	0	27	3	0	0	2	32	41
16:30	7	0	0	0	0	7	0	0	0	0	0	0	29	3	0	0	0	32	39
16:45	4	0	0	0	0	4	0	0	0	0	0	0	44	0	0	0	1	45	49
1 Hr	25	1	0	0	0	26	0	0	0	0	0	0	132	13	0	0	3	148	174
Check						26						0						148	174
17:00	2	0	0	0	0	2	0	0	0	0	0	0	48	2	0	0	0	50	52
17:15	1	1	0	0	0	2	0	0	0	0	0	0	35	3	0	0	1	39	41
17:30	4	0	0	0	0	4	0	0	0	0	0	0	22	4	0	0	0	26	30
17:45	0	1	0	0	0	1	0	0	0	0	0	0	31	5	0	0	0	36	37
1 Hr	7	2	0	0	0	9	0	0	0	0	0	0	136	14	0	0	1	151	160
Check						9						0						151	160
Total	32	3	0	0	0	35	0	0	0	0	0	0	268	27	0	0	4	299	334
Check						35						0						299	334

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : C - Wesley Street

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	12	3	0	0	0	15	33	1	0	0	0	34	0	0	0	0	0	0	49
16:15	16	0	0	0	0	16	28	4	1	1	0	34	0	0	0	0	0	0	50
16:30	19	1	0	0	0	20	32	5	0	0	1	38	0	0	0	0	0	0	58
16:45	11	1	0	0	0	12	30	3	0	0	2	35	0	0	0	0	0	0	47
1 Hr	58	5	0	0	0	63	123	13	1	1	3	141	0	0	0	0	0	0	204
Check						63						141						0	204
17:00	3	0	0	0	1	4	28	3	0	0	0	31	0	0	0	0	0	0	35
17:15	7	0	0	0	0	7	26	0	0	0	0	26	0	0	0	0	0	0	33
17:30	4	0	0	0	0	4	24	5	0	0	0	29	1	0	0	0	0	1	34
17:45	3	0	0	0	0	3	31	0	0	0	0	31	0	0	0	0	0	0	34
1 Hr	17	0	0	0	1	18	109	8	0	0	0	117	1	0	0	0	0	1	136
Check						18						117						1	136
Total	75	5	0	0	1	81	232	21	1	1	3	258	1	0	0	0	0	1	340
Check						81						258						1	340

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

ORIGIN SUMMARY

	Origin : A - Lambra Road (w)						Origin : B - Lambra Road (e)						Origin : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	67	17	0	0	0	84	38	7	0	0	0	45	45	4	0	0	0	49	178
16:15	72	7	0	0	2	81	35	4	0	0	2	41	44	4	1	1	0	50	172
16:30	59	12	0	1	1	73	36	3	0	0	0	39	51	6	0	0	1	58	170
16:45	66	4	0	0	0	70	48	0	0	0	1	49	41	4	0	0	2	47	166
1 Hr	264	40	0	1	3	308	157	14	0	0	3	174	181	18	1	1	3	204	686
Check						308						174						204	686
17:00	43	1	0	0	0	44	50	2	0	0	0	52	31	3	0	0	1	35	131
17:15	44	0	0	0	0	44	36	4	0	0	1	41	33	0	0	0	0	33	118
17:30	35	0	0	0	1	36	26	4	0	0	0	30	29	5	0	0	0	34	100
17:45	15	0	0	0	0	15	31	6	0	0	0	37	34	0	0	0	0	34	86
1 Hr	137	1	0	0	1	139	143	16	0	0	1	160	127	8	0	0	1	136	435
Check						139						160						136	435
Total	401	41	0	1	4	447	300	30	0	0	4	334	308	26	1	1	4	340	1121
Check						447						334						340	1121

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 2 - Lambra Road / Wesley Street
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - Lambra Road (w)						Destination : B - Lambra Road (e)						Destination : C - Wesley Street						Arm Totals
	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	Car	Lgv	Hgv	Psv	Mc	Total	
16:00	18	3	0	0	0	21	55	3	0	0	0	58	77	22	0	0	0	99	178
16:15	24	1	0	0	0	25	59	4	1	1	1	66	68	10	0	0	3	81	172
16:30	26	1	0	0	0	27	51	6	0	1	1	59	69	14	0	0	1	84	170
16:45	15	1	0	0	0	16	69	7	0	0	2	78	71	0	0	0	1	72	166
1 Hr	83	6	0	0	0	89	234	20	1	2	4	261	285	46	0	0	5	336	686
Check						89						261						336	686
17:00	5	0	0	0	1	6	43	3	0	0	0	46	76	3	0	0	0	79	131
17:15	8	1	0	0	0	9	40	0	0	0	0	40	65	3	0	0	1	69	118
17:30	8	0	0	0	0	8	43	5	0	0	1	49	39	4	0	0	0	43	100
17:45	3	1	0	0	0	4	33	0	0	0	0	33	44	5	0	0	0	49	86
1 Hr	24	2	0	0	1	27	159	8	0	0	1	168	224	15	0	0	1	240	435
Check						27						168						240	435
Total	107	8	0	0	1	116	393	28	1	2	5	429	509	61	0	0	6	576	1121
Check						116						429						576	1121

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : A - Schwabisch Gmund Way

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
10:00	0	0	0	0	0	0	22	2	0	13	0	37	0	0	0	0	0	0	0	0	0	0	0	0	37
10:15	0	0	0	0	0	0	31	2	0	14	1	48	0	0	0	0	0	0	0	0	0	0	0	0	48
10:30	0	0	0	0	0	0	28	1	0	16	0	45	0	0	0	0	0	0	0	0	0	0	0	0	45
10:45	0	0	0	0	0	0	35	2	0	8	1	46	0	0	0	0	0	0	0	0	0	0	0	0	46
1 Hr	0	0	0	0	0	0	116	7	0	51	2	176	0	0	0	0	0	0	0	0	0	0	0	0	176
Check						0						176						0						0	176
11:00	0	0	0	0	0	0	34	1	0	16	0	51	0	0	0	0	0	0	0	0	0	0	0	0	51
11:15	0	0	0	0	0	0	32	1	0	11	0	44	0	0	0	0	0	0	0	0	0	0	0	0	44
11:30	0	0	0	0	0	0	37	0	0	15	1	53	0	0	0	0	0	0	0	0	0	0	0	0	53
11:45	0	0	0	0	0	0	24	4	0	10	0	38	0	0	0	0	0	0	0	0	0	0	0	0	38
1 Hr	0	0	0	0	0	0	127	6	0	52	1	186	0	0	0	0	0	0	0	0	0	0	0	0	186
Check						0						186						0						0	186
12:00	0	0	0	0	0	0	49	1	0	12	0	62	0	0	0	0	0	0	0	0	0	0	0	0	62
12:15	0	0	0	0	0	0	27	3	0	15	1	46	0	0	0	0	0	0	0	0	0	0	0	0	46
12:30	0	0	0	0	0	0	38	3	0	16	0	57	0	0	0	0	0	0	0	0	0	0	0	0	57
12:45	0	0	0	0	0	0	33	1	0	8	0	42	0	0	0	0	0	0	0	0	0	0	0	0	42
1 Hr	0	0	0	0	0	0	147	8	0	51	1	207	0	0	0	0	0	0	0	0	0	0	0	0	207
Check						0						207						0						0	207
13:00	0	0	0	0	0	0	43	2	0	15	0	60	0	0	0	0	0	0	0	0	0	0	0	0	60
13:15	0	0	0	0	0	0	29	0	0	13	0	42	0	0	0	0	0	0	0	0	0	0	0	0	42
13:30	0	0	0	0	0	0	37	2	0	11	0	50	0	0	0	0	0	0	0	0	0	0	0	0	50
13:45	0	0	0	0	0	0	33	0	0	13	0	46	0	0	0	0	0	0	0	0	0	0	0	0	46
1 Hr	0	0	0	0	0	0	142	4	0	52	0	198	0	0	0	0	0	0	0	0	0	0	0	0	198
Check						0						198						0						0	198
14:00	0	0	0	0	0	0	28	1	0	12	0	41	0	0	0	0	0	0	0	0	0	0	0	0	41
14:15	0	0	0	0	0	0	23	1	0	11	0	35	0	0	0	0	0	0	0	0	0	0	0	0	35
14:30	0	0	0	0	0	0	24	2	0	14	0	40	0	0	0	0	0	0	0	0	0	0	0	0	40
14:45	0	0	0	0	0	0	38	2	0	12	0	52	0	0	0	0	0	0	0	0	0	0	0	0	52
1 Hr	0	0	0	0	0	0	113	6	0	49	0	168	0	0	0	0	0	0	0	0	0	0	0	0	168
Check						0						168						0						0	168
15:00	0	0	0	0	0	0	35	2	0	13	0	50	0	0	0	0	0	0	1	0	0	0	0	1	51
15:15	0	0	0	0	0	0	29	0	0	11	0	40	0	0	0	0	0	0	0	0	0	0	0	0	40
15:30	0	0	0	0	0	0	36	0	0	12	0	48	0	0	0	0	0	0	0	0	0	0	0	0	48
15:45	0	0	0	0	0	0	35	1	0	8	0	44	0	0	0	0	0	0	0	0	0	0	0	0	44
1 Hr	0	0	0	0	0	0	135	3	0	44	0	182	0	0	0	0	0	0	1	0	0	0	0	1	183
Check						0						182						0						1	183
Total	0	0	0	0	0	0	780	34	0	299	4	1117	0	0	0	0	0	0	1	0	0	0	0	1	1118
Check						0						1117						0						1	1118

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : B - Kendray Street (e)

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
10:00	22	4	0	15	1	42	0	0	0	0	0	0	0	0	0	0	0	0	6	3	1	0	0	10	52
10:15	20	3	0	11	0	34	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0	9	43
10:30	38	0	0	13	1	52	0	0	0	0	0	0	0	0	0	0	0	0	12	1	0	0	0	13	65
10:45	29	3	0	9	0	41	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0	1	9	50
1 Hr	109	10	0	48	2	169	0	0	0	0	0	0	0	0	0	0	0	0	33	6	1	0	1	41	210
Check						169						0						0						41	210
11:00	33	0	0	12	0	45	1	0	0	0	0	1	0	0	0	0	0	0	10	1	0	0	0	11	57
11:15	33	2	0	11	0	46	1	0	0	0	0	1	0	0	0	0	0	0	9	1	0	0	0	10	57
11:30	49	2	2	13	0	66	0	0	0	0	0	0	0	0	0	0	0	0	11	2	0	0	0	13	79
11:45	36	3	0	10	0	49	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	6	55
1 Hr	151	7	2	46	0	206	2	0	0	0	0	2	0	0	0	0	0	0	35	5	0	0	0	40	248
Check						206						2						0						40	248
12:00	35	3	1	16	1	56	0	0	0	0	0	0	0	0	0	0	0	0	9	1	0	0	0	10	66
12:15	49	4	0	8	1	62	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0	9	71
12:30	40	1	0	16	0	57	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	63
12:45	47	0	0	9	1	57	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	14	71
1 Hr	171	8	1	49	3	232	0	0	0	0	0	0	0	0	0	0	0	0	37	2	0	0	0	39	271
Check						232						0						0						39	271
13:00	47	2	0	17	0	66	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	71
13:15	36	1	0	9	0	46	0	0	0	0	0	0	0	0	1	0	0	1	9	0	0	0	0	9	56
13:30	29	0	0	12	0	41	1	0	0	0	0	1	0	0	0	0	0	0	7	0	0	0	0	7	49
13:45	28	1	0	15	2	46	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	53
1 Hr	140	4	0	53	2	199	1	0	0	0	0	1	0	0	1	0	0	1	27	1	0	0	0	28	229
Check						199						1						1						28	229
14:00	38	4	0	15	0	57	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	62
14:15	32	2	0	7	0	41	0	0	0	0	0	0	0	0	1	0	0	1	5	0	0	0	0	5	47
14:30	37	2	0	13	0	52	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	54
14:45	34	1	0	12	1	48	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	54
1 Hr	141	9	0	47	1	198	0	0	0	0	0	0	0	0	1	0	0	1	17	1	0	0	0	18	217
Check						198						0						1						18	217
15:00	53	1	0	13	0	67	0	0	0	0	0	0	0	0	0	0	0	0	7	2	0	0	0	9	76
15:15	27	0	0	8	1	36	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	43
15:30	34	0	0	14	0	48	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	2	8	56
15:45	43	0	0	11	0	54	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0	0	9	63
1 Hr	157	1	0	46	1	205	0	0	0	0	0	0	0	0	0	0	0	0	23	8	0	0	2	33	238
Check						205						0						0						33	238
Total	869	39	3	289	9	1209	3	0	0	0	0	3	0	0	2	0	0	2	172	23	1	0	3	199	1413
Check						1209						3						2						199	1413

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : C - Car Park

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Check						0						0						0						0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Check						0						0						0						0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1 Hr	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Check						0						2						0						0	2
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Check						0						0						0						0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Check						0						0						0						0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1 Hr	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Check						0						1						0						0	1
Total	0	0	0	0	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Check						0						3						0						0	3

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

Entry : D - Kendray Street (w)

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
10:00	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
10:15	0	0	0	0	0	0	8	1	2	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	11
10:30	0	1	0	0	0	1	8	2	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	11
10:45	0	0	0	0	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
1 Hr	0	1	0	0	0	1	32	4	2	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	39
Check						1						38						0						0	39
11:00	1	0	0	0	0	1	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	5
11:15	0	0	0	0	0	0	8	2	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
11:30	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
11:45	0	0	0	0	0	0	14	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	14
1 Hr	1	0	0	0	0	1	36	2	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	39
Check						1						38						0						0	39
12:00	0	0	0	0	0	0	12	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
12:15	0	0	0	0	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
12:30	0	0	0	0	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12
12:45	1	0	0	0	0	1	14	0	0	0	1	15	0	0	0	0	0	0	0	0	0	0	0	0	16
1 Hr	1	0	0	0	0	1	48	2	0	0	1	51	0	0	0	0	0	0	0	0	0	0	0	0	52
Check						1						51						0						0	52
13:00	1	0	0	0	0	1	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	11
13:15	0	0	0	0	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	11
13:30	0	0	0	0	0	0	15	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	15
13:45	0	0	0	0	0	0	16	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	16
1 Hr	1	0	0	0	0	1	52	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	53
Check						1						52						0						0	53
14:00	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
14:15	0	1	0	0	0	1	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	21
14:30	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
14:45	0	0	0	0	0	0	17	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	17
1 Hr	0	1	0	0	0	1	57	0	0	0	0	57	0	0	0	0	0	0	0	0	0	0	0	0	58
Check						1						57						0						0	58
15:00	0	0	0	0	0	0	17	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	17
15:15	0	0	0	0	0	0	14	1	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	15
15:30	0	0	0	0	0	0	22	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	22
15:45	0	0	0	0	0	0	11	2	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13
1 Hr	0	0	0	0	0	0	64	3	0	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	67
Check						0						67						0						0	67
Total	3	2	0	0	0	5	289	11	2	0	1	303	0	0	0	0	0	0	0	0	0	0	0	0	308
Check						5						303						0						0	308

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

ORIGIN SUMMARY

	Origin :	A - Schwabisch Gmund Way					Origin :	B - Kendray Street (e)					Origin :	C - Car Park					Origin :	D - Kendray Street (w)					Arm
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Totals
10:00	22	2	0	13	0	37	28	7	1	15	1	52	0	0	0	0	0	0	5	0	0	0	0	5	94
10:15	31	2	0	14	1	48	28	4	0	11	0	43	0	0	0	0	0	0	8	1	2	0	0	11	102
10:30	28	1	0	16	0	45	50	1	0	13	1	65	0	0	0	0	0	0	8	3	0	0	0	11	121
10:45	35	2	0	8	1	46	36	4	0	9	1	50	0	0	0	0	0	0	11	1	0	0	0	12	108
1 Hr	116	7	0	51	2	176	142	16	1	48	3	210	0	0	0	0	0	0	32	5	2	0	0	39	425
Check						176						210						0						39	425
11:00	34	1	0	16	0	51	44	1	0	12	0	57	0	0	0	0	0	0	5	0	0	0	0	5	113
11:15	32	1	0	11	0	44	43	3	0	11	0	57	0	0	0	0	0	0	8	2	0	0	0	10	111
11:30	37	0	0	15	1	53	60	4	2	13	0	79	0	0	0	0	0	0	10	0	0	0	0	10	142
11:45	24	4	0	10	0	38	41	4	0	10	0	55	0	0	0	0	0	0	14	0	0	0	0	14	107
1 Hr	127	6	0	52	1	186	188	12	2	46	0	248	0	0	0	0	0	0	37	2	0	0	0	39	473
Check						186						248						0						39	473
12:00	49	1	0	12	0	62	44	4	1	16	1	66	0	0	0	0	0	0	12	0	0	0	0	12	140
12:15	27	3	0	15	1	46	57	5	0	8	1	71	1	0	0	0	0	1	11	1	0	0	0	12	130
12:30	38	3	0	16	0	57	46	1	0	16	0	63	0	0	0	0	0	0	11	1	0	0	0	12	132
12:45	33	1	0	8	0	42	61	0	0	9	1	71	0	1	0	0	0	1	15	0	0	0	1	16	130
1 Hr	147	8	0	51	1	207	208	10	1	49	3	271	1	1	0	0	0	2	49	2	0	0	1	52	532
Check						207						271						2						52	532
13:00	43	2	0	15	0	60	52	2	0	17	0	71	0	0	0	0	0	0	11	0	0	0	0	11	142
13:15	29	0	0	13	0	42	45	1	1	9	0	56	0	0	0	0	0	0	11	0	0	0	0	11	109
13:30	37	2	0	11	0	50	37	0	0	12	0	49	0	0	0	0	0	0	15	0	0	0	0	15	114
13:45	33	0	0	13	0	46	34	2	0	15	2	53	0	0	0	0	0	0	16	0	0	0	0	16	115
1 Hr	142	4	0	52	0	198	168	5	1	53	2	229	0	0	0	0	0	0	53	0	0	0	0	53	480
Check						198						229						0						53	480
14:00	28	1	0	12	0	41	43	4	0	15	0	62	0	0	0	0	0	0	10	0	0	0	0	10	113
14:15	23	1	0	11	0	35	37	2	1	7	0	47	0	0	0	0	0	0	20	1	0	0	0	21	103
14:30	24	2	0	14	0	40	38	3	0	13	0	54	0	0	0	0	0	0	10	0	0	0	0	10	104
14:45	38	2	0	12	0	52	40	1	0	12	1	54	0	0	0	0	0	0	17	0	0	0	0	17	123
1 Hr	113	6	0	49	0	168	158	10	1	47	1	217	0	0	0	0	0	0	57	1	0	0	0	58	443
Check						168						217						0						58	443
15:00	36	2	0	13	0	51	60	3	0	13	0	76	0	0	0	0	0	0	17	0	0	0	0	17	144
15:15	29	0	0	11	0	40	33	1	0	8	1	43	0	0	0	0	0	0	14	1	0	0	0	15	98
15:30	36	0	0	12	0	48	39	1	0	14	2	56	0	0	0	0	0	0	22	0	0	0	0	22	126
15:45	35	1	0	8	0	44	48	4	0	11	0	63	1	0	0	0	0	1	11	2	0	0	0	13	121
1 Hr	136	3	0	44	0	183	180	9	0	46	3	238	1	0	0	0	0	1	64	3	0	0	0	67	489
Check						183						238						1						67	489
Total	781	34	0	299	4	1118	1044	62	6	289	12	1413	2	1	0	0	0	3	292	13	2	0	1	308	2842
Check						1118						1413						3						308	2842

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Saturday 29th January 2011

Weather : Mild / Cloudy / Light Rain
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
10:00	22	4	0	15	1	42	27	2	0	13	0	42	0	0	0	0	0	0	6	3	1	0	0	10	94
10:15	20	3	0	11	0	34	39	3	2	14	1	59	0	0	0	0	0	0	8	1	0	0	0	9	102
10:30	38	1	0	13	1	53	36	3	0	16	0	55	0	0	0	0	0	0	12	1	0	0	0	13	121
10:45	29	3	0	9	0	41	46	3	0	8	1	58	0	0	0	0	0	0	7	1	0	0	1	9	108
1 Hr	109	11	0	48	2	170	148	11	2	51	2	214	0	0	0	0	0	0	33	6	1	0	1	41	425
Check						170						214						0						41	425
11:00	34	0	0	12	0	46	39	1	0	16	0	56	0	0	0	0	0	0	10	1	0	0	0	11	113
11:15	33	2	0	11	0	46	41	3	0	11	0	55	0	0	0	0	0	0	9	1	0	0	0	10	111
11:30	49	2	2	13	0	66	47	0	0	15	1	63	0	0	0	0	0	0	11	2	0	0	0	13	142
11:45	36	3	0	10	0	49	38	4	0	10	0	52	0	0	0	0	0	0	5	1	0	0	0	6	107
1 Hr	152	7	2	46	0	207	165	8	0	52	1	226	0	0	0	0	0	0	35	5	0	0	0	40	473
Check						207						226						0						40	473
12:00	35	3	1	16	1	56	61	1	0	12	0	74	0	0	0	0	0	0	9	1	0	0	0	10	140
12:15	49	4	0	8	1	62	39	4	0	15	1	59	0	0	0	0	0	0	8	1	0	0	0	9	130
12:30	40	1	0	16	0	57	49	4	0	16	0	69	0	0	0	0	0	0	6	0	0	0	0	6	132
12:45	48	0	0	9	1	58	47	2	0	8	1	58	0	0	0	0	0	0	14	0	0	0	0	14	130
1 Hr	172	8	1	49	3	233	196	11	0	51	2	260	0	0	0	0	0	0	37	2	0	0	0	39	532
Check						233						260						0						39	532
13:00	48	2	0	17	0	67	53	2	0	15	0	70	0	0	0	0	0	0	5	0	0	0	0	5	142
13:15	36	1	0	9	0	46	40	0	0	13	0	53	0	0	1	0	0	1	9	0	0	0	0	9	109
13:30	29	0	0	12	0	41	53	2	0	11	0	66	0	0	0	0	0	0	7	0	0	0	0	7	114
13:45	28	1	0	15	2	46	49	0	0	13	0	62	0	0	0	0	0	0	6	1	0	0	0	7	115
1 Hr	141	4	0	53	2	200	195	4	0	52	0	251	0	0	1	0	0	1	27	1	0	0	0	28	480
Check						200						251						1						28	480
14:00	38	4	0	15	0	57	38	1	0	12	0	51	0	0	0	0	0	0	5	0	0	0	0	5	113
14:15	32	3	0	7	0	42	43	1	0	11	0	55	0	0	1	0	0	1	5	0	0	0	0	5	103
14:30	37	2	0	13	0	52	34	2	0	14	0	50	0	0	0	0	0	0	1	1	0	0	0	2	104
14:45	34	1	0	12	1	48	55	2	0	12	0	69	0	0	0	0	0	0	6	0	0	0	0	6	123
1 Hr	141	10	0	47	1	199	170	6	0	49	0	225	0	0	1	0	0	1	17	1	0	0	0	18	443
Check						199						225						1						18	443
15:00	53	1	0	13	0	67	52	2	0	13	0	67	0	0	0	0	0	0	8	2	0	0	0	10	144
15:15	27	0	0	8	1	36	43	1	0	11	0	55	0	0	0	0	0	0	6	1	0	0	0	7	98
15:30	34	0	0	14	0	48	58	0	0	12	0	70	0	0	0	0	0	0	5	1	0	0	2	8	126
15:45	43	0	0	11	0	54	47	3	0	8	0	58	0	0	0	0	0	0	5	4	0	0	0	9	121
1 Hr	157	1	0	46	1	205	200	6	0	44	0	250	0	0	0	0	0	0	24	8	0	0	2	34	489
Check						205						250						0						34	489
Total	872	41	3	289	9	1214	1074	46	2	299	5	1426	0	0	2	0	0	2	173	23	1	0	3	200	2842
Check						1214						1426						2						200	2842

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : A - Schwabisch Gmund Way

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	0	0	0	0	0	0	52	6	0	12	0	70	0	0	0	0	0	0	0	0	0	0	0	0	70
16:15	0	0	0	0	0	0	55	6	0	14	0	75	0	0	0	0	0	0	0	0	0	0	0	0	75
16:30	0	0	0	0	0	0	76	9	0	10	1	96	0	0	0	0	0	0	0	0	0	0	0	0	96
16:45	0	0	0	0	0	0	69	5	0	12	0	86	0	0	0	0	0	0	0	0	0	0	0	0	86
1 Hr	0	0	0	0	0	0	252	26	0	48	1	327	0	0	0	0	0	0	0	0	0	0	0	0	327
Check						0						327						0						0	327
17:00	0	0	0	0	0	0	92	6	0	7	0	105	0	0	0	0	0	0	0	0	0	0	0	0	105
17:15	0	0	0	0	0	0	82	2	0	13	1	98	0	0	0	0	0	0	0	0	0	0	0	0	98
17:30	0	0	0	0	0	0	76	2	0	10	2	90	0	0	0	0	0	0	0	0	0	0	0	0	90
17:45	0	0	0	0	0	0	60	3	0	11	0	74	0	0	0	0	0	0	0	0	0	0	0	0	74
1 Hr	0	0	0	0	0	0	310	13	0	41	3	367	0	0	0	0	0	0	0	0	0	0	0	0	367
Check						0						367						0						0	367
Total	0	0	0	0	0	0	562	39	0	89	4	694	0	0	0	0	0	0	0	0	0	0	0	0	694
Check						0						694						0						0	694

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : B - Kendray Street (e)

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	53	13	0	12	1	79	0	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	9	88
16:15	58	4	0	9	2	73	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	76
16:30	50	2	0	12	3	67	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	71
16:45	71	6	0	7	0	84	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	86
1 Hr	232	25	0	40	6	303	0	0	0	0	0	0	0	1	0	0	0	1	11	6	0	0	0	17	321
Check						303						0						1						17	321
17:00	51	5	0	8	1	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65
17:15	41	6	0	14	0	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61
17:30	46	2	0	8	0	56	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	57
17:45	55	5	0	14	1	75	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	77
1 Hr	193	18	0	44	2	257	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	260
Check						257						0						0						3	260
Total	425	43	0	84	8	560	0	0	0	0	0	0	0	1	0	0	0	1	13	7	0	0	0	20	581
Check						560						0						1						20	581

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : C - Car Park

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Check						0						0						0						0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Check						0						1						0						0	1
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Check						0						1						0						0	1

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

Entry : D - Kendray Street (w)

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	0	0	0	0	0	0	19	4	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	23
16:15	0	0	0	0	0	0	18	5	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	23
16:30	0	0	0	0	0	0	19	4	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	23
16:45	0	0	0	0	0	0	26	5	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	31
1 Hr	0	0	0	0	0	0	82	18	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100
Check						0						100						0						0	100
17:00	0	0	0	0	0	0	17	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	17
17:15	0	0	0	0	0	0	25	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	25
17:30	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
17:45	0	0	0	0	0	0	25	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	25
1 Hr	0	0	0	0	0	0	77	0	0	0	0	77	0	0	0	0	0	0	0	0	0	0	0	0	77
Check						0						77						0						0	77
Total	0	0	0	0	0	0	159	18	0	0	0	177	0	0	0	0	0	0	0	0	0	0	0	0	177
Check						0						177						0						0	177

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

ORIGIN SUMMARY

	Origin : A - Schwabisch Gmund Way						Origin : B - Kendray Street (e)						Origin : C - Car Park						Origin : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	52	6	0	12	0	70	57	18	0	12	1	88	0	0	0	0	0	0	19	4	0	0	0	23	181
16:15	55	6	0	14	0	75	60	5	0	9	2	76	0	0	0	0	0	0	18	5	0	0	0	23	174
16:30	76	9	0	10	1	96	54	2	0	12	3	71	0	0	0	0	0	0	19	4	0	0	0	23	190
16:45	69	5	0	12	0	86	72	7	0	7	0	86	0	0	0	0	0	0	26	5	0	0	0	31	203
1 Hr	252	26	0	48	1	327	243	32	0	40	6	321	0	0	0	0	0	0	82	18	0	0	0	100	748
Check						327						321						0						100	748
17:00	92	6	0	7	0	105	51	5	0	8	1	65	0	0	0	0	0	0	17	0	0	0	0	17	187
17:15	82	2	0	13	1	98	41	6	0	14	0	61	0	1	0	0	0	1	25	0	0	0	0	25	185
17:30	76	2	0	10	2	90	47	2	0	8	0	57	0	0	0	0	0	0	10	0	0	0	0	10	157
17:45	60	3	0	11	0	74	56	6	0	14	1	77	0	0	0	0	0	0	25	0	0	0	0	25	176
1 Hr	310	13	0	41	3	367	195	19	0	44	2	260	0	1	0	0	0	1	77	0	0	0	0	77	705
Check						367						260						1						77	705
Total	562	39	0	89	4	694	438	51	0	84	8	581	0	1	0	0	0	1	159	18	0	0	0	177	1453
Check						694						581						1						177	1453

SKY HIGH TRAFFIC SURVEYS
A DIVISION OF SKY HIGH PLC

Client : MVA Consulting
Project : Barnsley Traffic Survey
Site : 3 - Kendray Street / Interchange Way
Date : Wednesday 26th January 2011

Weather : Cold / Cloudy
Incidents : None Reported

DESTINATION SUMMARY

	Destination : A - Schwabisch Gmund Way						Destination : B - Kendray Street (e)						Destination : C - Car Park						Destination : D - Kendray Street (w)						Arm Totals
	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	Car	Lgv	Hgv	Bus	Mc	Total	
16:00	53	13	0	12	1	79	71	10	0	12	0	93	0	0	0	0	0	0	4	5	0	0	0	9	181
16:15	58	4	0	9	2	73	73	11	0	14	0	98	0	0	0	0	0	0	2	1	0	0	0	3	174
16:30	50	2	0	12	3	67	95	13	0	10	1	119	0	0	0	0	0	0	4	0	0	0	0	4	190
16:45	71	6	0	7	0	84	95	10	0	12	0	117	0	1	0	0	0	1	1	0	0	0	0	1	203
1 Hr	232	25	0	40	6	303	334	44	0	48	1	427	0	1	0	0	0	1	11	6	0	0	0	17	748
Check						303						427						1						17	748
17:00	51	5	0	8	1	65	109	6	0	7	0	122	0	0	0	0	0	0	0	0	0	0	0	0	187
17:15	41	6	0	14	0	61	107	3	0	13	1	124	0	0	0	0	0	0	0	0	0	0	0	0	185
17:30	46	2	0	8	0	56	86	2	0	10	2	100	0	0	0	0	0	0	1	0	0	0	0	1	157
17:45	55	5	0	14	1	75	85	3	0	11	0	99	0	0	0	0	0	0	1	1	0	0	0	2	176
1 Hr	193	18	0	44	2	257	387	14	0	41	3	445	0	0	0	0	0	0	2	1	0	0	0	3	705
Check						257						445						0						3	705
Total	425	43	0	84	8	560	721	58	0	89	4	872	0	1	0	0	0	1	13	7	0	0	0	20	1453
Check						560						872						1						20	1453

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	A □□							A □C						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	1	0	0	0	0	0	1	1	0	0	0	0	0	1
07:15	0	0	0	0	0	0	0	5	3	1	0	0	0	9
07:30	0	0	0	0	0	0	0	13	0	0	0	2	0	15
07:45	0	0	0	0	0	0	0	11	0	0	0	0	0	11
□T□T	1	0	0	0	0	0	1	30	3	1	0	2	0	36
08:00	0	0	0	0	0	0	0	16	1	0	0	0	0	17
08:15	2	0	0	0	0	0	2	10	1	0	0	0	0	11
08:30	5	0	1	0	0	0	6	12	1	1	0	0	0	14
08:45	3	0	0	0	0	0	3	10	1	0	0	0	0	11
□T□T	10	0	1	0	0	0	11	48	4	1	0	0	0	53
09:00	3	0	0	0	0	0	3	14	4	0	0	0	0	18
09:15	4	0	0	0	0	0	4	7	1	0	0	0	0	8
09:30	7	0	0	0	0	0	7	8	0	2	0	0	0	10
09:45	11	1	0	0	0	0	12	11	3	0	0	0	0	14
□T□T	25	1	0	0	0	0	26	40	8	2	0	0	0	50
10:00	7	2	0	0	0	0	9	14	1	0	0	0	0	15
10:15	9	0	0	0	0	0	9	12	2	0	0	0	0	14
10:30	13	0	0	0	0	0	13	9	0	0	0	0	0	9
10:45	12	1	0	0	0	0	13	18	1	0	0	0	0	19
□T□T	41	3	0	0	0	0	44	53	4	0	0	0	0	57
11:00	19	4	0	0	0	0	23	19	0	0	0	0	0	19
11:15	6	0	0	0	0	0	6	17	0	0	0	0	0	17
11:30	15	0	0	0	0	0	15	12	2	1	0	0	0	15
11:45	13	0	0	0	0	0	13	18	0	0	0	0	0	18
□T□T	53	4	0	0	0	0	57	66	2	1	0	0	0	69
12:00	28	0	0	0	0	0	28	18	0	0	0	0	0	18
12:15	10	2	0	0	0	0	12	29	0	0	0	1	0	30
12:30	12	3	0	0	0	0	15	32	0	0	0	0	0	32
12:45	11	0	0	0	0	0	11	23	5	0	0	0	0	28
□T□T	61	5	0	0	0	0	66	102	5	0	0	1	0	108
13:00	14	0	0	0	0	0	14	21	4	0	1	0	0	26
13:15	10	0	0	0	0	0	10	23	1	0	0	0	0	24
13:30	18	0	0	0	0	0	18	30	1	0	0	2	0	33
13:45	14	0	0	0	0	0	14	28	2	0	0	1	0	31
□T□T	56	0	0	0	0	0	56	102	8	0	1	3	0	114
14:00	14	0	0	0	0	0	14	25	3	0	0	0	0	28
14:15	14	0	0	0	0	0	14	24	0	0	0	0	0	24
14:30	14	1	0	0	0	0	15	29	3	0	0	0	0	32
14:45	15	1	0	0	0	0	16	19	2	0	0	0	0	21
□T□T	57	2	0	0	0	0	59	97	8	0	0	0	0	105
15:00	18	0	0	0	0	0	18	30	0	0	0	0	0	30
15:15	16	0	0	0	0	0	16	37	0	0	0	0	0	37
15:30	11	1	0	0	0	0	12	28	4	0	0	0	0	32
15:45	7	0	0	0	0	0	7	30	0	3	0	3	0	36
□T□T	52	1	0	0	0	0	53	125	4	3	0	3	0	135
16:00	14	0	0	0	0	0	14	27	3	0	0	0	0	30
16:15	29	1	0	0	0	0	30	6	4	0	0	0	0	10
16:30	10	0	0	0	1	0	11	28	1	0	0	0	0	29
16:45	10	2	0	0	0	0	12	31	4	1	0	0	0	36
□T□T	63	3	0	0	1	0	67	92	12	1	0	0	0	105
17:00	6	1	0	0	0	0	7	37	3	0	0	0	0	40
17:15	5	1	0	0	0	0	6	28	3	0	0	0	0	31
17:30	6	0	0	0	0	0	6	18	0	1	0	0	0	19
17:45	1	0	0	0	0	0	1	22	2	0	0	0	0	24
□T□T	18	2	0	0	0	0	20	105	8	1	0	0	0	114
18:00	5	0	0	0	0	0	5	11	2	0	0	0	0	13
18:15	0	0	0	0	0	0	0	8	0	0	0	0	0	8
18:30	2	0	0	0	0	0	2	2	0	0	0	0	0	2
18:45	1	0	0	0	0	0	1	8	2	0	0	1	0	11
□T□T	8	0	0	0	0	0	8	29	4	0	0	1	0	34
P□T□T	445	21	1	0	1	0	468	889	70	10	1	10	0	980

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	A □B							A □A						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	22	4	1	0	0	0	27	0	0	0	0	0	0	0
07:15	24	10	0	0	0	0	34	0	0	0	0	0	0	0
07:30	31	3	3	0	0	0	37	0	0	0	0	0	0	0
07:45	30	5	2	0	1	0	38	0	0	0	0	0	0	0
□T□T	107	22	6	0	1	0	136	0	0	0	0	0	0	0
08:00	45	9	1	0	0	0	55	0	0	0	0	0	0	0
08:15	48	7	0	0	2	0	57	1	0	0	0	0	0	1
08:30	44	4	1	0	0	0	49	0	0	0	0	0	0	0
08:45	53	1	2	0	1	0	57	1	0	0	0	0	0	1
□T□T	190	21	4	0	3	0	218	2	0	0	0	0	0	2
09:00	52	0	2	0	0	0	54	0	0	0	0	0	0	0
09:15	26	6	0	0	0	0	32	0	0	0	0	0	0	0
09:30	24	6	0	0	0	0	30	0	0	0	0	0	0	0
09:45	32	1	1	0	0	0	34	0	0	0	0	0	0	0
□T□T	134	13	3	0	0	0	150	0	0	0	0	0	0	0
10:00	29	1	0	0	2	0	32	0	0	0	0	0	0	0
10:15	25	0	0	0	1	0	26	1	0	0	0	0	0	1
10:30	28	10	1	0	0	0	39	0	0	0	0	0	0	0
10:45	32	0	0	0	0	0	32	0	0	0	0	0	0	0
□T□T	114	11	1	0	3	0	129	1	0	0	0	0	0	1
11:00	26	2	0	0	0	0	28	0	0	0	0	0	0	0
11:15	46	4	0	0	0	0	50	0	0	0	0	0	0	0
11:30	37	4	0	0	0	0	41	0	0	0	0	0	0	0
11:45	34	3	0	0	0	0	37	0	0	0	0	0	0	0
□T□T	143	13	0	0	0	0	156	0	0	0	0	0	0	0
12:00	24	5	0	0	0	0	29	0	0	0	0	0	0	0
12:15	29	4	0	0	0	0	33	0	0	0	0	0	0	0
12:30	31	1	1	0	0	0	33	0	0	0	0	0	0	0
12:45	23	3	0	0	0	0	26	0	0	0	0	0	0	0
□T□T	107	13	1	0	0	0	121	0	0	0	0	0	0	0
13:00	27	1	0	0	0	0	28	0	0	0	0	0	0	0
13:15	39	5	0	0	0	0	44	1	0	0	0	0	0	1
13:30	37	5	1	0	0	0	43	0	0	0	0	0	0	0
13:45	30	2	0	0	0	0	32	0	0	0	0	0	0	0
□T□T	133	13	1	0	0	0	147	1	0	0	0	0	0	1
14:00	26	2	0	0	0	0	28	0	0	0	0	0	0	0
14:15	34	2	0	0	0	0	36	0	0	0	0	0	0	0
14:30	26	2	0	0	0	0	28	0	0	0	0	0	0	0
14:45	19	2	1	0	0	0	22	0	0	0	0	0	0	0
□T□T	105	8	1	0	0	0	114	0	0	0	0	0	0	0
15:00	52	3	1	0	0	0	56	0	0	0	0	0	0	0
15:15	4	3	0	0	0	0	7	0	0	0	0	0	0	0
15:30	28	3	0	0	0	0	31	0	0	0	0	0	0	0
15:45	23	0	0	0	0	0	23	0	0	0	0	0	0	0
□T□T	107	9	1	0	0	0	117	0	0	0	0	0	0	0
16:00	31	4	0	0	0	0	35	0	0	0	0	0	0	0
16:15	33	1	0	0	0	0	34	0	0	0	0	0	0	0
16:30	30	3	0	0	0	0	33	0	0	0	0	0	0	0
16:45	29	4	1	0	0	0	34	0	0	0	0	0	0	0
□T□T	123	12	1	0	0	0	136	0	0	0	0	0	0	0
17:00	24	7	2	0	0	0	33	0	0	0	0	0	0	0
17:15	31	5	0	0	0	0	36	0	0	0	0	0	0	0
17:30	18	2	0	0	0	0	20	0	0	0	0	0	0	0
17:45	26	2	1	0	0	0	29	0	0	0	0	0	0	0
□T□T	99	16	3	0	0	0	118	0	0	0	0	0	0	0
18:00	37	2	0	0	0	0	39	0	0	0	0	0	0	0
18:15	33	3	0	1	0	0	37	0	0	0	0	0	0	0
18:30	33	0	0	0	0	0	33	0	0	0	0	0	0	0
18:45	27	0	0	0	0	0	27	0	0	0	0	0	0	0
□T□T	130	5	0	1	0	0	136	0	0	0	0	0	0	0
P□T□T	1492	156	22	1	7	0	1678	4	0	0	0	0	0	4

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	B □A							B □□						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	7	1	3	0	0	0	11	40	8	5	0	0	0	53
07:15	14	6	1	0	0	0	21	30	13	7	2	0	0	52
07:30	20	4	1	0	0	0	25	61	8	6	3	1	0	79
07:45	24	7	2	0	0	0	33	74	10	5	0	0	0	89
□T□T	65	18	7	0	0	0	90	205	39	23	5	1	0	273
08:00	17	7	0	0	0	0	24	55	5	11	2	0	0	73
08:15	28	1	0	0	1	0	30	76	14	11	0	0	0	101
08:30	18	2	0	0	0	0	20	86	11	7	0	0	0	104
08:45	34	5	0	0	0	0	39	74	8	6	0	0	0	88
□T□T	97	15	0	0	1	0	113	291	38	35	2	0	0	366
09:00	34	2	0	0	1	0	37	78	9	7	0	2	0	96
09:15	40	1	0	0	0	0	41	62	6	9	6	0	0	83
09:30	33	4	0	0	2	0	39	67	15	5	4	0	0	91
09:45	36	3	1	1	0	0	41	71	16	2	11	2	0	102
□T□T	143	10	1	1	3	0	158	278	46	23	21	4	0	372
10:00	35	7	0	0	1	0	43	88	18	14	2	0	0	122
10:15	39	5	0	1	1	0	46	87	14	0	0	0	0	101
10:30	29	11	0	0	1	0	41	78	14	7	1	0	0	100
10:45	39	4	2	0	0	0	45	84	18	4	5	4	0	115
□T□T	142	27	2	1	3	0	175	337	64	25	8	4	0	438
11:00	30	5	0	0	2	0	37	86	20	12	0	0	0	118
11:15	39	5	1	0	0	0	45	50	13	6	0	2	0	71
11:30	29	5	0	1	0	0	35	74	25	5	0	3	0	107
11:45	38	6	0	0	0	0	44	81	20	0	0	0	0	101
□T□T	136	21	1	1	2	0	161	291	78	23	0	5	0	397
12:00	44	3	1	0	1	0	49	91	15	4	1	2	0	113
12:15	36	4	0	0	1	0	41	91	7	12	2	0	0	112
12:30	40	3	0	0	0	0	43	83	13	12	0	0	0	108
12:45	35	5	1	0	1	0	42	78	7	6	2	0	0	93
□T□T	155	15	2	0	3	0	175	343	42	34	5	2	0	426
13:00	46	5	2	0	0	0	53	94	10	8	0	2	0	114
13:15	48	8	1	1	1	0	59	81	11	8	0	6	0	106
13:30	41	5	0	0	0	0	46	79	12	10	0	1	0	102
13:45	27	3	1	0	0	0	31	94	12	6	0	0	0	112
□T□T	162	21	4	1	1	0	189	348	45	32	0	9	0	434
14:00	31	1	0	2	0	0	34	100	14	12	0	1	0	127
14:15	40	2	1	0	0	0	43	96	16	5	0	0	0	117
14:30	30	3	0	0	0	0	33	87	8	3	0	2	0	100
14:45	29	6	0	0	0	0	35	106	6	9	1	0	0	122
□T□T	130	12	1	2	0	0	145	389	44	29	1	3	0	466
15:00	34	0	0	1	0	0	35	87	22	7	0	0	0	116
15:15	29	4	0	0	0	0	33	67	6	6	0	0	0	79
15:30	39	4	1	0	1	0	45	84	8	5	2	8	0	107
15:45	30	3	0	0	0	0	33	91	18	7	0	0	0	116
□T□T	132	11	1	1	1	0	146	329	54	25	2	8	0	418
16:00	41	1	1	1	1	0	45	90	18	0	0	0	0	108
16:15	33	4	1	0	1	0	39	71	13	19	0	3	0	106
16:30	38	2	0	0	1	1	42	81	7	15	3	1	0	107
16:45	29	1	1	0	0	0	31	90	12	5	0	2	0	109
□T□T	141	8	3	1	3	1	157	332	50	39	3	6	0	430
17:00	41	1	0	0	0	0	42	96	6	4	0	2	0	108
17:15	28	3	0	0	2	0	33	139	8	0	0	2	0	149
17:30	21	0	0	0	0	0	21	136	6	1	0	2	0	145
17:45	24	3	0	0	0	0	27	98	4	3	0	0	0	105
□T□T	114	7	0	0	2	0	123	469	24	8	0	6	0	507
18:00	27	3	0	0	0	0	30	83	6	0	0	0	0	89
18:15	19	3	0	0	1	0	23	115	3	1	0	0	0	119
18:30	23	1	0	0	3	0	27	81	9	2	0	0	0	92
18:45	18	0	0	0	1	0	19	75	1	3	0	0	0	79
□T□T	87	7	0	0	5	0	99	354	19	6	0	0	0	379
P□T□T	1504	172	22	8	24	1	1731	3966	543	302	47	48	0	4906

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	B □C							B □B						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	37	5	0	0	0	0	42	0	0	0	0	0	0	0
07:15	47	17	9	0	0	0	73	0	0	0	0	0	0	0
07:30	71	20	4	0	0	0	95	1	0	0	0	0	0	1
07:45	91	18	7	0	0	0	116	0	0	1	0	0	0	1
□T□T	246	60	20	0	0	0	326	1	0	1	0	0	0	2
08:00	98	19	4	0	2	0	123	0	0	0	0	0	0	0
08:15	111	21	3	0	0	0	135	0	0	0	0	0	0	0
08:30	94	21	5	0	0	0	120	2	0	0	0	0	0	2
08:45	77	14	6	0	0	0	97	0	0	0	0	0	0	0
□T□T	380	75	18	0	2	0	475	2	0	0	0	0	0	2
09:00	100	10	5	0	0	0	115	0	0	0	0	0	0	0
09:15	110	25	4	0	1	0	140	1	0	0	0	0	0	1
09:30	116	16	8	0	0	0	140	0	0	0	0	0	0	0
09:45	92	9	10	3	0	0	114	2	0	0	0	0	0	2
□T□T	418	60	27	3	1	0	509	3	0	0	0	0	0	3
10:00	116	18	10	0	0	0	144	1	0	0	0	0	0	1
10:15	116	16	8	2	0	0	142	5	1	0	0	0	0	6
10:30	113	13	8	0	0	0	134	4	0	0	0	0	0	4
10:45	116	21	9	0	0	0	146	1	0	0	0	0	0	1
□T□T	461	68	35	2	0	0	566	11	1	0	0	0	0	12
11:00	101	13	0	2	0	0	116	3	0	0	0	0	0	3
11:15	134	12	4	1	1	0	152	2	0	1	0	0	0	3
11:30	122	9	7	5	0	0	143	2	1	0	0	0	0	3
11:45	119	15	5	1	0	0	140	1	0	0	0	0	0	1
□T□T	476	49	16	9	1	0	551	8	1	1	0	0	0	10
12:00	144	21	4	0	0	0	169	0	0	0	0	0	0	0
12:15	139	26	0	0	0	0	165	0	0	0	0	0	0	0
12:30	120	21	0	3	4	0	148	0	0	0	0	0	0	0
12:45	122	23	5	0	2	0	152	1	0	0	0	0	0	1
□T□T	525	91	9	3	6	0	634	1	0	0	0	0	0	1
13:00	137	17	6	2	0	0	162	2	0	0	0	0	0	2
13:15	129	16	1	0	0	0	146	1	0	0	0	0	0	1
13:30	118	13	4	0	1	0	136	2	1	0	0	0	0	3
13:45	107	20	4	0	2	0	133	3	1	0	0	0	0	4
□T□T	491	66	15	2	3	0	577	8	2	0	0	0	0	10
14:00	137	12	0	0	2	0	151	2	0	0	0	0	0	2
14:15	105	18	4	0	0	0	127	3	0	0	0	0	0	3
14:30	122	15	0	0	2	0	139	1	0	0	0	0	0	1
14:45	118	20	1	1	2	1	143	0	0	0	0	0	0	0
□T□T	482	65	5	1	6	1	560	6	0	0	0	0	0	6
15:00	121	15	3	0	2	0	141	1	1	0	0	0	0	2
15:15	176	14	4	0	0	0	194	3	0	0	0	0	0	3
15:30	137	18	6	0	2	0	163	4	1	0	0	0	0	5
15:45	153	15	0	0	0	0	168	0	0	0	0	0	0	0
□T□T	587	62	13	0	4	0	666	8	2	0	0	0	0	10
16:00	156	16	0	0	7	0	179	3	0	0	0	0	0	3
16:15	187	24	6	0	3	0	220	1	0	0	0	0	0	1
16:30	170	36	4	0	3	0	213	2	0	0	0	0	0	2
16:45	175	12	3	0	1	0	191	0	0	0	0	0	0	0
□T□T	688	88	13	0	14	0	803	6	0	0	0	0	0	6
17:00	188	17	2	0	0	2	209	2	0	0	0	0	0	2
17:15	176	13	0	0	4	0	193	2	0	0	0	0	0	2
17:30	179	21	0	0	2	0	202	1	1	0	0	0	0	2
17:45	148	17	0	0	2	0	167	2	0	0	0	0	0	2
□T□T	691	68	2	0	8	2	771	7	1	0	0	0	0	8
18:00	151	9	0	2	3	1	166	0	0	0	0	0	0	0
18:15	109	11	0	0	0	0	120	1	0	0	0	0	0	1
18:30	88	7	0	0	0	0	95	0	0	0	0	0	0	0
18:45	105	11	2	0	1	0	119	0	1	0	0	0	0	1
□T□T	453	38	2	2	4	1	500	1	1	0	0	0	0	2
P□T□T	5898	790	175	22	49	4	6938	62	8	2	0	0	0	72

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	C □B							C □A						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	75	13	0	0	1	0	89	5	1	1	0	0	0	7
07:15	88	15	2	0	1	2	108	2	0	0	0	0	0	2
07:30	107	12	0	0	3	3	125	5	3	0	0	0	0	8
07:45	126	20	4	1	3	0	154	9	4	0	0	0	0	13
□T□T	396	60	6	1	8	5	476	21	8	1	0	0	0	30
08:00	155	25	1	0	1	0	182	6	0	0	0	0	0	6
08:15	139	20	3	1	1	0	164	18	2	0	0	0	0	20
08:30	131	15	1	1	1	0	149	21	3	1	0	0	0	25
08:45	115	14	4	0	0	0	133	16	0	0	0	0	0	16
□T□T	540	74	9	2	3	0	628	61	5	1	0	0	0	67
09:00	112	21	2	0	2	0	137	42	0	0	0	0	0	42
09:15	130	12	4	0	2	0	148	22	0	0	0	0	0	22
09:30	139	12	4	1	1	0	157	39	0	3	0	0	0	42
09:45	108	15	4	2	0	0	129	43	0	0	0	0	0	43
□T□T	489	60	14	3	5	0	571	146	0	3	0	0	0	149
10:00	109	10	2	0	0	0	121	40	0	0	0	0	0	40
10:15	98	21	2	0	2	0	123	31	1	0	0	0	0	32
10:30	110	11	8	2	0	0	131	35	0	0	0	0	0	35
10:45	110	15	6	0	1	0	132	21	3	0	0	0	0	24
□T□T	427	57	18	2	3	0	507	127	4	0	0	0	0	131
11:00	96	11	3	1	0	0	111	35	1	0	0	0	0	36
11:15	62	9	6	0	0	0	77	36	0	1	0	0	0	37
11:30	62	15	2	0	1	0	80	38	0	0	0	0	0	38
11:45	130	16	4	0	1	0	151	33	0	0	0	1	0	34
□T□T	350	51	15	1	2	0	419	142	1	1	0	1	0	145
12:00	105	13	4	1	0	0	123	26	0	0	0	0	0	26
12:15	95	16	1	0	2	0	114	22	2	0	0	0	0	24
12:30	123	14	2	0	1	0	140	15	0	0	0	0	0	15
12:45	112	13	0	0	1	0	126	29	0	0	0	0	0	29
□T□T	435	56	7	1	4	0	503	92	2	0	0	0	0	94
13:00	104	13	5	2	0	0	124	24	0	1	0	0	0	25
13:15	120	10	3	2	3	0	138	20	1	0	0	0	0	21
13:30	97	15	3	1	2	0	118	22	1	0	0	0	0	23
13:45	107	9	4	3	2	0	125	16	0	0	0	0	0	16
□T□T	428	47	15	8	7	0	505	82	2	1	0	0	0	85
14:00	113	9	4	0	0	0	126	28	2	0	0	0	0	30
14:15	102	13	4	2	4	0	125	15	3	0	0	0	0	18
14:30	103	17	5	0	4	0	129	13	0	0	0	0	0	13
14:45	102	13	9	1	1	0	126	14	0	0	0	0	0	14
□T□T	420	52	22	3	9	0	506	70	5	0	0	0	0	75
15:00	128	17	5	1	0	0	151	11	3	0	0	0	0	14
15:15	133	6	2	0	1	0	142	2	2	0	0	0	0	4
15:30	109	15	3	0	0	0	127	20	1	1	0	0	0	22
15:45	122	8	1	1	6	0	138	22	2	0	0	0	0	24
□T□T	492	46	11	2	7	0	558	55	8	1	0	0	0	64
16:00	121	8	2	2	1	0	134	16	0	0	0	0	0	16
16:15	97	17	3	0	4	0	121	10	0	0	0	0	0	10
16:30	89	10	3	3	2	0	107	11	0	0	0	0	0	11
16:45	89	22	0	4	1	0	116	4	0	0	0	0	0	4
□T□T	396	57	8	9	8	0	478	41	0	0	0	0	0	41
17:00	117	11	2	0	3	0	133	6	3	0	0	0	0	9
17:15	102	7	2	2	2	0	115	7	0	0	0	0	0	7
17:30	112	17	1	0	2	0	132	7	0	0	0	0	0	7
17:45	112	14	2	0	2	0	130	3	0	0	0	0	0	3
□T□T	443	49	7	2	9	0	510	23	3	0	0	0	0	26
18:00	112	13	3	1	0	1	130	4	0	0	0	0	0	4
18:15	104	7	1	0	1	0	113	1	0	0	0	0	0	1
18:30	104	9	2	1	0	1	117	6	0	0	0	0	0	6
18:45	82	10	0	0	1	0	93	5	0	0	0	0	0	5
□T□T	402	39	6	2	2	2	453	16	0	0	0	0	0	16
P□T□T	5218	648	138	36	67	7	6114	876	38	8	0	1	0	923

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	C □□							C □C						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	69	12	2	7	0	0	90	1	0	0	0	0	0	1
07:15	52	8	2	3	0	0	65	0	1	0	0	0	0	1
07:30	82	18	5	9	1	1	116	2	1	0	0	0	0	3
07:45	95	25	0	7	0	0	127	1	0	0	0	0	0	1
□T□T	298	63	9	26	1	1	398	4	2	0	0	0	0	6
08:00	99	23	4	7	3	1	137	2	1	0	0	0	0	3
08:15	99	20	3	8	2	0	132	1	0	0	0	0	0	1
08:30	112	14	1	8	0	0	135	3	0	0	0	0	0	3
08:45	122	19	0	5	1	0	147	10	4	1	0	0	0	15
□T□T	432	76	8	28	6	1	551	16	5	1	0	0	0	22
09:00	84	19	1	13	0	0	117	3	0	1	0	0	0	4
09:15	89	14	7	6	0	0	116	2	0	0	0	0	0	2
09:30	75	5	3	10	0	0	93	2	0	0	0	0	0	2
09:45	83	11	5	12	0	0	111	4	1	0	0	0	0	5
□T□T	331	49	16	41	0	0	437	11	1	1	0	0	0	13
10:00	85	9	3	13	0	0	110	5	0	4	0	0	0	9
10:15	81	14	4	6	0	0	105	5	0	0	0	0	0	5
10:30	80	7	4	11	0	0	102	5	2	0	0	0	0	7
10:45	80	13	2	12	5	0	112	7	0	0	0	0	0	7
□T□T	326	43	13	42	5	0	429	22	2	4	0	0	0	28
11:00	78	15	8	7	3	0	111	2	0	0	0	0	0	2
11:15	109	16	0	12	0	0	137	7	4	0	0	0	0	11
11:30	82	17	3	10	0	0	112	4	5	0	0	0	0	9
11:45	83	16	9	8	0	0	116	5	0	0	0	0	0	5
□T□T	352	64	20	37	3	0	476	18	9	0	0	0	0	27
12:00	89	14	5	12	2	0	122	1	0	0	0	0	0	1
12:15	84	12	3	6	1	0	106	3	1	0	0	0	0	4
12:30	80	17	3	12	0	0	112	3	0	0	0	0	0	3
12:45	73	10	1	10	0	0	94	4	0	0	0	2	0	6
□T□T	326	53	12	40	3	0	434	11	1	0	0	2	0	14
13:00	87	12	3	7	3	0	112	2	3	1	0	1	0	7
13:15	79	5	8	10	0	0	102	3	0	0	0	1	0	4
13:30	83	16	4	7	0	0	110	5	2	0	0	0	0	7
13:45	82	23	5	7	0	0	117	4	2	0	0	0	0	6
□T□T	331	56	20	31	3	0	441	14	7	1	0	2	0	24
14:00	82	9	4	10	0	0	105	3	0	1	0	0	0	4
14:15	66	5	0	4	0	0	75	5	0	0	0	0	0	5
14:30	74	19	9	14	2	0	118	4	1	0	0	0	0	5
14:45	92	14	8	10	0	0	124	3	0	0	0	0	0	3
□T□T	314	47	21	38	2	0	422	15	1	1	0	0	0	17
15:00	81	14	8	7	0	0	110	2	1	0	0	0	0	3
15:15	125	12	5	4	0	0	146	5	1	0	0	0	0	6
15:30	105	14	8	11	0	0	138	7	0	0	0	0	0	7
15:45	109	7	2	10	0	0	128	2	0	0	0	0	0	2
□T□T	420	47	23	32	0	0	522	16	2	0	0	0	0	18
16:00	110	13	5	9	0	0	137	5	1	0	0	0	0	6
16:15	101	15	6	8	0	0	130	4	0	1	0	0	0	5
16:30	103	14	2	13	2	0	134	3	0	0	0	0	0	3
16:45	127	9	5	6	3	0	150	3	0	0	0	0	0	3
□T□T	441	51	18	36	5	0	551	15	1	1	0	0	0	17
17:00	147	9	5	10	0	0	171	5	0	0	0	0	0	5
17:15	113	8	0	6	0	0	127	3	0	0	0	0	0	3
17:30	81	10	4	9	0	0	104	4	0	0	0	0	0	4
17:45	115	8	0	7	0	0	130	5	0	0	0	0	0	5
□T□T	456	35	9	32	0	0	532	17	0	0	0	0	0	17
18:00	125	7	0	7	0	0	139	4	0	0	0	0	0	4
18:15	95	6	1	10	0	0	112	3	0	0	0	0	0	3
18:30	72	8	2	8	0	0	90	2	0	0	0	0	0	2
18:45	88	9	3	5	0	0	105	1	0	0	0	0	0	1
□T□T	380	30	6	30	0	0	446	10	0	0	0	0	0	10
P□T□T	4407	614	175	413	28	2	5639	169	31	9	0	4	0	213

Count On Us
Transportation Data Collection

□□419 □BAR□□L□□ □□□P□TAL
□□L□ 2□□9
CLA□□□□□□ T□R□□□ C□□□T

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	□ □C							□ □B						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	47	15	7	9	1	0	79	69	14	7	3	0	0	93
07:15	60	12	2	7	0	0	81	66	3	5	0	0	1	75
07:30	62	15	3	10	1	0	91	84	14	7	4	0	0	109
07:45	89	15	7	12	0	0	123	107	16	6	0	0	0	129
□T□T	258	57	19	38	2	0	374	326	47	25	7	0	1	406
08:00	76	27	9	5	1	0	118	111	20	7	2	0	0	140
08:15	72	24	10	8	1	0	115	102	21	4	1	0	0	128
08:30	97	12	9	8	1	0	127	114	12	7	3	0	0	136
08:45	84	18	7	12	0	0	121	103	19	5	0	0	0	127
□T□T	329	81	35	33	3	0	481	430	72	23	6	0	0	531
09:00	69	17	4	10	0	0	100	90	10	13	5	0	0	118
09:15	55	10	6	8	0	0	79	82	15	10	0	2	0	109
09:30	62	7	6	12	1	0	88	102	16	7	0	0	0	125
09:45	89	14	6	8	1	0	118	90	14	9	0	0	0	113
□T□T	275	48	22	38	2	0	385	364	55	39	5	2	0	465
10:00	63	12	4	12	1	0	92	94	24	11	3	0	0	132
10:15	60	8	1	8	0	0	77	104	23	11	3	0	0	141
10:30	69	19	4	8	1	0	101	98	15	7	0	0	0	120
10:45	79	20	4	8	0	0	111	86	13	9	0	2	0	110
□T□T	271	59	13	36	2	0	381	382	75	38	6	2	0	503
11:00	69	7	6	9	1	0	92	98	14	10	1	0	0	123
11:15	71	6	5	11	4	0	97	104	15	6	0	0	1	126
11:30	77	12	9	7	2	0	107	109	12	9	0	0	0	130
11:45	87	6	4	12	3	0	112	101	11	7	0	0	0	119
□T□T	304	31	24	39	10	0	408	412	52	32	1	0	1	498
12:00	89	12	5	10	0	1	117	105	19	0	0	0	0	124
12:15	83	13	6	9	0	0	111	111	19	4	0	0	0	134
12:30	71	14	5	8	1	0	99	104	23	1	0	0	0	128
12:45	86	12	4	8	0	0	110	119	23	8	4	0	0	154
□T□T	329	51	20	35	1	1	437	439	84	13	4	0	0	540
13:00	73	18	7	10	2	0	110	119	23	1	0	0	0	143
13:15	76	14	2	8	0	1	101	96	14	1	0	1	0	112
13:30	96	18	3	7	0	0	124	118	12	3	0	0	0	133
13:45	103	14	5	6	4	0	132	94	12	2	1	4	0	113
□T□T	348	64	17	31	6	1	467	427	61	7	1	5	0	501
14:00	77	18	5	10	2	0	112	89	13	1	1	0	0	104
14:15	84	11	8	11	1	0	115	98	15	5	0	0	0	118
14:30	55	7	6	13	1	0	82	121	22	4	1	0	0	148
14:45	111	7	2	10	1	0	131	103	22	5	0	0	0	130
□T□T	327	43	21	44	5	0	440	411	72	15	2	0	0	500
15:00	82	7	1	10	0	0	100	102	18	10	5	0	0	135
15:15	1	10	7	12	1	0	31	192	15	0	0	0	0	207
15:30	97	11	2	3	1	0	114	99	9	4	0	1	0	113
15:45	90	7	3	4	1	0	105	113	19	0	0	0	0	132
□T□T	270	35	13	29	3	0	350	506	61	14	5	1	0	587
16:00	86	10	3	11	5	0	115	117	17	4	2	0	1	141
16:15	66	17	2	8	0	0	93	120	24	6	0	0	0	150
16:30	110	14	3	8	0	0	135	138	14	8	0	0	0	160
16:45	88	15	0	10	3	0	116	122	19	3	0	0	0	144
□T□T	350	56	8	37	8	0	459	497	74	21	2	0	1	595
17:00	94	14	4	5	2	1	120	111	9	6	0	1	0	127
17:15	75	7	0	10	3	0	95	136	10	3	0	2	0	151
17:30	103	9	3	6	3	0	124	153	21	2	0	1	0	177
17:45	104	11	3	9	0	0	127	128	15	4	1	2	0	150
□T□T	376	41	10	30	8	1	466	528	55	15	1	6	0	605
18:00	97	6	1	5	0	0	109	101	4	2	0	0	0	107
18:15	105	5	3	6	2	0	121	103	7	3	0	1	0	114
18:30	93	10	1	4	0	0	108	105	9	2	2	3	0	121
18:45	72	1	0	2	1	0	76	102	9	4	0	0	0	115
□T□T	367	22	5	17	3	0	414	411	29	11	2	4	0	457
P□T□T	3804	588	207	407	53	3	5062	5133	737	253	42	20	3	6188

SITE: 5 DATE: 08/07/2009

LOCATION: WEST WAY / SHEFFIELD ROAD DAY: WEDNESDAY

	□ □A							□ □□						
T□M□	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T	CAR	L□□	□□□1	□□□2	P□□	MCL	T□T
07:00	5	0	0	0	0	0	5	0	0	0	0	0	0	0
07:15	1	0	0	0	0	0	1	0	1	1	0	0	0	2
07:30	5	0	0	0	0	0	5	1	1	0	0	0	0	2
07:45	1	0	0	0	0	0	1	2	1	0	0	0	0	3
□T□T	12	0	0	0	0	0	12	3	3	1	0	0	0	7
08:00	4	0	0	0	0	0	4	1	0	0	0	0	0	1
08:15	5	0	0	0	0	0	5	1	1	0	0	0	0	2
08:30	6	0	0	0	0	0	6	1	1	0	0	0	0	2
08:45	15	2	0	0	0	0	17	2	0	0	0	0	0	2
□T□T	30	2	0	0	0	0	32	5	2	0	0	0	0	7
09:00	14	0	0	0	0	0	14	1	0	0	0	0	0	1
09:15	17	1	0	0	0	0	18	1	0	0	0	0	0	1
09:30	12	0	0	0	0	0	12	0	0	0	0	0	0	0
09:45	4	0	0	0	0	0	4	1	0	0	0	0	0	1
□T□T	47	1	0	0	0	0	48	3	0	0	0	0	0	3
10:00	16	0	0	0	0	0	16	0	1	1	0	0	0	2
10:15	16	1	0	0	0	0	17	1	1	0	0	0	0	2
10:30	15	0	0	0	0	0	15	0	1	0	0	0	0	1
10:45	10	3	0	0	0	0	13	3	0	1	0	0	0	4
□T□T	57	4	0	0	0	0	61	4	3	2	0	0	0	9
11:00	9	0	0	0	0	0	9	0	0	1	0	0	0	1
11:15	7	0	0	0	0	0	7	2	0	0	0	0	0	2
11:30	11	3	0	0	0	0	14	1	0	0	0	0	0	1
11:45	11	0	0	0	2	0	13	0	0	2	0	0	0	2
□T□T	38	3	0	0	2	0	43	3	0	3	0	0	0	6
12:00	14	0	0	0	0	0	14	1	0	0	0	0	0	1
12:15	9	0	0	0	0	0	9	0	0	0	0	0	0	0
12:30	24	0	0	0	0	0	24	2	0	0	0	0	0	2
12:45	8	0	0	0	0	0	8	0	0	0	0	0	0	0
□T□T	55	0	0	0	0	0	55	3	0	0	0	0	0	3
13:00	17	0	0	0	0	0	17	2	0	0	0	0	0	2
13:15	16	0	0	0	0	0	16	1	0	0	0	0	0	1
13:30	13	0	0	0	0	0	13	1	0	0	0	0	0	1
13:45	10	0	0	0	0	0	10	3	0	0	0	0	0	3
□T□T	56	0	0	0	0	0	56	7	0	0	0	0	0	7
14:00	6	0	0	0	0	0	6	2	0	0	0	0	0	2
14:15	4	2	0	0	0	0	6	2	1	0	0	0	0	3
14:30	4	0	0	0	0	0	4	2	0	1	0	0	0	3
14:45	4	0	0	0	0	0	4	2	0	0	0	0	0	2
□T□T	18	2	0	0	0	0	20	8	1	1	0	0	0	10
15:00	3	0	0	0	0	0	3	1	0	0	0	0	0	1
15:15	18	0	0	0	0	0	18	1	0	0	0	0	0	1
15:30	13	0	0	0	0	0	13	0	0	0	0	0	0	0
15:45	9	0	0	0	0	0	9	2	0	0	0	0	0	2
□T□T	43	0	0	0	0	0	43	4	0	0	0	0	0	4
16:00	2	2	0	0	0	0	4	1	0	0	0	1	0	2
16:15	12	0	0	0	0	0	12	3	0	0	0	0	0	3
16:30	7	0	0	0	0	0	7	2	1	0	0	0	0	3
16:45	4	0	0	0	0	0	4	1	0	0	0	0	0	1
□T□T	25	2	0	0	0	0	27	7	1	0	0	1	0	9
17:00	2	0	0	0	0	0	2	4	0	0	0	0	0	4
17:15	3	0	0	0	0	0	3	1	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	3	0	0	0	0	0	3
17:45	0	0	0	0	0	0	0	2	0	0	0	0	0	2
□T□T	5	0	0	0	0	0	5	10	0	0	0	0	0	10
18:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
18:15	1	0	0	0	0	0	1	2	1	0	0	0	0	3
18:30	0	0	0	0	0	0	0	1	0	0	0	0	0	1
18:45	0	0	0	0	0	0	0	1	0	0	0	0	0	1
□T□T	1	0	0	0	0	0	1	5	1	0	0	0	0	6
P□T□T	387	14	0	0	2	0	403	62	11	7	0	1	0	81

Appendix F – TRICS Output

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 2400 to 4500 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/02 to 18/09/09

Selected survey days:

Friday	3 days

Selected survey types:

Manual count	3 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	2
Edge of Town	1

Selected Location Sub Categories:

Retail Zone	1
Built-Up Zone	2

TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	3	3667	0.073	3	3667	1.145	3	3667	1.218
01:00 - 02:00	2	3450	0.000	2	3450	1.333	2	3450	1.333
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	0	0	0.000	0	0	0.000	0	0	0.000
08:00 - 09:00	0	0	0.000	0	0	0.000	0	0	0.000
09:00 - 10:00	0	0	0.000	0	0	0.000	0	0	0.000
10:00 - 11:00	1	2400	0.000	1	2400	0.000	1	2400	0.000
11:00 - 12:00	2	3250	0.031	2	3250	0.015	2	3250	0.046
12:00 - 13:00	3	3667	1.045	3	3667	0.291	3	3667	1.336
13:00 - 14:00	3	3667	1.809	3	3667	0.727	3	3667	2.536
14:00 - 15:00	3	3667	1.545	3	3667	0.509	3	3667	2.054
15:00 - 16:00	3	3667	1.664	3	3667	1.827	3	3667	3.491
16:00 - 17:00	3	3667	2.945	3	3667	2.082	3	3667	5.027
17:00 - 18:00	3	3667	3.555	3	3667	2.209	3	3667	5.764
18:00 - 19:00	3	3667	6.564	3	3667	2.845	3	3667	9.409
19:00 - 20:00	3	3667	8.809	3	3667	4.518	3	3667	13.327
20:00 - 21:00	3	3667	7.955	3	3667	7.273	3	3667	15.228
21:00 - 22:00	3	3667	6.227	3	3667	5.955	3	3667	12.182
22:00 - 23:00	3	3667	2.155	3	3667	9.100	3	3667	11.255
23:00 - 24:00	3	3667	0.291	3	3667	5.091	3	3667	5.382
Total Rates:			44.668			44.920			89.588

Parameter summary

Trip rate parameter range selected:	2400 - 4500 (units: sqm)
Survey date date range:	01/01/02 - 18/09/09
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Range: 2400 to 4500 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/02 to 18/09/09

Selected survey days:

Friday	3 days

Selected survey types:

Manual count	3 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	2
Edge of Town	1

Selected Location Sub Categories:

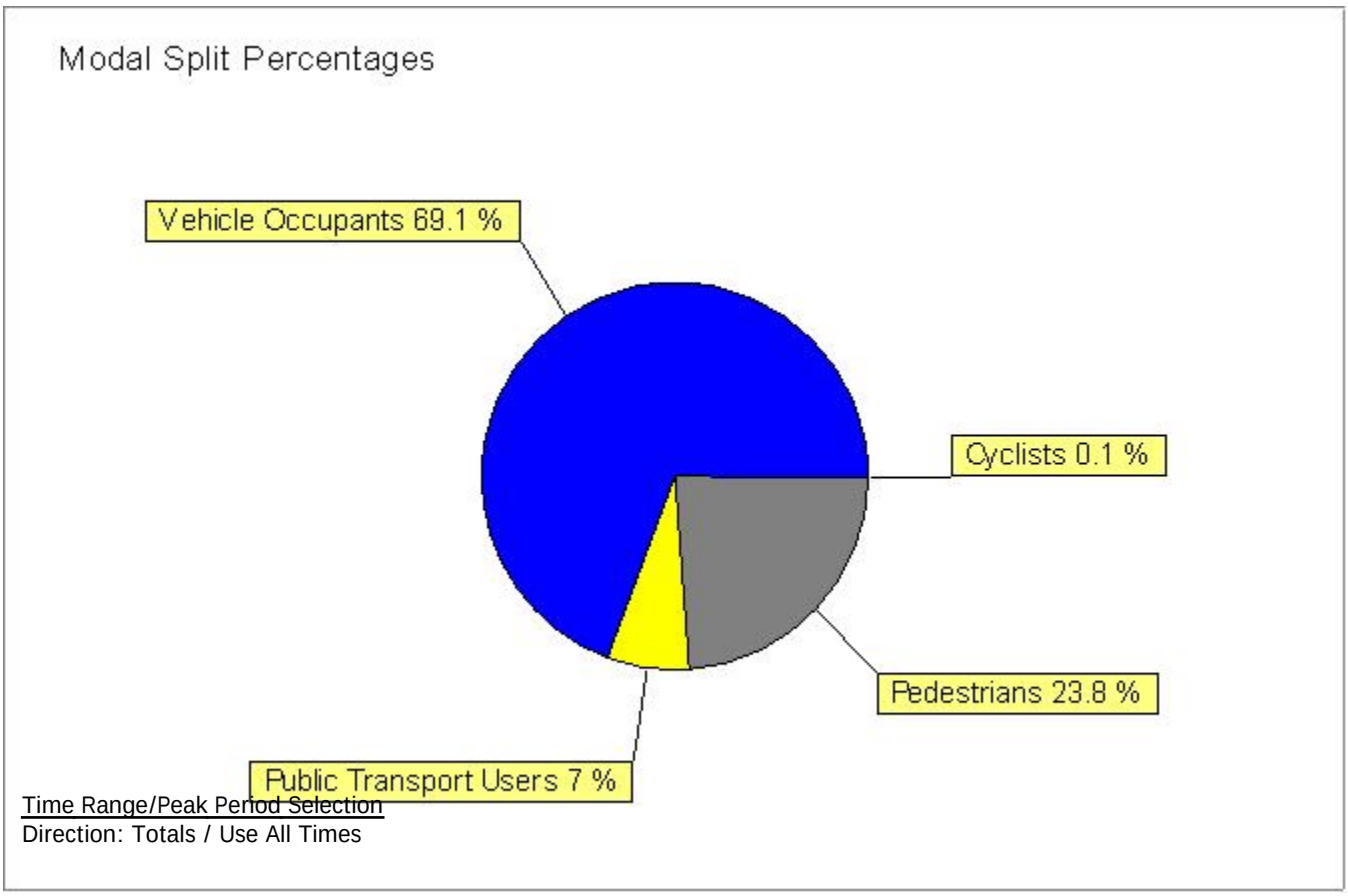
Retail Zone	1
Built-Up Zone	2

TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	3	3667	0.073	3	3667	1.145	3	3667	1.218
01:00 - 02:00	2	3450	0.000	2	3450	1.333	2	3450	1.333
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	0	0	0.000	0	0	0.000	0	0	0.000
08:00 - 09:00	0	0	0.000	0	0	0.000	0	0	0.000
09:00 - 10:00	0	0	0.000	0	0	0.000	0	0	0.000
10:00 - 11:00	1	2400	0.000	1	2400	0.000	1	2400	0.000
11:00 - 12:00	2	3250	0.031	2	3250	0.015	2	3250	0.046
12:00 - 13:00	3	3667	1.045	3	3667	0.291	3	3667	1.336
13:00 - 14:00	3	3667	1.809	3	3667	0.727	3	3667	2.536
14:00 - 15:00	3	3667	1.545	3	3667	0.509	3	3667	2.054
15:00 - 16:00	3	3667	1.664	3	3667	1.827	3	3667	3.491
16:00 - 17:00	3	3667	2.945	3	3667	2.082	3	3667	5.027
17:00 - 18:00	3	3667	3.555	3	3667	2.209	3	3667	5.764
18:00 - 19:00	3	3667	6.564	3	3667	2.845	3	3667	9.409
19:00 - 20:00	3	3667	8.809	3	3667	4.518	3	3667	13.327
20:00 - 21:00	3	3667	7.955	3	3667	7.273	3	3667	15.228
21:00 - 22:00	3	3667	6.227	3	3667	5.955	3	3667	12.182
22:00 - 23:00	3	3667	2.155	3	3667	9.100	3	3667	11.255
23:00 - 24:00	3	3667	0.291	3	3667	5.091	3	3667	5.382
Total Rates:			44.668			44.920			89.588

Parameter summary

Trip rate parameter range selected:	2400 - 4500 (units: sqm)
Survey date date range:	01/01/02 - 18/09/09
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0



Time Range/Peak Period Selection
Direction: Totals / Use All Times

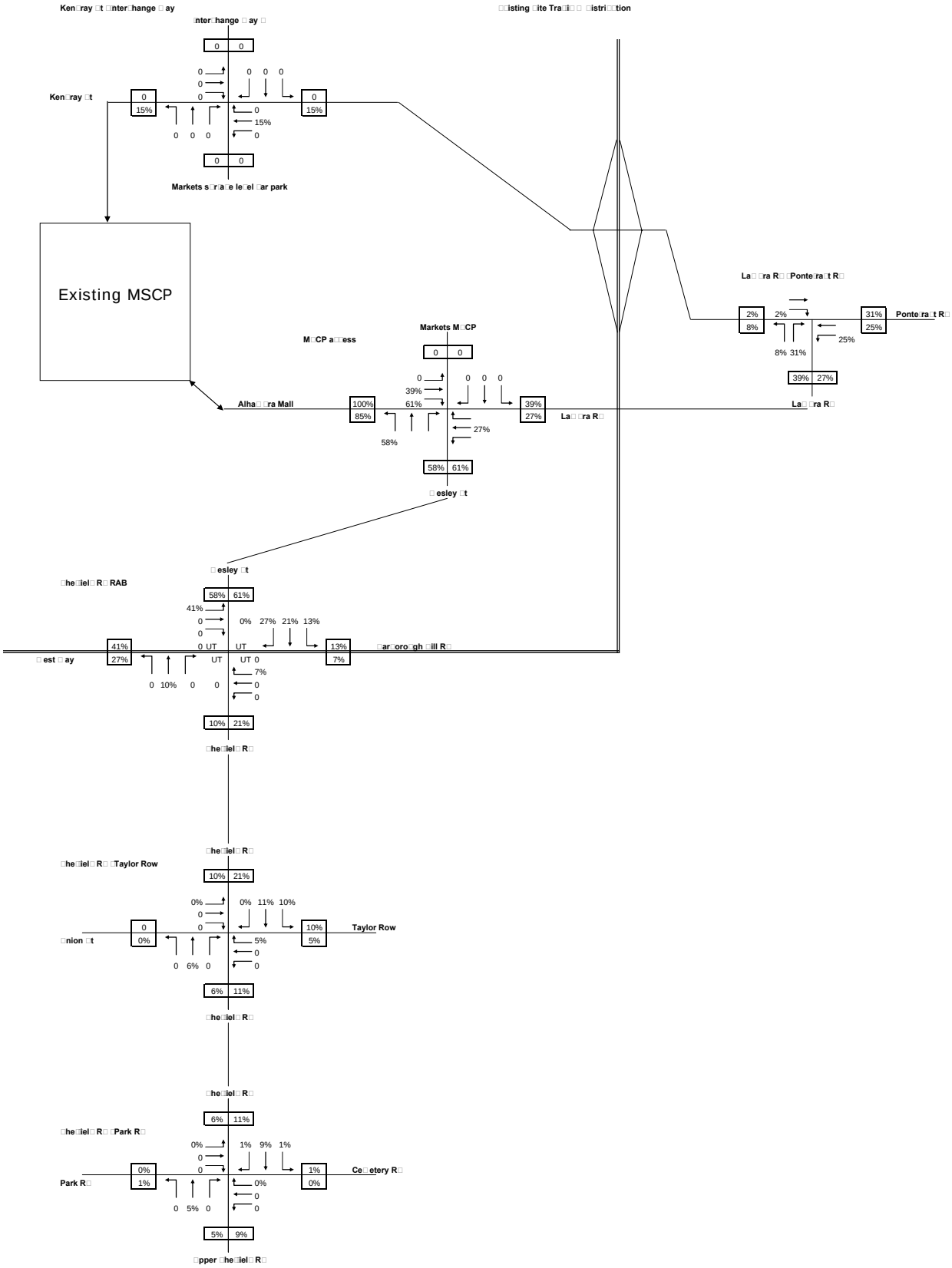
TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
Calculation Factor: 100 sqm
Count Type: VEHICLE OCCUPANTS

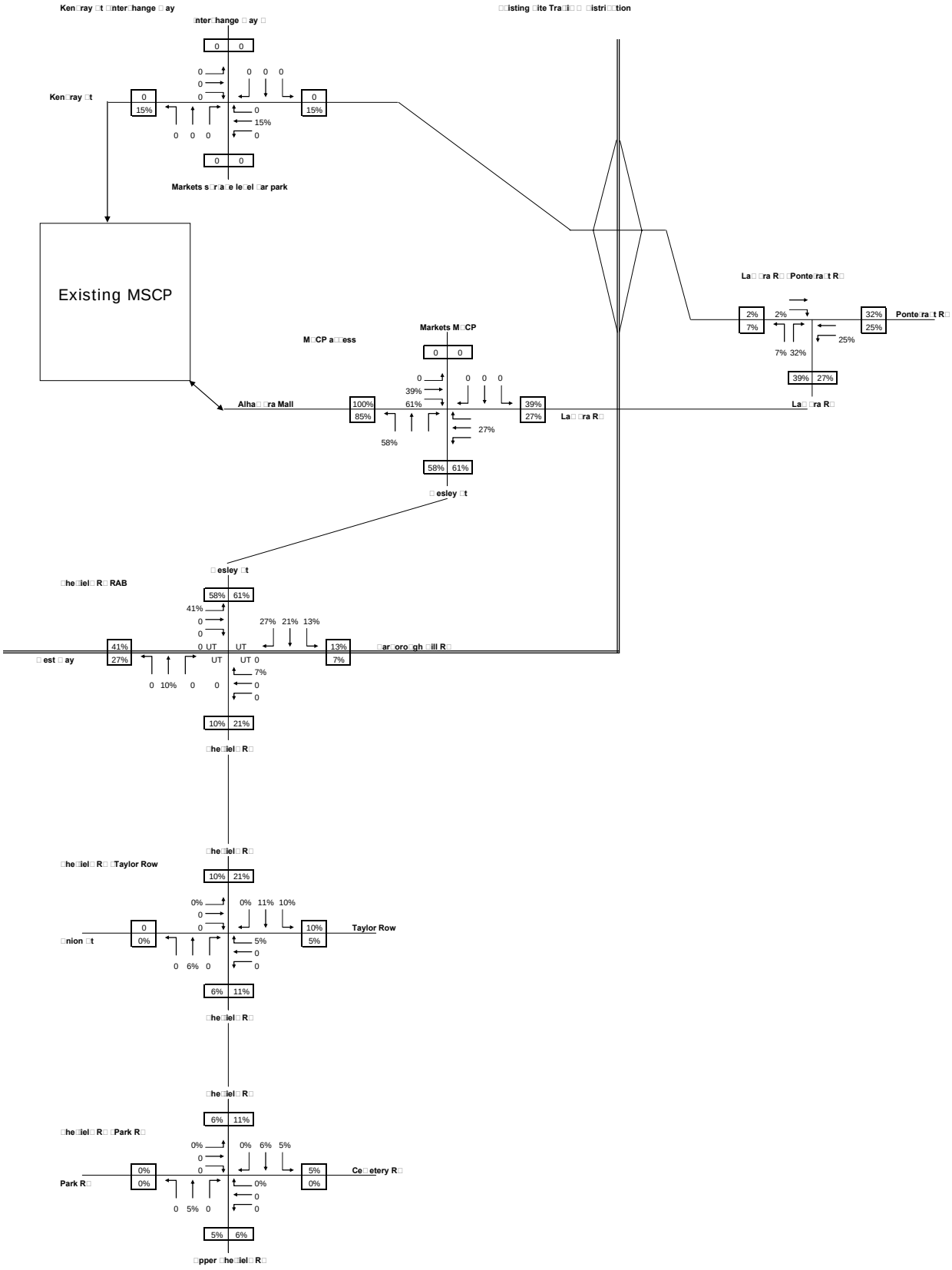
	ARRIVALS			DEPARTURES			TOTALS			
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip	
Time Range	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	Rate	**OCCUPANCY (veh occs / vehs)**
00:00-01:00	5	2485	0.121	5	2485	1.103	5	2485	1.224	2.27
01:00-02:00	4	2356	0	4	2356	1.273	4	2356	1.273	2.27
02:00-03:00	1	2323	0	1	2323	0	1	2323	0	#DIV/0!
03:00-04:00	0	0	0	0	0	0	0	0	0	#DIV/0!
04:00-05:00	0	0	0	0	0	0	0	0	0	#DIV/0!
05:00-06:00	0	0	0	0	0	0	0	0	0	#DIV/0!
06:00-07:00	0	0	0	0	0	0	0	0	0	#DIV/0!
07:00-08:00	0	0	0	0	0	0	0	0	0	#DIV/0!
08:00-09:00	0	0	0	0	0	0	0	0	0	#DIV/0!
09:00-10:00	0	0	0	0	0	0	0	0	0	#DIV/0!
10:00-11:00	3	2868	1.162	3	2868	0.442	3	2868	1.604	1.64
11:00-12:00	4	2732	3.404	4	2732	3.624	4	2732	7.028	2.32
12:00-13:00	5	2626	4.228	5	2626	3.466	5	2626	7.694	2.30
13:00-14:00	6	2605	5.388	6	2605	3.468	6	2605	8.856	2.11
14:00-15:00	6	2605	4.831	6	2605	2.963	6	2605	7.794	2.12
15:00-16:00	6	2605	5.273	6	2605	4.473	6	2605	9.746	2.10
16:00-17:00	6	2605	4.914	6	2605	6.034	6	2605	10.948	2.13
17:00-18:00	6	2605	6.047	6	2605	5.887	6	2605	11.934	2.33
18:00-19:00	6	2605	5.228	6	2605	4.799	6	2605	10.027	2.12
19:00-20:00	6	2605	10.929	6	2605	8.19	6	2605	19.119	2.39
20:00-21:00	6	2605	8.677	6	2605	7.263	6	2605	15.94	2.16
21:00-22:00	6	2605	6.527	6	2605	4.255	6	2605	10.782	2.14
22:00-23:00	6	2605	1.485	6	2605	7.461	6	2605	8.946	2.24
23:00-24:00	6	2605	0.39	6	2605	5.836	6	2605	6.226	2.16
Daily Trip Rates:			68.604			70.537			139.141	**2.20**

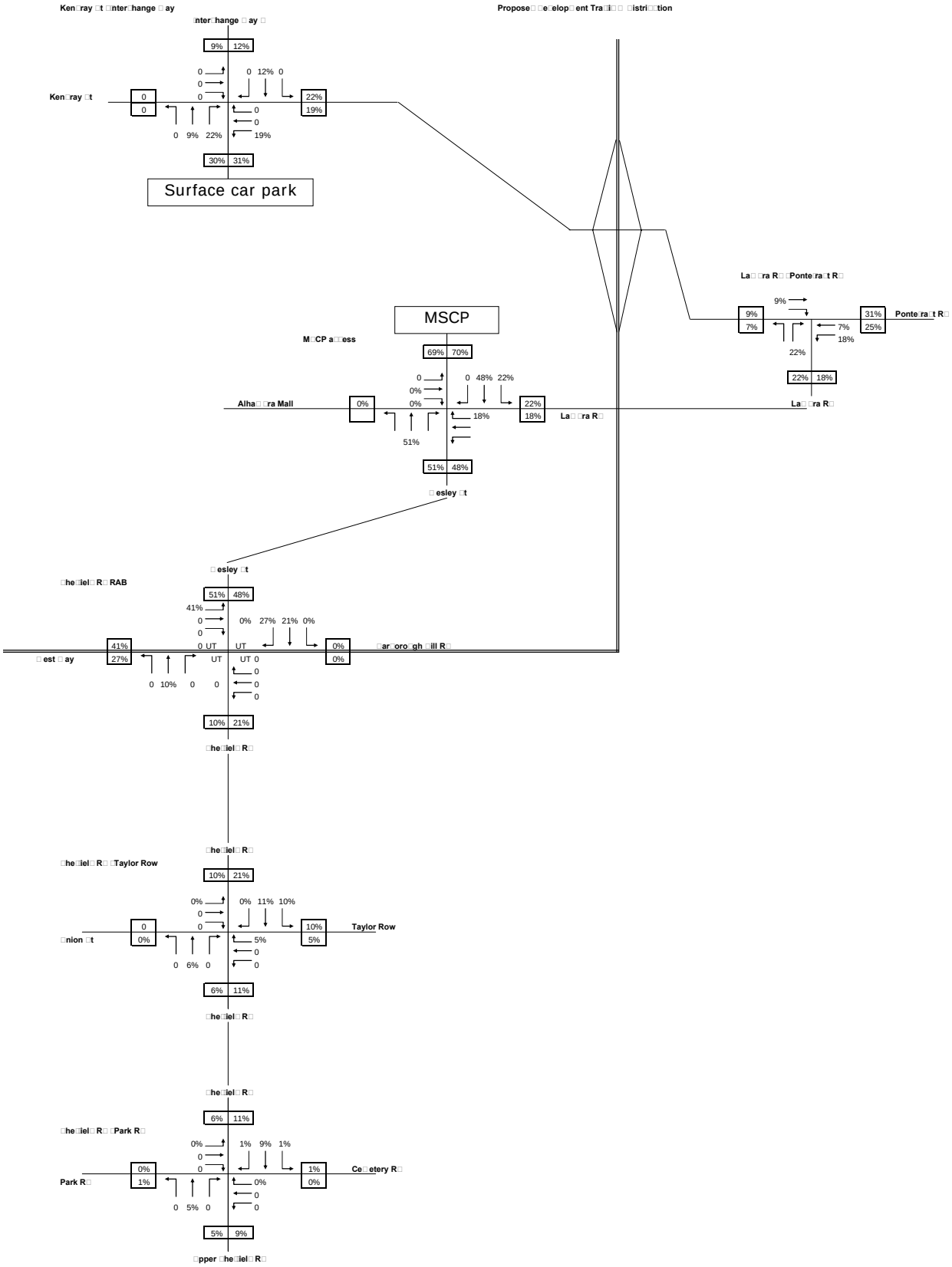
TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
Calculation Factor: 100 sqm
Count Type: VEHICLES

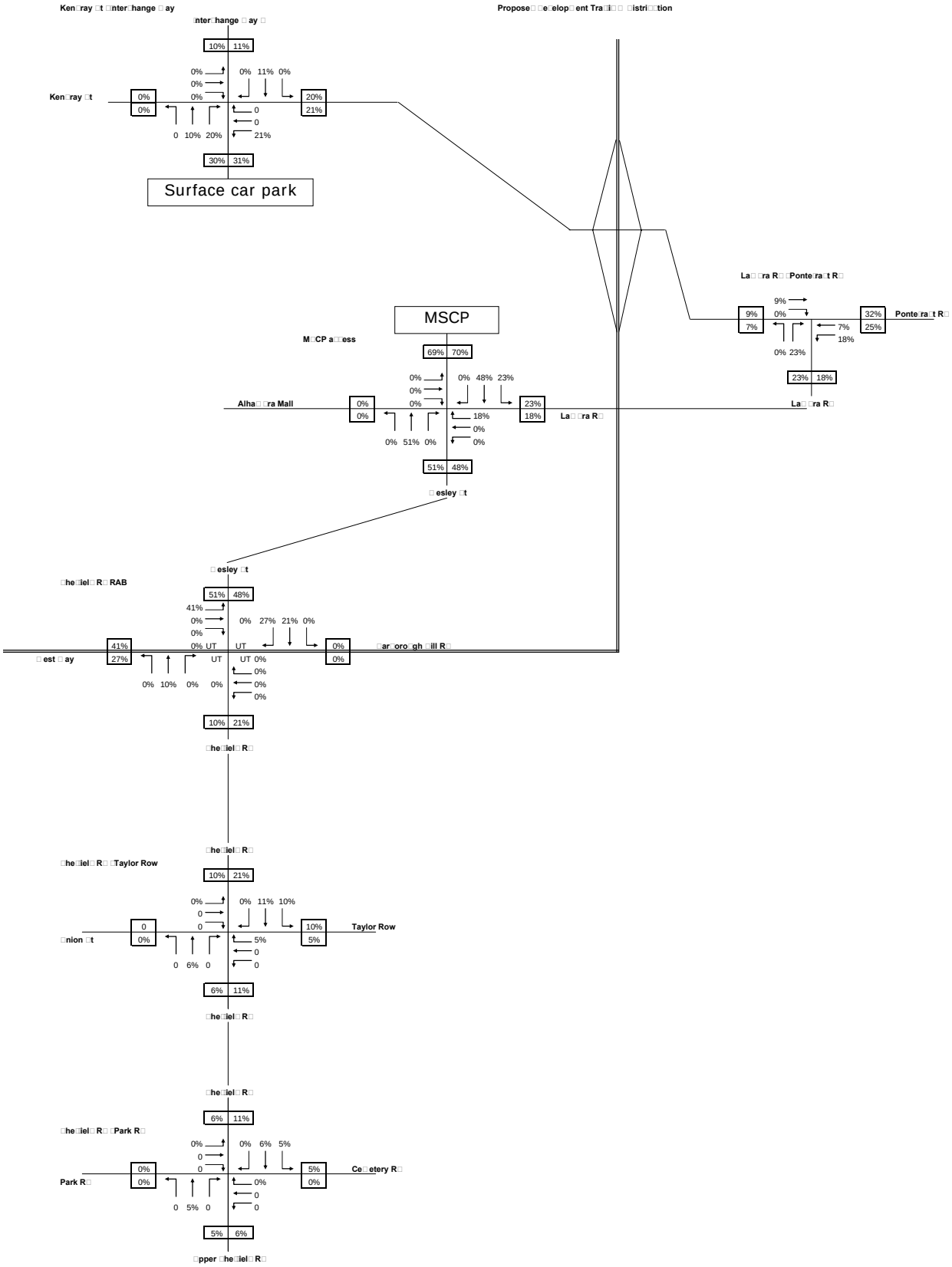
	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	Rate
00:00-01:00	5	2485	0.089	5	2485	0.451	5	2485	0.54
01:00-02:00	4	2356	0	4	2356	0.562	4	2356	0.562
02:00-03:00	1	2323	0	1	2323	0	1	2323	0
03:00-04:00	0	0	0	0	0	0	0	0	0
04:00-05:00	0	0	0	0	0	0	0	0	0
05:00-06:00	0	0	0	0	0	0	0	0	0
06:00-07:00	0	0	0	0	0	0	0	0	0
07:00-08:00	0	0	0	0	0	0	0	0	0
08:00-09:00	0	0	0	0	0	0	0	0	0
09:00-10:00	0	0	0	0	0	0	0	0	0
10:00-11:00	3	2868	0.732	3	2868	0.244	3	2868	0.976
11:00-12:00	4	2732	1.556	4	2732	1.473	4	2732	3.029
12:00-13:00	5	2626	1.866	5	2626	1.485	5	2626	3.351
13:00-14:00	6	2605	2.444	6	2605	1.76	6	2605	4.204
14:00-15:00	6	2605	2.176	6	2605	1.497	6	2605	3.673
15:00-16:00	6	2605	2.31	6	2605	2.336	6	2605	4.646
16:00-17:00	6	2605	2.393	6	2605	2.758	6	2605	5.151
17:00-18:00	6	2605	2.579	6	2605	2.553	6	2605	5.132
18:00-19:00	6	2605	2.393	6	2605	2.336	6	2605	4.729
19:00-20:00	6	2605	4.626	6	2605	3.359	6	2605	7.985
20:00-21:00	6	2605	3.993	6	2605	3.372	6	2605	7.365
21:00-22:00	6	2605	3.02	6	2605	2.016	6	2605	5.036
22:00-23:00	6	2605	0.838	6	2605	3.148	6	2605	3.986
23:00-24:00	6	2605	0.224	6	2605	2.655	6	2605	2.879
Daily Trip Rates:			31.239			32.005			63.244

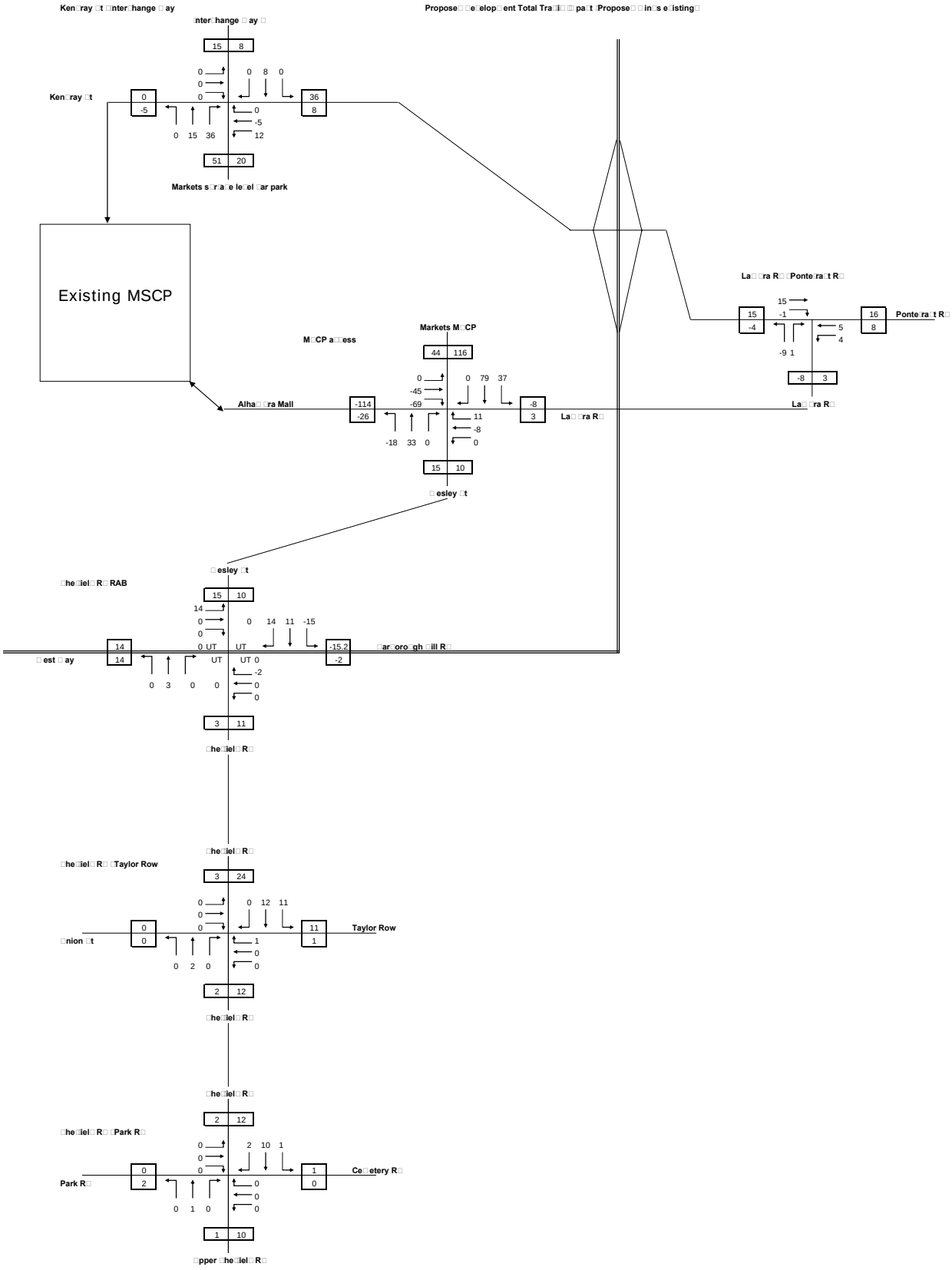
Appendix G – Traffic Flow Diagrams

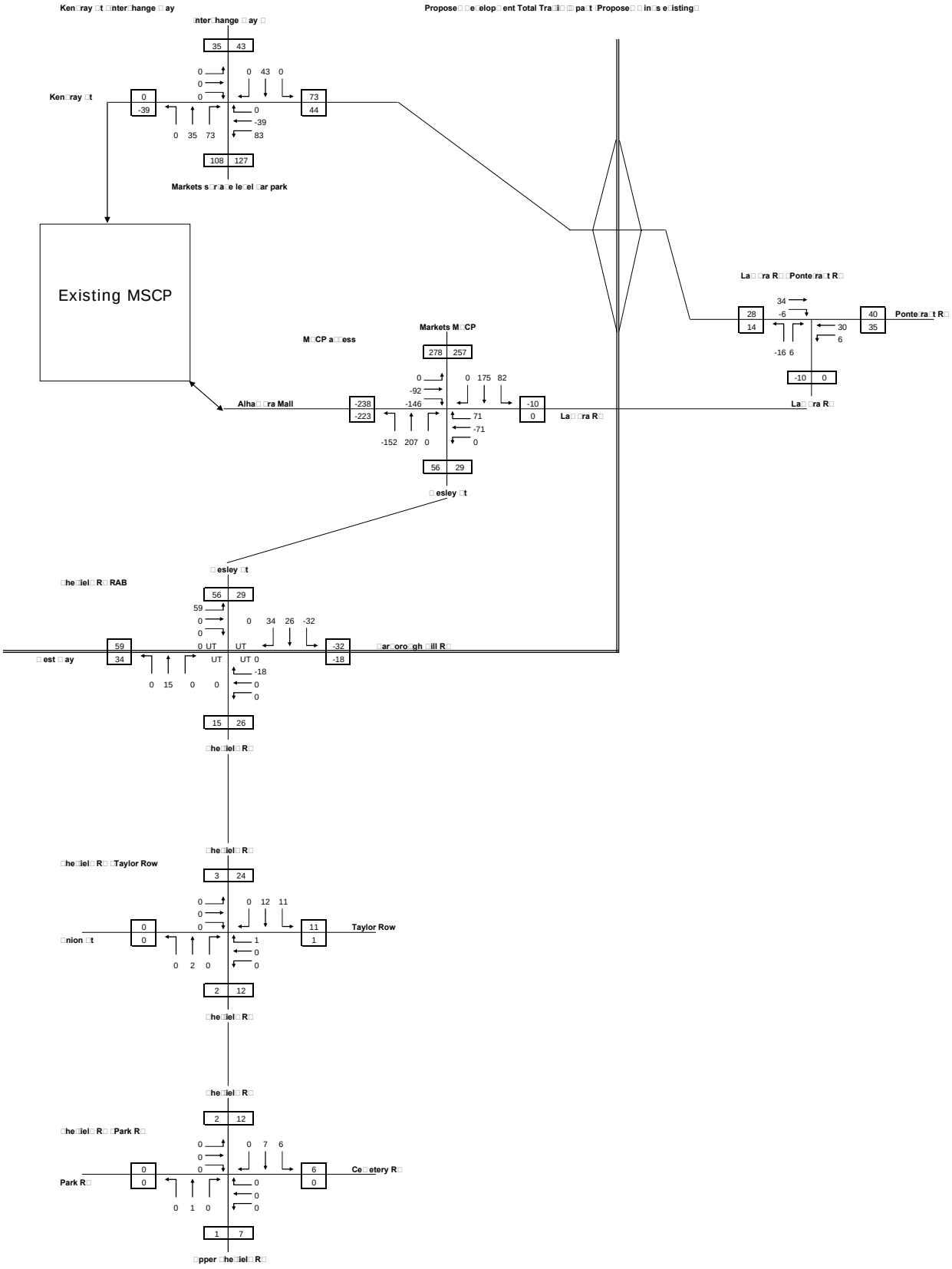

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Markets M□CP
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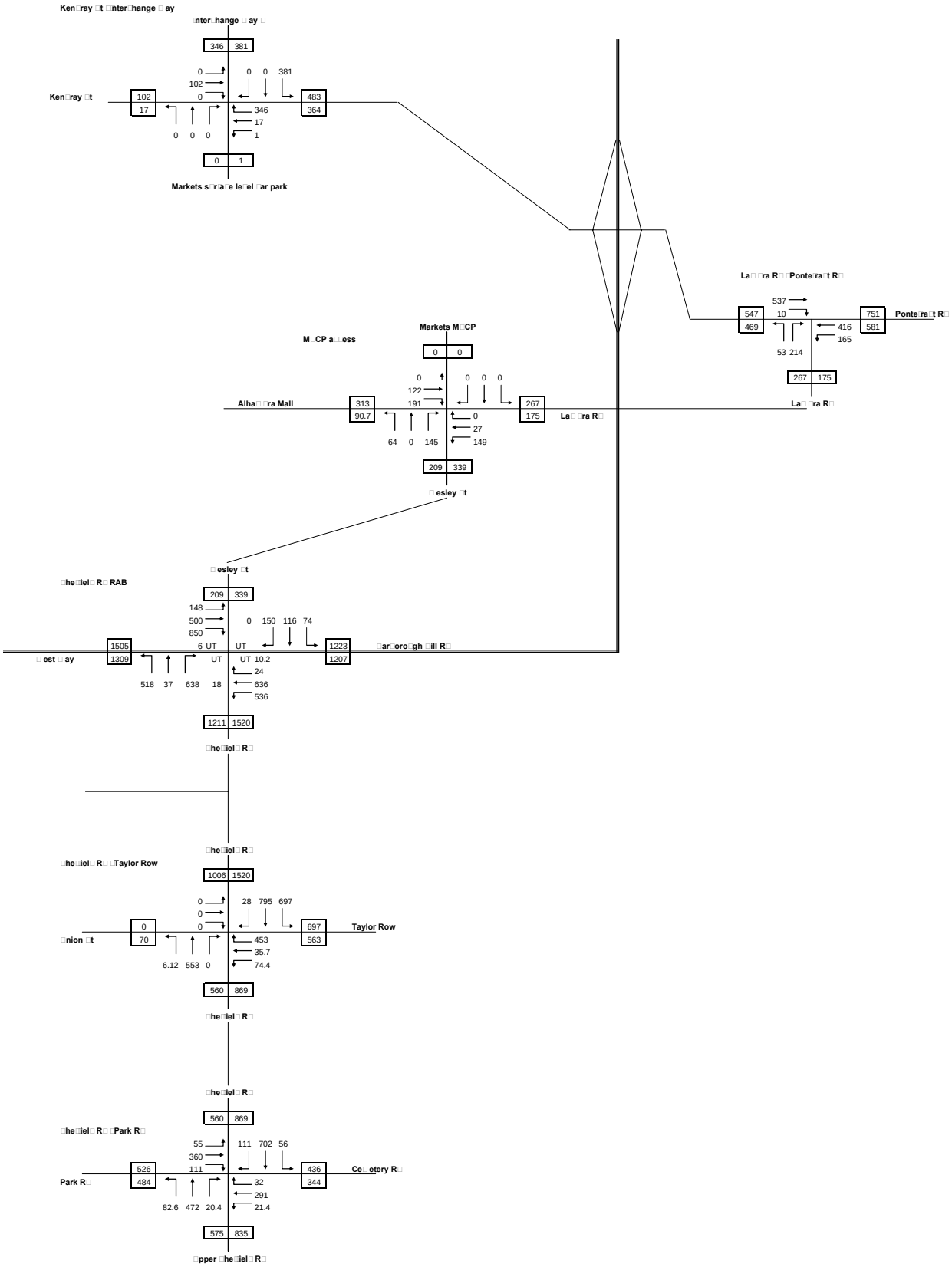

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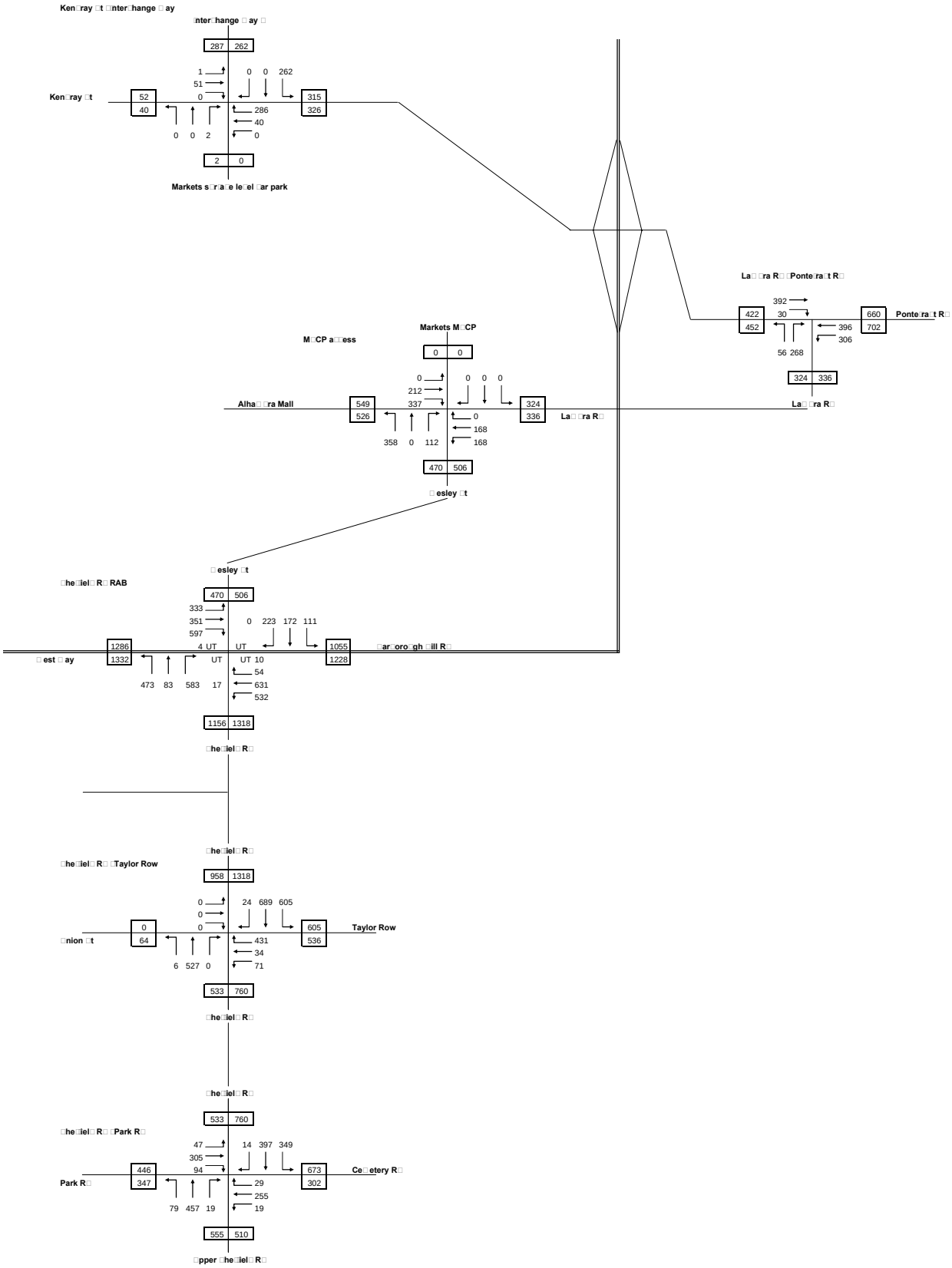

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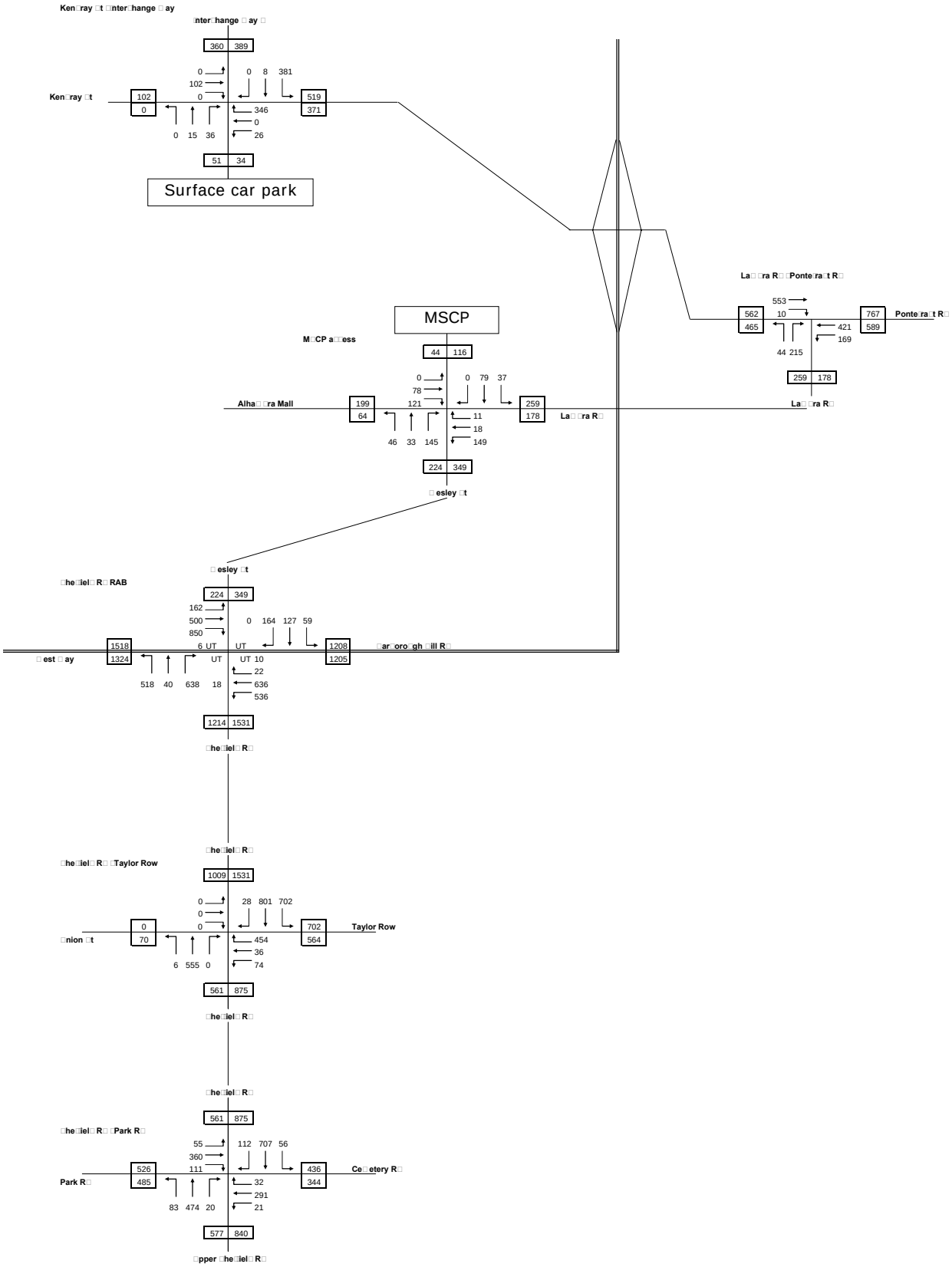

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9% 7% 7% 18%
0% 23%
23% 18%
La□ □ra R□
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0% 0% 0% 0% 48% 23%
Alha□ □ra Mall
0% 0% 23% 18%
La□ □ra R□
18% 0% 0%
0% 51% 0%
51% 48%
□esley □t
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41% 0% 0% 0% 27% 0% 0% 21% 0%
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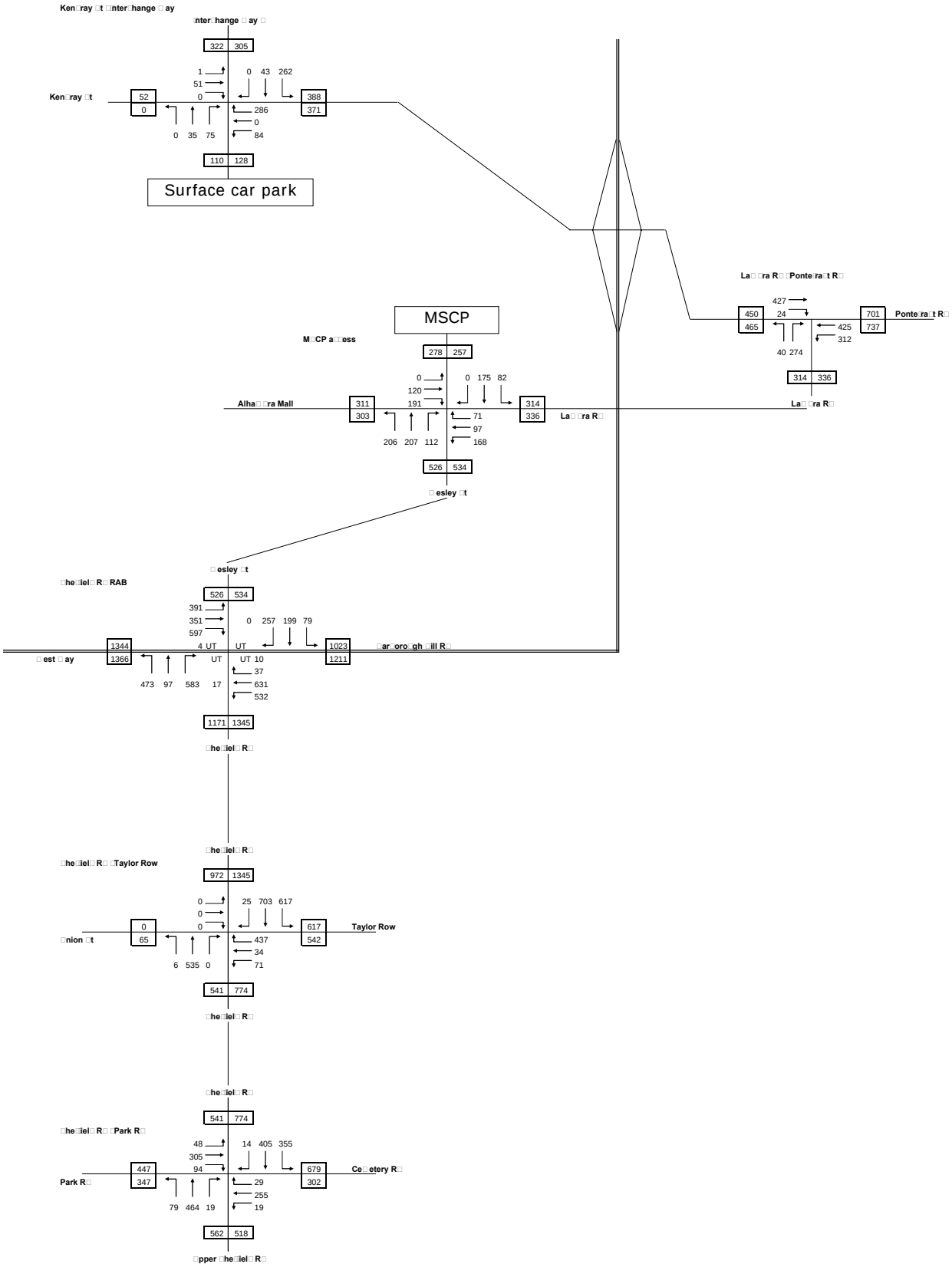

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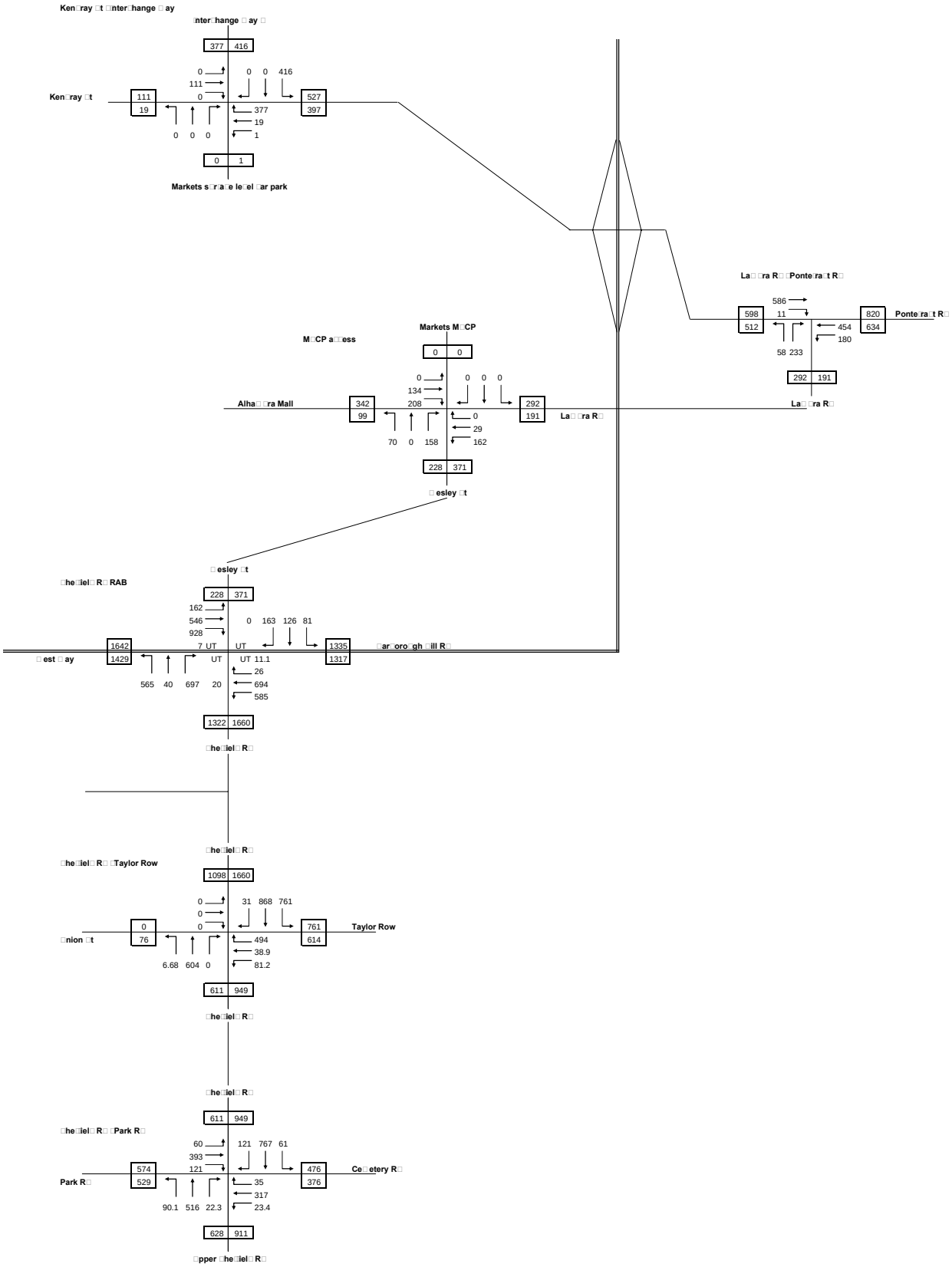

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0 -39
73 44
0 35 73 0 -39 83
108 127
Markets s□□a□e le□el □ar park
Propose□ □□e□elop□ent Total Tra□□ □ pa□t □Propose□ □ in□s e□isting□
Existing MSCP
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34 28 -6 40 Ponte□ra□t R□
14 30 35
6
-16 6
-10 0
La□ □ra R□
Markets M□CP
M□CP a□□ess
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0 -92 -146 0 175 82
Alha□ □ra Mall
-238 -223
-10 0
La□ □ra R□
71 -71 0
-152 207 0
56 29
□esley □t
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56 29
59 0 0 0 34 26 -32
59 34
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□est □ay
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15 26
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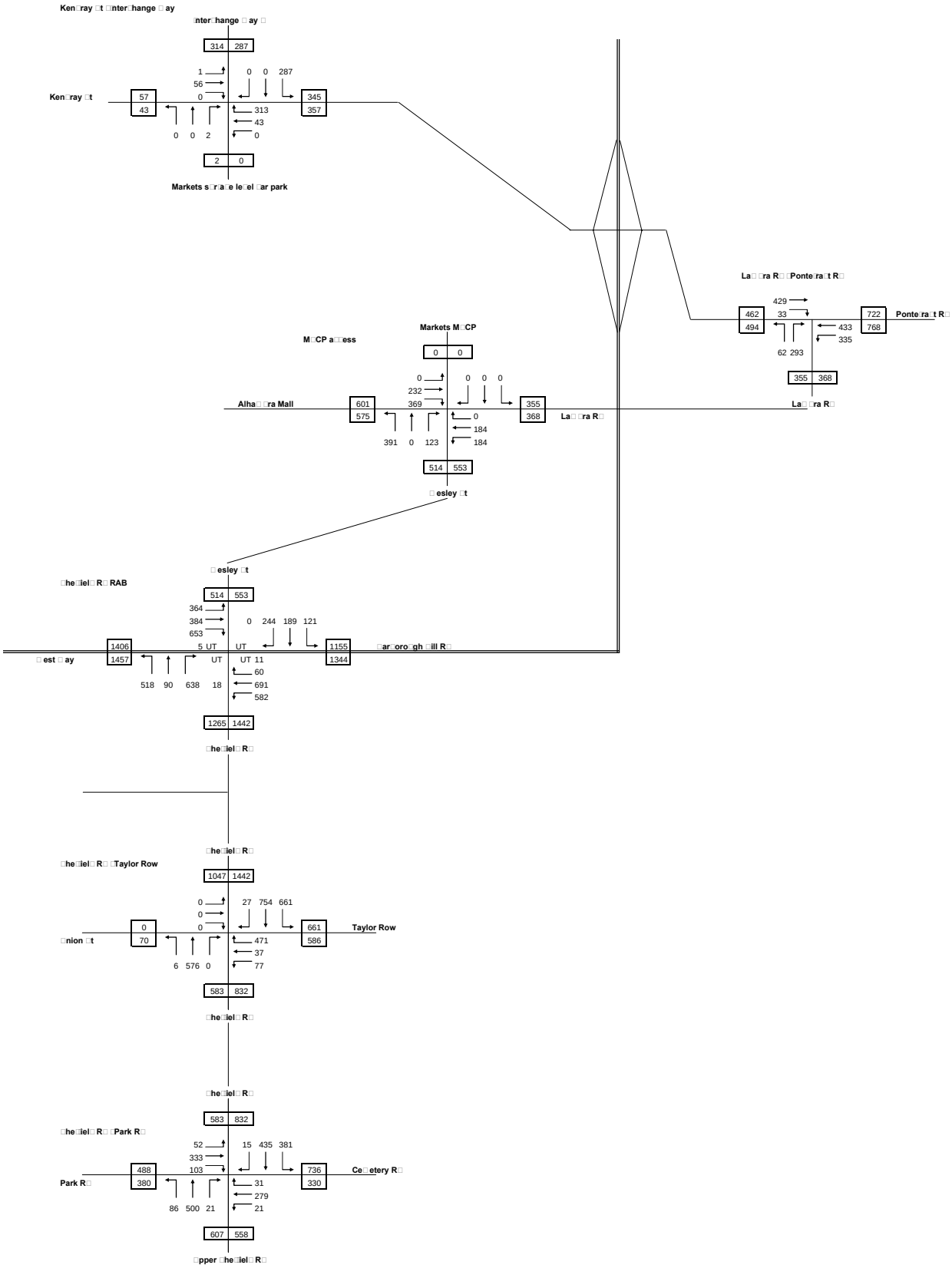

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483 364
346 17 1
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Markets s□□a□e le□el □ar park
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537
547 469
10
751 581
Ponte□ra□t R□
416 165
53 214
267 175
La□ □ra R□
Markets M□CP
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Alha□ □ra Mall
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La□ □ra R□
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209 339
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518 37 638 18
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28 795 697
0 70
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453 35.7 74.4
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111 702 56
526 484
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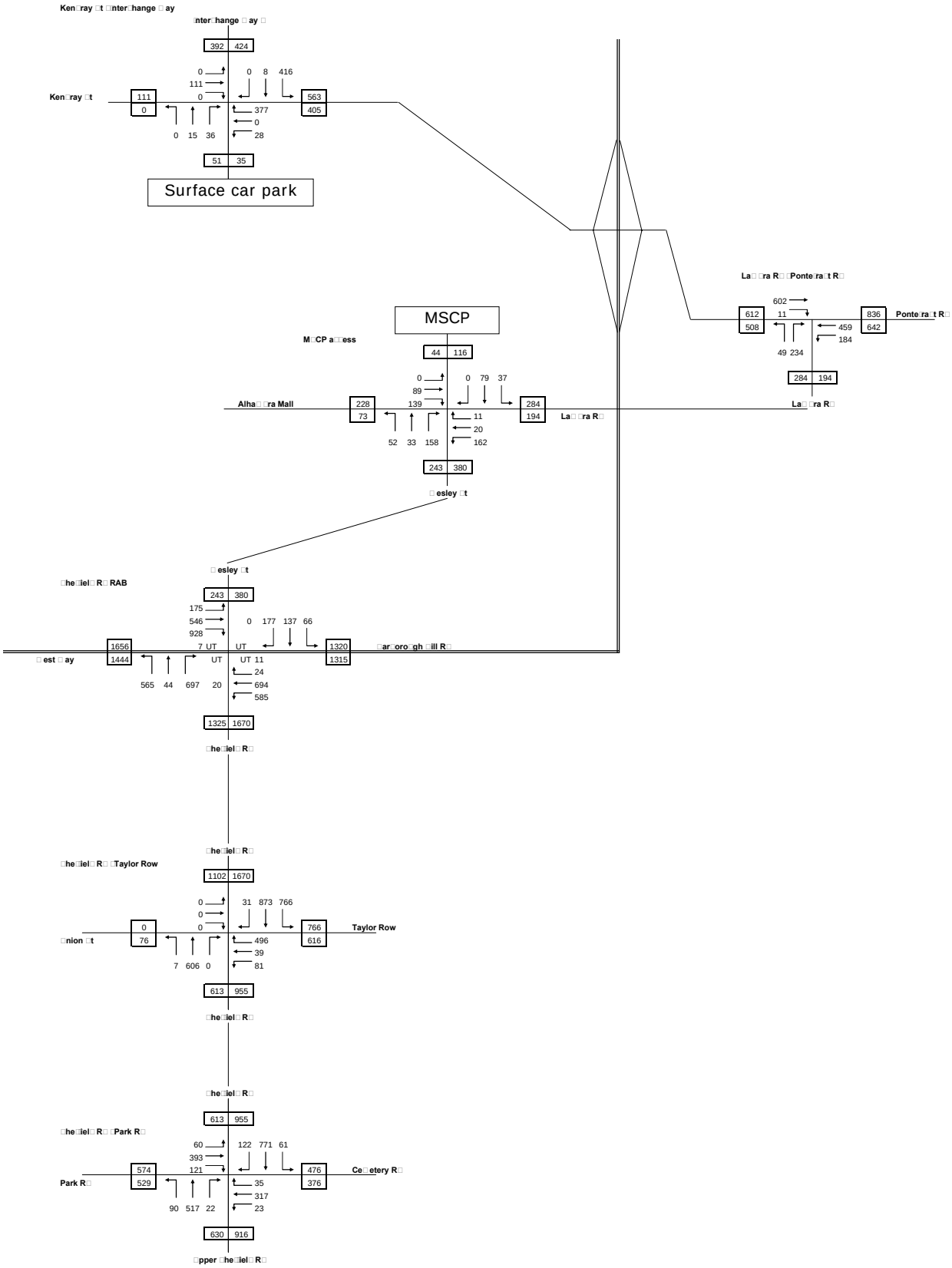

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315 326
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2 0
Markets s□□a□e le□el □ar park
La□ □ra R□ □Ponte□ra□t R□
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422 452
30
660 702
Ponte□ra□t R□
396 306
56 268
324 336
La□ □ra R□
Markets M□CP
M□CP a□□ess
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0 212 337
0 0 0
Alha□ □ra Mall
549 526
324 336
La□ □ra R□
0 168 168
358 0 112
470 506
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473 83 583 17
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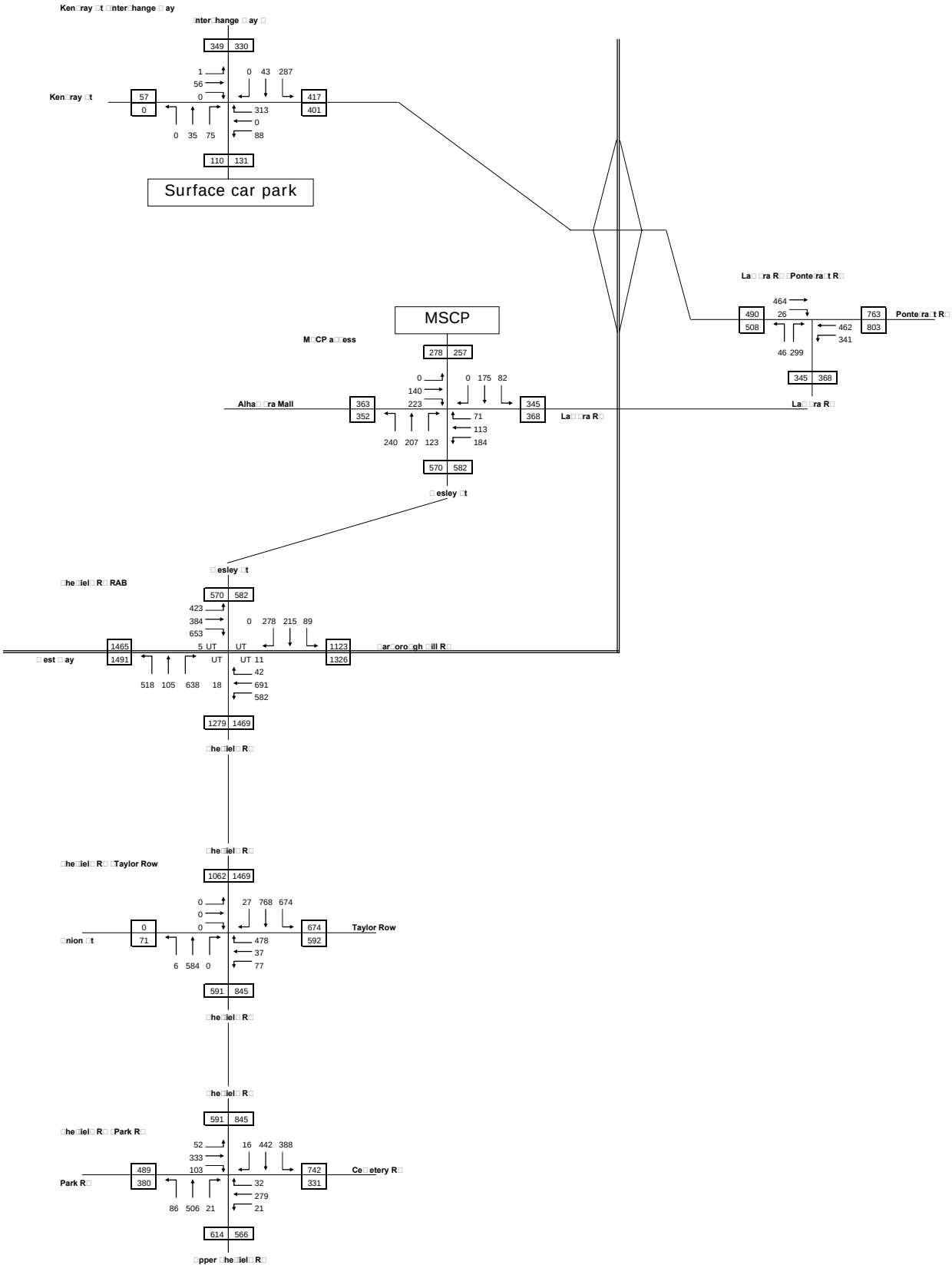

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51 34
Surface car park
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553
562 465
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767 589
421 169
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702 564
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526 485
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1 51 0
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Surface car park
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450 465
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Ponte□ra□t R□
40 274
314 336
La□ □ra R□
MSCP
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Alha□ □ra Mall
311 303
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La□ □ra R□
71 97 168
206 207 112
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0 65
617 542
Taylor Row
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6 535 0
541 774
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48 305 94
14 405 355
447 347
679 302
Ce□□etery R□
Park R□
29 255 19
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598 11 820
512 454 634
180
58 233
Ponte□ra□t R□
292 191
La□ □ra R□
Markets M□CP
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134
Alha□ □ra Mall
342 208 292
99 191
La□ □ra R□
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228 371
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565 40 697 20 694
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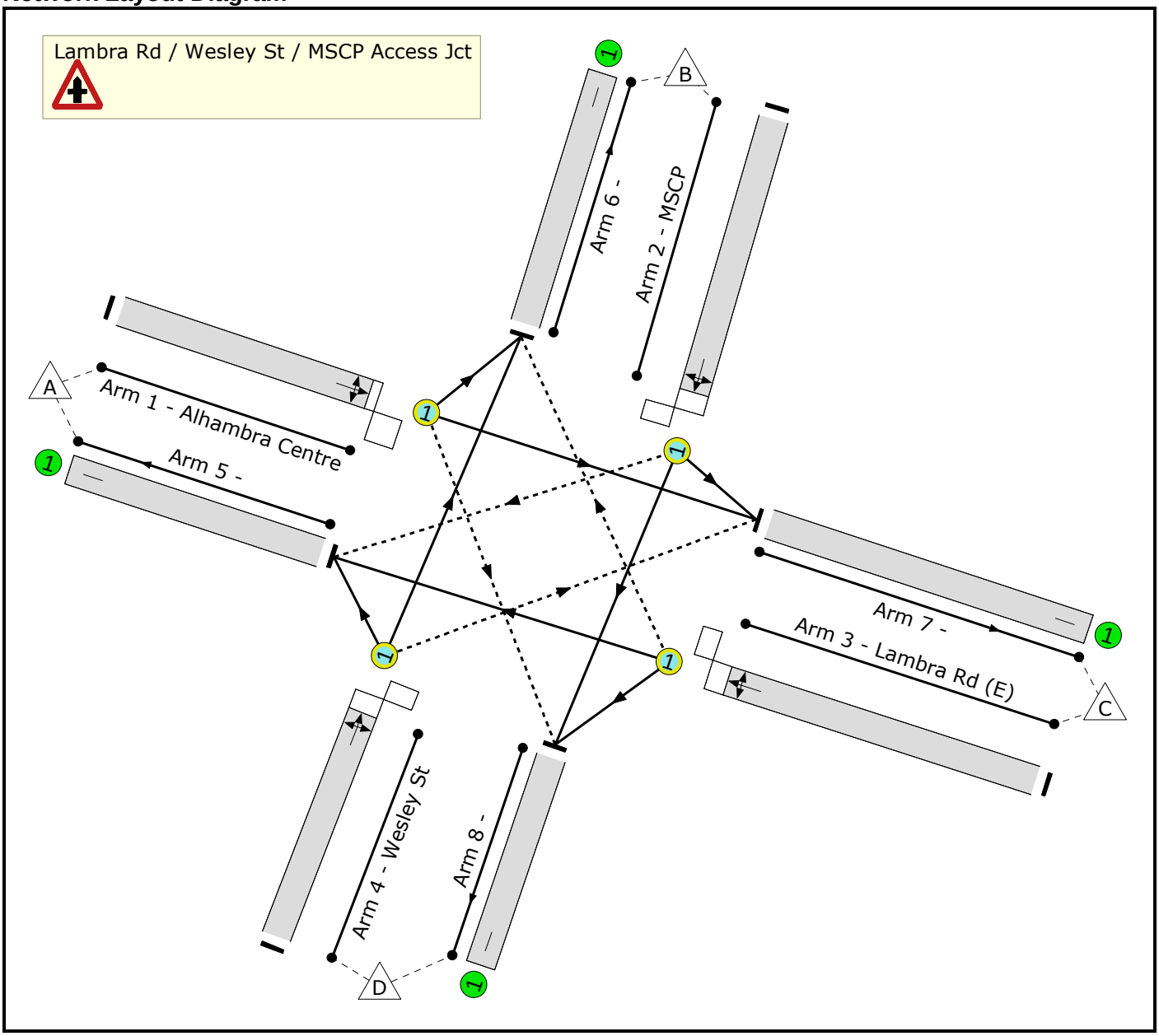
Appendix H – Junction Modelling Inputs & Outputs

Full Input Data And Results - MSCP Access Junction

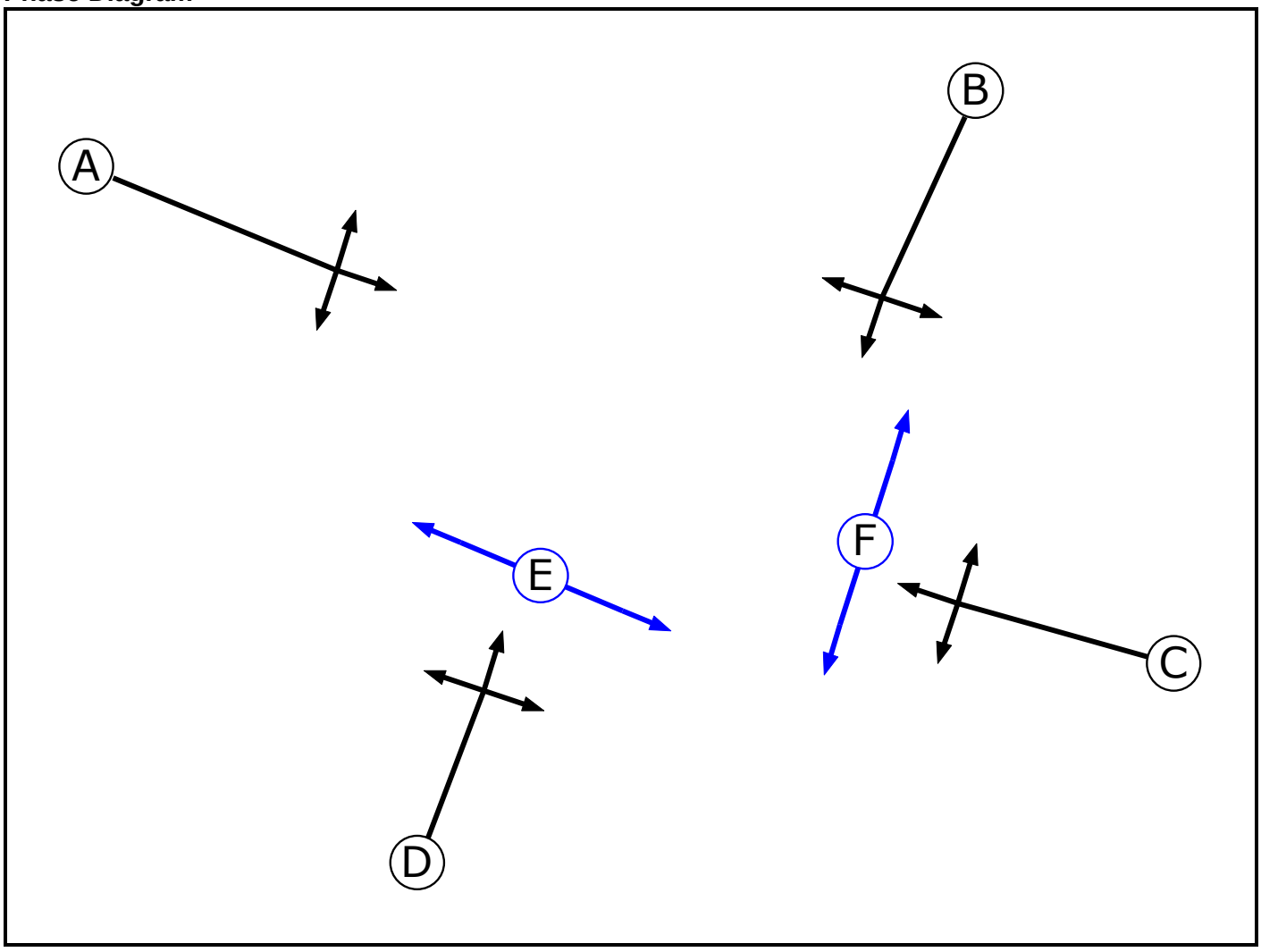
User and Project Details

Project:	
Title:	
Location:	
File name:	MSCP Access junction v3.0.lsg3x
Author:	
Company:	
Address:	
Notes:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	6
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		5	5
F	Pedestrian		5	5

Full Input Data And Results - MSCP Access Junction

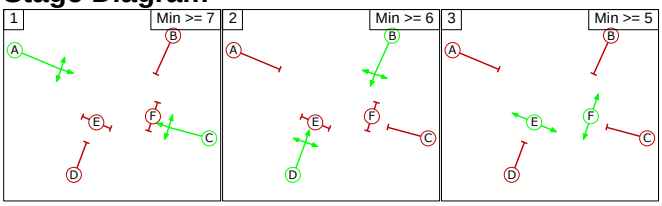
Phase Intergreens Matrix

Terminating Phase	Starting Phase						
		A	B	C	D	E	F
	A		6	-	5	8	8
	B	5		5	-	7	7
	C	-	6		5	8	5
	D	6	-	6		5	8
	E	10	10	10	10		-
	F	10	10	10	10	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	B D
3	E F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	1	B	Losing	1	1
2	3	B	Losing	3	3
2	3	D	Losing	2	2

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
1		6	8
2	6		10
3	10	10	

Full Input Data And Results - MSCP Access Junction

Give-Way Lane Input Data

Junction: Lambra Rd / Wesley St / MSCP Access Jct

Lane	Movement	Max 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)
1/1 (Alhambra Centre)	8/1 (Right)	1440	3/1	1.09	3/1	2.00	1.50	0.50	2	2.00
2/1 (MSCP)	5/1 (Right)	1440	4/1	1.09	4/1	2.00	1.00	0.50	2	2.00
3/1 (Lambra Rd (E))	6/1 (Right)	1440	1/1	1.09	1/1	2.00	1.00	0.50	2	2.00
4/1 (Wesley St)	7/1 (Right)	1440	2/1	1.09	2/1	2.00	1.00	0.50	2	2.00

Full Input Data And Results - MSCP Access Junction

Lane Input Data

Junction: Lambra Rd / Wesley St / MSCP Access Jct												
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)**
1/1 (Alhambra Centre)	O	A	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 6 Left	10.00
											Arm 7 Ahead	Inf
											Arm 8 Right	20.00
2/1 (MSCP)	O	B	2	3	60.0	User	1500	-	-	-	-	-
3/1 (Lambra Rd (E))	O	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	10.00
											Arm 8 Left	15.00
4/1 (Wesley St)	O	D	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Left	15.00
											Arm 6 Ahead	Inf
											Arm 7 Right	15.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'PM Peak BASE'	16:00	17:00	01:00	
2: 'PM Peak existing demand'	16:00	17:00	01:00	
3: 'PM Peak Dev'	16:00	17:00	01:00	
4: 'PM Peak DM - 2013'	16:00	17:00	01:00	F1*1.0193
5: 'PM Peak + DEV - 2013'	16:00	17:00	01:00	(F1*1.0193)-F2+F3
6: 'PM Peak DM - 2023'	16:00	17:00	01:00	F1*1.1126
7: 'PM Peak + DEV - 2023'	16:00	17:00	01:00	(F1*1.1126)-F2+F3
8: 'Sat Peak BASE'	12:00	13:00	01:00	F1 * 1.1152
9: 'Sat Peak existing demand'	12:00	13:00	01:00	
10: 'Sat Peak Dev'	12:00	13:00	01:00	
11: 'Sat Peak DM - 2013'	12:00	13:00	01:00	F8*1.0194
12: 'Sat Peak + DEV - 2013'	12:00	13:00	01:00	(F8*1.0194)-F9+F10
13: 'Sat Peak DM - 2023'	12:00	13:00	01:00	F8*1.1152
14: 'Sat Peak + DEV - 2023'	12:00	13:00	01:00	(F8*1.1152)-F9+F10

Scenario 1: 'PM 2013 Do Min' (FG4: 'PM Peak DM - 2013', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	122	191	313
	B	0	0	0	0	0
	C	27	0	0	149	176
	D	64	0	145	0	209
	Tot.	91	0	267	340	698

Traffic Lane Flows

Lane	Scenario 1: PM 2013 Do Min
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	313
2/1	0
3/1	176
4/1	209
5/1	91
6/1	0
7/1	267
8/1	340

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1927
				Arm 7 Ahead	Inf	39.0 %	
				Arm 8 Right	20.00	61.0 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	15.3 %	1812
				Arm 6 Right	10.00	0.0 %	
				Arm 8 Left	15.00	84.7 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	30.6 %	1809
				Arm 6 Ahead	Inf	0.0 %	
				Arm 7 Right	15.00	69.4 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 2: 'PM 2013 + Dev' (FG5: 'PM Peak + DEV - 2013', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	77	122	199
	B	0	0	37	79	116
	C	19	11	0	149	179
	D	46	33	145	0	224
	Tot.	65	44	259	350	718

Traffic Lane Flows

Lane	Scenario 2: PM 2013 + Dev
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	199
2/1	116
3/1	179
4/1	224
5/1	65
6/1	44
7/1	259
8/1	350

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1926
				Arm 7 Ahead	Inf	38.7 %	
				Arm 8 Right	20.00	61.3 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	10.6 %	1799
				Arm 6 Right	10.00	6.1 %	
				Arm 8 Left	15.00	83.2 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	20.5 %	1834
				Arm 6 Ahead	Inf	14.7 %	
				Arm 7 Right	15.00	64.7 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 3: 'Sat 2013 Do Min' (FG11: 'Sat Peak DM - 2013', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	212	337	549
	B	0	0	0	0	0
	C	168	0	0	168	336
	D	358	0	112	0	470
	Tot.	526	0	324	505	1355

Traffic Lane Flows

Lane	**Scenario 3: Sat 2013 Do Min**
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	549
2/1	0
3/1	336
4/1	470
5/1	526
6/1	0
7/1	324
8/1	505

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1926
				Arm 7 Ahead	Inf	38.6 %	
				Arm 8 Right	20.00	61.4 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	50.0 %	1871
				Arm 6 Right	10.00	0.0 %	
				Arm 8 Left	15.00	50.0 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	76.2 %	1809
				Arm 6 Ahead	Inf	0.0 %	
				Arm 7 Right	15.00	23.8 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 4: 'Sat 2013 + Dev' (FG12: 'Sat Peak + DEV - 2013', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	120	191	311
	B	0	0	82	175	257
	C	97	71	0	168	336
	D	206	207	112	0	525
	Tot.	303	278	314	534	1429

Traffic Lane Flows

Lane	**Scenario 4: Sat 2013 + Dev**
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	311
2/1	257
3/1	336
4/1	525
5/1	303
6/1	278
7/1	314
8/1	534

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1926
				Arm 7 Ahead	Inf	38.6 %	
				Arm 8 Right	20.00	61.4 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	28.9 %	1817
				Arm 6 Right	10.00	21.1 %	
				Arm 8 Left	15.00	50.0 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	39.2 %	1876
				Arm 6 Ahead	Inf	39.4 %	
				Arm 7 Right	15.00	21.3 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 5: 'PM 2023 Do Min' (FG6: 'PM Peak DM - 2023', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	134	208	342
	B	0	0	0	0	0
	C	29	0	0	162	191
	D	70	0	158	0	228
	Tot.	99	0	292	370	761

Traffic Lane Flows

Lane	Scenario 5: PM 2023 Do Min
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	342
2/1	0
3/1	191
4/1	228
5/1	99
6/1	0
7/1	292
8/1	370

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1927
				Arm 7 Ahead	Inf	39.2 %	
				Arm 8 Right	20.00	60.8 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	15.2 %	1811
				Arm 6 Right	10.00	0.0 %	
				Arm 8 Left	15.00	84.8 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	30.7 %	1809
				Arm 6 Ahead	Inf	0.0 %	
				Arm 7 Right	15.00	69.3 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 6: 'PM 2023 + Dev' (FG7: 'PM Peak + DEV - 2023', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	89	139	228
	B	0	0	37	79	116
	C	21	11	0	162	194
	D	52	33	158	0	243
	Tot.	73	44	284	380	781

Traffic Lane Flows

Lane	Scenario 6: PM 2023 + Dev
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	228
2/1	116
3/1	194
4/1	243
5/1	73
6/1	44
7/1	284
8/1	380

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1927
				Arm 7 Ahead	Inf	39.0 %	
				Arm 8 Right	20.00	61.0 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	10.8 %	1799
				Arm 6 Right	10.00	5.7 %	
				Arm 8 Left	15.00	83.5 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	21.4 %	1832
				Arm 6 Ahead	Inf	13.6 %	
				Arm 7 Right	15.00	65.0 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 7: 'Sat 2023 Do Min' (FG13: 'Sat Peak DM - 2023', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	232	369	601
	B	0	0	0	0	0
	C	184	0	0	184	368
	D	391	0	123	0	514
	Tot.	575	0	355	553	1483

Traffic Lane Flows

Lane	**Scenario 7: Sat 2023 Do Min**
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	601
2/1	0
3/1	368
4/1	514
5/1	575
6/1	0
7/1	355
8/1	553

Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1926
				Arm 7 Ahead	Inf	38.6 %	
				Arm 8 Right	20.00	61.4 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	50.0 %	1871
				Arm 6 Right	10.00	0.0 %	
				Arm 8 Left	15.00	50.0 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	76.1 %	1809
				Arm 6 Ahead	Inf	0.0 %	
				Arm 7 Right	15.00	23.9 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 8: 'Sat 2023 + Dev' (FG14: 'Sat Peak + DEV - 2023', Plan 2: 'Peds every other')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	140	223	363
	B	0	0	82	175	257
	C	113	71	0	184	368
	D	239	207	123	0	569
	Tot.	352	278	345	582	1557

Traffic Lane Flows

Lane	Scenario 8: Sat 2023 + Dev
Junction: Lambra Rd / Wesley St / MSCP Access Jct	
1/1	363
2/1	257
3/1	368
4/1	569
5/1	352
6/1	278
7/1	345
8/1	582

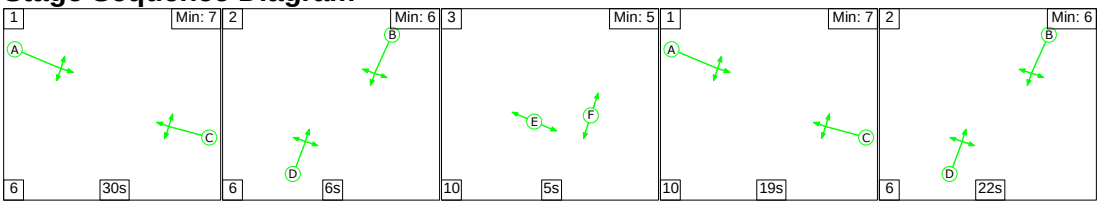
Full Input Data And Results - MSCP Access Junction

Lane Saturation Flows

Junction: Lambra Rd / Wesley St / MSCP Access Jct							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Alhambra Centre)	4.00	0.00	Y	Arm 6 Left	10.00	0.0 %	1926
				Arm 7 Ahead	Inf	38.6 %	
				Arm 8 Right	20.00	61.4 %	
2/1 (MSCP Lane 1)	This lane uses a directly entered Saturation Flow						1500
3/1 (Lambra Rd (E))	3.50	0.00	Y	Arm 5 Ahead	Inf	30.7 %	1821
				Arm 6 Right	10.00	19.3 %	
				Arm 8 Left	15.00	50.0 %	
4/1 (Wesley St)	3.75	0.00	Y	Arm 5 Left	15.00	42.0 %	1871
				Arm 6 Ahead	Inf	36.4 %	
				Arm 7 Right	15.00	21.6 %	
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf
8/1	Infinite Saturation Flow						Inf

Scenario 1: 'PM 2013 Do Min' (FG4: 'PM Peak DM - 2013', Plan 2: 'Peds every other')

Stage Sequence Diagram

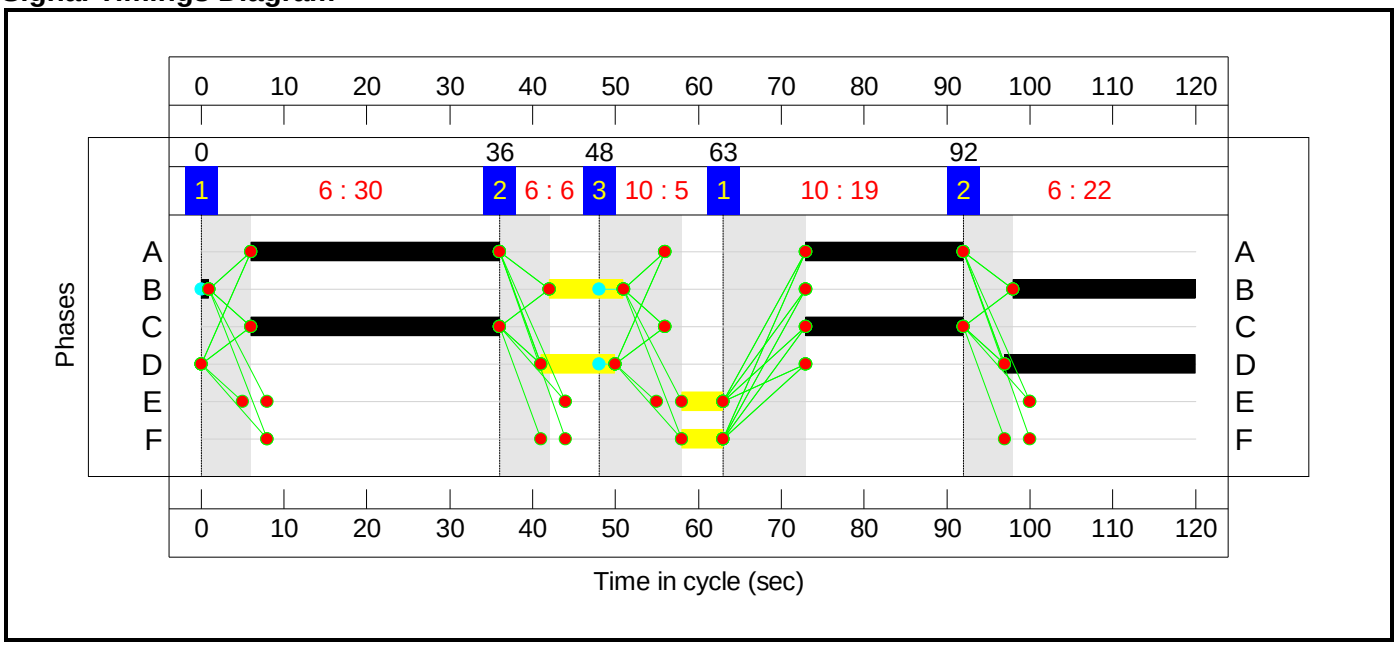


Stage Timings

Stage	1	2	3	1	2
Duration	30	6	5	19	22
Change Point	0	36	48	63	92

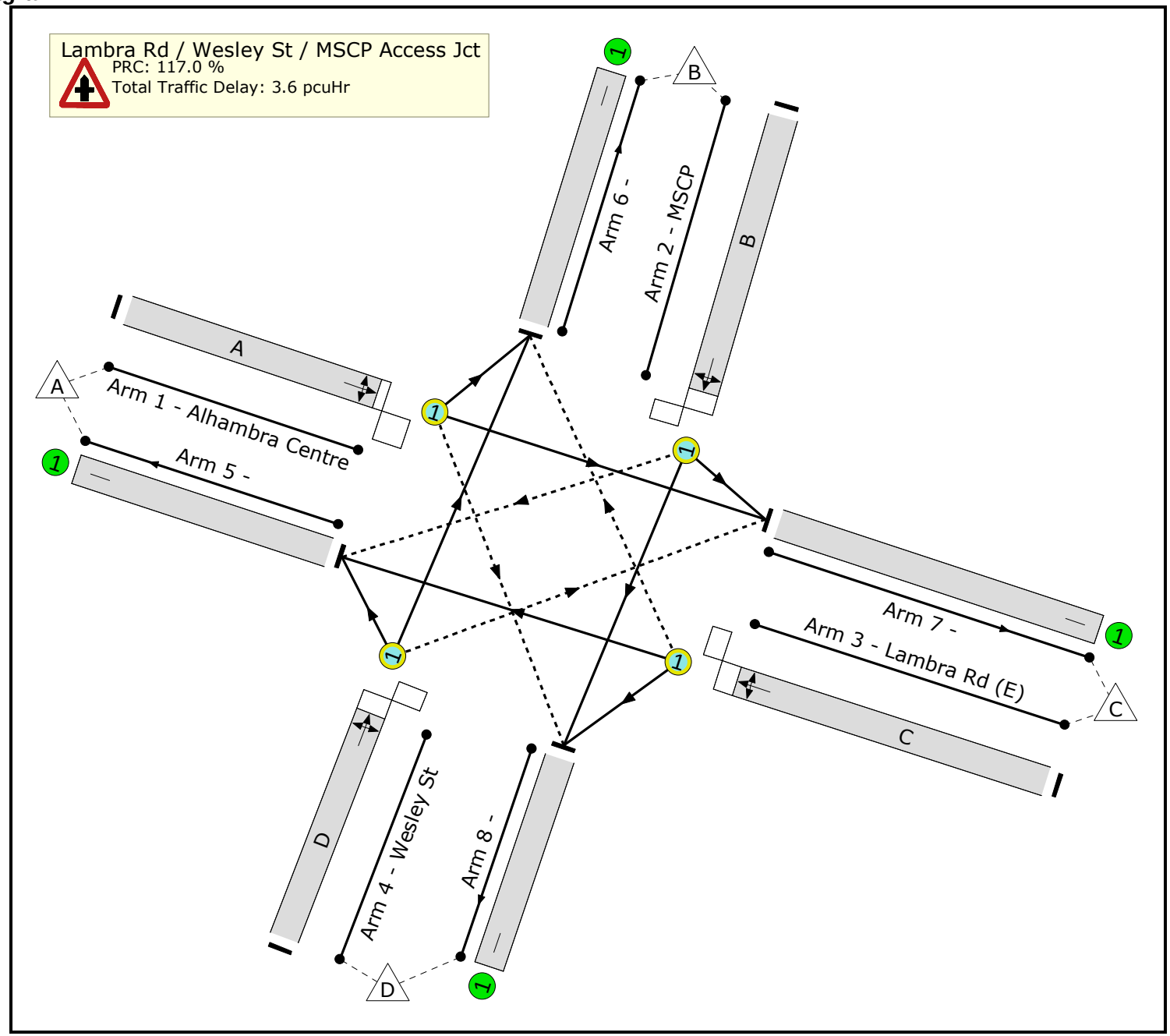
Full Input Data And Results - MSCP Access Junction

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**41.5%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**41.5%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	49	-	313	1927	755	41.5%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	32	-	0	1500	425	0.0%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	49	-	176	1812	770	22.9%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	32	-	209	1809	513	40.8%
5/1		U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	267	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	340	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

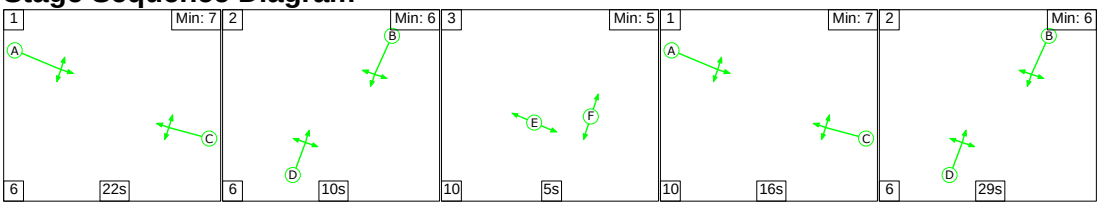
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**334**	**0**	**2**	**2.6**	**0.8**	**0.1**	**3.6**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**334**	**0**	**2**	**2.6**	**0.8**	**0.1**	**3.6**	**-**	**-**	**-**	**-**
1/1	313	313	191	0	0	1.0	0.4	0.1	1.5	17.4	3.9	0.4	4.3
2/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/1	176	176	0	0	0	0.5	0.1	0.0	0.7	14.0	1.9	0.1	2.1
4/1	209	209	143	0	2	1.0	0.3	0.0	1.4	23.8	3.0	0.3	3.4
5/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	267	267	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	340	340	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 117.0 Total Delay for Signalled Lanes (pcuHr): 3.58
PRC Over All Lanes (%): 117.0 Total Delay Over All Lanes(pcuHr): 3.58 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 2: 'PM 2013 + Dev' (FG5: 'PM Peak + DEV - 2013', Plan 2: 'Peds every other')

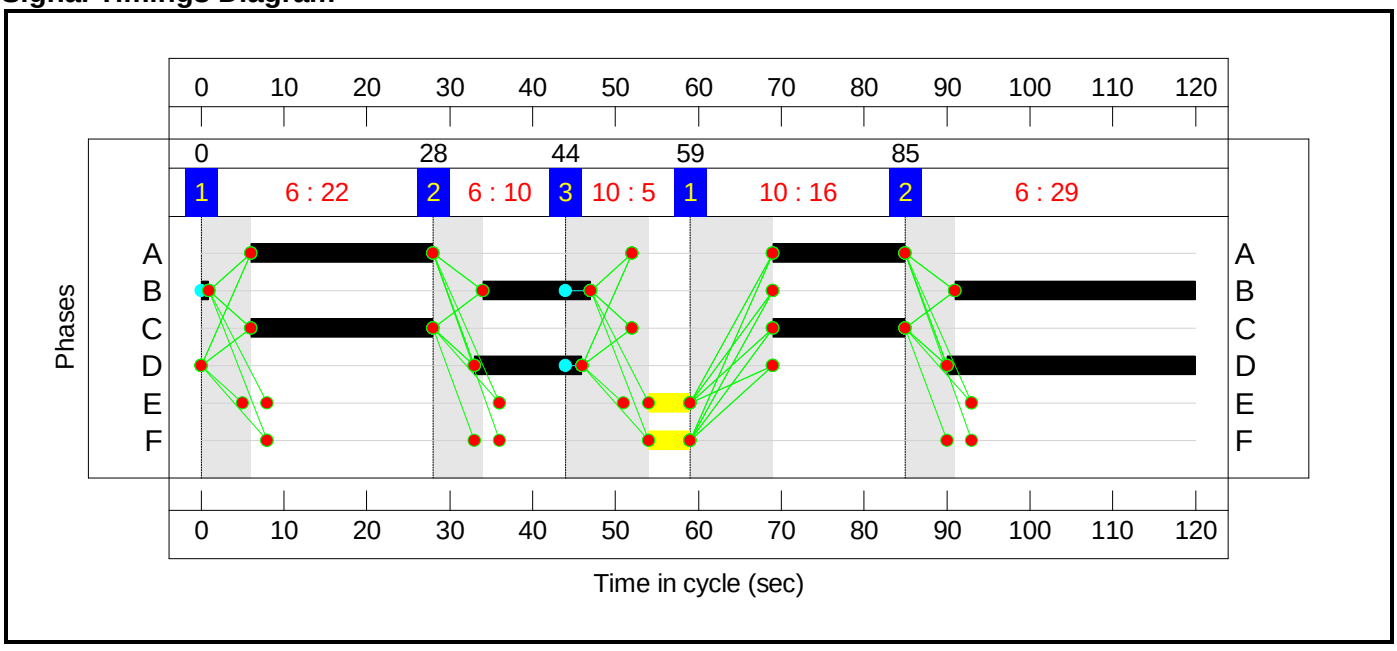
Stage Sequence Diagram



Stage Timings

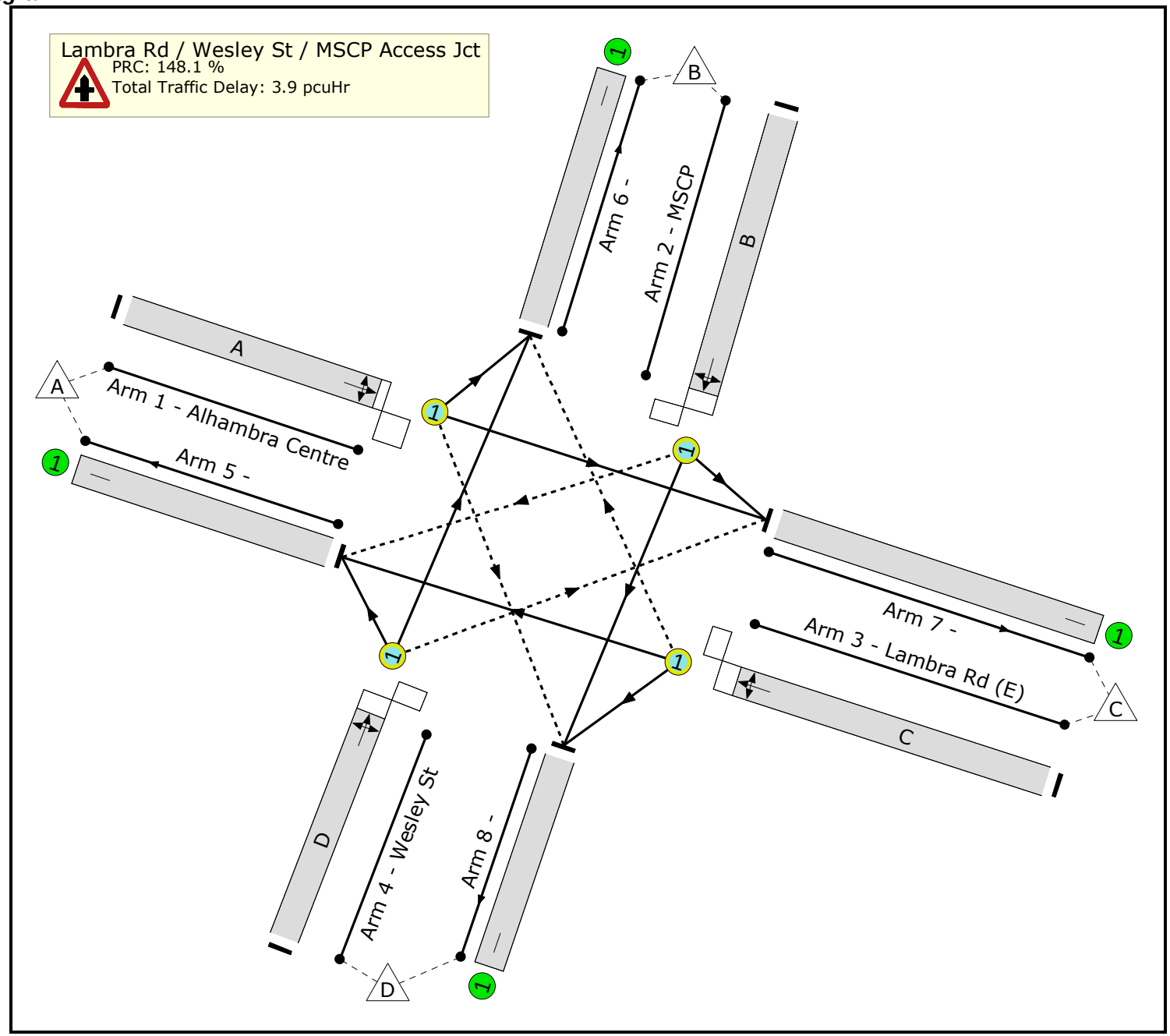
Stage	1	2	3	1	2
Duration	22	10	5	16	29
Change Point	0	28	44	59	85

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.3%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.3%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	38	-	199	1926	562	35.4%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	43	-	116	1500	563	20.6%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	38	-	179	1799	600	29.8%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	43	-	224	1834	617	36.3%
5/1		U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	44	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	259	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	350	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

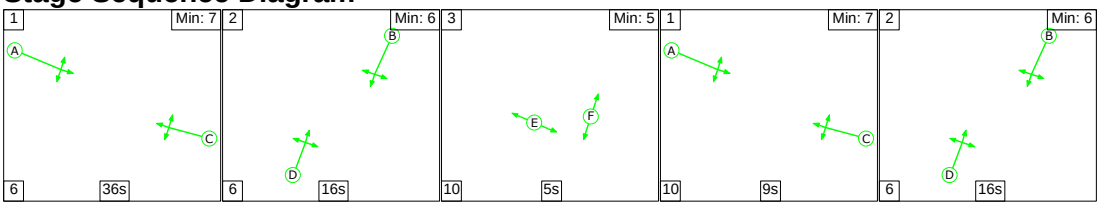
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**275**	**0**	**3**	**2.8**	**0.9**	**0.2**	**3.9**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**275**	**0**	**3**	**2.8**	**0.9**	**0.2**	**3.9**	**-**	**-**	**-**	**-**
1/1	199	199	122	0	0	0.8	0.3	0.1	1.2	21.6	2.4	0.3	2.7
2/1	116	116	0	0	0	0.4	0.1	0.0	0.5	17.0	1.5	0.1	1.6
3/1	179	179	11	0	0	0.7	0.2	0.0	1.0	19.1	2.2	0.2	2.4
4/1	224	224	143	0	2	0.8	0.3	0.1	1.2	19.8	3.0	0.3	3.3
5/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	44	44	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	259	259	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	350	350	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 148.1 Total Delay for Signalled Lanes (pcuHr): 3.92
PRC Over All Lanes (%): 148.1 Total Delay Over All Lanes(pcuHr): 3.92 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 3: 'Sat 2013 Do Min' (FG11: 'Sat Peak DM - 2013', Plan 2: 'Peds every other')

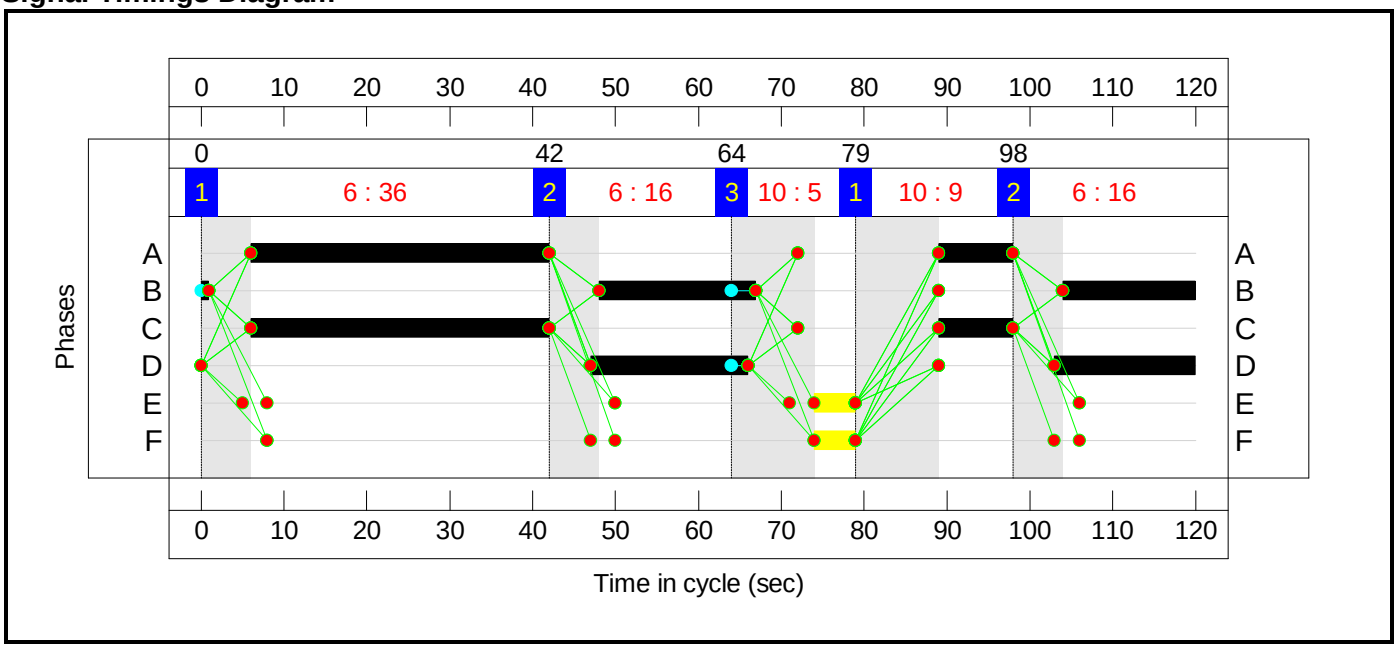
Stage Sequence Diagram



Stage Timings

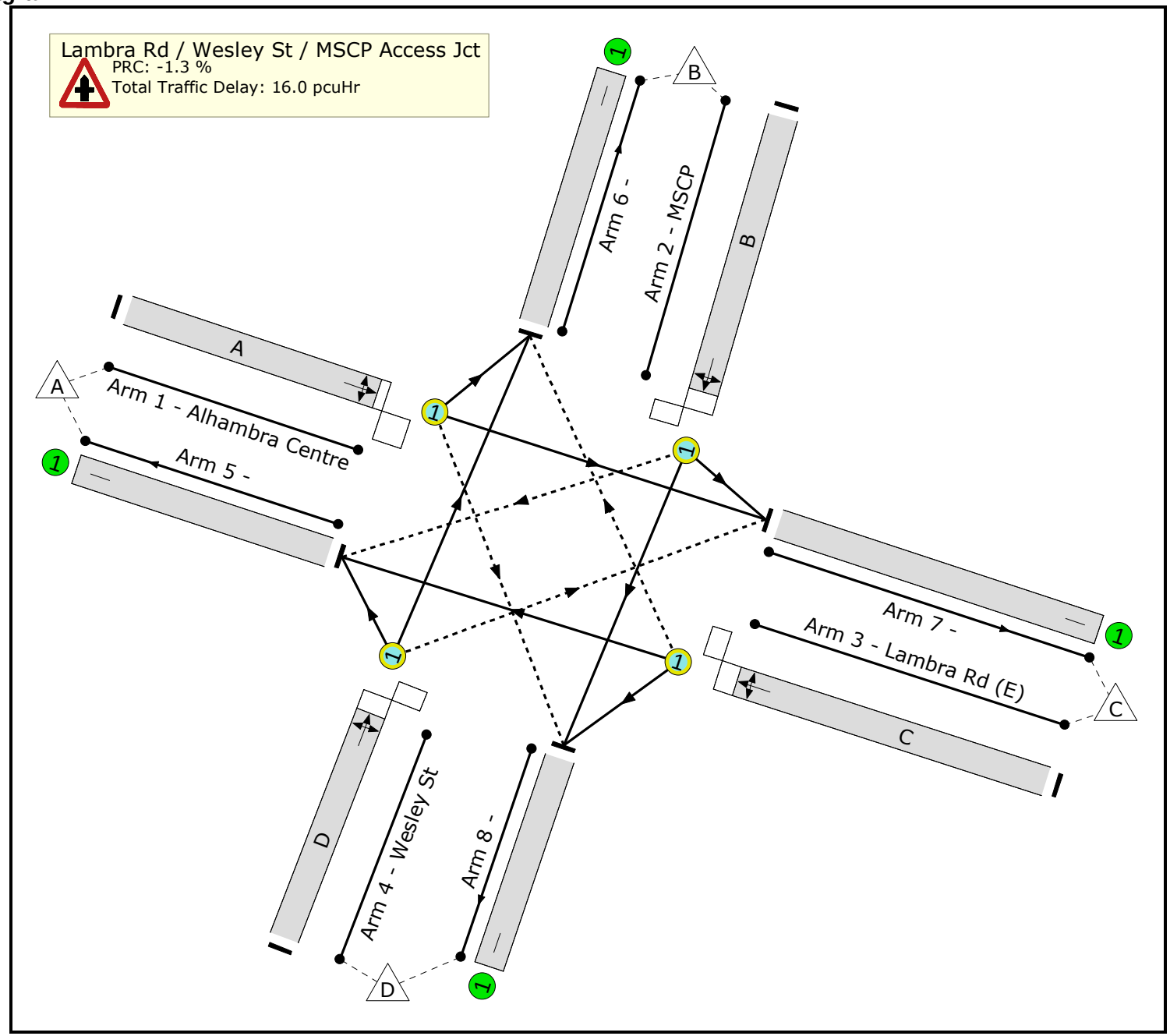
Stage	1	2	3	1	2
Duration	36	16	5	9	16
Change Point	0	42	64	79	98

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.1%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.1%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	45	-	549	1926	602	91.1%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	36	-	0	1500	267	0.0%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	45	-	336	1871	733	45.9%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	36	-	470	1809	573	82.0%
5/1		U	N/A	N/A	-		-	-	-	526	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	324	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	505	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

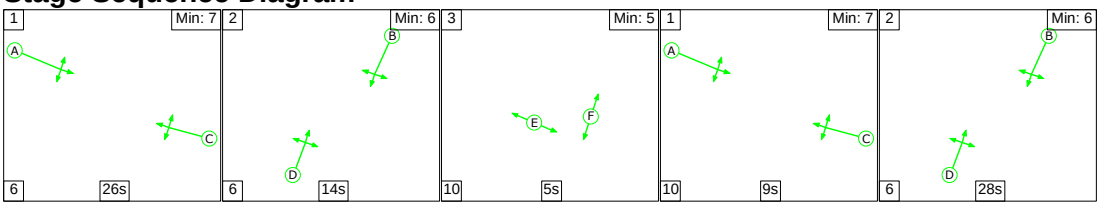
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**393**	**0**	**56**	**8.5**	**7.0**	**0.4**	**16.0**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**393**	**0**	**56**	**8.5**	**7.0**	**0.4**	**16.0**	**-**	**-**	**-**	**-**
1/1	549	549	283	0	54	4.7	4.4	0.4	9.5	62.3	13.9	4.4	18.3
2/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/1	336	336	0	0	0	1.4	0.4	0.0	1.8	19.1	5.2	0.4	5.6
4/1	470	470	110	0	2	2.5	2.2	0.0	4.7	36.1	8.1	2.2	10.3
5/1	526	526	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	324	324	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	505	505	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -1.3 Total Delay for Signalled Lanes (pcuHr): 15.99
PRC Over All Lanes (%): -1.3 Total Delay Over All Lanes(pcuHr): 15.99 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 4: 'Sat 2013 + Dev' (FG12: 'Sat Peak + DEV - 2013', Plan 2: 'Peds every other')

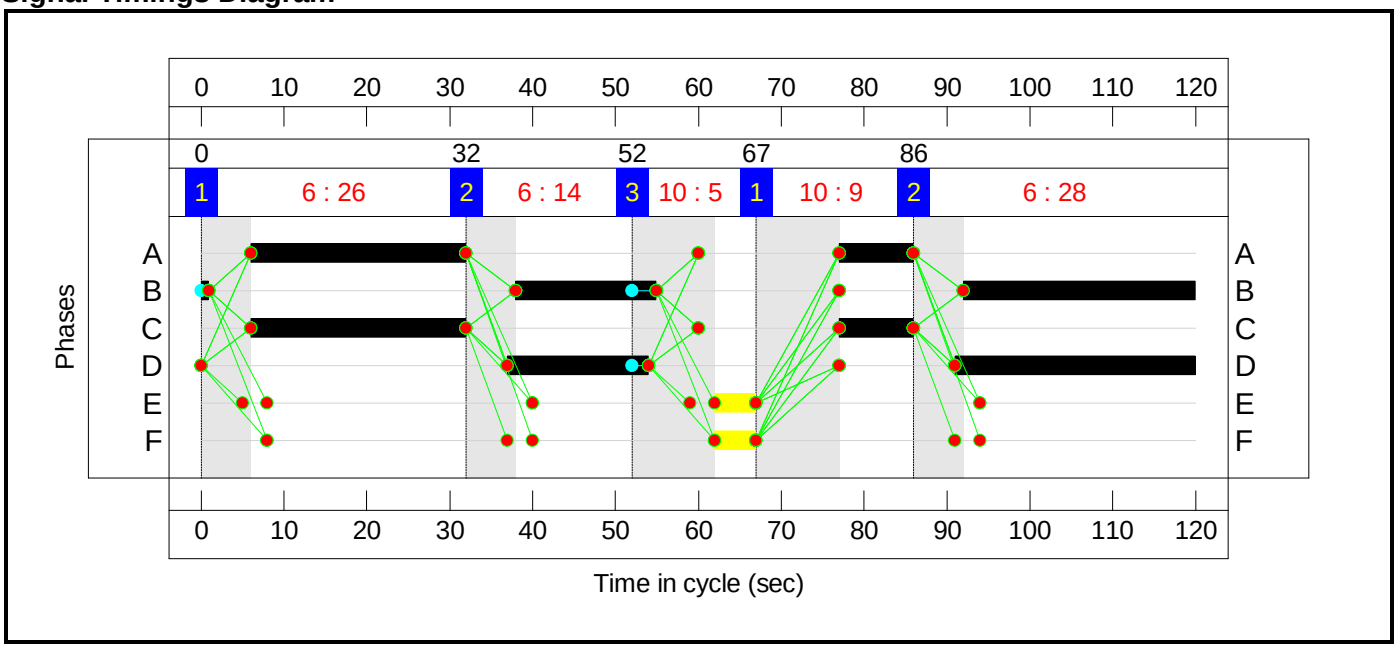
Stage Sequence Diagram



Stage Timings

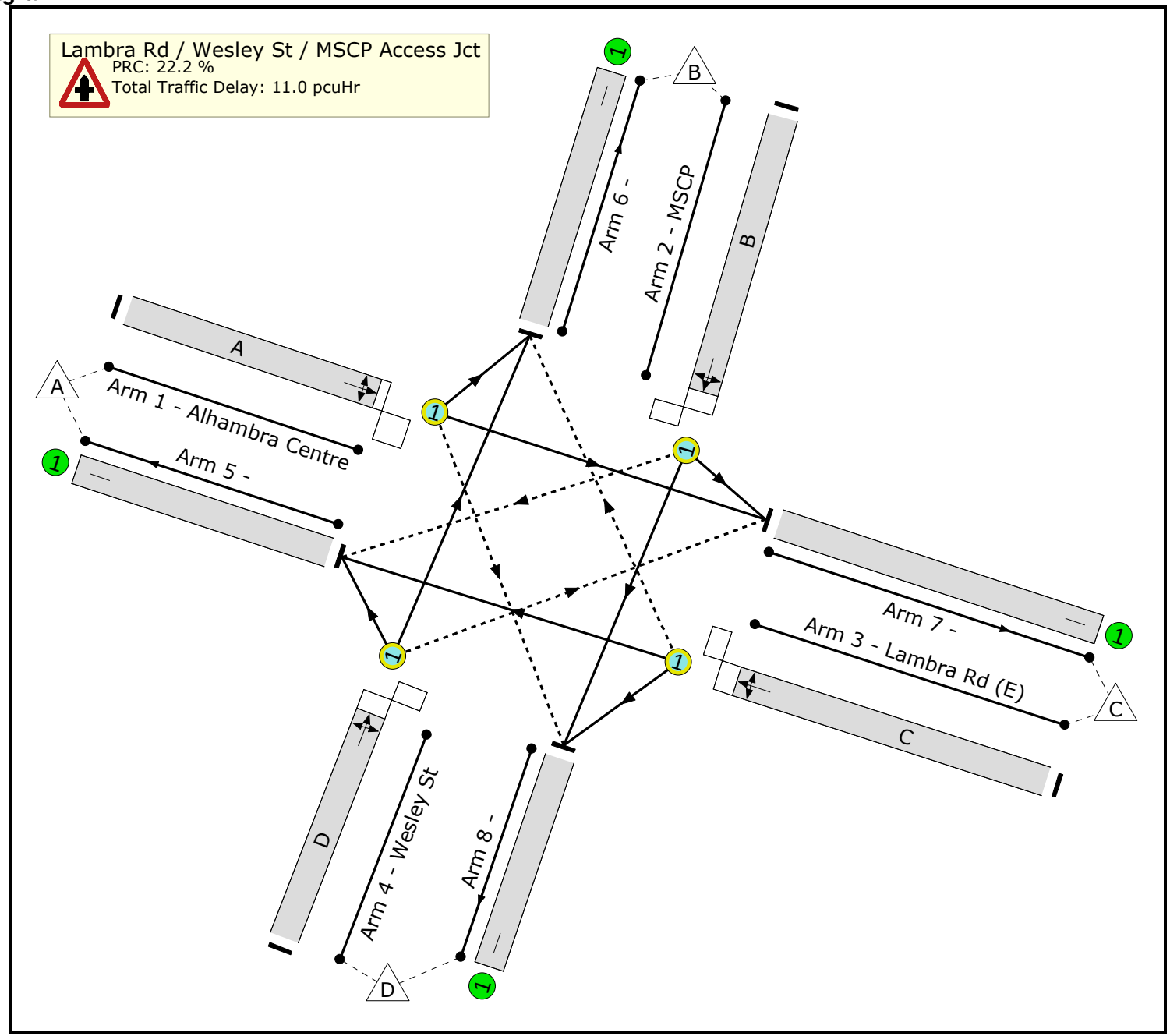
Stage	1	2	3	1	2
Duration	26	14	5	9	28
Change Point	0	32	52	67	86

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.7%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.7%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	35	-	311	1926	431	72.1%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	46	-	257	1500	600	42.8%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	35	-	336	1817	552	60.9%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	46	-	525	1876	713	73.7%
5/1		U	N/A	N/A	-		-	-	-	303	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	278	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	534	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

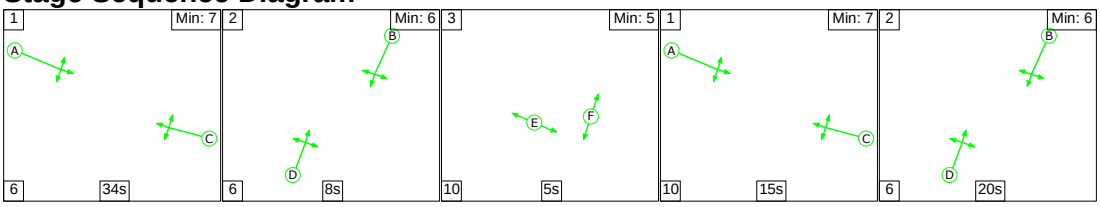
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**314**	**0**	**60**	**6.8**	**3.8**	**0.4**	**11.0**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**314**	**0**	**60**	**6.8**	**3.8**	**0.4**	**11.0**	**-**	**-**	**-**	**-**
1/1	311	311	137	0	54	2.1	1.3	0.3	3.6	41.7	6.0	1.3	7.3
2/1	257	257	0	0	0	0.9	0.4	0.0	1.3	18.3	3.1	0.4	3.4
3/1	336	336	67	0	4	1.6	0.8	0.0	2.4	26.1	4.9	0.8	5.7
4/1	525	525	110	0	2	2.2	1.4	0.1	3.7	25.1	7.4	1.4	8.8
5/1	303	303	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	278	278	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	534	534	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 22.2 Total Delay for Signalled Lanes (pcuHr): 11.01
PRC Over All Lanes (%): 22.2 Total Delay Over All Lanes(pcuHr): 11.01 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 5: 'PM 2023 Do Min' (FG6: 'PM Peak DM - 2023', Plan 2: 'Peds every other')

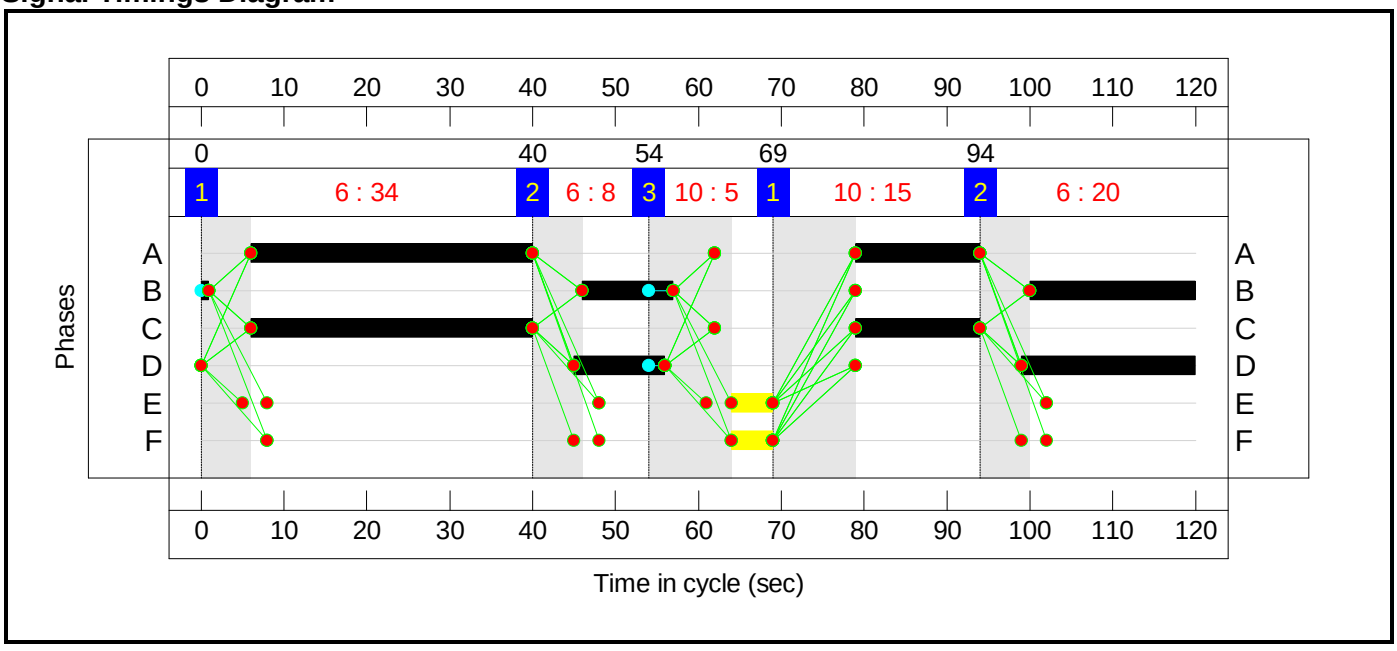
Stage Sequence Diagram



Stage Timings

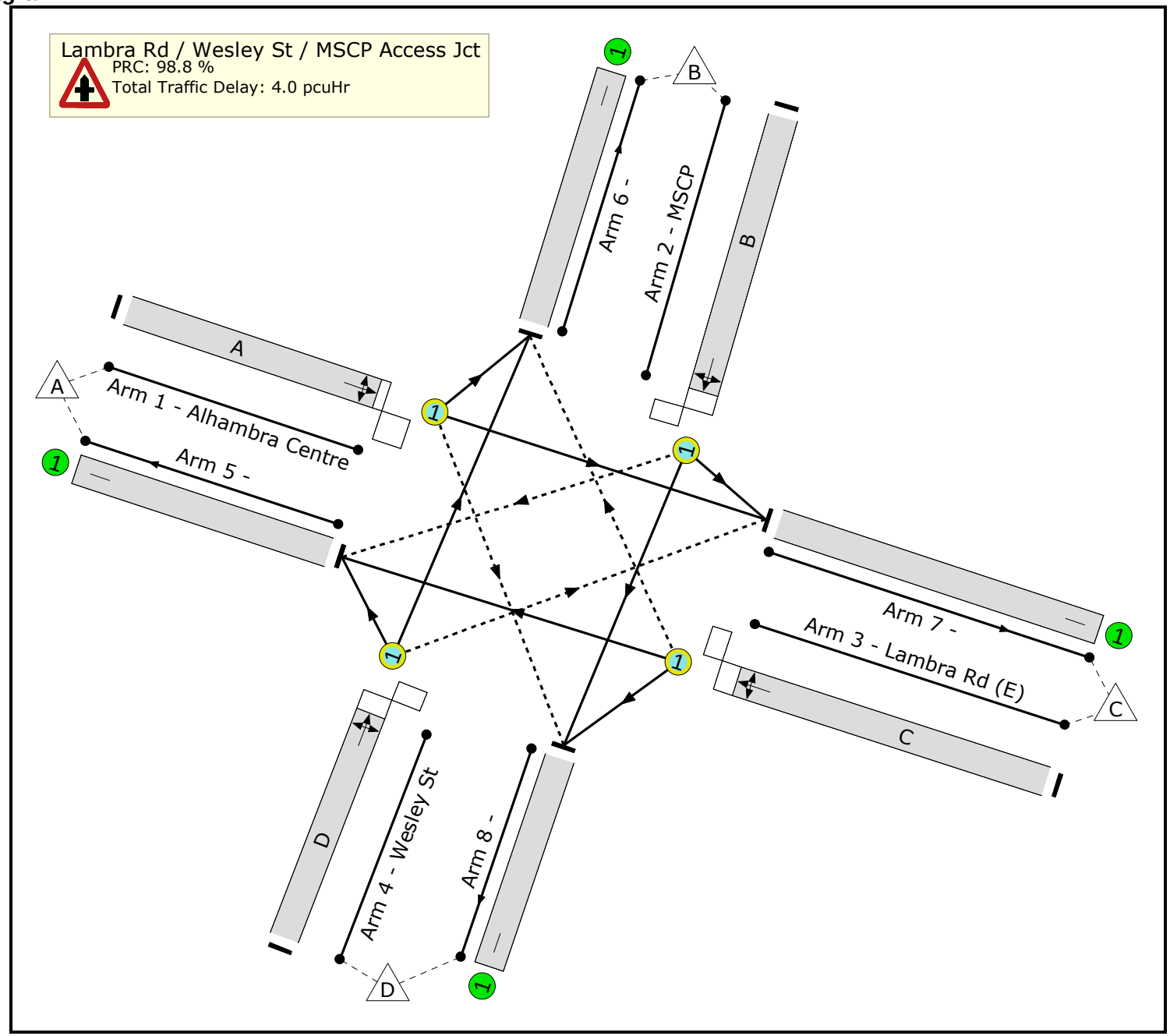
Stage	1	2	3	1	2
Duration	34	8	5	15	20
Change Point	0	40	54	69	94

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**45.3%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**45.3%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	49	-	342	1927	755	45.3%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	32	-	0	1500	425	0.0%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	49	-	191	1811	770	24.8%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	32	-	228	1809	513	44.5%
5/1		U	N/A	N/A	-		-	-	-	99	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	292	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	370	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

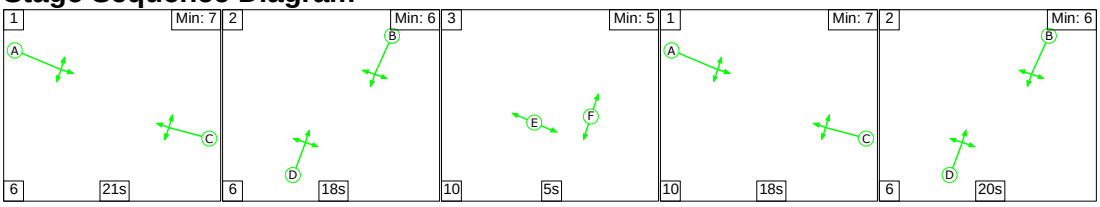
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**363**	**0**	**3**	**2.9**	**1.0**	**0.2**	**4.0**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**363**	**0**	**3**	**2.9**	**1.0**	**0.2**	**4.0**	**-**	**-**	**-**	**-**
1/1	342	342	208	0	0	1.2	0.4	0.1	1.7	18.3	4.7	0.4	5.1
2/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/1	191	191	0	0	0	0.6	0.2	0.0	0.8	14.3	2.2	0.2	2.4
4/1	228	228	155	0	3	1.1	0.4	0.0	1.5	24.3	3.2	0.4	3.6
5/1	99	99	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	292	292	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	370	370	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 98.8 Total Delay for Signalled Lanes (pcuHr): 4.04
PRC Over All Lanes (%): 98.8 Total Delay Over All Lanes(pcuHr): 4.04 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 6: 'PM 2023 + Dev' (FG7: 'PM Peak + DEV - 2023', Plan 2: 'Peds every other')

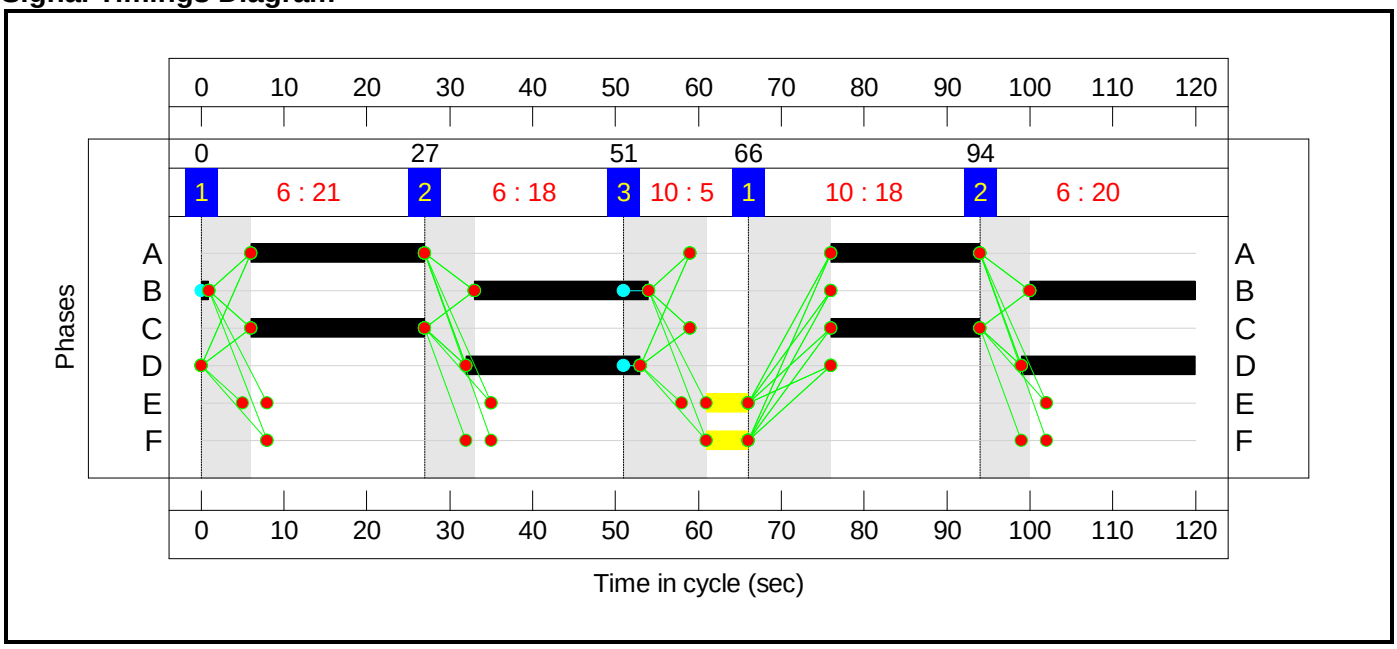
Stage Sequence Diagram



Stage Timings

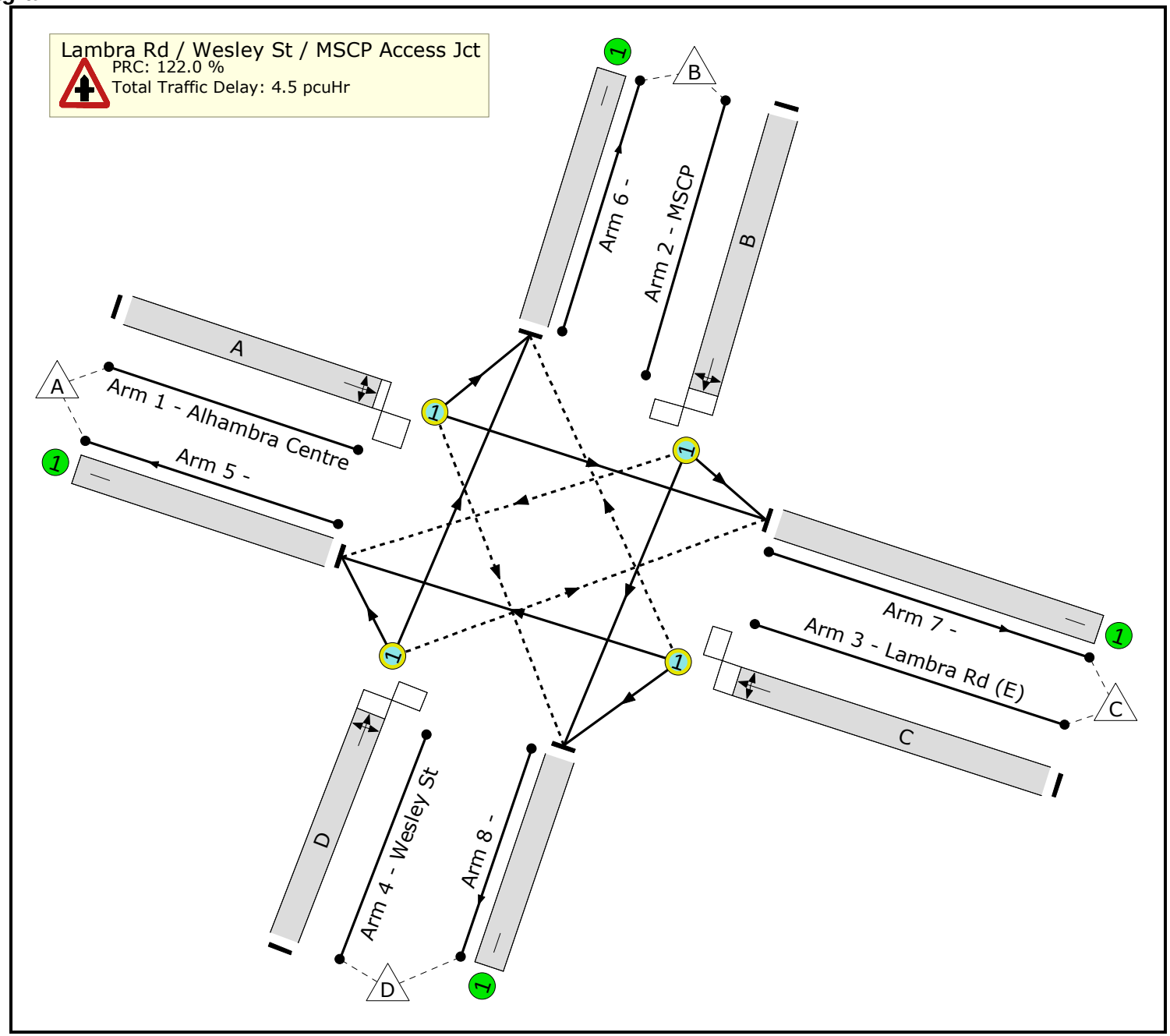
Stage	1	2	3	1	2
Duration	21	18	5	18	20
Change Point	0	27	51	66	94

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**40.5%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**40.5%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	39	-	228	1927	562	40.5%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	42	-	116	1500	550	21.1%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	39	-	194	1799	615	31.6%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	42	-	243	1832	601	40.4%
5/1		U	N/A	N/A	-		-	-	-	73	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	44	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	284	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	380	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

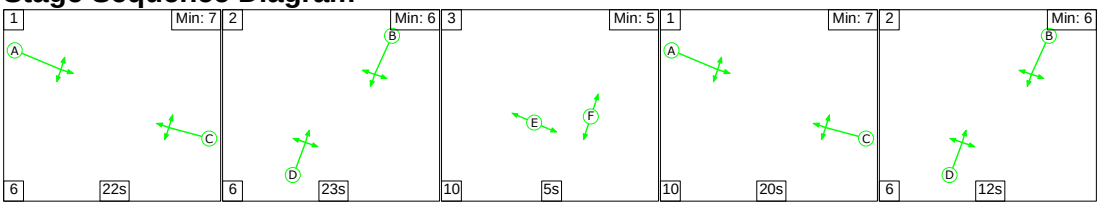
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**305**	**0**	**3**	**3.2**	**1.0**	**0.2**	**4.5**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**305**	**0**	**3**	**3.2**	**1.0**	**0.2**	**4.5**	**-**	**-**	**-**	**-**
1/1	228	228	139	0	0	1.0	0.3	0.1	1.4	22.9	3.4	0.3	3.8
2/1	116	116	0	0	0	0.4	0.1	0.0	0.6	17.6	1.5	0.1	1.7
3/1	194	194	11	0	0	0.8	0.2	0.0	1.1	19.6	2.9	0.2	3.1
4/1	243	243	155	0	3	1.0	0.3	0.1	1.4	21.1	3.7	0.3	4.1
5/1	73	73	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	44	44	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	284	284	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	380	380	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 122.0 Total Delay for Signalled Lanes (pcuHr): 4.50
PRC Over All Lanes (%): 122.0 Total Delay Over All Lanes(pcuHr): 4.50 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 7: 'Sat 2023 Do Min' (FG13: 'Sat Peak DM - 2023', Plan 2: 'Peds every other')

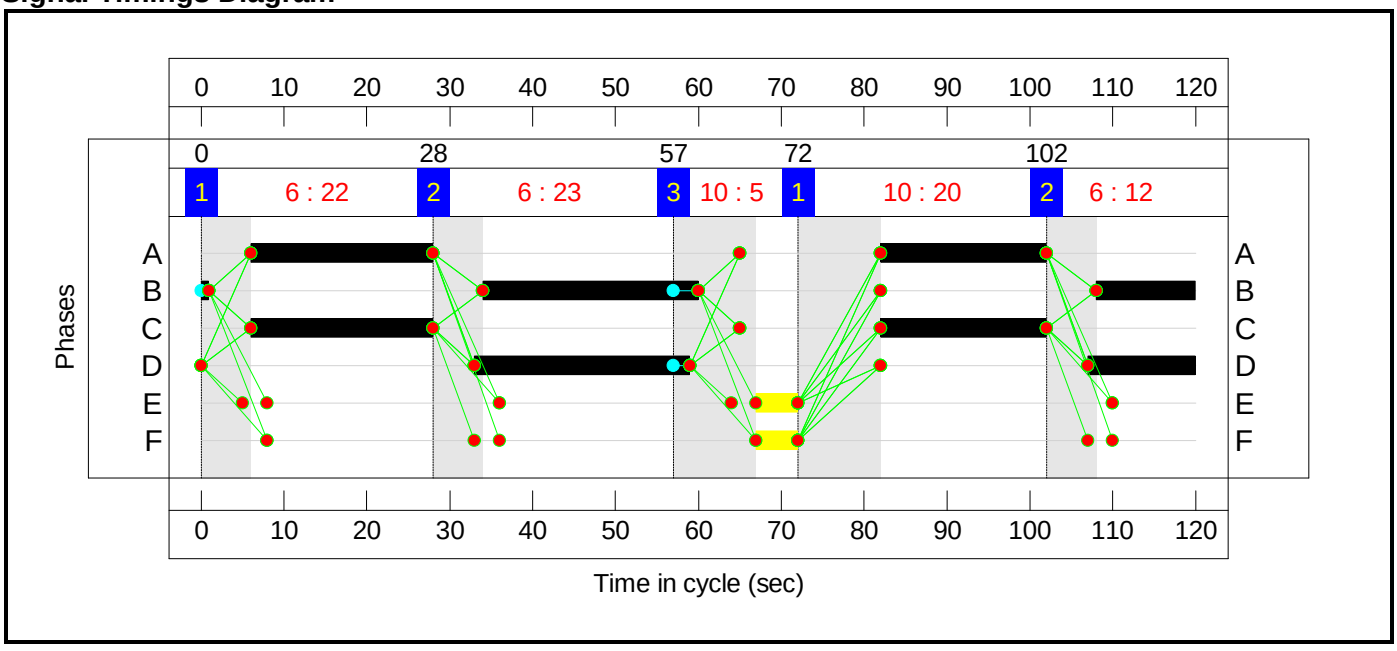
Stage Sequence Diagram



Stage Timings

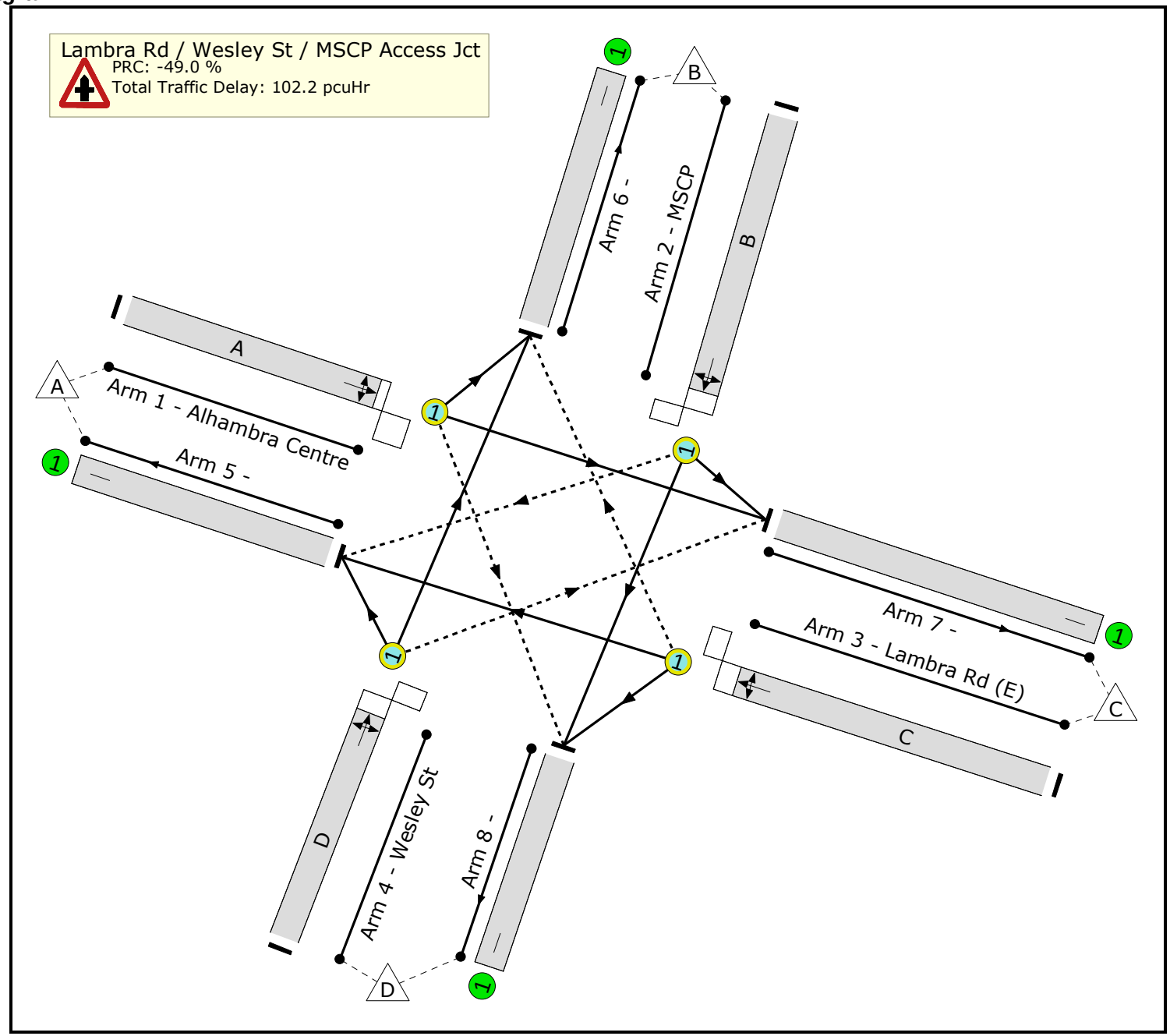
Stage	1	2	3	1	2
Duration	22	23	5	20	12
Change Point	0	28	57	72	102

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**134.1%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**134.1%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	42	-	601	1926	448	134.1%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	39	-	0	1500	330	0.0%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	42	-	368	1871	686	53.6%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	39	-	514	1809	618	83.2%
5/1		U	N/A	N/A	-		-	-	-	575	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	355	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	553	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

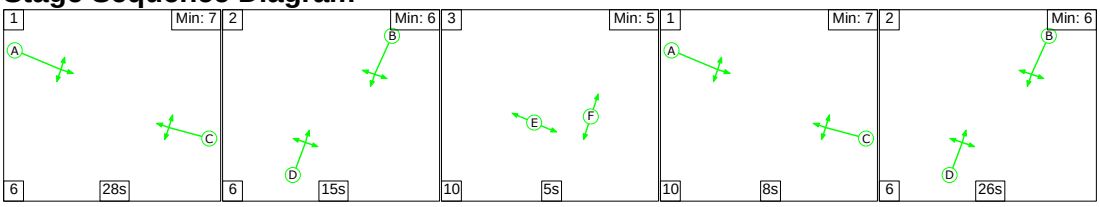
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**332**	**0**	**67**	**20.6**	**81.2**	**0.4**	**102.2**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**332**	**0**	**67**	**20.6**	**81.2**	**0.4**	**102.2**	**-**	**-**	**-**	**-**
1/1	601	448	214	0	61	15.5	78.3	0.4	94.2	564.3	22.5	78.3	100.8
2/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/1	368	368	0	0	0	1.8	0.6	0.0	2.3	23.0	6.6	0.6	7.2
4/1	514	514	117	0	6	3.3	2.4	0.0	5.7	39.8	8.7	2.4	11.1
5/1	575	575	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	296	296	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	459	459	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -49.0 Total Delay for Signalled Lanes (pcuHr): 102.23
PRC Over All Lanes (%): -49.0 Total Delay Over All Lanes(pcuHr): 102.23 Cycle Time (s): 120

Full Input Data And Results - MSCP Access Junction

Scenario 8: 'Sat 2023 + Dev' (FG14: 'Sat Peak + DEV - 2023', Plan 2: 'Peds every other')

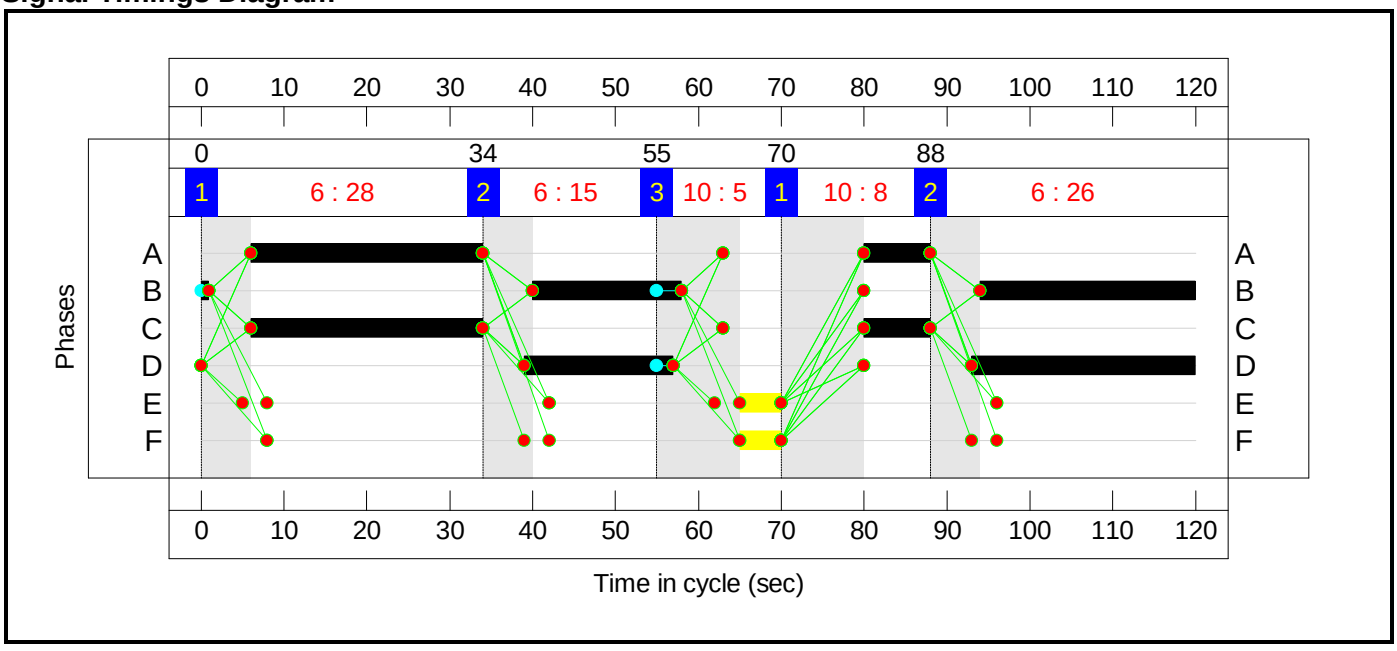
Stage Sequence Diagram



Stage Timings

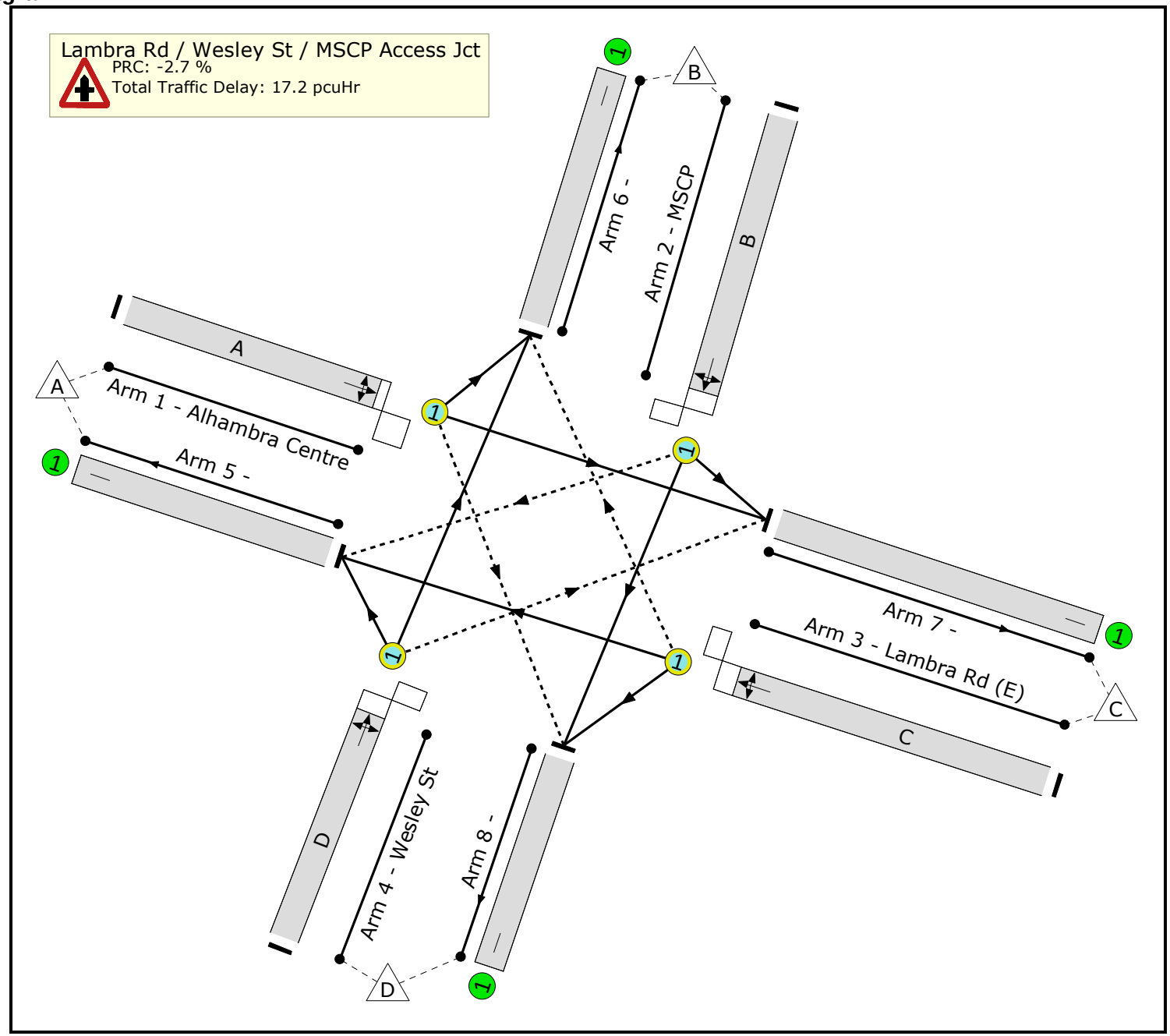
Stage	1	2	3	1	2
Duration	28	15	5	8	26
Change Point	0	34	55	70	88

Signal Timings Diagram



Full Input Data And Results - MSCP Access Junction

Network Layout Diagram



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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.5%**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**92.5%**
1/1	Alhambra Centre Left Ahead Right	O	N/A	N/A	A		2	36	-	363	1926	393	92.5%
2/1	MSCP Right Left Ahead	O	N/A	N/A	B		2	45	-	257	1500	588	43.7%
3/1	Lambra Rd (E) Ahead Right Left	O	N/A	N/A	C		2	36	-	368	1821	561	65.6%
4/1	Wesley St Left Ahead Right	O	N/A	N/A	D		2	45	-	569	1871	701	81.1%
5/1		U	N/A	N/A	-		-	-	-	352	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	278	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	582	Inf	Inf	0.0%

Full Input Data And Results - MSCP Access Junction

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	**-**	**-**	**336**	**0**	**81**	**8.6**	**8.1**	**0.5**	**17.2**	**-**	**-**	**-**	**-**
Lambra Rd / Wesley St / MSCP Access Jct	**-**	**-**	**336**	**0**	**81**	**8.6**	**8.1**	**0.5**	**17.2**	**-**	**-**	**-**	**-**
1/1	363	363	157	0	66	2.9	4.7	0.4	8.0	79.2	8.2	4.7	12.9
2/1	257	257	0	0	0	1.0	0.4	0.0	1.3	18.9	3.2	0.4	3.6
3/1	368	368	60	0	11	2.2	0.9	0.0	3.2	30.9	5.9	0.9	6.8
4/1	569	569	120	0	3	2.6	2.1	0.1	4.7	29.9	8.9	2.1	10.9
5/1	352	352	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	278	278	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	582	582	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

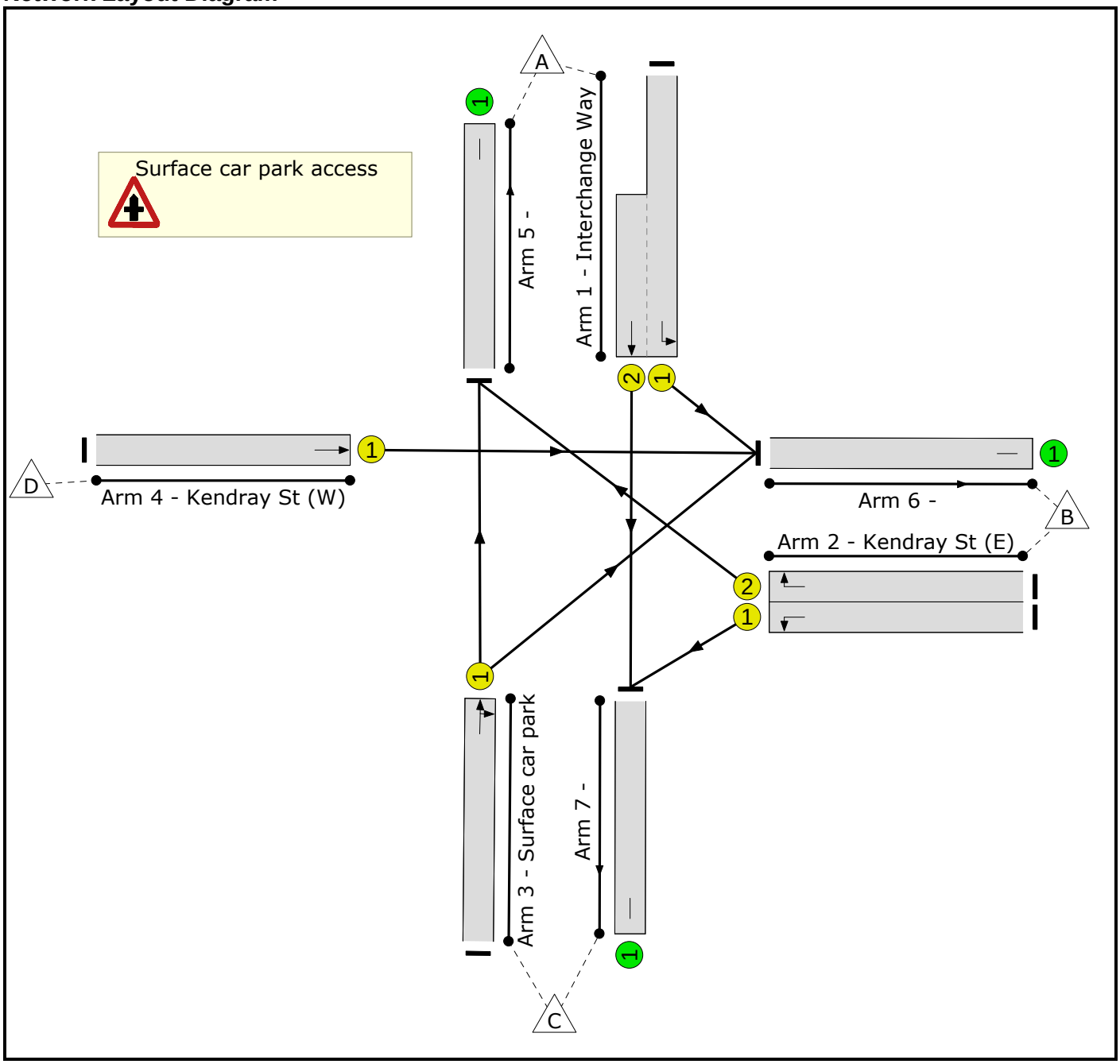
C1 PRC for Signalled Lanes (%): -2.7 Total Delay for Signalled Lanes (pcuHr): 17.22
PRC Over All Lanes (%): -2.7 Total Delay Over All Lanes(pcuHr): 17.22 Cycle Time (s): 120

Full Input Data And Results - Surface car park layout

User and Project Details

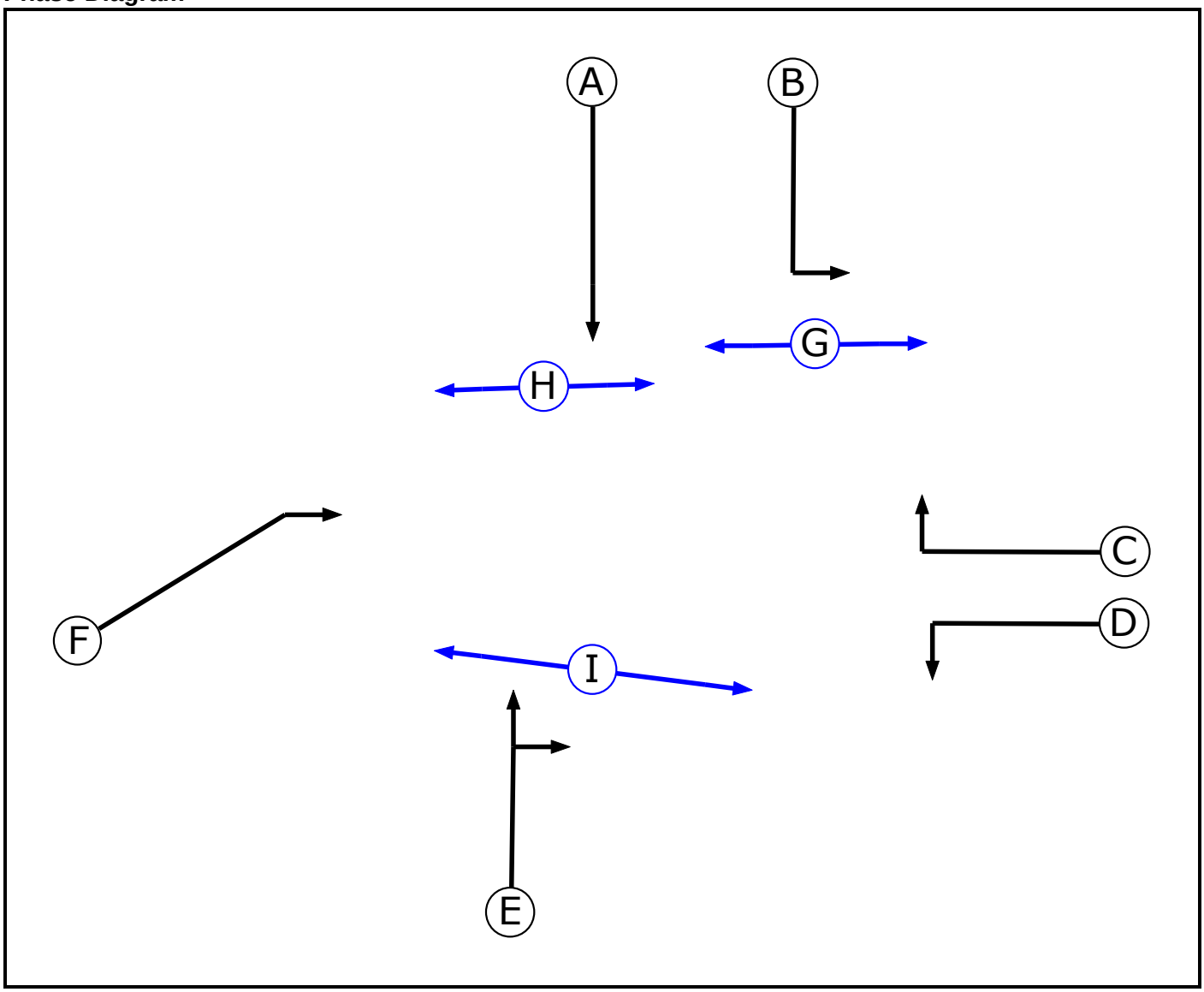
Project:	
Title:	
Location:	
File name:	Surface Car Park Access junction option B v2.0.lsg3x
Author:	
Company:	
Address:	
Notes:	

Network Layout Diagram



Full Input Data And Results - Surface car park layout

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		6	6

Full Input Data And Results - Surface car park layout

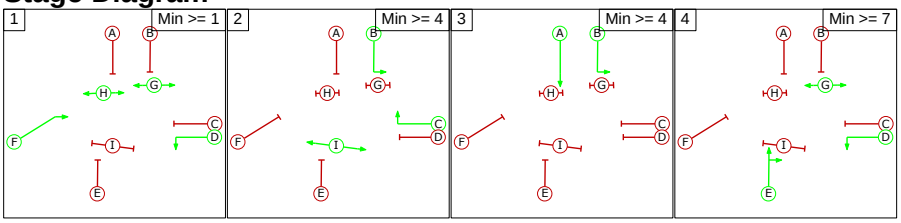
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I
A		-	5	6	6	5	-	5	7
B	-		-	-	5	5	5	-	-
C	8	-		-	5	5	-	8	-
D	5	-	-		-	-	-	-	6
E	5	7	5	-		5	-	7	5
F	10	10	10	-	10		-	-	-
G	-	8	-	-	-	-		-	-
H	8	-	8	-	8	-	-		-
I	12	-	-	12	12	-	-	-	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	C	Losing	4	4

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		10	10	10
2	12		12	12
3	6	7		6
4	7	8	8	

Full Input Data And Results - Surface car park layout

Give-Way Lane Input Data

Junction: Surface car park access
There are no Opposed Lanes in this Junction

Full Input Data And Results - Surface car park layout

Lane Input Data

Junction: Surface car park access												
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)**
1/1 (Interchange Way)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Left	12.50
1/2 (Interchange Way)	U	A	2	3	8.0	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
2/1 (Kendray St (E))	U	D	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 7 Left	10.00
2/2 (Kendray St (E))	U	C	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Right	15.00
3/1 (Surface car park)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead Arm 6 Right	Inf 15.00
4/1 (Kendray St (W))	U	F	2	3	60.0	User	1600	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'PM Base'	16:00	17:00	01:00	
2: 'PM Existing Trips'	16:00	17:00	01:00	
3: 'PM Dev trips'	16:00	17:00	01:00	
4: 'PM 2013 Do Min'	16:00	17:00	01:00	F1* 1.0193
5: 'PM 2013 + DEV'	16:00	17:00	01:00	(F1* 1.0193)-F2+F3
6: 'PM 2023 Do Min'	16:00	17:00	01:00	F1* 1.1126
7: 'PM 2023 + DEV'	16:00	17:00	01:00	(F1*1.1126)-F2+F3
8: 'Sat Base'	12:00	13:00	01:00	
9: 'Sat Existing Trips'	12:00	13:00	01:00	
10: 'Sat Dev trips'	12:00	13:00	01:00	
11: 'Sat 2013 Do Min'	12:00	13:00	01:00	F8*1.0194
12: 'Sat 2013 + Dev'	12:00	13:00	01:00	(F8*1.0194)-F9+F10
13: 'Sat 2023 Do Min'	12:00	13:00	01:00	F8*1.1152
14: 'Sat 2023 + DEV'	12:00	13:00	01:00	(F8 * 1.1152) -F9 + F10

Scenario 1: 'PM 2013 Do Min' (FG4: 'PM 2013 Do Min', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	381	0	0	381
	B	346	0	18	0	364
	C	0	0	0	0	0
	D	0	102	0	0	102
	Tot.	346	483	18	0	847

Traffic Lane Flows

Lane	Scenario 1: PM 2013 Do Min
Junction: Surface car park access	
1/1 (with short)	381(In) 381(Out)
1/2 (short)	0
2/1	18
2/2	346
3/1	0
4/1	102
5/1	346
6/1	483
7/1	18

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1915
				Arm 6 Right	15.00	0.0 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 2: 'PM 2013 + DEV' (FG5: 'PM 2013 + DEV', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	381	8	0	389
	B	346	0	25	0	371
	C	15	36	0	0	51
	D	0	102	0	0	102
	Tot.	361	519	33	0	913

Traffic Lane Flows

Lane	Scenario 2: PM 2013 + DEV
Junction: Surface car park access	
1/1 (with short)	389(In) 381(Out)
1/2 (short)	8
2/1	25
2/2	346
3/1	51
4/1	102
5/1	361
6/1	519
7/1	33

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	29.4 %	1789
				Arm 6 Right	15.00	70.6 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 3: 'PM 2023 Do Min' (FG6: 'PM 2023 Do Min', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	416	0	0	416
	B	377	0	20	0	397
	C	0	0	0	0	0
	D	0	111	0	0	111
	Tot.	377	527	20	0	924

Traffic Lane Flows

Lane	Scenario 3: PM 2023 Do Min
Junction: Surface car park access	
1/1 (with short)	416(In) 416(Out)
1/2 (short)	0
2/1	20
2/2	377
3/1	0
4/1	111
5/1	377
6/1	527
7/1	20

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1915
				Arm 6 Right	15.00	0.0 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 4: 'PM 2023 + DEV' (FG7: 'PM 2023 + DEV', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	416	8	0	424
	B	377	0	27	0	404
	C	15	36	0	0	51
	D	0	111	0	0	111
	Tot.	392	563	35	0	990

Traffic Lane Flows

Lane	Scenario 4: PM 2023 + DEV
Junction: Surface car park access	
1/1 (with short)	424(In) 416(Out)
1/2 (short)	8
2/1	27
2/2	377
3/1	51
4/1	111
5/1	392
6/1	563
7/1	35

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	29.4 %	1789
				Arm 6 Right	15.00	70.6 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 5: 'Sat 2013 Do Min' (FG11: 'Sat 2013 Do Min', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	262	0	0	262
	B	286	0	40	0	326
	C	0	2	0	0	2
	D	0	52	0	0	52
	Tot.	286	316	40	0	642

Traffic Lane Flows

Lane	Scenario 5: Sat 2013 Do Min
Junction: Surface car park access	
1/1 (with short)	262(In) 262(Out)
1/2 (short)	0
2/1	40
2/2	286
3/1	2
4/1	52
5/1	286
6/1	316
7/1	40

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1741
				Arm 6 Right	15.00	100.0 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 6: 'Sat 2013 + DEV' (FG12: 'Sat 2013 + Dev', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	262	43	0	305
	B	286	0	84	0	370
	C	35	75	0	0	110
	D	0	52	0	0	52
	Tot.	321	389	127	0	837

Traffic Lane Flows

Lane	Scenario 6: Sat 2013 + DEV
Junction: Surface car park access	
1/1 (with short)	305(In) 262(Out)
1/2 (short)	43
2/1	84
2/2	286
3/1	110
4/1	52
5/1	321
6/1	389
7/1	127

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	31.8 %	1793
				Arm 6 Right	15.00	68.2 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 7: 'Sat 2023 Do Min' (FG13: 'Sat 2023 Do Min', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	287	0	0	287
	B	313	0	43	0	356
	C	0	2	0	0	2
	D	0	57	0	0	57
	Tot.	313	346	43	0	702

Traffic Lane Flows

Lane	Scenario 7: Sat 2023 Do Min
Junction: Surface car park access	
1/1 (with short)	287(In) 287(Out)
1/2 (short)	0
2/1	43
2/2	313
3/1	2
4/1	57
5/1	313
6/1	346
7/1	43

Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1741
				Arm 6 Right	15.00	100.0 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 8: 'Sat 2023 + DEV' (FG14: 'Sat 2023 + DEV', Plan 1: 'Each stage every cycle')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	287	43	0	330
	B	313	0	87	0	400
	C	35	75	0	0	110
	D	0	57	0	0	57
	Tot.	348	419	130	0	897

Traffic Lane Flows

Lane	Scenario 8: Sat 2023 + DEV
Junction: Surface car park access	
1/1 (with short)	330(In) 287(Out)
1/2 (short)	43
2/1	87
2/2	313
3/1	110
4/1	57
5/1	348
6/1	419
7/1	130

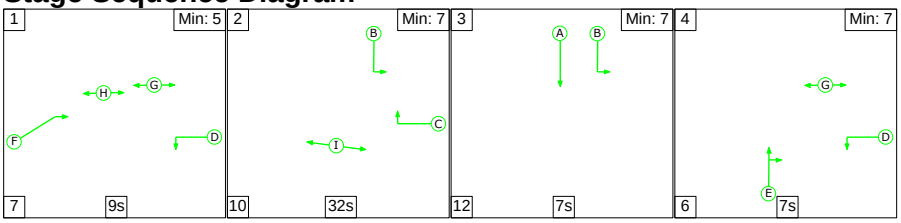
Full Input Data And Results - Surface car park layout

Lane Saturation Flows

Junction: Surface car park access							
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat flow (PCU/Hr)**
1/1 (Interchange Way)	4.50	0.00	Y	Arm 6 Left	12.50	100.0 %	1844
1/2 (Interchange Way)	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915
2/1 (Kendray St (E))	3.75	0.00	Y	Arm 7 Left	10.00	100.0 %	1730
2/2 (Kendray St (E))	3.75	0.00	Y	Arm 5 Right	15.00	100.0 %	1809
3/1 (Surface car park)	3.00	0.00	Y	Arm 5 Ahead	Inf	31.8 %	1793
				Arm 6 Right	15.00	68.2 %	
4/1 (Kendray St (W) Lane 1)	This lane uses a directly entered Saturation Flow						1600
5/1	Infinite Saturation Flow						Inf
6/1	Infinite Saturation Flow						Inf
7/1	Infinite Saturation Flow						Inf

Scenario 1: 'PM 2013 Do Min' (FG4: 'PM 2013 Do Min', Plan 1: 'Each stage every cycle')

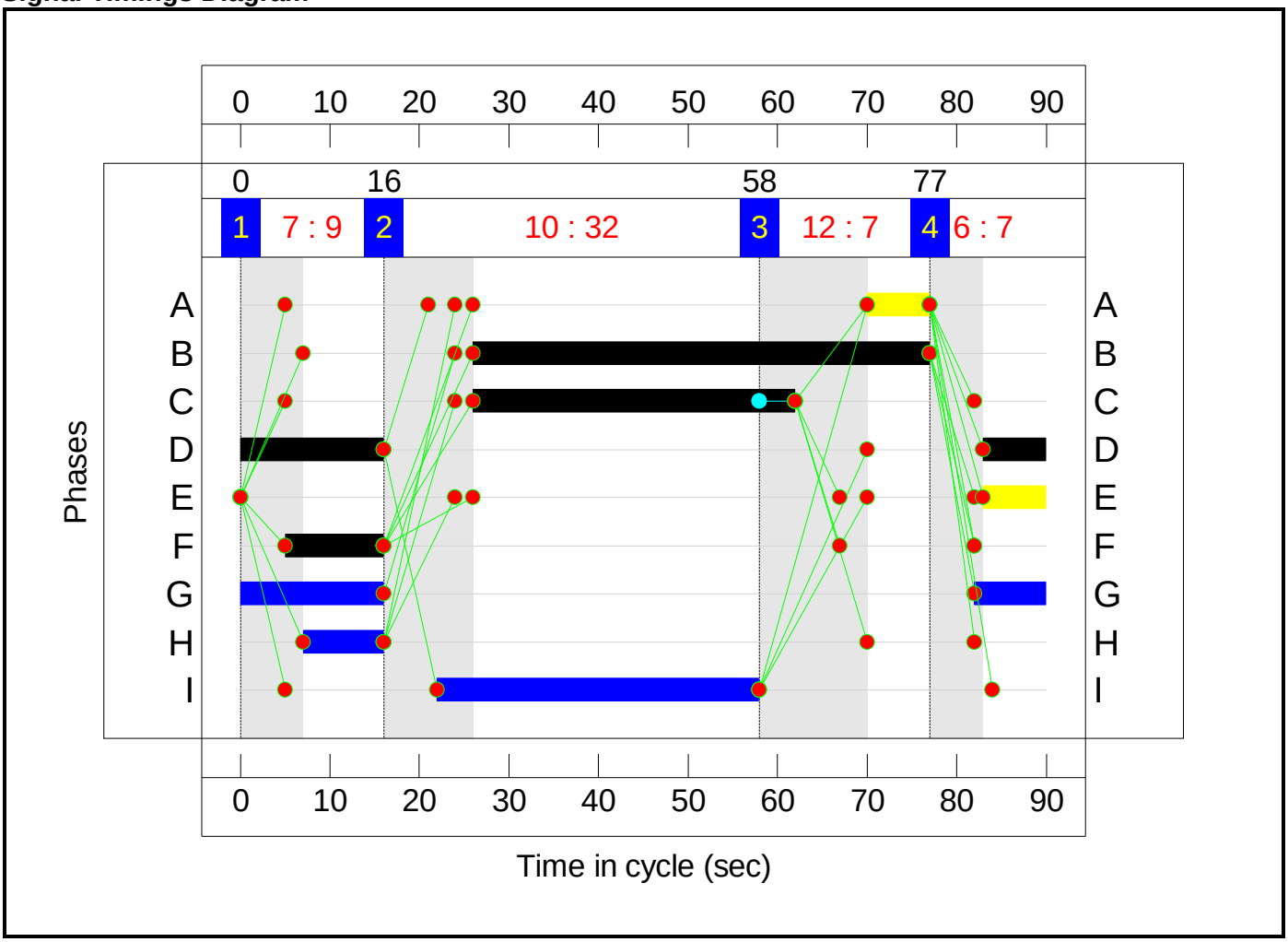
Stage Sequence Diagram



Stage Timings

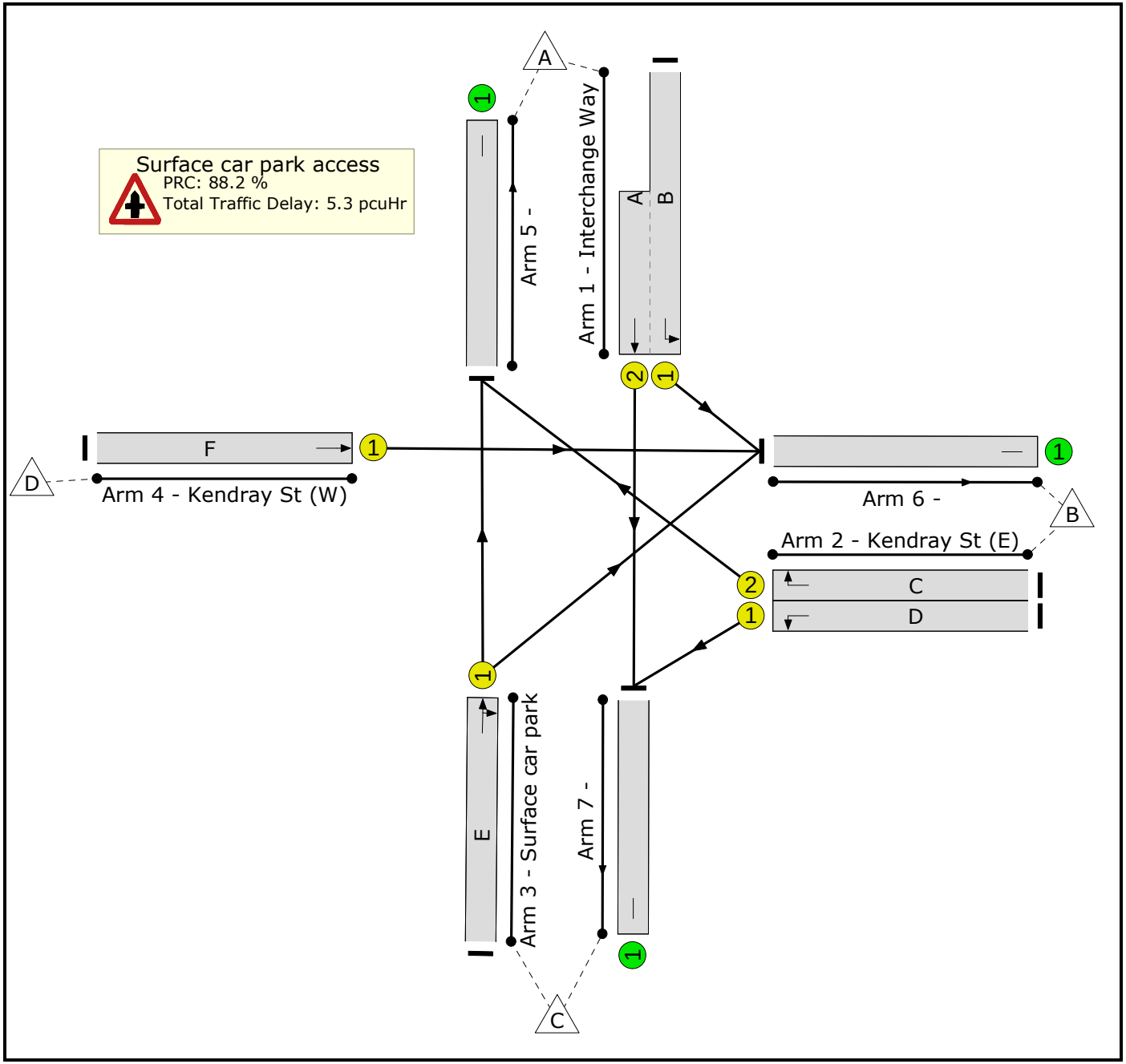
Stage	1	2	3	4
Duration	9	32	7	7
Change Point	0	16	58	77

Signal Timings Diagram



Full Input Data And Results - Surface car park layout

Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.8%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.8%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	51:7	-	381	1844:1915	1058	36.0%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	23	-	18	1730	461	3.9%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	36	-	346	1809	744	46.5%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	0	1915	170	0.0%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	11	-	102	1600	213	47.8%
5/1		U	N/A	N/A	-		-	-	-	346	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	18	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**4.1**	**1.2**	**0.0**	**5.3**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**4.1**	**1.2**	**0.0**	**5.3**	**-**	**-**	**-**	**-**
1/1+1/2	381	381	-	-	-	1.1	0.3	-	1.4	12.8	5.0	0.3	5.3
2/1	18	18	-	-	-	0.1	0.0	-	0.1	28.6	0.3	0.0	0.4
2/2	346	346	-	-	-	1.9	0.4	-	2.3	23.8	6.2	0.4	6.7
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	102	102	-	-	-	1.0	0.5	-	1.5	52.2	2.4	0.5	2.8
5/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	18	18	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

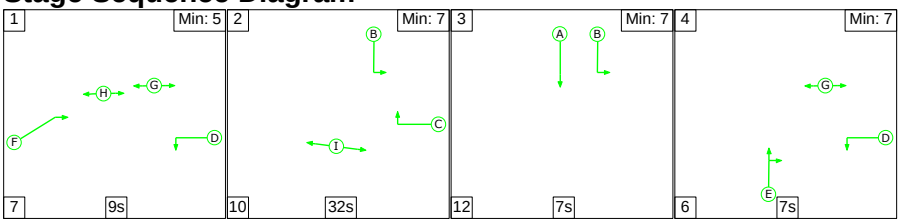
C1

PRC for Signalled Lanes (%): 88.2
PRC Over All Lanes (%): 88.2
Total Delay for Signalled Lanes (pcuHr): 5.26
Total Delay Over All Lanes(pcuHr): 5.26
Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 2: 'PM 2013 + DEV' (FG5: 'PM 2013 + DEV', Plan 1: 'Each stage every cycle')

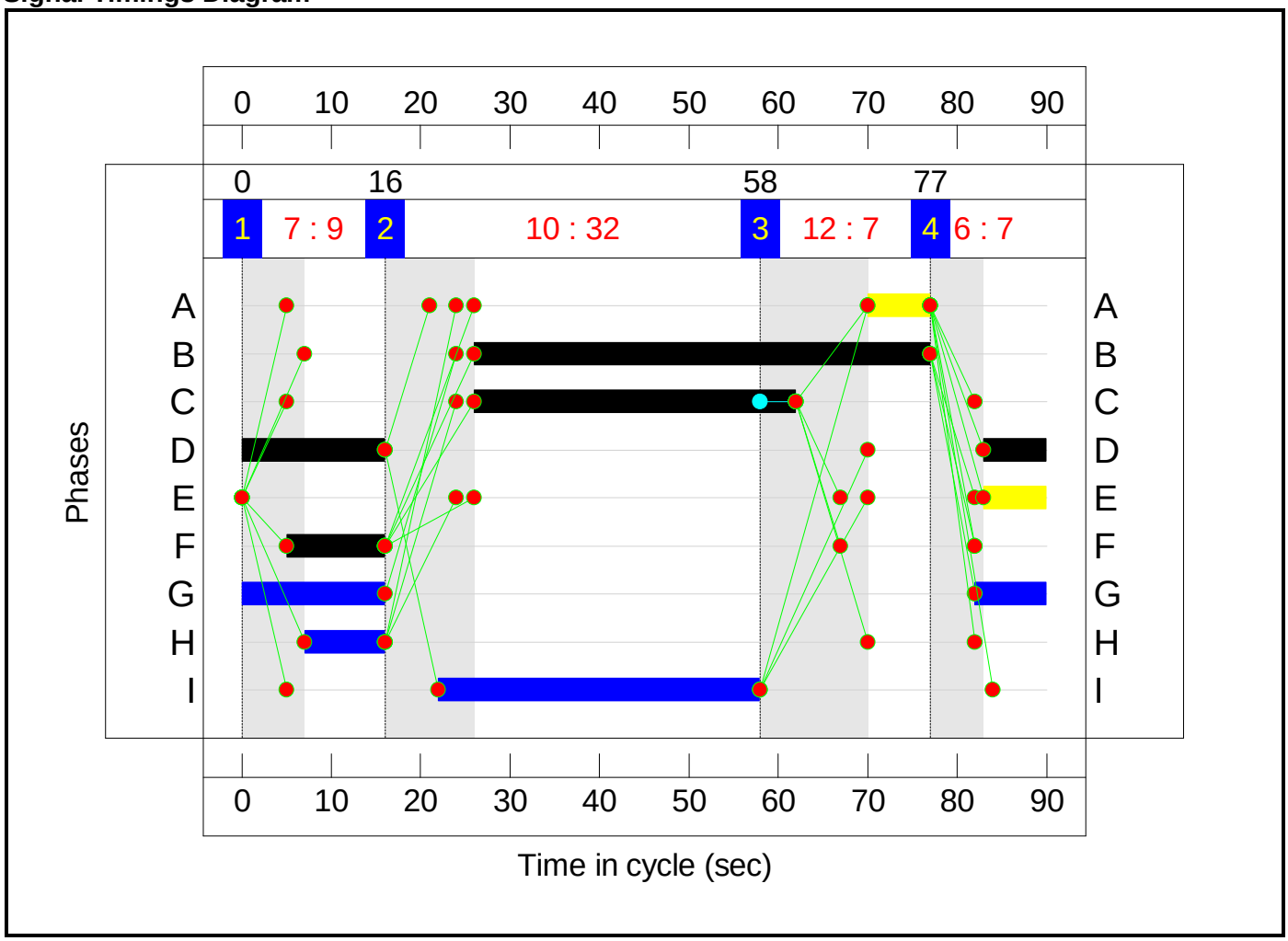
Stage Sequence Diagram



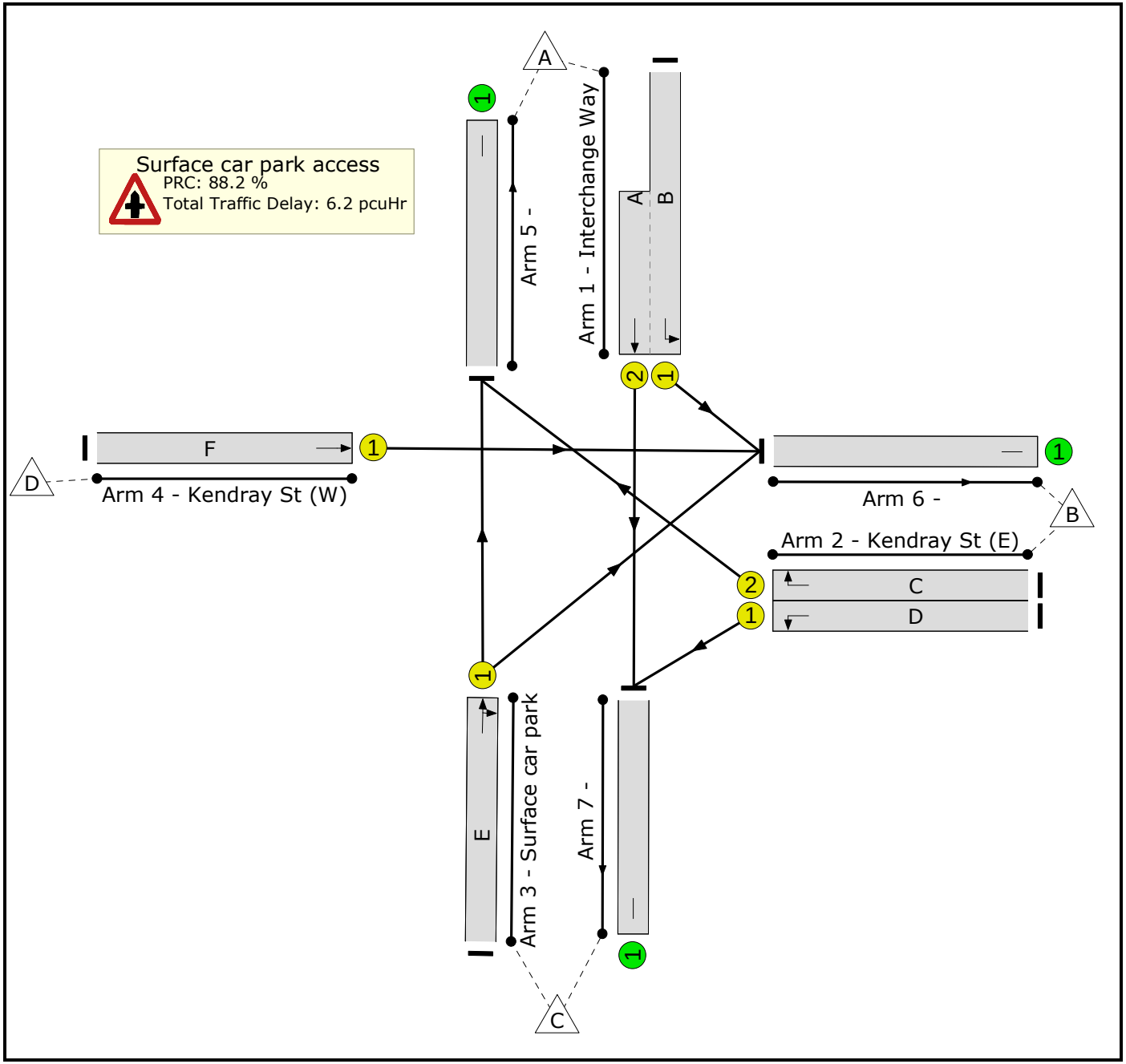
Stage Timings

Stage	1	2	3	4
Duration	9	32	7	7
Change Point	0	16	58	77

Signal Timings Diagram



Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.8%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.8%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	51:7	-	389	1844:1915	1065	36.5%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	23	-	25	1730	461	5.4%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	36	-	346	1809	744	46.5%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	51	1789	159	32.1%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	11	-	102	1600	213	47.8%
5/1		U	N/A	N/A	-		-	-	-	361	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	519	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	33	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**4.7**	**1.4**	**0.0**	**6.2**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**4.7**	**1.4**	**0.0**	**6.2**	**-**	**-**	**-**	**-**
1/1+1/2	389	389	-	-	-	1.2	0.3	-	1.4	13.3	5.0	0.3	5.3
2/1	25	25	-	-	-	0.2	0.0	-	0.2	28.7	0.5	0.0	0.5
2/2	346	346	-	-	-	1.9	0.4	-	2.3	23.8	6.2	0.4	6.7
3/1	51	51	-	-	-	0.5	0.2	-	0.8	55.1	1.2	0.2	1.4
4/1	102	102	-	-	-	1.0	0.5	-	1.5	52.2	2.4	0.5	2.8
5/1	361	361	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	519	519	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	33	33	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

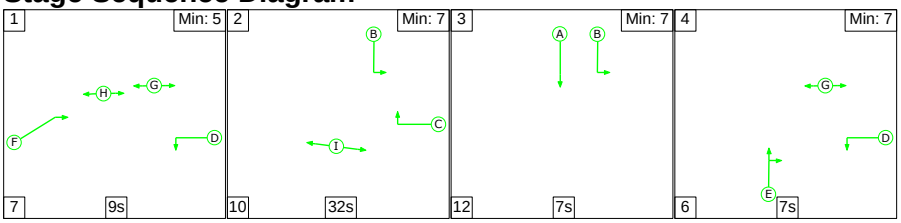
C1

PRC for Signalled Lanes (%): 88.2
PRC Over All Lanes (%): 88.2
Total Delay for Signalled Lanes (pcuHr): 6.19
Total Delay Over All Lanes(pcuHr): 6.19
Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 3: 'PM 2023 Do Min' (FG6: 'PM 2023 Do Min', Plan 1: 'Each stage every cycle')

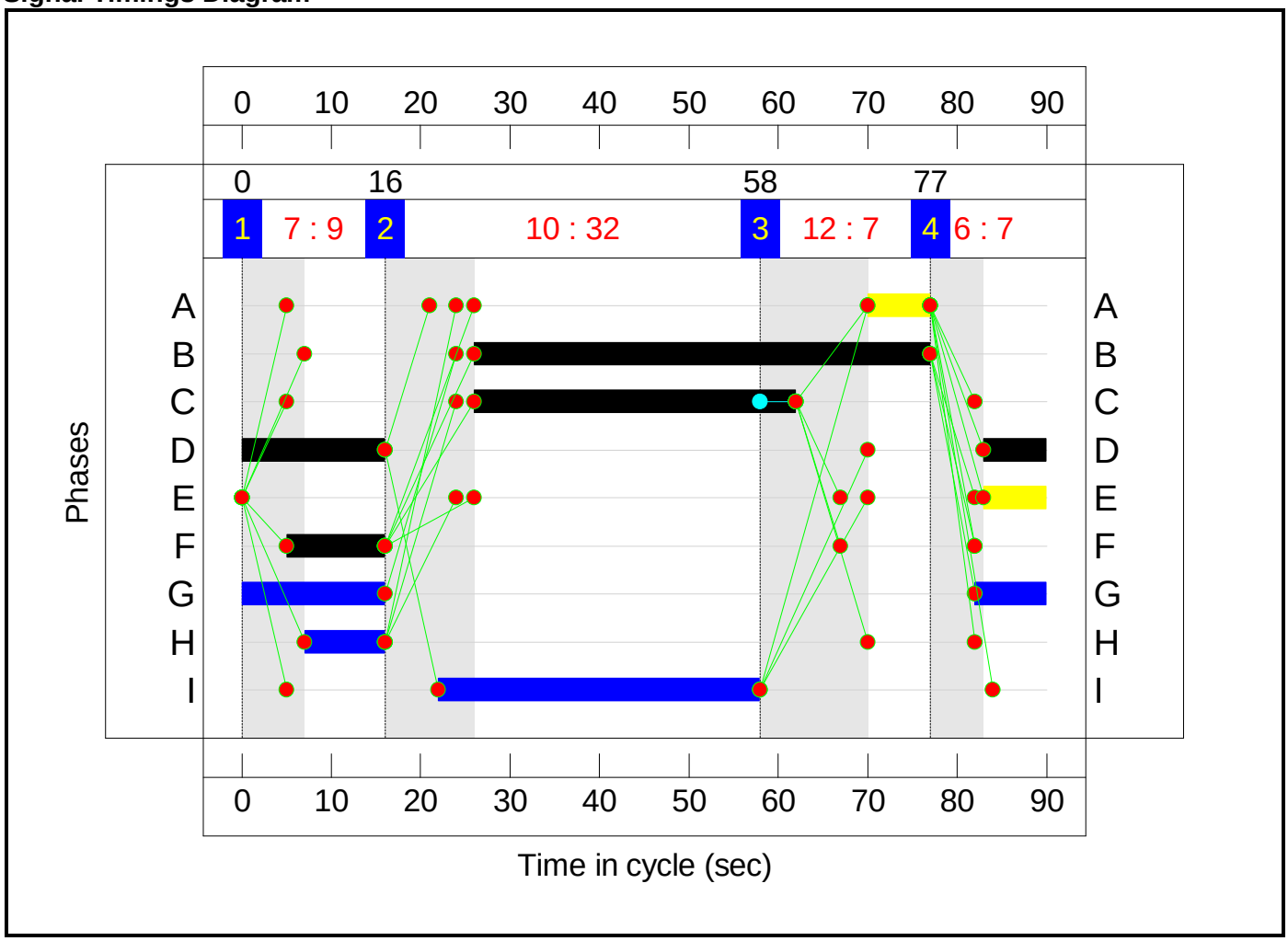
Stage Sequence Diagram



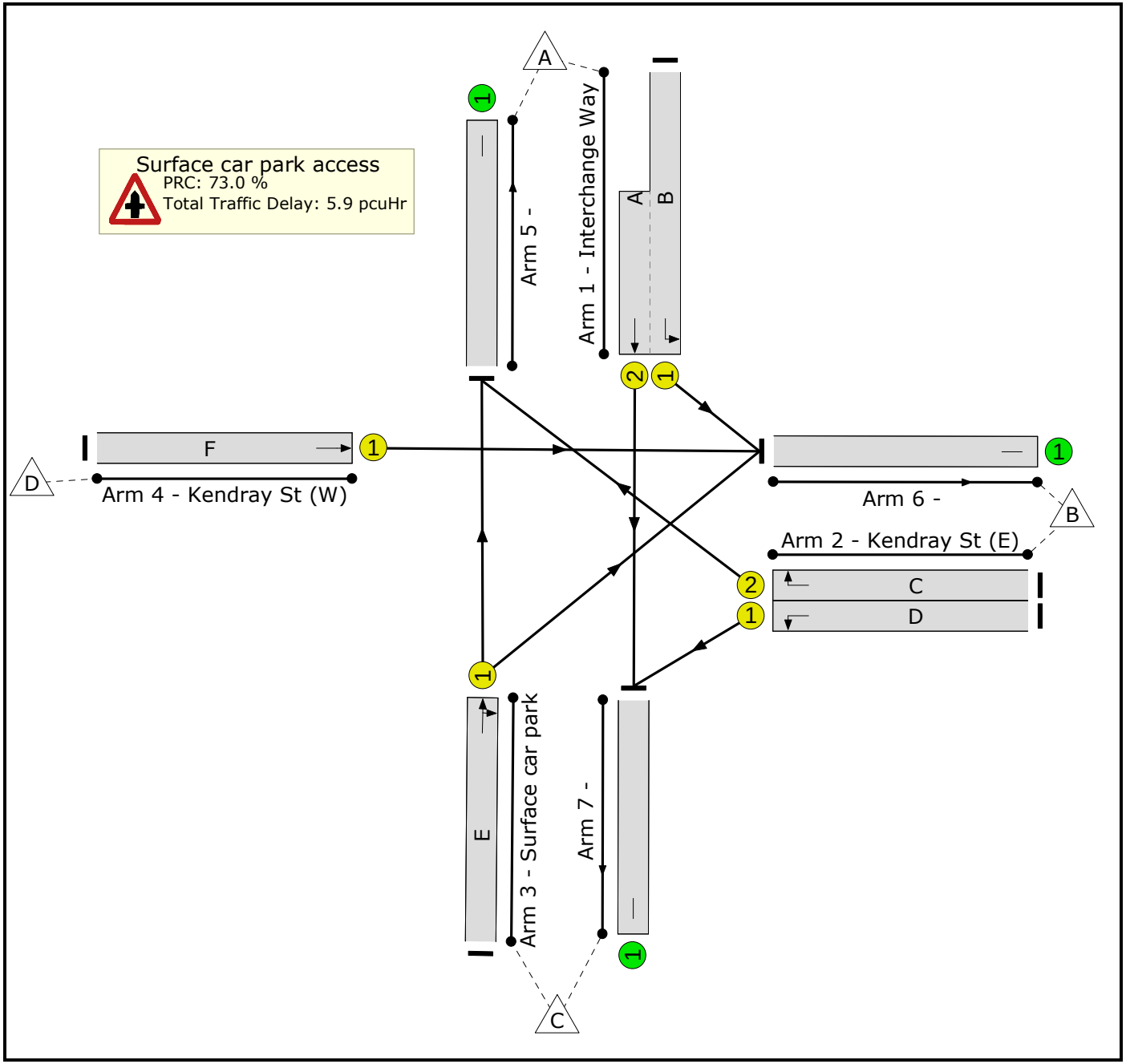
Stage Timings

Stage	1	2	3	4
Duration	9	32	7	7
Change Point	0	16	58	77

Signal Timings Diagram



Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.0%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.0%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	51:7	-	416	1844:1915	1058	39.3%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	23	-	20	1730	461	4.3%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	36	-	377	1809	744	50.7%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	0	1915	170	0.0%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	11	-	111	1600	213	52.0%
5/1		U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	20	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**4.5**	**1.4**	**0.0**	**5.9**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**4.5**	**1.4**	**0.0**	**5.9**	**-**	**-**	**-**	**-**
1/1+1/2	416	416	-	-	-	1.2	0.3	-	1.5	13.2	5.7	0.3	6.0
2/1	20	20	-	-	-	0.1	0.0	-	0.2	28.6	0.4	0.0	0.4
2/2	377	377	-	-	-	2.1	0.5	-	2.6	24.6	6.9	0.5	7.4
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	111	111	-	-	-	1.1	0.5	-	1.7	53.7	2.6	0.5	3.1
5/1	377	377	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	527	527	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	20	20	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

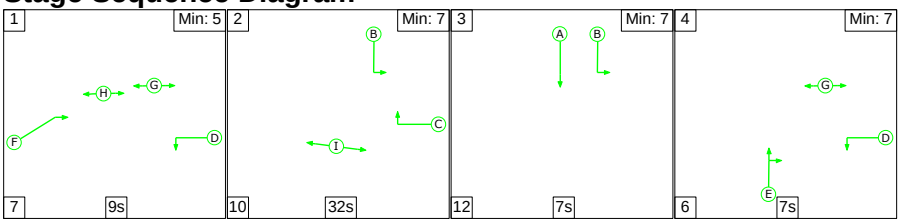
C1

PRC for Signalled Lanes (%): 73.0
PRC Over All Lanes (%): 73.0
Total Delay for Signalled Lanes (pcuHr): 5.91
Total Delay Over All Lanes(pcuHr): 5.91
Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 4: 'PM 2023 + DEV' (FG7: 'PM 2023 + DEV', Plan 1: 'Each stage every cycle')

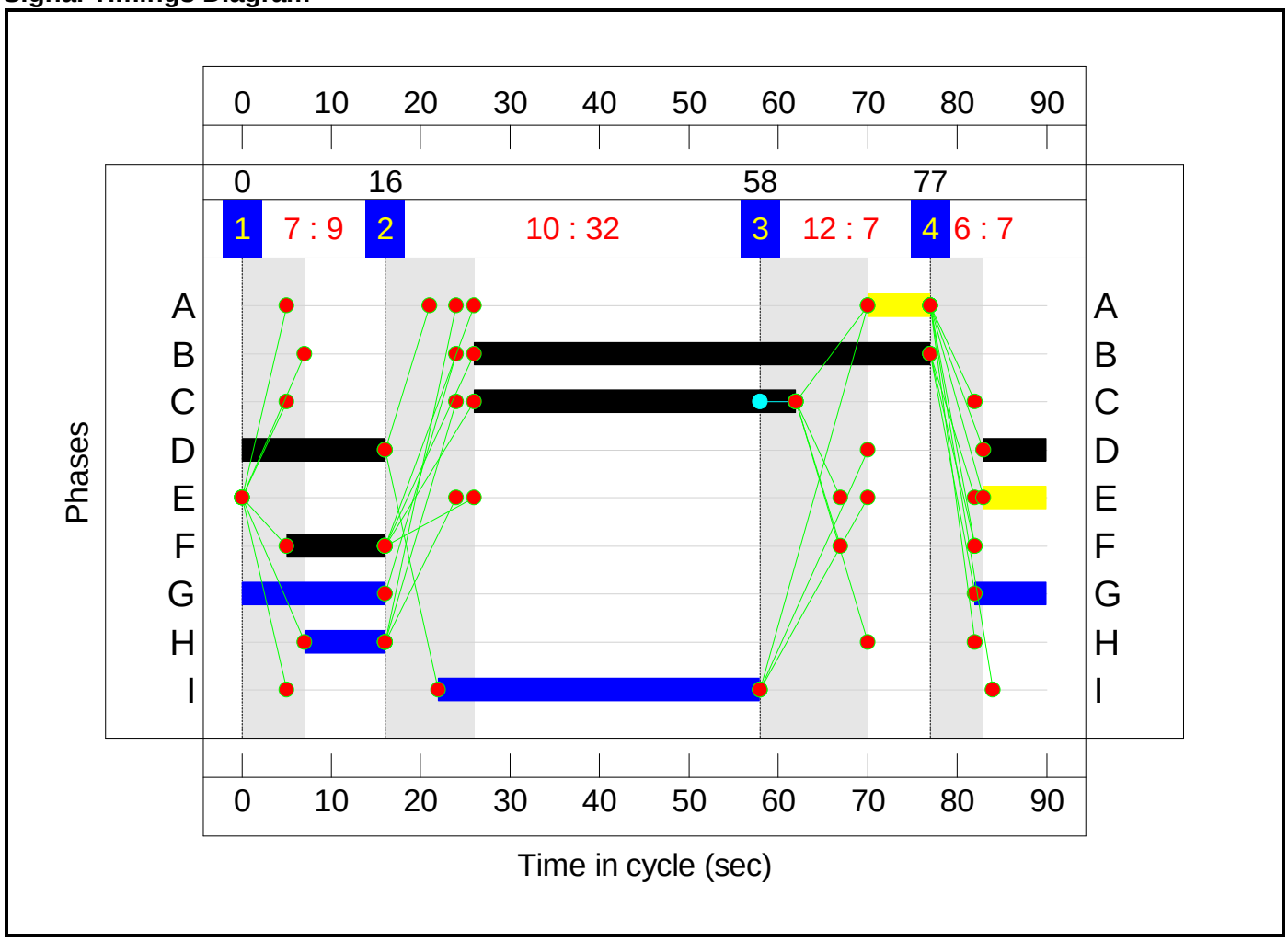
Stage Sequence Diagram



Stage Timings

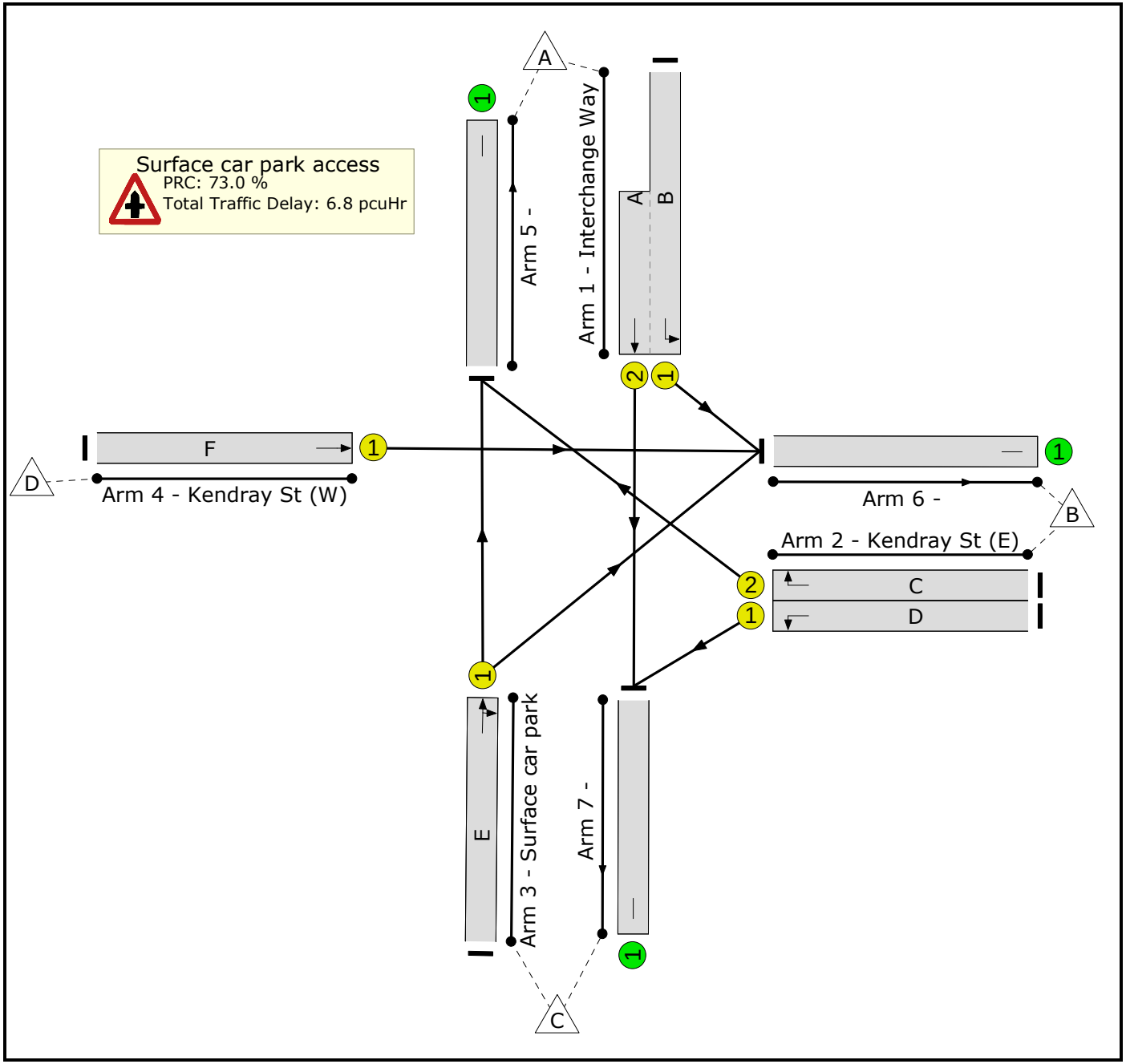
Stage	1	2	3	4
Duration	9	32	7	7
Change Point	0	16	58	77

Signal Timings Diagram



Full Input Data And Results - Surface car park layout

Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.0%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**52.0%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	51:7	-	424	1844:1915	1064	39.8%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	23	-	27	1730	461	5.9%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	36	-	377	1809	744	50.7%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	51	1789	159	32.1%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	11	-	111	1600	213	52.0%
5/1		U	N/A	N/A	-		-	-	-	392	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	563	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	35	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.6**	**0.0**	**6.8**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.6**	**0.0**	**6.8**	**-**	**-**	**-**	**-**
1/1+1/2	424	424	-	-	-	1.3	0.3	-	1.6	13.7	5.7	0.3	6.0
2/1	27	27	-	-	-	0.2	0.0	-	0.2	28.7	0.5	0.0	0.5
2/2	377	377	-	-	-	2.1	0.5	-	2.6	24.6	6.9	0.5	7.4
3/1	51	51	-	-	-	0.5	0.2	-	0.8	55.1	1.2	0.2	1.4
4/1	111	111	-	-	-	1.1	0.5	-	1.7	53.7	2.6	0.5	3.1
5/1	392	392	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	563	563	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	35	35	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 73.0
PRC Over All Lanes (%): 73.0

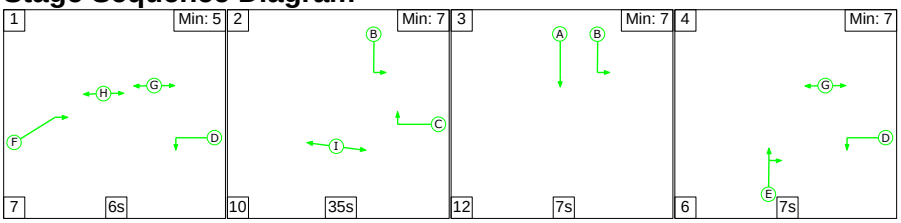
Total Delay for Signalled Lanes (pcuHr): 6.84
Total Delay Over All Lanes(pcuHr): 6.84

Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 5: 'Sat 2013 Do Min' (FG11: 'Sat 2013 Do Min', Plan 1: 'Each stage every cycle')

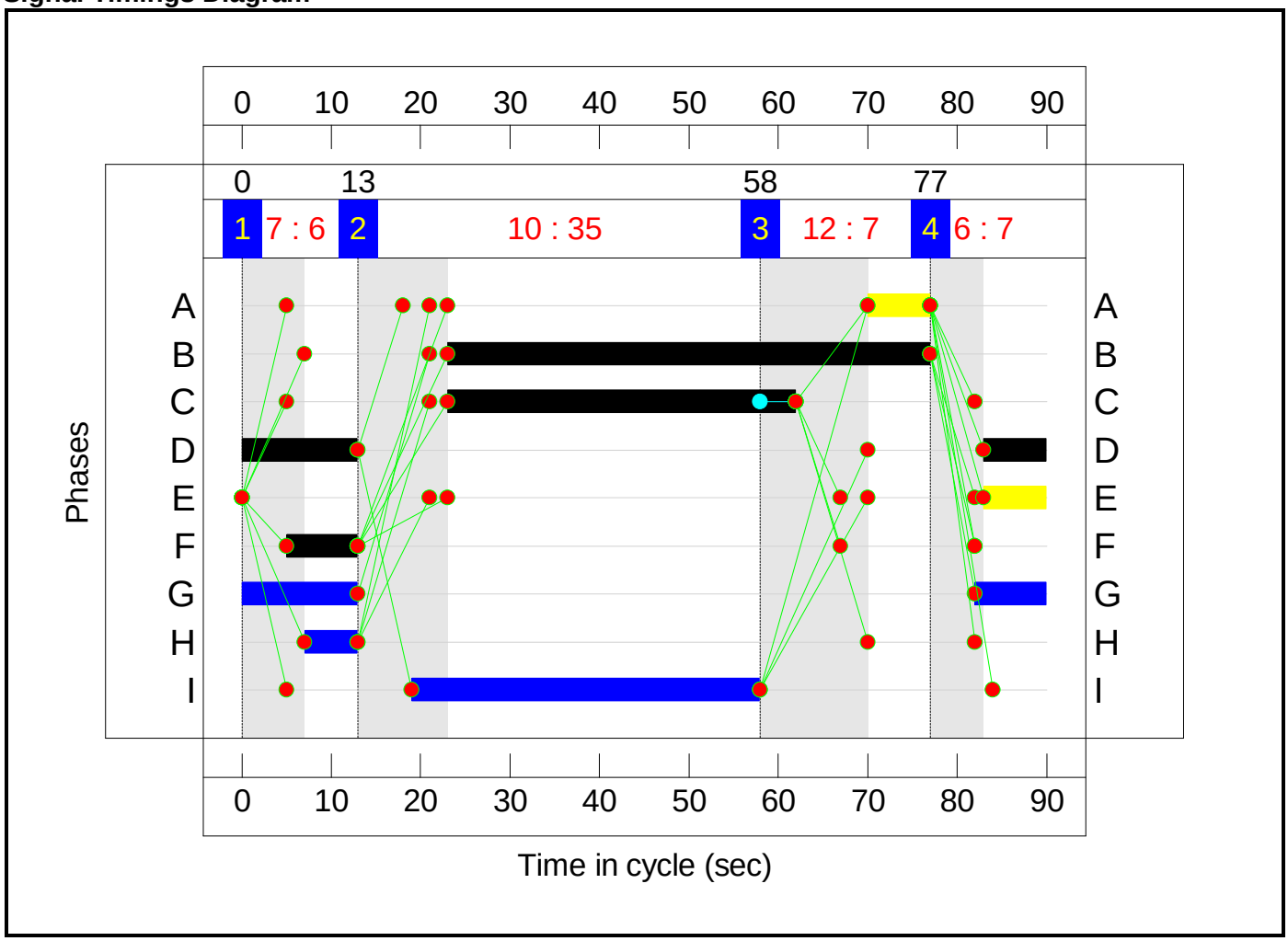
Stage Sequence Diagram



Stage Timings

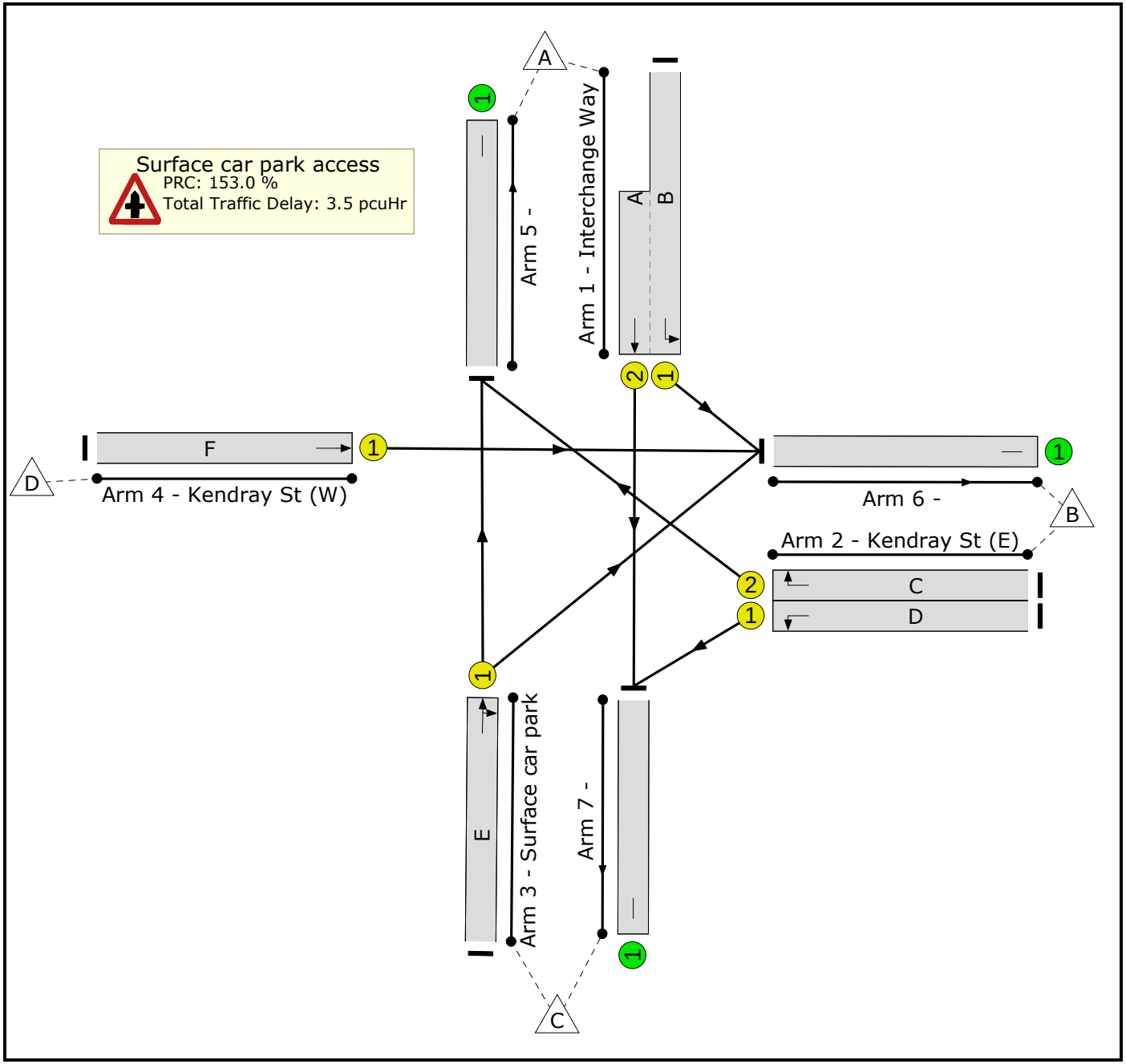
Stage	1	2	3	4
Duration	6	35	7	7
Change Point	0	13	58	77

Signal Timings Diagram



Full Input Data And Results - Surface car park layout

Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**35.6%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**35.6%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	54:7	-	262	1844:1915	1119	23.4%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	20	-	40	1730	404	9.9%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	39	-	286	1809	804	35.6%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	2	1741	155	1.3%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	8	-	52	1600	160	32.5%
5/1		U	N/A	N/A	-		-	-	-	286	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	316	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	40	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**2.8**	**0.7**	**0.0**	**3.5**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**2.8**	**0.7**	**0.0**	**3.5**	**-**	**-**	**-**	**-**
1/1+1/2	262	262	-	-	-	0.6	0.2	-	0.7	10.0	2.9	0.2	3.1
2/1	40	40	-	-	-	0.3	0.1	-	0.4	32.1	0.8	0.1	0.8
2/2	286	286	-	-	-	1.3	0.3	-	1.6	20.0	4.7	0.3	5.0
3/1	2	2	-	-	-	0.0	0.0	-	0.0	49.6	0.0	0.0	0.1
4/1	52	52	-	-	-	0.5	0.2	-	0.8	54.3	1.2	0.2	1.4
5/1	286	286	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	316	316	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	40	40	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 153.0
PRC Over All Lanes (%): 153.0

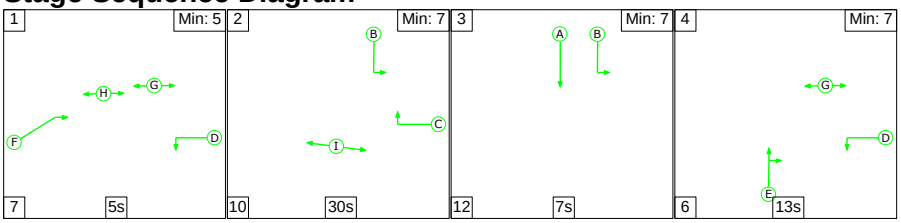
Total Delay for Signalled Lanes (pcuHr): 3.49
Total Delay Over All Lanes(pcuHr): 3.49

Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 6: 'Sat 2013 + DEV' (FG12: 'Sat 2013 + Dev', Plan 1: 'Each stage every cycle')

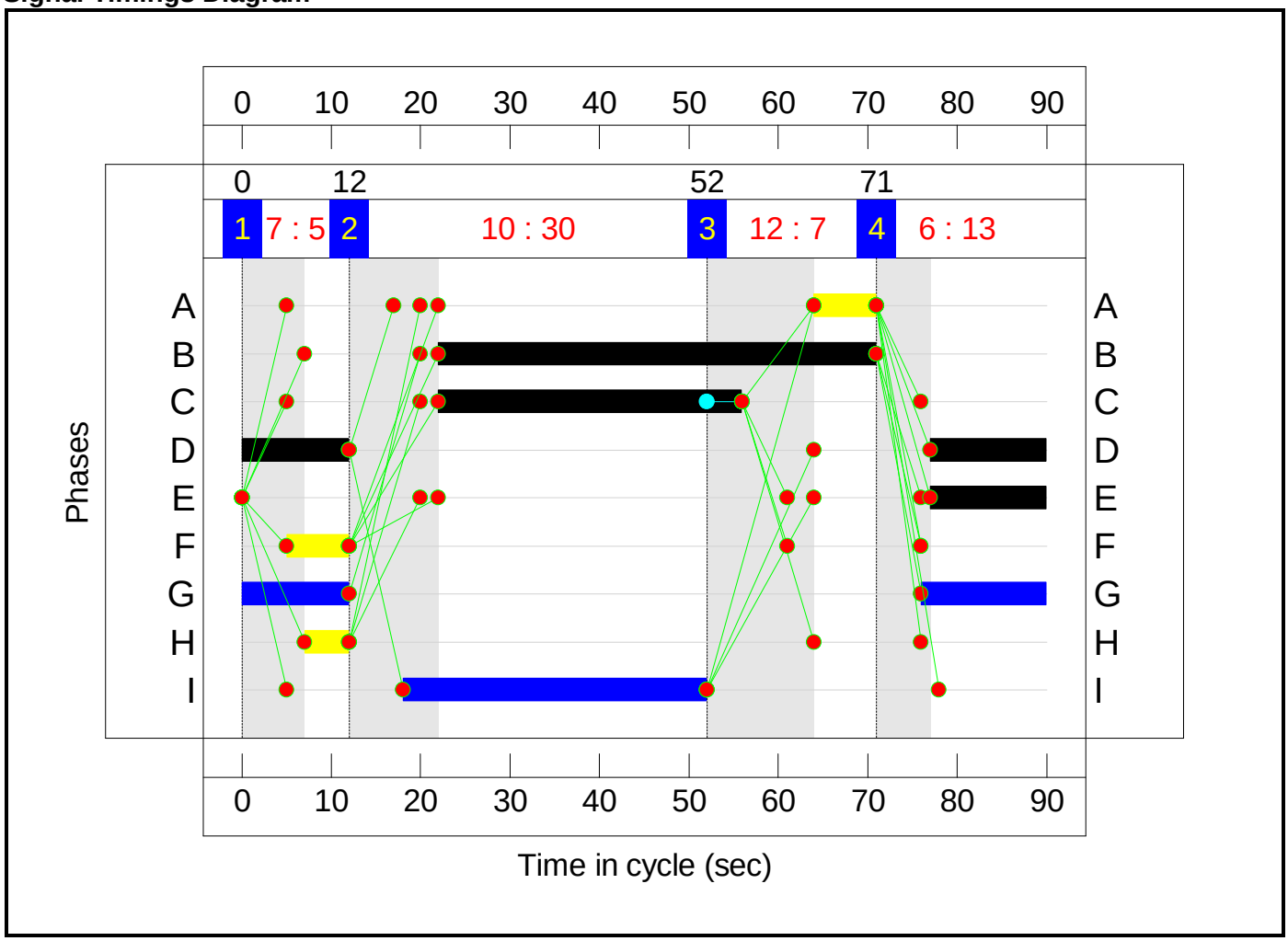
Stage Sequence Diagram



Stage Timings

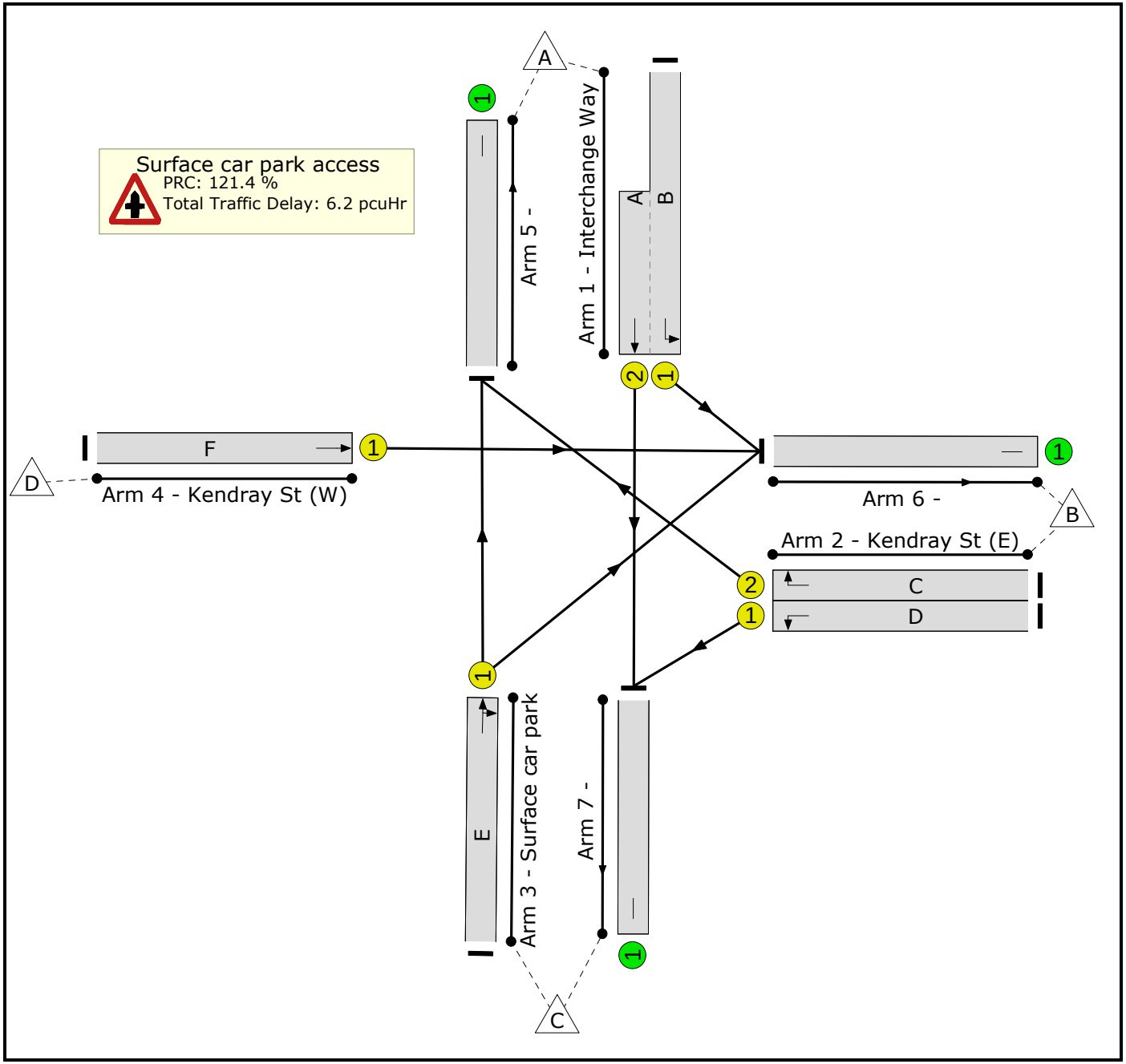
Stage	1	2	3	4
Duration	5	30	7	13
Change Point	0	12	52	71

Signal Timings Diagram



Full Input Data And Results - Surface car park layout

Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**40.7%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**40.7%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	49:7	-	305	1844:1915	1073	28.4%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	25	-	84	1730	500	16.8%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	34	-	286	1809	704	40.7%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	13	-	110	1793	279	39.4%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	7	-	52	1600	142	36.6%
5/1		U	N/A	N/A	-		-	-	-	321	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	389	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	127	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**5.0**	**1.3**	**0.0**	**6.2**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**5.0**	**1.3**	**0.0**	**6.2**	**-**	**-**	**-**	**-**
1/1+1/2	305	305	-	-	-	1.2	0.2	-	1.4	16.6	3.3	0.2	3.5
2/1	84	84	-	-	-	0.6	0.1	-	0.7	28.3	1.6	0.1	1.7
2/2	286	286	-	-	-	1.6	0.3	-	1.9	24.3	5.2	0.3	5.5
3/1	110	110	-	-	-	1.0	0.3	-	1.4	44.8	2.4	0.3	2.8
4/1	52	52	-	-	-	0.6	0.3	-	0.8	58.5	1.2	0.3	1.5
5/1	321	321	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	389	389	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	127	127	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 121.4
PRC Over All Lanes (%): 121.4

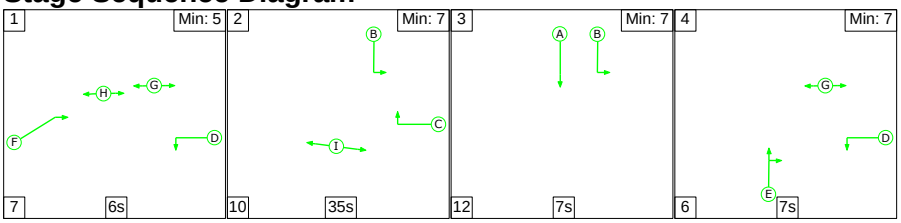
Total Delay for Signalled Lanes (pcuHr): 6.21
Total Delay Over All Lanes(pcuHr): 6.21

Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 7: 'Sat 2023 Do Min' (FG13: 'Sat 2023 Do Min', Plan 1: 'Each stage every cycle')

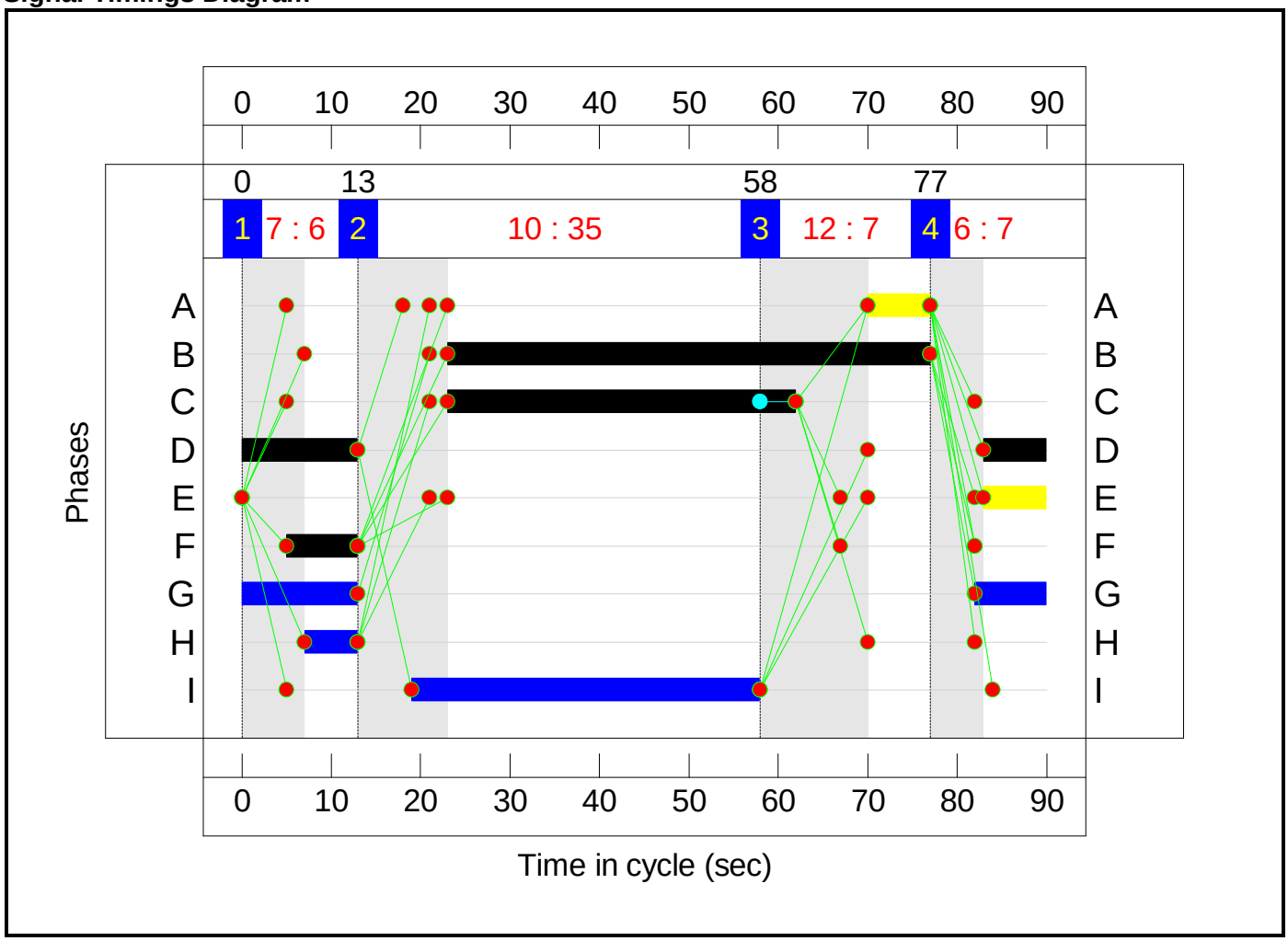
Stage Sequence Diagram



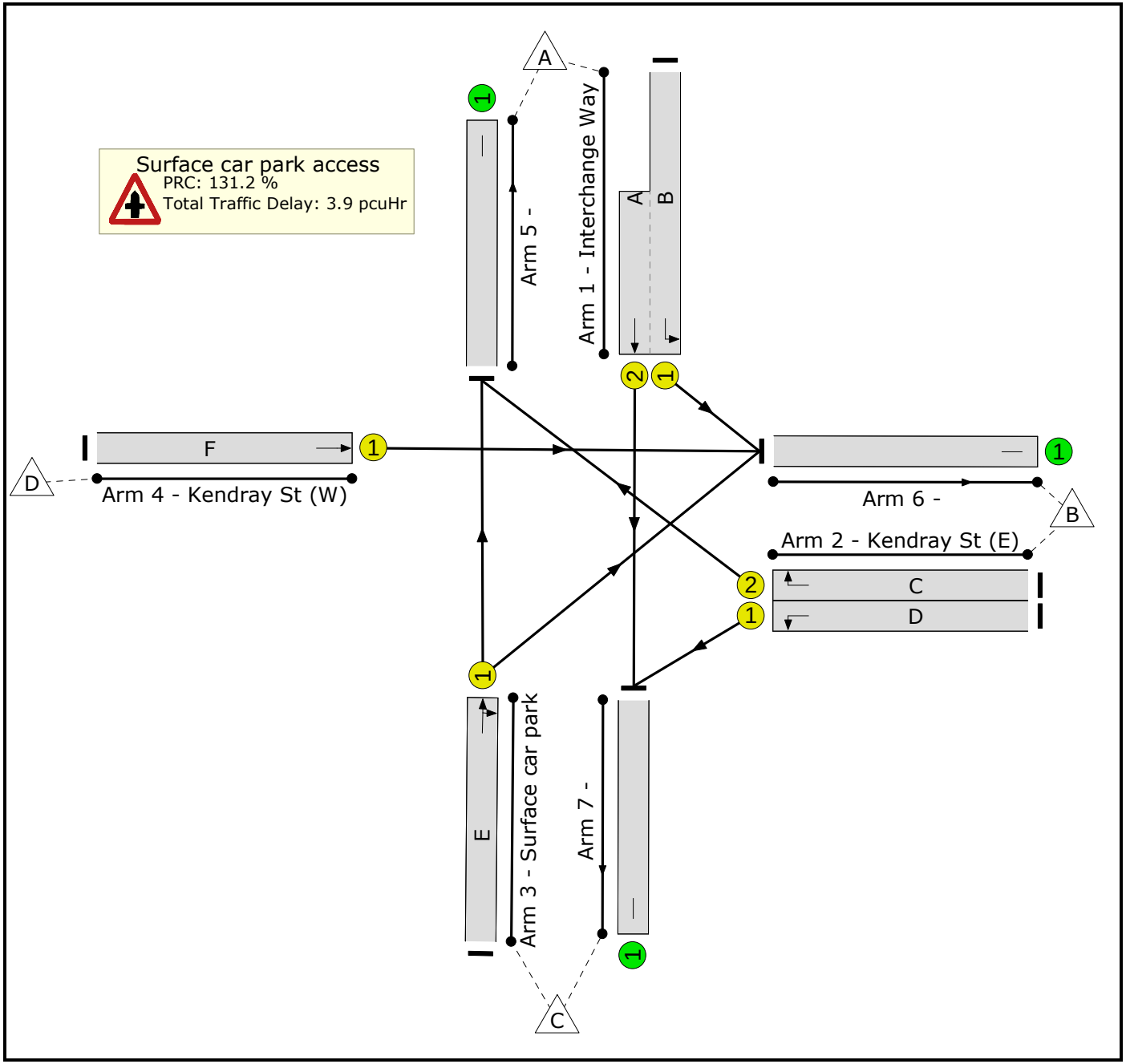
Stage Timings

Stage	1	2	3	4
Duration	6	35	7	7
Change Point	0	13	58	77

Signal Timings Diagram



Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.9%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.9%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	54:7	-	287	1844:1915	1119	25.6%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	20	-	43	1730	404	10.7%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	39	-	313	1809	804	38.9%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	7	-	2	1741	155	1.3%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	8	-	57	1600	160	35.6%
5/1		U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	346	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	43	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**3.0**	**0.8**	**0.0**	**3.9**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**3.0**	**0.8**	**0.0**	**3.9**	**-**	**-**	**-**	**-**
1/1+1/2	287	287	-	-	-	0.6	0.2	-	0.8	10.2	3.3	0.2	3.4
2/1	43	43	-	-	-	0.3	0.1	-	0.4	32.2	0.8	0.1	0.9
2/2	313	313	-	-	-	1.5	0.3	-	1.8	20.5	5.2	0.3	5.5
3/1	2	2	-	-	-	0.0	0.0	-	0.0	49.6	0.0	0.0	0.1
4/1	57	57	-	-	-	0.6	0.3	-	0.9	55.2	1.3	0.3	1.6
5/1	313	313	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	43	43	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 131.2

PRC Over All Lanes (%): 131.2

Total Delay for Signalled Lanes (pcuHr): 3.88

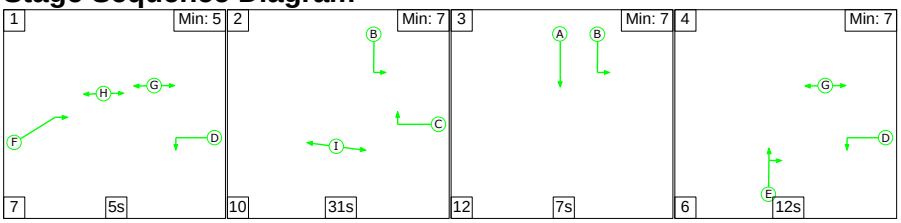
Total Delay Over All Lanes(pcuHr): 3.88

Cycle Time (s): 90

Full Input Data And Results - Surface car park layout

Scenario 8: 'Sat 2023 + DEV' (FG14: 'Sat 2023 + DEV', Plan 1: 'Each stage every cycle')

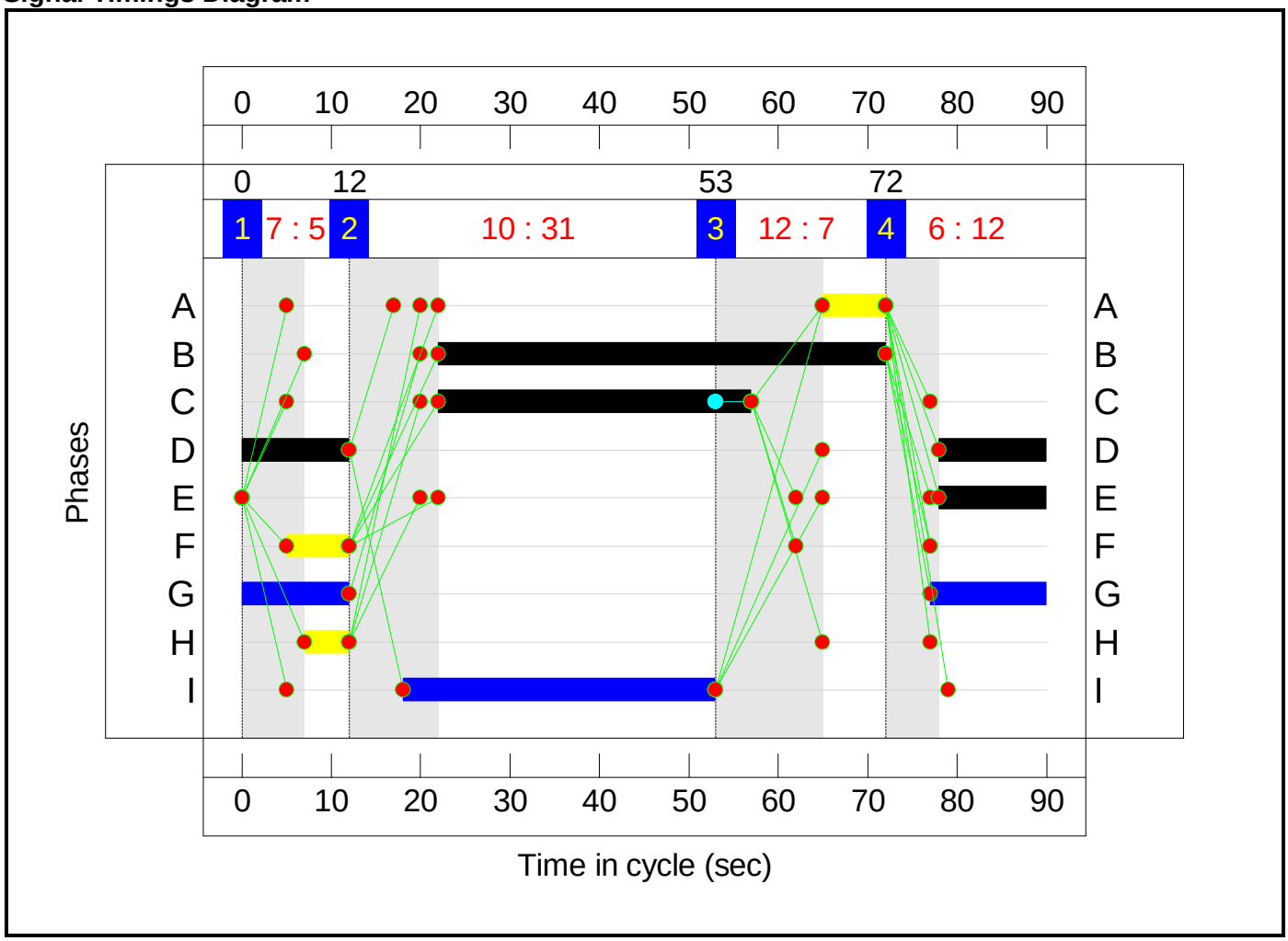
Stage Sequence Diagram



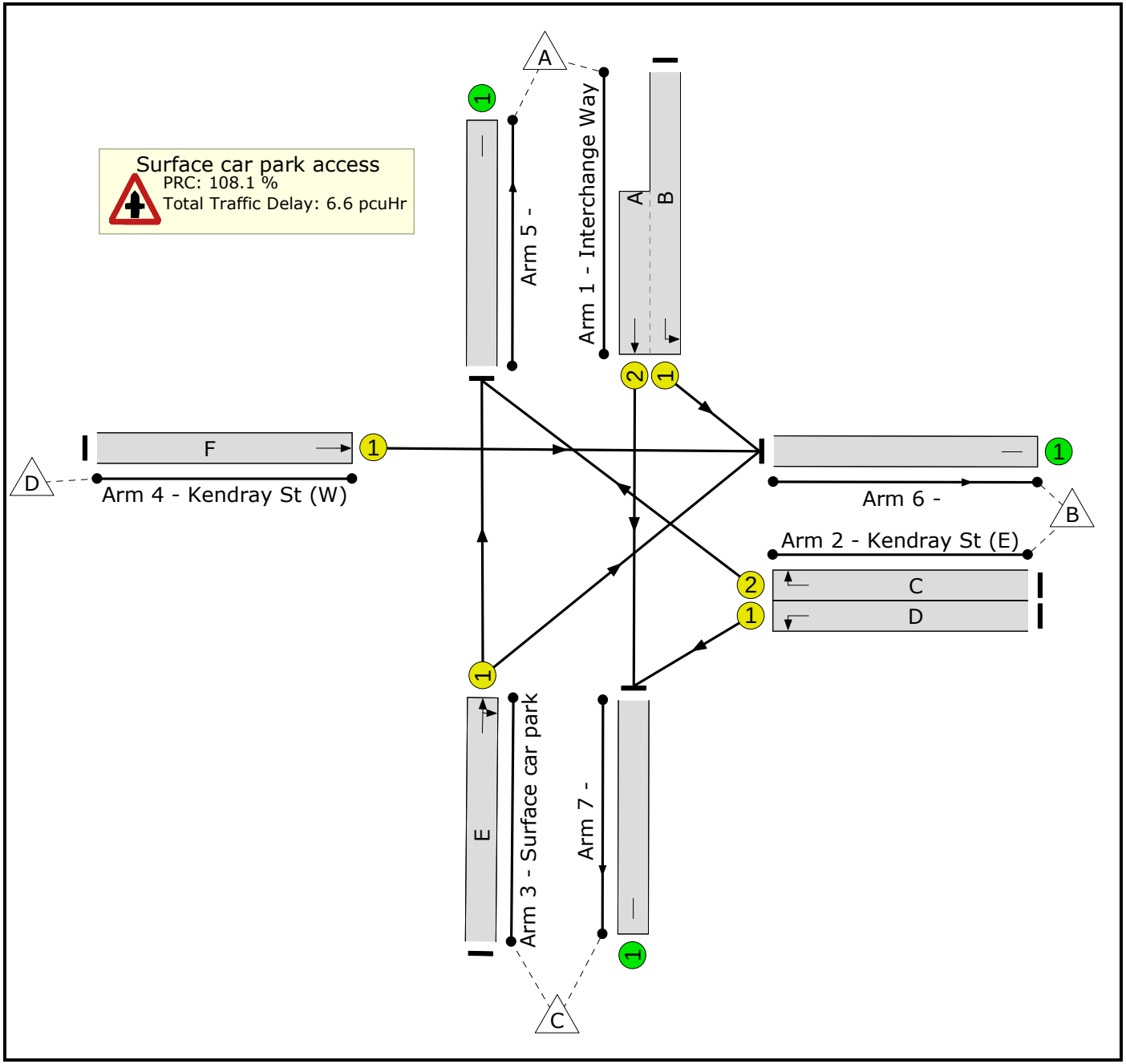
Stage Timings

Stage	1	2	3	4
Duration	5	31	7	12
Change Point	0	12	53	72

Signal Timings Diagram



Network Layout Diagram



Full Input Data And Results - Surface car park layout

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**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**43.3%**
Surface car park access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**43.3%**
1/1+1/2	Interchange Way Left Ahead	U	N/A	N/A	B A		1	50:7	-	330	1844:1915	1089	30.3%
2/1	Kendray St (E) Left	U	N/A	N/A	D		1	24	-	87	1730	481	18.1%
2/2	Kendray St (E) Right	U	N/A	N/A	C		1	35	-	313	1809	724	43.3%
3/1	Surface car park Ahead Right	U	N/A	N/A	E		1	12	-	110	1793	259	42.5%
4/1	Kendray St (W) Ahead	U	N/A	N/A	F		1	7	-	57	1600	142	40.1%
5/1		U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	419	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	130	Inf	Inf	0.0%

Full Input Data And Results - Surface car park layout

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	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.4**	**0.0**	**6.6**	**-**	**-**	**-**	**-**
Surface car park access	**-**	**-**	**0**	**0**	**0**	**5.2**	**1.4**	**0.0**	**6.6**	**-**	**-**	**-**	**-**
1/1+1/2	330	330	-	-	-	1.3	0.2	-	1.5	16.1	3.7	0.2	3.9
2/1	87	87	-	-	-	0.6	0.1	-	0.7	29.3	1.6	0.1	1.8
2/2	313	313	-	-	-	1.7	0.4	-	2.1	24.0	5.7	0.4	6.0
3/1	110	110	-	-	-	1.1	0.4	-	1.4	47.1	2.5	0.4	2.9
4/1	57	57	-	-	-	0.6	0.3	-	0.9	59.7	1.3	0.3	1.7
5/1	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	419	419	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	130	130	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 108.1
PRC Over All Lanes (%): 108.1
Total Delay for Signalled Lanes (pcuHr): 6.65
Total Delay Over All Lanes(pcuHr): 6.65
Cycle Time (s): 90

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
RELEASE 1.0 (APR 2000)

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2013_PM_DM.vai" at 17:10:27 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY

.RUN TITLE

Sheff Rd / Wesley St 2013 PM Peak Do Min ARCADY

.INPUT DATA

ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 15.45 AND ENDS 17.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	17.58	26.36	17.58
ARM B	15.00	45.00	75.00	4.21	6.32	4.21
ARM C	15.00	45.00	75.00	13.84	20.76	13.84
ARM D	15.00	45.00	75.00	13.80	20.70	13.80

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
15.45 - 17.15	ARM A	0.004	0.102	0.312	0.583
		6.0	143.0	438.0	819.0
		(0.0)	(4.0)	(11.0)	(3.0)
	ARM B	0.442	0.000	0.217	0.341
		149.0	0.0	73.0	115.0
		(1.0)	(0.0)	(1.0)	(1.0)
	ARM C	0.547	0.023	0.008	0.423
		605.0	25.0	9.0	468.0
		(4.0)	(0.0)	(11.0)	(12.0)
	ARM D	0.441	0.034	0.509	0.015
		487.0	38.0	562.0	17.0
		(5.0)	(0.0)	(11.0)	(6.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

15.45-16.00							
ARM A	17.58	30.88	0.569	0.0	1.3	18.8	
ARM B	4.21	15.79	0.267	0.0	0.4	5.3	
ARM C	13.84	27.72	0.499	0.0	1.0	14.3	
ARM D	13.80	30.30	0.455	0.0	0.8	12.1	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
ARM A	20.99	29.88	0.702		1.3	2.3	32.8	
ARM B	5.03	13.47	0.373		0.4	0.6	8.6	
ARM C	16.52	26.16	0.632		1.0	1.7	24.2	
ARM D	16.48	29.16	0.565		0.8	1.3	18.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
ARM A	25.70	28.53	0.901		2.3	7.6	95.1	
ARM B	6.16	10.44	0.590		0.6	1.4	19.3	
ARM C	20.24	24.14	0.838		1.7	4.7	62.5	
ARM D	20.18	27.66	0.730		1.3	2.6	36.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
ARM A	25.70	28.50	0.902		7.6	8.3	119.9	
ARM B	6.16	10.28	0.599		1.4	1.5	21.5	
ARM C	20.24	24.02	0.843		4.7	5.0	73.9	
ARM D	20.18	27.59	0.732		2.6	2.7	39.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
ARM A	20.99	29.83	0.704		8.3	2.4	41.2	
ARM B	5.03	13.23	0.380		1.5	0.6	9.8	
ARM C	16.52	25.97	0.636		5.0	1.8	28.8	
ARM D	16.48	29.05	0.567		2.7	1.3	20.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
ARM A	17.58	30.85	0.570		2.4	1.3	20.8	
ARM B	4.21	15.69	0.269		0.6	0.4	5.7	
ARM C	13.84	27.64	0.501		1.8	1.0	15.7	
ARM D	13.80	30.25	0.456		1.3	0.8	13.0	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.3	*
16.15	2.3	**
16.30	7.6	********
16.45	8.3	********
17.00	2.4	**
17.15	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.4	
16.15	0.6	*
16.30	1.4	*
16.45	1.5	*
17.00	0.6	*
17.15	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.0	*
16.15	1.7	**
16.30	4.7	*****
16.45	5.0	*****
17.00	1.8	**
17.15	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.8	*
16.15	1.3	*
16.30	2.6	***
16.45	2.7	***

17.00	1.3	*
17.15	0.8	*

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1927.9	1285.3	328.7	0.17	328.7	0.17
B	462.1	308.1	70.1	0.15	70.1	0.15
C	1517.9	1012.0	219.4	0.14	219.4	0.14
D	1513.8	1009.2	141.1	0.09	141.1	0.09
ALL	5421.8	3614.5	759.4	0.14	759.4	0.14

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2013_PM_DS.vai" at 17:10:34 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY

.RUN TITLE

Sheff Rd / Wesley St 2013 PM Peak DEV ARCADY

.INPUT DATA

ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 15.45 AND ENDS 17.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IFALLING TO RISE	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	17.74	26.61	17.74
ARM B	15.00	45.00	75.00	4.34	6.51	4.34
ARM C	15.00	45.00	75.00	13.81	20.72	13.81
ARM D	15.00	45.00	75.00	13.84	20.76	13.84

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
15.45 - 17.15	ARM A	0.004	0.110	0.309	0.577
		6.0	156.0	438.0	819.0
		(0.0)	(4.0)	(11.0)	(3.0)
	ARM B	0.470	0.000	0.167	0.363
		163.0	0.0	58.0	126.0
		(1.0)	(0.0)	(1.0)	(1.0)
	ARM C	0.548	0.021	0.008	0.424
		605.0	23.0	9.0	468.0
		(4.0)	(0.0)	(11.0)	(12.0)
	ARM D	0.440	0.037	0.508	0.015
		487.0	41.0	562.0	17.0
		(5.0)	(0.0)	(11.0)	(6.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

15.45-16.00							
ARM A	17.74	30.88	0.574	0.0	1.3	19.2	
ARM B	4.34	15.79	0.275	0.0	0.4	5.5	
ARM C	13.81	27.54	0.502	0.0	1.0	14.5	
ARM D	13.84	30.22	0.458	0.0	0.8	12.2	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
ARM A	21.18	29.87	0.709		1.3	2.4	33.8	
ARM B	5.18	13.47	0.384		0.4	0.6	8.9	
ARM C	16.49	25.95	0.636		1.0	1.7	24.6	
ARM D	16.52	29.06	0.569		0.8	1.3	18.9	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
ARM A	25.94	28.52	0.909		2.4	8.2	101.0	
ARM B	6.34	10.46	0.606		0.6	1.5	20.6	
ARM C	20.20	23.90	0.845		1.7	4.9	64.9	
ARM D	20.24	27.55	0.735		1.3	2.7	37.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
ARM A	25.94	28.49	0.911		8.2	9.0	129.7	
ARM B	6.34	10.28	0.617		1.5	1.6	23.1	
ARM C	20.20	23.75	0.850		4.9	5.3	77.7	
ARM D	20.24	27.46	0.737		2.7	2.7	40.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
ARM A	21.18	29.83	0.710		9.0	2.5	43.2	
ARM B	5.18	13.21	0.392		1.6	0.7	10.3	
ARM C	16.49	25.74	0.641		5.3	1.8	29.6	
ARM D	16.52	28.94	0.571		2.7	1.3	21.0	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
ARM A	17.74	30.84	0.575		2.5	1.4	21.3	
ARM B	4.34	15.69	0.277		0.7	0.4	5.9	
ARM C	13.81	27.46	0.503		1.8	1.0	15.8	
ARM D	13.84	30.16	0.459		1.3	0.9	13.1	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.3	*
16.15	2.4	**
16.30	8.2	********
16.45	9.0	*********
17.00	2.5	***
17.15	1.4	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.4	
16.15	0.6	*
16.30	1.5	*
16.45	1.6	**
17.00	0.7	*
17.15	0.4	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.0	*
16.15	1.7	**
16.30	4.9	*****
16.45	5.3	*****
17.00	1.8	**
17.15	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.8	*
16.15	1.3	*
16.30	2.7	***
16.45	2.7	***

```
  17.00           1.3  *
  17.15           0.9  *


.               QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                ---------------------------------------------

-------------------------------------------------------------------------------
I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
I       I                 I      * DELAY *      I         * DELAY *        I
I       I-----------------------------------------------------------------I
I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
-------------------------------------------------------------------------------
I   A   I 1945.7 I 1297.2 I   348.2 I    0.18   I     348.2  I     0.18     I
I   B   I  475.8 I  317.2 I    74.3 I    0.16   I      74.3  I     0.16     I
I   C   I 1515.2 I 1010.1 I   227.1 I    0.15   I     227.1  I     0.15     I
I   D   I 1517.9 I 1012.0 I   143.8 I    0.09   I     143.8  I     0.09     I
-------------------------------------------------------------------------------
I  ALL  I 5454.7 I 3636.5 I   793.4 I    0.15   I     793.5  I     0.15     I
-------------------------------------------------------------------------------

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.
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TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
RELEASE 1.0 (APR 2000)

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2013_SAT_DM.vai" at 17:10:40 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY
****

.RUN TITLE
****
Sheff Rd / Wesley St 2013 SAT Peak Do Min ARCADY

.INPUT DATA
****
ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 11.45 AND ENDS 13.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IFALLING TO RISE	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	15.01	22.52	15.01
ARM B	15.00	45.00	75.00	6.30	9.45	6.30
ARM C	15.00	45.00	75.00	14.10	21.15	14.10
ARM D	15.00	45.00	75.00	13.18	19.76	13.18

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
11.45 - 13.15	ARM A	0.003	0.272	0.252	0.472
		4.0	327.0	303.0	567.0
		(0.0)%	(4.0)%	(11.0)%	(3.0)%
	ARM B	0.440	0.000	0.218	0.341
		222.0	0.0	110.0	172.0
		(1.0)%	(0.0)%	(1.0)%	(1.0)%
	ARM C	0.531	0.051	0.008	0.410
		599.0	57.0	9.0	463.0
		(4.0)%	(0.0)%	(11.0)%	(12.0)%
	ARM D	0.419	0.082	0.484	0.015
		442.0	86.0	510.0	16.0
		(5.0)%	(0.0)%	(11.0)%	(6.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

11.45-12.00								
ARM A	15.01	30.82	0.487	0.0	0.9	13.7		
ARM B	6.30	18.57	0.339	0.0	0.5	7.4		
ARM C	14.10	28.69	0.492	0.0	1.0	13.9		
ARM D	13.18	29.71	0.443	0.0	0.8	11.5		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
ARM A	17.93	29.78	0.602		0.9	1.5	21.6	
ARM B	7.52	16.80	0.448		0.5	0.8	11.6	
ARM C	16.84	27.30	0.617		1.0	1.6	22.9	
ARM D	15.73	28.43	0.553		0.8	1.2	17.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
ARM A	21.96	28.39	0.773		1.5	3.3	45.4	
ARM B	9.21	14.42	0.639		0.8	1.7	24.0	
ARM C	20.62	25.45	0.810		1.6	4.0	54.1	
ARM D	19.27	26.73	0.721		1.2	2.5	35.3	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
ARM A	21.96	28.36	0.774		3.3	3.4	49.8	
ARM B	9.21	14.36	0.642		1.7	1.8	26.1	
ARM C	20.62	25.40	0.812		4.0	4.2	61.4	
ARM D	19.27	26.66	0.723		2.5	2.6	38.1	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
ARM A	17.93	29.73	0.603		3.4	1.5	24.2	
ARM B	7.52	16.71	0.450		1.8	0.8	13.0	
ARM C	16.84	27.22	0.618		4.2	1.6	26.2	
ARM D	15.73	28.34	0.555		2.6	1.3	19.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
ARM A	15.01	30.78	0.488		1.5	1.0	14.8	
ARM B	6.30	18.51	0.340		0.8	0.5	8.0	
ARM C	14.10	28.63	0.492		1.6	1.0	15.1	
ARM D	13.18	29.66	0.444		1.3	0.8	12.4	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.9	*
12.15	1.5	*
12.30	3.3	***
12.45	3.4	***
13.00	1.5	**
13.15	1.0	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.5	*
12.15	0.8	*
12.30	1.7	**
12.45	1.8	**
13.00	0.8	*
13.15	0.5	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.0	*
12.15	1.6	**
12.30	4.0	****
12.45	4.2	****
13.00	1.6	**
13.15	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.8	*
12.15	1.2	*
12.30	2.5	***
12.45	2.6	***

13.00	1.3	*
13.15	0.8	*

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1646.8	1097.9	169.5	0.10	169.5	0.10
B	691.1	460.7	90.1	0.13	90.1	0.13
C	1546.7	1031.2	193.6	0.13	193.6	0.13
D	1445.3	963.5	134.8	0.09	134.9	0.09
ALL	5329.9	3553.3	588.0	0.11	588.1	0.11

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
RELEASE 1.0 (APR 2000)

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2013_SAT_DS.vai" at 17:10:37 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY
****

.RUN TITLE
****
Sheff Rd / Wesley St 2013 Sat Peak DEV ARCADY

.INPUT DATA
****
ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 11.45 AND ENDS 13.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED				
ARM A	15.00	45.00	75.00	15.74	23.61	15.74
ARM B	15.00	45.00	75.00	6.66	9.99	6.66
ARM C	15.00	45.00	75.00	13.86	20.79	13.86
ARM D	15.00	45.00	75.00	13.36	20.04	13.36

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
11.45 - 13.15	ARM A	0.003	0.305	0.241	0.451
		4.0	384.0	303.0	568.0
		(0.0)%	(4.0)%	(11.0)%	(3.0)%
	ARM B	0.482	0.000	0.146	0.371
		257.0	0.0	78.0	198.0
		(1.0)%	(0.0)%	(1.0)%	(1.0)%
	ARM C	0.540	0.034	0.008	0.417
		599.0	38.0	9.0	463.0
		(4.0)%	(0.0)%	(11.0)%	(12.0)%
	ARM D	0.413	0.094	0.477	0.015
		442.0	101.0	510.0	16.0
		(5.0)%	(0.0)%	(11.0)%	(6.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

11.45-12.00								
ARM A	15.74	30.86	0.510	0.0	1.0	15.0		
ARM B	6.66	18.56	0.359	0.0	0.6	8.1		
ARM C	13.86	28.22	0.491	0.0	1.0	13.9		
ARM D	13.36	29.63	0.451	0.0	0.8	11.9		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
ARM A	18.79	29.83	0.630		1.0	1.7	24.2	
ARM B	7.96	16.79	0.474		0.6	0.9	12.9	
ARM C	16.55	26.75	0.619		1.0	1.6	23.0	
ARM D	15.96	28.32	0.563		0.8	1.3	18.5	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
ARM A	23.02	28.45	0.809		1.7	4.0	54.5	
ARM B	9.74	14.42	0.676		0.9	2.0	27.7	
ARM C	20.27	24.80	0.818		1.6	4.2	56.0	
ARM D	19.54	26.59	0.735		1.3	2.7	37.6	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
ARM A	23.02	28.41	0.810		4.0	4.1	61.1	
ARM B	9.74	14.35	0.679		2.0	2.1	30.6	
ARM C	20.27	24.73	0.820		4.2	4.4	64.3	
ARM D	19.54	26.52	0.737		2.7	2.7	40.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
ARM A	18.79	29.78	0.631		4.1	1.7	27.5	
ARM B	7.96	16.69	0.477		2.1	0.9	14.5	
ARM C	16.55	26.65	0.621		4.4	1.7	26.7	
ARM D	15.96	28.21	0.566		2.7	1.3	20.6	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
ARM A	15.74	30.83	0.510		1.7	1.1	16.2	
ARM B	6.66	18.50	0.360		0.9	0.6	8.8	
ARM C	13.86	28.16	0.492		1.7	1.0	15.1	
ARM D	13.36	29.57	0.452		1.3	0.8	12.8	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.0	*
12.15	1.7	**
12.30	4.0	****
12.45	4.1	****
13.00	1.7	**
13.15	1.1	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.6	*
12.15	0.9	*
12.30	2.0	**
12.45	2.1	**
13.00	0.9	*
13.15	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.0	*
12.15	1.6	**
12.30	4.2	****
12.45	4.4	****
13.00	1.7	**
13.15	1.0	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.8	*
12.15	1.3	*
12.30	2.7	***
12.45	2.7	***

13.00	1.3	*
13.15	0.8	*

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1726.4	1150.9	198.6	0.12	198.6	0.12
B	730.9	487.2	102.6	0.14	102.6	0.14
C	1520.7	1013.8	199.1	0.13	199.1	0.13
D	1465.8	977.2	142.2	0.10	142.2	0.10
ALL	5443.7	3629.1	642.4	0.12	642.4	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2023_PM_DM.vai" at 17:10:47 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY

.RUN TITLE

Sheff Rd / Wesley St 2023 PM Peak Do Min ARCADY

.INPUT DATA

ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = entry width L = effective flare length R = entry radius D = inscribed circle diameter PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 15.45 AND ENDS 17.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	IFALLING			
ARM A	15.00	45.00	75.00	19.17	28.76	19.17
ARM B	15.00	45.00	75.00	4.61	6.92	4.61
ARM C	15.00	45.00	75.00	15.11	22.67	15.11
ARM D	15.00	45.00	75.00	15.06	22.59	15.06

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
15.45 - 17.15	ARM A	0.005	0.102	0.312	0.582
		7.0	156.0	478.0	893.0
		(0.0)%	(4.0)%	(11.0)%	(3.0)%
	ARM B	0.442	0.000	0.217	0.341
		163.0	0.0	80.0	126.0
		(1.0)%	(0.0)%	(1.0)%	(1.0)%
	ARM C	0.547	0.022	0.008	0.423
		661.0	27.0	10.0	511.0
		(4.0)%	(0.0)%	(11.0)%	(12.0)%
	ARM D	0.441	0.034	0.509	0.016
		532.0	41.0	613.0	19.0
		(5.0)%	(0.0)%	(11.0)%	(6.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

15.45-16.00							
ARM A	19.17	30.42	0.630	0.0	1.7	24.0	
ARM B	4.61	14.72	0.313	0.0	0.5	6.5	
ARM C	15.11	26.99	0.560	0.0	1.3	18.1	
ARM D	15.06	29.76	0.506	0.0	1.0	14.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
ARM A	22.90	29.33	0.781		1.7	3.4	47.3	
ARM B	5.51	12.21	0.451		0.5	0.8	11.6	
ARM C	18.05	25.30	0.713		1.3	2.4	34.0	
ARM D	17.99	28.52	0.631		1.0	1.7	24.2	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
ARM A	28.04	27.88	1.006		3.4	21.6	216.8	
ARM B	6.75	9.27	0.728		0.8	2.5	32.4	
ARM C	22.10	23.38	0.945		2.4	10.8	123.6	
ARM D	22.03	27.00	0.816		1.7	4.2	56.2	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
ARM A	28.04	27.82	1.008		21.6	31.9	404.9	
ARM B	6.75	8.99	0.750		2.5	2.8	40.1	
ARM C	22.10	23.16	0.954		10.8	13.7	187.1	
ARM D	22.03	26.85	0.820		4.2	4.4	64.4	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
ARM A	22.90	29.24	0.783		31.9	3.8	132.5	
ARM B	5.51	11.24	0.490		2.8	1.0	16.0	
ARM C	18.05	24.56	0.735		13.7	2.9	57.7	
ARM D	17.99	28.20	0.638		4.4	1.8	28.5	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
ARM A	19.17	30.38	0.631		3.8	1.7	27.4	
ARM B	4.61	14.57	0.317		1.0	0.5	7.3	
ARM C	15.11	26.88	0.562		2.9	1.3	20.4	
ARM D	15.06	29.68	0.508		1.8	1.0	16.1	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.7	**
16.15	3.4	***
16.30	21.6	**********
16.45	31.9	**********
17.00	3.8	****
17.15	1.7	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.5	
16.15	0.8	*
16.30	2.5	**
16.45	2.8	***
17.00	1.0	*
17.15	0.5	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.3	*
16.15	2.4	**
16.30	10.8	**********
16.45	13.7	**********
17.00	2.9	***
17.15	1.3	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.0	*
16.15	1.7	**
16.30	4.2	****
16.45	4.4	****

```
  17.00           1.8  **
  17.15           1.0  *
```

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	2103.4	1402.3	852.9	0.41	853.0	0.41
B	506.0	337.3	114.0	0.23	114.0	0.23
C	1657.8	1105.2	441.0	0.27	441.0	0.27
D	1652.3	1101.5	204.2	0.12	204.2	0.12
ALL	5919.5	3946.3	1612.1	0.27	1612.2	0.27

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2023_PM_DS.vai" at 17:10:51 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY
****

.RUN TITLE
****
Sheff Rd / Wesley St 2013 PM Peak DEV ARCADY

.INPUT DATA
****
ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = entry width L = effective flare length R = entry radius D = inscribed circle diameter PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 15.45 AND ENDS 17.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS IFALLING TO RISE	IS REACHED	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	19.34	29.01	19.34	
ARM B	15.00	45.00	75.00	4.72	7.09	4.72	
ARM C	15.00	45.00	75.00	15.09	22.63	15.09	
ARM D	15.00	45.00	75.00	15.10	22.65	15.10	

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
15.45 - 17.15	ARM A	0.005	0.109	0.309	0.577
		7.0	169.0	478.0	893.0
		(0.0)%	(4.0)%	(11.0)%	(3.0)%
	ARM B	0.468	0.000	0.172	0.360
		177.0	0.0	65.0	136.0
		(1.0)%	(0.0)%	(1.0)%	(1.0)%
	ARM C	0.548	0.021	0.008	0.423
		661.0	25.0	10.0	511.0
		(4.0)%	(0.0)%	(11.0)%	(12.0)%
	ARM D	0.440	0.036	0.507	0.016
		532.0	44.0	613.0	19.0
		(5.0)%	(0.0)%	(11.0)%	(6.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

15.45-16.00								
ARM A	19.34	30.42	0.636	0.0	1.7	24.5		
ARM B	4.72	14.72	0.321	0.0	0.5	6.8		
ARM C	15.09	26.82	0.563	0.0	1.3	18.3		
ARM D	15.10	29.68	0.509	0.0	1.0	14.9		

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
ARM A	23.09	29.33	0.787		1.7	3.5	49.0	
ARM B	5.64	12.21	0.462		0.5	0.8	12.1	
ARM C	18.02	25.10	0.718		1.3	2.5	34.7	
ARM D	18.03	28.42	0.634		1.0	1.7	24.6	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
ARM A	28.28	27.88	1.014		3.5	23.8	233.4	
ARM B	6.91	9.33	0.741		0.8	2.6	34.2	
ARM C	22.06	23.18	0.952		2.5	11.5	129.6	
ARM D	22.08	26.89	0.821		1.7	4.3	57.8	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
ARM A	28.28	27.82	1.017		23.8	36.2	453.4	
ARM B	6.91	9.05	0.763		2.6	3.0	42.7	
ARM C	22.06	22.96	0.961		11.5	14.9	201.0	
ARM D	22.08	26.74	0.826		4.3	4.5	66.6	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
ARM A	23.09	29.23	0.790		36.2	4.0	160.2	
ARM B	5.64	11.12	0.507		3.0	1.1	17.3	
ARM C	18.02	24.26	0.742		14.9	3.0	62.6	
ARM D	18.03	28.08	0.642		4.5	1.8	29.2	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
ARM A	19.34	30.37	0.637		4.0	1.8	28.2	
ARM B	4.72	14.57	0.324		1.1	0.5	7.5	
ARM C	15.09	26.70	0.565		3.0	1.3	20.7	
ARM D	15.10	29.59	0.510		1.8	1.1	16.3	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.7	**
16.15	3.5	****
16.30	23.8	************************
16.45	36.2	************************************
17.00	4.0	****
17.15	1.8	**

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.5	
16.15	0.8	*
16.30	2.6	***
16.45	3.0	***
17.00	1.1	*
17.15	0.5	

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.3	*
16.15	2.5	**
16.30	11.5	***********
16.45	14.9	***************
17.00	3.0	***
17.15	1.3	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	1.0	*
16.15	1.7	**
16.30	4.3	****
16.45	4.5	*****

```
  17.00          1.8  **
  17.15          1.1  *
```

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	2121.3	1414.2	948.6	0.45	948.7	0.45
B	518.3	345.5	120.6	0.23	120.6	0.23
C	1655.1	1103.4	466.8	0.28	466.8	0.28
D	1656.4	1104.3	209.3	0.13	209.3	0.13
ALL	5951.1	3967.4	1745.3	0.29	1745.4	0.29

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2023_SAT_DM.vai" at 17:10:56 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY

.RUN TITLE

Sheff Rd / Wesley St 2013 SAT Peak Do Min ARCADY

.INPUT DATA

ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = entry width L = effective flare length R = entry radius D = inscribed circle diameter PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 11.45 AND ENDS 13.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	16.42	24.64	16.42
ARM B	15.00	45.00	75.00	6.89	10.33	6.89
ARM C	15.00	45.00	75.00	15.41	23.12	15.41
ARM D	15.00	45.00	75.00	14.41	21.62	14.41

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
11.45 - 13.15	ARM A	0.004	0.272	0.253	0.472
		5.0	357.0	332.0	620.0
		(0.0)	(4.0)	(11.0)	(3.0)
	ARM B	0.441	0.000	0.218	0.341
		243.0	0.0	120.0	188.0
		(1.0)	(0.0)	(1.0)	(1.0)
	ARM C	0.531	0.050	0.008	0.410
		655.0	62.0	10.0	506.0
		(4.0)	(0.0)	(11.0)	(12.0)
	ARM D	0.420	0.082	0.484	0.015
		484.0	94.0	558.0	17.0
		(5.0)	(0.0)	(11.0)	(6.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

11.45-12.00							
ARM A	16.42	30.33	0.542	0.0	1.2	16.9	
ARM B	6.89	17.72	0.389	0.0	0.6	9.1	
ARM C	15.41	28.03	0.550	0.0	1.2	17.4	
ARM D	14.41	29.10	0.495	0.0	1.0	14.1	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
ARM A	19.61	29.20	0.672		1.2	2.0	28.7	
ARM B	8.22	15.79	0.521		0.6	1.1	15.4	
ARM C	18.40	26.52	0.694		1.2	2.2	31.4	
ARM D	17.21	27.70	0.621		1.0	1.6	23.3	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
ARM A	24.02	27.71	0.867		2.0	5.8	75.7	
ARM B	10.07	13.24	0.761		1.1	2.9	39.2	
ARM C	22.54	24.55	0.918		2.2	8.6	103.2	
ARM D	21.08	25.93	0.813		1.6	4.1	55.0	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
ARM A	24.02	27.64	0.869		5.8	6.2	90.7	
ARM B	10.07	13.12	0.768		2.9	3.1	46.0	
ARM C	22.54	24.44	0.922		8.6	9.9	139.9	
ARM D	21.08	25.78	0.818		4.1	4.3	63.1	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
ARM A	19.61	29.10	0.674		6.2	2.1	34.5	
ARM B	8.22	15.61	0.527		3.1	1.1	18.3	
ARM C	18.40	26.36	0.698		9.9	2.4	42.5	
ARM D	17.21	27.46	0.627		4.3	1.7	27.2	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
ARM A	16.42	30.28	0.542		2.1	1.2	18.6	
ARM B	6.89	17.64	0.390		1.1	0.6	10.0	
ARM C	15.41	27.96	0.551		2.4	1.2	19.3	
ARM D	14.41	29.03	0.496		1.7	1.0	15.4	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.2	*
12.15	2.0	**
12.30	5.8	******
12.45	6.2	******
13.00	2.1	**
13.15	1.2	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.6	*
12.15	1.1	*
12.30	2.9	***
12.45	3.1	***
13.00	1.1	*
13.15	0.6	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.2	*
12.15	2.2	**
12.30	8.6	*********
12.45	9.9	**********
13.00	2.4	**
13.15	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.0	*
12.15	1.6	**
12.30	4.1	****
12.45	4.3	****

```
  13.00           1.7  **
  13.15           1.0  *
```

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1801.8	1201.2	265.1	0.15	265.2	0.15
B	755.5	503.7	138.0	0.18	138.0	0.18
C	1690.7	1127.1	353.8	0.21	353.8	0.21
D	1581.0	1054.0	198.1	0.13	198.2	0.13
ALL	5829.0	3886.0	955.1	0.16	955.2	0.16

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.

TRANSPORT RESEARCH LABORATORY

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CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

ARCADY 5.0 ANALYSIS PROGRAM
RELEASE 1.0 (APR 2000)

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Run with file:- "t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\ARCADY\SheffieldRdRAB\BaseLayout\SheffRdRAB_2023_SAT_DS.vai" at 17:11:00 on Monday, 16 May 2011

.ROUNDABOUT CAPACITY AND DELAY

.RUN TITLE

Sheff Rd / Wesley St 2013 Sat Peak DEV ARCADY

.INPUT DATA

ARM A - West Way
ARM B - Wesley St
ARM C - Harborough Hill Rd
ARM D - Sheffield Rd

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.80	7.80	0.00	30.00	67.00	45.0	0.604	37.982
ARM B	3.70	10.00	15.00	12.00	67.00	60.0	0.481	27.848
ARM C	8.00	8.00	0.00	30.00	67.00	50.0	0.603	38.255
ARM D	8.00	8.00	0.00	30.00	67.00	45.0	0.614	38.956

V = approach half-width E = entry width L = effective flare length R = entry radius D = inscribed circle diameter PHI = entry angle

.TRAFFIC DEMAND DATA

.TIME PERIOD BEGINS 11.45 AND ENDS 13.15
.LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
	TO RISE	IS REACHED	IFALLING			
ARM A	15.00	45.00	75.00	17.15	25.72	17.15
ARM B	15.00	45.00	75.00	7.25	10.88	7.25
ARM C	15.00	45.00	75.00	15.19	22.78	15.19
ARM D	15.00	45.00	75.00	14.60	21.90	14.60

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
11.45 - 13.15	ARM A	0.004	0.302	0.242	0.452
		5.0	415.0	332.0	620.0
		(0.0)%	(4.0)%	(11.0)%	(3.0)%
	ARM B	0.479	0.000	0.152	0.369
		278.0	0.0	88.0	214.0
		(1.0)%	(0.0)%	(1.0)%	(1.0)%
	ARM C	0.539	0.036	0.008	0.416
		655.0	44.0	10.0	506.0
		(4.0)%	(0.0)%	(11.0)%	(12.0)%
	ARM D	0.414	0.093	0.478	0.015
		484.0	109.0	558.0	17.0
		(5.0)%	(0.0)%	(11.0)%	(6.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

. QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)

11.45-12.00							
ARM A	17.15	30.37	0.565	0.0	1.3	18.5	
ARM B	7.25	17.73	0.409	0.0	0.7	9.9	
ARM C	15.19	27.58	0.551	0.0	1.2	17.5	
ARM D	14.60	29.01	0.503	0.0	1.0	14.6	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
ARM A	20.48	29.24	0.700		1.3	2.3	32.5	
ARM B	8.66	15.79	0.548		0.7	1.2	17.0	
ARM C	18.14	25.99	0.698		1.2	2.2	31.9	
ARM D	17.43	27.58	0.632		1.0	1.7	24.3	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
ARM A	25.08	27.76	0.904		2.3	7.7	96.3	
ARM B	10.60	13.28	0.798		1.2	3.6	46.5	
ARM C	22.21	23.94	0.928		2.2	9.3	109.7	
ARM D	21.35	25.79	0.828		1.7	4.4	59.5	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
ARM A	25.08	27.69	0.906		7.7	8.5	123.1	
ARM B	10.60	13.13	0.808		3.6	3.9	56.6	
ARM C	22.21	23.79	0.934		9.3	11.0	154.3	
ARM D	21.35	25.63	0.833		4.4	4.7	69.5	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
ARM A	20.48	29.14	0.703		8.5	2.4	41.4	
ARM B	8.66	15.56	0.556		3.9	1.3	21.0	
ARM C	18.14	25.76	0.704		11.0	2.5	45.3	
ARM D	17.43	27.30	0.639		4.7	1.8	28.9	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
ARM A	17.15	30.32	0.566		2.4	1.3	20.5	
ARM B	7.25	17.64	0.411		1.3	0.7	10.9	
ARM C	15.19	27.49	0.552		2.5	1.2	19.4	
ARM D	14.60	28.93	0.505		1.8	1.0	15.9	

.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.3	*
12.15	2.3	**
12.30	7.7	********
12.45	8.5	*********
13.00	2.4	**
13.15	1.3	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.7	*
12.15	1.2	*
12.30	3.6	****
12.45	3.9	****
13.00	1.3	*
13.15	0.7	*

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.2	*
12.15	2.2	**
12.30	9.3	*********
12.45	11.0	***********
13.00	2.5	**
13.15	1.2	*

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	1.0	*
12.15	1.7	**
12.30	4.4	****
12.45	4.7	*****

```
  13.00           1.8  **
  13.15           1.0  *
```

. QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1881.3	1254.2	332.2	0.18	332.3	0.18
B	795.3	530.2	162.0	0.20	162.0	0.20
C	1666.0	1110.7	378.2	0.23	378.2	0.23
D	1601.6	1067.7	212.7	0.13	212.7	0.13
ALL	5944.2	3962.8	1085.1	0.18	1085.2	0.18

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* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** ARCADY 5 run completed.
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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2013_DM_PM.vpi"
at 10:42:13 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2013 Do Min PM

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	80.0 M.
- BLOCKS TRAFFIC		YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	80.0 M.
- VISIBILITY TO RIGHT	(VB-A)	80.0 M.
- LANE 1 WIDTH	(WB-C)	-
- LANE 2 WIDTH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		10.00 M.
- WIDTH AT 5 M FROM JUNC.		8.00 M.
- WIDTH AT 10 M FROM JUNC.		6.00 M.
- WIDTH AT 15 M FROM JUNC.		6.00 M.
- WIDTH AT 20 M FROM JUNC.		4.00 M.
- LENGTH OF FLARED SECTION		2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.45 AND ENDS 17.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.01	10.52	7.01
ARM B	15.00	45.00	75.00	3.28	4.91	3.28
ARM C	15.00	45.00	75.00	6.61	9.92	6.61

.

TIME	FROM/TO	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
15.45 - 17.15	ARM A	0.000	0.292	0.708

```
I                    I         I    0.0 I  164.0 I  397.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.798 I  0.000 I  0.202 I
I                    I         I  209.0 I    0.0 I   53.0 I
I                    I         I (  1.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.981 I  0.019 I  0.000 I
I                    I         I  519.0 I   10.0 I    0.0 I
I                    I         I (  3.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
15.45-16.00								
B-C	0.66	8.55	0.078		0.0	0.1	1.2	
B-A	2.61	7.77	0.336		0.0	0.5	7.0	
C-AB	0.23	13.12	0.017		0.0	0.0	0.3	
C-A	6.38							
A-B	2.05							
A-C	4.96							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
B-C	0.79	7.93	0.100		0.1	0.1	1.6	
B-A	3.12	7.23	0.431		0.5	0.7	10.6	
C-AB	0.31	13.67	0.022		0.0	0.0	0.4	
C-A	7.59							
A-B	2.45							
A-C	5.93							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
B-C	0.97	6.72	0.144		0.1	0.2	2.4	
B-A	3.82	6.49	0.589		0.7	1.4	18.7	
C-AB	0.44	14.40	0.030		0.0	0.0	0.6	
C-A	9.23							
A-B	3.00							
A-C	7.26							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-C	0.97	6.68	0.145		0.2	0.2	2.5	
B-A	3.82	6.49	0.589		1.4	1.4	20.7	
C-AB	0.44	14.40	0.030		0.0	0.0	0.6	
C-A	9.23							
A-B	3.00							
A-C	7.26							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
B-C	0.79	7.89	0.100		0.2	0.1	1.7	
B-A	3.12	7.23	0.431		1.4	0.8	12.4	
C-AB	0.31	13.67	0.022		0.0	0.0	0.4	
C-A	7.59							
A-B	2.45							
A-C	5.93							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
B-C	0.66	8.52	0.078		0.1	0.1	1.3	
B-A	2.61	7.76	0.336		0.8	0.5	8.1	
C-AB	0.23	13.12	0.018		0.0	0.0	0.3	
C-A	6.38							
A-B	2.05							
A-C	4.96							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.1
16.15	0.1
16.30	0.2
16.45	0.2
17.00	0.1
17.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.5	
16.15	0.7	*
16.30	1.4	*
16.45	1.4	*
17.00	0.8	*
17.15	0.5	*

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QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.0
16.15	0.0
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	72.7	48.4	10.8	0.15	10.8	0.15
B-A	286.6	191.1	77.5	0.27	77.5	0.27
C-AB	29.2	19.4	2.6	0.09	2.6	0.09
C-A	696.2	464.1				
A-B	224.9	149.9				
A-C	544.4	362.9				
ALL	1853.9	1235.9	90.9	0.05	90.9	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2013_DM_SAT.vpi"
at 10:42:16 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2013 Do Min Sat

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	80.0 M.
- BLOCKS TRAFFIC		YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	80.0 M.
- VISIBILITY TO RIGHT	(VB-A)	80.0 M.
- LANE 1 WIDTH	(WB-C)	-
- LANE 2 WIDTH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		10.00 M.
- WIDTH AT 5 M FROM JUNC.		8.00 M.
- WIDTH AT 10 M FROM JUNC.		6.00 M.
- WIDTH AT 15 M FROM JUNC.		6.00 M.
- WIDTH AT 20 M FROM JUNC.		4.00 M.
- LENGTH OF FLARED SECTION		2 VEHS

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.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 11.45 AND ENDS 13.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED TOP OF PEAK	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.55	12.83	8.55
ARM B	15.00	45.00	75.00	4.05	6.08	4.05
ARM C	15.00	45.00	75.00	5.10	7.65	5.10

.

TIME	FROM/TO	ARM A	ARM B	ARM C
	TURNING PROPORTIONS (PERCENTAGE OF H.V.S)			
	TURNING COUNTS (VEH/HR)			
11.45 - 13.15	ARM A	0.000	0.446	0.554

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I                    I         I    0.0 I  305.0 I  379.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.827 I  0.000 I  0.173 I
I                    I         I  268.0 I    0.0 I   56.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.926 I  0.074 I  0.000 I
I                    I         I  378.0 I   30.0 I    0.0 I
I                    I         I (  4.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
11.45-12.00								
B-C	0.70	8.05	0.087		0.0	0.1	1.4	
B-A	3.35	7.97	0.420		0.0	0.7	9.9	
C-AB	0.61	11.70	0.052		0.0	0.1	1.2	
C-A	4.49							
A-B	3.81							
A-C	4.74							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
B-C	0.84	7.18	0.116		0.1	0.1	1.9	
B-A	4.00	7.44	0.538		0.7	1.1	15.8	
C-AB	0.83	12.09	0.069		0.1	0.1	1.8	
C-A	5.26							
A-B	4.55							
A-C	5.66							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
B-C	1.02	5.25	0.195		0.1	0.2	3.4	
B-A	4.90	6.70	0.731		1.1	2.4	31.9	
C-AB	1.19	12.59	0.095		0.1	0.2	2.9	
C-A	6.27							
A-B	5.58							
A-C	6.93							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
B-C	1.02	5.10	0.201		0.2	0.2	3.7	
B-A	4.90	6.70	0.731		2.4	2.6	37.6	
C-AB	1.20	12.59	0.095		0.2	0.2	2.9	
C-A	6.26							
A-B	5.58							
A-C	6.93							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
B-C	0.84	7.07	0.118		0.2	0.1	2.1	
B-A	4.00	7.44	0.538		2.6	1.2	19.8	
C-AB	0.84	12.10	0.069		0.2	0.1	1.8	
C-A	5.25							
A-B	4.55							
A-C	5.66							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
B-C	0.70	8.01	0.087		0.1	0.1	1.5	
B-A	3.35	7.97	0.421		1.2	0.7	11.8	
C-AB	0.61	11.70	0.052		0.1	0.1	1.2	
C-A	4.49							
A-B	3.81							
A-C	4.74							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.2
12.45	0.2
13.00	0.1
13.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.7	*
12.15	1.1	*
12.30	2.4	**
12.45	2.6	***
13.00	1.2	*
13.15	0.7	*

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.2
12.45	0.2
13.00	0.1
13.15	0.1

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	76.8	51.2	13.9	0.18	13.9	0.18
B-A	367.5	245.0	126.8	0.35	126.8	0.35
C-AB	79.1	52.7	11.8	0.15	11.8	0.15
C-A	480.4	320.2				
A-B	418.2	278.8				
A-C	519.7	346.5				
ALL	1941.6	1294.4	152.5	0.08	152.6	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2013_DS_PM.vpi"
at 10:42:20 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2013 'With Dev' PM

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	80.0 M.
- BLOCKS TRAFFIC		YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	80.0 M.
- VISIBILITY TO RIGHT	(VB-A)	80.0 M.
- LANE 1 WIDTH	(WB-C)	-
- LANE 2 WIDTH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		10.00 M.
- WIDTH AT 5 M FROM JUNC.		8.00 M.
- WIDTH AT 10 M FROM JUNC.		6.00 M.
- WIDTH AT 15 M FROM JUNC.		6.00 M.
- WIDTH AT 20 M FROM JUNC.		4.00 M.
- LENGTH OF FLARED SECTION		2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.45 AND ENDS 17.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.10	10.65	7.10
ARM B	15.00	45.00	75.00	3.17	4.76	3.17
ARM C	15.00	45.00	75.00	6.80	10.20	6.80

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TIME	FROM/TO	ARM A	ARM B	ARM C
	TURNING PROPORTIONS			
	TURNING COUNTS (VEH/HR)			
	(PERCENTAGE OF H.V.S)			
15.45 - 17.15	ARM A	0.000	0.294	0.706

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I                    I         I     0.0 I  167.0 I  401.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I        I        I        I
I                    I  ARM B  I  0.827 I  0.000 I  0.173 I
I                    I         I  210.0 I    0.0 I   44.0 I
I                    I         I (  1.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
I                    I  ARM C  I  0.982 I  0.018 I  0.000 I
I                    I         I  534.0 I   10.0 I    0.0 I
I                    I         I (  3.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
15.45-16.00								
B-C	0.55	8.45	0.065		0.0	0.1	1.0	
B-A	2.63	7.76	0.338		0.0	0.5	7.1	
C-AB	0.23	13.23	0.018		0.0	0.0	0.3	
C-A	6.57							
A-B	2.09							
A-C	5.01							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
B-C	0.66	7.82	0.084		0.1	0.1	1.3	
B-A	3.13	7.22	0.434		0.5	0.7	10.7	
C-AB	0.31	13.79	0.023		0.0	0.0	0.4	
C-A	7.81							
A-B	2.49							
A-C	5.99							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
B-C	0.80	6.58	0.122		0.1	0.1	2.0	
B-A	3.84	6.46	0.594		0.7	1.4	19.1	
C-AB	0.45	14.54	0.031		0.0	0.0	0.6	
C-A	9.50							
A-B	3.05							
A-C	7.33							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-C	0.80	6.53	0.123		0.1	0.1	2.1	
B-A	3.84	6.46	0.595		1.4	1.4	21.1	
C-AB	0.45	14.54	0.031		0.0	0.0	0.6	
C-A	9.50							
A-B	3.05							
A-C	7.33							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
B-C	0.66	7.78	0.084		0.1	0.1	1.4	
B-A	3.13	7.21	0.434		1.4	0.8	12.6	
C-AB	0.31	13.79	0.023		0.0	0.0	0.4	
C-A	7.81							
A-B	2.49							
A-C	5.99							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
B-C	0.55	8.42	0.065		0.1	0.1	1.1	
B-A	2.63	7.76	0.338		0.8	0.5	8.2	
C-AB	0.23	13.23	0.018		0.0	0.0	0.3	
C-A	6.57							
A-B	2.09							
A-C	5.01							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.1
16.15	0.1
16.30	0.1
16.45	0.1
17.00	0.1
17.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.5	*
16.15	0.7	*
16.30	1.4	*
16.45	1.4	*
17.00	0.8	*
17.15	0.5	*

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.0
16.15	0.0
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	60.3	40.2	8.9	0.15	8.9	0.15
B-A	288.0	192.0	78.7	0.27	78.8	0.27
C-AB	29.7	19.8	2.7	0.09	2.7	0.09
C-A	716.2	477.5				
A-B	229.0	152.7				
A-C	549.9	366.6				
ALL	1873.1	1248.7	90.3	0.05	90.4	0.05

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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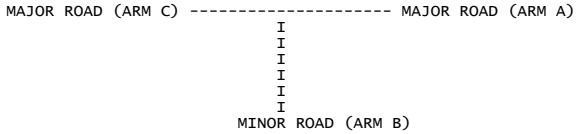
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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2013_DS_SAT.vpi"
at 10:42:23 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2013 DEV Sat

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 8.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 80.0 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 80.0 M.
- VISIBILITY TO RIGHT	(VB-A) 80.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
- WIDTH AT 0 M FROM JUNC.	10.00 M.
- WIDTH AT 5 M FROM JUNC.	8.00 M.
- WIDTH AT 10 M FROM JUNC.	6.00 M.
- WIDTH AT 15 M FROM JUNC.	6.00 M.
- WIDTH AT 20 M FROM JUNC.	4.00 M.
- LENGTH OF FLARED SECTION	2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 11.45 AND ENDS 13.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED TOP OF PEAK	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.00	13.50	9.00
ARM B	15.00	45.00	75.00	3.92	5.89	3.92
ARM C	15.00	45.00	75.00	5.45	8.17	5.45

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TIME	FROM/TO	ARM A	ARM B	ARM C
		TURNING PROPORTIONS		
		TURNING COUNTS (VEH/HR)		
		(PERCENTAGE OF H.V.S)		
11.45 - 13.15	ARM A	0.000	0.432	0.568

```
I                   I         I    0.0 I  311.0 I  409.0 I
I                   I         I (  0.0)I (  0.0)I (  4.0)I
I                   I         I       I       I       I
I                   I  ARM B  I  0.873 I  0.000 I  0.127 I
I                   I         I  274.0 I    0.0 I   40.0 I
I                   I         I (  0.0)I (  0.0)I (  0.0)I
I                   I         I       I       I       I
I                   I  ARM C  I  0.945 I  0.055 I  0.000 I
I                   I         I  412.0 I   24.0 I    0.0 I
I                   I         I (  4.0)I (  0.0)I (  0.0)I
I                   I         I       I       I       I
-----------------------------------------------------
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
11.45-12.00								
B-C	0.50	7.86	0.064		0.0	0.1	1.0	
B-A	3.42	7.82	0.438		0.0	0.8	10.6	
C-AB	0.51	11.89	0.043		0.0	0.1	0.9	
C-A	4.94							
A-B	3.89							
A-C	5.11							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
B-C	0.60	6.87	0.087		0.1	0.1	1.4	
B-A	4.09	7.26	0.563		0.8	1.2	17.3	
C-AB	0.67	12.24	0.055		0.1	0.1	1.3	
C-A	5.83							
A-B	4.64							
A-C	6.10							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
B-C	0.73	4.53	0.161		0.1	0.2	2.7	
B-A	5.01	6.48	0.772		1.2	2.9	37.3	
C-AB	1.02	12.92	0.079		0.1	0.1	2.2	
C-A	6.95							
A-B	5.69							
A-C	7.48							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
B-C	0.73	4.30	0.170		0.2	0.2	3.0	
B-A	5.01	6.48	0.773		2.9	3.1	45.5	
C-AB	1.03	12.92	0.079		0.1	0.1	2.2	
C-A	6.94							
A-B	5.69							
A-C	7.48							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
B-C	0.60	6.71	0.089		0.2	0.1	1.5	
B-A	4.09	7.26	0.563		3.1	1.3	22.6	
C-AB	0.67	12.24	0.055		0.1	0.1	1.3	
C-A	5.83							
A-B	4.64							
A-C	6.10							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
B-C	0.50	7.81	0.064		0.1	0.1	1.1	
B-A	3.42	7.82	0.438		1.3	0.8	12.7	
C-AB	0.51	11.90	0.043		0.1	0.1	0.9	
C-A	4.94							
A-B	3.89							
A-C	5.11							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.2
12.45	0.2
13.00	0.1
13.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.8	*
12.15	1.2	*
12.30	2.9	***
12.45	3.1	***
13.00	1.3	*
13.15	0.8	*

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.1
12.45	0.1
13.00	0.1
13.15	0.1

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	54.8	36.6	10.6	0.19	10.6	0.19
B-A	375.7	250.5	145.9	0.39	146.0	0.39
C-AB	66.2	44.1	8.9	0.13	8.9	0.13
C-A	531.7	354.5				
A-B	426.4	284.3				
A-C	560.8	373.9				
ALL	2015.7	1343.8	165.4	0.08	165.5	0.08

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2023_DM_PM.vpi"
at 10:42:26 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2023 Do Min PM

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	80.0 M.
- BLOCKS TRAFFIC		YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	80.0 M.
- VISIBILITY TO RIGHT	(VB-A)	80.0 M.
- LANE 1 WIDTH	(WB-C)	-
- LANE 2 WIDTH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		10.00 M.
- WIDTH AT 5 M FROM JUNC.		8.00 M.
- WIDTH AT 10 M FROM JUNC.		6.00 M.
- WIDTH AT 15 M FROM JUNC.		6.00 M.
- WIDTH AT 20 M FROM JUNC.		4.00 M.
- LENGTH OF FLARED SECTION		2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.45 AND ENDS 17.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.65	11.48	7.65
ARM B	15.00	45.00	75.00	3.58	5.36	3.58
ARM C	15.00	45.00	75.00	7.21	10.82	7.21

.

TIME	FROM/TO	ARM A	ARM B	ARM C
	TURNING PROPORTIONS (PERCENTAGE OF H.V.S)			
	TURNING COUNTS (VEH/HR)			
15.45 - 17.15	ARM A	0.000	0.292	0.708

```
I                    I         I    0.0 I  179.0 I  433.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.797 I  0.000 I  0.203 I
I                    I         I  228.0 I    0.0 I   58.0 I
I                    I         I (  1.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.981 I  0.019 I  0.000 I
I                    I         I  566.0 I   11.0 I    0.0 I
I                    I         I (  3.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
-------------------------------------------------------
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
15.45-16.00								
B-C	0.73	8.28	0.088		0.0	0.1	1.4	
B-A	2.85	7.51	0.379		0.0	0.6	8.4	
C-AB	0.27	13.38	0.020		0.0	0.0	0.4	
C-A	6.95							
A-B	2.24							
A-C	5.41							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
B-C	0.87	7.51	0.115		0.1	0.1	1.9	
B-A	3.40	6.93	0.491		0.6	0.9	13.2	
C-AB	0.36	13.97	0.026		0.0	0.0	0.5	
C-A	8.25							
A-B	2.67							
A-C	6.46							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
B-C	1.06	5.82	0.182		0.1	0.2	3.2	
B-A	4.17	6.12	0.681		0.9	1.9	26.0	
C-AB	0.52	14.75	0.035		0.0	0.0	0.7	
C-A	10.03							
A-B	3.27							
A-C	7.92							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-C	1.06	5.72	0.186		0.2	0.2	3.3	
B-A	4.17	6.12	0.681		1.9	2.0	30.0	
C-AB	0.52	14.76	0.035		0.0	0.0	0.7	
C-A	10.03							
A-B	3.27							
A-C	7.92							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
B-C	0.87	7.43	0.116		0.2	0.1	2.1	
B-A	3.40	6.93	0.491		2.0	1.0	16.2	
C-AB	0.36	13.97	0.026		0.0	0.0	0.5	
C-A	8.25							
A-B	2.67							
A-C	6.46							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
B-C	0.73	8.25	0.088		0.1	0.1	1.5	
B-A	2.85	7.51	0.379		1.0	0.6	9.9	
C-AB	0.27	13.38	0.020		0.0	0.0	0.4	
C-A	6.95							
A-B	2.24							
A-C	5.41							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.1
16.15	0.1
16.30	0.2
16.45	0.2
17.00	0.1
17.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.6	*
16.15	0.9	*
16.30	1.9	**
16.45	2.0	**
17.00	1.0	*
17.15	0.6	*

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.0
16.15	0.0
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0

.

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	79.5	53.0	13.3	0.17	13.3	0.17
B-A	312.6	208.4	103.7	0.33	103.7	0.33
C-AB	34.2	22.8	3.1	0.09	3.1	0.09
C-A	757.0	504.6				
A-B	245.4	163.6				
A-C	593.7	395.8				
ALL	2022.5	1348.4	120.1	0.06	120.1	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2023_DM_SAT.vpi"
at 10:42:31 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2023 Do Min Sat

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 8.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 80.0 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 80.0 M.
- VISIBILITY TO RIGHT	(VB-A) 80.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
- WIDTH AT 0 M FROM JUNC.	10.00 M.
- WIDTH AT 5 M FROM JUNC.	8.00 M.
- WIDTH AT 10 M FROM JUNC.	6.00 M.
- WIDTH AT 15 M FROM JUNC.	6.00 M.
- WIDTH AT 20 M FROM JUNC.	4.00 M.
- LENGTH OF FLARED SECTION	2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 11.45 AND ENDS 13.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED TOP OF PEAK	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.36	14.04	9.36
ARM B	15.00	45.00	75.00	4.43	6.64	4.43
ARM C	15.00	45.00	75.00	5.59	8.38	5.59

.

TIME	FROM/TO	ARM A	ARM B	ARM C
	TURNING PROPORTIONS			
	TURNING COUNTS (VEH/HR)			
	(PERCENTAGE OF H.V.S)			
11.45 - 13.15	ARM A	0.000	0.446	0.554

```
I                    I         I    0.0 I  334.0 I  415.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.828 I  0.000 I  0.172 I
I                    I         I  293.0 I    0.0 I   61.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.926 I  0.074 I  0.000 I
I                    I         I  414.0 I   33.0 I    0.0 I
I                    I         I (  4.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
11.45-12.00								
B-C	0.76	7.68	0.099		0.0	0.1	1.6	
B-A	3.66	7.71	0.475		0.0	0.9	12.2	
C-AB	0.70	11.84	0.059		0.0	0.1	1.4	
C-A	4.89							
A-B	4.18							
A-C	5.19							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
B-C	0.91	6.51	0.140		0.1	0.2	2.3	
B-A	4.37	7.13	0.614		0.9	1.5	20.8	
C-AB	0.98	12.30	0.080		0.1	0.1	2.2	
C-A	5.69							
A-B	4.99							
A-C	6.19							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
B-C	1.12	3.59	0.310		0.2	0.4	6.0	
B-A	5.36	6.31	0.848		1.5	4.2	50.7	
C-AB	1.43	12.86	0.111		0.1	0.2	3.7	
C-A	6.74							
A-B	6.11							
A-C	7.59							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
B-C	1.12	3.15	0.354		0.4	0.5	7.5	
B-A	5.36	6.31	0.849		4.2	4.7	67.2	
C-AB	1.43	12.86	0.111		0.2	0.2	3.8	
C-A	6.74							
A-B	6.11							
A-C	7.59							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
B-C	0.91	6.21	0.147		0.5	0.2	2.8	
B-A	4.37	7.12	0.614		4.7	1.7	30.0	
C-AB	0.98	12.31	0.080		0.2	0.2	2.3	
C-A	5.69							
A-B	4.99							
A-C	6.19							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
B-C	0.76	7.60	0.100		0.2	0.1	1.7	
B-A	3.66	7.71	0.475		1.7	0.9	14.9	
C-AB	0.70	11.85	0.059		0.2	0.1	1.5	
C-A	4.88							
A-B	4.18							
A-C	5.19							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.1	
12.15	0.2	
12.30	0.4	
12.45	0.5	*
13.00	0.2	
13.15	0.1	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.9	*
12.15	1.5	**
12.30	4.2	****
12.45	4.7	*****
13.00	1.7	**
13.15	0.9	*

.

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.2
12.45	0.2
13.00	0.2
13.15	0.1

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH) (VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	83.6 55.8	22.0	0.26	22.0	0.26
B-A	401.8 267.8	195.8	0.49	195.8	0.49
C-AB	93.3 62.2	14.8	0.16	14.8	0.16
C-A	519.6 346.4				
A-B	458.0 305.3				
A-C	569.1 379.4				
ALL	2125.4 1416.9	232.5	0.11	232.6	0.11

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2023_DS_PM.vpi"
at 10:42:36 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2023 'With Dev' PM

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8.00 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	80.0 M.
- BLOCKS TRAFFIC		YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	80.0 M.
- VISIBILITY TO RIGHT	(VB-A)	80.0 M.
- LANE 1 WIDTH	(WB-C)	-
- LANE 2 WIDTH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		10.00 M.
- WIDTH AT 5 M FROM JUNC.		8.00 M.
- WIDTH AT 10 M FROM JUNC.		6.00 M.
- WIDTH AT 15 M FROM JUNC.		6.00 M.
- WIDTH AT 20 M FROM JUNC.		4.00 M.
- LENGTH OF FLARED SECTION		2 VEHS

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.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.45 AND ENDS 17.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW IS REACHED TOP OF PEAK	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.74	11.61	7.74
ARM B	15.00	45.00	75.00	3.47	5.21	3.47
ARM C	15.00	45.00	75.00	7.21	10.82	7.21

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TIME	FROM/TO	ARM A	ARM B	ARM C
		TURNING PROPORTIONS (PERCENTAGE OF H.V.S)		
		TURNING COUNTS (VEH/HR)		
15.45 - 17.15	ARM A	0.000	0.294	0.706

```
I                    I         I    0.0 I  182.0 I  437.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.824 I  0.000 I  0.176 I
I                    I         I  229.0 I    0.0 I   49.0 I
I                    I         I (  1.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.981 I  0.019 I  0.000 I
I                    I         I  566.0 I   11.0 I    0.0 I
I                    I         I (  3.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
15.45-16.00								
B-C	0.61	8.19	0.075		0.0	0.1	1.2	
B-A	2.86	7.54	0.380		0.0	0.6	8.4	
C-AB	0.27	13.36	0.020		0.0	0.0	0.4	
C-A	6.95							
A-B	2.28							
A-C	5.46							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
B-C	0.73	7.42	0.099		0.1	0.1	1.6	
B-A	3.42	6.95	0.492		0.6	0.9	13.2	
C-AB	0.36	13.95	0.026		0.0	0.0	0.5	
C-A	8.25							
A-B	2.72							
A-C	6.52							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								
B-C	0.90	5.70	0.157		0.1	0.2	2.6	
B-A	4.19	6.13	0.683		0.9	2.0	26.2	
C-AB	0.52	14.74	0.035		0.0	0.0	0.7	
C-A	10.03							
A-B	3.33							
A-C	7.99							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.30-16.45								
B-C	0.90	5.59	0.160		0.2	0.2	2.8	
B-A	4.19	6.13	0.683		2.0	2.0	30.2	
C-AB	0.52	14.74	0.035		0.0	0.0	0.7	
C-A	10.03							
A-B	3.33							
A-C	7.99							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.45-17.00								
B-C	0.73	7.34	0.100		0.2	0.1	1.7	
B-A	3.42	6.95	0.492		2.0	1.0	16.3	
C-AB	0.36	13.95	0.026		0.0	0.0	0.5	
C-A	8.25							
A-B	2.72							
A-C	6.52							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
17.00-17.15								
B-C	0.61	8.16	0.075		0.1	0.1	1.3	
B-A	2.86	7.54	0.380		1.0	0.6	9.9	
C-AB	0.27	13.36	0.020		0.0	0.0	0.4	
C-A	6.95							
A-B	2.28							
A-C	5.46							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.1
16.15	0.1
16.30	0.2
16.45	0.2
17.00	0.1
17.15	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.00	0.6	*
16.15	0.9	*
16.30	2.0	**
16.45	2.0	**
17.00	1.0	*
17.15	0.6	*

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QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.00	0.0
16.15	0.0
16.30	0.0
16.45	0.0
17.00	0.0
17.15	0.0

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	67.2	44.8	11.2	0.17	11.2	0.17
B-A	314.0	209.3	104.2	0.33	104.2	0.33
C-AB	34.3	22.9	3.1	0.09	3.1	0.09
C-A	756.9	504.6				
A-B	249.6	166.4				
A-C	599.2	399.5				
ALL	2021.2	1347.4	118.5	0.06	118.5	0.06

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
RELEASE 3.0 (MAR 2001)

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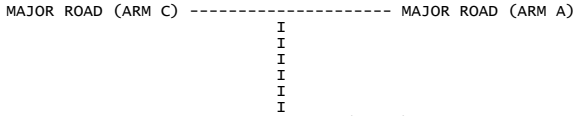
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Run with file:-
"t:\C3A309 Barnsley Markets 2010-11\Junction Modelling\PICADY\PonteRd\LamPont_2023_DS_SAT.vpi"
at 10:42:39 on Monday, 16 May 2011

RUN TITLE
****
Lambra Road Pontefract Road 2023 DEV Sat

.MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS Pontefract Road (East)
ARM B IS Lambra Road
ARM C IS Pontefract Road (West)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

ETC.

.GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 8.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 80.0 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 80.0 M.
- VISIBILITY TO RIGHT	(VB-A) 80.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
- WIDTH AT 0 M FROM JUNC.	10.00 M.
- WIDTH AT 5 M FROM JUNC.	8.00 M.
- WIDTH AT 10 M FROM JUNC.	6.00 M.
- WIDTH AT 15 M FROM JUNC.	6.00 M.
- WIDTH AT 20 M FROM JUNC.	4.00 M.
- LENGTH OF FLARED SECTION	2 VEHS

.

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 11.45 AND ENDS 13.15

LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	FLOW STOPS IS REACHED TOP OF PEAK	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.80	14.70	9.80
ARM B	15.00	45.00	75.00	4.30	6.45	4.30
ARM C	15.00	45.00	75.00	5.93	8.89	5.93

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TIME	FROM/TO	ARM A	ARM B	ARM C
	TURNING PROPORTIONS			
	TURNING COUNTS (VEH/HR)			
	(PERCENTAGE OF H.V.S)			
11.45 - 13.15	ARM A	0.000	0.434	0.566

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I                    I         I    0.0 I  340.0 I  444.0 I
I                    I         I (  0.0)I (  0.0)I (  4.0)I
I                    I         I       I       I       I
I                    I  ARM B  I  0.869 I  0.000 I  0.131 I
I                    I         I  299.0 I    0.0 I   45.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
I                    I  ARM C  I  0.945 I  0.055 I  0.000 I
I                    I         I  448.0 I   26.0 I    0.0 I
I                    I         I (  4.0)I (  0.0)I (  0.0)I
I                    I         I       I       I       I
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TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
11.45-12.00								
B-C	0.56	7.47	0.075		0.0	0.1	1.2	
B-A	3.74	7.57	0.494		0.0	0.9	13.0	
C-AB	0.57	12.04	0.048		0.0	0.1	1.0	
C-A	5.35							
A-B	4.25							
A-C	5.55							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.00-12.15								
B-C	0.67	6.13	0.110		0.1	0.1	1.8	
B-A	4.46	6.96	0.641		0.9	1.7	22.9	
C-AB	0.82	12.57	0.065		0.1	0.1	1.6	
C-A	6.26							
A-B	5.07							
A-C	6.63							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.15-12.30								
B-C	0.82	2.56	0.321		0.1	0.4	6.1	
B-A	5.47	6.11	0.894		1.7	5.3	61.2	
C-AB	1.21	13.19	0.091		0.1	0.2	2.7	
C-A	7.46							
A-B	6.22							
A-C	8.12							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.30-12.45								
B-C	0.82	1.85	0.446		0.4	0.7	9.9	
B-A	5.47	6.11	0.895		5.3	6.2	87.1	
C-AB	1.21	13.20	0.092		0.2	0.2	2.8	
C-A	7.46							
A-B	6.22							
A-C	8.12							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
12.45-13.00								
B-C	0.67	5.65	0.119		0.7	0.1	2.2	
B-A	4.46	6.96	0.642		6.2	1.9	36.8	
C-AB	0.82	12.57	0.065		0.2	0.1	1.7	
C-A	6.26							
A-B	5.07							
A-C	6.63							

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
13.00-13.15								
B-C	0.56	7.38	0.076		0.1	0.1	1.3	
B-A	3.74	7.57	0.494		1.9	1.0	16.2	
C-AB	0.58	12.05	0.048		0.1	0.1	1.1	
C-A	5.35							
A-B	4.25							
A-C	5.55							

WARNING THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC. (AG23 REF. 8.4.2(v)).

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.1	
12.15	0.1	
12.30	0.4	
12.45	0.7	*
13.00	0.1	
13.15	0.1	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
12.00	0.9	*
12.15	1.7	**
12.30	5.3	*****
12.45	6.2	******
13.00	1.9	**
13.15	1.0	*

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QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
12.00	0.1
12.15	0.1
12.30	0.2
12.45	0.2
13.00	0.1
13.15	0.1

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	61.7	41.1	22.4	0.36	22.4	0.36
B-A	410.0	273.3	237.3	0.58	237.3	0.58
C-AB	78.0	52.0	10.9	0.14	10.9	0.14
C-A	571.9	381.3				
A-B	466.2	310.8				
A-C	608.8	405.9				
ALL	2196.7	1464.5	270.6	0.12	270.7	0.12

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

****** PICADY 4 run completed.

MVA Consultancy provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.
A diverse group of results-oriented people, we are part of a strong team of professionals worldwide. Through client business planning, customer research and strategy development we create solutions that work for real people in the real world.

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