

PROPOSED RESIDENTIAL DEVELOPMENT
FORMER WOMB WELL FOUNDRY
HOUGH LANE, WOMB WELL

PLANNING APPLICATION BY
BEN BAILEY HOMES

TRANSPORT ASSESSMENT

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Transport Assessment by: C P Dallas

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September 2005

Ref: 05-375

1.0 INTRODUCTION

- 1.1 This Transport Assessment considers the highway and traffic issues raised by the proposed residential development of the former Wombwell Foundry site, Hough Street, Wombwell.
- 1.2 The planning application by Ben Bailey Homes is in outline with all matters reserved except for means of access. The outline application proposes a development of some 200 dwellings served by way of a single point of access to Hough Lane.
- 1.3 Pre-planning application discussions have been undertaken with officers of the local highway authority and during these discussions, no highway objections to the principle of development were raised. Officers advised that the proposed access to the site should be in the form of a right turn ghost island junction layout and this form of layout is shown on the plan attached at Appendix BGH1.
- 1.4 This Transport Assessment considers the operation of the highway network serving the site and the availability of public transport services. It will show that the site is in a sustainable location and its development for residential purposes will reduce reliance on the private car and hence further the aims and objectives set out in Planning Policy Guidance 13: Transport (PPG13).

2.0 THE LOCAL HIGHWAY NETWORK AND ITS USE

- 2.1 The application site is located to the south-east of Hough Lane and was the site of the former Wombwell Foundry, which has now been demolished. The site benefits from two vehicular points of access, the main point of access being located at the western extent of the site boundary adjacent to a bridge over the railway line that forms the western boundary of the site.
- 2.2 In the vicinity of the site Hough Lane has an 8.3 metre wide carriageway with 2.0 metre wide footways to both sides. The road is lit to side road standard and is subject to a 30mph speed limit. Hough Lane is classified B6096 and forms one of the main links between Wombwell to the east of the site and the strategic regional road network to the west.
- 2.3 Opposite the site frontage there are two minor road junctions with Hough Lane. The first is Cowley Green, a new traditional residential estate road cul-de-sac serving 30 detached dwellings. Cowley Green also provides vehicular access to adjacent commercial premises, including a take away sandwich shop.
- 2.4 The second minor access road is that serving the Wombwell railway station and car park that provides 27 formal parking spaces. During site investigations it was observed that all these parking spaces were fully utilised along with other areas of the car park which in total accommodated some 30 cars.

- 2.5 The train service is operated by Northern Rail providing services to Sheffield, Meadowhall interchange, Barnsley, Castleford, Leeds, Denby Dale and Huddersfield. A half hour service is provided between Wombwell and Barnsley operating between 05:37 and 23:45. An hourly service to Huddersfield is also available between these times. The Wombwell to Leeds service begins at 06:35 and is again approximately hourly through to 22:29.
- 2.6 Hough Lane also accommodates a number of bus services. The service 65/66/67 is a circular route providing buses to Hoyland and Barnsley centre approximately every half hour. The number 72 provides an approximate hourly service to Sheffield and the number 200 provides a similar hourly service to Mexborough. Bus stops and shelters for these services are located at the Hough Lane/Hemingford Road junction approximately 60 metre to the west of the application site frontage.
- 2.7 A classified traffic count was undertaken at the Hough Lane/Cowley Green junction during the morning peak hour period 08:00am to 09:00am on Monday 19 September 2005 and the results of this survey are attached at Appendix BGH2. This revealed that during the morning peak hour Hough Lane carried a two-way flow of 794 vehicles, 30 of which were heavy goods vehicles and buses.

3.0 CONSIDERATIONS RELATING TO SUSTAINABILITY

3.1 A choice in how people can travel will produce travel patterns that are more sustainable in environmental terms. One of the major locational benefits that arise from development of sites within or adjacent to urban areas is the opportunity to provide such a choice in the mode of transport available for residents or employees. A choice of destinations close to home or the place of work will reduce travel distances and encourage a higher proportion of trips to be made on foot and by bicycle.

3.2 PPG13, Transport, sets out the aims and objectives of the Government's Sustainable Transport Policies. It advises that land use planning has a key role in delivering the Government's Integrated Transport Strategy and that by shaping the pattern of development and influencing the location and density of development, planning can help reduce the need to travel, reduce the length of journeys to make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling. The overall objectives for the guidance are to integrate planning and transport to:

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

- 3.3 In order to deliver the objectives of this guidance, when considering planning applications, Authorities should, amongst other things accommodate housing in locations which are highly accessible by public transport, walking and cycling.
- 3.4 With specific reference to policies on the development of housing, PPG13 makes reference to PPG3, which requires Local Planning Authorities to build in ways that exploit and deliver accessibility by public transport to local services. They are also encouraged to place the needs of people before ease of traffic movement in designing the layout of residential developments in order to seek to reduce car dependency and increase the attractiveness of walking and cycling.
- 3.5 As set out in Section 2.0 of this Report, the application site is within convenient walking distance of bus services that operate between Wombwell and Barnsley and other local centres. The bus stops are located 60 metres to the west of the site and all dwellings would be within 400 metre walking distance of these. The Government has suggested that residents should not have to walk more than 400 metres to the nearest bus stop.
- 3.6 The application site is also within convenient walking distance of the Wombwell railway station, which located on Hough Lane opposite the site and hence would be within 400 metres of all dwellings. The Institution of Highways and Transportation publication, Guidelines for Planning for Public Transport in Developments, advises that new developments should be within

3.6 The proposed residential development is therefore within a sustainable location in terms of the availability of alternative modes of transport. It will further the aims and objectives of the Government's Sustainable Transport Policy as set out in PPG13 by promoting the use of alternative modes of transport and hence reducing the need to travel by private car.

3.7 As regards walking to local facilities, PPG13 advises that walking will be the predominant mode of transport for journeys of less than 1.6 km. The application site lies approximately 1.3 km to the south west of the centre of Wormbwell and all local facilities are therefore within easy walking distance.

800 metres of a railway station in order to ensure that the service is both accessible and convenient to residents. All proposed dwellings will therefore be well within this threshold.

4.0 TRAFFIC GENERATION OF THE APPLICATION SITE AND SCOPE OF ASSESSMENT

4.1 It is generally accepted that residential development typically generates between 0.6 and 0.8 vehicle movements per dwelling during peak hour periods, depending upon the form and density of the development proposed. The TRICS database provides trip rates for two principle forms of private housing development. The classification "Residential/Houses Privately Owned" primarily includes 3 and 4 bed detached housing developments whilst the land use classification "Residential/Mixed Private Housing" includes higher density developments of 2/3/4 bed apartments and town houses as well as semi-detached and detached dwellings.

4.2 The plan that accompanies the planning application shows a mixed density development of town houses, semi-detached and detached dwellings in order to achieve the density of development of some 200 units required by PP03: Housing. It is most likely therefore that the final form of development will exhibit trip rates similar to those obtained from the "Residential/Mixed Private Housing" classification.

4.3 The output obtained from TRICS for the "Mixed Private Housing" classification is attached at Appendix BGH3 and this provides the following trip rates, expressed as vehicle movements per dwelling, along with the resulting predicted generations for a development of approximately 200 units.

	ARRIVALS		DEPARTURES		TOTAL	
	Trip rate	Vehicles	Trip rate	Vehicles	Trip rate	Vehicles
Morning Peak Hour	0.12	24	0.48	96	0.60	120
Evening Peak Hour	0.43	86	0.21	42	0.64	128

4.4 As regards the distribution of this traffic, it is most likely that development traffic patterns will reflect the surveyed pattern of traffic movement at the Hough Lane/Cowley Green junction. Whilst some of the turning movements recorded at this junction are generated by the adjacent commercial premises, the survey indicates that development traffic distributes approximately 50/50 north east/south west onto Hough Lane. The proposed development is therefore likely to result in an increase in 2-way flow on Hough Lane of about 60 vehicles during peak hour periods, an average of only 1 vehicle per minute.

4.5 Advice relating to the scope of any assessment of the impact of development traffic is set out in the Guidelines for Traffic Impact Assessment published by the Institution of Highways and Transportation. The scope of any assessment should be defined with regard to specific advice set out at paragraph 3.1.5 of the Guidance, which states that:

"A TIA should normally be produced where one or other of the following thresholds are exceeded:

- traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway

• traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations".

4.6 These thresholds are based on the fact that traffic flows on uncongested roads vary by 10% on a day to day basis, or 5% in congested areas. It should be emphasised that this is a starting point for assessment and not an indication of harm.

4.7 As can be seen from the results of the traffic surveys attached at Appendix BGH2 Hough Lane carried a 2-way flow of 794 vehicles between 8:00am and 9:00am. As set out in the Highways Agency standard TA79/99 Traffic Capacity of Urban Roads, the theoretical capacity of road link such as Hough Lane is some 1400 vehicles 2-way. The road link is therefore operating at about 55%/60% of its theoretical capacity and during site investigations it was observed that Hough Lane does not exhibit any problems of congestion.

4.8 On the basis of the above generations therefore development is likely to increase existing vehicle flows on Hough Lane by some 7.6% during the morning peak hour period.

4.9 Development will not therefore result in a material change in the operation of

the wider local highway network and in accordance with the above advice therefore the assessment contained within this Transport Assessment has been limited to the proposed junction arrangements with Hough Lane.

5.0 PROPOSED ACCESS ARRANGEMENTS

5.1 It is proposed to access the application site by way of a single point of access from Hough Lane, with the internal road network designed in such a way as to incorporate a loop to provide alternative routes to dwellings where required. During pre-application discussions officers of the Local Highway Authority requested that consideration be given to the provision of a right turn ghost island lane within Hough Lane and the plan attached at Appendix BGH1 illustrates how this can be achieved.

5.2 Considering first the internal movement network and street hierarchy, as set out in the *Companion Guide to Design Bulletin 32, Places Streets and Movement*, the overall objective in developing an internal layout of streets and pedestrian routes is to create a sustainable pattern of development by adopting a range of qualitative criteria. In relation to transport, these include the following.

- Ensuring ease of movement for all modes of transport whilst discriminating in favour of pedestrians.
- Providing a positive effect on driver behaviour.
- The creation of a safe environment for people to live and play.
- Integration where possible with transport links and other facilities serving existing development.

The creation of loops and through links within the site provide for ease of travel by foot and cycle and the use of junction courts and speed reducing bends restrain vehicle speed.

5.3 As regards vehicular access, Design Bulletin 32 also sets out that the road layout should be designed to help minimise risks of access problems for the emergency services and residents arising as a result of the vehicle breakdown, road maintenance or the need to gain access to services underground. While none of these events are likely to occur very frequently they may block access or cause inconvenience unless means can be found to either by-pass them or ameliorate their impact.

5.4 In considering various densities of development, Design Bulletin 32 advises that up to around 50 dwellings may be served by way of a cul-de-sac that does not benefit from an alternative means of access that can be used by vehicles in emergencies and suggests that developments of up to around 100 dwellings could provide such a link to minimise risks of access problems. As general guidance Design Bulletin 32 goes on to advise that where a traditional residential estate road serves between 100 and up to and around 300 dwellings one point of access is available, the road layout should form a circuit and there should be the shortest practicable connection between this circuit and the point of access.

!unction atachment.

Design Bulletin 32.

135-145 to create a loop that could be used by vehicles in an emergency.

100-177-177

Cowley Green and railway car park junctions and the need to achieve the recommended 4.5 metres x 90 metres visibility splays. The recommended stagger distance for left/right and right/left staggered junctions set out in the Standard TD42/95 'Geometric Design of Major/Minor Priority Junctions' is 50 metres and the layout achieves this to both the Cowley Green and railway car park junctions. The layout also provides for 3.4 metre through lanes and a 3.0 metre central lane at the site access as requested by officers and this also complies with TD42/95 advice.

- 5.9 As regards the railway car park access, the taper developing the right turn lane would extend across this junction thereby impacting upon its operation and therefore this has been incorporated within the overall ghost island layout. As this junction is immediately adjacent to the bridge abutments widening of Hough Lane is not possible at this point. However 3.0 metre through lanes are achievable and this is the minimum width recommended in TD42/95, along with a 2.5 metre right turn lane. Whilst this is below the recommended dimension of 3.0 metres for new junctions, the Standard also advises that for improvements to existing junctions where space is limited a reduced width may be unavoidable but that the widths of ghost islands should not be less than 2.5 metres.

- 5.10 As regards visibility, the 4.5 metres x 90 metres visibility splays achievable within the layout comply with the advice set out in the companion guide to Design Bulletin 32, Places Streets and Movement, except in respect of the

measurement of the splay to the west to centre line of Hough Lane. It is recommended that visibility is measured to the nearside edge of carriageway when looking to the left towards the offside approaching traffic so that any vehicles on the 'wrong' side of the road that may be overtaking slower moving traffic will be seen by an emerging driver. In this location however the existence of the ghost island layout prevents overtaking. In this location therefore the visibility splay can be measured to the centreline of Hough Lane without detriment to road safety.

- 5.11 The likely future operation of the proposed *ghost island junction* with Hough Lane has been assessed adopting the vehicle generations and distributions set out in Section 3.0 and using the TRL program PICADY/4 and the results of this assessment are attached at Appendix BGH4. These show that during the morning peak period the junction will operate efficiently with a maximum RFC value of 0.12 occurring in the site access road. No queues are predicted to form on either the minor road approaches or within the Hough Lane ghost island lane.

6.0 CONCLUSIONS

- 6.1 The planning application by Ben Bailey Homes proposes a development of approximately 200 units served by way of a single vehicular access to Hough Lane.
- 6.2 The application site is within convenient walking distance of bus services that operate between Wombwell and Barnsley and other local centres. All dwellings would be within the recommended 400 metre walking distance to the existing bus stops. All new dwellings would also be within 400 metres walking distance of the Wombwell railway station which is well within the recommended threshold of 800 metres of a railway station required to ensure that the service is both accessible and convenient to residents.
- 6.3 The proposed residential development is therefore within a sustainable location in terms of the availability of alternative modes of transport. It will further the aims and objectives of the Government's Sustainable Transport Policy as set out in PPG13 by promoting the use of alternative modes of transport and hence reducing the need to travel by private car.
- 6.4 It is proposed to access the application site by way of a single point of access from Hough Lane, with the internal road network designed in such a way as to incorporate a loop to provide alternative routes to dwellings where required. It has been illustrated that the application site can be accessed by way of a single

junction with Hough Lane whilst ensuring that the risk of access problems is kept to an absolute minimum and that this form of access arrangement would be consistent with the general aims and principles set out in Design Bulletin 32.

6.5 Officers of the Local Highway Authority have requested that consideration be given to the provision of a right turn ghost island lane within Hough Lane. The plan attached at Appendix BGH1 illustrates how this can be achieved, the location of the junction being dictated by the position of the Cowley Green and railway car park junctions and the need to achieve the recommended 4.5 metres x 90 metres visibility splays. The geometry of the junction accords fully with advice set out in TD42/95.

6.6 As regards visibility, the 4.5 metres x 90 metres visibility splays achievable within the layout also comply with the advice set out in the companion guide to Design Bulletin 32, Places Streets and Movement, except in respect of the measurement of the splay to the west of Hough Lane. Visibility is normally measured to the nearside edge of carriageway when looking to the left so that vehicles on the 'wrong' side of the road will be seen by an emerging driver. However the existence of the ghost island layout would prevent overtaking and hence in this instance the visibility splay can be measured to the centreline of Hough Lane without detriment to road safety.

6.7 It has been illustrated that the junction will operate in both a safe and efficient manner.

6.8 As regards the wider traffic impact of development, Hough Lane carries a morning peak hour flow of 794 vehicles 2-way, which is about 55%/60% of its theoretical capacity. Assuming a 50/50 distribution of traffic, development will increase 2-way traffic flows on Hough Lane by about 60 vehicles per hour, an increase of some 7.5% during the morning peak hour period.

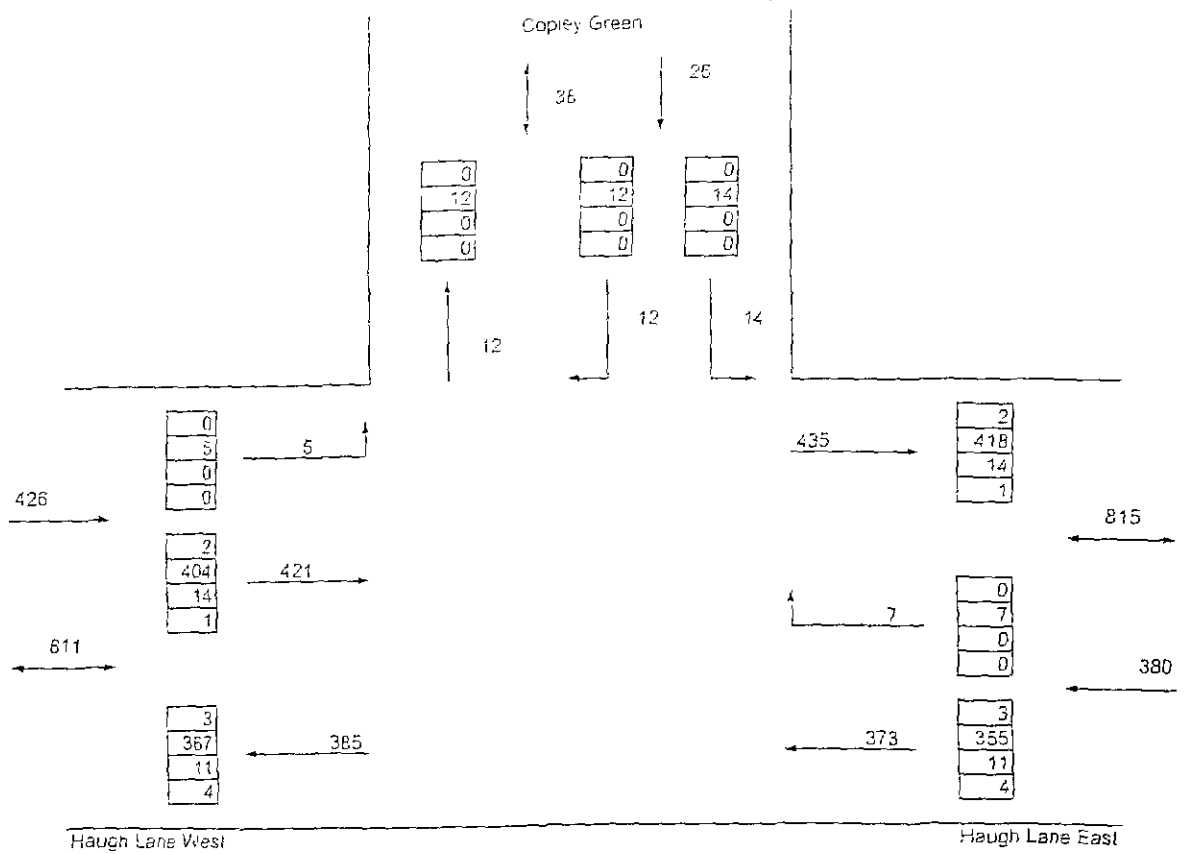
6.9 Development will not therefore result in a material change in the operation of the wider local highway network and in accordance with the above advice therefore the assessment contained within this Transport Assessment has been limited to the proposed junction arrangements with Hough Lane. Institution of Highways and Transportation guidance advises that the scope of any assessment should include any link where traffic to and from the development exceeds 10% of the existing two-way traffic flow. The proposed development will not therefore result in a material change to the overall operation of the local highway network or therefore existing levels of delay or road safety.

6.10 It is concluded therefore that the application proposals do not result in demonstrable harm to highway interests and that therefore, subject to other Policies of the Plan, planning permission should be granted.

APPENDIX BGH 1

APPENDIX BGH 2

EXISTING VEHICULAR FLOWS
 COPLEY GREEN / HAUGH LANE
 MONDAY 19 SEPTEMBER 2005
 8:00 am - 9:00 am



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

APPENDIX BGH 3

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIVATE HOUSING
VEHICLES

Calculation factor: 1 HHOLDS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate
00:00 - 01:00	18	183	0.03	18	183	0.02	18	183	0.05
01:00 - 02:00	18	183	0.01	18	183	0.01	18	183	0.02
02:00 - 03:00	18	183	0.01	18	183	0.01	18	183	0.02
03:00 - 04:00	18	183	0.01	18	183	0.01	18	183	0.02
04:00 - 05:00	18	183	0.01	18	183	0.01	18	183	0.02
05:00 - 06:00	18	183	0.01	18	183	0.04	18	183	0.05
06:00 - 07:00	18	183	0.03	18	183	0.12	18	183	0.15
07:00 - 08:00	39	153	0.08	39	153	0.32	39	153	0.40
08:00 - 09:00	39	153	0.12	39	153	0.48	39	153	0.60
09:00 - 10:00	39	153	0.14	39	153	0.20	39	153	0.34
10:00 - 11:00	39	153	0.13	39	153	0.16	39	153	0.29
11:00 - 12:00	39	153	0.14	39	153	0.15	39	153	0.29
12:00 - 13:00	39	153	0.18	39	153	0.15	39	153	0.33
13:00 - 14:00	39	153	0.17	39	153	0.17	39	153	0.34
14:00 - 15:00	39	153	0.18	39	153	0.17	39	153	0.35
15:00 - 16:00	39	153	0.25	39	153	0.19	39	153	0.44
16:00 - 17:00	39	153	0.33	39	153	0.18	39	153	0.51
17:00 - 18:00	39	153	0.43	39	153	0.21	39	153	0.64
18:00 - 19:00	39	153	0.34	39	153	0.26	39	153	0.60
19:00 - 20:00	18	183	0.31	18	183	0.28	18	183	0.59
20:00 - 21:00	18	183	0.25	18	183	0.21	18	183	0.46
21:00 - 22:00	18	183	0.20	18	183	0.13	18	183	0.33
22:00 - 23:00	18	183	0.14	18	183	0.07	18	183	0.21
23:00 - 24:00	18	183	0.09	18	183	0.05	18	183	0.14
Daily Trip Rates: 3.56 3.57 7.19									

Parameter summary

Trip rate parameter range selected: 51 - 342 (units:)
 Survey date range: 01/01/97 - 10/06/04
 Number of weekdays (Monday-Friday): 39
 Number of Saturdays: 0
 Number of Sundays: 0
 Optional parameters used in selection: NO
 Surveys manually removed from selection: 0

APPENDIX BGH 4

TEL: 01344 770614

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CAPACITIES, QUEUES, AND DELAYS AT 2 OR 4-ARM MAJORITY OF PRIORITY JUNCTIONS

PICADY 4.1 ANALYSIS PROGRAM
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Run with file:-
y:\2005\05-351 to 05-375\05-375 Hough Lane, Womowell\Picady\05-375 4M Predicted T - Junction.vpj"
(drive-on-the-left) at 14:15:31 on Monday, 19 September 2005

RUN TITLE

05-375 Predicted Flows Womowell - AM Peak

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

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

ARM A IS Hough Lane East
ARM B IS Site Access
ARM C IS Hough Lane West

STREAM LABELLING CONVENTION

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

DATA ITEM	1	MINOR ROAD	2
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	1	W	9.80 M
CENTRAL RESERVE WIDTH	1	(WCP)	1.00 M
MAJOR ROAD RIGHT TURN - WIDTH	1	(WC-B)	3.00 M
- VISIBILITY	1	(VC-B)	90.0 M
- BLOCKS TRAFFIC	1		NO
MINOR ROAD - VISIBILITY TO LEFT	1	(VB-C)	12.0 M
- VISIBILITY TO RIGHT	1	(VB-A)	11.0 M
- LANE 1 WIDTH	1	(WB-C)	-
- LANE 2 WIDTH	1	(WB-A)	-
- WIDTH AT 5 M FROM JUNC.	1		10.10 M
- WIDTH AT 5 M FROM JUNC.	1		5.00 M
- WIDTH AT 10 M FROM JUNC.	1		3.00 M
- WIDTH AT 15 M FROM JUNC.	1		3.00 M
- WIDTH AT 20 M FROM JUNC.	1		3.00 M
- LENGTH OF FLARED SECTION	1		2 VEHs

RAFFIC DEMANDS 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 SYNTHESIZED FROM TURNING COUNT DATA

I	I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN)			I
I	ARM	FLOW STARTS	TOP OF PEAK	FLOW STOPS	I	BEFORE	AT TOP	AFTER	I
I	I	TO RISE	IS REACHED	FALLING	I	PEAK	OF PEAK	PEAK	I
I	ARM A	I 15.00	I 45.00	I 75.00	I	4.81	I 7.22	I 4.81	I
I	ARM B	I 15.00	I 45.00	I 75.00	I	3.20	I 3.80	I 2.20	I
I	ARM C	I 15.00	I 45.00	I 75.00	I	5.41	I 8.12	I 5.41	I

		TURNING PROPORTIONS			
		TURNING COUNTS (VES/HR)			
		(PERCENTAGE OF H.V.S)			
TIME	FROM TO	ARM A	ARM B	ARM C	
07 45 - 08 15	ARM A	0 300	0 031	0 969	
		0.0	12.0	87.0	
		0.0	0.0	4.0	
	ARM B	0 500	0 000	0 500	
		48.0	0.0	48.0	
		0.0	0 00	0.0	
	ARM C	0 972	0 028	0 000	
		40.0	10.0	5.0	
		0 77	0 00	0.0	

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

