



**PROPOSED RESIDENTIAL RE-DEVELOPMENT
AT
PENARTH HEIGHTS,
PENARTH
BY CREST NICHOLSON (SOUTH WEST) LTD

TRANSPORTATION ASSESSMENT

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VOLUME II - APPENDICES**

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 - Atkins Report (Year 2003)
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Cardiff Bus Fare Information

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TRANSPORTATION ASSESSMENT
PROPOSED RESIDENTIAL RE-DEVELOPMENT, PENARTH HEIGHTS, PENARTH



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Table 3.1: Existing Highway Standards (Year 2005)

Highway Link	Average Width of Carriageway	Assumed Road Type	Street Lighting	Existing Peak Hour Two Way Traffic Flow (vph)		Working Capacity – Two Way (vph) v	RFC	
				AM	PM		AM	PM
Terra Nova Way	7.3m (s/c)	UAP3	Yes	1,138	904	2,170	0.52	0.42
Windsor Road (north of Tesco Roundabout)	9.4m (s/c)	UAP2	Yes	2,180	2,299	2,600	0.84	0.88
Windsor Road (north of Plassey Street Roundabout)	7.8m (s/c)	UAP3	Yes	1,191	1,527	2,170	0.55	0.70
Windsor Road (west of Town Centre roundabout)	10.5m (s/c)	UAP4	Yes	455	661	1,900	0.24	0.35
Cogan Spur	6.9m x 2 (d/c)	UAP1	Yes	2,713	3,165	5,600	0.48	0.57
High Street (north of Plassey Street jctn)	11.1m (s/c) parking both sides	UAP3	Yes	150	156	2,170	0.07	0.07
Arcot Street (north of Plassey Street jctn)	11.3m (s/c)	UAP3	Yes	162	128	2,170	0.07	0.06
Plassey Street (east of roundabout jctn with Windsor Road)	13.2m (s/c)	UAP3	Yes	304	577	2,170	0.14	0.27
AVERAGE RFC							0.36	0.42
AVERAGE							0.39	

- v Working capacity values have been taken from TA79/99 – *Traffic Capacity of Urban Roads*, Table 2
- UAP1 is "High standard single/dual carriageway road carrying predominantly through traffic with limited access"
- UAP2 is "Good standard single/dual carriageway road with frontage access and more than two side roads per kilometre"
- UAP3 is "Variable standard road carrying mixed traffic with frontage access, side roads, bus stops and at-grade pedestrian crossings"
- UAP4 is "Busy high street carrying predominantly local traffic with frontage activity including loading and unloading"
- RFC = Ratio of Flow to Capacity

Table 4.1

Ward of Workplace for Residents of St. Augustine's Ward (2001 Census)																		
Ward of Workplace Code	Ward of Workplace Name	Local Unitary Authority Name	Total: All People	Total: All People (%)	Total: All People (%)	Works or studies mainly at or from home	Underground metro light rail tram	Train	Bus minibus or coach	Taxi	Car – driver			Car – passenger	Motorcycle	Bicycle	On foot	Other
											No.	%age	%age					
00AAFT		City of London	3	0.1%	0.1%	0	0	3	0	0	0	0.0%	0.0%	0	0	0	0	0
00AQGO		Harrow	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00ASGP		Hillingdon	4	0.1%	0.1%	0	0	0	0	0	4	0.2%	0.2%	0	0	0	0	0
00ATFY		Hounslow	3	0.1%	0.2%	0	0	0	0	0	3	0.2%	0.4%	0	0	0	0	0
00ATGE			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00AYFZ		Lambeth	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00BGFY		Tower Hamlets	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00BKGO		Westminster	3	0.1%	0.1%	0	0	0	0	0	0	0.0%	0.0%	3	0	0	0	0
00BUFA		Trafford	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00CAGL		Sefton	3	0.1%	0.1%	0	0	0	3	0	0	0.0%	0.0%	0	0	0	0	0
00CWFO		Wolverhampton	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00CWFV			3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00HANP		Bath and North East Somerset	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00HBNP		Bristol, City of	3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00HBNU			4	0.1%	0.4%	0	0	0	0	0	4	0.2%	0.6%	0	0	0	0	0
00HBPM			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00HCQB		North Somerset	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00HDPU		South Gloucestershire	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00HXNU		Swindon	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00KGNC		Thurrock	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00MBPP		West Berkshire	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00MGNX		Milton Keynes	6	0.2%	0.2%	0	0	0	0	0	0	0.0%	0.0%	0	0	3	3	0
00NSPU		Pembrokeshire	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00NURQ		Carmarthenshire	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00NXNY		Swansea	6	0.2%		0	0	0	3	0	3	0.2%		0	0	0	0	0
00NXPN			6	0.2%	0.7%	0	0	0	0	0	3	0.2%	0.7%	3	0	0	0	0
00NXQE			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00NXQG			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBNP		Bridgend	3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBNS			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBNU			6	0.2%		0	0	0	0	0	6	0.4%		0	0	0	0	0
00PBNW			3	0.1%		0	0	0	0	0	0	0.0%		3	0	0	0	0
00PBPE			4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PBPB			10	0.4%	1.8%	0	0	0	0	0	10	0.6%	2.6%	0	0	0	0	0
00PBPH			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBPK			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBPL			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PBPM			11	0.4%		0	0	0	0	0	8	0.5%		0	0	3	0	0

Note: The proposed Penarth Heights development lies within St. Augustine's Ward

Table 4.1

Ward of Workplace for Residents of St. Augustine's Ward (2001 Census)																		
Ward of Workplace Code	Ward of Workplace Name	Local Unitary Authority Name	Total: All People	Total: All People (%)	Total: All People (%)	Works or studies mainly at or from home	Underground metro light rail tram	Train	Bus minibus or coach	Taxi	Car – driver			Car – passenger	Motorcycle	Bicycle	On foot	Other
											No.	%age	%age					
00PDMZ	Baruc (BARRY)	The Vale of Glamorgan	4	0.1%	41.7%	0	0	0	0	0	4	0.2%	29.1%	0	0	0	0	0
00PDNA	Buttrills (BARRY)		22	0.8%		0	0	0	3	0	10	0.6%		0	0	3	6	0
00PDNB	Cadoc (BARRY)		34	1.2%		0	0	0	3	0	28	1.7%		3	0	0	0	0
00PDNC	Castleland (BARRY)		41	1.5%		0	0	0	6	0	27	1.6%		5	0	0	3	0
00PDND	Comerswell (PENARTH)		51	1.9%		0	0	0	0	0	21	1.3%		6	0	3	21	0
00PDNE	Court (BARRY)		11	0.4%		0	0	0	0	0	11	0.7%		0	0	0	0	0
00PDNF	Cowbridge		15	0.5%		0	0	0	3	0	6	0.4%		0	3	3	0	0
00PDNG	Dinas Powys		13	0.5%		0	0	0	0	0	10	0.6%		3	0	0	0	0
00PDNH	Dylan (BARRY)		6	0.2%		0	0	0	0	0	6	0.4%		0	0	0	0	0
00PDNJ	Gibbonsdown (BARRY)		3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PDNK	Illyd (BARRY)		18	0.7%		0	0	0	3	0	12	0.7%		0	0	0	3	0
00PDNL	Llandough (PENARTH)		59	2.1%		0	0	0	3	0	47	2.8%		6	0	0	3	0
00PDNM	Llandow/Ewenny		5	0.2%		0	0	0	0	0	5	0.3%		0	0	0	0	0
00PDNN	Llantwit Major		3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PDNP	Peterston-super-Ely		12	0.4%		0	0	0	0	0	9	0.5%		3	0	0	0	0
00PDNQ	Plymouth (PENARTH)		71	2.6%		0	0	0	3	0	20	1.2%		0	0	4	41	3
00PDNR	Rhose (BARRY)		18	0.7%		0	0	0	0	0	18	1.1%		0	0	0	0	0
00PDNS	St. Athan		19	0.7%		0	0	0	0	0	16	1.0%		0	0	0	0	3
00PDNT	St. Augustine's (PENARTH)		674	24.5%		250	0	7	9	0	184	11.0%		18	0	3	192	11
00PDNW	Stanwell (PENARTH)		34	1.2%		0	0	0	0	0	19	1.1%		3	0	0	12	0
00PDNX	Sully (BARRY)		9	0.3%		0	0	0	0	0	6	0.4%		3	0	0	0	0
00PDNY	Wenvoe		26	0.9%		0	0	0	3	0	20	1.2%		3	0	0	0	0
00PFPM		Rhondda, Cynon, Taff	3	0.1%	3.1%	0	0	0	0	0	3	0.2%	4.2%	0	0	0	0	0
00PFPO			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQA	Hawthorn		11	0.4%		0	0	0	0	0	11	0.7%		0	0	0	0	0
00PFQC			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQD			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQG			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQK			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQP			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQQ			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQR			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQS			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQU			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PFQX	Taff's Well		18	0.7%		0	0	3	0	0	12	0.7%		0	0	0	3	0
00PFQY			7	0.3%		0	0	0	0	0	4	0.2%		3	0	0	0	0
00PFQZ			6	0.2%		0	0	3	0	0	3	0.2%		0	0	0	0	0
00PFRF			10	0.4%		0	0	3	0	0	7	0.4%		0	0	0	0	0
00PHMC		Merthyr Tydfil	3	0.1%	0.6%	0	0	0	0	0	3	0.2%	0.8%	0	0	0	0	0
00PHMD			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PHMH			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PHMJ			7	0.3%		0	0	3	0	0	4	0.2%		0	0	0	0	0
00PKNT		Caerphilly	3	0.1%	0.9%	0	0	0	0	0	3	0.2%	1.5%	0	0	0	0	0
00PKNU			4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PKPF			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PKPU			4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PKPW			5	0.2%		0	0	0	0	0	5	0.3%		0	0	0	0	0
00PKPZ			6	0.2%		0	0	0	0	0	6	0.4%		0	0	0	0	0
00PLMJ		Blagenau Gwent	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0

Note: The proposed Penarth Heights development lies within St. Augustine's Ward

Table 4.1

Ward of Workplace for Residents of St. Augustine's Ward (2001 Census)																		
Ward of Workplace Code	Ward of Workplace Name	Local Unitary Authority Name	Total: All People	Total: All People (%)	Total: All People (%)	Works or studies mainly at or from home	Underground or metro light rail train	Train	Bus minibus or coach	Taxi	Car – driver			Car – passenger	Motorcycle	Bicycle	On foot	Other
											No.	%age	%age					
00PMNM		Tortois	3	0.1%	0.6%	0	0	0	0	0	3	0.2%	1.0%	0	0	0	0	0
00PMNP			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PMNQ			4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PMNR			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PMNU			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PPOE		Monmouthshire	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
00PRMZ		Newport	3	0.1%	2.2%	0	0	0	0	0	3	0.2%	3.1%	0	0	0	0	0
00PRNB			5	0.2%		0	0	0	0	0	5	0.3%		0	0	0	0	0
00PRND			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PRNE			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PRNF			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PRNG			3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PRNJ			17	0.6%		0	0	0	0	0	17	1.0%		0	0	0	0	0
00PRNK			4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PRNQ			16	0.6%		0	0	3	3	0	7	0.4%		0	0	0	3	0
00PRNS		3	0.1%	0	0	0	0	0	0	3	0.2%	0	0	0	0	0		
00PTNF	Adamsdown	Cardiff	100	3.6%	44.3%	0	0	23	5	0	59	3.5%	51.8%	7	3	0	3	0
00PTNG	Butetown		156	5.7%		0	0	8	4	0	133	8.0%		8	0	0	3	0
00PTNH	Caerau		15	0.5%		0	0	0	0	3	12	0.7%		0	0	0	0	0
00PTNJ	Canton		34	1.2%		0	0	0	0	0	31	1.9%		3	0	0	0	0
00PTNK	Cathays		351	12.8%		0	3	70	58	0	175	10.5%		33	6	3	3	0
00PTNM	Cyncoed		4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PTNN	Ely		5	0.2%		0	0	0	0	0	5	0.3%		0	0	0	0	0
00PTNP	Fairwater		6	0.2%		0	0	0	0	0	6	0.4%		0	0	0	0	0
00PTNQ	Gabalra		18	0.7%		0	0	0	3	0	12	0.7%		3	0	0	0	0
00PTNR	Grange town		119	4.3%		0	0	3	15	3	79	4.7%		13	0	6	0	0
00PTNS	Heath		64	2.3%		0	0	0	4	0	54	3.2%		3	0	0	3	0
00PTNT	Lisvane		3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PTNU	Llandaff		29	1.1%		0	0	0	3	0	26	1.6%		0	0	0	0	0
00PTNX	Llanishan		39	1.4%		0	0	3	3	0	30	1.8%		0	0	3	0	0
00PTNZ	Pentwyn		15	0.5%		0	0	0	0	0	15	0.9%		0	0	0	0	0
00PTPA	Pentyrch		3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PTPB	Penylan		21	0.8%		0	0	0	0	0	18	1.1%		0	3	0	0	0
00PTPC	Plasnewydd		55	2.0%		0	0	9	6	0	34	2.0%		3	0	3	0	0
00PTPD	Pontprennau/Old St. Mellons		19	0.7%		0	0	0	0	0	19	1.1%		0	0	0	0	0
00PTPE	Radyr		3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
00PTPF	Rhiwbina		4	0.1%		0	0	0	0	0	4	0.2%		0	0	0	0	0
00PTPG	Riverside		50	1.8%		0	0	0	4	0	40	2.4%		3	0	0	3	0
00PTPH	Rumney		14	0.5%		0	0	3	0	0	8	0.5%		0	0	3	0	0
00PTPJ	Splott		56	2.0%		0	0	0	0	0	56	3.4%		0	0	0	0	0
00PTPK	Trowbridge		23	0.8%		0	0	0	0	0	20	1.2%		3	0	0	0	0
00PTPL	Whitchurch and Tongwynlais		14	0.5%		0	0	0	0	0	14	0.8%		0	0	0	0	0
18UGGU			South Hams	3		0.1%	0.1%	0	0	0	0	0		3	0.2%	0.2%	0	0
31UHGA		North West	3	0.1%	0.2%	0	0	0	0	0	3	0.2%	0.4%	0	0	0	0	0
31UHGB		Leicestershire	3	0.1%		0	0	0	0	0	3	0.2%		0	0	0	0	0
41UEGJ		Newcastle-under-Lyme	3	0.1%	0.1%	0	0	3	0	0	0	0.0%	0.0%	0	0	0	0	0
47UGGD		Wyre Forest	3	0.1%	0.1%	0	0	0	0	0	3	0.2%	0.2%	0	0	0	0	0
999999		Abroad	16	0.6%	0.6%	0	0	0	0	0	9	0.5%	0.5%	0	0	0	0	7
TOTAL			2751	100%	100%	250	3	147	150	6	1667	100%	100%	144	15	40	305	24
PERCENTAGES					100%	9.1%	0.1%	5.3%	5.5%	0.2%	60.6%			5.2%	0.5%	1.5%	11.1%	0.9%

Note: The proposed Penarth Heights development lies within St. Augustine's Ward

Table 4.2 – Workplace Destinations Summary for St Augustine's Ward Residents (2001 census)

Workplace (by Local / Unitary Authority Name)	Percentage
Cardiff	44.3%
Vale of Glamorgan	41.7%
Rhondda, Cynon, Taff	3.1%
Newport	2.2%
Bridgend	1.8%
Swansea	0.7%
Other*	6.2%
TOTAL	100.0%

* Each Unitary Authority = <1%

**Table 4.3 – Workplace Destinations for St Augustine's Ward Residents
(2001 census) – Car Drivers**

Workplace	Percentage
Cardiff	51.8%
The Vale of Glamorgan	29.1%
Rhondda, Cynon, Taff	4.2%
Newport	3.1%
Bridgend	2.6%
Caerphilly	1.5%
Torfaen	1.0%
Other*	6.7%
TOTAL	100.0%

* Each Unitary Authority = <1%

Table 4.4 – Accessibility of Proposed Development Site

● Schools		● Public Transport	
Primary Within 1.6km	Secondary Within 1.6km	Railway Station Within 800m	Bus Stop Within 400m
Yes ○ Fairfield Primary School is 750m ○ Albert County Primary School is 800m	Yes ○ Headlands School is 980m ○ Stanwell School is 1390m	Yes ○ Dingle Road is 450m ○ (Cogan is 900m)	Yes ○ Windsor Road bus stop is 270m ○ Terra Nova Way is 280m
● Basic Shopping Facilities within 1km	● Facilities		● Major Employment Centres within 1.5km
	Food Superstore Within 1km	Leisure Within 3km	
Yes ○ Town Centre is 700m from centre of site	Yes ○ Tesco is 820m	Yes ○ Penarth Leisure Centre ○ Cosmeston Lakes ○ Marina ○ Barrage ○ Retail Park	Yes ○ Penarth ○ Home working

TRANSPORTATION ASSESSMENT
PROPOSED RESIDENTIAL RE-DEVELOPMENT AT PENARTH HEIGHTS, PENARTH



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Table 8.1: Predicted Two-Way Traffic Flows with Proposed Penarth Heights Development Traffic – Years 2012 & 2017 – AM Peak Hour Period

Highway Link	Existing 2005 (without dev't) *	Forecast 2012 (without dev't) *	Forecast 2012 (with dev't)		Forecast 2017 (without dev't) *	Forecast 2017 (with dev't)		Working Capacity (vph) v	Reserve Capacity	
			(vph) +	% impact over Forecast 2016 (without dev't)		(vph) +	% impact over Forecast 2017 (without dev't)		Over 2012 Forecast Case (with dev't) (%)	Over 2017 Forecast Case (with dev't) (%)
Terra Nova Way	1,138	1,158	1,258	8.6%	1,195	1,295	8.4%	2,170	42.0%	40.3%
Windsor Road (north of Tesco Roundabout)	2,180	2,216	2,394	8.0%	2,283	2,461	7.8%	2,600	7.9%	5.3%
Windsor Road (north of Plassey Street Roundabout)	1,191	1,211	1,289	6.4%	1,248	1,326	6.3%	2,170	40.6%	38.9%
Windsor Road (west of Town Centre roundabout)	455	465	489	5.2%	482	506	5.0%	1,900	74.3%	73.4%
Cogan Spur	2,713	2,756	2,864	3.9%	2,839	2,947	3.8%	5,600	48.9%	47.4%
High Street (north of Plassey Street jctn)	150	157	235	49.7%	166	244	47.0%	2,170	89.2%	88.8%
Arcot Street (north of Plassey Street jctn)	162	169	240	42.0%	177	248	40.1%	2,170	88.9%	88.6%
Plassey Street (east of roundabout jctn with Windsor Road)	304	311	389	25.1%	322	400	24.2%	2,170	82.1%	81.6%
			Average:				17.8%			59.2%
Ave. excluding High Street & Arcot Street:							9.2%			49.3%
										58.0%
										47.8%

* All flows shown in these columns are AM peak hour values (vph).

v Working capacity values have been taken from TA79/99 – *Traffic Capacity of Urban Roads, Table 2* (Refer to CEC Table 2.1)

TRANSPORTATION ASSESSMENT
PROPOSED RESIDENTIAL RE-DEVELOPMENT AT PENARTH HEIGHTS, PENARTH



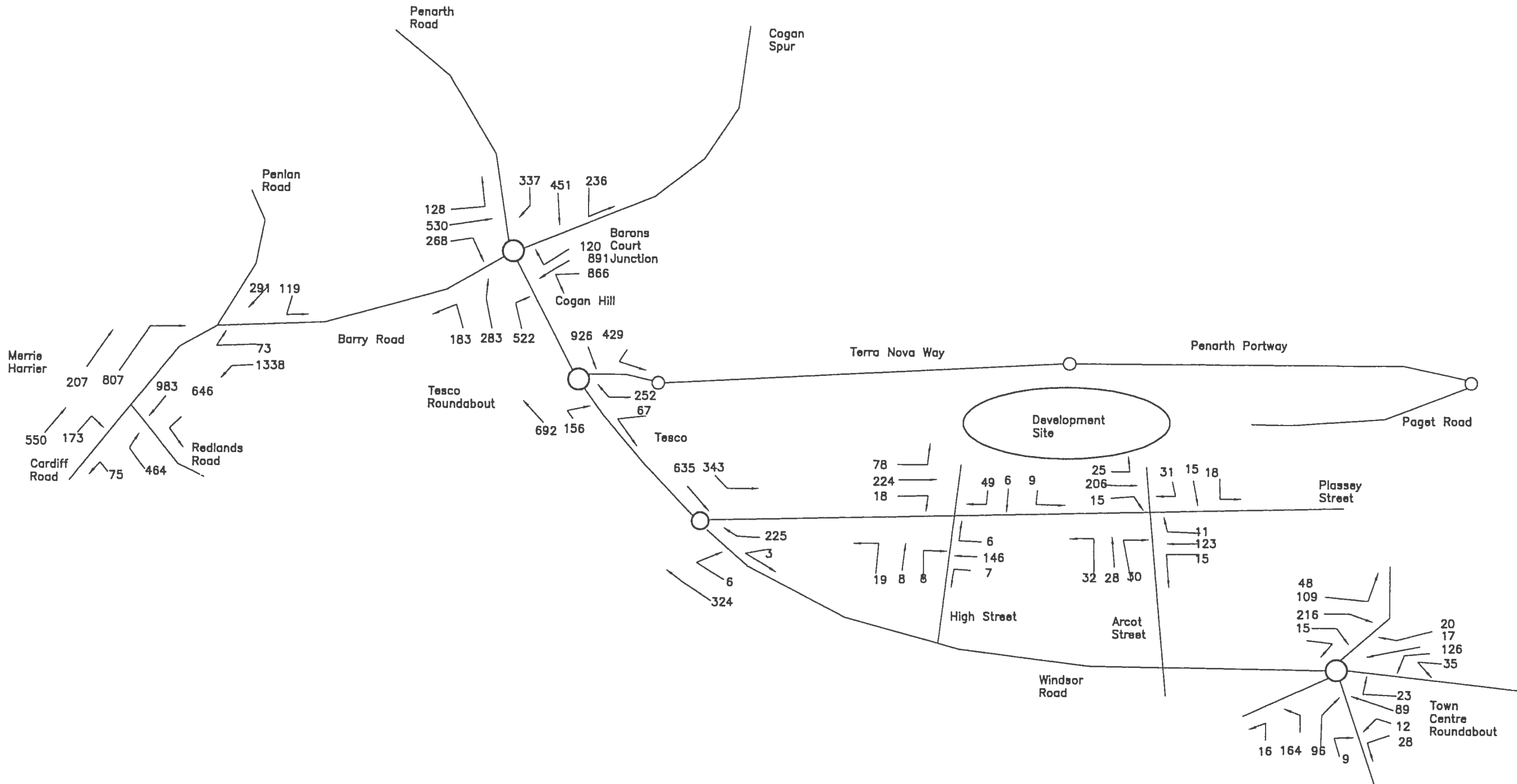
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Table 8.2: Predicted Two-Way Traffic Flows with Proposed Penarth Heights Development Traffic – Years 2012 & 2017 – PM Peak Hour Period

Highway Link	Existing 2005 (without dev't) *	Forecast 2012 (without dev't) *	Forecast 2012 (with dev't)		Forecast 2017 (without dev't) *	Forecast 2017 (with dev't)		Working Capacity (vph) v	Reserve Capacity	
			(vph) *	% impact over Forecast 2012 (without dev't)		(vph) *	% impact over Forecast 2017 (without dev't)		Over 2012 Forecast Case (with dev't) (%)	Over 2017 Forecast Case (with dev't) (%)
Terra Nova Way	904	923	940	1.8%	956	973	1.8%	2,170	56.7%	55.2%
Windsor Road (north of Tesco Roundabout)	2,299	2345	2,531	7.9%	2,425	2,611	7.7%	2,600	2.7%	-0.4%
Windsor Road (north of Plassey Street Roundabout)	1,527	1559	1,728	10.8%	1,612	1,781	10.5%	2,170	20.4%	17.9%
Windsor Road (west of Town Centre roundabout)	661	678	702	3.5%	704	728	3.4%	1,900	63.1%	61.7%
Cogan Spur	3,165	3228	3,340	3.5%	3,338	3,450	3.4%	5,600	40.4%	38.4%
High Street (north of Plassey Street jctn)	156	163	273	67.5%	172	282	64.0%	2,170	87.4%	87.0%
Arcot Street (north of Plassey Street jctn)	128	134	245	82.8%	141	252	78.7%	2,170	88.7%	88.4%
Plassey Street (east of roundabout jctn with Windsor Road)	577	591	760	28.6%	613	782	27.6%	2,170	65.0%	64.0%
			Average:				24.6%		53.1%	51.5%
Ave. excluding High Street & Arcot Street:							9.0%		41.4%	39.5%

* All flows shown in these columns are PM peak hour values.

v Working capacity values have been taken from TA79/99 – *Traffic Capacity of Urban Roads, Table 2* (Refer to CEC Table 2.1)



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Job Title

Proposed Re-Development
at Penarth Heights

Drawing Title

Existing Flows
(Base PM Peak Hour-Year 2005)

Client

Crest Nicholson
(South West) Ltd

Drawn By

DC

Date Drawn

June 05

Scale

NTS

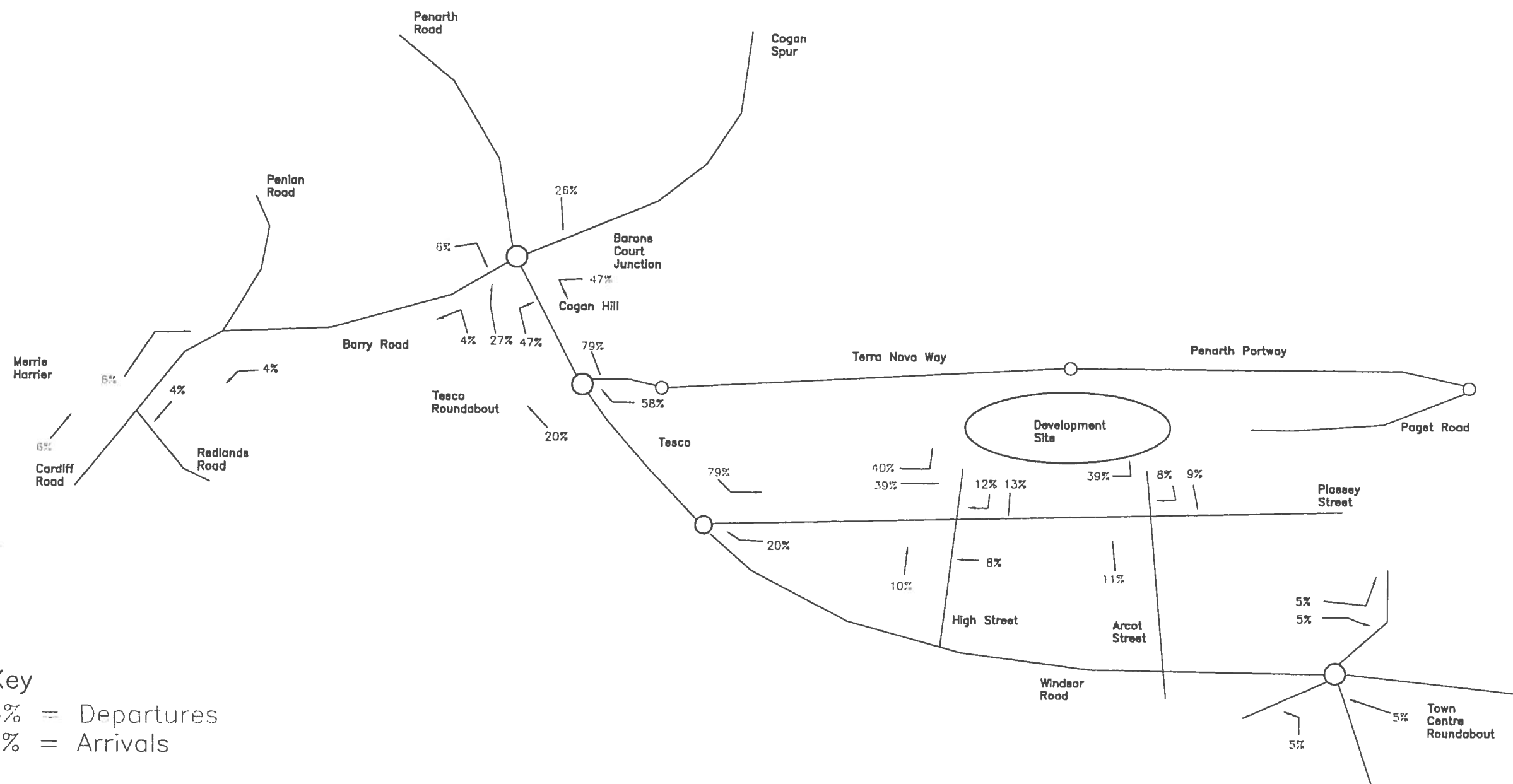
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Revision



Key
 5% = Departures
 5% = Arrivals

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Job Title:

Proposed Re-Development
at Penarth Heights

Drawing Title:

Development Trip Assignment
Departures & Arrivals
(AM Peak Hour Period)

Client:

Crest Nicholson
(South West) Ltd

Drawn By

DC

Date Drawn

June 05

Scale

NTS

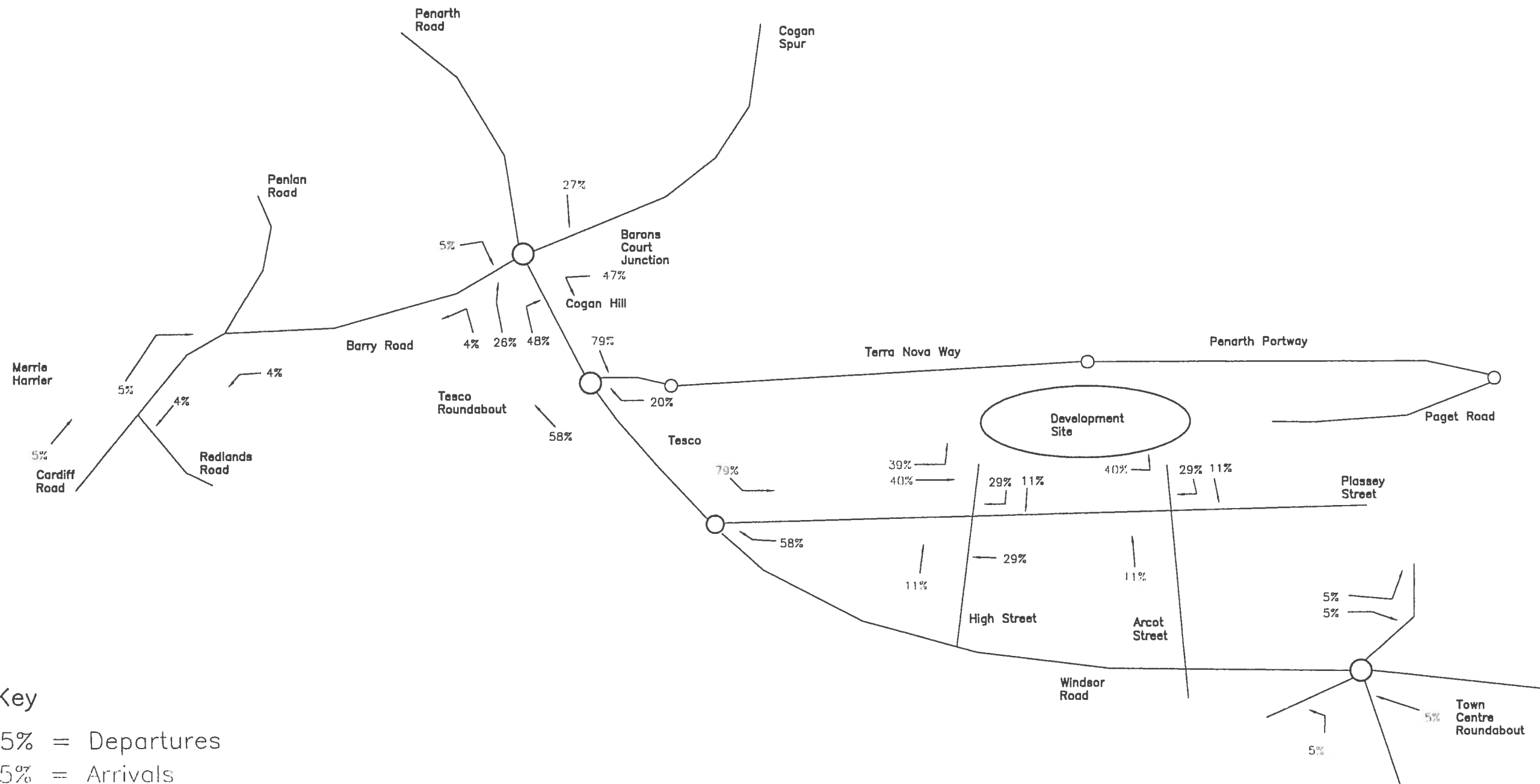
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Job Title

Proposed Re-Development
at Penarth Heights

Drawing Title

Development Trip Assignment
Departures & Arrivals
(PM Peak Hour Period)

Client

Crest Nicholson
(South West) Ltd

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DC

Date Drawn

June 05

Scale

NTS

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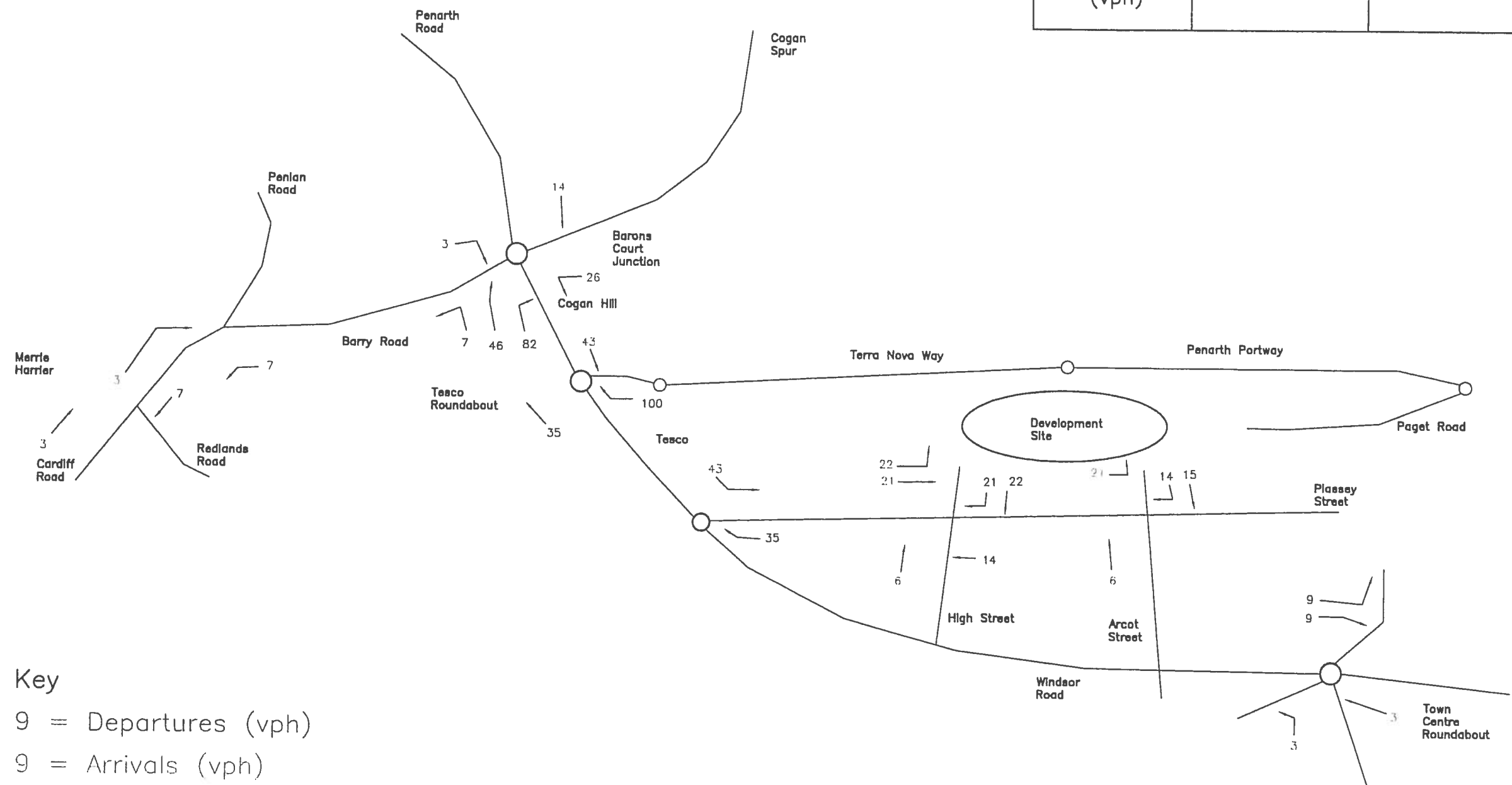
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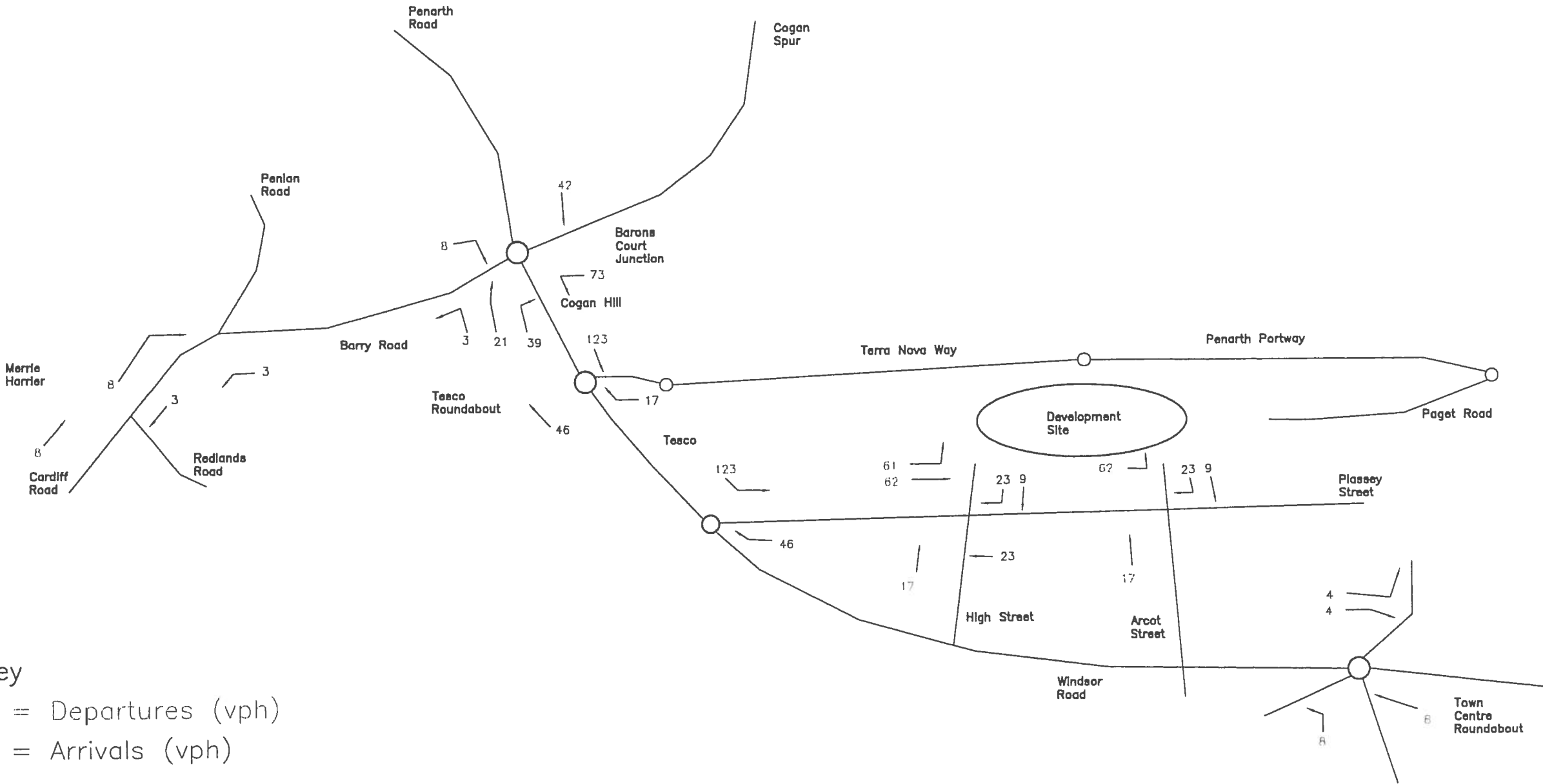
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Summary (vph)	55	172	227



Key
9 = Departures (vph)
9 = Arrivals (vph)

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				<div>Drawn By</div> <div>DC</div>	<div>Date Drawn</div> <div>June 05</div>	<div>Scale</div> <div>NTS</div>
				<div>Checked By</div> <div>BF</div>	<div>Drawing No</div> <div>2024/Fig 7.2</div>	<div>Revision</div>

	Arrivals	Departures	Total
Summary (vph)	156	81	237



Key

5 = Departures (vph)

5 = Arrivals (vph)

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Job Title

Proposed Re-Development
at Penarth Heights

Drawing Title

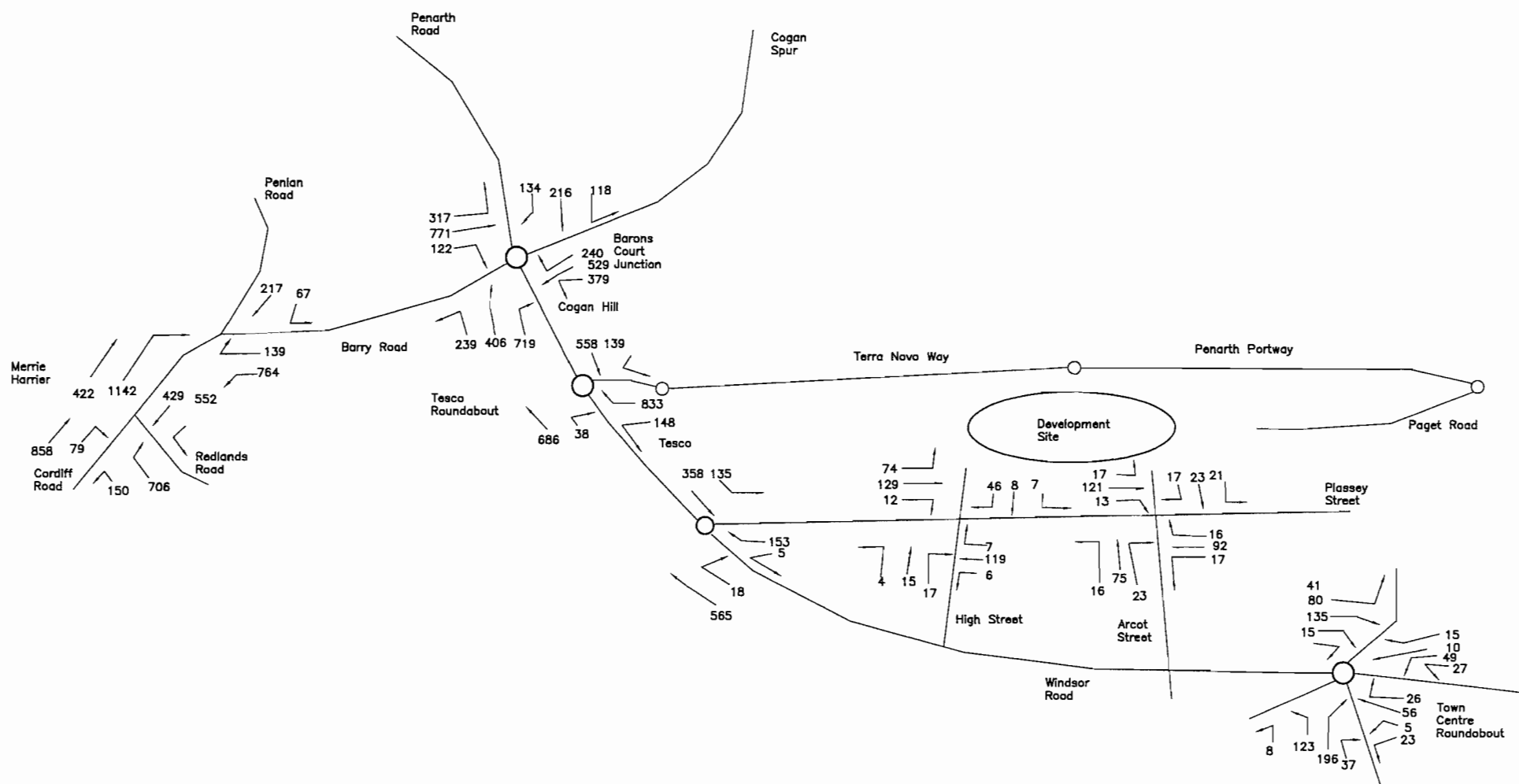
Development Flows
PM Peak Hour Period

Client:

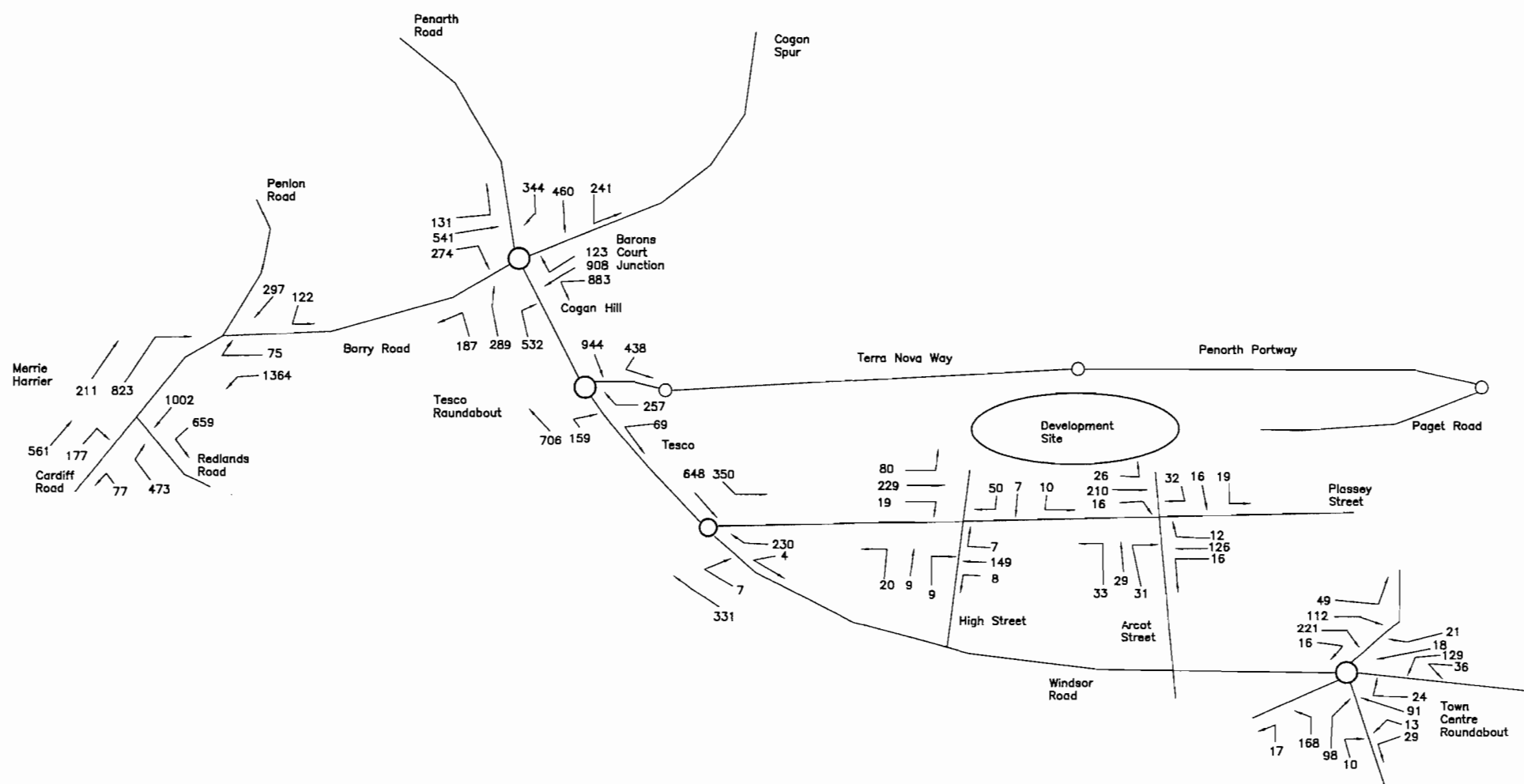
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AM Peak-Hour Period



PM Peak-Hour Period



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Job Title:

Proposed Re-Development
at Penarth Heights

Drawing Title:

Forecast Flows
(AM & PM Peak Hour Periods-
Year 2012) Without
Development traffic

Client:

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DC

Date Drawn

June 05

Scale

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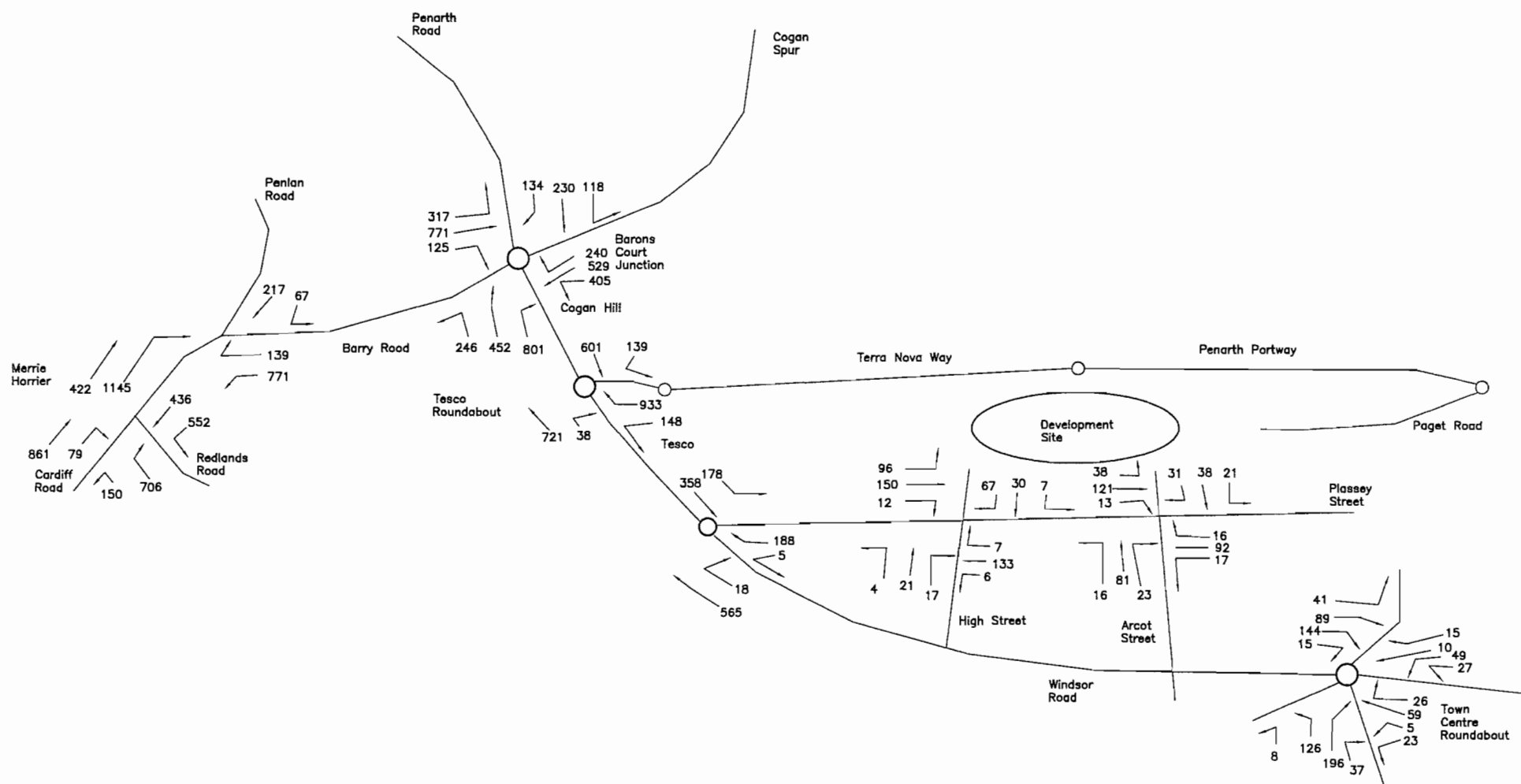
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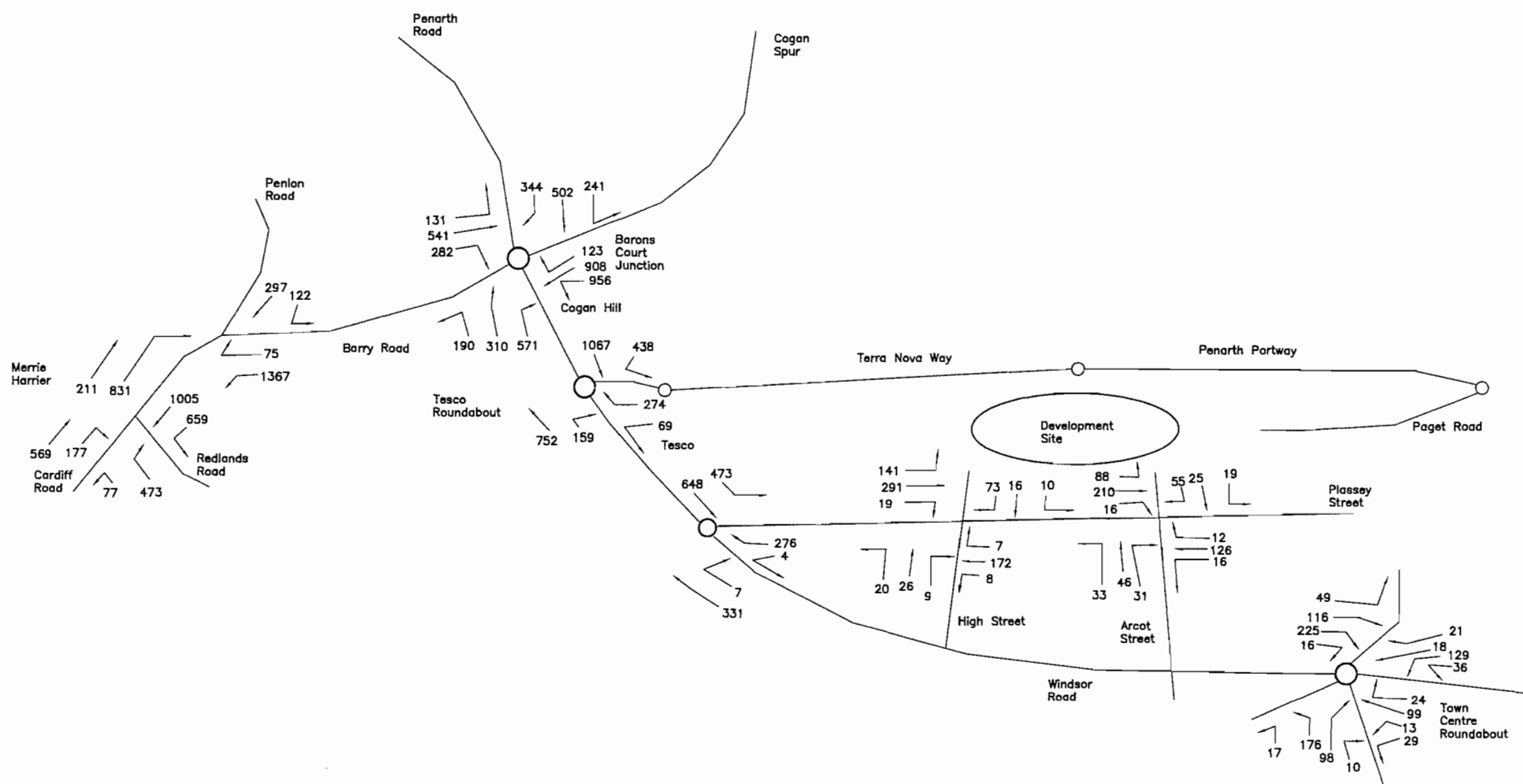
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AM Peak-Hour Period



PM Peak-Hour Period



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Job Title:

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Drawing Title:

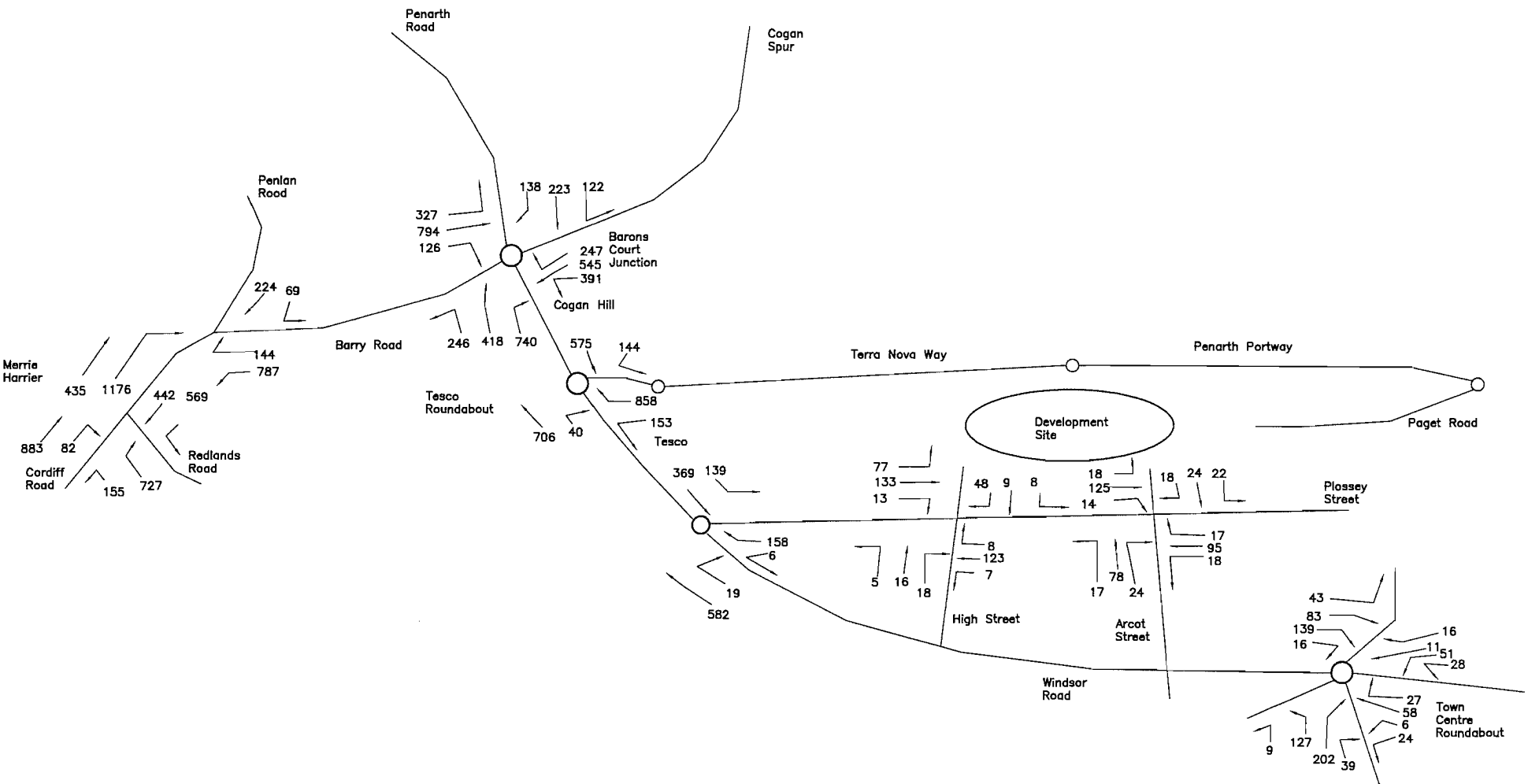
Forecast Flows
(AM & PM Peak Hour Periods-
Year 2012) With all
development traffic

Client:

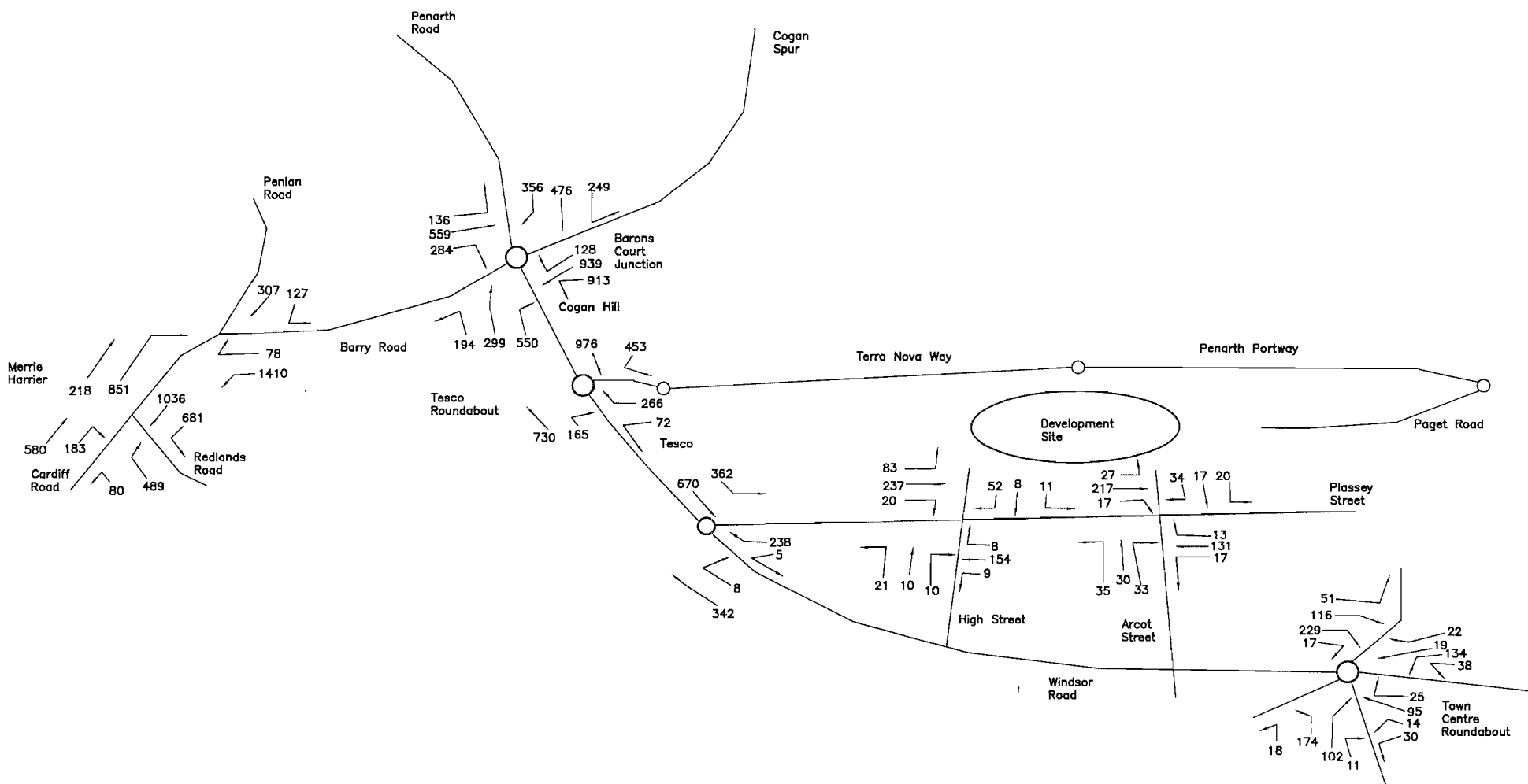
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BF	2024/Fig 7.5	

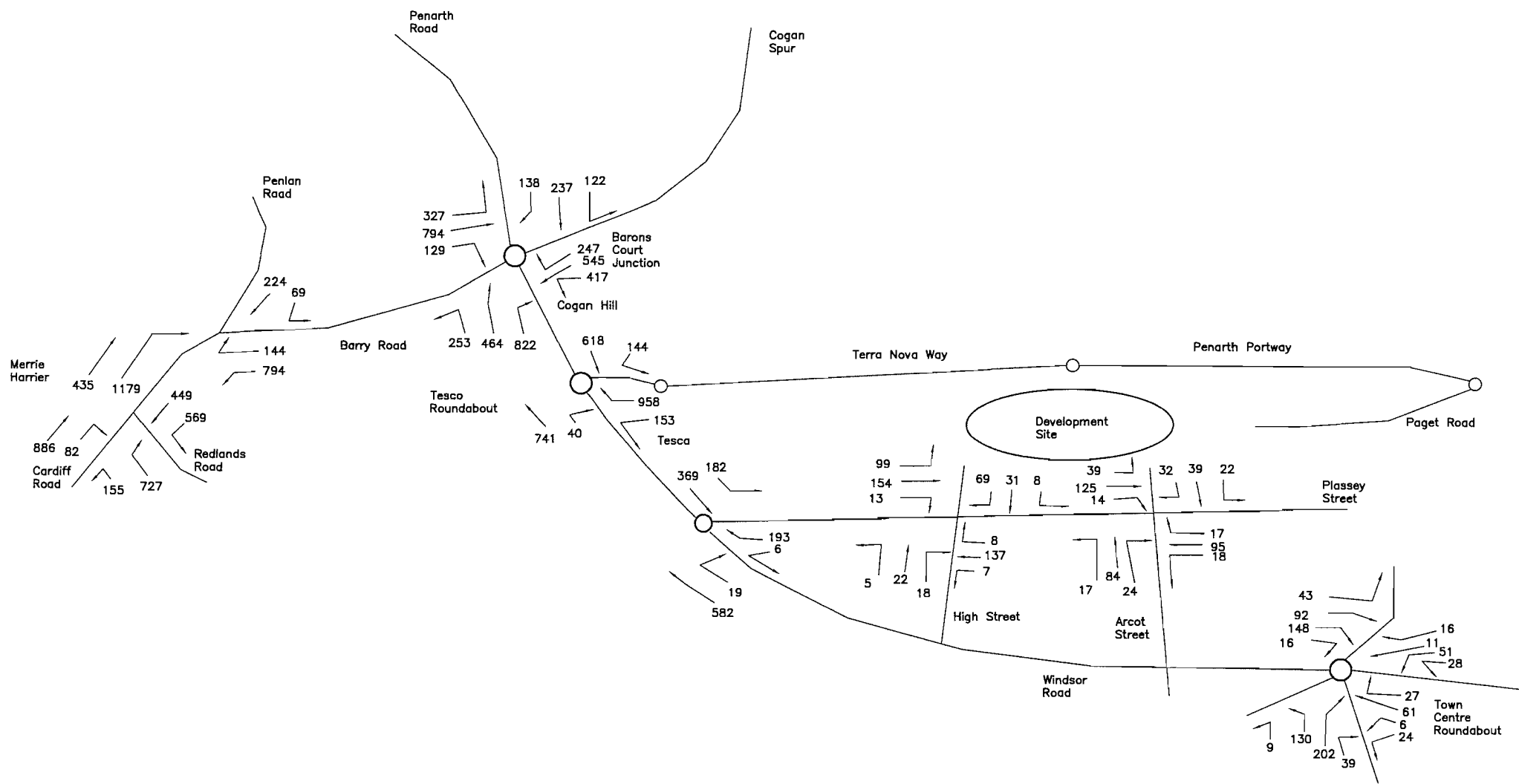
AM Peak-Hour Period



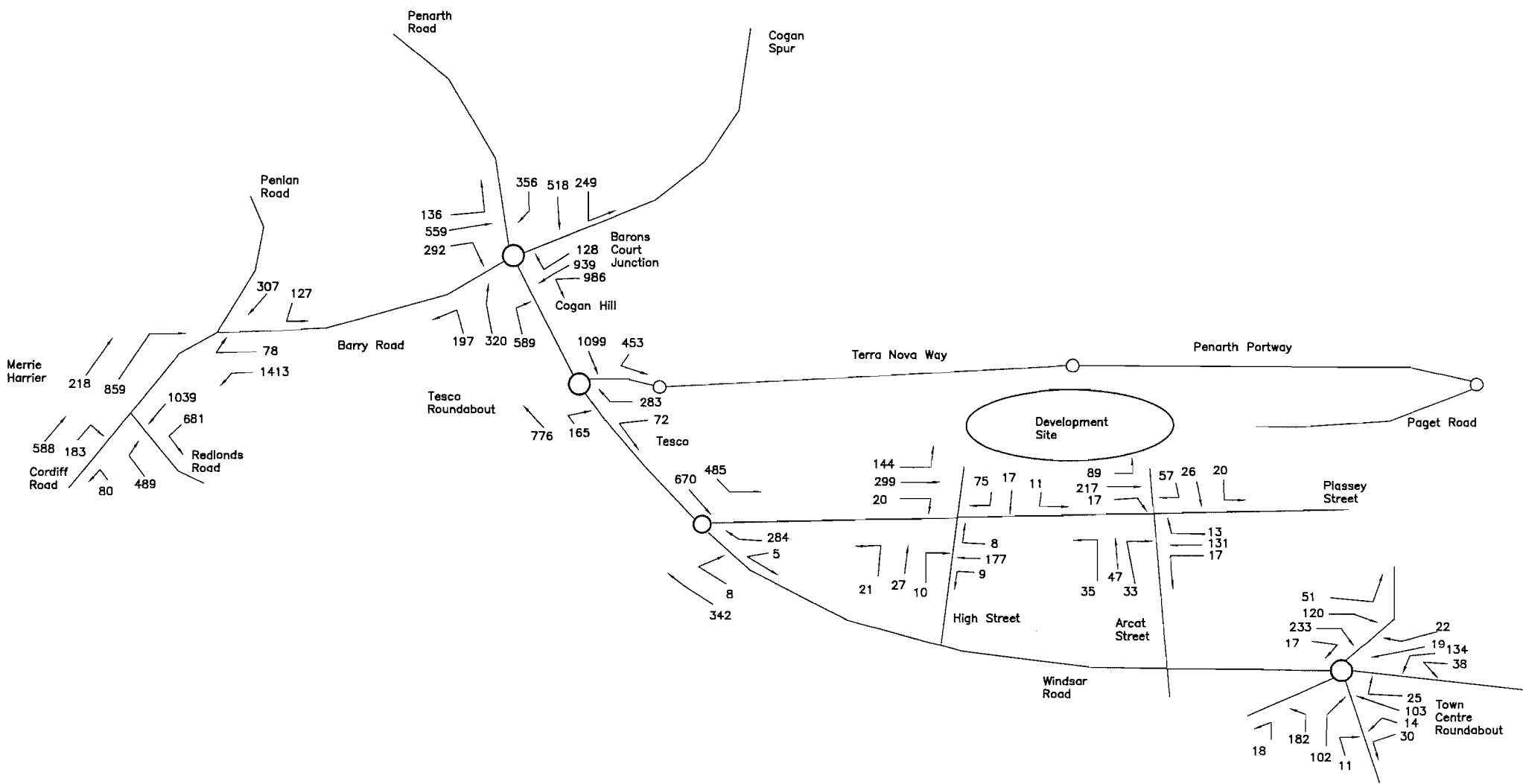
PM Peak-Hour Period



AM Peak-Hour Period



PM Peak-Hour Period



Location of Accident Summary

Site **Albert Rd / John St**

Date	Metres to jcn	Description of location	CasualtyType	Severity
3/08/99	66	JOHN STREET, O/S PILOT PUBLIC HOUSE, APPROX. 50 YDS FROM MAUGHAN TERRACE.	Vehicle/pillion	Slight
3/05/02	4	QUEENS ROAD, PENARTH, JW MAUGHAN TERRACE AND STANWELL CRESCENT.	Driver/rider	Slight
6/07/02	3	QUEENS ROAD, PENARTH, NEAR JUNCTION WITH MAUGHAN TERRACE.	Pedestrian	Slight
6/07/02	83	PAGET ROAD, PENARTH O/S NOS 2, 3	Driver/rider	Slight

Site **Albert Rd / Plassey St**

Date	Metres to jcn	Description of location	CasualtyType	Severity
9/06/98	4	ALBERT ROAD J/W PLASSEY STREET PENARTH	Vehicle/pillion	Slight
0/03/99	9	ALBERT ROAD, JW PLASSEY STREET AND CLIVE PLACE, PENARTH.	Driver/rider	Slight
0/03/99	47	ALBERT RD. PENARTH, 5 YDS NORTH JW LUDLOW LANE.	Pedestrian	Slight
1/06/99	9	ALBERT ROAD, NEAR JUNCTION WITH CLIVE PLACE, PENARTH.	Vehicle/pillion	Slight
3/05/02	76	LUDLOW LANE, PENARTH, JW ALBERT ROAD.	Driver/rider	Slight
0/05/02	6	ALBERT ROAD, PENARTH AT JUNCTION PLASSEY STREET/CLIVE PLACE	Driver/rider	Slight
1/05/02	4	CLIVE ROAD, PENARTH, JW ALBERT ROAD.	Driver/rider	Slight
0/12/03	94	Albert Road, Penarth. Outside Lloyds TSB, Windsor Road, Penarth Nr Roundabout.	Pedestrian	Slight

Site **Arcot/Pagert/Harbour View**

Date	Metres to jcn	Description of location	CasualtyType	Severity
7/11/00	25	High Street	Driver/rider	Slight
7/11/00	25	High Street	Driver/rider	Serious
7/11/00	25	High Street	Vehicle/pillion	Serious
9/11/00	27	High Stree	Vehicle/pillion	Slight
9/05/01	84	QUEENS ROAD, PENARTH, JW PAGET ROAD AND ARCOT STREET.	Driver/rider	Slight

Site **Penarth Tesco Roundabout**

Date	Metres to jcn	Description of location	CasualtyType	Severity
5/10/97	84	PORTWAY MARINA ROUNDABOUT PENARTH	Driver/rider	Slight
2/09/98	84	PENARTH PORTWAY, APPROX 150M TERA NOVA WAY, PENARTH MARINA.	Driver/rider	Slight
6/01/03	79	TERRA NOVA WAY, PENARTH, APPROX 50 YDS FROM ROUNDABOUT AT TESCO GARAGE.	Driver/rider	Slight

Site PenarthPortway / Terra Nova				
Date	Metres to jcn	Description of location	CasualtyType	Severity
6/08/98	2	TERRA NOVA WAY, JW PENARTH PORTWAY, PENARTH	Vehicle/pillion	Slight
6/08/98	2	TERRA NOVA WAY, JW PENARTH PORTWAY, PENARTH	Driver/rider	Slight
0/12/01	46	TERRANOVA WAY, PENARTH, 20 YDS FROM ROUNDAABOUT JW PENARTH PORTWAY.	Driver/rider	Slight

Site Plassey St / Arcot St				
Date	Metres to jcn	Description of location	CasualtyType	Severity
9/04/97	32	PLASSEY STREET, 300 YDS J/W ARCOT STREET, PENARTH	Driver/rider	Slight
5/01/01	6	plassey street junction with arcot street, penarth	Driver/rider	Slight
2/06/01	95	Glebe street 30yards North of junction with Salop street, Penarth.	Pedestrian	Slight
2/06/01	95	Glebe street 30yards North of junction with Salop street, Penarth.	Pedestrian	Slight
2/04/03	10	ARCOT STREET, PENARTH, JW PLASSEY STREET.	Driver/rider	Slight

Site Plassey St / High St				
Date	Metres to jcn	Description of location	CasualtyType	Severity
3/11/96	7	PLASSEY STREET J/W HIGH STREET PENARTH	Driver/rider	Slight
1/12/00	19	PLASSEY STREET, PENARTH, NEAR JW HIGH STREET.	Vehicle/pillion	Slight
7/08/02	6	PLASSEY STREET, PENARTH, 10M WEST JW HIGH STREET.	Pedestrian	Slight
4/05/03	3	HIGH STREET, PENARTH, JUNCTION WITH PLASSEY STREET.	Driver/rider	Slight
4/09/03	66	Lane at the rear of HIGH STREET, PENARTH	Pedestrian	Slight
6/01/04	10	Plassey Street, Penarth approx 10mtrs east from Plassey Square.	Pedestrian	Serious

Site Plassey St / Plassey Sq				
Date	Metres to jcn	Description of location	CasualtyType	Severity
1/07/97	72	WINDSOR RD, PENARTH 100 YARDS SOUTH OF PLASSEY ST.	Pedestrian	Slight
3/02/98	37	PLASSEY SQUARE 30 YDS FROM PLASSEY STREET PENARTH	Driver/rider	Slight
2/06/02	96	WINDSOR ROAD, PENARTH, APPROX 3 YARDS FROM JW PLASSEY STREET.	Driver/rider	Slight
2/09/02	88	A4160 WINDSOR ROAD, PENARTH, JW PLASSEY STREET.	Vehicle/pillion	Slight
2/09/02	88	A4160 WINDSOR ROAD, PENARTH, JW PLASSEY STREET.	Vehicle/pillion	Slight
9/04/04	38	Roundabout at Plassey Street JW Windsor Road, Penarth.	Driver/rider	Slight
9/04/04	38	Roundabout at Plassey Street JW Windsor Road, Penarth.	Driver/rider	Slight

Location of Accident Summary

Site	Windsor Rd			
Date	Metres to jcn	Description of location	CasualtyType	Severity
8/04/96	16	WINDSOR RD, OPP. MONTYSMITH MOTORS NR. JNC. HIGH ST, PENARTH	Vehicle/pillion	Slight
5/10/96	62	WINDSOR ROAD OPP. J/W PILL ST.	Driver/rider	Slight
7/10/96	72	WINDSOR ROAD J/W PLASSEY STREET PENARTH VALE OF GLAMORGAN	Pedestrian	Slight
1/07/97	77	WINDSOR RD / PLASSEY ST, PENARTH	Driver/rider	Slight
1/07/97	16	WINDSOR RD, PENARTH 100 YARDS SOUTH OF PLASSEY ST.	Pedestrian	Slight
9/09/97	12	WINDSOR ROAD NR GLEBE STREET PENARTH	Pedestrian	Slight
1/10/97	86	WINDSOR ROAD J/W ALBERT ROAD PENARTH VALE OF GLAMORGAN	Pedestrian	Slight
3/12/97	48	WINDSOR ROAD PENARTH, APPROX 35 M FROM JW HIGH ST, PENARTH	Driver/rider	Slight
3/12/97	48	WINDSOR ROAD PENARTH, APPROX 35 M FROM JW HIGH ST, PENARTH	Driver/rider	Slight
6/12/97	4	WINDSOR ROAD, PENARTH JUNCTION WITH GLEBE STREET	Vehicle/pillion	Slight
2/12/97	97	STANWELL RD PENARTH, JW WINDSOR ROAD, PENARTH	Vehicle/pillion	Slight
2/12/97	97	STANWELL RD PENARTH, JW WINDSOR ROAD, PENARTH	Vehicle/pillion	Slight
3/02/98	66	PILL STREET NEAR STATION PUBLIC HOUSE, PENARTH	Pedestrian	Slight
3/04/98	60	WINDSOR ROAD, JW PILL STREET, COGAN	Driver/rider	Slight
6/05/98	67	WINDSOR RD. JCN WITH PILL ST., PENARTH	Driver/rider	Serious
9/05/98	59	WINDSOR ROAD PELICAN CROSSING O/S STATION P.H. PENARTH	Driver/rider	Slight
9/05/98	59	WINDSOR ROAD PELICAN CROSSING O/S STATION P.H. PENARTH	Vehicle/pillion	Slight
1/08/98	18	WINDSOR RD. JCN. HIGH ST., PENARTH	Pedestrian	Slight
2/11/98	71	WINDSOR ROAD - ROUNDABOUT -PLASSEY STREET, PENARTH	Vehicle/pillion	Slight
2/11/98	71	WINDSOR ROAD - ROUNDABOUT -PLASSEY STREET, PENARTH	Driver/rider	Slight
2/11/98	71	WINDSOR ROAD - ROUNDABOUT -PLASSEY STREET, PENARTH	Vehicle/pillion	Slight
2/11/98	71	WINDSOR ROAD - ROUNDABOUT -PLASSEY STREET, PENARTH	Vehicle/pillion	Slight
9/01/99	7	WINDSOR ROAD, PENARTH, 20YDS FROM JW ARCOT STREET.	Pedestrian	Slight
5/03/99	87	WINDSOR RD. PENARTH, APPROX 5 YDS FROM JW GLEBE ST.	Pedestrian	Slight

2/04/99	38	WINDSOR ROAD, PENARTH, 200 YDS NORTH OF JW HIGH STREET.	Pedestrian	Slight
2/04/99	54	WINDSOR ROAD, PENARTH, APPROX 50 YDS SOUTH JW HIGH ST.	Pedestrian	Slight
1/05/99	62	WINDSOR ROAD, PENARTH, 20 YDS EAST AT JW ARCOT ST.	Driver/rider	Slight
1/05/99	42	WINDSOR ROAD, PENARTH, 20 YDS EAST AT JW ARCOT ST.	Driver/rider	Slight
9/06/99	6	WINDSOR ROAD, PENARTH, OPPOSITE JUNCTION OF HIGH STREET.	Driver/rider	Slight
7/07/99	72	WINDSOR ROAD, PENARTH, APPROX. 20YDS FROM JW BRIDGE ST.	Vehicle/pillion	Slight
1/09/99	30	WINDSOR ROAD, PENARTH, JW HICKMAN ROAD.	Driver/rider	Slight
1/09/99	76	WINDSOR ROAD, PENARTH, JW HICKMAN ROAD.	Driver/rider	Slight
6/02/00	5	WINDSOR RD. JCN. PLASSEY ST., PENARTH	Driver/rider	Slight
6/02/00	5	WINDSOR RD. JCN. PLASSEY ST., PENARTH	Vehicle/pillion	Slight
2/02/00	4	WINDSOR ROAD, PENARTH, APPROX 20 METRES JW. HIGH STREET, PENARTH	Driver/rider	Slight
2/03/00	63	WINDSOR ROAD, PENARTH, OUTSIDE STATION PUBLIC HOUSE.	Vehicle/pillion	Slight
0/07/00	57	Windsor Road, Penarth	Pedestrian	Slight
8/07/00	95	Windsor Road, Penarth	Driver/rider	Slight
9/09/00	18	WINDSOR RD, PENARTH, O/S PENARTH POLICE STATION	Pedestrian	Fatal
8/12/00	16	Plassey Street, Penarth 50 yards from junction Windsor Road	Driver/rider	Slight
5/01/01	30	WINDSOR ROAD, COGAN, PENARTH, NEAR JW ANDREW ROAD.	Driver/rider	Slight
7/01/01	69	WINDSOR ROAD, PENARTH, APPROX 30M NORTH JW GLEBE STREET	Pedestrian	Serious
7/01/01	34	WINDSOR ROAD, PENARTH, APPROX 30M NORTH JW GLEBE STREET	Pedestrian	Serious
2/02/01	95	GROVE PLACE, PENARTH, APPROX 3M FROM JW HICKMAN ROAD.	Pedestrian	Serious
4/04/01	54	A4160 WINDSOR RD. PENARTH, JW PILL STREET.	Driver/rider	Slight
4/04/01	54	A4160 WINDSOR RD. PENARTH, JW PILL STREET.	Vehicle/pillion	Slight
4/04/01	54	A4160 WINDSOR RD. PENARTH, JW PILL STREET.	Vehicle/pillion	Slight
4/04/01	54	A4160 WINDSOR RD. PENARTH, JW PILL STREET.	Driver/rider	Serious
7/04/01	51	WINDSOR ROAD, PENARTH, APPROX 50METRES FROM JW HIGH STREET	Pedestrian	Slight
5/06/01	64	A4160 Windsor Road, Penarth at junction with Pill Street.	Vehicle/pillion	Slight
3/07/01	71	Glebe St, Penarth approx 5 yards form junction with Ludlow Street.	Driver/rider	Slight
5/08/01	71	WINDSOR ROAD, PENARTH, OPPOSITE BP PETROL STATION	Pedestrian	Slight

1/08/01	78	WINDSOR ROAD,PENARTH, ROUNDABOUT WITH PLASSEY STREET.	Driver/rider	Slight
5/11/01	60	A4160 Windsor Road, Penarth	Pedestrian	Slight
5/11/01	43	A4160 Windsor Road, Penarth	Pedestrian	Slight
6/11/01	24	Windsor Road, Penarth towards junction with Bridge Street.	Driver/rider	Slight
8/12/01	91	Bridge Street/Dock Street, Cogan, Penarth	Vehicle/pillion	Slight
8/12/01	91	Bridge Street/Dock Street, Cogan, Penarth	Vehicle/pillion	Slight
5/04/02	63	WINDSOR ROAD, COGAN, JW BRIDGE STREET.	Driver/rider	Slight
1/04/02	8	WINDSOR ROAD, PENARTH, JW GLEBE STREET.	Pedestrian	Slight
2/06/02	82	WINDSOR ROAD, PENARTH, APPROX 3 YARDS FROM JW PLASSEY STREET.	Driver/rider	Slight
2/09/02	90	A4160 WINDSOR ROAD, PENARTH, JW PLASSEY STREET.	Vehicle/pillion	Slight
2/09/02	90	A4160 WINDSOR ROAD, PENARTH, JW PLASSEY STREET.	Vehicle/pillion	Slight
0/09/02	56	WINDSOR ROAD, PENARTH, OUTSIDE BUS STOP.	Pedestrian	Slight
4/10/02	47		Driver/rider	Serious
3/12/02	73	A4160 WINDSOR ROAD, PENARTH, ROUNDABOUT WITH PLASSEY STREET.	Driver/rider	Slight
3/12/02	73	A4160 WINDSOR ROAD, PENARTH, ROUNDABOUT WITH PLASSEY STREET.	Vehicle/pillion	Slight
7/12/02	63	WINDSOR ROAD NEAR J/W PLASSEY STREET, PENARTH	Pedestrian	Serious
8/02/03	30	Windsor Rd., 20m from jcn. Arcot St., Penarth	Pedestrian	Slight
9/03/03	66	Windsor Road, Penarth approx 50yds south of Monty Smith Garage.	Driver/rider	Slight
6/04/03	61	WINDSOR ROAD, PENARTH, APPROX 30 YDS EAST JW HICKMAN ROAD.	Pedestrian	Slight
6/04/03	45	WINDSOR ROAD, PENARTH, APPROX 30 YDS EAST JW HICKMAN ROAD.	Pedestrian	Slight
4/06/03	63	Windsor Rd., Penarth	Driver/rider	Slight
6/06/03	62	Windsor Rd., Penarth	Driver/rider	Slight
5/07/03	25	WINDSOR ROAD, PENARTH, APPROACHING JUNCTION ARCOT STREET.	Driver/rider	Slight
4/12/03	62	Plassey Street Junction Roundabout Windsor Road.	Pedestrian	Slight
4/12/03	42	Plassey Street Junction Roundabout Windsor Road.	Pedestrian	Slight
2/01/04	61	A4160 Windsor Road, penarth approx 10mtrs Northwest of JW Pill Street.	Driver/rider	Slight
0/03/04	47	Windsor Road, Cogan, Penarth.	Driver/rider	Slight
2/03/04	52	JW Andrew Road & Windsor Road, Penarth.	Pedestrian	Slight
9/04/04	66	Roundabout at Plassey Street JW Windsor Road, Penarth.	Driver/rider	Slight
9/04/04	66	Roundabout at Plassey Street JW Windsor Road, Penarth.	Driver/rider	Slight

6/06/04	80	DINGLE ROAD, PENARTH	Driver/rider	Slight
6/06/04	80	DINGLE ROAD, PENARTH	Driver/rider	Slight
3/08/04	47	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. FAGANS PUBLIC HOUSE.	Pedestrian	Slight
3/08/04	58	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. FAGANS PUBLIC HOUSE.	Pedestrian	Slight
8/09/04	61	A4160 WINDSOR ROAD, PENARTH, JW PILL STREET.	Driver/rider	Slight
8/09/04	61	A4160 WINDSOR ROAD, PENARTH, JW PILL STREET.	Driver/rider	Slight

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

06	WEST MIDLANDS	
	WM WEST MIDLANDS	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days
	MS MERSEYSIDE	1 days
11	SCOTLAND	
	AD ABERDEEN CITY	2 days

Main parameter selection:

Parameter: Number of households
 Range: 24 to 215 (units:)

Date Range: 01/01/96 to 20/04/04

Selected survey days:

Monday	1 days
Tuesday	3 days
Thursday	3 days
Friday	1 days

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

Optional parameter selection:Use Class:

C3	8 days
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Location:

Neighbourhood Centre	3 days
Edge of Town	1 days
Edge of Town Centre	2 days
Development Zone	2 days

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	2 days
15,001 to 20,000	3 days
25,001 to 50,000	2 days

Optional parameter selection (Cont.):

Population within 5 miles:

5,001 to 25,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	1 days
500,001 or More	2 days

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	1 days

Buses/Trains per day (both directions):

<u>Frequency</u>	<u>Per Hour</u>	<u>Per Day</u>	<u>Surveys</u>
Not Known			0 days
0	0	0	0 days
<20 per day	1	20	1 days
20-39 per day	2	40	0 days
40-59 per day	3	60	0 days
60-79 per day	4	80	1 days
80+ per day	> 4	> 80	6 days

LIST OF SITES relevant to selection parameters

1	AD-03-C-01	ABERDEEN HOUSING	ABERDEEN CITY
	GAIRN TERRACE		
	RUTHRIESTON		
	ABERDEEN		
	Total Number of households:	108 *****	
	Survey date: TUESDAY	16/06/98	Survey Type: MANUAL
2	AD-03-C-02	ABERDEEN FLATS	ABERDEEN CITY
	BLOOMFIELD COURT		
	GAIRN		
	ABERDEEN		
	Total Number of households:	170 *****	
	Survey date: THURSDAY	17/06/99	Survey Type: MANUAL
3	GM-03-C-01	FLATS, SALFORD	GREATER MANCHESTER
	ASGARD DRIVE		
	ORDSALL		
	SALFORD		
	Total Number of households:	215 *****	
	Survey date: TUESDAY	20/10/98	Survey Type: MANUAL
4	MS-03-C-01	PRIVATE FLATS, LIVERPOOL	MERSEYSIDE
	WAPPING ROAD		
	WAPPING DOCK		
	LIVERPOOL		
	Total Number of households:	114 *****	
	Survey date: THURSDAY	16/10/03	Survey Type: MANUAL
5	NY-03-C-01	PRIVATE FLATS, NORTHALLERTON	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD		
	ROMANBY		
	NORTHALLERTON		
	Total Number of households:	30 *****	
	Survey date: MONDAY	22/09/03	Survey Type: MANUAL
6	WM-03-C-01	FLATS, BIRMINGHAM	WEST MIDLANDS
	WAKE GREEN ROAD		
	MOSELEY		
	BIRMINGHAM		
	Total Number of households:	26 *****	
	Survey date: FRIDAY	16/06/00	Survey Type: MANUAL
7	WM-03-C-02	BIRMINGHAM FLATS	WEST MIDLANDS
	WAKE GREEN ROAD		
	MOSELEY		
	BIRMINGHAM		
	Total Number of households:	24 *****	
	Survey date: TUESDAY	14/11/00	Survey Type: MANUAL
8	WY-03-C-01	FLATS, LEEDS	WEST YORKSHIRE
	EAST STREET		
	CROWN POINT		
	LEEDS		
	Total Number of households:	127 *****	
	Survey date: THURSDAY	13/11/03	Survey Type: MANUAL

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

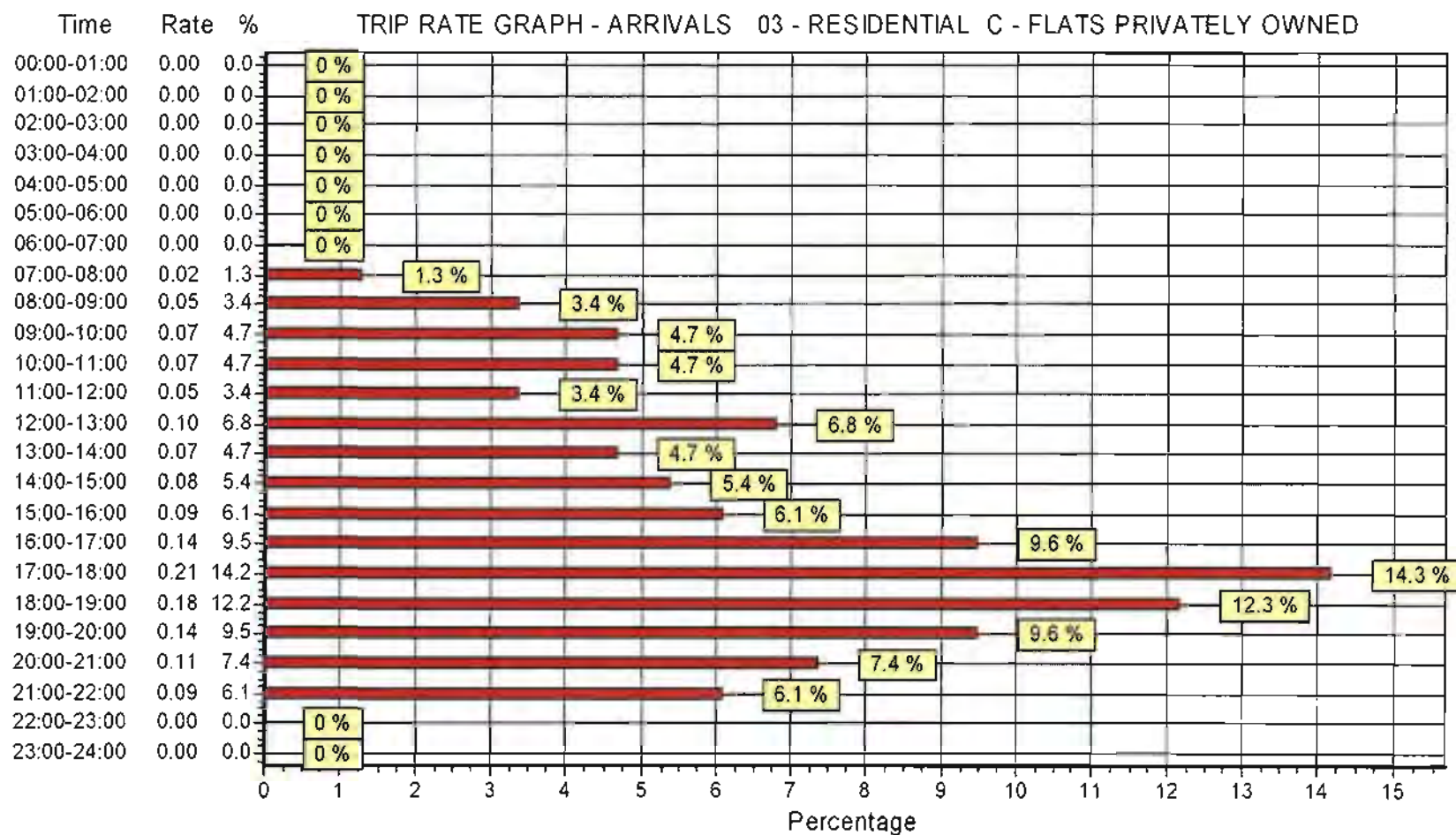
Calculation factor: 1 HHOLDS

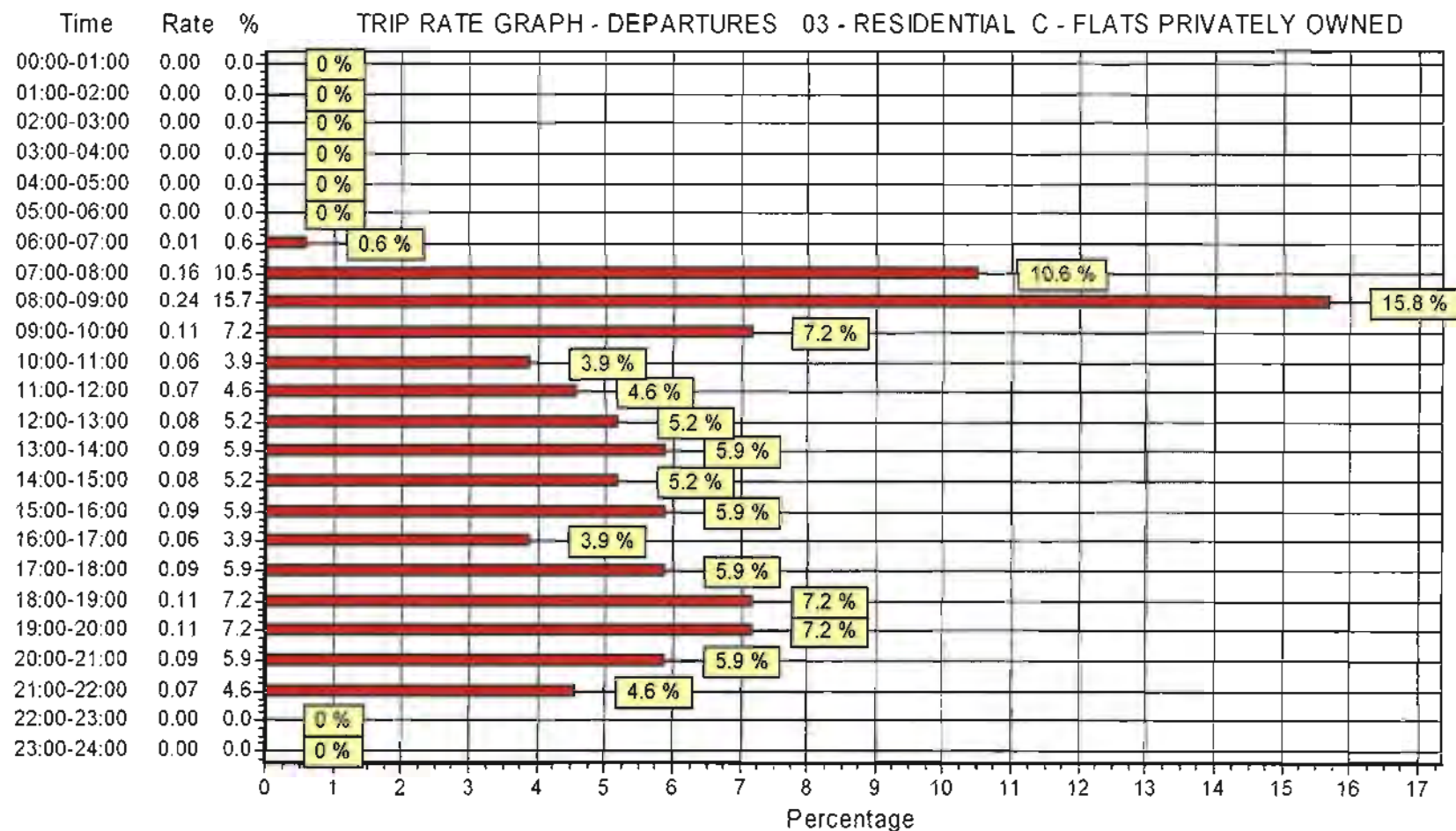
BOLD print indicates peak (busiest) period

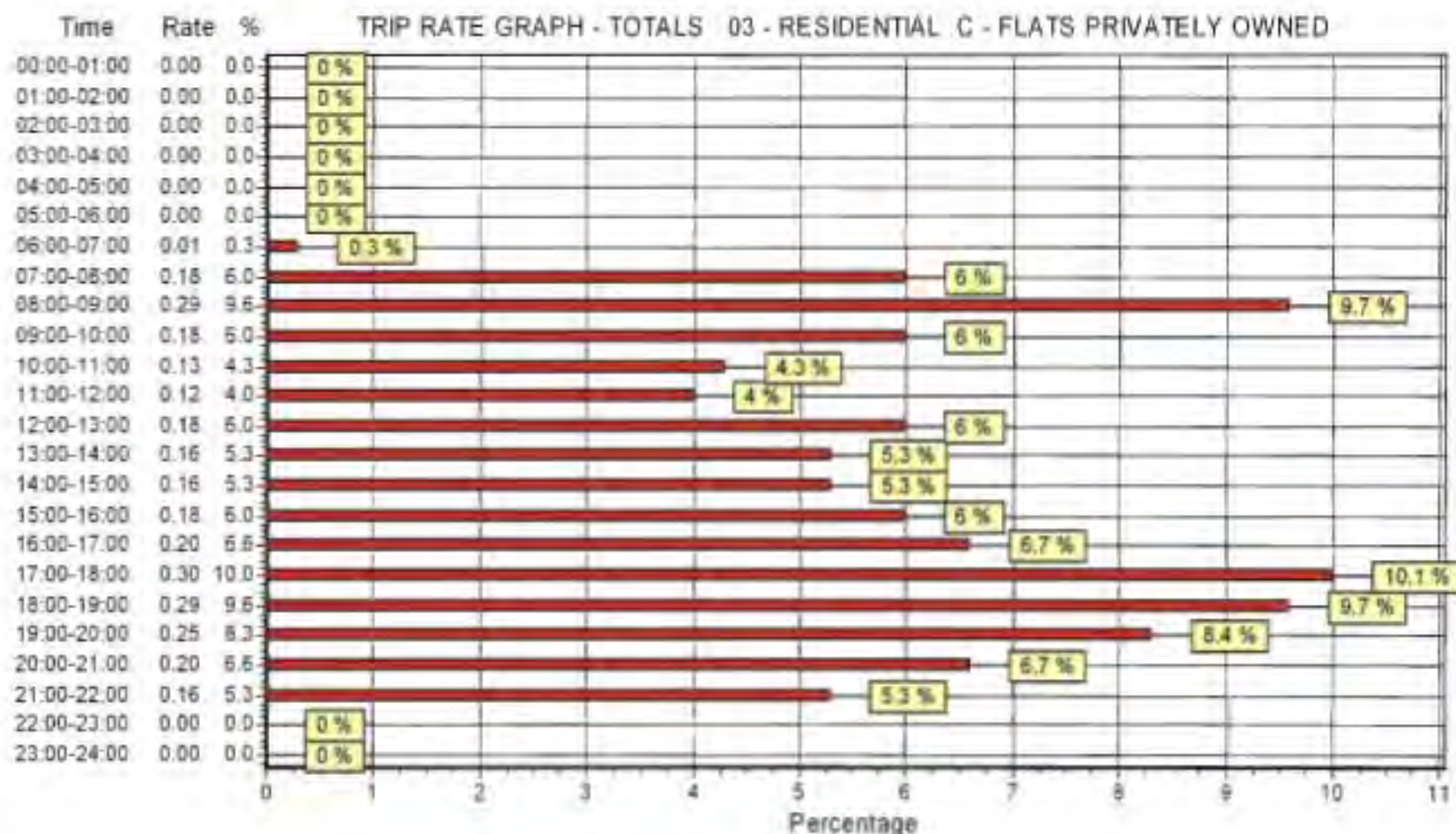
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate
00:00 - 01:00	0	0	0.00	0	0	0.00	0	0	0.00
01:00 - 02:00	0	0	0.00	0	0	0.00	0	0	0.00
02:00 - 03:00	0	0	0.00	0	0	0.00	0	0	0.00
03:00 - 04:00	0	0	0.00	0	0	0.00	0	0	0.00
04:00 - 05:00	0	0	0.00	0	0	0.00	0	0	0.00
05:00 - 06:00	0	0	0.00	0	0	0.00	0	0	0.00
06:00 - 07:00	1	215	0.00	1	215	0.01	1	215	0.01
07:00 - 08:00	7	100	0.02	7	100	0.16	7	100	0.18
08:00 - 09:00	7	100	0.05	7	100	0.24	7	100	0.29
09:00 - 10:00	7	100	0.07	7	100	0.11	7	100	0.18
10:00 - 11:00	7	100	0.07	7	100	0.06	7	100	0.13
11:00 - 12:00	7	100	0.05	7	100	0.07	7	100	0.12
12:00 - 13:00	7	100	0.10	7	100	0.08	7	100	0.18
13:00 - 14:00	7	100	0.07	7	100	0.09	7	100	0.16
14:00 - 15:00	7	100	0.08	7	100	0.08	7	100	0.16
15:00 - 16:00	7	100	0.09	7	100	0.09	7	100	0.18
16:00 - 17:00	7	100	0.14	7	100	0.06	7	100	0.20
17:00 - 18:00	7	100	0.21	7	100	0.09	7	100	0.30
18:00 - 19:00	7	100	0.18	7	100	0.11	7	100	0.29
19:00 - 20:00	3	88	0.14	3	88	0.11	3	88	0.25
20:00 - 21:00	3	88	0.11	3	88	0.09	3	88	0.20
21:00 - 22:00	1	215	0.09	1	215	0.07	1	215	0.16
22:00 - 23:00	0	0	0.00	0	0	0.00	0	0	0.00
23:00 - 24:00	0	0	0.00	0	0	0.00	0	0	0.00
Daily Trip Rates:			1.47				1.51	2.99	

Parameter summary

Trip rate parameter range selected: 24 - 215 (units:)
 Survey date range: 01/01/96 - 20/04/04
 Number of weekdays (Monday-Friday): 8
 Number of Saturdays: 0
 Number of Sundays: 0
 Optional parameters used in selection: NO
 Surveys manually removed from selection: 6







TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

Selected regions and areas:

02	SOUTH EAST	
	BD BEDFORDSHIRE	2 days
	HC HAMPSHIRE	1 days
	SC SURREY	1 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	2 days
08	NORTH WEST	
	GM GREATER MANCHESTER	10 days
	LC LANCASHIRE	2 days
09	NORTH	
	TW TYNE & WEAR	1 days
11	SCOTLAND	
	HI HIGHLAND	16 days

Main parameter selection:

Parameter: Number of households
 Range: 5 to 4334 (units:)

Date Range: 01/01/96 to 08/07/04

Selected survey days:

Monday	6 days
Tuesday	7 days
Wednesday	7 days
Thursday	8 days
Friday	7 days

Selected survey types:

Manual count	15 days
Directional ATC Count	20 days

Optional parameter selection:Use Class:

C3	35 days
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Location:

Neighbourhood Centre	8 days
Suburban Area	15 days
Edge of Town	12 days

Population within 1 mile:

1,001 to 5,000	12 days
5,001 to 10,000	4 days
10,001 to 15,000	13 days
20,001 to 25,000	2 days
25,001 to 50,000	4 days

Optional parameter selection (Cont.):Population within 5 miles:

5,001 to 25,000	12 days
50,001 to 75,000	5 days
100,001 to 125,000	1 days
125,001 to 250,000	14 days
250,001 to 500,000	1 days
500,001 or More	2 days

Car ownership within 5 miles:

0.6 to 1.0	17 days
1.1 to 1.5	17 days
1.6 to 2.0	1 days

Buses/Trains per day (both directions):

<u>Frequency</u>	<u>Per Hour</u>	<u>Per Day</u>	<u>Surveys</u>
Not Known			0 days
0	0	0	0 days
<20 per day	1	20	0 days
20-39 per day	2	40	11 days
40-59 per day	3	60	2 days
60-79 per day	4	80	7 days
80+ per day	> 4	> 80	15 days

LIST OF SITES relevant to selection parameters

- | | | | |
|---|-----------------------------|----------------------|--------------------------|
| 1 | BD-03-A-01 | SEMI-DETACHED, LUTON | BEDFORDSHIRE |
| | NEW BEDFORD ROAD | | |
| | LUTON | | |
| | Total Number of households: | 131 ***** | |
| | Survey date: THURSDAY | 08/07/04 | Survey Type: MANUAL |
| 2 | BD-03-A-02 | SEMI DETACHED, LUTON | BEDFORDSHIRE |
| | RIDDY LANE | | |
| | LUTON | | |
| | Total Number of households: | 82 ***** | |
| | Survey date: TUESDAY | 06/07/04 | Survey Type: MANUAL |
| 3 | GM-03-A-01 | BOLTON HOUSING | GREATER MANCHESTER |
| | COLLINGWOOD WAY | | |
| | WESTHOUGHTON | | |
| | BOLTON | | |
| | Total Number of households: | 83 ***** | |
| | Survey date: MONDAY | 03/03/97 | Survey Type: DIRECTIONAL |
| | Survey date: TUESDAY | 04/03/97 | Survey Type: DIRECTIONAL |
| | Survey date: WEDNESDAY | 05/03/97 | Survey Type: DIRECTIONAL |
| | Survey date: THURSDAY | 06/03/97 | Survey Type: DIRECTIONAL |
| | Survey date: FRIDAY | 07/03/97 | Survey Type: DIRECTIONAL |
| 4 | GM-03-A-04 | BOLTON HOUSING | GREATER MANCHESTER |
| | BEAUMONT CHASE | | |
| | HUNGER HILL | | |
| | BOLTON | | |
| | Total Number of households: | 204 ***** | |
| | Survey date: MONDAY | 25/11/96 | Survey Type: MANUAL |
| | Survey date: WEDNESDAY | 27/11/96 | Survey Type: MANUAL |
| 5 | GM-03-A-05 | TAMESIDE HOUSING | GREATER MANCHESTER |
| | STATION ROAD | | |
| | GODLEY | | |
| | TAMESIDE | | |
| | Total Number of households: | 65 ***** | |
| | Survey date: WEDNESDAY | 27/11/96 | Survey Type: MANUAL |
| 6 | GM-03-A-07 | MANCHESTER HOUSING | GREATER MANCHESTER |
| | MILFORD DRIVE | | |
| | LEVENSHULME | | |
| | MANCHESTER | | |
| | Total Number of households: | 138 ***** | |
| | Survey date: FRIDAY | 09/11/01 | Survey Type: MANUAL |
| 7 | GM-03-A-08 | STOCKPORT HOUSING | GREATER MANCHESTER |
| | ELM TREE ROAD | | |
| | LOWER BREDBURY | | |
| | STOCKPORT | | |
| | Total Number of households: | 247 ***** | |
| | Survey date: FRIDAY | 12/10/01 | Survey Type: MANUAL |
| 8 | HC-03-A-01 | EASTLEIGH HOUSING | HAMPSHIRE |
| | KNIGHTWOOD ROAD | | |
| | KNIGHT WOOD | | |
| | EASTLEIGH | | |
| | Total Number of households: | 300 ***** | |
| | Survey date: THURSDAY | 19/08/99 | Survey Type: MANUAL |

LIST OF SITES relevant to selection parameters (Cont.)

9	HI-03-A-06 NESS WAY	HOUSING, FORTROSE	HIGHLAND
	FORTROSE		
	Total Number of households:	7 *****	
	Survey date: THURSDAY	03/12/98	Survey Type: DIRECTIONAL
	Survey date: FRIDAY	04/12/98	Survey Type: DIRECTIONAL
	Survey date: MONDAY	07/12/98	Survey Type: DIRECTIONAL
	Survey date: TUESDAY	08/12/98	Survey Type: DIRECTIONAL
	Survey date: WEDNESDAY	09/12/98	Survey Type: DIRECTIONAL
10	HI-03-A-07 THE ORCHARD (PART OF)	FORTROSE HOUSING	HIGHLAND
	FORTROSE		
	Total Number of households:	5 *****	
	Survey date: THURSDAY	03/12/98	Survey Type: DIRECTIONAL
	Survey date: FRIDAY	04/12/98	Survey Type: DIRECTIONAL
	Survey date: MONDAY	07/12/98	Survey Type: DIRECTIONAL
	Survey date: WEDNESDAY	09/12/98	Survey Type: DIRECTIONAL
11	HI-03-A-09 GOLLANHEAD AVENUE	ROSEMARKIE HOUSING	HIGHLAND
	ROSEMARKIE		
	Total Number of households:	14 *****	
	Survey date: FRIDAY	04/12/98	Survey Type: MANUAL
	Survey date: TUESDAY	08/12/98	Survey Type: DIRECTIONAL
12	HI-03-A-10 BOSWELL ROAD CASTLE HEATHER INVERNESS	HOUSING, INVERNESS	HIGHLAND
	Total Number of households:	11 *****	
	Survey date: WEDNESDAY	02/12/98	Survey Type: DIRECTIONAL
	Survey date: THURSDAY	03/12/98	Survey Type: DIRECTIONAL
	Survey date: FRIDAY	04/12/98	Survey Type: DIRECTIONAL
	Survey date: MONDAY	07/12/98	Survey Type: DIRECTIONAL
	Survey date: TUESDAY	08/12/98	Survey Type: DIRECTIONAL
13	LC-03-A-13 DUNROBIN DRIVE EUXTON CHORLEY	CHORLEY HOUSING	LANCASHIRE
	Total Number of households:	37 *****	
	Survey date: MONDAY	21/07/97	Survey Type: MANUAL
14	LC-03-A-16 DRAKES HOLLOW WALTON-LE-DALE PRESTON	PRESTON HOUSING	LANCASHIRE
	Total Number of households:	18 *****	
	Survey date: THURSDAY	26/03/98	Survey Type: MANUAL
15	NT-03-A-01 THE HEMPLANDS	COLLINGHAM HOUSING	NOTTINGHAMSHIRE
	COLLINGHAM		
	Total Number of households:	125 *****	
	Survey date: THURSDAY	26/11/98	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

- | | | | |
|-----------|-----------------------------|------------------------------------|------------------------|
| 16 | NT-03-A-02 | NOTTINGHAM HOUSING | NOTTINGHAMSHIRE |
| | LODGE FARM LANE | | |
| | GEDLING | | |
| | NOTTINGHAM | | |
| | Total Number of households: | 201 ***** | |
| | Survey date: TUESDAY | 24/11/98 | Survey Type: MANUAL |
| 17 | SC-03-A-03 | DETACHED HOUSES, E. MOLESEY | SURREY |
| | RIVERMEAD | | |
| | HURST PARK | | |
| | EAST MOLESEY | | |
| | Total Number of households: | 54 ***** | |
| | Survey date: TUESDAY | 12/11/02 | Survey Type: MANUAL |
| 18 | TW-03-A-01 | PRIVATE HOUSING, SUNDERLAND | TYNE & WEAR |
| | MYRELLA CRESCENT | | |
| | HILLVIEW | | |
| | SUNDERLAND | | |
| | Total Number of households: | 81 ***** | |
| | Survey date: WEDNESDAY | 18/09/02 | Survey Type: MANUAL |

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

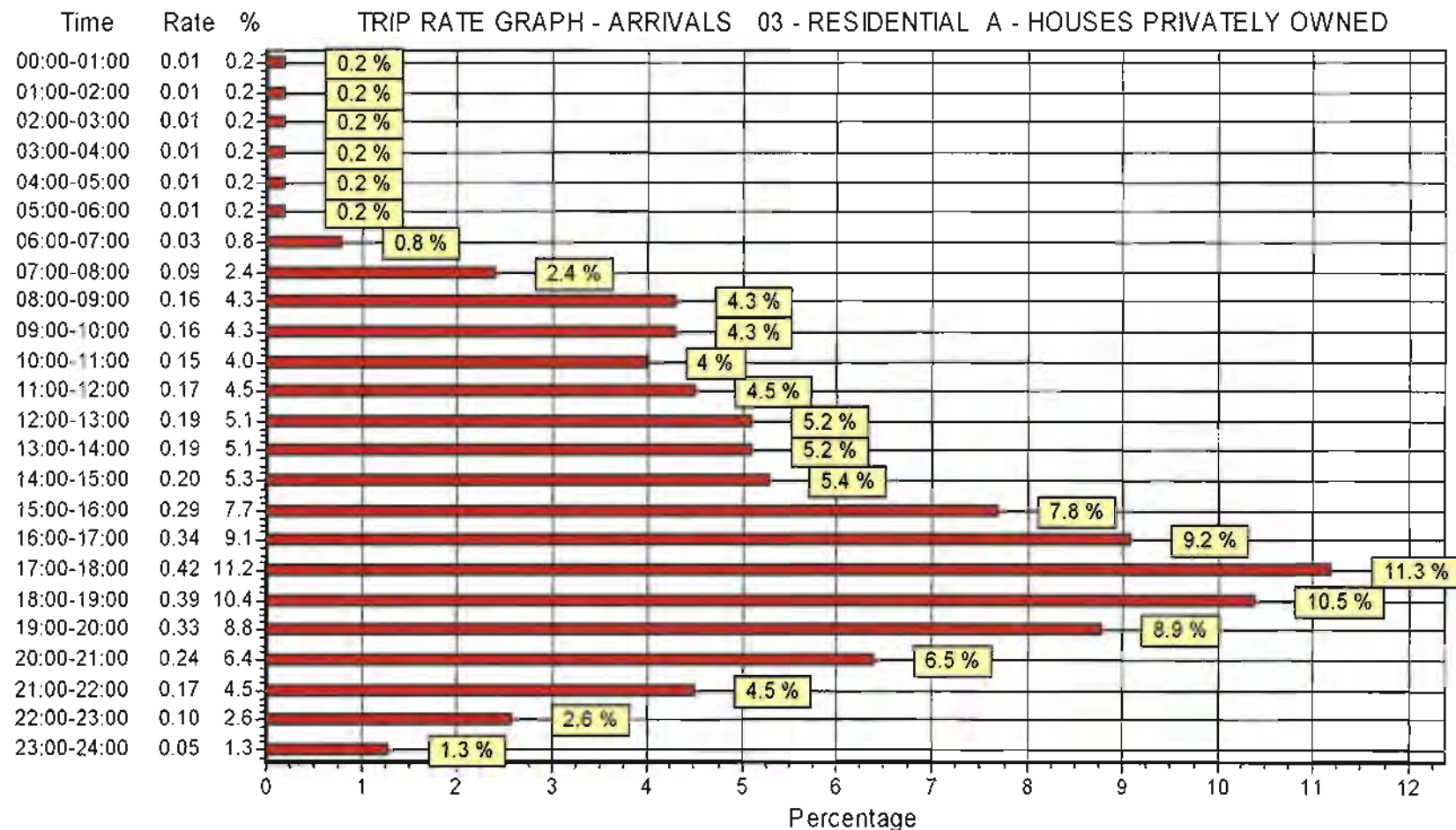
Calculation factor: 1 HHOLDS

BOLD print indicates peak (busiest) period

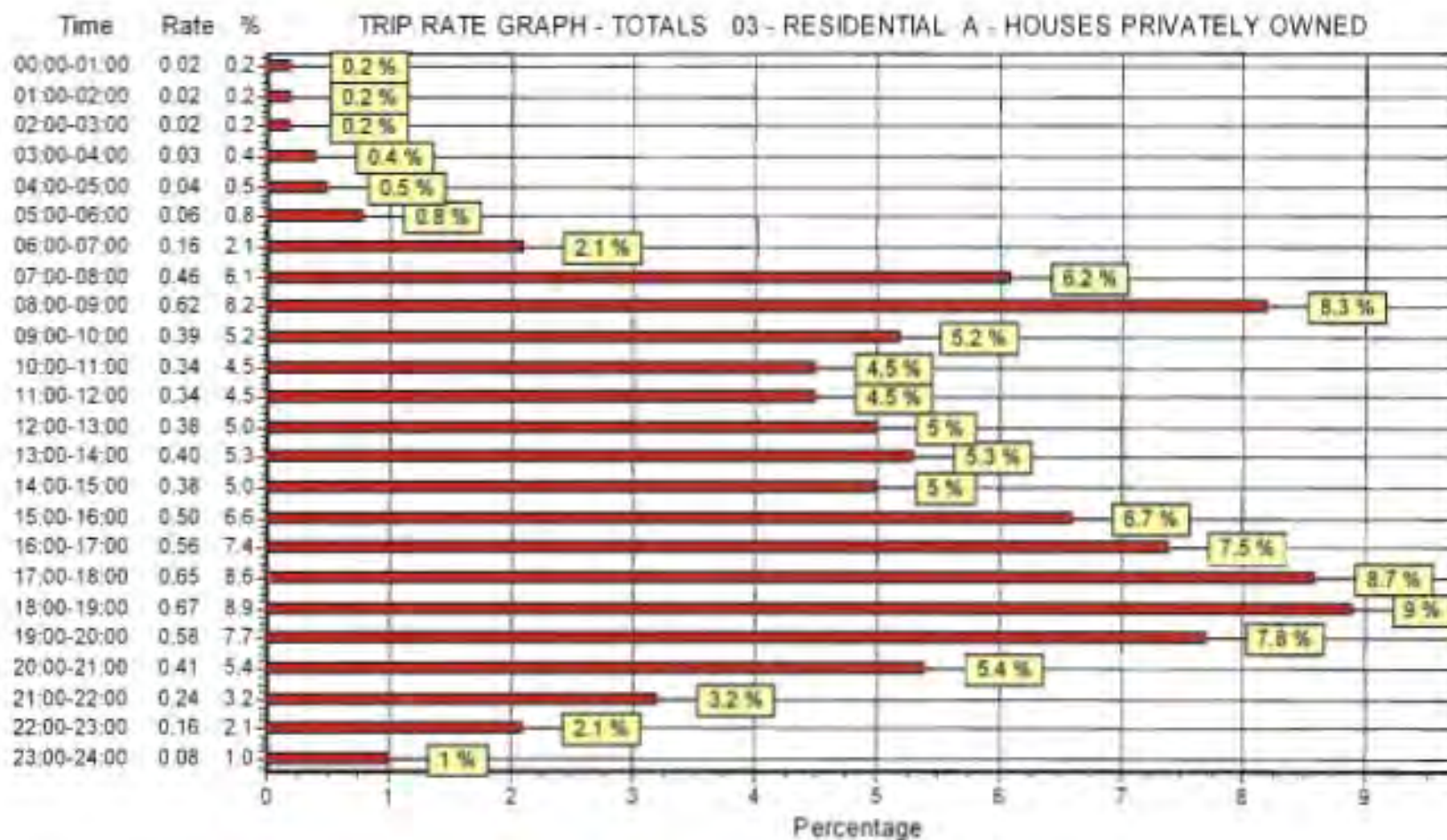
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate	No. Days	Ave. HHOLDS	Trip Rate
00:00 - 01:00	21	26	0.01	21	26	0.01	21	26	0.02
01:00 - 02:00	21	26	0.01	21	26	0.01	21	26	0.02
02:00 - 03:00	21	26	0.01	21	26	0.01	21	26	0.02
03:00 - 04:00	21	26	0.01	21	26	0.02	21	26	0.03
04:00 - 05:00	21	26	0.01	21	26	0.03	21	26	0.04
05:00 - 06:00	21	26	0.01	21	26	0.05	21	26	0.06
06:00 - 07:00	21	26	0.03	21	26	0.13	21	26	0.16
07:00 - 08:00	35	70	0.09	35	70	0.37	35	70	0.46
08:00 - 09:00	35	70	0.16	35	70	0.48	35	70	0.62
09:00 - 10:00	35	70	0.16	35	70	0.23	35	70	0.39
10:00 - 11:00	35	70	0.15	35	70	0.19	35	70	0.34
11:00 - 12:00	35	70	0.17	35	70	0.17	35	70	0.34
12:00 - 13:00	35	70	0.19	35	70	0.19	35	70	0.38
13:00 - 14:00	35	70	0.19	35	70	0.21	35	70	0.40
14:00 - 15:00	35	70	0.20	35	70	0.18	35	70	0.38
15:00 - 16:00	35	70	0.29	35	70	0.21	35	70	0.50
16:00 - 17:00	35	70	0.34	35	70	0.22	35	70	0.56
17:00 - 18:00	35	70	0.42	35	70	0.23	35	70	0.65
18:00 - 19:00	35	70	0.39	35	70	0.28	35	70	0.67
19:00 - 20:00	21	26	0.33	21	26	0.25	21	26	0.58
20:00 - 21:00	21	26	0.24	21	26	0.17	21	26	0.41
21:00 - 22:00	21	26	0.17	21	26	0.07	21	26	0.24
22:00 - 23:00	21	26	0.10	21	26	0.06	21	26	0.16
23:00 - 24:00	21	26	0.05	21	26	0.03	21	26	0.08
Daily Trip Rates:	3.73			3.76			7.51		

Parameter summary

Trip rate parameter range selected: 5 - 4334 (units:)
 Survey date range: 01/01/96 - 08/07/04
 Number of weekdays (Monday-Friday): 35
 Number of Saturdays: 0
 Number of Sundays: 0
 Optional parameters used in selection: YES
 Surveys manually removed from selection: 25

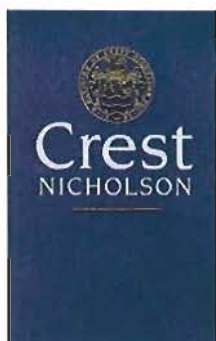






Penarth Heights

**A report of the public exhibition held on Friday
3rd and Saturday 4th June 2005**



GREEN ISSUES
• COMMUNICATIONS •

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1. EXHIBITION LOGISTICS AND DETAILS

On Friday 3rd and Saturday 4th June 2005 Crest Nicholson held a public exhibition at the Paget Rooms, Victoria Road, Penarth outlining proposals for the development of Penarth Heights, on the north of Penarth town (the former Royal Close and Harbour View estates).

From the outset of the project, Crest Nicholson has been committed to consulting with the local community and its representatives. Green Issues Communications, a specialised community relations consultancy, was retained to help in the task.

The purpose of the exhibition was to provide the local community with the opportunity to view and comment on the initial proposals, as part of the consultation process prior to the submission of a planning application.

Representatives from Crest Nicholson, Edward Cullinan Architects, Nicholas Pearson Associates (environmental and landscape consultants), and Green Issues Communications, were on hand to explain the plans and answer questions.

A session was also held for members and officers of the Vale of Glamorgan Council, Penarth Town Council, South Wales Police, representatives of residents groups and local organisations on Saturday 4th June between 10:00 am and 11:00 am.

Each visitor was given a feedback form on entering the exhibition, inviting them to comment on the proposals. A short leaflet was also prepared for visitors to the exhibition to take away. This gave contact details and a summary of the proposals.

This report is a summary of all the responses received (*by 4 July 2005*). A full report will be distributed to all those who provided contact details and requested a copy, as well as being sent to locally elected representatives and council officers.



2. ADVERTISING

The exhibition was advertised in the *Penarth Times* on 26 May and 2 June. Over 2,000 local residents and businesses received invitations by letter. Invitations were also sent to members of the Vale of Glamorgan Council and Penarth Town Council, as well as representatives of local organisations.

Poster advertisements for the event were also posted near the site and in the vicinity of the Paget Rooms.



3. EXHIBITION FEEDBACK

The feedback form (see Appendix) gave contact details and a space for respondents to fill in their details on the front, and on the reverse was space for comments. This was split into three sections, and invited attendees of the exhibition to comment generally on the proposals exhibited, and specifically on the layout and design and on the plans for improving the public open space provision.

A total of 406 people attended the exhibition and 186 feedback forms (*by 4 July 2005*) were completed (representing 45.8% of all attendees), including those collected via the ballot box at the exhibition (154), via the website and those sent in by post from residents who were either unable to attend or wished to take the form away to complete it. One form was filled out in Welsh and was subsequently translated and incorporated into this report.

A total of 30 people said that they were unable to attend the exhibition but requested further information. They were sent a feedback form and the leaflet which was available at the exhibition.

All percentages have been rounded to the nearest first decimal point.

3.1 General Comments

3.1.1 Support for the scheme

Most respondents used this section of the feedback form to make general comments on the proposals, varying from supportive statements to concern at the potential loss of views. Some expressing a preference to see nothing built on the site.

A total of 48 (25.8%) respondents expressed direct support for the regeneration of the former Billy Banks estate and were generally keen that the current eyesore should be removed, whilst 10 (5.4%) wanted no development at all to replace it. There was concern that the development of the site would place an extra burden on



the road infrastructure and 54 (29.0%) mentioned traffic in the area as a problem, with a further 14 (7.5%) being worried about the road access into the site.

The potential loss of existing views across the bay was of concern to 13 (7.0%) of respondents, with a further 18 (9.7%) expressing concerns about the actual construction phase. These concerns included the potential impact from construction traffic and noise, dust from demolition and the structural integrity of existing buildings to withstand the disturbances expected. 7 (3.8%) also felt that to fully understand and appreciate the personal implications of the plans they would like to see a scale model and elevation drawings.

Public transport and cycle routes to and from the Penarth Heights area were mentioned by 11 (6%) of respondents, who thought that some consideration of these was necessary and would benefit the area. A further 7 (3.8%) felt that there was no adequate schooling provision, and 3 (1.6%) felt that the consultation process had to date been inadequate.

Comments

Crest Nicholson is grateful that so many people took the trouble to visit the exhibition, and to make detailed comments. However, they would like to stress that the proposals on display were basically the initial scheme submitted to the Vale of Glamorgan Council as part of the tender process.

Although Crest Nicholson will take careful note of all comments received, and will use these to feed into the planning process as the scheme develops and the planning application is prepared, the plans are in their infancy. It is therefore premature to present detailed plans or elevations showing the potential impact of the new development on existing properties.

However, Crest Nicholson is committed to working with the Vale of Glamorgan Council's officers and elected members and, as the plans progress, will work with the council to ensure that local views are taken into account.



3.1.2 Layout and design

Of the respondents, 57 (30.7%) made no comment on this section. Of those who did respond, a significant proportion of the responses expressed full support for the regeneration scheme, with 30 (16.3%) people backing the proposals or approving the layout and design. The other responses could be categorised into commenting on four main areas: density, design, layout and general comments.

Density, Height and Impact on Views

The height of the buildings was raised by 20 respondents (10.7%). The potential impact on the views of existing residents was raised by a further 10 (5.4%) respondents. The number of units proposed and the density of the scheme was raised by 13 (7%) of respondents.

Design

In comments on design, 12 (6.5%) felt that the development did not accurately reflect the already existing architectural style of the area.

Layout

The layout of the scheme drew responses on the availability of parking, with 4 (2.2%) people feeling that provision was inadequate. 11 people (6%) of respondents wished to see some form of shop or public house on the site to foster community spirit. 6 (3.2%) felt that the affordable housing should be more spread out throughout the site, but only 2 (1.2%) of respondents wanted a greater provision for affordable housing.

General Comments

Other comments came from residents of Hill Terrace and Plassey Street, where 6 (3.2%) were concerned about the lanes behind their houses and wanted restricted access to prevent them becoming through routes and pedestrian paths.

Comments

It is encouraging that there was no overriding opposition to the design or layout of the scheme, with comparatively few people making detailed comments.



3.1.3 Public Open Space

The plans to enhance and renovate Plassey Square, the Arcot Triangle and the Bowl prompted a mixed response, with no overall consensus and a wide range of topics raised. Of the responses, 56 (30.1%) people made no comment at all. Not surprisingly, those living closest to the area had more to say.

Although a couple of people thought that there were plans to remove parts of these to use for other purposes, generally, the comments were constructive and positive.

Some people responded generally about public open spaces and the improvements that they would like to see. Others commented on specific aspects of the three areas mentioned. In the general comments, 44 (23.7%) people supported play areas, or leisure facilities such as seats and tables. 9 (4.8%) of people said that whatever was done, maintenance needed to be carried out in the future. 24 (12.9%) people wanted to see plants or trees introduced, and 6 (3.2%) wanted to see the areas landscaped.

11 (5.9%) people wanted to see proper footpaths through the Bowl, and 9 (4.8%) thought it should be landscaped. 3 (1.6%) wanted it kept as a wildlife haven. With reference to the Arcot Triangle, 2 (1.1%) of people suggested it should be turned into some kind of traffic flow feature with 4 (2.2%) people expressing a wish to see improvements made.

13 (7%) people said that Plassey Square should have a play area, and 4 (2.2%) that it should be landscaped. However, some respondents wished this to be carried out with consideration and their long-term maintenance and freedom from vandalism.

Comments

Crest Nicholson is committed to retaining and enhancing the surrounding open space areas. The Vale of Glamorgan Council also requested that consideration should be given to improving the children's playing facilities on the square. Crest Nicholson will consider the responses received and put forward further proposals to the local community.



4. NEXT STEPS

The objective of this report is to present a fair summary of the comments made held by the substantial number of people who attended the exhibition. A copy of this report will be presented to Vale of Glamorgan Council and will form part of the formal consultation on the forthcoming application.

A copy has also been sent to all of those who attended the exhibition and requested it. Copies will be sent to the project team at Crest Nicholson and to all locally elected representatives.

The findings of the report will be considered by the developers and will provide a basis for further discussions with officers at the Council. We continue to welcome further feedback as the plans evolve.

If you have any comments on this report or require further information, please contact:

Richard Bellasis
Green Issues Communications
9 Southern Court
South Street
Reading
Berkshire RG1 4QS

Tel: 0118 983 9457
Email: richardb@greenissues.com



GUIDELINES FOR PLANNING FOR PUBLIC TRANSPORT IN DEVELOPMENTS



THE INSTITUTION OF HIGHWAYS & TRANSPORTATION

5.18 Other areas set standards for access to public transport in terms of distance to a bus stop or station. Centro (the West Midlands Passenger Transport Executive) has set, as part of their service quality standards, a maximum desirable walking distance for each person to a bus stop between 7 am and 7 pm. This distance is 400m, although it is reduced where severe gradients or a large population of elderly people exist. At other times of the day the maximum walking distance can be increased to 700m. The Department of the Environment has recommended that residents should not have to walk more than 400m (¼ mile) to their nearest bus stop (DOE, 1973). These standards should be treated as guidance, to be achieved where possible by services that operate at regular frequencies and along direct routes. It is more important to provide services that easy for passengers to understand and attractive to use than to achieve slavish adherence to some arbitrary criteria for walking distance. Residential areas in particular need sensible routes that do not spoil the quality of the place.

Access by public transport

5.19 Measuring access to public transport gives an overview of the comparative levels of public transport provision across an area. Accessibility by public transport identifies how easy it is to reach a given destination by public transport from a given origin. This is particularly relevant where there are few public transport services.

5.20 Defining the car catchment area for a development is relatively straightforward. Isochrones of drive time are defined as the distance that can be reached in say 10, 20, 30 and 60 minutes, assuming either an average speed on the road network or the appropriate speeds for each class of road and time of day. If a development does not have its own parking, the time to park and walk to the development should be included. A developer will be looking for a minimum population within a specific drive time, which will depend on the activity; shorter for a food superstore, longer for a major leisure complex. The same approach can be used to derive isochrones for access by bicycle or on foot; for pedestrians it should allow for delays at road crossings, the effects of hills and diversions to reach road crossing points.

5.21 Defining the public transport catchment needs to take account of the time for walking or cycling to the stop or station, waiting at the stop or station, time on the bus or train, and time walking or cycling to a destination in the development. It is well established that bus passengers value time spent walking and waiting about twice as highly as they value time on a bus. New developments should be located so that public transport trips involve a walking distance of less than 400m from the nearest bus stop or 800m from the nearest railway station. In city centres, the walking distance from a bus stop should be less than 200m. The opportunity for interchange between different parts of the public transport network should also be included, with the appropriate walk and wait times.

5.22 The transport planning package TRANSAM has been designed to produce travel time isochrones and to combine these with information on population and locations of activities (Cleeve, 1996). The isochrones represent the time it actually takes for people to reach a destination by public transport, which can be compared directly with the time by car. Figure 5.3 shows isochrones to central Basingstoke for travel by car, bus, cycle and on foot. Unless buses are given effective priority and cars are slowed by congestion, journey time by bus will inevitably be longer than by car. Bus journeys to town centres typically take twice as long as the same journey by car (Wootton Jeffreys Consultants, 1994). The directness and simplicity of bus routes is more important to passengers than a few metres on walking distance. Routes should not be split or diverted to reduce all walking distances below 400m, if a direct and simple route can be achieved at the expense of a small percentage of destinations being a little more than 400m from their nearest stop.

5.23 The denser the public transport network, the higher the frequency of services and the better the priority schemes for buses, the closer accessibility by bus approaches that by car.

What is the National Cycle Network?

The National Cycle Network (NCN) is a comprehensive network of safe and attractive places to cycle throughout the UK. The NCN currently covers 8,000 miles of routes across the UK.

By 2005 the network will have grown to 10,000 miles and will extend to within 2 miles of over half of the UK population. NCN routes are designed to be safe for novice cyclists, useful for everyday journeys and attractive so as to encourage more Cycling.

Proposed National Cycle Network (NCN) Route 88 through the Vale of Glamorgan

The aim of NCN Route 88 is to provide a safe, convenient and attractive route which will serve local residents and visitors to the Vale of Glamorgan. The route will facilitate utility and leisure trips and will assist in increasing the opportunities for sustainable travel.



The Council are working closely with Sustrans to identify a suitable route within the Vale of Glamorgan. Provisionally titled NCN88, the proposed route is shown on the map and links

the NCN from Route 4 at Margam Park in the County Borough of Bridgend, through the Vale of Glamorgan, to the start of NCN Route 8 in Cardiff Bay.

The proposed east-west route aims to maximise the Vale of Glamorgan's picturesque countryside and will link to the new



transport interchanges at the new railway stations at Rhoose and Llantwit Major, which are due to open in spring 2005.

What works will be done to provide this route?

Provisional investigations have indicated that a wide range of improvement works along the final route will be required. These will include such improvements as pathway widening and dropped curbs, safety barriers, toucan crossings, ramps and new signage.

The Vale of Glamorgan Council is committed to pursuing the implementation of the proposed new NCN Route 88 and will continue to seek funding for these works.

Planning & Transportation Policy Group,
The Vale of Glamorgan Council,
Dock Office, Barry Docks, Barry CF64 4RT

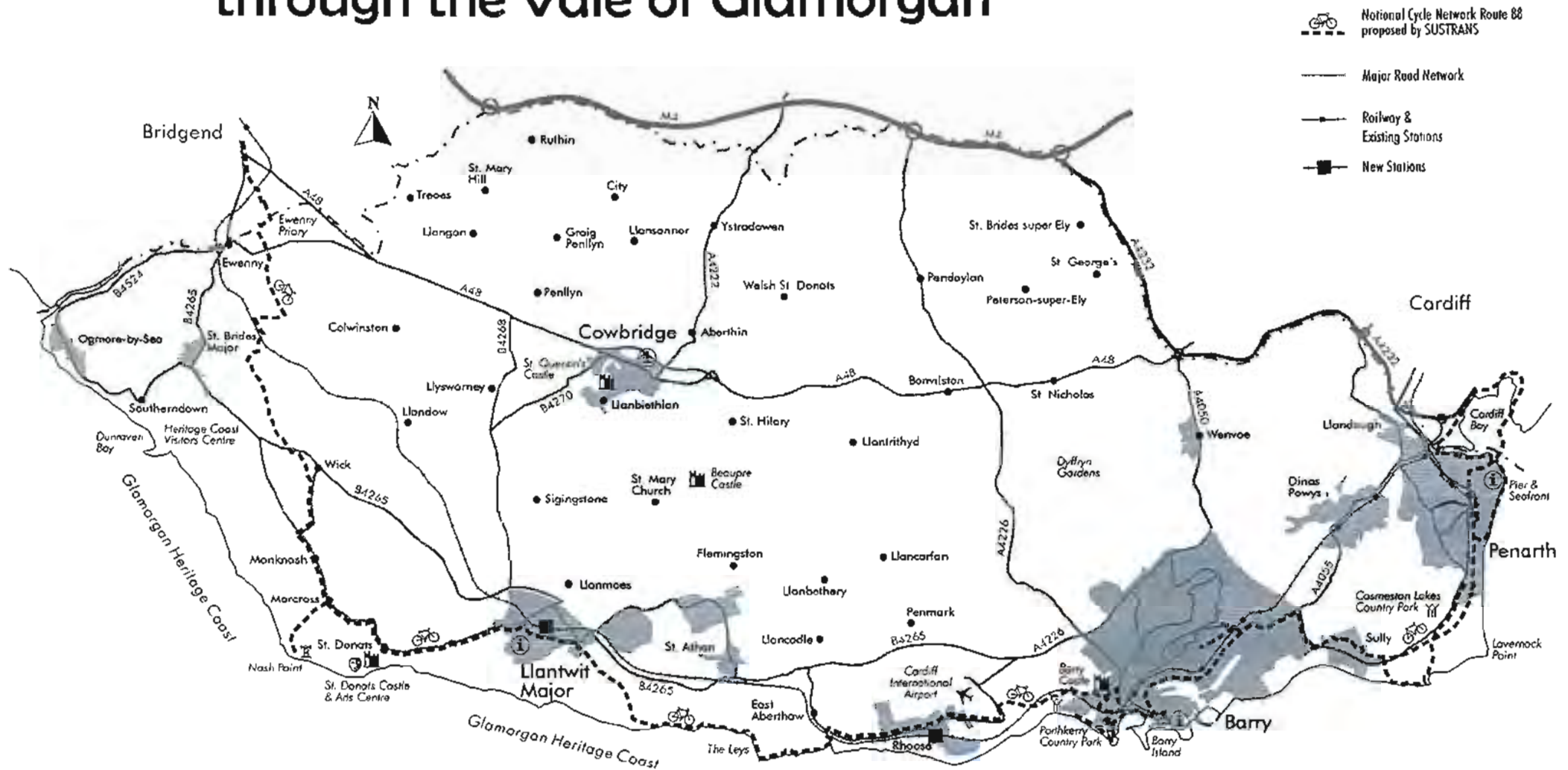
www.valeofglamorgan.gov.uk

Photographs: © Arriva Trains Wales, Jason Patient & Rob Williams
Leading publication: The Vale of Glamorgan Council, Planning & Transportation Group.

Proposed National Cycle Network Route 88 through the Vale of Glamorgan



Proposed National Cycle Network Route 88 through the Vale of Glamorgan



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Mae'r map hwn yn seiliedig ar ddeunyddiau Ordnance Survey © Hawlfraint y Goron.
Cedwir pob hawl. Cyngor Bro Morgannwg rhif llywodraeth 100023424, 2004

Bristol Channel

Directorate of Environmental & Economic Regeneration,
The Vale of Glamorgan Council, May 2004

STANDING CONFERENCE ON REGIONAL POLICY IN SOUTH WALES
CYNHADLEDD SEFYDLOG POLISI RHABARTHOLYN NE CYMRU

Parking — — Guidelines



COUNTY & DISTRICTS OF GWENT
COUNTY & DISTRICTS OF SOUTH GLAMORGAN

COUNTY & DISTRICTS OF WEST GLAMORGAN
COUNTY & DISTRICTS OF MID GLAMORGAN

LLANELLI BOROUGH COUNCIL

REVISED EDITION 1993 with 2001 ADDENDUM
and including Cycle Parking Guidelines - July 1995

5.2 NON-CENTRAL AREA PARKING GUIDELINES

A.1 RESIDENTIAL : NEW BUILD

1. General Purpose Houses and Flats	Residents	Visitors (See Note 7.)
(a) One bedroom	1 space per unit	1 space per 3 to 5 units
(b) Two bedrooms (where gross floor area is 75m ² or less)	1.5 spaces per unit	1 space per 3 to 5 units
(c) Two bedrooms (where gross floor area is more than 75m ² but less than 120m ²)	2 spaces per unit	1 space per 3 to 5 units
(d) Three bedrooms (where gross floor area is less than 120m ²)	2 space per unit	1 space per 3 to 5 units
(e) Three and four bedrooms (where gross floor area is 120m ² or more)	minimum of 3 spaces	1 space per 3 to 5 units
2. Elderly persons houses and flats (not wardened)	0.5 to 1 space per unit	1 space per 3 to 5 units

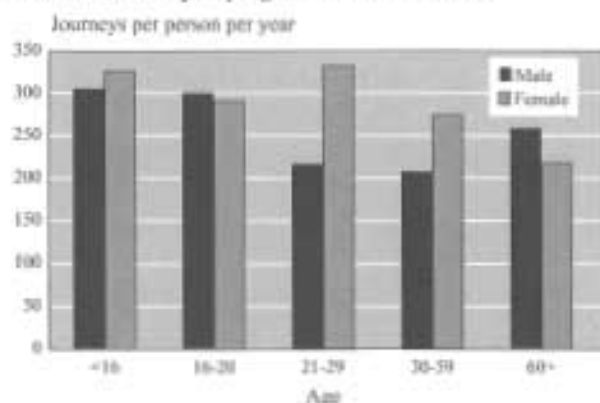
Recent trends in walking

- The proportion of trips made on foot has fallen from 30% in 1989/1991 to 26% in 1999/2001. However, the proportion of trips under a mile made on foot remained stable at around 80%.
- The total distance walked (including walks made as part of a trip with another main mode) fell by a fifth from 237 miles per person per year in 1989/91 to 189 miles in 1999/2001, which was less than 3% of the total distance travelled.
- In addition to 263 trips a year mainly on foot, the average person walked part of 78 trips for which the longest part was by another mode of transport. 42% of these were part of a trip made mainly by bus.

Who walks the most?

- Women walked more than men (Chart 1), making 278 trips per person overall, compared with 246 trips for men.

Chart 1: Walk trips by age and sex 1999/2001



- In every age-group under 60 years old, except for 16-20 year olds, women made more walk trips than men, although the position was reversed for those over 60. The greatest difference was for those aged 21-29, where women made a quarter more walk trips than men.
- Men and women walked similar distances in total, as the average walk length was slightly further for men.

Trip length

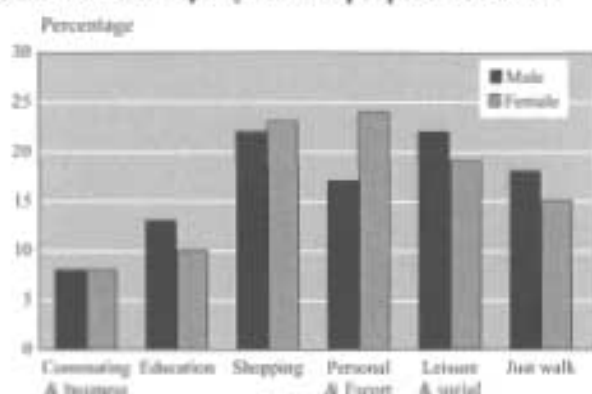
- Almost four out of five (77%) walk trips were under a mile, and only 5% were two miles or above in length.
- The average length of a walk trip in 1999/2001 was 0.6 miles, the same as it was in 1989/1991.

Note: Unless otherwise stated the figures quoted are an average of the years 1999-2001, and are derived from the National Travel Survey for Great Britain which is the main source of information on walking. Walking excludes walks under 50 yards, walking off the public highway, walking for payment (e.g. a postman), walking abroad and children's play.

Why do people walk?

- The three main reasons for a walk trip were to go shopping (23% of walk trips), for other personal business or escort purposes (21%), and for leisure or social purposes (20%) (Chart 2). In addition, 16% of walk trips were 'just walk', including walking the dog and jogging.

Chart 2: Walk trips by sex and purpose: 1999/2001



- The proportion of trips which were for personal business and escort (ie accompanying another person) was higher for women than men (24% compared with 17%), mainly because of the larger number of trips women made to escort children to school.

Walking to school

- 54% of trips made by primary school children (aged 5-10) to or from school were on foot, compared with 43% of school trips by secondary school children (aged 11-16). Primary school children are more likely to live within walking distance of their schools: four in five (79%) lived within 2 miles, compared with slightly over a half (54%) of secondary pupils.
- For school trips under a mile, 84% of trips were on foot for primary age children, and 92% for secondary age children.

Walking to work

- The Labour Force Survey asks questions on how people usually travel to work. In autumn 2001, 2.6 million people walked to work, 10.8% of the total number in employment.
- Although the percentage of workers walking to work has steadily declined since the 1991 Census when 13% walked to work, the total workforce has increased, so the actual number of people walking has remained fairly constant.
- There was a large difference between men and women with twice as many (15.0%) women walking to work than men (7.3%).

Car availability and walking

- Adults (aged 17 and over) living in households without a car walked much further on average than those living in households with a car: 265 miles compared with 163 miles.
- In car-owning households, main drivers walked 141 miles a year on average, compared with 207 miles for adult non-drivers. Men who were the main driver of a company car walked only 138 miles on average.
- In car owning households, children aged 16 and under walked 193 miles a year on average, compared with 266 miles for those in households without a car.

Walking for leisure

- The NTS only covers walking on the public highway but the 1996 General Household Survey (GHS) questions on leisure activity included all walking (results from the 2002 survey will be available in 2004). In 1996 walking was the most popular sporting or leisure activity. 45 per cent of adults reported walks of two miles or more in the previous four weeks, and 68 per cent in the previous 12 months. Both these rates had increased since 1993.
- More men walked for leisure than women (49% in the last 4 weeks compared with 41%).

Urban and rural variations

- Walking accounted for 351 trips a year for a resident of inner London, nearly two in five of all trips (37%). By contrast those living in rural areas made 204 walk trips on average, only 20% of all trips.

- Outside inner London, there was little difference between urban areas, with approximately 26% of all trips being made on foot.
- In London and Metropolitan built-up areas, 99% of households were within 13 minutes walk of a bus stop with a service at least once an hour. This percentage decreased as the size of a town decreased, to just 50% in rural areas.

Difficulties with walking

- The National Travel Survey asks whether respondents have a physical disability or long standing health problem that makes it difficult for them to go out on foot.
- 11% of males and 13% of females had some sort of difficulty walking, but the majority of these were still able to go out on their own. About 1 in 30 people (4%) either needed help when walking outside the home, or were not able to walk on their own at all.
- Not surprisingly, problems increased dramatically for the elderly, and for each age group over 70, women were more likely to have walking difficulties than men.
- For those aged 85 or more, 79% of women had difficulties compared with 57% of men. About 13% in this age group could not walk outside at all, but a fifth of these had the use of a wheelchair.

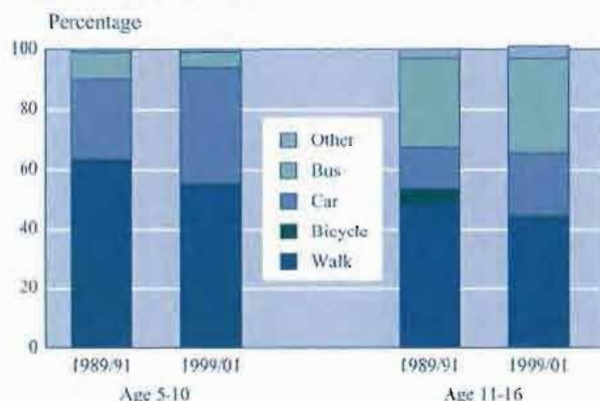
Technical note

In order to reduce the burden on the public the National Travel Survey (NTS) only asks for walks of between 50 yards and 1 mile to be recorded on the seventh day of the diary, and these are then grossed up by a factor of 7. In this factsheet the basic unit to calculate a trip or trip is a on-way course of travel with one main purpose. Walk trips are referred to as a trip where walk was the main mode (i.e. longest by distance). Trips can consist of more than one stage and distances travelled quoted above include walks made as part of any trip.

The text and charts are available from the DfT website at www.transtat.dft.gov.uk/personal. Other NTS publications include 12 further factsheets on a number of topics; the main results of the NTS in "National Travel Survey: Update 1999/2001" and in "Focus on Personal Travel: 2001 Edition" (1998/2000 data) and the Technical Report. These are also all available from the website. For further information, copies of the factsheets, Bulletin and any queries please contact national.travelsurvey@dft.gov.uk or telephone on 020 7944 3097.

How do children get to school? (Table 1)

Chart 1: Trips to school by mode and age group: 1989/1991 and 1999/2001



Note: The figures quoted are an average of the years 1999-2001, unless otherwise stated, and are derived from the National Travel Survey for Great Britain.

- The proportion of children (aged 5-16) walking to school fell from 56% in 1989/1991 to 49% in 1999/2001. The proportion travelling by car increased from 21% to 28% over this period.
- For primary age children:
 - 54% walked to school
 - 39% were taken by car
 - 6% used buses (including school buses)
 - bicycle and rail use was negligible.
- For secondary age children:
 - 43% walked to school
 - 18% were taken by car
 - 32% used buses (including school buses)
 - 2% used rail or the underground
 - 2% cycled (down from 5% in 1989/91).

- Secondary age boys were more likely to cycle than girls, and girls were more likely to travel by car.
- The proportion of primary aged children travelling to school alone has fallen from 15% in 1989/1991 to 10% in 1999/2001, whereas the proportion of secondary aged children has remained fairly constant at 46%.

How long does it take children to get to school?

- On average, primary age children took about 12 minutes to get to school. Secondary age pupils took twice as long, 23 minutes on average.

How far do children travel to school? (Table 2 overleaf)

- The average length of the journey to school for secondary age children increased from 2.8 to 2.9 miles (4%) over the period 1989/1991 to 1999/2001. For primary pupils, the average length increased from 1.3 to 1.4 miles (10%).
- For primary aged children, four out of five (79%) school trips were less than 2 miles. (Chart 2a)
- Over half (54%) of school trips by secondary age children were less than 2 miles long, but almost one trip in five (18%) was 5 miles or over. (Chart 2b)

Table 1: Trips to and from school per child per year by main mode: 1989/1991 to 1999/2001

	Percentage/miles											
	5-10 year olds				11-16 year olds				5-16 year olds			
	1989/ 1991	1992/ 1994	1996/ 1998	1999/ 2001	1989/ 1991	1992/ 1994	1996/ 1998	1999/ 2001	1989/ 1991	1992/ 1994	1996/ 1998	1999/ 2001
Walk	62	61	55	54	48	44	43	43	56	53	49	49
Bicycle	1	1	-	1	5	4	2	2	3	2	1	1
Car/van	27	30	36	39	14	16	21	18	21	23	28	28
Private bus	4	4	3	3	10	8	7	9	7	6	5	6
Local bus	4	4	4	3	20	24	25	23	11	13	14	13
Rail	-	-	-	-	1	1	1	2	1	1	1	1
Other	1	1	2	1	3	2	1	2	2	2	1	1
All modes	100	100	100	100	100	100	100	100	100	100	100	100
Average length (miles)	1.3	1.2	1.3	1.4	2.8	3.1	3.0	2.9	2.0	2.1	2.1	2.2
% travelling to school alone	15	15	10	10	46	48	45	46	31	33	29	29

Chart 2a: Trips to school by length: Primary aged children (5-10): 1999/2001

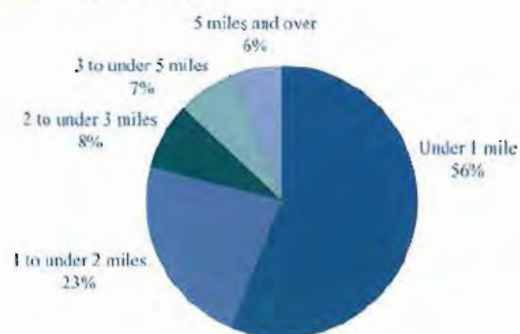


Chart 2b: Trips to school by length Secondary aged children (11-16):1999/2001

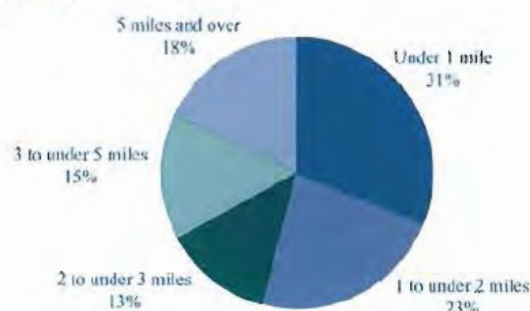


Table 2: Percentage of trips to school by length and main mode: 1999/2001

						Percentage
	Under 1 mile	1 to under 2 miles	2 to under 3 miles	3 to under 5 miles	5 miles and over	All distances 1999/2001
5-10 year olds						
Walk	84	31	5	1	--	54
Car	16	61	81	75	65	39
Bus	--	7	12	20	27	6
Other (mostly taxi)	--	1	2	4	8	1
All modes	100	100	100	100	100	100
11-16 year olds						
Walk	92	54	17	1	--	43
Bicycle	1	4	3	2	--	2
Car	6	24	32	21	20	18
Bus	--	16	46	69	66	32
Other (mostly rail)	--	1	2	6	14	4
All modes	100	100	100	100	100	100
5-16 year olds						
Walk	87	43	12	1	--	49
Bicycle	1	3	2	2	--	1
Car	12	43	51	38	32	28
Bus	--	11	33	54	56	19
Other	--	1	2	6	12	2
All modes	100	100	100	100	100	100

- For school trips under a mile in length, five out of six (84%) were on foot for primary age children, with the remainder mostly by car. At secondary level 92% were on foot, with 6% by car, and 1% by bicycle.
- Between 1 and 2 miles, 61% of trips by primary children were by car, increasing to 81% between 2 and 3 miles, reducing to 75% between 3 and 5 miles and 64% above 5 miles.
- Between 1 and 2 miles, 24% of trips by secondary children were by car, increasing to 32% between 2 and 3 miles, reducing again above 3 miles to 20%. 68% of school trips over 3 miles in length were made by bus or coach at secondary level.
- Free school transport must be available for children aged 7 or under living 2 miles or more from the nearest appropriate school. In 1999/2001, 20% of children of these ages made school trips of this

length. For schoolchildren aged 8 or over living 3 miles or more from the nearest appropriate school free school transport must also be available. 27% of these children made trips of this length to school.

Who takes children to school?

- 90% of primary aged schoolchildren and 54% of secondary aged schoolchildren travel to school with somebody else.
- Women are more likely to take children to and from school. For women in their 30s, who were most likely to be taking children to school, 15% of all trips in 1999/2001 were 'escort education', compared with only 4% of trips by men in the same age group.
- Under half (40%) of all escort education trips were on foot, and over half (59%) by car. Very few children are accompanied when travelling to school by bus.

- After taking children to school in the morning, almost two thirds (65%) of 'escorts' return straight home, and only about one in eight (13%) goes on to work.

How much traffic on the roads is caused by the 'school run'? (Table 3)

Table 3: Cars taking children to school: 1989/1991 to 1999/2001

	Percentage			
	1989/ 1991	1992/ 1994	1994/ 1996	1999/ 2001
0800 to 0859 hours in urban areas during term-time	7	9	9	10
Peak traffic time (0835) in urban areas during term-time	8	10	13	14
Peak percentage (0850) in urban areas during term-time	14	15	18	17

- Between 8am and 9am during term time, about one car in ten on the road in urban areas was on the school run in 1999/2001. 17% of cars were taking children to school at the peak time for school travel, 8.50 am.
- The difference in urban traffic levels during school holidays is obvious, but this difference is also apparent in, for example, commuter rail services. Naturally parents take holidays at the same time as their children, so some of the reduction in traffic is

also due to fewer commuters on the road outside term time.

Urban and rural variations (Table 4)

- Not surprisingly, trips to school were longer on average for residents of rural areas (living outside settlements of more than three thousand people). The average lengths for primary and secondary pupils were 2.2 and 5.1 miles respectively.
- For primary aged children, patterns of travel were broadly similar in London, metropolitan and large urban areas. In these areas, about 61% of children walked to school, and 34% were taken by car. In medium and small urban areas, over half (52%) of children walked to school, but in rural areas, only 41% walked, with 42% travelling by car and 14% by bus.
- The pattern of travel for secondary aged children varies more by area. London pupils were more likely to use public transport (36% travelling by bus, 12% by rail/underground), than to be driven to school (only 13%).
- Outside London the proportion of secondary age pupils walking to school varied, ranging from 40 to 50% in different sized urban areas outside London, compared with only 25% in rural areas, where nearly half of secondary age pupils travelled to school by bus.

Table 4: Percentage of trips to school and average length by main mode and area type: 1999/2001

	Percentage/miles						
	London	English Metropolitan	Large Urban	Medium Urban	Small Urban	Rural	All areas 1999/2001
5-10 year olds							
Walk	62	64	56	53	51	41	54
Car	31	32	38	41	42	42	39
Bus	5	3	4	5	6	14	6
Other (mostly taxi)	3	1	1	1	1	3	1
All modes	100	100	100	100	100	100	100
Average trip length	1.1	1.1	1.0	1.3	1.6	2.2	1.4
11-16 year olds							
Walk	38	42	42	52	44	25	43
Bicycle	1	1	2	3	3	1	2
Car	13	20	18	20	19	20	18
Bus	36	35	33	23	33	49	32
Other (mostly rail)	13	2	5	3	1	5	4
All modes	100	100	100	100	100	100	100
Average trip length	3.2	2.1	2.4	2.5	3.1	5.1	2.9
5-16 year olds							
Walk	50	53	49	53	48	33	49
Bicycle	1	1	1	2	2	1	1
Car	22	26	28	30	30	31	28
Bus	20	19	18	14	19	32	19
Other	7	1	3	2	1	4	2
All modes	100	100	100	100	100	100	100
Average trip length	2.1	1.6	1.7	1.9	2.3	3.7	2.2

Regional variations (Table 5)

- There were quite wide regional variations in travel to school, mainly associated with the urban/rural characteristics of a region. However, the results should be used with caution, as regional sample sizes are small.
- There were variations in the average distances travelled, with pupils in the North East living closest to school at primary level (0.8 miles on average) and pupils in the West Midlands closest at secondary level (2.3 miles). Children travelled furthest in the South West at both primary and secondary levels (1.9 and 3.8 miles respectively).
- Variations in distance, and regional variations in car ownership, also produce wide variations in the mode

of travel to school. For primary age pupils, Yorkshire had the highest proportion walking to school (68%), and the South West the lowest (43%), following the distance pattern described above. 12% of Scottish primary children went to school by bus. Primary age children in the Eastern region were most likely to be driven to school (48%), compared with 28% in Yorkshire and Humberside, 29% in Scotland and 30% in the North East, which had the lowest level of car ownership in GB.

- The secondary aged regional pattern is not always the same as the primary pattern. The West Midlands had the highest proportion walking (57%); Scotland had only 10% travelling by car; 27% of pupils in the South East were driven to school; and in Wales 49% used buses.

Table 5: Percentage of trips to school and average length by main mode and region: 1999/2001

	Percentage/miles												
	North East	North West & Mersey	Yorks & Humber	East Midlands	West Midlands	Eastern	London	South East	South West	England	Wales	Scotland	Great Britain
5-10 year olds													
Walk	63	47	68	53	54	48	62	48	43	54	55	59	54
Car	30	44	28	44	38	48	31	47	47	40	33	29	39
Bus	7	8	3	1	8	1	5	2	7	5	11	12	6
Other	—	1	1	2	—	3	3	2	2	2	1	—	1
All modes	100	100	100	100	100	100	100	100	100	100	100	100	100
Average length (miles)	0.8	1.4	1.0	1.4	1.7	1.7	1.1	1.6	1.9	1.4	1.1	1.1	1.4
11-16 year olds													
Walk	44	40	44	41	57	40	38	42	38	42	34	55	43
Bicycle	—	2	3	2	—	8	1	1	5	2	—	1	2
Car	15	21	21	17	17	24	13	27	17	20	17	10	18
Bus	37	34	32	39	26	24	36	24	32	31	49	34	32
Other	4	3	—	2	—	4	13	5	7	5	—	1	4
All modes	100	100	100	100	100	100	100	100	100	100	100	100	100
Average length (miles)	3.0	2.5	2.4	3.0	2.3	3.4	3.2	3.2	3.8	3.0	3.0	2.7	2.9
5-16 year olds													
Walk	53	43	58	45	56	44	50	45	41	48	45	57	49
Bicycle	—	1	1	1	—	5	1	1	3	2	—	—	1
Car	22	31	25	27	27	36	22	37	34	30	25	19	28
Bus	23	22	15	25	17	12	20	13	18	18	30	23	19
Other	2	2	1	2	—	2	7	4	4	3	—	—	2
All modes	100	100	100	100	100	100	100	100	100	100	100	100	100
Average length (miles)	2.0	2.0	1.6	2.4	2.0	2.5	2.1	2.4	2.7	2.2	2.1	1.9	2.2

The text and charts are available from the DfT website at www.transtat.dft.gov.uk/personal. Other NTS publications include 12 further factsheets on a number of topics; the main results of the NTS in "National Travel Survey: Update 1999/2001" and in "Focus on Personal Travel: 2001 Edition" (1998/2000 data) and the Technical Report. These are also all available from the website. For further information, copies of the factsheets, Bulletin and any queries please contact national.travelsurvey@dft.gov.uk or telephone on 020 7944 3097.

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Green Travel Plans.

REDUCING TRANSPORT EMISSIONS THROUGH PLANNING



HMSO

ment alone are considered, the central areas perform best in terms of vehicle kilometrage and energy consumption. In the simulation where it was considered, the orbital bypass location performed worst on these criteria, with other options falling in the middle of the range. However, the differences were not great: average journey lengths ranged from 10.6km to 12.3km. In the more congested areas, all of the differences in total vehicle kilometres and energy consumption became very marginal when the effects on the whole network were considered because of the increased emissions arising from congestion associated with a central location.

2.4.17 Only the model which was available for the less congested area considered has a public transport sub-model. In this case, the total time and money costs of users of car travel are very much lower than those of public transport users. Those with a car available tend to use it, regardless of their trip destination. However, the simulation for the other area does produce a much higher proportion of short trips in the central location option, implying greater potential scope for transfer to non-motorised modes such as walking and cycling.

2.4.18 Actual data for one of the case study areas on mode of arrival at "fringe-of-centre" and out-of-town retail warehouses indicate that, although the proportion of car-borne shoppers for all centres is high, the proportion of non-car borne shoppers is highest at the "fringe-of-centre" stores. Similarly, many of the recently developed out-of-town centres, such as Merry Hill in the Black Country, and the Meadow Hall Centre in Sheffield, are clearly designed to maximise accessibility by car.⁶⁴ This is reflected in their low number of public transport trips compared with traditional centres. The observed car dependency of new peripheral facilities no doubt largely reflects the fact that non-motorised modes are less likely to be a feasible means of travel to such outlets. This is a factor which conventional transport models cannot properly allow for. There is also the difficulty of serving a diffused pattern of trips by public transport to a single outlet, however large.

2.4.19 The simulations did, however, indicate that in some cases the locations on orbital routes involved higher average speeds. When account is taken of the greater accessibility of such locations to populations beyond the modelled urban areas, it is clear that they may well be preferred as locations by operators, even before considerations such as the availability of large sites and land costs are brought into the equation.

Public Services

2.4.20 A transport model-based simulation was

carried out to compare the scenario of a single, large (400 bed) hospital in a central location with four smaller (100 bed) hospitals located to serve local centres of population. The district hospital option performs better in terms of distance travelled and fuel consumption. However, the differences are less than 1% and in practice it is considered that the outcome would be heavily dependent on the extent to which the district hospitals develop patterns of specialisation to serve the wider urban area, rather than simply providing general services to their local populations.

2.4.21 To explore these issues further, and to give explicit consideration to the potential role of public transport, a desk exercise was carried out for the West Midlands County comparing the options of a single central hospital in central Birmingham, a single non-central facility based on a peripheral site, and a network of district hospitals. Modal split assumptions were based on the feasibility of use of public transport from different areas and data from the NTS on the relationship between distance travelled and probability of use of different modes. The exercise suggests the district provision option would involve only 53% of the total travel associated with the single, central option and 49% of the car travel. A single non-central facility performs worse on both criteria. Again, the superiority of the district provision pattern would be undermined to the extent that specialisation and/or choice between district facilities develop.

Neighbourhood Structure

2.4.22 As part of the neighbourhood case studies work a postal survey was conducted to identify the particular characteristics of neighbourhood centres which contribute to their vitality and use by local residents. To keep the work manageable and to achieve good response rates the surveys primarily focused on retailing facilities. But many of the conclusions have a significantly wider application. The significance of neighbourhood issues is highlighted by the responses: an average of 96% of residents use their local centre at least weekly and 44% use them daily. The key points to arise and the associated conclusions, which are broadly in accordance with prior expectations, are summarised below:

- **The importance of different factors in determining usage of local centres:** Convenience and the range of facilities offered emerge as the dominant factors determining usage of local centres. Public transport links, the availability of parking and opportunities to make multi-purpose trips emerge as less important, but still significant, factors. The most utilised local

facilities are food shops, followed by newsagents/stationers, with financial services/post office and medical services also emerging as of some importance. People who visit local centres do so much more frequently than they use non-local centres. The latter assume much more importance in relation to durables shopping. Differences in the size and attraction of centres, to the extent that they help to determine the frequency and nature of trip patterns observed, also influence the mode of travel;

- **Distance and frequency of use:** As noted above, a clear relationship emerges between distance from a centre and the frequency of its use, with average distances to centres used on a daily basis being much shorter than those to centres used less frequently. Relative distance to the local and competing non-local centres is also important;
- **Mode of travel and journey distance:** Across the sample as a whole, some 43% of trips to local centres are made by car, 41% by bus and only 14% on foot or by bicycle. However, there are some clear relationships between distance and probability of use of different modes. In particular, walking is largely confined to trips of less than 1km, with motorised modes dominating longer trips. Thus, taken as a whole, the analysis shows that walking, at 53% for journeys to local and non-local centres, is the dominant mode for trips up to 1.6 kms, followed by car at 29%. For trips between 1.6 and 5 kms in length, the car becomes marginally the dominant mode (44%), followed by bus (43%) and walking (12%). The relationship between distance and mode of travel is shown in Table 11; and
- **Factors affecting choice of mode:** As noted in Section 2.2, socio-economic factors, in as far as they relate to levels of car ownership, can be a significant influence on modal choice. Population density also emerges as an important influence on travel behaviour at the neighbourhood level. This is reflected in the comparison of different neighbourhoods within each of the individual urban case study areas, where car usage is lower in the more dense neighbourhoods, even where levels of car ownership and occupational structures are broadly comparable. However, when the eight neighbourhoods are considered as a group and other factors come into play, not surprisingly, the role of density becomes more blurred. Another important explanatory variable appears to be the drive-time catchment area. It is claimed by retail operators that their main turnover is generated from within a 20-minute catchment area.⁶⁵ Centres located on or near high-accessibility locations will, therefore, tend to attract a higher proportion of non-local trips which are more likely to be made by motorised forms of transport.

2.4.23 The wide variations in the frequency with which particular modes of travel are used further highlights the importance of the local factors discussed above. For example, for journeys to local centres between the neighbourhoods, car usage varies from 48% in Sutton Farm (Shrewsbury), and 45% in Vanburgh (Greenwich), to as little as 22% in St Pauls (Sandwell), and 24% in Lakedale (Greenwich). Usage of bus is negligible in the Shrewsbury and Greenwich neighbourhoods, but accounts for at least 33% of trips to local centres in all four Black Country neighbourhoods. Cycling is of minimal significance in all cases. The proportion of walk trips varies enormously from less than 10% in Charlemont (Sandwell) to more than 40% (Cherry Orchard, Shrewsbury; Lakedale, Greenwich).

Table 11: Proportion of Total Trips by Mode and Distance Travelled to Local and Non-local Centres

Distance Travelled (kms)	Proportion of Trips by Mode (%)					Total Trips no. %	
	Car	Bus	Train	Walk	Cycle		
<1	11	4	-	63	19	385	22
1 - 1.6	16	12	-	20	27	275	16
1.6 - 5	38	42	-	15	27	574	33
5 - 8	27	35	32	1	27	408	23
8 - 16	6	5	62	1	-	86	5
16+	2	1	6	-	-	16	1
Total	100	100	100	100	100	100	
Total Trips no.	661	591	19	447	26	1,744¹	-
Total Trips %	38	34	1	26	1	-	100

Source: Neighbourhood Travel Surveys, 1992

Notes: (1) This total includes information on more than one response per questionnaire.

2.4.24 Surprisingly, distance does not appear to be a major factor explaining these differences. It is difficult to discern clear influences on modal choice at the local level due to the number and variety of factors involved and the inter-relationships which exist between them.

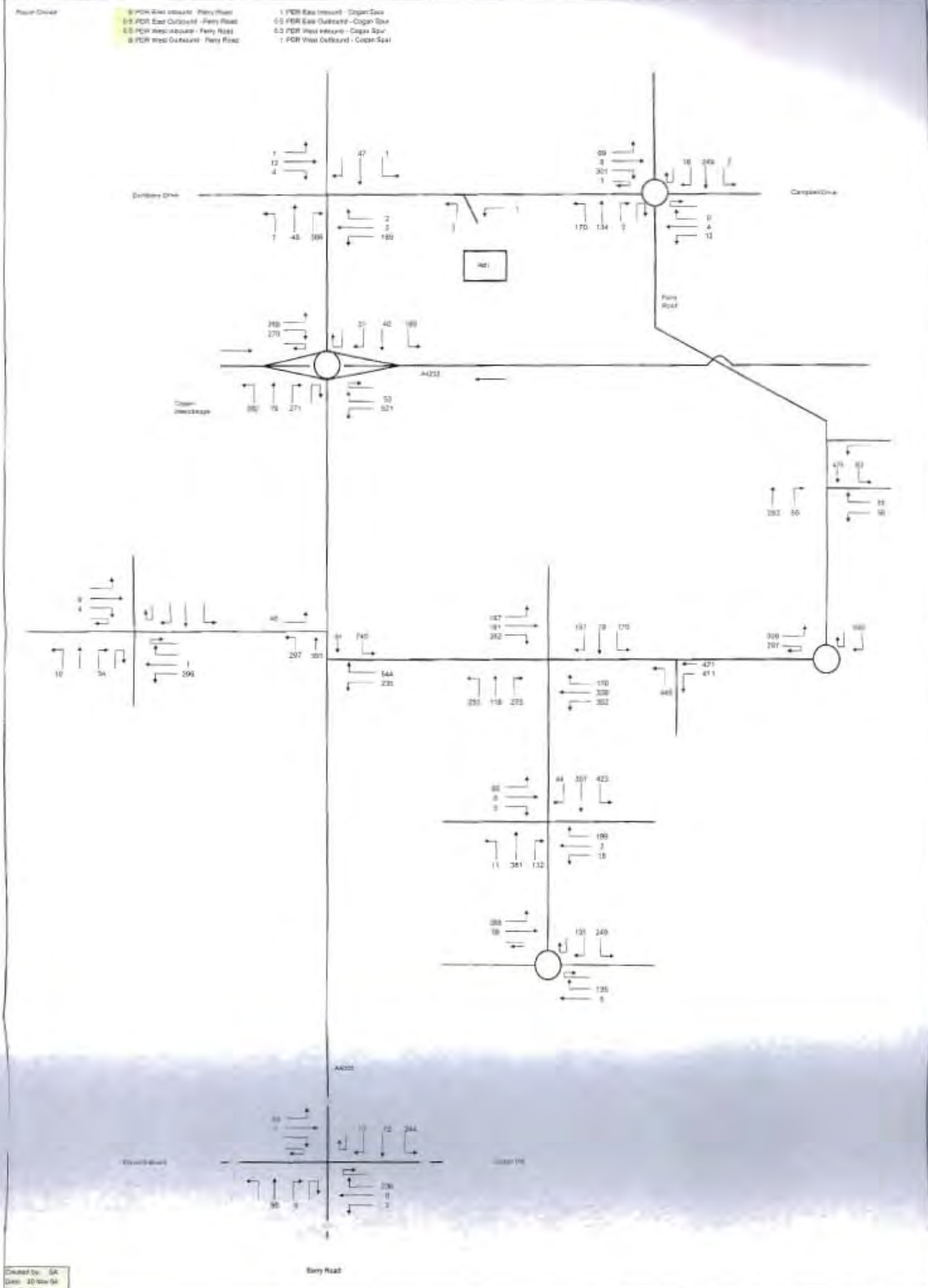
2.4.25 Car usage is clearly related to car ownership. However, this relationship is complicated by the deterrent effects of congestion, particularly in London. Thus, although car ownership is much higher in Lakedale (Greenwich) than St Pauls (Sandwell), usage is broadly comparable. The low level of bus usage and correspondingly high proportion of walk

CISV TRANSYT MODEL NETWORK

Friday (PM) Development Traffic

[All Flows in PCU]

Figure H1.2



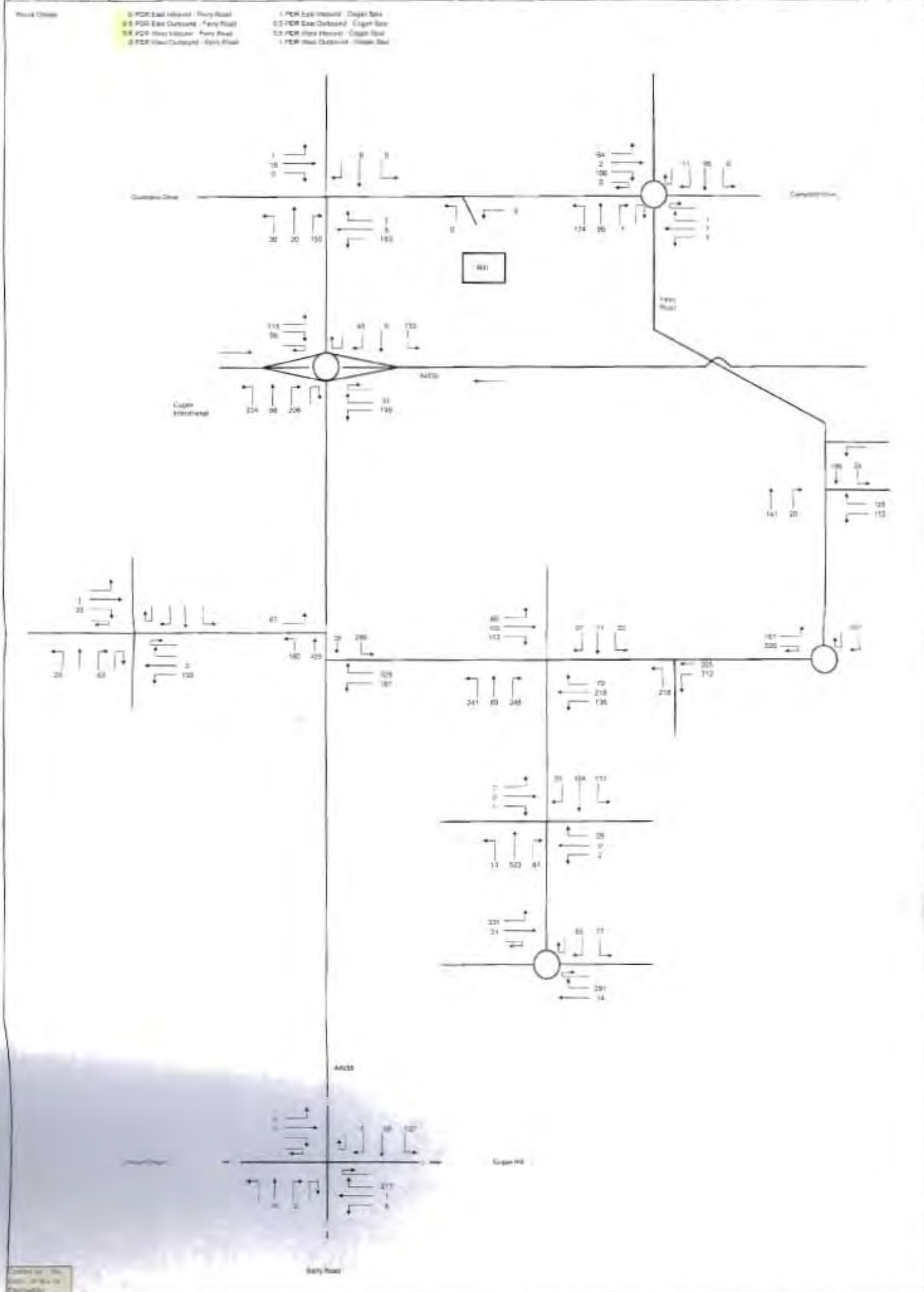
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Date: 20 Nov 94
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CISV TRANSYT MODEL NETWORK

Friday (AM) Development Traffic

[All Flows in PCU]

Figure H1.1



SAVE MONEY THE EASY WAY WITH **MULTIRIDE**

The Cardiff Bus Season Ticket

Multiride tickets provide unlimited travel in Cardiff, Barry, the Vale of Glamorgan, Caerphilly and on service 30 to Newport

CARDIFF & PENARTH MULTIRIDE <i>Throughout Cardiff, Llandough and Penarth</i>						
	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£12.00	£24.00	£39.60	£46.00	£119.00	£465.00
Child	£6.00	£12.00	£19.40	£22.50	£58.00	£228.00

PENARTH COMMUTER MULTIRIDE <i>Penarth (from Cosmeston Lakes), Dinas Powys (from Cross Common Road), Llandough - and to and from Cardiff</i>						
	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£9.20	£18.40	£30.50	£35.00	£92.00	£358.00
Child	£6.80	£13.60	£21.00	£24.00	£63.00	£247.00

BARRY COMMUTER MULTIRIDE <i>Cardiff International Airport, Barry, Wenvoe, Dinas Powys, Sully, Penarth, Llandough - and to and from Cardiff</i>						
	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£12.20	£24.40	£39.50	£46.00	£119.00	£464.00
Child	£8.30	£16.60	£26.50	£31.00	£80.00	£311.00

BARRY SUPER MULTIRIDE

*Cardiff International Airport, Barry, Wenvoe, Dinas Powys, Sully, Penarth,
Llandough - and throughout the whole of Cardiff*

	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£14.50	£29.00	£46.50	£54.00	£140.00	£546.00
Child	£10.00	£20.00	£32.00	£37.00	£96.00	£376.00

CAERPHILLY SUPER MULTIRIDE

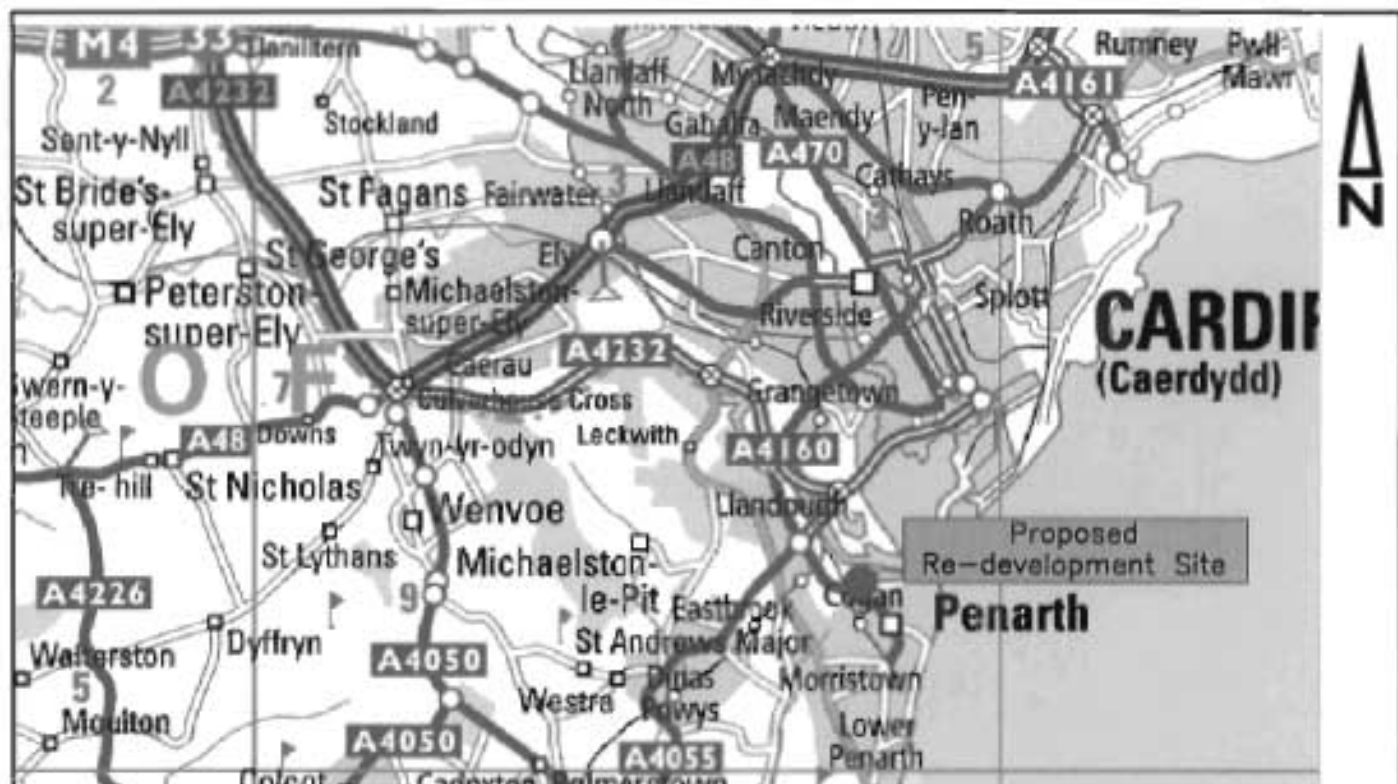
*Senghenydd, Llanbradach, Caerphilly - and throughout Cardiff, Llandough
and Penarth*

	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£13.20	£26.40	£43.00	£49.50	£129.00	£505.00
Child	Child tickets are not available					

NETWORK MULTIRIDE

*All Cardiff Bus, Newport Bus service 30 and Stagecoach In South Wales
Services.*

	Weekly	2 Weekly	Direct Debit Monthly	Over Counter Monthly	Quarterly	Annual
Adult	£17.20	£34.40	£56.50	£65.50	£170.00	£664.00
Child	£10.50	£21.00	£34.00	£38.50	£102.00	£400.00



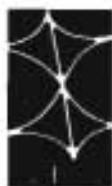
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SCALE 1:10000

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Job Title

Proposed Residential Re-Development
Penarth Heights

Drawing Title

Location Plan

Client

Crest Nicholson (SW) Ltd.

Drawn By

TGL

Date Drawn

June 2005

Scale

As shown

Checked By

JBF

Drawing No

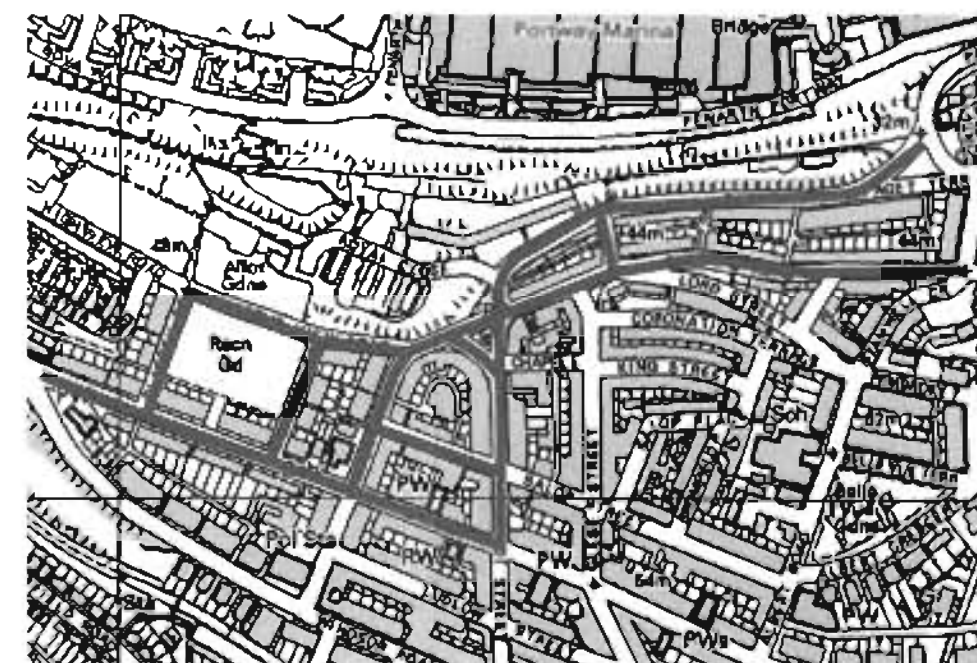
Plan 1

Revision

Possible Future Bridge for Pedestrians/Cyclists
(By Others)



Scale 1:10000



Possible Location of 20 mph Zones
Scale NTS

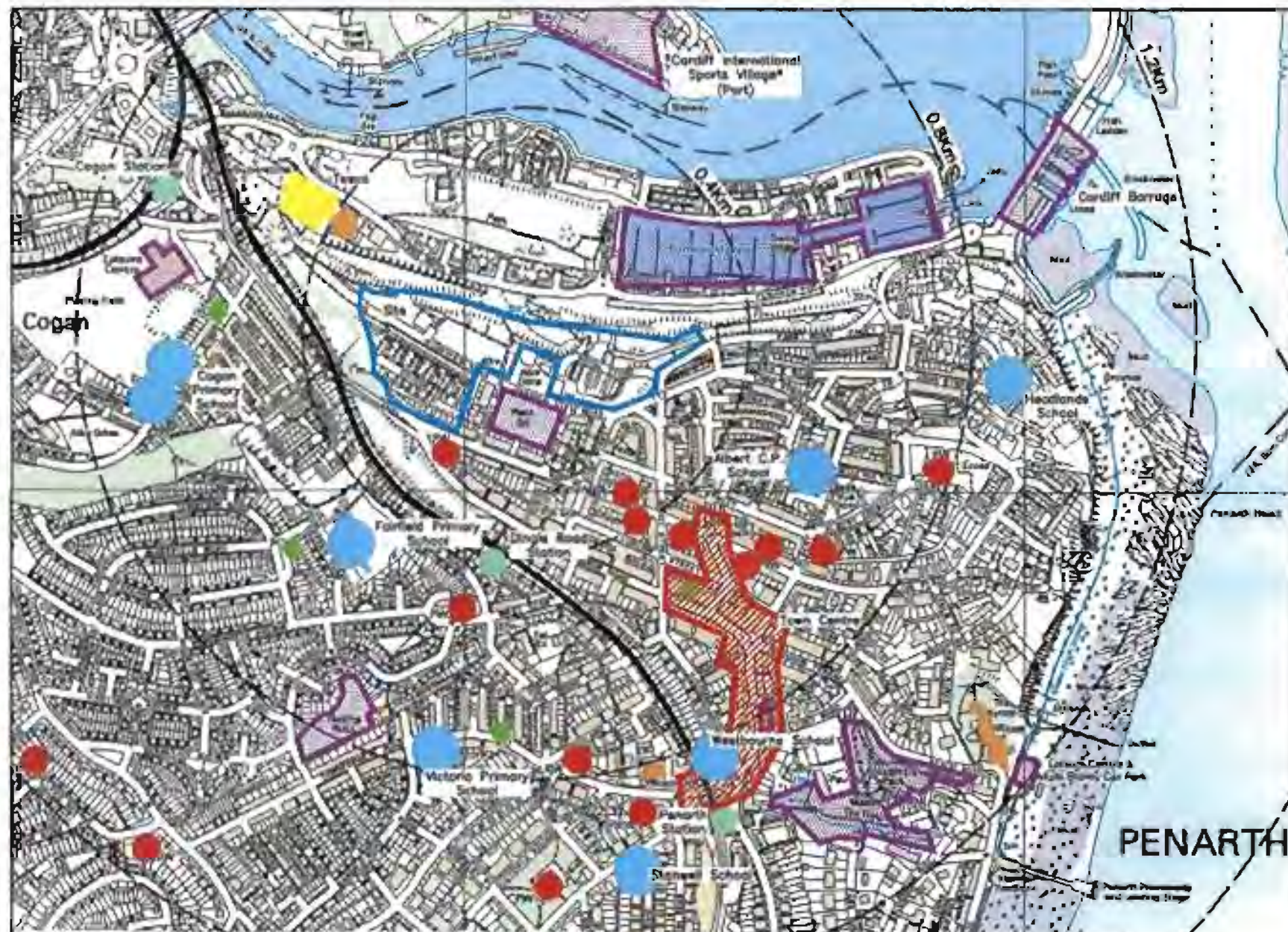
- | | | |
|--|---|--|
| — Possible alternative cycle routes towards Penarth Marina (Off Street) | — Proposed Footway/Cycleway "Headlands Link" | ● Train Station |
| - - - Possible alternative cycle routes towards Penarth Marina (On Street) | — "Quiet Road" with no cycle facilities designated/signed/advisory route. | ● Nearest Bus Stop |
| — Possible Future Bridge for Pedestrians/Cyclists | Z — Zebra crossing facilities | ● School |
| — Likely pedestrian/cyclist desire lines | P — Pelican crossing facilities | — Road where speed may be limited to 20mph |

Note: Refer to drawings by Edward Cullinan Architects for on site footway and cycleway layouts

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A 1GL 25/7/05 Possible 20mph Zone Shown		Client: Crest Nicholson (South West) Ltd	
 COLE EASON CONSULTANTS		Project Title: Proposed Residential Re-Development, Penarth Heights	
		Drawing Title: Walking and Cycling Plan	
		Scale: As Shown Date: June 2005	
YORK HOUSE EDISON PARK DORCAN WAY SWINDON WILTSHIRE SN3 3RB Tel : 01793 619965 Fax : 01793 619967 Web Site : www.ColeEason.com Email : cec@ColeEason.com		Drawing No: Plan 2	Revision: A

North Arrow



Penarth
Scale 1:10,000

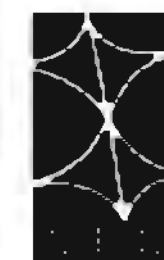


Cardiff and Penarth
Scale 1:50,000



*Cardiff International Sports Village is anticipated to include; Swimming Pools, Ice Pads, Casino/Hotel, Restaurants, Creche and Other Residential and Retail Amenities

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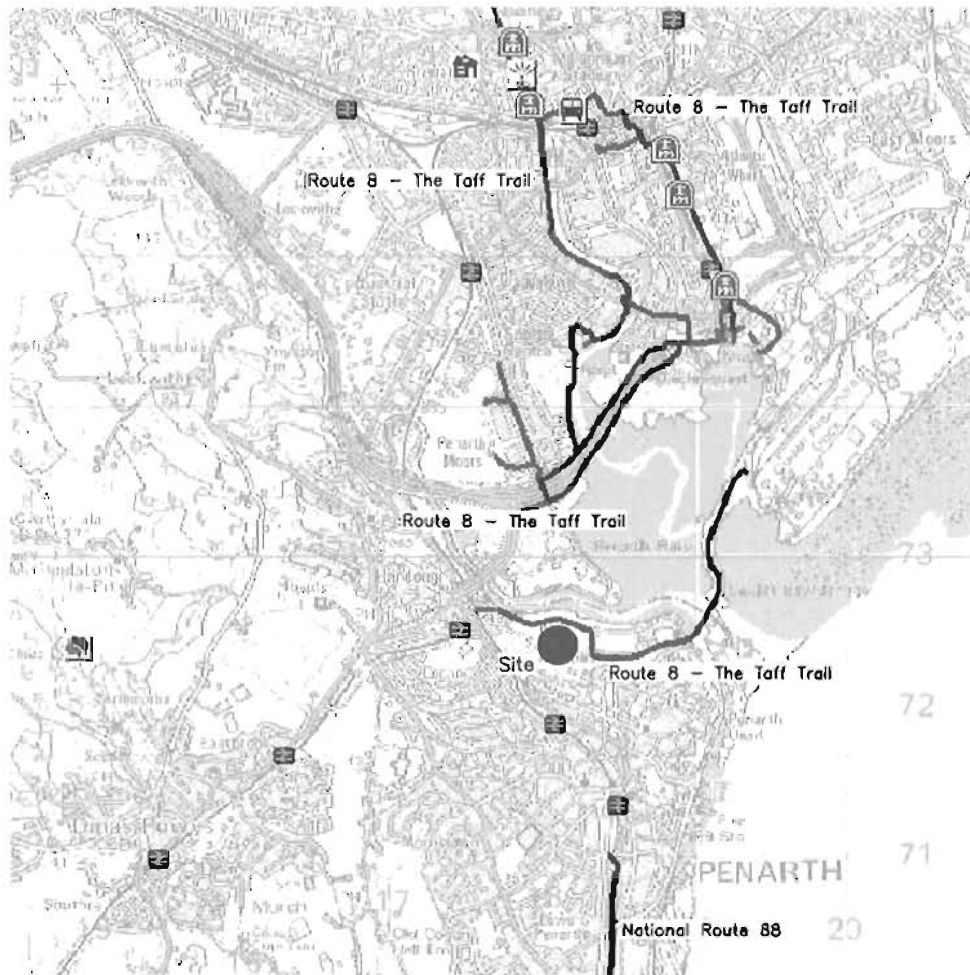


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Client: Crest Nicholson (SW) Ltd	
Project Title: Proposed Residential Re-Development, Penarth Heights	
Drawing Title: Accessibility Plan	
Scale: As Shown	Date: June 2005
Drawing No: Plan 3	Revision:



Note: Map Details Obtained From www.sustrans.org.uk

Key

- | | |
|---|----------------------------------|
| National Cycle Network on Road Route | Train Station |
| Other Signed On-Road Cycle Routes | Woodland Trust Site |
| National Cycle Network traffic-free route (including some forest tracks and paths alongside busy roads) | Mile Post |
| Other Traffic Free Cycle Routes | Scenic View - Millennium Stadium |
| Proposed Future National Cycle Network Route | Backpacker's Hostel |
| A-Roads | Bracon Bike Bus |
| B-Roads | Proposed Site |

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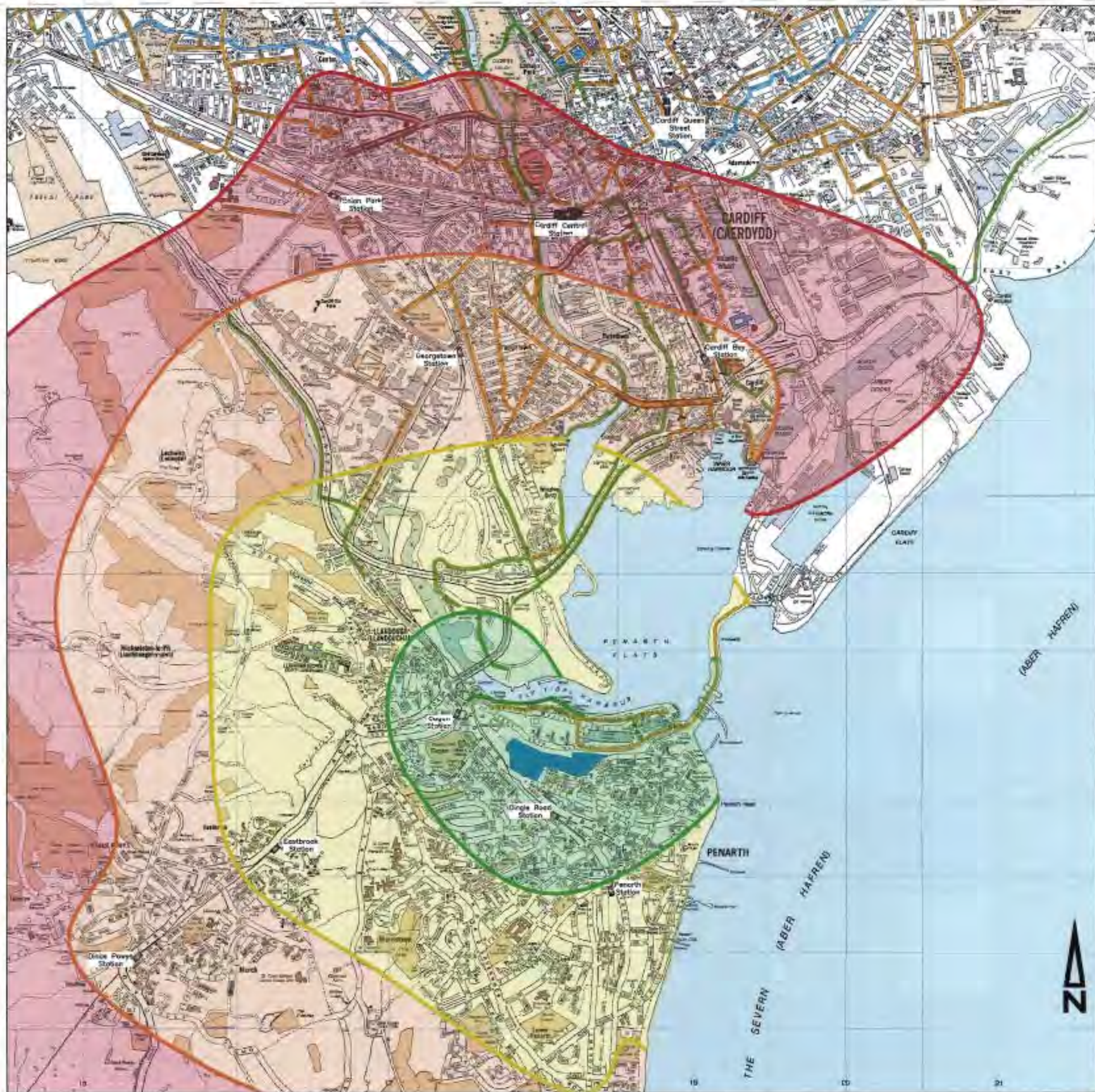


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Client: Crest Nicholson (SW) Ltd.	
Project Title: Proposed Residential Re-Development Penarth Heights	
Drawing Title: Sustrans Cycle Plan	
Scale: 1:50000	Date: June 2005
Drawing No: Plan 4	Revision:



Key

- Traffic Free Path
- Signposted Cycle Route
- Advisory Route
- Direct Road Routes for Experienced Cyclists
- Cycle Lanes
- Shared Bus/Cycle Lanes
- Cycle Parking Stands
- 🚲 Cycle Shop
- 🚉 Rail Station
- Important Building
- Site

- 5 Minutes Cycle Time (1.33Km)
- 10 Minutes Cycle Time (2.67Km)
- 15 Minutes Cycle Time (4.00Km)
- 20 Minutes Cycle Time (5.33Km)

NOTE:

Cycle travel time contours assume the following:

- Cycle speed = 16kph/10mph (as advised by DfT/MVA)
- Travel time taken from site boundary
- Recommended cycle routes used where available
- Presently there is no permitted cycle access to Cardiff Docks from the northern end of the barrage

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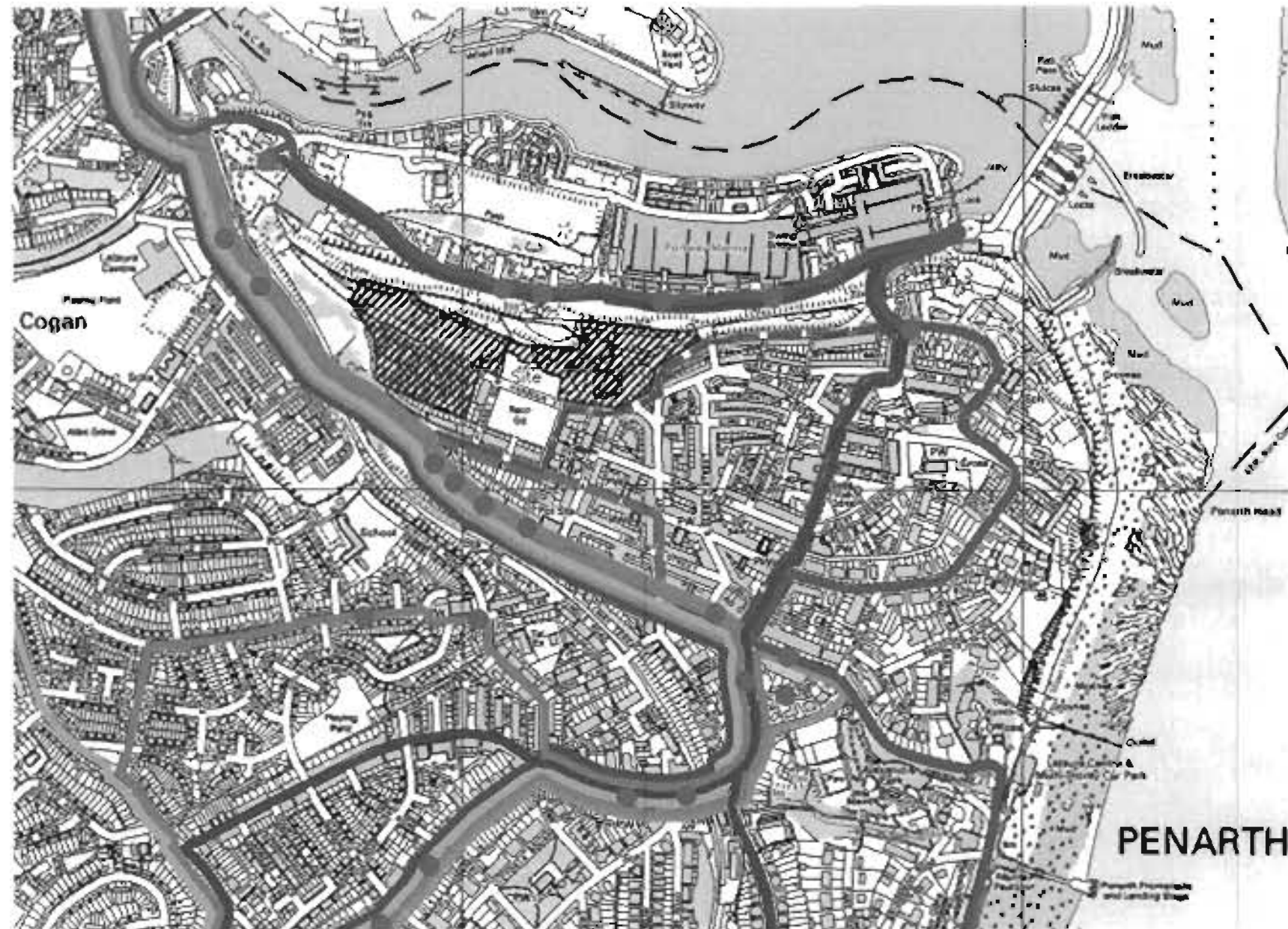


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Client: Crest Nicholson (SW) Ltd	
Project Title: Proposed Residential Re-Development at Penarth Heights	
Drawing Title: Cycle Times Penarth and Cardiff	
Scale: 1:25000	Date: June 2005
Drawing No: Plan 5	Revision: 1



Key:

● Bus Stop

Cardiff Services

- Service 89 (90 min Frequency)
- Service 92 (10 to 30 min. Frequency)
- Service 93 (30 to 35 min Frequency)
- Service 94 (15 to 40 min Frequency)
- - - - - Possible diversion of 92/93/94 Services

Other Services

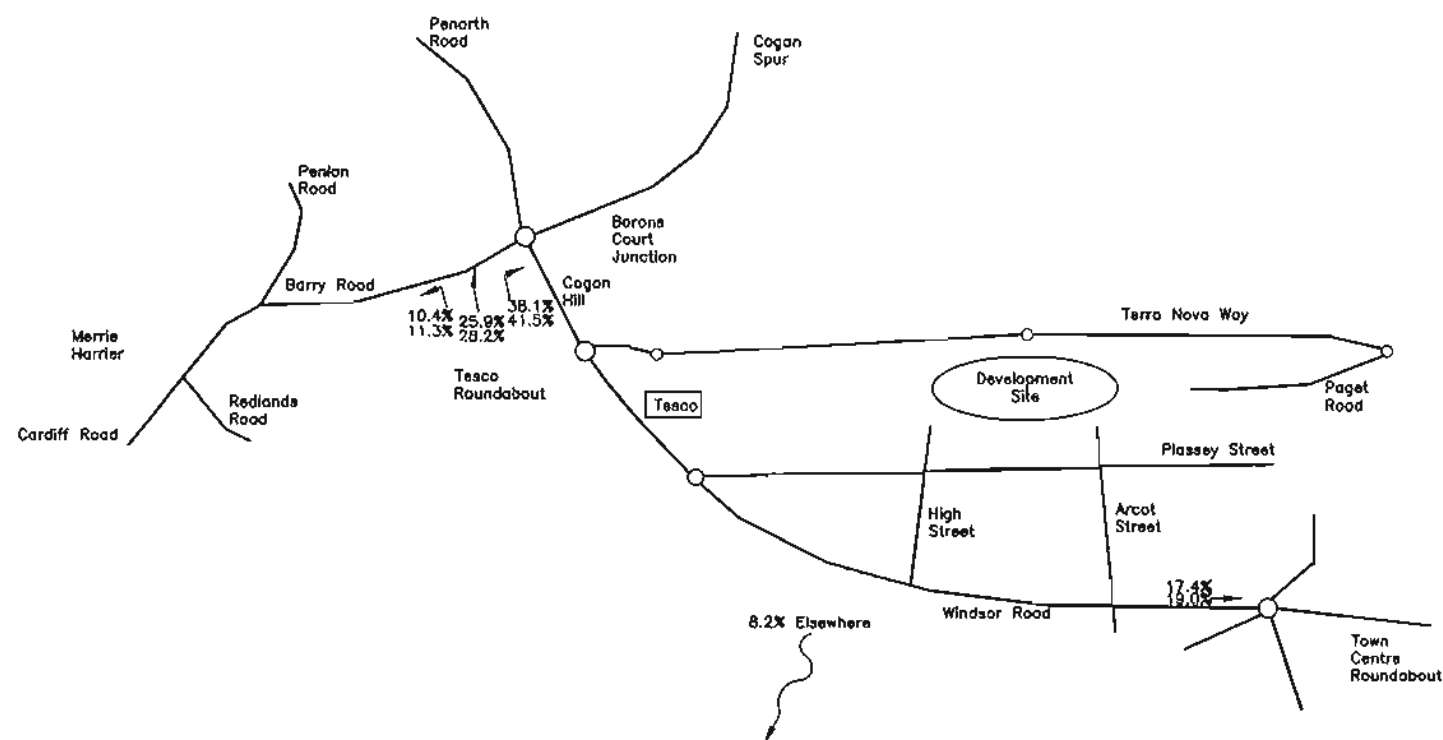
- Service 87 (70 to 100 min. Frequency) Dinas Powys to Cardiff Bay Retail Park
- Service 88 (90 min. Frequency) Barry to Llandough Hospital
- - - - - Possible diversion of Service 88
- Tesco Free Bus Service (Frequency/Timetable Unknown)

Note:

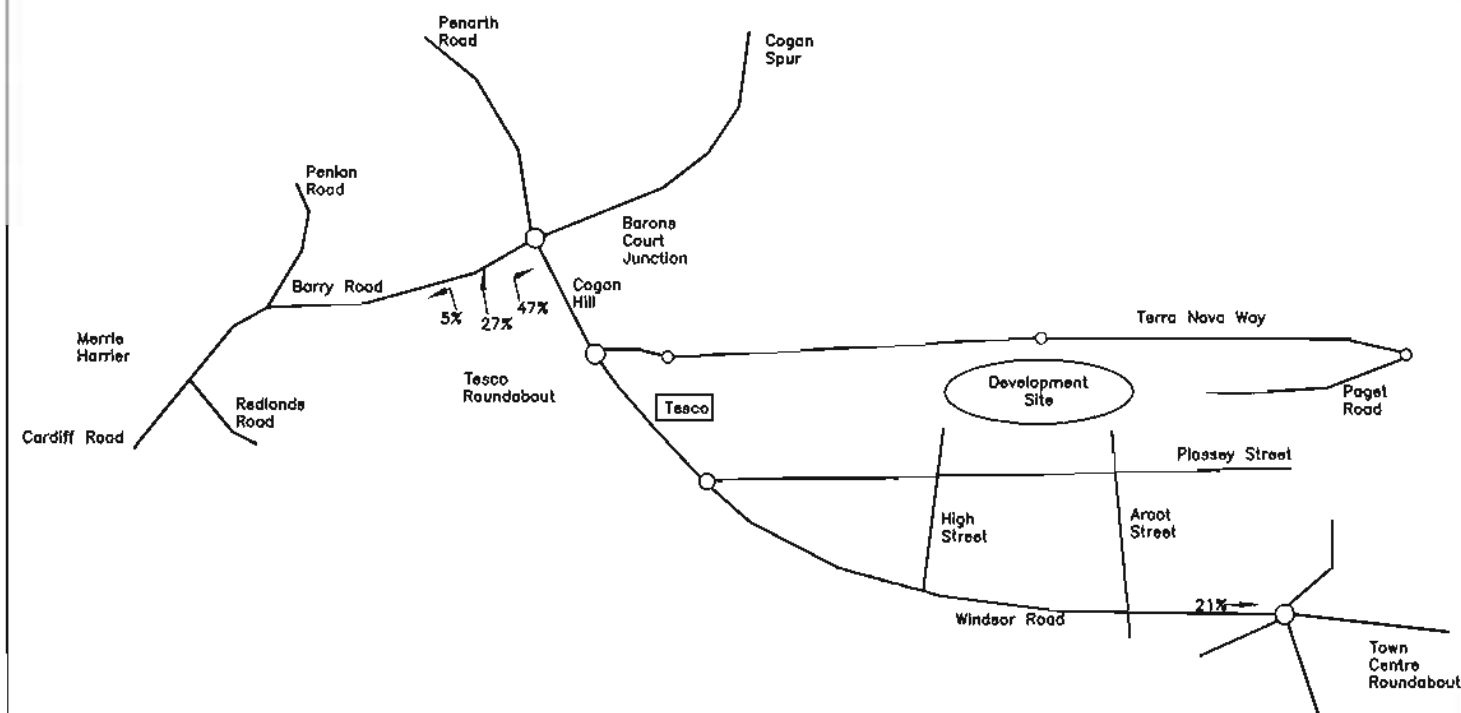
- Cardiff services 92, 93 and 94 collectively offer a service frequency of 7 to 8 minutes.
- Service 89 may be increased to a 60 minute frequency if the proposed development is successful

A TCL 25/7/05 Routes 87 and 88 added other routes amended			
 <p>COLE EASDON CONSULTANTS</p>	<p>YOMK HOUSE EDSON PARK DORCAN WAY SWINDON WILTSHIRE SN4 3RE Tel : 01793 619615 Fax : 01793 619617</p>	<p>Client Crest Nicholson (SW) Ltd</p>	
		<p>Project Title Proposed Residential Re-Development Penarth Heights</p>	
		<p>Drawing Title Public Bus Transport Map</p>	
		<p>Scale 1:10,000</p>	<p>Date June 2005</p>
<p>Web Site www.ColeEasdon.com E-mail ce@ColeEasdon.com</p>		<p>Drawing No. Plan 6</p>	<p>Revision A</p>

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Trip Distribution/Assignment Based on 2001 Census 'Travel to Work' Data for St. Augustine's Ward



Trip Distribution/Assignment Based on Atkins Transport Assessment

Destination	%	Destination	%	Destination	%	Destination	%
Barry	7.6%	Cardiff (50%)	25.9%	Cardiff (50%)	25.9%	Penarth	17.4%
Wenvoe	1.2%			Newport	3.1%		
St. Athan	1.0%			Bridgend	2.6%		
Dinas Powys	0.6%			Caerphilly	1.5%		
				Torfaen	1.0%		
				Merthyr Tydfil	0.8%		
				Taffs Well	0.7%		
				Hawthorn	0.7%		
				Swansea	0.7%		
				Bristol	0.6%		
				Peterston-Super-Ely	0.5%		
TOTALS	10.4%		25.9%		38.1%		17.4%

Key

10.4% - Unfactored (i.e. Total=91.8%, 8.2% Elsewhere)

19.0% - Factored up to 100%

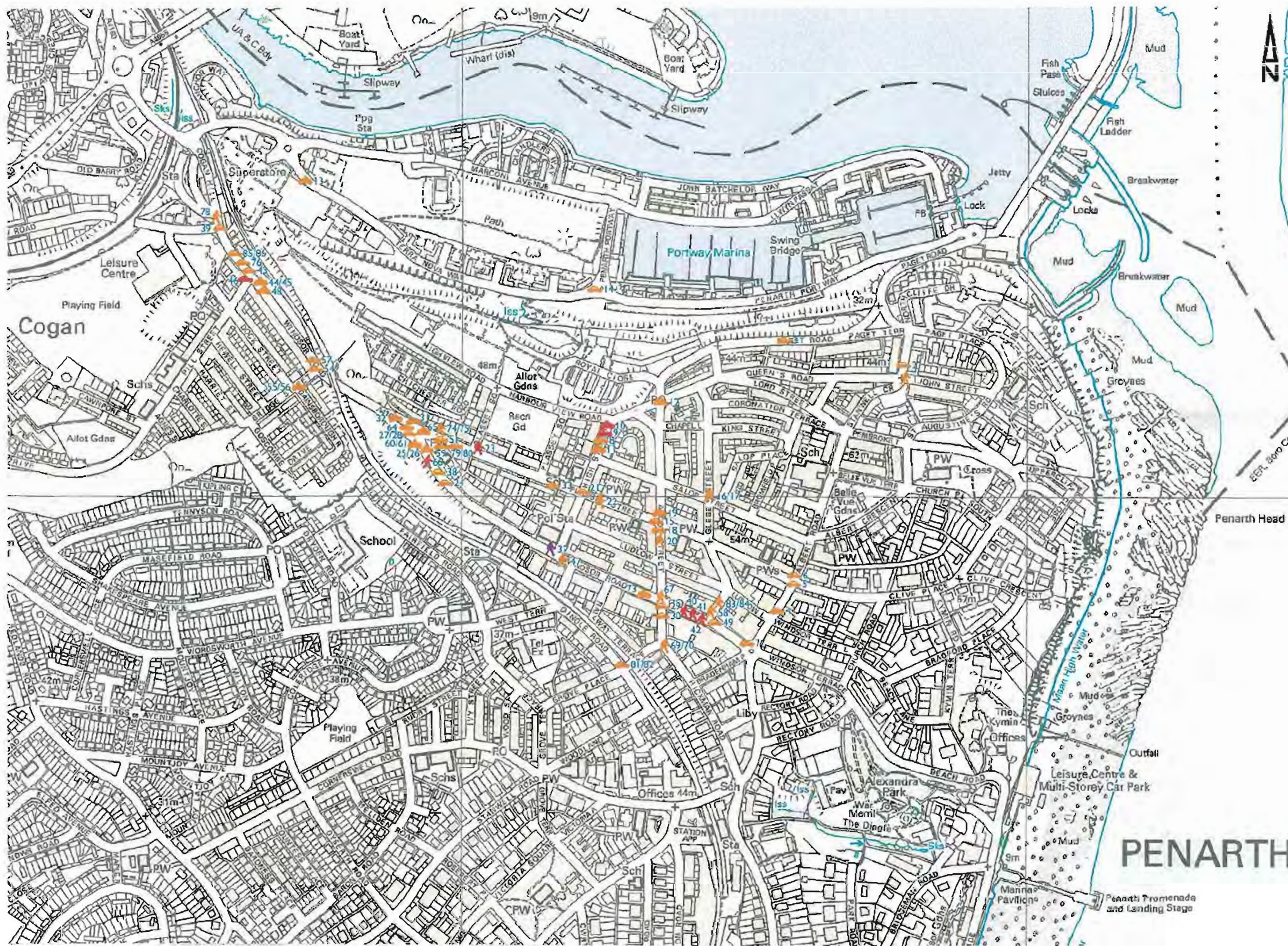


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Client: Crest Nicholson (SW) Ltd.	
Project Title: Proposed Residential Re-Development Penarth Heights	
Drawing Title: Predicted Trip Distribution	
Scale: NTS	Date: June 2005
Drawing No: Plan 7	Revision:



Accident Ref No.	Date	Location	Category	Accident Type
1	05/05/02	QUEEN'S ROAD, PENARTH, JUNCTION WITH HAUGHAN TERRACE & STAFFWELL CRESCENT	Driver / Rider	Slight
2	04/07/02	QUEEN'S ROAD, PENARTH, JUNCTION WITH HAUGHAN TERRACE	Pedestrian	Slight
3	26/07/02	PAGET ROAD, PENARTH, DIS NO. 3, 1	Driver/Driver	Slight
4	13/05/02	LUDLOW LANE, PENARTH, JW ALBERT ROAD	Driver/Driver	Slight
5	30/05/02	ALBERT ROAD, PENARTH AT JUNCTION PLASSEY	Driver/Driver	Slight
6	31/05/02	CLIVE ROAD, PENARTH, JW ALBERT ROAD	Driver/Driver	Slight
7	02/12/02	Alford Road, Penarth, Goggin Way, TSB, Windsor Road, Penarth, Penarth Road	Pedestrian	Slight
8	07/11/00	High Street	Driver/Driver	Slight
9	07/11/00	High Street	Driver/Driver	Slight
10	07/11/00	High Street	Driver/Driver	Slight
11	19/11/00	High Street	Driver/Driver	Slight
12	09/05/01	QUEEN'S ROAD, PENARTH, JW PAGES ROAD, 100YD ARCOT STREET	Driver/Driver	Slight
13	16/01/03	TERRANOVA WAY, PENARTH, APPROX 50 YDS FROM ROUNDABOUT AT TERRANOVA WAY	Driver/Driver	Slight
14	20/12/01	TERRANOVA WAY, PENARTH, 20 YDS FROM ROUNDABOUT AT TERRANOVA WAY	Driver/Driver	Slight
15	05/11/01	Plassey Street, Penarth, 100YD FROM JUNCTION WITH HIGH STREET	Driver/Driver	Slight
16	02/06/01	Globe Street, 100YD FROM JUNCTION WITH SALIS STREET	Pedestrian	Slight
17	02/06/01	Globe Street, 100YD FROM JUNCTION WITH SALIS STREET	Pedestrian	Slight
18	23/04/02	ARCOT STREET, PENARTH, JW PLASSEY STREET	Driver/Driver	Slight
19	21/12/00	PLASSEY STREET, PENARTH, NEAR JW HIGH STREET	Driver/Driver	Slight
20	17/08/02	PLASSEY STREET, PENARTH, 100YD WEST JW HIGH STREET	Pedestrian	Slight
21	14/05/03	HIGH STREET, PENARTH, JUNCTION WITH PLASSEY STREET	Driver/Driver	Slight
22	14/05/03	LAKE AT THE END OF HIGH STREET, PENARTH	Pedestrian	Slight
23	16/01/04	Plassey Street, Penarth, 100YD FROM JUNCTION WITH PLASSEY STREET	Pedestrian	Slight
24	12/04/02	WINDSOR ROAD, PENARTH, APPROX 3 YARDS FROM JW PLASSEY STREET	Driver/Driver	Slight
25	02/06/01	WINDSOR ROAD, PENARTH, JW PLASSEY STREET	Driver/Driver	Slight
26	02/06/01	WINDSOR ROAD, PENARTH, JW PLASSEY STREET	Driver/Driver	Slight
27	09/04/04	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
28	09/04/04	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
29	01/09/99	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
30	01/09/99	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
31	06/03/00	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
32	06/03/00	WINDSOR ROAD, PENARTH, JW WICKMAN ROAD	Driver/Driver	Slight
33	12/02/00	WINDSOR ROAD, PENARTH, APPROX 30 METRES JW HIGH STREET, PENARTH	Driver/Driver	Slight
34	03/03/00	WINDSOR ROAD, PENARTH, OUTSIDE STATION PUBLIC HOUSE	Driver/Driver	Slight
35	26/07/00	Windsor Road, Penarth	Pedestrian	Slight
36	28/07/00	Windsor Road, Penarth	Driver/Driver	Slight
37	09/09/00	WINDSOR ROAD, PENARTH, DIS NO. 10, PENARTH POLICE STATION	Pedestrian	Slight
38	28/12/00	Plassey Street, Penarth, 100YD FROM JUNCTION WITH WINDSOR ROAD	Driver/Driver	Slight
39	15/01/01	WINDSOR ROAD, COGAN, PENARTH, NEAR JW ANDREW ROAD	Driver/Driver	Slight
40	15/01/01	WINDSOR ROAD, PENARTH, APPROX 30M NORTH JW GLEBE STREET	Pedestrian	Slight
41	17/01/01	WINDSOR ROAD, PENARTH, APPROX 30M NORTH JW GLEBE STREET	Pedestrian	Slight
42	17/01/01	GLOBE PLACE, PENARTH, APPROX 30M FROM JW WICKMAN ROAD	Pedestrian	Slight
43	04/04/01	WINDSOR ROAD, PENARTH, JW PULL STREET	Driver/Driver	Slight
44	04/04/01	WINDSOR ROAD, PENARTH, JW PULL STREET	Driver/Driver	Slight
45	04/04/01	WINDSOR ROAD, PENARTH, JW PULL STREET	Driver/Driver	Slight
46	04/04/01	WINDSOR ROAD, PENARTH, JW PULL STREET	Driver/Driver	Slight
47	27/04/01	WINDSOR ROAD, PENARTH, APPROX 30 METRES FROM JW HIGH STREET	Pedestrian	Slight
48	15/05/01	WINDSOR ROAD, PENARTH, APPROX 30 METRES FROM JW HIGH STREET	Pedestrian	Slight
49	15/05/01	Globe St, Penarth, 100YD FROM JUNCTION WITH WINDSOR ROAD	Driver/Driver	Slight
50	15/05/01	WINDSOR ROAD, PENARTH, OPPOSITE STATION PUBLIC HOUSE	Pedestrian	Slight
51	31/05/01	WINDSOR ROAD, PENARTH, ROUNDABOUT WITH PLASSEY STREET	Driver/Driver	Slight
52	13/11/01	WINDSOR ROAD, PENARTH	Pedestrian	Slight
53	13/11/01	WINDSOR ROAD, PENARTH	Pedestrian	Slight
54	26/11/01	WINDSOR ROAD, PENARTH, 100YD FROM JUNCTION WITH BRIDGE STREET	Driver/Driver	Slight
55	08/12/01	Bridge Street, Penarth, 100YD FROM JUNCTION WITH BRIDGE STREET	Driver/Driver	Slight
56	08/12/01	Bridge Street, Penarth, 100YD FROM JUNCTION WITH BRIDGE STREET	Driver/Driver	Slight
57	15/04/02	WINDSOR ROAD, COGAN, JW BRIDGE STREET	Driver/Driver	Slight
58	12/04/02	WINDSOR ROAD, PENARTH, JW GLEBE STREET	Driver/Driver	Slight
59	12/04/02	WINDSOR ROAD, PENARTH, APPROX 3 YARDS FROM JW PLASSEY STREET	Driver/Driver	Slight
60	02/09/02	WINDSOR ROAD, PENARTH, JW PLASSEY STREET	Driver/Driver	Slight
61	02/09/02	WINDSOR ROAD, PENARTH, JW PLASSEY STREET	Driver/Driver	Slight
62	04/10/02	WINDSOR ROAD, PENARTH, OUTSIDE BUS STOP	Pedestrian	Slight
63	04/10/02	WINDSOR ROAD, PENARTH, OUTSIDE BUS STOP	Pedestrian	Slight
64	03/12/02	WINDSOR ROAD, PENARTH, ROUNDABOUT WITH PLASSEY STREET	Driver/Driver	Slight
65	03/12/02	WINDSOR ROAD, PENARTH, ROUNDABOUT WITH PLASSEY STREET	Driver/Driver	Slight
66	17/12/02	WINDSOR ROAD, PENARTH, NEAR JW PLASSEY STREET, PENARTH	Pedestrian	Slight
67	18/02/03	Windsor Rd, 20m from 2nd, 1st, Penarth	Pedestrian	Slight
68	19/02/03	Windsor Road, Penarth, 100YD FROM JUNCTION WITH BRIDGE STREET	Driver/Driver	Slight
69	19/02/03	WINDSOR ROAD, PENARTH, APPROX 10 YDS EAST JW HIGHWAY ROAD	Pedestrian	Slight
70	19/02/03	WINDSOR ROAD, PENARTH, APPROX 10 YDS EAST JW HIGHWAY ROAD	Pedestrian	Slight
71	24/06/03	Windsor Rd, Penarth	Driver/Driver	Slight
72	24/06/03	Windsor Rd, Penarth	Driver/Driver	Slight
73	25/07/03	WINDSOR ROAD, PENARTH, APPROACHING JUNCTION ARCOT STREET	Driver/Driver	Slight
74	24/12/03	Plassey Street, Penarth, 100YD FROM JUNCTION WITH WINDSOR ROAD	Pedestrian	Slight
75	24/12/03	Plassey Street, Penarth, 100YD FROM JUNCTION WITH WINDSOR ROAD	Pedestrian	Slight
76	23/01/04	WINDSOR ROAD, PENARTH, APPROX 10 YDS FROM JUNCTION WITH PLASSEY STREET	Driver/Driver	Slight
77	23/01/04	WINDSOR ROAD, PENARTH, APPROX 10 YDS FROM JUNCTION WITH PLASSEY STREET	Driver/Driver	Slight
78	23/01/04	WINDSOR ROAD, PENARTH, APPROX 10 YDS FROM JUNCTION WITH PLASSEY STREET	Driver/Driver	Slight
79	09/04/04	Roundabout at Plassey Street, JW Windsor Road, Penarth	Driver/Driver	Slight
80	09/04/04	Roundabout at Plassey Street, JW Windsor Road, Penarth	Driver/Driver	Slight
81	06/06/04	WINDSOR ROAD, PENARTH	Driver/Driver	Slight
82	06/06/04	WINDSOR ROAD, PENARTH	Driver/Driver	Slight
83	13/08/04	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. JAGAN'S PUBLIC HOUSE	Pedestrian	Slight
84	28/09/04	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. JAGAN'S PUBLIC HOUSE	Pedestrian	Slight
85	28/09/04	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. JAGAN'S PUBLIC HOUSE	Pedestrian	Slight
86	28/09/04	WINDSOR ROAD, PENARTH, JW GLEBE STREET, OUTSIDE ST. JAGAN'S PUBLIC HOUSE	Pedestrian	Slight

Source: Vale of Glamorgan Council.
Accidents marked * are not shown on the plan as there is insufficient information in the description to position accurately.

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Crest Nicholson (South West) Ltd.

Proposed Re-Development at Penarth Heights

Personal Injury Accident Data
September 1999 to September 2004

Drawn by: PJS
Checked by: JBF

Date: June 2005
Scale: 1:5,000

Plan 8