Environmental Statement

Appendix H

Transport Figures

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Appendix H

Transport Assessment

MCB (Gibraltar) Limited

Eastside, Gibraltar
Transport Assessment
July 2007

Halcrow Group Limited

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Eastside, Gibraltar
Transport Assessment
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MCB (Gibraltar) Limited

Eastside, Gibraltar
Transport Assessment

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1 Introduction

1.1 Background

The proposed Eastside development is situated on the east coast of Gibraltar. It is designed to be a high quality mixed use residential development integrating retail, commercial and leisure facilities.

This Transport Assessment (TA) has been undertaken to inform the Environmental Impact Assessment (EIA) process as part of the detailed planning application for the proposed Eastside development. This report assesses the likely effects of the development on the local road network, as well as public transport, to ensure that any impacts arising as a result of the development are mitigated.

1.2 Structure of the Report

Following this introductory section, the report comprises six further chapters:

- **Chapter 2** describes the existing highway arrangement and other transport related issues in the area; this includes reviewing the existing car parking provision and assessing existing junctions;

- **Chapter 3** presents the proposals for the new development, including the proposed access and car park;

- **Chapter 4** estimates the potential trip generation from different parts of the proposed development, and assesses its potential impacts on the surrounding highway;

- **Chapter 5** analyses the potential impacts of the estimated traffic generation on the surrounding highway and reviews possible improvement measures to current transport provision;

- **Chapter 6** addresses the potential effects from the increase in traffic volumes during the construction stage of the proposed development; and

- **Chapter 7** gives the conclusions.

2 Existing situation

2.1 *Introduction*

This section introduces the existing transportation provisions in the area of the development site, as well as for Gibraltar as a whole. The existing highway layout, level of traffic and parking provision are reviewed, as are the travel patterns of available transport modes in the area. There is also reference to service frequencies in the vicinity of the development as appropriate.

Traffic surveys were undertaken over a three-day period between 30th September and 2nd October, 2005, Thursday to Saturday. Results are summarised as observed flow at different time periods. These are analysed to show existing travel patterns in this chapter.

2.2 *Existing Highway*

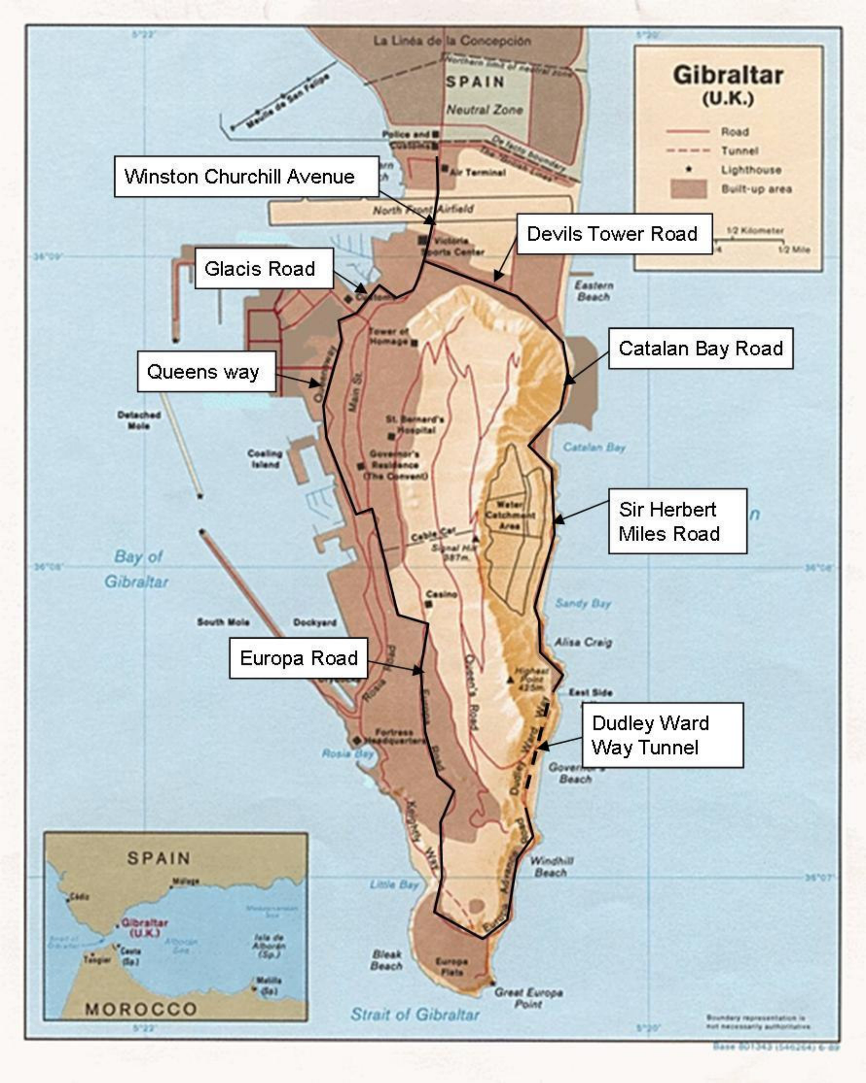
Gibraltar has a relatively simple road network with a strategic road running semi-circulatory around the Rock as the core of the highway, as shown in Figure 2.1. This route comprises Europa Road, Queens Way and Glacis Road in the west and Devil's Tower Road, Catalan Bay Road and Sir Herbert Miles Road in the east, connecting southwest and southeast via the north. The Dudley Ward Way Tunnel, between south of Sir Herbert Miles Road and Europa Advance Road, is currently closed as a result of rock falls in 2002. Access to the majority of the east coast is only via the north through Devil's Tower Road.

Winston Churchill Avenue links to this core of the highway network in a north-south direction. To the north it provides the only access by road across the airport runway and to the Spanish border. To the south it connects to the strategic main road to provide access to the centre of Gibraltar. As such, it is a key road.

Devil's Tower Road provides the main access from Winston Churchill Avenue and Glacis Road to the eastern side of Gibraltar. The Winston Churchill Avenue / Devil's Tower Road roundabout connects these three roads, connecting the Spanish border and Gibraltar town centre to the east coast of Gibraltar. The performance of the Winston Churchill Avenue roundabout (also known as Sundial Roundabout) will, therefore, be important in terms of access to and from the proposed development.

Winston Churchill Avenue crosses the main runway at Gibraltar airport, and the road is temporarily closed during plane take-off and landing. The closure is relatively infrequent, with queuing lasting around 20 minutes each time. This often results in the queue going beyond the Sundial Roundabout, affecting its operation.

Figure 2.1 Strategic Roads in Gibraltar



2.3 Existing Traffic Level and Survey Results

To determine the existing traffic conditions in the area, traffic surveys were arranged for both weekday and weekend periods. Following discussions with the Government of Gibraltar (GoG), surveys were undertaken on 29th, 30th September and 1st October, 2005 – a consecutive three-day period of Thursday, Friday and Saturday. These were conducted between the hours of 07:30 and 19:00.

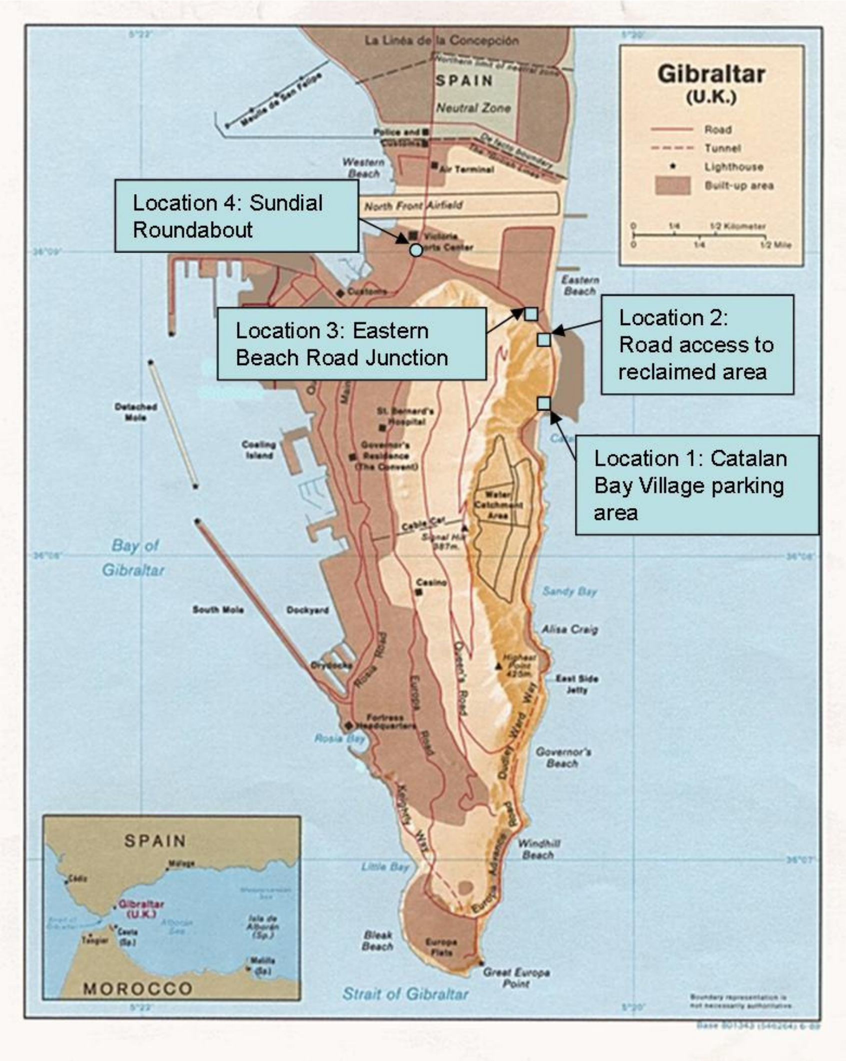
(a) Survey Locations

The traffic surveys were undertaken at four locations as shown in Figure 2.2; all vehicle movements were noted at each location.

- *Location 1*: Junction with access to Catalan Bay, including access to the existing parking area on the reclaimed land, off Catalan Bay Road.
- *Location 2*: Also on Catalan Bay Road, north of Catalan Bay Village and the closed Dudley Ward Way tunnel, this location comprised two junctions leading to the same side road in the reclaimed area.
- *Location 3*: Devil's Tower Road/ Eastern Beach Road junction.
- *Location 4*: Winston Churchill Avenue/Devil's Tower Road roundabout (also known as Sundial Roundabout), which leads to the airport to the north and the city centre to the south.

Pedestrian surveys were also carried out at location 4 at four points.

Figure 2.2 Locations of Surveyed Junctions



(b) Survey outcome

Survey results for the three days show similar flow patterns for each individual location. The peak hour, which is measured as the heaviest total flow for all traffic movements at all four locations, was determined for each survey day. Peak total flow on Thursday was observed between 18:00-19:00, Friday between 13:00-14:00 and Saturday between 17:00-18:00. The flows for these periods are presented in the summarised data.

Although each survey day was observed as having peak flow at a different hour, none of the peak hours has a significantly higher flow than the total traffic flow in the afternoon peak period. It was observed from the survey data that the total traffic for all four locations is still generally heavier in the afternoon, in particular between the hours of 16:00 and 19:00.

Also, each individual junction was observed as having the highest flow at a different time to the network peak hour flow. For example, Sundial Roundabout (location 4) has the highest flow during the AM peak. There are also lower peaks throughout the day due to a number of reasons. These observations coincide with the information provided by GoG.

The data are summarised for all critical time periods to provide a better representation. The data are summarised in four different categories: the conventional AM (08:00-09:00) and PM (17:00-18:00) peak hours, average hourly flow during the busy afternoon period (16:00-19:00) and the peak hour for the particular day. Data are summarised as Passenger Car Units (PCU), where PCU factors are applied to the different vehicle types.

The proportion of Heavy Goods Vehicle (HGV) traffic is extremely low, with less than 1% within the majority of the surveyed traffic movements; this may be explained by the lack of freight transport (such as that derived from shipping trade) and the existing roads not being suitable for HGVs. Most deliveries tend to be undertaken by Light Goods Vehicles (LGV) and Medium Goods Vehicles (MGV).

The summarised data is represented on a series of network diagrams which are attached in Appendix 1.

2.4 *Existing Junction Assessment*

To determine the existing operational conditions of the area, it was first considered appropriate to analyse the performance of the Winston Churchill Avenue / Devil's Tower Road / Bayside Road Roundabout as it provides the main connections for access to the proposed development as referenced in Section 2.2.

Two further local junctions have been analysed due to their proximity to the proposed development. These are:

- Devil's Tower Road / Eastern Beach Road priority junction; and

- Sir Herbert Miles Road / Catalan Bay Road priority junction

These two priority junctions currently provide direct access to local beaches and car parking along the eastern side of Gibraltar. Both will be affected by the proposed development. All three junctions have been surveyed as described in Section 2.3 above. New junctions will be dealt with in the next chapter.

As mentioned in Section 2.2, Winston Churchill Avenue is occasionally affected by the closure of the airport runway. This direct impact is not taken into account in the junction assessments presented below but measures will be set out in a later chapter to mitigate the impact.

(a) Data Collection and Analysis Software

The industry-recognised Priority Intersection Capacity and Delay (PICADY) and Assessment of Roundabout Capacity and Delay (ARCADY) software packages were used to perform the analysis.

Junction geometry was obtained from a 1:1000 scale drawing; photographs and notes from site visits undertaken between 29th September and 1st October 2005 were also used to provide further information such as road speeds and lane markings, as well as a general check of the geometry.

(b) Analysis of Survey Results

Assessment seeks to replicate a worst-case scenario by taking the highest surveyed flow for each individual junction over the AM and PM peak period for each of the three days. Consequently, flows used do not represent a single day, but a combination of the days observed.

Table 2.1 provides a summary of the existing junction performance by 'ratio of flow to capacity' (RFC) for the modelled AM Peak (08:00-09:00) and PM Peak (17:00-18:00) periods on the day with the heaviest flow. Full result output is presented in Appendix 2.

Table 2.1 Junction Analysis Result for Survey Traffic Flows

Junction (Type)	Approach Arm or Turning Movement	RFC (%)	
		AM	PM
Winston Churchill Avenue / Devil's Tower Road (Sundial roundabout)	Winston Churchill Avenue - N. Arm	64.0	30.9
	Winston Churchill Avenue - S. Arm	33.7	44.5
	Devil's Tower Rd	25.3	30.5
Devil's Tower Road / Eastern Beach Road (Priority)	Eastern Beach Rd (Right-turn traffic)	7.8	36.2
	Eastern Beach Rd (Left -turn traffic)	0.5	7.3
	Devil's Tower Rd - N. Arm (Left turn to Eastern Beach Rd)	12.9	31.1
Sir Herbert Miles Road / Catalan Bay Road (Priority)	Catalan Bay Rd (Left turn to Sir Herbert Miles Rd)	5.2	5.3
	Catalan Bay Rd (Right turn to Catalan Bay Rd - N. Arm)	5.2	5.3
	Catalan Bay Rd - N.Arm (Straight to Sir Herbert Miles Road)	0.8	2.3
	Sir Herbert Miles Rd (Straight to Catalan Bay Rd - N. Arm)	0.8	2.3

Table 2.1 shows that the three junctions currently perform under capacity as expected. Winston Churchill Avenue (North Arm) experiences the highest RFC in the AM peak as would be expected, due to commuters travelling into the town centre; a similar trend is observed in the opposing direction in the PM peak.

As mentioned in Section 2.2, the assessment of the Sundial roundabout does not include the impact of the temporary closure at the airport runway. This currently leads to queues extending beyond the roundabout, but they tend to clear quickly once the route reopens and also tend to be infrequent.

2.5 *Existing Surroundings*

There are four beaches along the eastern coastline of Gibraltar, three of which are accessed from the north. These are Eastern Beach, Catalan Bay and Sandy Bay. The development site is located on reclaimed land between Catalan Bay and Eastern Beach. It is currently undeveloped but used to receive building and demolition rubble and for informal car parking.

The fourth beach is Governor's Beach, which can only be accessed from the south due to the closure of Dudley Ward Way Tunnel, as first referenced in Section 2.2. As access to Governor's Beach is separate, trips associated with it would not enter into the traffic network within the vicinity of the proposed Eastside development.

Eastern Beach, Catalan Bay and Sandy Bay are particularly popular with the Gibraltarians from May to August. Though preferable to undertake the surveys during those months to capture the heaviest traffic of the year, the earliest opportunity to undertake the surveys was late September / early October hence between 29th September and 1st October 2005.

It was observed at the time of the survey that there continued to be people on the beaches, but not as many as would be expected during the busy months. Similarly, it is expected that a beachside development like the one being proposed would be particularly popular during the summer months and as such these would be the critical months in terms of traffic and resultant impacts.

Thus, the surveyed flow presented in Section 2.3 does not represent the traffic situation at the busiest period of the year. To avoid underestimation, additional trips to the three beaches during the summer months have been estimated based on the information provided by GoG and the existing parking availability. Details of the estimation are presented in Section 2.6 below.

These additional beach trips, together with the surveyed flows, would replicate the estimated peak summer traffic condition in a worst-case scenario. For simplicity, the combined flow is referred to as the "base flow" throughout the report.

2.6 Existing Parking and Associated Beach Trips

(a) Parking Provision

At present, visitors going to Eastern Beach, Catalan Bay and Sandy Bay can park their cars either on-street along the nearby roads or on the available open area near the beaches. Neither of these parking areas are properly marked nor designed for car parking. There is little sign of parking controls present on the nearby roads.

Site observations have identified that there are various locations for parking near the three beaches which could potentially accommodate approximately 730 cars. About 55% of these parking spaces are on-street, around 235 are along Eastern Beach Road and Devil's Tower Road, and another 110 spaces are on-street parking near Sandy Bay. The remainder are within the open spaces near the beach.

Figure 2.3 gives an approximate indication of the parking provision in the area, though it is noted that none of these spaces are properly marked as parking spaces. It is assumed that all vehicles attracted to the beach would park in one of these spaces as there are no other obvious alternatives.

(b) Beach Trip Patterns

Assuming that all the parking areas and on-street parking become occupied, this would constitute an additional 730 cars on the road network. It is, however, highly unlikely that all cars would arrive and depart in the same hour, thus to study the impact of these trips to the existing road network it is important to consider the arrival and departure pattern of these areas.

Since arrival and departure data of the parking areas are not available for peak times of the year, parking occupancy profiles during a weekday and a weekend for the three beaches have been estimated; this is based on the following information obtained from GoG.

The parking occupancy is largely dependant on the arrival and departure rate, as well as the duration of the stay. Arrival rates for weekday and weekend vary but the departure rate is also largely dependant on the time of sunset at the three beaches and there is little effect arising from any specific day of the week.

On a normal weekday, there is a peak arrival at around 13:30 for all three beaches. Nearly all visitors going to Catalan Bay and Sandy Bay would arrive by 15:30. As the Rock blocks the sunlight when the sun begins to set, visitors generally leave Catalan Bay and Sandy Bay between 17:00 and 19:00. As Eastern Beach is not affected by the mountain shade, Eastern Beach is the only beach with late arrivals between 17:00 and 18:00; visitors also tend to leave marginally later, between 18:00 and 20:30.

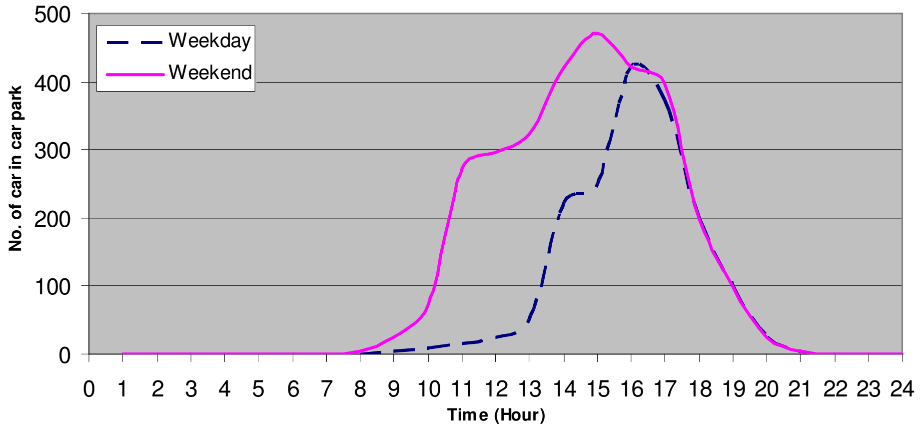
During weekends visitors tend to arrive earlier with the first peak arrival at 10:00. Some local shops open only half day during the weekend and hence the second arrival peak around 13:30 to 15:00 when the shops close for the day; there is again a further lesser peak at around 17:00 to 18:00 on Eastern Beach. Visitors generally leave at similar times as during the weekdays due to the sunset time.

(c) Car Park Occupancy Profiles

Based on the information given, car park occupancy profiles are estimated and are shown in Graph 2.1 and Graph 2.2. As the arrival and departure pattern for Catalan Bay and Sandy Bay is similar, parking areas near the two beaches share the same occupancy profile. A slightly different profile was developed for parking near Eastern Beach.

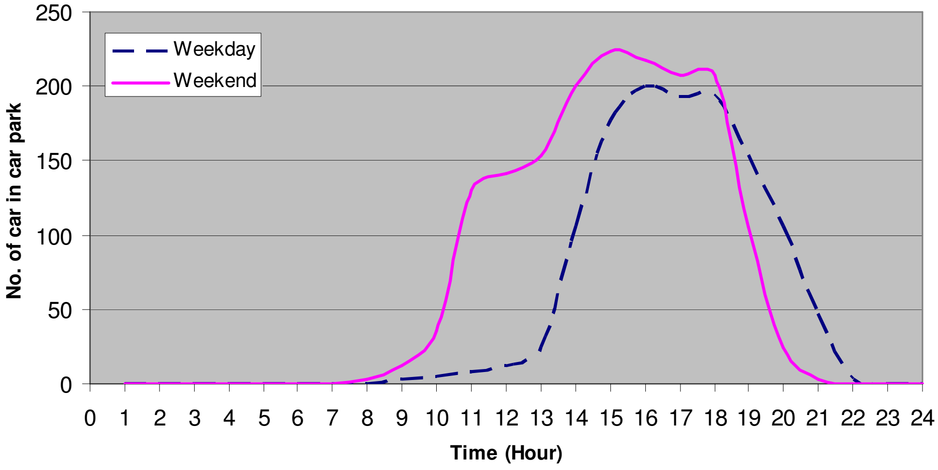
Graph 2.1

Car Park Occupancy profile for Sandy Bay and Catalan Bay



Graph 2.2

Car Park Occupancy Profile for Eastern Beach



(d) Beach Trip Estimation

As mentioned in Section 2.6(a), there are around 235 spaces near to Eastern Beach; for the purpose of this analysis these are assumed to be used solely by Eastern Beach visitors. The remaining spaces are assumed to be used by both Sandy Bay and Catalan Bay visitors. The occupancy profiles are applied to these available spaces to estimate the arrival and departure trips.

It has been assumed that parking along Eastern Beach Road would remain unaffected by the development, and that it would remain open during construction of the development. It has been included here due to the trip linking effect between the beaches, particularly as the Rock's shadow is cast over Sandy Bay and Catalan Bay.

It is also assumed that during the peak summer period there is a maximum 85% occupancy at any one time during weekdays and 95% during weekends for parking at all beaches; 100% occupancy is not assumed at weekends, mainly due to the nature of this parking area.

As most parking spaces are not marked, in particular on the open space ground, cars can park anywhere within the space. Unless all cars parked in a formal fashion adjacent to each other, it would not be easy to achieve the potential capacity of all the parking area. This also applies to on-street parking. It is also unlikely that all spaces are fully occupied at any one time as spaces are spread over a wide area and there would be a time lag between a car vacating a space and another car occupying this space.

Arrival and departure rates are therefore derived from the occupancy profile with further assumptions:

- Only 5% of the visitors in the area would depart between 13:00 and 16:00;
- No visitor would arrive after 16:00 on both weekdays and weekends for Sandy Bay and Catalan Bay; and
- A small number of arrivals would be expected for Eastern Beach between 17:00 and 18:00.

Tables 2.2 and 2.3 show the estimated number of arrivals and departures for a normal weekday and weekend for the relevant beaches. The arrival and departure peaks occurred around 13:00–16:00 and 16:00–19:00 respectively.

Table 2.2 Arrival and Departure Trips in Relation to Parked Vehicles in Sandy Bay and Catalan Bay

Time Period	Weekday - no. of cars			Weekend - no. of cars		
	Parked	Arrivals	Departures	Parked	Arrivals	Departures
00:00-01:00	0	0	0	0	0	0
01:00-02:00	0	0	0	0	0	0
02:00-03:00	0	0	0	0	0	0
03:00-04:00	0	0	0	0	0	0
04:00-05:00	0	0	0	0	0	0
05:00-06:00	0	0	0	0	0	0
06:00-07:00	0	0	0	0	0	0
07:00-08:00	0	0	0	5	5	0
08:00-09:00	5	5	0	25	20	0
09:00-10:00	10	5	0	75	50	0
10:00-11:00	15	5	0	273	198	0
11:00-12:00	25	10	0	297	24	0
12:00-13:00	50	25	0	322	25	0
13:00-14:00	223	185	12	421	121	22
14:00-15:00	248	38	13	471	74	24
15:00-16:00	421	195	22	421	5	22
16:00-17:00	372	0	49	396	0	25
17:00-18:00	198	0	174	198	0	198
18:00-19:00	99	0	99	99	0	99
19:00-20:00	25	0	74	25	0	74
20:00-21:00	5	0	20	5	0	20
21:00-22:00	0	0	5	5	0	0
22:00-23:00	0	0	0	0	0	5
23:00-24:00	0	0	0	0	0	0

Table 2.3 Arrival and Departure Trips in Relation to Parked Vehicles at Eastern Beach

Time Period	Weekday - no. of cars			Weekend - no. of cars		
	Parked	Arrivals	Departures	Parked	Arrivals	Departures
00:00-01:00	0	0	0	0	0	0
01:00-02:00	0	0	0	0	0	0
02:00-03:00	0	0	0	0	0	0
03:00-04:00	0	0	0	0	0	0
04:00-05:00	0	0	0	0	0	0
05:00-06:00	0	0	0	0	0	0
06:00-07:00	0	0	0	0	0	0
07:00-08:00	0	0	0	3	3	0
08:00-09:00	3	3	0	12	9	0
09:00-10:00	5	2	0	36	24	0
10:00-11:00	8	3	0	130	94	0
11:00-12:00	12	4	0	141	11	0
12:00-13:00	24	12	0	153	12	0
13:00-14:00	106	88	6	200	57	10
14:00-15:00	177	80	9	224	36	12
15:00-16:00	200	33	10	217	4	11
16:00-17:00	193	3	10	207	1	11
17:00-18:00	200	27	20	212	27	22
18:00-19:00	153	0	47	106	0	106
19:00-20:00	106	0	47	24	0	82
20:00-21:00	47	0	59	3	0	21
21:00-22:00	3	0	44	3	0	0
22:00-23:00	0	0	3	0	0	3
23:00-24:00	0	0	0	0	0	0

2.7 *Estimated Base Traffic Flow*

As mentioned in Section 2.4 and 2.5, to study fully the seasonal peak traffic conditions in the area it is necessary to take into account the impact of beach-related trips during the summer months. The estimated beach trips in Section 2.6(d) above are added onto the surveyed flows which constitute the "base flow" as explained in Section 2.5 above, and summaries of the traffic flows in different peaks are attached in Appendix 3.

Some of the beach-related trips may be double-counted as the parking areas were not wholly vacant on the surveyed days; the parked vehicles are however considered to be relatively insignificant compared to the peak summer period. These vehicles have not been extracted from the base flow and thus the current estimated base flow would therefore represent a robust worst-case scenario.

2.8 *Junction Assessment*

To determine the estimated conditions during the summer period in the area, the same methodology as detailed in Section 2.5 above has been applied using ARCADY and PICADY.

(a) Analysis of Base Results

Again, the assessment seeks to replicate an extreme worst-case scenario by taking the highest flow observed for each individual junction over the peak period for each of the three days, as in the existing scenario. Consequently, flows used do not represent a single day, but a combination of the days observed; a diagrammatic representation of the flows is in Appendix 3.

Table 2.3 provides a summary of junction performance under base conditions by 'ratio of flow to capacity' (RFC) for the modelled AM Peak (08:00-09:00) and PM Peak (17:00-18:00) periods on the day with the heaviest flow. Full result output is presented in Appendix 4.

Table 2.4 Junction Analysis Result for Base Traffic Flows

Junction (Type)	Approach Arm or Turning Movement	RFC (%) AM	 PM
Winston Churchill Avenue / Devil's Tower Road (Sundial roundabout)	Winston Churchill Avenue - N. Arm	75.0	33.4
	Winston Churchill Avenue - S. Arm	34.0	45.6
	Devil's Tower Rd	26.1	44.5
Devil's Tower Road / Eastern Beach Road (Priority)	Eastern Beach Rd (Right-turn traffic)	7.8	42.5
	Eastern Beach Rd (Left -turn traffic)	0.5	13.2
	Devil's Tower Rd - N. Arm (Left turn to Eastern Beach Rd)	13.2	44.4
Sir Herbert Miles Road / Catalan Bay Road (Priority)	Catalan Bay Rd (Left turn to Sir Herbert Miles Rd)	5.2	18.0
	Catalan Bay Rd (Right turn to Catalan Bay Rd - N. Arm)	5.2	18.0
	Catalan Bay Rd - N.Arm (Straight to Sir Herbert Miles Road)	1.2	4.9
	Sir Herbert Miles Rd (Straight to Catalan Bay Rd - N. Arm)	1.2	4.9

Table 2.4 shows that the three junctions would still be performing under capacity with the additional peak summer beach trips. Winston Churchill Avenue (North Arm) still experiences the highest RFC in the AM peak as shown in the existing traffic conditions.

Again, the assessment of the Sundial roundabout does not include the impact of the temporary closure at the airport runway, as mentioned in Sections 2.2 and 2.4.

2.9 *Public Transport and Pedestrian / Cycle Movement*

There are currently four local bus routes in Gibraltar, one of which (Route 4) passes the proposed Eastside development site on Catalan Bay Road. Route 4 operates between Rosia, on the south western side of Gibraltar, and Both Worlds, on the south eastern side. The route goes via the town centre, Winston Churchill Avenue and Eastern Beach, covering almost all key locations in Gibraltar. Table 2.5 below shows the scheduled timetable for Route 4[1].

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[1] http://www.gibraltar.gov.uk/hol/HowToGetAround/Bus%20Route%20Map.pdf

Table 2.5 Bus Service Detail

	Service Time	Bus Intervals
Monday – Friday	07:05 – 21:00	Every 20 minutes
Saturday	07:30 – 21:00	Every 30 minutes
Sunday	08:30 – 21:00	Every 45 minutes

According to the Gibraltar Tourist Board's website[2], there are also 112 taxis running in two shifts, offering a 24-hour service. All taxi stands are currently on the north-western side of the island. Taxis are a popular mode of travel.

The eastern half of Gibraltar contrasts with the western half. The town centre and main streets are all on the western half of Gibraltar and are easily accessible on foot and cycling is also observed as being popular. In comparison, the eastern half, apart from the three beaches accessible from Devil's Tower Road, has few tourist attractions. Observations suggest that existing cyclists are observed mainly travelling on the western side, with very few cyclists observed travelling on the eastern side.

The main road along the eastern coastline connecting Devil's Tower Road, Catalan Bay Road and Sir Herbert Miles Road is designed for vehicle use, with basic pedestrian facilities at present. There are footpaths alongside the road, but these are frequently interrupted by side roads and accesses. Only one pedestrian crossing is provided along the eastern coastline; this is near to the cemetery, across Devil's Tower Road, between Sundial roundabout and Eastern Beach Road junction.

2.10 *Traffic Growth*

As little new development is proposed on Gibraltar due to the lack of space, and given that the population has remained relatively stable in recent years, no road traffic growth is assumed from the base to the development opening year.

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[2] http://www.gibraltar.gov.uk/hol/HowToGetAround/taxis.asp

3 Eastside Development Proposals

3.1 *Introduction*

This section describes the proposed Eastside development, including its land-uses and parking provision. The transport strategy for the proposed development is designed to minimise disruption to the existing road network by providing efficient access from the main road and to create effective parking and servicing facilities within the development.

3.2 *Proposed Land-Use*

The proposed Eastside development would result in a large-scale prestigious mixed-use (with residential lead) complex on reclaimed land. The site location plan of the development is shown in Figure 3.1.

The development would include a mixture of land-uses including residential, retail, leisure, commercial and hotel. Table 3.1 below summarises the land-use schedule on which the transport assessment has been based, and the associated parking to be provided. The development would be implemented continuously over the next 13 years or so, starting from the southern end and continuing northward.

Table 3.1 Modelled Development Details

Land Use	Allocated Units / Floorspace	Associated Parking
Residential	2,567 dwellings	1 space / dwelling + 68 additional spaces
Hotel	49,235 sq m	Shared-use of the public car park and kerbside parking
Retail	24,968 sq m	Shared-use of kerbside parking and public car park
Commercial/office	19,370 sq m	Reserved car park of 100 spaces. 30 reserved spaces within the residential parking. Shared-use of kerbside parking and public car park
Public car park	-	500 spaces
Kerbside parking	-	170 spaces

3.3 *Scheme Yield Update*

The transport assessment has been based on the figures given above in Table 3.1, which reflect a design freeze. The scheme yield was amended marginally at a late stage in the reporting process.

The only effective difference between the amended scheme yield and that modelled is a reduction in the hotel GFA. Given the timetabling of this submission, it was considered acceptable to continue using the original yield, as the transport assessment would be modelling a worse-case scenario.

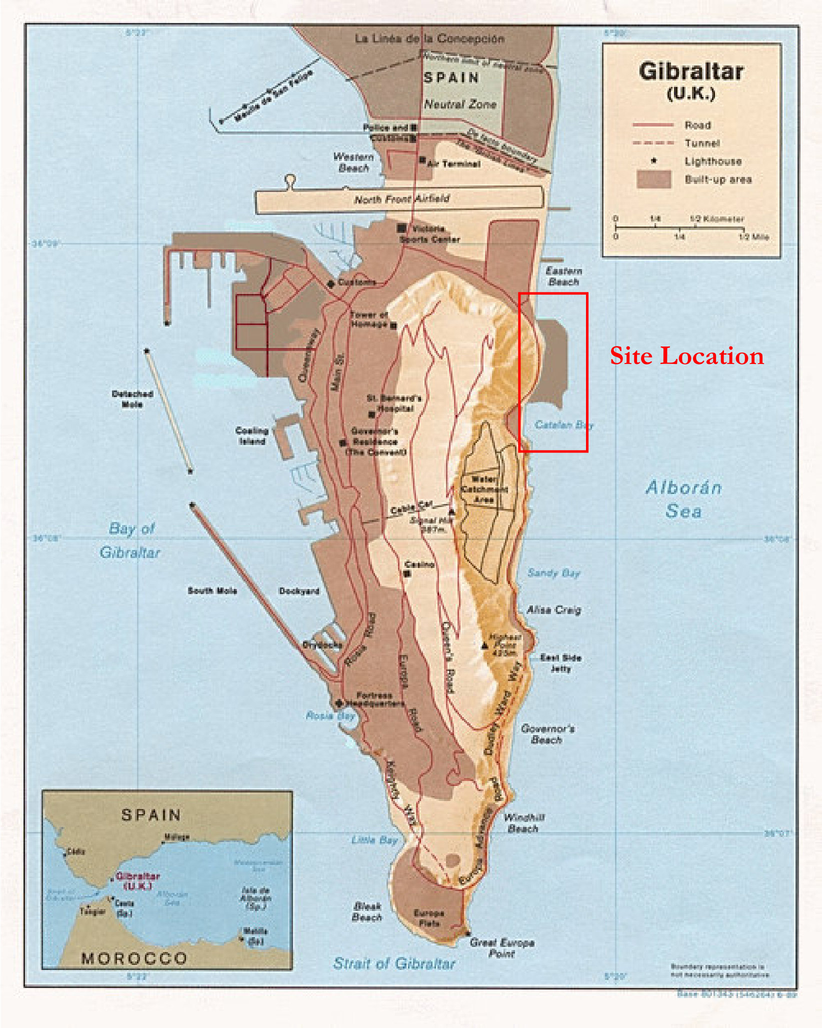
The figures for the proposed latest scheme yield are given below in Table 3.2. The amended scheme shows a reduction in area in one of the apartment hotels from the development. There is also a reduction in gross residential floor-space, but as the residential aspect of the development was based on the number of residential parking spaces and these remain unchanged this will have no impact.

The new scheme provides a 250 space public car park as part of the proposal. However, an additional 250 space public car park will be provided by GoG adjacent to the northern boundary of the site, at Eastern Beach. Thus, there will be no material difference to the parking provision in the transport assessment.

Table 3.2 Application Development Details

Land Use	Allocated Units / Floorspace	Associated Parking
Residential	2,567 dwellings	1 space / dwelling + 68 additional spaces
Hotel	31,364 sq m	Shared-use of the public car park and kerbside parking
Retail	25,000 sq m	Shared-use of kerbside parking and public car park
Commercial/office	19,190 sq m	Reserved car park of 100 spaces. 30 reserved spaces within the residential parking. Shared-use of kerbside parking and public car park
Public car park	-	250 spaces
Kerbside parking	-	170 spaces

Figure 3.1 Location of the Proposed Eastside Development



3.4 Proposed Access

(a) Vehicular Access

Five accesses are proposed to the Eastside development, of which two would be sign-posted as the main accesses. This new road layout is presented on Figure 3.2. The two sign-posted main accesses would be at both the northern and southern ends of the site, with three further secondary access roads at intermediary points for access into the development.

The northern access road would join the existing Eastern Beach Road junction and this existing priority junction would be upgraded to a roundabout junction. Further information relating to the northern access roundabout is presented in Section 3.4(b).

The latest design illustrates that this southern access would not be placed on the main road; the new access would be provided from Catalan Bay Road on the eastern side, adjacent to the Sir Herbert Miles Road / Catalan Bay Road junction. This would potentially reduce disruption to the existing junction on the main road. There are other operational implications of this access to the Sir Herbert Miles Road / Catalan Bay Road junction and these will be assessed and discussed in Chapter 5.

For the purpose of this assessment the accesses have been numbered from one through to five, with the northern access roundabout as 'Access One' through to the southern access as 'Access Five'.

It is proposed that land reclamation and road construction would be completed prior to building construction. The construction programme would be continuous and occupation of each building is assumed to take place shortly after construction is complete. Adjacent vehicular access would be available for the associated operational traffic.

Once the site is fully operational, the northern access would be the main access, as this links to the town centre and Spanish border, from where most traffic would be arriving.

(b) Northern Access Roundabout

Proposals currently exist for a new Airport Road, running broadly parallel to the existing Eastern Beach Road. It is understood that these proposals are at a very early stage of development and given the lack of information and certainty surrounding the new road, its associated impacts on traffic flows and trip distribution patterns have not been considered.

Thus, this assessment only considers the local impacts of the development proposals and has not been prepared to form a sound basis for the parallel assessment of the proposed new Airport Road.

However, conceptual designs have been drafted by Gifford on behalf of GoG, which show this Airport Road in place.. The roundabout to be assessed would essentially be a large roundabout, as shown in Figure 3.3, but with the Airport Road arm essentially blocked off. This assessment tests the proposed northern roundabout with base and development flows.

(c) Pedestrian Access

Pedestrian access would be provided adjacent to all vehicular accesses.

3.5 Proposed Car Parking

The proposed development is situated to the north of Catalan Bay. The existing parking area on the reclaimed land would become part of the Eastside development site. These parking grounds, together with some 100 spaces near the access to the development and Eastern Beach Road would be lost to the development. The affected existing parking is shown in pink in Figure 2.3. Removal of on-street parking would promote an enhanced vehicular access road to the site and be redeveloped to be used more effectively.

Current proposals for car parking for the residential part of the Eastside development are at 1 space / dwelling. There would also be 68 additional parking spaces available for visitors to the residential part of the development as referenced in Section 3.2. In addition to these provisions, there would also be two public car parks with a combined capacity of 500 spaces (250 spaces to the north of the site and 250 spaces in the south section of the site) to replace existing parking and to provide visitors' parking.

An additional 100 spaces would also be provided for commercial parking, with the suggested distribution of these shown in Table 3.3 below, as well as 30 spaces within the residential units being available to commercial parking.

Table 3.3 Suggested distribution of commercial parking

Development Plot	Number of spaces
DP05	15
DP06	25
DP10	10
DP12	25
DP15	25

There would also be around 170 additional on-street parking bays for use by residents and visitors to the development. Parking provision for beach visitors would remain unaffected.

The proposed public car parking, though providing a similar level of potential capacity, would have an advantage over the existing parking. It would be a managed car park with marked spaces, which means that parking capacity would be achievable as visitors would be guided to park neatly to maximise potential. Spaces would also be more centrally located, allowing for a quicker turnover between a car leaving and another car arriving; thus, more spaces would readily be available. The proposed parking would also include adequate parking spaces for disabled visitors.

3.6 Cycle and Motorcycle Parking

There is not a defined policy on cycle parking requirements in Gibraltar, but consideration of the provision of cycle facilities would promote an environmentally friendly development. Cycle parking spaces may be provided for both the residential part of the development and further cycle parking for the commercial parts. These spaces could be shared with motorcycle / scooters, commonly used in Gibraltar.

Furthermore, it has been assumed that mopeds and motorcycles would be able to share the general car park and on-street parking; for the purposes of the assessment it has been considered that two mopeds/motorcycles could fit into one standard parking space as a minimum.

3.7 Servicing

With such a large development, servicing at Eastside would be required for all parts of the development. A servicing area designed to accommodate a range of small to medium-sized delivery vehicles would need to be provided, especially near to the retail and restaurant spaces, and it should be incorporated into the masterplanning of the internal layout of the development.

4 Eastside Trip Generation

4.1 *Introduction*

In order to study the traffic impact of the proposed Eastside development, the potential vehicle trip generation from the development will first need to be estimated. As the development site was previously undeveloped, used only for informal car parking and the tipping of rubble waste, the only existing trips generated are the beach-related trips, as estimated in Section 2.6 and occasional delivery of rubble waste.

Since the delivery of rubble waste is insignificant compared to other road traffic volumes, these trips are not included in the site trip generation assessment. As such, all trips generated by the proposed development will therefore be assumed as a net increase in traffic volumes associated with the site.

As a starting point in the assessment of site trip generation, it would have been preferable to determine the person trip generation by applying known trip generation rates from similar developments in Gibraltar. However, GoG does not hold any such trip rate data.

Thus, with no trip generation data available in Gibraltar, the UK TRICS (Trip Rate Information Computer System) database has been interrogated to select appropriate trip rates to estimate potential trip generation. This is likely to give higher trip rates than those in Gibraltar, due to the level of vehicular access between parts of the UK. Higher trips rates will provide a robust assessment.

Where knowledge of local Gibraltar travel patterns and behaviours is known and/or substantiated by observations and/or guidance, the likely effects of these on UK-based trip rates and associated patterns have been considered and incorporated into the modelling accordingly.

Traffic generation of each land-use type is reviewed separately. For each of the land-uses, a number of sub-land use types and their lists of sites were reviewed. There are limited sites in TRICS which possess similar characteristics of the development, thus sites were selected as the best matches available when compared with other generic similarities to the different parts of the development. Combined effects of the operations therein will be studied at the end of this chapter.

As referenced in Section 3, the scheme yield assessed in this section reflects that of the design freeze, which includes an area of the apartment hotels recently excluded from the application yield. Otherwise, there are no other material differences.

4.2 TRICS Database and Development Trips

The TRICS database contains data relating to various types of development across the U.K. (and also recently the Republic of Ireland).

With a development of such a scale and with a mixture of land-uses, it is acknowledged good practice not to use a single source in the existing database to determine the potential trip rates for an assessment if this can be avoided.

There are four main elements in the proposed development: hotel, residential, retail and commercial. Traffic generation patterns associated with the various elements vary and therefore they have been studied separately. Linkages between the different uses have been considered subsequently.

4.3 Residential Trips

The privately owned flats and holiday accommodation sub-categories under the residential land-use main category were initially interrogated. However, having reviewed the sites a 'normal' U.K. residential development is not considered comparable to a seaside home in Gibraltar, nor is a camping or caravan site.

Thus, as an alternative, the marina sites in the TRICS database were reviewed to ascertain whether any could be analogous in terms of providing residential accommodation. Although a marina does not currently form part of the development, the trips generated by residents may share some characteristics to that of a marina-based residential development due to the holiday nature and anticipated part-time occupancy rates.

There are approximately 29 sites under the marina category of the TRICS database. However, after reviewing the detail of the sites, most of these sites are relatively small in size or lack significant private housing, thus were not considered appropriate to represent the proposed Eastside development residential units.

The two sites considered the best matches to the proposed residential element within the development were Marina Village Hythe in Southampton and Brighton Marina Village. The key similarities of these sites to the proposed site were:

- They represent mixed-use marina sites which cover an extensive area;
- They both include residential properties within the site; and
- The Brighton site has a similar level of parking provision to the proposed development (no data was available for the Southampton site).

Both sites show a similar traffic arrival and departure pattern. As such, average trip rates (per hectare) are shown in Table 4.1 below.

Table 4.1 Average Trip Rates per Hectare

	Trip Rate / Hectare		
Time Range	**Arrival**	**Departure**	**Total**
00:00-01:00	0.35	0.51	0.86
01:00-02:00	0.15	0.80	0.95
02:00-03:00	0.10	0.12	0.22
03:00-04:00	0.08	0.08	0.16
04:00-05:00	0.19	0.05	0.24
05:00-06:00	0.33	0.17	0.50
06:00-07:00	0.35	0.17	0.52
07:00-08:00	1.73	0.63	2.36
08:00-09:00	2.83	1.25	4.08
09:00-10:00	3.64	1.98	5.62
10:00-11:00	4.19	2.76	6.95
11:00-12:00	4.40	3.46	7.86
12:00-13:00	4.61	3.89	8.50
13:00-14:00	4.23	3.94	8.17
14:00-15:00	3.87	4.36	8.23
15:00-16:00	3.94	4.57	8.51
16:00-17:00	3.81	4.99	8.80
17:00-18:00	3.82	5.56	9.38
18:00-19:00	3.72	4.46	8.18
19:00-20:00	2.81	3.47	6.28
20:00-21:00	1.96	2.55	4.51
21:00-22:00	1.08	1.56	2.64
22:00-23:00	0.62	1.25	1.87
23:00-24:00	0.43	0.87	1.30

Traffic generation is relatively low in the morning at the typical peak period. Arrival rates increase after the morning peak period and maintain a similar level. Departure rates increase steadily during the day until 17:00 when both arrival and departure trips reach a peak. Traffic levels gradually quieten down after 18:00.

Trip generation profiles per hectare and per parking space show similar patterns. As trip rate per hectare varies with the density of the development, it could not accurately represent potential trips generated from this development. Hence, it is more realistic to adopt trip rates per parking space and apply these to the Eastside site. However, no information on parking provision for Marina Village Hythe is supplied on TRICS.

The Brighton Marina site has trip rates based on parking and hence has been adopted for traffic generation estimation. Tables 4.2 and 4.3 shows trip rates per car parking space for the Brighton site.

Table 4.2 Trip Rates per Parking Space for Weekday

Time Range	**Trip Rate / Parking space**		
	Arrival	**Departure**	**Total**
00:00-01:00	0.01	0.02	0.03
01:00-02:00	0	0.01	0.01
02:00-03:00	0	0.01	0.01
03:00-04:00	0	0	0
04:00-05:00	0.01	0	0.01
05:00-06:00	0.02	0.01	0.03
06:00-07:00	0.03	0.01	0.04
07:00-08:00	0.13	0.05	0.18
08:00-09:00	0.18	0.1	0.28
09:00-10:00	0.24	0.15	0.39
10:00-11:00	0.29	0.21	0.5
11:00-12:00	0.29	0.25	0.54
12:00-13:00	0.31	0.29	0.6
13:00-14:00	0.3	0.28	0.58
14:00-15:00	0.26	0.33	0.59
15:00-16:00	0.26	0.3	0.56
16:00-17:00	0.28	0.35	0.63
17:00-18:00	0.32	0.36	0.68
18:00-19:00	0.3	0.32	0.62
19:00-20:00	0.22	0.27	0.49
20:00-21:00	0.14	0.18	0.32
21:00-22:00	0.08	0.1	0.18
22:00-23:00	0.04	0.09	0.13
23:00-24:00	0.03	0.06	0.09

Table 4.3 Trip Rates per Parking Space for Saturday

Time Range	**Trip Rate / Parking space**		
	Arrival	**Departure**	**Total**
00:00-01:00	0.03	0.04	0.07
01:00-02:00	0.01	0.02	0.03
02:00-03:00	0.01	0.01	0.02
03:00-04:00	0.01	0.01	0.02
04:00-05:00	0.01	0	0.01
05:00-06:00	0.02	0.01	0.03
06:00-07:00	0.03	0.01	0.04
07:00-08:00	0.16	0.05	0.21
08:00-09:00	0.27	0.12	0.39
09:00-10:00	0.38	0.22	0.6
10:00-11:00	0.5	0.33	0.83
11:00-12:00	0.51	0.42	0.93
12:00-13:00	0.53	0.46	0.99
13:00-14:00	0.48	0.41	0.89
14:00-15:00	0.48	0.45	0.93
15:00-16:00	0.44	0.48	0.92
16:00-17:00	0.44	0.55	0.99
17:00-18:00	0.37	0.62	0.99
18:00-19:00	0.35	0.47	0.82
19:00-20:00	0.25	0.33	0.58
20:00-21:00	0.21	0.21	0.41
21:00-22:00	0.11	0.16	0.27
22:00-23:00	0.07	0.13	0.2
23:00-24:00	0.05	0.1	0.15

TRICS surveys for the Brighton Marina Village (BMV) were carried out prior to its full completion, thus the trip generation based on the TRICS database represents only part of the overall development. As mentioned, the trip rates associated with BMV represent a variety of land uses, including retail trip rates, and therefore the trip rates presented in TRICS would need to be adjusted accordingly.

(a) Brighton Marina Village – site visit

After further consideration of the size and nature of the proposed development, BMV was considered to be the best match for Eastside. However, there were some uncertainties in the site information provided in the TRICS database, thus a site visit was undertaken to confirm if BMV continued to be suitable.

There were some differences between observation on site and information in the database, particularly in terms of available parking spaces and inclusion of other land-uses on site. The site visit report with details of these differences is presented in Appendix 5.

BMV is a mixed-use marina development consisting of 800 residential properties, a cinema, hotel, fitness centre, bowling alley, supermarket, casino / nightclub, restaurants and 40 outlet shops. The marina also contains a boat yard and berthing facilities for approximately 1500 boats.

The site visit took place between 09:30 and 11:30 on Wednesday 7th December 2005. Traffic activity on the marina was very low and the multi-storey car park was about 10% full. These observations are likely attributable to it being winter, a weekday morning when leisure facilities are not well used, and with shops tending to open only at around 10:30 a.m.

The biggest trip attractor at this time of the day appeared to be the supermarket, with the associated car park approximately 80% occupied. Parking for the residential areas remained at about 70% occupied, but relatively few residential-related vehicle movements were observed.

(b) Comparison with TRICS data

The TRICS data for BMV is based on 14 different survey days, seven of which were undertaken in June 1985 and the other seven during April in 1990. The marina was only partially built on each of the two occasions, with the land-use and size of the marina likely to have changed over this time. The 1990 data, being closer to the 1992 completion date, have significantly higher overall trip rates. There is also a more significant peak for trips on weekends compared to weekdays. As such, this assessment has used 1990 trip data.

(c) Trip Rate Estimation

As the size and the composition of land-uses at the proposed Eastside development are different from BMV, it is not appropriate to apply trip rates from BMV to the development as a whole. The retail outlet nature of BMV is not a suitable comparison for the retail in the proposed development; therefore, trip rates at BMV have been adjusted to deduct retail trips, with the remaining trips assumed to be residential trips from BMV and these have been applied to estimate residential trips for Eastside.

The trip rates for retail outlet units were again taken from the TRICS database to allow for deduction from the overall BMV trip rates. There are 7 factory outlet centre sites within the database; two of the sites were discounted given their small nature and with little parking.

After further consideration TRICS data for Festival Park (FP), Ebbw Vale in Wales, was selected to represent the trip generation for the retail part of Brighton Marina. There are similarities between the two retail complexes:

- FP has around 40 outlet shops and a restaurant with seating for 200, with a size similar to that at BMV; and
- Free parking for around 700 cars (at the time of survey) is provided for visitors at FP, a level of provision similar to BMV.

However, the principal reason for selecting FP was due to the fact that the trip generation per parking space was the lowest compared to the other sites. As retail trips were then subtracted from the total BMV trips to obtain residential trips, lower retail trips have maximised the trip estimation for residential and thus continues to be conservative.

The calculated resultant trip rates per parking space from the BMV residential development are presented in Tables 4.4 and 4.5 for weekdays and weekends respectively. Saturday trip rates were relatively higher than Sunday and used to represent the weekend's trips as a worst case scenario.

Table 4.4 Resultant Residential Trip Rates for Weekdays

Time Range	Trip rate / Parking space		
	Arrival	**Departure**	**Total**
00:00-01:00	0.01	0.02	0.03
01:00-02:00	0.00	0.01	0.01
02:00-03:00	0.00	0.01	0.01
03:00-04:00	0.00	0.00	0.00
04:00-05:00	0.01	0.00	0.01
05:00-06:00	0.02	0.01	0.03
06:00-07:00	0.03	0.01	0.04
07:00-08:00	0.13	0.05	0.18
08:00-09:00	0.16	0.09	0.25
09:00-10:00	0.13	0.11	0.24
10:00-11:00	0.10	0.12	0.22
11:00-12:00	0.08	0.10	0.18
12:00-13:00	0.12	0.11	0.23
13:00-14:00	0.12	0.10	0.22
14:00-15:00	0.05	0.12	0.17
15:00-16:00	0.07	0.10	0.17
16:00-17:00	0.12	0.13	0.25
17:00-18:00	0.24	0.11	0.35
18:00-19:00	0.30	0.31	0.61
19:00-20:00	0.22	0.27	0.49
20:00-21:00	0.14	0.18	0.32
21:00-22:00	0.08	0.10	0.18
22:00-23:00	0.04	0.09	0.13
23:00-24:00	0.03	0.06	0.09

Table 4.5 Resultant Residential Trip Rates for Weekends

Time Range	Trip rate / Parking space		
	Arrival	**Departure**	**Total**
00:00-01:00	0.03	0.04	0.07
01:00-02:00	0.01	0.02	0.03
02:00-03:00	0.01	0.01	0.02
03:00-04:00	0.01	0.01	0.02
04:00-05:00	0.01	0.00	0.01
05:00-06:00	0.02	0.01	0.03
06:00-07:00	0.03	0.01	0.04
07:00-08:00	0.16	0.05	0.21
08:00-09:00	0.25	0.11	0.36
09:00-10:00	0.21	0.17	0.38
10:00-11:00	0.25	0.21	0.46
11:00-12:00	0.20	0.22	0.42
12:00-13:00	0.21	0.2	0.41
13:00-14:00	0.10	0.10	0.20
14:00-15:00	0.07	0.10	0.17
15:00-16:00	0.10	0.08	0.18
16:00-17:00	0.25	0.15	0.40
17:00-18:00	0.26	0.23	0.49
18:00-19:00	0.35	0.46	0.81
19:00-20:00	0.25	0.33	0.58
20:00-21:00	0.21	0.21	0.41
21:00-22:00	0.11	0.16	0.27
22:00-23:00	0.07	0.13	0.20
23:00-24:00	0.05	0.10	0.15

TRICS data at FP or BMV could not be used for the retail and commercial parts of the Eastside development, as they are outlet stores by nature which differ to the Eastside development. Marina sites in the TRICS database were not considered suitable either as the shops, bars and facilities on site were all marina oriented.

Two sites in the mixed shopping centre sub-category were chosen from the main retail land-use category to represent the retail trip generation. These were selected as they are both 'edge of town centre' in a similar way to Eastside, and were the only sites in TRICS in this category that were larger than 10,000 sq metres. These sites were in East Sussex and County Antrim, with a GFA of 14,693 and 13,556 sq metres respectively. Unfortunately, there was no weekend survey for the East Sussex site, so the ratio was taken between the Antrim survey on the weekday and weekend, and applied to the combined trip rates for weekday.

Two business parks were used to represent the office/commercial aspect of the development. These sites were in Buckinghamshire and Oxfordshire, and were selected as they have minimal industrial aspect to their constituent developments, and with a GFA of 13,300 and 33,105 sq metres respectively were comparable in size to the commercial component of Eastside at 19,370 sq metres.

Appendix 6 presents TRICS output details on the above sites used for the retail and commercial sites. Tables 4.6 - 4.8 show the average trip rates per 100 sq m (gross floor area) for retail and office development on weekdays and retail only for weekends respectively. These trip rates will be applied to estimate the combined trips attracted to these uses.

Table 4.6 Retail Trip Rates for Weekdays per 100 sq m GFA

Time Range	Trip rate		
	Arrival	Departure	Total
00:00-01:00	0.919	0.783	1.702
01:00-02:00	1.654	1.123	2.777
02:00-03:00	1.961	1.253	3.214
03:00-04:00	2.329	1.851	4.18
04:00-05:00	2.52	2.092	4.612
05:00-06:00	2.428	2.46	4.888
06:00-07:00	2.312	2.545	4.857
07:00-08:00	2.283	2.326	4.609
08:00-09:00	2.241	2.223	4.464
09:00-10:00	2.188	2.453	4.641
10:00-11:00	2.025	2.12	4.145
11:00-12:00	1.777	1.851	3.628
12:00-13:00	1.547	1.604	3.151
13:00-14:00	0.775	1.409	2.184
14:00-15:00	0.919	0.783	1.702
15:00-16:00	1.654	1.123	2.777
16:00-17:00	1.961	1.253	3.214
17:00-18:00	2.329	1.851	4.18
18:00-19:00	2.52	2.092	4.612
19:00-20:00	2.428	2.46	4.888
20:00-21:00	2.312	2.545	4.857
21:00-22:00	2.283	2.326	4.609
22:00-23:00	2.241	2.223	4.464
23:00-24:00	2.188	2.453	4.641

Table 4.7 Commercial Trip Rates for Weekday per 100 sq m GFA

Time Range	Trip rate		
	Arrival	Departure	Total
00:00-01:00	0	0	0
01:00-02:00	0	0	0
02:00-03:00	0	0	0
03:00-04:00	0	0	0
04:00-05:00	0	0	0
05:00-06:00	0	0	0
06:00-07:00	0	0	0
07:00-08:00	0.737	0.074	0.811
08:00-09:00	1.948	0.199	2.147
09:00-10:00	1.194	0.323	1.517
10:00-11:00	0.327	0.176	0.503
11:00-12:00	0.267	0.263	0.53
12:00-13:00	0.517	0.871	1.388
13:00-14:00	0.776	0.627	1.403
14:00-15:00	0.338	0.39	0.728
15:00-16:00	0.218	0.559	0.777
16:00-17:00	0.176	1.078	1.254
17:00-18:00	0.192	1.532	1.724
18:00-19:00	0.069	0.628	0.697
19:00-20:00	0	0	0
20:00-21:00	0	0	0
21:00-22:00	0	0	0
22:00-23:00	0	0	0
23:00-24:00	0	0	0

Table 4.8 Retail Trip Rates for Weekends per 100 sq m GFA

Time Range	Trip rate Arrival	Departure	Total
00:00-01:00	0	0	0
01:00-02:00	0	0	0
02:00-03:00	0	0	0
03:00-04:00	0	0	0
04:00-05:00	0	0	0
05:00-06:00	0	0	0
06:00-07:00	0	0	0
07:00-08:00	1.36	1.16	2.52
08:00-09:00	2.45	1.67	4.12
09:00-10:00	2.91	1.86	4.77
10:00-11:00	3.45	2.74	6.20
11:00-12:00	3.74	3.10	6.84
12:00-13:00	3.60	3.65	7.25
13:00-14:00	3.43	3.77	7.20
14:00-15:00	3.38	3.45	6.83
15:00-16:00	3.32	3.30	6.62
16:00-17:00	3.24	3.64	6.88
17:00-18:00	3.00	3.14	6.15
18:00-19:00	2.63	2.74	5.38
19:00-20:00	2.29	2.38	4.67
20:00-21:00	1.15	2.09	3.24
21:00-22:00	0	0	0
22:00-23:00	0	0	0
23:00-24:00	0	0	0

The beach trips estimated in Section 2.6 are assumed to remain the same and these vehicles are likely to park in the public car parks. The retail stores are provided with the residents, visitors to the development and beach-goers in mind. Thus, it is highly likely that a significant proportion of the trips attracted to the shops are either generated internally or linked to visitors' trips to the beach or other facilities. To avoid double counting, it is assumed that 50% of the retail generated trips would be either internal or linked.

Also, as many Gibraltarians live and work within proximity of each other, a large proportion typically have the scope to walk to work, as can be seen from the GoG Census 2001[3]. To represent this, a small factor of 5% was applied to the commercial trips to represent those people who would live and work on site.

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[3] http://www.gibraltar.gov.gi/gov_depts/Statistics/Census_of_Gibraltar_2001.pdf

4.4 *Hotel Trips*

The Eastside hotel element is composed of a 300 room hotel with a GFA of 21,364 sq metres, and two serviced hotel apartments with a combined GFA of 27,871 sq metres. Due to the very different nature of the two components, different trip rates were applied to each.

For the hotel element, TRICS was again interrogated for analogous sites. Two hotel surveys were selected - the Hanover International Hotel in Cardiff and the DeVere Hotel in Cambridge. These were selected as they are at the larger end of the range of hotels on the TRICS database at 7700 and 8100 sq metres respectively, and are not considered to be 'budget' hotels. They both also occupy an 'edge of town centre' location, with the Hanover Hotel in Cardiff being in Atlantic Wharf, a redevelopment analogous to Eastside and only 5 minutes from Cardiff Bay. Both hotels welcome a mixture of tourist and business guests. Both sites are also served by local bus services. Table 4.9 gives the trip rates used for the standard hotel element of the development, based on the number of rooms.

For the apartment hotels, residential trip rates have been used as it was felt that trip arrival and departure patterns would be more analogous to a residential development, particularly those used as 'holiday' homes or weekend work bases (see Tables 4.4 and 4.5)

Table 4.9 shows the estimated trip rates associated with the hotel for both weekday and weekend.

Table 4.9 Hotel Trip Rates for Weekends and Weekdays

	Trip rate/parking space		
Time Range	**Arrivals**	**Departures**	**Total**
00:00-01:00	0	0	0
01:00-02:00	0	0	0
02:00-03:00	0	0	0
03:00-04:00	0	0	0
04:00-05:00	0	0	0
05:00-06:00	0	0	0
06:00-07:00	0	0	0
07:00-08:00	0.09	0.08	0.17
08:00-09:00	0.10	0.11	0.21
09:00-10:00	0.10	0.09	0.19
10:00-11:00	0.09	0.09	0.18
11:00-12:00	0.15	0.12	0.27
12:00-13:00	0.12	0.12	0.24
13:00-14:00	0.07	0.09	0.17
14:00-15:00	0.07	0.12	0.19
15:00-16:00	0.16	0.08	0.24
16:00-17:00	0.06	0.12	0.19
17:00-18:00	0.14	0.09	0.23
18:00-19:00	0.11	0.10	0.21
19:00-20:00	0	0	0
20:00-21:00	0	0	0
21:00-22:00	0	0	0
22:00-23:00	0	0	0
23:00-24:00	0	0	0

4.5 Gibraltar 2001 Census – Private Vehicle Usage

Gibraltar, along with many parts of Southern Europe, has very high usage of mopeds and motorbikes in comparison to the mainland UK. Typically, in the UK motorbike use (as main mode) is estimated at around 3% of total trips[4] whereas the Gibraltar 2001 Census[5] states that around 37% of private vehicles are motorbikes or mopeds, and that 40% of all vehicular journeys to work are undertaken by this mode.

Therefore, in order to ensure that the assessment remains site specific, vehicular trips have been differentiated between the types of vehicles, namely cars, motorbike/moped and goods

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[4] *Focus on Personal Travel*, (National Travel Survey 2002/ 2003) DfT, 2005 edition, Office of National Statistics

[5] http://www.gibraltar.gov.gi/gov_depts/Statistics/Census_of_Gibraltar_2001.pdf

vehicles. These vehicles are converted into PCUs to examine the actual impact on road usage.

Thus, for each of the land uses the trips were separated out in the following proportions:

- Cars – 58%, PCU factor of 1
- Motorbikes/Mopeds – 37%, PCU factor of 0.4
- Service Vehicles – 5%, PCU factor of 2

Beach trips were all assumed to be made by car to represent the existing trips.

Factoring in service vehicles ensures the assessment remains robust, as in reality they would avoid accessing the site during peak periods. 5% service vehicles during the peak has been assumed, against a surveyed backdrop of 1% of local general traffic.

To ensure the assessment remains robust, at this stage no reduction in trips was made to allow for cyclists or those using public transport as no objective quantification could be gauged of the regular use of these modes.

4.6 Development Generated Traffic Flows – Combined Effect

The high quality of the Eastside development and the favourable taxation status of Gibraltar are both likely to attract many overseas investors to buy an investment or holiday home, so full occupancy is unlikely at any one time, even in high summer.

The analysis above is therefore a worst-case scenario and ensures a robust assessment. The analysis was based on the parking provision of 1 parking space per dwelling for the proposed residential element (and the additional parking provided for visitors) with the trips for commercial and retail based on GFA and those for hotel based on the number of rooms or apartments.

Average vehicle trip rates for the typical morning peak hour (08:00-09:00) and evening peak hour (17:00-18:00) would normally be applied for analysis of the traffic impact. However, taking into account the nature of a beach town, the daily profile shows that AM peaks are not as sensitive and daily peaks would tend to occur during 16:00 to 19:00. As traffic peaks at different times for different types of land-use, cumulative impact needs to be considered at a combined peak.

As referenced during the analysis, the trip linking effect has been taken into account for retail and commercial trips to avoid over-estimation. Accordingly, trips estimated in Sections 4.3 to 4.5 have been added to yield the total trip generation for the development as a whole.

Tables 4.10 to 4.11 below and overleaf show the estimated PCU trips for the proposed development for weekdays and weekends respectively, based on estimated demand to the site. Beach trips are also included as these trips would be accessing the car parks within the development.

Table 4.10 Estimated Weekday PCU Trips Generated by the Whole Development

Time Range	Estimated no. of trips		
	Arrival	Departure	Total
00:00-01:00	23	46	70
01:00-02:00	0	23	23
02:00-03:00	0	23	23
03:00-04:00	0	0	0
04:00-05:00	23	0	23
05:00-06:00	46	23	70
06:00-07:00	70	23	93
07:00-08:00	532	227	759
08:00-09:00	872	382	1253
09:00-10:00	717	457	1174
10:00-11:00	552	519	1071
11:00-12:00	537	518	1055
12:00-13:00	674	671	1345
13:00-14:00	926	631	1557
14:00-15:00	539	629	1168
15:00-16:00	695	597	1292
16:00-17:00	560	818	1378
17:00-18:00	878	952	1830
18:00-19:00	918	1170	2088
19:00-20:00	670	914	1584
20:00-21:00	405	642	1047
21:00-22:00	186	281	467
22:00-23:00	93	212	305
23:00-24:00	70	139	209

Table 4.11 Estimated Weekend PCU Trips Generated by the Whole Development

Time Range	**Estimated no. of trips**		
	Arrival	**Departure**	**Total**
00:00-01:00	68	91	159
01:00-02:00	23	46	68
02:00-03:00	23	23	46
03:00-04:00	23	23	46
04:00-05:00	23	0	23
05:00-06:00	46	23	68
06:00-07:00	68	23	91
07:00-08:00	529	247	776
08:00-09:00	869	441	1310
09:00-10:00	869	595	1464
10:00-11:00	1233	777	2010
11:00-12:00	902	842	1743
12:00-13:00	907	852	1759
13:00-14:00	772	665	1437
14:00-15:00	631	640	1271
15:00-16:00	607	568	1175
16:00-17:00	916	774	1690
17:00-18:00	1008	1144	2153
18:00-19:00	1088	1548	2636
19:00-20:00	806	1153	1959
20:00-21:00	597	735	1309
21:00-22:00	251	373	623
22:00-23:00	159	296	456
23:00-24:00	114	228	342

4.7 *Both Worlds Residential Development*

The Both Worlds Development is proposed by ABCO Ltd at the southern end of Sandy Bay between the shoreline and Sir Herbert Miles Road. The development comprises some land reclamation and coastal protection works to facilitate the construction of 65 two-, three- and four-bed apartments, a swimming pool and 170 car parking spaces.

The junctions have been considered with these additional development trips in order to produce a robust case.

The trip rates used for this development were those used for the residential component of Eastside, as presented in Tables 4.3 and 4.4, based on the proposed figure of 170 parking spaces. The potential trips generated by this development can be seen in Tables 4.12 and 4.13. To ensure a robust assessment, all Both World trips were assumed to be made by car.

Table 4.12 Estimated Weekday Trips Generated by Both Worlds

Time Range	Estimated no. of trips		
	Arrival	Departure	Total
00:00-01:00	2	3	5
01:00-02:00	0	2	2
02:00-03:00	0	2	2
03:00-04:00	0	0	0
04:00-05:00	2	0	2
05:00-06:00	3	2	5
06:00-07:00	5	2	7
07:00-08:00	22	9	31
08:00-09:00	27	15	43
09:00-10:00	22	19	41
10:00-11:00	17	20	37
11:00-12:00	14	17	31
12:00-13:00	20	19	39
13:00-14:00	20	17	37
14:00-15:00	9	20	29
15:00-16:00	12	17	29
16:00-17:00	20	22	43
17:00-18:00	41	19	60
18:00-19:00	**51**	**53**	**104**
19:00-20:00	37	46	83
20:00-21:00	24	31	54
21:00-22:00	14	17	31
22:00-23:00	7	15	22
23:00-24:00	5	10	15

Table 4.13 Estimated Weekend Trips Generated by Both Worlds

Time Range	Estimated no. of trips		
	Arrival	Departure	Total
00:00-01:00	5	7	12
01:00-02:00	2	3	5
02:00-03:00	2	2	3
03:00-04:00	2	2	3
04:00-05:00	2	0	2
05:00-06:00	3	2	5
06:00-07:00	5	2	7
07:00-08:00	27	9	36
08:00-09:00	43	19	61
09:00-10:00	36	29	65
10:00-11:00	43	36	78
11:00-12:00	34	37	71
12:00-13:00	36	34	70
13:00-14:00	17	17	34
14:00-15:00	12	17	29
15:00-16:00	17	14	31
16:00-17:00	43	26	68
17:00-18:00	44	39	83
18:00-19:00	**60**	**78**	**138**
19:00-20:00	43	56	99
20:00-21:00	36	36	70
21:00-22:00	19	27	46
22:00-23:00	12	22	34
23:00-24:00	9	17	26

5 Transport Impact

5.1 *Introduction*

To study the net traffic impact of the proposed Eastside development it is necessary to consider the use of the existing land and the estimated traffic that will be generated by the development. The existing land is currently partly used as parking for beach visitors; these trips are assumed to be unaffected but parking would be more centralised and better managed within the development.

These trips would access the new public car parks via the new junctions and therefore be considered locally reassigned base traffic. For the base junction assessments these are considered as existing movements.

Development traffic generated in its anticipated completion (full occupation) year of 2020, together with the beach trips, will be added to the observed flow. The total flow will be assigned to the highway network and both roads and junctions in the surrounding area assessed. Any proposed changes to the highway network are also identified.

As the highest flows noted during the traffic survey (Section 2.3b) were between 16:00 and 19:00, all the junctions have been tested for the hourly average between these times, for both weekday and weekend. The impact of construction traffic associated with the proposed development is considered separately in Chapter 6.

5.2 *Junction Design*

Two new signed main accesses into the development are proposed. The northern access road would be the main access connecting to the existing Eastern Beach Road junction and this junction would be amended to a roundabout junction. Further discussion surrounding this junction can be found in section 3.4 (b).

Another new main access is proposed at the southern end of the development, which would also require junction layout changes. This junction would remain as a t-junction, with a right-hand turn only out of Catalan Bay Village Road onto Catalan Bay Road. There are also three additional secondary accesses proposed, between the southern and northern parts of the site. These would be right-hand turn exit only from the site and available before the start of the building construction. The proposed changes to the local road layout can be seen on Figure 3.2.

To assess these new access junctions, PICADY and ARCADY software are used. Figure 3.3 shows the preliminary design for the northern access roundabout, which complies with deflection standards, whilst Figure 5.1 shows the southern access. Design Manual for Roads and Bridges (DMRB)[6] was used as a basis for the outline design, taking into account the geometric constraints and existing road layout in the area.

5.3 *Trip Assignment*

To study the impact of the estimated development trips on the surrounding highway, these trips have been distributed into the highway network based on the existing pattern of traffic, as well as the building arrangement within the development.

Residents and visitors to the development would probably have a varied purpose of trips and may be attracted to different parts of Gibraltar or to Spain; this is taken into account in the forecast northern / southern access split and direction of the trips at the Sundial roundabout. The strategic distribution of road traffic as percentages is shown in Figures 5.2 to 5.10 for the residents and visitors of each scenario respectively, including for the proposed development at Both Worlds.

The resident trip distribution was calculated by dividing the site into 5 land parcels per access and calculating the total number of apartments in each as a proportion of the site total. This figure then became proportions of the total to use the relevant access points. The combined traffic flows for future year scenarios, with the Eastside development completed as well as base and committed development flows, are shown diagrammatically in Figures 5.11 to 5.13 for weekdays during 2015 with construction and operational traffic and 2020 fully operational.

5.4 *Impact of Generated Traffic Flows*

(a) Link Capacity

The link capacity of any urban road is dependent on the road type (speed), road width, type of land-use fronting the road (which affects incidence of on-street parking and loading) and frequency of junctions. The surrounding roads have been classified as urban all-purpose, category 2.

It is suggested[7] that a design flow for all-purpose 40 mph 2-way urban roads is 1,525 vehicles/hour/direction for a road with width 8.5m as on Catalan Bay Road. Devil's Tower Road is wider than Catalan Bay Road and thus would have a higher capacity.

None of the maximum peak hour 2-way flows on Devil's Tower Road, Catalan Bay Road and the northern access would exceed this design flow and therefore it can be concluded that

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[6] Volume 6 Section 2 Part 3 (Roundabout) and 6 (Priority Junction), Design Manual for Roads and Bridges

[7] TA 79/99, Determination of Urban Road Capacity, The Highway Agency

the additional traffic generated by the proposed development would have no significant adverse impact on the link operating characteristics of these roads.

(b) Junction Analysis

On urban road networks it is generally junction capacity which constrains the overall capacity of the network. As mentioned in Section 2.8, existing junctions have been analysed using the peak summer base flow and all junctions would then operate under capacity. These junctions are again analysed using the combined development flows.

All proposed site accesses – the northern access, the southern access and all three of the secondary accesses were assessed with the proposed layout in Figure 3.2,. Table 5.1 displays the predicted RFC for the final development.

Table 5.1 Final Phase Development Traffic with Base (with committed development at Both Worlds)

		RFC%		Queue length	
Junction (Type)	**Approach Arm or Turning Movement**	**Week**	**Week**	**Week**	**Week**
Winston Churchill Avenue / Devil's Tower Road (Sundial roundabout)	Winston Churchill Ave - N. Arm	54.9	56.1	1.2	1.3
	Winston Churchill Avenue - S. Arm	69.2	68	2.2	2.1
	Devil's Tower Road	95.8	94.1	15.4	12.8
Northern Access (Site access 1) (Roundabout)	Service Road	2.8	5	0	0
	Catalan Bay Road	77.8	99	3.3	20
	Northern Site Access	55.7	76.9	1.2	3
	Devil's Tower Road	61.4	69	1.6	2.2
Site Access 2	Site Access – Catalan Bay Rd North	20.6	34	0.3	0.5
	Site Access – Catalan Bay Rd South				
	Catalan Bay Road North – Site Access	24.6	35	0.3	0.5
Site Access 3	Site Access – Catalan Bay Rd North	21.3	34.1	0.3	0.5
	Site Access – Catalan Bay Rd South				
	Catalan Bay Road North – Site Access	25.8	35.2	0.3	0.5
Site Access 4	Site Access – Catalan Bay Rd North	18.2	22.2	0.2	0.4
	Site Access – Catalan Bay Rd South				
	Catalan Bay Road North – Site Access	23	23.4	0.3	0.4
Southern Access (Site access 5) (Priority Junction)	Southern Access Rd (Right turn to Catalan Bay Rd - N. Arm)	56.9	55.8	1.3	1.2
	Catalan Bay Road – (Left turn into site access)	38	45.7	0.6	0.8
Eastern Beach Road/ Northern Site Access	Eastern Beach Road – Northern Site Access north and south	33.9	0.5	61.7	1.5
	Northern Access Roundabout – Eastern Beach Road/ Site	41	0.9	60	2

It can be seen from Table 5.1 that none of the arms of any junction exceed capacity, with all RFC values below 100%. RFC values along Catalan Bay Road approaching the northern site roundabout would reach 99, but the flows used for this assessment include the proposed development at Both Worlds and these junction assessments do not take into consideration any modal shift to public or sustainable travel. This equates to a queue of 20 PCUs, or a queue length of 115m. RFC values for Devil's Tower Road approaching the Sundial roundabout would reach a level of 95.8, corresponding to a maximum queue of only 15.4 PCUs, or a queue length of 88 metres. This could be easily accommodated on Devil's Tower Road. This level of capacity provision would be economically justified in an urban area such as this, since queues and delay would be modest, with the queues on the more strategically important Winston Churchill Avenue staying low, at around two vehicles.

The full results have been provided in Appendix 7 for each junction, operating under the peak period of the average hourly flow between 16:00 and 19:00.

An issue previously raised was the proximity of the southern access to the Sir Herbert Miles Road / Catalan Bay Road junction, as a potential queue on Catalan Bay Road from the Sir Herbert Miles Road junction may affect operation of the southern access. The results show that this queue would be negligible, with queue lengths during the period with the heaviest flows averaging less than one vehicle.

Larger developments usually generate lower trip rates due to the internalisation as discussed in Sections 4.4 and 4.6. Trips are also less likely to concentrate during the morning and evening peak due to the variety of journey purposes. Also, the nature of the trips would be different, as would the time and the direction of the trips. As such, the accumulated peak impacts would be reduced.

5.5 Car Parking Considerations

To ensure that the site would operate satisfactorily internally, the provision of parking on the site has been examined to ensure that there would be no operational problems arising. As the trips were differentiated between car and moped trips (see Section 4.5), two parking accumulation profiles were developed for each vehicle type which were then combined. It was assumed that two mopeds/motorcycles would require one standard parking space. The service vehicles were assumed not to need parking outside of the dedicated servicing area.

As a result of this analysis, it was estimated that in the peak parking hour of 1500 - 1600, a total of 943 spaces would be required should all demand to the site be met by individual vehicular trips. Currently, the site has provision for a total of 800 parking spaces (see Section 3.5). This leaves a shortfall of 15%; however, mitigation measures are suggested below to encourage modal shift to public transport options, especially for the travel to work element of the trips, and taxis form a large proportion of the trips made in Gibraltar, which do not require parking.

It is therefore considered very unlikely that all expected demand would be met by individual private trips requiring parking. It is considered prudent to not 'predict and provide' the parking provision, and that limited parking space reduces vehicular trips and encourages modal shift to public and sustainable transport modes.

5.6 Development Trip Self-Limitation

As previously mentioned, the analysis undertaken is based upon the demand to the site. However, this rarely happens in reality, as travellers soon learn the busiest hours for the roads and/or parking availability, and therefore attempt to travel earlier, by an alternative means or not at all.

As the development is due to open from the south to the north, with units opening and being occupied as they are completed, traffic would build up slowly to the site. This would also allow a slow increase in demand for public transport alternatives to the site, and if these sustain an increase in public transport provision then a strong modal shift can be expected before the site is fully complete.

5.7 Mitigation Measures and Possible Improvement

(a) Highways – Winston Churchill Avenue Roundabout

Winston Churchill Avenue roundabout would operate under capacity under normal situations. However, due to the occasional closure of Winston Churchill Avenue across the runway, as referenced in Section 2.2, traffic often queues beyond the roundabout towards the town centre.

Subject to the future need to avoid this queue affecting access to the eastern coast, a possible cost-effective improvement for future consideration would be to provide a box junction to help to keep the space free for other traffic. This would minimise interruption of this queue to the remainder of the general traffic at this junction.

(b) Travel Plan

It is strongly advised that any occupiers of the commercial and office space on site should undertake a robust travel plan. This would ensure that sustainable travel options are provided, with cycling/shower facilities and car sharing options in place. Companies may also like to consider the provision of an employee shuttle bus service from Gibraltar town to the office developments.

(c) Public transport improvements

Existing public transport and pedestrian facilities are modest on the eastern side of Gibraltar due to the lack of development or tourist attractions. It is the intention as part of the development to promote tourism, as well as to provide easy access, including access by other modes of transport (especially sustainable modes).

As bus route 4 is a relatively long route covering most of Gibraltar, it may cause undesired delay to existing passengers if the route is to be diverted into the development. However, a greater demand would allow the bus companies to provide a more frequent service and potentially provide a more direct route. The bus operator(s) may see a benefit in extending the service operating hours to capture the evening leisure peak passengers. The extra service would promote public transport and improve access to the Eastside development which would attract more visitors to the area.

(d) Pedestrian Facilities

Segregated access for pedestrians will be provided for the new development to encourage walking. Pedestrian access from Catalan Bay village and Eastern Beach to the site will be upgraded. This will link in to walkways and footpaths within the retail areas and along the sea front promenade.

(e) Cycling Facilities

Cycling activities seem to be popular around the town centre area and should also be a promoted mode of transport for the east side of Gibraltar. Cycle facilities, such as safe cycle stands and cycle lanes, could be provided within the development for both visitors and residents. This would encourage cycling for all kinds of trips and improve safety.

(f) Taxi Facilities

Currently there is no taxi stand on the eastern side of Gibraltar. A number of new taxi pick-up / drop-off points could be proposed within the development for the convenience of visitors without cars. Taxi use is very popular in Gibraltar and contributes to reducing single occupancy car trips.

5.8 Conclusion

This chapter has addressed the potential impacts and possible improvements on highways and parking provision, as well as public transport, taxi, cycle and pedestrian access to attract visitors without cars and to promote sustainable transport.

While a development of this scale would evidently have a tangible effect on the local highway network, the modelling has shown the road network to operate within capacity and the resultant flows with the development completed not sufficiently material in magnitude to compromise this efficiency. The junction analysis does also not take into consideration any modal shift.

An analysis of parking on site has shown that there is currently provision for 85% of total trip demand to the site. The 15% shortfall of parking demand is assumed to be met by the high levels of moped and taxi use in Gibraltar, as well as increased opportunities to access public transport/shuttles and other modal shift. Previous experience with these types of development has shown that traffic is self-restraining and will naturally cap at the maximum parking provision.

To encourage a more sustainable development and provide travel options for non-private vehicle owners, it would be beneficial to provide the option of alternative transport modes to the proposed Eastside development. The volume of person trips to and from the development would provide a new and large market for both public transport and taxi operators.

6 Construction Traffic Impact

6.1 *Introduction*

This chapter assesses the impact of construction traffic on the existing road network, in particular the Sundial roundabout, the junction of Devil's Tower Road/Eastern Beach Road and along Catalan Bay Road at the junction into the site.

The anticipated completion date for the whole development is 2020, with a relatively tight programme. Construction materials would constantly be transported to the development site during the construction phases. With the size and complexity of the proposed development, where lengthy construction phases are expected, it is necessary to study the impact of construction traffic on the highway system.

6.2 *Assessment Criteria and Assumptions*

The impact assessment is based on a progressive construction programme, where buildings would be constructed continuously, starting from the south and moving northwards. It is assumed that once the construction of a building is completed, it would be available for occupation shortly after. The critical period to be assessed during the construction phase is assumed to be in 2015, when buildings DP 1 – 8 would have been constructed and fully functional whilst construction continued for the remaining building plots. This would represent the worst case scenario.

All vehicular accesses would be available before building construction begins. Construction traffic would therefore use one or all of the site accesses. However, it would be undesirable for operational traffic to share access with construction traffic, thus it is assumed (and recommended) that vehicular access adjacent to the operational buildings be available only to operational traffic. There would only be two accesses for construction traffic to use in 2015, the northern access roundabout access and the access further south (site access 2).

To estimate the most significant impact of construction traffic to local roads, it is assumed that all materials required for building construction would be transported by road. It has been assumed that all materials required for land reclamation work would arrive by sea. It is predicted that, based on this progressive construction programme, a maximum of 260 construction vehicles in total would be required per day on weekdays to satisfy the peak of construction requirement.

It is likely that construction traffic would avoid peak time to minimise possible congestion delay. It is assumed that 10% of these 260 construction vehicles would arrive on site in the modelled peak hour, equating to 26 vehicles.

As the junction assessment is based on passenger car unit (PCU), construction traffic is factored up to represent its highway occupancy; each passenger car unit equates to 5.75m. The factor for heavy goods vehicles is normally 2.3, but as a worst-case scenario a factor of 2.5 PCU has been applied to these vehicles.

6.3 *Impact Assessment*

Both the existing Sundial Roundabout and the existing and new northern access junctions have been assessed using the traffic flows during the critical construction phase. ARCADY and PICADY are again used and results are summarised in Table 6.1 below. The full set of results output has been attached in Appendix 8.

Table 6.1 Summary of RFC for Junction Analysis of 2015 Traffic with Construction Traffic

Junction (Type)	Approach Arm or Turning Movement	RFC (%) Weekday	Queues Weekday
Winston Churchill Avenue / Devil's Tower Road (Sundial roundabout)	Winston Churchill Ave - N. Arm	45.1	0.8
	Winston Churchill Avenue - S. Arm	56.9	1.3
	Devil's Tower Road	72	2.5
Northern Access (Site access 1) (Roundabout)	Service Road	2.4	0
	Catalan Bay Road	69.8	2.2
	Northern Site Access	22..3	0.3
	Devil's Tower Road	43.5	0
Site Access 2	Site Access – Catalan Bay Rd North	7.5	0.1
	Site Access – Catalan Bay Rd South	0	0
	Catalan Bay Road North – Site Access	7.5	0.1
Site Access 3	Site Access – Catalan Bay Rd North	15.1	0.2
	Site Access – Catalan Bay Rd South	0	0
	Catalan Bay Road North – Site Access	18.1	0.2
Site Access 4	Site Access – Catalan Bay Rd North	20.3	0.3
	Site Access – Catalan Bay Rd South	0	0
	Catalan Bay Road North – Site Access	25.4	0.3
Southern Access (Site access 5) (Priority Junction)	Southern Access Rd (Right turn to Catalan Bay Rd - N. Arm)	63.3	1.7
	Catalan Bay Road – (Left turn into site access)	37.7	0.6
Eastern Beach Road/ Northern Site Access	Eastern Beach Road – Northern Site Access north and south	28.5	0.4
	Northern Access Roundabout – Eastern Beach Road/ Site	29.5	0.4

6.4 *Conclusion*

Traffic flow from a worst-case scenario has been used in the assessment, although in reality the development is likely to attract less construction traffic than this. Nevertheless, it can be seen from the previous table that all arms of both junctions are operating under capacity, with all RFC values much below the 85% level and average queue length of 1 PCU, with a maximum at 2.5 PCUs queuing on Devil's Tower Road. Thus, it is unlikely that the construction traffic would cause any adverse effect to the operation of the critical junctions.

7 Conclusions

7.1 Development Proposal

This Transport Assessment Report has been undertaken to inform the EIA process and support the planning application for the Eastside development. It includes information on the existing conditions and highway networks and considerations for possible improvements.

The proposed Eastside development as modelled is a mixed land-use development anticipated to accommodate 2,567 properties in total, areas of approximately 24,968 m^2 assigned to retail, 19,370 m^2 to commercial units and approximately 49,235 m^2 for the hotel. Car parking would be provided at the rate of approximately 1 space/ dwelling, plus 68 additional spaces for visitors use. There would also be 500 spaces for public use, 130 spaces reserved for the commercial land-use, and also approximately 170 kerbside parking spaces.

This transport assessment has attempted to remain robust throughout; a short list of how is given below:

- The planning application will be submitted with a smaller apartment hotel area than modelled, ensuring that the flows reported here represent a worse-case scenario.

- 5% of the development traffic were assumed to be servicing vehicles (with a PCU factor of 2), whereas the traffic surveys indicated only 1% of base traffic to be MGVs or LGVs.

- Saturday shops in Gibraltar tend to close mid-afternoon for the day. For our weekend assessment we have assumed full retail trips in our afternoon peak between 1600 and 1900.

- Some beach trips have been double-counted, as the traffic surveys were undertaken in September and October, with a few beach trips still present. However, full beach trips were subsequently added to the base to represent the seasonal maximum.

- The high local taxi usage and sharing has not been considered in the trip generation or parking accumulation.

- For the purposes of the parking accumulation, it was assumed that two mopeds/motorbikes would require one standard parking space. However, in reality this figure could be much higher.

- Festival Park trip rates were used to deduct the retail element from the Brighton Marina Village trips. This site had the lowest trip rate and so the resultant residential trip rates represented a worst-case scenario.

- The reduction factor of 5% applied to the commercial trips is considered low, and in reality a much higher proportion of people would be expected to live and work on site.

- Trips associated with Both Worlds development were not disaggregated into vehicle type, and therefore the junction assessments represent a worst-case scenario.

7.2 *Overall Transport Impact*

In terms of highways, current traffic levels in the area are moderate. It is shown in Chapter 4 that the potential trip generation may be significant but analysis on link capacity and junction capacity shows that existing and proposed new access junctions would be able to operate within capacity.

With the new public parking provided on site, parking conditions should improve. Improvement in public transport, cycle facilities and pedestrian friendly access would encourage the use of sustainable transport modes. Whilst extra traffic would be attracted to the area, the Eastside development would be unlikely to cause significant adverse impact on the surrounding road network and would create an opportunity to develop sustainable travel.

Appendix H

Transport Figures

Figures 2.3, 3.2, 3.3 & 5.1 – 5.13

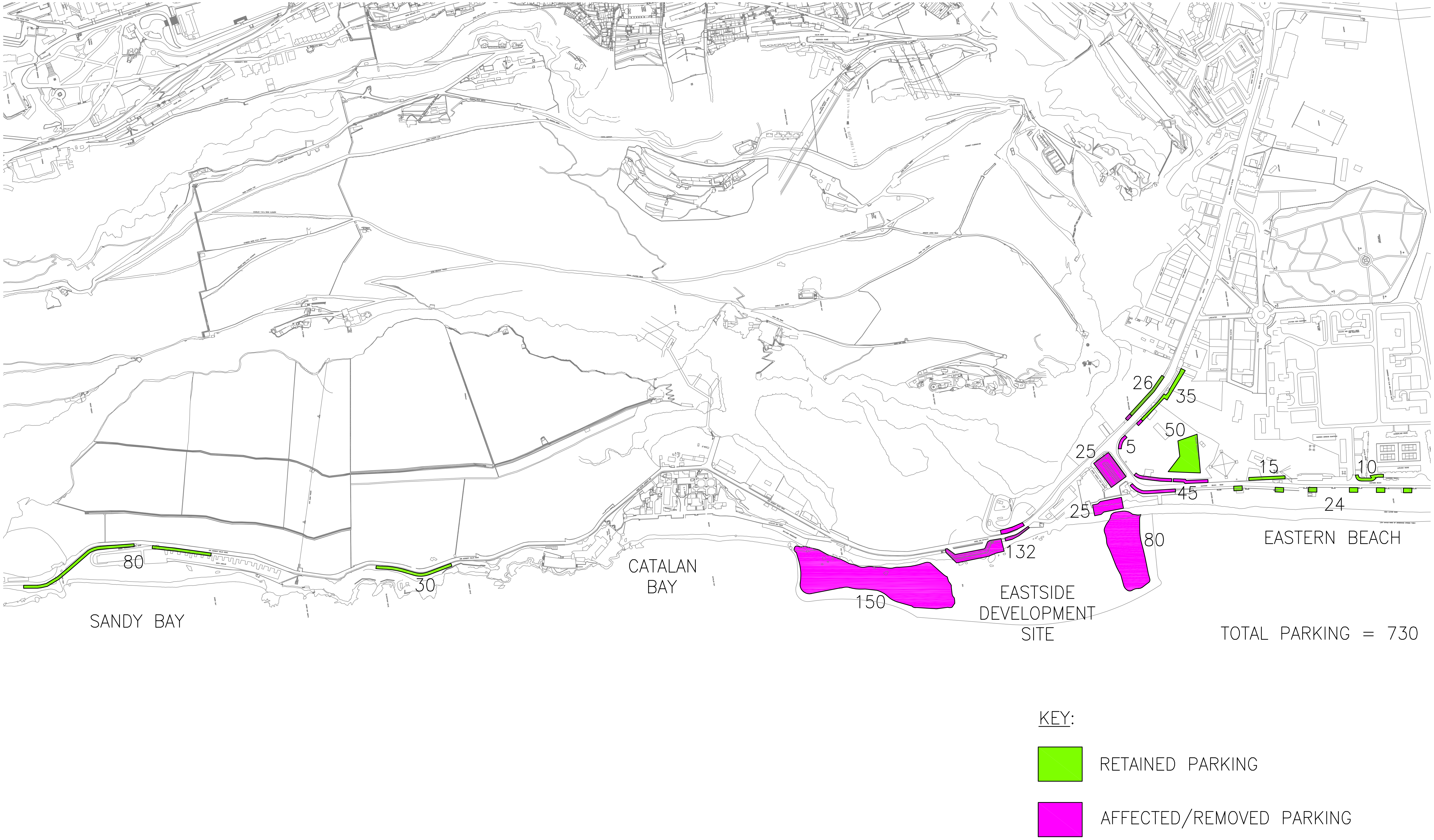
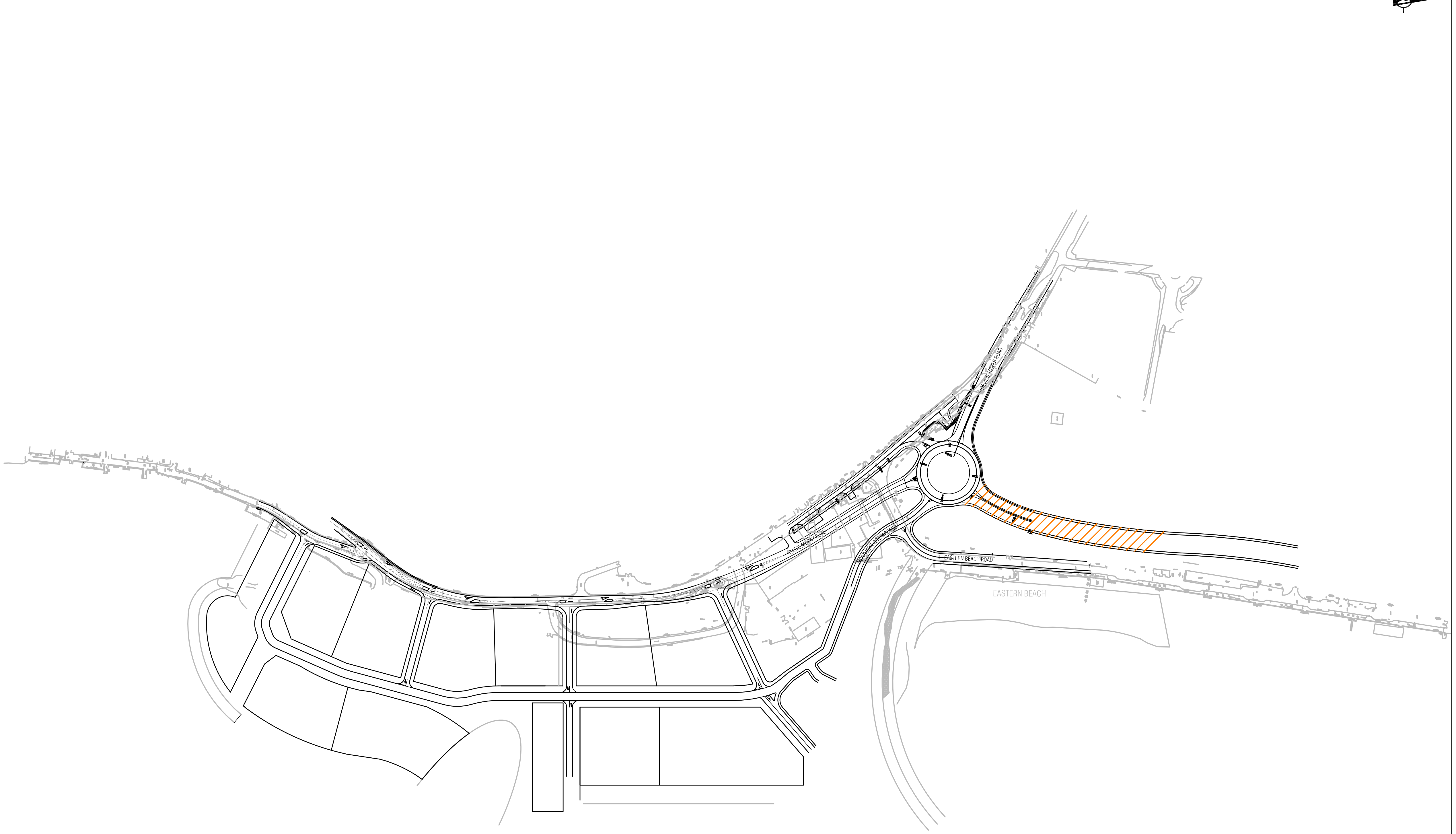


FIG. 2.3 LOCATION OF EXISTING PARKING



Key:

▨ PROPOSED AIRPORT ROAD (NOT ASSESSED)

Licence to reproduce map applied for.

Rev	By	Chkd	Apprvd	Date	Description
-	-	-	-	-	-

Client

Halcrow Group Limited
Red Hill House, 227 London Road, Worcester. WR5 2JG
Tel 01905 361361 Fax 01905 361362
www.halcrow.com

Project

Eastside, Gibraltar

Drawing

Highway Layout
Specimen Design

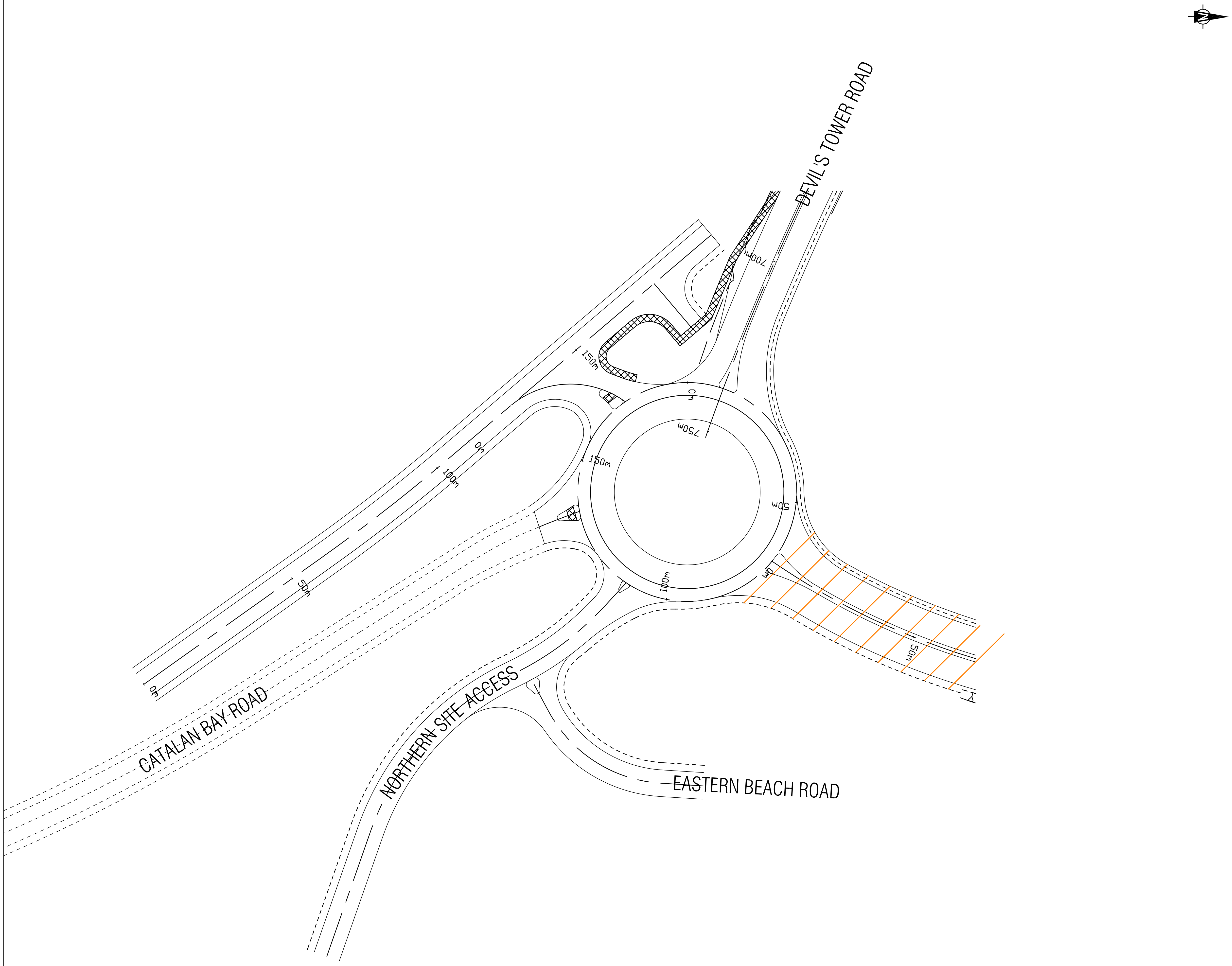
Drawn by: KC Date: 30/07/07
Checked by: CS Date: 30/07/07
Approved by: KW Date: 31/07/07

Drawing No.
Figure 3.2

Revision
-

Drawing Scale: 1:2000 & A1

Drawing file path & name : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\ Figure 3.2 Rev B.dwg
Xreference file path : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\
User and Plot Date : ChampionK : 1:8:2007 - 9:8 am



Key:

▨ PROPOSED AIRPORT ROAD (NOT ASSESSED)

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-	-	-	-	-	-
Rev	By	Chkd	Apprvd	Date	Description

Client

Halcrow Group Limited
Red Hill House, 227 London Road, Worcester. WR5 2JG
Tel 01905 361361 Fax 01905 361362
www.halcrow.com

Project

Eastside, Gibraltar

Drawing

Devils Tower Road / Eastern Beach Road Roundabout
Preliminary Design - General Layout

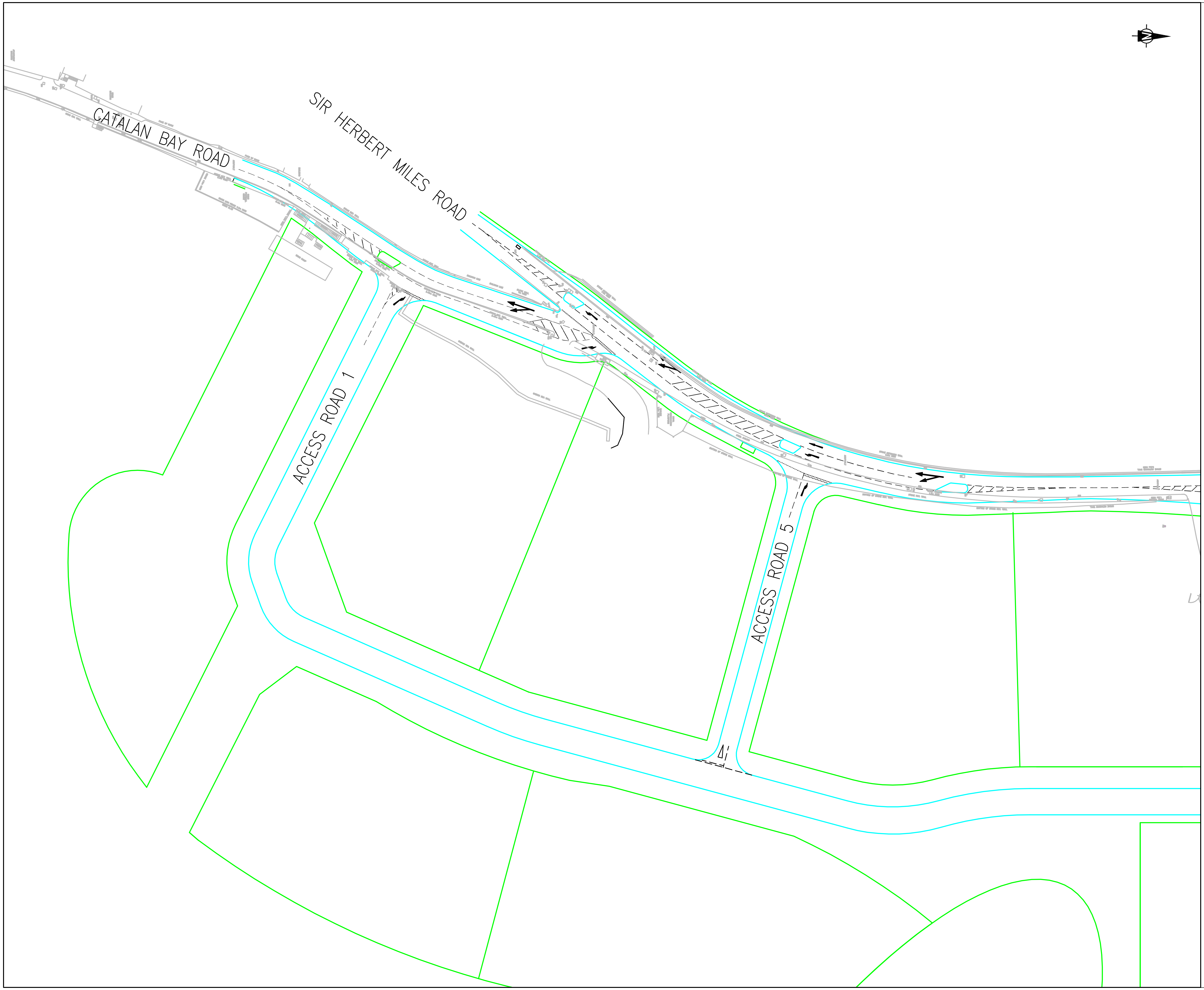
Drawn by:	KC	Date:	30/07/07
Checked by:	CS	Date:	30/07/07
Approved by:	KW	Date:	31/07/07

Drawing No.
Figure 3.3

Revision
-

Drawing Scale: 1:500 & A1

Drawing file path & name : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\ Figure 3.3 Rev B.dwg
Xreference file path : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\
User and Plot Date : ChampionK : 1:8:2007 - 9:8 am



Key:

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Rev	By	Chkd	Apprvd	Date	Description
-	-	-	-	-	-

Client

Halcrow Group Limited
Red Hill House, 227 London Road, Worcester. WR5 2JG
Tel 01905 361361 Fax 01905 361362
www.halcrow.com

Halcrow

Project

Eastside, Gibraltar

Drawing

Schematic Draft Proposal
Southern Access

Drawn by: AJM Date: 26/07/07
Checked by: CS Date: 26/07/07
Approved by: Date:

Drawing No.

Figure 5.1

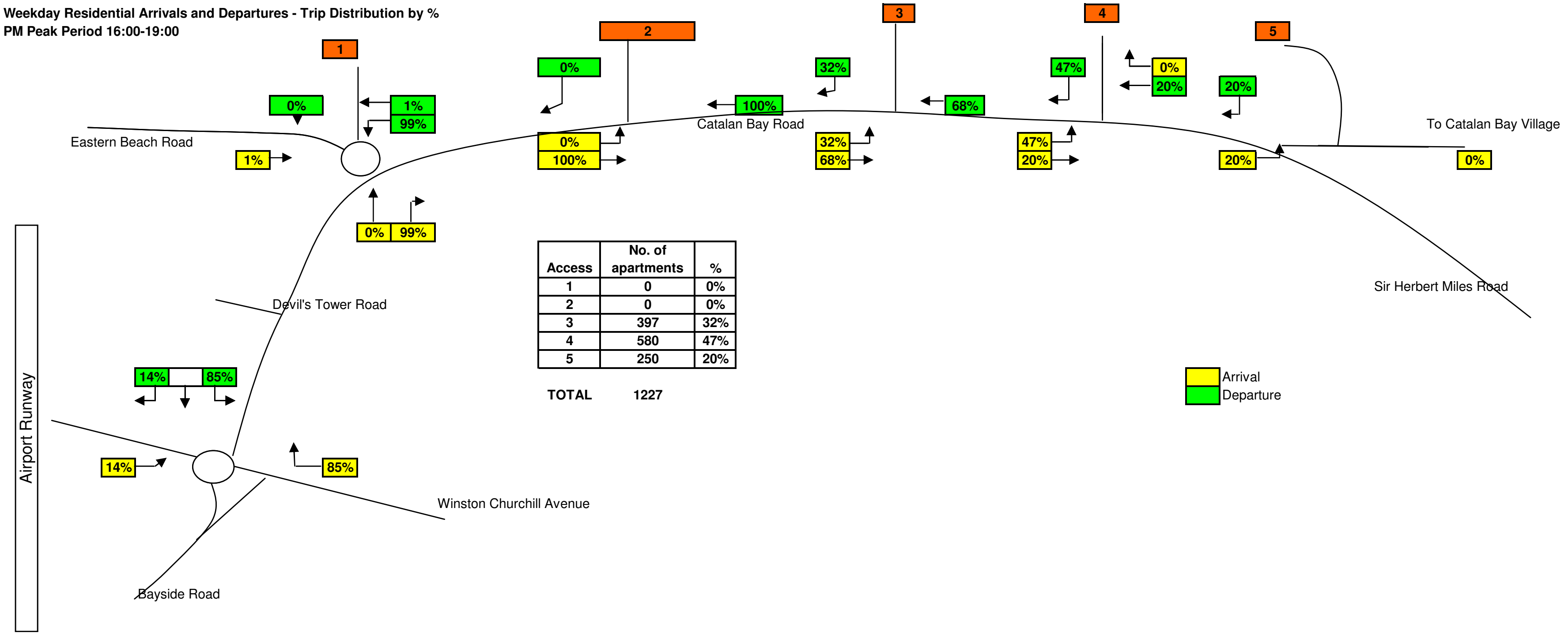
Revision

Drawing Scale: 1:500 & A1

Drawing file path & name : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\ Figure 5.2.dwg
Xreference file path : U:\HF Projects\Gibraltar - Eastside Dev\Drawings\Figures\
User and Plot Date : milehamaj : 29:6:2007 - 2:6 pm

Figure 5.2

Weekday Residential Arrivals and Departures - Trip Distribution by %
PM Peak Period 16:00-19:00



Access	No. of apartments	%
1	0	0%
2	0	0%
3	397	32%
4	580	47%
5	250	20%

TOTAL **1227**

Figure 5.3

2015

Weekday Beach Arrivals and Departures - Trip Distribution by %

PM Peak Period 16:00-19:00

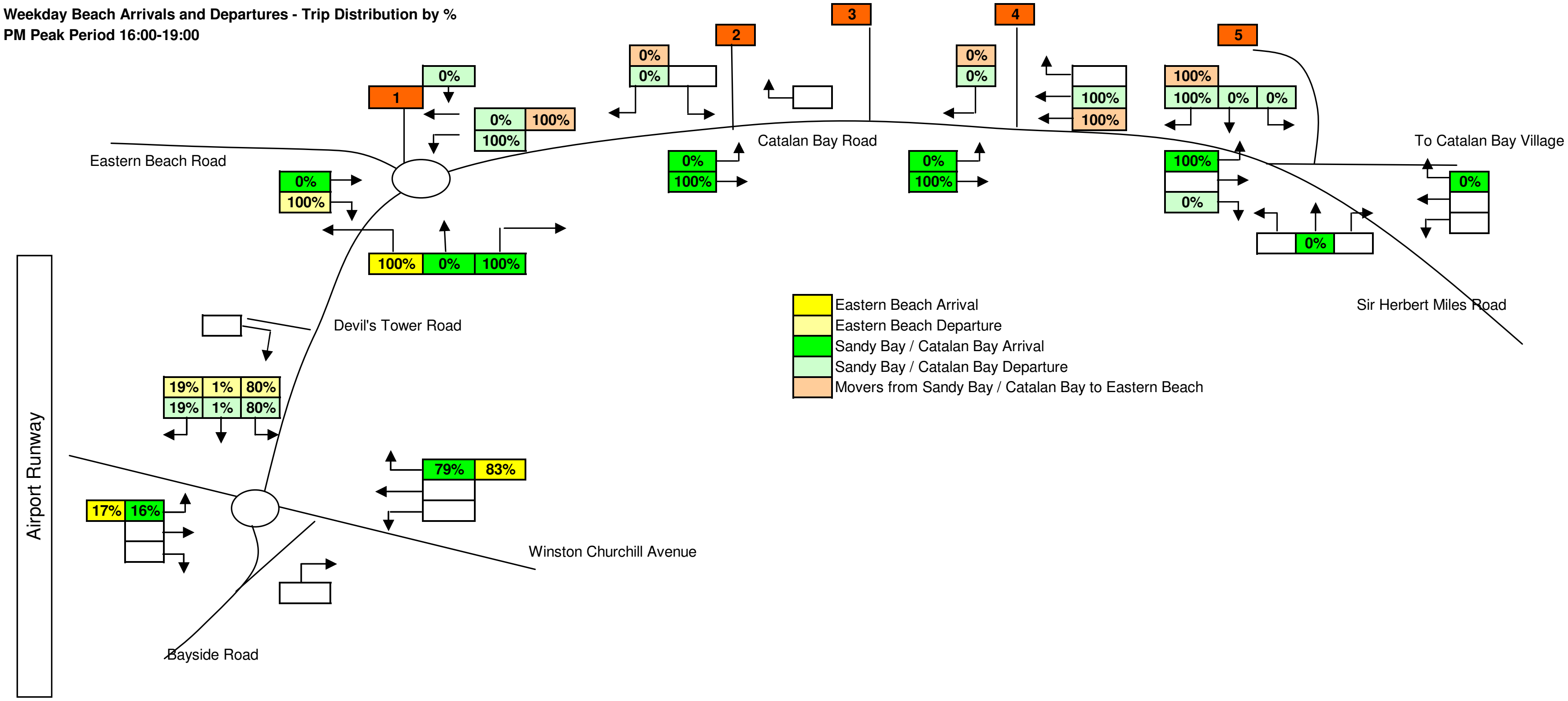


Figure 5.4

Weekday Retail / Leisure / Commercial Arrivals and Departures - Trip Distribution by %
PM Peak Period 16:00-19:00

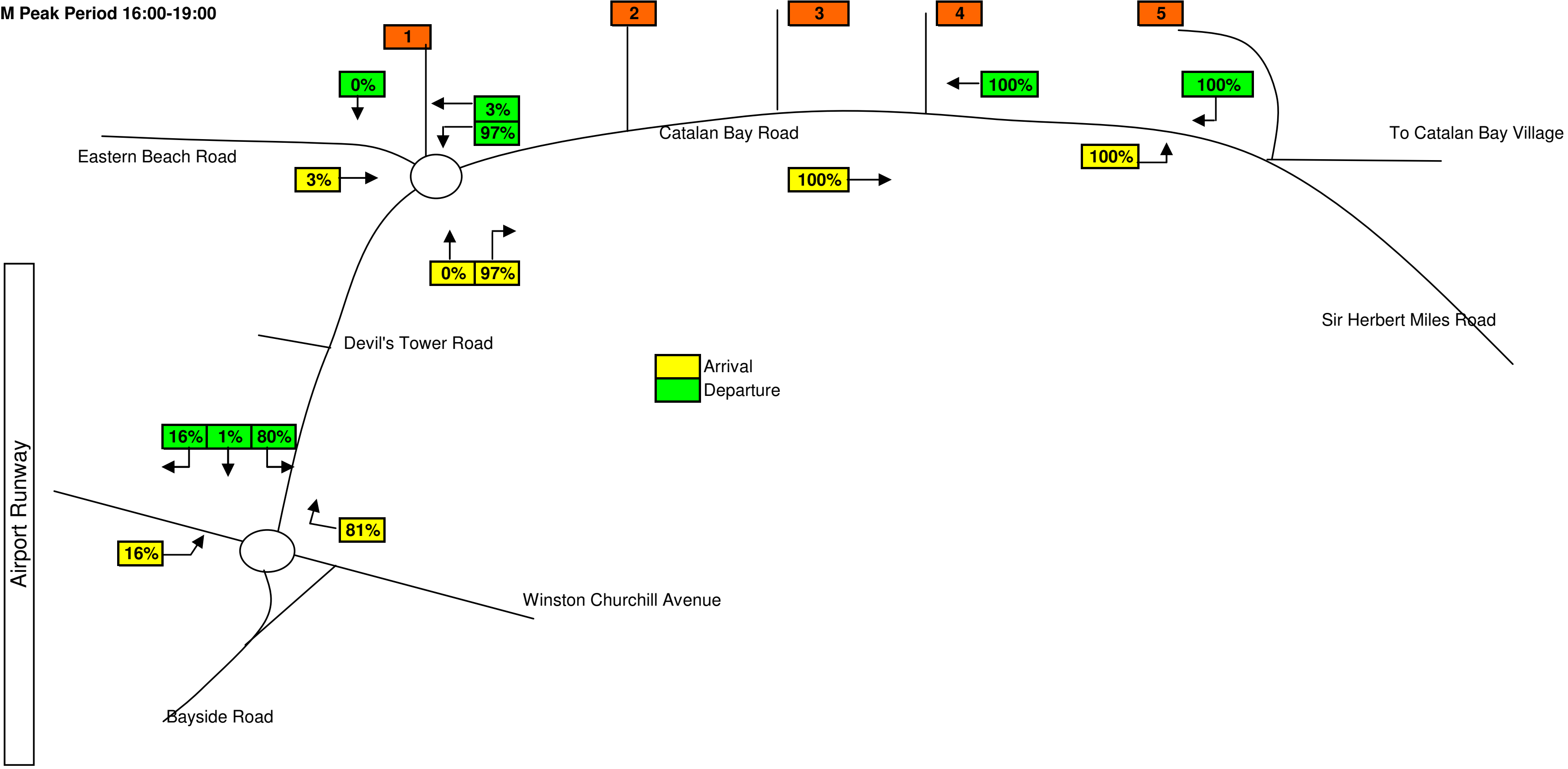


Figure 5.5

Committed Development: Both Worlds (Sandy Bay), Trip distribution %
PM Peak Period 16:00-19:00

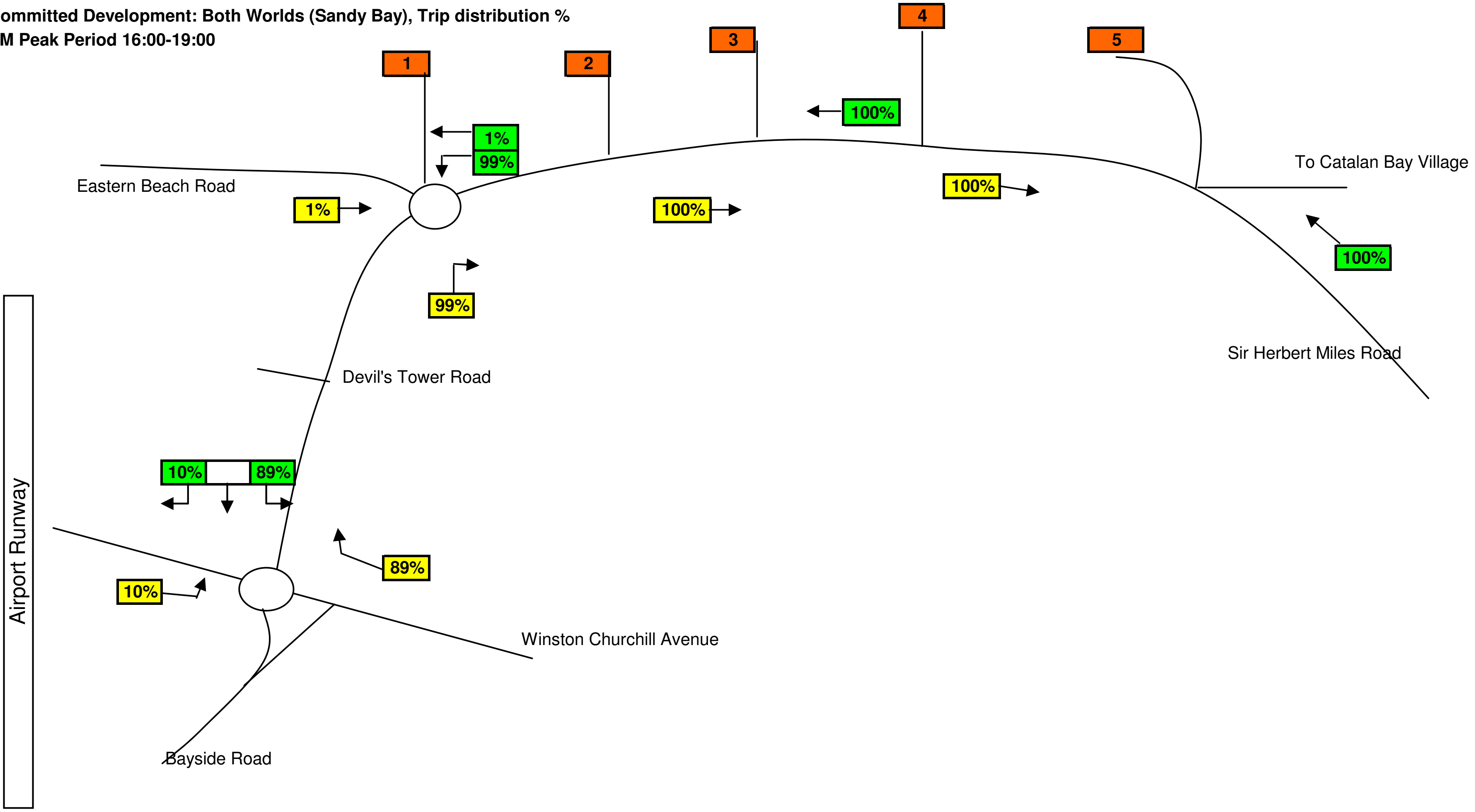


Figure 5.6

Hotel trips, Trip distribution %
PM Peak Period 16:00-19:00

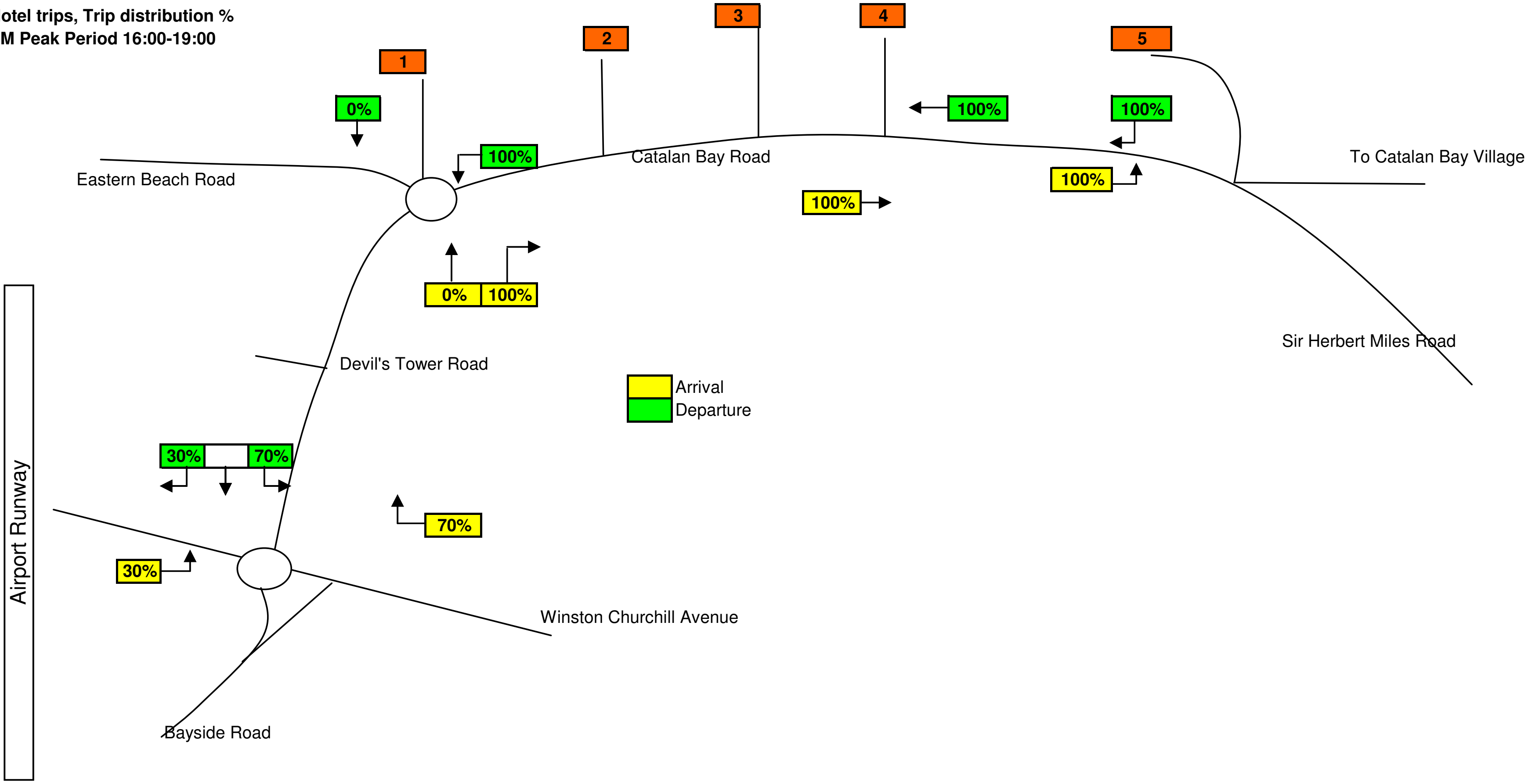
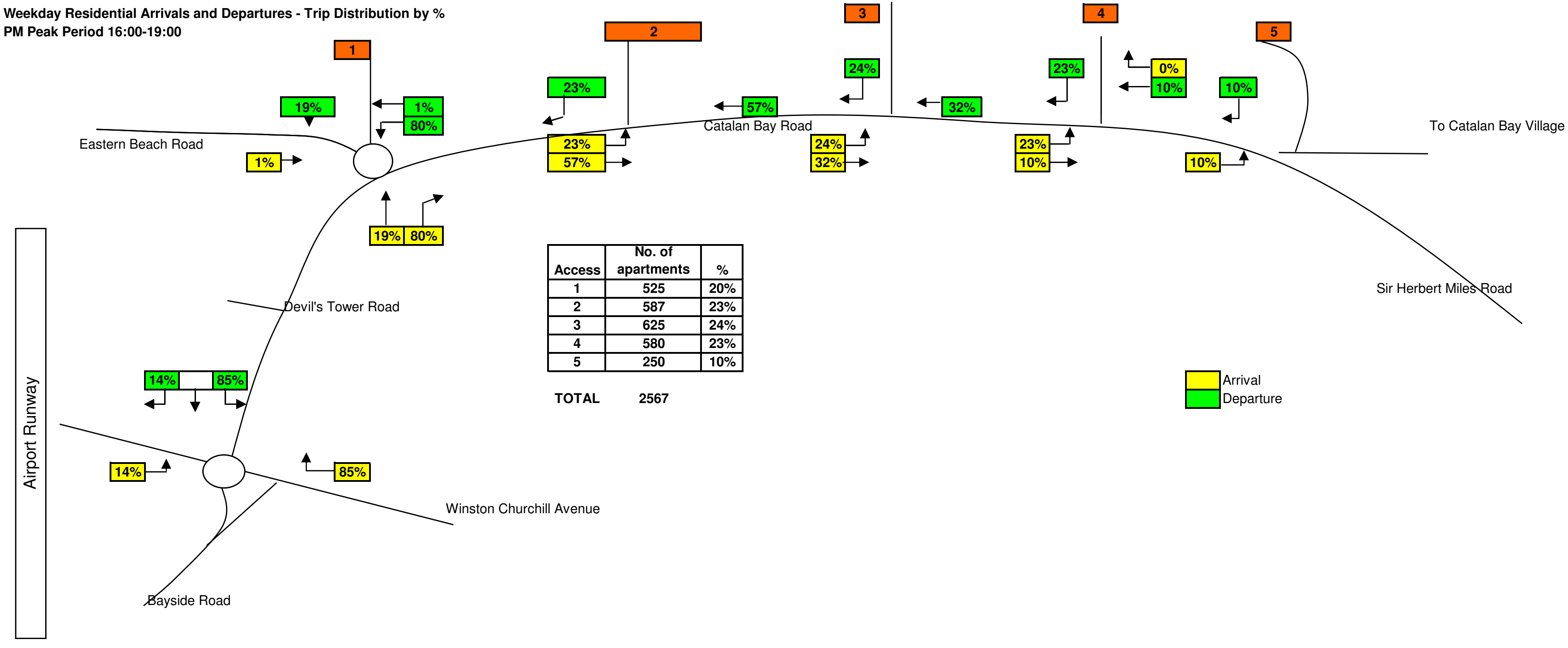


Figure 5.7
2020
Weekday Residential Arrivals and Departures - Trip Distribution by %
PM Peak Period 16:00-19:00



Access	No. of apartments	%
1	525	20%
2	587	23%
3	625	24%
4	580	23%
5	250	10%

TOTAL **2567**

Figure 5.8
2020
Weekday Beach Arrivals and Departures - Trip Distribution by %
PM Peak Period 16:00-19:00

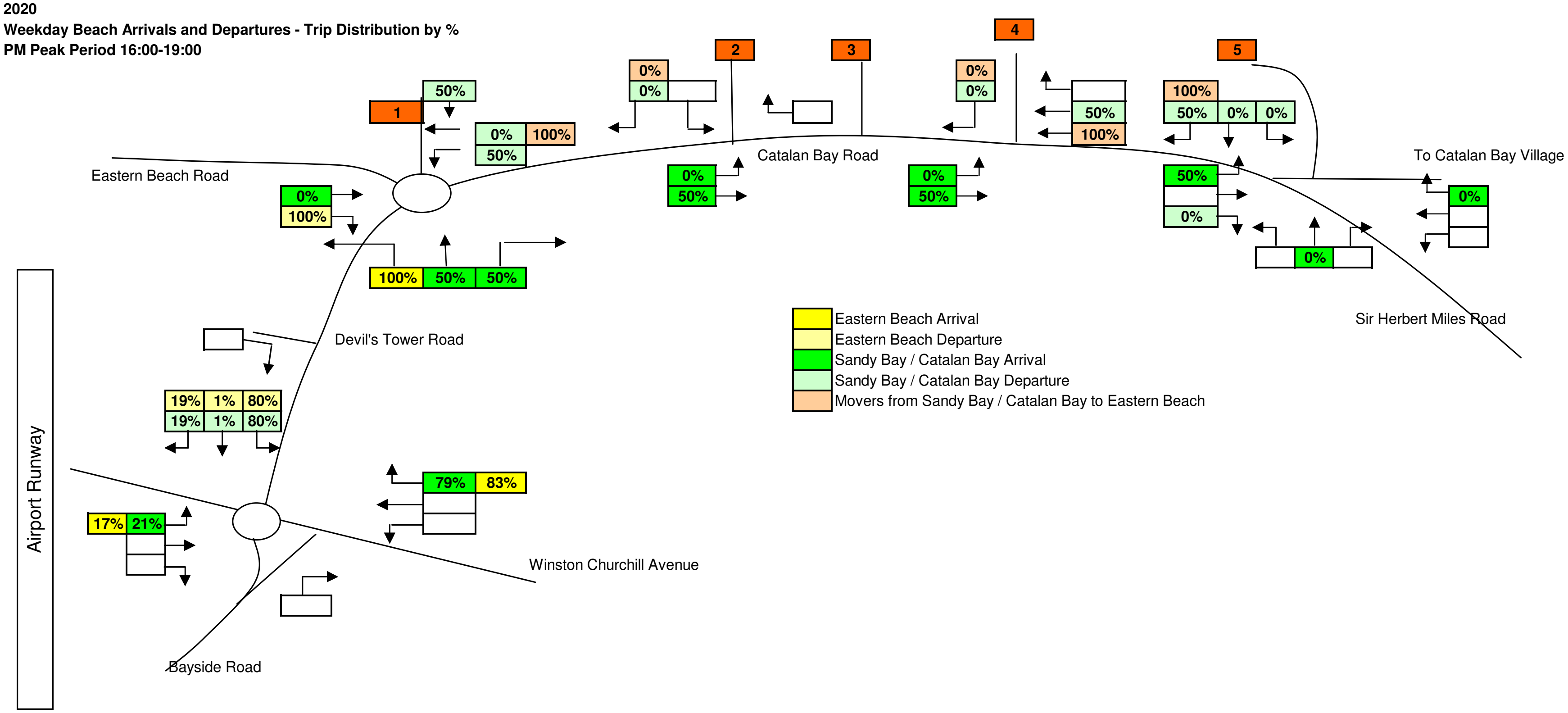


Figure 5.9

2020

Weekday Retail / Leisure / Commercial Arrivals and Departures - Trip Distribution by %

PM Peak Period 16:00-19:00

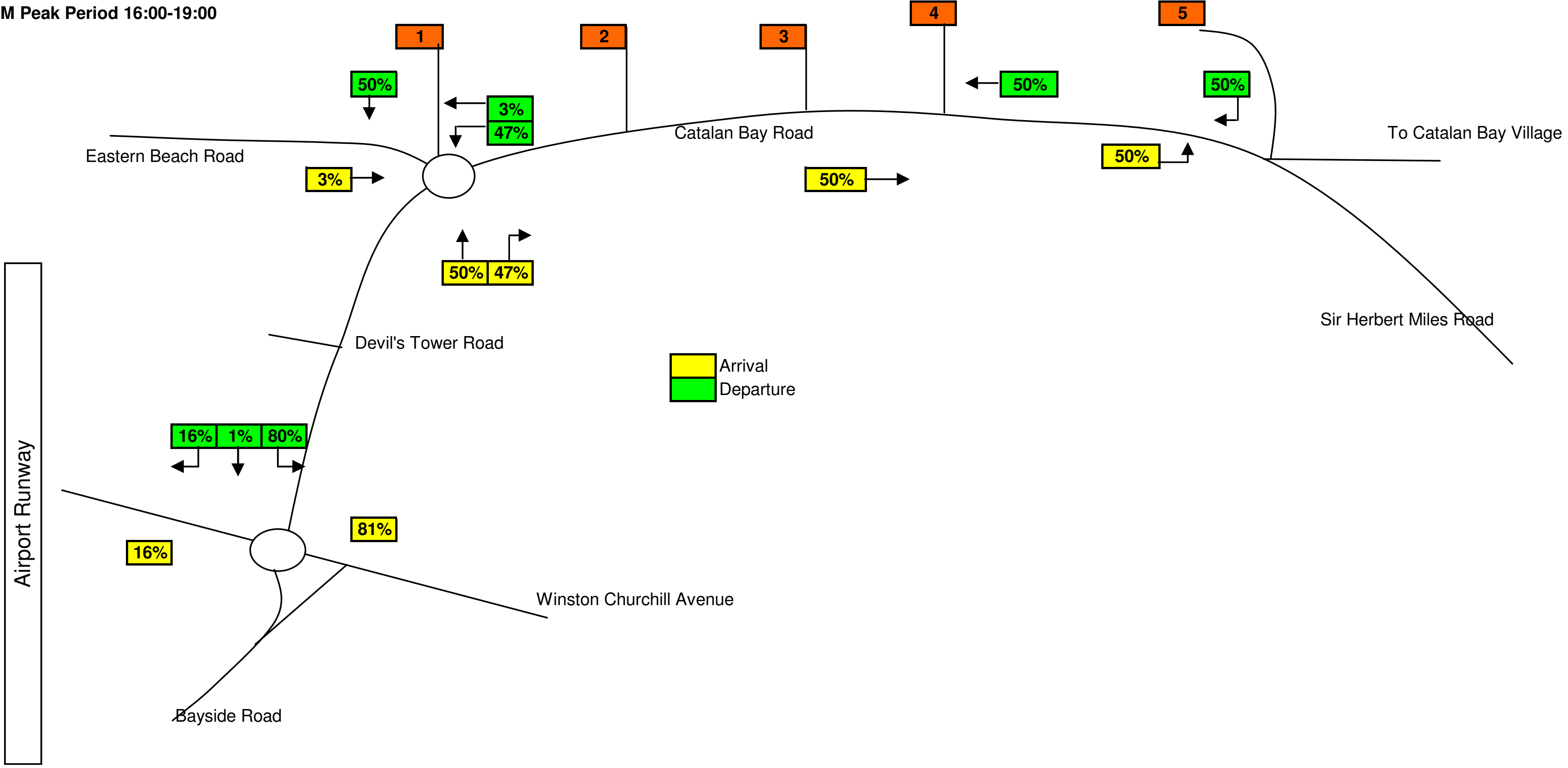


Figure 5.10
2020
Hotel trips, Trip distribution %
PM Peak Period 16:00-19:00

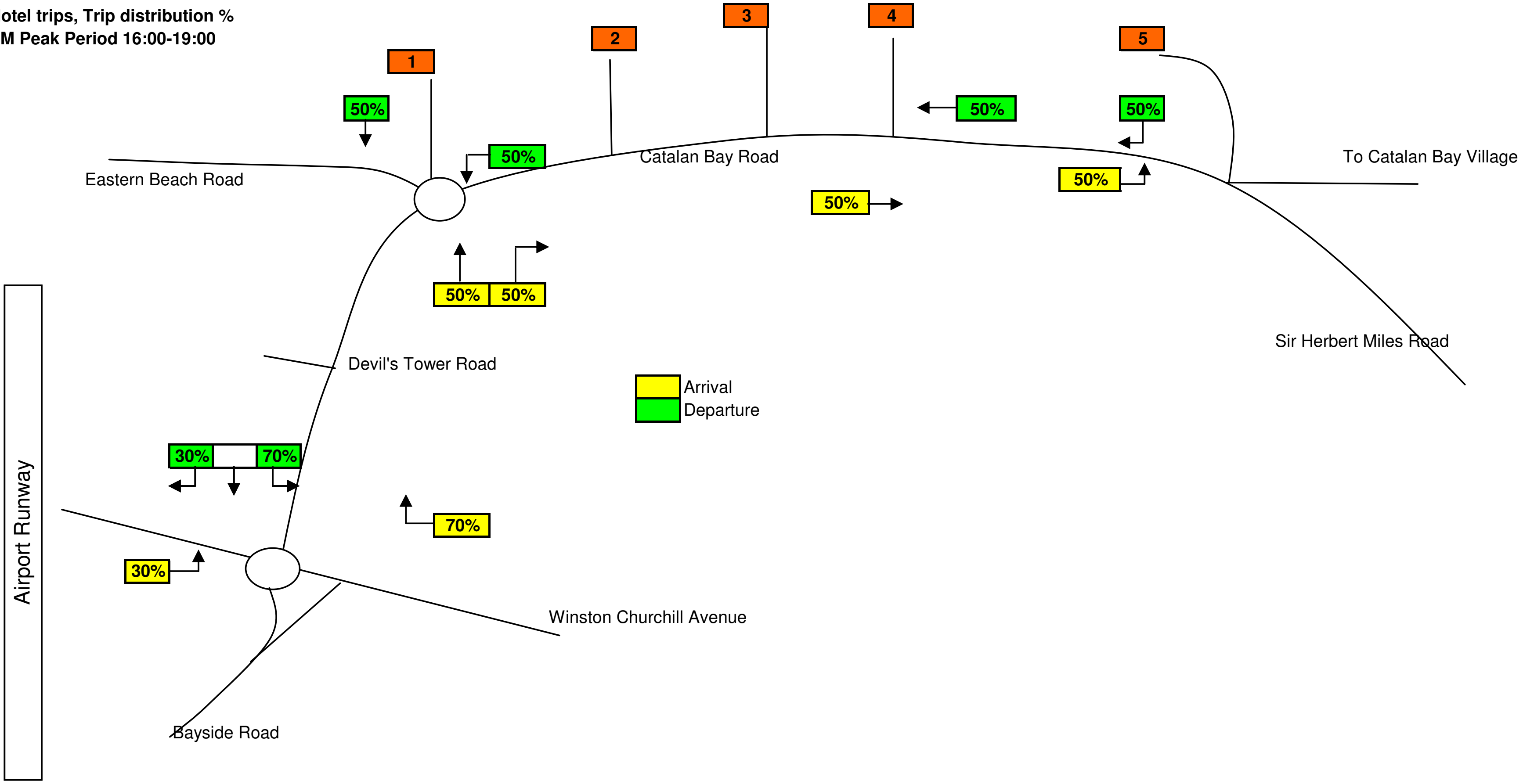


Figure 5.11

Development Trip Distribution: Total trips (Base + development by 2015)

Include base, development, beach, committed development trips and construction traffic

Weekday trips

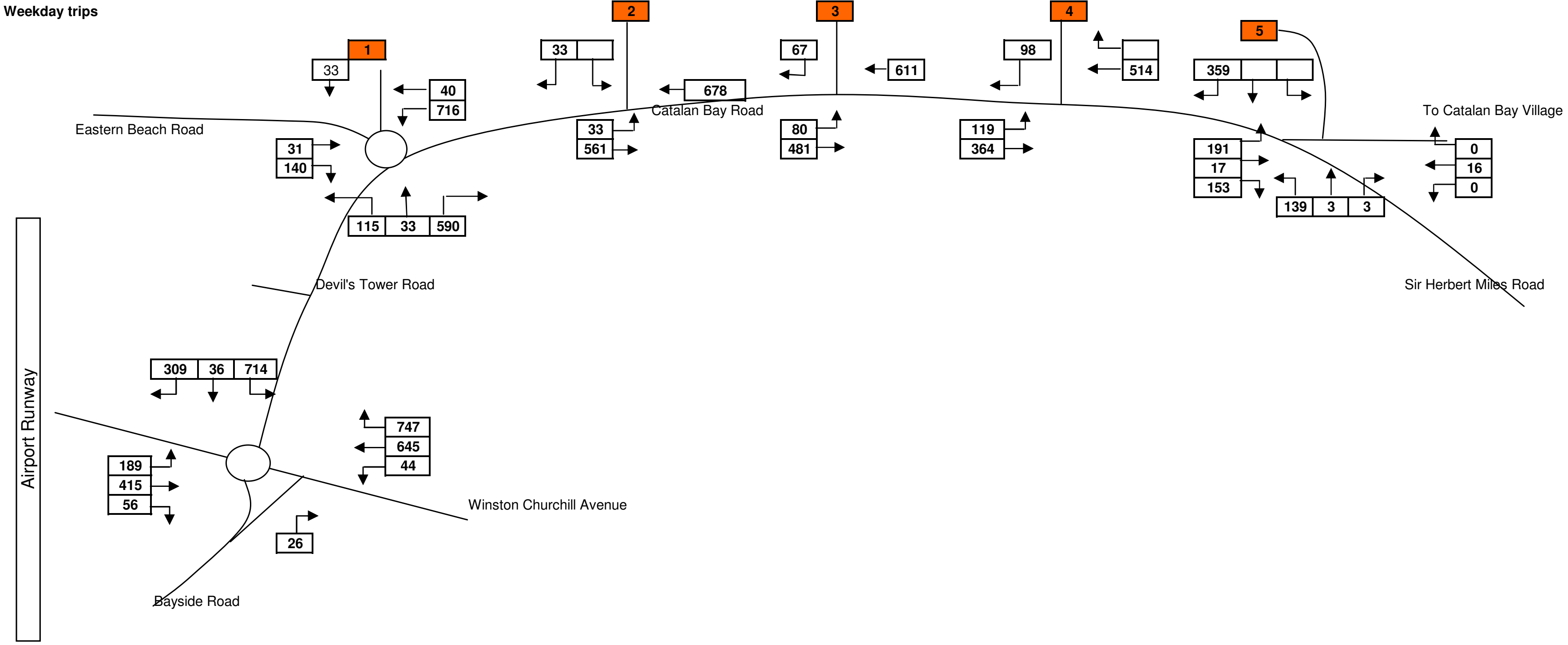


Figure 5.12

Development Trip Distribution: Total trips (Base+Full Development)

Include Base traffic, committed development and all elements of the proposed development trips

Weekday trips

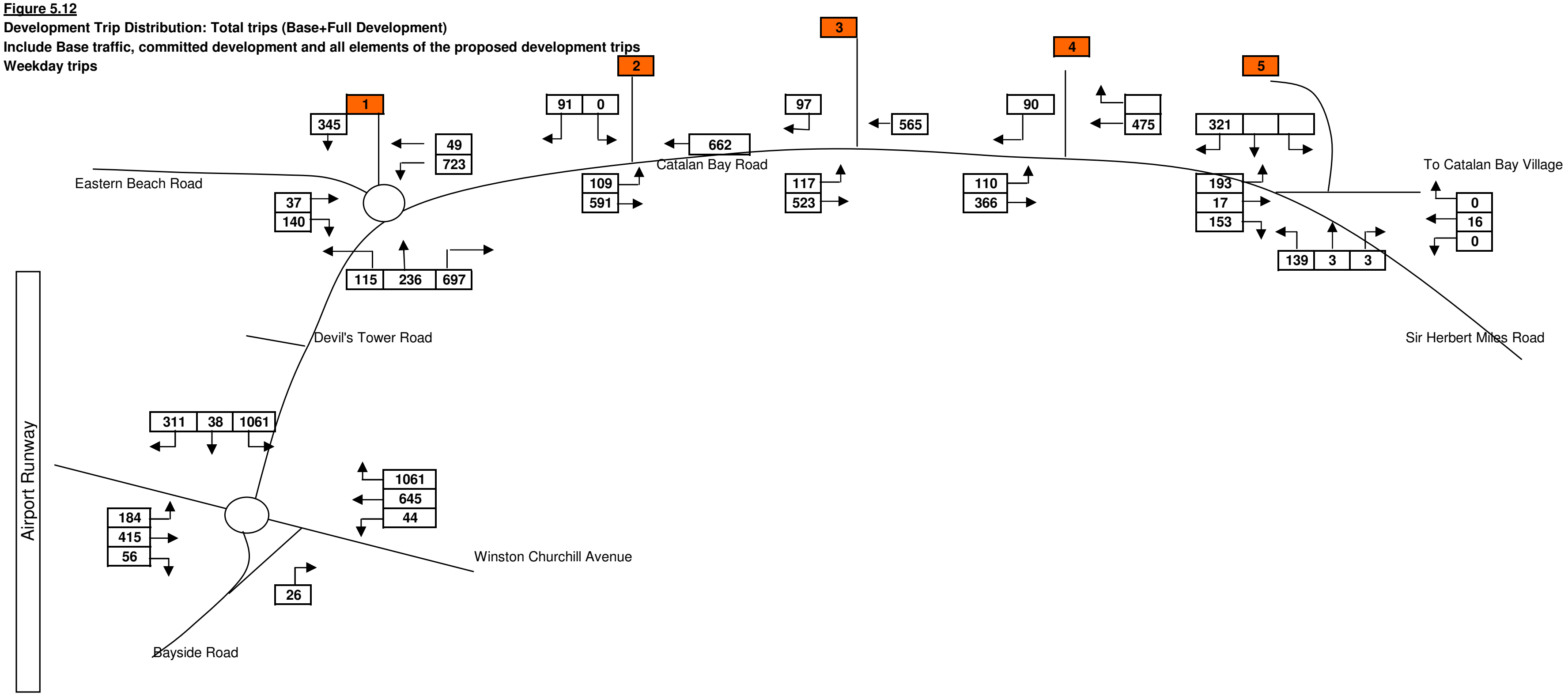
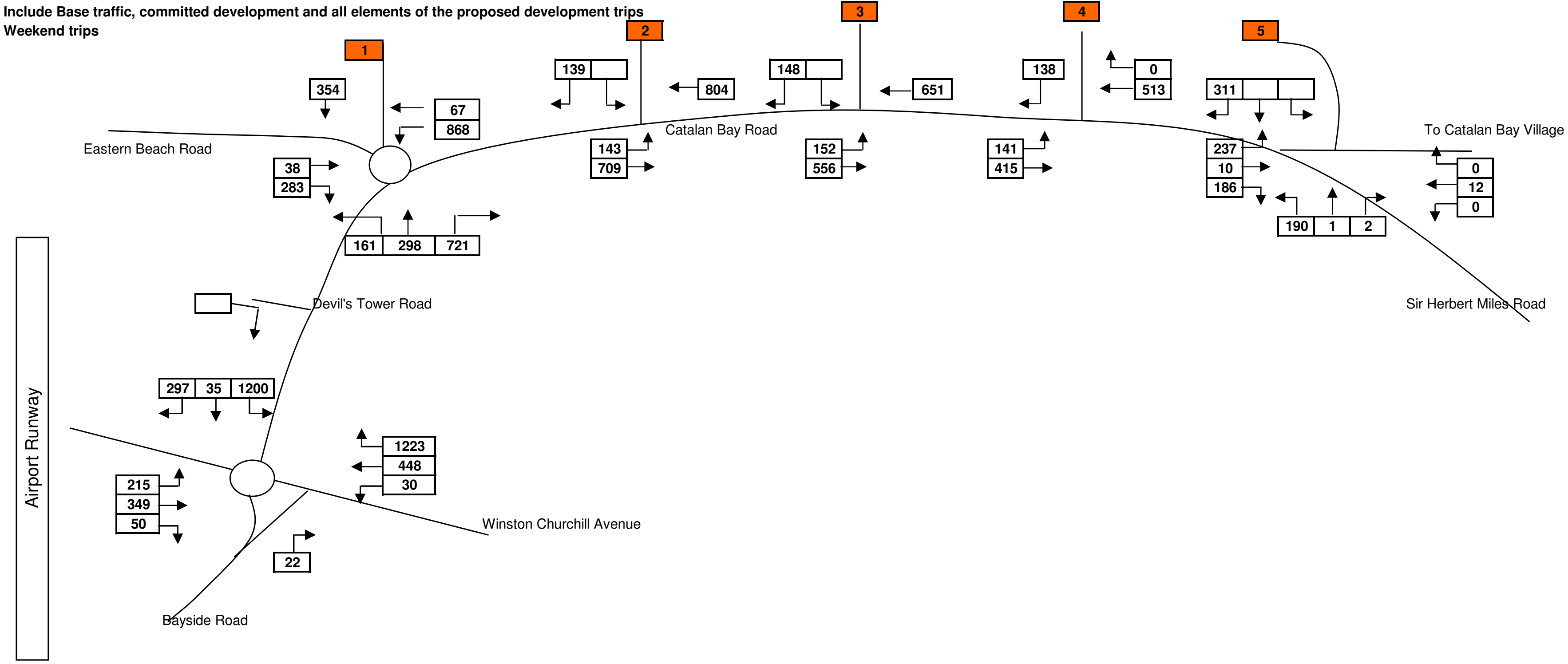


Figure 5.13

Development Trip Distribution: Total trips (base + Full Development)

Include Base traffic, committed development and all elements of the proposed development trips

Weekend trips



Appendix H

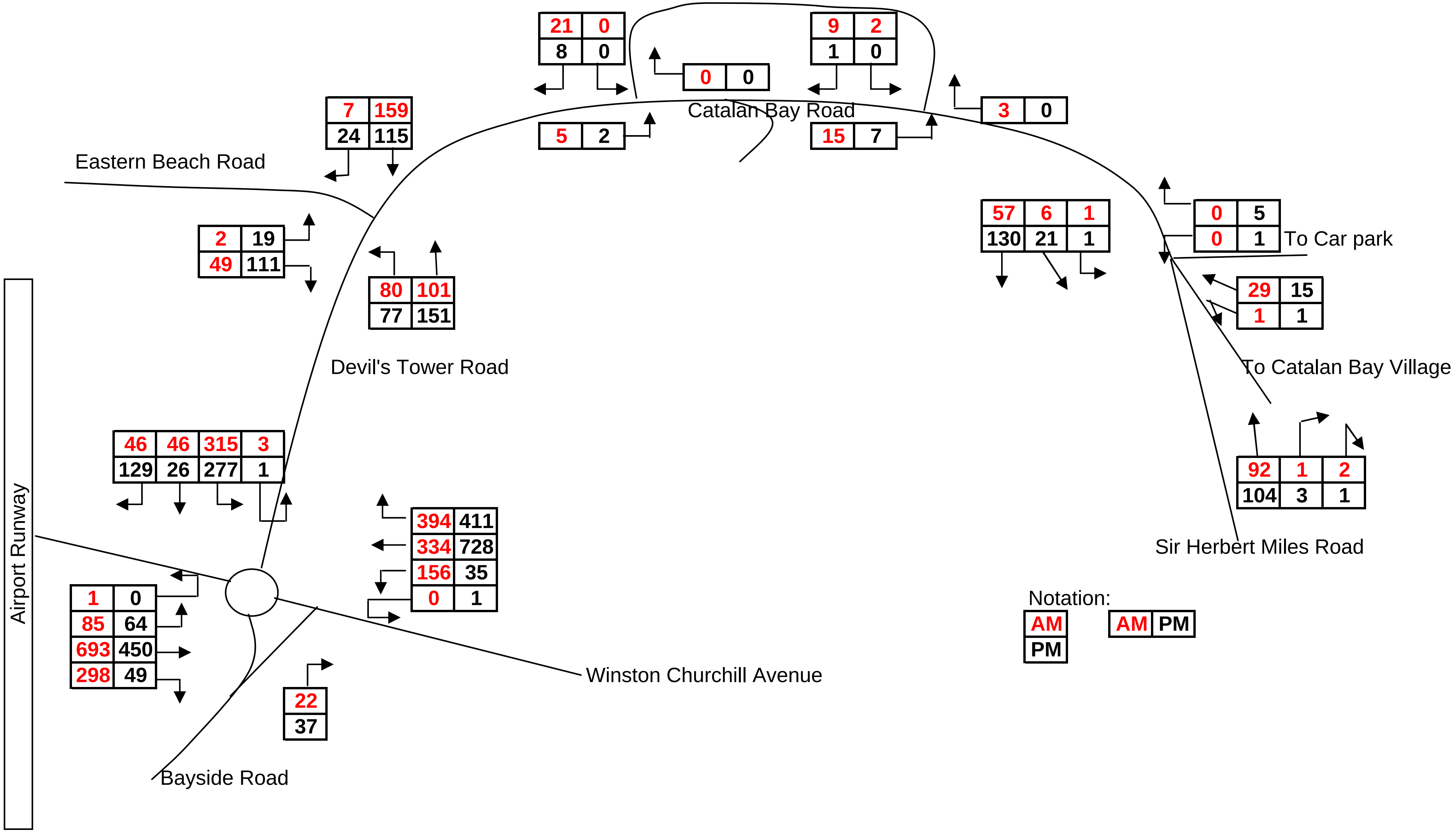
Transport Figures

Appendix 1

Summarised Survey Data

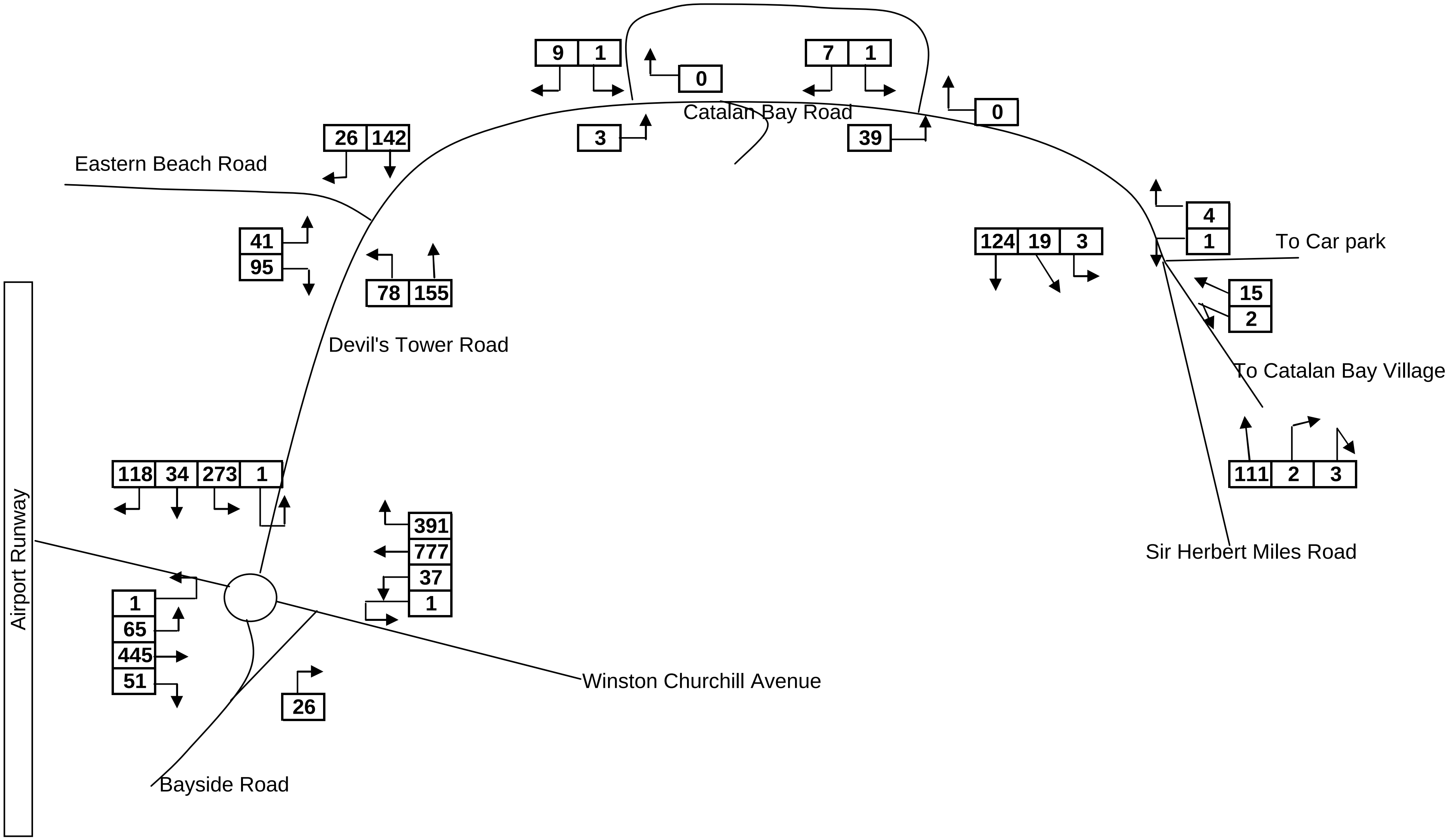
Gibraltar: Survey Summary

29th September 2005, Thursday AM and PM

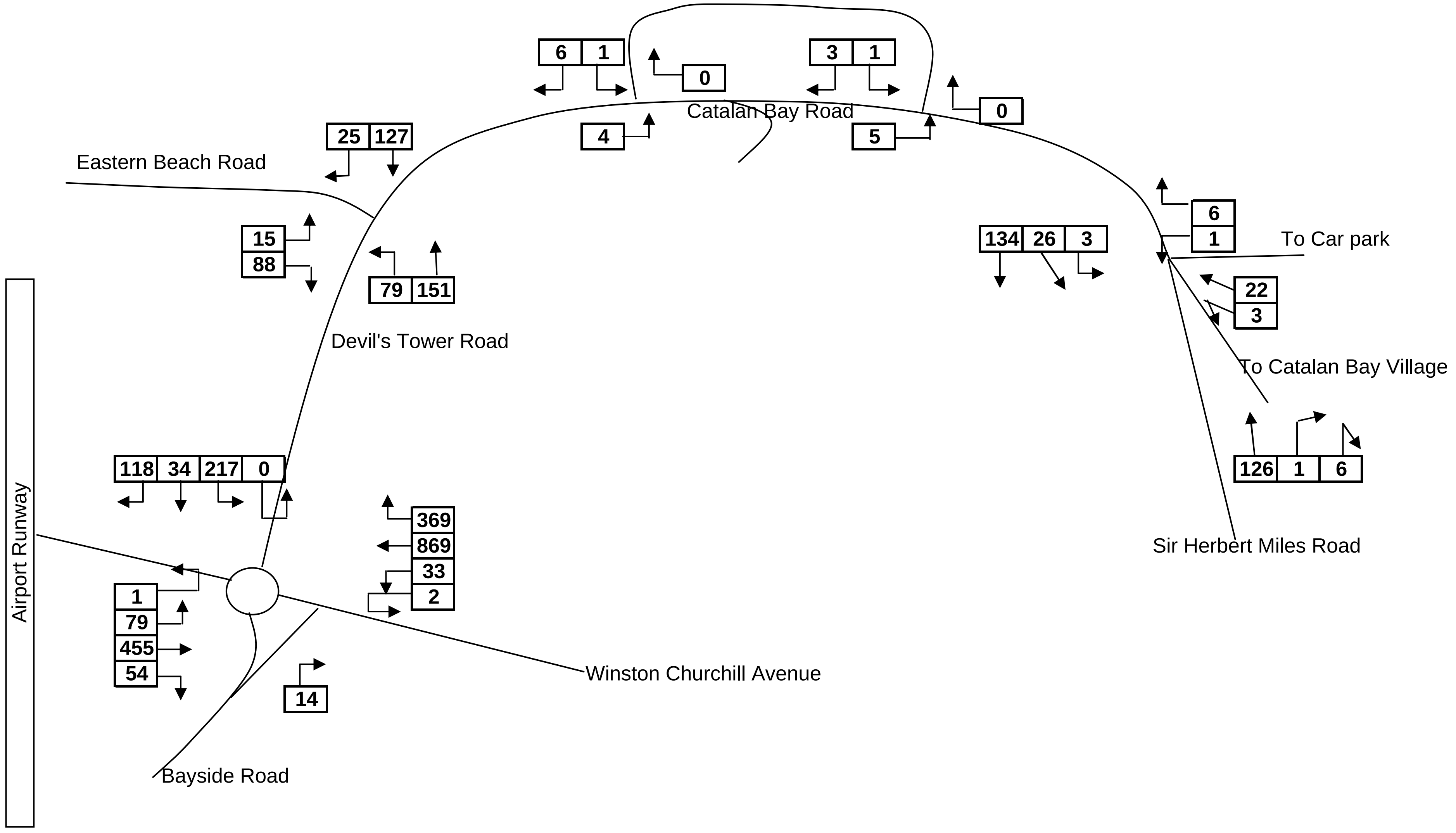


Gibraltar: Survey Summary

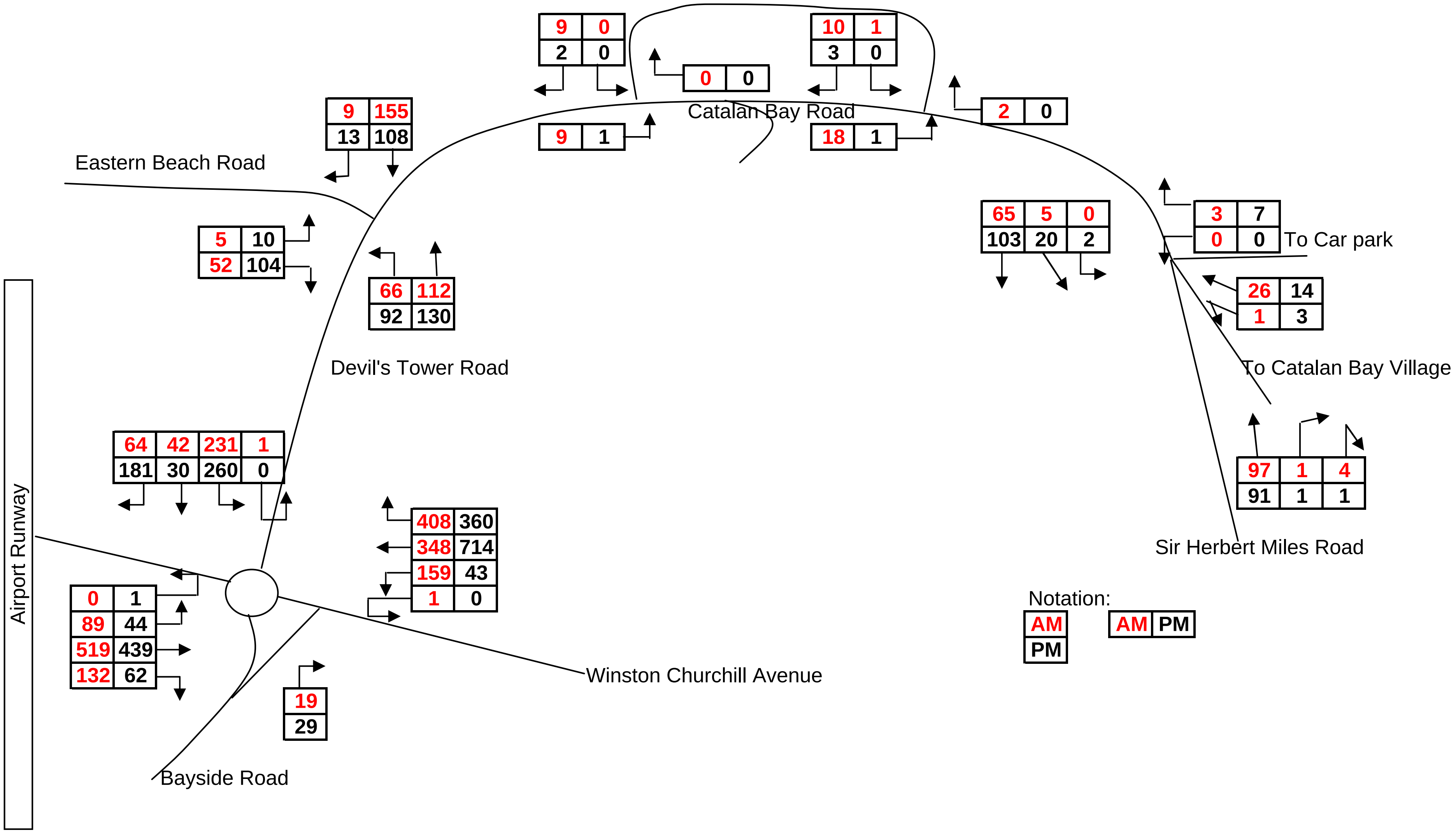
29th September 2005, Thursday Average hour 4-7pm



Gibraltar: Survey Summary
29th September 2005, Thursday Peak 18:00-19:00

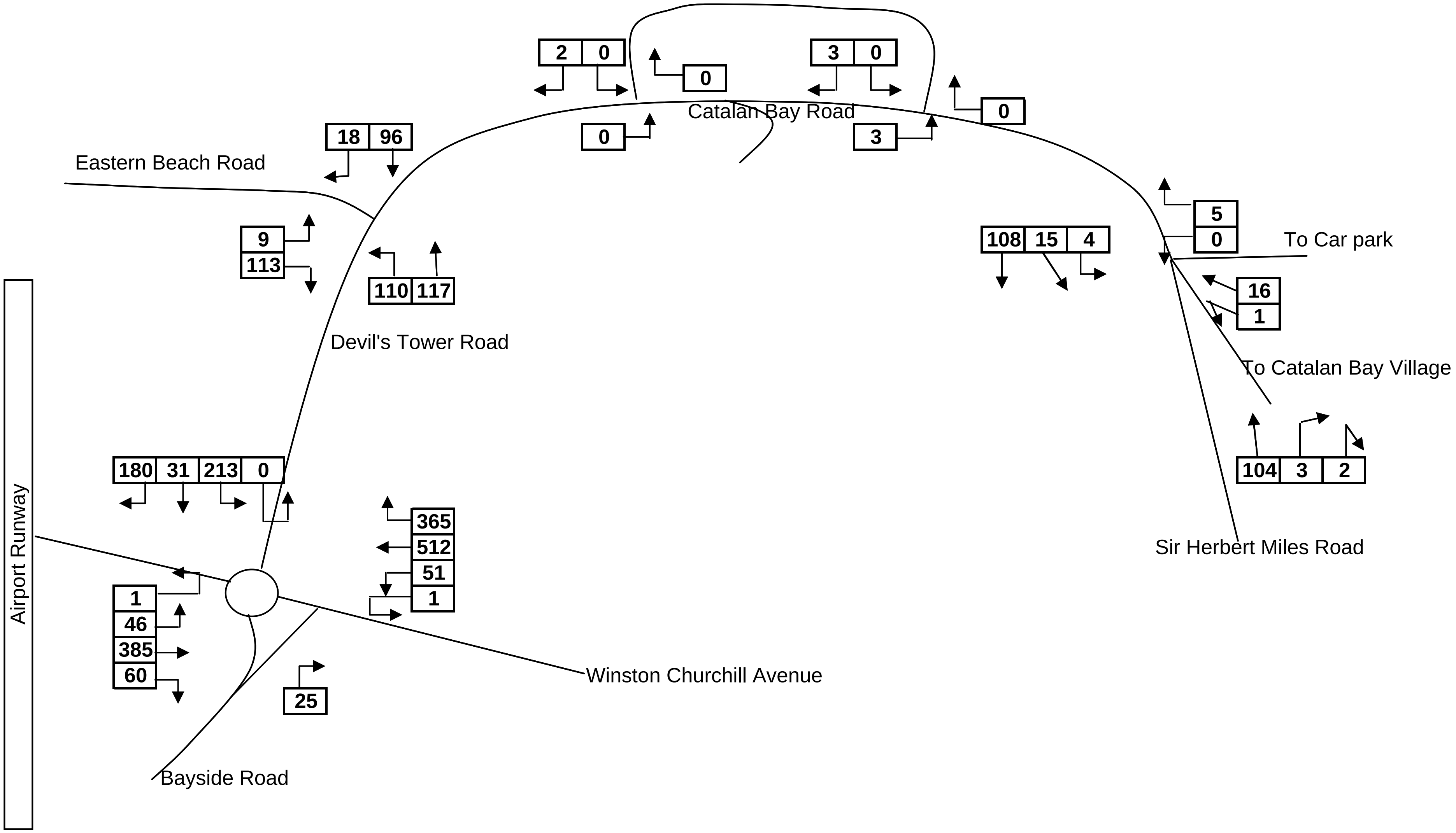


Gibraltar: Survey Summary
30th September 2005, Friday AM and PM



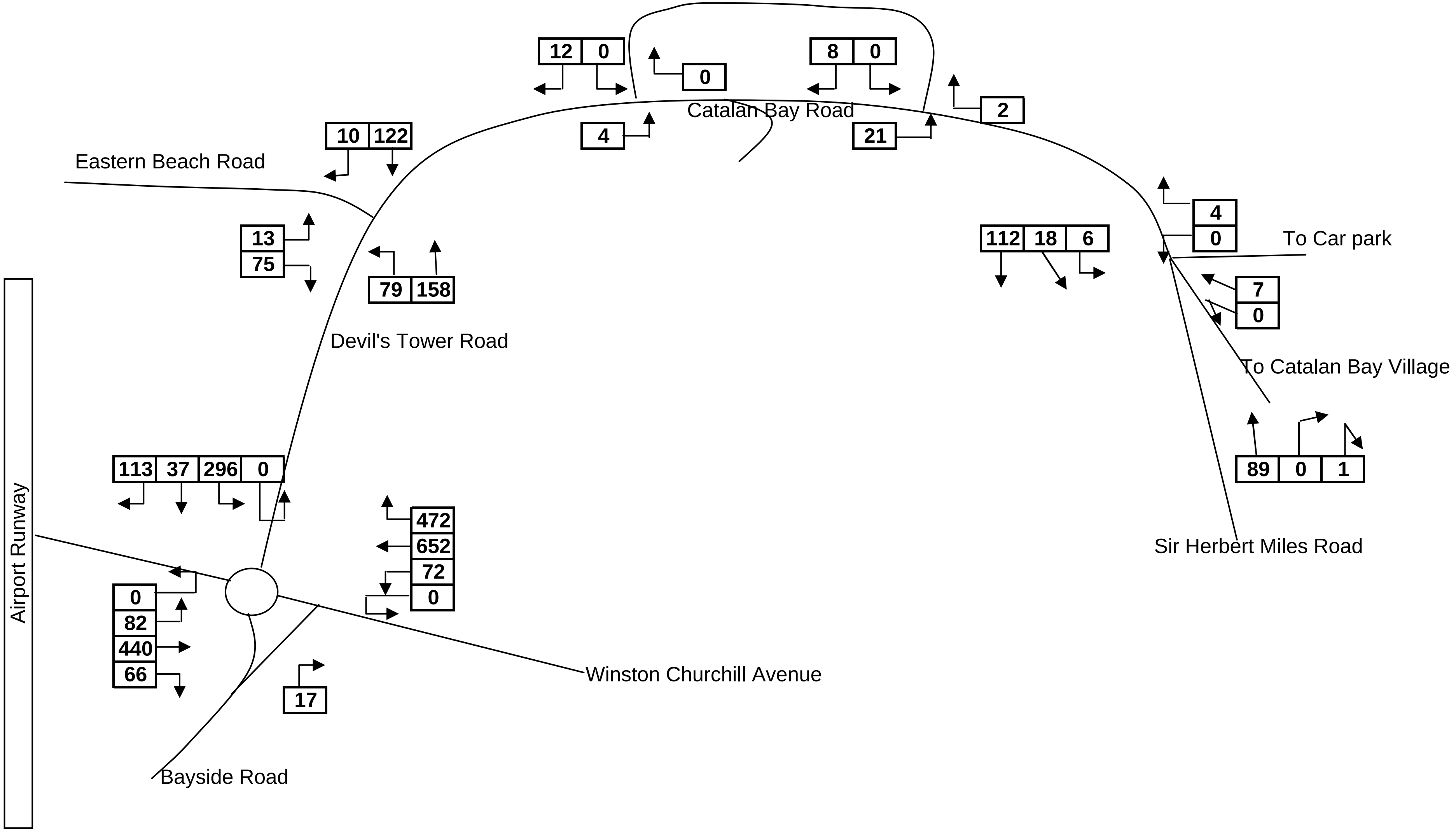
Gibraltar: Survey Summary

30th September 2005, Friday Average hour 4-7pm



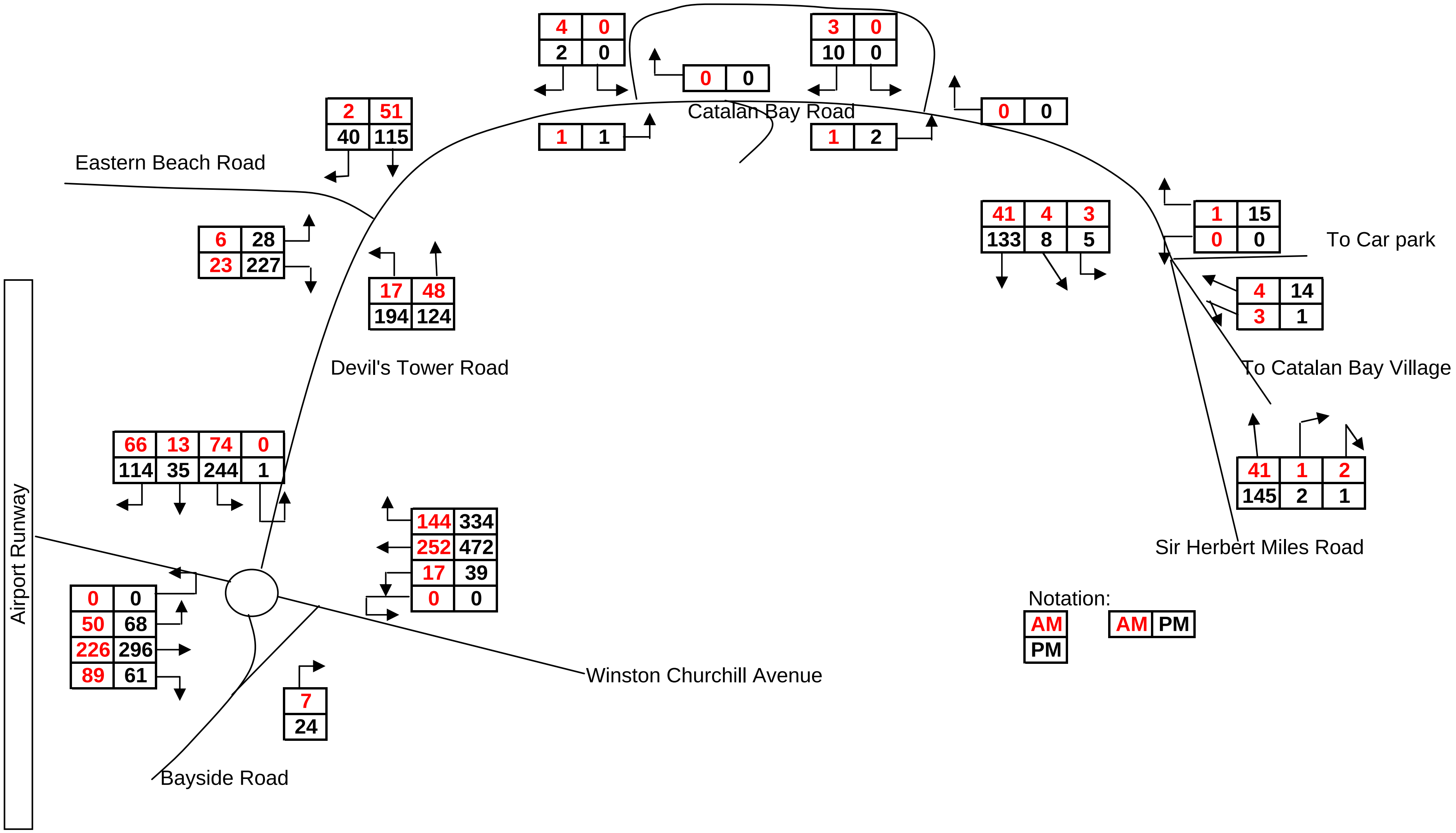
Gibraltar: Survey Summary

30th September 2005, Friday Peak 13:00-14:00



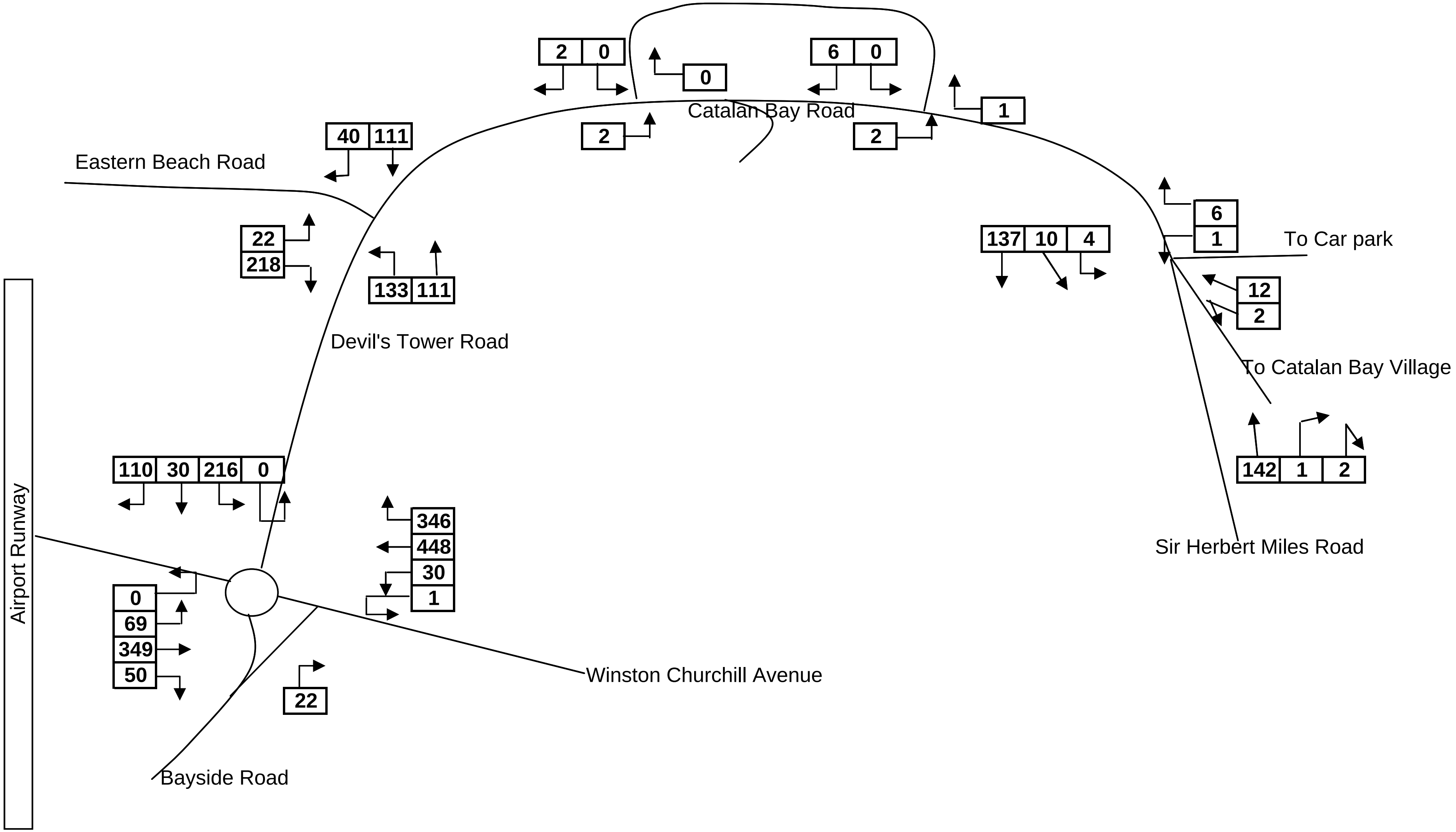
Gibraltar: Survey Summary

1st October 2005, Saturday AM and PM



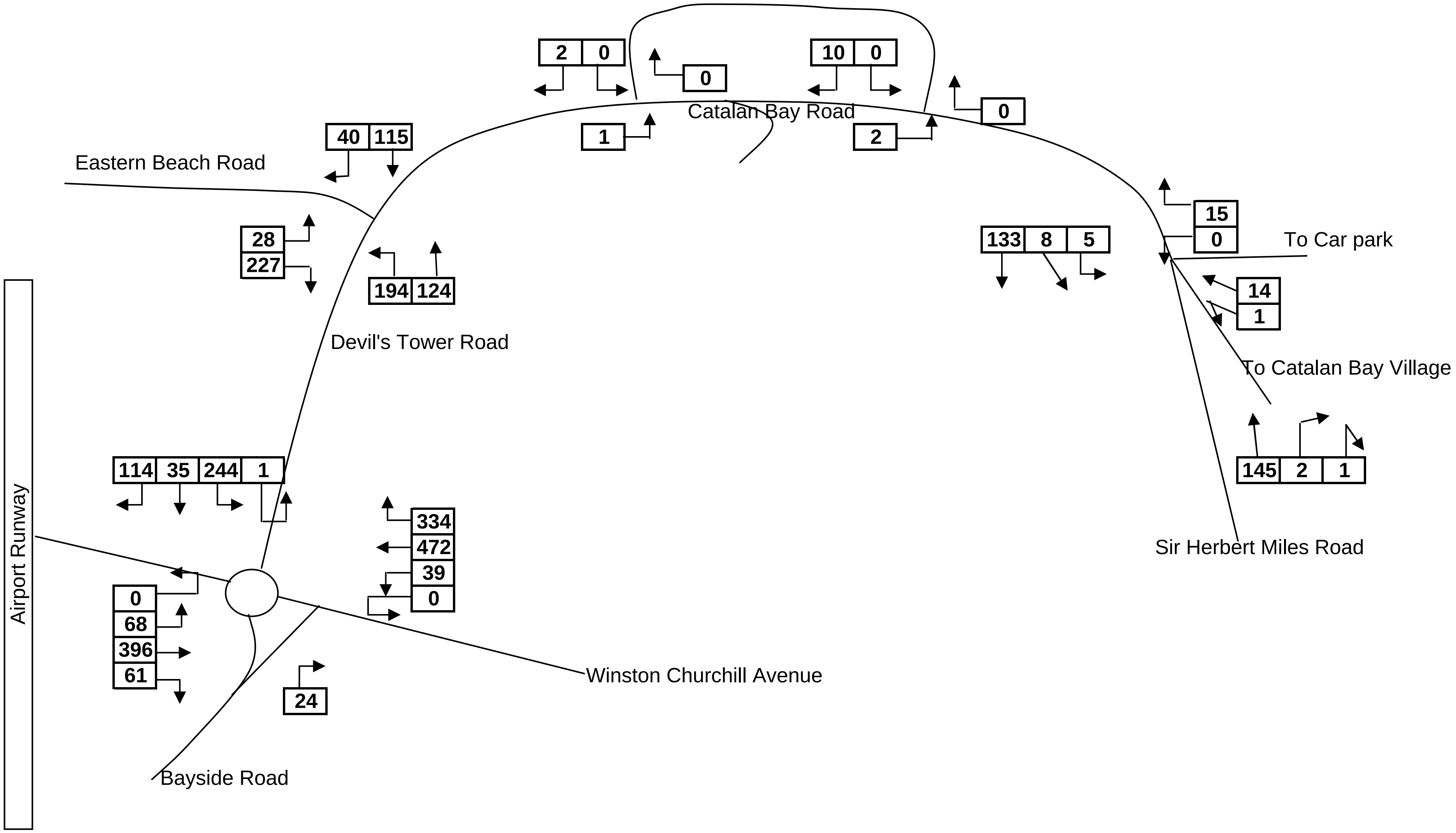
Gibraltar: Survey Summary

1st October 2005, Saturday Average hour 4-7pm



Gibraltar: Survey Summary

1st October 2005, Saturday Peak 17:00-18:00



Appendix H

Transport Figures

Appendix 2

PICADY and ARCADY Result
(Analysis with the Existing Surveyed Traffic Flow)

```
            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                Analysis Program: Release 3.0 (JUNE 2005)

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                Adapted from ARCADY/3 which is Crown Copyright
                   by permission of the controller of HMSO
            ______________________________________________________

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                  program advice and maintenance, contact:

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            Wokingham, Berks.      Web:   www.trlsoftware.co.uk
            RG40 3GA,UK

 ----------------------------------------------------------------------------------
  THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
  IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
 ----------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Arcady\Winston Churchill Ave Rbt AM.vai"
(drive-on-the-right) at 15:07:34 on Monday, 2 July 2007



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial Existing AM peak
    LOCATION: Gibraltar
        DATE: 13/06/2007
      CLIENT:
  ENUMERATOR: ScobieC
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Weekday AM peak surveyed flow


 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM    I   V (M)    I    E (M)    I    L (M)    I    R (M)    I   D (M)    I   PHI (DEG)   I  SLOPE   I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00    I     7.00    I     0.00    I    14.00    I   38.00    I      0.0      I  0.792   I       38.289        I
 I ARM C I    7.00    I     9.00    I     0.00    I    74.00    I   38.00    I     15.0      I  0.927   I       49.438        I
 I ARM D I    6.00    I     7.50    I    28.80    I    12.00    I   38.00    I     25.0      I  0.737   I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width      L = effective flare length           D = inscribed circle diameter
 E = entry width              R = entry radius                     PHI = entry angle



 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------




 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


 DEMAND SET TITLE: Existing AM
 ---------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 ---------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I 13.46  I  20.19  I 13.46 I
 I ARM C I     15.00   I     45.00   I    75.00   I 11.05  I  16.58  I 11.05 I
 I ARM D I     15.00   I     45.00   I    75.00   I  5.13  I   7.69  I  5.13 I
 ---------------------------------------------------------------------------


 DEMAND SET TITLE: Existing AM

 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS (VEH/HR)             I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.001 I  0.277 I  0.643 I  0.079 I
 I                    I         I    1.0 I  298.0 I  693.0 I   85.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.378 I  0.176 I  0.000 I  0.446 I
 I                    I         I  334.0 I  156.0 I    0.0 I  394.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.112 I  0.112 I  0.768 I  0.007 I
 I                    I         I   46.0 I   46.0 I  315.0 I    3.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I           (VEH/MIN) (VEH/MIN) CAPACITY     FLOW    QUEUE  QUEUE   (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 07.45-08.00                                                                                                  I
 I ARM A      13.46     33.16   0.406                  0.0    0.7       10.0                            0.05      I
 I ARM C      11.05     48.41   0.228                  0.0    0.3        4.4                            0.03      I
 I ARM D       5.13     31.72   0.162                  0.0    0.2        2.8                            0.04      I
 I                                                                                                              I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I           (VEH/MIN) (VEH/MIN) CAPACITY     FLOW    QUEUE  QUEUE   (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 08.00-08.15                                                                                                  I
 I ARM A      16.08     32.15   0.500                  0.7    1.0       14.5                            0.06      I
 I ARM C      13.19     48.21   0.274                  0.3    0.4        5.6                            0.03      I
 I ARM D       6.12     30.83   0.198                  0.2    0.2        3.7                            0.04      I
 I                                                                                                              I
 -------------------------------------------------------------------------------------------------------------------
```

```
------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 08.15-08.30                                                                                                    I
I ARM A      19.69     30.77   0.640                  1.0    1.7       25.2                            0.09      I
I ARM C      16.16     47.93   0.337                  0.4    0.5        7.5                            0.03      I
I ARM D       7.50     29.62   0.253                  0.2    0.3        5.0                            0.05      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 08.30-08.45                                                                                                    I
I ARM A      19.69     30.76   0.640                  1.7    1.8       26.4                            0.09      I
I ARM C      16.16     47.93   0.337                  0.5    0.5        7.6                            0.03      I
I ARM D       7.50     29.62   0.253                  0.3    0.3        5.1                            0.05      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 08.45-09.00                                                                                                    I
I ARM A      16.08     32.14   0.500                  1.8    1.0       15.6                            0.06      I
I ARM C      13.19     48.20   0.274                  0.5    0.4        5.7                            0.03      I
I ARM D       6.12     30.83   0.199                  0.3    0.2        3.8                            0.04      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 09.00-09.15                                                                                                    I
I ARM A      13.46     33.14   0.406                  1.0    0.7       10.5                            0.05      I
I ARM C      11.05     48.40   0.228                  0.4    0.3        4.5                            0.03      I
I ARM D       5.13     31.71   0.162                  0.2    0.2        2.9                            0.04      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------


QUEUE AT ARM A
--------------

 TIME SEGMENT   NO. OF
  ENDING      VEHICLES
              IN QUEUE

  08.00           0.7  *
  08.15           1.0  *
  08.30           1.7  **
  08.45           1.8  **
  09.00           1.0  *
  09.15           0.7  *



QUEUE AT ARM C
--------------

 TIME SEGMENT   NO. OF
  ENDING      VEHICLES
              IN QUEUE

  08.00           0.3
  08.15           0.4
  08.30           0.5  *
  08.45           0.5  *
  09.00           0.4
  09.15           0.3
```

```
 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   08.00           0.2
   08.15           0.2
   08.30           0.3
   08.45           0.3
   09.00           0.2
   09.15           0.2



                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *     I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *       I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I 1476.8 I  984.5 I   102.2 I    0.07   I     102.2  I     0.07    I
 I   C   I 1212.2 I  808.1 I    35.3 I    0.03   I      35.3  I     0.03    I
 I   D   I  562.2 I  374.8 I    23.3 I    0.04   I      23.3  I     0.04    I
 ----------------------------------------------------------------------------
 I  ALL  I 3251.1 I 2167.4 I   160.7 I    0.05   I     160.7  I     0.05    I
 ----------------------------------------------------------------------------

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

 END OF JOB
============================================ end of file =============================================
```

[Printed at 15:26:47 on 02/07/2007]

```
            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                Analysis Program: Release 3.0 (JUNE 2005)

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 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Arcady\Winston Churchill Ave Rbt PM.vai"
(drive-on-the-right) at 15:24:23 on Monday, 2 July 2007



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial Existing PM peak
    LOCATION: Gibraltar
        DATE: 13/06/2007
      CLIENT:
  ENUMERATOR: ScobieC
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Weekday PM peak surveyed flow


 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM    I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00   I     7.00   I     0.00   I    14.00   I   38.00   I      0.0     I  0.792  I       38.289        I
 I ARM C I    7.00   I     9.00   I     0.00   I    74.00   I   38.00   I     15.0     I  0.927  I       49.438        I
 I ARM D I    6.00   I     7.50   I    28.80   I    12.00   I   38.00   I     25.0     I  0.737  I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle



 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------




 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


 DEMAND SET TITLE: Existing PM
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  7.05  I  10.58  I  7.05 I
 I ARM C I     15.00   I     45.00   I    75.00   I 14.69  I  22.03  I 14.69 I
 I ARM D I     15.00   I     45.00   I    75.00   I  5.41  I   8.12  I  5.41 I
 -----------------------------------------------------------------------------


 DEMAND SET TITLE: Existing PM

 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS (VEH/HR)             I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.002 I  0.087 I  0.798 I  0.113 I
 I                    I         I    1.0 I   49.0 I  450.0 I   64.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.620 I  0.030 I  0.001 I  0.350 I
 I                    I         I  728.0 I   35.0 I    1.0 I  411.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.298 I  0.060 I  0.640 I  0.002 I
 I                    I         I  129.0 I   26.0 I  277.0 I    1.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 -------------------------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I           (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/       PER ARRIVING  I
 I                                 (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00                                                                                                     I
 I ARM A       7.05      34.93   0.202                   0.0    0.3        3.7                            0.04      I
 I ARM C      14.69      48.67   0.302                   0.0    0.4        6.4                            0.03      I
 I ARM D       5.41      29.20   0.185                   0.0    0.2        3.3                            0.04      I
 I                                                                                                                 I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I           (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/       PER ARRIVING  I
 I                                 (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15                                                                                                     I
 I ARM A       8.42      34.27   0.246                   0.3    0.3        4.8                            0.04      I
 I ARM C      17.54      48.52   0.361                   0.4    0.6        8.4                            0.03      I
 I ARM D       6.46      27.82   0.232                   0.2    0.3        4.5                            0.05      I
 I                                                                                                                 I
 -------------------------------------------------------------------------------------------------------------------
```

```
 -----------------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.15-17.30                                                                                                   I
 I ARM A      10.31     33.37   0.309                  0.3    0.4       6.6                             0.04      I
 I ARM C      21.48     48.32   0.445                  0.6    0.8      11.8                             0.04      I
 I ARM D       7.92     25.93   0.305                  0.3    0.4       6.4                             0.06      I
 I                                                                                                               I
 -----------------------------------------------------------------------------------------------------------------------------

 -----------------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.30-17.45                                                                                                   I
 I ARM A      10.31     33.37   0.309                  0.4    0.4       6.7                             0.04      I
 I ARM C      21.48     48.32   0.445                  0.8    0.8      12.0                             0.04      I
 I ARM D       7.92     25.93   0.305                  0.4    0.4       6.6                             0.06      I
 I                                                                                                               I
 -----------------------------------------------------------------------------------------------------------------------------

 -----------------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.45-18.00                                                                                                   I
 I ARM A       8.42     34.27   0.246                  0.4    0.3       5.0                             0.04      I
 I ARM C      17.54     48.52   0.361                  0.8    0.6       8.6                             0.03      I
 I ARM D       6.46     27.81   0.232                  0.4    0.3       4.6                             0.05      I
 I                                                                                                               I
 -----------------------------------------------------------------------------------------------------------------------------

 -----------------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 18.00-18.15                                                                                                   I
 I ARM A       7.05     34.92   0.202                  0.3    0.3       3.8                             0.04      I
 I ARM C      14.69     48.67   0.302                  0.6    0.4       6.6                             0.03      I
 I ARM D       5.41     29.18   0.185                  0.3    0.2       3.5                             0.04      I
 I                                                                                                               I
 -----------------------------------------------------------------------------------------------------------------------------


 QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING       VEHICLES
                IN QUEUE

   17.00           0.3
   17.15           0.3
   17.30           0.4
   17.45           0.4
   18.00           0.3
   18.15           0.3



 QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING       VEHICLES
                IN QUEUE

   17.00           0.4
   17.15           0.6  *
   17.30           0.8  *
   17.45           0.8  *
   18.00           0.6  *
   18.15           0.4
```

```
--------------------------------------------------------------------------------

 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.2
   17.15           0.3
   17.30           0.4
   17.45           0.4
   18.00           0.3
   18.15           0.2



                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 -----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -----------------------------------------------------------------------------
 I   A   I  773.4 I  515.6 I    30.6 I    0.04   I      30.6  I     0.04    I
 I   C   I 1611.2 I 1074.1 I    53.7 I    0.03   I      53.7  I     0.03    I
 I   D   I  593.7 I  395.8 I    28.9 I    0.05   I      28.9  I     0.05    I
 -----------------------------------------------------------------------------
 I  ALL  I 2978.3 I 1985.5 I   113.2 I    0.04   I     113.2  I     0.04    I
 -----------------------------------------------------------------------------

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

 END OF JOB
============================================= end of file ===============================================


 [Printed at 15:25:49 on 02/07/2007]
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Picady\
  Devil's Tower Road - Eastern Beach Road AM.vpi"
(drive-on-the-right) at 16:58:52 on Monday, 2 July 2007

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road Saturday existing AM flow (in PCU)


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road South
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH     I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                  I (WCR )  0.00 M.   I
 I                                         I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH          I (WC-B)  3.50 M.   I
 I                        - VISIBILITY     I (VC-B) 102.0 M.   I
 I                        - BLOCKS TRAFFIC  I         NO        I
 I                                         I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT       I (VB-C)  70.0 M.   I
 I            - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I            - LANE 1 WIDTH               I (WB-C)    -       I
 I            - LANE 2 WIDTH               I (WB-A)    -       I
 I            - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I            - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I            - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I            - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I            - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I            - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------





 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  2.08  I   3.11  I  2.08 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.64  I   0.96  I  0.64 I
 I ARM C I     15.00   I     45.00   I    75.00   I  2.26  I   3.39  I  2.26 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.042 I  0.958 I
 I                    I         I    0.0 I    7.0 I  159.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.039 I  0.000 I  0.961 I
 I                    I         I    2.0 I    0.0 I   49.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.558 I  0.442 I  0.000 I
 I                    I         I  101.0 I   80.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE   (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 07.45-08.00                                                                                  I
 I   B-C       0.61      11.76    0.052                  0.0    0.1        0.8                  I
 I   B-A       0.03       8.06    0.003                  0.0    0.0        0.0                  I
 I   C-A       1.26                                                                             I
 I   C-B       1.00      11.56    0.086                  0.0    0.1        1.4                  I
 I   A-B       0.09                                                                             I
 I   A-C       1.99                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)             (M)                     I
 I                                                                                              I
 I       B-C          0.107      0.003                0.011                                     I
 I       B-A          0.081      0.005      0.020     0.008             0.005                   I
 I       C-B          0.110      0.003                                  0.011                   I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE   (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.00-08.15                                                                                  I
 I   B-C       0.73      11.67    0.063                  0.1    0.1        1.0                  I
 I   B-A       0.03       7.89    0.004                  0.0    0.0        0.1                  I
 I   C-A       1.51                                                                             I
 I   C-B       1.19      11.47    0.104                  0.1    0.1        1.7                  I
 I   A-B       0.10                                                                             I
 I   A-C       2.37                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)             (M)                     I
 I                                                                                              I
 I       B-C          0.106      0.003                0.011                                     I
 I       B-A          0.079      0.005      0.020     0.007             0.005                   I
 I       C-B          0.109      0.003                                  0.010                   I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE   (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.15-08.30                                                                                  I
 I   B-C       0.90      11.54    0.078                  0.1    0.1        1.2                  I
 I   B-A       0.04       7.65    0.005                  0.0    0.0        0.1                  I
 I   C-A       1.85                                                                             I
 I   C-B       1.46      11.34    0.129                  0.1    0.1        2.2                  I
 I   A-B       0.13                                                                             I
 I   A-C       2.91                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)             (M)                     I
 I                                                                                              I
 I       B-C          0.105      0.004                0.011                                     I
 I       B-A          0.077      0.007      0.020     0.007             0.005                   I
 I       C-B          0.108      0.004                                  0.010                   I
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 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.30-08.45                                                                                   I
 I   B-C       0.90     11.54    0.078                 0.1    0.1        1.3                     I
 I   B-A       0.04      7.65    0.005                 0.0    0.0        0.1                     I
 I   C-A       1.85                                                                              I
 I   C-B       1.46     11.34    0.129                 0.1    0.1        2.2                     I
 I   A-B       0.13                                                                              I
 I   A-C       2.91                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.105      0.004                  0.011                                    I
 I       B-A          0.077      0.007       0.020      0.007          0.005                     I
 I       C-B          0.108      0.004                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.45-09.00                                                                                   I
 I   B-C       0.73     11.67    0.063                 0.1    0.1        1.0                     I
 I   B-A       0.03      7.89    0.004                 0.0    0.0        0.1                     I
 I   C-A       1.51                                                                              I
 I   C-B       1.19     11.47    0.104                 0.1    0.1        1.8                     I
 I   A-B       0.10                                                                              I
 I   A-C       2.37                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.106      0.003                  0.011                                    I
 I       B-A          0.079      0.005       0.020      0.007          0.005                     I
 I       C-B          0.109      0.003                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 09.00-09.15                                                                                   I
 I   B-C       0.61     11.76    0.052                 0.1    0.1        0.8                     I
 I   B-A       0.03      8.05    0.003                 0.0    0.0        0.0                     I
 I   C-A       1.26                                                                              I
 I   C-B       1.00     11.56    0.086                 0.1    0.1        1.5                     I
 I   A-B       0.09                                                                              I
 I   A-C       1.99                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.107      0.003                  0.011                                    I
 I       B-A          0.081      0.005       0.020      0.008          0.005                     I
 I       C-B          0.110      0.003                                 0.011                     I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING       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-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   08.00           0.1
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.1


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I--------------------------------------------------------------- I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I   67.2 I   44.8 I     6.1 I    0.09   I       6.1  I    0.09   I
 I  B-A   I    2.7 I    1.8 I     0.3 I    0.13   I       0.3  I    0.13   I
 I  C-A   I  138.5 I   92.3 I         I           I            I           I
 I  C-B   I  109.7 I   73.1 I    10.7 I    0.10   I      10.7  I    0.10   I
 I  A-B   I    9.6 I    6.4 I         I           I            I           I
 I  A-C   I  218.0 I  145.3 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  545.7 I  363.8 I    17.2 I    0.03   I      17.2  I    0.03   I
 ---------------------------------------------------------------------------

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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================



 [Printed at 16:59:26 on 02/07/2007]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Picady\
  Devil's Tower Road - Eastern Beach Road PM.vpi"
(drive-on-the-right) at 16:54:57 on Monday, 2 July 2007

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road Saturday existing PM flow (in PCU)


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road South
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.50 M.   I
 I                         - VISIBILITY     I (VC-B) 102.0 M.   I
 I                         - BLOCKS TRAFFIC  I         NO        I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------




 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.94  I   2.91  I  1.94 I
 I ARM B I     15.00   I     45.00   I    75.00   I  3.19  I   4.78  I  3.19 I
 I ARM C I     15.00   I     45.00   I    75.00   I  3.97  I   5.96  I  3.97 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.258 I  0.742 I
 I                    I         I    0.0 I   40.0 I  115.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.110 I  0.000 I  0.890 I
 I                    I         I   28.0 I    0.0 I  227.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.390 I  0.610 I  0.000 I
 I                    I         I  124.0 I  194.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

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 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                  I
 I   B-C       2.84     11.73    0.242                 0.0    0.3        4.6                    I
 I   B-A       0.35      7.66    0.046                 0.0    0.0        0.7                    I
 I   C-A       1.55                                                                             I
 I   C-B       2.42     11.60    0.209                 0.0    0.3        3.8                    I
 I   A-B       0.50                                                                             I
 I   A-C       1.44                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)            (M)                      I
 I                                                                                              I
 I       B-C          0.107      0.002                 0.011                                    I
 I       B-A          0.077      0.007       0.020     0.007             0.005                  I
 I       C-B          0.110      0.002                                   0.011                  I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                  I
 I   B-C       3.39     11.62    0.292                 0.3    0.4        6.0                    I
 I   B-A       0.42      7.39    0.057                 0.0    0.1        0.9                    I
 I   C-A       1.85                                                                             I
 I   C-B       2.90     11.51    0.252                 0.3    0.3        4.9                    I
 I   A-B       0.60                                                                             I
 I   A-C       1.72                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)            (M)                      I
 I                                                                                              I
 I       B-C          0.106      0.002                 0.011                                    I
 I       B-A          0.074      0.008       0.020     0.007             0.005                  I
 I       C-B          0.110      0.003                                   0.011                  I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                  I
 I   B-C       4.15     11.47    0.362                 0.4    0.6        8.1                    I
 I   B-A       0.51      7.00    0.073                 0.1    0.1        1.1                    I
 I   C-A       2.27                                                                             I
 I   C-B       3.55     11.39    0.311                 0.3    0.4        6.5                    I
 I   A-B       0.73                                                                             I
 I   A-C       2.10                                                                             I
 I                                                                                              I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                       I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)            (M)                      I
 I                                                                                              I
 I       B-C          0.104      0.003                 0.011                                    I
 I       B-A          0.071      0.010       0.020     0.007             0.004                  I
 I       C-B          0.109      0.003                                   0.010                  I
 -------------------------------------------------------------------------------------------------
```

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 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START    END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C       4.15     11.47    0.362                 0.6    0.6        8.4                     I
 I   B-A       0.51      7.00    0.073                 0.1    0.1        1.2                     I
 I   C-A       2.27                                                                              I
 I   C-B       3.55     11.39    0.311                 0.4    0.4        6.7                     I
 I   A-B       0.73                                                                              I
 I   A-C       2.10                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.104      0.003                  0.011                                    I
 I       B-A          0.071      0.010       0.020      0.007          0.004                     I
 I       C-B          0.109      0.003                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START    END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C       3.39     11.62    0.292                 0.6    0.4        6.4                     I
 I   B-A       0.42      7.39    0.057                 0.1    0.1        0.9                     I
 I   C-A       1.85                                                                              I
 I   C-B       2.90     11.51    0.252                 0.4    0.3        5.2                     I
 I   A-B       0.60                                                                              I
 I   A-C       1.72                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.106      0.002                  0.011                                    I
 I       B-A          0.074      0.008       0.020      0.007          0.005                     I
 I       C-B          0.110      0.003                                 0.011                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START    END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-C       2.84     11.73    0.242                 0.4    0.3        5.0                     I
 I   B-A       0.35      7.65    0.046                 0.1    0.0        0.7                     I
 I   C-A       1.55                                                                              I
 I   C-B       2.42     11.60    0.209                 0.3    0.3        4.1                     I
 I   A-B       0.50                                                                              I
 I   A-C       1.44                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.107      0.002                  0.011                                    I
 I       B-A          0.077      0.007       0.020      0.007          0.005                     I
 I       C-B          0.110      0.002                                 0.011                     I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.4
   17.30           0.6    *
   17.45           0.6    *
   18.00           0.4
   18.15           0.3
```

```
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.0
   17.15           0.1
   17.30           0.1
   17.45           0.1
   18.00           0.1
   18.15           0.0


 QUEUE FOR STREAM   C-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.3
   17.30           0.4
   17.45           0.4
   18.00           0.3
   18.15           0.3


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  311.3 I  207.5 I    38.5 I    0.12   I      38.5  I    0.12   I
 I  B-A   I   38.4 I   25.6 I     5.5 I    0.14   I       5.5  I    0.14   I
 I  C-A   I  170.0 I  113.4 I         I           I            I           I
 I  C-B   I  266.0 I  177.3 I    31.3 I    0.12   I      31.3  I    0.12   I
 I  A-B   I   54.8 I   36.6 I         I           I            I           I
 I  A-C   I  157.7 I  105.1 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  998.2 I  665.5 I    75.3 I    0.08   I      75.3  I    0.08   I
 ---------------------------------------------------------------------------

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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================



 [Printed at 16:55:56 on 02/07/2007]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Picady\
  Sir Herbert Miles Road - Catalan Bay Road AM.vpi"
(drive-on-the-right) at 17:33:48 on Monday, 2 July 2007

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road AM flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road South
 ARM B IS Catalan Bay Road
 ARM C IS Sir Herbert Miles Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 -----------------------------------------------------------------
 I               DATA ITEM                I   MINOR ROAD B    I
 -----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH    I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                 I (WCR )  0.00 M.   I
 I                                        I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH         I (WC-B)  2.20 M.   I
 I                      - VISIBILITY      I (VC-B) 250.0 M.   I
 I                      - BLOCKS TRAFFIC  I         YES       I
 I                                        I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT      I (VB-C)  70.0 M.   I
 I            - VISIBILITY TO LEFT        I (VB-A)  70.0 M.   I
 I            - LANE 1 WIDTH              I (WB-C)  3.00 M.   I
 I            - LANE 2 WIDTH              I (WB-A)  0.00 M.   I
 -----------------------------------------------------------------





 TRAFFIC DEMAND DATA
 -------------------



 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


 ------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.27  I   1.91  I  1.27 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM C I     15.00   I     45.00   I    75.00   I  0.88  I   1.31  I  0.88 I
 ------------------------------------------------------------------------------



 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.049 I  0.951 I
 I                    I         I    0.0 I    5.0 I   97.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.033 I  0.000 I  0.967 I
 I                    I         I    1.0 I    0.0 I   29.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.929 I  0.071 I  0.000 I
 I                    I         I   65.0 I    5.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 07.45-08.00                                                                                   I
 I   B-AC      0.38     10.71    0.035                 0.0    0.0        0.5                     I
 I   C-AB      0.07     12.12    0.006                 0.0    0.0        0.1                     I
 I   C-A       0.81                                                                              I
 I   A-B       0.06                                                                              I
 I   A-C       1.21                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.00-08.15                                                                                   I
 I   B-AC      0.45     10.65    0.042                 0.0    0.0        0.6                     I
 I   C-AB      0.08     12.15    0.007                 0.0    0.0        0.1                     I
 I   C-A       0.96                                                                              I
 I   A-B       0.07                                                                              I
 I   A-C       1.45                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.15-08.30                                                                                   I
 I   B-AC      0.55     10.56    0.052                 0.0    0.1        0.8                     I
 I   C-AB      0.10     12.19    0.008                 0.0    0.0        0.1                     I
 I   C-A       1.18                                                                              I
 I   A-B       0.09                                                                              I
 I   A-C       1.77                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.30-08.45                                                                                   I
 I   B-AC      0.55     10.56    0.052                 0.1    0.1        0.8                     I
 I   C-AB      0.10     12.19    0.008                 0.0    0.0        0.1                     I
 I   C-A       1.18                                                                              I
 I   A-B       0.09                                                                              I
 I   A-C       1.77                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.45-09.00                                                                                   I
 I   B-AC      0.45     10.65    0.042                 0.1    0.0        0.7                     I
 I   C-AB      0.08     12.15    0.007                 0.0    0.0        0.1                     I
 I   C-A       0.96                                                                              I
 I   A-B       0.07                                                                              I
 I   A-C       1.45                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 09.00-09.15                                                                                   I
 I   B-AC      0.38     10.71    0.035                 0.0    0.0        0.6                     I
 I   C-AB      0.07     12.12    0.006                 0.0    0.0        0.1                     I
 I   C-A       0.81                                                                              I
 I   A-B       0.06                                                                              I
 I   A-C       1.21                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).

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

```
 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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


 QUEUE FOR STREAM   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   08.00           0.0
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-AC  I   41.1 I   27.4 I     4.0 I    0.10   I       4.0  I    0.10   I
 I  C-AB  I    7.5 I    5.0 I     0.7 I    0.09   I       0.7  I    0.09   I
 I  C-A   I   88.5 I   59.0 I         I           I            I           I
 I  A-B   I    6.9 I    4.6 I         I           I            I           I
 I  A-C   I  133.0 I   88.7 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  277.0 I  184.7 I     4.7 I    0.02   I       4.7  I    0.02   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\June 2007 Picady\
  Sir Herbert Miles Road - Catalan Bay Road PM.vpi"
(drive-on-the-right) at 17:35:54 on Monday, 2 July 2007

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road existing PM Flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road South
 ARM B IS Catalan Bay Road
 ARM C IS Sir Herbert Miles Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B) 250.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.00 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 ----------------------------------------------------------------




 GEOMETRIC DELAY DATA
 --------------------

 -------------------------------------------
 I       I  ARM SPEED   I  ENTRY    EXIT   I
 I       I    (KPH)     I RADIUS   RADIUS  I
 I       I ENTRY  EXIT  I  ER (M)  EXR (M) I
 -------------------------------------------
 I ARM A I  50.0   50.0 I  14.0            I
 I ARM B I  20.0   20.0 I  14.0     18.0   I
 I ARM C I  50.0   50.0 I                  I
 -------------------------------------------

 JUNCTION VISIBILITIES DO NOT CONFORM TO STANDARDS LAID DOWN IN TA42/95




 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.85  I   2.78  I  1.85 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM C I     15.00   I     45.00   I    75.00   I  1.83  I   2.74  I  1.83 I
 -----------------------------------------------------------------------------
```

```
 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I       I       I       I
 I                    I  ARM A  I  0.000 I  0.020 I  0.980 I
 I                    I         I    0.0 I    3.0 I  145.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I       I       I       I
 I                    I  ARM B  I  0.033 I  0.000 I  0.967 I
 I                    I         I    1.0 I    0.0 I   29.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I       I       I       I
 I                    I  ARM C  I  0.911 I  0.089 I  0.000 I
 I                    I         I  133.0 I   13.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I       I       I       I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                   I
 I   B-AC      0.38     10.55    0.036                 0.0    0.0        0.5            0.4      I
 I   C-AB      0.19     12.49    0.015                 0.0    0.0        0.3            0.1      I
 I   C-A       1.64                                                                     0.0      I
 I   A-B       0.04                                                                     0.0      I
 I   A-C       1.81                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                   I
 I   B-AC      0.45     10.46    0.043                 0.0    0.0        0.7            0.5      I
 I   C-AB      0.23     12.59    0.018                 0.0    0.0        0.3            0.2      I
 I   C-A       1.95                                                                     0.0      I
 I   A-B       0.04                                                                     0.0      I
 I   A-C       2.16                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                   I
 I   B-AC      0.55     10.33    0.053                 0.0    0.1        0.8            0.7      I
 I   C-AB      0.29     12.74    0.023                 0.0    0.0        0.4            0.2      I
 I   C-A       2.38                                                                     0.0      I
 I   A-B       0.05                                                                     0.1      I
 I   A-C       2.65                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-AC      0.55     10.33    0.053                 0.1    0.1        0.8            0.7      I
 I   C-AB      0.29     12.74    0.023                 0.0    0.0        0.4            0.2      I
 I   C-A       2.38                                                                     0.0      I
 I   A-B       0.05                                                                     0.1      I
 I   A-C       2.65                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-AC      0.45     10.46    0.043                    0.1    0.0       0.7            0.5      I
 I   C-AB      0.23     12.59    0.018                    0.0    0.0       0.3            0.2      I
 I   C-A       1.95                                                                       0.0      I
 I   A-B       0.04                                                                       0.0      I
 I   A-C       2.16                                                                       0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-AC      0.38     10.55    0.036                    0.0    0.0       0.6            0.5      I
 I   C-AB      0.19     12.49    0.015                    0.0    0.0       0.3            0.1      I
 I   C-A       1.64                                                                       0.0      I
 I   A-B       0.04                                                                       0.0      I
 I   A-C       1.81                                                                       0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).

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


 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.0
   17.15           0.0
   17.30           0.0
   17.45           0.0
   18.00           0.0
   18.15           0.0
```

```
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ----------------------------------------------------------------------------
 I  B-AC  I   41.1 I   27.4 I     4.1 I    0.10   I       4.1  I    0.10   I
 I  C-AB  I   21.2 I   14.2 I     2.0 I    0.09   I       2.0  I    0.09   I
 I  C-A   I  179.0 I  119.3 I         I           I            I           I
 I  A-B   I    4.1 I    2.7 I         I           I            I           I
 I  A-C   I  198.8 I  132.6 I         I           I            I           I
 ----------------------------------------------------------------------------
 I  ALL   I  444.3 I  296.2 I     6.1 I    0.01   I       6.1  I    0.01   I
 ----------------------------------------------------------------------------


                 INCLUSIVE GEOMETRIC DELAY
                 -------------------------

 -----------------------------------------------------------------------------------
 I   ARM  I   TOTAL DEMAND  I      GEOMETRIC DELAY BY TURN (VEH MIN)     I TOTAL  I
 I        I                 I  (GEOMETRIC DELAY PER LIGHT VEHICLE (SEC)) I GEOM.  I
 I        I-----------------I--------------------------------------------I DELAY  I
 I        I  (VEH)  (VEH/H) I     ARM A    I     ARM B    I     ARM C    I VEH MINI
 -----------------------------------------------------------------------------------
 I    A   I  202.9 I  135.3 I       0.0    I       0.3    I       0.0    I    0.3 I
 I        I        I        I   (   0.0)   I   (   4.0)   I   (   0.0)   I        I
 I        I        I        I              I              I              I        I
 I    B   I   41.1 I   27.4 I       0.2    I       0.0    I       3.1    I    3.3 I
 I        I        I        I   (   7.0)   I   (   0.0)   I   (   4.7)   I        I
 I        I        I        I              I              I              I        I
 I    C   I  200.2 I  133.5 I       0.0    I       1.1    I       0.0    I    1.1 I
 I        I        I        I   (   0.0)   I   (   3.6)   I   (   0.0)   I        I
 -----------------------------------------------------------------------------------
 I   ALL  I  444.3 I  296.2 I                                            I    4.6 I
 -----------------------------------------------------------------------------------

 *WARNING* IN THE CALCULATION OF GEOMETRIC DELAYS THE APPROACH/DEPARTURE SPEED ON ARM B
            IS LESS THAN THE CALCULATED JUNCTION SPEED.(AG23 REF. 8.4.2(vii)).


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================



 [Printed at 17:36:26 on 02/07/2007]
```

Appendix H

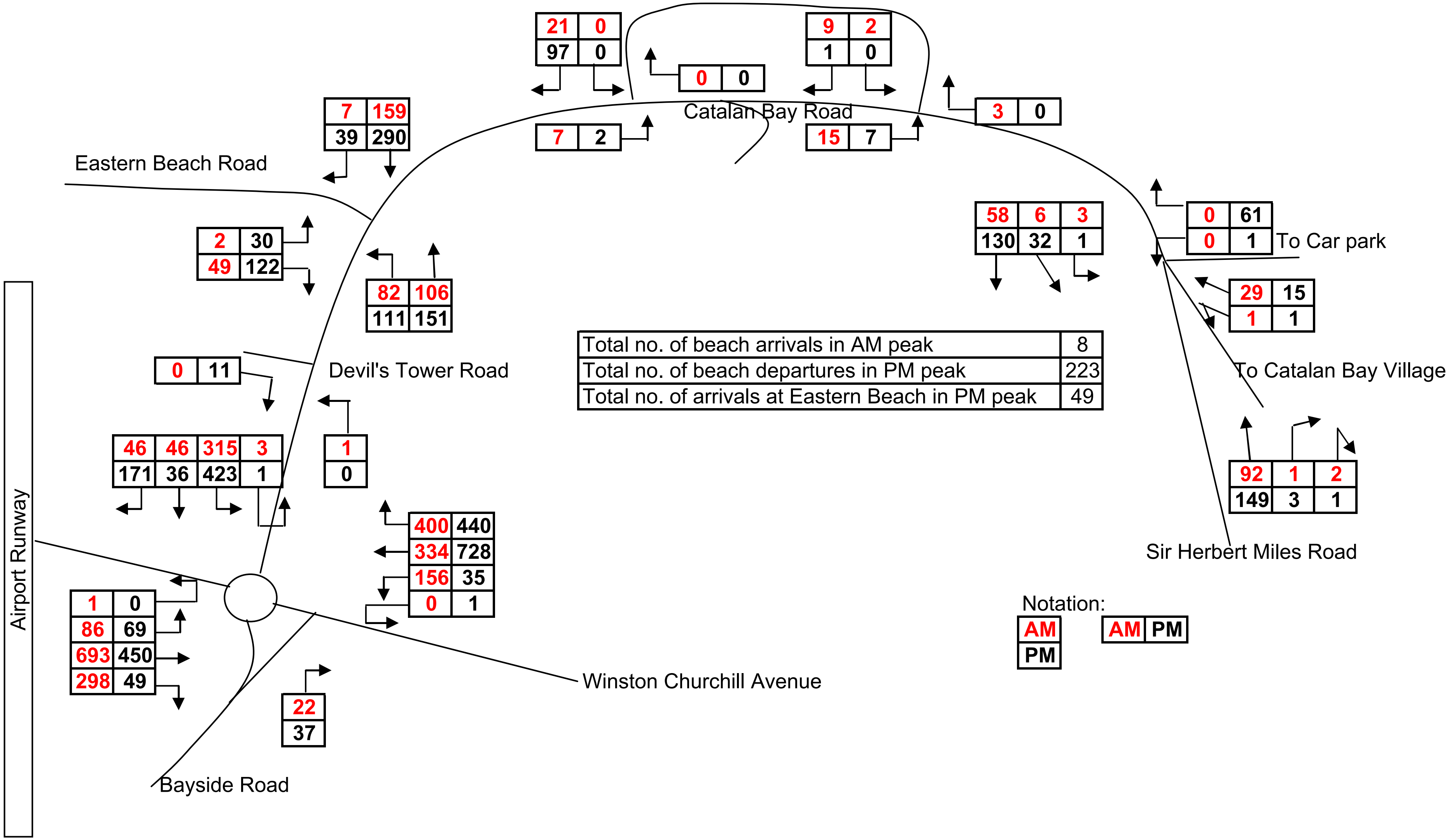
Transport Figures

Appendix 3

Summarised Base Traffic Flow (Survey plus beach trips)

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

29th September 2005, Thursday AM and PM



Total no. of beach arrivals in AM peak	8
Total no. of beach departures in PM peak	223
Total no. of arrivals at Eastern Beach in PM peak	49

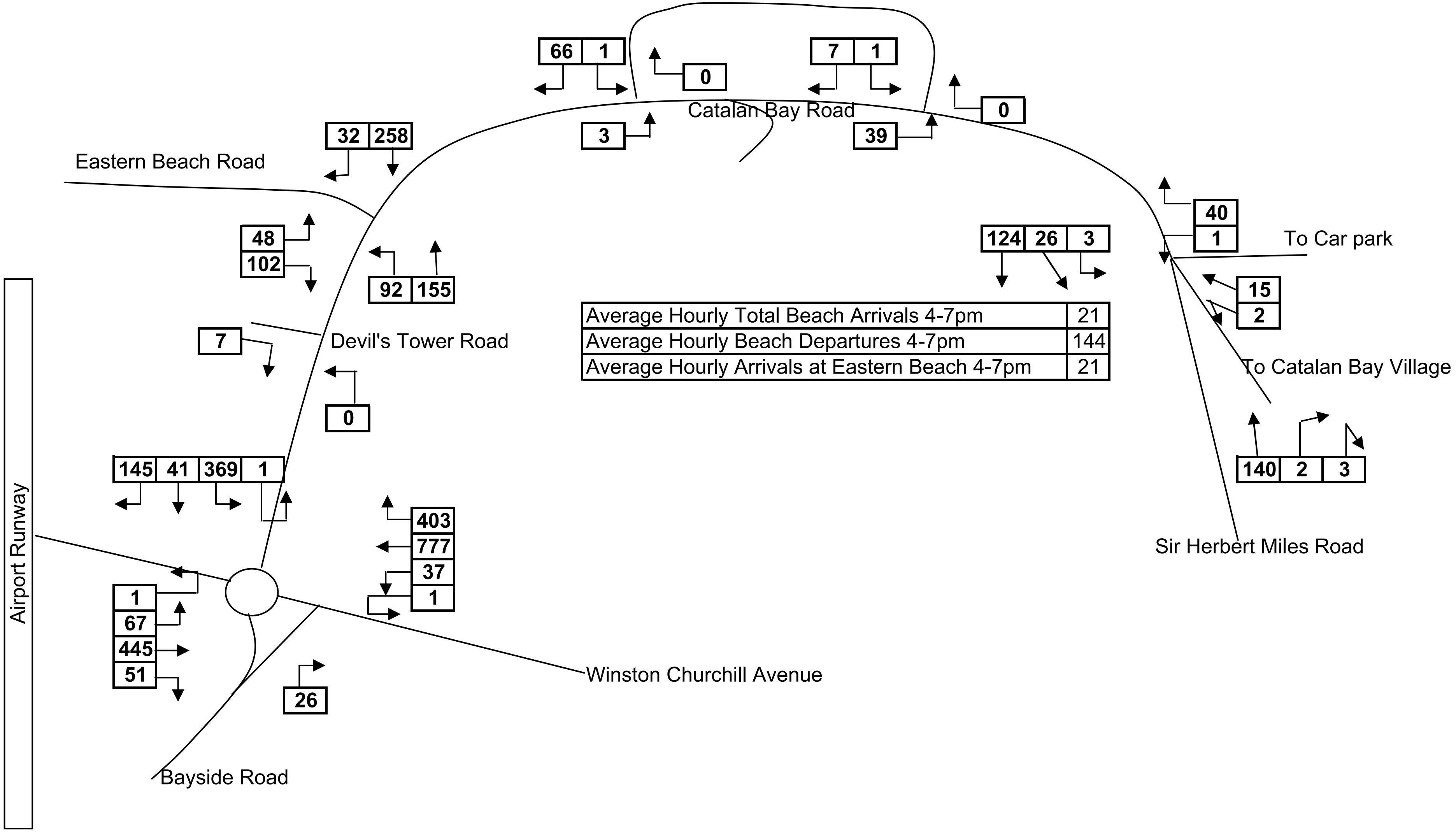
Notation:

AM
PM

AM	PM

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

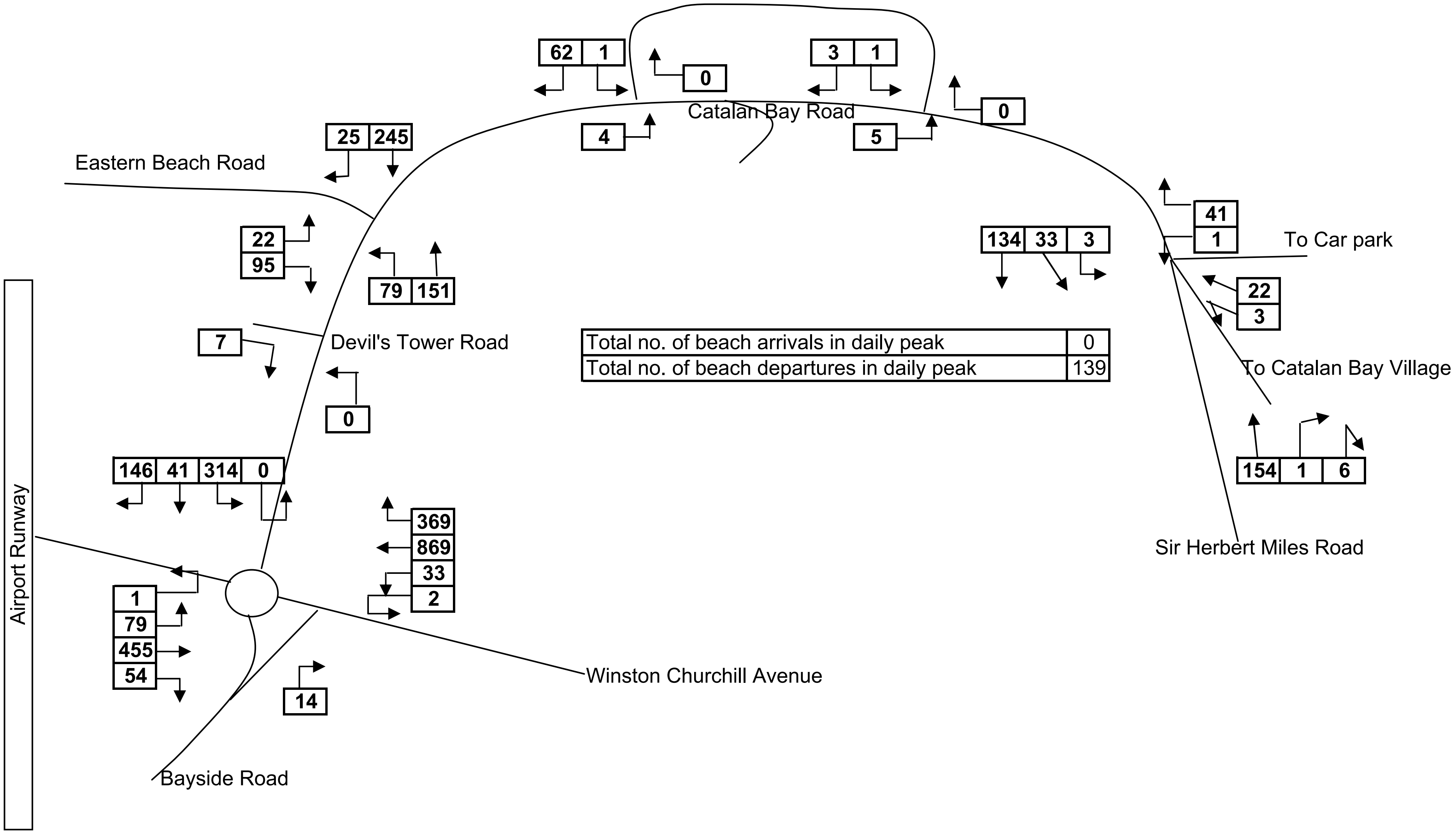
29th September 2005, Thursday Average hour 4-7pm



Average Hourly Total Beach Arrivals 4-7pm	21
Average Hourly Beach Departures 4-7pm	144
Average Hourly Arrivals at Eastern Beach 4-7pm	21

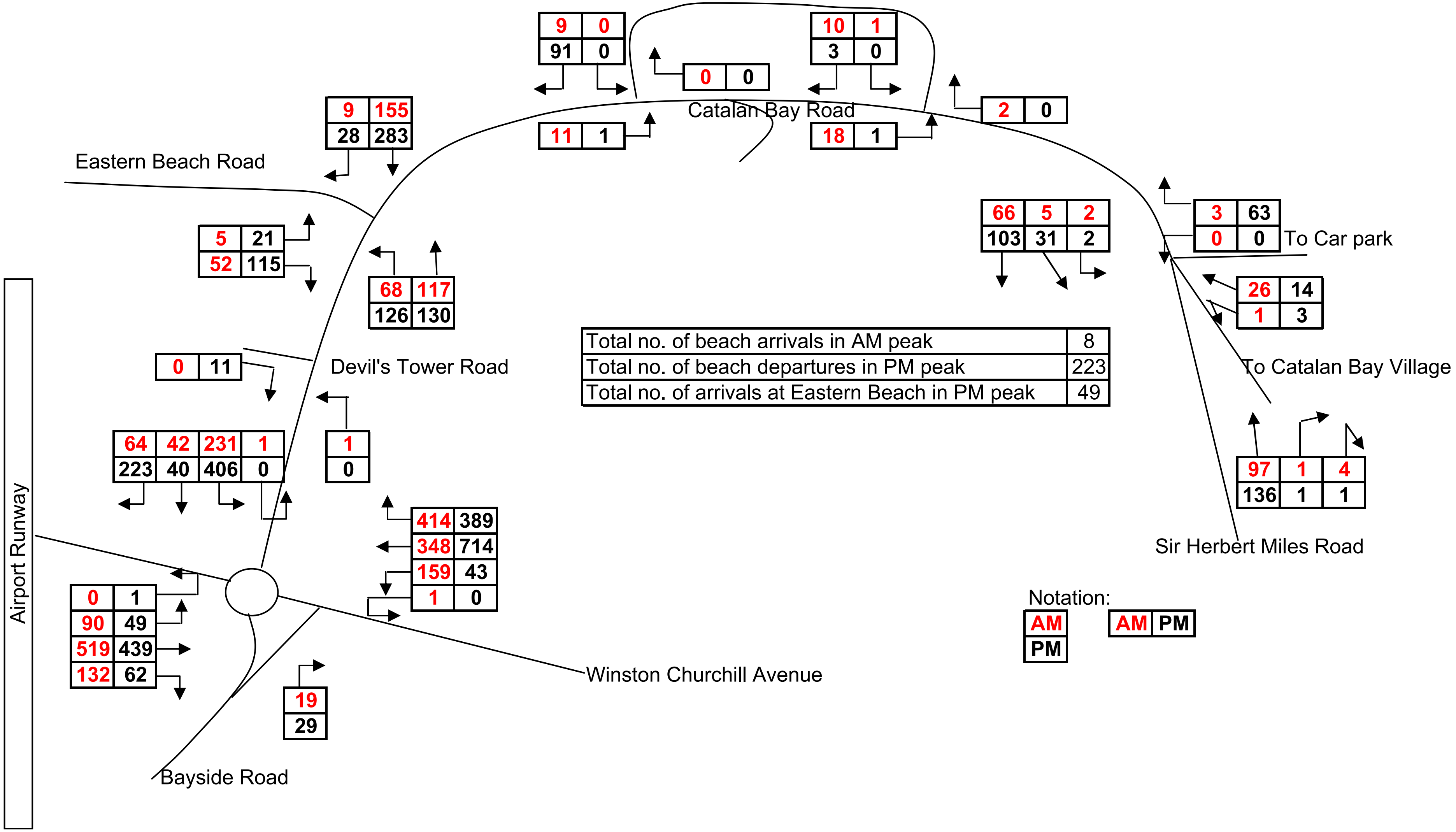
Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

29th September 2005, Thursday Peak 18:00-19:00



Total no. of beach arrivals in daily peak	0
Total no. of beach departures in daily peak	139

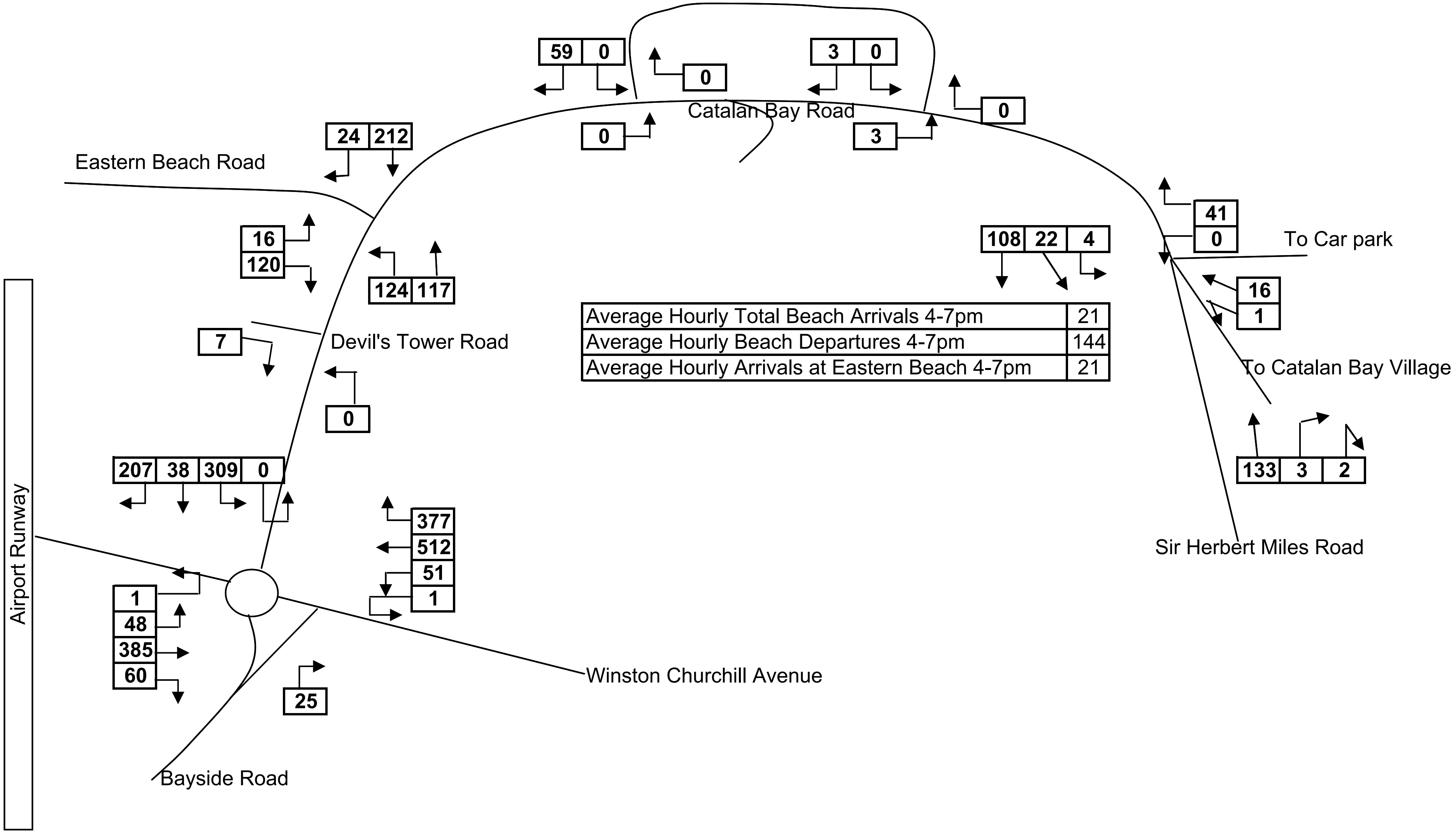
Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)
30th September 2005, Friday AM and PM



Total no. of beach arrivals in AM peak	8
Total no. of beach departures in PM peak	223
Total no. of arrivals at Eastern Beach in PM peak	49

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

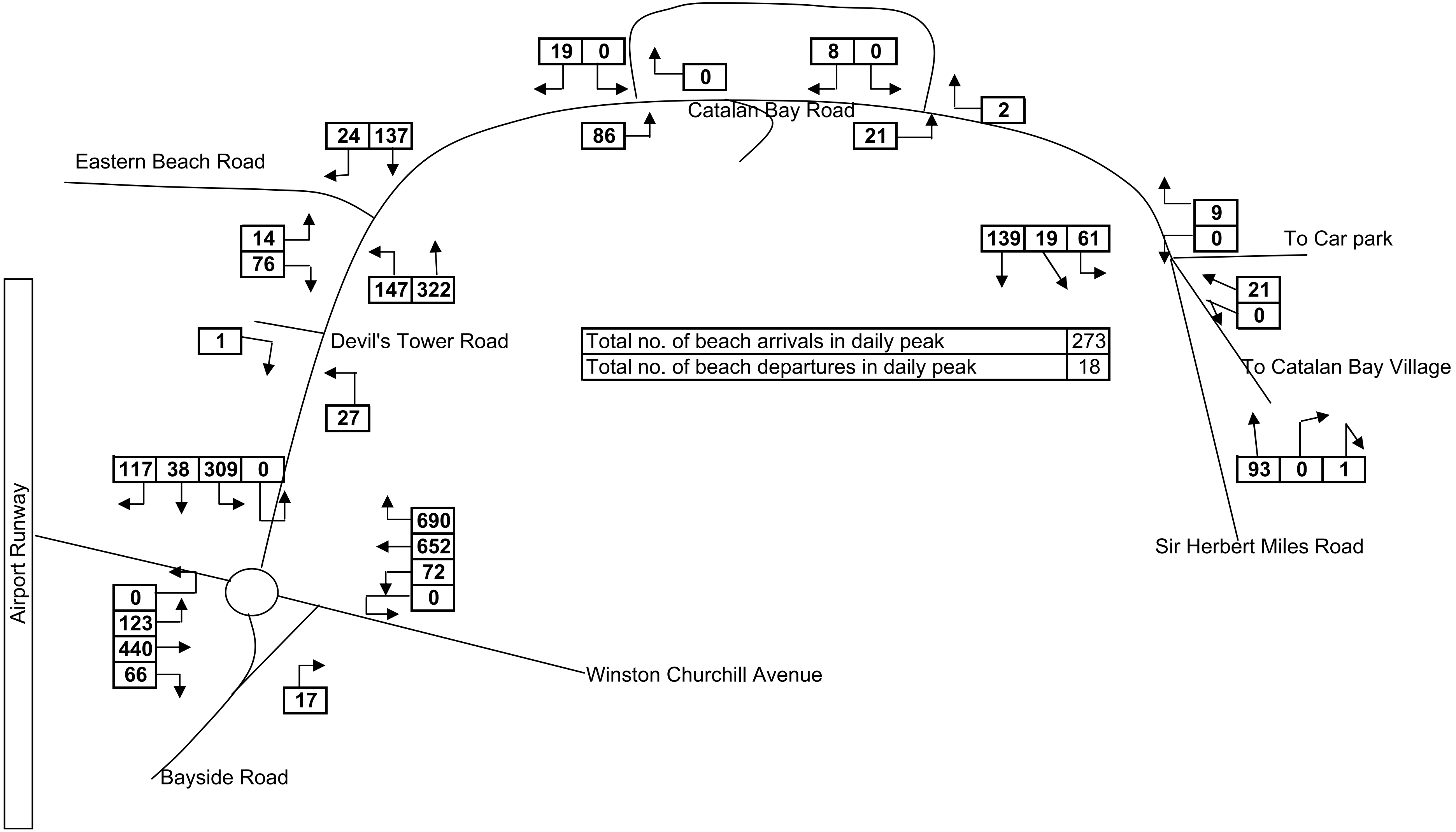
30th September 2005, Friday Average hour 4-7pm



Average Hourly Total Beach Arrivals 4-7pm	21
Average Hourly Beach Departures 4-7pm	144
Average Hourly Arrivals at Eastern Beach 4-7pm	21

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

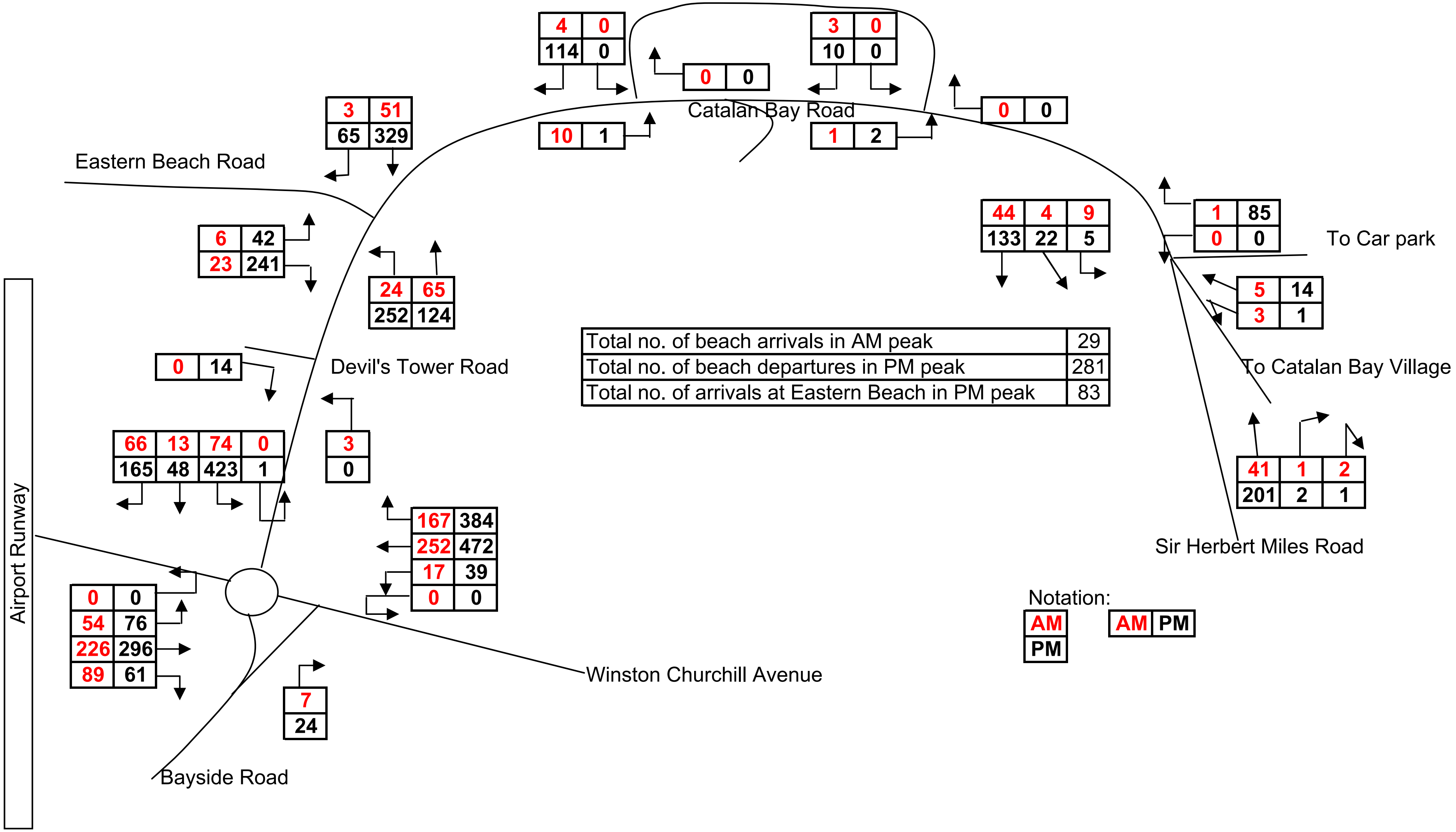
30th September 2005, Friday Peak 13:00-14:00



Total no. of beach arrivals in daily peak	273
Total no. of beach departures in daily peak	18

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

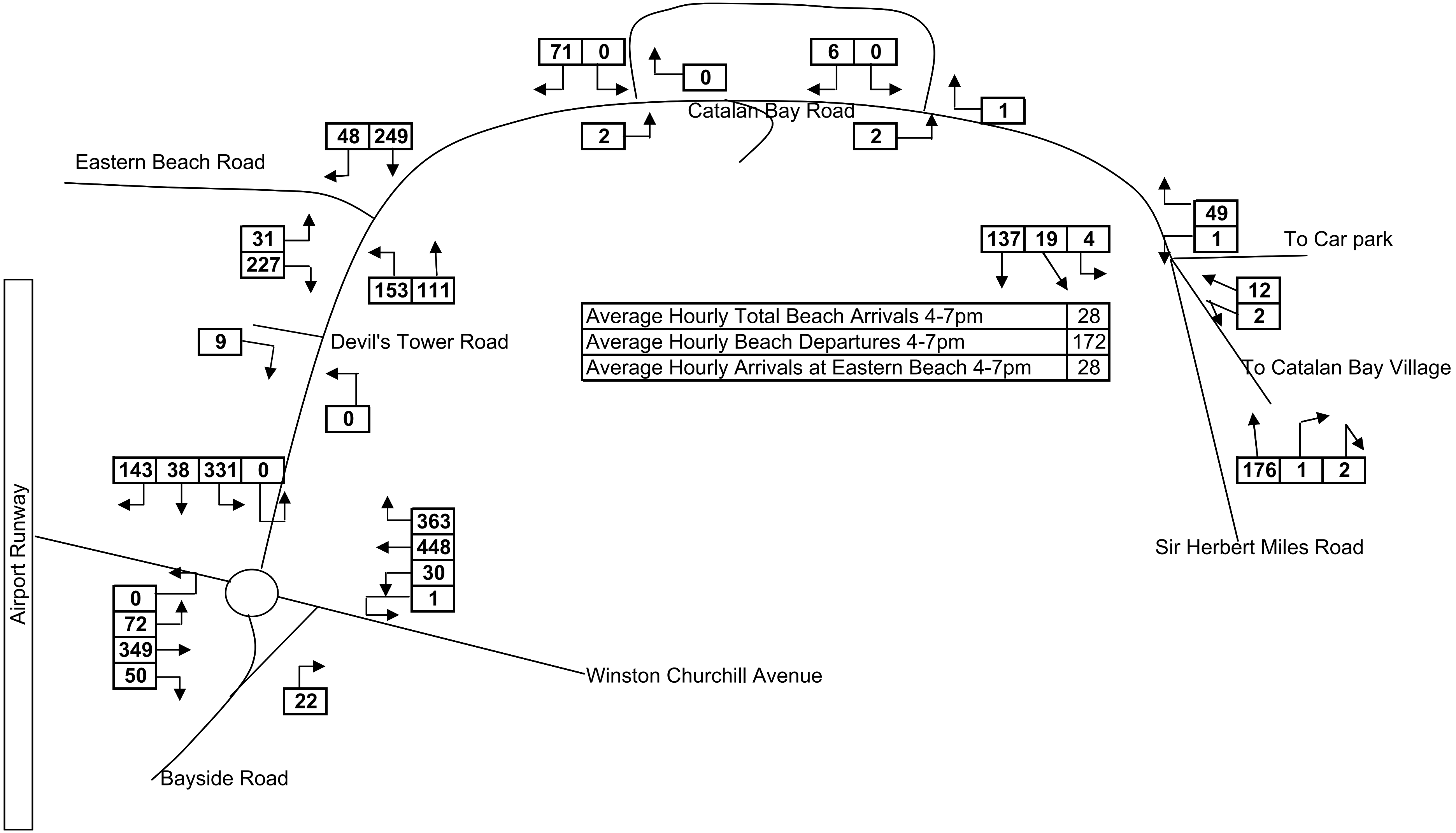
1st October 2005, Saturday AM and PM



Total no. of beach arrivals in AM peak	29
Total no. of beach departures in PM peak	281
Total no. of arrivals at Eastern Beach in PM peak	83

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

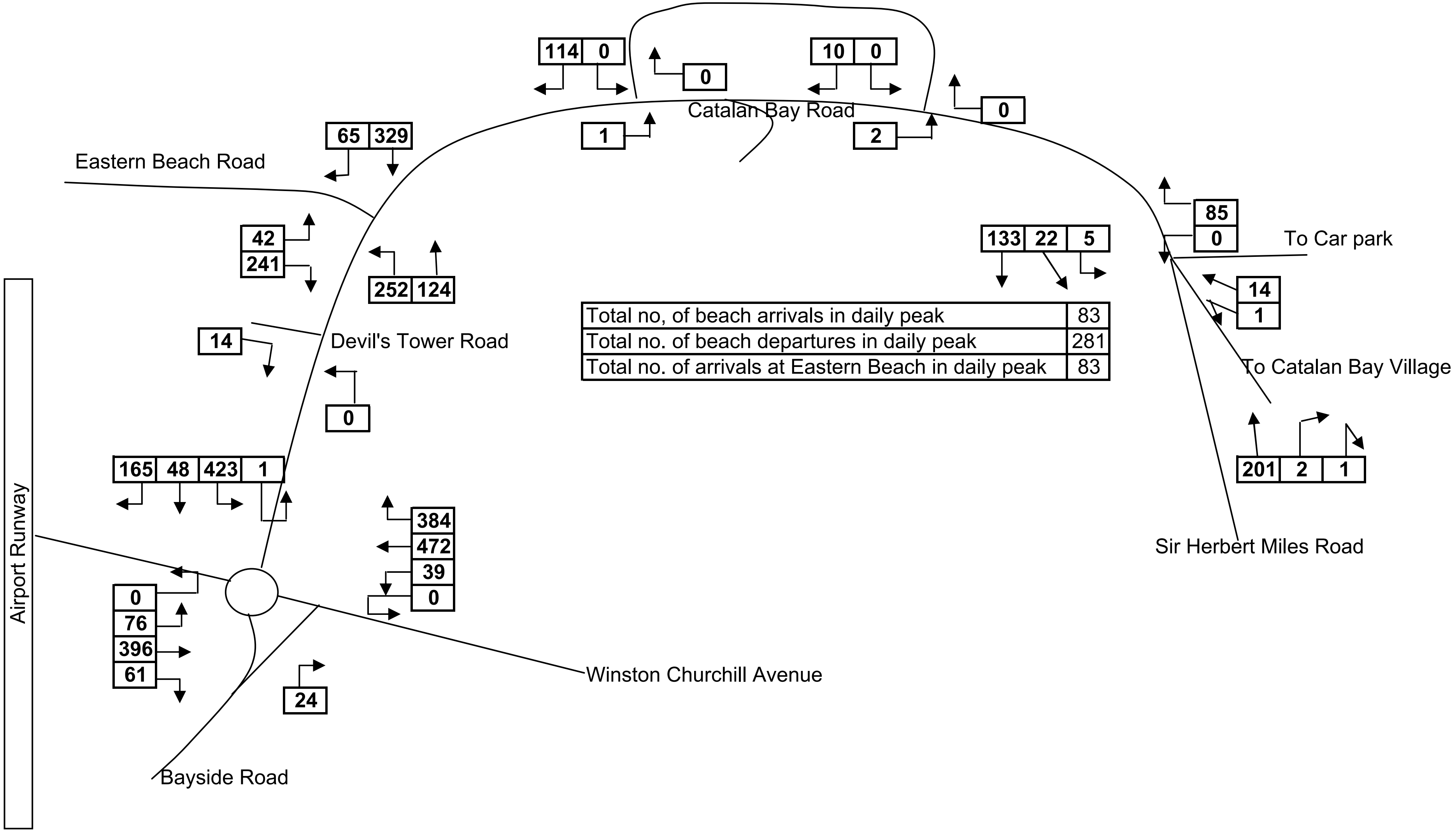
1st October 2005, Saturday Average hour 4-7pm



Average Hourly Total Beach Arrivals 4-7pm	28
Average Hourly Beach Departures 4-7pm	172
Average Hourly Arrivals at Eastern Beach 4-7pm	28

Gibraltar: Base Traffic Flows (Observed + Estimated Car Park Trips)

1st October 2005, Saturday Peak 17:00-18:00



Total no, of beach arrivals in daily peak	83
Total no. of beach departures in daily peak	281
Total no. of arrivals at Eastern Beach in daily peak	83

Appendix H

Transport Figures

Appendix 4

PICADY and ARCADY Result (Analysis with Base Traffic Flow)

```
                                TRL LIMITED

                            (C) COPYRIGHT 2001

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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

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                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\Base_Devil's Tower Road - Eastern Beach Road AM.vpi"
(drive-on-the-right) at 15:11:26 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road AM Base flow (in PCU)


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road South
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                  I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.50 M.   I
 I                        - VISIBILITY      I (VC-B) 102.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 ------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  2.08  I   3.11  I  2.08 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.64  I   0.96  I  0.64 I
 I ARM C I     15.00   I     45.00   I    75.00   I  2.35  I   3.52  I  2.35 I
 ------------------------------------------------------------------------------



 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS       I
 I                    I         TURNING COUNTS (VEH/HR)   I
 I                    I        (PERCENTAGE OF H.V.S)      I
 I                    ------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.042 I  0.958 I
 I                    I         I    0.0 I    7.0 I  159.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.039 I  0.000 I  0.961 I
 I                    I         I    2.0 I    0.0 I   49.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.564 I  0.436 I  0.000 I
 I                    I         I  106.0 I   82.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 07.45-08.00                                                                                   I
I   B-C       0.61     11.76    0.052                 0.0    0.1        0.8                     I
I   B-A       0.03      8.04    0.003                 0.0    0.0        0.0                     I
I   C-A       1.33                                                                              I
I   C-B       1.02     11.56    0.089                 0.0    0.1        1.4                     I
I   A-B       0.09                                                                              I
I   A-C       1.99                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.107      0.003                  0.011                                    I
I       B-A          0.080      0.005       0.020      0.008          0.005                     I
I       C-B          0.110      0.003                                 0.011                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.00-08.15                                                                                   I
I   B-C       0.73     11.67    0.063                 0.1    0.1        1.0                     I
I   B-A       0.03      7.87    0.004                 0.0    0.0        0.1                     I
I   C-A       1.58                                                                              I
I   C-B       1.22     11.47    0.107                 0.1    0.1        1.7                     I
I   A-B       0.10                                                                              I
I   A-C       2.37                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.106      0.003                  0.011                                    I
I       B-A          0.079      0.006       0.020      0.007          0.005                     I
I       C-B          0.109      0.003                                 0.010                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.15-08.30                                                                                   I
I   B-C       0.90     11.54    0.078                 0.1    0.1        1.2                     I
I   B-A       0.04      7.63    0.005                 0.0    0.0        0.1                     I
I   C-A       1.94                                                                              I
I   C-B       1.50     11.34    0.132                 0.1    0.2        2.2                     I
I   A-B       0.13                                                                              I
I   A-C       2.91                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.105      0.004                  0.011                                    I
I       B-A          0.076      0.007       0.020      0.007          0.005                     I
I       C-B          0.108      0.004                                 0.010                     I
-------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.30-08.45                                                                                   I
 I   B-C       0.90     11.54    0.078                0.1    0.1        1.3                     I
 I   B-A       0.04      7.63    0.005                0.0    0.0        0.1                     I
 I   C-A       1.94                                                                              I
 I   C-B       1.50     11.34    0.132                0.2    0.2        2.3                     I
 I   A-B       0.13                                                                              I
 I   A-C       2.91                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.105      0.004                  0.011                                    I
 I       B-A          0.076      0.007       0.020      0.007          0.005                     I
 I       C-B          0.108      0.004                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.45-09.00                                                                                   I
 I   B-C       0.73     11.67    0.063                0.1    0.1        1.0                     I
 I   B-A       0.03      7.87    0.004                0.0    0.0        0.1                     I
 I   C-A       1.58                                                                              I
 I   C-B       1.22     11.47    0.107                0.2    0.1        1.8                     I
 I   A-B       0.10                                                                              I
 I   A-C       2.37                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.106      0.003                  0.011                                    I
 I       B-A          0.079      0.006       0.020      0.007          0.005                     I
 I       C-B          0.109      0.003                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 09.00-09.15                                                                                   I
 I   B-C       0.61     11.76    0.052                0.1    0.1        0.8                     I
 I   B-A       0.03      8.04    0.003                0.0    0.0        0.0                     I
 I   C-A       1.33                                                                              I
 I   C-B       1.02     11.56    0.089                0.1    0.1        1.5                     I
 I   A-B       0.09                                                                              I
 I   A-C       1.99                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.107      0.003                  0.011                                    I
 I       B-A          0.080      0.005       0.020      0.008          0.005                     I
 I       C-B          0.110      0.003                                 0.011                     I
 -------------------------------------------------------------------------------------------------


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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


                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

 ----------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ----------------------------------------------------------------------------
 I  B-C   I   67.2 I   44.8 I     6.1 I    0.09   I       6.1  I    0.09   I
 I  B-A   I    2.7 I    1.8 I     0.3 I    0.13   I       0.3  I    0.13   I
 I  C-A   I  145.3 I   96.9 I         I           I            I           I
 I  C-B   I  112.4 I   75.0 I    11.0 I    0.10   I      11.0  I    0.10   I
 I  A-B   I    9.6 I    6.4 I         I           I            I           I
 I  A-C   I  218.0 I  145.3 I         I           I            I           I
 ----------------------------------------------------------------------------
 I  ALL   I  555.3 I  370.2 I    17.5 I    0.03   I      17.5  I    0.03   I
 ----------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================ end of file ==============================================



 [Printed at 15:11:44 on 05/04/2006]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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                             TRL SOFTWARE BUREAU
                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\Base_Devil's Tower Road - Eastern Beach Road PM.vpi"
(drive-on-the-right) at 15:10:32 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road PM Base flow (in PCU)


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road South
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.50 M.   I
 I                        - VISIBILITY      I (VC-B) 102.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------




 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  4.93  I   7.39  I  4.93 I
 I ARM B I     15.00   I     45.00   I    75.00   I  3.54  I   5.31  I  3.54 I
 I ARM C I     15.00   I     45.00   I    75.00   I  4.70  I   7.05  I  4.70 I
 -----------------------------------------------------------------------------



 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.165 I  0.835 I
 I                    I         I    0.0 I   65.0 I  329.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.148 I  0.000 I  0.852 I
 I                    I         I   42.0 I    0.0 I  241.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.330 I  0.670 I  0.000 I
 I                    I         I  124.0 I  252.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                   I
 I   B-C       3.01     10.99    0.274                 0.0    0.4        5.4                     I
 I   B-A       0.52      6.87    0.076                 0.0    0.1        1.2                     I
 I   C-A       1.55                                                                              I
 I   C-B       3.15     10.90    0.289                 0.0    0.4        5.8                     I
 I   A-B       0.81                                                                              I
 I   A-C       4.11                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                   I
 I   B-C       3.60     10.73    0.335                 0.4    0.5        7.2                     I
 I   B-A       0.63      6.44    0.097                 0.1    0.1        1.6                     I
 I   C-A       1.85                                                                              I
 I   C-B       3.76     10.68    0.352                 0.4    0.5        7.8                     I
 I   A-B       0.97                                                                              I
 I   A-C       4.91                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                   I
 I   B-C       4.41     10.37    0.425                 0.5    0.7       10.5                     I
 I   B-A       0.77      5.81    0.132                 0.1    0.2        2.2                     I
 I   C-A       2.27                                                                              I
 I   C-B       4.61     10.38    0.444                 0.5    0.8       11.3                     I
 I   A-B       1.19                                                                              I
 I   A-C       6.01                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C       4.41     10.37    0.425                 0.7    0.7       10.9                     I
 I   B-A       0.77      5.80    0.132                 0.2    0.2        2.3                     I
 I   C-A       2.27                                                                              I
 I   C-B       4.61     10.38    0.444                 0.8    0.8       11.8                     I
 I   A-B       1.19                                                                              I
 I   A-C       6.01                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C       3.60     10.73    0.335                 0.7    0.5        7.9                     I
 I   B-A       0.63      6.43    0.097                 0.2    0.1        1.7                     I
 I   C-A       1.85                                                                              I
 I   C-B       3.76     10.68    0.352                 0.8    0.6        8.6                     I
 I   A-B       0.97                                                                              I
 I   A-C       4.91                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-C       3.01     10.99    0.274                  0.5    0.4        5.9                    I
 I   B-A       0.52      6.86    0.077                  0.1    0.1        1.3                    I
 I   C-A       1.55                                                                              I
 I   C-B       3.15     10.90    0.289                  0.6    0.4        6.3                    I
 I   A-B       0.81                                                                              I
 I   A-C       4.11                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.4
   17.15           0.5
   17.30           0.7    *
   17.45           0.7    *
   18.00           0.5    *
   18.15           0.4


 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.1
   17.30           0.2
   17.45           0.2
   18.00           0.1
   18.15           0.1


 QUEUE FOR STREAM   C-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.4
   17.15           0.5    *
   17.30           0.8    *
   17.45           0.8    *
   18.00           0.6    *
   18.15           0.4


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *       I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *         I       * DELAY *        I
 I        I---------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  330.5 I  220.3 I    47.9 I    0.14   I      47.9  I    0.14   I
 I  B-A   I   57.6 I   38.4 I    10.2 I    0.18   I      10.2  I    0.18   I
 I  C-A   I  170.0 I  113.4 I         I           I            I           I
 I  C-B   I  345.5 I  230.4 I    51.6 I    0.15   I      51.6  I    0.15   I
 I  A-B   I   89.1 I   59.4 I         I           I            I           I
 I  A-C   I  451.1 I  300.8 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1443.9 I  962.6 I   109.6 I    0.08   I     109.6  I    0.08   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ==============================================
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Base_Devil's Tower Road - Eastern Beach Road Sat 4-7.vpi"
(drive-on-the-right) at 15:12:38 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road Saturday average 4-7pm hourly base flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road North
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road South


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.50 M.   I
 I                        - VISIBILITY      I (VC-B) 102.0 M.   I
 I                        - BLOCKS TRAFFIC  I         NO        I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  3.71  I   5.57  I  3.71 I
 I ARM B I     15.00   I     45.00   I    75.00   I  3.22  I   4.84  I  3.22 I
 I ARM C I     15.00   I     45.00   I    75.00   I  3.30  I   4.95  I  3.30 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS       I
 I                    I         TURNING COUNTS (VEH/HR)   I
 I                    I        (PERCENTAGE OF H.V.S)      I
 I                    ------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.162 I  0.838 I
 I                    I         I    0.0 I   48.0 I  249.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.120 I  0.000 I  0.880 I
 I                    I         I   31.0 I    0.0 I  227.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.420 I  0.580 I  0.000 I
 I                    I         I  111.0 I  153.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 ------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY      GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                   I
 I   B-C      2.84     11.31    0.251                 0.0    0.3        4.8                     I
 I   B-A      0.39      7.48    0.052                 0.0    0.1        0.8                     I
 I   C-A      1.39                                                                              I
 I   C-B      1.91     11.18    0.171                 0.0    0.2        3.0                     I
 I   A-B      0.60                                                                              I
 I   A-C      3.11                                                                              I
 I                                                                                               I
 ------------------------------------------------------------------------------------------------


 ------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY      GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                   I
 I   B-C      3.39     11.12    0.305                 0.3    0.4        6.3                     I
 I   B-A      0.46      7.17    0.064                 0.1    0.1        1.0                     I
 I   C-A      1.66                                                                              I
 I   C-B      2.28     11.02    0.207                 0.2    0.3        3.8                     I
 I   A-B      0.72                                                                              I
 I   A-C      3.72                                                                              I
 I                                                                                               I
 ------------------------------------------------------------------------------------------------


 ------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY      GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                   I
 I   B-C      4.15     10.86    0.382                 0.4    0.6        8.8                     I
 I   B-A      0.57      6.72    0.084                 0.1    0.1        1.3                     I
 I   C-A      2.03                                                                              I
 I   C-B      2.80     10.79    0.259                 0.3    0.3        5.1                     I
 I   A-B      0.88                                                                              I
 I   A-C      4.55                                                                              I
 I                                                                                               I
 ------------------------------------------------------------------------------------------------


 ------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY      GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C      4.15     10.86    0.382                 0.6    0.6        9.2                     I
 I   B-A      0.57      6.72    0.084                 0.1    0.1        1.4                     I
 I   C-A      2.03                                                                              I
 I   C-B      2.80     10.79    0.259                 0.3    0.3        5.2                     I
 I   A-B      0.88                                                                              I
 I   A-C      4.55                                                                              I
 I                                                                                               I
 ------------------------------------------------------------------------------------------------


 ------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY      GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C      3.39     11.12    0.305                 0.6    0.4        6.9                     I
 I   B-A      0.46      7.17    0.065                 0.1    0.1        1.1                     I
 I   C-A      1.66                                                                              I
 I   C-B      2.28     11.02    0.207                 0.3    0.3        4.1                     I
 I   A-B      0.72                                                                              I
 I   A-C      3.72                                                                              I
 I                                                                                               I
 ------------------------------------------------------------------------------------------------
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                   I
I   B-C       2.84     11.31    0.251                 0.4    0.3        5.2                     I
I   B-A       0.39      7.47    0.052                 0.1    0.1        0.8                     I
I   C-A       1.39                                                                              I
I   C-B       1.91     11.18    0.171                 0.3    0.2        3.2                     I
I   A-B       0.60                                                                              I
I   A-C       3.11                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


QUEUE FOR STREAM   B-C
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.3
  17.15           0.4
  17.30           0.6    *
  17.45           0.6    *
  18.00           0.4
  18.15           0.3


QUEUE FOR STREAM   B-A
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.1
  17.15           0.1
  17.30           0.1
  17.45           0.1
  18.00           0.1
  18.15           0.1


QUEUE FOR STREAM   C-B
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.2
  17.15           0.3
  17.30           0.3
  17.45           0.3
  18.00           0.3
  18.15           0.2


                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

---------------------------------------------------------------------------
I STREAM I  TOTAL DEMAND   I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I----------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-C   I  311.3 I  207.5 I    41.2 I    0.13   I      41.2  I    0.13   I
I  B-A   I   42.5 I   28.3 I     6.4 I    0.15   I       6.4  I    0.15   I
I  C-A   I  152.2 I  101.5 I         I           I            I           I
I  C-B   I  209.8 I  139.9 I    24.3 I    0.12   I      24.3  I    0.12   I
I  A-B   I   65.8 I   43.9 I         I           I            I           I
I  A-C   I  341.4 I  227.6 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I 1123.0 I  748.7 I    71.9 I    0.06   I      71.9  I    0.06   I
---------------------------------------------------------------------------


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



END OF JOB

****** PICADY 4 run completed.
============================================= end of file ===============================================
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                             TRL SOFTWARE BUREAU
                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Base_Devil's Tower Road - Eastern Beach Road Thurs 4-7.vpi"
(drive-on-the-right) at 15:13:35 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Devil's Tower Road / Eastern Beach Road Weekday average 4-7pm hourly base flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Devil's Tower Road North
 ARM B IS Eastern Beach Road
 ARM C IS Devil's Tower Road South


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  ) 10.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.50 M.   I
 I                        - VISIBILITY      I (VC-B) 102.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I        10.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         6.00 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         4.00 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           2 VEHS  I
 ----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  3.63  I   5.44  I  3.63 I
 I ARM B I     15.00   I     45.00   I    75.00   I  1.88  I   2.81  I  1.88 I
 I ARM C I     15.00   I     45.00   I    75.00   I  3.09  I   4.63  I  3.09 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.110 I  0.890 I
 I                    I         I    0.0 I   32.0 I  258.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.320 I  0.000 I  0.680 I
 I                    I         I   48.0 I    0.0 I  102.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.628 I  0.372 I  0.000 I
 I                    I         I  155.0 I   92.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START  END        DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                   I
 I   B-C       1.27     11.05    0.115                 0.0    0.1        1.9                     I
 I   B-A       0.60      8.00    0.075                 0.0    0.1        1.2                     I
 I   C-A       1.94                                                                              I
 I   C-B       1.15     11.20    0.103                 0.0    0.1        1.7                     I
 I   A-B       0.40                                                                              I
 I   A-C       3.22                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START  END        DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                   I
 I   B-C       1.52     10.85    0.140                 0.1    0.2        2.4                     I
 I   B-A       0.72      7.74    0.093                 0.1    0.1        1.5                     I
 I   C-A       2.31                                                                              I
 I   C-B       1.37     11.04    0.124                 0.1    0.1        2.1                     I
 I   A-B       0.48                                                                              I
 I   A-C       3.85                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START  END        DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                   I
 I   B-C       1.86     10.57    0.176                 0.2    0.2        3.1                     I
 I   B-A       0.88      7.38    0.119                 0.1    0.1        2.0                     I
 I   C-A       2.83                                                                              I
 I   C-B       1.68     10.82    0.155                 0.1    0.2        2.7                     I
 I   A-B       0.58                                                                              I
 I   A-C       4.72                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START  END        DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C       1.86     10.57    0.176                 0.2    0.2        3.2                     I
 I   B-A       0.88      7.38    0.119                 0.1    0.1        2.0                     I
 I   C-A       2.83                                                                              I
 I   C-B       1.68     10.82    0.155                 0.2    0.2        2.7                     I
 I   A-B       0.58                                                                              I
 I   A-C       4.72                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START  END        DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C       1.52     10.85    0.140                 0.2    0.2        2.5                     I
 I   B-A       0.72      7.74    0.093                 0.1    0.1        1.6                     I
 I   C-A       2.31                                                                              I
 I   C-B       1.37     11.04    0.124                 0.2    0.1        2.2                     I
 I   A-B       0.48                                                                              I
 I   A-C       3.85                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-C       1.27     11.05    0.115                 0.2    0.1        2.0                     I
 I   B-A       0.60      8.00    0.075                 0.1    0.1        1.3                     I
 I   C-A       1.94                                                                              I
 I   C-B       1.15     11.20    0.103                 0.1    0.1        1.8                     I
 I   A-B       0.40                                                                              I
 I   A-C       3.22                                                                              I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.2
   17.30           0.2
   17.45           0.2
   18.00           0.2
   18.15           0.1


 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.1
   17.30           0.1
   17.45           0.1
   18.00           0.1
   18.15           0.1


 QUEUE FOR STREAM   C-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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

                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *       I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *         I       * DELAY *        I
 I        I---------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  139.9 I   93.2 I    15.1 I    0.11   I      15.1  I    0.11   I
 I  B-A   I   65.8 I   43.9 I     9.4 I    0.14   I       9.4  I    0.14   I
 I  C-A   I  212.5 I  141.7 I         I           I            I           I
 I  C-B   I  126.2 I   84.1 I    13.1 I    0.10   I      13.1  I    0.10   I
 I  A-B   I   43.9 I   29.3 I         I           I            I           I
 I  A-C   I  353.8 I  235.8 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  942.0 I  628.0 I    37.7 I    0.04   I      37.7  I    0.04   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ============================================
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Sir Herbert Miles Road - Catalan Bay Road AM Base.vpi"
(drive-on-the-right) at 15:14:45 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road AM Base flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road South
 ARM B IS Catalan Bay Road
 ARM C IS Sir Herbert Miles Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B) 250.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.00 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 ----------------------------------------------------------------





 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.27  I   1.91  I  1.27 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM C I     15.00   I     45.00   I    75.00   I  0.91  I   1.37  I  0.91 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.049 I  0.951 I
 I                    I         I    0.0 I    5.0 I   97.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.033 I  0.000 I  0.967 I
 I                    I         I    1.0 I    0.0 I   29.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.904 I  0.096 I  0.000 I
 I                    I         I   66.0 I    7.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 07.45-08.00                                                                                   I
I   B-AC      0.38     10.71    0.035                 0.0    0.0        0.5                     I
I   C-AB      0.09     12.13    0.008                 0.0    0.0        0.1                     I
I   C-A       0.82                                                                              I
I   A-B       0.06                                                                              I
I   A-C       1.21                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.00-08.15                                                                                   I
I   B-AC      0.45     10.65    0.042                 0.0    0.0        0.6                     I
I   C-AB      0.11     12.16    0.009                 0.0    0.0        0.2                     I
I   C-A       0.98                                                                              I
I   A-B       0.07                                                                              I
I   A-C       1.45                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.15-08.30                                                                                   I
I   B-AC      0.55     10.56    0.052                 0.0    0.1        0.8                     I
I   C-AB      0.14     12.20    0.012                 0.0    0.0        0.2                     I
I   C-A       1.19                                                                              I
I   A-B       0.09                                                                              I
I   A-C       1.77                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.30-08.45                                                                                   I
I   B-AC      0.55     10.56    0.052                 0.1    0.1        0.8                     I
I   C-AB      0.14     12.20    0.012                 0.0    0.0        0.2                     I
I   C-A       1.19                                                                              I
I   A-B       0.09                                                                              I
I   A-C       1.77                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 08.45-09.00                                                                                   I
I   B-AC      0.45     10.65    0.042                 0.1    0.0        0.7                     I
I   C-AB      0.11     12.16    0.009                 0.0    0.0        0.2                     I
I   C-A       0.98                                                                              I
I   A-B       0.07                                                                              I
I   A-C       1.45                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 09.00-09.15                                                                                   I
I   B-AC      0.38     10.71    0.035                 0.0    0.0        0.6                     I
I   C-AB      0.09     12.13    0.008                 0.0    0.0        0.1                     I
I   C-A       0.82                                                                              I
I   A-B       0.06                                                                              I
I   A-C       1.21                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------

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

```
 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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


 QUEUE FOR STREAM   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   08.00           0.0
   08.15           0.0
   08.30           0.0
   08.45           0.0
   09.00           0.0
   09.15           0.0


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-AC  I   41.1 I   27.4 I     4.0 I    0.10   I       4.0  I    0.10   I
 I  C-AB  I   10.5 I    7.0 I     0.9 I    0.09   I       0.9  I    0.09   I
 I  C-A   I   89.6 I   59.7 I         I           I            I           I
 I  A-B   I    6.9 I    4.6 I         I           I            I           I
 I  A-C   I  133.0 I   88.7 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  281.1 I  187.4 I     5.0 I    0.02   I       5.0  I    0.02   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
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 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Sir Herbert Miles Road - Catalan Bay Road PM Base.vpi"
(drive-on-the-right) at 15:18:29 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road PM Base Flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road South
 ARM B IS Catalan Bay Road
 ARM C IS Sir Herbert Miles Road North


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B) 250.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.00 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 ----------------------------------------------------------------




 GEOMETRIC DELAY DATA
 --------------------

 -------------------------------------------
 I       I  ARM SPEED   I  ENTRY    EXIT   I
 I       I    (KPH)     I RADIUS   RADIUS  I
 I       I ENTRY  EXIT  I  ER (M)  EXR (M) I
 -------------------------------------------
 I ARM A I  50.0   50.0 I  14.0            I
 I ARM B I  20.0   20.0 I  14.0     18.0   I
 I ARM C I  50.0   50.0 I                  I
 -------------------------------------------

 JUNCTION VISIBILITIES DO NOT CONFORM TO STANDARDS LAID DOWN IN TA42/95




 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  2.55  I   3.82  I  2.55 I
 I ARM B I     15.00   I     45.00   I    75.00   I  1.25  I   1.88  I  1.25 I
 I ARM C I     15.00   I     45.00   I    75.00   I  2.00  I   3.00  I  2.00 I
 -----------------------------------------------------------------------------
```

```
 ----------------------------------------------------------
 I                    I         TURNING PROPORTIONS       I
 I                    I         TURNING COUNTS (VEH/HR)   I
 I                    I        (PERCENTAGE OF H.V.S)      I
 I                    ------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ----------------------------------------------------------
 I   07.45 - 09.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.015 I  0.985 I
 I                    I         I    0.0 I    3.0 I  201.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.010 I  0.000 I  0.990 I
 I                    I         I    1.0 I    0.0 I   99.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.831 I  0.169 I  0.000 I
 I                    I         I  133.0 I   27.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I        (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 07.45-08.00                                                                                 I
 I   B-AC      1.25     10.45    0.120                 0.0    0.1        2.0           1.5      I
 I   C-AB      0.39     12.30    0.032                 0.0    0.0        0.6           0.3      I
 I   C-A       1.61                                                                    0.0      I
 I   A-B       0.04                                                                    0.0      I
 I   A-C       2.51                                                                    0.0      I
 I                                                                                             I
 -------------------------------------------------------------------------------------------------



 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I        (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.00-08.15                                                                                 I
 I   B-AC      1.49     10.32    0.145                 0.1    0.2        2.5           1.8      I
 I   C-AB      0.48     12.37    0.039                 0.0    0.1        0.8           0.4      I
 I   C-A       1.91                                                                    0.0      I
 I   A-B       0.04                                                                    0.0      I
 I   A-C       3.00                                                                    0.0      I
 I                                                                                             I
 -------------------------------------------------------------------------------------------------



 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I        (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.15-08.30                                                                                 I
 I   B-AC      1.83     10.14    0.180                 0.2    0.2        3.2           2.2      I
 I   C-AB      0.61     12.48    0.049                 0.1    0.1        1.0           0.4      I
 I   C-A       2.32                                                                    0.0      I
 I   A-B       0.05                                                                    0.1      I
 I   A-C       3.67                                                                    0.0      I
 I                                                                                             I
 -------------------------------------------------------------------------------------------------



 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I        (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.30-08.45                                                                                 I
 I   B-AC      1.83     10.14    0.180                 0.2    0.2        3.3           2.2      I
 I   C-AB      0.61     12.48    0.049                 0.1    0.1        1.0           0.4      I
 I   C-A       2.32                                                                    0.0      I
 I   A-B       0.05                                                                    0.1      I
 I   A-C       3.67                                                                    0.0      I
 I                                                                                             I
 -------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 08.45-09.00                                                                                   I
 I   B-AC      1.49     10.32    0.145                 0.2    0.2        2.6            1.8      I
 I   C-AB      0.48     12.38    0.039                 0.1    0.1        0.8            0.4      I
 I   C-A       1.91                                                                     0.0      I
 I   A-B       0.04                                                                     0.0      I
 I   A-C       3.00                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 09.00-09.15                                                                                   I
 I   B-AC      1.25     10.45    0.120                 0.2    0.1        2.1            1.5      I
 I   C-AB      0.39     12.30    0.032                 0.1    0.0        0.6            0.3      I
 I   C-A       1.61                                                                     0.0      I
 I   A-B       0.04                                                                     0.0      I
 I   A-C       2.51                                                                     0.0      I
 I                                                                                               I
 -------------------------------------------------------------------------------------------------

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


 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   08.00           0.0
   08.15           0.1
   08.30           0.1
   08.45           0.1
   09.00           0.1
   09.15           0.0
```

```
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-AC  I  137.1 I   91.4 I    15.6 I    0.11   I      15.6  I    0.11   I
 I  C-AB  I   44.3 I   29.5 I     4.9 I    0.11   I       4.9  I    0.11   I
 I  C-A   I  175.1 I  116.7 I         I           I            I           I
 I  A-B   I    4.1 I    2.7 I         I           I            I           I
 I  A-C   I  275.6 I  183.7 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  636.2 I  424.2 I    20.5 I    0.03   I      20.5  I    0.03   I
 ---------------------------------------------------------------------------


                 INCLUSIVE GEOMETRIC DELAY
                 -------------------------

 ----------------------------------------------------------------------------------
 I   ARM  I   TOTAL DEMAND  I      GEOMETRIC DELAY BY TURN (VEH MIN)     I TOTAL  I
 I        I                 I  (GEOMETRIC DELAY PER LIGHT VEHICLE (SEC)) I GEOM.  I
 I        I-----------------I--------------------------------------------I DELAY  I
 I        I  (VEH)  (VEH/H) I     ARM A    I     ARM B    I     ARM C    I VEH MINI
 ----------------------------------------------------------------------------------
 I    A   I  279.7 I  186.5 I       0.0    I       0.3    I       0.0    I    0.3 I
 I        I        I        I   (   0.0)   I   (   4.0)   I   (   0.0)   I        I
 I        I        I        I              I              I              I        I
 I    B   I  137.1 I   91.4 I       0.2    I       0.0    I      10.7    I   10.9 I
 I        I        I        I   (   7.0)   I   (   0.0)   I   (   4.7)   I        I
 I        I        I        I              I              I              I        I
 I    C   I  219.4 I  146.3 I       0.0    I       2.2    I       0.0    I    2.2 I
 I        I        I        I   (   0.0)   I   (   3.6)   I   (   0.0)   I        I
 ----------------------------------------------------------------------------------
 I   ALL  I  636.2 I  424.2 I                                            I   13.4 I
 ----------------------------------------------------------------------------------

 *WARNING* IN THE CALCULATION OF GEOMETRIC DELAYS THE APPROACH/DEPARTURE SPEED ON ARM B
            IS LESS THAN THE CALCULATED JUNCTION SPEED.(AG23 REF. 8.4.2(vii)).


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Sir Herbert Miles Road - Catalan Bay Road Base Sat 4-7.vpi"
(drive-on-the-right) at 15:15:53 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road Sat average 4-7pm hourly base flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  *************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road North
 ARM B IS Catalan Bay Village
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 -----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 -----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B) 250.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.00 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 -----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  2.24  I   3.36  I  2.24 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.80  I   1.20  I  0.80 I
 I ARM C I     15.00   I     45.00   I    75.00   I  2.00  I   3.00  I  2.00 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.017 I  0.983 I
 I                    I         I    0.0 I    3.0 I  176.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.047 I  0.000 I  0.953 I
 I                    I         I    3.0 I    0.0 I   61.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.856 I  0.144 I  0.000 I
 I                    I         I  137.0 I   23.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                   I
I   B-AC      0.80     10.40    0.077                 0.0    0.1        1.2                     I
I   C-AB      0.33     12.42    0.027                 0.0    0.0        0.5                     I
I   C-A       1.67                                                                              I
I   A-B       0.04                                                                              I
I   A-C       2.20                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                   I
I   B-AC      0.96     10.29    0.093                 0.1    0.1        1.5                     I
I   C-AB      0.41     12.51    0.033                 0.0    0.0        0.7                     I
I   C-A       1.98                                                                              I
I   A-B       0.04                                                                              I
I   A-C       2.63                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                   I
I   B-AC      1.17     10.13    0.116                 0.1    0.1        1.9                     I
I   C-AB      0.52     12.64    0.041                 0.0    0.1        0.9                     I
I   C-A       2.40                                                                              I
I   A-B       0.05                                                                              I
I   A-C       3.22                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                   I
I   B-AC      1.17     10.13    0.116                 0.1    0.1        1.9                     I
I   C-AB      0.52     12.64    0.041                 0.1    0.1        0.9                     I
I   C-A       2.40                                                                              I
I   A-B       0.05                                                                              I
I   A-C       3.22                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                   I
I   B-AC      0.96     10.29    0.093                 0.1    0.1        1.6                     I
I   C-AB      0.41     12.51    0.033                 0.1    0.0        0.7                     I
I   C-A       1.98                                                                              I
I   A-B       0.04                                                                              I
I   A-C       2.63                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                   I
I   B-AC      0.80     10.40    0.077                 0.1    0.1        1.3                     I
I   C-AB      0.33     12.42    0.027                 0.0    0.0        0.5                     I
I   C-A       1.67                                                                              I
I   A-B       0.04                                                                              I
I   A-C       2.20                                                                              I
I                                                                                               I
-------------------------------------------------------------------------------------------------

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

```
 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00          0.1
   17.15          0.1
   17.30          0.1
   17.45          0.1
   18.00          0.1
   18.15          0.1


 QUEUE FOR STREAM   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ----------------------------------------------------------------------------
 I  B-AC  I   87.8 I   58.5 I     9.4 I    0.11   I       9.4  I    0.11   I
 I  C-AB  I   37.9 I   25.2 I     4.1 I    0.11   I       4.1  I    0.11   I
 I  C-A   I  181.5 I  121.0 I         I           I            I           I
 I  A-B   I    4.1 I    2.7 I         I           I            I           I
 I  A-C   I  241.3 I  160.9 I         I           I            I           I
 ----------------------------------------------------------------------------
 I  ALL   I  552.6 I  368.4 I    13.5 I    0.02   I      13.5  I    0.02   I
 ----------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ============================================



 [Printed at 15:16:19 on 05/04/2006]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\
  Sir Herbert Miles Road - Catalan Bay Road Base Thur 4-7.vpi"
(drive-on-the-right) at 15:17:06 on Wednesday, 5 April 2006

  RUN TITLE
  *********
  Sir Herbert Miles Road / Catalan Bay Road Weekday average 4-7pm hourly base flow


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  **************************************

  INPUT DATA
  ----------

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

 ARM A IS Sir Herbert Miles Road North
 ARM B IS Catalan Bay Village
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B) 250.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  70.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  70.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.00 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 ----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.81  I   2.72  I  1.81 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.73  I   1.09  I  0.73 I
 I ARM C I     15.00   I     45.00   I    75.00   I  1.91  I   2.87  I  1.91 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.034 I  0.966 I
 I                    I         I    0.0 I    5.0 I  140.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.052 I  0.000 I  0.948 I
 I                    I         I    3.0 I    0.0 I   55.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.810 I  0.190 I  0.000 I
 I                    I         I  124.0 I   29.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                    I
I   B-AC      0.73     10.50    0.069                 0.0    0.1         1.1                     I
I   C-AB      0.41     12.43    0.033                 0.0    0.0         0.6                     I
I   C-A       1.50                                                                               I
I   A-B       0.06                                                                               I
I   A-C       1.75                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                    I
I   B-AC      0.87     10.41    0.083                 0.1    0.1         1.3                     I
I   C-AB      0.51     12.52    0.040                 0.0    0.1         0.8                     I
I   C-A       1.78                                                                               I
I   A-B       0.07                                                                               I
I   A-C       2.09                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                    I
I   B-AC      1.06     10.27    0.103                 0.1    0.1         1.7                     I
I   C-AB      0.64     12.65    0.051                 0.1    0.1         1.1                     I
I   C-A       2.15                                                                               I
I   A-B       0.09                                                                               I
I   A-C       2.56                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                    I
I   B-AC      1.06     10.27    0.103                 0.1    0.1         1.7                     I
I   C-AB      0.64     12.65    0.051                 0.1    0.1         1.1                     I
I   C-A       2.15                                                                               I
I   A-B       0.09                                                                               I
I   A-C       2.56                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                    I
I   B-AC      0.87     10.41    0.083                 0.1    0.1         1.4                     I
I   C-AB      0.51     12.52    0.040                 0.1    0.1         0.8                     I
I   C-A       1.78                                                                               I
I   A-B       0.07                                                                               I
I   A-C       2.09                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW      QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)   TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                    I
I   B-AC      0.73     10.50    0.069                 0.1    0.1         1.1                     I
I   C-AB      0.41     12.43    0.033                 0.1    0.0         0.6                     I
I   C-A       1.50                                                                               I
I   A-B       0.06                                                                               I
I   A-C       1.75                                                                               I
I                                                                                                I
--------------------------------------------------------------------------------------------------

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

```
 QUEUE FOR STREAM   B-AC
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.1
   17.30           0.1
   17.45           0.1
   18.00           0.1
   18.15           0.1


 QUEUE FOR STREAM   C-AB
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.0
   17.15           0.1
   17.30           0.1
   17.45           0.1
   18.00           0.1
   18.15           0.0


                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-AC  I   79.5 I   53.0 I     8.3 I    0.10   I       8.3  I    0.10   I
 I  C-AB  I   46.9 I   31.2 I     5.0 I    0.11   I       5.0  I    0.11   I
 I  C-A   I  162.9 I  108.6 I         I           I            I           I
 I  A-B   I    6.9 I    4.6 I         I           I            I           I
 I  A-C   I  192.0 I  128.0 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I  488.2 I  325.4 I    13.4 I    0.03   I      13.4  I    0.03   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================



 [Printed at 15:17:30 on 05/04/2006]
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            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                Analysis Program: Release 3.0 (JUNE 2005)

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 ---------------------------------------------------------------------------------
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 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\base_Winston Churchill Ave Rbt AM .vai"
(drive-on-the-right) at 15:20:29 on Wednesday, 5 April 2006



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial (Winston Churchill Avenue) Roundabout
    LOCATION: Gibraltar
        DATE: 17/11/2005
      CLIENT:
  ENUMERATOR: WuK
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Thursday weekday AM Base flow (in PCUs)


 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM    I   V (M)    I    E (M)    I    L (M)    I    R (M)    I   D (M)    I   PHI (DEG)  I  SLOPE   I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00    I     7.00    I     0.00    I     14.00    I   38.00    I      0.0     I  0.792   I       38.289         I
 I ARM C I    7.00    I     9.00    I     0.00    I     74.00    I   38.00    I     15.0     I  0.927   I       49.438         I
 I ARM D I    6.00    I     7.50    I    28.80    I     12.00    I   38.00    I     25.0     I  0.737   I       36.232         I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle diameter
 E = entry width               R = entry radius                      PHI = entry angle



 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------




 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


 DEMAND SET TITLE: Base Thur AM peak
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I 12.80  I  19.20  I 12.80 I
 I ARM C I     15.00   I     45.00   I    75.00   I 11.13  I  16.69  I 11.13 I
 I ARM D I     15.00   I     45.00   I    75.00   I  5.13  I   7.69  I  5.13 I
 -----------------------------------------------------------------------------


 DEMAND SET TITLE: Base Thur AM peak

 --------------------------------------------------------------------
 I                   I         TURNING PROPORTIONS                  I
 I                   I         TURNING COUNTS (VEH/HR)              I
 I                   I        (PERCENTAGE OF H.V.S)                 I
 I                   ------------------------------------------------
 I        TIME       I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   07.45 - 09.15   I         I        I        I        I        I
 I                   I  ARM A  I  0.001 I  0.291 I  0.624 I  0.084 I
 I                   I         I    1.0 I  298.0 I  639.0 I   86.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM C  I  0.000 I  0.175 I  0.449 I  0.375 I
 I                   I         I    0.0 I  156.0 I  400.0 I  334.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 I                   I  ARM D  I  0.112 I  0.112 I  0.768 I  0.007 I
 I                   I         I   46.0 I   46.0 I  315.0 I    3.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I        I
 --------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/       PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN)  (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 07.45-08.00                                                                                                    I
 I ARM A      12.80     29.20   0.438                  0.0    0.8       11.3                              0.06      I
 I ARM C      11.13     48.40   0.230                  0.0    0.3        4.4                              0.03      I
 I ARM D       5.13     31.11   0.165                  0.0    0.2        2.9                              0.04      I
 I                                                                                                                I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/       PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN)  (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.00-08.15                                                                                                    I
 I ARM A      15.28     27.42   0.557                  0.8    1.2       18.1                              0.08      I
 I ARM C      13.28     48.19   0.276                  0.3    0.4        5.6                              0.03      I
 I ARM D       6.12     30.11   0.203                  0.2    0.3        3.8                              0.04      I
 I                                                                                                                I
 -------------------------------------------------------------------------------------------------------------------
```

```
 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.15-08.30                                                                                                    I
 I ARM A      18.72     24.98   0.749                  1.2    2.9       39.9                            0.15      I
 I ARM C      16.27     47.92   0.340                  0.4    0.5        7.6                            0.03      I
 I ARM D       7.50     28.73   0.261                  0.3    0.4        5.2                            0.05      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.30-08.45                                                                                                    I
 I ARM A      18.72     24.98   0.750                  2.9    2.9       43.6                            0.16      I
 I ARM C      16.27     47.91   0.340                  0.5    0.5        7.7                            0.03      I
 I ARM D       7.50     28.73   0.261                  0.4    0.4        5.3                            0.05      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 08.45-09.00                                                                                                    I
 I ARM A      15.28     27.41   0.558                  2.9    1.3       20.0                            0.08      I
 I ARM C      13.28     48.18   0.276                  0.5    0.4        5.8                            0.03      I
 I ARM D       6.12     30.10   0.203                  0.4    0.3        3.9                            0.04      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 09.00-09.15                                                                                                    I
 I ARM A      12.80     29.18   0.439                  1.3    0.8       12.1                            0.06      I
 I ARM C      11.13     48.39   0.230                  0.4    0.3        4.5                            0.03      I
 I ARM D       5.13     31.10   0.165                  0.3    0.2        3.0                            0.04      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------


 QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING       VEHICLES
                IN QUEUE

   08.00           0.8  *
   08.15           1.2  *
   08.30           2.9  ***
   08.45           2.9  ***
   09.00           1.3  *
   09.15           0.8  *



 QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING       VEHICLES
                IN QUEUE

   08.00           0.3
   08.15           0.4
   08.30           0.5  *
   08.45           0.5  *
   09.00           0.4
   09.15           0.3
```

```
 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   08.00           0.2
   08.15           0.3
   08.30           0.4
   08.45           0.4
   09.00           0.3
   09.15           0.2



                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 -----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I          * DELAY *       I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -----------------------------------------------------------------------------
 I   A   I 1404.1 I  936.1 I   145.0 I    0.10   I     145.0  I     0.10    I
 I   C   I 1220.4 I  813.6 I    35.7 I    0.03   I      35.7  I     0.03    I
 I   D   I  562.2 I  374.8 I    24.0 I    0.04   I      24.0  I     0.04    I
 -----------------------------------------------------------------------------
 I  ALL  I 3186.7 I 2124.5 I   204.7 I    0.06   I     204.7  I     0.06    I
 -----------------------------------------------------------------------------

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

 END OF JOB
============================================= end of file =============================================



 [Printed at 15:20:55 on 05/04/2006]
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            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


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            Nine Mile Ride         Email: softwarebureau@trl.co.uk
            Wokingham, Berks.      Web:   www.trlsoftware.co.uk
            RG40 3GA,UK

 ---------------------------------------------------------------------------------
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 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\base_Winston Churchill Ave Rbt PM .vai"
(drive-on-the-right) at 15:22:43 on Wednesday, 5 April 2006



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial (Winston Churchill Ave) Roundabout
    LOCATION: Gibraltar
        DATE: 18/11/2005
      CLIENT:
  ENUMERATOR: WuK
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Thursday weekday PM Base flow (in PCUs)


 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I  D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00   I     7.00   I     0.00   I    14.00   I  38.00   I      0.0     I  0.792  I       38.289        I
 I ARM C I    7.00   I     9.00   I     0.00   I    74.00   I  38.00   I     15.0     I  0.927  I       49.438        I
 I ARM D I    6.00   I     7.50   I    28.80   I    12.00   I  38.00   I     25.0     I  0.737  I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle



 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------





 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


 DEMAND SET TITLE: Base Thurs PM Peak
 ------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  7.10  I  10.65  I  7.10 I
 I ARM C I     15.00   I     45.00   I    75.00   I 15.05  I  22.58  I 15.05 I
 I ARM D I     15.00   I     45.00   I    75.00   I  7.89  I  11.83  I  7.89 I
 ------------------------------------------------------------------------------


 DEMAND SET TITLE: Base Thurs PM Peak

 ---------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS (VEH/HR)              I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    ------------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 ---------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.000 I  0.086 I  0.792 I  0.121 I
 I                    I         I    0.0 I   49.0 I  450.0 I   69.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.605 I  0.029 I  0.001 I  0.365 I
 I                    I         I  728.0 I   35.0 I    1.0 I  440.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.271 I  0.057 I  0.670 I  0.002 I
 I                    I         I  171.0 I   36.0 I  423.0 I    1.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ---------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY    AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/        PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00                                                                                                      I
 I ARM A       7.10     33.40   0.213                  0.0    0.3        4.0                             0.04       I
 I ARM C      15.05     48.63   0.309                  0.0    0.4        6.6                             0.03       I
 I ARM D       7.89     29.21   0.270                  0.0    0.4        5.4                             0.05       I
 I                                                                                                                  I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY    AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/        PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15                                                                                                      I
 I ARM A       8.48     32.43   0.261                  0.3    0.4        5.2                             0.04       I
 I ARM C      17.97     48.47   0.371                  0.4    0.6        8.7                             0.03       I
 I ARM D       9.42     27.83   0.338                  0.4    0.5        7.5                             0.05       I
 I                                                                                                                  I
 -------------------------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.15-17.30                                                                                                   I
 I ARM A      10.38     31.12   0.334                  0.4    0.5        7.4                              0.05      I
 I ARM C      22.01     48.25   0.456                  0.6    0.8       12.3                              0.04      I
 I ARM D      11.54     25.95   0.445                  0.5    0.8       11.6                              0.07      I
 I                                                                                                               I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.30-17.45                                                                                                   I
 I ARM A      10.38     31.11   0.334                  0.5    0.5        7.5                              0.05      I
 I ARM C      22.01     48.25   0.456                  0.8    0.8       12.5                              0.04      I
 I ARM D      11.54     25.94   0.445                  0.8    0.8       11.9                              0.07      I
 I                                                                                                               I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.45-18.00                                                                                                   I
 I ARM A       8.48     32.42   0.262                  0.5    0.4        5.4                              0.04      I
 I ARM C      17.97     48.47   0.371                  0.8    0.6        9.0                              0.03      I
 I ARM D       9.42     27.82   0.339                  0.8    0.5        7.9                              0.05      I
 I                                                                                                               I
 -------------------------------------------------------------------------------------------------------------------

 -------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 18.00-18.15                                                                                                   I
 I ARM A       7.10     33.38   0.213                  0.4    0.3        4.1                              0.04      I
 I ARM C      15.05     48.63   0.310                  0.6    0.4        6.8                              0.03      I
 I ARM D       7.89     29.19   0.270                  0.5    0.4        5.7                              0.05      I
 I                                                                                                               I
 -------------------------------------------------------------------------------------------------------------------

 QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.3
   17.15           0.4
   17.30           0.5
   17.45           0.5
   18.00           0.4
   18.15           0.3


 QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.4
   17.15           0.6  *
   17.30           0.8  *
   17.45           0.8  *
   18.00           0.6  *
   18.15           0.4
```

```
 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.4
   17.15           0.5  *
   17.30           0.8  *
   17.45           0.8  *
   18.00           0.5  *
   18.15           0.4



                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 -----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I          * DELAY *       I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -----------------------------------------------------------------------------
 I   A   I  778.8 I  519.2 I    33.6 I    0.04   I      33.6  I     0.04    I
 I   C   I 1650.9 I 1100.6 I    56.0 I    0.03   I      56.0  I     0.03    I
 I   D   I  865.2 I  576.8 I    50.0 I    0.06   I      50.0  I     0.06    I
 -----------------------------------------------------------------------------
 I  ALL  I 3295.0 I 2196.7 I   139.6 I    0.04   I     139.6  I     0.04    I
 -----------------------------------------------------------------------------

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

 END OF JOB
============================================= end of file ==============================================


 [Printed at 15:23:02 on 05/04/2006]
```

```
            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


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 ----------------------------------------------------------------------------------
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 ----------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\base_Winston Churchill Ave Rbt w-end 4-7ave.vai"
(drive-on-the-right) at 15:26:34 on Wednesday, 5 April 2006



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial (Winston Churchill Ave) Roundabout
    LOCATION: Gibraltar
        DATE: 18/12/2005
      CLIENT:
  ENUMERATOR: WuK
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Saturday weekend Base flow (average hourly flow 4-7pm in PCUs)




 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00   I     7.00   I     0.00   I    14.00   I   38.00   I     0.0      I  0.792  I       38.289        I
 I ARM C I    7.00   I     9.00   I     0.00   I    74.00   I   38.00   I    15.0      I  0.927  I       49.438        I
 I ARM D I    6.00   I     7.50   I    28.80   I    12.00   I   38.00   I    25.0      I  0.737  I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle


 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------




 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


 DEMAND SET TITLE: Base Sat aver 4-7pm
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  5.89  I   8.83  I  5.89 I
 I ARM C I     15.00   I     45.00   I    75.00   I 10.52  I  15.79  I 10.52 I
 I ARM D I     15.00   I     45.00   I    75.00   I  6.40  I   9.60  I  6.40 I
 -----------------------------------------------------------------------------


 DEMAND SET TITLE: Base Sat aver 4-7pm

 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS (VEH/HR)             I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.000 I  0.106 I  0.741 I  0.153 I
 I                    I         I    0.0 I   50.0 I  349.0 I   72.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.532 I  0.036 I  0.001 I  0.431 I
 I                    I         I  448.0 I   30.0 I    1.0 I  363.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.279 I  0.074 I  0.646 I  0.000 I
 I                    I         I  143.0 I   38.0 I  331.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 --------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/       PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 16.45-17.00                                                                                                    I
 I ARM A       5.89     34.33   0.171                  0.0     0.2         3.1                             0.04      I
 I ARM C      10.52     48.60   0.217                  0.0     0.3         4.1                             0.03      I
 I ARM D       6.40     31.82   0.201                  0.0     0.3         3.7                             0.04      I
 I                                                                                                                  I
 --------------------------------------------------------------------------------------------------------------------

 --------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/       PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.00-17.15                                                                                                    I
 I ARM A       7.03     33.57   0.209                  0.2     0.3         3.9                             0.04      I
 I ARM C      12.57     48.44   0.259                  0.3     0.3         5.2                             0.03      I
 I ARM D       7.64     30.97   0.247                  0.3     0.3         4.8                             0.04      I
 I                                                                                                                  I
 --------------------------------------------------------------------------------------------------------------------
```

```
------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 17.15-17.30                                                                                                    I
I ARM A        8.61      32.51   0.265                  0.3    0.4        5.3                            0.04      I
I ARM C       15.39      48.22   0.319                  0.3    0.5        6.9                            0.03      I
I ARM D        9.36      29.78   0.314                  0.3    0.5        6.7                            0.05      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 17.30-17.45                                                                                                    I
I ARM A        8.61      32.50   0.265                  0.4    0.4        5.4                            0.04      I
I ARM C       15.39      48.22   0.319                  0.5    0.5        7.0                            0.03      I
I ARM D        9.36      29.78   0.314                  0.5    0.5        6.9                            0.05      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 17.45-18.00                                                                                                    I
I ARM A        7.03      33.56   0.209                  0.4    0.3        4.0                            0.04      I
I ARM C       12.57      48.44   0.259                  0.5    0.4        5.3                            0.03      I
I ARM D        7.64      30.96   0.247                  0.5    0.3        5.0                            0.04      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW      QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
I 18.00-18.15                                                                                                    I
I ARM A        5.89      34.32   0.172                  0.3    0.2        3.1                            0.04      I
I ARM C       10.52      48.60   0.217                  0.4    0.3        4.2                            0.03      I
I ARM D        6.40      31.81   0.201                  0.3    0.3        3.8                            0.04      I
I                                                                                                                I
------------------------------------------------------------------------------------------------------------------


QUEUE AT ARM A
--------------

 TIME SEGMENT   NO. OF
  ENDING      VEHICLES
              IN QUEUE

  17.00           0.2
  17.15           0.3
  17.30           0.4
  17.45           0.4
  18.00           0.3
  18.15           0.2



QUEUE AT ARM C
--------------

 TIME SEGMENT   NO. OF
  ENDING      VEHICLES
              IN QUEUE

  17.00           0.3
  17.15           0.3
  17.30           0.5
  17.45           0.5
  18.00           0.4
  18.15           0.3
```

```
 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.3
   17.15           0.3
   17.30           0.5
   17.45           0.5
   18.00           0.3
   18.15           0.3




                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I  645.8 I  430.6 I    24.9 I    0.04   I      24.9  I     0.04    I
 I   C   I 1154.6 I  769.7 I    32.8 I    0.03   I      32.8  I     0.03    I
 I   D   I  702.1 I  468.0 I    31.0 I    0.04   I      31.0  I     0.04    I
 ----------------------------------------------------------------------------
 I  ALL  I 2502.5 I 1668.3 I    88.6 I    0.04   I      88.6  I     0.04    I
 ----------------------------------------------------------------------------

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

 END OF JOB
============================================= end of file ===============================================



 [Printed at 15:26:40 on 05/04/2006]
```

```
            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                Analysis Program: Release 3.0 (JUNE 2005)

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            ______________________________________________________

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            RG40 3GA,UK

 ----------------------------------------------------------------------------------
  THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
  IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
 ----------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\base_Winston Churchill Ave Rbt w-day 4-7ave.vai"
(drive-on-the-right) at 15:24:54 on Wednesday, 5 April 2006



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial (Winston Churchill Avenue) Roundabout
    LOCATION: Gibraltar
        DATE: 18/12/2005
      CLIENT:
  ENUMERATOR: WuK
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Average Weekday Base flow (average hourly flow 4-7pm in PCU)




 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00   I     7.00   I     0.00   I    14.00   I   38.00   I      0.0     I  0.792  I       38.289        I
 I ARM C I    7.00   I     9.00   I     0.00   I    74.00   I   38.00   I     15.0     I  0.927  I       49.438        I
 I ARM D I    6.00   I     7.50   I    28.80   I    12.00   I   38.00   I     25.0     I  0.737  I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle


 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)
```

```
 -----------------------
 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
 -----------------------




 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


 DEMAND SET TITLE: Base thurs aver 4-7pm
 ----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 ----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  7.05  I  10.58  I  7.05 I
 I ARM C I     15.00   I     45.00   I    75.00   I 15.23  I  22.84  I 15.23 I
 I ARM D I     15.00   I     45.00   I    75.00   I  6.95  I  10.42  I  6.95 I
 ----------------------------------------------------------------------------


 DEMAND SET TITLE: Base thurs aver 4-7pm

 -------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS (VEH/HR)            I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 -------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.002 I  0.090 I  0.789 I  0.119 I
 I                    I         I    1.0 I   51.0 I  445.0 I   67.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.638 I  0.030 I  0.001 I  0.331 I
 I                    I         I  777.0 I   37.0 I    1.0 I  403.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.261 I  0.074 I  0.664 I  0.002 I
 I                    I         I  145.0 I   41.0 I  369.0 I    1.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 -------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 ------------------------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00                                                                                                   I
 I ARM A       7.05     33.86   0.208                   0.0    0.3        3.9                              0.04     I
 I ARM C      15.23     48.64   0.313                   0.0    0.5        6.7                              0.03     I
 I ARM D       6.95     28.73   0.242                   0.0    0.3        4.7                              0.05     I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15                                                                                                   I
 I ARM A       8.42     32.99   0.255                   0.3    0.3        5.1                              0.04     I
 I ARM C      18.18     48.48   0.375                   0.5    0.6        8.9                              0.03     I
 I ARM D       8.30     27.26   0.304                   0.3    0.4        6.4                              0.05     I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------
```

```
 ---------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/     PER ARRIVING  I
 I                               (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.15-17.30                                                                                                  I
 I ARM A      10.31     31.80   0.324                   0.3    0.5        7.1                           0.05      I
 I ARM C      22.27     48.27   0.461                   0.6    0.9       12.6                           0.04      I
 I ARM D      10.16     25.25   0.403                   0.4    0.7        9.8                           0.07      I
 I                                                                                                              I
 ---------------------------------------------------------------------------------------------------------------------

 ---------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/     PER ARRIVING  I
 I                               (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.30-17.45                                                                                                  I
 I ARM A      10.31     31.79   0.324                   0.5    0.5        7.2                           0.05      I
 I ARM C      22.27     48.27   0.461                   0.9    0.9       12.8                           0.04      I
 I ARM D      10.16     25.24   0.403                   0.7    0.7       10.1                           0.07      I
 I                                                                                                              I
 ---------------------------------------------------------------------------------------------------------------------

 ---------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/     PER ARRIVING  I
 I                               (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 17.45-18.00                                                                                                  I
 I ARM A       8.42     32.97   0.255                   0.5    0.3        5.2                           0.04      I
 I ARM C      18.18     48.48   0.375                   0.9    0.6        9.2                           0.03      I
 I ARM D       8.30     27.25   0.305                   0.7    0.4        6.7                           0.05      I
 I                                                                                                              I
 ---------------------------------------------------------------------------------------------------------------------

 ---------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/     PER ARRIVING  I
 I                               (RFC)   (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)   VEHICLE (MIN) I
 I 18.00-18.15                                                                                                  I
 I ARM A       7.05     33.84   0.208                   0.3    0.3        4.0                           0.04      I
 I ARM C      15.23     48.64   0.313                   0.6    0.5        6.9                           0.03      I
 I ARM D       6.95     28.71   0.242                   0.4    0.3        4.9                           0.05      I
 I                                                                                                              I
 ---------------------------------------------------------------------------------------------------------------------


 QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.3
   17.15           0.3
   17.30           0.5
   17.45           0.5
   18.00           0.3
   18.15           0.3



 QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.5
   17.15           0.6  *
   17.30           0.9  *
   17.45           0.9  *
   18.00           0.6  *
   18.15           0.5
```

```
 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.3
   17.15           0.4
   17.30           0.7  *
   17.45           0.7  *
   18.00           0.4
   18.15           0.3



                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-----------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I  773.4 I  515.6 I    32.4 I    0.04   I      32.4  I     0.04    I
 I   C   I 1670.1 I 1113.4 I    57.1 I    0.03   I      57.1  I     0.03    I
 I   D   I  762.4 I  508.3 I    42.6 I    0.06   I      42.6  I     0.06    I
 ----------------------------------------------------------------------------
 I  ALL  I 3205.9 I 2137.3 I   132.1 I    0.04   I     132.1  I     0.04    I
 ----------------------------------------------------------------------------

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

 END OF JOB

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

Appendix H

Transport Figures

Appendix 5

Brighton Marina Village Site Detail

A site visit to the Brighton Marina Village (BMV) was carried out and some relevant observations are given below.

BMV can only be accessed by road along Marina Way at the north-west corner of the site. The marina is effectively divided into 2 main areas of land use. The west half contains all shops, restaurants, leisure facilities and other facilities for public use. A security barrier prevents the public from driving into the east half of the marina which is primarily all residential and private berths. A site visit established that the marina has approximately 3,000 parking spaces across the site. This is broken down in the following way:

- The multi-storey car park provides 1,500 secure parking spaces. There are no restrictions at the entrance/exit and parking is free. Its location suggests it is used by visitors to the shops, restaurants and leisure facilities.

- An Asda supermarket provides approximately 400 non-secure surface level parking spaces.

- There are approximately 65 secure off-street parking spaces for shop (employee) use.

- There are 880 residential and private berth holders' parking spaces through a controlled barrier entry to the eastern half of the marina (see photo 1). 95% of these spaces are within the grounds of the 10 individual housing developments. A security key is required to gain entry through the security gates as an additional control at the entrance to each housing development. The remaining spaces are outside the security gates on the street. All parking bays are marked with numbers or lettering suggesting that each property has 1 designated parking space. The remaining spaces are marked with a letter 'V' indicating their use by residents, residents' guests and private berth holders.

- The Eastern Car Park at the eastern side of the marina is also within the controlled entry area. It provides additional secure off street parking for 100 berth holders.

- Adjacent to the Eastern Car Park are 10 on-street parking spaces for use by non residents. These are free for 1 hour. This is in addition to the 880 residential and private holders' spaces.

- McDonald's restaurant has approximately 25 parking spaces.

- Approximately 200 non-secure, free, surface level parking spaces are provided at the cinema, fitness centre and bowling alley.

There have been additional changes and developments to BMV over the years since the original completion day. There is only one set of site descriptions for BMV in the TRICS database; it is uncertain if that was referred to in the 1985 or 1990 surveys. The differences between the site description on TRICS database for BMV and site observations include:

- TRICS states that there are 1,000 parking spaces, with an anticipated extra 1000 parking spaces when complete. There are now around 3,000.
- TRICS states there are nominal parking charges. Most of the parking on site is now free for visitors, some with a time limit.
- TRICS does not mention the inclusion of a supermarket in the development. There is now an ASDA supermarket which was observed to have attracted a significant number of vehicle trips.
- TRICS only states that there were 70 holiday homes on the jetties and the final number of residential properties will be 800 when the complex would be completed in 1992. The actual number of properties built and occupied when surveys took place was not known. The final number of properties stated in TRICS matches what was observed on site.

There were only 23 retail outlets at the marina at the time of the survey. There are now almost 40, though some are vacant.

Despite these variations, the traffic rates are related to the content of the marina area at the time.

Appendix H

Transport Figures

Appendix 6

Retail and Commercial Sites TRICS Output Site Detail

LIST OF SITES relevant to selection parameters

1 BD-01-I-01 DISTRICT CENTRE, LUTON BEDFORDSHIRE
WIGMORE LANE
WIGMORE
LUTON
Total Gross floor area: 4045 sqm

2 DC-01-I-01 SHOPPING CENTRE, WEYMOUTH DORSET
LITTLEMOOR ROAD
LITTLEMOOR
WEYMOUTH
Total Gross floor area: 4075 sqm

3 DL-01-I-01 LOCAL SHOPS, DUBLIN DUBLIN
CARDIFFSBRIDGE ROAD
FINGLAS
DUBLIN
Total Gross floor area: 2900 sqm

4 MS-01-I-01 LOCAL SHOPS, LIVERPOOL MERSEYSIDE
HUNTS CROSS AVENUE

LIVERPOOL
Total Gross floor area: 1890 sqm

5 SW-01-I-01 SHOPPING CENTRE, SWANSEA SWANSEA
SAMLET ROAD
LLANSAMLET
SWANSEA
Total Gross floor area: 2500 sqm

6 WH-01-I-01 LOCAL SHOPS, PUTNEY WANDSWORTH
UPPER RICHMOND ROAD

PUTNEY
Total Gross floor area: 1500 sqm

7 WS-01-I-01 TILGATE PARADE, CRAWLEY WEST SUSSEX
TILGATE PARADE
TILGATE
CRAWLEY
Total Gross floor area: 2461 sqm

TRIP RATE for Land Use 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	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	6	2812	1.500	6	2812	1.322	6	2812	2.822
08:00 - 09:00	7	2767	2.421	7	2767	1.941	7	2767	4.362
09:00 - 10:00	7	2767	4.063	7	2767	3.232	7	2767	7.295
10:00 - 11:00	7	2767	4.646	7	2767	4.352	7	2767	8.998
11:00 - 12:00	7	2767	5.209	7	2767	4.925	7	2767	10.134
12:00 - 13:00	**7**	**2767**	**5.467**	7	2767	5.436	**7**	**2767**	**10.903**
13:00 - 14:00	7	2767	5.085	7	2767	5.075	7	2767	10.160
14:00 - 15:00	7	2767	5.028	7	2767	5.049	7	2767	10.077
15:00 - 16:00	7	2767	4.832	7	2767	4.899	7	2767	9.731
16:00 - 17:00	7	2767	5.353	**7**	**2767**	**5.534**	7	2767	10.887
17:00 - 18:00	7	2767	3.934	7	2767	4.930	7	2767	8.864
18:00 - 19:00	7	2767	3.134	7	2767	3.598	7	2767	6.732
19:00 - 20:00	3	2955	1.139	3	2955	1.331	3	2955	2.470
20:00 - 21:00	3	2955	0.632	3	2955	0.790	3	2955	1.422
21:00 - 22:00	1	2900	0.483	1	2900	0.414	1	2900	0.897
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
Daily Trip Rates:			52.926			52.828			105.754

Parameter summary

Trip rate parameter range selected:	1500 - 4075 (units: sqm)
Survey date date range:	01/01/98 - 18/10/05
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	5
Number of Sundays:	0
Optional parameters used in selection:	NO
Surveys manually removed from selection:	0

LIST OF SITES relevant to selection parameters

1 AN-02-A-01 CONSULTING ENG., BELFAST ANTRIM
BOUCHER ROAD
WINDSOR
BELFAST
Total Gross floor area: 2513 sqm

2 CA-02-A-01 DEMETER HOUSE, CAMBRIDGE CAMBRIDGESHIRE
STATION ROAD
NEWTOWN
CAMBRIDGE
Total Gross floor area: 4344 sqm

3 CB-02-A-01 BBC RADIO CUMBRIA, CARLISLE CUMBRIA
ANNETWELL STREET

CARLISLE
Total Gross floor area: 999 sqm

4 HF-02-A-02 COUNCIL OFFICES, WELWYN GC HERTFORDSHIRE
BRIDGE ROAD EAST

WELWYN GARDEN CITY
Total Gross floor area: 2700 sqm

5 LC-02-A-08 COUNCIL OFFICES, CHORLEY LANCASHIRE
UNION STREET

CHORLEY
Total Gross floor area: 2000 sqm

6 LE-02-A-03 COUNCIL OFFICES, M. MOWBRAY LEICESTERSHIRE
NOTTINGHAM ROAD

MELTON MOWBRAY
Total Gross floor area: 3251 sqm

7 OX-02-A-01 COUNTY COUNCIL OFFICES OXFORDSHIRE
SPEEDWELL STREET

OXFORD
Total Gross floor area: 2633 sqm

8 SC-02-A-10 G.O.S.E., GUILDFORD SURREY
WALNUT TREE CLOSE

GUILDFORD
Total Gross floor area: 4312 sqm

9 SC-02-A-11 SURREY COUNTY COUNCIL OFF. SURREY
NEW INN LANE
MERROW
GUILDFORD
Total Gross floor area: 1075 sqm

10 TV-02-A-01 OFFICE, MIDDLESBROUGH TEES VALLEY
GRANGE ROAD

MIDDLESBROUGH
Total Gross floor area: 4100 sqm

11 TV-02-A-02 BUILDING SOCIETY, DARLINGTON TEES VALLEY
LINGFIELD WAY
MORTON PARK
DARLINGTON
Total Gross floor area: 3500 sqm

LIST OF SITES relevant to selection parameters (Cont.)

12 TW-02-A-02 UNION OFFICES, NEWCASTLE TYNE & WEAR
JOHN DOBSON STREET

NEWCASTLE-UPON-TYNE
Total Gross floor area: 1675 sqm

13 WM-02-A-01 COUNCIL OFFICES, STOURBRIDGE WEST MIDLANDS
A451 NORTON ROAD
MARY STEVENS PARK
STOURBRIDGE
Total Gross floor area: 2725 sqm

14 WR-02-A-01 COUNCIL OFFICES, WREXHAM WREXHAM
RHOSDDU ROAD

WREXHAM
Total Gross floor area: 2500 sqm

15 WY-02-A-01 BANK CALL CENTRE, BRADFORD WEST YORKSHIRE
FILEY STREET

BRADFORD
Total Gross floor area: 2400 sqm

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30	0	0	0.000	0	0	0.000	0	0	0.000
00:30 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 01:30	0	0	0.000	0	0	0.000	0	0	0.000
01:30 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 02:30	0	0	0.000	0	0	0.000	0	0	0.000
02:30 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 03:30	0	0	0.000	0	0	0.000	0	0	0.000
03:30 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 04:30	0	0	0.000	0	0	0.000	0	0	0.000
04:30 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 05:30	0	0	0.000	0	0	0.000	0	0	0.000
05:30 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 06:30	0	0	0.000	0	0	0.000	0	0	0.000
06:30 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 07:30	14	2838	0.184	14	2838	0.058	14	2838	0.242
07:30 - 08:00	14	2838	0.556	14	2838	0.060	14	2838	0.616
08:00 - 08:30	14	2838	0.831	14	2838	0.131	14	2838	0.962
08:30 - 09:00	**14**	**2838**	**1.032**	14	2838	0.138	14	2838	1.170
09:00 - 09:30	15	2715	0.742	15	2715	0.172	15	2715	0.914
09:30 - 10:00	15	2715	0.511	15	2715	0.265	15	2715	0.776
10:00 - 10:30	15	2715	0.275	15	2715	0.248	15	2715	0.523
10:30 - 11:00	15	2715	0.319	15	2715	0.248	15	2715	0.567
11:00 - 11:30	15	2715	0.273	15	2715	0.216	15	2715	0.489
11:30 - 12:00	15	2715	0.336	15	2715	0.327	15	2715	0.663
12:00 - 12:30	15	2715	0.233	15	2715	0.385	15	2715	0.618
12:30 - 13:00	15	2715	0.317	15	2715	0.361	15	2715	0.678
13:00 - 13:30	15	2715	0.373	15	2715	0.425	15	2715	0.798
13:30 - 14:00	15	2715	0.413	15	2715	0.248	15	2715	0.661
14:00 - 14:30	15	2715	0.373	15	2715	0.341	15	2715	0.714
14:30 - 15:00	15	2715	0.250	15	2715	0.373	15	2715	0.623
15:00 - 15:30	15	2715	0.248	15	2715	0.280	15	2715	0.528
15:30 - 16:00	15	2715	0.275	15	2715	0.366	15	2715	0.641
16:00 - 16:30	15	2715	0.221	15	2715	0.548	15	2715	0.769
16:30 - 17:00	15	2715	0.223	15	2715	0.729	15	2715	0.952
17:00 - 17:30	14	2838	0.179	**14**	**2838**	**1.012**	**14**	**2838**	**1.191**
17:30 - 18:00	14	2838	0.065	14	2838	0.481	14	2838	0.546
18:00 - 18:30	14	2838	0.045	14	2838	0.279	14	2838	0.324
18:30 - 19:00	14	2838	0.023	14	2838	0.164	14	2838	0.187
19:00 - 19:30	0	0	0.000	0	0	0.000	0	0	0.000
19:30 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 20:30	0	0	0.000	0	0	0.000	0	0	0.000
20:30 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 21:30	0	0	0.000	0	0	0.000	0	0	0.000
21:30 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 22:30	0	0	0.000	0	0	0.000	0	0	0.000
22:30 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 23:30	0	0	0.000	0	0	0.000	0	0	0.000
23:30 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Daily Trip Rates:			8.297			7.855			16.152

Parameter summary

Trip rate parameter range selected:	999 - 4344 (units: sqm)
Survey date date range:	01/01/98 - 11/09/06
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Optional parameters used in selection:	NO
Surveys manually removed from selection:	0

Appendix H

Transport Figures

Appendix 7

ARCADY and PICADY Result
(Analysis for Base + Development Traffic Flow)

```
            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                Analysis Program: Release 3.0 (JUNE 2005)

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 ---------------------------------------------------------------------------------
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  IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\
  Northern Weekday peak 2020 weekday.vai"
(drive-on-the-right) at 15:42:41 on Friday, 27 July 2007


.FILE PROPERTIES
 ****************

   RUN TITLE: Northern Access
    LOCATION: Catalan Bay Road
        DATE: 26/07/2007
      CLIENT: Multiplex
  ENUMERATOR: ScobieC [D004844]
  JOB NUMBER:
      STATUS: Test Run Only
 DESCRIPTION:

.INPUT DATA
 **********
 ARM A - Catalan Bay Service Road
 ARM B - Catalan Bay Road
 ARM C - Northern Site/ Eastern Beach
 ARM D - Devil's Tower Road

.GEOMETRIC DATA
 --------------



------------------------------------------------------------------------------------------------------------------
-----
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT
(PCU/MIN) I

------------------------------------------------------------------------------------------------------------------
-----
 I ARM A I    3.50   I     7.00   I     0.00   I     7.50   I   60.00   I     50.0     I  0.535  I       30.016
    I
 I ARM B I    3.65   I     6.00   I     9.00   I     9.00   I   60.00   I     55.0     I  0.445  I       21.250
    I
 I ARM C I    3.50   I     6.50   I     9.00   I    25.00   I   60.00   I     40.0     I  0.509  I       24.383
    I
 I ARM D I    6.00   I     7.50   I     2.00   I    17.50   I   60.00   I     30.0     I  0.596  I       32.301
    I

------------------------------------------------------------------------------------------------------------------
-----

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle


.TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)

.-----------------------
 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
 -----------------------
```

```
.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


 DEMAND SET TITLE: 2020 weekday
 ---------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK  I OF PEAK I PEAK  I
 ---------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM B I     15.00   I     45.00   I    75.00   I  9.65  I  14.47  I  9.65 I
 I ARM C I     15.00   I     45.00   I    75.00   I  6.65  I   9.98  I  6.65 I
 I ARM D I     15.00   I     45.00   I    75.00   I 13.35  I  20.03  I 13.35 I
 ---------------------------------------------------------------------------


 DEMAND SET TITLE: 2020 weekday
.------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS (VEH/HR)            I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ---------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 ------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  0.333 I  0.667 I
 I                    I         I    0.0 I    0.0 I   10.0 I   20.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  0.063 I  0.937 I
 I                    I         I    0.0 I    0.0 I   49.0 I  723.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.019 I  0.070 I  0.000 I  0.912 I
 I                    I         I   10.0 I   37.0 I    0.0 I  485.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.019 I  0.653 I  0.329 I  0.000 I
 I                    I         I   20.0 I  697.0 I  351.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 ------------------------------------------------------------------

.         QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          -------------------------------------------------------

.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 16.45-17.00
I
 I ARM A       0.38     22.79   0.016                  0.0    0.0        0.2                                0.04
I
 I ARM B       9.65     19.14   0.504                  0.0    1.0       14.4                                0.10
I
 I ARM C       6.65     19.68   0.338                  0.0    0.5        7.4                                0.08
I
 I ARM D      13.35     31.95   0.418                  0.0    0.7       10.4                                0.05
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.00-17.15
I
 I ARM A       0.45     21.36   0.021                  0.0    0.0        0.3                                0.05
I
 I ARM B      11.52     18.72   0.615                  1.0    1.6       22.4                                0.14
I
 I ARM C       7.94     18.75   0.423                  0.5    0.7       10.6                                0.09
I
 I ARM D      15.94     31.88   0.500                  0.7    1.0       14.6                                0.06
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.15-17.30
I
 I ARM A       0.55     19.43   0.028                 0.0    0.0        0.4                               0.05
I
 I ARM B      14.11     18.16   0.777                 1.6    3.3       44.4                               0.23
I
 I ARM C       9.73     17.52   0.555                 0.7    1.2       17.6                               0.13
I
 I ARM D      19.52     31.79   0.614                 1.0    1.6       22.8                               0.08
I
 I
I

---------------------------------------------------------------------------------------------------------------
.--------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.30-17.45
I
 I ARM A       0.55     19.41   0.028                 0.0    0.0        0.4                               0.05
I
 I ARM B      14.11     18.15   0.778                 3.3    3.4       50.0                               0.25
I
 I ARM C       9.73     17.47   0.557                 1.2    1.2       18.5                               0.13
I
 I ARM D      19.52     31.79   0.614                 1.6    1.6       23.7                               0.08
I
 I
I

---------------------------------------------------------------------------------------------------------------
.--------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.45-18.00
I
 I ARM A       0.45     21.33   0.021                 0.0    0.0        0.3                               0.05
I
 I ARM B      11.52     18.71   0.616                 3.4    1.6       26.1                               0.14
I
 I ARM C       7.94     18.68   0.425                 1.2    0.7       11.6                               0.09
I
 I ARM D      15.94     31.88   0.500                 1.6    1.0       15.5                               0.06
I
 I
I

---------------------------------------------------------------------------------------------------------------
.--------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 18.00-18.15
I
 I ARM A       0.38     22.75   0.016                 0.0    0.0        0.3                               0.04
I
 I ARM B       9.65     19.13   0.504                 1.6    1.0       16.1                               0.11
I
 I ARM C       6.65     19.63   0.339                 0.7    0.5        7.9                               0.08
I
 I ARM D      13.35     31.95   0.418                 1.0    0.7       11.0                               0.05
I
 I
I

---------------------------------------------------------------------------------------------------------------

.QUEUE AT ARM A
 -------------

  TIME SEGMENT   NO. OF
   ENDING      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 AT ARM B
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           1.0  *
   17.15           1.6  **
   17.30           3.3  ***
   17.45           3.4  ***
   18.00           1.6  **
   18.15           1.0  *

.QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.5  *
   17.15           0.7  *
   17.30           1.2  *
   17.45           1.2  *
   18.00           0.7  *
   18.15           0.5  *

.QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.7  *
   17.15           1.0  *
   17.30           1.6  **
   17.45           1.6  **
   18.00           1.0  *
   18.15           0.7  *


.                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I          * DELAY *       I
 I       I----------------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I   41.1 I   27.4 I     2.0 I    0.05   I       2.0  I     0.05    I
 I   B   I 1058.6 I  705.7 I   173.4 I    0.16   I     173.4  I     0.16    I
 I   C   I  729.5 I  486.3 I    73.7 I    0.10   I      73.7  I     0.10    I
 I   D   I 1464.5 I  976.3 I    98.0 I    0.07   I      98.0  I     0.07    I
 ----------------------------------------------------------------------------
 I  ALL  I 3293.6 I 2195.8 I   347.1 I    0.11   I     347.1  I     0.11    I
 ----------------------------------------------------------------------------

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

 END OF JOB
```

Appendix H

Transport Figures

Appendix 8

ARCADY and PICADY Result (Analysis for 2015 Development Flows + Base + Construction)

```
             ___________________ A R C A D Y  6 ___________________

                 ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                 Analysis Program: Release 3.0 (JUNE 2005)

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  IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\
  Northern Weekday peak 2020 weekend.vai"
(drive-on-the-right) at 15:43:27 on Friday, 27 July 2007


.FILE PROPERTIES
 ***************

   RUN TITLE: Northern Access
    LOCATION: Catalan Bay Road
        DATE: 26/07/2007
      CLIENT: Multiplex
  ENUMERATOR: ScobieC [D004844]
  JOB NUMBER:
      STATUS: Test Run Only
 DESCRIPTION:

.INPUT DATA
 **********
 ARM A - Catalan Bay Service Road
 ARM B - Catalan Bay Road
 ARM C - Northern Site/ Eastern Beach
 ARM D - Devil's Tower Road

.GEOMETRIC DATA
 --------------



---------------------------------------------------------------------------------------------------------------------
-----
 I ARM   I  V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT
(PCU/MIN) I

---------------------------------------------------------------------------------------------------------------------
-----
 I ARM A I    3.50   I     7.00   I     0.00   I     7.50   I  60.00   I     50.0     I  0.535  I       30.016
   I
 I ARM B I    3.65   I     6.00   I     9.00   I     9.00   I  60.00   I     55.0     I  0.445  I       21.250
   I
 I ARM C I    3.50   I     6.50   I     9.00   I    25.00   I  60.00   I     40.0     I  0.509  I       24.383
   I
 I ARM D I    6.00   I     7.50   I     2.00   I    17.50   I  60.00   I     30.0     I  0.596  I       32.301
   I

---------------------------------------------------------------------------------------------------------------------
-----

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle


.TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)

.-----------------------
 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
 -----------------------


.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


 DEMAND SET TITLE: 2020 weekend
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM B I     15.00   I     45.00   I    75.00   I 11.69  I  17.53  I 11.69 I
 I ARM C I     15.00   I     45.00   I    75.00   I  8.56  I  12.84  I  8.56 I
 I ARM D I     15.00   I     45.00   I    75.00   I 15.00  I  22.50  I 15.00 I
 -----------------------------------------------------------------------------


 DEMAND SET TITLE: 2020 weekend
.--------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS (VEH/HR)             I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    -----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  0.333 I  0.667 I
 I                    I         I    0.0 I    0.0 I   10.0 I   20.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  0.072 I  0.928 I
 I                    I         I    0.0 I    0.0 I   67.0 I  868.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.015 I  0.055 I  0.000 I  0.930 I
 I                    I         I   10.0 I   38.0 I    0.0 I  637.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.017 I  0.601 I  0.382 I  0.000 I
 I                    I         I   20.0 I  721.0 I  459.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------

.         QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          -------------------------------------------------------

.-----------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 16.45-17.00
I
 I ARM A       0.38     21.90   0.017                  0.0    0.0        0.3                             0.05
I
 I ARM B      11.69     18.54   0.630                  0.0    1.7       23.3                             0.14
I
 I ARM C       8.56     18.78   0.456                  0.0    0.8       11.9                             0.10
I
 I ARM D      15.00     31.95   0.470                  0.0    0.9       12.8                             0.06
I
 I
I

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.-----------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.00-17.15
I
 I ARM A       0.45     20.31   0.022                  0.0    0.0        0.3                             0.05
I
 I ARM B      13.96     18.01   0.775                  1.7    3.2       44.1                             0.23
I
 I ARM C      10.22     17.68   0.578                  0.8    1.3       19.3                             0.13
I
 I ARM D      17.91     31.87   0.562                  0.9    1.3       18.5                             0.07
I
 I
I

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-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.15-17.30
I
 I ARM A       0.55     18.14   0.030                0.0    0.0        0.5                             0.06
I
 I ARM B      17.09     17.28   0.989                3.2   14.6      153.2                             0.74
I
 I ARM C      12.52     16.47   0.760                1.3    3.0       40.5                             0.24
I
 I ARM D      21.94     31.78   0.690                1.3    2.2       31.3                             0.10
I
 I
I

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.-----------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.30-17.45
I
 I ARM A       0.55     18.11   0.030                0.0    0.0        0.5                             0.06
I
 I ARM B      17.09     17.27   0.990               14.6   19.9      260.9                             1.19
I
 I ARM C      12.52     16.27   0.769                3.0    3.2       46.7                             0.26
I
 I ARM D      21.94     31.78   0.690                2.2    2.2       32.9                             0.10
I
 I
I

------------------------------------------------------------------------------------------------------------------
.-----------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.45-18.00
I
 I ARM A       0.45     20.26   0.022                0.0    0.0        0.3                             0.05
I
 I ARM B      13.96     17.99   0.776               19.9    3.8      100.3                             0.44
I
 I ARM C      10.22     17.12   0.597                3.2    1.5       24.2                             0.15
I
 I ARM D      17.91     31.87   0.562                2.2    1.3       20.1                             0.07
I
 I
I

------------------------------------------------------------------------------------------------------------------
.-----------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 18.00-18.15
I
 I ARM A       0.38     21.86   0.017                0.0    0.0        0.3                             0.05
I
 I ARM B      11.69     18.53   0.631                3.8    1.8       28.1                             0.15
I
 I ARM C       8.56     18.66   0.459                1.5    0.9       13.3                             0.10
I
 I ARM D      15.00     31.94   0.470                1.3    0.9       13.7                             0.06
I
 I
I

------------------------------------------------------------------------------------------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      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 AT ARM B
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          1.7  **
   17.15          3.2  ***
   17.30         14.6  ***************
   17.45         19.9  ********************
   18.00          3.8  ****
   18.15          1.8  **

.QUEUE AT ARM C
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          0.8  *
   17.15          1.3  *
   17.30          3.0  ***
   17.45          3.2  ***
   18.00          1.5  **
   18.15          0.9  *

.QUEUE AT ARM D
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          0.9  *
   17.15          1.3  *
   17.30          2.2  **
   17.45          2.2  **
   18.00          1.3  *
   18.15          0.9  *


.                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I   41.1 I   27.4 I     2.1 I    0.05   I       2.1  I     0.05    I
 I   B   I 1282.1 I  854.7 I   609.9 I    0.48   I     610.0  I     0.48    I
 I   C   I  939.3 I  626.2 I   155.9 I    0.17   I     156.0  I     0.17    I
 I   D   I 1645.5 I 1097.0 I   129.3 I    0.08   I     129.3  I     0.08    I
 ----------------------------------------------------------------------------
 I  ALL  I 3908.0 I 2605.3 I   897.3 I    0.23   I     897.4  I     0.23    I
 ----------------------------------------------------------------------------

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

 END OF JOB
```

```
                              TRL LIMITED

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

                      PICADY 4.1  ANALYSIS PROGRAM
                         RELEASE 3.0 (MAY 2001)

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IS
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SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 2 Weekday.vpi"
(drive-on-the-right) at 17:43:09 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Junction 2 Weekday


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access Road 2
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.50 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.00 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  25.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  35.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00   I    75.00   I  8.27  I  12.41  I  8.27 I
 I ARM B I      15.00    I     45.00   I    75.00   I  1.14  I   1.71  I  1.14 I
 I ARM C I      15.00    I     45.00   I    75.00   I  8.75  I  13.13  I  8.75 I
 ------------------------------------------------------------------------------

.
 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  662.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   91.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.844 I  0.156 I  0.000 I
 I                    I         I  591.0 I  109.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.-------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.14      9.01    0.126                 0.0    0.1        2.1
I
 I   B-A       0.00      5.16    0.000                 0.0    0.0        0.0
I
 I   C-A       7.39
I
 I   C-B       1.36      9.00    0.151                 0.0    0.2        2.6
I
 I   A-B       0.00
I
 I   A-C       8.27
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.088      0.009                  0.009
I
 I       B-A          0.052      0.016       0.021      0.006            0.004
I
 I       C-B          0.090      0.009                                   0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       1.36      8.62    0.158                0.1    0.2        2.7
I
 I   B-A       0.00      4.54    0.000                0.0    0.0        0.0
I
 I   C-A       8.82
I
 I   C-B       1.63      8.62    0.189                0.2    0.2        3.4
I
 I   A-B       0.00
I
 I   A-C       9.88
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.085      0.011                  0.008
```

```
I
 I       B-A           0.045      0.020       0.021      0.005          0.003
I
 I       C-B           0.086      0.011                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       1.66      8.09    0.206                0.2    0.3        3.7
I
 I   B-A       0.00      3.67    0.000                0.0    0.0        0.0
I
 I   C-A      10.80
I
 I   C-B       1.99      8.09    0.246                0.2    0.3        4.7
I
 I   A-B       0.00
I
 I   A-C      12.10
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C           0.079      0.013                  0.008
I
 I       B-A           0.037      0.024       0.021      0.004          0.003
I
 I       C-B           0.081      0.013                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       1.66      8.09    0.206                 0.3    0.3        3.8
I
 I   B-A       0.00      3.67    0.000                 0.0    0.0        0.0
I
 I   C-A      10.80
I
 I   C-B       1.99      8.09    0.246                 0.3    0.3        4.9
I
 I   A-B       0.00
I
 I   A-C      12.10
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.079      0.013                 0.008
I
 I       B-A          0.037      0.024       0.021      0.004          0.003
I
 I       C-B          0.081      0.013                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       1.36      8.62    0.158                 0.3    0.2        2.9
I
 I   B-A       0.00      4.53    0.000                 0.0    0.0        0.0
I
 I   C-A       8.82
I
 I   C-B       1.63      8.62    0.189                 0.3    0.2        3.6
```

```
I
 I   A-B       0.00
I
 I   A-C       9.88
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.085      0.011                  0.008
I
 I       B-A          0.045      0.020       0.021      0.005           0.003
I
 I       C-B          0.086      0.011                                  0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.14      9.01    0.126                0.2    0.1        2.2
I
 I   B-A       0.00      5.16    0.000                0.0    0.0        0.0
I
 I   C-A       7.39
I
 I   C-B       1.36      9.00    0.151                0.2    0.2        2.8
I
 I   A-B       0.00
I
 I   A-C       8.27
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.088      0.009                 0.009
I
 I       B-A          0.052      0.017       0.021      0.006          0.004
I
 I       C-B          0.090      0.009                                 0.009
I

-------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.2
   17.30           0.3
   17.45           0.3
   18.00           0.2
   18.15           0.1
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.2
   17.15           0.2
   17.30           0.3
   17.45           0.3
   18.00           0.2
   18.15           0.2
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  124.8 I   83.2 I    17.5 I    0.14   I       17.5  I    0.14   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I        0.0  I    0.00   I
 I  C-A   I  810.4 I  540.3 I         I           I             I           I
 I  C-B   I  149.5 I   99.6 I    21.9 I    0.15   I       21.9  I    0.15   I
 I  A-B   I    0.0 I    0.0 I         I           I             I           I
 I  A-C   I  907.7 I  605.2 I         I           I             I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1992.4 I 1328.2 I    39.4 I    0.02   I       39.4  I    0.02   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                             TRL SOFTWARE BUREAU
                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
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 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM
IS
 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE
SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 2 Weekend.vpi"
(drive-on-the-right) at 17:46:20 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Junction 2 Weekend


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access Road 2
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                 DATA ITEM                  I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.50 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.00 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  25.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  35.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------

.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN   I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00    I    75.00    I 10.05  I  15.08  I 10.05 I
 I ARM B I      15.00    I     45.00    I    75.00    I  1.74  I   2.61  I  1.74 I
 I ARM C I      15.00    I     45.00    I    75.00    I 10.65  I  15.97  I 10.65 I
 -------------------------------------------------------------------------------

.
 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS          I
 I                    I         TURNING COUNTS (VEH/HR)      I
 I                    I        (PERCENTAGE OF H.V.S)         I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  804.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  139.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.832 I  0.168 I  0.000 I
 I                    I         I  709.0 I  143.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.-------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.74      8.58    0.202                 0.0    0.3        3.6
I
 I   B-A       0.00      4.45    0.000                 0.0    0.0        0.0
I
 I   C-A       8.86
I
 I   C-B       1.79      8.58    0.208                 0.0    0.3        3.7
I
 I   A-B       0.00
I
 I   A-C      10.05
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.084      0.011                  0.008
I
 I       B-A          0.045      0.020       0.021      0.005            0.003
I
 I       C-B          0.086      0.011                                   0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       2.07      8.12    0.256                 0.3    0.3        4.9
I
 I   B-A       0.00      3.68    0.000                 0.0    0.0        0.0
I
 I   C-A      10.58
I
 I   C-B       2.13      8.11    0.263                 0.3    0.4        5.1
I
 I   A-B       0.00
I
 I   A-C      12.00
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.080      0.013                  0.008
```

```
I
 I       B-A          0.037      0.024       0.021      0.004          0.003
I
 I       C-B          0.081      0.013                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       2.54      7.47    0.340                0.3    0.5        7.3
I
 I   B-A       0.00      2.62    0.000                0.0    0.0        0.0
I
 I   C-A      12.96
I
 I   C-B       2.61      7.47    0.350                0.4    0.5        7.6
I
 I   A-B       0.00
I
 I   A-C      14.70
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.073      0.016                  0.007
I
 I       B-A          0.026      0.029       0.021      0.003          0.002
I
 I       C-B          0.075      0.016                                 0.007
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       2.54      7.47    0.340                 0.5    0.5        7.6
I
 I   B-A       0.00      2.62    0.000                 0.0    0.0        0.0
I
 I   C-A      12.96
I
 I   C-B       2.61      7.47    0.350                 0.5    0.5        8.0
I
 I   A-B       0.00
I
 I   A-C      14.70
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                              MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                   I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:      (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.073      0.016                 0.007
I
 I       B-A          0.026      0.030       0.021      0.003            0.002
I
 I       C-B          0.075      0.016                                   0.007
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       2.07      8.12    0.256                 0.5    0.3        5.4
I
 I   B-A       0.00      3.67    0.000                 0.0    0.0        0.0
I
 I   C-A      10.58
I
 I   C-B       2.13      8.11    0.263                 0.5    0.4        5.6
```

```
I
 I   A-B       0.00
I
 I   A-C      12.00
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.080      0.013                 0.008
I
 I       B-A          0.037      0.024       0.021      0.004           0.003
I
 I       C-B          0.081      0.013                                  0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.74      8.58    0.202                0.3    0.3        4.0
I
 I   B-A       0.00      4.44    0.000                0.0    0.0        0.0
I
 I   C-A       8.86
I
 I   C-B       1.79      8.58    0.208                0.4    0.3        4.1
I
 I   A-B       0.00
I
 I   A-C      10.05
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.084      0.011                  0.008
I
 I       B-A          0.044      0.020       0.021      0.005          0.003
I
 I       C-B          0.086      0.011                                 0.008
I

------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.3
   17.30           0.5    *
   17.45           0.5    *
   18.00           0.3
   18.15           0.3
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.4
   17.30           0.5    *
   17.45           0.5    *
   18.00           0.4
   18.15           0.3
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  190.6 I  127.1 I    32.8 I    0.17   I       32.8  I    0.17   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I        0.0  I    0.00   I
 I  C-A   I  972.2 I  648.1 I         I           I             I           I
 I  C-B   I  196.1 I  130.7 I    34.2 I    0.17   I       34.2  I    0.17   I
 I  A-B   I    0.0 I    0.0 I         I           I             I           I
 I  A-C   I 1102.5 I  735.0 I         I           I             I           I
 ---------------------------------------------------------------------------
 I  ALL   I 2461.3 I 1640.9 I    67.0 I    0.03   I       67.0  I    0.03   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

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

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                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 3 Weekday.vpi"
(drive-on-the-right) at 17:30:03 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Junction 3 Weekday


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 3
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                  I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                       - VISIBILITY       I (VC-B)  70.0 M.   I
 I                       - BLOCKS TRAFFIC   I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  33.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00    I    75.00    I  7.06  I  10.59  I  7.06 I
 I ARM B I      15.00    I     45.00    I    75.00    I  1.21  I   1.82  I  1.21 I
 I ARM C I      15.00    I     45.00    I    75.00    I  8.00  I  12.00  I  8.00 I
 ------------------------------------------------------------------------------

.
 -------------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  565.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   97.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.817 I  0.183 I  0.000 I
 I                    I         I  523.0 I  117.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.21      9.16    0.132                 0.0    0.2        2.2
I
 I   B-A       0.00      5.32    0.000                 0.0    0.0        0.0
I
 I   C-A       6.54
I
 I   C-B       1.46      9.12    0.160                 0.0    0.2        2.7
I
 I   A-B       0.00
I
 I   A-C       7.06
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.090      0.008                  0.009
I
 I       B-A          0.053      0.015       0.021      0.006           0.004
I
 I       C-B          0.093      0.008                                  0.009
I

-------------------------------------------------------------------------------
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.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       1.45      8.81    0.164                0.2    0.2        2.9
I
 I   B-A       0.00      4.72    0.000                0.0    0.0        0.0
I
 I   C-A       7.81
I
 I   C-B       1.75      8.77    0.199                0.2    0.2        3.6
I
 I   A-B       0.00
I
 I   A-C       8.43
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.086      0.009                  0.009
```

```
I
 I       B-A          0.047      0.018       0.021      0.005          0.003
I
 I       C-B          0.090      0.009                                 0.008
I

------------------------------------------------------------------------------
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.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       1.77      8.33    0.213                 0.2    0.3        3.9
I
 I   B-A       0.00      3.89    0.000                 0.0    0.0        0.0
I
 I   C-A       9.56
I
 I   C-B       2.14      8.29    0.258                 0.2    0.3        5.0
I
 I   A-B       0.00
I
 I   A-C      10.33
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.082      0.011                  0.008
I
 I       B-A          0.039      0.022       0.021      0.004          0.003
I
 I       C-B          0.085      0.011                                 0.008
I

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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       1.77      8.33    0.213                 0.3    0.3        4.0
I
 I   B-A       0.00      3.89    0.000                 0.0    0.0        0.0
I
 I   C-A       9.56
I
 I   C-B       2.14      8.29    0.258                 0.3    0.3        5.2
I
 I   A-B       0.00
I
 I   A-C      10.33
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:      (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.082      0.011                  0.008
I
 I       B-A          0.039      0.022       0.021      0.004            0.003
I
 I       C-B          0.085      0.011                                   0.008
I

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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       1.45      8.81    0.164                 0.3    0.2        3.1
I
 I   B-A       0.00      4.71    0.000                 0.0    0.0        0.0
I
 I   C-A       7.81
I
 I   C-B       1.75      8.77    0.199                 0.3    0.3        3.9
```

```
I
 I   A-B       0.00
I
 I   A-C       8.43
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.086      0.009                  0.009
I
 I       B-A          0.047      0.018       0.021      0.005           0.003
I
 I       C-B          0.090      0.009                                  0.008
I

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.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.21      9.16    0.132                0.2    0.2        2.4
I
 I   B-A       0.00      5.31    0.000                0.0    0.0        0.0
I
 I   C-A       6.54
I
 I   C-B       1.46      9.12    0.160                0.3    0.2        3.0
I
 I   A-B       0.00
I
 I   A-C       7.06
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.090      0.008                    0.009
I
 I       B-A          0.053      0.015       0.021      0.006           0.004
I
 I       C-B          0.093      0.008                                  0.009
I

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-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00          0.2
   17.15          0.2
   17.30          0.3
   17.45          0.3
   18.00          0.2
   18.15          0.2
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00          0.2
   17.15          0.2
   17.30          0.3
   17.45          0.3
   18.00          0.3
   18.15          0.2
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  133.0 I   88.7 I    18.4 I    0.14   I      18.4  I    0.14   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  717.1 I  478.1 I         I           I            I           I
 I  C-B   I  160.4 I  107.0 I    23.3 I    0.15   I      23.3  I    0.15   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  774.7 I  516.5 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1785.3 I 1190.2 I    41.7 I    0.02   I      41.7  I    0.02   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

```
                                TRL LIMITED

                            (C) COPYRIGHT 2001

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 3 Weekend.vpi"
(drive-on-the-right) at 17:47:13 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Junction 3 Weekend


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 3
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                        - VISIBILITY      I (VC-B)  70.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  33.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I      15.00    I      45.00    I     75.00    I  8.14  I  12.21   I  8.14 I
 I ARM B I      15.00    I      45.00    I     75.00    I  1.85  I   2.78   I  1.85 I
 I ARM C I      15.00    I      45.00    I     75.00    I  8.85  I  13.28   I  8.85 I
 ------------------------------------------------------------------------------

.
 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    -------------------------------------
 I         TIME       I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  651.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  148.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.785 I  0.215 I  0.000 I
 I                    I         I  556.0 I  152.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.85      8.89    0.208                 0.0    0.3        3.7
I
 I   B-A       0.00      4.86    0.000                 0.0    0.0        0.0
I
 I   C-A       6.95
I
 I   C-B       1.90      8.85    0.215                 0.0    0.3        3.9
I
 I   A-B       0.00
I
 I   A-C       8.14
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.087      0.009                  0.009
I
 I       B-A          0.049      0.017       0.021      0.005          0.003
I
 I       C-B          0.090      0.009                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       2.21      8.48    0.260                 0.3    0.3        5.1
I
 I   B-A       0.00      4.17    0.000                 0.0    0.0        0.0
I
 I   C-A       8.30
I
 I   C-B       2.27      8.45    0.269                 0.3    0.4        5.3
I
 I   A-B       0.00
I
 I   A-C       9.72
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.083      0.011                  0.008
```

```
I
 I       B-A          0.042      0.020       0.021      0.004          0.003
I
 I       C-B          0.086      0.011                                  0.008
I

-------------------------------------------------------------------------------
-------------------

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       2.71      7.93    0.341                0.3    0.5        7.3
I
 I   B-A       0.00      3.22    0.000                0.0    0.0        0.0
I
 I   C-A      10.16
I
 I   C-B       2.78      7.89    0.352                0.4    0.5        7.7
I
 I   A-B       0.00
I
 I   A-C      11.90
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.078      0.013                  0.008
I
 I       B-A          0.032      0.025       0.021      0.003          0.002
I
 I       C-B          0.081      0.013                                  0.007
I

-------------------------------------------------------------------------------
-------------------

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       2.71      7.93    0.341                0.5    0.5        7.7
I
 I   B-A       0.00      3.22    0.000                0.0    0.0        0.0
I
 I   C-A      10.16
I
 I   C-B       2.78      7.89    0.352                0.5    0.5        8.0
I
 I   A-B       0.00
I
 I   A-C      11.90
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:      (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.078      0.013                 0.008
I
 I       B-A          0.032      0.025       0.021      0.003           0.002
I
 I       C-B          0.081      0.013                                  0.007
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       2.21      8.48    0.260                0.5    0.4        5.5
I
 I   B-A       0.00      4.17    0.000                0.0    0.0        0.0
I
 I   C-A       8.30
I
 I   C-B       2.27      8.45    0.269                0.5    0.4        5.8
```

```
I
 I   A-B       0.00
I
 I   A-C       9.72
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.083      0.011                  0.008
I
 I       B-A          0.042      0.020       0.021      0.004           0.003
I
 I       C-B          0.086      0.011                                  0.008
I

-------------------------------------------------------------------------------
-------------------

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.85      8.89    0.208                 0.4    0.3        4.1
I
 I   B-A       0.00      4.86    0.000                 0.0    0.0        0.0
I
 I   C-A       6.95
I
 I   C-B       1.90      8.85    0.215                 0.4    0.3        4.3
I
 I   A-B       0.00
I
 I   A-C       8.14
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.087      0.009                  0.009
I
 I       B-A          0.049      0.017       0.021      0.005          0.003
I
 I       C-B          0.090      0.009                                 0.008
I

------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.3
   17.30           0.5    *
   17.45           0.5    *
   18.00           0.4
   18.15           0.3
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.4
   17.30           0.5    *
   17.45           0.5    *
   18.00           0.4
   18.15           0.3
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  202.9 I  135.3 I    33.5 I    0.16   I      33.5  I    0.16   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  762.4 I  508.3 I         I           I            I           I
 I  C-B   I  208.4 I  138.9 I    34.9 I    0.17   I      35.0  I    0.17   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  892.7 I  595.1 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 2066.4 I 1377.6 I    68.4 I    0.03   I      68.4  I    0.03   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
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 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM
IS
 IN NO WAY  RELIEVED OF HIS RESPONSIBILITY  FOR THE CORRECTNESS  OF THE
SOLUTION


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 4 Weekday.vpi"
(drive-on-the-right) at 17:29:20 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Site Access 4


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 4
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.00 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  20.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         8.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  5.94  I   8.91  I  5.94 I
 I ARM B I     15.00   I     45.00   I    75.00   I  1.13  I   1.69  I  1.13 I
 I ARM C I     15.00   I     45.00   I    75.00   I  5.95  I   8.92  I  5.95 I
 ------------------------------------------------------------------------------

.
 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  475.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   90.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.769 I  0.231 I  0.000 I
 I                    I         I  366.0 I  110.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.13      9.75    0.115                 0.0    0.1        1.9
I
 I   B-A       0.00      5.29    0.000                 0.0    0.0        0.0
I
 I   C-A       4.57
I
 I   C-B       1.38      9.46    0.145                 0.0    0.2        2.4
I
 I   A-B       0.00
I
 I   A-C       5.94
I
```

```
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                              MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I      MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I       CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.092      0.007                  0.010
I
 I       B-A          0.058      0.011       0.019      0.006           0.004
I
 I       C-B          0.095      0.007                                  0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       1.34      9.45    0.142                0.1    0.2        2.4
I
 I   B-A       0.00      4.85    0.000                0.0    0.0        0.0
I
 I   C-A       5.46
I
 I   C-B       1.64      9.17    0.179                0.2    0.2        3.2
I
 I   A-B       0.00
I
 I   A-C       7.09
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                              MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I      MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I       CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.089      0.008                  0.009
```

```
I
 I       B-A           0.053      0.013       0.019      0.005          0.003
I
 I       C-B           0.092      0.008                                 0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       1.65      9.03    0.182                 0.2    0.2        3.2
I
 I   B-A       0.00      4.25    0.000                 0.0    0.0        0.0
I
 I   C-A       6.69
I
 I   C-B       2.01      8.76    0.230                 0.2    0.3        4.3
I
 I   A-B       0.00
I
 I   A-C       8.68
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                              MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C           0.085      0.010                  0.009
I
 I       B-A           0.047      0.016       0.019      0.005          0.003
I
 I       C-B           0.088      0.010                                 0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       1.65      9.03    0.182                0.2    0.2        3.3
I
 I   B-A       0.00      4.25    0.000                0.0    0.0        0.0
I
 I   C-A       6.69
I
 I   C-B       2.01      8.76    0.230                0.3    0.3        4.4
I
 I   A-B       0.00
I
 I   A-C       8.68
I
 I
I
 I                  EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.085      0.010                 0.009
I
 I       B-A          0.047      0.016       0.019      0.005            0.003
I
 I       C-B          0.088      0.010                                   0.008
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                            (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       1.34      9.45    0.142                0.2    0.2        2.6
I
 I   B-A       0.00      4.85    0.000                0.0    0.0        0.0
I
 I   C-A       5.46
I
 I   C-B       1.64      9.17    0.179                0.3    0.2        3.4
```

```
I
 I   A-B       0.00
I
 I   A-C       7.09
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.089      0.008                 0.009
I
 I       B-A          0.053      0.013       0.019     0.005           0.003
I
 I       C-B          0.092      0.008                                 0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                           (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.13      9.75    0.115                0.2    0.1        2.0
I
 I   B-A       0.00      5.29    0.000                0.0    0.0        0.0
I
 I   C-A       4.57
I
 I   C-B       1.38      9.46    0.145                0.2    0.2        2.6
I
 I   A-B       0.00
I
 I   A-C       5.94
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.092      0.007                  0.010
I
 I       B-A          0.058      0.011       0.019      0.006           0.004
I
 I       C-B          0.095      0.007                                  0.009
I

-------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.2
   17.30           0.2
   17.45           0.2
   18.00           0.2
   18.15           0.1
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.2
   17.15           0.2
   17.30           0.3
   17.45           0.3
   18.00           0.2
   18.15           0.2
.
                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

 ----------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------

 I  B-C   I  123.4 I   82.3 I    15.4 I    0.12   I      15.4  I    0.12   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  501.9 I  334.6 I         I           I            I           I
 I  C-B   I  150.8 I  100.6 I    20.4 I    0.13   I      20.4  I    0.13   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  651.3 I  434.2 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1427.4 I  951.6 I    35.8 I    0.03   I      35.8  I    0.03   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                             TRL SOFTWARE BUREAU
                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 4 Weekend.vpi"
(drive-on-the-right) at 17:48:02 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Site Access 4


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 4
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                 DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH       I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                    I (WCR )  0.00 M.   I
 I                                           I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH            I (WC-B)  3.00 M.   I
 I                        - VISIBILITY       I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC   I           NO      I
 I                                           I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT         I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT          I (VB-A)  20.0 M.   I
 I             - LANE 1 WIDTH                I (WB-C)    -       I
 I             - LANE 2 WIDTH                I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.    I         8.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.    I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.    I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.    I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.    I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION    I            1 VEHS I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00    I    75.00    I  6.47  I   9.71  I  6.47 I
 I ARM B I      15.00    I     45.00    I    75.00    I  1.73  I   2.59  I  1.73 I
 I ARM C I      15.00    I     45.00    I    75.00    I  6.95  I  10.42  I  6.95 I
 ------------------------------------------------------------------------------

.
 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  518.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  138.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.746 I  0.254 I  0.000 I
 I                    I         I  415.0 I  141.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       1.73      9.61    0.179                 0.0    0.2        3.1
I
 I   B-A       0.00      4.98    0.000                 0.0    0.0        0.0
I
 I   C-A       5.19
I
 I   C-B       1.76      9.32    0.189                 0.0    0.2        3.3
I
 I   A-B       0.00
I
 I   A-C       6.47
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.090      0.007                  0.010
I
 I       B-A          0.055      0.012       0.019      0.005          0.004
I
 I       C-B          0.093      0.007                                 0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       2.06      9.28    0.222                 0.2    0.3        4.1
I
 I   B-A       0.00      4.48    0.000                 0.0    0.0        0.0
I
 I   C-A       6.19
I
 I   C-B       2.10      9.00    0.234                 0.2    0.3        4.4
I
 I   A-B       0.00
I
 I   A-C       7.73
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.087      0.009                  0.009
```

```
I
 I       B-A          0.049      0.015       0.019      0.005          0.003
I
 I       C-B          0.090      0.009                                 0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       2.52      8.83    0.286                0.3    0.4        5.7
I
 I   B-A       0.00      3.80    0.000                0.0    0.0        0.0
I
 I   C-A       7.59
I
 I   C-B       2.58      8.56    0.301                0.3    0.4        6.2
I
 I   A-B       0.00
I
 I   A-C       9.47
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.083      0.011                  0.009
I
 I       B-A          0.042      0.018       0.019      0.004          0.003
I
 I       C-B          0.086      0.011                                 0.008
I

------------------------------------------------------------------------------
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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       2.52      8.83    0.286                 0.4    0.4        5.9
I
 I   B-A       0.00      3.79    0.000                 0.0    0.0        0.0
I
 I   C-A       7.59
I
 I   C-B       2.58      8.56    0.301                 0.4    0.4        6.4
I
 I   A-B       0.00
I
 I   A-C       9.47
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.083      0.011                  0.009
I
 I       B-A          0.042      0.018       0.019      0.004          0.003
I
 I       C-B          0.086      0.011                                 0.008
I

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-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       2.06      9.28    0.222                 0.4    0.3        4.5
I
 I   B-A       0.00      4.48    0.000                 0.0    0.0        0.0
I
 I   C-A       6.19
I
 I   C-B       2.10      9.00    0.234                 0.4    0.3        4.8
```

```
I
 I   A-B       0.00
I
 I   A-C       7.73
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)        I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.087      0.009                 0.009
I
 I       B-A          0.049      0.015       0.019     0.005            0.003
I
 I       C-B          0.090      0.009                                  0.009
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       1.73      9.61    0.179                0.3    0.2        3.4
I
 I   B-A       0.00      4.98    0.000                0.0    0.0        0.0
I
 I   C-A       5.19
I
 I   C-B       1.76      9.32    0.189                0.3    0.2        3.6
I
 I   A-B       0.00
I
 I   A-C       6.47
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)        I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.090      0.007                 0.010
I
 I       B-A          0.055      0.012       0.019      0.005           0.004
I
 I       C-B          0.093      0.007                                  0.009
I

--------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00          0.2
   17.15          0.3
   17.30          0.4
   17.45          0.4
   18.00          0.3
   18.15          0.2
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00          0.2
   17.15          0.3
   17.30          0.4
   17.45          0.4
   18.00          0.3
   18.15          0.2
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 --------------------------------------------------------------------------
 I  B-C   I  189.2 I  126.2 I    26.8 I    0.14   I      26.8  I    0.14   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  569.1 I  379.4 I         I           I            I           I
 I  C-B   I  193.3 I  128.9 I    28.7 I    0.15   I      28.7  I    0.15   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  710.3 I  473.5 I         I           I            I           I
 --------------------------------------------------------------------------
 I  ALL   I 1661.9 I 1107.9 I    55.5 I    0.03   I      55.5  I    0.03   I
 --------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

```
                                TRL LIMITED

                            (C) COPYRIGHT 2001

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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

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                             TRL SOFTWARE BUREAU
                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 5 Weekday.vpi"
(drive-on-the-right) at 17:21:44 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Site Access 5


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Catalan Bay Village - Site Access 5
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  25.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         7.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00    I    75.00    I  1.81  I   2.72  I  1.81 I
 I ARM B I      15.00    I     45.00    I    75.00    I  4.21  I   6.32  I  4.21 I
 I ARM C I      15.00    I     45.00    I    75.00    I  4.54  I   6.81  I  4.54 I
 ------------------------------------------------------------------------------

.
 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.041 I  0.959 I
 I                    I         I    0.0 I    6.0 I  139.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  337.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.421 I  0.579 I  0.000 I
 I                    I         I  153.0 I  210.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.-------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       4.21     11.04    0.381                  0.0    0.6        8.7
I
 I   B-A       0.00      5.55    0.000                  0.0    0.0        0.0
I
 I   C-A       1.91
I
 I   C-B       2.63     10.30    0.255                  0.0    0.3        4.9
I
 I   A-B       0.08
I
 I   A-C       1.74
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.102      0.002                 0.011
I
 I       B-A          0.068      0.006       0.017      0.006           0.004
I
 I       C-B          0.105      0.002                                  0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       5.03     10.95    0.459                0.6    0.8       12.0
I
 I   B-A       0.00      5.30    0.000                0.0    0.0        0.0
I
 I   C-A       2.28
I
 I   C-B       3.13     10.22    0.307                0.3    0.4        6.4
I
 I   A-B       0.09
I
 I   A-C       2.07
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.101      0.002                 0.011
```

```
I
 I       B-A          0.065      0.007       0.017      0.006          0.004
I
 I       C-B          0.104      0.002                                 0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       6.16     10.82    0.569                 0.8    1.3       18.2
I
 I   B-A       0.00      4.95    0.000                 0.0    0.0        0.0
I
 I   C-A       2.80
I
 I   C-B       3.84     10.09    0.380                 0.4    0.6        8.8
I
 I   A-B       0.11
I
 I   A-C       2.54
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)         I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)            (M)
I
 I
I
 I       B-C          0.100      0.003                  0.011
I
 I       B-A          0.061      0.009       0.017      0.005          0.004
I
 I       C-B          0.103      0.003                                 0.010
I

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.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       6.16     10.82    0.569                 1.3    1.3       19.4
I
 I   B-A       0.00      4.95    0.000                 0.0    0.0        0.0
I
 I   C-A       2.80
I
 I   C-B       3.84     10.09    0.380                 0.6    0.6        9.1
I
 I   A-B       0.11
I
 I   A-C       2.54
I
 I
I
 I                  EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.100      0.003                  0.011
I
 I       B-A          0.061      0.009       0.017      0.005          0.004
I
 I       C-B          0.103      0.003                                 0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       5.03     10.95    0.459                 1.3    0.9       13.6
I
 I   B-A       0.00      5.29    0.000                 0.0    0.0        0.0
I
 I   C-A       2.28
I
 I   C-B       3.13     10.22    0.307                 0.6    0.4        6.9
```

```
I
 I   A-B       0.09
I
 I   A-C       2.07
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.101      0.002                  0.011
I
 I       B-A          0.065      0.007       0.017      0.006           0.004
I
 I       C-B          0.104      0.002                                  0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       4.21     11.04    0.381                0.9    0.6        9.7
I
 I   B-A       0.00      5.54    0.000                0.0    0.0        0.0
I
 I   C-A       1.91
I
 I   C-B       2.63     10.30    0.255                0.4    0.3        5.3
I
 I   A-B       0.08
I
 I   A-C       1.74
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT            I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.102      0.002                 0.011
I
 I       B-A          0.068      0.006       0.017      0.006           0.004
I
 I       C-B          0.105      0.002                                  0.010
I

-------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.6    *
   17.15           0.8    *
   17.30           1.3    *
   17.45           1.3    *
   18.00           0.9    *
   18.15           0.6    *
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.4
   17.30           0.6    *
   17.45           0.6    *
   18.00           0.4
   18.15           0.3
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------

 I  B-C   I  462.1 I  308.1 I    81.6 I    0.18   I       81.6  I    0.18   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I        0.0  I    0.00   I
 I  C-A   I  209.8 I  139.9 I         I           I             I           I
 I  C-B   I  288.0 I  192.0 I    41.4 I    0.14   I       41.4  I    0.14   I
 I  A-B   I    8.2 I    5.5 I         I           I             I           I
 I  A-C   I  190.6 I  127.1 I         I           I             I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1158.7 I  772.4 I   123.0 I    0.11   I      123.0  I    0.11   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

```
                                TRL LIMITED

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
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            --------------------------------------------------------


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


 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady
\2020\Junction 5 Weekend.vpi"
(drive-on-the-right) at 17:49:14 on Wednesday, 18 July 2007

  RUN TITLE
  *********
  Site Access 5


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Catalan Bay Village - Site Access 5
 ARM C IS Catalan Bay Road
```

```
 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                 DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  25.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         7.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------


.

.TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
```

```
 I   ARM   I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I         I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -------------------------------------------------------------------------------
 I ARM A I      15.00    I     45.00   I    75.00   I  2.41  I   3.62  I  2.41 I
 I ARM B I      15.00    I     45.00   I    75.00   I  4.04  I   6.06  I  4.04 I
 I ARM C I      15.00    I     45.00   I    75.00   I  5.41  I   8.12  I  5.41 I
 -------------------------------------------------------------------------------

.
 ------------------------------------------------------------
 I                    I         TURNING PROPORTIONS         I
 I                    I         TURNING COUNTS (VEH/HR)     I
 I                    I        (PERCENTAGE OF H.V.S)        I
 I                    --------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.016 I  0.984 I
 I                    I         I    0.0 I    3.0 I  190.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  323.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.430 I  0.570 I  0.000 I
 I                    I         I  186.0 I  247.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ------------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00
I
 I   B-C       4.04     10.88    0.371                  0.0    0.6        8.3
I
 I   B-A       0.00      5.26    0.000                  0.0    0.0        0.0
I
 I   C-A       2.33
I
 I   C-B       3.09     10.15    0.304                  0.0    0.4        6.2
I
 I   A-B       0.04
I
 I   A-C       2.38
I
```

```
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)            I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.101      0.003                   0.011
I
 I       B-A          0.064      0.007       0.017      0.006            0.004
I
 I       C-B          0.104      0.003                                   0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/       (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15
I
 I   B-C       4.82     10.75    0.448                 0.6    0.8       11.5
I
 I   B-A       0.00      4.95    0.000                 0.0    0.0        0.0
I
 I   C-A       2.78
I
 I   C-B       3.69     10.04    0.367                 0.4    0.6        8.3
I
 I   A-B       0.04
I
 I   A-C       2.84
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT                I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)            I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)
I
 I
I
 I       B-C          0.100      0.003                   0.011
```

```
I
 I       B-A          0.061      0.009       0.017      0.005          0.004
I
 I       C-B          0.102      0.003                                 0.010
I

-------------------------------------------------------------------------------
-------------------

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30
I
 I   B-C       5.90     10.58    0.558                0.8    1.2       17.4
I
 I   B-A       0.00      4.53    0.000                0.0    0.0        0.0
I
 I   C-A       3.40
I
 I   C-B       4.52      9.87    0.457                0.6    0.8       11.9
I
 I   A-B       0.05
I
 I   A-C       3.47
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                            MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT             I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)        I
 I      CHANGE:     (.1M)       (.1M)       (.1M)       (M)            (M)
I
 I
I
 I       B-C          0.098      0.004                  0.010
I
 I       B-A          0.055      0.011       0.017      0.005          0.003
I
 I       C-B          0.101      0.004                                 0.009
I

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-------------------

.------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45
I
 I   B-C       5.90     10.58    0.558                 1.2    1.2       18.5
I
 I   B-A       0.00      4.52    0.000                 0.0    0.0        0.0
I
 I   C-A       3.40
I
 I   C-B       4.52      9.87    0.457                 0.8    0.8       12.4
I
 I   A-B       0.05
I
 I   A-C       3.47
I
 I
I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD
FOR MAJOR)          I
 I      CHANGE:      (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.098      0.004                 0.010
I
 I       B-A          0.055      0.011       0.017      0.005          0.003
I
 I       C-B          0.101      0.004                                 0.009
I

--------------------------------------------------------------------------------
-------------------

.-------------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00
I
 I   B-C       4.82     10.75    0.448                 1.2    0.8       13.0
I
 I   B-A       0.00      4.94    0.000                 0.0    0.0        0.0
I
 I   C-A       2.78
I
 I   C-B       3.69     10.04    0.367                 0.8    0.6        9.2
```

```
I
 I   A-B       0.04
I
 I   A-C       2.84
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
 I      CHANGE:     (.1M)        (.1M)       (.1M)         (M)            (M)
I
 I
I
 I       B-C          0.100      0.003                  0.011
I
 I       B-A          0.060      0.009      0.017      0.005           0.004
I
 I       C-B          0.102      0.003                                 0.010
I

------------------------------------------------------------------------------
-------------------

.-----------------------------------------------------------------------------
--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME
SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15
I
 I   B-C       4.04     10.88    0.371                0.8    0.6        9.3
I
 I   B-A       0.00      5.25    0.000                0.0    0.0        0.0
I
 I   C-A       2.33
I
 I   C-B       3.09     10.15    0.304                0.6    0.4        6.8
I
 I   A-B       0.04
I
 I   A-C       2.38
I
 I
I
 I                    EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:
I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO
RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD
FOR MAJOR)          I
```

```
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)
I
 I
I
 I       B-C          0.101      0.003                  0.011
I
 I       B-A          0.064      0.007       0.017      0.006          0.004
I
 I       C-B          0.104      0.003                                 0.010
I

-------------------------------------------------------------------------------
-------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.
(AG23 REF. 8.4.2(v)).
.
 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.6    *
   17.15           0.8    *
   17.30           1.2    *
   17.45           1.2    *
   18.00           0.8    *
   18.15           0.6    *
.
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.4
   17.15           0.6    *
   17.30           0.8    *
   17.45           0.8    *
   18.00           0.6    *
   18.15           0.4
.
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
```

```
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-------------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  442.9 I  295.3 I    78.1 I    0.18   I      78.1  I    0.18   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  255.0 I  170.0 I         I           I            I           I
 I  C-B   I  338.7 I  225.8 I    54.8 I    0.16   I      54.8  I    0.16   I
 I  A-B   I    4.1 I    2.7 I         I           I            I           I
 I  A-C   I  260.5 I  173.7 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1301.3 I  867.5 I   132.9 I    0.10   I     133.0  I    0.10   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
```

```
                    ___________________ A R C A D Y  6 ___________________

                        ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                        Analysis Program: Release 3.0 (JUNE 2005)

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                    Crowthorne House         Fax:   +44 (0) 1344 770864
                    Nine Mile Ride           Email: softwarebureau@trl.co.uk
                    Wokingham, Berks.        Web:   www.trlsoftware.co.uk
                    RG40 3GA,UK

 ---------------------------------------------------------------------------------
  THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
  IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
 ---------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007
Arcady\2020\Sundial Weekday peak.vai"
(drive-on-the-right) at 17:11:32 on Wednesday, 18 July 2007


.FILE PROPERTIES
 ***************

   RUN TITLE: Sundial w-day 4-7 2020
    LOCATION: Gibraltar
        DATE: 18/07/2007
      CLIENT:
  ENUMERATOR: ScobieC
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Weekday 4-7 peak (in PCUs) 2020

.INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road

.GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY


----------------------------------------------------------------------------------
------------------------------------
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI
```

```
(DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I

-----------------------------------------------------------------------------------
------------------------------------
 I ARM A I    7.00    I    7.00   I     0.00   I    14.00   I   38.00   I      0.0
   I  0.792  I       38.289        I
 I ARM C I    7.00    I    9.00   I     0.00   I    74.00   I   38.00   I     15.0
   I  0.927  I       49.438        I
 I ARM D I    6.00    I    7.50   I    28.80   I    12.00   I   38.00   I     25.0
   I  0.737  I       36.232        I

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------------------------------------

 V = approach half-width       L = effective flare length            D = inscribed
circle diameter
 E = entry width               R = entry radius                      PHI = entry
angle


.TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)

.-----------------------
 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
 -----------------------


.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


 DEMAND SET TITLE: Weekday 2020
 ------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK   I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  8.20   I  12.30   I  8.20 I
 I ARM C I     15.00   I     45.00   I    75.00   I 21.89   I  32.83   I 21.89 I
 I ARM D I     15.00   I     45.00   I    75.00   I 17.64   I  26.46   I 17.64 I
 ------------------------------------------------------------------------------


 DEMAND SET TITLE: Weekday 2020
.-------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                I
 I                    I         TURNING COUNTS (VEH/HR)            I
 I                    I        (PERCENTAGE OF H.V.S)               I
 I                    ---------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 -------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
```

```
 I                    I  ARM A  I  0.002 I  0.085 I  0.633 I  0.280 I
 I                    I         I    1.0 I   56.0 I  415.0 I  184.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.368 I  0.025 I  0.001 I  0.606 I
 I                    I         I  645.0 I   44.0 I    1.0 I 1061.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.220 I  0.027 I  0.752 I  0.001 I
 I                    I         I  311.0 I   38.0 I 1061.0 I    1.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------

.         QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------

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--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00
                             I
 I ARM A       8.20     27.02   0.303                  0.0    0.4         6.4
                    0.05     I
 I ARM C      21.89     47.29   0.463                  0.0    0.9        12.6
                    0.04     I
 I ARM D      17.64     29.88   0.590                  0.0    1.4        20.4
                    0.08     I
 I
                             I

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------------------------------
.----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15
                             I
 I ARM A       9.79     24.81   0.395                  0.4    0.6         9.5
                    0.07     I
 I ARM C      26.14     46.87   0.558                  0.9    1.3        18.4
                    0.05     I
 I ARM D      21.06     28.64   0.735                  1.4    2.7        38.0
                    0.13     I
 I
                             I

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.----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30
                              I
 I ARM A      11.99     22.14   0.542                  0.6    1.2       16.9
                    0.10      I
 I ARM C      32.01     46.29   0.691                  1.3    2.2       31.9
                    0.07      I
 I ARM D      25.79     26.94   0.957                  2.7   12.7      142.6
                    0.44      I
 I
                              I

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.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45
                              I
 I ARM A      11.99     21.84   0.549                  1.2    1.2       17.9
                    0.10      I
 I ARM C      32.01     46.29   0.692                  2.2    2.2       33.3
                    0.07      I
 I ARM D      25.79     26.92   0.958                 12.7   15.4      213.1
                    0.63      I
 I
                              I

------------------------------------------------------------------------------------
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.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00
                              I
 I ARM A       9.79     24.24   0.404                  1.2    0.7       10.5
                    0.07      I
 I ARM C      26.14     46.85   0.558                  2.2    1.3       19.5
                    0.05      I
 I ARM D      21.06     28.61   0.736                 15.4    2.9       59.0
                    0.17      I
 I
                              I

------------------------------------------------------------------------------------
-------------------------------
.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 18.00-18.15
                              I
 I ARM A       8.20     26.90   0.305                  0.7    0.4        6.7
                    0.05      I
 I ARM C      21.89     47.28   0.463                  1.3    0.9       13.2
                    0.04      I
 I ARM D      17.64     29.86   0.591                  2.9    1.5       22.8
                    0.08      I
 I
                              I

-----------------------------------------------------------------------------------
-------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          0.4
   17.15          0.6  *
   17.30          1.2  *
   17.45          1.2  *
   18.00          0.7  *
   18.15          0.4

.QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          0.9  *
   17.15          1.3  *
   17.30          2.2  **
   17.45          2.2  **
   18.00          1.3  *
   18.15          0.9  *

.QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00          1.4  *
   17.15          2.7  ***
   17.30         12.7  *************
   17.45         15.4  ***************
   18.00          2.9  ***
   18.15          1.5  *
```

```
.                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I  899.5 I  599.7 I   67.9 I    0.08    I     67.9  I     0.08    I
 I   C   I 2401.0 I 1600.7 I  128.9 I    0.05    I    129.0  I     0.05    I
 I   D   I 1934.8 I 1289.9 I  495.9 I    0.26    I    496.0  I     0.26    I
 ----------------------------------------------------------------------------
 I  ALL  I 5235.3 I 3490.2 I  692.8 I    0.13    I    692.8  I     0.13    I
 ----------------------------------------------------------------------------

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

 END OF JOB
```

```
                   ___________________ A R C A D Y  6 ___________________

                       ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


                       Analysis Program: Release 3.0 (JUNE 2005)

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                   Wokingham, Berks.      Web:   www.trlsoftware.co.uk
                   RG40 3GA,UK

  ---------------------------------------------------------------------------------
   THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
   IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS  OF THE SOLUTION
  ---------------------------------------------------------------------------------

  Run with file:-
  "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007
 Arcady\2020\Sundial Weekend peak.vai"
 (drive-on-the-right) at 17:50:21 on Wednesday, 18 July 2007


 .FILE PROPERTIES
  ***************

    RUN TITLE: Sundial w-day 4-7 2020
     LOCATION: Gibraltar
         DATE: 13/06/2007
       CLIENT:
   ENUMERATOR: ScobieC
   JOB NUMBER: DCSBGA004
       STATUS:
  DESCRIPTION: Weekday 4-7 peak (in PCUs) 2020

 .INPUT DATA
  **********
  ARM A - Winston Churchill Ave North Arm
  ARM B - Bayside Road
  ARM C - Winston Churchill Ave South Arm
  ARM D - Devil's Tower Road

 .GEOMETRIC DATA
  --------------


  ARM B IS JUNCTION EXIT ONLY


 ----------------------------------------------------------------------------------
 ------------------------------------
  I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)   I   PHI
```

```
(DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I

-----------------------------------------------------------------------------------
------------------------------------
 I ARM A I    7.00   I    7.00   I    0.00   I    14.00   I   38.00   I      0.0
   I  0.792  I       38.289        I
 I ARM C I    7.00   I    9.00   I    0.00   I    74.00   I   38.00   I     15.0
   I  0.927  I       49.438        I
 I ARM D I    6.00   I    7.50   I   28.80   I    12.00   I   38.00   I     25.0
   I  0.737  I       36.232        I

-----------------------------------------------------------------------------------
------------------------------------

 V = approach half-width       L = effective flare length            D = inscribed
circle diameter
 E = entry width               R = entry radius                      PHI = entry
angle


.TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)

.-----------------------
 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
 -----------------------


.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


 DEMAND SET TITLE: Weekend 2020
 ------------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN     I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK  I OF PEAK I PEAK  I
 ------------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  7.69  I  11.53  I  7.69 I
 I ARM C I     15.00   I     45.00   I    75.00   I 21.27  I  31.91  I 21.27 I
 I ARM D I     15.00   I     45.00   I    75.00   I 19.16  I  28.74  I 19.16 I
 ------------------------------------------------------------------------------


 DEMAND SET TITLE: Weekend 2020
.---------------------------------------------------------------------
 I                     I         TURNING PROPORTIONS                  I
 I                     I         TURNING COUNTS (VEH/HR)              I
 I                     I        (PERCENTAGE OF H.V.S)                 I
 I                     -----------------------------------------------
 I        TIME         I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 ---------------------------------------------------------------------
 I   16.45 - 18.15     I         I        I        I        I        I
```

```
 I                    I  ARM A  I  0.002 I  0.081 I  0.567 I  0.350 I
 I                    I         I    1.0 I   50.0 I  349.0 I  215.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.263 I  0.018 I  0.001 I  0.719 I
 I                    I         I  448.0 I   30.0 I    1.0 I 1223.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.194 I  0.023 I  0.783 I  0.001 I
 I                    I         I  297.0 I   35.0 I 1200.0 I    1.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 -------------------------------------------------------------------

.         QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          -------------------------------------------------------

.---------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 16.45-17.00
                             I
 I ARM A       7.69     25.82   0.298                  0.0    0.4         6.2
                   0.06      I
 I ARM C      21.27     46.93   0.453                  0.0    0.8        12.1
                   0.04      I
 I ARM D      19.16     31.82   0.602                  0.0    1.5        21.5
                   0.08      I
 I
                             I

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.---------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.00-17.15
                             I
 I ARM A       9.18     23.37   0.393                  0.4    0.6         9.4
                   0.07      I
 I ARM C      25.40     46.44   0.547                  0.8    1.2        17.6
                   0.05      I
 I ARM D      22.88     30.96   0.739                  1.5    2.8        38.9
                   0.12      I
 I
                             I

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-------------------------------
.---------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.15-17.30
                              I
 I ARM A      11.24     20.31   0.553                  0.6    1.2        17.6
                    0.11      I
 I ARM C      31.11     45.77   0.680                  1.2    2.1        30.3
                    0.07      I
 I ARM D      28.02     29.78   0.941                  2.8   11.1       129.7
                    0.37      I
 I
                              I

------------------------------------------------------------------------------------
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.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.30-17.45
                              I
 I ARM A      11.24     20.03   0.561                  1.2    1.3        18.8
                    0.11      I
 I ARM C      31.11     45.76   0.680                  2.1    2.1        31.5
                    0.07      I
 I ARM D      28.02     29.77   0.941                 11.1   12.8       180.4
                    0.48      I
 I
                              I

------------------------------------------------------------------------------------
-------------------------------
.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00
                              I
 I ARM A       9.18     22.90   0.401                  1.3    0.7        10.4
                    0.07      I
 I ARM C      25.40     46.42   0.547                  2.1    1.2        18.7
                    0.05      I
 I ARM D      22.88     30.94   0.740                 12.8    2.9        54.5
                    0.15      I
 I
                              I

------------------------------------------------------------------------------------
-------------------------------
.-----------------------------------------------------------------------------------
--------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAY   AVERAGE DELAY I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/
 (VEH.MIN/      PER ARRIVING  I
 I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)
TIME SEGMENT)    VEHICLE (MIN) I
 I 18.00-18.15
                              I
 I ARM A       7.69     25.69   0.299                   0.7    0.4        6.6
                    0.06      I
 I ARM C      21.27     46.92   0.453                   1.2    0.8       12.7
                    0.04      I
 I ARM D      19.16     31.81   0.602                   2.9    1.5       23.9
                    0.08      I
 I
                              I

-----------------------------------------------------------------------------------
-------------------------------

.QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.4
   17.15           0.6  *
   17.30           1.2  *
   17.45           1.3  *
   18.00           0.7  *
   18.15           0.4


.QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.8  *
   17.15           1.2  *
   17.30           2.1  **
   17.45           2.1  **
   18.00           1.2  *
   18.15           0.8  *


.QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           1.5  *
   17.15           2.8  ***
   17.30          11.1  ***********
   17.45          12.8  *************
   18.00           2.9  ***
   18.15           1.5  **
```

```
.                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 -----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *     I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *       I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 -----------------------------------------------------------------------------
 I   A   I  843.3 I  562.2 I    68.9 I    0.08   I     68.9  I     0.08    I
 I   C   I 2333.8 I 1555.9 I   123.0 I    0.05   I    123.0  I     0.05    I
 I   D   I 2102.1 I 1401.4 I   449.0 I    0.21   I    449.0  I     0.21    I
 -----------------------------------------------------------------------------
 I  ALL  I 5279.2 I 3519.4 I   640.9 I    0.12   I    640.9  I     0.12    I
 -----------------------------------------------------------------------------

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

 END OF JOB
```

```
                                TRL LIMITED

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

                  ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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                     PROGRAM ADVICE AND MAINTENANCE CONTACT:
                               TRL SOFTWARE BUREAU
                   TEL: CROWTHORNE (01344) 770758, FAX: 770864
                         EMAIL: SoftwareBureau@trl.co.uk
             --------------------------------------------------------


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


  Run with file:-
  "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\New July 2007 PICADY\
   Eastern Beach Road junction NEW 2020 weekday.vpi"
 (drive-on-the-right) at 15:48:44 on Friday, 27 July 2007

   RUN TITLE
   *********
   Eastern Beach Road/Northern Site Access TEST


  .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
   ***************************************

   INPUT DATA
   ----------

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

  ARM A IS Northern Access Site
  ARM B IS Eastern Beach Road
  ARM C IS Northern Access RBT


  STREAM LABELLING CONVENTION
  ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



 .GEOMETRIC DATA
  -------------


  ----------------------------------------------------------------
  I                DATA ITEM                I   MINOR ROAD B    I
  ----------------------------------------------------------------
  I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.00 M.   I
  I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
  I                                          I                   I
  I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
  I                        - VISIBILITY      I (VC-B)  40.0 M.   I
  I                        - BLOCKS TRAFFIC  I         YES       I
  I                                          I                   I
  I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  20.0 M.   I
  I             - VISIBILITY TO LEFT         I (VB-A)  18.0 M.   I
  I             - LANE 1 WIDTH               I (WB-C)  3.50 M.   I
  I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
  ----------------------------------------------------------------

 .

 .TRAFFIC DEMAND DATA
  -------------------


  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


-----------------------------------------------------------------------------
I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
-----------------------------------------------------------------------------
I ARM A I     15.00   I     45.00   I    75.00   I  4.31  I   6.47  I  4.31 I
I ARM B I     15.00   I     45.00   I    75.00   I  2.21  I   3.32  I  2.21 I
I ARM C I     15.00   I     45.00   I    75.00   I  5.00  I   7.50  I  5.00 I
-----------------------------------------------------------------------------

.
-----------------------------------------------------------
I                    I         TURNING PROPORTIONS        I
I                    I         TURNING COUNTS (VEH/HR)    I
I                    I        (PERCENTAGE OF H.V.S)       I
I                    --------------------------------------
I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
-----------------------------------------------------------
I   16.45 - 18.15    I         I        I        I        I
I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
I                    I         I    0.0 I    0.0 I  345.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
I                    I         I    0.0 I    0.0 I  177.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
I                    I  ARM C  I  0.590 I  0.410 I  0.000 I
I                    I         I  236.0 I  164.0 I    0.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
-----------------------------------------------------------

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY    GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                  I
I   B-AC      2.21     10.05    0.220                 0.0    0.3        4.0                    I
I   C-AB      2.79     11.06    0.252                 0.0    0.4        6.3                    I
I   C-A       2.21                                                                             I
I   A-B       0.00                                                                             I
I   A-C       4.31                                                                             I
I                                                                                              I
------------------------------------------------------------------------------------------------

.------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY    GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                  I
I   B-AC      2.64      9.84    0.268                 0.3    0.4        5.3                    I
I   C-AB      3.56     11.30    0.315                 0.4    0.6        9.0                    I
I   C-A       2.41                                                                             I
I   A-B       0.00                                                                             I
I   A-C       5.15                                                                             I
I                                                                                              I
------------------------------------------------------------------------------------------------

.------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY    GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                  I
I   B-AC      3.24      9.56    0.339                 0.4    0.5        7.3                    I
I   C-AB      4.76     11.64    0.409                 0.6    0.9       14.0                    I
I   C-A       2.55                                                                             I
I   A-B       0.00                                                                             I
I   A-C       6.31                                                                             I
I                                                                                              I
------------------------------------------------------------------------------------------------

.------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY    GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                  I
I   B-AC      3.24      9.56    0.339                 0.5    0.5        7.6                    I
I   C-AB      4.77     11.65    0.410                 0.9    0.9       14.2                    I
I   C-A       2.54                                                                             I
I   A-B       0.00                                                                             I
I   A-C       6.31                                                                             I
I                                                                                              I
------------------------------------------------------------------------------------------------

.------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY    GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/     (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                  I
I   B-AC      2.64      9.84    0.268                 0.5    0.4        5.7                    I
```

```
I   C-AB      3.57     11.31    0.315                 0.9     0.6        9.3                     I
I   C-A       2.40                                                                               I
I   A-B       0.00                                                                               I
I   A-C       5.15                                                                               I
I                                                                                                I
-------------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END      DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                    I
I   B-AC      2.21     10.05    0.220                 0.4     0.3        4.4                     I
I   C-AB      2.80     11.07    0.253                 0.6     0.4        6.6                     I
I   C-A       2.20                                                                               I
I   A-B       0.00                                                                               I
I   A-C       4.31                                                                               I
I                                                                                                I
-------------------------------------------------------------------------------------------------

*WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).

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

QUEUE FOR STREAM   B-AC
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.3
  17.15           0.4
  17.30           0.5    *
  17.45           0.5    *
  18.00           0.4
  18.15           0.3

QUEUE FOR STREAM   C-AB
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.4
  17.15           0.6    *
  17.30           0.9    *
  17.45           0.9    *
  18.00           0.6    *
  18.15           0.4

                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I      * DELAY *         I
I        I--------------------------------------------------------------- I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-AC  I  242.7 I  161.8 I    34.4 I    0.14   I      34.4  I    0.14   I
I  C-AB  I  333.8 I  222.6 I    59.5 I    0.18   I      59.5  I    0.18   I
I  C-A   I  214.6 I  143.1 I         I           I            I           I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I  473.1 I  315.4 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I 1264.3 I  842.8 I    93.9 I    0.07   I      93.9  I    0.07   I
---------------------------------------------------------------------------


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


END OF JOB

****** PICADY 4 run completed.
```

```
                                  Eastern Beach Road junction NEW 2020 weekend.vpo
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
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 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\New July 2007 PICADY\
  Eastern Beach Road junction NEW 2020 weekend.vpi"
(drive-on-the-right) at 15:49:37 on Friday, 27 July 2007

  RUN TITLE
  *********
  Eastern Beach Road/Northern Site Access TEST


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Northern Access Site
 ARM B IS Eastern Beach Road
 ARM C IS Northern Access RBT


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.



.GEOMETRIC DATA
 --------------


 -----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 -----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B)  40.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  20.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  18.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.50 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 -----------------------------------------------------------------

.

.TRAFFIC DEMAND DATA
 -------------------


 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  4.43  I   6.64  I  4.43 I
 I ARM B I     15.00   I     45.00   I    75.00   I  4.01  I   6.02  I  4.01 I
 I ARM C I     15.00   I     45.00   I    75.00   I  6.57  I   9.86  I  6.57 I
 -----------------------------------------------------------------------------

.
 -----------------------------------------------------------
 I                   I         TURNING PROPORTIONS         I
 I                   I         TURNING COUNTS (VEH/HR)     I
 I                   I        (PERCENTAGE OF H.V.S)        I
 I                   ---------------------------------------
 I        TIME       I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15   I         I        I        I        I
 I                   I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                   I         I    0.0 I    0.0 I  354.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 I                   I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                   I         I    0.0 I    0.0 I  321.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 I                   I  ARM C  I  0.567 I  0.433 I  0.000 I
 I                   I         I  298.0 I  228.0 I    0.0 I
 I                   I         I (  0.0)I (  0.0)I (  0.0)I
 I                   I         I        I        I        I
 -----------------------------------------------------------

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

.-------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY       FLOW     QUEUE  QUEUE   (VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)     (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                     I
 I   B-AC       4.01      10.02    0.400                  0.0    0.7          9.3                  I
 I   C-AB       4.19      11.58    0.362                  0.0    0.7         10.8                  I
 I   C-A        2.38                                                                               I
 I   A-B        0.00                                                                               I
 I   A-C        4.43                                                                               I
 I                                                                                                 I
 -------------------------------------------------------------------------------------------------

.-------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY       FLOW     QUEUE  QUEUE   (VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)     (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                     I
 I   B-AC       4.79       9.81    0.488                  0.7    0.9         13.4                  I
 I   C-AB       5.43      11.93    0.455                  0.7    1.1         16.6                  I
 I   C-A        2.43                                                                               I
 I   A-B        0.00                                                                               I
 I   A-C        5.28                                                                               I
 I                                                                                                 I
 -------------------------------------------------------------------------------------------------

.-------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY       FLOW     QUEUE  QUEUE   (VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)     (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                     I
 I   B-AC       5.87       9.52    0.617                  0.9    1.5         21.5                  I
 I   C-AB       7.45      12.44    0.599                  1.1    2.0         30.2                  I
 I   C-A        2.16                                                                               I
 I   A-B        0.00                                                                               I
 I   A-C        6.47                                                                               I
 I                                                                                                 I
 -------------------------------------------------------------------------------------------------

.-------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY       FLOW     QUEUE  QUEUE   (VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)     (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                     I
 I   B-AC       5.87       9.52    0.617                  1.5    1.6         23.4                  I
 I   C-AB       7.48      12.46    0.600                  2.0    2.1         31.6                  I
 I   C-A        2.14                                                                               I
 I   A-B        0.00                                                                               I
 I   A-C        6.47                                                                               I
 I                                                                                                 I
 -------------------------------------------------------------------------------------------------

.-------------------------------------------------------------------------------------------------
 I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I          (VEH/MIN) (VEH/MIN) CAPACITY       FLOW     QUEUE  QUEUE   (VEH.MIN/      (VEH.MIN/   I
 I                                (RFC)     (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                     I
 I   B-AC       4.79       9.81    0.488                  1.6    1.0         15.5                  I
```

```
I   C-AB      5.45     11.96    0.456                2.1    1.2       17.8                     I
I   C-A       2.40                                                                            I
I   A-B       0.00                                                                            I
I   A-C       5.28                                                                            I
I                                                                                             I
-----------------------------------------------------------------------------------------------

-----------------------------------------------------------------------------------------------
I  TIME       DEMAND  CAPACITY  DEMAND/    PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                 I
I   B-AC      4.01     10.02    0.400                1.0    0.7       10.6                     I
I   C-AB      4.22     11.60    0.363                1.2    0.8       11.5                     I
I   C-A       2.36                                                                            I
I   A-B       0.00                                                                            I
I   A-C       4.43                                                                            I
I                                                                                             I
-----------------------------------------------------------------------------------------------

*WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).

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

QUEUE FOR STREAM   B-AC
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.7    *
  17.15           0.9    *
  17.30           1.5    **
  17.45           1.6    **
  18.00           1.0    *
  18.15           0.7    *

QUEUE FOR STREAM   C-AB
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.7    *
  17.15           1.1    *
  17.30           2.0    **
  17.45           2.1    **
  18.00           1.2    *
  18.15           0.8    *

                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I--------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-AC  I  440.2 I  293.4 I    93.7 I    0.21   I      93.7  I    0.21   I
I  C-AB  I  513.3 I  342.2 I   118.5 I    0.23   I     118.5  I    0.23   I
I  C-A   I  208.0 I  138.6 I         I           I            I           I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I  485.4 I  323.6 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I 1646.8 I 1097.9 I   212.2 I    0.13   I     212.2  I    0.13   I
---------------------------------------------------------------------------


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


END OF JOB

****** PICADY 4 run completed.
```

```
           ___________________ A R C A D Y  6 ___________________

               ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


               Analysis Program: Release 3.0 (JUNE 2005)

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 --------------------------------------------------------------------------------
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 --------------------------------------------------------------------------------

 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\
  Northern Weekday peak 2015 weekday.vai"
(drive-on-the-right) at 15:41:41 on Friday, 27 July 2007


.FILE PROPERTIES
 ****************

   RUN TITLE: Northern Access
    LOCATION: Catalan Bay Road
        DATE: 26/07/2007
      CLIENT: Multiplex
  ENUMERATOR: ScobieC [D004844]
  JOB NUMBER:
      STATUS: Test Run Only
 DESCRIPTION:

.INPUT DATA
 **********
 ARM A - Catalan Bay Service Road
 ARM B - Catalan Bay Road
 ARM C - Northern Site/ Eastern Beach
 ARM D - Devil's Tower Road

.GEOMETRIC DATA
 --------------



------------------------------------------------------------------------------------------------------------------
-----
 I ARM   I   V (M)    I    E (M)    I    L (M)    I    R (M)    I   D (M)   I   PHI (DEG)  I  SLOPE  I INTERCEPT
(PCU/MIN) I

------------------------------------------------------------------------------------------------------------------
-----
 I ARM A I    3.50    I     7.00    I     0.00    I     7.50    I  60.00    I     50.0     I  0.535  I       30.016
    I
 I ARM B I    3.65    I     6.00    I     9.00    I     9.00    I  60.00    I     55.0     I  0.445  I       21.250
    I
 I ARM C I    3.50    I     6.50    I     9.00    I    25.00    I  60.00    I     40.0     I  0.509  I       24.383
    I
 I ARM D I    6.00    I     7.50    I     2.00    I    17.50    I  60.00    I     30.0     I  0.596  I       32.301
    I

------------------------------------------------------------------------------------------------------------------
-----

 V = approach half-width       L = effective flare length           D = inscribed circle diameter
 E = entry width               R = entry radius                     PHI = entry angle


.TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)

.-----------------------
 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
 -----------------------


.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


 DEMAND SET TITLE: 2015 weekday
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN     I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------

 I ARM A I     15.00   I     45.00   I    75.00   I  0.38  I   0.56  I  0.38 I
 I ARM B I     15.00   I     45.00   I    75.00   I  9.45  I  14.17  I  9.45 I
 I ARM C I     15.00   I     45.00   I    75.00   I  2.67  I   4.01  I  2.67 I
 I ARM D I     15.00   I     45.00   I    75.00   I  9.48  I  14.21  I  9.48 I
 -----------------------------------------------------------------------------



 DEMAND SET TITLE: 2015 weekday
.--------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                  I
 I                    I         TURNING COUNTS (VEH/HR)              I
 I                    I        (PERCENTAGE OF H.V.S)                 I
 I                    -----------------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I  ARM D I
 --------------------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  0.333 I  0.667 I
 I                    I         I    0.0 I    0.0 I   10.0 I   20.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  0.053 I  0.947 I
 I                    I         I    0.0 I    0.0 I   40.0 I  716.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM C  I  0.047 I  0.145 I  0.000 I  0.808 I
 I                    I         I   10.0 I   31.0 I    0.0 I  173.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 I                    I  ARM D  I  0.026 I  0.778 I  0.195 I  0.000 I
 I                    I         I   20.0 I  590.0 I  148.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I        I
 --------------------------------------------------------------------

.         QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          -------------------------------------------------------

.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 16.45-17.00
I
 I ARM A       0.38     24.89   0.015                  0.0    0.0        0.2                               0.04
I
 I ARM B       9.45     20.26   0.466                  0.0    0.9       12.5                               0.09
I
 I ARM C       2.67     19.72   0.136                  0.0    0.2        2.3                               0.06
I
 I ARM D       9.48     32.00   0.296                  0.0    0.4        6.2                               0.04
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                              (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.00-17.15
I
 I ARM A       0.45     23.88   0.019                  0.0    0.0        0.3                               0.04
I
 I ARM B      11.28     20.07   0.562                  0.9    1.3       18.3                               0.11
I
 I ARM C       3.19     18.80   0.170                  0.2    0.2        3.0                               0.06
I
 I ARM D      11.31     31.94   0.354                  0.4    0.5        8.1                               0.05
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
```

```
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.15-17.30
I
 I ARM A       0.55     22.50   0.024                  0.0    0.0        0.4                             0.05
I
 I ARM B      13.82     19.80   0.698                  1.3    2.2       31.4                             0.16
I
 I ARM C       3.91     17.56   0.223                  0.2    0.3        4.2                             0.07
I
 I ARM D      13.86     31.85   0.435                  0.5    0.8       11.3                             0.06
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.30-17.45
I
 I ARM A       0.55     22.50   0.024                  0.0    0.0        0.4                             0.05
I
 I ARM B      13.82     19.80   0.698                  2.2    2.3       33.8                             0.17
I
 I ARM C       3.91     17.53   0.223                  0.3    0.3        4.3                             0.07
I
 I ARM D      13.86     31.85   0.435                  0.8    0.8       11.5                             0.06
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 17.45-18.00
I
 I ARM A       0.45     23.87   0.019                  0.0    0.0        0.3                             0.04
I
 I ARM B      11.28     20.07   0.562                  2.3    1.3       20.5                             0.12
I
 I ARM C       3.19     18.75   0.170                  0.3    0.2        3.1                             0.06
I
 I ARM D      11.31     31.94   0.354                  0.8    0.6        8.4                             0.05
I
 I
I

--------------------------------------------------------------------------------------------------------------------
.-------------------------------------------------------------------------------------------------------------------
-
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY
I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING
I
 I                             (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN)
I
 I 18.00-18.15
I
 I ARM A       0.38     24.87   0.015                  0.0    0.0        0.2                             0.04
I
 I ARM B       9.45     20.26   0.466                  1.3    0.9       13.7                             0.09
I
 I ARM C       2.67     19.68   0.136                  0.2    0.2        2.4                             0.06
I
 I ARM D       9.48     31.99   0.296                  0.6    0.4        6.4                             0.04
I
 I
I

--------------------------------------------------------------------------------------------------------------------

.QUEUE AT ARM A
 -------------

  TIME SEGMENT   NO. OF
   ENDING      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 AT ARM B
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.9  *
   17.15           1.3  *
   17.30           2.2  **
   17.45           2.3  **
   18.00           1.3  *
   18.15           0.9  *

.QUEUE AT ARM C
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.2
   17.15           0.2
   17.30           0.3
   17.45           0.3
   18.00           0.2
   18.15           0.2

.QUEUE AT ARM D
 -------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   17.00           0.4
   17.15           0.5  *
   17.30           0.8  *
   17.45           0.8  *
   18.00           0.6  *
   18.15           0.4


.                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *     I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *       I         * DELAY *        I
 I       I-------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I   41.1 I   27.4 I     1.8 I    0.04   I       1.8  I     0.04    I
 I   B   I 1036.6 I  691.1 I   130.2 I    0.13   I     130.2  I     0.13    I
 I   C   I  293.4 I  195.6 I    19.3 I    0.07   I      19.3  I     0.07    I
 I   D   I 1039.4 I  692.9 I    51.8 I    0.05   I      51.8  I     0.05    I
 ----------------------------------------------------------------------------
 I  ALL  I 2410.6 I 1607.1 I   203.1 I    0.08   I     203.1  I     0.08    I
 ----------------------------------------------------------------------------

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

 END OF JOB
```

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

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                            RELEASE 3.0 (MAY 2001)

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady\2015\Junction 2 Weekday.vpi"
(drive-on-the-right) at 11:11:03 on Thursday, 19 July 2007

  RUN TITLE
  *********
  Junction 2 Weekday


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access Road 2
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.50 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  3.00 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  25.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  35.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------






 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  8.48  I  12.71  I  8.48 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.41  I   0.62  I  0.41 I
 I ARM C I     15.00   I     45.00   I    75.00   I  7.43  I  11.14  I  7.43 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  678.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   33.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.944 I  0.056 I  0.000 I
 I                    I         I  561.0 I   33.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                   I
I   B-C       0.41      8.96    0.046                0.0    0.0        0.7                      I
I   B-A       0.00      5.47    0.000                0.0    0.0        0.0                      I
I   C-A       7.01                                                                              I
I   C-B       0.41      8.95    0.046                0.0    0.0        0.7                      I
I   A-B       0.00                                                                              I
I   A-C       8.48                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.088      0.009                 0.009                                     I
I       B-A          0.055      0.015       0.021     0.006          0.004                      I
I       C-B          0.090      0.009                                0.009                      I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                   I
I   B-C       0.49      8.57    0.057                0.0    0.1        0.9                      I
I   B-A       0.00      4.90    0.000                0.0    0.0        0.0                      I
I   C-A       8.37                                                                              I
I   C-B       0.49      8.56    0.058                0.0    0.1        0.9                      I
I   A-B       0.00                                                                              I
I   A-C      10.12                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.084      0.011                 0.008                                     I
I       B-A          0.049      0.018       0.021     0.005          0.003                      I
I       C-B          0.086      0.011                                0.008                      I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                   I
I   B-C       0.60      8.02    0.075                0.1    0.1        1.2                      I
I   B-A       0.00      4.12    0.000                0.0    0.0        0.0                      I
I   C-A      10.26                                                                              I
I   C-B       0.60      8.02    0.075                0.1    0.1        1.2                      I
I   A-B       0.00                                                                              I
I   A-C      12.39                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.079      0.014                 0.008                                     I
I       B-A          0.041      0.022       0.021     0.004          0.003                      I
I       C-B          0.080      0.014                                0.008                      I
-------------------------------------------------------------------------------------------------
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                   I
I   B-C       0.60      8.02    0.075                 0.1    0.1        1.2                     I
I   B-A       0.00      4.12    0.000                 0.0    0.0        0.0                     I
I   C-A      10.26                                                                              I
I   C-B       0.60      8.02    0.075                 0.1    0.1        1.2                     I
I   A-B       0.00                                                                              I
I   A-C      12.39                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.079      0.014                 0.008                                     I
I       B-A          0.041      0.022       0.021      0.004          0.003                     I
I       C-B          0.080      0.014                                 0.008                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                   I
I   B-C       0.49      8.57    0.057                 0.1    0.1        0.9                     I
I   B-A       0.00      4.90    0.000                 0.0    0.0        0.0                     I
I   C-A       8.37                                                                              I
I   C-B       0.49      8.56    0.058                 0.1    0.1        0.9                     I
I   A-B       0.00                                                                              I
I   A-C      10.12                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.084      0.011                 0.008                                     I
I       B-A          0.049      0.018       0.021      0.005          0.003                     I
I       C-B          0.086      0.011                                 0.008                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                   I
I   B-C       0.41      8.96    0.046                 0.1    0.0        0.7                     I
I   B-A       0.00      5.46    0.000                 0.0    0.0        0.0                     I
I   C-A       7.01                                                                              I
I   C-B       0.41      8.95    0.046                 0.1    0.0        0.7                     I
I   A-B       0.00                                                                              I
I   A-C       8.48                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.088      0.009                 0.009                                     I
I       B-A          0.055      0.015       0.021      0.006          0.004                     I
I       C-B          0.090      0.009                                 0.009                     I
-------------------------------------------------------------------------------------------------

*WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


QUEUE FOR STREAM   B-C
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00          0.0
  17.15          0.1
  17.30          0.1
  17.45          0.1
  18.00          0.1
  18.15          0.0
```

```
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.0
   17.15           0.1
   17.30           0.1
   17.45           0.1
   18.00           0.1
   18.15           0.0


                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I   45.2 I   30.2 I     5.7 I    0.13   I       5.7  I    0.13   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  769.2 I  512.8 I         I           I            I           I
 I  C-B   I   45.2 I   30.2 I     5.7 I    0.13   I       5.7  I    0.13   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  929.7 I  619.8 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1789.4 I 1193.0 I    11.3 I    0.01   I      11.3  I    0.01   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ================================================
```

[Printed at 11:12:31 on 19/07/2007]

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady\2015\Junction 3 Weekday.vpi"
(drive-on-the-right) at 11:15:17 on Thursday, 19 July 2007

  RUN TITLE
  *********
  Junction 3 Weekday


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 3
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I               DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                        - VISIBILITY      I (VC-B)  70.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  33.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         9.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         2.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         2.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------





 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  7.64  I  11.46  I  7.64 I
 I ARM B I     15.00   I     45.00   I    75.00   I  0.84  I   1.26  I  0.84 I
 I ARM C I     15.00   I     45.00   I    75.00   I  7.01  I  10.52  I  7.01 I
 -----------------------------------------------------------------------------



 ----------------------------------------------------------
 I                    I         TURNING PROPORTIONS       I
 I                    I         TURNING COUNTS (VEH/HR)   I
 I                    I        (PERCENTAGE OF H.V.S)      I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 ----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  611.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   67.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.857 I  0.143 I  0.000 I
 I                    I         I  481.0 I   80.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 ----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -----------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                    I
 I   B-C       0.84      9.01    0.093                 0.0    0.1        1.5                     I
 I   B-A       0.00      5.41    0.000                 0.0    0.0        0.0                     I
 I   C-A       6.01                                                                              I
 I   C-B       1.00      8.97    0.111                 0.0    0.1        1.8                     I
 I   A-B       0.00                                                                              I
 I   A-C       7.64                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                      I
 I                                                                                               I
 I       B-C          0.088      0.008                  0.009                                    I
 I       B-A          0.054      0.014       0.021      0.006           0.004                    I
 I       C-B          0.092      0.008                                  0.008                    I
 -----------------------------------------------------------------------------------------------


 -----------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                    I
 I   B-C       1.00      8.64    0.116                 0.1    0.1        1.9                     I
 I   B-A       0.00      4.83    0.000                 0.0    0.0        0.0                     I
 I   C-A       7.18                                                                              I
 I   C-B       1.19      8.60    0.139                 0.1    0.2        2.3                     I
 I   A-B       0.00                                                                              I
 I   A-C       9.12                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                      I
 I                                                                                               I
 I       B-C          0.085      0.010                  0.008                                    I
 I       B-A          0.048      0.017       0.021      0.005           0.003                    I
 I       C-B          0.088      0.010                                  0.008                    I
 -----------------------------------------------------------------------------------------------


 -----------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                    I
 I   B-C       1.22      8.11    0.151                 0.1    0.2        2.6                     I
 I   B-A       0.00      4.03    0.000                 0.0    0.0        0.0                     I
 I   C-A       8.79                                                                              I
 I   C-B       1.46      8.08    0.181                 0.2    0.2        3.2                     I
 I   A-B       0.00                                                                              I
 I   A-C      11.17                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                      I
 I                                                                                               I
 I       B-C          0.080      0.012                  0.008                                    I
 I       B-A          0.040      0.021       0.021      0.004           0.003                    I
 I       C-B          0.082      0.012                                  0.008                    I
 -----------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C       1.22      8.11    0.151                 0.2    0.2        2.6                      I
 I   B-A       0.00      4.03    0.000                 0.0    0.0        0.0                      I
 I   C-A       8.79                                                                               I
 I   C-B       1.46      8.08    0.181                 0.2    0.2        3.3                      I
 I   A-B       0.00                                                                               I
 I   A-C      11.17                                                                               I
 I                                                                                                I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT               I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                       I
 I                                                                                                I
 I       B-C          0.080      0.012                 0.008                                      I
 I       B-A          0.040      0.021       0.021      0.004          0.003                      I
 I       C-B          0.082      0.012                                 0.008                      I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C       1.00      8.64    0.116                 0.2    0.1        2.0                      I
 I   B-A       0.00      4.83    0.000                 0.0    0.0        0.0                      I
 I   C-A       7.18                                                                               I
 I   C-B       1.19      8.60    0.139                 0.2    0.2        2.5                      I
 I   A-B       0.00                                                                               I
 I   A-C       9.12                                                                               I
 I                                                                                                I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT               I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                       I
 I                                                                                                I
 I       B-C          0.085      0.010                 0.008                                      I
 I       B-A          0.048      0.017       0.021      0.005          0.003                      I
 I       C-B          0.088      0.010                                 0.008                      I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-C       0.84      9.01    0.093                 0.1    0.1        1.6                      I
 I   B-A       0.00      5.41    0.000                 0.0    0.0        0.0                      I
 I   C-A       6.01                                                                               I
 I   C-B       1.00      8.97    0.111                 0.2    0.1        1.9                      I
 I   A-B       0.00                                                                               I
 I   A-C       7.64                                                                               I
 I                                                                                                I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT               I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)           I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)            (M)                       I
 I                                                                                                I
 I       B-C          0.088      0.008                 0.009                                      I
 I       B-A          0.054      0.014       0.021      0.006          0.004                      I
 I       C-B          0.092      0.008                                 0.008                      I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING       VEHICLES
                IN QUEUE
   17.00           0.1
   17.15           0.1
   17.30           0.2
   17.45           0.2
   18.00           0.1
   18.15           0.1
```

```
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.1
   17.15           0.2
   17.30           0.2
   17.45           0.2
   18.00           0.2
   18.15           0.1


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I   91.9 I   61.2 I    12.2 I    0.13   I      12.2  I    0.13   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  659.6 I  439.7 I         I           I            I           I
 I  C-B   I  109.7 I   73.1 I    15.1 I    0.14   I      15.1  I    0.14   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  837.8 I  558.5 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1698.9 I 1132.6 I    27.3 I    0.02   I      27.3  I    0.02   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ===============================================



 [Printed at 11:15:39 on 19/07/2007]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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                 TEL: CROWTHORNE (01344) 770758, FAX: 770864
                       EMAIL: SoftwareBureau@trl.co.uk
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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady\2015\Junction 4 Weekday.vpi"
(drive-on-the-right) at 11:48:30 on Thursday, 19 July 2007

  RUN TITLE
  *********
  Site Access 4


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Site Access 4
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I               DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH    I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                 I (WCR )  0.00 M.   I
 I                                        I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH         I (WC-B)  3.00 M.   I
 I                       - VISIBILITY     I (VC-B)  55.0 M.   I
 I                       - BLOCKS TRAFFIC I          NO       I
 I                                        I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT      I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT       I (VB-A)  20.0 M.   I
 I             - LANE 1 WIDTH             I (WB-C)    -       I
 I             - LANE 2 WIDTH             I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.  I         8.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.  I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.  I         2.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.  I         3.00 M.   I
 I             - WIDTH AT 20 M FROM JUNC.  I         3.00 M.   I
 I             - LENGTH OF FLARED SECTION  I           1 VEHS  I
 ----------------------------------------------------------------
```

```
 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  6.43  I    9.64  I  6.43 I
 I ARM B I     15.00   I     45.00   I    75.00   I  1.23  I    1.84  I  1.23 I
 I ARM C I     15.00   I     45.00   I    75.00   I  6.04  I    9.06  I  6.04 I
 -----------------------------------------------------------------------------
```

```
 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS       I
 I                    I         TURNING COUNTS (VEH/HR)   I
 I                    I        (PERCENTAGE OF H.V.S)      I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  514.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I   98.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.754 I  0.246 I  0.000 I
 I                    I         I  364.0 I  119.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 16.45-17.00                                                                                   I
 I   B-C       1.23      9.63    0.127                 0.0    0.1        2.1                     I
 I   B-A       0.00      5.16    0.000                 0.0    0.0        0.0                     I
 I   C-A       4.55                                                                              I
 I   C-B       1.49      9.34    0.159                 0.0    0.2        2.7                     I
 I   A-B       0.00                                                                              I
 I   A-C       6.43                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.090      0.007                 0.010                                     I
 I       B-A          0.057      0.011       0.019      0.006          0.004                     I
 I       C-B          0.093      0.007                                 0.009                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.00-17.15                                                                                   I
 I   B-C       1.46      9.30    0.157                 0.1    0.2        2.7                     I
 I   B-A       0.00      4.69    0.000                 0.0    0.0        0.0                     I
 I   C-A       5.43                                                                              I
 I   C-B       1.78      9.02    0.197                 0.2    0.2        3.5                     I
 I   A-B       0.00                                                                              I
 I   A-C       7.67                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.087      0.009                 0.009                                     I
 I       B-A          0.052      0.014       0.019      0.005          0.003                     I
 I       C-B          0.090      0.009                                 0.009                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.15-17.30                                                                                   I
 I   B-C       1.79      8.84    0.203                 0.2    0.3        3.7                     I
 I   B-A       0.00      4.05    0.000                 0.0    0.0        0.0                     I
 I   C-A       6.65                                                                              I
 I   C-B       2.18      8.58    0.254                 0.2    0.3        4.9                     I
 I   A-B       0.00                                                                              I
 I   A-C       9.40                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.083      0.011                 0.009                                     I
 I       B-A          0.045      0.017       0.019      0.004          0.003                     I
 I       C-B          0.086      0.010                                 0.008                     I
 -------------------------------------------------------------------------------------------------
```

```
-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                   I
I   B-C       1.79      8.84    0.203                 0.3    0.3        3.8                     I
I   B-A       0.00      4.05    0.000                 0.0    0.0        0.0                     I
I   C-A       6.65                                                                              I
I   C-B       2.18      8.58    0.254                 0.3    0.3        5.0                     I
I   A-B       0.00                                                                              I
I   A-C       9.40                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.083      0.011                  0.009                                    I
I       B-A          0.045      0.017       0.019      0.004          0.003                     I
I       C-B          0.086      0.010                                 0.008                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                   I
I   B-C       1.46      9.30    0.157                 0.3    0.2        2.9                     I
I   B-A       0.00      4.69    0.000                 0.0    0.0        0.0                     I
I   C-A       5.43                                                                              I
I   C-B       1.78      9.02    0.197                 0.3    0.2        3.8                     I
I   A-B       0.00                                                                              I
I   A-C       7.67                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.087      0.009                  0.009                                    I
I       B-A          0.052      0.014       0.019      0.005          0.003                     I
I       C-B          0.090      0.009                                 0.009                     I
-------------------------------------------------------------------------------------------------


-------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                   I
I   B-C       1.23      9.63    0.127                 0.2    0.1        2.3                     I
I   B-A       0.00      5.15    0.000                 0.0    0.0        0.0                     I
I   C-A       4.55                                                                              I
I   C-B       1.49      9.34    0.159                 0.2    0.2        2.9                     I
I   A-B       0.00                                                                              I
I   A-C       6.43                                                                              I
I                                                                                               I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
I                                                                                               I
I       B-C          0.090      0.007                  0.010                                    I
I       B-A          0.057      0.011       0.019      0.006          0.004                     I
I       C-B          0.093      0.007                                 0.009                     I
-------------------------------------------------------------------------------------------------

*WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


QUEUE FOR STREAM   B-C
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00          0.1
  17.15          0.2
  17.30          0.3
  17.45          0.3
  18.00          0.2
  18.15          0.1
```

```
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.2
   17.15           0.2
   17.30           0.3
   17.45           0.3
   18.00           0.2
   18.15           0.2


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  134.4 I   89.6 I    17.4 I    0.13   I      17.4  I    0.13   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  499.1 I  332.7 I         I           I            I           I
 I  C-B   I  163.2 I  108.8 I    23.0 I    0.14   I      23.0  I    0.14   I
 I  A-B   I    0.0 I    0.0 I         I           I            I           I
 I  A-C   I  704.8 I  469.9 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1501.5 I 1001.0 I    40.4 I    0.03   I      40.4  I    0.03   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================== end of file ==============================================



 [Printed at 11:48:45 on 19/07/2007]
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                                TRL LIMITED

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

                         PICADY 4.1  ANALYSIS PROGRAM
                            RELEASE 3.0 (MAY 2001)

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Picady\2015\Junction 5 Weekday.vpi"
(drive-on-the-right) at 11:47:28 on Thursday, 19 July 2007

  RUN TITLE
  *********
  Site Access 5


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Catalan Bay Road
 ARM B IS Catalan Bay Village - Site Access 5
 ARM C IS Catalan Bay Road


 STREAM LABELLING CONVENTION
 ---------------------------

        STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

        STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

        ETC.
```

```
 GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                 I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  6.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.80 M.   I
 I                        - VISIBILITY      I (VC-B)  55.0 M.   I
 I                        - BLOCKS TRAFFIC  I          NO       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  30.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  25.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)    -       I
 I             - LANE 2 WIDTH               I (WB-A)    -       I
 I             - WIDTH AT  0 M FROM JUNC.   I         7.00 M.   I
 I             - WIDTH AT  5 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 10 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 15 M FROM JUNC.   I         3.50 M.   I
 I             - WIDTH AT 20 M FROM JUNC.   I         3.50 M.   I
 I             - LENGTH OF FLARED SECTION   I           1 VEHS  I
 ----------------------------------------------------------------




 TRAFFIC DEMAND DATA
 -------------------



 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


 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  1.81  I   2.72  I  1.81 I
 I ARM B I     15.00   I     45.00   I    75.00   I  4.69  I   7.03  I  4.69 I
 I ARM C I     15.00   I     45.00   I    75.00   I  4.51  I   6.77  I  4.51 I
 -----------------------------------------------------------------------------



 -----------------------------------------------------------
 I                    I         TURNING PROPORTIONS        I
 I                    I         TURNING COUNTS (VEH/HR)    I
 I                    I        (PERCENTAGE OF H.V.S)       I
 I                    -------------------------------------
 I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
 -----------------------------------------------------------
 I   16.45 - 18.15    I         I        I        I        I
 I                    I  ARM A  I  0.000 I  0.041 I  0.959 I
 I                    I         I    0.0 I    6.0 I  139.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
 I                    I         I    0.0 I    0.0 I  375.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 I                    I  ARM C  I  0.424 I  0.576 I  0.000 I
 I                    I         I  153.0 I  208.0 I    0.0 I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I        I        I        I
 -----------------------------------------------------------

 TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
```

```
--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                    I
I   B-C       4.69     11.04    0.425                 0.0    0.7       10.3                      I
I   B-A       0.00      5.55    0.000                 0.0    0.0        0.0                      I
I   C-A       1.91                                                                               I
I   C-B       2.60     10.30    0.252                 0.0    0.3        4.8                      I
I   A-B       0.08                                                                               I
I   A-C       1.74                                                                               I
I                                                                                                I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
I                             MAJOR RD.    CENT RES  VISIBILITY        VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)         (M)           (M)                       I
I                                                                                                I
I       B-C          0.102      0.002                   0.011                                    I
I       B-A          0.068      0.006       0.017       0.006          0.004                     I
I       C-B          0.105      0.002                                  0.010                     I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                    I
I   B-C       5.60     10.95    0.511                 0.7    1.0       14.7                      I
I   B-A       0.00      5.30    0.000                 0.0    0.0        0.0                      I
I   C-A       2.28                                                                               I
I   C-B       3.10     10.22    0.304                 0.3    0.4        6.3                      I
I   A-B       0.09                                                                               I
I   A-C       2.07                                                                               I
I                                                                                                I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
I                             MAJOR RD.    CENT RES  VISIBILITY        VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)         (M)           (M)                       I
I                                                                                                I
I       B-C          0.101      0.002                   0.011                                    I
I       B-A          0.065      0.007       0.017       0.006          0.004                     I
I       C-B          0.104      0.002                                  0.010                     I
--------------------------------------------------------------------------------------------------


--------------------------------------------------------------------------------------------------
I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END        DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE     (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                    I
I   B-C       6.86     10.82    0.633                 1.0    1.7       23.2                      I
I   B-A       0.00      4.96    0.000                 0.0    0.0        0.0                      I
I   C-A       2.80                                                                               I
I   C-B       3.80     10.09    0.377                 0.4    0.6        8.6                      I
I   A-B       0.11                                                                               I
I   A-C       2.54                                                                               I
I                                                                                                I
I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                         I
I                             MAJOR RD.    CENT RES  VISIBILITY        VIS TO RIGHT              I
I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT          (AHEAD FOR MAJOR)          I
I      CHANGE:     (.1M)       (.1M)       (.1M)         (M)           (M)                       I
I                                                                                                I
I       B-C          0.100      0.003                   0.011                                    I
I       B-A          0.061      0.009       0.017       0.005          0.004                     I
I       C-B          0.103      0.003                                  0.010                     I
--------------------------------------------------------------------------------------------------
```

```
 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.30-17.45                                                                                   I
 I   B-C       6.86     10.82    0.633                 1.7    1.7       25.2                     I
 I   B-A       0.00      4.96    0.000                 0.0    0.0        0.0                     I
 I   C-A       2.80                                                                              I
 I   C-B       3.80     10.09    0.377                 0.6    0.6        9.0                     I
 I   A-B       0.11                                                                              I
 I   A-C       2.54                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.100      0.003                  0.011                                    I
 I       B-A          0.061      0.009       0.017      0.005          0.004                     I
 I       C-B          0.103      0.003                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 17.45-18.00                                                                                   I
 I   B-C       5.60     10.95    0.511                 1.7    1.1       16.9                     I
 I   B-A       0.00      5.30    0.000                 0.0    0.0        0.0                     I
 I   C-A       2.28                                                                              I
 I   C-B       3.10     10.22    0.304                 0.6    0.4        6.8                     I
 I   A-B       0.09                                                                              I
 I   A-C       2.07                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.101      0.002                  0.011                                    I
 I       B-A          0.065      0.007       0.017      0.006          0.004                     I
 I       C-B          0.104      0.002                                 0.010                     I
 -------------------------------------------------------------------------------------------------


 -------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
 I 18.00-18.15                                                                                   I
 I   B-C       4.69     11.04    0.425                 1.1    0.8       11.7                     I
 I   B-A       0.00      5.55    0.000                 0.0    0.0        0.0                     I
 I   C-A       1.91                                                                              I
 I   C-B       2.60     10.30    0.252                 0.4    0.3        5.3                     I
 I   A-B       0.08                                                                              I
 I   A-C       1.74                                                                              I
 I                                                                                               I
 I                   EFFECT ON CAPACITY (PCU/MIN) OF MARGINAL CHANGES IN:                        I
 I                             MAJOR RD.    CENT RES  VISIBILITY       VIS TO RIGHT              I
 I     MARGINAL   LANE WIDTH    WIDTH       WIDTH     TO LEFT         (AHEAD FOR MAJOR)          I
 I      CHANGE:     (.1M)       (.1M)       (.1M)        (M)           (M)                       I
 I                                                                                               I
 I       B-C          0.102      0.002                  0.011                                    I
 I       B-A          0.068      0.006       0.017      0.006          0.004                     I
 I       C-B          0.105      0.002                                 0.010                     I
 -------------------------------------------------------------------------------------------------

 *WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).


 QUEUE FOR STREAM   B-C
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.7    *
   17.15           1.0    *
   17.30           1.7    **
   17.45           1.7    **
   18.00           1.1    *
   18.15           0.8    *
```

```
 QUEUE FOR STREAM   B-A
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      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-B
 -------------------------
 TIME SEGMENT    NO. OF
   ENDING      VEHICLES
               IN QUEUE
   17.00           0.3
   17.15           0.4
   17.30           0.6    *
   17.45           0.6    *
   18.00           0.4
   18.15           0.3


                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ---------------------------------------------------------------------------
 I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
 I        I                 I    * DELAY *        I       * DELAY *        I
 I        I-----------------------------------------------------------------I
 I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
 ---------------------------------------------------------------------------
 I  B-C   I  514.2 I  342.8 I   102.0 I    0.20   I     102.0  I    0.20   I
 I  B-A   I    0.0 I    0.0 I     0.0 I    0.00   I       0.0  I    0.00   I
 I  C-A   I  209.8 I  139.9 I         I           I            I           I
 I  C-B   I  285.2 I  190.1 I    40.8 I    0.14   I      40.8  I    0.14   I
 I  A-B   I    8.2 I    5.5 I         I           I            I           I
 I  A-C   I  190.6 I  127.1 I         I           I            I           I
 ---------------------------------------------------------------------------
 I  ALL   I 1208.0 I  805.4 I   142.8 I    0.12   I     142.8  I    0.12   I
 ---------------------------------------------------------------------------


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



 END OF JOB

 ****** PICADY 4 run completed.
============================================= end of file ==============================================



 [Printed at 11:47:48 on 19/07/2007]
```

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            ___________________ A R C A D Y  6 ___________________

                ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY


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            Nine Mile Ride          Email: softwarebureau@trl.co.uk
            Wokingham, Berks.       Web:   www.trlsoftware.co.uk
            RG40 3GA,UK

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\July 2007 Arcady\2015\Sundial Weekday peak.vai"
(drive-on-the-right) at 12:10:40 on Thursday, 19 July 2007



 FILE PROPERTIES
 ***************

   RUN TITLE: Sundial 2015 Weekday peak
    LOCATION: Gibraltar
        DATE: 13/06/2007
      CLIENT:
  ENUMERATOR: ScobieC
  JOB NUMBER: DCSBGA004
      STATUS:
 DESCRIPTION: Weekdaypeak period 2015 dev + Construction flow


 INPUT DATA
 **********
 ARM A - Winston Churchill Ave North Arm
 ARM B - Bayside Road
 ARM C - Winston Churchill Ave South Arm
 ARM D - Devil's Tower Road


 GEOMETRIC DATA
 --------------


 ARM B IS JUNCTION EXIT ONLY

 ------------------------------------------------------------------------------------------------------------------------
 I ARM   I   V (M)   I    E (M)   I    L (M)   I    R (M)   I   D (M)    I   PHI (DEG)  I  SLOPE  I INTERCEPT (PCU/MIN) I
 ------------------------------------------------------------------------------------------------------------------------
 I ARM A I    7.00   I     7.00   I     0.00   I    14.00   I   38.00    I      0.0     I  0.792  I       38.289        I
 I ARM C I    7.00   I     9.00   I     0.00   I    74.00   I   38.00    I     15.0     I  0.927  I       49.438        I
 I ARM D I    6.00   I     7.50   I    28.80   I    12.00   I   38.00    I     25.0     I  0.737  I       36.232        I
 ------------------------------------------------------------------------------------------------------------------------

 V = approach half-width       L = effective flare length            D = inscribed circle diameter
 E = entry width               R = entry radius                      PHI = entry angle



 TRAFFIC DEMAND DATA
 -------------------

(Only sets included in the current run are shown)


 -----------------------
 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
 -----------------------
```

```
 TIME PERIOD BEGINS 17.45 AND ENDS 19.15

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


 DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA


 DEMAND SET TITLE: Weekday 2015
 -----------------------------------------------------------------------------
 I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
 I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
 I       I   TO RISE   I  IS REACHED IFALLING   I  PEAK  I OF PEAK I PEAK  I
 -----------------------------------------------------------------------------
 I ARM A I     15.00   I     45.00   I    75.00   I  8.26  I  12.39  I  8.26 I
 I ARM C I     15.00   I     45.00   I    75.00   I 17.96  I  26.94  I 17.96 I
 I ARM D I     15.00   I     45.00   I    75.00   I 13.25  I  19.88  I 13.25 I
 -----------------------------------------------------------------------------



 DEMAND SET TITLE: Weekday 2015

 --------------------------------------------------------------------
 I                    I         TURNING PROPORTIONS                 I
 I                    I         TURNING COUNTS (VEH/HR)             I
 I                    I        (PERCENTAGE OF H.V.S)                I
 I                    ----------------------------------------------
 I        TIME        I FROM/TO I  ARM  A I  ARM  B I  ARM  C I  ARM  D I
 --------------------------------------------------------------------
 I   17.45 - 19.15    I         I         I         I         I         I
 I                    I  ARM A  I  0.002  I  0.085  I  0.628  I  0.286  I
 I                    I         I    1.0  I   56.0  I  415.0  I  189.0  I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I         I         I         I         I
 I                    I  ARM C  I  0.449  I  0.031  I  0.001  I  0.520  I
 I                    I         I  645.0  I   44.0  I    1.0  I  747.0  I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I         I         I         I         I
 I                    I  ARM D  I  0.292  I  0.034  I  0.674  I  0.001  I
 I                    I         I  309.0  I   36.0  I  714.0  I    1.0  I
 I                    I         I (  0.0)I (  0.0)I (  0.0)I (  0.0)I
 I                    I         I         I         I         I         I
 --------------------------------------------------------------------


          QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          --------------------------------------------------------


 -----------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY    AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/       PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 17.45-18.00                                                                                                    I
 I ARM A      8.26     30.44   0.271                    0.0    0.4        5.5                             0.04       I
 I ARM C     17.96     47.23   0.380                    0.0    0.6        9.0                             0.03       I
 I ARM D     13.25     29.88   0.443                    0.0    0.8       11.5                             0.06       I
 I                                                                                                                I
 -----------------------------------------------------------------------------------------------------------------

 -----------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY    AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/       PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 18.00-18.15                                                                                                    I
 I ARM A      9.87     28.90   0.341                    0.4    0.5        7.6                             0.05       I
 I ARM C     21.45     46.80   0.458                    0.6    0.8       12.4                             0.04       I
 I ARM D     15.82     28.64   0.552                    0.8    1.2       17.8                             0.08       I
 I                                                                                                                I
 -----------------------------------------------------------------------------------------------------------------

 -----------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY    AVERAGE DELAY I
 I          (VEH/MIN) (VEH/MIN) CAPACITY     FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/       PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS)  (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 18.15-18.30                                                                                                    I
 I ARM A     12.08     26.82   0.451                    0.5    0.8       11.9                             0.07       I
 I ARM C     26.27     46.20   0.569                    0.8    1.3       19.2                             0.05       I
 I ARM D     19.38     26.93   0.719                    1.2    2.5       35.1                             0.13       I
 I                                                                                                                I
 -----------------------------------------------------------------------------------------------------------------
```

```
 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 18.30-18.45                                                                                                    I
 I ARM A      12.08     26.77   0.451                  0.8    0.8       12.3                            0.07      I
 I ARM C      26.27     46.20   0.569                  1.3    1.3       19.7                            0.05      I
 I ARM D      19.38     26.92   0.720                  2.5    2.5       37.7                            0.13      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 18.45-19.00                                                                                                    I
 I ARM A       9.87     28.84   0.342                  0.8    0.5        8.0                            0.05      I
 I ARM C      21.45     46.79   0.458                  1.3    0.9       13.0                            0.04      I
 I ARM D      15.82     28.62   0.553                  2.5    1.3       19.5                            0.08      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------

 ------------------------------------------------------------------------------------------------------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAY   AVERAGE DELAY I
 I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/      PER ARRIVING  I
 I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT)    VEHICLE (MIN) I
 I 19.00-19.15                                                                                                    I
 I ARM A       8.26     30.40   0.272                  0.5    0.4        5.7                            0.05      I
 I ARM C      17.96     47.22   0.380                  0.9    0.6        9.4                            0.03      I
 I ARM D      13.25     29.86   0.444                  1.3    0.8       12.3                            0.06      I
 I                                                                                                                I
 ------------------------------------------------------------------------------------------------------------------


 QUEUE AT ARM A
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   18.00           0.4
   18.15           0.5  *
   18.30           0.8  *
   18.45           0.8  *
   19.00           0.5  *
   19.15           0.4



 QUEUE AT ARM C
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   18.00           0.6  *
   18.15           0.8  *
   18.30           1.3  *
   18.45           1.3  *
   19.00           0.9  *
   19.15           0.6  *



 QUEUE AT ARM D
 --------------

  TIME SEGMENT   NO. OF
   ENDING      VEHICLES
               IN QUEUE

   18.00           0.8  *
   18.15           1.2  *
   18.30           2.5  **
   18.45           2.5  ***
   19.00           1.3  *
   19.15           0.8  *
```

```
                 QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                 --------------------------------------------

 ----------------------------------------------------------------------------
 I  ARM  I   TOTAL DEMAND  I     * QUEUEING *    I  * INCLUSIVE QUEUEING *  I
 I       I                 I      * DELAY *      I         * DELAY *        I
 I       I------------------------------------------------------------------I
 I       I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)      (MIN/VEH)  I
 ----------------------------------------------------------------------------
 I   A   I  906.4 I  604.2 I    50.9 I    0.06   I      50.9  I     0.06    I
 I   C   I 1970.4 I 1313.6 I    82.7 I    0.04   I      82.7  I     0.04    I
 I   D   I 1453.5 I  969.0 I   133.9 I    0.09   I     133.9  I     0.09    I
 ----------------------------------------------------------------------------
 I  ALL  I 4330.3 I 2886.9 I   267.5 I    0.06   I     267.5  I     0.06    I
 ----------------------------------------------------------------------------

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

 END OF JOB

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



 [Printed at 12:11:04 on 19/07/2007]
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   CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

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                           RELEASE 3.0 (MAY 2001)

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 Run with file:-
 "u:\HF Projects\Gibraltar - Eastside Dev\Junction Analysis\New July 2007 Arcady\New July 2007 PICADY\
  Eastern Beach Road junction NEW 2015 weekday.vpi"
(drive-on-the-right) at 15:47:45 on Friday, 27 July 2007

  RUN TITLE
  *********
  Eastern Beach Road/Northern Site Access TEST


 .MAJOR/MINOR JUNCTION CAPACITY AND DELAY
  ***************************************

  INPUT DATA
  ----------

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

 ARM A IS Northern Access Site
 ARM B IS Eastern Beach Road
 ARM C IS Northern Access RBT


 STREAM LABELLING CONVENTION
 ---------------------------

       STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B

       STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C

       ETC.



.GEOMETRIC DATA
 --------------


 ----------------------------------------------------------------
 I                DATA ITEM                I   MINOR ROAD B    I
 ----------------------------------------------------------------
 I  TOTAL MAJOR ROAD CARRIAGEWAY WIDTH      I ( W  )  7.00 M.   I
 I  CENTRAL RESERVE WIDTH                   I (WCR )  0.00 M.   I
 I                                          I                   I
 I  MAJOR ROAD LEFT  TURN - WIDTH           I (WC-B)  2.20 M.   I
 I                        - VISIBILITY      I (VC-B)  40.0 M.   I
 I                        - BLOCKS TRAFFIC  I         YES       I
 I                                          I                   I
 I  MINOR ROAD - VISIBILITY TO RIGHT        I (VB-C)  20.0 M.   I
 I             - VISIBILITY TO LEFT         I (VB-A)  18.0 M.   I
 I             - LANE 1 WIDTH               I (WB-C)  3.50 M.   I
 I             - LANE 2 WIDTH               I (WB-A)  0.00 M.   I
 ----------------------------------------------------------------

.

.TRAFFIC DEMAND DATA
 -------------------


 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


----------------------------------------------------------------------------
I       I   NUMBER OF MINUTES FROM START WHEN    I   RATE OF FLOW (VEH/MIN) I
I  ARM  I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP  I AFTER I
I       I   TO RISE   I  IS REACHED I  FALLING   I  PEAK  I OF PEAK I PEAK  I
----------------------------------------------------------------------------
I ARM A I     15.00   I     45.00   I    75.00   I  0.41  I   0.62  I  0.41 I
I ARM B I     15.00   I     45.00   I    75.00   I  2.14  I   3.21  I  2.14 I
I ARM C I     15.00   I     45.00   I    75.00   I  2.35  I   3.52  I  2.35 I
----------------------------------------------------------------------------

.
----------------------------------------------------------
I                    I         TURNING PROPORTIONS        I
I                    I         TURNING COUNTS (VEH/HR)    I
I                    I        (PERCENTAGE OF H.V.S)       I
I                    -------------------------------------
I        TIME        I FROM/TO I  ARM A I  ARM B I  ARM C I
----------------------------------------------------------
I   16.45 - 18.15    I         I        I        I        I
I                    I  ARM A  I  0.000 I  0.000 I  1.000 I
I                    I         I    0.0 I    0.0 I   33.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
I                    I  ARM B  I  0.000 I  0.000 I  1.000 I
I                    I         I    0.0 I    0.0 I  171.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
I                    I  ARM C  I  0.176 I  0.824 I  0.000 I
I                    I         I   33.0 I  155.0 I    0.0 I
I                    I         I (  0.0)I (  0.0)I (  0.0)I
I                    I         I        I        I        I
----------------------------------------------------------

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

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I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 16.45-17.00                                                                                    I
I   B-AC       2.14      11.02    0.194                    0.0    0.2         3.5                I
I   C-AB       2.02      10.14    0.199                    0.0    0.3         3.8                I
I   C-A        0.33                                                                              I
I   A-B        0.00                                                                              I
I   A-C        0.41                                                                              I
I                                                                                                I
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I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.00-17.15                                                                                    I
I   B-AC       2.55      11.00    0.232                    0.2    0.3         4.4                I
I   C-AB       2.43      10.17    0.239                    0.3    0.3         4.9                I
I   C-A        0.37                                                                              I
I   A-B        0.00                                                                              I
I   A-C        0.49                                                                              I
I                                                                                                I
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I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.15-17.30                                                                                    I
I   B-AC       3.13      10.97    0.285                    0.3    0.4         5.8                I
I   C-AB       3.01      10.22    0.294                    0.3    0.4         6.5                I
I   C-A        0.43                                                                              I
I   A-B        0.00                                                                              I
I   A-C        0.60                                                                              I
I                                                                                                I
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I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.30-17.45                                                                                    I
I   B-AC       3.13      10.97    0.285                    0.4    0.4         5.9                I
I   C-AB       3.01      10.23    0.295                    0.4    0.4         6.5                I
I   C-A        0.43                                                                              I
I   A-B        0.00                                                                              I
I   A-C        0.60                                                                              I
I                                                                                                I
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I  TIME       DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I          (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                                (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 17.45-18.00                                                                                    I
I   B-AC       2.55      11.00    0.232                    0.4    0.3         4.7                I
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I   C-AB      2.43     10.18    0.239                 0.4    0.3        4.9                     I
I   C-A       0.37                                                                              I
I   A-B       0.00                                                                              I
I   A-C       0.49                                                                              I
I                                                                                               I
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I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY     GEOMETRIC DELAYI
I         (VEH/MIN) (VEH/MIN) CAPACITY      FLOW     QUEUE  QUEUE    (VEH.MIN/      (VEH.MIN/   I
I                               (RFC)    (PEDS/MIN) (VEHS) (VEHS)  TIME SEGMENT)  TIME SEGMENT) I
I 18.00-18.15                                                                                   I
I   B-AC      2.14     11.02    0.194                 0.3    0.2        3.7                     I
I   C-AB      2.02     10.14    0.199                 0.3    0.3        3.9                     I
I   C-A       0.33                                                                              I
I   A-B       0.00                                                                              I
I   A-C       0.41                                                                              I
I                                                                                               I
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*WARNING* THE JUNCTION MODELLED CAN CARRY HIGH-SPEED MAJOR ROAD TRAFFIC.  (AG23 REF. 8.4.2(v)).

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

QUEUE FOR STREAM   B-AC
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.2
  17.15           0.3
  17.30           0.4
  17.45           0.4
  18.00           0.3
  18.15           0.2

QUEUE FOR STREAM   C-AB
-------------------------
TIME SEGMENT    NO. OF
  ENDING      VEHICLES
              IN QUEUE
  17.00           0.3
  17.15           0.3
  17.30           0.4
  17.45           0.4
  18.00           0.3
  18.15           0.3

                QUEUEING DELAY INFORMATION OVER WHOLE PERIOD
                --------------------------------------------

---------------------------------------------------------------------------
I STREAM I   TOTAL DEMAND  I   * QUEUEING *      I * INCLUSIVE QUEUEING * I
I        I                 I    * DELAY *        I       * DELAY *        I
I        I----------------------------------------------------------------I
I        I  (VEH)  (VEH/H) I  (MIN)    (MIN/VEH) I    (MIN)     (MIN/VEH) I
---------------------------------------------------------------------------
I  B-AC  I  234.5 I  156.3 I    28.0 I    0.12   I      28.0  I    0.12   I
I  C-AB  I  223.9 I  149.3 I    30.5 I    0.14   I      30.5  I    0.14   I
I  C-A   I   33.9 I   22.6 I         I           I            I           I
I  A-B   I    0.0 I    0.0 I         I           I            I           I
I  A-C   I   45.2 I   30.2 I         I           I            I           I
---------------------------------------------------------------------------
I  ALL   I  537.5 I  358.3 I    58.5 I    0.11   I      58.5  I    0.11   I
---------------------------------------------------------------------------


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


END OF JOB

****** PICADY 4 run completed.
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