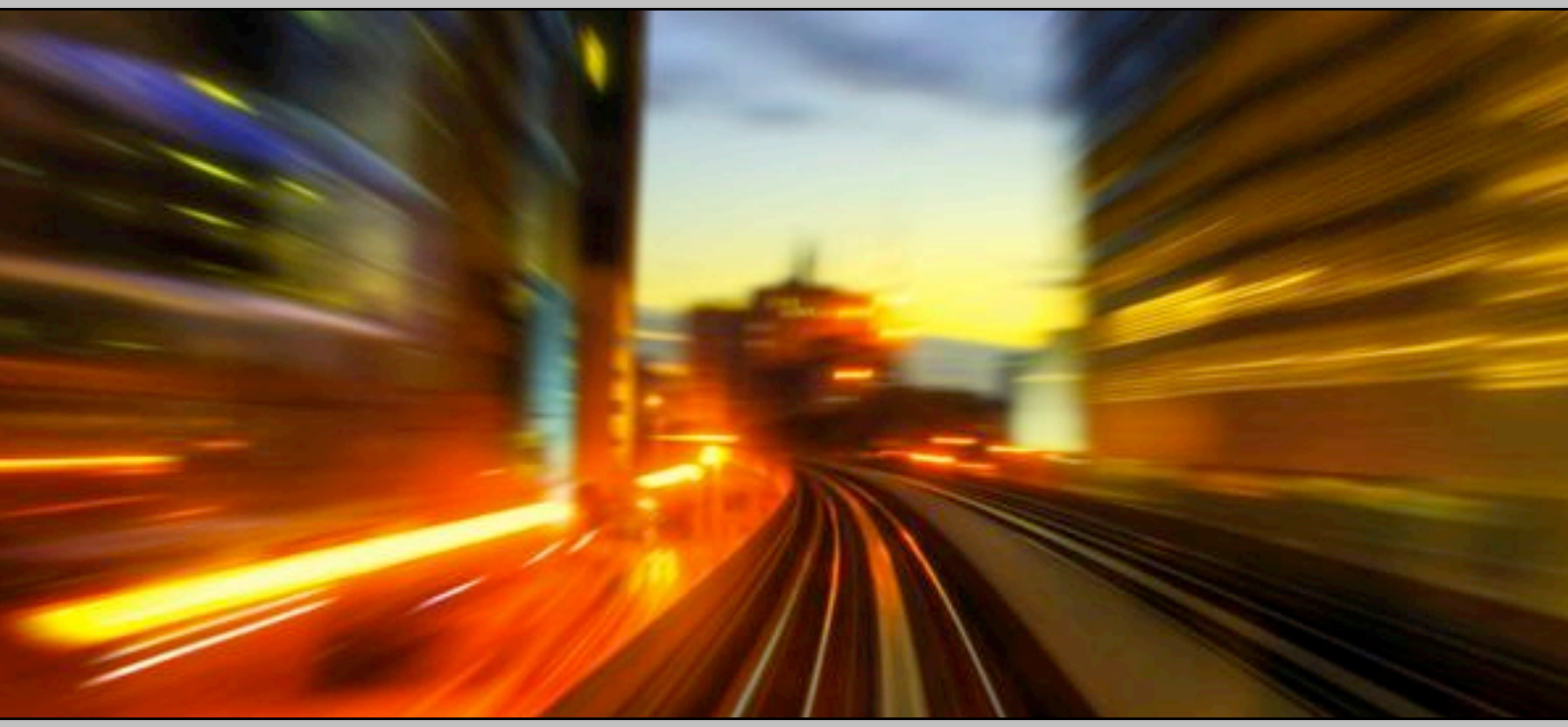


LAND AT ASHBURYS, GORTON

NETWORK RAIL

TRANSPORT STATEMENT

130802/SK21321/TS01

LAND AT ASHBURYS, GORTON

TRANSPORT STATEMENT

DOCUMENT CONTROL

Project Title:	Land at Ashburys, Gorton
Client:	Network Rail
Project Manager:	Lesli Speers
Project Number:	SK21321
Document Reference:	SK21321_TS01
Document Type:	Transport Statement
Author:	Lesli Speers
Contributor:	-
Reviewer:	John Thompson
Directory & File Name:	P:\2013PROJECT FOLDERS\SK21321\Technical\Reports\SK21321_TS01

Issue	Issue Date	Distribution	Comments
01_DRAFT	25th July 2013	BDP	Working draft
01	2nd August 2013	BDP	Addition of Gorton Rd surveys Final issue

© SK Transport Planning Ltd 2013
No part of this publication may be reproduced by any means without the prior permission of SK Transport Planning Ltd.

CONTENTS

		Page
1.0	INTRODUCTION & IMPACT SUMMARY	1
2.0	EXISTING SITUATION & PLANNING BACKGROUND	2
3.0	TRANSPORT POLICY CONTEXT	5
4.0	REVISED ACCESS PROPOSAL	6
5.0	ACCESS BY NON-CAR MODES	7
6.0	TRAFFIC FORECAST	9
7.0	HIGHWAY IMPACT	13
8.0	CONCLUSIONS	14

APPENDICES

Appendix A: Scoping Correspondence
Appendix B: Traffic Forecast
Appendix C: Revised Access Proposal
Appendix D: PICADY Output

1.0 INTRODUCTION

1.1 SK Transport Planning Ltd (SKTP) has been commissioned by Network Rail to consider the traffic impact of providing a second point of access to the consented B2 industrial development known as Land at Ashburys, Gorton. The location of the development site is shown on **figure 1.1**.

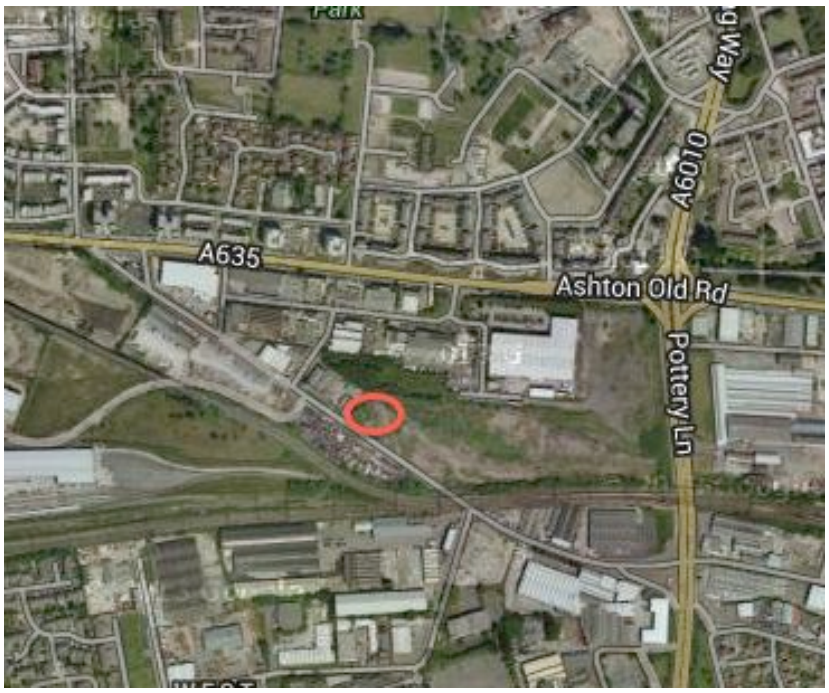


Figure 1.1: Site Location

1.2 Network Rail proposes the development of a total of 7,110sqm of industrial uses on the site, in four units. Phase 1 of the proposal seeks to deliver 950sqm GFA in a single unit, with phase 2 delivering the remainder (6,160sqm GFA) in a further three units.

1.3 The site benefits from a live planning consent for the development of phase 1 accessed off Gorton Road (phase 1). As part of the planning application for phase 1 a Transport Statement was produced by Hyder. At the request of Manchester City Council (MCC), the highway authority, Hyder's Transport Statement considered the impact of phase 1 and the combined impact of phase 1 and phase 2 on the Gorton Road access junction and wider highway network.

1.4 The Hyder Transport Statement concluded that the impact of phase 1 and phase 2 of the proposals would cause an insignificant impact on the access junction and surrounding network. Hyder also concluded that the site was highly accessible by non-car modes of transport.

1.5 The traffic impact and accessibility conclusions were accepted by MCC in 2009 when the original application was consented (application ref: 088899/FO/2009/N2) and subsequently in 2012 when the application was renewed (application ref: 099965/REP/2012/N2).

1.6 Network Rail now seeks to alter the consented access arrangements to provide another point of access onto Wolveton Street (as shown on **plan 1**). This access will serve phase 1 of the development and serve as a secondary access when phase 2 is brought forward.

1.7 The scope and methodology used to assess the impact of the new access proposals have been agreed with MCC. Scoping correspondence is attached as **appendix a**.

1.8 The impact assessment outlined in this Transport Statement has been prepared in line with Department for Transport best practice ('Guidance on Transport Assessment') and is mindful of MCC's development requirements outlined in 'A Guide to Development in Manchester'.

1.9 The Transport Statement shows that the development site is highly accessible by walking, cycling and public transport, and is well located for in relation to existing local residential areas.

1.10 The Transport Statement demonstrates that serving phase 1 of the proposal from an access on Wolveton Street will not have a significant impact on local network operation. Further, the worst-case impact tests show that both the Gorton Street access and the Wolveton Street junction can accommodate the forecast phase 1 and phase 2 traffic flows, either individually (with all traffic using one or other of the accesses), or together (with traffic flows distributed between the two access points).

1.11 The assessment concludes that the local highway network tested can accommodate significantly more traffic than forecast to be generated by the proposals, even with the inclusion of 'rat-run' traffic through the site.

1.12 The Transport Statement concludes that there are no highway capacity reasons upon which to base a refusal for the revised access aspirations.

2.0 EXISTING SITUATION

Site Location & General Characteristics

2.1 The site is located in the Gorton area of Manchester, to circa 400m to the northwest of Ashburys train station and 3.5km southeast of Manchester city centre. The site is bounded to the north by Wolveton Street and the Kay Street Industrial Estate, to the southwest by Gorton Road and to the east by land currently being developed Network Rail as a Rail Operations Centre. Land to the north and south of the site is predominantly industrial in character, with immediate highway network largely made up of urban industrial estate roads that provide good access to the strategic highway network.

2.2 Historically the site formed part of Ashburys Goods Depot, accessed from a gated location on Gorton Road. The site has been cleared and is currently brownfield land with consent for B2 industrial uses, with access retained from Gorton Road.

2.3 The site relates well to existing sustainable transport corridors, with good width, lit footways provided on all local access roads (Kay Street, Wolveton Street and Gorton Road) providing access to the wider pedestrian network and public transport nodes. Signalised crossing facilities are available on local strategic roads, including the junction of Gorton Road/Pottery Lane, Pottery Lane/Ashton Old Road/Alan Turing Way and Ashton Old Road/Gable Street. Ashton Old Road and Pottery Lane are also existing bus corridors.

2.4 The local access roads are lightly trafficked and conducive to cycle trips, these roads provide access to marked routes on Pottery Lane, Ashton Old Road and the wider Greater Manchester cycle network.

Consented Development Traffic Flows

2.5 In 2009, the site was granted planning permission for the phase 1 development. As part of the planning submission the development trip forecast for phase 1 and phase 2 was agreed between Hyder and MCC. It was also agreed that the combined traffic

forecast from phase 1 and phase 2 would not have an impact upon the local highway network and the operation of the Gorton Road access.

2.6 In 2012, the planning permission for phase 1 was renewed. At this time it was agreed between Hyder and MCC that the impact conclusions from the original submission were still fit for purpose.

2.7 **Table 2.1** shows the consented forecast traffic flows previously agreed with MCC for the development.

	Phase 1 (950sqm GFA)			Phase 2 (6160sqm GFA)			Total (Phase 1 + Phase 2)		
	IN	OUT	**TOTAL**	IN	OUT	**TOTAL**	IN	OUT	**TOTAL**
AM Peak	6	1	**7**	46	8	**54**	52	9	**61**
PM Peak	1	9	**10**	5	56	**61**	6	65	**71**

Table 2.1: Consented Development Traffic
[Source: Hyder Transport Statement May 2009]

2.8 The forecast development traffic distribution was also agreed during the evaluation of the currently consented scheme. This distribution is summarised in **table 2.2**.

General Direction	Distribution
North	12.5%
East	12.5%
South	25.0%
West	50%

Table 2.2: Consented Scheme Traffic Distribution
[Source: Hyder Transport Statement May 2009]

Existing Local Area Highway Network

2.9 The site is well located in relation to access to allow immediate access onto industrial standard estate roads (including Gorton Road, Wolveton Street and Kay Street) and to gain access to the wider strategic highway network (including A635 Ashton Old Road, A6010 Pottery Lane, A57 Hyde Road, and consequently the M60).

2.10 Gorton Road is a 6.5m wide single carriageway routeing southeast-northwest between Pottery Lane and Ashton Old Road. Gorton Road is subject to a 30mph speed limit and provides access to other industrial premises along its length, including the Kay Street Industrial Estate via Stainforth Street and Tuley Street.

2.11 To the northwest of the site, Gorton Road meets Ashton Old Road at its junctions with Stainforth Street and Gable Street, which are subject to one-way south and north workings, respectively. Both Stainforth Street and Gable Street junctions with Ashton Old Road operate with signal controls.

2.12 To the southeast of the site, Gorton Road meets Pottery Lane at a large signal controlled junction. The A6010 Pottery Lane routes north-south between the A635 Ashton Old Road and A57 Hyde Road. Pottery Lane is subject to a 30mph speed limit and parking restrictions in the form of double yellow lines. The corridor provides good quality walking, cycling and bus routes, and access to Ashburys train station.

2.13 Wolveton Street bounds the site to the north. Wolveton Street is a local industrial estate road currently providing access to Singleton's Scrap Yard and Network Rail's ROC development (which is currently under construction). In the future the road will also provide an egress route for the consented PP Plasma development.

2.14 Wolveton Street connects to other local industrial estate roads at a simple priority arrangement with Kay Street. Kay Street is also an industrial character road providing access to other premises on the industrial estate and currently used by HGVs. At the time of the site visit, on-street parking was present on Kay Street. Elements of this parking were observed to be contractors associated with the ROC development site, which is currently under construction. This parking is anticipated to be lessened when the ROC opens in early 2014 as staff will park within the site curtilage. Even with the on-street parking the local industrial estate raods were observed to provide sufficient operational width for the vehicles (including HGVs) accessing other premises within the Industrial Estate).

2.15 Kay Street meets the A635 Ashton Old Road at a simple priority access junction. Access from Ashton Old Road to the Kay Street Industrial Estate is also available from the priority junction with Stainforth Street. The A635 Ashton Old Road is a high quality strategic radial route and bus/walk/cycle corridor routing east-west between central Manchester and the M60. Junction 23 of the M60 is located circa 6km to the east of the site.

Existing Network Traffic Flows

2.16 Due to the small scale and the low traffic generating potential of the development proposals the previously agreed Transport Statement did not include traffic counts or detailed assessments of the highway network.

2.17 To assess the impact of the revised access arrangements, MCC has requested that consideration is given to forecast traffic flows and operational impact at the following locations:

- A635 Ashton Old Road/Kay Street
- Site Access/Gorton Road

2.18 Network Rail has arranged permission to use the AM and PM peak hour traffic surveys included by PP Plasma in the recent planning application for the new development to the northeast of the Land at Ashburys site. This survey data has been previously accepted by MCC when considering the impacts of the PP Plasma development.

2.19 The PP Plasma Transport Statement included counts undertaken in September 2012 at the Ashton Old Road/Kay Street and Wolveton Street/Kay Street junction. At the time of the survey the Singleton's Scrap Yard development was fully operational and the ROC was under construction. Therefore the counts captured flows associated with both of these activities. The AM and PM peak hour count data is replicated in **appendix b**.

2.20 AM and PM peak hour traffic link counts were scheduled to be undertaken on Gorton Road in the vicinity of the consented access junction on Tuesday 23rd July 2013, before the start of the school holidays. However, on this date the temporary diversion created by road works on Gorton Road was still in place. The survey was undertaken on Thursday 1st August. To ensure the data used in the Transport Statement replicates neutral month traffic flows, rather than lower school holiday flows, a DMRB seasonality factor has been applied. The peak hour data is summarised in **appendix b**.

2.21 Both surveys show that the industrial estate roads (Kay Street, Wolveton Street and Gorton Road) are lightly trafficked and that current road widths are suitable for usage. A summary of the surveyed link flows is provided in **table 2.3**.

Link Flow	AM Peak	PM Peak
Kay St N (2012)	64	42
Kay St W (2012)	33	19
Wolveton St (2012)	41	29
Gorton Rd (2013)	163 *(180*)*	133 *(148*)*

Table 2.3: Surveyed Total Link Flows
*(*with DMRB seasonality factor)*
[Source: PP Plasma Transport Statement September 2012 & SKTP 2013 Counts]

3.0 TRANSPORT POLICY CONTEXT

3.1 This section outlines the local, regional and national transport policy guidelines applicable to development of the site.

National Transport Policy

3.2 In 2011 Government published a new transport White Paper ('Creating Growth, Cutting Carbon'). This White Paper outlines the Government's vision for sustainable local transport systems that support local economic growth, whilst achieving a reduction in carbon emissions. The document sets out where transport fits in the localism agenda and changes proposed to direct support and central government funding, including details of the new Local Sustainable Transport Fund and the Regional Growth Fund.

3.3 Two-thirds of all journeys in the UK are under-five miles. It is the short distance trip where the greatest opportunity exists for people to make sustainable travel choices and to make a real difference to their local environment. The Transport Statement demonstrates that the site is well located in to good quality existing walking, cycling, bus and train corridors. The site meets the aspirations outlined in the White Paper and due to its locational benefits offers realistic opportunities for sustainable access that will reduce the reliance on the private car.

3.4 The 'National Planning Policy Framework' (NPPF), published in 2012, consolidates previous national planning policy guidance into one document. The document sets the 12 principles of planning, including the need to:

'actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable'

3.5 The development site has been shown to be sustainably located in relation to existing walking, cycling and public transport routes.

3.6 The NPPF refers to the threshold criteria in deciding whether a Transport Assessment should be undertaken. The document states that consideration should be given to both sustainable access and safety, and that developments should be located where

the need to travel can be minimised and sustainable transport can be maximised. The proposed development site meets the requirements set out in NPPF in relation to location and accessibility.

3.7 The NPPF document also states that refusal on transport grounds should only be made when residual impacts are severe. The live consent and this Transport Statement show that the traffic associated with development proposal will not significant impact on the operation of the local highway network. The Transport Statement also includes detailed traffic modelling which further illustrates the insignificant impact of the proposals.

3.8 NPPF replaces planning policy advice in planning policy guidance notes, including PPG13.

Local Transport Policy

3.9 Local transport policy is outlined in the Third Greater Manchester Local Transport Plan (LTP3). The principal objectives of LTP3 are to:

- Ensure that carbon emissions from transport are reduced in line with UK Government targets in order to minimise the impact of climate change
- Ensure that the transport system facilitates active, healthy lifestyles and a reduction in the number of casualties, and other adverse health impacts are minimised
- Ensure that the design and maintenance of the transport network and provision of services supports sustainable neighbourhoods and public spaces and provides equality of transport services

3.10 The development proposal accords with these objectives and requirements. The location of the development site is such that future staff will be afforded realistic alternatives to the private car to access the development.

3.11 The development proposal meets relevant adopted local and national policy requirements.

4.0 REVISED ACCESS PROPOSAL

4.1 The existing consent permits phase 1 of the Land at Ashburys proposal, 950sqm GFA B2 industrial unit accessed from a priority junction arrangement onto Gorton Road. At the time of assessing the development proposals it was agreed with MCC that phase 2 of the proposal (an additional 6,160sqm) could also be served from the Gorton Road access junction.

4.2 The revised access proposal seeks to serve phase 1 of the development from a priority access onto Wolveton Street. This access will then provide a second access for later phases of the development.

4.3 Wolveton Street is currently used by HGV and car traffic accessing Singleton's Scrap Yard and the ROC construction site. In the future Wolveton Street will also provide an egress from the PP Plasma site. Once the ROC site is operational the construction vehicles associated with this development will be removed from this route and will be replaced by staff car traffic. The ROC development Transport Statement shows that the staff shift patterns results in no ROC traffic on this route in the network peak hours.

4.4 Wolveton Street meets Kay Street at a simple priority junction. Kay Street is an industrial character route that is currently used by HGV and car traffic associated with the other industrial premises on the Kay Street Industrial Estate.

4.5 The proposed Wolveton Street access layout has been produced by BDP Engineers and is attached as **appendix c**. BDP has also produced swept path layouts confirming that the existing industrial estate roads (Wolveton Street and Kay Street) are suitable for use by HGV traffic. The swept paths are also attached as **appendix c**.

4.6 For phase 2 of the development, consideration will be given to providing a barrier on one of the access junctions to the site to prevent its use as a through route by non-site traffic. An indicative barrier location is shown on the attached layouts.

5.0 ACCESS BY NON-CAR MODES

Accessibility by Foot & Cycle

5.1 The site relates well to existing pedestrian infrastructure that provides access on foot to local residential areas and public transport nodes. Street lit routes are present on local industrial roads providing direct access to the site. The strategic routes adjacent to the site benefit from good quality footways and signalised crossing facilities.

5.2 The low traffic flows on the local industrial roads provide a suitable environment for cycle trips and these roads provide access to the Greater Manchester cycle network, as shown in **figure 5.1**.



Figure 5.1: Local Cycle Network
[Source: TfGM Interactive Cycle Map 2013]

5.3 The site relates well to existing and proposed pedestrian and cycle networks offering future staff good opportunities to access by these modes.

5.4 Two-thirds of all journeys in the UK are under-five miles. It is the short distance trip where the biggest opportunity exists for people to make sustainable travel choices and to make a real difference to their local environment. The DfT document, 'Creating Growth, Cutting Carbon', states that walking and cycling offer the greatest potential for replacing short car trips, particularly for journeys under 2km and 5km, respectively.

5.5 **Figure 5.2** shows a 2km and 5km walking and cycling catchment from the site. As can be seen the site relates well to local residential areas and future staff living in these areas can be reasonably expected to walk to work. The catchment also shows that a significant area of central, south and east of the Manchester conurbation is

within 5km of the site. Given the good proximity of the site to the Manchester cycling network, the opportunities for cycle access are high.

Accessibility by Public Transport

5.6 The IHT document 'Planning for Public Transport in Development' states that 400m (5 minutes) and 800m (10 minutes) respectively are the desirable walking distances to local bus and train services.

5.7 Pottery Lane and Ashton Old Road are both existing bus corridors. Existing bus stops are located near the Gorton Road/Pottery Lane junction (circa 400m from the Gorton Road access) and the Kay Street/Ashton Old Road junction (circa 250m from the Wolveton Street access).

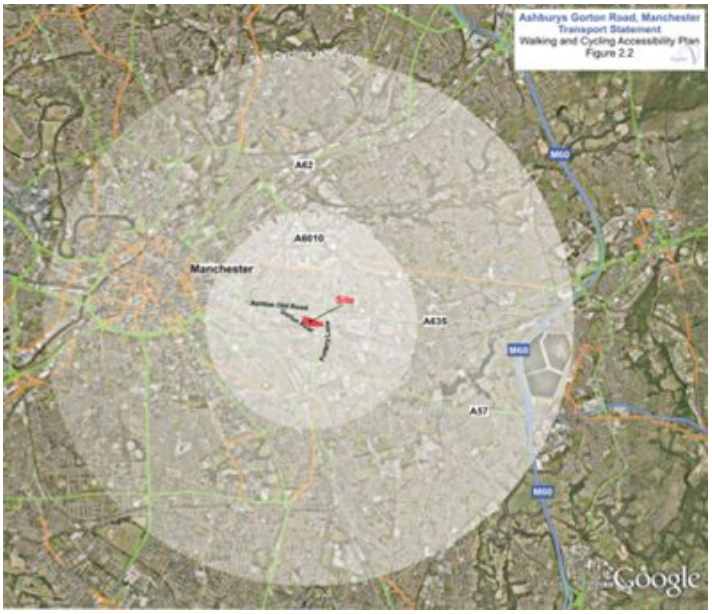


Figure 5.2: Walking & Cycling Catchment
[Source: Hyder Transport Statement 2009]

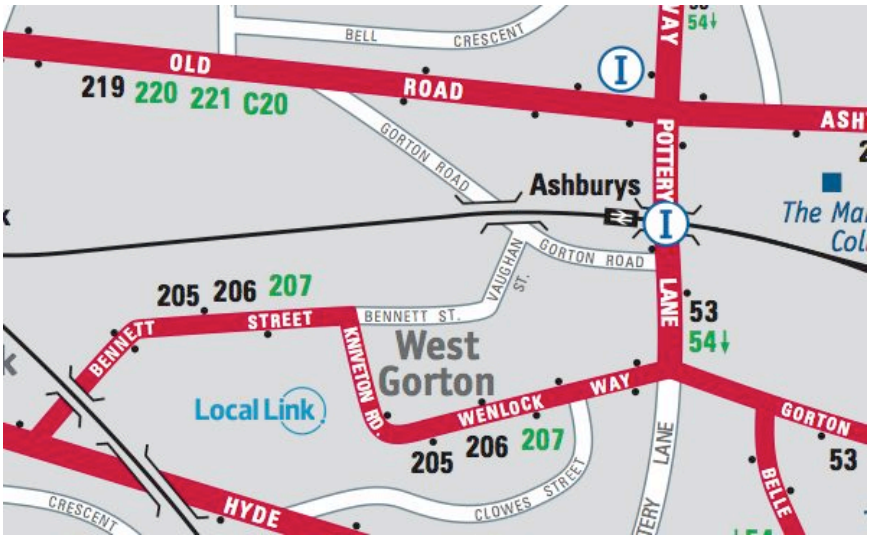


Figure 5.3: Existing Bus Routes
[Source: TfGM]

5.8 **Figure 5.3** shows the location of bus stops and the current bus routes serving them. A summary of bus service frequencies and destinations stopping closest to the site is provided in **table 5.1**.

		Frequency (buses per hour)		
No.	**Route**	**AM**	**Daytime**	**PM**
53	Cheetham to Pendleton	2	2	2
219	Stalybridge to Manchester	8	6	6
220/221	Tameside Hospital to Manchester	3	0	0

Table 5.1: Existing Bus Services
[Source: TfGM timetables]

5.9 The existing bus services provide a good coverage of local, district and regional destinations with an average daytime hourly frequency of 16 buses (eight buses in each direction).

5.10 Ashburys train station is a 5 minute walk from the site. This station provides local stopping services to Manchester, Rose Hill Marple, New Mills Central and Glossop. Services to Manchester operate with a 20 minute frequency, to New Mills and Rose Hill operating an hourly service, and Glossop operating a 30 minute service.

5.11 The site is well located to gain access to existing bus and train services, which provide good coverage of local and regional centre destinations.

Accessibility Summary & Conclusions

5.12 The Transport Statement shows that the site is accessible by a range of non-car modes of transport, including walking, cycling, bus and train. The site is also within desirable walking and cycling distance of a significant number of existing residential areas.

5.13 Opportunities for sustainable trip making are high and are in line with both local and national policy aspirations to reduce the reliance on the private car.

5.14 The high level of accessibility by non-car modes was previously agreed with MCC during the 2009/2012 planning applications.

6.0 TRAFFIC FORECAST

Consented Development Traffic Forecast

6.1 During the scoping process it was agreed that the consented phase 1 and phase 2 development traffic generation and distribution be used in the impact assessment of the new access proposals. The consented flows and distribution are summarised in **tables 6.1** and **6.2**.

6.2 The phase 1 development flows are minimal and are below DfT thresholds requiring further assessment. The phase 1 flows will not cause a noticeable effect on local traffic conditions or operation. The phase 1 flows are not considered further in this Transport Statement. To ensure a robust assessment the combined phase 1 and phase 2 flows are assessed in the following sections.

	Phase 1 (950sqm GFA)			Phase 2 (6160sqm GFA)			Total (Phase 1 + Phase 2)		
	IN	OUT	**TOTAL**	IN	OUT	**TOTAL**	IN	OUT	**TOTAL**
AM Peak	6	1	**7**	46	8	**54**	52	9	**61**
PM Peak	1	9	**10**	5	56	**61**	6	65	**71**

Table 6.1: Consented Development Traffic
[Source: Hyder Transport Statement May 2009]

Junction	Link	Distribution
Ashton Old Rd/Gable St/Stainforth St	Ashton Old Rd W	25.0%
	Ashton Old Rd E	25.0%
Ashton Old Rd/Alan Turing Way	Ashton Old Rd E	12.5%
	Alan Turing Way	12.5%
Pottery Lane/Gorton Road	Pottery Lane S	25.0%

Table 6.2: Development Traffic Distribution
[Source: Hyder Transport Statement May 2009]

Revised Development Traffic Forecast (Two Access Junctions)

6.3 The forecast of traffic movements has been revised to reflect the inclusion of a second access in the current proposals. To estimate which access junction would be used by the development traffic journey time and distribution have been used as the main influencing factors.

6.4 The journey time from set points on each distribution link to each access has been calculated. Where journey times from the set point are the same for both access junctions the development traffic has been distributed equally, otherwise the fastest route has been used. The proportion of trips using each access has then been applied to the consented distribution.

6.5 The table below summarises the results of this analysis. As can be seen, development traffic accessing from the north and northwest is forecast to use the Wolveton Street access and traffic accessing from the south of the site will use Gorton Road. Vehicles travelling from west of Ashton Old Road/Gable Street will use both access junctions.

		Wolveton Access		Gorton Access		Proportion		Assignment	
Distribution Link	Cordon Point	Distance (m)	Time (mins)	Distance (m)	Time (mins)	Wolveton	Gorton	Wolveton	Gorton
Ashton Old Rd W	Rylance St	700	2	700	2	50%	50%	12.5%	12.5%
Ashton Old Rd E	Bennock Cl	300	1	600	2	100%		25%	
Ashton Old Rd E	Mill St	650	1	1000	2	100%		12.5%	
Alan Turing Way	Wilson St	550	1	850	2	100%		12.5%	
Pottery Ln	Wenlock Way	1000	2	650	1		100%		25%

Table 6.3: Journey Time Analysis & Two Access Junction Distribution

6.6 The access junction usage forecasts that 62% of development traffic will use the Wolveton Street access and 38% will use the Gorton Road access junction. The resulting distribution split between the two access junctions is shown in **table 6.4**.

	Gorton Road			Wolveton Street		
	IN	OUT	TOTAL	IN	OUT	TOTAL
AM Peak	20	3	23	33	6	38
PM Peak	2	24	27	4	41	44

Table 6.4: Two Access Distributed Phase 1 + Phase 2 Development Trips

6.7 Full details of the distribution method and resulting development traffic flows are attached as **appendix b**.

Base Traffic Forecast

6.8 The traffic surveys used to assess the operation of the highway network were undertaken in September 2012 (Ashton Old Road/Kay Street and Kay Street/Wolveton Street) and July 2013 (Gorton Road).

6.9 The surveyed mainline traffic flows have been growthed to the future assessment year (2014) using TEMPRO adjusted NTM09 growth factors for the local area. The resulting background traffic flows are attached as **appendix b**.

6.10 A significant number of developments have been granted consent and/or are being constructed on the Kay Street Industrial Estate since the original site application in 2009. MCC requested that consideration be given to the following committed developments:

- Singleton's Scrap Yard site
- ROC site
- PP Plasma site
- IOS/K2 Group site

6.11 Singleton's Scrap Yard site opened in Summer 2012 and traffic flows associated with this use are included within the traffic count survey.

6.12 The ROC site was under construction in September 2012 and construction traffic associated with this use is included within the traffic count survey. A review of the Transport Statement submitted with ROC application shows that the site will not generate traffic in the network AM and PM peak period due to staff shift changeover times falling outside these periods. No committed development traffic flows for the completed project have been added to the background traffic flows. However, traffic data from the Singleton's Scrap Yard Transport Statement has been used to allow the calculation of ROC construction traffic to be removed from the surveyed traffic flows as these flows will not be present on the network when the site is fully constructed and becomes fully operational in early 2014. Full details of the method used to remove ROC construction traffic is shown in **appendix b**.

6.13 The PP Plasma site is located to the northeast of the site and an egress onto Wolveton Street is proposed. The PP Plasma traffic data has been taken from the submitted Transport Statement and has been added to the background traffic flows.

6.14 The IOS/KG2 unit (accessed off Kay Street) ceased operation in late 2012, the exact date of the unit's closure is unknown and so it is unclear whether traffic associated

with this use was captured in the 2012 traffic counts. To ensure a robust assessment the IOS/KG2 flows have been forecast using the TRICS database. The TRICS output and resulting forecast is attached as **appendix b**.

6.15 The identified other local development flows (PP Plasma and IOS/KG2) have been added to the background traffic flows to form the base traffic scenario.

2014 Base & Development Flow Scenario

6.16 The 2014 base traffic data has been added to the development traffic flows distributed to the two access locations (as outlined in paragraphs 6.3 to 6.7) to form the 'with development' scenario.

2014 Sensitivity Test: Single Access Test

6.17 During the scoping process MCC raised concern that the two access junctions could be used as a through route for non-site traffic. To address this consideration will be given at a later phase in the proposal to providing a barrier , or some other deterrent measure, at one of the access junctions.

6.18 An estimation was made of the likely amount of traffic that could gain a journey time advantage by using the site as a 'rat-run'. Full details of the flow assessment undertaken, and issued to MCC, is attached as **appendix a** (the scoping correspondence). This flow assessment shows that, even taking worse case distribution assumptions, the amount of erroneous traffic that might use the Gorton Road access as a short-cut would still result in less traffic using this junction than is consented under the current planning permission (ie. less than 61 vehicles in the AM peak and 71 vehicles in the PM peak).

6.19 To provide further comfort that both the Wolveton Street and Gorton Road access junctions can accommodate more traffic than is forecast to use them in the preceding sections of this Transport Statement a sensitivity test is included. This tests the operation of both access junctions assuming that they will be used in isolation, ie. assuming that all phase 1 and phase 2 development traffic will use either the Gorton Road access or the Wolveton Street access, and that development traffic will not be split across two access junctions. The sensitivity test effectively examines the potential for a single point of access to serve both phase 1 and phase 2 traffic.

6.20 The flows loaded onto each access junction are as previously consented for phases 1 and 2, and as shown in **table 6.1**.

7.0 HIGHWAY IMPACT

Two Access Highway Impact

7.1 MCC has previously agreed that the impact of the phase 1 and 2 development proposals on the wider highway network will not be significant. The provision of a second access to the development site will not materially change the distribution of development trips on the wider network as the traffic will still access using the same external highway junctions. The provision of a second access will merely cause a slight reassignment of development traffic on approaches at the following junctions:

- Ashton Old Road/Stainforth Street
- Ashton Old Road/Gable Street
- Ashton Old Road/Pottery Lane
- Pottery Lane/Gorton Road

7.2 The agreed study area junctions (Ashton Old Road/Kay Street and Gorton Street/Site Access) have been assessed using the industry standard software package PICADY. The PICADY output is attached as **appendix c** and is summarised in **tables 7.1** and **7.2** below.

	2014 AM with Development		2014 PM with Development	
	Max RFC	Queue	Max RFC	Queue
From Site Access	0.005	0	0.028	0
Right Turn into Site	0.016	0	0.002	0

Table 7.1: Gorton Road/Site Access

	2014 AM Base		2014 AM with Development		2014 PM Base		2014 PM with Development	
	Max RFC	Queue	Max RFC	Queue	Max RFC	Queue	Max RFC	Queue
From Kay Street	0.099	0	0.128	0	0.142	0	0.265	0
Right Turn into Kay St	0.042	0	0.081	0	0.009	0	0.012	0

Table 7.2: Ashton Old Road/Kay Street

7.3 The baseline assessments show that the junctions are forecast to operate well within accepted capacity thresholds of 0.85 RFC in the AM and PM peak. The addition of the the maximum development traffic does not cause a material change in operation.

Sensitivity Test

7.4 The sensitivity test flows examine the operation of both site access junctions in isolation, assuming that only one access junction will be used by all traffic. The PICADY output is attached as **appendix c** and is summarised in **tables 7.3** and **7.4**.

	2014 AM with Development		2014 PM with Development	
	Max RFC	Queue	Max RFC	Queue
From Site Access	0.012	0	0.078	0
Right Turn into Site	0.042	0	0.005	0

Table 7.3: Gorton Road/Site Access (Sensitivity Test)

	2014 AM with Development		2014 PM with Development	
	Max RFC	Queue	Max RFC	Queue
From Kay Street	0.139	0	0.340	1
Right Turn into Kay St	0.107	0	0.014	0

Table 7.4: Ashton Old Road/Kay Street (Sensitivity Test)

7.5 The operational assessments show that even with worst-case flow assumptions, which load all of the development traffic onto a single access junction, the junctions continue to operate with sufficient spare capacity.

7.6 The PICADY output shows that both access junctions could serve the development of phase 1 and phase 2 in isolation. Given that maximum development flows can be accommodated it is concluded that the use of Wolveton Street as a single point of access for phase 1 would also not cause an undue stress on the surrounding highway network.

7.7 Flow assessments undertaken and agreed with MCC during the scoping process demonstrated that should the two access junctions be used, even with worst-case assumptions regarding potential 'rat-run' traffic, the Gorton Road access junction would still be used by less vehicles than currently consented. The PICADY assessment outlined above has been undertaken using higher flows than the 'rat-run' forecast (shown in **appendix a**) to provide comfort that the traffic impact of providing two access points to the proposal would not cause an impact on the surrounding highway network.

Highway Impact Summary & Conclusions

7.8 The PICADY assessments show that the agreed study area junctions will continue to operate within accepted capacity thresholds with the provision of two access points to the site.

7.9 The PICADY assessments also show that the site can be served by either access junction alone and that the surrounding highway network will still operate well within accepted limits of capacity.

7.10 The assessment also shows that both access junctions can accommodate significantly more traffic than forecast, even with the addition of 'rat-run' traffic.

8.0 CONCLUSIONS

8.1 SK Transport Planning Ltd (SKTP) has been commissioned by Network Rail to assess the implications of providing a second access junction to the currently consented industrial development at Ashburys, Gorton.

8.2 The Transport Statement has been produced in line with national best practice guidance outlined in the Department for Transport 2007 document 'Guidance on Transport Assessment'. The scope of the Transport Statement has been agreed with Manchester City Council, the highway authority.

8.3 The Transport Statement concludes that the development site is accessible by walking, cycling and public transport, and is well located for easy access to existing residential areas.

8.4 The Transport Statement demonstrates that traffic associated with the proposal can be safely accommodated on the local highway network, without causing an impact upon highway operation. A sensitivity test included within the assessments shows

that either access junction could serve the development site without causing undue operational issues on the surrounding highway network.

8.5 The Transport Statement concludes that there is no traffic, transport or highways reason upon which to refuse the proposed revisions in access arrangements.

APPENDIX A

130709/Ashburys/Scope/LGS
BY EMAIL

SK Transport Planning Ltd
Albion Wharf
19 Albion Street
Manchester
M1 5LN

0161 234 6509
sktransport.co.uk
lesli.speers@sktransport.co.uk

MR L WORTHINGTON
Highways Development Control
Manchester City Council
Town Hall
Manchester M60 2LA

9th July 2013

Dear Lee,

RE: Network Rail Land at Ashbury's

SK Transport Planning Ltd (SKTP) has been appointed by Network Rail to assess the traffic impact of providing an access off Wolveton Street to serve the previously consented industrial development at Ashbury's.

Below I provide information on the extant and proposed site uses, and my proposed scope of assessment. The scope has been developed in line with the Department for Transport's 'Guidance on Transport Assessments' and Manchester City Council's 'A Guide to Development in Manchester'. The scope also includes elements previously requested by you and Cliff Bretherton at meetings with BDP (the project architect).

Background & Planning History

In August 2009 permission was granted for the development of phase 1 of the proposal: a 950sqm GFA B2/B8 unit accessed from a new simple priority junction onto Gorton Road. A Transport Statement produced by Hyder supported this planning application.

The Transport Statement assessed 950sqm GFA B2 industrial unit as phase 1 and also considered the impact of serving both phase 1 and phase 2 (three more units with a total GFA of 6,160sqm) from Gorton Road. The submitted Transport Statement concluded that the traffic generated by both phases could be accommodated at the proposed access junction and would not have a significant impact upon the surrounding highway network. The Transport Statement also demonstrated that the location of the site offers good opportunities for future staff to access by non-car modes.

In 2012 the permission for phase 1 was renewed and Hyder submitted a letter to MCC confirming that the traffic impact conclusions made under cover of the 2009 Transport Statement were still appropriate. The 2012 permission for phase 1 with an access Gorton Road is still live.

Proposal

Network Rail has asked that we consider the traffic implications of providing an access to the development from Wolveton Street and through the industrial estate onto Ashton Old Road.

I have reviewed previous meeting minutes and understand that MCC would like the impact of this to be considered for phase 1 and phase 2, in line with the assessment work previously undertaken by Hyder. As the permission for the phase 1 development accessed off Gorton Road has been recently renewed and the insignificant traffic impact of conclusions from the Hyder Transport Statement have been re-agreed with MCC during the renewal, I see no need to re-examine the impact of the proposal on the Gorton Street access.

It was agreed during the renewal that phase 1 and phase 2 would not have an impact on the wider network. The introduction of an access onto Wolveton Street will not cause an increase in development trips on the wider network above that already consented. The new access will merely reassign the previously consented development trips on the immediate surrounding network, i.e the consented development distribution assigns traffic to Ashton Old Road W/Gable Street/Stainforth Street and Ashton Old Road E/Alan Turing Way, and so an access off Wolveton Street will merely change the approach at these junctions to access/egress the site. Given this I have limited the study area to the junction of Kay Street/Ashton Old Road.

I propose assessing the worst-case impact of accessing off Wolveton Street, i.e assigning all of the phase 1 traffic onto this access and then all of the traffic generated by phase 1 and phase 2. In reality, if/when both accesses are in use then the development traffic will be lower at both site access and this assessment, coupled with the consented Hyder Transport Statement will have assessed the impact at both.

The transport statement will also examine the need for any TROs required to deliver the Wolveton Street access, and also measures that may be required to prevent the Gorton Road and Wolveton Street access junctions being used as a rat-run. The statement will also include swept paths of the estate roads as discussed with BDP.

By virtue of the renewal of the application in 2012, it is agreed with MCC that the sustainable accessibility of the site is good. I do not propose revisiting this analysis as part of the new access transport statement.

Committed Developments & Base Flows

In line with the Hyder Transport Statement that impact of the Wolveton Street access will be examined for the network AM and PM peak hours.

As you noted in your previous meetings with BDP, there is significant development of the industrial estate and recently permitted developments that will need to be considered as committed in our assessments.

Network Rail is investigating the opportunity to use traffic survey data collected on behalf of the PP Plasma developer in September 2012. If this count data is used then the traffic associated with the Singleton Scrap Yard is already included in the surveyed flows, as Singleton's opened in Summer 2012.

Network Rail's ROC site is currently under construction. I have reviewed the Transport Assessment submitted with this application and it shows that the shift

patterns of the ROC do not coincide with the network peak periods. Thus there are no flows to add to the network in my assessment. However, it is worth noting that ROC started on site in June 2012 and flows associated with the construction traffic will have been captured in the September count. It may be sensible to adjust the surveyed flows to attempt to remove this traffic. This may be possible as the PP Plasma Transport Statement also includes traffic flows at the junction of Wolveton Street/Kay Street junction and this, coupled with the Singleton's Transport Statement, should enable a readjustment to be made.

I have also examined the Transport Statement submitted with the PP Plasma proposal. The AM and PM peak Transport Statement PP Plasma flows will be added to the surveyed flows to form the base traffic conditions.

You have also requested that traffic associated with the IOS/KG2 unit be included within the assessments. I am unsure whether this unit was still operational at the time of the September 2012 surveys, if you could advise on this it would be very helpful. If the unit closed prior to the surveys I propose forecasting the traffic associated with it using the TRICS database for inclusion in the base flows. From a brief internet search I understand that the unit historically employed 100 people. Again, I would like to discuss with you appropriate TRICS land use class and trip rate parameter.

Given the small scale of the Ashbury's development proposals (even with phase 2) I propose assessing the impact of the identified junction for the developing opening year only. Surveyed traffic on Ashton Old Road will be growthed to the opening year using TEMPRO adjusted NTM09 and in line with best practice the surveyed and committed development flows turning into the industrial estate will not be growthed.

Development Forecast

I propose using the consented development trip rates forecast by Hyder and agreed with MCC during the original submission and recent renewal application. I have replicated these below:

	Phase 1 (950sqm GFA)			Phase 2 (6160sqm GFA)		
	IN	OUT	TOTAL	IN	OUT	TOTAL
AM Peak	6	1	7	46	8	54
PM Peak	1	9	10	5	56	61

I also propose using Hyder's agreed trip distribution, which assigned 50% of the traffic onto Ashton Old Road W, 25% onto Ashton Old Road E and 25% onto Alan Turing Way.

Transport Statement Scope

The Transport Statement will include the following elements:

1) Existing Situation

- Site location
- Surrounding highway network (including character and classification)
- Surveyed traffic flows
- Consented site uses (phase 1 and phase 2)
- Consented site traffic flows (phase 1 and phase 2)
- Committed development details

2) Wolveton Street Access Proposal

- Access layout
- Swept path analysis
- Infrastructure/TRO/Access management mitigation measures (if required)

3) Traffic Impact

- Forecast development person trip generation, based consented Hyder forecasts
- Forecast development distribution to new access
- Change in development assignment (from that consented)
- Forecast base traffic (TEMPRO adjusted NTM09 + committed developments)
- PICADY modelling of Ashton Old Road/Kay Street

I trust my proposed scope meets your requirements and addresses the issues previously raised in your meetings with BDP. If you have any queries or would like to discuss this in more detail, please don't hesitate to contact me at the address above.

Yours sincerely,

LESLI SPEERS

130715/Ashburys/Distribution/LGS
BY EMAIL

SK Transport Planning Ltd
Albion Wharf
19 Albion Street
Manchester
M1 5LN

0161 234 6509
sktransport.co.uk
lesli.speers@sktransport.co.uk

MR L WORTHINGTON
Highways Development Control
Manchester City Council
Town Hall
Manchester M60 2LA

15th July 2013

Dear Lee,

RE: Network Rail Land at Ashbury's

SK Transport Planning Ltd (SKTP) has been appointed by Network Rail to assess the traffic impact of providing an access off Wolveton Street to serve the previously consented industrial development at Ashbury's.

Following our telephone conversation this morning, I have examined the consented development trip distribution and analysed traffic impact of providing two access points to the site (from Gorton Road and Wolveton Street). This analysis also provides an estimate of worst-case traffic flows that could redistribute from existing uses on the industrial estate to effectively use the two junctions as a through-route. I have outlined the forecast method used and conclusions drawn below.

Consented Development Trip Distribution

The Hyder Transport Statement produced for the current consent included a distribution of traffic on the local highway network. The consented distribution is summarised below, with further details provided in the attached document.

Junction	Link	Distribution
Ashton Old Rd/Gable St/Stainforth St	Ashton Old Rd W	25.0%
	Ashton Old Rd E	25.0%
Ashton Old Rd/Alan Turing Way	Ashton Old Rd E	12.5%
	Alan Turing Way	12.5%
Pottery Lane/Gorton Road	Pottery Lane S	25.0%

Table 1: Consented Distribution

Journey Time Analysis

To estimate which access would be used by the development traffic it is assumed that journey time and distribution will be the main influencing factor. The journey time from set points on each distribution link to each access has been undertaken. Where journey times from the set point are the same for both access junctions the development traffic has been distributed equally. The proportion of trips using each access has then been applied to the consented distribution.

The table below summarises the results of this analysis. As can be seen, development traffic accessing from the north and northwest is forecast to use the Wolveton Street access and traffic accessing from the south of the site will use Gorton Road. The journey time analysis estimates that vehicles travelling from east of Ashton Old Road/Gable Street will use both access junctions.

		Wolveton Access		Gorton Access		Proportion		Assignment	
Distribution Link	Cordon Point	Distance (m)	Time (mins)	Distance (m)	Time (mins)	Wolveton	Gorton	Wolveton	Gorton
Ashton Old Rd W	Rylance St	700	2	700	2	50%	50%	12.5%	12.5%
Ashton Old Rd E	Bennock Cl	300	1	600	2	100%		25%	
Ashton Old Rd E	Mill St	650	1	1000	2	100%		12.5%	
Alan Turing Way	Wilson St	550	1	850	2	100%		12.5%	
Pottery Ln	Wenlock Way	1000	2	650	1		100%		25%

Table 2: Journey Time Analysis & Two Access Junction Distribution

The table below shows the phase 1 and phase 2 combined development traffic that are forecast to use the Gorton Road access junction.

	IN	OUT	TOTAL
AM Peak	20	3	23
PM Peak	2	24	27

Table 3: Gorton Road Access Junction Development Flows

Forecast Through Traffic

An estimate has also been made of other industrial estate traffic that could use the two site access junctions as a through-route to the external road network. It has been assumed that the same proportion of these trips as the development access distribution would find a journey time advantage of leaving the industrial estate via Gorton Road (ie. 38% of traffic). This proportion has been applied to peak hour traffic flows from land uses currently using Wolveton Street or that will be using Wolveton Street in the future, including Singleton's and PP Plasma. The ROC

development is not anticipated to generate traffic in the peak hours due to the staff shift patterns. The forecast Gorton Road access flows from these uses are shown in the table below.

	IN	OUT	TOTAL
AM Peak	5	6	11
PM Peak	2	11	13

Table 4: Singleton's & PP Plasma Gorton Road Access Flows

It has also been assumed that 38% of the traffic surveyed in 2012 travelling between Kay Street N and Kay Street W (and vice versa) will use the Gorton Road access.

It is also assumed that 38% of the IOS/KG2 unit will also use the Gorton Road access. The flows associated with these movements are shown in the table below.

	IN	OUT	TOTAL
AM Peak	4	11	16
PM Peak	4	6	11

Table 5: Kay Street Traffic & IOS/KG2 Gorton Road Access Flows

This is a worstcase estimate as it is considered unlikely that such a high proportion of traffic using Kay Street and accessing other units within the industrial estate will find the same journey time benefits as the development site traffic of the Gorton Road access junction.

Total Gorton Road Access Flows

The total traffic forecast to use the Gorton Road access (including phase 1 and phase 2 development flows) is shown below.

	IN	OUT	TOTAL
AM Peak	29	20	49
PM Peak	8	41	50

Table 6: Total Forecast Gorton Road Access Flows

Table 7 shows a comparison of the consented Gorton Road access flows and the estimate of flows that could use the access (including an estimate of through traffic).

	Consented	Proposed	Net Change
AM Peak	61	49	12
PM Peak	71	50	21

Table 7: Change in Gorton Road Flows

This analysis shows that even with the inclusion of worst-case through traffic, Gorton Road access flows are forecast to be lower than currently consented.

I trust this provides a little more comfort from a traffic impact perspective that the provision of the two access junctions will not result in an unacceptable burden on Gorton Road. As ever, I would welcome any thoughts you have on this.

Yours sincerely,

LESLI SPEERS

Enc: Forecast Flows

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : C - INDUSTRIAL UNIT

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	HF	HERTFORDSHIRE	1 days
	RE	READING	1 days
03	**SOUTH WEST**		
	BR	BRISTOL CITY	1 days
	CW	CORNWALL	2 days
	DC	DORSET	1 days
	DV	DEVON	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
05	**EAST MIDLANDS**		
	DS	DERBYSHIRE	1 days
	NR	NORTHAMPTONSHIRE	1 days
06	**WEST MIDLANDS**		
	HE	HEREFORDSHIRE	1 days
	WM	WEST MIDLANDS	3 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
09	**NORTH**		
	TW	TYNE & WEAR	1 days
10	**WALES**		
	CF	CARDIFF	1 days
	MT	MERTHYR TYDFIL	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of Employees
Actual Range:	4 to 1250 (units:)
Range Selected by User:	0 to 1250 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 24/01/13

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

Selected survey days:

Monday	3 days
Tuesday	5 days
Wednesday	2 days
Thursday	7 days
Friday	1 days

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

Selected survey types:

Manual count	18 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7
Edge of Town	11

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

Selected Location Sub Categories:

Industrial Zone	13
Commercial Zone	2
No Sub Category	3

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

Filtering Stage 3 selection:

Use Class:

B1	10 days
B2	7 days

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

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	3 days
10,001 to 15,000	4 days
15,001 to 20,000	3 days
25,001 to 50,000	4 days

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

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	5 days
75,001 to 100,000	2 days
125,001 to 250,000	6 days
250,001 to 500,000	4 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	6 days
1.1 to 1.5	11 days

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

Travel Plan:

No	18 days

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

LIST OF SITES relevant to selection parameters

1 **BR-02-C-01** **MECH. ENGINEERS** **BRISTOL CITY**
NOVERS HILL
BEDMINSTER
BRISTOL
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 32
Survey date: MONDAY *19/10/09* *Survey Type: MANUAL*

2 **CF-02-C-01** **PLASTICS COMPANY** **CARDIFF**
PARC-TY-GLAS
LLANISHEN
CARDIFF
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 11
Survey date: TUESDAY *24/10/06* *Survey Type: MANUAL*

3 **CH-02-C-01** **BAKERY** **CHESHIRE**
GADBROOK PARK
HIGH SHURLACH
NORTHWICH
Edge of Town
Industrial Zone
Total Number of Employees: 570
Survey date: THURSDAY *21/06/07* *Survey Type: MANUAL*

4 **CW-02-C-01** **FOOD DISTRIBUTION** **CORNWALL**
WILSON WAY
POOL
CAMBORNE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 575
Survey date: FRIDAY *08/06/07* *Survey Type: MANUAL*

5 **CW-02-C-02** **LIGHTING COMPANY** **CORNWALL**
NORMANDY WAY

BODMIN
Edge of Town
Industrial Zone
Total Number of Employees: 420
Survey date: WEDNESDAY *06/06/07* *Survey Type: MANUAL*

6 **DC-02-C-07** **NEW LOOK** **DORSET**
MERCERY ROAD

WEYMOUTH
Edge of Town
No Sub Category
Total Number of Employees: 650
Survey date: MONDAY *07/07/08* *Survey Type: MANUAL*

7 **DS-02-C-01** **BAKERY** **DERBYSHIRE**
STUBLEY LANE
DRONFIELD
NEAR SHEFFIELD
Edge of Town
No Sub Category
Total Number of Employees: 1250
Survey date: THURSDAY *22/06/06* *Survey Type: MANUAL*

8 **DV-02-C-01** **TUBE MANUFACTURE** **DEVON**
PLYMBRIDGE ROAD
ESTOVER
PLYMOUTH
Edge of Town
Industrial Zone
Total Number of Employees: 372
Survey date: TUESDAY *17/07/12* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 **HE-02-C-01** **METAL. COATINGS** **HEREFORDSHIRE**
COLLEGE ROAD

HEREFORD
Edge of Town
Commercial Zone
Total Number of Employees: 18
Survey date: THURSDAY *14/10/10* *Survey Type: MANUAL*

10 **HF-02-C-01** **INDUSTRIAL UNIT** **HERTFORDSHIRE**
BRIDGE ROAD EAST

WELWYN GARDEN CITY
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 19
Survey date: THURSDAY *17/07/08* *Survey Type: MANUAL*

11 **MT-02-C-01** **CONFECTIONERY** **MERTHYR TYDFIL**
HIGH STREET
DOWLAIS
MERTHYR TYDFIL
Edge of Town
No Sub Category
Total Number of Employees: 300
Survey date: TUESDAY *09/10/07* *Survey Type: MANUAL*

12 **NF-02-C-02** **GROCERY FACTORY** **NORFOLK**
HARDWICK ROAD

KINGS LYNN
Edge of Town
Industrial Zone
Total Number of Employees: 315
Survey date: MONDAY *19/09/05* *Survey Type: MANUAL*

13 **NR-02-C-01** **PAPER COMPANY** **NORTHAMPTONSHIRE**
RHOSILI ROAD
BRACKMILLS
NORTHAMPTON
Edge of Town
Industrial Zone
Total Number of Employees: 120
Survey date: THURSDAY *27/11/08* *Survey Type: MANUAL*

14 **RE-02-C-01** **SHEET METAL FABRICATION** **READING**
COMMERCIAL ROAD

READING
Edge of Town
Industrial Zone
Total Number of Employees: 11
Survey date: THURSDAY *22/11/12* *Survey Type: MANUAL*

15 **TW-02-C-01** **INDUSTRIAL UNIT** **TYNE & WEAR**
SHAFTESBURY AVENUE
TYNE POINT IND. ESTATE
JARROW
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 16
Survey date: THURSDAY *15/11/12* *Survey Type: MANUAL*

16 **WM-02-C-01** **METAL BEARINGS** **WEST MIDLANDS**
FORGE LANE
MINWORTH
SUTTON COLDFIELD
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Number of Employees: 80
Survey date: TUESDAY *25/11/08* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

17 WM-02-C-02 ARDONPRINT WEST MIDLANDS
SYDNEY ROAD
SMALL HEATH
BIRMINGHAM
Suburban Area (PPS6 Out of Centre)
Commercial Zone
Total Number of Employees: 4
Survey date: WEDNESDAY 17/06/09 Survey Type: MANUAL

18 WM-02-C-03 INDUSTRIAL GLASS WEST MIDLANDS
DOWNING STREET

SMETHWICK
Edge of Town
Industrial Zone
Total Number of Employees: 35
Survey date: TUESDAY 06/11/12 Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

VEHICLES

Calculation factor: 1 EMPLOY

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	18	267	0.027	18	267	0.017	18	267	0.044
07:30 - 08:00	18	267	0.070	18	267	0.016	18	267	0.086
08:00 - 08:30	**18**	**267**	**0.079**	18	267	0.016	18	267	0.095
08:30 - 09:00	18	267	0.058	18	267	0.014	18	267	0.072
09:00 - 09:30	18	267	0.034	18	267	0.017	18	267	0.051
09:30 - 10:00	18	267	0.021	18	267	0.016	18	267	0.037
10:00 - 10:30	18	267	0.017	18	267	0.016	18	267	0.033
10:30 - 11:00	18	267	0.017	18	267	0.015	18	267	0.032
11:00 - 11:30	18	267	0.015	18	267	0.012	18	267	0.027
11:30 - 12:00	18	267	0.017	18	267	0.015	18	267	0.032
12:00 - 12:30	18	267	0.018	18	267	0.026	18	267	0.044
12:30 - 13:00	18	267	0.022	18	267	0.024	18	267	0.046
13:00 - 13:30	18	267	0.041	18	267	0.028	18	267	0.069
13:30 - 14:00	18	267	0.060	18	267	0.026	18	267	0.086
14:00 - 14:30	18	267	0.030	**18**	**267**	**0.084**	**18**	**267**	**0.114**
14:30 - 15:00	18	267	0.031	18	267	0.027	18	267	0.058
15:00 - 15:30	18	267	0.020	18	267	0.036	18	267	0.056
15:30 - 16:00	18	267	0.020	18	267	0.031	18	267	0.051
16:00 - 16:30	18	267	0.015	18	267	0.031	18	267	0.046
16:30 - 17:00	18	267	0.015	18	267	0.062	18	267	0.077
17:00 - 17:30	18	267	0.008	18	267	0.048	18	267	0.056
17:30 - 18:00	18	267	0.008	18	267	0.060	18	267	0.068
18:00 - 18:30	18	267	0.009	18	267	0.030	18	267	0.039
18:30 - 19:00	18	267	0.010	18	267	0.020	18	267	0.030
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.662			0.687			1.349

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

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

Parameter summary

Trip rate parameter range selected:	4 - 1250 (units:)
Survey date date range:	01/01/05 - 24/01/13
Number of weekdays (Monday-Friday):	18
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

OGVS

Calculation factor: 1 EMPLOY

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	18	267	0.001	18	267	0.002	18	267	0.003
07:30 - 08:00	18	267	0.001	18	267	0.002	18	267	0.003
08:00 - 08:30	18	267	0.004	18	267	0.004	18	267	0.008
08:30 - 09:00	18	267	0.004	**18**	**267**	**0.005**	**18**	**267**	**0.009**
09:00 - 09:30	18	267	0.005	18	267	0.004	18	267	0.009
09:30 - 10:00	18	267	0.005	18	267	0.002	18	267	0.007
10:00 - 10:30	18	267	0.004	18	267	0.004	18	267	0.008
10:30 - 11:00	18	267	0.004	18	267	0.003	18	267	0.007
11:00 - 11:30	18	267	0.004	18	267	0.003	18	267	0.007
11:30 - 12:00	**18**	**267**	**0.005**	18	267	0.003	18	267	0.008
12:00 - 12:30	18	267	0.004	18	267	0.004	18	267	0.008
12:30 - 13:00	18	267	0.005	18	267	0.002	18	267	0.007
13:00 - 13:30	18	267	0.005	18	267	0.004	18	267	0.009
13:30 - 14:00	18	267	0.004	18	267	0.003	18	267	0.007
14:00 - 14:30	18	267	0.004	18	267	0.004	18	267	0.008
14:30 - 15:00	18	267	0.004	18	267	0.003	18	267	0.007
15:00 - 15:30	18	267	0.003	18	267	0.002	18	267	0.005
15:30 - 16:00	18	267	0.002	18	267	0.001	18	267	0.003
16:00 - 16:30	18	267	0.001	18	267	0.002	18	267	0.003
16:30 - 17:00	18	267	0.003	18	267	0.002	18	267	0.005
17:00 - 17:30	18	267	0.001	18	267	0.001	18	267	0.002
17:30 - 18:00	18	267	0.001	18	267	0.002	18	267	0.003
18:00 - 18:30	18	267	0.002	18	267	0.002	18	267	0.004
18:30 - 19:00	18	267	0.001	18	267	0.001	18	267	0.002
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.077			0.065			0.142

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

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

Parameter summary

Trip rate parameter range selected:	4 - 1250 (units:)
Survey date date range:	01/01/05 - 24/01/13
Number of weekdays (Monday-Friday):	18
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

PSVS

Calculation factor: 1 EMPLOY

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	18	267	0.000	18	267	0.000	18	267	0.000
07:30 - 08:00	18	267	0.000	18	267	0.000	18	267	0.000
08:00 - 08:30	18	267	0.000	18	267	0.000	18	267	0.000
08:30 - 09:00	18	267	0.000	18	267	0.000	18	267	0.000
09:00 - 09:30	18	267	0.000	18	267	0.000	18	267	0.000
09:30 - 10:00	18	267	0.000	18	267	0.000	18	267	0.000
10:00 - 10:30	18	267	0.000	18	267	0.000	18	267	0.000
10:30 - 11:00	18	267	0.000	18	267	0.000	18	267	0.000
11:00 - 11:30	18	267	0.000	18	267	0.000	18	267	0.000
11:30 - 12:00	18	267	0.000	18	267	0.000	18	267	0.000
12:00 - 12:30	**18**	**267**	**0.000**	18	267	0.000	18	267	0.000
12:30 - 13:00	18	267	0.000	18	267	0.000	18	267	0.000
13:00 - 13:30	18	267	0.000	18	267	0.000	18	267	0.000
13:30 - 14:00	18	267	0.000	18	267	0.000	18	267	0.000
14:00 - 14:30	18	267	0.000	18	267	0.000	18	267	0.000
14:30 - 15:00	18	267	0.000	18	267	0.000	18	267	0.000
15:00 - 15:30	18	267	0.000	18	267	0.000	18	267	0.000
15:30 - 16:00	18	267	0.000	18	267	0.000	18	267	0.000
16:00 - 16:30	18	267	0.000	18	267	0.000	18	267	0.000
16:30 - 17:00	18	267	0.000	18	267	0.000	18	267	0.000
17:00 - 17:30	18	267	0.000	18	267	0.000	18	267	0.000
17:30 - 18:00	18	267	0.000	18	267	0.000	18	267	0.000
18:00 - 18:30	18	267	0.000	18	267	0.000	18	267	0.000
18:30 - 19:00	18	267	0.000	18	267	0.000	18	267	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

Parameter summary

Trip rate parameter range selected:	4 - 1250 (units:)
Survey date date range:	01/01/05 - 24/01/13
Number of weekdays (Monday-Friday):	18
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

CYCLISTS

Calculation factor: 1 EMPLOY

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	18	267	0.001	18	267	0.000	18	267	0.001
07:30 - 08:00	18	267	0.002	18	267	0.000	18	267	0.002
08:00 - 08:30	18	267	0.002	18	267	0.000	18	267	0.002
08:30 - 09:00	18	267	0.001	18	267	0.000	18	267	0.001
09:00 - 09:30	18	267	0.000	18	267	0.000	18	267	0.000
09:30 - 10:00	18	267	0.000	18	267	0.000	18	267	0.000
10:00 - 10:30	18	267	0.000	18	267	0.000	18	267	0.000
10:30 - 11:00	18	267	0.000	18	267	0.000	18	267	0.000
11:00 - 11:30	18	267	0.000	18	267	0.000	18	267	0.000
11:30 - 12:00	18	267	0.000	18	267	0.000	18	267	0.000
12:00 - 12:30	18	267	0.000	18	267	0.000	18	267	0.000
12:30 - 13:00	18	267	0.000	18	267	0.000	18	267	0.000
13:00 - 13:30	**18**	**267**	**0.003**	18	267	0.001	18	267	0.004
13:30 - 14:00	18	267	0.002	18	267	0.000	18	267	0.002
14:00 - 14:30	18	267	0.001	**18**	**267**	**0.005**	**18**	**267**	**0.006**
14:30 - 15:00	18	267	0.001	18	267	0.001	18	267	0.002
15:00 - 15:30	18	267	0.000	18	267	0.001	18	267	0.001
15:30 - 16:00	18	267	0.000	18	267	0.000	18	267	0.000
16:00 - 16:30	18	267	0.000	18	267	0.001	18	267	0.001
16:30 - 17:00	18	267	0.000	18	267	0.001	18	267	0.001
17:00 - 17:30	18	267	0.000	18	267	0.000	18	267	0.000
17:30 - 18:00	18	267	0.000	18	267	0.001	18	267	0.001
18:00 - 18:30	18	267	0.000	18	267	0.001	18	267	0.001
18:30 - 19:00	18	267	0.001	18	267	0.000	18	267	0.001
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.014			0.012			0.026

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

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

Parameter summary

Trip rate parameter range selected:	4 - 1250 (units:)
Survey date date range:	01/01/05 - 24/01/13
Number of weekdays (Monday-Friday):	18
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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

APPENDIX B

Ashburys, Gorton Road, Manchester: Base & Development Flows Two Access Distribution

2012 Traffic Surveys

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	20	682	0	3	1270	Kay St W	0	2	3	0	1	8
Kay St	2	0	9	13	0	16	Wolveton St	3	0	8	2	0	21
Ashton Old Rd E	1280	33	0	623	10	0	Kay St N	25	28	0	8	5	0

2014 Background Traffic *AM 1.0266 1.025 PM Conversion from 2012 to 2014 [source: DfT TEMPRO database]*

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	20	700	0	3	1302	Kay St W	0	2	3	0	1	8
Kay St	2	0	9	13	0	16	Wolveton St	3	0	8	2	0	21
Ashton Old Rd E	1314	33	0	639	10	0	Kay St N	25	28	0	8	5	0

Committed Development Traffic Notes

Following advised by MCC for consideration:

Singletons Scrap Yard - however this site was operational from June 2012 & flows are captured in the 2012 surveys.

ROC - currently under construction. Submitted TA shows that shift patterns do not coincide with AM and PM peak periods. No flows added. Survey flows corrected to remove construction traffic.

PP Plasma - this site was consented in December 2012. Peak hour traffic flows taken from submitted TA.

KG2 Group Warehouse (IOS) - this site closed in summer 2012 & is still unoccupied. Traffic flows forecast using TRICS for 200 staff (the number of staff employed by KG2).

PP Plasma Flows (From DTPC TS Oct 2012)

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	0	0	0	0	0	Kay St W	0	0	0	0	0	0
Kay St	4	0	4	8	0	8	Wolveton St	0	0	8	0	0	16
Ashton Old Rd E	0	0	0	0	0	0	Kay St N	0	0	0	0	0	0

NOTES:

Wolveton St used as an egress only for Plasma PP. Access gained from Ashton Old Road new junction.

TA trips distributed in line with agreed Hyder TA (ie 50% east and west on Ashton Old Road)

K2 Group (IOS) (Forecast using TRICS database)

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	4	0	0	2	0	Kay St W	0	0	0	0	0	0
Kay St	2	0	2	4	0	4	Wolveton St	0	0	0	0	0	0
Ashton Old Rd E	0	4	0	0	2	0	Kay St N	0	0	0	0	0	0

NOTES:

Forecast using TRICS database warehouse land use & based on staff numbers at K2 Group (100)

TA trips distributed in line with agreed Hyder TA (ie 50% east and west on Ashton Old Road)

No traffic distributed onto Wolveton St as IOS access is before this.

Singletons Traffic

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	6	0	0	2	0	Kay St W	0	1	0	0	1	0
Kay St	3	0	3	6	0	6	Wolveton St	2	0	5	1	0	11
Ashton Old Rd E	0	6	0	0	2	0	Kay St N	0	13	0	0	4	0

NOTES:

Singletons was operational at the time of the surveys & so traffic included in Sept 2012 counts

Forecast using TRICS daily profile and daily flows from submitted Bradshaw Gas & Hope TA

Flows forecast only to allow correction of traffic using Wolveton Street to remove construction traffic associated with ROC contractors.

ROC Construction Traffic

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	-8	0	0	0	0	Kay St W	0	-1	0	0	0	0
Kay St	-1	0	-1	-5	0	-5	Wolveton St	-1	0	-3	-1	0	-10
Ashton Old Rd E	0	-8	0	0	-1	0	Kay St N	0	-15	0	0	-1	0

NOTES:

ROC Construction traffic forecast by subtracting Singleton traffic from traffic using turning into/out of Wolveton Street in Sept 2012 counts. Construction traffic assigned in line with surveyed turning movements.

Likely to still underestimate ROC construction traffic in the count as some contractors are parking before the junction on Kay St

ROC Construction will finish Jan/Feb 2014. No traffic will then be generated in peak hours due to shift patterns (in line with submitted TA)

Ashton Old Road: 2014 Base Traffic Flows

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	17	700	0	5	1302	Kay St W	0	1	3	0	1	8
Kay St	7	0	14	21	0	24	Wolveton St	2	0	13	1	0	27
Ashton Old Rd E	1314	30	0	639	11	0	Kay St N	25	13	0	8	4	0

2014 Base & Re-assigned Development Flows: Phase 1+2

	AM Peak			PM Peak				AM Peak			PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E		Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Ashton Old Rd W	0	33	700	0	7	1302	Kay St W	0	1	3	0	1	8
Kay St	10	0	17	41	0	44	Wolveton St	2	0	19	1	0	68
Ashton Old Rd E	1314	46	0	639	13	0	Kay St N	25	45	0	8	8	0

Gorton Rd: 2013 Surveyed Flows *Seasonality Factor: 1.1 Conversion from August to Neutral Month [source: DMRB]*

	AM Peak			PM Peak		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W			52			89
Site						
Gorton Rd E	128			58		

Gorton Rd: 2014 Base Flows *AM Growth 1.0162 1.0155 PM Growth Conversion from 2013 to 2014 [source: DfT TEMPRO database]*

	AM Peak			PM Peak		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W	0	0	53	0	0	90
Site	0	0	0	0	0	0
Gorton Rd E	130	0	0	59	0	0

Gorton Street Access Junction: 2014 Base & Development

	AM Peak			PM Peak		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W	0	10	53	0	1	90
Site	2	0	2	12	0	12
Gorton Rd E	130	10	0	59	1	0

Ashton Old Road/Kay Street Development Flows: Sensitivity Test

	AM Peak ST			PM Peak ST		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E
Ashton Old Rd W	0	43	700	0	8	1302
Kay St	11	0	18	53	0	56
Ashton Old Rd E	1314	56	0	639	14	0

Gorton Road/Site Access Development Flows Sensitivity Test

	AM Peak ST			PM Peak ST		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W	0	26	53	0	3	90
Site	5	0	5	33	0	33
Gorton Rd E	130	26	0	59	3	0

Kay Street/Wolveton Street Sensitivity Test

	AM Peak ST			PM Peak ST		
	Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Kay St W	0	1	3	0	1	8
Wolveton St	2	0	22	1	0	92
Kay St N	25	65	0	8	10	0

Ashburys, Gorton Road, Manchester: Two Access Distribution

Consented Trip Distribution

	Gorton Rd W	Site Access	Gorton Rd E
Gorton Rd W		50%	
Site Access	50%		50%
Gorton Rd E		50%	

	Ashton Old Rd W	Gable St	Ashton Old Rd E
Ashton Old Rd W			
Gable St	25%		25%
Ashton Old Rd E			

	Ashton Old Rd W	Stainforth St	Ashton Old Rd E
Ashton Old Rd W		25%	
Stainforth St			
Ashton Old Rd E		25%	

	Alan Turing Way	Ashton Old Rd W	Pottery Ln	Ashton Old Rd E
Alan Turing Way			13%	
Ashton Old Rd W				
Pottery Ln	13%			13%
Ashton Old Rd E			13%	

	Pottery Ln N	Gorton Rd	Pottery Ln S
Pottery Ln N		25%	
Gorton Rd	25%		25%
Pottery Ln S		25%	

Journey Time Analysis

		Wolveton Access		Gorton Access		Proportion		Assignment	
Distribution Link	Cordon Point	Distance (m)	Journey Time (mins)	Distance (m)	Journey Time (mins)	Wolveton	Gorton	Wolveton	Gorton
Ashton Old Rd W	Rylance St	700	2	700	2	50%	50%	13%	13%
Ashton Old Rd E	Bennock Cl	300	1	600	2	100%		25%	
Ashton Old Rd E	Mill St	650	1	1000	2	100%		13%	
Alan Turing Way	Wilson St	550	1	850	2	100%		13%	
Pottery Ln	Wenlock Way	1000	2	650	1		100%		25%

Junction	**Link**	**Distribution**
AOR/SR/GS	Ashton Old Rd W	25.0%
	Ashton Old Rd E	25.0%
AOR/ALW	Ashton Old Rd E	12.5%
	Alan Turing Way	12.5%
PL/GR	Pottery Lane S	25.0%

Development Access Distribution

Wolveton St		Gorton Rd	
IN	OUT	IN	OUT
63%	63%	38%	38%

Total Phase 1 & Phase 2 Trips		
IN	OUT	TOTAL
52	9	61
6	65	71

Development Distribution (Phase 1 + 2)

	Gorton Road			Wolveton Street		
	IN	OUT	TOTAL	IN	OUT	TOTAL
AM Peak	20	3	23	33	6	38
PM Peak	2	24	27	4	41	44

Ashton Old Road/Kay Street Development Flows

	Phase 1+2 AM Peak			Phase 1+2 PM Peak		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E
Ashton Old Rd W		16			2	
Kay St	3		3	20		20
Ashton Old Rd E		16			2	

Gorton Road/Site Access Development Flows

	Phase 1+2 AM Peak			Phase 1+2 PM Peak		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W		10			1	
Site	2		2	12		12
Gorton Rd E		10			1	

Kay Street/Wolveton Street

	AM Peak			PM Peak		
	Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Kay St W	0	0	0	0	0	0
Wolveton St	0	0	6	0	0	41
Kay St N	0	33	0	0	4	0

Ashton Old Road/Kay Street Development Flows: Sensitivity Test (All flows loaded onto Wolveton Street Access)

	Phase 1+2 AM Peak ST			Phase 1+2 PM Peak ST		
	Ashton Old Rd W	Kay St	Ashton Old Rd E	Ashton Old Rd W	Kay St	Ashton Old Rd E
Ashton Old Rd W		26			3	
Kay St	5		5	33		33
Ashton Old Rd E		26			3	

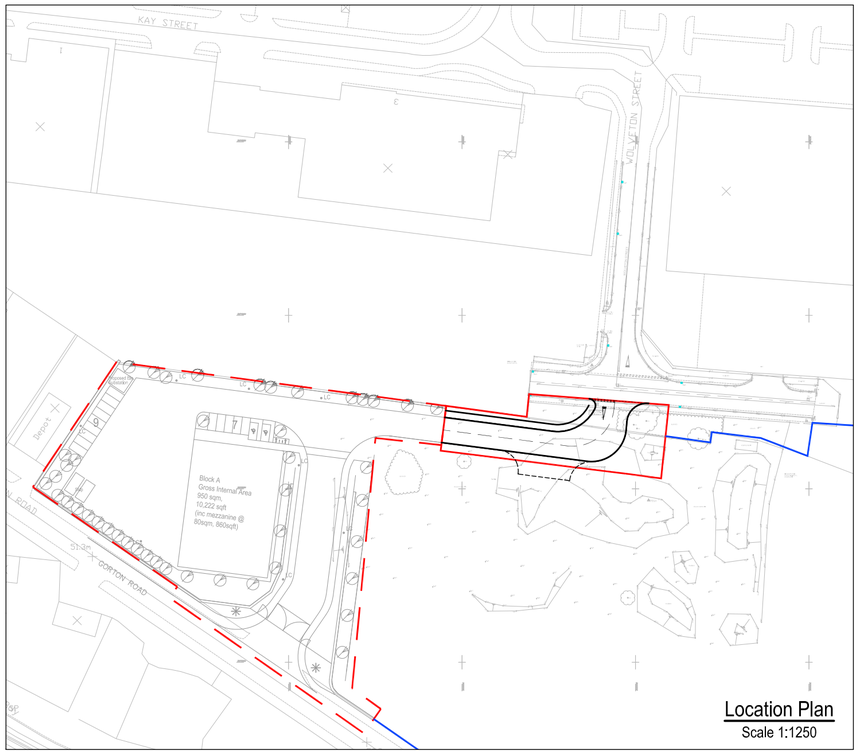
Gorton Road/Site Access Development Flows Sensitivity Test (All flows loaded onto Gorton Road Access)

	Phase 1+2 AM Peak ST			Phase 1+2 PM Peak ST		
	Gorton Rd W	Site	Gorton Rd E	Gorton Rd W	Site	Gorton Rd E
Gorton Rd W		26			3	
Site	5		5	33		33
Gorton Rd E		26			3	

Kay Street/Wolveton Street Sensitivity Test

	AM Peak ST			PM Peak ST		
	Kay St W	Wolveton St	Kay St N	Kay St W	Wolveton St	Kay St N
Kay St W	0	0	0	0	0	0
Wolveton St	0	0	9	0	0	65
Kay St N	0	52	0	0	6	0

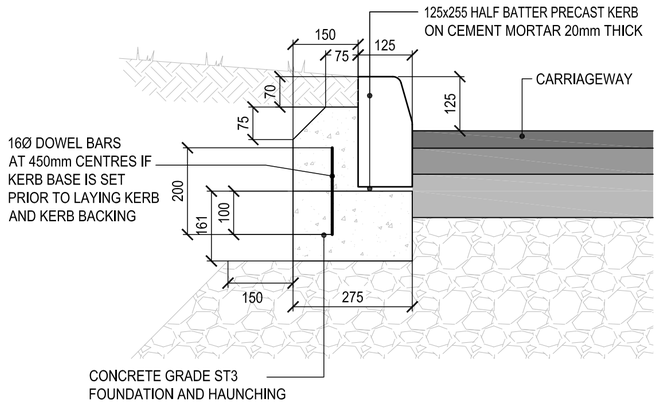
APPENDIX I



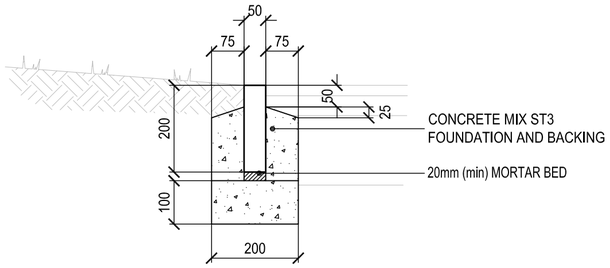
Location Plan
Scale 1:1250

KEY

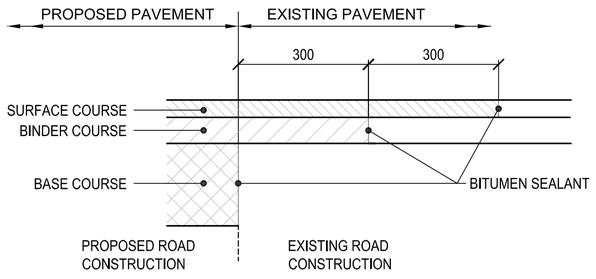
- Wolveton Street Access Planning Boundary
- Existing Phase 1 Planning Boundary and Network Rail Ownership
- Remainder of Network Rail Ownership
- Proposed Kerb Line
- Indicative private surface water drain
- Indicative precast concrete surface water manhole/ inspection chamber
- Indicative Road Gully (150Ø outlet)
- Existing Road Gully & assumed outlet
- Indicative Carriageway Construction
  50mm HRA Surface Course
  60mm DBM Binder Course
  190mm DBM Base Course
  240mm Type 1 Sub-Base
  220mm 6F2 Capping
  (Based on 5% CBR Min - TBC)
- Indicative Footway Construction
  40mm HRA Surface Course
  75mm DBM Binder Course
  270mm Type 1 Sub-Base



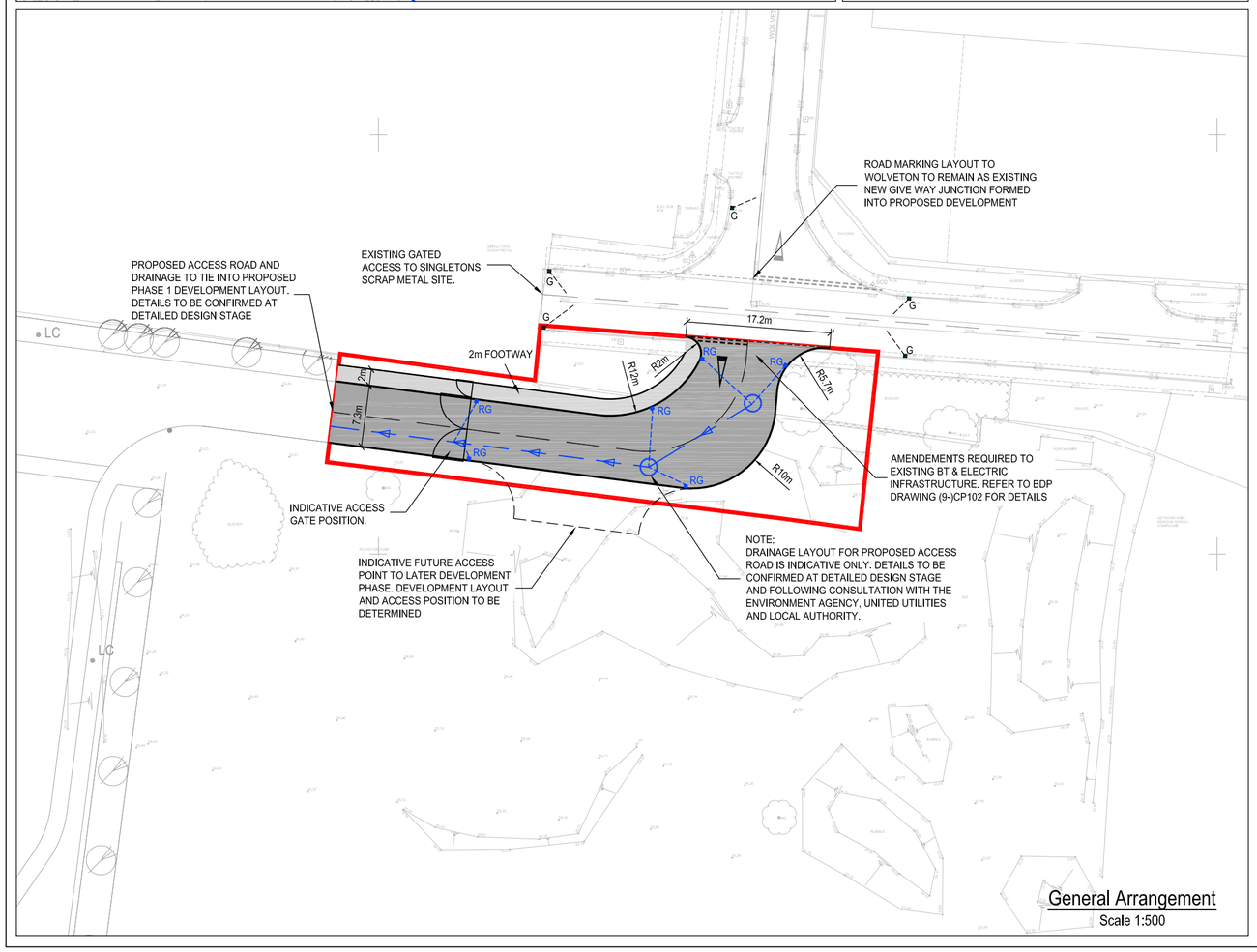
RAISED KERB DETAIL
TYPE HB2
SCALE 1:10



FOOTWAY EDGING KERB
TYPE EF
SCALE 1:10



JOINT BETWEEN EXISTING PAVEMENT
AND PROPOSED PAVEMENT
SCALE 1:10



General Arrangement
Scale 1:500

BUILDING DESIGN PARTNERSHIP LTD SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING.

ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP LTD AT THE ADDRESS SHOWN BELOW.

NOTES

1. All dimensions are in metres unless stated otherwise.
2. This drawing should be read in conjunction with all other relevant architectural and engineering details, drawings and specifications.
3. Any discrepancies should be reported to the architect and/or engineer immediately so that clarification can be sought prior to the commencement of work.
4. Final junction form, pavement construction and details are subject to technical approval from Manchester City Council and therefore may be subject to change.
5. Works to be carried out generally in accordance with the specification for Highway Works (SHW).
6. CBR Values at formation level to be confirmed by insitu tests carried out in accordance with the Specification for Highway Works.

⚠	Services are present in the area. The contractor shall establish the line and level of all existing services prior to commencing any excavation works. Indicative proposals for the protection/ diversion of existing underground services are detailed on BDP drawing (9-)CP102.
⚠	The works require operatives working on and adjacent to live roads and footways. The contractor shall provide traffic management to the approval of Manchester City Council Highway Department

THIS DRAWING IS IN THE DESIGN DEVELOPMENT STAGE AND MAY THEREFORE BE SUBJECT TO CHANGE. IT SHOULD NOT BE RELIED UPON FOR CONTRACTUAL OR COST COMMITMENT PURPOSES.

REVISION / DESCRIPTION	DRAWN	CHECKED	DATE
(A) Issued for Client Comment	CS	ARJ	09.08.13
First Issue	CS	ARJ	29.07.13

KEY PLAN

CLIENT LOGO

Network Rail

BDP.

11 Ducie Street
PO Box 85, Piccadilly Basin
Manchester, M60 3JA
United Kingdom

T +44 (0)161 828 2200
F +44 (0)161 828 2235
www.bdp.com

PROJECT TITLE
Manchester Ashbury's
Land off Gorton Road

PROJECT NUMBER
P2005537

DRAWING TITLE
Wolveton Street Access
Proposed General Arrangement,
Drainage Layout & Typical Details

SCALE
1:500

DATE
17.07.13

DRAWING NO.
(9-)CP100

REVISION
A

APPENDIX D

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

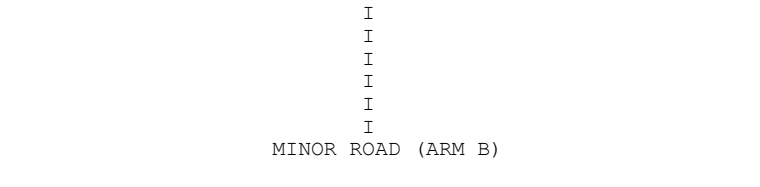
Run with file:-
"C:\Users\Thompson\Documents\SKTP\SK21321 Ashbury\Junction Assessments\PICADY\AOR_KayStreet.vpi"
(drive-on-the-left) at 17:20:18 on Wednesday, 24 July 2013

RUN INFORMATION

RUN TITLE	: Ashton Old Road/Kay St
LOCATION	: Ashbury
DATE	: 24/07/13
CLIENT	:
ENUMERATOR	: Thompson [THOMPSON-HP]
JOB NUMBER	: SK21321
STATUS	:
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Ashton Old Road (E)
ARM B IS Kay St
ARM C IS Ashton Old Road (W)

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) 12.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.00 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	NO (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 60.0 M.
- VISIBILITY TO RIGHT	(VB-A) 90.0 M.
- LANE 1 WIDTH	(WB-C) 3.65 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 AM Base

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK 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	16.80	25.20	16.80
ARM B	15.00	45.00	75.00	0.26	0.39	0.26
ARM C	15.00	45.00	75.00	8.96	13.44	8.96

Demand set: 2014 AM Base

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.022	0.978
		0.0	30.0	1314.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.667	0.000	0.333
		14.0	0.0	7.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.976	0.024	0.000
		700.0	17.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 AM Base
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.26	6.00	0.044		0.00	0.05	0.7		0.17
C-A	8.78								
C-B	0.21	9.25	0.023		0.00	0.02	0.3		0.11
A-B	0.38								
A-C	16.49								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.31	5.13	0.061		0.05	0.06	0.9		0.21
C-A	10.49								
C-B	0.25	8.52	0.030		0.02	0.03	0.4		0.12
A-B	0.45								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	0.39	3.88	0.099		0.06	0.11	1.5		0.29
C-A	12.85								
C-B	0.31	7.50	0.042		0.03	0.04	0.6		0.14
A-B	0.55								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	0.39	3.88	0.099		0.11	0.11	1.6		0.29
C-A	12.85								
C-B	0.31	7.50	0.042		0.04	0.04	0.6		0.14
A-B	0.55								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.31	5.13	0.061		0.11	0.07	1.0		0.21
C-A	10.49								
C-B	0.25	8.52	0.030		0.04	0.03	0.5		0.12
A-B	0.45								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.26	6.00	0.044		0.07	0.05	0.7		0.17
C-A	8.78								
C-B	0.21	9.25	0.023		0.03	0.02	0.4		0.11
A-B	0.38								
A-C	16.49								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.0

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	28.9	19.3	6.5	0.23	6.5	0.23
C-A	963.5	642.3				
C-B	23.4	15.6	2.9	0.12	2.9	0.12
A-B	41.3	27.5				
A-C	1808.6	1205.7				
ALL	2865.7	1910.5	9.4	0.00	9.4	0.00

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 PM Base

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	8.13	12.19	8.13
ARM B	15.00	45.00	75.00	0.56	0.84	0.56
ARM C	15.00	45.00	75.00	16.34	24.51	16.34

Demand set: 2014 PM Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.017	0.983
		0.0	11.0	639.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.533	0.000	0.467
		24.0	0.0	21.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.996	0.004	0.000
		1302.0	5.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 PM Base
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.56	7.48	0.076		0.00	0.08	1.2		0.14
C-A	16.34								
C-B	0.06	11.20	0.006		0.00	0.01	0.1		0.09
A-B	0.14								
A-C	8.02								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	0.67	6.80	0.099		0.08	0.11	1.6		0.16
C-A	19.51								
C-B	0.07	10.84	0.007		0.01	0.01	0.1		0.09
A-B	0.16								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	0.83	5.82	0.142		0.11	0.16	2.4		0.20
C-A	23.89								
C-B	0.09	10.35	0.009		0.01	0.01	0.1		0.10
A-B	0.20								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	0.83	5.82	0.142		0.16	0.16	2.5		0.20
C-A	23.89								
C-B	0.09	10.35	0.009		0.01	0.01	0.1		0.10
A-B	0.20								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.67	6.80	0.099		0.16	0.11	1.7		0.16
C-A	19.51								
C-B	0.07	10.84	0.007		0.01	0.01	0.1		0.09
A-B	0.16								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.56	7.48	0.076		0.11	0.08	1.3		0.14
C-A	16.34								
C-B	0.06	11.20	0.006		0.01	0.01	0.1		0.09
A-B	0.14								
A-C	8.02								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.1
18.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	61.9	41.3	10.6	0.17	10.6	0.17
C-A	1792.1	1194.7				
C-B	6.9	4.6	0.6	0.09	0.6	0.09
A-B	15.1	10.1				
A-C	879.5	586.4				
ALL	2755.6	1837.1	11.2	0.00	11.2	0.00

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 AM Base & Development

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	17.00	25.50	17.00
ARM B	15.00	45.00	75.00	0.34	0.51	0.34
ARM C	15.00	45.00	75.00	9.16	13.74	9.16

Demand set: 2014 AM Base & Development

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
	ARM A	0.000	0.034	0.966
		0.0	46.0	1314.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.630	0.000	0.370
		17.0	0.0	10.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.955	0.045	0.000
		700.0	33.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 AM Base & Development
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.34	6.04	0.056		0.00	0.06	0.8		0.18
C-A	8.78								
C-B	0.41	9.20	0.045		0.00	0.05	0.7		0.11
A-B	0.58								
A-C	16.49								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.40	5.15	0.079		0.06	0.08	1.2		0.21
C-A	10.49								
C-B	0.49	8.46	0.058		0.05	0.06	0.9		0.13
A-B	0.69								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	0.50	3.87	0.128		0.08	0.14	2.1		0.30
C-A	12.85								
C-B	0.61	7.44	0.081		0.06	0.09	1.3		0.15
A-B	0.84								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	0.50	3.87	0.128		0.14	0.15	2.2		0.30
C-A	12.85								
C-B	0.61	7.44	0.081		0.09	0.09	1.3		0.15
A-B	0.84								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.40	5.15	0.079		0.15	0.09	1.4		0.21
C-A	10.49								
C-B	0.49	8.46	0.058		0.09	0.06	1.0		0.13
A-B	0.69								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.34	6.04	0.056		0.09	0.06	0.9		0.18
C-A	8.78								
C-B	0.41	9.20	0.045		0.06	0.05	0.7		0.11
A-B	0.58								
A-C	16.49								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	37.2	24.8	8.6	0.23	8.6	0.23
C-A	963.5	642.3				
C-B	45.4	30.3	5.9	0.13	5.9	0.13
A-B	63.3	42.2				
A-C	1808.6	1205.7				
ALL	2918.0	1945.3	14.4	0.00	14.4	0.00

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 PM Base & Development

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	8.15	12.22	8.15
ARM B	15.00	45.00	75.00	1.06	1.59	1.06
ARM C	15.00	45.00	75.00	16.36	24.54	16.36

Demand set: 2014 PM Base & Development

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.020	0.980
		0.0	13.0	639.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.518	0.000	0.482
		44.0	0.0	41.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.995	0.005	0.000
		1302.0	7.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 PM Base & Development
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.07	7.53	0.142		0.00	0.16	2.3		0.15
C-A	16.34								
C-B	0.09	11.19	0.008		0.00	0.01	0.1		0.09
A-B	0.16								
A-C	8.02								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.27	6.86	0.186		0.16	0.22	3.3		0.18
C-A	19.51								
C-B	0.10	10.84	0.010		0.01	0.01	0.1		0.09
A-B	0.19								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.56	5.88	0.265		0.22	0.35	5.1		0.23
C-A	23.89								
C-B	0.13	10.35	0.012		0.01	0.01	0.2		0.10
A-B	0.24								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.56	5.88	0.265		0.35	0.36	5.3		0.23
C-A	23.89								
C-B	0.13	10.35	0.012		0.01	0.01	0.2		0.10
A-B	0.24								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.27	6.86	0.186		0.36	0.23	3.6		0.18
C-A	19.51								
C-B	0.10	10.84	0.010		0.01	0.01	0.2		0.09
A-B	0.19								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.07	7.53	0.142		0.23	0.17	2.6		0.15
C-A	16.34								
C-B	0.09	11.19	0.008		0.01	0.01	0.1		0.09
A-B	0.16								
A-C	8.02								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.4
17.45	0.4
18.00	0.2
18.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	117.0	78.0	22.2	0.19	22.2	0.19
C-A	1792.1	1194.7				
C-B	9.6	6.4	0.9	0.09	0.9	0.09
A-B	17.9	11.9				
A-C	879.5	586.4				
ALL	2816.2	1877.4	23.1	0.01	23.1	0.01

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 AM Sensitivity Test

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	17.13	25.69	17.13
ARM B	15.00	45.00	75.00	0.36	0.54	0.36
ARM C	15.00	45.00	75.00	9.29	13.93	9.29

Demand set: 2014 AM Sensitivity Test

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15				
	ARM A	0.000	0.041	0.959
		0.0	56.0	1314.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.621	0.000	0.379
		18.0	0.0	11.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.942	0.058	0.000
		700.0	43.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 AM Sensitivity Test
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.36	6.02	0.060		0.00	0.06	0.9		0.18
C-A	8.78								
C-B	0.54	9.18	0.059		0.00	0.06	0.9		0.12
A-B	0.70								
A-C	16.49								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.43	5.12	0.085		0.06	0.09	1.3		0.21
C-A	10.49								
C-B	0.64	8.43	0.076		0.06	0.08	1.2		0.13
A-B	0.84								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	0.53	3.82	0.139		0.09	0.16	2.3		0.30
C-A	12.85								
C-B	0.79	7.40	0.107		0.08	0.12	1.7		0.15
A-B	1.03								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	0.53	3.82	0.139		0.16	0.16	2.4		0.30
C-A	12.85								
C-B	0.79	7.40	0.107		0.12	0.12	1.8		0.15
A-B	1.03								
A-C	24.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.43	5.12	0.085		0.16	0.09	1.5		0.21
C-A	10.49								
C-B	0.64	8.43	0.076		0.12	0.08	1.3		0.13
A-B	0.84								
A-C	19.69								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.36	6.02	0.060		0.09	0.07	1.0		0.18
C-A	8.78								
C-B	0.54	9.18	0.059		0.08	0.06	1.0		0.12
A-B	0.70								
A-C	16.49								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.2
08.45	0.2
09.00	0.1
09.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	39.9	26.6	9.4	0.23	9.4	0.23
C-A	963.5	642.3				
C-B	59.2	39.5	7.9	0.13	7.9	0.13
A-B	77.1	51.4				
A-C	1808.6	1205.7				
ALL	2948.3	1965.5	17.2	0.01	17.2	0.01

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
724.89	0.21	0.08

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
577.13	0.20	0.08	0.12	0.28

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
781.32	0.22	0.22

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 PM Sensitivity Test

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	8.16	12.24	8.16
ARM B	15.00	45.00	75.00	1.36	2.04	1.36
ARM C	15.00	45.00	75.00	16.38	24.56	16.38

Demand set: 2014 PM Sensitivity Test

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.021	0.979
		0.0	14.0	639.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.514	0.000	0.486
		56.0	0.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.994	0.006	0.000
		1302.0	8.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 PM Sensitivity Test
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.37	7.54	0.181		0.00	0.22	3.1		0.16
C-A	16.34								
C-B	0.10	11.19	0.009		0.00	0.01	0.1		0.09
A-B	0.18								
A-C	8.02								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.63	6.87	0.238		0.22	0.31	4.4		0.19
C-A	19.51								
C-B	0.12	10.83	0.011		0.01	0.01	0.2		0.09
A-B	0.21								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	2.00	5.89	0.340		0.31	0.50	7.2		0.26
C-A	23.89								
C-B	0.15	10.34	0.014		0.01	0.01	0.2		0.10
A-B	0.26								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	2.00	5.89	0.340		0.50	0.51	7.6		0.26
C-A	23.89								
C-B	0.15	10.34	0.014		0.01	0.01	0.2		0.10
A-B	0.26								
A-C	11.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.63	6.87	0.238		0.51	0.32	5.0		0.19
C-A	19.51								
C-B	0.12	10.83	0.011		0.01	0.01	0.2		0.09
A-B	0.21								
A-C	9.57								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.37	7.54	0.181		0.32	0.22	3.5		0.16
C-A	16.34								
C-B	0.10	11.19	0.009		0.01	0.01	0.1		0.09
A-B	0.18								
A-C	8.02								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.3	
17.30	0.5	*
17.45	0.5	*
18.00	0.3	
18.15	0.2	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	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-AC	150.0	100.0	30.8	0.21	30.8	0.21
C-A	1792.1	1194.7				
C-B	11.0	7.3	1.0	0.09	1.0	0.09
A-B	19.3	12.8				
A-C	879.5	586.4				
ALL	2852.0	1901.3	31.8	0.01	31.8	0.01

* 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 RUN*******

========== end of file ==========

Printed at 17:20:33 on 24/07/2013]

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

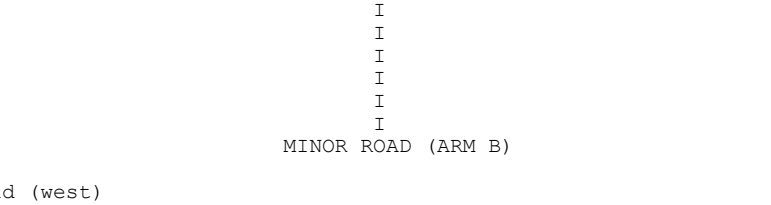
Run with file:-
"C:\Users\Thompson\Documents\SKTP\SK21321 Ashbury\Junction Assessments\PICADY\Gorton_Access.vpi"
(drive-on-the-left) at 18:09:28 on Thursday, 1 August 2013

RUN INFORMATION

RUN TITLE	: Gorton Road/Site Access
LOCATION	: Ashbury
DATE	: 24/07/13
CLIENT	:
ENUMERATOR	: Thompson [THOMPSON-HP]
JOB NUMBER	:
STATUS	:
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Gorton Road (west)
ARM B IS Site Access
ARM C IS Gorton Road (east)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM A-BC CONTAINS TRAFFIC GOING FROM ARM A TO ARM B AND TO ARM C
ETC.

GEOMETRIC DATA

DATA ITEM		MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	7.30 M.
CENTRAL RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B)	2.20 M.
- VISIBILITY	(VC-B)	215.00 M.
- BLOCKS TRAFFIC (SPACES)		YES (1)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C)	40.0 M.
- VISIBILITY TO RIGHT	(VB-A)	35.0 M.
- LANE 1 WIDTH	(WB-C)	2.75 M.
- LANE 2 WIDTH	(WB-A)	2.75 M.

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
629.80	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
495.07	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
698.47	0.26	0.26

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 AM Base & Development

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK 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	0.79	1.18	0.79
ARM B	15.00	45.00	75.00	0.05	0.08	0.05
ARM C	15.00	45.00	75.00	1.75	2.63	1.75

Demand set: 2014 AM Base & Development

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.159	0.841
		0.0	10.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.500	0.000	0.500
		2.0	0.0	2.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.929	0.071	0.000
		130.0	10.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 AM Base & Development
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.03	10.32	0.002		0.00	0.00	0.0		0.10
B-A	0.03	7.84	0.003		0.00	0.00	0.0		0.13
C-AB	0.13	11.44	0.011		0.00	0.01	0.2		0.09
A-B	0.13								
A-C	0.67								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.03	10.29	0.003		0.00	0.00	0.0		0.10
B-A	0.03	7.76	0.004		0.00	0.00	0.1		0.13
C-AB	0.15	11.40	0.013		0.01	0.01	0.2		0.09
A-B	0.15								
A-C	0.79								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.04	10.24	0.004		0.00	0.00	0.1		0.10
B-A	0.04	7.65	0.005		0.00	0.00	0.1		0.13
C-AB	0.18	11.35	0.016		0.01	0.02	0.2		0.09
A-B	0.18								
A-C	0.97								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.04	10.24	0.004		0.00	0.00	0.1		0.10
B-A	0.04	7.65	0.005		0.00	0.00	0.1		0.13
C-AB	0.18	11.35	0.016		0.02	0.02	0.2		0.09
A-B	0.18								
A-C	0.97								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.03	10.29	0.003		0.00	0.00	0.0		0.10
B-A	0.03	7.76	0.004		0.00	0.00	0.1		0.13
C-AB	0.15	11.40	0.013		0.02	0.01	0.2		0.09
A-B	0.15								
A-C	0.79								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.03	10.32	0.002		0.00	0.00	0.0		0.10
B-A	0.03	7.84	0.003		0.00	0.00	0.0		0.13
C-AB	0.13	11.44	0.011		0.01	0.01	0.2		0.09
A-B	0.13								
A-C	0.67								

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
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	2.8	1.8	0.3	0.10	0.3	0.10
B-A	2.8	1.8	0.4	0.13	0.4	0.13
C-AB	13.8	9.2	1.2	0.09	1.2	0.09
A-B	13.8	9.2				
A-C	73.0	48.6				
ALL	284.9	189.9	1.9	0.01	1.9	0.01

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
629.80	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
495.07	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
698.47	0.26	0.26

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 AM Sensitivity Test

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	0.99	1.48	0.99
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	1.95	2.93	1.95

Demand set: 2014 AM Sensitivity Test

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15		TURNING PROPORTIONS		
		TURNING COUNTS		
		(PERCENTAGE OF H.V.S)		
	ARM A	0.000	0.329	0.671
		0.0	26.0	53.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.500	0.000	0.500
		5.0	0.0	5.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.833	0.167	0.000
		130.0	26.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 AM Sensitivity Test
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.06	10.29	0.006		0.00	0.01	0.1		0.10
B-A	0.06	7.76	0.008		0.00	0.01	0.1		0.13
C-AB	0.33	11.39	0.029		0.00	0.03	0.4		0.09
A-B	0.33								
A-C	0.67								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.07	10.25	0.007		0.01	0.01	0.1		0.10
B-A	0.07	7.66	0.010		0.01	0.01	0.1		0.13
C-AB	0.39	11.34	0.034		0.03	0.04	0.5		0.09
A-B	0.39								
A-C	0.79								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.09	10.20	0.009		0.01	0.01	0.1		0.10
B-A	0.09	7.53	0.012		0.01	0.01	0.2		0.13
C-AB	0.48	11.27	0.042		0.04	0.04	0.7		0.09
A-B	0.48								
A-C	0.97								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.09	10.20	0.009		0.01	0.01	0.1		0.10
B-A	0.09	7.53	0.012		0.01	0.01	0.2		0.13
C-AB	0.48	11.27	0.042		0.04	0.04	0.7		0.09
A-B	0.48								
A-C	0.97								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.07	10.25	0.007		0.01	0.01	0.1		0.10
B-A	0.07	7.66	0.010		0.01	0.01	0.2		0.13
C-AB	0.39	11.34	0.034		0.04	0.04	0.5		0.09
A-B	0.39								
A-C	0.79								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.06	10.29	0.006		0.01	0.01	0.1		0.10
B-A	0.06	7.76	0.008		0.01	0.01	0.1		0.13
C-AB	0.33	11.39	0.029		0.04	0.03	0.4		0.09
A-B	0.33								
A-C	0.67								

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
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	6.9	4.6	0.7	0.10	0.7	0.10
B-A	6.9	4.6	0.9	0.13	0.9	0.13
C-AB	35.8	23.9	3.3	0.09	3.3	0.09
A-B	35.8	23.9				
A-C	73.0	48.6				
ALL	337.2	224.8	4.9	0.01	4.9	0.01

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
629.80	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
495.07	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
698.47	0.26	0.26

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 PM Base & Development

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	1.14	1.71	1.14
ARM B	15.00	45.00	75.00	0.30	0.45	0.30
ARM C	15.00	45.00	75.00	0.75	1.13	0.75

Demand set: 2014 PM Base & Development

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.011	0.989
		0.0	1.0	90.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.500	0.000	0.500
		12.0	0.0	12.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.983	0.017	0.000
		59.0	1.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 PM Base & Development
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.15	10.19	0.015		0.00	0.01	0.2		0.10
B-A	0.15	7.90	0.019		0.00	0.02	0.3		0.13
C-AB	0.01	11.35	0.001		0.00	0.00	0.0		0.09
A-B	0.01								
A-C	1.13								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.18	10.13	0.018		0.01	0.02	0.3		0.10
B-A	0.18	7.84	0.023		0.02	0.02	0.3		0.13
C-AB	0.01	11.29	0.001		0.00	0.00	0.0		0.09
A-B	0.01								
A-C	1.35								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.22	10.04	0.022		0.02	0.02	0.3		0.10
B-A	0.22	7.74	0.028		0.02	0.03	0.4		0.13
C-AB	0.02	11.21	0.002		0.00	0.00	0.0		0.09
A-B	0.02								
A-C	1.65								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.22	10.04	0.022		0.02	0.02	0.3		0.10
B-A	0.22	7.74	0.028		0.03	0.03	0.4		0.13
C-AB	0.02	11.21	0.002		0.00	0.00	0.0		0.09
A-B	0.02								
A-C	1.65								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.18	10.13	0.018		0.02	0.02	0.3		0.10
B-A	0.18	7.84	0.023		0.03	0.02	0.4		0.13
C-AB	0.01	11.29	0.001		0.00	0.00	0.0		0.09
A-B	0.01								
A-C	1.35								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.15	10.19	0.015		0.02	0.02	0.2		0.10
B-A	0.15	7.90	0.019		0.02	0.02	0.3		0.13
C-AB	0.01	11.35	0.001		0.00	0.00	0.0		0.09
A-B	0.01								
A-C	1.13								

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
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	16.5	11.0	1.7	0.10	1.7	0.10
B-A	16.5	11.0	2.1	0.13	2.1	0.13
C-AB	1.4	0.9	0.1	0.09	0.1	0.09
A-B	1.4	0.9				
A-C	123.9	82.6				
ALL	240.9	160.6	3.9	0.02	3.9	0.02

* 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 RUN*******

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
629.80	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
495.07	0.22	0.09	0.14	0.31

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
698.47	0.26	0.26

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2014 PM Sensitivity Test

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

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	1.16	1.74	1.16
ARM B	15.00	45.00	75.00	0.82	1.24	0.82
ARM C	15.00	45.00	75.00	0.77	1.16	0.77

Demand set: 2014 PM Sensitivity Test

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.032	0.968
		0.0	3.0	90.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.500	0.000	0.500
		33.0	0.0	33.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.952	0.048	0.000
		59.0	3.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2014 PM Sensitivity Test
AND FOR TIME PERIOD 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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.41	10.10	0.041		0.00	0.04	0.6		0.10
B-A	0.41	7.89	0.052		0.00	0.05	0.8		0.13
C-AB	0.04	11.34	0.003		0.00	0.00	0.0		0.09
A-B	0.04								
A-C	1.13								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.49	10.02	0.049		0.04	0.05	0.8		0.10
B-A	0.49	7.82	0.063		0.05	0.07	1.0		0.14
C-AB	0.04	11.29	0.004		0.00	0.00	0.1		0.09
A-B	0.04								
A-C	1.35								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.61	9.91	0.061		0.05	0.06	1.0		0.11
B-A	0.61	7.73	0.078		0.07	0.08	1.2		0.14
C-AB	0.06	11.21	0.005		0.00	0.00	0.1		0.09
A-B	0.06								
A-C	1.65								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.61	9.91	0.061		0.06	0.06	1.0		0.11
B-A	0.61	7.73	0.078		0.08	0.08	1.3		0.14
C-AB	0.06	11.21	0.005		0.00	0.00	0.1		0.09
A-B	0.06								
A-C	1.65								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.49	10.02	0.049		0.06	0.05	0.8		0.10
B-A	0.49	7.82	0.063		0.08	0.07	1.0		0.14
C-AB	0.04	11.29	0.004		0.00	0.00	0.1		0.09
A-B	0.04								
A-C	1.35								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.41	10.10	0.041		0.05	0.04	0.7		0.10
B-A	0.41	7.89	0.052		0.07	0.06	0.9		0.13
C-AB	0.04	11.34	0.003		0.00	0.00	0.1		0.09
A-B	0.04								
A-C	1.13								

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
17.00	0.0
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	45.4	30.3	4.8	0.10	4.8	0.10
B-A	45.4	30.3	6.2	0.14	6.2	0.14
C-AB	4.1	2.8	0.4	0.09	0.4	0.09
A-B	4.1	2.8				
A-C	123.9	82.6				
ALL	304.2	202.8	11.3	0.04	11.3	0.04

* 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 RUN*******

========== end of file ==========

Printed at 18:09:38 on 01/08/2013]