ROYAL HASKONING

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Transportation Assessment in relation to the proposed development of the Four Acres Site at Littlemoor, Clitheroe

Trustees of the Standen Estate

24 April 2012
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1 INTRODUCTION

1.1 Background

1.1.1 Royal Haskoning has been commissioned by the Trustees of the Standen Estate (TSE) to prepare a Transportation Assessment to evaluate the transport and accessibility aspects of a proposed residential development in Clitheroe, Lancashire.

1.1.2 The development site is solely owned by the TSE and comprises an area of 4 acres. **Plan 1** illustrates the location of the land in a general context.

1.1.3 This Transportation Assessment follows on from a wider Transportation Assessment of a much larger scale development on the Standen Estate Land ("Potential for Development at the Standen Estate Land, Clitheroe", prepared by Royal Haskoning, ref 9V7186/R0001C/303860/Manchester). That wider appraisal was prepared in November 2010 and was submitted to Ribble Valley Borough Council.

1.2 Development Aspirations

1.2.1 The Trustees of the Standen Estate are seeking to promote a residential development on the site to include the following;

(i) 49 homes,
(ii) New vehicular access onto Littlemoor,
(iii) Pedestrian / cycle connectivity with the surrounding area

1.2.2 At the time of first preparing this Transportation Assessment a robust approximate figure of 60 dwellings was taken as the basis for assessment. Subsequently, through the design evolution process, public consultation event etc, the proposals have been reduced to just 49 dwellings. The text of the final version of this report has been edited to reflect the current 49 dwellings proposed. However, the numerical assessments previously undertaken for 60 dwellings have been retained since they represent a robust (i e. + 11 dwellings or 22%) uplift on the current proposals

1.3 Ribble Valley Borough Council Core Strategy Consultation

The planning Statement which accompanies the application states, *"Regulation 25 (Draft Core Strategy) public consultation took place between August and October 2010. As a result of the response to this exercise a further consultation took place between June and August 2011, setting out some additional alternative options. In December 2011 a report was presented to members of the Ribble Valley Planning and Development Committee on the direction of travel/outline approach of the Core Strategy. This latter document identified a strategic site to the south of Clitheroe as the focus for residential development in the Borough for the plan period (up to 2028) with residual development in Clitheroe and elsewhere. "*

1.3.1 The Core Strategy considers how Ribble Valley should develop and be shaped in principle over the next 15 years. Representations have already been lodged by planning consultants Steven Abbott Associates LLP on behalf of TSE with input from Royal Haskoning (RH) and Taylor Young (TY).

1.3.2 The Royal Haskoning document of November 2010 presents plans, appendices and technical evidence on highways and transportation issues to support the wider development of the Standen Estates Land.

1.3.3 That submission was intended to assist the Council by enhancing its evidence base Ribble Valley Borough Council is presently in a transition period whilst the Local Development Framework (LDF) is developed and the Core Strategy adopted.

1.3.4 In developing the Core Strategy, possible options for housing distribution and development have been set out by the Council. The TSE land is one of the areas that has been identified as a possible strategic site predominantly for residential development.

2 TRANSPORTATION POLICIES & GUIDANCE

2.1 Introduction

2.1.1 This section sets out the planning policies and guidance against which the transport and access aspects of the development should be considered.

2.2 National Planning Policy Framework

2.2.1 The Department for Communities and Local Government published its National Planning Policy Framework (NPPF) on 27th March 2012. The NPPF replaces all Planning Policy Guidance (PPG) Notes and Planning Policy Statements (PPS) with a single document of under 60 pages. This is in line with the Government's 'Localism' reforms, to reduce the role of central guidance.

2.2.2 The NPPF incorporates sustainable transport policy as a key plank for achieving sustainable development. At the heart of the NPPF is a: '*...presumption in favour of sustainable development ...*' (paragraph 14)

2.2.3 The NPPF states at paragraph 15 that policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay. All plans should be based upon and reflect the presumption in favour of sustainable development, with clear policies that will guide how the presumption should be applied locally.

2.2.4 Local authorities will be required to grant permission, using the NPPF as guidance, where the Local Plan is absent, silent, indeterminate or where relevant policies are out of date. However, NPPF provides for a 12-month window from 27 March 2012 for the implementation of its provisions

2.2.5 With regards to the integration of transport and land-use planning the overarching principle is that planning should (see paragraph 17 of the NPPF):

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

2.2.6 In terms of promoting sustainable transport, the NPPF states at paragraph 29 that transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objective.

2.2.7 At paragraph 32 the NPPF confirms that all developments that generate significant amounts of movement should be supported by a Transport Statement/Assessment Plans and decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure,
- safe and suitable access to the site can be achieved for all people,
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development,

- Development should only be prevented or refused on transport grounds where the residual impacts of development are severe.

2.2.8 As regards to residential development, the NPPF states in paragraph 49 that housing applications should be considered in the context of the presumption in favour of sustainable development

2.3 Ribble Valley Local Plan and Core Strategy Consultation Transport Criteria

2.3.1 The Ribble Valley Local Plan sets out detailed policies and specific proposals for the development and use of land in the area. The current Local Plan was adopted by the Council in 1998 and is currently undergoing review, however, a number of policies have been 'saved' under the Local Development Framework.

2.3.2 Policy T1 'Development Proposals' in the Local Plan has the same criteria as the 'Key Statement DMG3: Transport and Mobility' in Appendix 4 of the Core Strategy Consultation document. It states that the local planning authority will attach considerable weight to these criteria when making decisions on development proposals. The eight points of the criteria are set out below:

1. The availability and adequacy of public transport to serve those moving to and from the development;

2. The relationship of the site to the primary route network;

3. The provision made for access to the development by pedestrian, cyclists and those with reduced mobility;

4. Proposals which promote development within existing developed areas at locations which are highly accessible by means other than the private car;

5. Proposals which locate major generators of travel demand in existing centres which are highly accessible by means other than the private car;

6. Proposals which strengthen existing town and village centres which offer a range of everyday community shopping and employment opportunities by protecting and enhancing their viability and vitality;

7. Proposals which locate developments in areas which maintain and improve choice for people to walk, cycle or catch public transport rather than drive between homes and facilities which they need to visit regularly;

8. Proposals which limit parking provision for developments and other on or off street parking provision to discourage reliance on the car for work and other journeys where there are effective alternatives.

2.3.3 The Ribble Valley Core Strategy Consultation Document and the Local Plan both state that the local planning authority will attach considerable weight to these criteria when making decisions on development proposals. Subsequent sections of this report describe the development proposals and surrounding existing facilities such as pedestrian footways, public transport services, cycle ways etc. Those subsequent sections of this report set out how the development proposals comply with the guidelines and policies detailed above.

3 EXISTING CONDITIONS

3.1 Local Highway Network

3.1.1 **Plan 2** illustrates the location of the site in relation to the local highway network.

3.1.2 As the development proposals are modest in scale (49 houses), the significance of the traffic impact of the proposals will be confined to the local highway network.

3.1.3 The A59 is a strategic route from Skipton to Preston and passes to the southeast of Clitheroe. The A59 is named Clitheroe Bypass and is a two-way single carriageway road which is de-restricted (60mph) and is generally straight in alignment. It is the A59 which conveys the significant majority of trips which track to or from Clitheroe.

3.1.4 Pendle Road terminates onto the A59 at a four arm staggered priority junction. There is a protected central gap for vehicles turning right out of Pendle Road with space for one vehicle. Travelling northbound on the A59 there is a deceleration lane for turning into Clitheroe Road to the east. The speed of vehicles on the A59 can be high as the road is straight in alignment and subject to a speed limit of 60mph.

3.1.5 The A59 / Pendle Road / Clitheroe Road four arm staggered priority junction has cycle lane crossing. Regional cycle route 91 runs from Pendleton, along Pendle Road from the A59 / Pendle Road / Clitheroe Road junction for a short distance before continuing north along a small unclassified road. The cycle route crosses the A59 approximately at the midpoint between the junctions with Pendle Road and Pimlico Link Road.

3.1.6 South of the A59 / Pendle Road / Clitheroe Road junction, the A59 is a single lane carriageway. Approximately 1km south of the A59 / Pendle Road / Clitheroe Road junction, there are two ghost island priority junctions accessing unclassified roads leading to the east and the west of the A59.

3.1.7 The A59 / A671 three arm roundabout junction is located approximately 1 km further south of these priority junctions. South of that roundabout, the A59 becomes a dual lane carriageway in both directions.

3.1.8 To the west and northwest of the site, there are existing residential areas and the A671 Whalley Road. Whalley Road commences from the A59 via the previously mentioned three arm roundabout junction and runs northerly, terminating in Clitheroe town centre at the mini roundabout junction with Queensway and Moor Lane. The A671 continues through the town centre and exits Clitheroe along Chatburn Road, before turning east at the roundabout junction with Pimlico Link Road and terminating onto the A59 via a right turn ghost island priority junction.

3.1.9 Whalley Road is the most direct route into Clitheroe town centre from the south. It is a relatively wide single lane carriageway road. From the roundabout with the A59, it is subject to a speed limit of 40mph and is bounded on both sides by fields. There is a footway on the western side. It continues on to Clitheroe and the area becomes more built up with residential properties and parked vehicles on both sides. The A671 reduces in speed limit to 30mph and narrows as the area becomes more built up.

3.1.10 Whalley Road continues towards Clitheroe town centre and becomes increasingly busier with traffic closer to the town centre. Significant traffic queuing has been observed in the morning peak hour southbound along Peel Street and Queensway to Whalley Road. Slow moving traffic and short lived sections of queuing have been observed northbound

in the evening peak hour along Whalley Road north of Littlemoor towards the town centre.

3.1.11 North of the junction with Littlemoor, Whalley Road has footways along both sides. It is subject to a 30mph speed limit and has the benefit of street lighting. There are bus stops located on both sides of the road, with the bus stop on the east side accommodating a shelter, approximately 60m north of the junction with Littlemoor. There is also an on road cycle route along both sides of Whalley Road, between the junction with Primrose Road and terminating at the junction with Littlemoor. In addition a pedestrian refuge is located on Whalley Road, just south of the junction with Littlemoor.

3 1.12 Littlemoor, which forms part of the eastern boundary of the site commences from Whalley Road to the west and runs northeast, before turning north and continuing as Littlemoor Road, before terminating at the junction with Hayhurst Street and Highfield Road. From the junction with Whalley Road, Littlemoor is approximately 5.5m in width it is subject to a 30mph speed limit and has the benefit of street lighting, but no footways or central markings. A pedestrian link will be provided through to the footpath leading to Park Street and then to Whalley Road. Moreover, Littlemoor features a footpath on the east side of the road approximately opposite the site access. That footway leads to the north into Clitheroe and also to the south as far as the commencement of the residential properties on the south side of Littlemoor on the approach to Whalley road.

3.1.13 It is also the case that a recently approved planning permission to redevelop the Barkers Nursery site on the north side of Littlemoor will introduce footways along the first 50m of Littlemoor.

3.2 Existing Accident Statistics

3.2.1 The Lancashire County Council mapping facility MARIO has been interrogated to find personal injury traffic accident data in Clitheroe. The personal injury traffic accident data obtained is contained within **Appendix A**. Plan A1 within **Appendix A** illustrates the recorded personal injury traffic accidents in the whole of Clitheroe over the five year period from 2005 to 2010.

3.2 2 Plan A2 within **Appendix A** is a close up of the Whalley Road/ Littlemoor junction, showing that there have been no personal injury accidents recorded at the junction in those five years. The plan also shows that the only accident in the immediate vicinity of the site is a slight accident on Littlemoor Road, adjacent to the junction with Beechwood Road, approximately 200 metres east of the proposed site entrance.

3 2 3 The existing safety record therefore indicates no significant existing highway problems.

3.3 Existing Local Facilities and Surrounding Area

3.3 1 To the north east of the site there is a rugby playing field, and a recently built residential development

3.3 2 Between those areas of land and the site there is a footway which runs from Littlemoor Rd through to Whalley Road via Park Street

3.3.3 A petrol station and convenience store is located on Whalley Road, approximately 120m north from the junction with Littlemoor. Further to the north, approximately 500m north of the junction with Littlemoor there are small local shops and larger shopping facilities centred around Whalley Road.

3.3.4 The boundary of the main shopping centre of Clitheroe, designated on Inset 5 of the Ribble Valley Local Plan is located approximately 960m from the proposed Four Acres site. Clitheroe railway station is located approximately 1.25km from the site. There are existing bus stops on Whalley Road (250m from the site)

3.3.5 An audit of the existing accessibility and future aspirations of the site for pedestrians, cyclists and public transport is set out in a later section of this report.

3.4 Committed Developments

3.4.1 Outline planning permission (application reference 3/2010/0550) has been granted for the former Barker's garden centre for 30 apartments, 2 houses and a 40-bed nursing home. That site lies between the Four Acres site and Littlemoor and access would be created off Littlemoor

3.4.2 When the approved scheme is implemented some upgrading works will be undertaken to a section of Littlemoor. Those include realigning the kerb radius of the Littlemoor / Whalley Road junction, extending the width of the road and including a 2m footway on the northern side between the junction and the new development access.

3.4.3 The Local Highway Authority has also recommended that the development funds the upgrade of the two nearest bus stops on Whalley Road and for the provision of the footway on Littlemoor to continue along the frontage of the site.

3.4.4 Traffic and pedestrians on Littlemoor, and more particularly local residents, will benefit from these improvements in the future.

4 DEVELOPMENT PROPOSAL

4.1 Site Layout

4.1.1 The development proposal is for the construction of 49 new homes. This is in line with the council's aspirations for residential development in the area.

4.1.2 The development includes:

(i) 49 homes

(ii) A new vehicular access onto Littlemoor,

(iii) Pedestrian/ cycle connectivity with the surrounding area,

4.1.3 The proposed layout of the site is presented in Plan 3. The proposed access is shown in more detail on Plan 4.

4.2 Proposed Access Layout

4.2.1 A simple priority access is proposed in the location shown on **Plan 4**.

4.2.2 It is immediately apparent that the access is proposed close to a bend in Littlemoor and consequently the issue of providing lateral visibility splays was a matter to the forefront of considering the form of access. Manual for Streets (MfS) and Manual for Streets 2 (MfS2) design principles apply in this area.

4.2.3 To assist consideration of the access, a speed survey was carried out. MfS2 paragraph 1 3 6 states "It is only where actual speeds are above 40mph for significant periods of the day at DMRB parameters for stopping sight distance are recommended Where speeds are lower MfS parameters are recommended". Moreover, paragraph 10.4.2 states "It has often been assumed that a failure to provide visibility at priority junctions in accordance with the values recommended in MFS 1 or DMRB as appropriate will result in an increased risk of injury collisions. Research carried out by TMS Consultancy for MfS2 has found no evidence of this. Research into cycle safety at T-junctions found that higher cycle collision rates are associated with greater visibility".

4.2.4 This latter quote would suggest that the matter of providing lateral visibility splays is in large part debateable, particularly in areas such as the proposed Littlemoor access where vehicular speeds are likely to be low. Nevertheless it is proposed to provide lateral visibility in line with those standards set out in Manual for Streets In order to establish what an appropriate lateral visibility splay would be, speed surveys have been carried out along Littlemoor Rd

4.2.5 In order to provide a robust assessment, traffic speeds were not surveyed through the adjacent bends but rather were surveyed slightly further to the north on a straight section of road approximately 65m from the proposed access It was found that average speeds were just below 22mph and the 85th percentile speed was around 25mph in both directions.

4.2.6 Examining Table 7.1 in Manual for Streets (page 91 of that document), it can be seen that for a road with 85th percentile speeds of 25mph a lateral visibility splay of 31m would be appropriate.

4.2.7 It should be noted that Table 7.1 quotes stopping sight distances, but paragraph 7.7.10 states that the Y distance should be based on the values for stopping sight distance in Table 7.1. Consequently, lateral visibility splays of 31m (from an X distance of 2.4m) are suggested by Table 7.1

4.2.8 It can be seen from **Plan 4** that visibility splays of 2.4 x 43m are achievable in both directions. It should also be noted that it is likely that even the guidance value of 31m could be reduced since the visibility splays can be measured to the path of oncoming traffic rather than the near side kerb and traffic speeds at the bend in the vicinity of the access will be even lower than those recorded in the traffic survey.

4.2.9 It is considered that the proposed access is therefore appropriate in terms of lateral visibility and stopping sight distance.

5 ACCESSIBILITY BY SUSTAINABLE TRANSPORT MODES

5.1 Introduction

5.1.1 Current national and local policy on transport aims to promote and encourage the use of more sustainable transport choices for people when travelling for work, shopping or for leisure

5.1.2 In order to gauge the proposal against current transport policy, this section considers the accessibility of the development site by non-car modes.

5.2 Proposed Development Multi-Modal Trip Generation

5.2.1 The DfT document 'Guidelines for Transport Assessment' (2007) recommends that multi-modal trip generation should be calculated for proposed developments.

5.2.2 The TRICS database was interrogated for privately owned houses in developments consisting of 0 to 100 units, to have some consistency with the proposed development of 49 dwellings. However, every site varies in detail and actual modal share can depend upon a wide variety of factors. Indicative trip rates were obtained for walking, cycling and public transport use, and these are summarised in **Table 1** below, while the full TRICS output can be found in **Appendix D**.

Table 1 Multi-Modal Trip Rates per dwelling for 0 -100 dwellings

Mode	Time Period	Arrivals	Departures	Two-Way
Walking	AM (08:00 - 09:00)	0.068	0.252	0.320
	PM (17:00 - 18:00)	0.093	0.063	0.156
Cycling	AM (08:00 - 09:00)	0.009	0.019	0.028
	PM (17:00 - 18:00)	0.019	0.011	0.030
Public Transport	AM (08:00 - 09:00)	0.016	0.032	0.048
	PM (17:00 - 18:00)	0.021	0.014	0.035

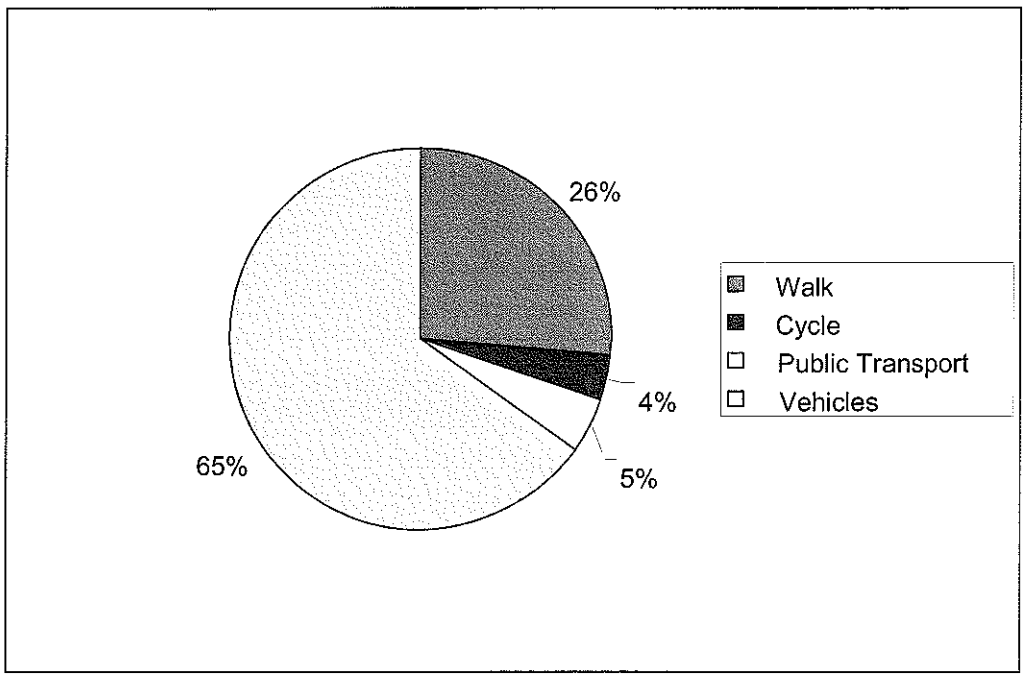
5.2.3 These trip rates have been multiplied by the 49 units to give the total likely trips generated by the site. The peak hour trips generated are shown in **Table 2**. The methodology for calculating the vehicular trip generation of the proposed development is described in Section 6 of this report

Table 2 Multi-Modal Trip Generation 49 Dwellings

Mode	Time Period	Arrivals	Departures	Two-Way
Walking	AM (08:00 - 09:00)	3	12	15
	PM (17:00 - 18:00)	5	3	8
Cycling	AM (08:00 - 09:00)	1	1	2
	PM (17:00 - 18:00)	1	1	2
Public Transport	AM (08:00 - 09:00)	1	2	3
	PM (17:00 - 18:00)	1	1	2

5.2.4 Based on the above trip generation, and the vehicular trip generation calculated elsewhere in this report, the overall modal share (based on total AM/PM peak trips) has been calculated, and is shown in **Chart 1**.

Chart 1 Modal Share: Proposed 4 Acres Development



5.2.5 The data in **Chart 1** suggests that, on the basis of the TRICS exercise, non-vehicular modes of transport may form a significant proportion of the total trips generated by the site, making over one third of the total. Therefore, there will be a clear need for sufficient infrastructure and services to meet the demand for non-vehicle trips. This provision is considered in the remainder of this chapter.

5.3 Accessibility on foot

5.3.1 It is generally accepted that walking is the most important mode of travel at the local level and walking offers the greatest potential to replace short car trips, particularly under two kilometres. The site has direct pedestrian access to Littlemoor and Whalley Road via the footpath to Park Street.

5.3.2 The surrounding residential area and the A671 Whalley Road have good pedestrian footways and are well lit. Littlemoor Road towards Clitheroe has a provision of footways along its length. The presence of footways leading into the countryside enhances the accessibility of the surrounding local community.

5.3.3 Regarding walking distances to the site, reference has been made to the Institution of Highways and Transportation (IHT) publication "Guidelines for Providing Journeys on Foot". The general accepted walking distances for commuting, school and sight-seeing for the proposed development suggested by the IHT is 1,000m with a preferred maximum of 2,000m.

5.3.4 **Plan 5** has been prepared to illustrate approximate 1km (12 minutes) and 2km (24 minutes) walk catchments. It should be noted that this has been illustrated as a simple radius about the centre of the site, and it is recognised that the actual walking catchments will be limited by the alignment of roads and footpaths. Therefore the radius shown should be taken as a maximum. An indicative walking speed has been taken from the Institution of Highways and Transportation (IHT) document entitled "Guidelines for Providing for Journeys on Foot", which states that an average walking speed of approximately 1.4m/s can be assumed in most cases.

5.3.5 **Plan 5** illustrates that the majority of Clitheroe can be accessed within a 2km walk from the site. The catchment includes Clitheroe transport interchange (train station and bus station), the town centre, a large number of schools and health facilities as well as job opportunities. More particularly, the main Clitheroe shopping area, a number of bus services, schools and leisure facilities are all located within a 1km walk from the site. Of course the petrol station/shop abuts the site and hence provides a shop on the edge of the development.

5.3.6 Therefore the site is well located to the surrounding areas; to Clitheroe town centre; and to public transport facilities. Walking for work and leisure trips and to local facilities would be a realistic choice of travel.

5.4 Accessibility by Cycle

5.4.1 It is generally accepted that cycling has the potential to substitute for short car trips, particularly those under 5km and to form part of a longer journey by public transport.

5.4.2 There are intermittent cycle lanes located on the A671 Whalley Road and they are present in the vicinity of the junction with Litttlemoor. Pendle Road benefits from cycle signs and the A59 / Pendle Road / Clitheroe Road junction benefits from a marked out cycle crossing.

5.4.3 **Plan 6** illustrates the 3km (15 minutes) and 5km (25 minutes) cycling catchment from the site, recognised as acceptable cycling distances at a speed of 3.3m/s.

5.4.4 **Plan 6** illustrates that the 3km catchment includes all of Clitheroe. That includes the transport interchange, the town centre, the hospital and many shopping, job and

educational opportunities. The 5km catchment extends to Waddington, West Bradford and Chatburn in the north and Whalley to the south.

5.4.5 As is the case with **Plan 5**, it should be noted that **Plan 6** has been illustrated as a simple radius about the centre of the site, and it is recognised that the actual cycling catchments will be limited by the alignment of roads and cycleways. Therefore the radius shown should be taken as a maximum.

5.4.6 **Plan 6** also illustrates the location of regional cycle routes 90 and 91 which are accessible from the site. Cycle route 91 is located approximately 70m from the site and runs from Pendleton, along Pendle Road from the A59 / Pendle Road / Clitheroe Road junction for a short distance before continuing north along a small unclassified road. The A59 / Pendle Road / Clitheroe Road junction benefits from marked out cycle crossing facilities. Cycle route 91 is part of the Lancashire Cycleway and it is a circular route from Ormskirk in the south to Colne via Blackburn.

5.4.7 Therefore, the land is well located to the surrounding areas and cycling for work and leisure trips and to local facilities would be a realistic choice of travel.

5.5 Accessibility by Public Transport

5.5.1 The Institution of Highways and Transportation (IHT) document 'Guidelines for Planning for Public Transport in Developments' (1999) recommends new developments should be located so that public transport trips involve a walking distance of less than 400m from the nearest bus stop or 800m from the nearest rail station.

5.5.2 The nearest bus stops are located on Whalley Road, less than 500m from the centre of the site. Residents on the proposed site would be able to benefit from these bus stops. As shown in **Plan 7**, more than a dozen different bus services include this part of Walley Road in their route during the week.

5.5.3 There are a large number of bus services running along Whalley Road and two circular bus services serving the surrounding residential area. During the Summer period a circular bus service also runs along Pendle Road.

5.5.4 The large number of bus services accessible from the bus stops on Whalley Road can be accessed from the proposed site. Table 1 in **Appendix B** presents the bus service routes and the frequency of the services which are accessible from the proposed site.

5.5.5 **Appendix B** shows that the nearest bus services to the site. The bus services run to nearby towns such as Whalley and Wilpshire as well as further afield major urban areas such as Preston, Blackburn and Bolton. There is a good frequency of buses Monday to Saturday daytime. Although reduced, there are also bus services available during the evenings and on Sundays.

5.5.6 The site is also well located for train travel, with the nearest railway station being within approximately 1.25km of the site. Clitheroe Railway Station offers an hourly service to Manchester Victoria. During its route the train stops at the surrounding towns as Whalley, Langho and Ramsgreave and Wilpshire.

5.6 Summary

5.6.1 The multi-modal trip generation for the site suggests that there will be a significant demand for non-vehicular modes of transport from the site

5.6.2 Analsysis of existing infrastructure and services suggests that the site is well-located to meet the demand for each of these modes. There are existing public footpaths adjacent to the site and residents will be in close proximity to cycle routes and facilities, and there are existing bus services accessible within an acceptable walk distance of the site. In addition, Clitheroe transport interchange is accessible on foot by cycle or bus.

5.6.3 It is therefore clear from the analysis of walking and cycling infrastructure, and of public transport services, that there is sufficient provision to support these trips, and indeed significantly higher levels.

6 DEVELOPMENT PROPOSALS TRIP GENERATION AND DISTRIBUTION

6.1 Introduction

6.1.1 The following section provides an analysis of traffic on the local highway around the site. Potential network traffic growth; the impact of local committed development traffic and traffic generated by the proposed development are analysed to provide an estimate of peak hour traffic on the network in an opening year of 2013

6.2 Existing Vehicular Trip Volumes

Manual traffic count surveys with queue observations were undertaken in the vicinity of the proposal site on Thursday 23rd September 2010 at A671 Whalley Road / Littlemoor / Beverley Drive four-arm priority junction by a third party traffic survey company.

6.2.1 The morning and evening peak hours were derived from the traffic counts as 08:00 – 09:00 hrs, and 17:00 – 18:00 hrs respectively. The attached **Figure 1** illustrates the traffic flows (in PCUs) observed during these two periods.

6.2.2 The Traffic Survey Data used during this exercise can be found in **Appendix C**.

6.3 Traffic Growth

6.3.1 To account for possible increases in background traffic between the 2010 survey and the 2013 opening year, a National Road Traffic Forecast (NRTF) growth factor was applied to the survey data.

6.3.2 The NRTF 'low growth' factor was deemed appropriate to provide an estimate of future network flows, and was chosen for two reasons. Firstly, prevailing economic conditions have had a negative effect upon traffic growth, meaning historical predictions should be accepted cautiously. Secondly, possible traffic growth is partly accounted for by the inclusion of committed development, and the proposed development, separately within the assessment. Using a low growth rate therefore mitigates the potential for 'double counting' possible traffic growth, although even the low growth rate may cause a slight overestimation of future traffic.

6.3.3 The 2010 surveyed flows with the growth factor of 1.034 applied, giving the 2013 network flows, are shown in **Figure 2**.

6.4 Committed Development Traffic

6.4.1 Land adjacent to the site, previously Barker's Nursery, has received planning approval for 30 apartments, 2 houses and a 40-bedroom nursing home. A TRICS exercise was undertaken to estimate the trips likely to be generated by this development. These trips were then distributed to and from the site according to the trip distribution proportions, as described in Section 6.5.

6.4.2 **Figure 3** shows the committed development trips and their distribution on the local highway network. **Figure 4** shows these trips added to the 2013 network trips, to give the total likely flows for a future year of 2013 before any development on the Four Acres site.

6.5 Trip Distribution

6.5.1 National Census data has been interrogated to provide an estimate for the distribution of trips generated by the proposed development. The data provides the local ward that a respondent lives in and the area that the respondent travels to for work. The mode of transport can be adjusted, and travel by car was selected. The Travel to Work dataset was obtained for the Littlemoor ward, showing the number of respondents travelling to different areas for work, as shown in the full Census output in **Appendix G**. The location of areas within Clitheroe can be found in **Plan 8**.

6.5.2 The subsequent routes were established using a route planner from a central point of the ward to the destination. **Table 3** presents the main routes and areas that are travelled to for people living in Clitheroe.

Table 3: Distribution of Journeys to Work, People Living in Clitheroe

Area/Route	Littlemoor	Primrose	Salthill	St. Mary's	Edisford and Low Moor	Average
South A59	53%	41%	48%	43%	42%	**45%**
North A59	7%	6%	8%	10%	6%	**7%**
Northwest B6478	1%	3%	4%	3%	2%	**3%**
Littlemoor	10%	4%	3%	4%	4%	**5%**
Sathill	14%	18%	17%	15%	14%	**16%**
Primrose	6%	11%	4%	4%	6%	**6%**
Edisford and Low Moor	1%	2%	2%	1%	9%	**3%**
St. Mary's	8%	11%	8%	14%	11%	**10%**
Clitheroe Rd	0%	1%	1%	0%	0%	**0%**
B6243	0%	1%	3%	3%	4%	**2%**
Total	**100%**	**98%**	**98%**	**97%**	**98%**	**98%**

6.5.3 As the Four Acres site is located within the Littlemoor ward, the results for that ward could be taken as a proxy for the journeys made by the residents of the proposed development. It can be seen from the journey to work data that the majority of trips to work (60%) use the A59 with very few passing through the town (9%) to the routes leading to the north.

6.5.4 The routes that these would take at the site access junction and at the Whalley Road/Littlemoor priority junction were aggregated to give trip distribution percentages for every movement at these two junctions. The trip distribution at these two junctions is shown in **Figure 5**.

6.5.5 To validate the Census-derived trip distribution, the calculated turning proportions into and out of Littlemoor at the Littlemoor/ Whalley Road priority junction were compared to the turning proportions found in the 2010 survey data. The comparison is shown in **Table 4** and **Table 5** below.

Table 4 Comparison of Turning Proportions into Littlemoor

Movement	Survey %	Distribution %	Difference
Whalley Rd – Littlemoor	10.3 (AM) 22.8 (PM)	14.5 (AM) 31.5 (PM)	4.2% 8.7%
Primrose Br – Littlemoor	89.7(AM) 77.1 (PM)	85.5(AM) 68.5 (PM)	4.2% 8.6%

Table 5 Comparison of Turning Proportions from Littlemoor

Movement	Survey %	Distribution %	Difference
Littlemoor – Whalley Rd	11.4 (AM) 15.8 (PM)	14.5 (AM) 11.1 (PM)	6.2% 4.7%
Littlemoor – Primrose Br	88.6 (AM) 84.2 (PM)	85.5 (AM) 88.9 (PM)	6.2% 4.7%

The above tables show that the proportion of turning flows in the survey data and in the calculated generated trips are within 10% in all cases. Therefore, the National Census data (which describes "journeys to work") can be accepted as a valid representation of vehicle movements to and from the site.

6.6 Proposed Development Vehicular Trip Generation

6.6.1 The TRICS database was interrogated for privately owned houses in developments consisting of 0 to 100 units, to have consistency with the proposed development of 49 dwellings. The trip rates obtained are summarised in **Table 6** below.

Table 6 Trip Rates per dwelling for 0 -100 dwellings

Time Period	Arrivals	Departures	Two-Way
AM (08:00 - 09:00)	0.171	0.397	0.568
PM (17:00 - 18:00)	0.366	0.22	0.586

As noted in Section 1, these trip rates have been multiplied by 60 units (as per the initial proposals) to give a robust assessment of trips generated by the site. The peak hour trips generated are shown in **Table 7** below.

Table 7 Vehicular Trip Generation 60 Dwellings

Time Period	Arrivals	Departures	Two-Way
AM (08:00 - 09:00)	10	24	34
PM (17:00 - 18:00)	22	13	35

6.6.2 The trips likely to be generated by a 60 unit development were then distributed according to the percentages shown in **Figure 5**, to give the proposed development flows for every movement at the site access junction and the Whalley Road/ Littlemoor priority junction. These flows are shown in **Figure 6**

6.7 Opening Year Total Flows

6.7.1 To estimate the "with development" flows in the 2013 opening year, the 2013 network traffic was added to the committed development flows and the 60 unit development flows. **Figure 7** shows the forecast movements in 2013 at the Whalley Road/ Littlemoor

priority junction; the committed development site access; and the proposed development site access.

6.8 Traffic Flow Analysis Summary

6.8.1 A trip generation exercise has allowed an estimation of the likely trips resulting from both the proposed development and an adjacent committed development. In addition, a growth factor has been applied to 2010 surveyed existing traffic to take account of possible network traffic growth between 2010 and 2013

6.8.2 The trips generated by the proposed development and the committed development have been distributed to the local highway network according to the patterns established following analysis of National Census travel to work data. These distribution patterns have been validated by comparing the turning proportions into and out of Littlemoor suggested by the analysis, with the actual turning proportions for these movements observed in the 2010 survey data.

6.8.3 Whereas the original proposals were for 60 units the current proposals are for just 49 units. The higher trip generation associated with a 60 dwelling proposal has been retained to ensure a robust assessment

6.8.4 As account has been taken of network traffic growth and committed development traffic, as well as the traffic from a 60 unit development, the with-development flows presented in **Figure 7** can be accepted as robust for the purpose of a opening year junction capacity assessment.

7 POTENTIAL HIGHWAYS IMPACTS

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7.1 Introduction

7.1.1 In order to assess the impact of a 60 unit development on the surrounding highway network, the proposed site access priority junction and the existing Whalley Road/ Littlemoor priority junction have been assessed using the industry standard junction analysis software PICADY (Priority Intersection Capacity and Delay).

7.1.2 PICADY can be used to demonstrate likely queues and vehicle delays at a given priority junction design when traffic flows are input. PICADY also outputs the calculated Ratio of Flow to Capacity (RFC) for the traffic flows that are input by dividing input flows by capacity flows for each movement. Full PICADY outputs can be found in **Appendix H**.

7.2 Whalley Road/ Littlemoor Existing Junction

7.2.1 In order to provide a robust assessment, an assumption has been made that trips from the committed development adjacent to the site will be present in the opening year, as well as a level of background network traffic growth.

7.2.2 As part of the committed development, there are proposals to improve the Whalley Road/ Littlemoor priority junction to increase capacity and reduce delay. It would be possible to assess the junction on the basis of this improved design, in line with the assumption of the additional trips arising from this development.

7.2.3 Again, to provide a robust assessment the junction has been assessed on the basis of the existing layout remaining in place in 2013, but with the trips from the committed development also being in place.

7.2.4 A comparison of the PICADY outputs in the 2010 survey scenario; the base 2013 scenario; and the future 2013 scenario, which includes network traffic growth, committed development trips and trips for a 60 unit development is shown in **Table 4** below.

Table 4 Whalley Rd/ Littlemoor/ Primrose Bridge/ Beverley Dr

Arm		2010 Survey Flows Output			2013 Base Flows			2013 Total Likely Flows Output		
		RFC	Queue (veh)	Mean veh delay (min)	RFC	Queue (veh)	Mean veh delay (min)	RFC	Queue (veh)	Mean veh delay (min)
Whalley Road	AM	0.003	0.00	0.1	0.003	0.00	0.1	0.003	0.00	0.1
	PM	0.015	0.02	0.3	0.020	0.02	0.4	0.020	0.02	0.4
Primrose Bridge	AM	**0.305**	0.90	13.6	**0.331**	1.02	15.4	**0.351**	1.10	16.6
	PM	0.229	0.82	12.5	0.281	1.06	16.1	0.341	1.33	20.2
Littlemoor	AM	0.124	0.04	0.6	0.142	0.16	2.5	0.171	0.21	3.1
	PM	0.105	0.12	1.7	0.117	0.13	2.0	0.135	0.15	2.3
Beverley Drive	AM	0.013	0.01	0.2	0.014	0.01	0.2	0.011	0.01	0.2
	PM	0.013	0.01	0.2	0.013	0.01	0.2	0.014	0.1	0.2

7.2.5 **Table 4** demonstrates that the junction will continue to operate well within its available capacity in 2013 peak hours even with development traffic. Increases to queuing and vehicle delay are modest and the junction would continue to operate well within capacity.

7.2.6 The highest RFC in the 2013 scenario is 0.351, at Primrose Bridge during the AM period, which is only a small increase over the no development 2013 case. This means that the junction would retain 65% spare capacity, even with the current layout and with traffic growth, committed development trips and development trips taken into account.

7.2.7 The relatively small number of trips generated by the site will have a negligible effect on other more distant junctions. Therefore, the proposed development can be regarded as having no material adverse impact on the wider existing highway network.

7.3 Proposed Site Access

7.3.1 The proposed site access is a new priority junction on Littlemoor, as shown in **Plan 4**. Based on this design, the junction has been assessed for the 2013 with-development scenario, which includes growth in background traffic, committed development traffic and development traffic associated with the original 60 unit development.

7.3.2 The outputs of the PICADY junction assessment are shown in **Table 5** below.

Table 5 PICADY Outputs – Proposed Site Access

Arm	AM Flows			PM Flows		
	RFC	Queue (veh)	Mean veh delay (min)	RFC	Queue (veh)	Mean veh delay (min)
Site Access	0.040	0.04	0.6	0.021	0.02	0.3
Littlemoor	0.013	0.01	0.2	0.013	0.01	0.2

7.3.3 **Table 5** illustrates that the site access junction can be expected to operate well within capacity, during both peak periods. There would be minimal queuing and delay to vehicles on Littlemoor as a result of the access and additional traffic.

7.4 Highway Impact Assessment Summary

7.4.1 Even under the robust approach of modelling 60 dwellings when just 49 are proposed, both the existing priority junction at Whalley Road/ Littlemoor, and the proposed site access at Littlemoor are forecast to operate well within capacity in the 2013 peak hour with-development scenario. Both of these junctions should therefore be considered acceptable in operational terms.

8 SUMMARY AND CONCLUSIONS

8.1 Summary

8.1.1 Royal Haskoning (RH) has been appointed by the Trustees of the Standen Estate (TSE) to consider the transport implications of a residential development on land known as the Four Acres site at Littlemoor in Clitheroe, Lancashire.

8.1.2 The Core Strategy Consultation document identifies the area under the control of the TSE as the strategic site for future development.

8.1.3 The application site is surrounded by other existing and committed residential developments and would therefore be in keeping with the character of the area in terms of the transportation impacts of the development

8.1.4 This report has demonstrated that there are existing footpaths adjacent to the site and it is in close proximity to cycle routes and facilities. There are also existing bus services accessible within an acceptable walk of the site and Clitheroe transport interchange is accessible by cycle or bus. The location of the site will therefore help to promote alternatives to the use of the private car and the proposals are therefore consistent with the aims of the Core Strategy Transport Criteria and with PPG13

8.1.5 The site is likely to generate a relatively small number of trips. The main highway junction affected by the development, Whalley Road/ Littlemoor, is forecast to operate significantly within capacity when tested in PICADY for the future opening year traffic scenario. The proposed site access also operates significantly within capacity when tested in PICADY.

8.1.6 No potential safety issues have been identified in the area around the site, which has a good road safety record

8.1.7 Therefore, the impact of the proposed development on the surrounding highway network will be minimal

8.2 Conclusion

8.2.1 Consequent to the analysis in this Transportation Assessment, as summarised above, it is concluded that the proposed development is acceptable in highways transportation and sustainable accessibility terms.

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PLANS

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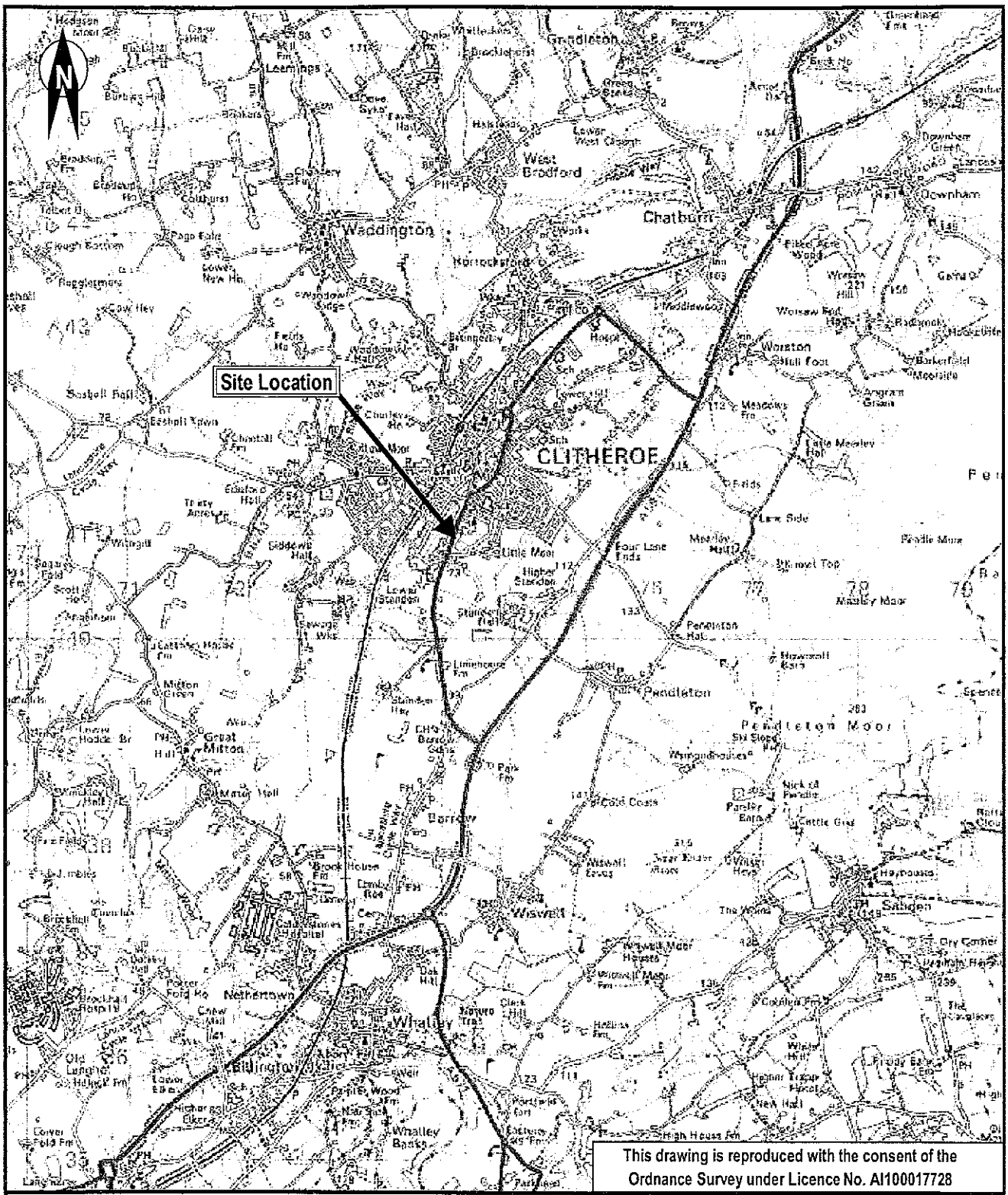

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 1: Location of Proposed Residential Site

Job No: 9V7186

Scale: 1:50,000@A4

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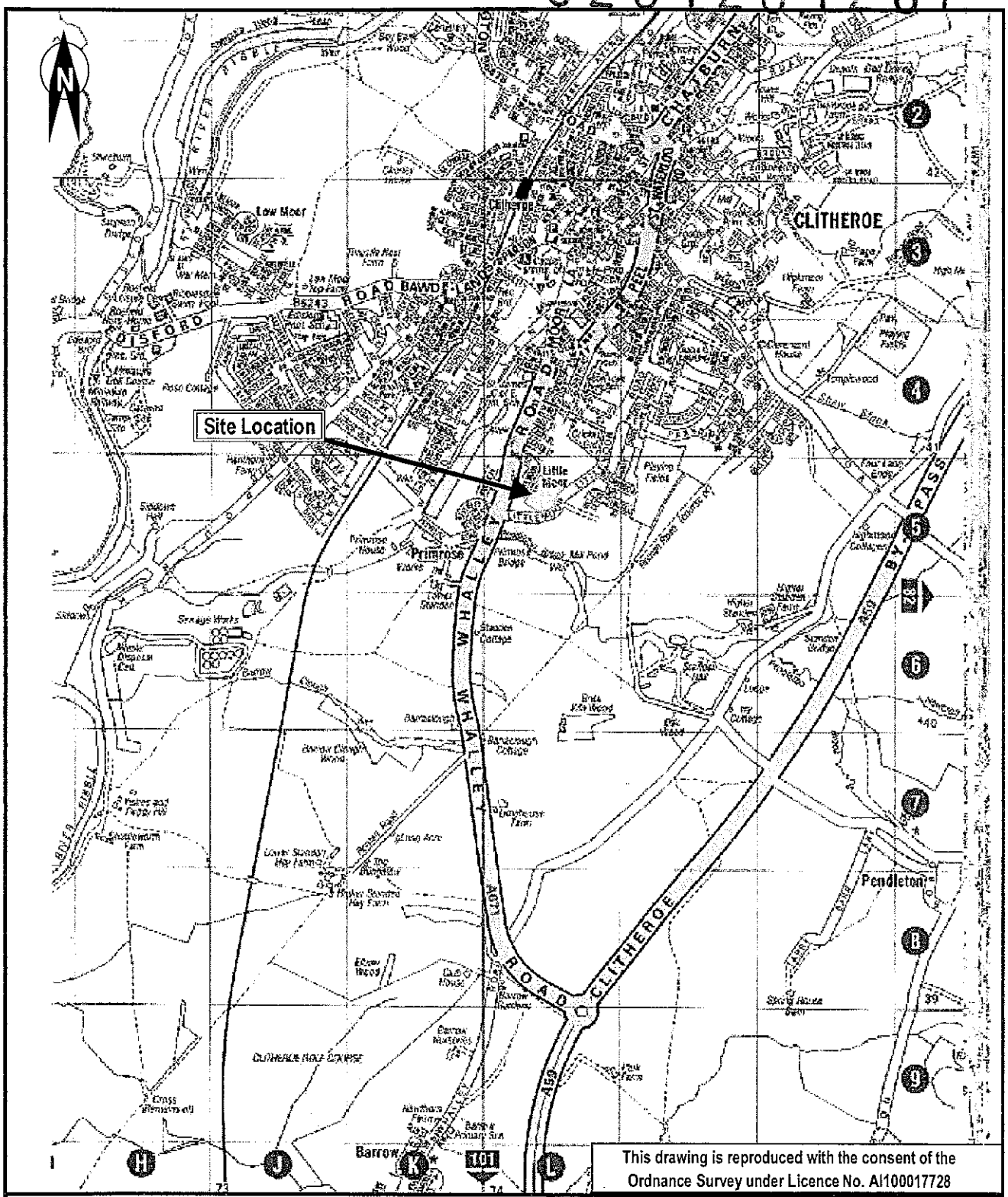

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 2: Local Highway Network

Job No: 9V7186 Scale: NTS

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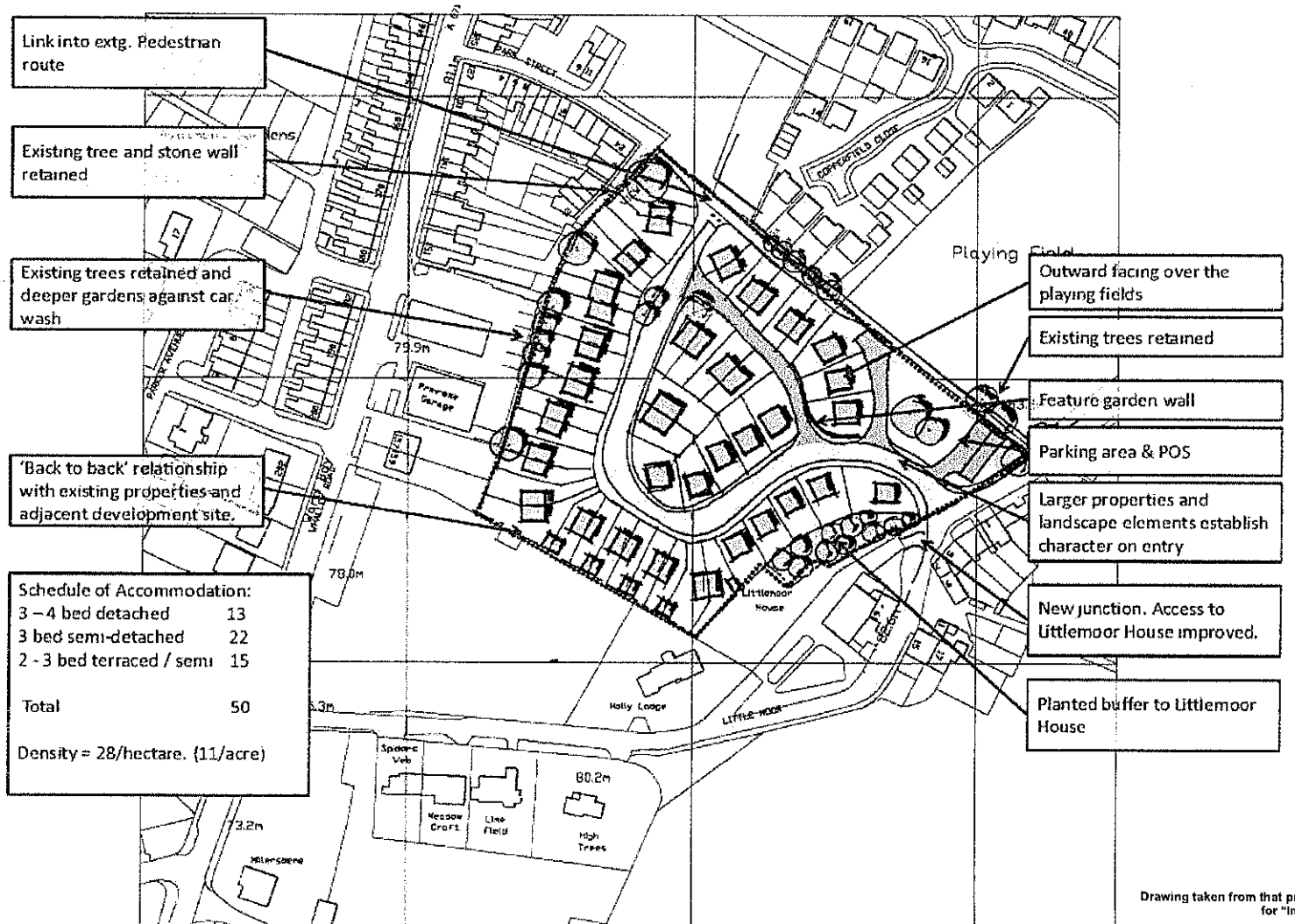
Illustrative Layout



Schedule of Accommodation:

3 – 4 bed detached	13
3 bed semi-detached	22
2 - 3 bed terraced / semi	15
Total	50

Density = 28/hectare. (11/acre)

Drawing taken from that prepared by Taylor Young for "Initial Assessment"report

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 3:Site Layout Plan

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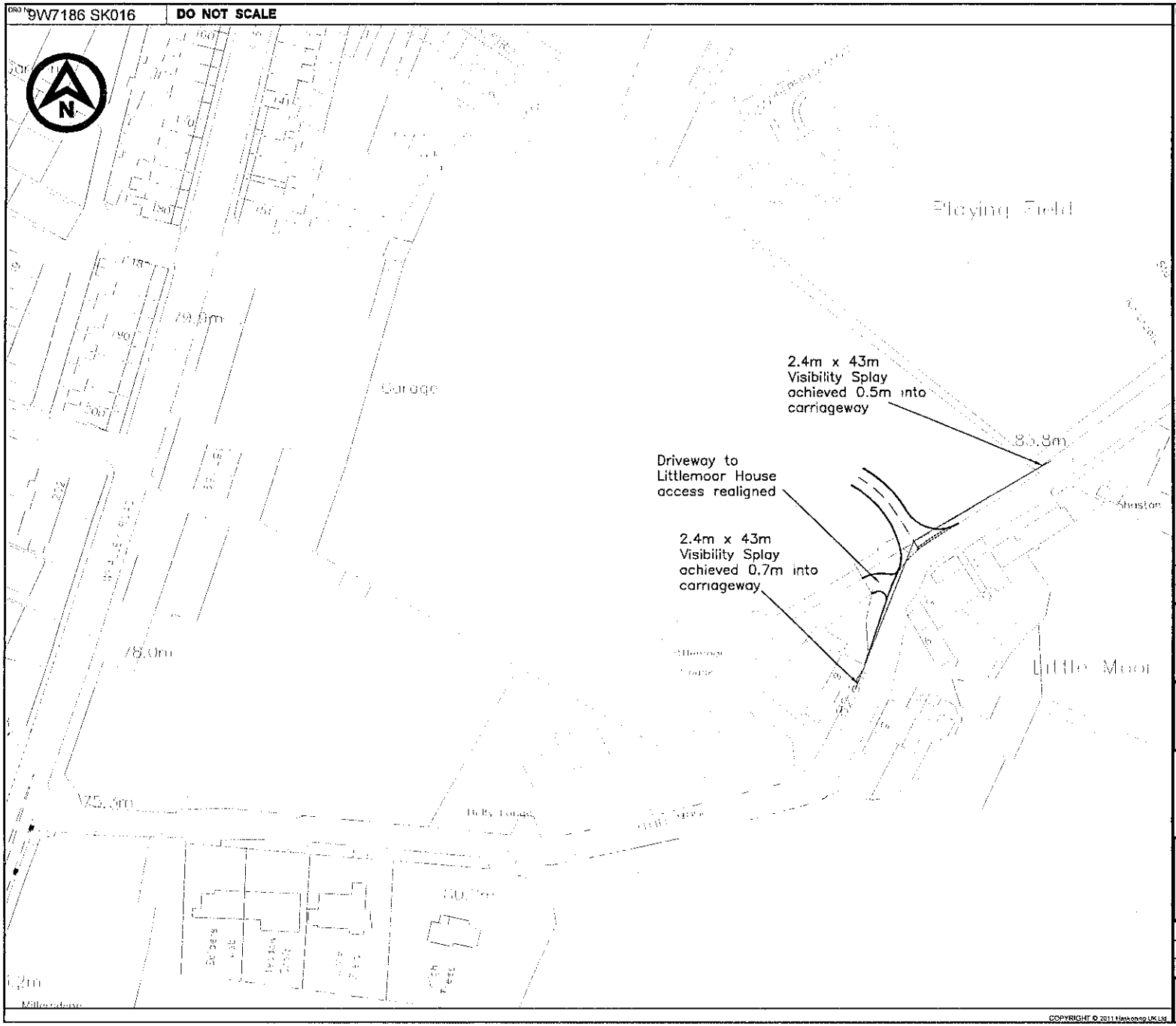
ORG No 9W7186 SK016 | **DO NOT SCALE**



NOTES

PLAN 4

REV	DATE	DESCRIPTION	BY	CHK	APP
A	07.07.11	FIRST ISSUE	CY	DJ	PB

REVISIONS

CLIENT
Standen Estates

PROJECT
Access Feasibility Study

TITLE
Proposed Access

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DRAWN	CHECKED	APPROVED
CY	DJ	DJ
DATE 07.07.11	DATE 07.07.11	DATE 07.07.11
SCALE 1:1000 @ A3	STATUS APPROVAL	

DRAWING No. 9W7186 SK016

REVISION A

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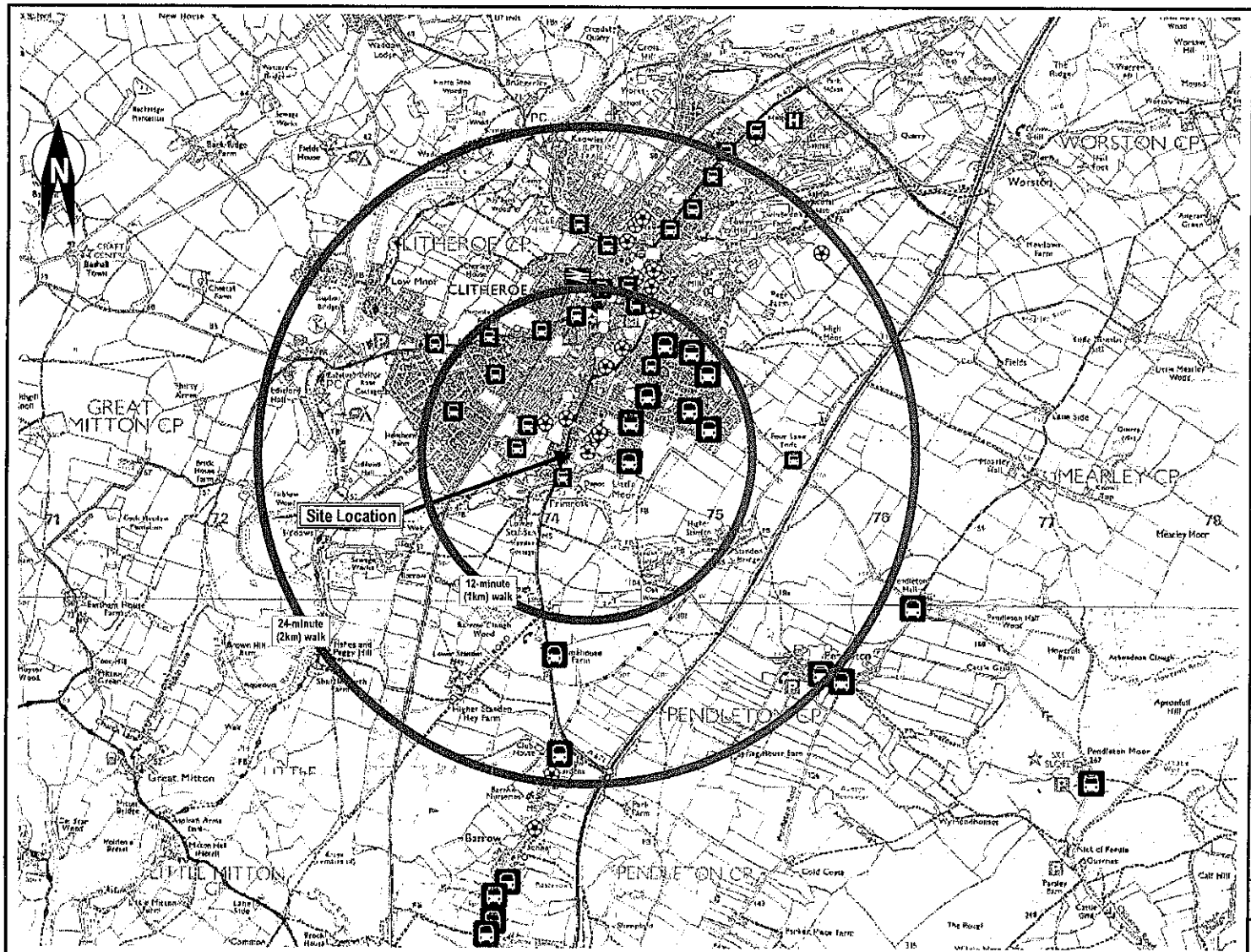

Key:

- Bus Stop
- Pharmacies
- School
- Hospital
- Post Office
- Sports and Leisure Facilities
- Train Stations
- Library
- (Approximate) 1km Walk Catchment Boundary
- (Approximate) 2km Walk Catchment Boundary

Scale: 1:25,000@A3

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 5: 1Km and 2Km Walk Catchment

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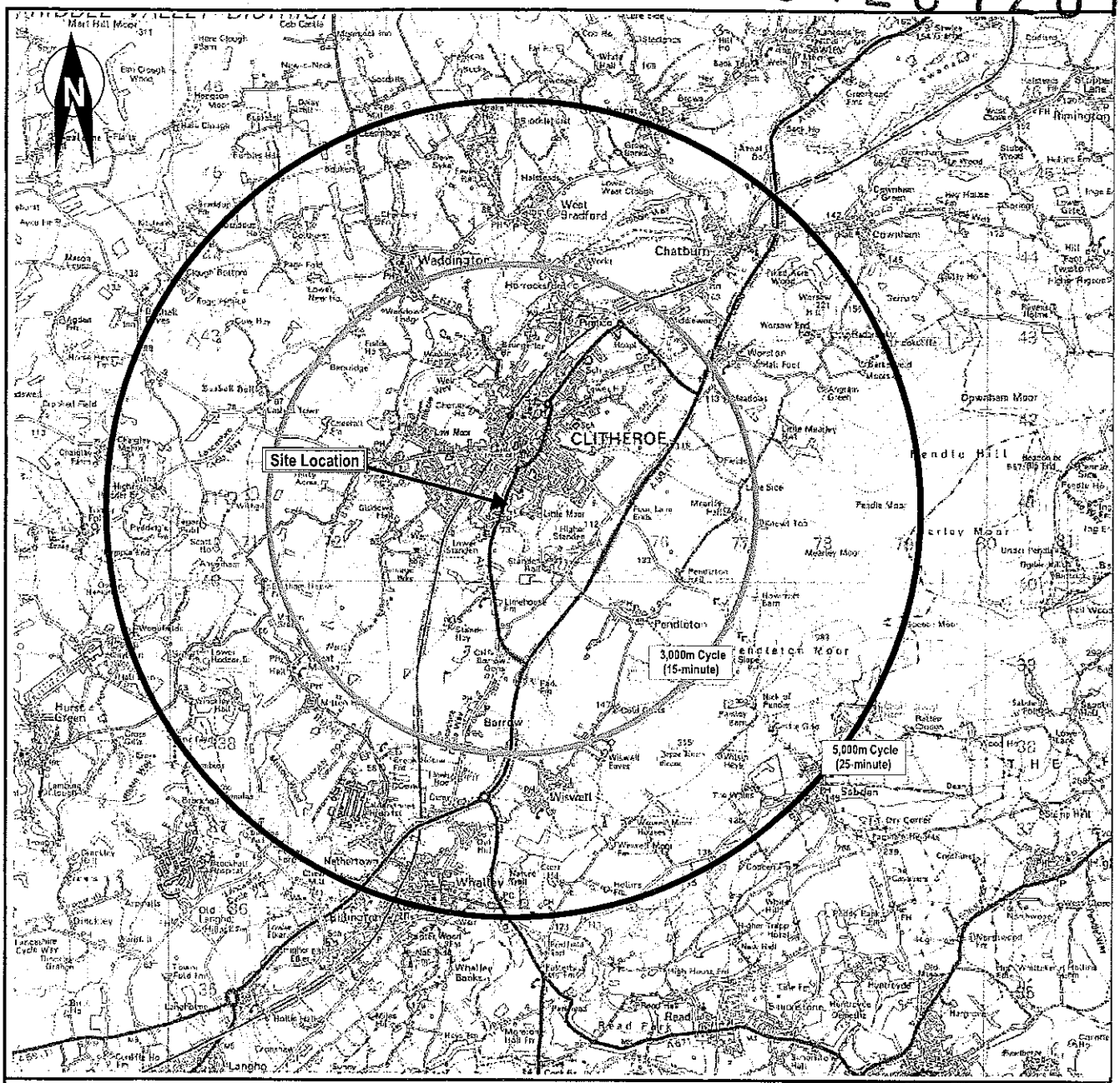

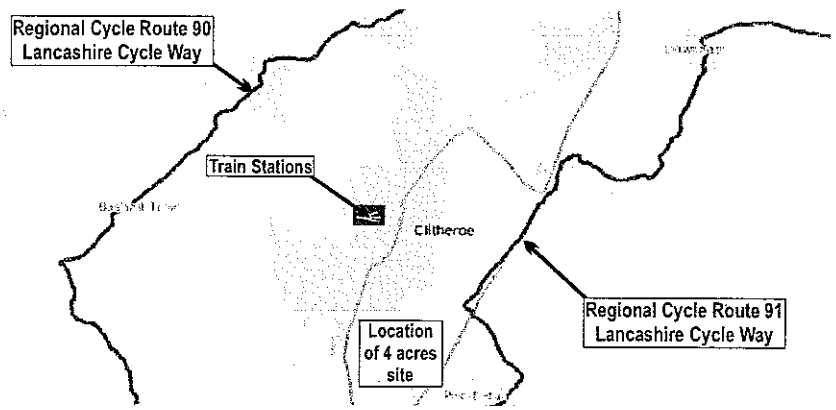

Key:

- On-Road cycle route
- (Approximate) 3km cycle catchment Boundary
- (Approximate) 5km cycle catchment Boundary

Proposed Residential Development on 4 Acres Site Littlemoor

Plan 6: 3Km and 5Km Cycle Catchment

Job No: 9V7186

Scale: 1:50 000@A3

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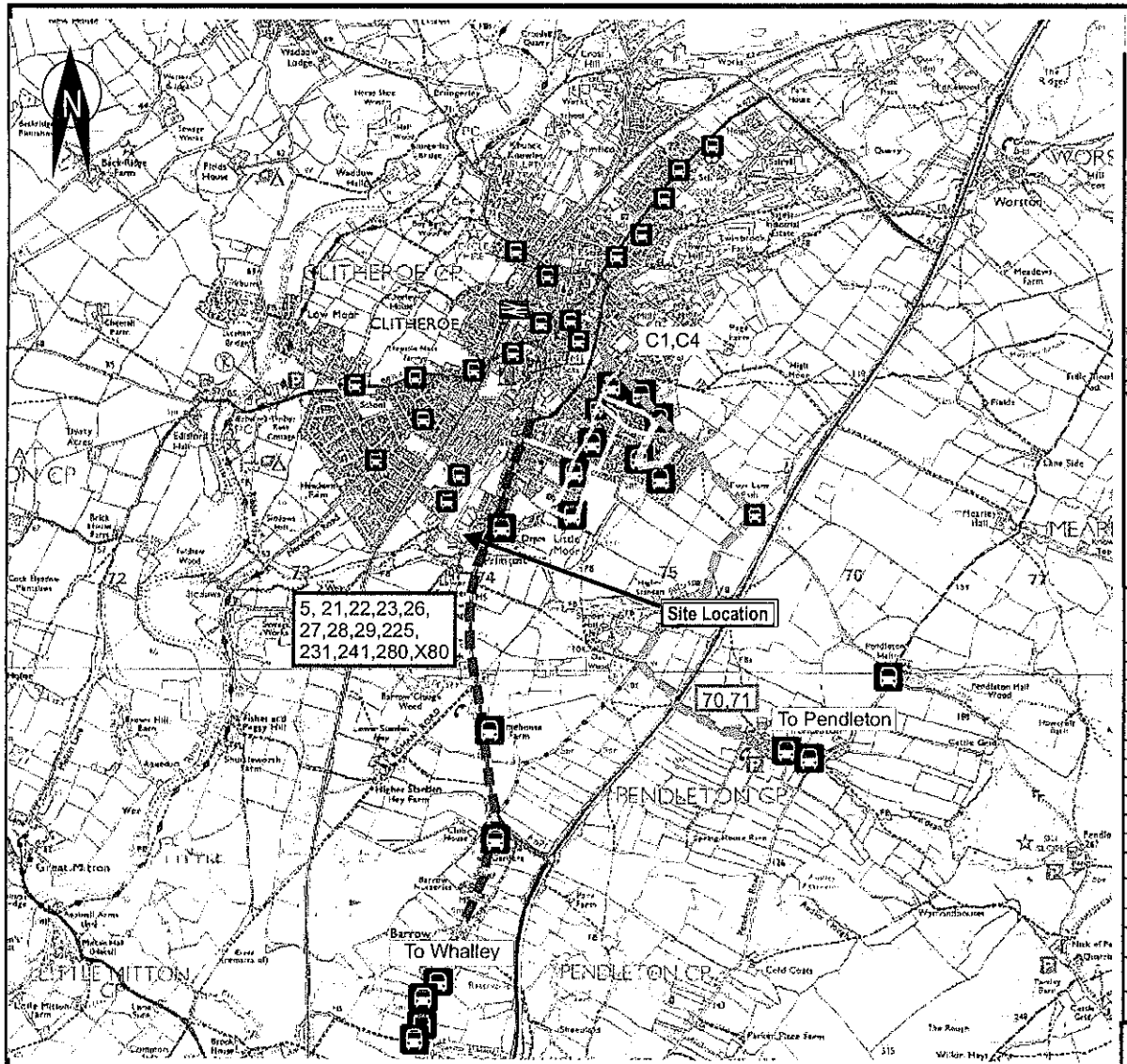
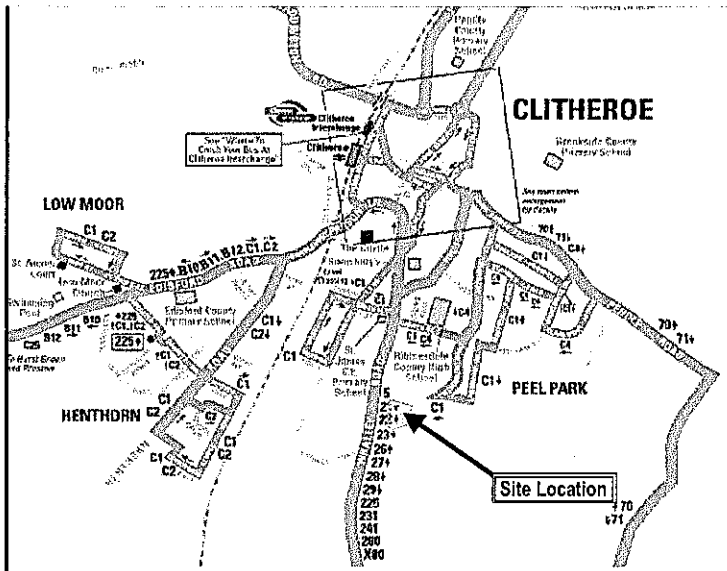


Extract from: Lancashire County Council Clitheroe, Whalley & Longridge Area Service Map



Service No.	Route	Frequency (mins) Monday – Saturday Day	Monday – Saturday Evening	Sunday
Route 225	Clitheroe – Whalley - Wilpshire - Blackburn - Darwen - Bolton	30	60	60
Route 231	Clitheroe - Whalley - Great Harwood - Accrington	60	n/a	n/a
Route 241	Clitheroe - Whalley - Great Harwood - Clayton-le-Moors - Accrington - Oswaldtwistle - Blackburn Royal Hospital	60-110	n/a	n/a
Route 280, X80	Skipton – Barnoldswick (Route 280)/West Marton (Route X80) - Clitheroe - Whalley - Mellor - Preston	60	n/a	120(Route X80 only)
Route 5	Longridge - Ribchester – Whalley - Clitheroe	60-120	n/a	n/a
Route C1	Low Moor - Clitheroe - Peel Park	60	n/a	n/a
Route C2	Sawley - Grindleton – Chatburn – Clitheroe – Low Moor	30-60	n/a	60
Route C4	Clitheroe - Peel Park (Circular)	60	n/a	n/a
Route C5	Clitheroe - Waddington - West Bradford – Clitheroe (Circular)	25-60	n/a	60
Route C15	Clitheroe - Waddington - West Bradford – Clitheroe (Circular)	60	n/a	n/a
Route C25	Clitheroe – Low Moor - Whalley - Brockhall– Dinckley - Wilpshire - Blackburn	60-120	n/a	n/a
The Pendle Witch Hopper P70/P71	Clitheroe - Whalley - Padiham - Burnley - Nelson - Colne	30	60-70	60-70
Bowland Transit B10/B11	Clitheroe - Slaidburn Circulars	60	n/a	n/a
Bowland Transit B12	Clitheroe - Chipping – Garstang (Summer Thursday only from last Thursday in May until last Thursday in October)	One service	n/a	n/a
Pendle Witch Hopper P70/P71	Clitheroe – Chatburn – Downham – Barley – Blacko – Nelson (Monday to Saturday daytime)	60	n/a	n/a
Pendle Witch Hopper 70/71	(Summer Sunday Circular)	n/a	n/a	120

Scale: 1:25,000

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 7: Existing Public Transport Services

Job No: 9V7186 Scale: 1:25,000@A3

Key:

Route of Bus Services: 5,21,22,23,26,27,28,26,225,231,241,280,X80

Route of Bus Services: 70, 71

Route of Bus Services: C1, C4

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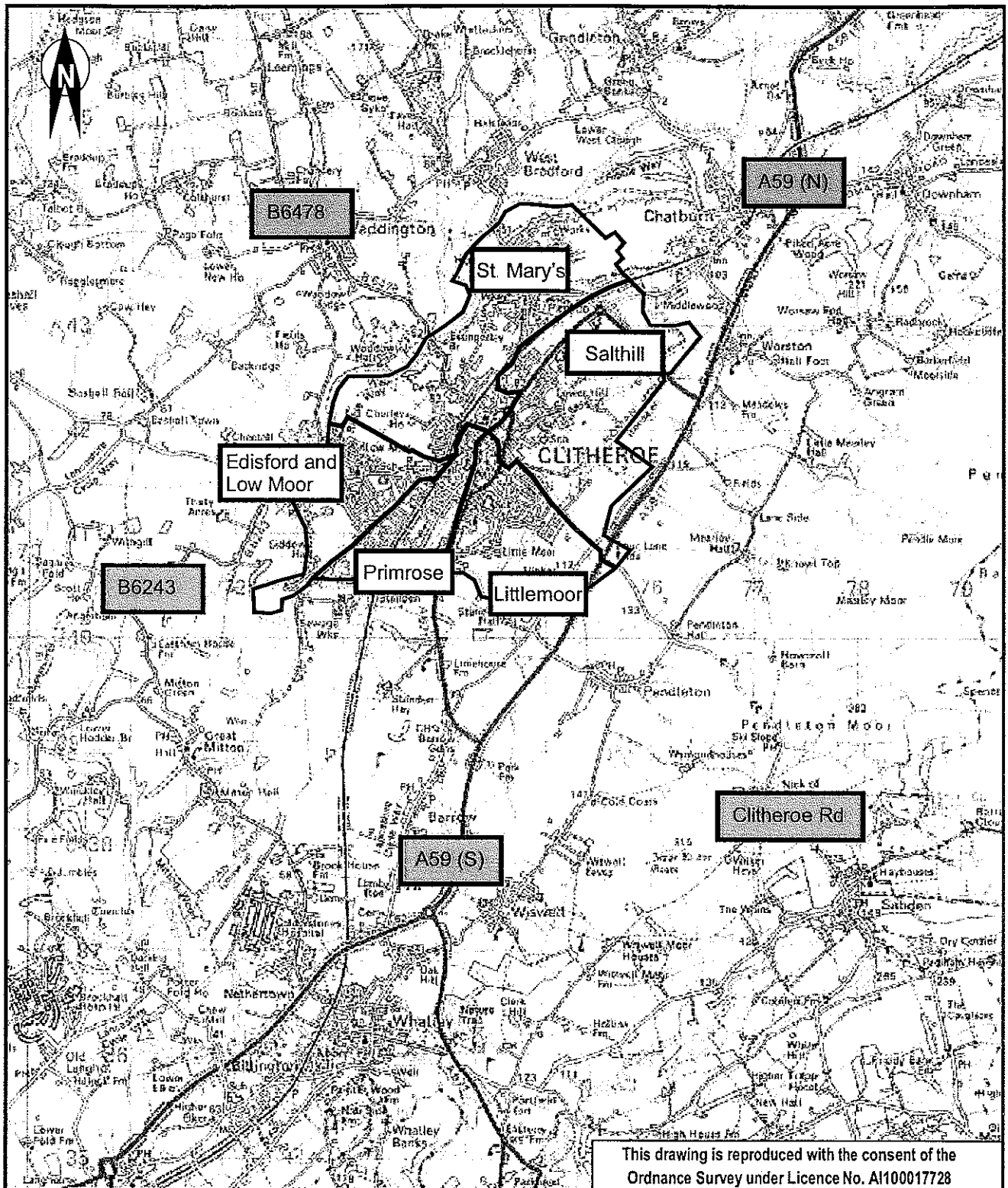

Proposed Residential Development on 4 Acres Site, Littlemoor

Plan 8: Wards and Major Routes

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FIGURES

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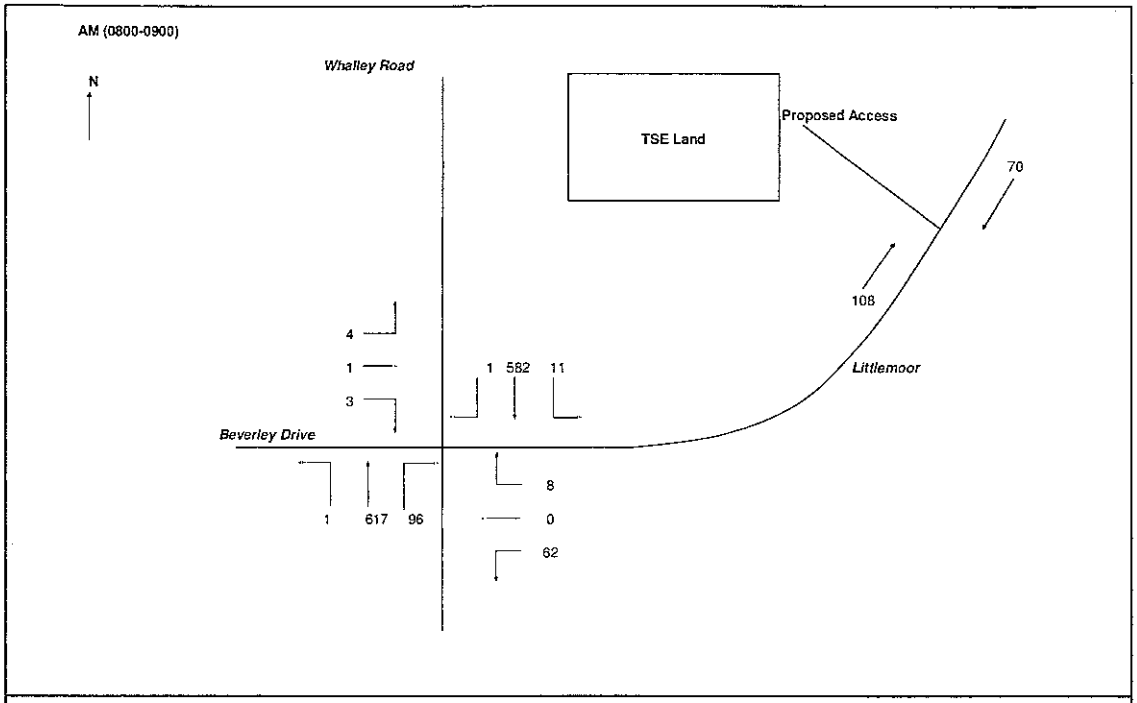

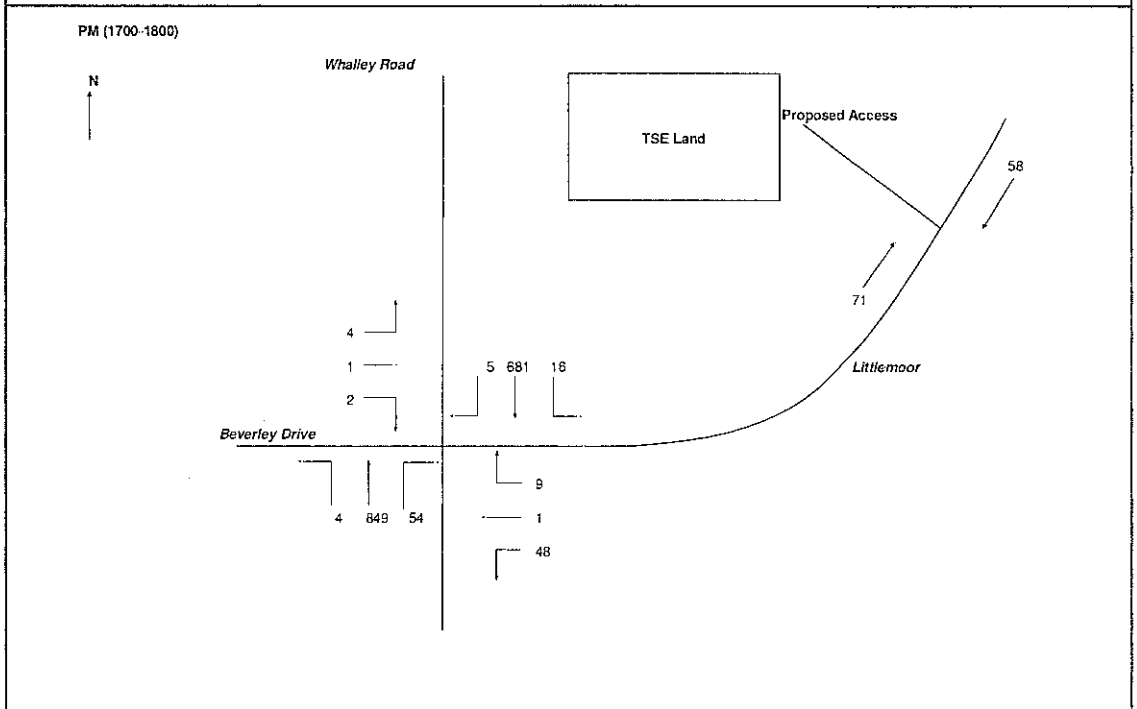

Figure 1:
AM Peak Hour Surveyed Traffic Flows PCUs (2010)
PM Peak Hour Surveyed Traffic Flows PCUs (2010)

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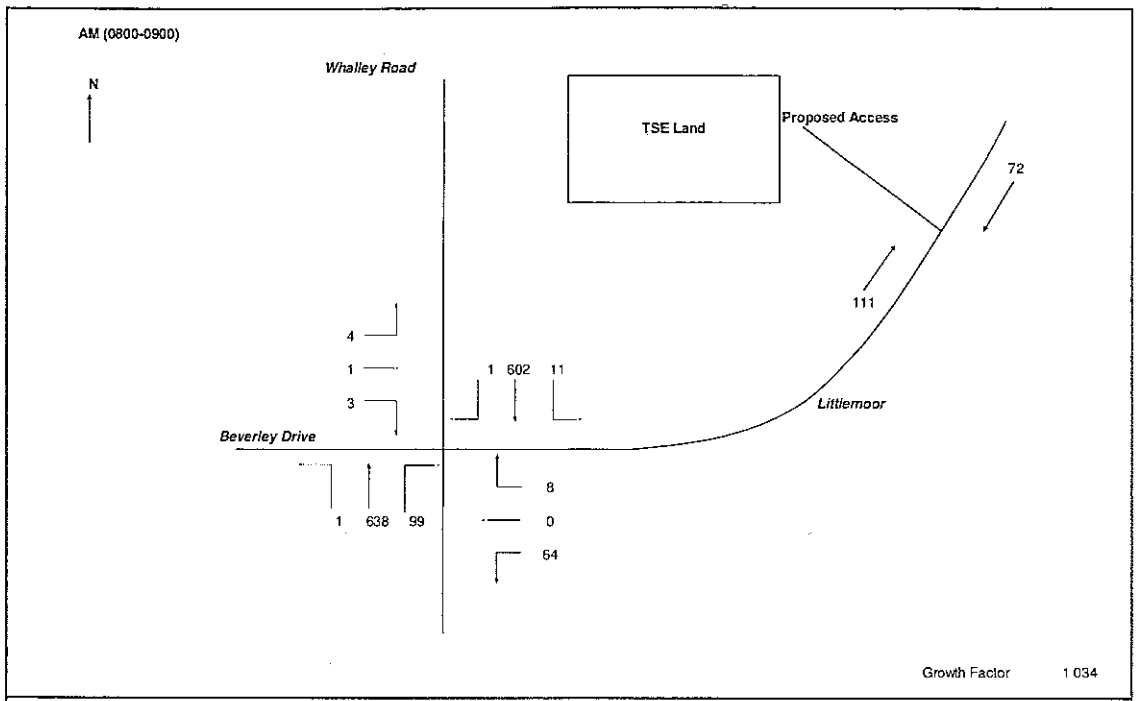

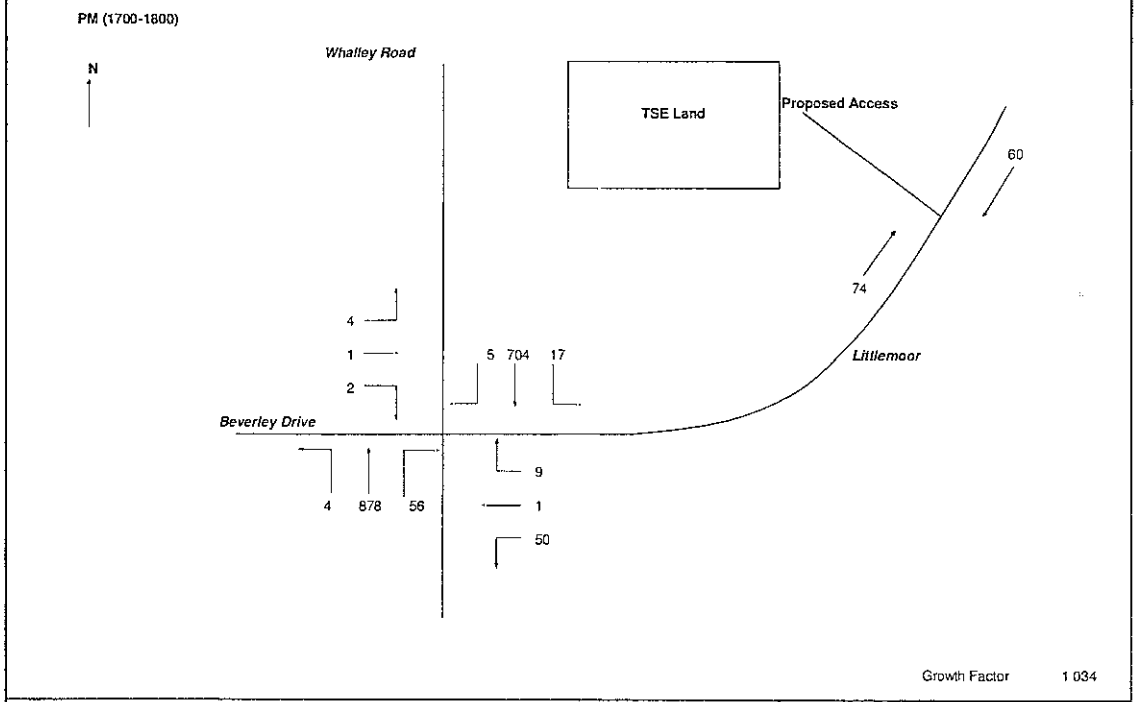

Figure 2:
AM Surveyed Traffic Flows with NRTF Low Growth to 2013
PM Surveyed Traffic Flows with NRTF Low Growth to 2013

NRTF Growth Factor: 1.034

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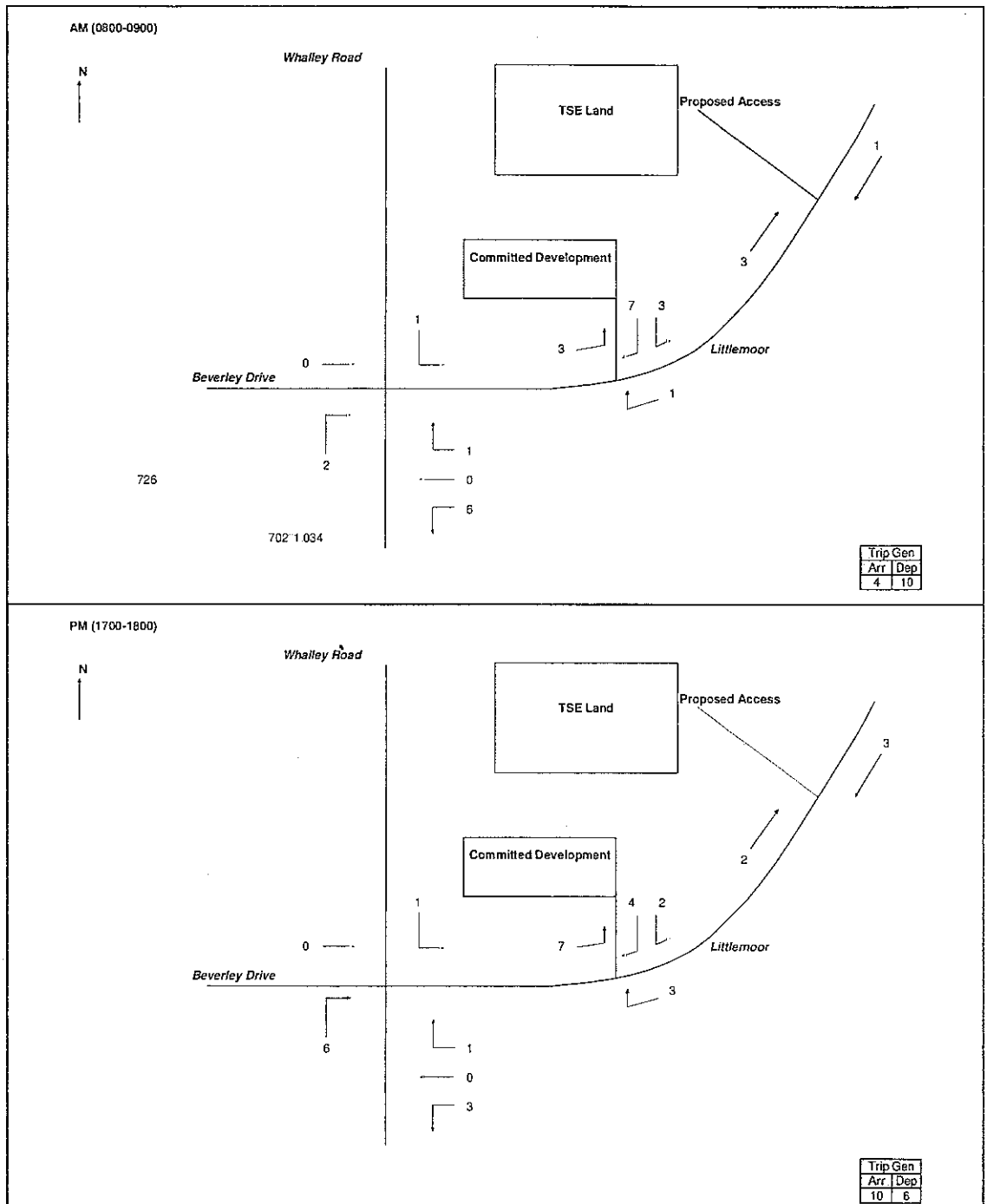

Figure 3:
AM 2013 Committed Development Flows
PM 2013 Committed Development Flows

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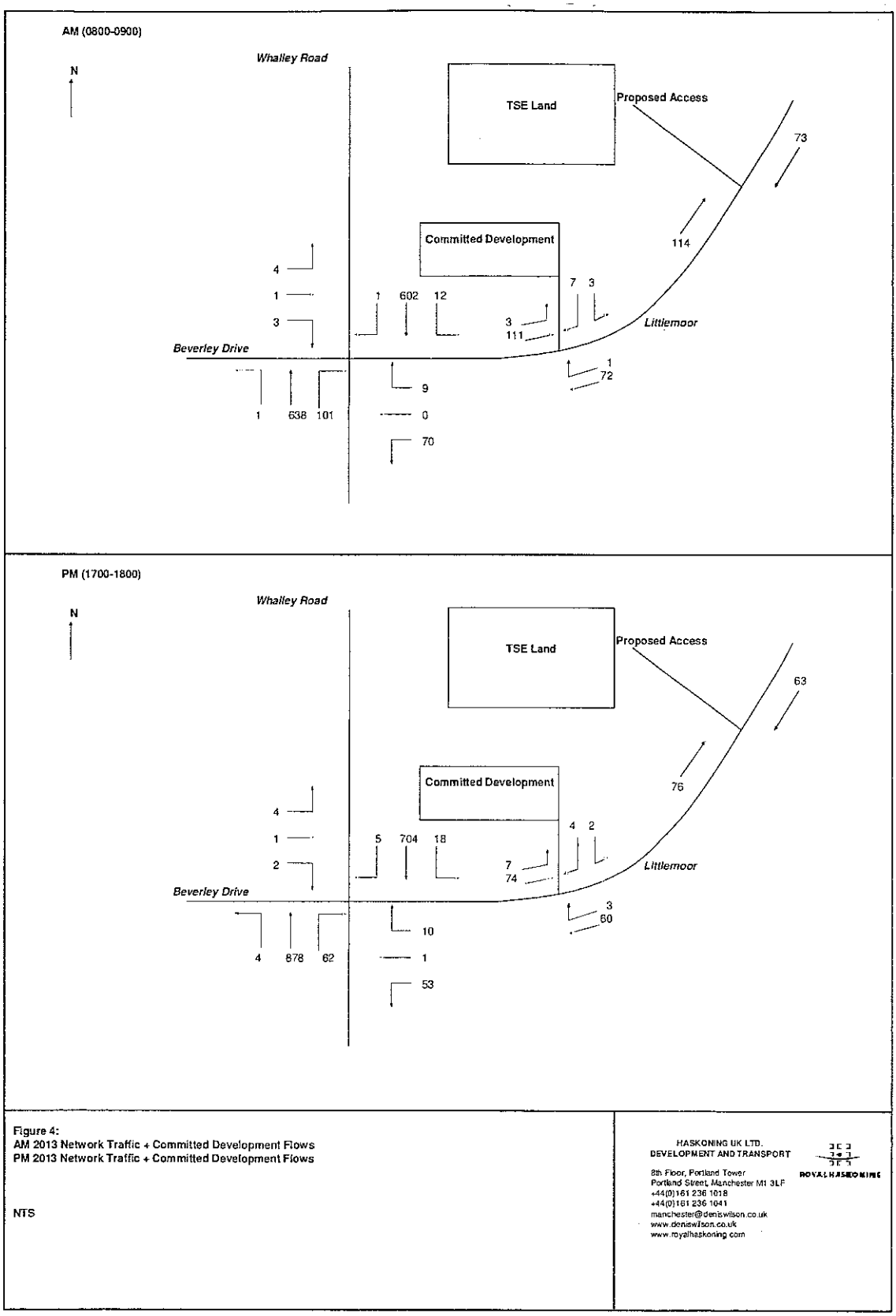

Figure 4:
AM 2013 Network Traffic + Committed Development Flows
PM 2013 Network Traffic + Committed Development Flows

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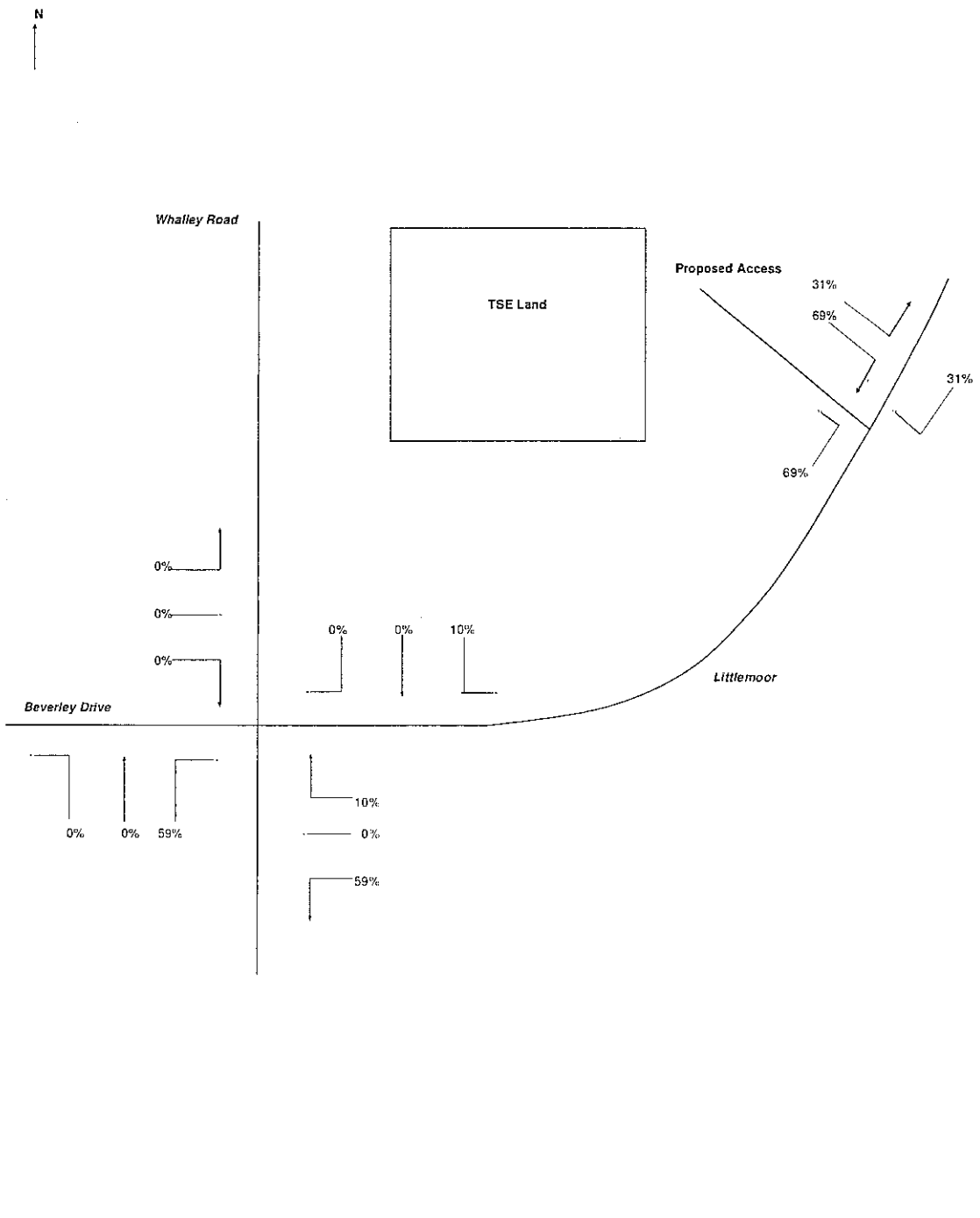

Figure 5:
Proposed Development Trip Distribution

NTS

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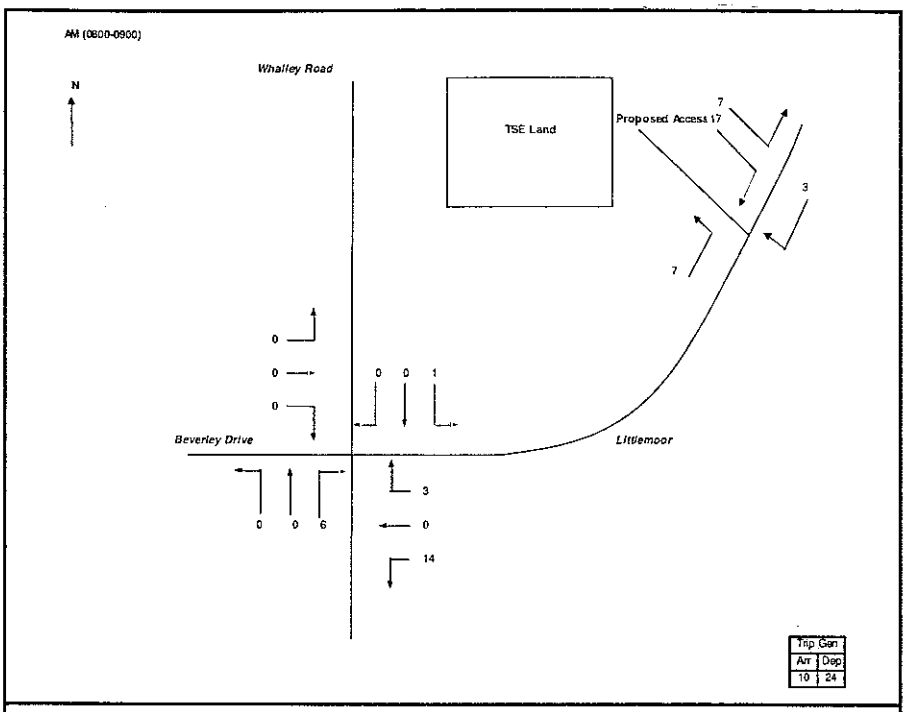

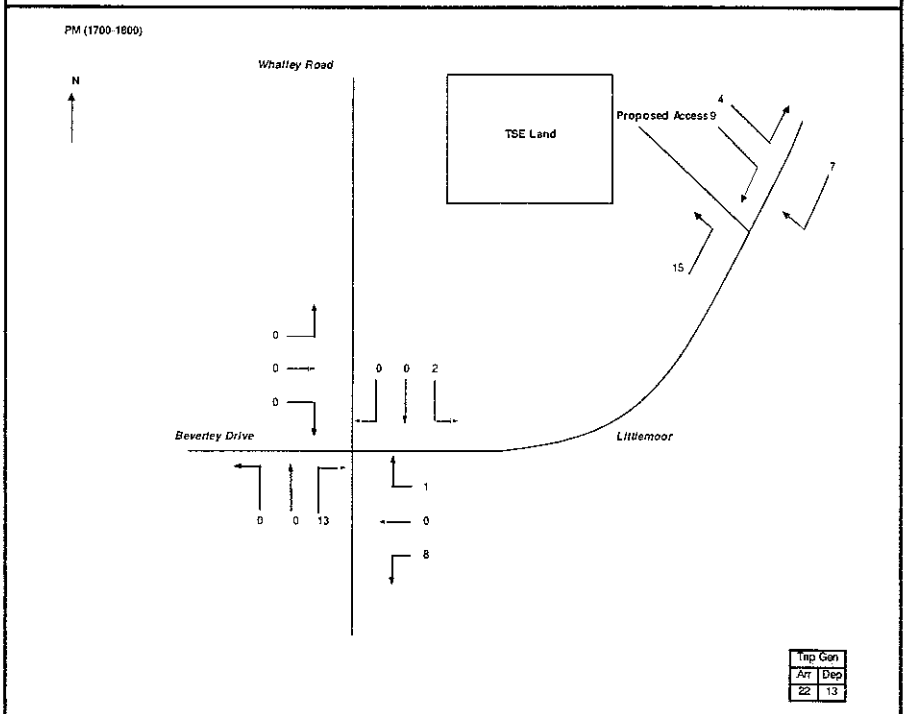

Figure 6:
AM 2013 Proposed Development Flows
PM 2013 Proposed Development Flows

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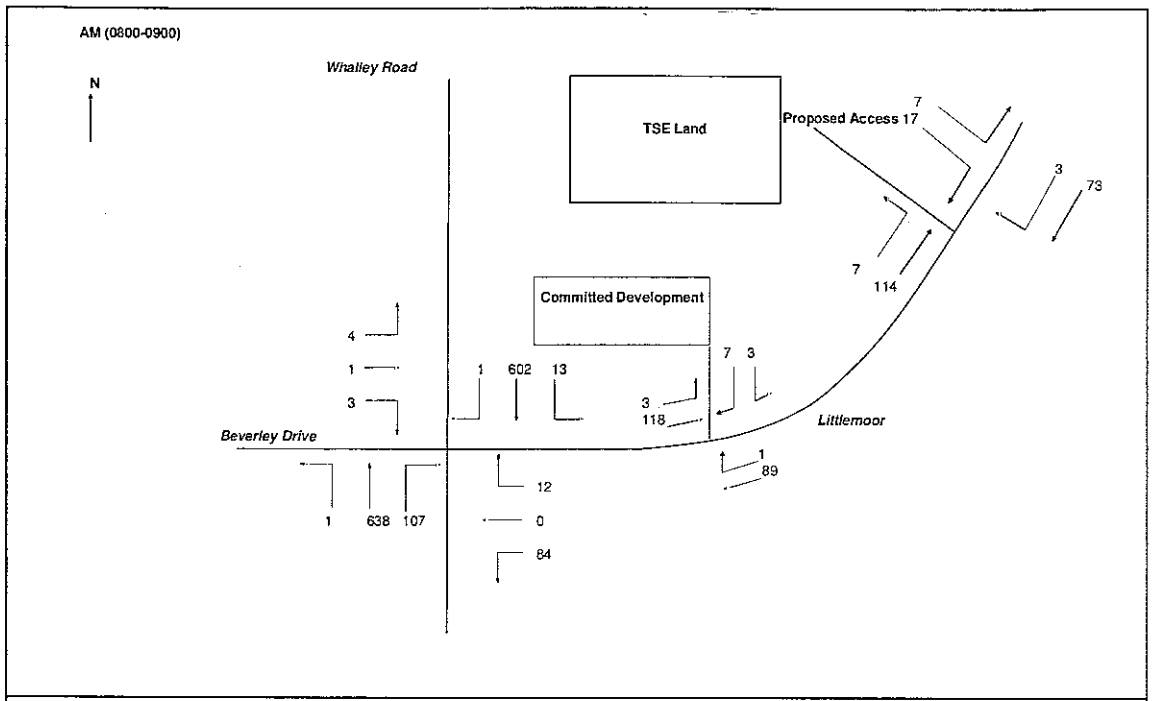

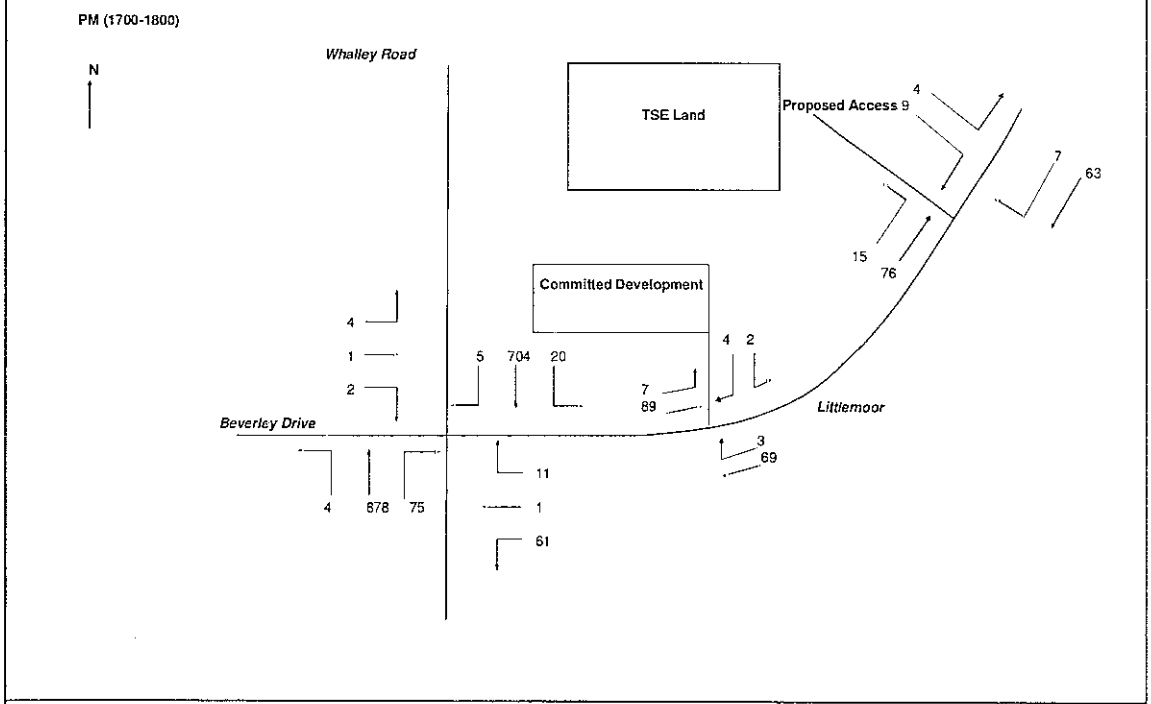

Figure 7:
AM 2013 Network Traffic + Committed Development Flows + Development Flows
PM 2013 Network Traffic + Committed Development Flows + Development Flows

NTS

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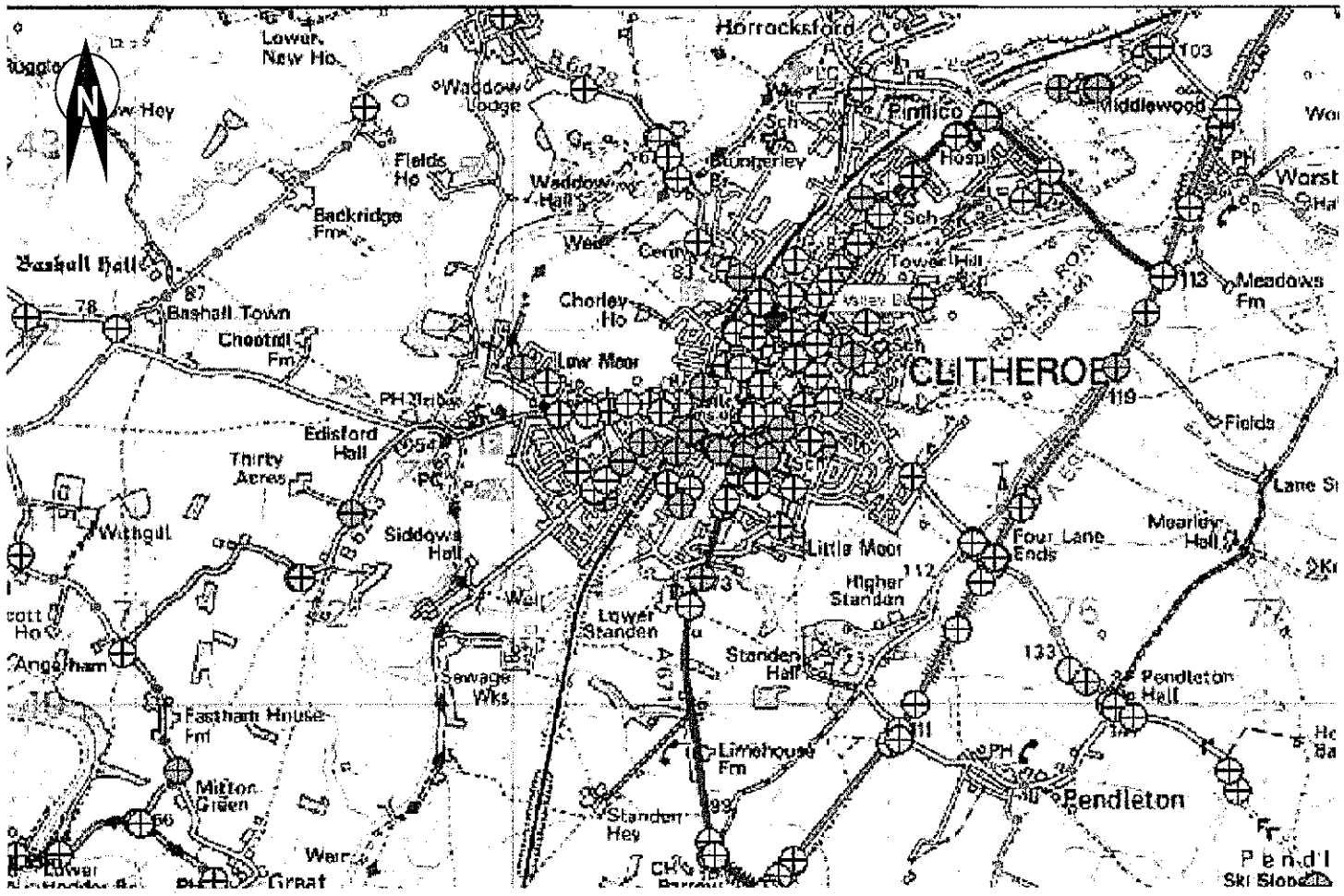
APPENDICES

Accident Summary Table (including all accidents in the last 5 years)

No.	Location	Severity	Gird Ref	Date/Time	Distance to Juntion	Weather	Vehicle Involved	Vehicle Types
1	A59 Whalley Clitheroe Bypass	Slight	374501, 439173	12/9/2006 9:28	230m	Fine without high winds	3	Car; Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under; Pedal Cycle;
2	A59 Whalley Clitheroe Bypass	Slight	374498, 439165	6/1/2006 11:12	200m	Fine without high winds	2	Goods vehicle 7.5 tonnes mgw and over; Other motor vehicle;
3	A59 Whalley Clitheroe Bypass	Serious	374451, 439111	9/14/2005 8:15		Fine without high winds	2	Motorcycle over 125cc and up to 500cc; Car;
4	A59 Whalley Clitheroe Bypass	Serious	374423, 439083	4/3/2008 18:55	100m	Fine without high winds	2	Car; Car;
5	A59 Whalley Clitheroe Bypass	Slight	374381, 439026	3/20/2008 15:37	20m	Raining without high winds	2	Goods vehicle 7.5 tonnes mgw and over; Car;
6	A59\671 (S) Rbt	Slight	374380, 439002	7/13/2005 21:00		Fine without high winds	3	Car; Car; Car;
7	A59\671 (S) Rbt	Slight	374381, 438995	3/24/2006 6:30		Raining with high winds	1	Car;
8	A59\671 (S) Rbt	Slight	-	1/1/2009 2:15		unknow	1	Car;
9	A59\671 (S) Rbt	Slight	374384, 438992	4/21/2006 15:31		Fine without high winds	2	Goods vehicle 7.5 tonnes mgw and over; Motorcycle over 50cc and up to 125cc;
10	A59\671 (S) Rbt	Slight	374370, 438961	1/14/2007 14:24		Fine without high winds	2	Motorcycle over 500cc; Motorcycle over 500cc;
11	A59\671 (S) Rbt	Slight	374345, 438970	1/24/2005 14:45		Fine without high winds	2	Goods vehicle 7.5 tonnes mgw and over; Car;
12	A59\671 (S) Rbt	Serious	374345, 438976	11/21/2005 8:50		Fog or mist - if hazard	2	Car; Pedal Cycle;
13	A59\671 (S) Rbt	Slight	374340, 438998	12/1/2006 7:55		Fine without high winds	2	Car; Car;
14	A59\671 (S) Rbt	Slight	374345, 438989	5/13/2005 12:40		Fine without high winds	2	Car; Car;
15	A59\671 (S) Rbt	Slight	374346, 438989	5/6/2005 19:00		Raining without high winds	1	Car;
16	A59\671 (S) Rbt	Slight	374348, 438993	4/17/2006 17:08		Fine without high winds	2	Car; Car;
17	A59\671 (S) Rbt	Slight	-	11/14/2009 9:40		unknow	2	Car; Car;
18	A59\671 (S) Rbt	Slight	374349, 438996	11/16/2007 12:31		Fine without high winds	1	Car;
19	A59\671 (S) Rbt	Slight	374350, 438997	6/6/2007 4:25		unknow	1	Taxi / Private hire car;
20	A671 Whalley Road	Slight	374054, 439273	12/23/2007 17:20		Fine without high winds	2	Car; Car;
21	C549 Whalley Road	Slight	374070, 439189	8/27/2006 9:55		unknow	2	Car; Car;
22	C549 Whalley Road	Slight	374084, 439184	12/12/2005 17:20		Fine without high winds	2	Car; Car;
23	A671 Whalley Road	Slight	-	11/20/2009 4:10		unknow	1	car;
24	A59 Whalley Clitheroe Bypass	Slight	375013, 439794	6/3/2007 11:46	50m	Fine without high winds	2	Car; Car;
25	U13230 Main Street	Serious	375065, 439818	9/20/2006 6:20		Fine without high winds	1	Car;
26	A59 Clitheroe By-Pass	Slight	375063, 439862	1/22/2005 19:57		Fine without high winds	2	Taxi / Private hire car; Car;
27	A59 Clitheroe By-Pass	Slight	375153, 439999	10/1/2005 1:34	200m	Raining with high winds	2	Car; Car;
28	A59 Whalley-Clitheroe Bypass	Serious	375374, 440401	2/22/2005 15:45	500m	Fine without high winds	3	Car; Car; Car;
29	A59 Whalley Clitheroe Bypass	Serious	375501, 440651	8/13/2006 11:31	150m	Fine without high winds	2	Car; Pedal Cycle;
30	A59 Whalley Clitheroe Bypass	[redacted]	375552, 440738	3/1/2005 14:30		Fine without high winds	2	Car; Car;
31	C553 Clitheroe Road	Serious	375558, 440735	7/20/2005 19:30		Fine without high winds	2	Car; Goods vehicle 7.5 tonnes mgw and over;
32	A59 Whalley Clitheroe Bypass	Slight	-	1/14/2010 16:54		unknown	2	Car; Car;
33	A59 Whalley Clitheroe Bypass	Slight	375574, 440783	1/16/2005 23:16		Fine without high winds	2	Car; Car;
34	A59 Whalley Clitheroe Bypass	Slight	375567, 440784	5/6/2005 12:10		Fine without high winds	2	Car; Car;
35	A59 Whalley Clitheroe Bypass	Slight	-	1/29/2010 8:28		unknown	2	Car; Car;
36	A59 Whalley Clitheroe Bypass	[redacted]	375569, 440785	8/28/2007 19:58		Fine without high winds	2	Car; Car;
37	A59 Whalley Clitheroe Bypass	Slight	375568, 440786	8/16/2005 19:35		Fine without high winds	2	Motorcycle over 500cc; Car;
38	A59 Whalley Clitheroe Bypass	Slight	375568, 440786	2/25/2007 9:00		Fine without high winds	2	Car; Car;
39	A59 Whalley Clitheroe Bypass	Serious	375569, 440786	12/5/2007 7:25		Fine without high winds	2	Car; Car;
40	A59 Whalley Clitheroe Bypass	Slight	-	4/20/2010 15:45		unknown	2	Car; Car;
41	A59 Whalley Clitheroe Bypass	Slight	375569, 440788	7/8/2006 9:00		Fine without high winds	2	Car; Goods vehicle 7.5 tonnes mgw and over;
42	A59 Whalley Clitheroe Bypass	Slight	375569, 440788	6/7/2009 14:30		Fine without high winds	2	Car; Car;
43	A59 Whalley Clitheroe Bypass	Slight	375570, 440790	12/1/2008 11:44		Fine without high winds	2	Car; Car;
44	A59 Whalley Clitheroe Bypass	Slight	375708, 441051	6/9/2008 16:05	300m	Fine without high winds	2	Car; Car;
45	A59 Whalley Clitheroe Bypass	Slight	376739, 441099	9/4/2005 11:05		Fine without high winds	2	Car; Car;
46	C553 Pendle Road	Slight	-	8/24/2009		Fine without high winds	2	Car; Car;
47	C553 Pendle Road	Slight	375450, 440870	3/14/2005 17:30		Fine without high winds	2	Car; Car;
48	U22819 Worston Road	Slight	375451, 440869	3/2/2006 8:20		other	2	Car; Car;
49	C553 Pendle Road	Slight	375482, 440838	11/8/2005 16:15		Raining with high winds	2	Car; Car;
50	A671 Whalley Road	Slight	373948, 440530	4/23/2008 17:59		Fine without high winds	2	Car; Other motor vehicle;
51	A671 Whalley Road	Slight	374010, 440680	3/8/2005 18:40		Fine without high winds	1	Car;
52	A671 Whalley Road	Slight	374129, 441080	11/17/2005 6:39		Fine without high winds	1	Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under;
53	A671 Whalley Road	Serious	374132, 441056	11/7/2007 10:21		Raining without high winds	3	Car; Car; Car;
54	A671 Whalley Road	Slight	-	2/6/2009 19:20		Unknown	2	Car; Car;
55	A671 Whalley Road	Slight	374204, 441233	3/24/2007 14:48		Fine without high winds	2	Car; Motorcycle over 500cc;
56	A671 Whalley Road	Slight	374212, 441250	11/11/2007 1:36		Fine with high winds	3	Car; Car; Taxi / Private hire car;
57	A671 Whalley Road	Serious	374218, 441270	1/10/2006 13:15		Raining without high winds	1	Car;
58	A671 Whalley Road	Slight	374228, 441298	10/19/2005 20:40		Raining without high winds	1	Car;
59	A671 Whalley Road	Slight	374229, 441306	1/21/2008 22:30		Raining without high winds	2	Car; Car;
60	A671 Whalley Road	Slight	374236, 441322	2/18/2008 11:15		Fine without high winds	2	Car; Pedal Cycle;
61	A671 Whalley Road	Slight	-	3/1/2010 15:15		Unknown	1	Car;
62	A671 Whalley Road	Serious	374296, 441374	12/1/2005 15:16	50m	Fine without high winds	1	Car;
63	U Queens Road	Serious	374390, 441400	2/9/2005 8:40		Fine without high winds	1	Bus or coach (17 or more passenger seats);
64	A671 Waterloo Road	Slight	374398, 441421	12/20/2007 16:30	70m	Fine without high winds	1	Car;
65	A671 Waterloo Road	Slight	-	8/7/2009 16:15		Uknown	2	Car; Car;
66	A671 Queensway	Slight	374443, 441472	4/11/2005 12:00		Fine without high winds	2	Motorcycle - unknown cc; Car;
67	U23055 Highfield Road	Slight	374445, 441472	11/14/2008 16:10		Fine without high winds	2	Car; Car;
68	A671 Waterloo Road	Slight	-	1/27/2009		Uknown	2	Car; Car;
69	A671 Waterloo Road	Slight	374594, 441759	12/22/2005 19:10		Fine without high winds	2	Car; Taxi / Private hire car;
70	A671 Waterloo Road	Slight	374595, 441759	11/8/2005 10:20		Unknown	2	Car; Other motor vehicle;
71	A671 Waterloo Road	Slight	374595, 441760	3/25/2006 12:00		Raining without high winds	3	Car; Car; Car;
72	A671 Waterloo Road	Slight	374595, 441760	1/13/2006 6:50		Fine without high winds	2	Taxi / Private hire car; Car;
73	A671 Waterloo Road	Slight	374596, 441761	8/9/2008 18:04		Raining without high winds	2	Car; Car;
74	A671 Waterloo Road	Slight	-	2/11/2010 12:50		Unknown	2	Car; Car;
75	C553 Shawbridge Street	Slight	374602, 441759	10/30/2007 17:00		Raining without high winds	1	Motorcycle 50cc and under;
76	C553 Shawbridge Street	Slight	374623, 441753	1/1/2010 2:33		Fine without high winds	2	Car; Taxi / Private hire car;
77	C553 Shawbridge Street	Slight	-	1/18/2010 15:26		Uknown	1	Car;
78	C553 Shawbridge Street	Slight	-	2/2/2010 16:40		Uknown	2	Car; Car;
79	U23048 Hayhurst Street	Slight	374690, 441613	6/16/2008 15:44		Fine without high winds	1	Car;
80	U23048 Hayhurst Street	Slight	-	5/30/2010 20:45		Uknown	2	Car; Car;
81	U23110 Peel Park Avenue	Slight	374501, 441153	11/1/2005 20:13		Raining without high winds	2	Car; Car;
82	Littlemoor Road	Slight	-	10/13/2009 18:15		Uknown	2	Car; Car;

Accidents	Numbers	%
Slights	68	82.9%
Serious	12	14.6%
Fatals	2	2.4%
Total	82	100.0%



Plan A1: Recorded Personal Injury Traffic Accidents around Clitheroe

Data obtained from Lancashire County Council MARIO website

Job No: 9V7186

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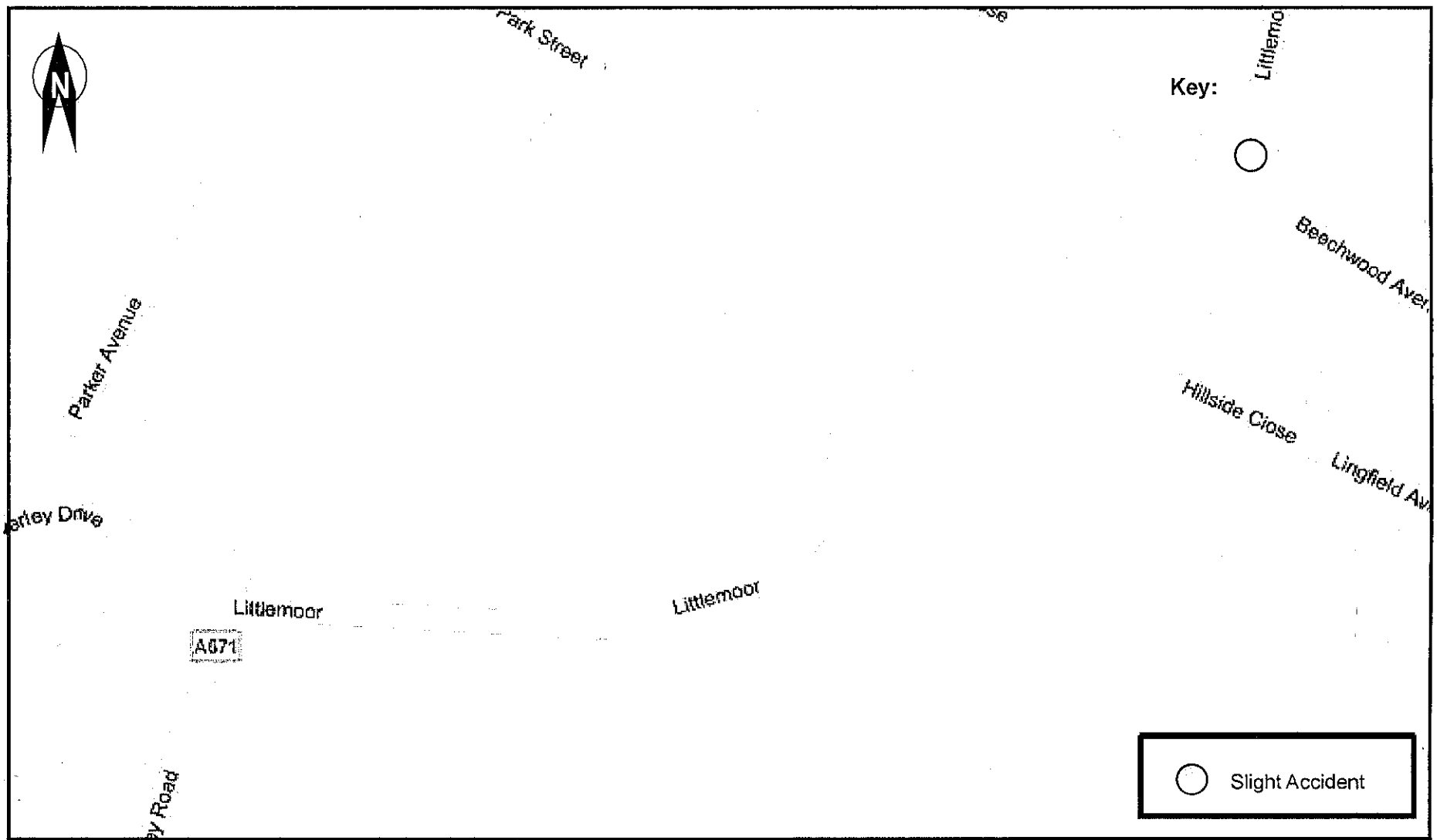

Plan B: Recorded Personal Injury Traffic Accidents at the A59 / Pendle Road / Clitheroe Road junction

Data obtained from Lancashire County Council MARIO website

Job No: 9V7186

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ROYAL HASKONING

APPENDIX B

Bus Service Information

Bus Service Information

Table 1: Bus Services in Clitheroe

Service No.	Route	Frequency (mins)		
		Monday – Saturday		Sunday
		Day	Evening	
Route 225	Clitheroe – Whalley - Wilpshire - Blackburn - Darwen - Bolton	30	60	60
Route 231	Clitheroe - Whalley - Great Harwood - Accrington	80	n/a	n/a
Route 241	Clitheroe - Whalley - Great Harwood - Clayton-le-Moors - Accrington - Oswaldtwistle - Blackburn Royal Hospital	60-110	n/a	n/a
Route 280, X80	Skipton – Barnoldswick (Route 280)/West Marton (Route X80) - Clitheroe - Whalley - Mellor - Preston	60	n/a	120(Route X80 only)
Route 5	Longridge - Ribchester – Whalley - Clitheroe	60-120	n/a	n/a
Route C1	Low Moor - Clitheroe - Peel Park	60	n/a	n/a
Route C2	Sawley - Grindleton – Chatburn – Clitheroe – Low Moor	30-60	n/a	60
Route C4	Clitheroe - Peel Park (Circular)	60	n/a	n/a
Route C5	Clitheroe - Waddington - West Bradford – Clitheroe (Circular)	25-60	n/a	60
Route C15	Clitheroe - Waddington - West Bradford – Clitheroe (Circular)	60	n/a	n/a
Route C25	Clitheroe – Low Moor - Whalley - Brockhall – Dinckley - Wilpshire -Blackburn	60-120	n/a	n/a
The Mainline 21, 22, 23, 26, 27, 28 & 29	Clitheroe - Whalley - Padiham - Burnley - Nelson - Colne	30	60-70	60-70
Bowland Transit B10/B11	Clitheroe - Slaidburn Circulars	60	n/a	n/a
Bowland Transit B12	Clitheroe - Chipping – Garstang (Summer Thursday only from last Thursday in May until last Thursday in October)	One service	n/a	n/a
Pendle Witch Hopper P70/P71	Clitheroe – Chatburn – Downham – Barley – Blacko – Nelson (Monday to Saturday daytime)	60	n/a	n/a
Pendle Witch Hopper 70/71	(Summer Sunday Circular)	n/a	n/a	120

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ROYAL HASKONING

APPENDIX C

Traffic Survey Data

Manual Classified Turning Counts, Clitheroe

DATE: THURSDAY 23rd SEPTEMBER 2010

LOCATION: WHALLEY ROAD / LITTLE MOOR VIEW / BEVERLEY DRIVE

ARM: WHALLEY ROAD (NORTH)

TIME / CLASS	LEFT TO LITTLE MOOR VIEW						STRAIGHT TO WHALLEY ROAD (SOUTH)						RIGHT TO BEVERLEY DRIVE						TOTAL MOVEMENT FROM ARM
	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	
7:30 7:45	0	2	0	0	0	2	1	142	19	2	1	165	0	0	0	0	0	0	167
7:45 8:00	0	0	0	0	0	0	3	137	16	2	7	165	0	0	0	0	0	0	165
8:00 8:15	0	1	0	0	0	1	1	111	13	7	1	133	0	1	0	0	0	1	135
8:15 8:30	0	1	0	0	0	1	1	124	13	5	6	149	0	0	0	0	0	0	150
HOURLY TOTAL	0	4	0	0	0	4	6	514	61	16	15	612	0	1	0	0	0	1	617
8:30 8:45	0	3	0	0	0	3	1	93	6	4	5	109	0	0	0	0	0	0	112
8:45 9:00	0	5	1	0	0	6	1	127	9	6	7	150	0	0	0	0	0	0	156
9:00 9:15	0	3	0	0	0	3	1	111	9	2	4	127	0	0	1	0	0	1	131
9:15 9:30	0	1	0	0	0	1	0	87	15	3	1	106	0	0	0	0	0	0	107
HOURLY TOTAL	0	12	1	0	0	13	3	418	39	15	17	492	0	0	1	0	0	1	506
PERIOD TOTAL	0	16	1	0	0	17	9	932	100	31	32	1104	0	1	1	0	0	2	1123
16:30 - 16:45	0	4	1	0	0	5	1	128	12	2	1	144	0	2	0	0	0	2	151
16:45 - 17:00	0	4	0	0	0	4	1	142	16	2	2	163	0	1	0	0	0	1	168
17:00 - 17:15	0	4	1	0	0	5	0	173	15	5	3	196	0	1	0	0	0	1	202
17:15 - 17:30	0	2	0	0	0	2	1	136	14	4	2	157	0	1	0	0	0	1	160
HOURLY TOTAL	0	14	2	0	0	16	3	579	57	13	8	660	0	5	0	0	0	5	681
17:30 - 17:45	0	5	1	0	0	6	2	136	8	3	3	152	0	0	0	0	0	0	158
17:45 - 18:00	1	7	0	0	0	8	1	130	8	1	1	141	0	2	0	0	0	2	151
18:00 - 18:15	0	3	1	0	0	4	2	116	7	1	2	128	0	1	0	0	0	1	133
18:15 - 18:30	0	1	0	0	0	1	0	94	7	0	2	103	0	0	0	0	0	0	104
HOURLY TOTAL	1	16	2	0	0	19	5	476	30	5	8	524	0	3	0	0	0	3	546
PERIOD TOTAL	1	30	4	0	0	35	8	1055	87	18	16	1184	0	8	0	0	0	8	1227

Manual Classified Turning Counts, Clitheroe

DATE: THURSDAY 23rd SEPTEMBER 2010

LOCATION: WHALLEY ROAD / LITTLE MOOR VIEW / BEVERLEY DRIVE

ARM: LITTLE MOOR VIEW

TIME / CLASS	LEFT TO WHALLEY ROAD (SOUTH)						STRAIGHT TO BEVERLEY DRIVE						RIGHT TO WHALLEY ROAD (NORTH)						TOTAL MOVEMENT FROM ARM
	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	
7:30 7:45	0	16	0	0	0	16	0	0	0	0	0	0	0	1	0	0	0	1	17
7:45 8:00	0	19	3	0	0	22	0	0	0	0	0	0	0	1	1	0	0	2	24
8:00 8:15	0	11	3	0	0	14	0	0	0	0	0	0	0	2	0	0	0	2	16
8:15 8:30	0	14	1	1	0	16	0	0	0	0	0	0	0	3	0	0	0	3	19
HOURLY TOTAL	0	60	7	1	0	68	0	0	0	0	0	0	0	7	1	0	0	8	76
8:30 8:45	0	16	1	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	17
8:45 9:00	0	11	3	0	0	14	0	0	0	0	0	0	0	3	0	0	0	3	17
9:00 9:15	0	15	0	1	0	16	0	1	0	0	0	1	0	0	1	0	0	1	18
9:15 9:30	0	10	0	1	0	11	0	0	0	0	0	0	0	1	0	0	0	1	12
HOURLY TOTAL	0	52	4	2	0	58	0	1	0	0	0	1	0	4	1	0	0	5	64
PERIOD TOTAL	0	112	11	3	0	126	0	1	0	0	0	1	0	11	2	0	0	13	140
16:30 - 16:45	0	8	0	0	0	8	0	0	0	0	0	0	0	3	0	0	0	3	11
16:45 - 17:00	0	12	2	0	0	14	0	0	0	0	0	0	0	2	0	0	0	2	16
17:00 - 17:15	0	13	1	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	14
17:15 - 17:30	0	12	0	0	0	12	0	1	0	0	0	1	0	2	0	1	0	3	16
HOURLY TOTAL	0	45	3	0	0	48	0	1	0	0	0	1	0	7	0	1	0	8	57
17:30 - 17:45	0	8	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	9
17:45 - 18:00	0	6	1	0	0	7	0	0	0	0	0	0	0	2	1	0	0	3	10
18:00 - 18:15	0	14	0	0	0	14	0	0	0	0	0	0	0	3	0	0	0	3	17
18:15 - 18:30	0	7	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
HOURLY TOTAL	0	35	3	0	0	38	0	0	0	0	0	0	0	5	1	0	0	6	44
PERIOD TOTAL	0	80	6	0	0	86	0	1	0	0	0	1	0	12	1	1	0	14	101

Manual Classified Turning Counts, Clitheroe

DATE: THURSDAY 23rd SEPTEMBER 2010

LOCATION: WHALLEY ROAD / LITTLE MOOR VIEW / BEVERLEY DRIVE

ARM: WHALLEY ROAD (SOUTH)

TIME / CLASS	LEFT TO BEVERLEY DRIVE						STRAIGHT TO WHALLEY ROAD (NORTH)						RIGHT TO LITTLE MOOR VIEW						TOTAL MOVEMENT FROM ARM
	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	
7:30 7:45	0	0	0	0	0	0	0	58	13	8	5	84	0	8	1	0	0	9	93
7:45 8:00	0	0	0	0	0	0	0	87	18	9	2	116	0	11	0	0	0	11	127
8:00 8:15	0	1	0	0	0	1	3	102	13	7	3	128	0	11	1	1	0	13	142
8:15 8:30	0	0	0	0	0	0	0	113	19	9	10	151	0	22	3	0	1	26	177
HOURLY TOTAL	0	1	0	0	0	1	3	360	63	33	20	479	0	52	5	1	1	59	539
8:30 8:45	0	0	0	0	0	0	0	103	18	4	15	140	0	30	1	0	0	31	171
8:45 9:00	0	0	0	0	0	0	1	120	13	6	2	142	0	21	3	0	0	24	166
9:00 9:15	0	0	0	0	0	0	0	107	19	7	2	135	0	3	0	0	1	4	139
9:15 9:30	0	1	0	0	0	1	0	107	18	3	2	130	0	3	2	2	0	7	138
HOURLY TOTAL	0	1	0	0	0	1	1	437	68	20	21	547	0	57	6	2	1	66	614
PERIOD TOTAL	0	2	0	0	0	2	4	797	131	53	41	1026	0	109	11	3	2	125	1153
16:30 - 16:45	0	1	0	0	0	1	1	175	18	4	4	202	0	14	1	0	0	15	218
16:45 - 17:00	0	1	1	0	0	2	2	192	15	5	4	218	0	14	0	0	0	14	234
17:00 - 17:15	0	1	0	0	0	1	1	176	21	3	1	202	0	7	1	0	0	8	211
17:15 - 17:30	0	0	0	0	0	0	1	180	19	2	1	203	1	16	0	0	0	17	220
HOURLY TOTAL	0	3	1	0	0	4	5	723	73	14	10	825	1	51	2	0	0	54	883
17:30 - 17:45	0	1	0	0	0	1	1	174	15	3	3	196	0	15	0	0	0	15	212
17:45 - 18:00	0	0	0	0	0	0	0	171	19	2	4	196	0	10	1	0	0	11	207
18:00 - 18:15	0	0	0	0	0	0	0	170	12	2	0	184	0	10	0	0	0	10	194
18:15 - 18:30	0	1	1	0	0	2	0	138	11	1	0	150	0	10	0	0	0	10	162
HOURLY TOTAL	0	2	1	0	0	3	1	653	57	8	7	726	0	45	1	0	0	46	775
PERIOD TOTAL	0	5	2	0	0	7	6	1376	130	22	17	1551	1	96	3	0	0	100	1658

Manual Classified Turning Counts, Clitheroe

DATE: THURSDAY 23rd SEPTEMBER 2010

LOCATION: WHALLEY ROAD / LITTLE MOOR VIEW / BEVERLEY DRIVE

ARM: BEVERLEY DRIVE

TIME / CLASS	LEFT TO WHALLEY ROAD (NORTH)						STRAIGHT TO LITTLE MOOR VIEW						RIGHT TO WHALLEY ROAD (SOUTH)						TOTAL MOVEMENT FROM ARM
	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	MOTOR CYCLE	CAR TAXI	LGV	HGV	BUS COACH	TOTAL	
7:30 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 8:00	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
8:00 8:15	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 8:30	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	2
HOURLY TOTAL	0	2	0	0	0	2	0	1	0	0	0	1	0	2	0	0	0	2	5
8:30 8:45	0	2	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	3
8:45 9:00	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
9:00 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 9:30	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	3
HOURLY TOTAL	0	4	1	0	0	5	0	0	0	0	0	0	0	3	0	0	0	3	8
PERIOD TOTAL	0	6	1	0	0	7	0	1	0	0	0	1	0	5	0	0	0	5	13
16:30 - 16:45	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45 - 17:00	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
17:00 - 17:15	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:15 - 17:30	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	3
HOURLY TOTAL	0	3	1	0	0	4	0	1	0	0	0	1	0	2	0	0	0	2	7
17:30 - 17:45	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PERIOD TOTAL	0	4	1	0	0	5	0	1	0	0	0	1	0	2	0	0	0	2	8

ROYAL HASKONING

APPENDIX D

Multi-Modal TRICS Outputs: Houses

320120420P

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	BD	BEDFORDSHIRE	1 days
03	**SOUTH WEST**		
	CW	CORNWALL	2 days
	WL	WILTSHIRE	1 days
04	**EAST ANGLIA**		
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
06	**WEST MIDLANDS**		
	SH	SHROPSHIRE	1 days
	ST	STAFFORDSHIRE	1 days
	WM	WEST MIDLANDS	3 days
	WO	WORCESTERSHIRE	2 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	2 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
	LC	LANCASHIRE	1 days
09	**NORTH**		
	CB	CUMBRIA	3 days
10	**WALES**		
	CF	CARDIFF	1 days
	CP	CAERPHILLY	1 days
	WR	WREXHAM	1 days
11	**SCOTLAND**		
	EA	EAST AYRSHIRE	1 days
	FI	FIFE	1 days
	HI	HIGHLAND	2 days

Filtering Stage 2 selection:

Parameter: Number of dwellings
Range: 9 to 99 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/03 to 05/09/10

Selected survey days:

Monday	9 days
Tuesday	7 days
Wednesday	3 days
Thursday	6 days
Friday	3 days

Selected survey types:

Manual count	28 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	12
Edge of Town	15
Neighbourhood Centre (PPS6 Local Centre)	1

Selected Location Sub Categories:

Residential Zone	22
No Sub Category	6

LIST OF SITES relevant to selection parameters

1 **BD-03-A-02** **SEMI DETACHED, LUTON** **BEDFORDSHIRE**
RIDDY LANE

LUTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 82

2 **CB-03-A-02** **SEMI DETACHED, WORKINGTON** **CUMBRIA**
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40

3 **CB-03-A-03** **SEMI DETACHED, WORKINGTON** **CUMBRIA**
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40

4 **CB-03-A-04** **SEMI DETACHED, WORKINGTON** **CUMBRIA**
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82

5 **CF-03-A-03** **DETACHED, CARDIFF** **CARDIFF**
LLANTRISANT ROAD

CARDIFF
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 29

6 **CH-03-A-05** **DETACHED, CREWE** **CHESHIRE**
SYDNEY ROAD
SYDNEY
CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 17

7 **CP-03-A-02** **SEMI DETACHED, PENGAM** **CAERPHILLY**
THE RISE

PENGAM
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 41

8 **CW-03-A-01** **TERRACED, PENZANCE** **CORNWALL**
ALVERTON ROAD

PENZANCE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 13

9 **CW-03-A-02** **SEMI D./DETATCHED, TRURO** **CORNWALL**
BOSVEAN GARDENS

TRURO
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73

LIST OF SITES relevant to selection parameters (Cont.)

10 **DS-03-A-01** **SEMI D /TERRACED, DRONFIELD** **DERBYSHIRE**
THE AVENUE
HOLMESDALE
DRONFIELD
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 20

11 **EA-03-A-01** **DETATCHED, KILMARNOCK** **EAST AYRSHIRE**
TALISKER AVENUE

KILMARNOCK
Edge of Town
Residential Zone
Total Number of dwellings: 39

12 **FI-03-A-02** **SEMI DETACHED, GLENROTHES** **FIFE**
WAROUT ROAD

GLENROTHES
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 58

13 **HI-03-A-11** **BUNGALOWS, INVERNESS** **HIGHLAND**
STEVENSON ROAD
INSHES
INVERNESS
Edge of Town
Residential Zone
Total Number of dwellings: 85

14 **HI-03-A-13** **HOUSING, INVERNESS** **HIGHLAND**
KINGSMILLS ROAD

INVERNESS
Edge of Town
Residential Zone
Total Number of dwellings: 9

15 **LC-03-A-22** **BUNGALOWS, BLACKPOOL** **LANCASHIRE**
CLIFTON DRIVE NORTH

BLACKPOOL
Edge of Town
Residential Zone
Total Number of dwellings: 98

16 **LE-03-A-01** **DETACHED, MELTON MOWBRAY** **LEICESTERSHIRE**
REDWOOD AVENUE

MELTON MOWBRAY
Edge of Town
Residential Zone
Total Number of dwellings: 11

17 **NY-03-A-01** **MIXED HOUSES,NORTHALLERTON** **NORTH YORKSHIRE**
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52

18 **NY-03-A-05** **HOUSES AND FLATS, RIPON** **NORTH YORKSHIRE**
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71

LIST OF SITES relevant to selection parameters (Cont.)

19 **SF-03-A-01** **SEMI DETACHED, IPSWICH** **SUFFOLK**
A1156 FELIXSTOWE ROAD
RACECOURSE
IPSWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 77

20 **SH-03-A-03** **DETATCHED, SHREWSBURY** **SHROPSHIRE**
SOMERBY DRIVE
BICTON HEATH
SHREWSBURY
Edge of Town
No Sub Category
Total Number of dwellings: 10

21 **ST-03-A-05** **TERRACED/DETACHED, STOKE** **STAFFORDSHIRE**
WATERMEET GROVE
ETRURIA
STOKE-ON-TRENT
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 14

22 **WL-03-A-01** **SEMI D./TERRACED W. BASSETT** **WILTSHIRE**
MAPLE DRIVE

WOOTTON BASSETT
Edge of Town
Residential Zone
Total Number of dwellings: 99

23 **WM-03-A-01** **TERRACED, COVENTRY** **WEST MIDLANDS**
FOLESHILL ROAD
FOLESHILL
COVENTRY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 79

24 **WM-03-A-02** **DETACHED/SEMI D., STRBRIDGE** **WEST MIDLANDS**
HEATH STREET

STOURBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 12

25 **WM-03-A-03** **MIXED HOUSING, COVENTRY** **WEST MIDLANDS**
BASELEY WAY
ROWLEYS GREEN
COVENTRY
Edge of Town
Residential Zone
Total Number of dwellings: 84

26 **WO-03-A-01** **DETACHED, BROMSGROVE** **WORCESTERSHIRE**
MARLBOROUGH AVENUE
ASTON FIELDS
BROMSGROVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 10

27 **WO-03-A-02** **SEMI DETACHED, REDDITCH** **WORCESTERSHIRE**
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48

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LIST OF SITES relevant to selection parameters (Cont.)

28 WR-03-A-01 SEMI DETACHED, WREXHAM WREXHAM
MOLD ROAD
RHOSDDU
WREXHAM
Edge of Town
No Sub Category
Total Number of dwellings: 82

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	28	49	0.077	28	49	0.247	28	49	0.324
08:00 - 09:00	28	49	0.171	**28**	**49**	**0.397**	28	49	0.568
09:00 - 10:00	28	49	0.196	28	49	0.234	28	49	0.430
10:00 - 11:00	28	49	0.177	28	49	0.209	28	49	0.386
11:00 - 12:00	28	49	0.213	28	49	0.198	28	49	0.411
12:00 - 13:00	28	49	0.226	28	49	0.183	28	49	0.409
13:00 - 14:00	28	49	0.193	28	49	0.206	28	49	0.399
14:00 - 15:00	28	49	0.209	28	49	0.228	28	49	0.437
15:00 - 16:00	28	49	0.288	28	49	0.226	28	49	0.514
16:00 - 17:00	28	49	0.351	28	49	0.211	28	49	0.562
17:00 - 18:00	**28**	**49**	**0.366**	28	49	0.220	**28**	**49**	**0.586**
18:00 - 19:00	28	49	0.279	28	49	0.201	28	49	0.480
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			2.746			2.760			5.506

Parameter summary

Trip rate parameter range selected:	9 - 99 (units:)
Survey date date range:	01/01/03 - 05/09/10
Number of weekdays (Monday-Friday):	28
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	28	49	0.009	28	49	0.017	28	49	0.026
08:00 - 09:00	28	49	0.009	28	49	0.019	28	49	0.028
09:00 - 10:00	28	49	0.003	28	49	0.004	28	49	0.007
10:00 - 11:00	28	49	0.005	28	49	0.006	28	49	0.011
11:00 - 12:00	28	49	0.004	28	49	0.003	28	49	0.007
12:00 - 13:00	28	49	0.008	28	49	0.004	28	49	0.012
13:00 - 14:00	28	49	0.002	28	49	0.002	28	49	0.004
14:00 - 15:00	28	49	0.003	28	49	0.004	28	49	0.007
15:00 - 16:00	28	49	0.013	28	49	0.005	28	49	0.018
16:00 - 17:00	**28**	**49**	**0.020**	**28**	**49**	**0.023**	**28**	**49**	**0.043**
17:00 - 18:00	28	49	0.019	28	49	0.011	28	49	0.030
18:00 - 19:00	28	49	0.011	28	49	0.010	28	49	0.021
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.106			0.108			0.214

Parameter summary

Trip rate parameter range selected:	9 - 99 (units:)
Survey date date range:	01/01/03 - 05/09/10
Number of weekdays (Monday-Friday):	28
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	28	49	0.031	28	49	0.062	28	49	0.093
08:00 - 09:00	28	49	0.068	**28**	**49**	**0.252**	**28**	**49**	**0.320**
09:00 - 10:00	28	49	0.064	28	49	0.072	28	49	0.136
10:00 - 11:00	28	49	0.039	28	49	0.073	28	49	0.112
11:00 - 12:00	28	49	0.073	28	49	0.064	28	49	0.137
12:00 - 13:00	28	49	0.061	28	49	0.050	28	49	0.111
13:00 - 14:00	28	49	0.063	28	49	0.065	28	49	0.128
14:00 - 15:00	28	49	0.065	28	49	0.076	28	49	0.141
15:00 - 16:00	**28**	**49**	**0.185**	28	49	0.095	28	49	0.280
16:00 - 17:00	28	49	0.119	28	49	0.062	28	49	0.181
17:00 - 18:00	28	49	0.093	28	49	0.063	28	49	0.156
18:00 - 19:00	28	49	0.076	28	49	0.075	28	49	0.151
19:00 - 20:00	1	29	0.069	1	29	0.034	1	29	0.103
20:00 - 21:00	1	29	0.034	1	29	0.000	1	29	0.034
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			1.040			1.043			2.083

Parameter summary

Trip rate parameter range selected:	9 - 99 (units:)
Survey date date range:	01/01/03 - 05/09/10
Number of weekdays (Monday-Friday):	28
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	28	49	0.001	28	49	0.009	28	49	0.010
08:00 - 09:00	28	49	0.016	**28**	**49**	**0.032**	**28**	**49**	**0.048**
09:00 - 10:00	28	49	0.009	28	49	0.005	28	49	0.014
10:00 - 11:00	28	49	0.003	28	49	0.003	28	49	0.006
11:00 - 12:00	28	49	0.007	28	49	0.004	28	49	0.011
12:00 - 13:00	28	49	0.001	28	49	0.004	28	49	0.005
13:00 - 14:00	28	49	0.005	28	49	0.008	28	49	0.013
14:00 - 15:00	28	49	0.006	28	49	0.007	28	49	0.013
15:00 - 16:00	**28**	**49**	**0.021**	28	49	0.014	28	49	0.035
16:00 - 17:00	28	49	0.013	28	49	0.006	28	49	0.019
17:00 - 18:00	28	49	0.017	28	49	0.001	28	49	0.018
18:00 - 19:00	28	49	0.006	28	49	0.005	28	49	0.011
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.105			0.098			0.203

Parameter summary

Trip rate parameter range selected:	9 - 99 (units:)
Survey date date range:	01/01/03 - 05/09/10
Number of weekdays (Monday-Friday):	28
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

320120420P

ROYAL HASKONING

APPENDIX E

Vehicle TRICS Outputs: Apartments

320120420P

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	HC	HAMPSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
	OX	OXFORDSHIRE	1 days
	SC	SURREY	2 days
03	**SOUTH WEST**		
	BR	BRISTOL CITY	1 days
	DC	DORSET	1 days
04	**EAST ANGLIA**		
	CA	CAMBRIDGESHIRE	1 days
05	**EAST MIDLANDS**		
	DS	DERBYSHIRE	1 days
	NR	NORTHAMPTONSHIRE	1 days
06	**WEST MIDLANDS**		
	ST	STAFFORDSHIRE	1 days
	WM	WEST MIDLANDS	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	1 days
	WY	WEST YORKSHIRE	2 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
	MS	MERSEYSIDE	1 days
09	**NORTH**		
	TV	TEES VALLEY	1 days
10	**WALES**		
	FS	FLINTSHIRE	1 days
11	**SCOTLAND**		
	HI	HIGHLAND	1 days

320120420P

Filtering Stage 2 selection:

Parameter: Number of dwellings
Range: 8 to 140 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/03 to 23/10/10

Selected survey days:

Monday	5 days
Tuesday	1 days
Wednesday	7 days
Thursday	4 days
Friday	3 days

Selected survey types:

Manual count	20 days
Directional ATC Count	0 days

Selected Locations:

Town Centre	1
Edge of Town Centre	8
Suburban Area (PPS6 Out of Centre)	11

Selected Location Sub Categories:

Development Zone	2
Residential Zone	9
Built-Up Zone	3
No Sub Category	6

LIST OF SITES relevant to selection parameters

1	**BR-03-C-01**	**FLATS & TERRACED, BRISTOL**	**BRISTOL CITY**
	CLARENCE ROAD		
	BRISTOL		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	102	
2	**CA-03-C-01**	**BLOCK OF FLATS, P.BORO**	**CAMBRIDGESHIRE**
	WESTFIELD ROAD		
	NETHERTON		
	PETERBOROUGH		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Number of dwellings:	44	
3	**CH-03-C-01**	**BLOCKS OF FLATS, CHESTER**	**CHESHIRE**
	NEW CRANE STREET		
	CHESTER		
	Edge of Town Centre		
	Residential Zone		
	Total Number of dwellings:	60	
4	**DC-03-C-01**	**BLOCKS OF FLATS, WEYMOUTH**	**DORSET**
	ABBOTSBURY ROAD		
	WEYMOUTH		
	Edge of Town Centre		
	Residential Zone		
	Total Number of dwellings:	27	
5	**DS-03-C-01**	**BLOCK OF FLATS, DERBY**	**DERBYSHIRE**
	DRAGE STREET		
	LITTLE CHESTER		
	DERBY		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Number of dwellings:	8	
6	**FS-03-C-01**	**BLOCK OF FLATS, MOLD**	**FLINTSHIRE**
	WREXHAM STREET		
	MOLD		
	Edge of Town Centre		
	Built-Up Zone		
	Total Number of dwellings:	30	
7	**HC-03-C-02**	**FLATS, BASINGSTOKE**	**HAMPSHIRE**
	WORTING ROAD		
	BASINGSTOKE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	16	
8	**HF-03-C-02**	**FLATS, WELWYN GARDEN CITY**	**HERTFORDSHIRE**
	BRIDGE ROAD EAST		
	WELWYN GARDEN CITY		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Number of dwellings:	86	
9	**HI-03-C-01**	**FLATS, INVERNESS**	**HIGHLAND**
	SHORE STREET		
	INVERNESS		
	Town Centre		
	Residential Zone		
	Total Number of dwellings:	38	

LIST OF SITES relevant to selection parameters (Cont.)

10 **MS-03-C-01** **BLOCKS OF FLATS, LIVERPOOL** **MERSEYSIDE**
WAPPING ROAD
WAPPING DOCK
LIVERPOOL
Edge of Town Centre
Development Zone
Total Number of dwellings: 114

11 **NR-03-C-01** **BLOCK OF FLATS, CORBY** **NORTHAMPTONSHIRE**
ROCKINGHAM ROAD

CORBY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 20

12 **NY-03-C-01** **BLOCKS OF FLATS, NTHALLERTON** **NORTH YORKSHIRE**
BOROUGHBRIDGE ROAD
ROMANBY
NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 30

13 **OX-03-C-01** **BLOCK OF FLATS, OXFORD** **OXFORDSHIRE**
OXFORD ROAD
COWLEY
OXFORD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 14

14 **SC-03-C-01** **FLATS, CAMBERLEY** **SURREY**
HEATHCOTE ROAD

CAMBERLEY
Edge of Town Centre
Residential Zone
Total Number of dwellings: 140

15 **SC-03-C-02** **FLATS, WOKING** **SURREY**
CONSTITUTION HILL

WOKING
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of dwellings: 36

16 **ST-03-C-01** **BLOCKS OF FLATS, STOKE** **STAFFORDSHIRE**
ETRURIA COURT
HUMBERT ROAD
STOKE-ON-TRENT
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 33

17 **TV-03-C-01** **APARTMENTS BLOCKS, M'BORO** **TEES VALLEY**
OXFORD ROAD
LINTHORPE
MIDDLESBROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 85

18 **WM-03-C-03** **FLATS, SOLIHULL** **WEST MIDLANDS**
LODE LANE

SOLIHULL
Edge of Town Centre
No Sub Category
Total Number of dwellings: 60

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LIST OF SITES relevant to selection parameters (Cont.)

19 **WY-03-C-01** **BLOCK OF FLATS, LEEDS** **WEST YORKSHIRE**
EAST STREET
CROWN POINT
LEEDS
Edge of Town Centre
Development Zone
Total Number of dwellings: 127

20 **WY-03-C-02** **BLOCK OF FLATS, HUDDERSFIELD** **WEST YORKSHIRE**
KINGS MILL LANE
ASPLEY
HUDDERSFIELD
Edge of Town Centre
Built-Up Zone
Total Number of dwellings: 12

320120420P

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	20	54	0.030	20	54	0.152	20	54	0.182
08:00 - 09:00	20	54	0.078	**20**	**54**	**0.246**	20	54	0.324
09:00 - 10:00	20	54	0.067	20	54	0.096	20	54	0.163
10:00 - 11:00	20	54	0.079	20	54	0.088	20	54	0.167
11:00 - 12:00	20	54	0.061	20	54	0.068	20	54	0.129
12:00 - 13:00	20	54	0.075	20	54	0.100	20	54	0.175
13:00 - 14:00	20	54	0.082	20	54	0.086	20	54	0.168
14:00 - 15:00	20	54	0.083	20	54	0.078	20	54	0.161
15:00 - 16:00	20	54	0.118	20	54	0.080	20	54	0.198
16:00 - 17:00	20	54	0.116	20	54	0.089	20	54	0.205
17:00 - 18:00	20	54	0.224	20	54	0.113	20	54	0.337
18:00 - 19:00	20	54	0.177	20	54	0.107	20	54	0.284
19:00 - 20:00	**2**	**15**	**0.333**	2	15	0.200	**2**	**15**	**0.533**
20:00 - 21:00	2	15	0.100	2	15	0.033	2	15	0.133
21:00 - 22:00	2	15	0.133	2	15	0.100	2	15	0.233
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			1.756			1.636			3.392

Parameter summary

Trip rate parameter range selected:	8 - 140 (units:)
Survey date date range:	01/01/03 - 23/10/10
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

320120420P

ROYAL HASKONING

APPENDIX F

Vehicle TRICS Outputs: Nursing Home

320120420P

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
Category : F - NURSING HOMES

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	BD	BEDFORDSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
03	**SOUTH WEST**		
	DC	DORSET	1 days
05	**EAST MIDLANDS**		
	NR	NORTHAMPTONSHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	2 days
	WY	WEST YORKSHIRE	1 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
	GM	GREATER MANCHESTER	2 days
09	**NORTH**		
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	1 days
10	**WALES**		
	CF	CARDIFF	1 days
	CP	CAERPHILLY	1 days
11	**SCOTLAND**		
	AS	ABERDEENSHIRE	1 days
	HI	HIGHLAND	1 days

320120420P

Filtering Stage 2 selection:

Parameter: Number of residents
Range: 33 to 180 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/03 to 15/06/10

Selected survey days:

Monday	3 days
Tuesday	4 days
Wednesday	4 days
Thursday	1 days
Friday	4 days

Selected survey types:

Manual count	16 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	11
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	3

Selected Location Sub Categories:

Development Zone	1
Residential Zone	7
Built-Up Zone	1
Village	2
No Sub Category	5

LIST OF SITES relevant to selection parameters

1 **AS-05-F-01** **NURSING HOME, ABERDEEN** **ABERDEENSHIRE**
FONTHILL ROAD
FERRYHILL
ABERDEEN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 53

2 **BD-05-F-01** **NURSING HOME, DUNSTABLE** **BEDFORDSHIRE**
BRANDRETH AVENUE

DUNSTABLE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of residents: 60

3 **CF-05-F-01** **NURSING HOME, CARDIFF** **CARDIFF**
ROMILLY CRESCENT
CANTON
CARDIFF
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 48

4 **CH-05-F-01** **NURSING HOME, NEAR CREWE** **CHESHIRE**
CREWE ROAD
HASLINGTON
NEAR CREWE
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of residents: 88

5 **CP-05-F-01** **NURS./RES. HOMES, NR CARDIFF** **CAERPHILLY**
OLD NANTGARW ROAD
NANTGARW
NEAR CARDIFF
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of residents: 93

6 **DC-05-F-02** **NURSING HOME, BOURNEMOUTH** **DORSET**
WHARNCLIFFE ROAD
BOSCOMBE
BOURNEMOUTH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 43

7 **GM-05-F-01** **NURSING HOME, MANCHESTER** **GREATER MANCHESTER**
TRAFFORD ROAD
ECCLES
MANCHESTER
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of residents: 110

8 **GM-05-F-02** **NURSING HOME, BOLTON** **GREATER MANCHESTER**
BRIDGEMAN STREET
ROSE HILL
BOLTON
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of residents: 180

9 **HF-05-F-01** **NURSING HOME, WATFORD** **HERTFORDSHIRE**
EXPLORER DRIVE

WATFORD
Suburban Area (PPS6 Out of Centre)
Development Zone
Total Number of residents: 120

LIST OF SITES relevant to selection parameters (Cont.)

10 **HI-05-F-01** **NURSING HOME, NAIRN** **HIGHLAND**
CAWDOR ROAD

NAIRN
Edge of Town
No Sub Category
Total Number of residents: 44

11 **NR-05-F-01** **NURSING HOME, CORBY** **NORTHAMPTONSHIRE**
ROCKINGHAM ROAD

CORBY
Edge of Town Centre
Residential Zone
Total Number of residents: 55

12 **NY-05-F-01** **NURSING HOME, RIPON** **NORTH YORKSHIRE**
HARROGATE ROAD

RIPON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 38

13 **NY-05-F-03** **NURSING HOME, TADCASTER** **NORTH YORKSHIRE**
LEEDS ROAD

TADCASTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 33

14 **TV-05-F-01** **NURSING HOME, DARLINGTON** **TEES VALLEY**
HUNDENS LANE

DARLINGTON
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of residents: 59

15 **TW-05-F-01** **NURSING HOME, FELLING** **TYNE & WEAR**
CROWHALL LANE

FELLING
Neighbourhood Centre (PPS6 Local Centre)
No Sub Category
Total Number of residents: 68

16 **WY-05-F-01** **NURSING HOME, LEEDS** **WEST YORKSHIRE**
CLIFF ROAD
HYDE PARK
LEEDS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 58

TRIP RATE for Land Use 05 - HEALTH/F - NURSING HOMES

VEHICLES

Calculation factor: 1 RESIDE

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	**16**	**72**	**0.120**	16	72	0.062	16	72	0.182
08:00 - 09:00	16	72	0.059	16	72	0.043	16	72	0.102
09:00 - 10:00	16	72	0.060	16	72	0.030	16	72	0.090
10:00 - 11:00	16	72	0.068	16	72	0.048	16	72	0.116
11:00 - 12:00	16	72	0.074	16	72	0.074	16	72	0.148
12:00 - 13:00	16	72	0.052	16	72	0.060	16	72	0.112
13:00 - 14:00	16	72	0.091	16	72	0.078	16	72	0.169
14:00 - 15:00	16	72	0.093	**16**	**72**	**0.110**	**16**	**72**	**0.203**
15:00 - 16:00	16	72	0.059	16	72	0.092	16	72	0.151
16:00 - 17:00	16	72	0.062	16	72	0.090	16	72	0.152
17:00 - 18:00	16	72	0.043	16	72	0.070	16	72	0.113
18:00 - 19:00	16	72	0.050	16	72	0.060	16	72	0.110
19:00 - 20:00	6	59	0.077	6	59	0.063	6	59	0.140
20:00 - 21:00	5	62	0.019	5	62	0.029	5	62	0.048
21:00 - 22:00	1	38	0.026	1	38	0.026	1	38	0.052
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.953			0.935			1.888

Parameter summary

Trip rate parameter range selected:	33 - 180 (units:)
Survey date date range:	01/01/03 - 15/06/10
Number of weekdays (Monday-Friday):	16
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

ROYAL HASKONING

APPENDIX G

Census Data

3201204 20P

2001 census - UK travel flows (ward)

area of residence	30ULGP : Littlemoor (2003 CAS ward)
date	2001

area of workplace : 2003 CAS ward	**T203:25 (Car - driver : All people)**
30ULGB : Aighton, Bailey and Chaigley	3
30ULGC : Alston and Hothersall	3
30ULGD : Billington and Old Langho	5
30ULGE : Bowland, Newton and Slaidburn	3
30ULGF : Chatburn	7
30ULGG : Chipping	0
30ULGH : Clayton-le-Dale with Ramsgreave	0
30ULGJ : Derby and Thornley	0
30ULGK : Dilworth	0
30ULGL : Edisford and Low Moor	8
30ULGM : Gisburn, Rimington	9
30ULGN : Langho	4
30ULGP : Littlemoor	59
30ULGQ : Mellor	0
30ULGR : Primrose	37
30ULGS : Read and Simonstone	3
30ULGT : Ribchester	0
30ULGU : Sabden	3
30ULGX : Salthill	84
30ULGW : St Mary's	48
30ULGY : Waddington and West Bradford	6
30ULGZ : Whalley	20
30ULHA : Wilpshire	0
30ULHB : Wiswell and Pendleton	11
Column Total	**313**

320120420P

ROYAL HASKONING

APPENDIX H

PICADY Outputs

320120420P

IRL IRI VIEWER 3.1 AD I:\ . \2010 - Survey\Beverley Dr_Primrose Bridge_Little Moor Cross Road.vpo -

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CAPACIIIES, QUEUES, AND DELAYS AI 3 OR 4-ARM MAJOR/MINOR PRIORIIY JUNCIIONS

PICADY 5.0 ANAIYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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Run with file:-
"I:\9V7186\Iechnical_Data\E03 Reports\Iransport Assessment\PICADY - Crossroads\2010 - Survey\
Beverley Dr_Primrose Bridge_Iittle Moor Cross Road.vpi"
(drive-on-the-left) at 08:15:26 on Friday, 8 July 2011

3201204 20P

TRL IRI VIEWER 3.1 AD I:\.. \2010 - Survey\Beverley Dr_Primrose Bridge_little Moor Cross Road vpo -

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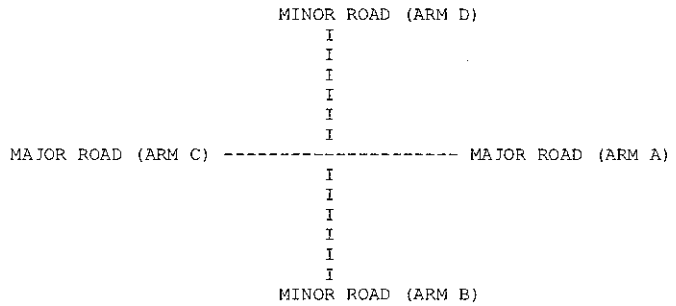
RUN INFORMATION
****

RUN TITLE: Beverley Dr_Primrose Bridge_Little Moor Cross Rd
LOCATION:
DATE: 11/06/22
CLIENT:
ENUMERATOR: 310053 [105460]
JOB NUMBER: 9V7186
STATUS:
DESCRIPTION:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS Whalley Road
ARM B IS Little Moor
ARM C IS Primrose Bridge
ARM D IS Beverley Drive

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

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GEOMETRIC DAIA

DAIA ITEM		MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8 50 M.	(W) 8.50 M.
CENTRAL RESERVE WIDTH	(WCR)	0 00 M.	(WCR) 0.00 M
MAJOR ROAD RIGHI IURN - WIDIH	(WC-B)	2.20 M.	(WA-D) 2.20 M
- VISIBILIIY	(VC-B)	250.0 M.	(VA-D) 129.0 M
- BLOCKS TRAFFIC		YES	YES
MINOR ROAD - VISIBILIIY IO IEFI	(VB-C)	30.0 M.	(VD-A) 29 0 M
- VISIBILIIY IO RIGHI	(VB-A)	21.0 M	(VD-C) 24 0 M
- IANE 1 WIDIH	(WB-C)	-	(WD-A) -
- LANE 2 WIDIH	(WB-A)	-	(WD-C) -
- WIDTH AT 0 M FROM JUNC		8 50 M	9 30 M
- WIDIH AI 5 M FROM JUNC.		5.00 M.	3 95 M.
- WIDIH AI 10 M FROM JUNC		4.10 M	2 80 M.
- WIDIH AI 15 M FROM JUNC		4.10 M	2 80 M.
- WIDIH AI 20 M FROM JUNC.		3 50 M.	2 80 M.
- IENGTH OF FLARED SECTION	DERIVED:	1 PCU	DERIVED: 0 PCU

.SIOPES AND INIERCPEI

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586 12	0 20	0.08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587.86	0 20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457.77	0.19	0 19	0.19	0 19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0.12	0.27	0.09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
458.83	0.19	0 19	0.19	0.19

Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A

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I	0.07	0.12	0 27	0.09	I

C-B Stream

I Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	I
I 718.74	0.25	0.35	I

A-D Stream

I Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	I
I 648.67	0.25	0 32	I

B-D Stream From Left Hand Lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457.77	0.19	0.19	0.07	0 27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0 12	0 12			I

B-D Stream From Right Hand Lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457.77	0.19	0.19	0 07	0.27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0 12	0.12			I

D-B Stream From Left Hand Lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D	I
I 458.83	0.19	0.19	0.07	0.27	I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing	I
I	0.12	0.12			I

D-B Stream From Right Hand Lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D	I
I 458.83	0.19	0 19	0.07	0.27	I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing	I

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I 0.12 0.12 I

TRAFFIC DEMAND DATA

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

Demand set: AM Peak 2013 With Dev

TIME PERIOD BEGINS 07 45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.43	11.14	7.43
ARM B	15.00	45.00	75.00	0.88	1.31	0.88
ARM C	15.00	45.00	75.00	8.93	13.39	8.93
ARM D	15.00	45.00	75.00	0.10	0.15	0.10

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07 45 - 09 15	ARM A	0.000	0.019	0.980	0.002
		0.0	11.0	582.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.114	0.000	0.886	0.000
		8.0	0.0	62.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.864	0.134	0.000	0.001
		617.0	96.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.500	0.125	0.375	0.000
		4.0	1.0	3.0	0.0
		(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 COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMETRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08 00									
B-CD	0.78	10.05	0.077		0 00	0.08	1 2		0.11
B-AD	0.10	4.90	0.020		0 00	0.02	0 3		0.21
A-BCD	0.02	13.73	0.002		0 00	0.00	0 0		0.07
A-B	0.14								
A-C	7.29								
D-AB	0.06	8.62	0 007		0.00	0.01	0 1		0.12
D-BC	0.04	6.47	0 007		0.00	0.01	0 1		0 16
C-ABD	2.40	15.20	0 158		0.00	0.34	5 0		0 08
C-D	0.01								
C-A	6.55								

TIME	DEMAND (VEH/MIN)	CAPACIIY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-CD	0.93	9.68	0.096		0 08	0 11	1.5		0 11
B-AD	0.12	4.39	0.027		0 02	0 03	0.4		0.23
A-BCD	0.03	14.30	0.002		0 00	0 00	0.0		0.07
A-B	0.16								
A-C	8.70								
D-AB	0.07	8 20	0 008		0 01	0.01	0.1		0.12
D-BC	0.05	5.78	0 009		0 01	0.01	0 1		0.17
C-ABD	3 39	15 98	0 212		0 34	0.51	7.7		0.08
C-D	0.01								
C-A	7 30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-CD	1 14	9.17	0 124		0.11	0.14	2.1		0 12
B-AD	0 15	3.69	0.040		0 03	0.04	0.6		0 28
A-BCD	0.05	15.08	0.003		0 00	0 00	0 1		0 07
A-B	0 20								
A-C	10.65								
D-AB	0.08	7.59	0.011		0 01	0 01	0 2		0.13
D-BC	0 06	4.83	0 013		0 01	0 01	0 2		0 21
C-ABD	5.21	17.08	0.305		0 51	0.89	13 3		0.08
C-D	0.01								
C-A	7.88								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-CD	1 14	9 17	0.124		0.14	0.14	2.1		0 12
B-AD	0 15	3 69	0.040		0 04	0.04	0.6		0 28
A-BCD	0.05	15.07	0.003		0.00	0.00	0.1		0.07
A-B	0 20								
A-C	10 65								
D-AB	0.08	7.59	0 011		0.01	0.01	0 2		0 13
D-BC	0.06	4.83	0.013		0.01	0.01	0 2		0 21
C-ABD	5.22	17.10	0.305		0.89	0 90	13.6		0 08
C-D	0.01								
C-A	7.87								

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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-CD	0.93	9.68	0.096		0.14	0.11	1.6		0.11
B-AD	0.12	4.39	0.027		0.04	0.03	0.4		0.23
A-BCD	0.03	14.29	0.002		0.00	0.00	0.0		0.07
A-B	0.16								
A-C	8.70								
D-AB	0.07	8.19	0.008		0.01	0.01	0.1		0.12
D-BC	0.05	5.77	0.009		0.01	0.01	0.1		0.17
C-ABD	3.40	16.00	0.213		0.90	0.53	8.0		0.08
C-D	0.01								
C-A	7.28								

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-CD	0.78	10.05	0.077		0.11	0.08	1.3		0.11
B-AD	0.10	4.89	0.021		0.03	0.02	0.3		0.21
A-BCD	0.02	13.72	0.002		0.00	0.00	0.0		0.07
A-B	0.14								
A-C	7.29								
D-AB	0.06	8.62	0.007		0.01	0.01	0.1		0.12
D-BC	0.04	6.46	0.007		0.01	0.01	0.1		0.16
C-ABD	2.41	15.21	0.159		0.53	0.35	5.3		0.08
C-D	0.01								
C-A	6.54								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

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 B-AD

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

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QUEUE FOR STREAM A-BCD

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 D-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	

QUEUE FOR STREAM D-BC

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-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.5	*
08.30	0.9	*
08.45	0.9	*
09.00	0.5	*
09.15	0.4	

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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-CD	85.3	56.9	9.9	0 12	9.9	0 12
B-AD	11.0	7.3	2.7	0.24	2.7	0 24
A-BCD	3.2	2.2	0.2	0.07	0 2	0 07
A-B	15.1	10.1				
A-C	799.3	532.8				
D-AB	6.2	4.1	0.8	0 12	0.8	0 12
D-BC	4.8	3.2	0 9	0.18	0 9	0.18
C-ABD	330.3	220.2	53.0	0.16	53 0	0.16
C-D	1.1	0 7				
C-A	651.4	434.3				
All	1907 7	1271.8	67.4	0.04	67 4	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 JOB

SLOPES AND INTERCEPT

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586 12	0 20	0.08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587.86	0.20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457 77	0 19	0.19	0.19	0.19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0 12	0.27	0.09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D

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I	458.83	0 19	0 19	0 19	0.19 I

I	Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A I
I	0 07	0 12	0 27	0.09 I

C-B Stream

I Intercept For I Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	I
I 718.74	0 25	0 35	I

A-D Stream

I Intercept For I Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	I
I 648.67	0.25	0.32	I

B-D Stream From left Hand lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457.77	0.19	0.19	0.07	0 27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing I
I	0.12	0.12		I

B-D Stream From Right Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457 77	0.19	0 19	0.07	0.27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing I
I	0 12	0 12		I

D-B Stream From left Hand lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D	I
I 458.83	0 19	0 19	0.07	0.27	I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing I
I	0 12	0.12		I

D-B Stream From Right Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D	I

458.83	0.19	0.19	0.07	0.27

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing
0.12	0.12		

TRAFFIC DEMAND DATA

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

Demand set: PM Peak 2013 With Dev

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	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	8.76	13.14	8.76
ARM B	15.00	45.00	75.00	0.73	1.09	0.73
ARM C	15.00	45.00	75.00	11.34	17.01	11.34
ARM D	15.00	45.00	75.00	0.09	0.13	0.09

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H V S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.023	0.971	0.006
		0.0	16.0	681.0	4.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.155	0.000	0.828	0.017
		9.0	0.0	48.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.936	0.060	0.000	0.004
		849.0	54.0	0.0	4.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.571	0.143	0.286	0.000
		4.0	1.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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-CD	0.61	9.58	0.064		0.00	0.07	1.0		0.11
B-AD	0.12	4.57	0.026		0.00	0.03	0.4		0.22
A-BCD	0.11	14.16	0.008		0.00	0.01	0.1		0.07
A-B	0.20								
A-C	8.48								
D-AB	0.06	7.93	0.007		0.00	0.01	0.1		0.13
D-BC	0.03	5.71	0.005		0.00	0.01	0.1		0.18
C-ABD	1.72	16.79	0.103		0.00	0.22	3.2		0.07
C-D	0.05								
C-A	9.61								

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-CD	0.73	9.13	0.080		0.07	0.09	1.3		0.12
B-AD	0.14	3.97	0.036		0.03	0.04	0.5		0.26
A-BCD	0.16	14.81	0.011		0.01	0.01	0.2		0.07
A-B	0.24								
A-C	10.11								
D-AB	0.07	7.36	0.009		0.01	0.01	0.1		0.14
D-BC	0.04	4.88	0.008		0.01	0.01	0.1		0.21
C-ABD	2.63	17.99	0.146		0.22	0.39	5.9		0.07
C-D	0.05								
C-A	10.91								

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-CD	0.89	8.49	0.105		0.09	0.12	1.7		0.13
B-AD	0.17	3.13	0.056		0.04	0.06	0.8		0.34
A-BCD	0.24	15.69	0.015		0.01	0.02	0.3		0.06
A-B	0.29								
A-C	12.34								
D-AB	0.08	6.52	0.013		0.01	0.01	0.2		0.16
D-BC	0.05	3.73	0.012		0.01	0.01	0.2		0.27
C-ABD	4.49	19.65	0.228		0.39	0.81	12.1		0.07
C-D	0.06								
C-A	12.10								

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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARI 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-CD	0.89	8.49	0.105		0.12	0 12	1 7		0.13
B-AD	0.17	3.13	0.056		0 06	0 06	0 9		0 34
A-BCD	0.24	15.68	0.015		0.02	0 02	0 3		0 06
A-B	0.29								
A-C	12.34								
D-AB	0.08	6 52	0.013		0 01	0 01	0 2		0 16
D-BC	0.05	3.72	0.012		0 01	0 01	0 2		0 27
C-ABD	4.51	19 67	0.229		0 81	0 82	12.5		0 07
C-D	0.06								
C-A	12.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARI 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-CD	0.73	9.13	0.080		0 12	0 09	1 3		0 12
B-AD	0 14	3 96	0.036		0 06	0 04	0 6		0 26
A-BCD	0.16	14.81	0.011		0 02	0 01	0.2		0 07
A-B	0 24								
A-C	10.11								
D-AB	0.07	7.35	0.009		0 01	0 01	0 1		0 14
D-BC	0.04	4.87	0.008		0 01	0 01	0 1		0 21
C-ABD	2 65	18 01	0.147		0 82	0 41	6 2		0 07
C-D	0.05								
C-A	10.89								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	STARI 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-CD	0.61	9.57	0.064		0.09	0.07	1.0		0 11
B-AD	0 12	4.57	0 026		0 04	0 03	0 4		0 22
A-BCD	0.11	14.16	0.008		0 01	0 01	0 1		0 07
A-B	0 20								
A-C	8.48								
D-AB	0.06	7.92	0 007		0 01	0 01	0 1		0.13
D-BC	0.03	5.70	0.005		0 01	0 01	0 1		0 18
C-ABD	1.74	16.80	0.103		0 41	0.23	3.4		0.07
C-D	0.05								
C-A	9.60								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

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

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QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.0	
17.15	0.0	
17.30	0.1	
17.45	0.1	
18.00	0.0	
18.15	0.0	

QUEUE FOR STREAM A-BCD

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 D-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	

QUEUE FOR STREAM D-BC

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-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.2	
17.15	0.4	
17.30	0.8	*
17.45	0.8	*
18.00	0.4	
18.15	0.2	

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QUEUEING DELAY INFORMAIION OVER WHOIE 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-CD	66.8	44 5	8 1	0 12	8 1	0 12
B-AD	13 0	8 7	3.6	0.28	3 6	0 28
A-BCD	15 1	10 1	1.1	0.07	1 1	0 07
A-B	21.8	14 5				
A-C	927.9	618 6				
D-AB	6.2	4 1	0.9	0 14	0.9	0 14
D-BC	3.4	2 3	0.8	0 22	0.8	0 22
C-ABD	266.0	177 4	43.3	0 16	43.3	0 16
C-D	4.6	3.1				
C-A	977.8	651.9				
AII	2302.8	1535.2	57.8	0 03	57.8	0 03

* DELAY IS IHAI OCCURRING ONLY WIIHIN IHE IIME PERIOD .
* INCLUSIVE DELAY INCLUDES DEIAY SUFFERED BY VEHICLES WHICH ARE SIILL QUEUEING AFIER IHE END OF IHE IIME PERIOD
* IHESE WIII ONLY BE SIGNIFICANIIY DIFFERENI IF IHERE IS A IARGE QUEUE REMAINING AT IHE END OF IHE IIME PERIOD.

END OF JOB

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

[Printed at 8:15:32 AM on 7/8/2011]

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

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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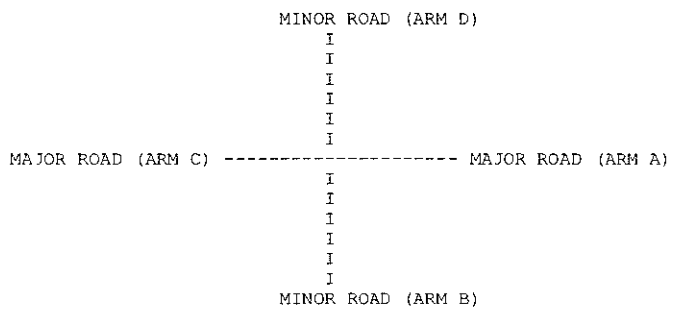
Run with file:-
"I:\9V7186\Technical_Data\E03 Reports\Transport Assessment\PICADY - Crossroads\
2013 - Without Dev - Network Growth + Committed\Beverley Dr_Primrose Bridge_Little Moor Cross Road.vpi'
(drive-on-the-left) at 15:48:13 on Tuesday, 12 July 2011

RUN INFORMAIION
****

RUN IIILE: Beverley Dr_Primrose Bridge_Little Moor Cross Rd
LOCAIION:
DATE: 11/06/22
CLIENI:
ENUMERAIOR: 310053 [I05460]
JOB NUMBER: 9V7186
STATUS:
DESCRIPTION:

MAJOR/MINOR JUNCIION CAPACIIY AND DELAY
****

INPUI DAIA



ARM A IS Whalley Road
ARM B IS Little Moor
ARM C IS Primrose Bridge
ARM D IS Beverley Drive

SIREAM IABELLING CONVENIION

SIREAM A-B CONIAINS IRAFFIC GOING FROM ARM A IO ARM B

SIREAM B-AC CONIAINS IRAFFIC GOING FROM ARM B IO ARM A AND IO ARM C

EIC.

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GEOMEIRIC DAIA

DAIA IIEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDIH	(W) 8.50 M.	(W) 8 50 M.
CENTRAI RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0 00 M.
MAJOR ROAD RIGHI IURN - WIDIH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
- VISIBILIIY	(VC-B) 250.0 M.	(VA-D) 129.0 M.
- BLOCKS IRAFFIC	YES	YES
MINOR ROAD - VISIBILIIY IO LEFI	(VB-C) 30.0 M.	(VD-A) 29 0 M.
- VISIBILIIY IO RIGHI	(VB-A) 21.0 M.	(VD-C) 24.0 M.
- LANE 1 WIDIH	(WB-C) -	(WD-A) -
- LANE 2 WIDIH	(WB-A) -	(WD-C) -
- WIDIH AT 0 M FROM JUNC.	8 50 M.	9 30 M
- WIDIH AI 5 M FROM JUNC.	5.00 M.	3 95 M
- WIDIH AI 10 M FROM JUNC.	4.10 M.	2 80 M.
- WIDIH AI 15 M FROM JUNC	4.10 M.	2 80 M.
- WIDIH AI 20 M FROM JUNC.	3.50 M	2.80 M.
- IENGTH OF FIARED SECTION	DERIVED: 1 PCU	DERIVED: 0 PCU

SIOPES AND INIERCPEI

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586.12	0.20	0.08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587.86	0.20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457.77	0.19	0.19	0.19	0.19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0.12	0 27	0 09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
458.83	0.19	0.19	0.19	0.19

Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A

I	0.07	0 12	0 27	0.09 I

C-B Stream

I Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D
I 718.74	0.25	0 35

A-D Stream

I Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B
I 648.67	0.25	0.32

B-D Stream From Left Hand Lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B
I 457.77	0.19	0 19	0.07	0.27 I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing
I	0.12	0 12		I

B-D Stream From Right Hand Lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B
I 457.77	0.19	0 19	0.07	0.27 I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing
I	0.12	0.12		I

D-B Stream From Left Hand Lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D
I 458.83	0.19	0 19	0.07	0.27 I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing
I	0.12	0.12		I

D-B Stream From Right Hand Lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D
I 458.83	0.19	0.19	0.07	0 27 I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing

I 0.12 0 12 I

IRAFFIC DEMAND DATA

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

Demand set: AM Peak 2013 With Dev

IIME PERIOD BEGINS 07.45 AND ENDS 09.15

IENGIH OF IIME PERIOD - 90 MINUIES
LENGIH OF TIME SEGMENI - 15 MINUIES.

DEMAND FLOW PROFIILES ARE SYNIHESISED FROM IURNING COUNI DAIA

ARM	NUMBER OF MINUIES FROM SIARI WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RAIE OF FLOW (VEH/MIN) BEFORE PEAK	AI TOP OF PEAK	AFIER PEAK
ARM A	15 00	45.00	75 00	7.69	11.53	7 69
ARM B	15 00	45.00	75.00	0.99	1.48	0.99
ARM C	15 00	45 00	75 00	9.25	13.88	9 25
ARM D	15 00	45 00	75 00	0.10	0.15	0 10

IURNING PROPORTIONS
IURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

IIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07 45 - 09 15	ARM A	0.000	0.020	0.979	0 002
		0.0	12.0	602 0	1 0
		(0.0)	(0 0)	(0.0)	(0 0)
	ARM B	0.114	0.000	0 886	0 000
		9.0	0.0	70 0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.862	0.136	0 000	0 001
		638.0	101.0	0 0	1 0
		(0.0)	(0.0)	(0 0)	(0 0)
	ARM D	0.500	0.125	0 375	0.000
		4.0	1 0	3 0	0.0
		(0.0)	(0.0)	(0 0)	(0 0)

IURNING PROPORIIONS ARE CAICUIAIED FROM IURNING COUNI DAIA

QUEUE AND DEIAY INFORMAIION FOR EACH 15 MIN IIME SEGMENI

FOR COMBINED DEMAND SEIS
AND FOR IIME PERIOD 1

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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMETRIC DELAY (VEH.MIN/ IIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-CD	0.88	9 98	0 088		0 00	0 10	1.4		0.11
B-AD	0 11	4.81	0.024		0 00	0 02	0.3		0.21
A-BCD	0.03	13 83	0 002		0 00	0 00	0 0		0.07
A-B	0.15								
A-C	7.54								
D-AB	0.06	8 55	0.007		0.00	0.01	0.1		0.12
D-BC	0.04	6.33	0.007		0.00	0.01	0.1		0.16
C-ABD	2.58	15.32	0.169		0.00	0.37	5 5		0.08
C-D	0.01								
C-A	6.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMETRIC DELAY (VEH.MIN/ IIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-CD	1.05	9.60	0.109		0 10	0.12	1.8		0.12
B-AD	0.13	4.28	0.032		0.02	0.03	0.5		0.24
A-BCD	0.03	14.42	0.002		0.00	0.00	0.0		0.07
A-B	0.18								
A-C	9.00								
D-AB	0 07	8.11	0.008		0.01	0.01	0 1		0.12
D-BC	0.05	5.61	0.009		0.01	0.01	0.1		0 18
C-ABD	3 68	16 13	0 228		0.37	0.57	8 5		0.08
C-D	0.01								
C-A	7.40								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08 30									
B-CD	1 28	9 06	0 142		0 12	0 16	2 4		0 13
B-AD	0 17	3 55	0 047		0 03	0 05	0 7		0 30
A-BCD	0 05	15 22	0.003		0 00	0 00	0 1		0.07
A-B	0.22								
A-C	11 02								
D-AB	0.08	7 47	0.011		0 01	0 01	0 2		0 14
D-BC	0.06	4 62	0 014		0 01	0 01	0.2		0 22
C-ABD	5.71	17 28	0.330		0 57	1.00	15.1		0 09
C-D	0.01								
C-A	7.86								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DELAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-CD	1.28	9.06	0.142		0 16	0 16	2 5		0 13
B-AD	0.17	3.55	0 047		0 05	0.05	0 7		0 30
A-BCD	0.05	15.21	0.003		0 00	0.00	0.1		0 07
A-B	0.22								
A-C	11.02								
D-AB	0.08	7.47	0.011		0.01	0.01	0.2		0.14
D-BC	0.06	4.62	0.014		0.01	0.01	0 2		0.22
C-ABD	5 73	17.30	0.331		1.00	1.02	15 4		0.09
C-D	0 01								
C-A	7 84								

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-CD	1.05	9.60	0.109		0.16	0.12	1.9		0.12
B-AD	0.13	4.27	0.032		0.05	0.03	0.5		0.24
A-BCD	0.03	14.41	0.002		0.00	0.00	0.0		0.07
A-B	0.18								
A-C	9.00								
D-AB	0.07	8.10	0.008		0.01	0.01	0.1		0.12
D-BC	0.05	5.60	0.009		0.01	0.01	0.1		0.18
C-ABD	3.70	16.16	0.229		1.02	0.59	8.9		0.08
C-D	0.01								
C-A	7.38								

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-CD	0.88	9.98	0.088		0.12	0.10	1.5		0.11
B-AD	0.11	4.80	0.024		0.03	0.02	0.4		0.21
A-BCD	0.03	13.82	0.002		0.00	0.00	0.0		0.07
A-B	0.15								
A-C	7.54								
D-AB	0.06	8.54	0.007		0.01	0.01	0.1		0.12
D-BC	0.04	6.31	0.007		0.01	0.01	0.1		0.16
C-ABD	2.60	15.33	0.170		0.59	0.38	5.8		0.08
C-D	0.01								
C-A	6.67								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

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 B-AD

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 A-BCD

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 D-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	

QUEUE FOR STREAM D-BC

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-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08 00	0 4	
08 15	0 6	*
08 30	1 0	*
08 45	1 0	*
09 00	0 6	*
09 15	0 4	

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-CD	96.3	64.2	11.4	0.12	11.4	0.12
B-AD	12.4	8.3	3.1	0.25	3.1	0.25
A-BCD	3.3	2.2	0.2	0.07	0.2	0.07
A-B	16.5	11.0				
A-C	826.7	551.1				
D-AB	6.2	4.1	0.8	0.13	0.8	0.13
D-BC	4.8	3.2	0.9	0.19	0.9	0.19
C-ABD	359.9	239.9	59.2	0.16	59.2	0.16
C-D	1.0	0.7				
C-A	657.6	438.4				
ALL	1984.8	1323.2	75.7	0.04	75.7	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 JOB

SLOPES AND INTERCEPT

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586.12	0.20	0.08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587.86	0.20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457.77	0.19	0.19	0.19	0.19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0.12	0.27	0.09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D

I	458 83	0.19	0.19	0.19	0.19 I

I	Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A	I
I	0.07	0 12	0.27	0.09	I

C-B Stream

I Intercept For I Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	I
I 718.74	0.25	0 35	I

A-D Stream

I Intercept For I Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	I
I 648.67	0 25	0.32	I

B-D Stream From Left Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457.77	0 19	0.19	0 07	0 27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0 12	0.12			I

B-D Stream From Right Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B	I
I 457 77	0.19	0.19	0.07	0.27	I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing	I
I	0.12	0 12			I

D-B Stream From Left Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D	I
I 458 83	0.19	0 19	0.07	0.27	I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing	I
I	0.12	0.12			I

D-B Stream From Right Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D	I

I	458.83	0.19	0 19	0.07	0 27 I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing I
I	0 12	0.12		I

TRAFFIC DEMAND DAIA

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

Demand set: PM Peak 2013 With Dev

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45 00	75 00	9 09	13.63	9 09
ARM B	15.00	45 00	75 00	0 80	1.20	0 80
ARM C	15 00	45 00	75 00	11 80	17.70	11 80
ARM D	15 00	45 00	75 00	0 09	0 13	0 09

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18 15	ARM A	0 000	0.025	0.968	0 007
		0.0	18.0	704.0	5.0
		(0.0)	(0 0)	(0.0)	(0.0)
	ARM B	0.156	0 000	0.828	0 016
		10.0	0 0	53 0	1 0
		(0.0)	(0.0)	(0.0)	(0 0)
	ARM C	0.930	0.066	0 000	0.004
		878.0	62.0	0.0	4 0
		(0.0)	(0.0)	(0.0)	(0 0)
	ARM D	0 571	0 143	0.286	0 000
		4.0	1.0	2 0	0 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 COMBINED DEMAND SETS
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-CD	0 67	9.50	0 071		0.00	0 08	1 1		0 11
B-AD	0 13	4.44	0 030		0.00	0 03	0 4		0 23
A-BCD	0 14	14 27	0.010		0.00	0 01	0 2		0 07
A-B	0 22								
A-C	8.75								
D-AB	0 06	7.83	0 007		0.00	0.01	0 1		0 13
D-BC	0 03	5.54	0 006		0.00	0 01	0 1		0 18
C-ABD	2.13	17 11	0 125		0.00	0.30	4 4		0 07
C-D	0.04								
C-A	9.67								

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)
17.00-17 15									
B-CD	0 80	9.03	0 089		0 08	0.10	1 4		0 12
B-AD	0.16	3.81	0 041		0 03	0.04	0.6		0 27
A-BCD	0 20	14.94	0 014		0.01	0.02	0 2		0 07
A-B	0.27								
A-C	10.42								
D-AB	0.07	7.23	0.009		0.01	0.01	0 1		0 14
D-BC	0.04	4 67	0.008		0 01	0.01	0.1		0 22
C-ABD	3 16	18 21	0 173		0 30	0.53	7.9		0 07
C-D	0.05								
C-A	10.94								

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-CD	0.98	8.37	0.117		0.10	0 13	1.9		0.14
B-AD	0 19	2.94	0.065		0 04	0 07	1.0		0.36
A-BCD	0.31	15 83	0.019		0 02	0 02	0.3		0.06
A-B	0.32								
A-C	12.71								
D-AB	0.08	6.34	0 013		0.01	0 01	0 2		0.16
D-BC	0 05	3.47	0.013		0 01	0 01	0 2		0.29
C-ABD	5.62	20.06	0.280		0.53	1 04	15 6		0 07
C-D	0.05								
C-A	11.65								

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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-CD	0.98	8.37	0.117		0.13	0.13	2.0		0.14
B-AD	0.19	2.93	0.066		0.07	0.07	1.0		0.37
A-BCD	0.31	15.83	0.020		0.02	0.02	0.4		0.06
A-B	0.32								
A-C	12.71								
D-AB	0.08	6.33	0.013		0.01	0.01	0.2		0.16
D-BC	0.05	3.46	0.013		0.01	0.01	0.2		0.29
C-ABD	5.65	20.08	0.281		1.04	1.06	16.1		0.07
C-D	0.05								
C-A	11.62								

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-CD	0.80	9.03	0.089		0.13	0.10	1.5		0.12
B-AD	0.16	3.80	0.041		0.07	0.04	0.7		0.27
A-BCD	0.20	14.93	0.014		0.02	0.02	0.2		0.07
A-B	0.27								
A-C	10.42								
D-AB	0.07	7.21	0.009		0.01	0.01	0.1		0.14
D-BC	0.04	4.65	0.008		0.01	0.01	0.1		0.22
C-ABD	3.18	18.24	0.174		1.06	0.55	8.4		0.07
C-D	0.05								
C-A	10.92								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-CD	0.67	9.50	0.071		0.10	0.08	1.2		0.11
B-AD	0.13	4.43	0.030		0.04	0.03	0.5		0.23
A-BCD	0.14	14.26	0.010		0.02	0.01	0.2		0.07
A-B	0.22								
A-C	8.75								
D-AB	0.06	7.82	0.007		0.01	0.01	0.1		0.13
D-BC	0.03	5.52	0.006		0.01	0.01	0.1		0.18
C-ABD	2.15	17.12	0.126		0.55	0.31	4.7		0.07
C-D	0.04								
C-A	9.65								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

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 SIREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.0	
17.15	0 0	
17.30	0 1	
17.45	0 1	
18.00	0 0	
18.15	0 0	

QUEUE FOR SIREAM A-BCD

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 SIREAM D-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	

QUEUE FOR SIREAM D-BC

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 SIREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0 3	
17.15	0 5	*
17 30	1.0	*
17 45	1.1	*
18 00	0.6	*
18 15	0.3	

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-CD	73.7	49.1	9 1	0.12	9 1	0.12
B-AD	14.4	9.6	4 2	0.29	4 2	0.29
A-BCD	19.7	13.1	1 5	0.08	1 5	0.08
A-B	24.5	16.3				
A-C	956.5	637.7				
D-AB	6.2	4.1	0.9	0 14	0.9	0.14
D-BC	3.4	2.3	0.8	0.23	0.8	0.23
C-ABD	328.3	218.9	57.2	0 17	57.2	0.17
C-D	4.4	2.9				
C-A	966 6	644 4				
ALL	2397.7	1598.5	73.7	0 03	73.7	0.03

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD .
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

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

[Printed at 3:48:21 PM on 7/12/2011]

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

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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Run with file:-
"I:\9V7186\Technical_Data\E03 Reports\Transport Assessment\PICADY - Crossroads\
2013 - Growth Committed Proposed\Beverley Dr_Primrose Bridge_Little Moor Cross Road.vpi"
(drive-on-the-left) at 08:09:10 on Friday, 8 July 2011

320120420P

IRI IRI VIEWER 3.1 AD I:\... \2013 - Growth Committed Proposed\Beverley Dr_Primrose Bridge_Little Mo

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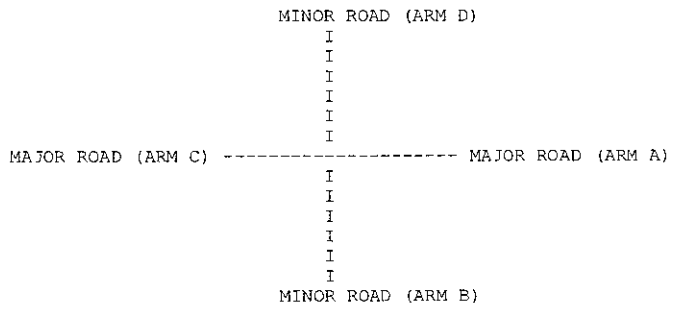
RUN INFORMATION
****

RUN TITLE: Beverley Dr_Primrose Bridge_Little Moor Cross Rd
LOCATION:
DATE: 06/11/22
CLIENT:
ENUMERATOR: 310053 [105460]
JOB NUMBER: 9V7186
STATUS:
DESCRIPTION:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS Whalley Road
ARM B IS Little Moor
ARM C IS Primrose Bridge
ARM D IS Beverley Drive

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

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GEOMEIRIC DAIA

DAIA ITEM		MINOR ROAD B	MINOR ROAD D
IOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	8 50 M.	(W) 8.50 M.
CENTRAI RESERVE WIDTH	(WCR)	0 00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHI IURN - WIDIH	(WC-B)	2.20 M.	(WA-D) 2.20 M.
- VISIBILIIY	(VC-B)	250.0 M.	(VA-D) 129.0 M
- BIOCKS IRAFFIC		YES	YES
MINOR ROAD - VISIBILIIY IO LEFI	(VB-C)	30 0 M.	(VD-A) 29 0 M
- VISIBILIIY IO RIGHI	(VB-A)	21 0 M.	(VD-C) 24 0 M.
- LANE 1 WIDIH	(WB-C)	-	(WD-A) -
- LANE 2 WIDIH	(WB-A)	-	(WD-C) -
- WIDTH AT 0 M FROM JUNC.		8.50 M	9.30 M.
- WIDIH AI 5 M FROM JUNC		5 00 M	3.95 M.
- WIDIH AI 10 M FROM JUNC		4 10 M	2.80 M.
- WIDIH AI 15 M FROM JUNC		4 10 M	2.80 M.
- WIDIH AI 20 M FROM JUNC.		3 50 M	2.80 M.
- IENGIH OF FIARED SECTION	DERIVED:	1 PCU	DERIVED: 0 PCU

.SIOPES AND INIERCPEI

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586 12	0 20	0 08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587 86	0 20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457.77	0 19	0.19	0.19	0.19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0.12	0 27	0 09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D
458 83	0 19	0 19	0.19	0.19

Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A

I	0.07	0.12	0.27	0.09 I

C-B Stream

I Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D
718.74	0.25	0.35

A-D Stream

I Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B
648.67	0.25	0.32

B-D Stream From left Hand lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B
457.77	0.19	0.19	0.07	0.27

Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing
0.12	0.12		

B-D Stream From Right Hand lane

I Intercept For Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B
457.77	0.19	0.19	0.07	0.27

Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing	Slope For Opposing
0.12	0.12		

D-B Stream From left Hand lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D
458.83	0.19	0.19	0.07	0.27

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing
0.12	0.12		

D-B Stream From Right Hand lane

I Intercept For Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D
458.83	0.19	0.19	0.07	0.27

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing

I 0 12 0 12 I

IRAFFIC DEMAND DAIA

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

Demand set: AM Peak 2013 With Dev

IIME PERIOD BEGINS 07 45 AND ENDS 09.15

LENGIH OF IIME PERIOD - 90 MINUIES.
LENGIH OF IIME SEGMENI - 15 MINUIES.

DEMAND FLOW PROFILES ARE SYNIHESISED FROM IURNING COUNI DAIA

I ARM I	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	AFIER PEAK
I ARM A I	15.00	45.00	75.00	7 70	11.55	7 70
I ARM B I	15 00	45.00	75.00	1 20	1 80	1 20
I ARM C I	15.00	45.00	75.00	9 32	13 99	9 32
I ARM D I	15 00	45 00	75 00	0 10	0.15	0 10

I IIME	I FROM/TO I	ARM A	ARM B	ARM C	ARM D
I 07 45 - 09.15	I ARM A	0.000	0.021	0.977	0 002
		0.0	13.0	602.0	1 0
		(0 0)	(0.0)	(0 0)	(0.0)
	I ARM B	0.125	0 000	0.875	0 000
		12 0	0.0	84 0	0 0
		(0 0)	(0.0)	(0.0)	(0 0)
	I ARM C	0.855	0.143	0 000	0 001
		638.0	107 0	0 0	1 0
		(0 0)	(0 0)	(0.0)	(0 0)
	I ARM D	0 500	0 125	0 375	0.000
		4.0	1 0	3 0	0.0
		(0 0)	(0.0)	(0.0)	(0.0)

IURNING PROPORIIONS ARE CALCULAIED FROM IURNING COUNI DAIA

QUEUE AND DELAY INFORMAIION FOR EACH 15 MIN IIME SEGMENI

FOR COMBINED DEMAND SEIS
AND FOR IIME PERIOD 1

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IRI IRI VIEWER 3 1 AD I:\.. \2013 - Growth Committed Proposed\Beverley Dr_Primrose Bridge_Little Mo

TIME	DEMAND (VEH/MIN)	CAPACIIY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DEIAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08 00									
B-CD	1.05	9 95	0 106		0.00	0.12	1 7		0.11
B-AD	0.15	4 80	0 031		0.00	0.03	0 5		0.21
A-BCD	0.03	13.82	0 002		0 00	0.00	0 0		0.07
A-B	0.16								
A-C	7.54								
D-AB	0.06	8.55	0 007		0 00	0 01	0 1		0.12
D-BC	0.04	6.27	0.007		0 00	0 01	0 1		0.16
C-ABD	2 74	15.31	0.179		0 00	0 39	5 8		0.08
C-D	0 01								
C-A	6 61								

TIME	DEMAND (VEH/MIN)	CAPACIIY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DEIAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-CD	1.26	9 56	0 132		0.12	0.15	2.2		0.12
B-AD	0.18	4.26	0.042		0 03	0.04	0 6		0 24
A-BCD	0.03	14 41	0 002		0.00	0.00	0 0		0.07
A-B	0 19								
A-C	9.00								
D-AB	0.07	8.10	0.008		0 01	0 01	0 1		0.12
D-BC	0 05	5.54	0.009		0 01	0 01	0 1		0.18
C-ABD	3 90	16.13	0.242		0 39	0 60	9 1		0.08
C-D	0 01								
C-A	7.27								

TIME	DEMAND (VEH/MIN)	CAPACIIY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DEIAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08 30									
B-CD	1 54	9 01	0 171		0 15	0.20	3.0		0 13
B-AD	0.22	3 52	0 062		0.04	0 07	0.9		0.30
A-BCD	0 05	15 21	0 003		0.00	0 00	0 1		0.07
A-B	0 24								
A-C	11.01								
D-AB	0.08	7 46	0.011		0 01	0.01	0 2		0.14
D-BC	0 06	4 53	0.014		0.01	0.01	0 2		0.22
C-ABD	6.05	17 28	0.350		0.60	1 08	16.3		0.09
C-D	0 01								
C-A	7 63								

TIME	DEMAND (VEH/MIN)	CAPACIIY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN FLOW (PEDS/MIN)	SIARI QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ IIME SEGMENI)	GEOMEIRIC DEIAY (VEH.MIN/ IIME SEGMENI)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-CD	1.54	9 01	0 171		0.20	0 21	3.1		0.13
B-AD	0.22	3.52	0 063		0.07	0 07	1.0		0 30
A-BCD	0.05	15 20	0 003		0.00	0.00	0 1		0 07
A-B	0.24								
A-C	11.01								
D-AB	0 08	7 46	0.011		0.01	0 01	0.2		0.14
D-BC	0 06	4 53	0.014		0.01	0 01	0 2		0.22
C-ABD	6.07	17 30	0.351		1.08	1.10	16 6		0.09
C-D	0 01								
C-A	7.61								

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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-CD	1.26	9.56	0.132		0.21	0.15	2.4		0.12
B-AD	0.18	4.25	0.042		0.07	0.04	0.7		0.25
A-BCD	0.03	14.40	0.002		0.00	0.00	0.0		0.07
A-B	0.19								
A-C	9.00								
D-AB	0.07	8.09	0.008		0.01	0.01	0.1		0.12
D-BC	0.05	5.52	0.009		0.01	0.01	0.2		0.18
C-ABD	3.92	16.16	0.242		1.10	0.63	9.5		0.08
C-D	0.01								
C-A	7.25								

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-CD	1.05	9.95	0.106		0.15	0.12	1.8		0.11
B-AD	0.15	4.79	0.031		0.04	0.03	0.5		0.22
A-BCD	0.03	13.81	0.002		0.00	0.00	0.0		0.07
A-B	0.16								
A-C	7.54								
D-AB	0.06	8.54	0.007		0.01	0.01	0.1		0.12
D-BC	0.04	6.25	0.007		0.01	0.01	0.1		0.16
C-ABD	2.75	15.33	0.180		0.63	0.41	6.1		0.08
C-D	0.01								
C-A	6.60								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

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

QUEUE FOR STREAM B-AD

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

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QUEUE FOR STREAM A-BCD

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 D-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	

QUEUE FOR STREAM D-BC

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-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.6	*
08.30	1.1	*
08.45	1.1	*
09.00	0.6	*
09.15	0.4	

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QUEUEING DELAY INFORMAIION 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-CD	115.6	77.1	14.2	0.12	14.2	0.12
B-AD	16.5	11.0	4.2	0.26	4.2	0.26
A-BCD	3.3	2.2	0.2	0.07	0.2	0.07
A-B	17.9	11.9				
A-C	826.7	551.1				
D-AB	6.2	4.1	0.8	0.13	0.8	0.13
D-BC	4.8	3.2	0.9	0.19	0.9	0.19
C-ABD	381.4	254.3	63.5	0.17	63.5	0.17
C-D	1.0	0.7				
C-A	644.4	429.6				
ALL	2017.8	1345.2	83.8	0.04	83.8	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 JOB

. SLOPES AND INTERCPEI

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

will be adjusted)

B-C Stream

Intercept For Stream B-C	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
586.12	0.20	0.08

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D
587.86	0.20	0.08

B-A Stream

Intercept For Stream B-A	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream D-A	Slope For Opposing Stream D-B
457.77	0.19	0.19	0.19	0.19

Slope For Opposing Stream A-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C
0.07	0.12	0.27	0.09

D-C Stream

Intercept For Stream D-C	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream B-C	Slope For Opposing Stream B-D

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I	458 83	0.19	0.19	0.19	0 19 I

I	Slope For Opposing Stream C-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream B-A I
I	0 07	0 12	0.27	0.09 I

C-B Stream

I Intercept For I Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	I
I 718 74	0.25	0.35	I

A-D Stream

I Intercept For I Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	I
I 648 67	0.25	0.32	I

B-D Stream From left Hand lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B I
I 457.77	0 19	0.19	0.07	0.27 I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	I
I	0.12	0.12	I

B-D Stream From Right Hand Lane

I Intercept For I Stream B-D	Slope For Opposing Stream A-C	Slope For Opposing Stream A-D	Slope For Opposing Stream A-B	Slope For Opposing Stream C-B I
I 457.77	0.19	0.19	0 07	0 27 I

I	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	I
I	0 12	0 12	I

D-B Stream From left Hand lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream D-C	Slope For Opposing Stream A-D I
I 458 83	0.19	0.19	0 07	0.27 I

I	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	I
I	0.12	0.12	I

D-B Stream From Right Hand Lane

I Intercept For I Stream D-B	Slope For Opposing Stream C-A	Slope For Opposing Stream C-B	Slope For Opposing Stream C-D	Slope For Opposing Stream A-D I

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458.83	0 19	0.19	0 07	0.27

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing	Slope For Opposing
0 12	0.12		

TRAFFIC DEMAND DATA

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

Demand set: PM Peak 2013 With Dev

TIME PERIOD BEGINS 16.45 AND ENDS 18 15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	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	9.11	13.67	9 11
ARM B	15 00	45.00	75.00	0.90	1.35	0 90
ARM C	15 00	45 00	75.00	11 96	17.94	11.96
ARM D	15 00	45.00	75 00	0.09	0 13	0 09

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) / (PERCENTAGE OF H.V S)			
		ARM A	ARM B	ARM C	ARM D
16 45 - 18 15	ARM A	0.000	0.027	0.966	0 007
		0.0	20.0	704.0	5.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.139	0.000	0.847	0 014
		10.0	0 0	61.0	1.0
		(0.0)	(0.0)	(0.0)	(0 0)
	ARM C	0.917	0.078	0.000	0.004
		878.0	75 0	0 0	4 0
		(0 0)	(0.0)	(0 0)	(0 0)
	ARM D	0 571	0 143	0.286	0.000
		4.0	1 0	2 0	0 0
		(0.0)	(0 0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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-CD	0.77	9.52	0 081		0.00	0.09	1.3		0 11
B-AD	0.13	4.37	0 030		0.00	0.03	0.4		0 24
A-BCD	0.14	14.25	0 010		0.00	0.01	0.2		0 07
A-B	0 25								
A-C	8.75								
D-AB	0.06	7.81	0 007		0.00	0.01	0.1		0 13
D-BC	0.03	5.47	0 006		0.00	0.01	0.1		0 18
C-ABD	2 58	17.10	0 151		0 00	0 40	6.0		0 07
C-D	0.04								
C-A	9.39								

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)	GEOMEIRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-CD	0 92	9 06	0 102		0.09	0.11	1.6		0 12
B-AD	0 16	3.73	0 042		0.03	0.04	0.6		0.28
A-BCD	0.20	14.91	0 014		0 01	0.02	0.2		0 07
A-B	0.30								
A-C	10.42								
D-AB	0.07	7.21	0 009		0.01	0.01	0.1		0 14
D-BC	0.04	4 59	0 008		0.01	0.01	0.1		0 22
C-ABD	3.93	18.32	0 215		0.40	0.66	9.9		0 07
C-D	0.05								
C-A	10.36								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	SIART QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMEIRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-CD	1.13	8 39	0 135		0.11	0.15	2.3		0 14
B-AD	0.19	2 85	0 067		0 04	0.07	1.0		0 38
A-BCD	0 31	15.81	0 020		0.02	0.02	0.4		0 06
A-B	0.36								
A-C	12.70								
D-AB	0.08	6 31	0.013		0.01	0.01	0.2		0 16
D-BC	0.05	3.38	0 014		0.01	0.01	0.2		0 30
C-ABD	6.81	20 06	0 340		0.66	1.31	19 6		0 08
C-D	0.05								
C-A	10.70								

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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN 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-CD	1.13	8.38	0.135		0.15	0 15	2 3		0.14
B-AD	0.19	2.84	0.068		0 07	0 07	1.1		0.38
A-BCD	0.31	15.80	0.020		0.02	0 02	0.4		0.06
A-B	0.36								
A-C	12.70								
D-AB	0.08	6.30	0.013		0 01	0.01	0.2		0.16
D-BC	0.05	3.37	0.014		0 01	0.01	0.2		0.30
C-ABD	6.84	20.08	0.341		1 31	1.33	20.2		0.08
C-D	0.05								
C-A	10.67								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN 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-CD	0.92	9 05	0.102		0.15	0.11	1 8		0.12
B-AD	0 16	3.72	0 042		0.07	0.04	0 7		0 28
A-BCD	0.20	14 90	0 014		0.02	0.02	0 2		0 07
A-B	0.30								
A-C	10 42								
D-AB	0 07	7.19	0.009		0.01	0.01	0 1		0.14
D-BC	0.04	4.58	0 008		0.01	0.01	0 1		0 22
C-ABD	3 96	18.36	0 216		1 33	0 69	10 5		0 07
C-D	0 05								
C-A	10.33								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESIRIAN 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-CD	0 77	9.52	0.081		0 11	0.09	1 4		0.11
B-AD	0.13	4 36	0.030		0 04	0.03	0.5		0.24
A-BCD	0.15	14 24	0 010		0.02	0.01	0.2		0.07
A-B	0.25								
A-C	8.75								
D-AB	0.06	7 80	0.007		0.01	0.01	0.1		0 13
D-BC	0.03	5 46	0.006		0.01	0.01	0.1		0 18
C-ABD	2.60	17 12	0.152		0.69	0.42	6 4		0.07
C-D	0 04								
C-A	9.36								

WARNING NO MARGINAL ANALYSIS OF CAPACIIIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR SIREAM B-CD

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

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QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.0	
17.15	0.0	
17.30	0.1	
17.45	0.1	
18.00	0.0	
18.15	0 0	

QUEUE FOR STREAM A-BCD

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 D-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	

QUEUE FOR STREAM D-BC

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-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17 00	0.4	
17.15	0.7	*
17.30	1.3	*
17.45	1.3	*
18.00	0.7	*
18.15	0 4	

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QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-CD	84.7	56.5	10.6	0.13	10.6	0.13
B-AD	14.4	9.6	4.3	0.30	4.3	0.30
A-BCD	19.8	13.2	1.5	0.08	1.5	0.08
A-B	27.2	18.1				
A-C	956.4	637.6				
D-AB	6.2	4.1	0.9	0.14	0.9	0.14
D-BC	3.4	2.3	0.8	0.24	0.8	0.24
C-ABD	401.0	267.3	72.5	0.18	72.5	0.18
C-D	4.2	2.8				
C-A	912.1	608.1				
ALL	2429.4	1619.6	90.7	0.04	90.7	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 JOB

end of file

[Printed at 8:09:55 AM on 7/8/2011]

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IRL LIMITED

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

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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Run with file:-
"I:\9V7186\Technical_Data\E03 Reports\Transport Assessment\PICADY - Proposed Site Access\Proposed Site Access.vpi"
(drive-on-the-left) at 13:12:48 on Thursday, 7 July 2011

RUN INFORMATION
****

RUN TITLE: Proposed Site Access
LOCATION: Standen
DATE: 11/06/22
CLIENT:
ENUMERATOR: 310053 [L05460]
JOB NUMBER: 9V7186
STATUS:
DESCRIPTION:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

MAJOR ROAD (ARM C) ---------- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Little Moor (S)
ARM B IS Site Access
ARM C IS Little Moor (N)

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

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GEOMEIRIC DAIA

DAIA IIEM		MINOR ROAD B
IOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W)	6.00 M.
CENTRAI RESERVE WIDTH	(WCR)	0.00 M.
MAJOR ROAD RIGHI IURN - WIDIH	(WC-B)	2.20 M
- VISIBILIIY	(VC-B)	65.0 M.
- BLOCKS IRAFFIC		YES
MINOR ROAD - VISIBILIIY IO LEFI	(VB-C)	16.0 M
- VISIBILIIY IO RIGHI	(VB-A)	19.0 M
- LANE 1 WIDIH	(WB-C)	-
- LANE 2 WIDIH	(WB-A)	-
- WIDTH AT 0 M FROM JUNC.		9 20 M
- WIDIH AI 5 M FROM JUNC		3.70 M
- WIDIH AI 10 M FROM JUNC.		2.70 M
- WIDIH AI 15 M FROM JUNC.		2 60 M
- WIDIH AI 20 M FROM JUNC.		2.60 M
- LENGIH OF FLARED SECTION	DERIVED:	0 PCU

SLOPES AND INIERCEPI

(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
584 97	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
452 73	0 21	0.08	0 13	0 30

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
611 61	0 24	0.24

NB Ihese values do not allow for any site specific corrections

IRAFFIC DEMAND DAIA

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

Demand set: AM Peak 2013 With Dev. Flows

TIME PERIOD BEGINS 07 45 AND ENDS 09 15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	1.51	2 27	1 51
ARM B	15.00	45.00	75.00	0.30	0 45	0 30
ARM C	15 00	45.00	75.00	1.00	1 50	1 00

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V S)		
		ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.058	0.942
		0.0	7 0	114.0
		(0 0)	(0.0)	(0 0)
	ARM B	0.708	0.000	0 292
		17 0	0.0	7 0
		(0 0)	(0 0)	(0.0)
	ARM C	0.913	0.087	0.000
		73.0	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 AM Peak 2013 With Dev Flows
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 09	11 39	0 008		0 00	0.01	0 1		0.09
B-A	0.21	7 96	0 027		0 00	0.03	0.4		0.13
C-AB	0.09	9 83	0 009		0 00	0.01	0.1		0.10
A-B	0.09								
A-C	1.43								

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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	0.10	11.30	0.009		0.01	0.01	0.1		0.09
B-A	0.25	7.86	0.032		0.03	0.03	0.5		0.13
C-AB	0.10	9.76	0.011		0.01	0.01	0.2		0.10
A-B	0.10								
A-C	1.71								

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	0.13	11.17	0.012		0.01	0.01	0.2		0.09
B-A	0.31	7.72	0.040		0.03	0.04	0.6		0.13
C-AB	0.13	9.67	0.013		0.01	0.01	0.2		0.10
A-B	0.13								
A-C	2.09								

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	0.13	11.17	0.012		0.01	0.01	0.2		0.09
B-A	0.31	7.72	0.040		0.04	0.04	0.6		0.13
C-AB	0.13	9.67	0.013		0.01	0.01	0.2		0.10
A-B	0.13								
A-C	2.09								

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	0.10	11.30	0.009		0.01	0.01	0.1		0.09
B-A	0.25	7.86	0.032		0.04	0.03	0.5		0.13
C-AB	0.10	9.76	0.011		0.01	0.01	0.2		0.10
A-B	0.10								
A-C	1.71								

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	0.09	11.39	0.008		0.01	0.01	0.1		0.09
B-A	0.21	7.96	0.027		0.03	0.03	0.4		0.13
C-AB	0.09	9.83	0.009		0.01	0.01	0.1		0.10
A-B	0.09								
A-C	1.43								

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 INFORMAIION 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	9.6	6 4	0.9	0 09	0.9	0.09
B-A	23 4	15 6	3 1	0 13	3.1	0.13
C-AB	9 6	6 4	1 0	0 10	1.0	0.10
A-B	9.6	6 4				
A-C	156 9	104 6				
ALL	309.7	206.5	4 9	0 02	4.9	0.02

* DELAY IS IHAI OCCURRING ONLY WIIHIN IHE IIME PERIOD .
* INCLUSIVE DELAY INCLUDES DEIAY SUFFERED BY VEHICLES WHICH ARE SIILL QUEUEING AFIER IHE END OF IHE IIME PERIOD
* IHESE WILL ONLY BE SIGNIFICANIIY DIFFERENI IF IHERE IS A IARGE QUEUE REMAINING AT IHE END OF IHE IIME PERIOD.

END OF JOB

SLOPES AND INIERCEPI

(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
584.97	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
452.73	0.21	0.08	0.13	0 30

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B
611 61	0 24	0 24

NB Ihese values do not allow for any site specific corrections

IRAFFIC DEMAND DAIA

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

Demand set: PM Peak 2013 With Dev. Flows

TIME PERIOD BEGINS 16.45 AND ENDS 18 15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	1.14	1.71	1.14
ARM B	15.00	45.00	75.00	0.16	0.24	0.16
ARM C	15.00	45.00	75.00	0.88	1.31	0.88

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16 45 - 18 15	ARM A	0.000	0.165	0.835
		0.0	15.0	76.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.692	0.000	0.308
		9.0	0.0	4.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.900	0.100	0.000
		63.0	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 PM Peak 2013 With Dev. Flows
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	0.05	11.55	0.004		0.00	0.00	0.1		0.09
B-A	0.11	8.08	0.014		0.00	0.01	0.2		0.13
C-AB	0.09	9.92	0.009		0.00	0.01	0.1		0.10
A-B	0.19								
A-C	0.95								

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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	0.06	11.48	0.005		0.00	0.01	0.1		0.09
B-A	0.13	8.00	0.017		0.01	0.02	0.3		0.13
C-AB	0.10	9.87	0.011		0.01	0.01	0.2		0.10
A-B	0.22								
A-C	1.14								

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	0.07	11.40	0.006		0.01	0.01	0.1		0.09
B-A	0.17	7.90	0.021		0.02	0.02	0.3		0.13
C-AB	0.13	9.80	0.013		0.01	0.01	0.2		0.10
A-B	0.28								
A-C	1.39								

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	0.07	11.40	0.006		0.01	0.01	0.1		0.09
B-A	0.17	7.90	0.021		0.02	0.02	0.3		0.13
C-AB	0.13	9.80	0.013		0.01	0.01	0.2		0.10
A-B	0.28								
A-C	1.39								

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	0.06	11.48	0.005		0.01	0.01	0.1		0.09
B-A	0.13	8.00	0.017		0.02	0.02	0.3		0.13
C-AB	0.10	9.87	0.011		0.01	0.01	0.2		0.10
A-B	0.22								
A-C	1.14								

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	0.05	11.55	0.004		0.01	0.00	0.1		0.09
B-A	0.11	8.08	0.014		0.02	0.01	0.2		0.13
C-AB	0.09	9.92	0.009		0.01	0.01	0.1		0.10
A-B	0.19								
A-C	0.95								

QUEUE FOR SIREAM 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 SIREAM 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 SIREAM 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 INFORMAIION OVER WHOLE PERIOD

SIREAM	IOIAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	5.5	3.7	0.5	0.09	0.5	0.09
B-A	12 4	8.3	1.6	0 13	1.6	0.13
C-AB	9.6	6.4	1.0	0 10	1.0	0.10
A-B	20.6	13.8				
A-C	104.6	69.7				
AII	239 5	159 7	3.0	0 01	3.0	0.01

* DELAY IS IHAI OCCURRING ONLY WIIHIN IHE IIME PERIOD .
* INCLUSIVE DELAY INCLUDES DEIAY SUFFERED BY VEHICLES WHICH ARE SIILL QUEUEING AFIER IHE END OF IHE IIME PERIOD.
* IHESE WIIL ONLY BE SIGNIFICANIIY DIFFERENI IF IHERE IS A LARGE QUEUE REMAINING AT IHE END OF IHE IIME PERIOD.

END OF JOB

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[Printed at 4:07:01 PM on 7/8/2011]