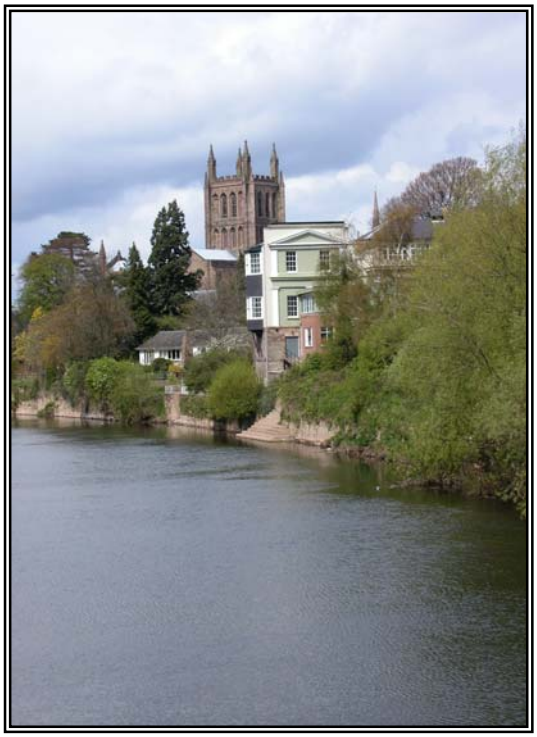
HEREFORDSHIRE COUNCIL

HEREFORD TRANSPORT REVIEW
LOCAL MULTI-MODAL STUDY



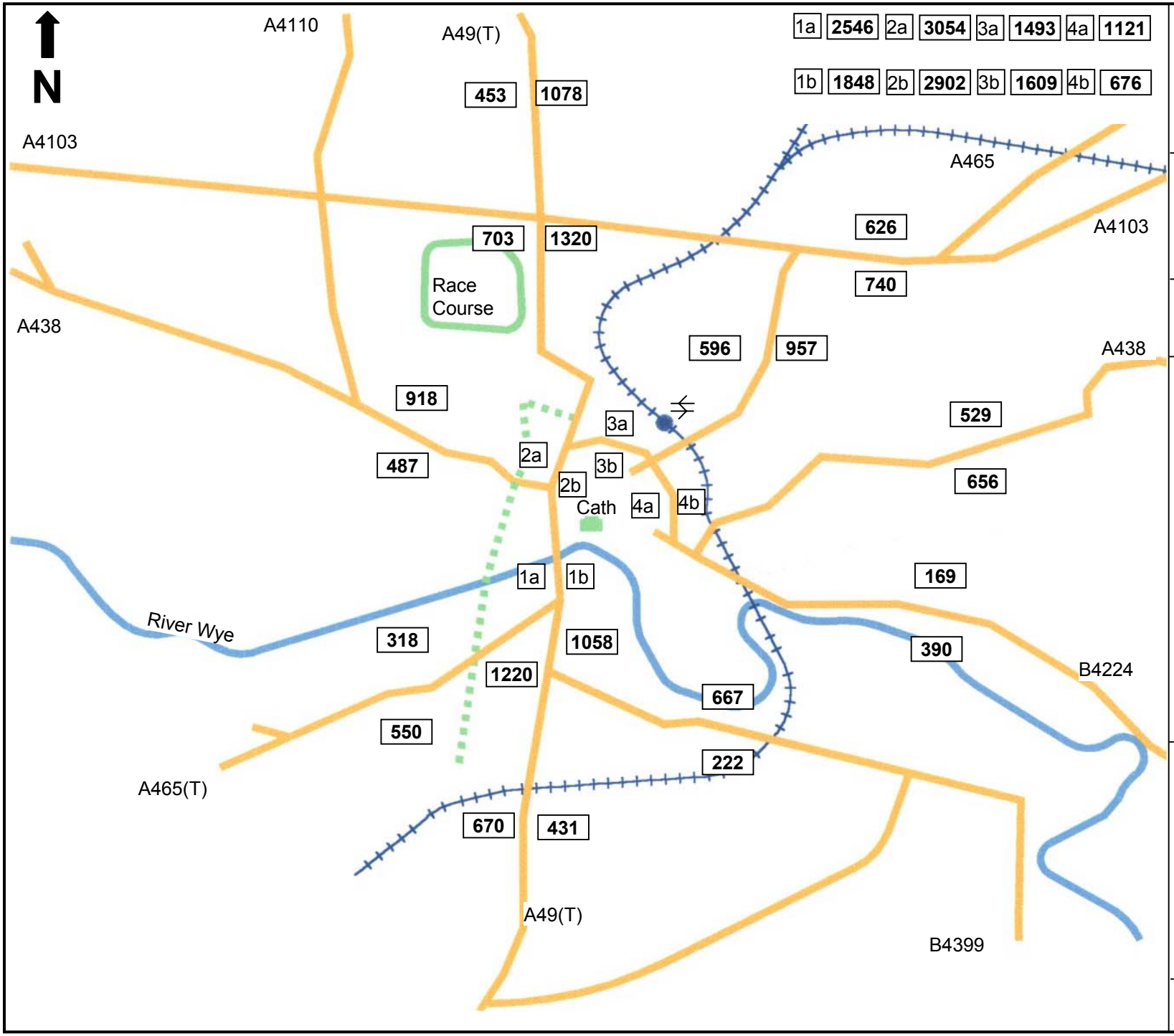
APPENDICES

February 2003

APPENDICES

APPENDIX A

Base Year 2002 Assignments



Hereford Transport Review

Base Year

2002 AM Peak Hour

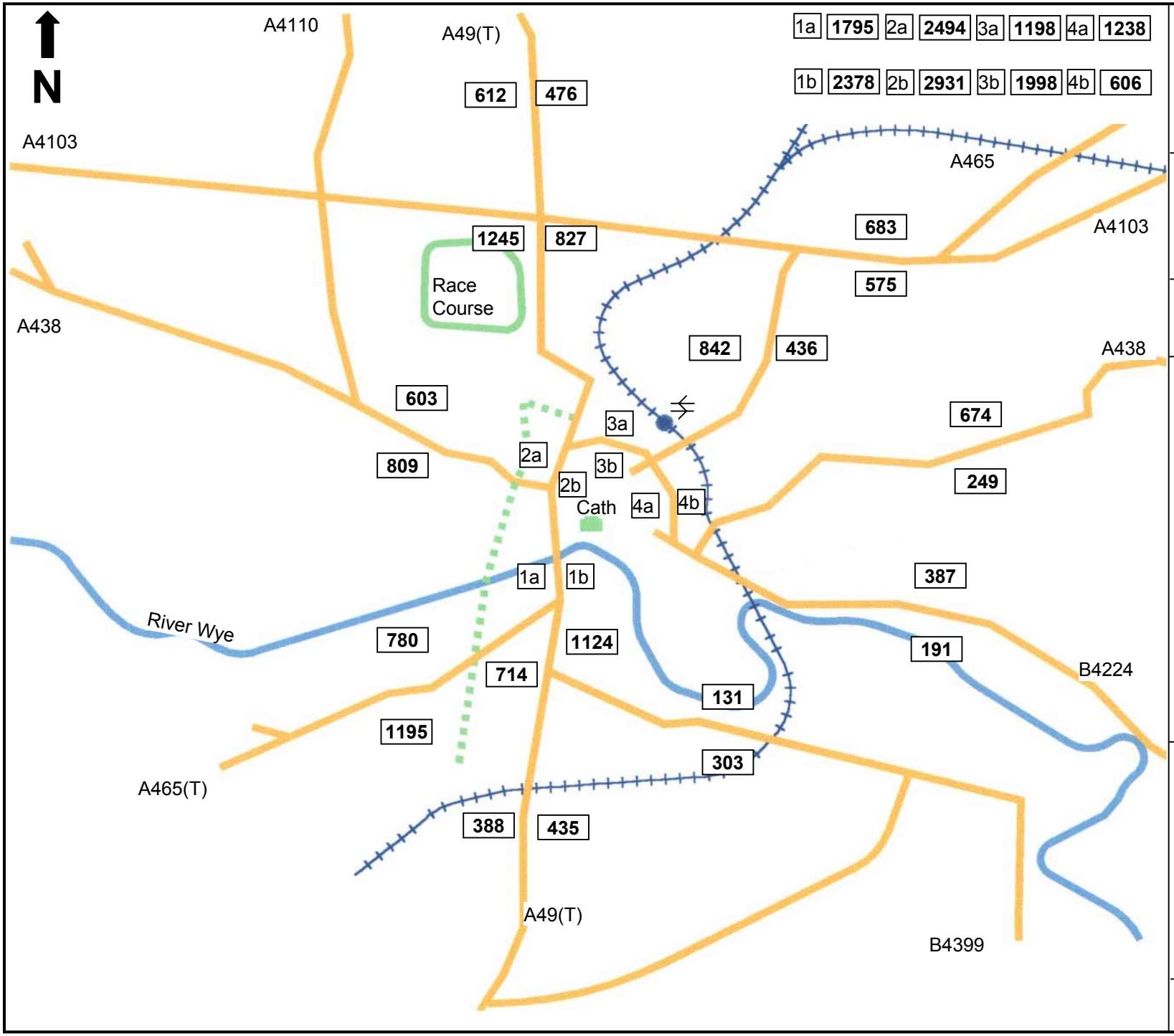
Highway Car Model

Key:

pcu/hour – Car

TPi

Figure A1



Hereford Transport Review

Base Year

2002 PM Peak Hour

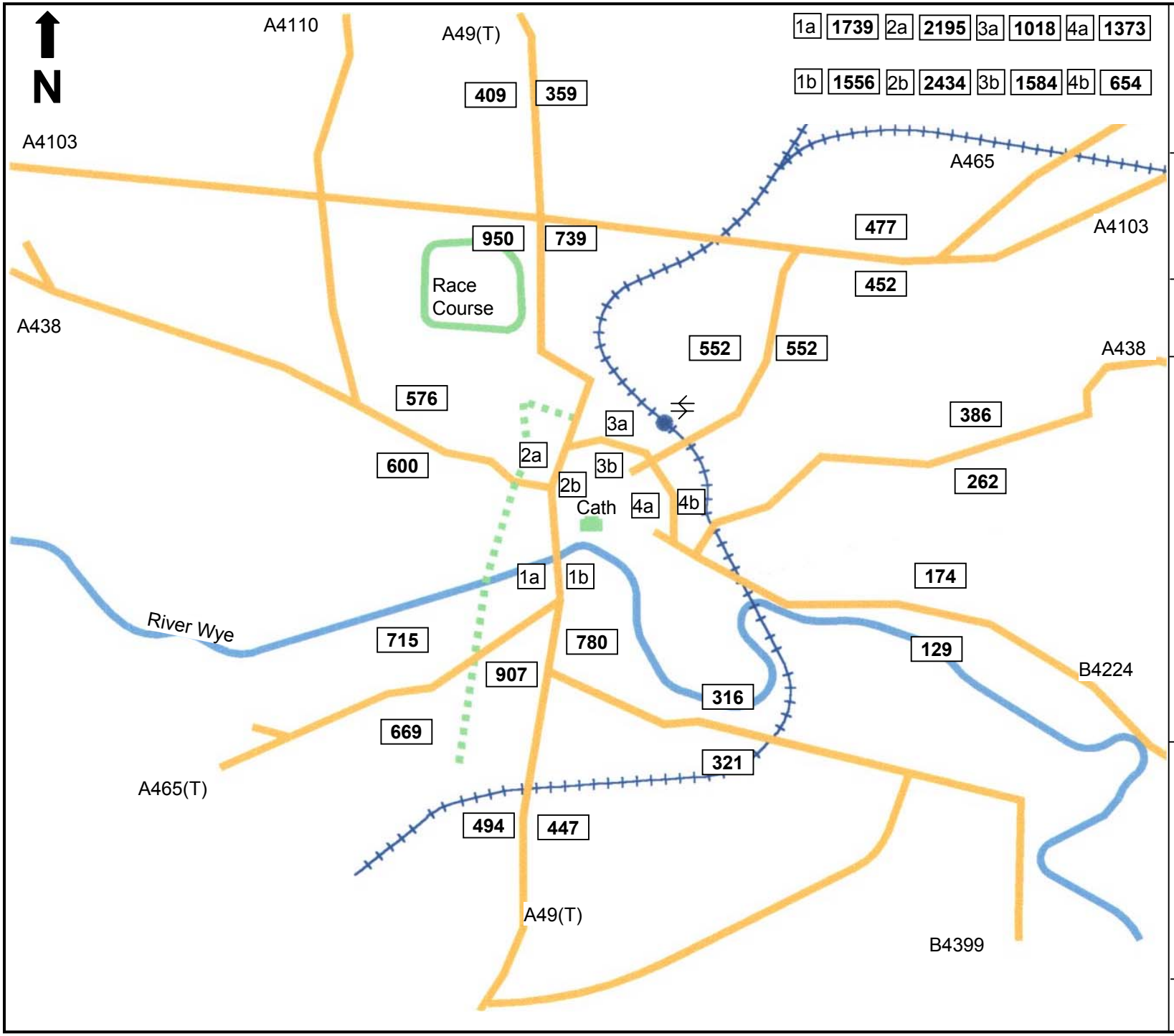
Highway Car Model

Key:

pcu/hour – Car

TPi

Figure A2



Hereford Transport Review

Base Year

2002 Inter Peak Hour

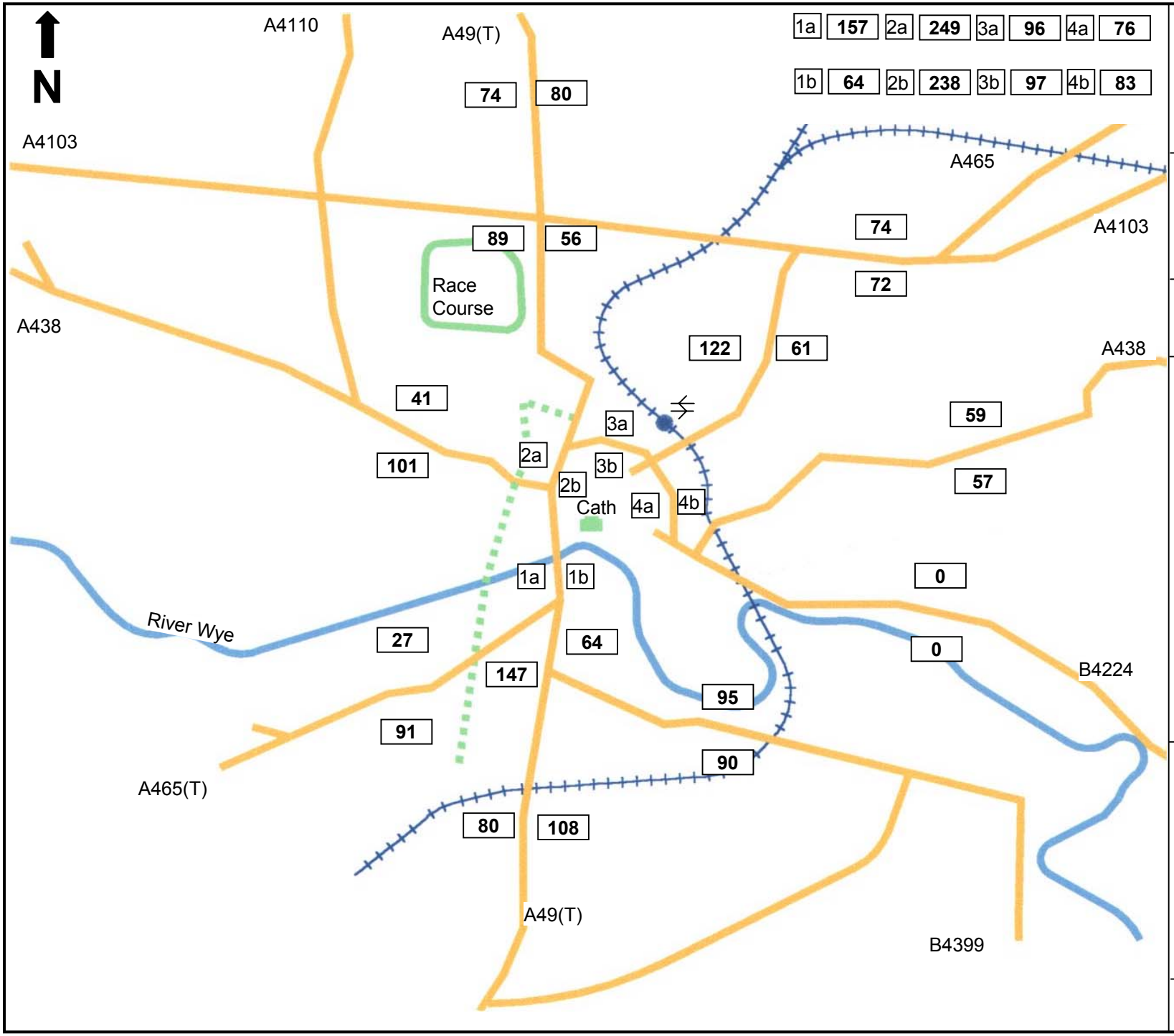
Highway Car Model

Key:

pcu/hour – Car

TPi

Figure A3



Hereford Transport Review

Base Year

2002 AM Peak Hour

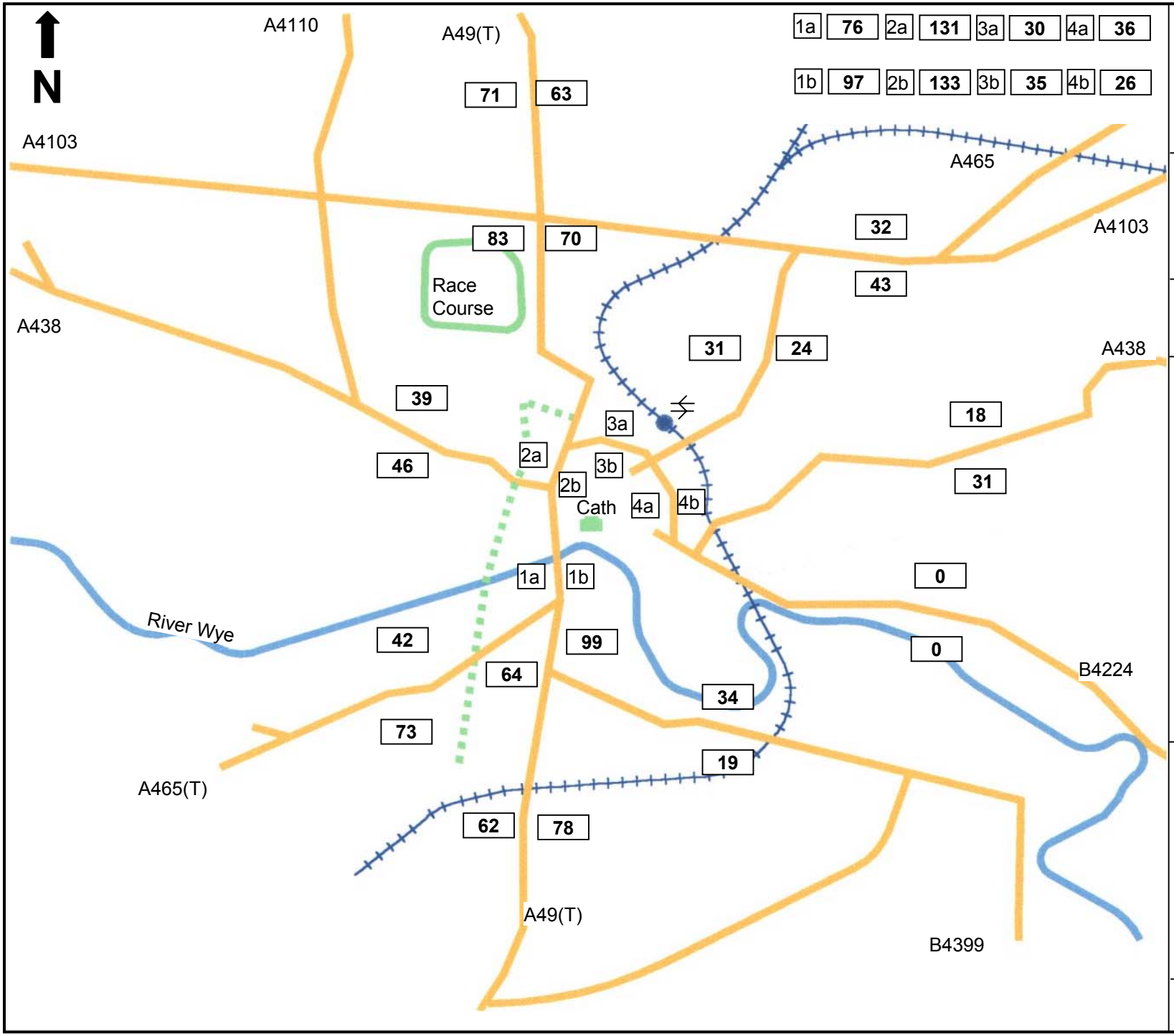
Highway HGV Model

Key:

pcu/hour – HGV

TPi

Figure A4



Hereford Transport Review

Base Year

2002 PM Peak Hour

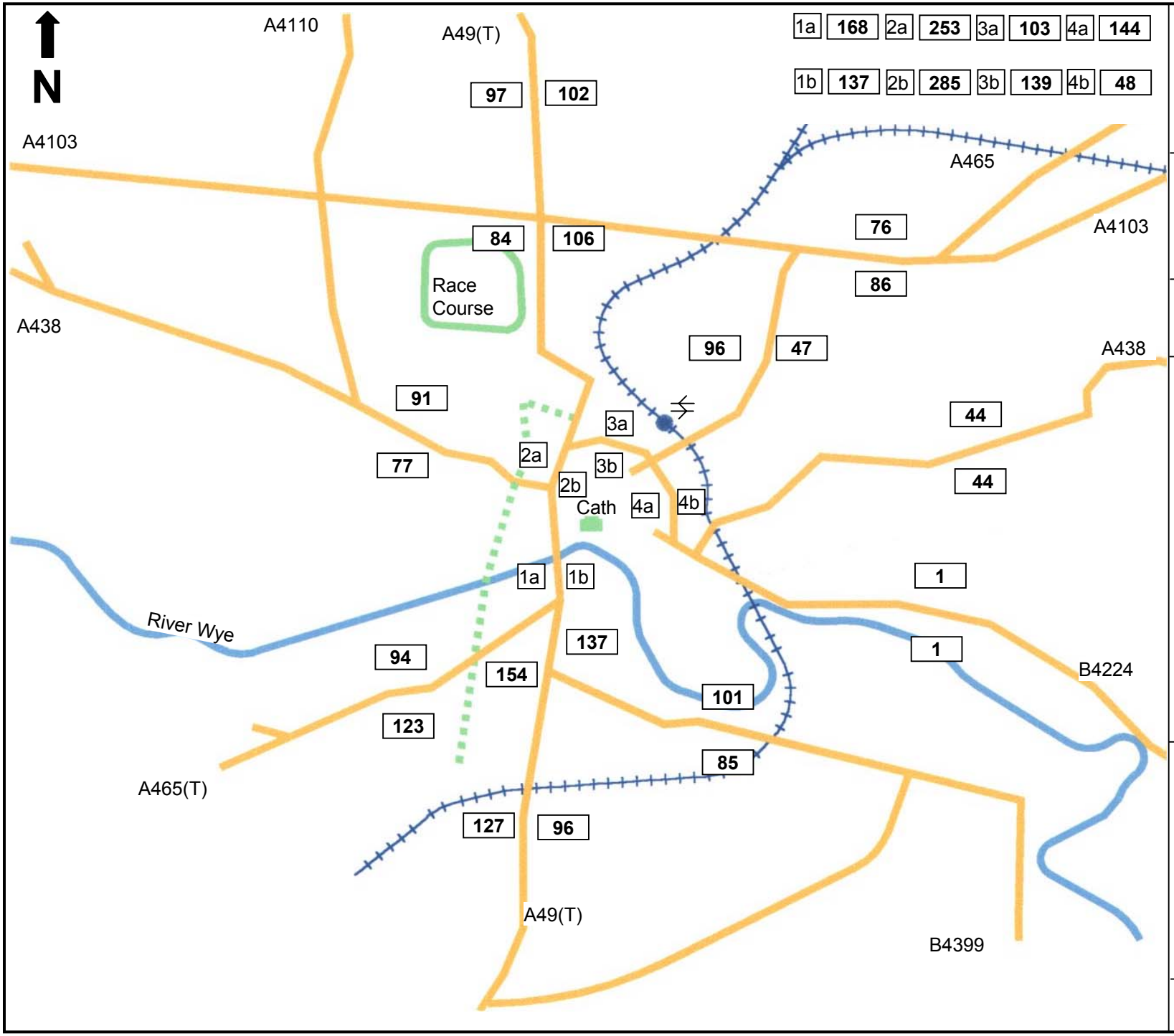
Highway HGV Model

Key:

pcu/hour – HGV

TPi

Figure A5



Hereford Transport Review

Base Year

2002 Inter Peak Hour

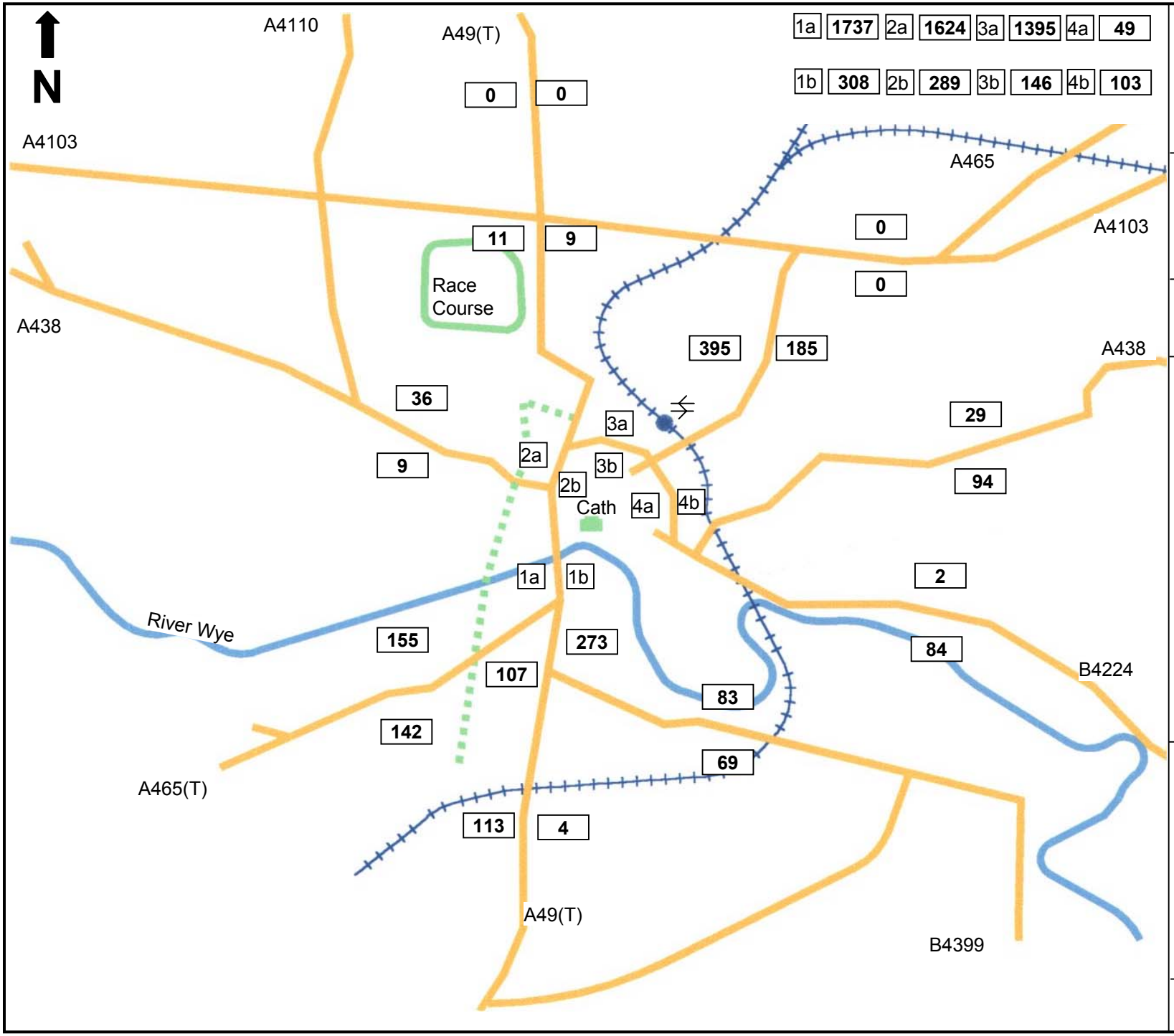
Highway HGV Model

Key:

pcu/hour – HGV

TPi

Figure A6



Hereford Transport Review

Base Year

2002 AM Peak Hour

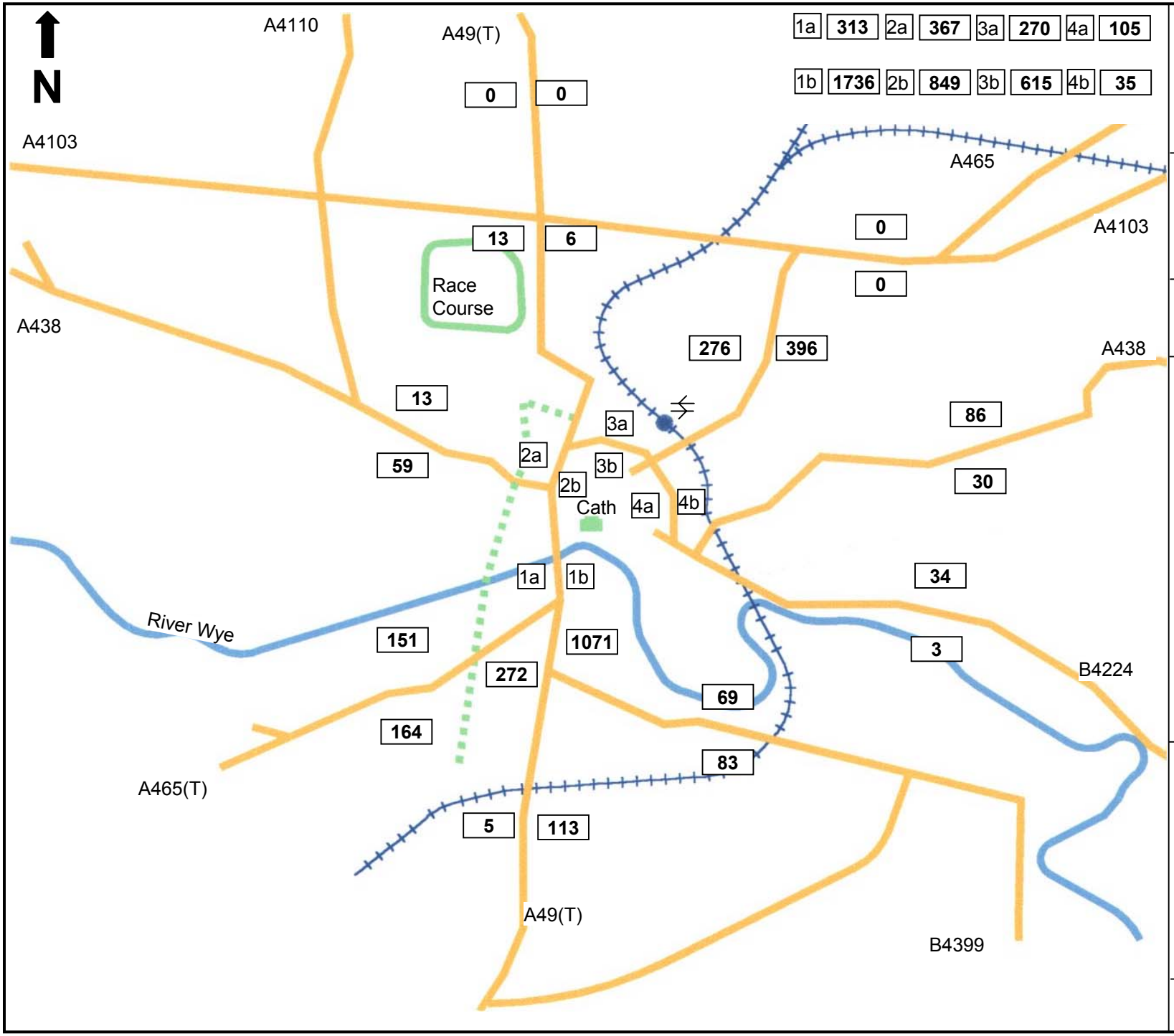
Passengers Bus & Rail Model

Key:

pass/hour

TPi

Figure A7



Hereford Transport Review

Base Year

2002 PM Peak Hour

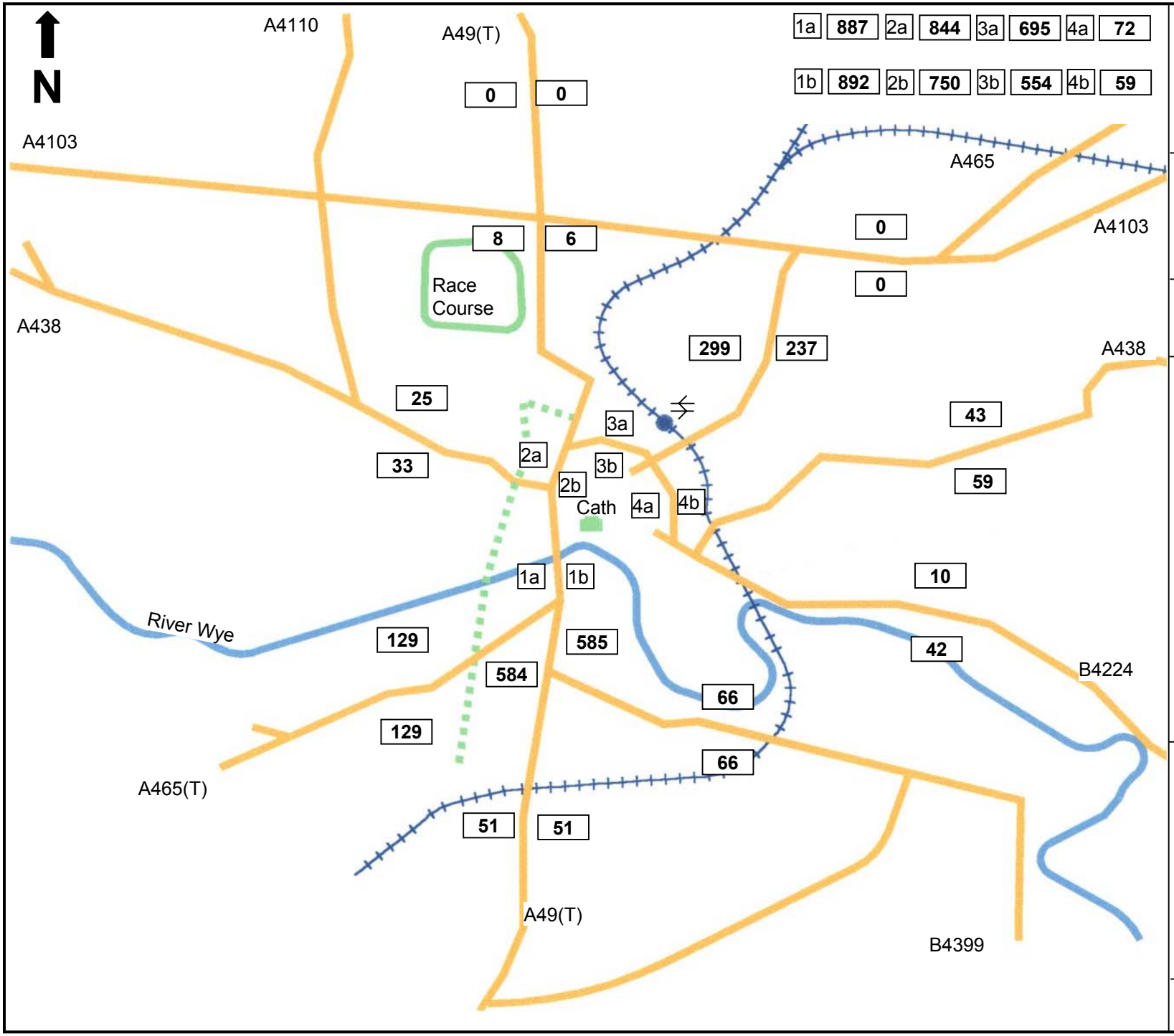
Passengers Bus & Rail Model

Key:

pass/hour

TPi

Figure A8



Hereford Transport Review

Base Year

2002 Inter Peak Hour

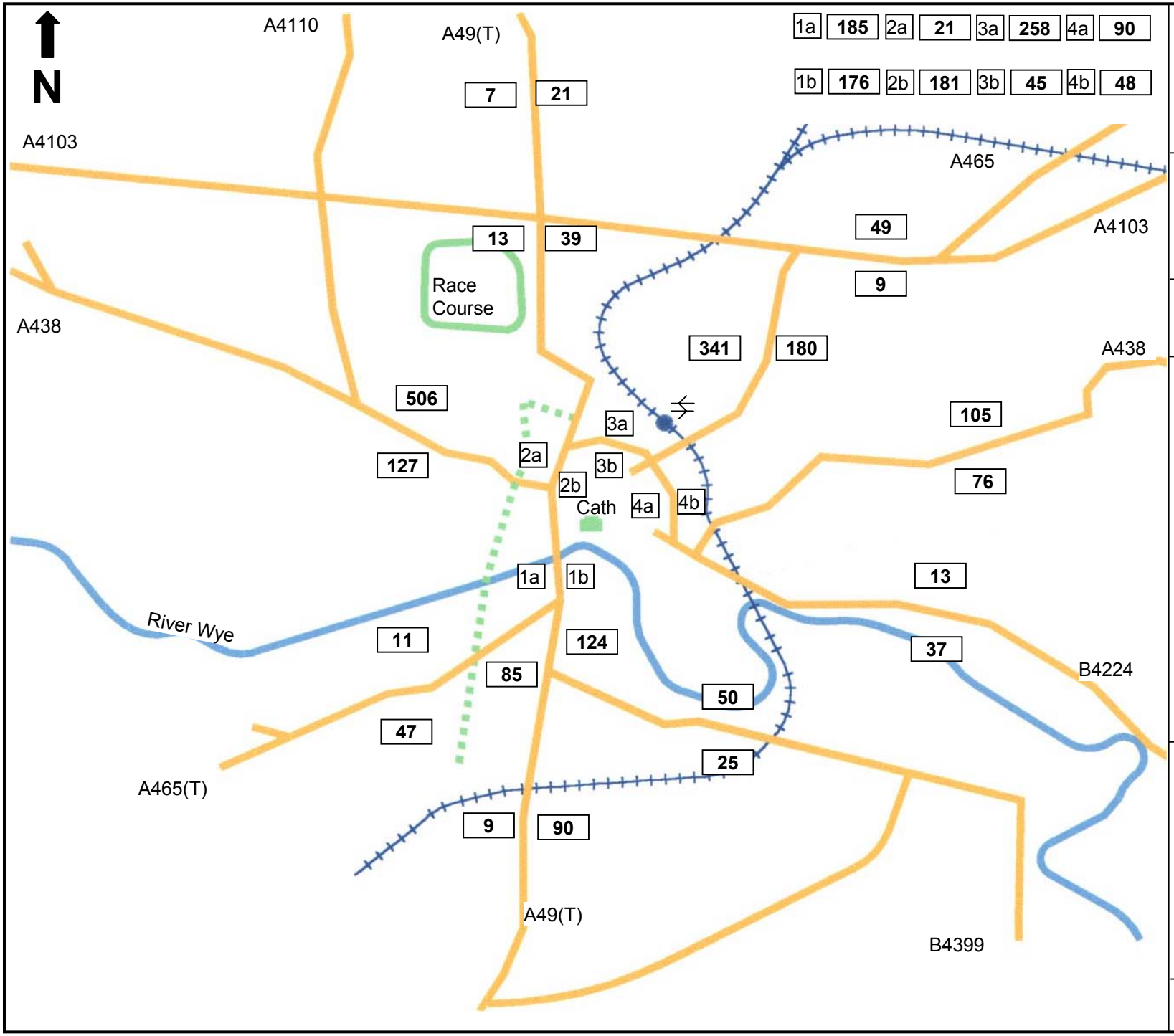
Passengers Bus & Rail Model

Key:

pass/hour

TPi

Figure A9



Hereford Transport Review

Base Year

2002 AM Peak Hour

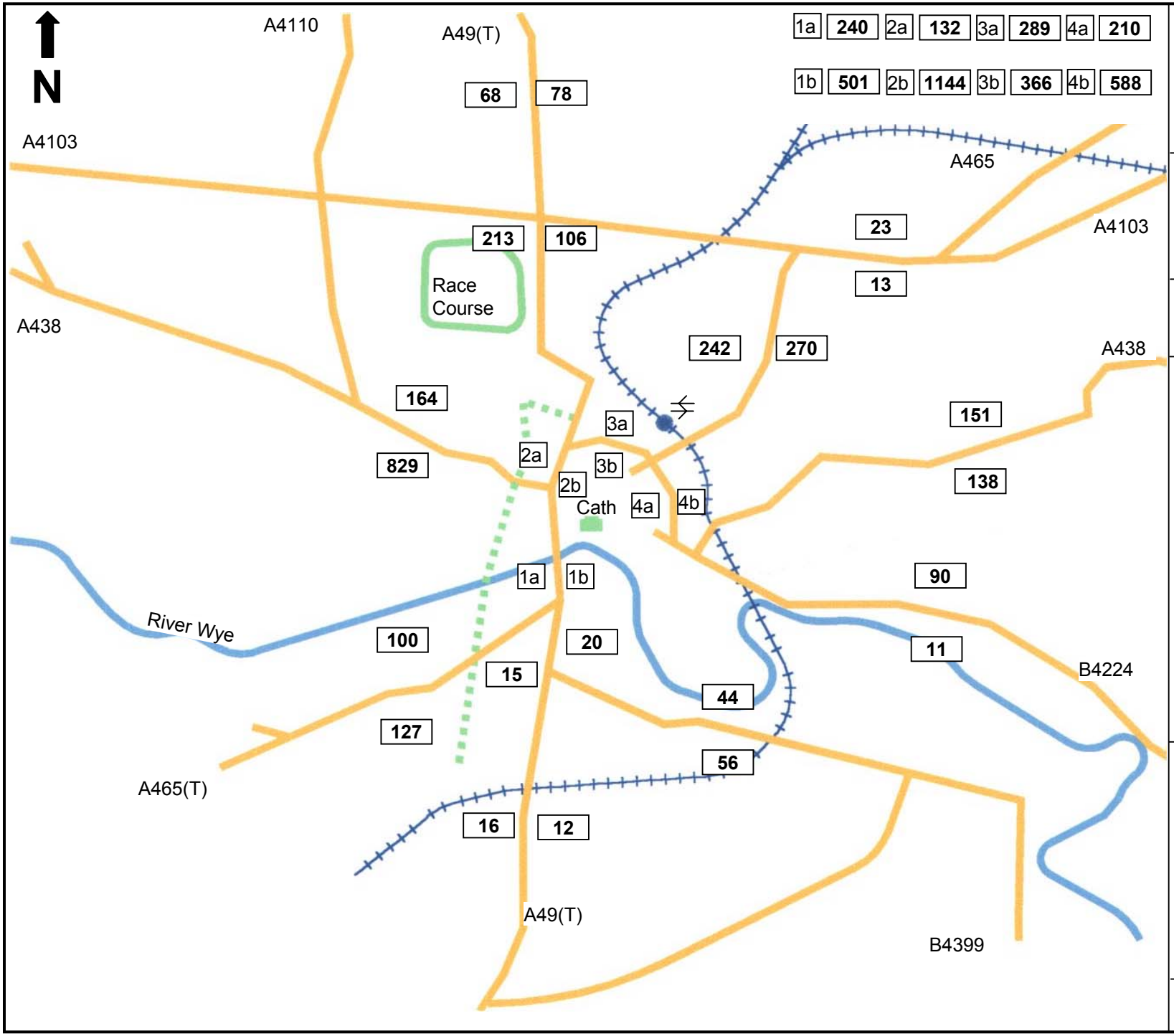
Pedestrian Model

Key:

ped/hour – Pedestrian

TPi

Figure A10



Hereford Transport Review

Base Year

2002 PM Peak Hour

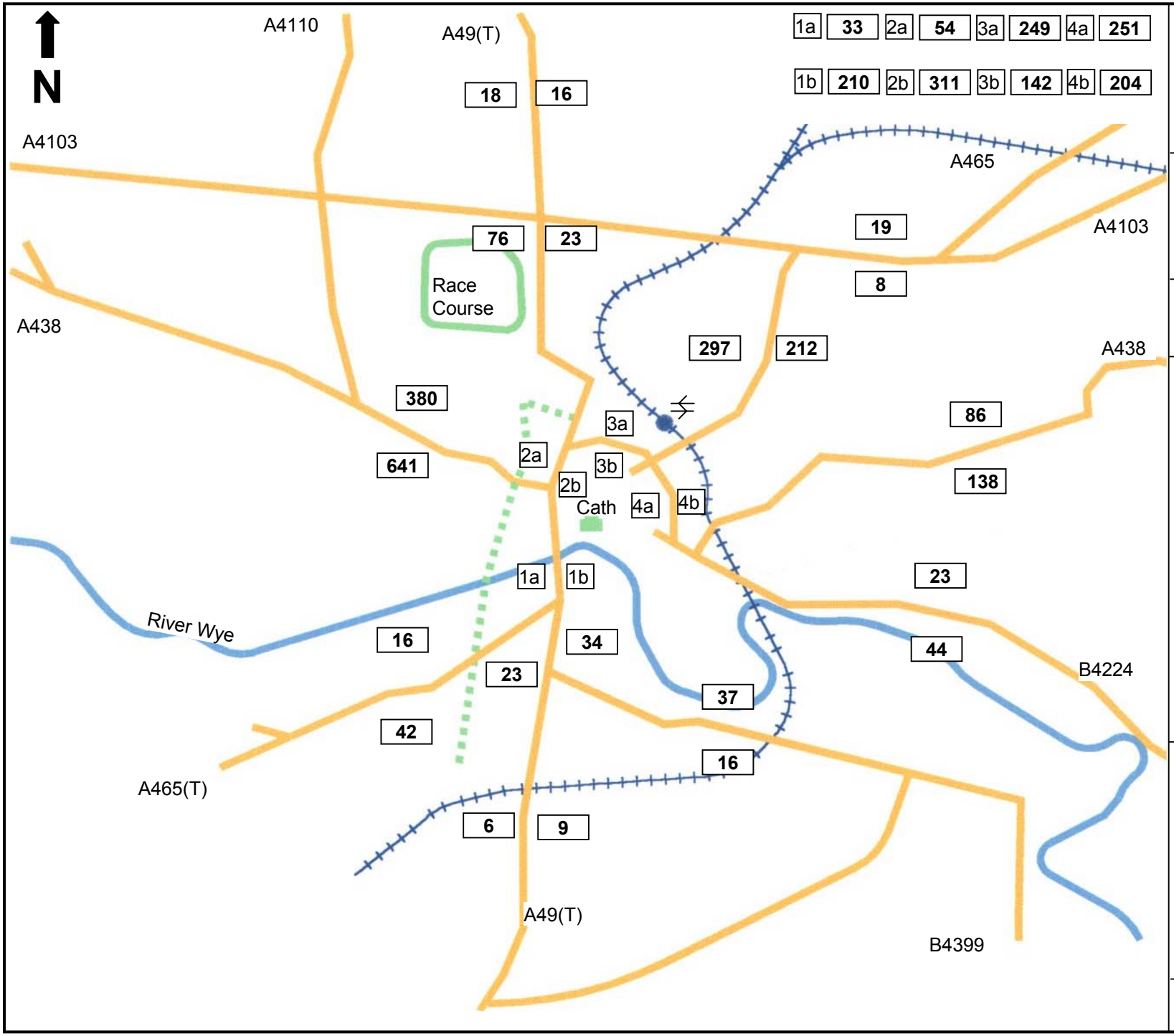
Pedestrian Model

Key:

ped/hour – Pedestrian

TPi

Figure A11



Hereford Transport Review

Base Year

2002 Inter Peak Hour

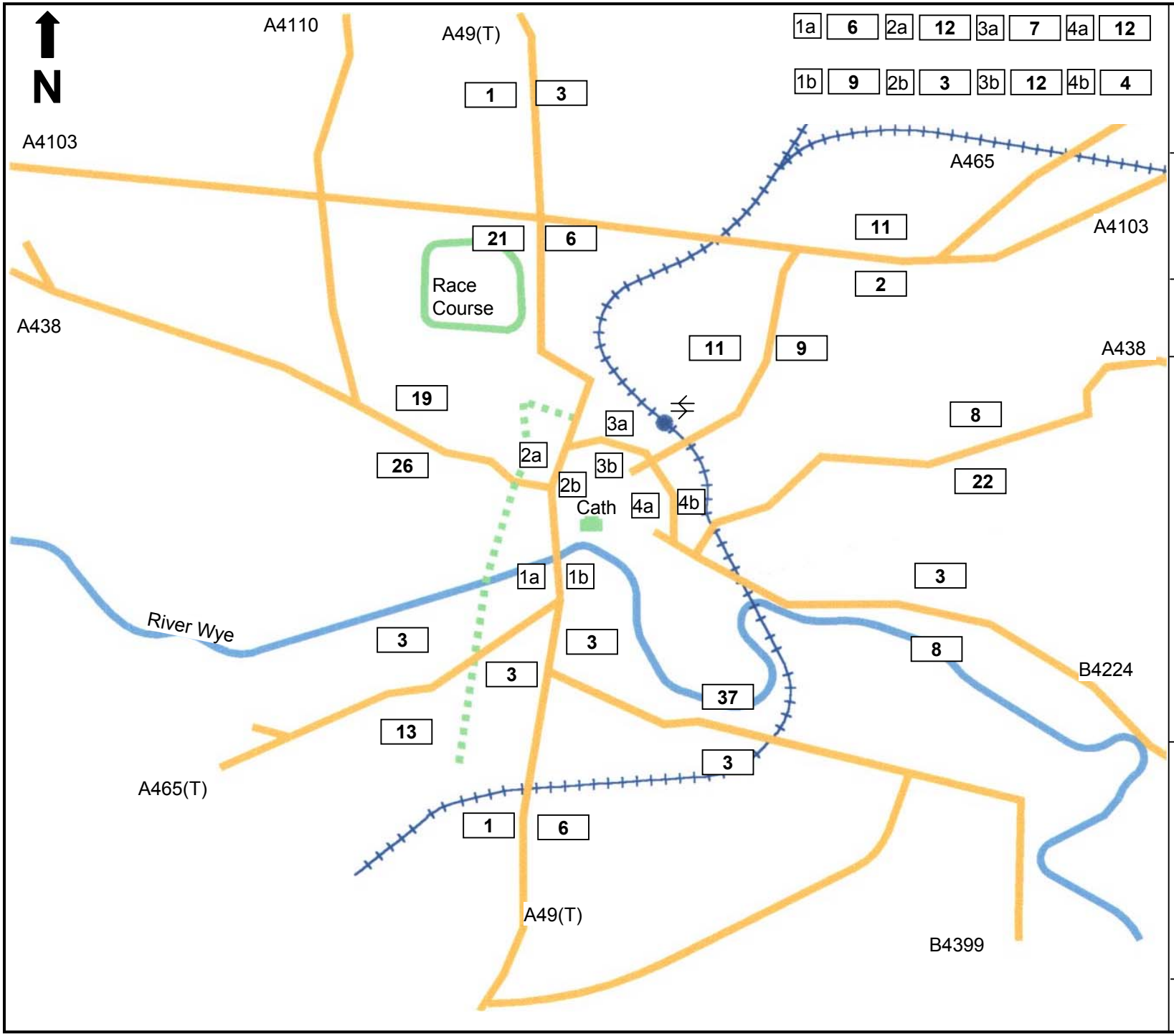
Pedestrian Model

Key:

ped/hour – Pedestrian

TPi

Figure A12



Hereford Transport Review

Base Year

2002 AM Peak Hour

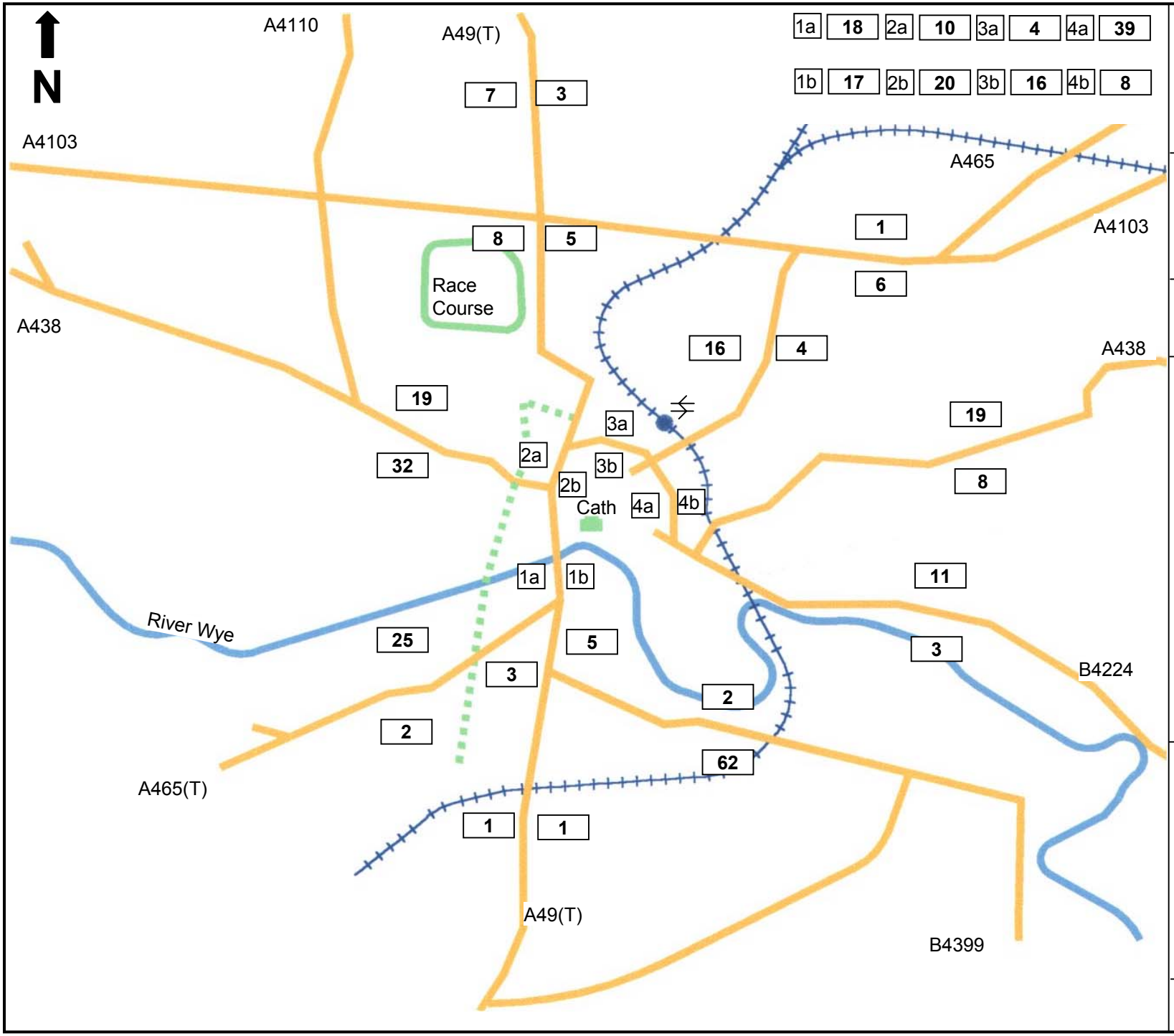
Cyclist Model

Key:

cyc/hour – Cyclist

TPi

Figure A13



Hereford Transport Review

Base Year

2002 PM Peak Hour

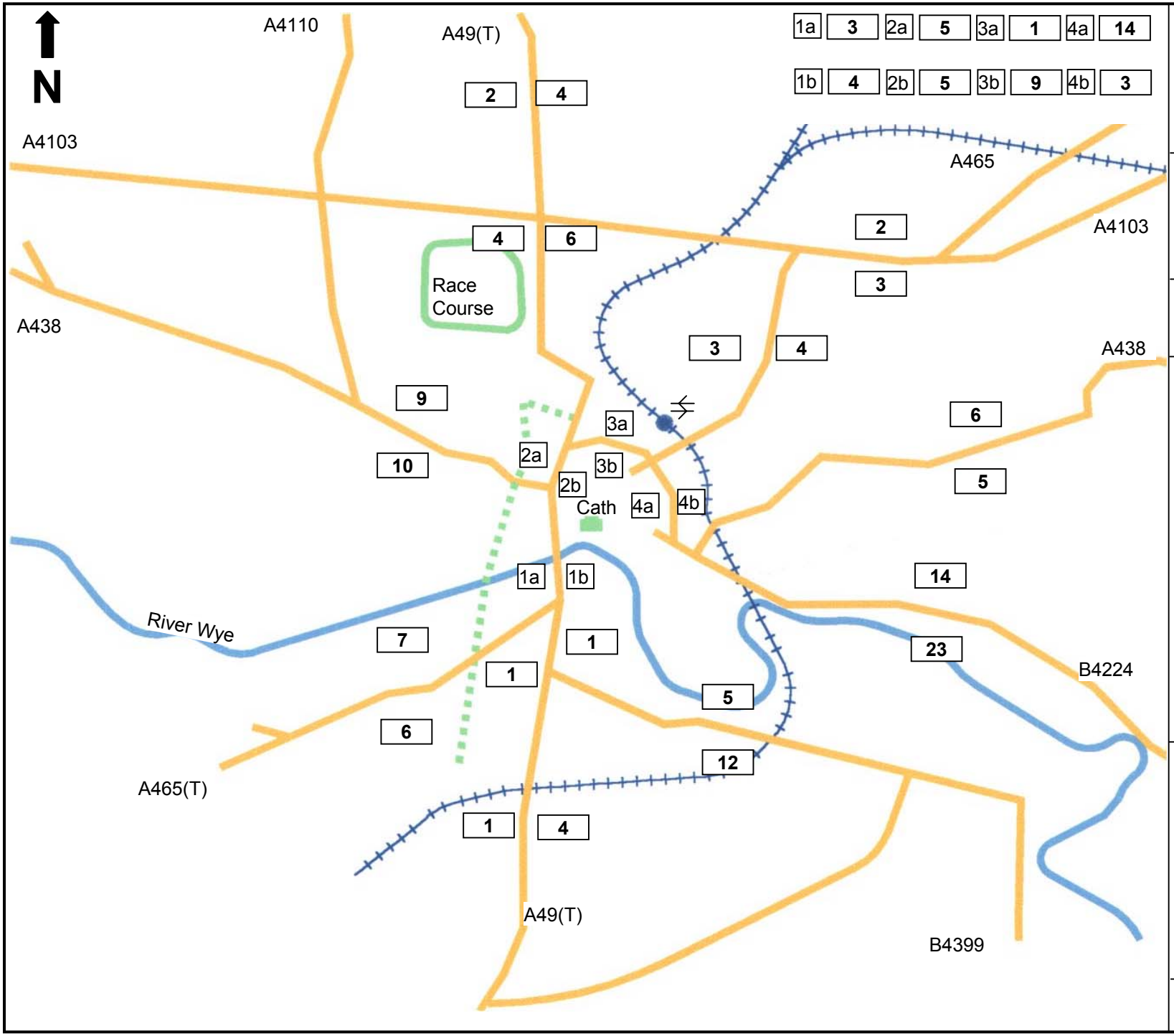
Cyclist Model

Key:

cyc/hour – Cyclist

TPi

Figure A14



Hereford Transport Review

Base Year

2002 Inter Peak Hour

Cyclist Model

Key:

cyc/hour – cyclist

TPi

Figure A 15

APPENDIX B

Initial Package Options and Key Statistics 2011 and 2031

2002 AM Peak Hour	Car	HGV	Pub Trans	Ped	Cycle
Base 2002	61	5	14	17	3

2031 AM Peak Hour	Car	HGV	Pub Trans	Ped	Cycle
Do Nothing	62	6	13	16	3
Reference Case	59	6	14	16	5
1–Sustainable incl. Metro	54	6	19	16	5
2–Sustainable No Metro	55	6	18	16	5
3–Eastern Outer Distributor	63	6	11	16	4
4–Western Outer Distributor	61	6	13	16	4
5–Eastern Inner Bridge	59	6	14	16	5
6–Western Inner Bridge	60	6	13	16	5

Hereford Transport Review

Comparison of Modal Split (Percentage)

2002 / 2031

TPi

Table B1

Hereford Transport Review

Comparison of Vehicle kms/hour

AM Peak

(Rounded to nearest 000)

Option	2002	2011	2031
Do Nothing	87000	107000	123000
Reference Case		107000	123000
1-Sustainable incl. Metro		97000	111000
2-Sustainable No Metro		97000	111000
3-Eastern Outer Distributor		136000	150000
4-Western Outer Distributor		126000	146000
5-Easter Inner Bridge		110000	122000
6-Western Inner Bridge		111000	126000

Hereford Transport Review

Comparison of Public Transport Passenger kms/hour

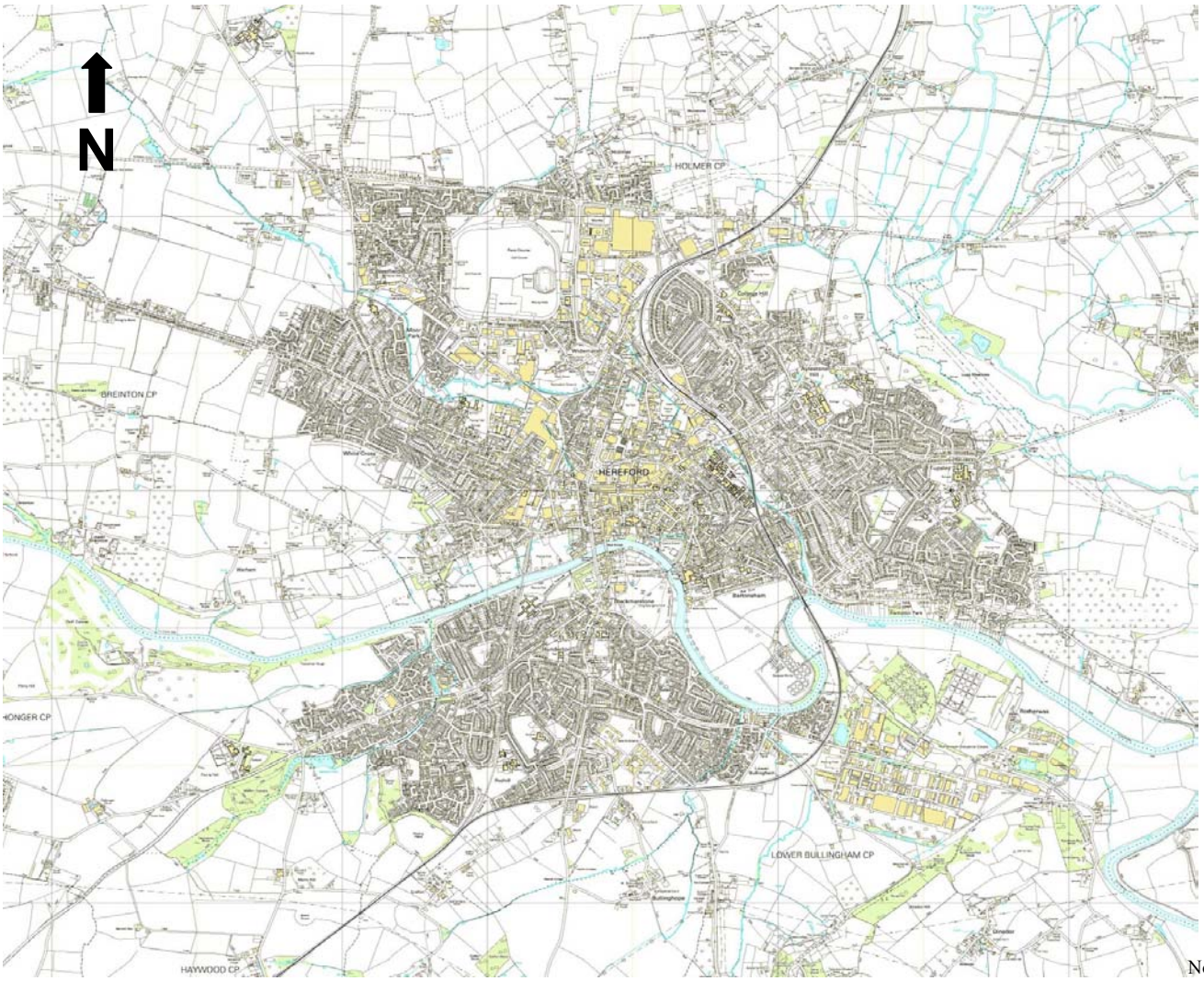
AM Peak

(Rounded to nearest 000)

Option	2002	2011	2031
Do Nothing	23000	19000	21000
Reference Case		20000	21000
1-Sustainable incl. Metro		29000	32000
2-Sustainable No Metro		29000	31000
3-Eastern Outer Distributor		14000	15000
4-Western Outer Distributor		17000	17000
5-Easter Inner Bridge		21000	22000
6-Western Inner Bridge		17000	18000

Hereford Transport Review – Reference Case All Items Completed By 2011

- **LTP Schemes**
- **UDP Committed Land Use**
- **Rotherwas Access Road**
- **Highways Agency – A49 Bus and Freight Lane on Edgar Street**
- **Inbound Bus and Freight Lanes on Eign Street and Commercial Road**
- **One Bus-Based Park and Ride Site (A49 north)**



Not To Scale

Figure B1

Hereford Transport Review – Option Package 1 – Plus Reference Case

- One Bus-Based Park and Ride Site (A49 south)
- Metro linked to Park and Ride sites A465 north and south
- Maximum Bus Priorities (probably delivered as Bus and Freight Lanes)
- City Centre Full Pedestrianisation – Widemarsh Street, High Street, Broad Street (access for bus, cyclists and pedestrians)
- New Rail station at Rotherwas
- Improved Cycle and Pedestrian Facilities
- No new road schemes
- 20mph zones in residential areas off main routes
- Rail-Based Park and Ride at Withington
- Dedicated school bus provision

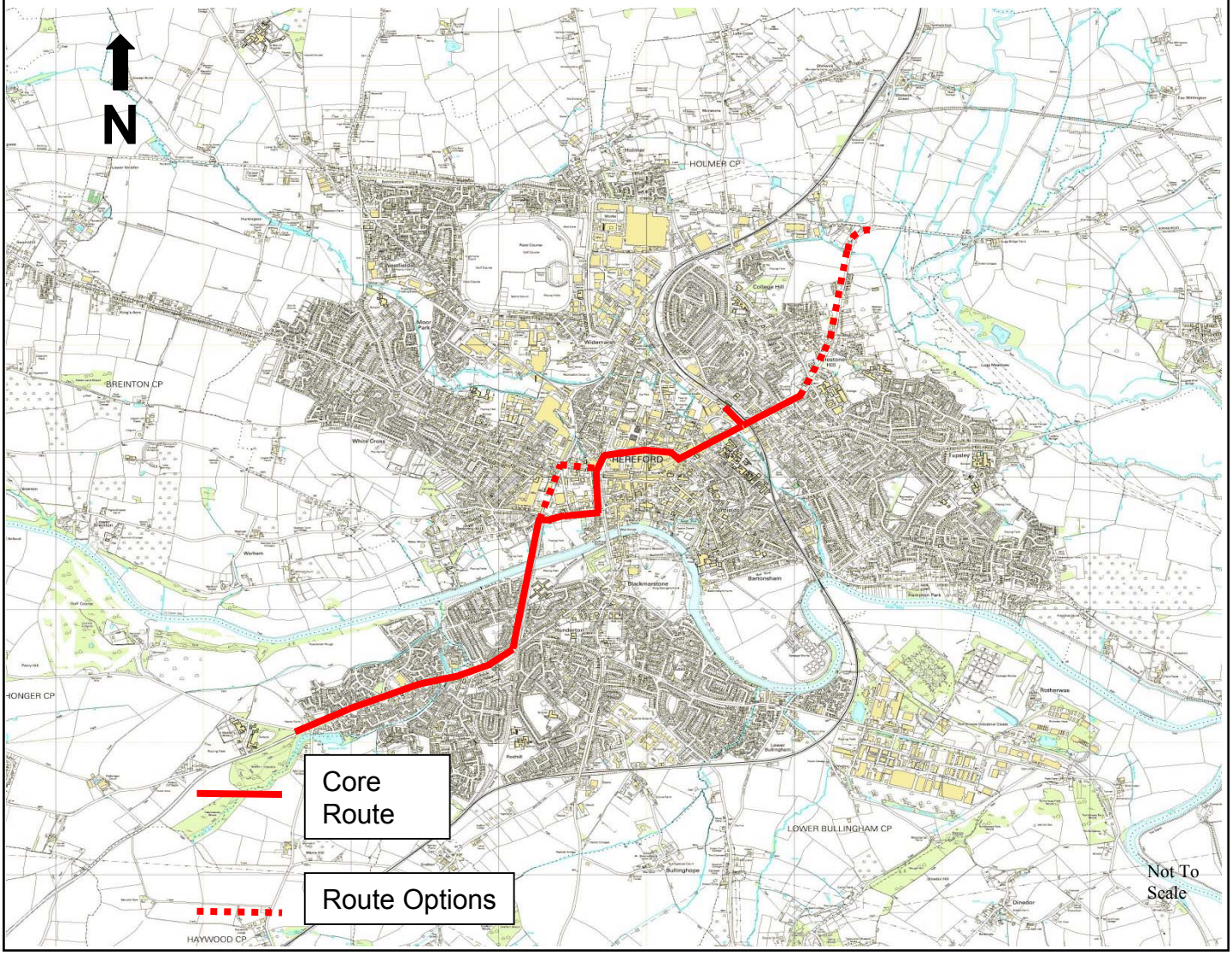


Figure B2

Hereford Transport Review – Option Package 2 – Plus Reference Case

- **Three Bus-Based Park and Ride Site (A49 south, A465 north and south)**
- **Maximum Bus Priorities (probably delivered as Bus and Freight Lanes)**
- **City Centre Full Pedestrianisation – Widemarsh Street, High Street, Broad Street (access for bus, cyclists and pedestrians)**
- **New Rail station at Rotherwas**
- **Improved Cycle and Pedestrian Facilities**
- **No new road schemes**
- **20mph zones in residential areas off main routes**
- **Rail-Based Park and Ride at Withington**
- **Dedicated school bus provision**

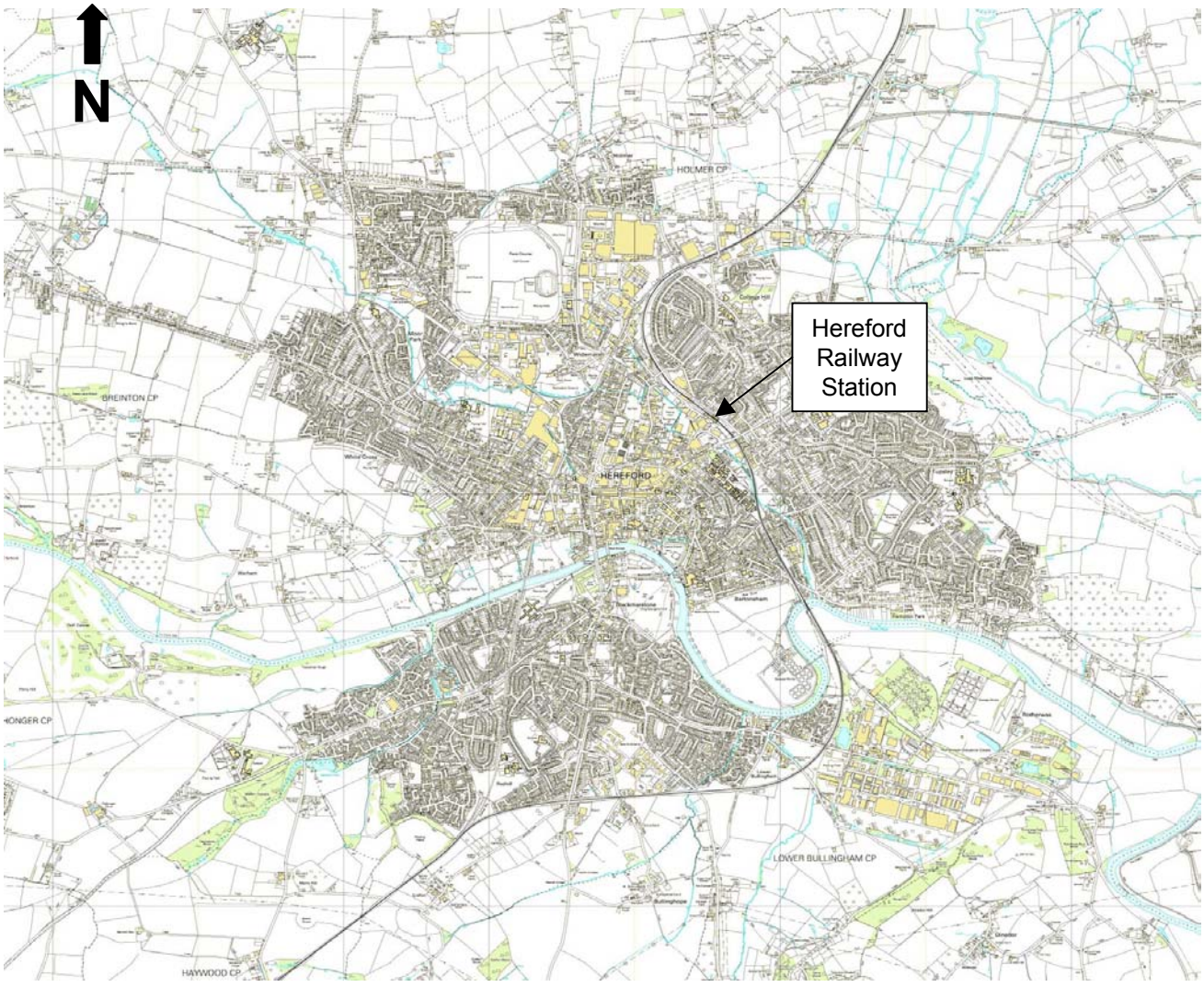
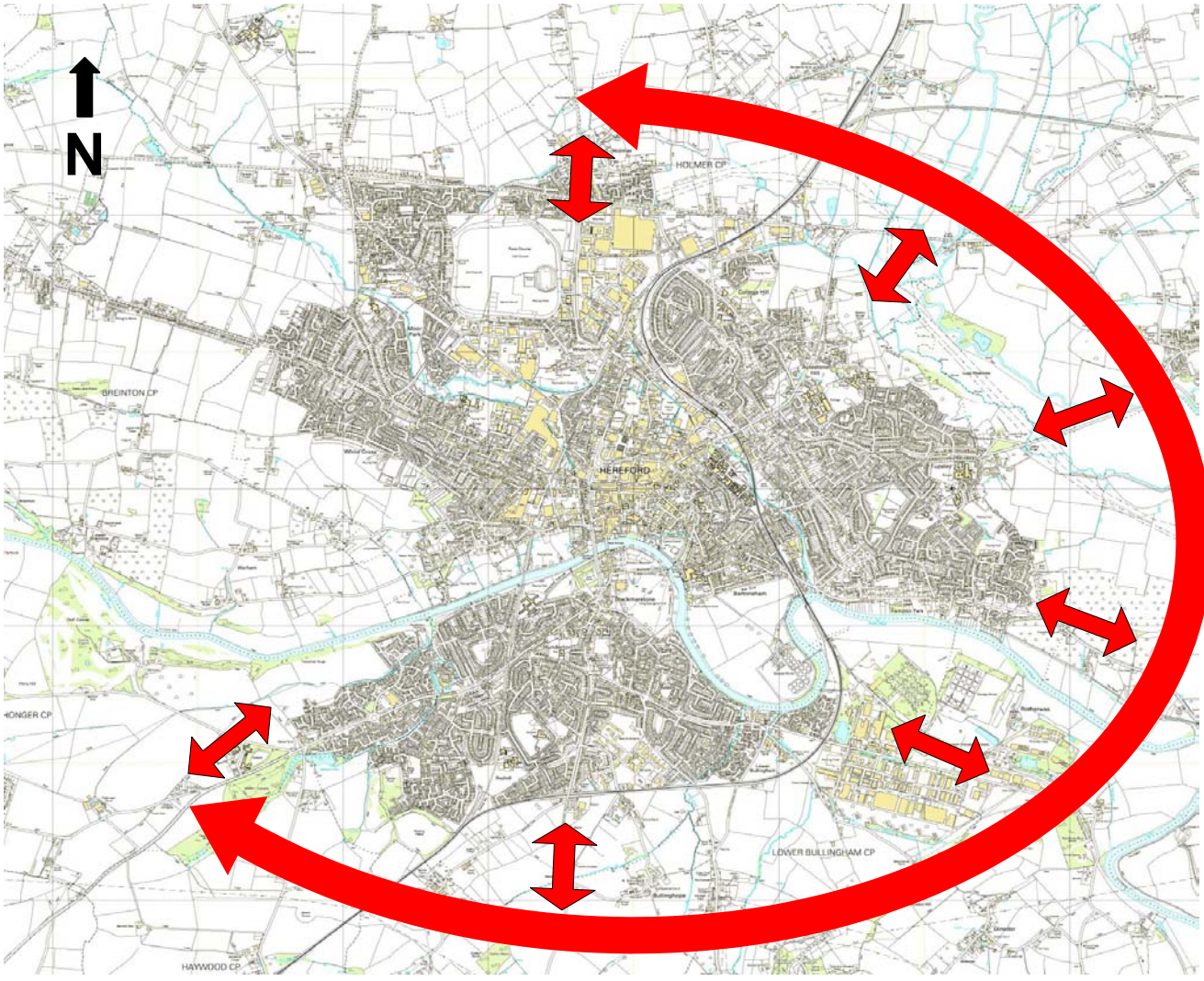


Figure B3

Hereford Transport Review – Option Package 3 - Plus Reference Case

- **One Bus-Based Park and Ride Site (A49 South)**
- **Limited Bus Priorities**
- **City Centre Pedestrianisation (extent to be discussed)**
- **Rail-Based Park and Ride at Withington**
- **Improved Cycle and Pedestrian Facilities**
- **Eastern Bypass / Distributor (including A49 south to A465 south link)**

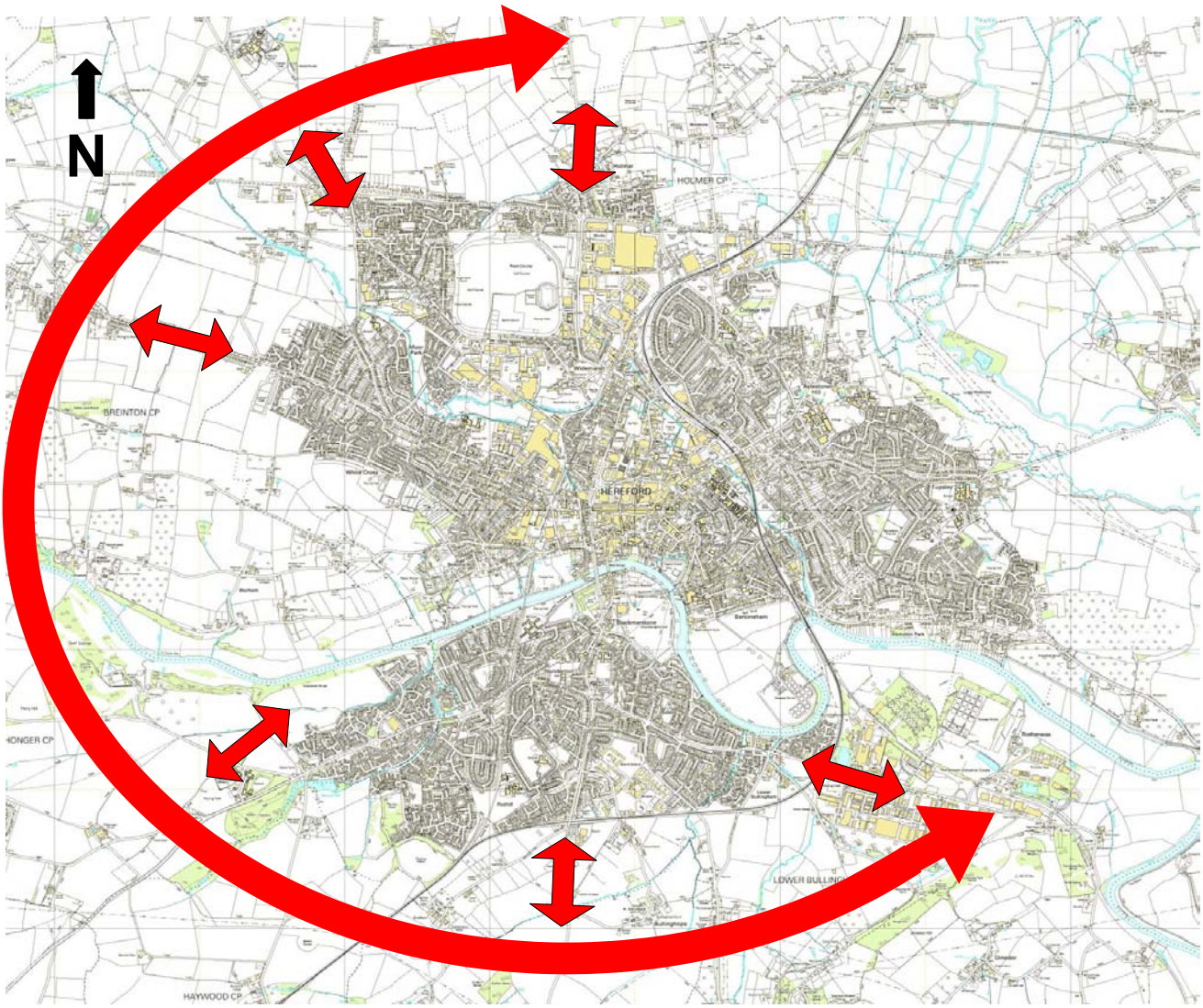


Not To Scale

Figure B4

Hereford Transport Review – Option Package 4 –Plus Reference Case

- **One Bus-Based Park and Ride Site (A49 South)**
- **Limited Bus Priorities**
- **City Centre Pedestrianisation (extent to be discussed)**
- **Rail-Based Park and Ride at Withington**
- **Improved Cycle and Pedestrian Facilities**
- **Western Bypass / Distributor (A49 south to A49 north)**



Not To Scale

Figure B5

Hereford Transport Review – Option Package 5 – Plus Reference Case

- **One Bus-Based Park and Ride Site (A49 South)**
- **Limited Bus Priorities**
- **City Centre Pedestrianisation (extent to be discussed)**
- **Rail-Based Park and Ride at Withington**
- **Improved Cycle and Pedestrian Facilities**
- **New link and river bridge within the City – East – from A49 Newtown Roundabout to B4399 Rotherwas**
- **Dualling A49 completed within urban area.**

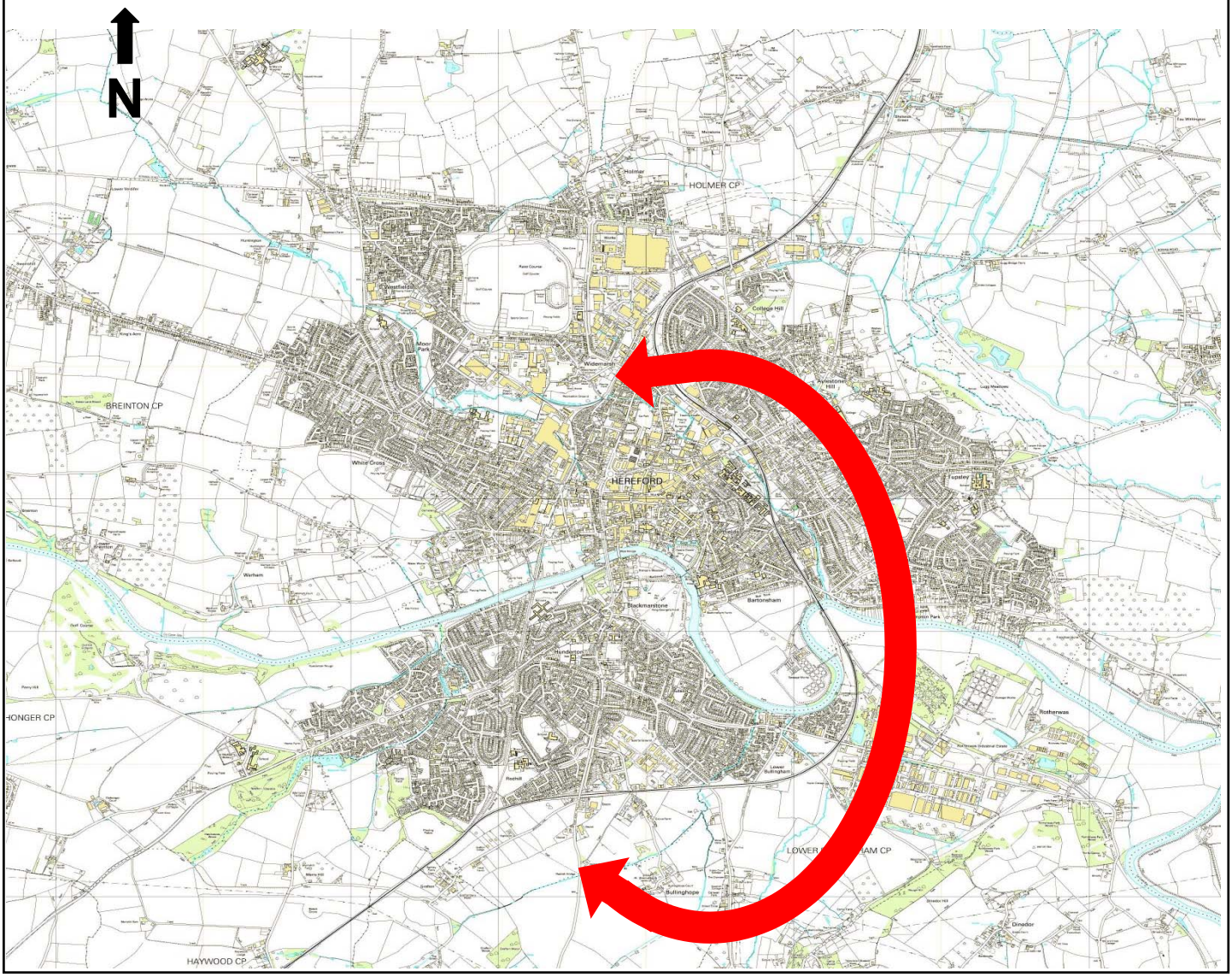


Figure B6

Hereford Transport Review – Option Package 6 – Plus Reference Case

- **One Bus-Based Park and Ride Site (A49 South)**
- **Limited Bus Priorities**
- **City Centre Pedestrianisation (extent to be discussed)**
- **Rail-Based Park and Ride at Withington**
- **Improved Cycle and Pedestrian Facilities**
- **New link and river bridge within the City – West from A438 Kings Acre Road to A465 Belmont Road**
- **Dualling A49 completed within urban area.**

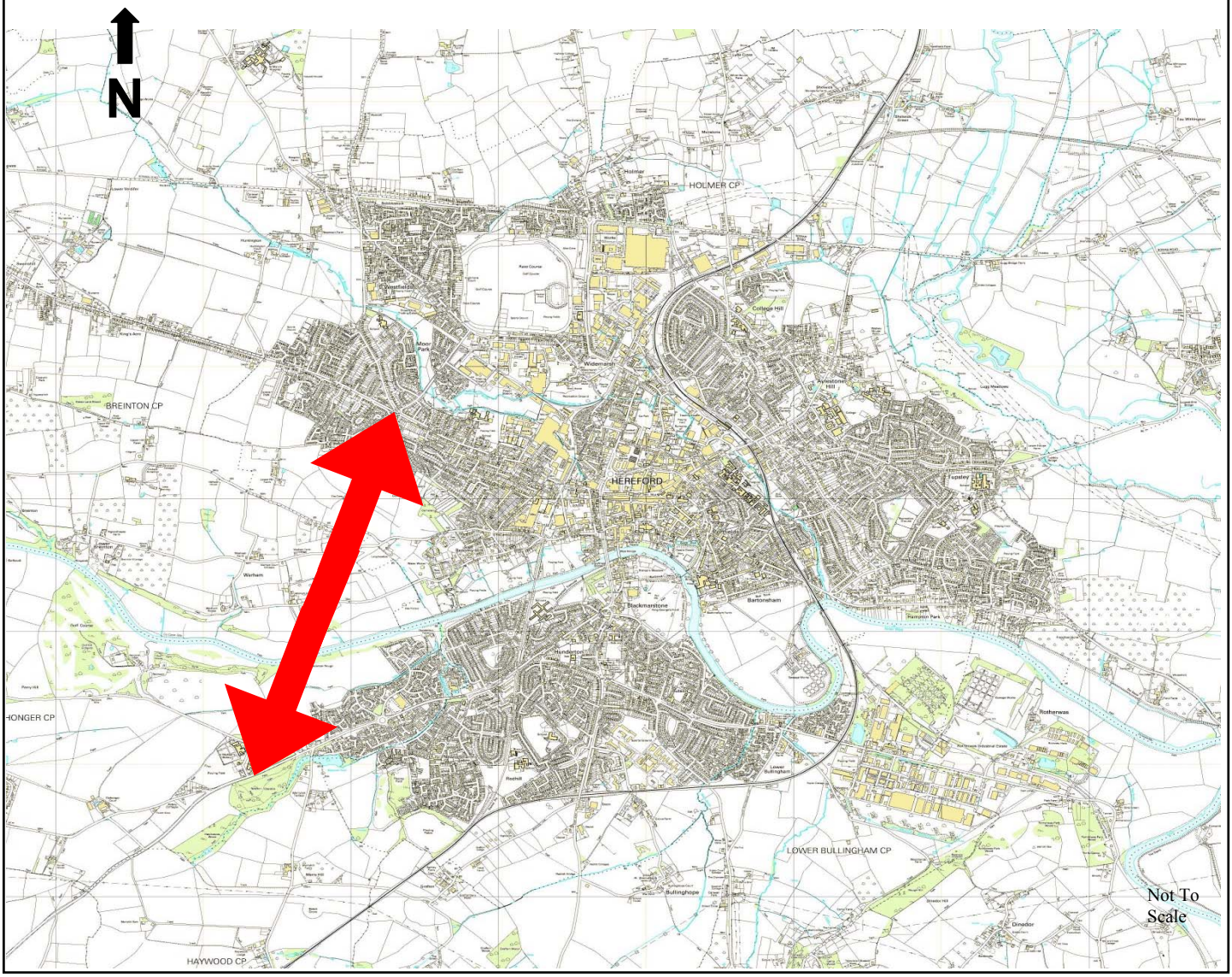
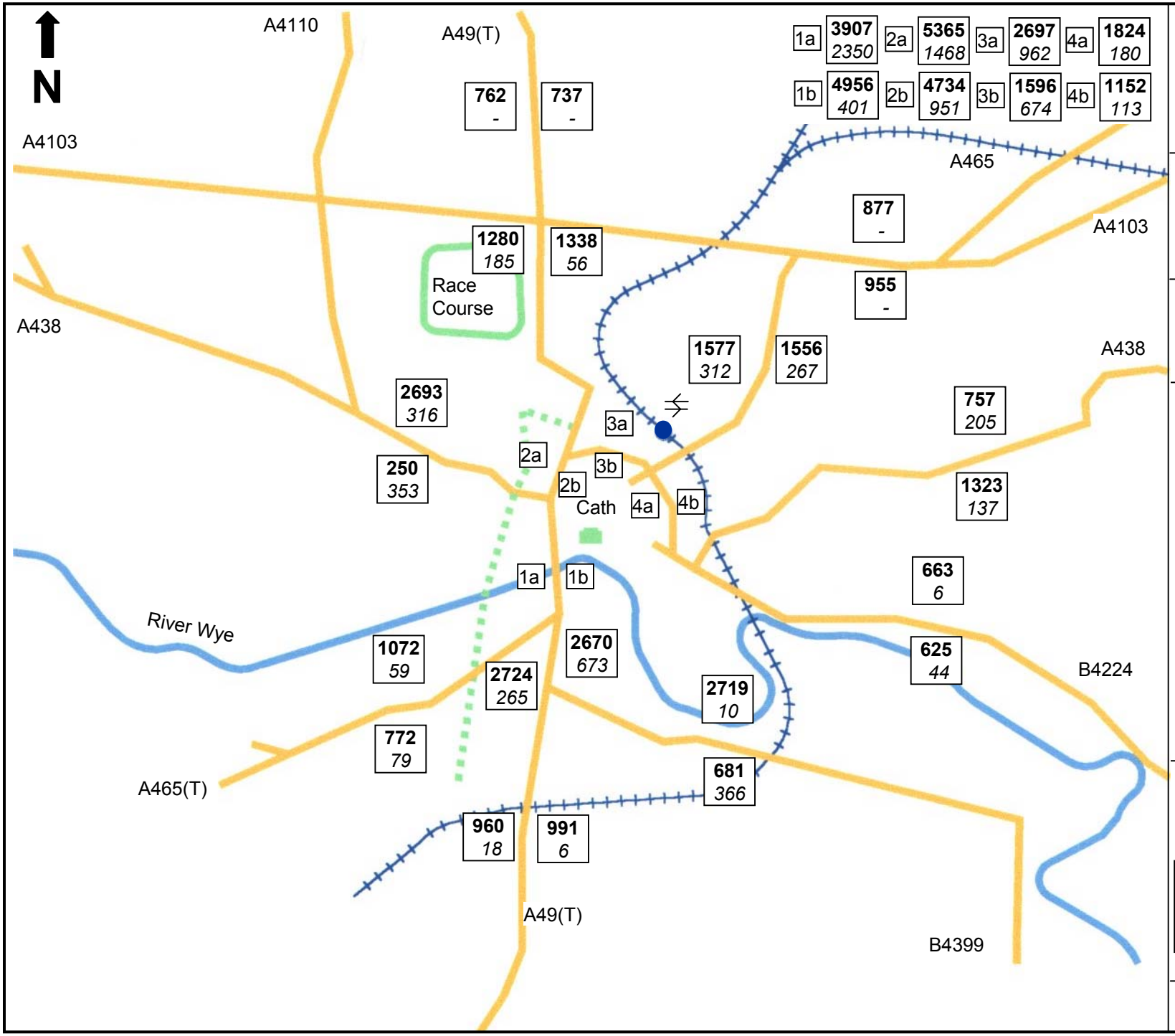


Figure B7



Hereford Transport Review

Option Appraisal Do Nothing

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

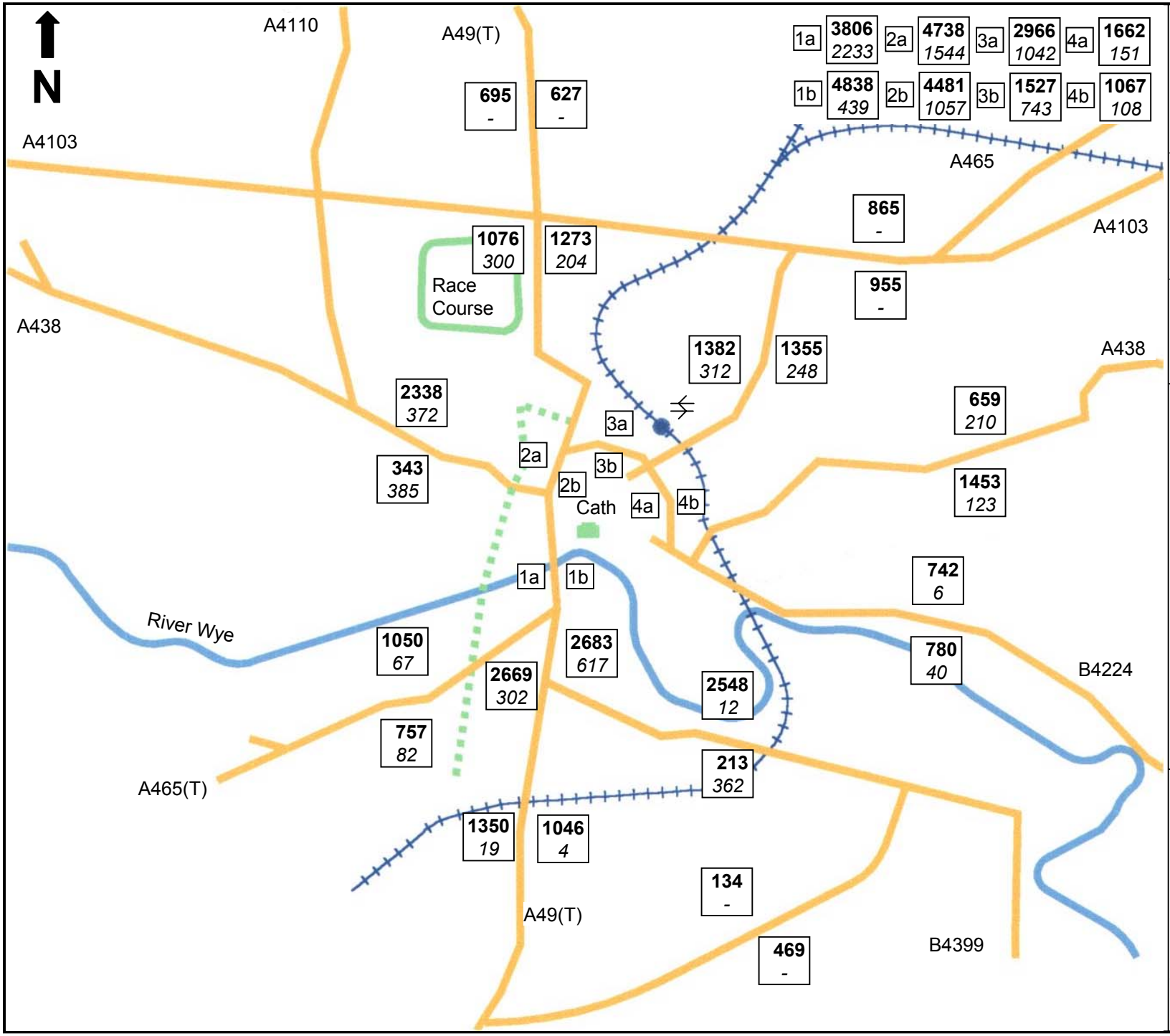
% Car	62
% HGV	6
% Pub trans	13
% Ped	16
% Cycle	3
pcu kms/hour	123394
pass kms/hour	20714

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B8



Hereford Transport Review

Option Appraisal Reference Case

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

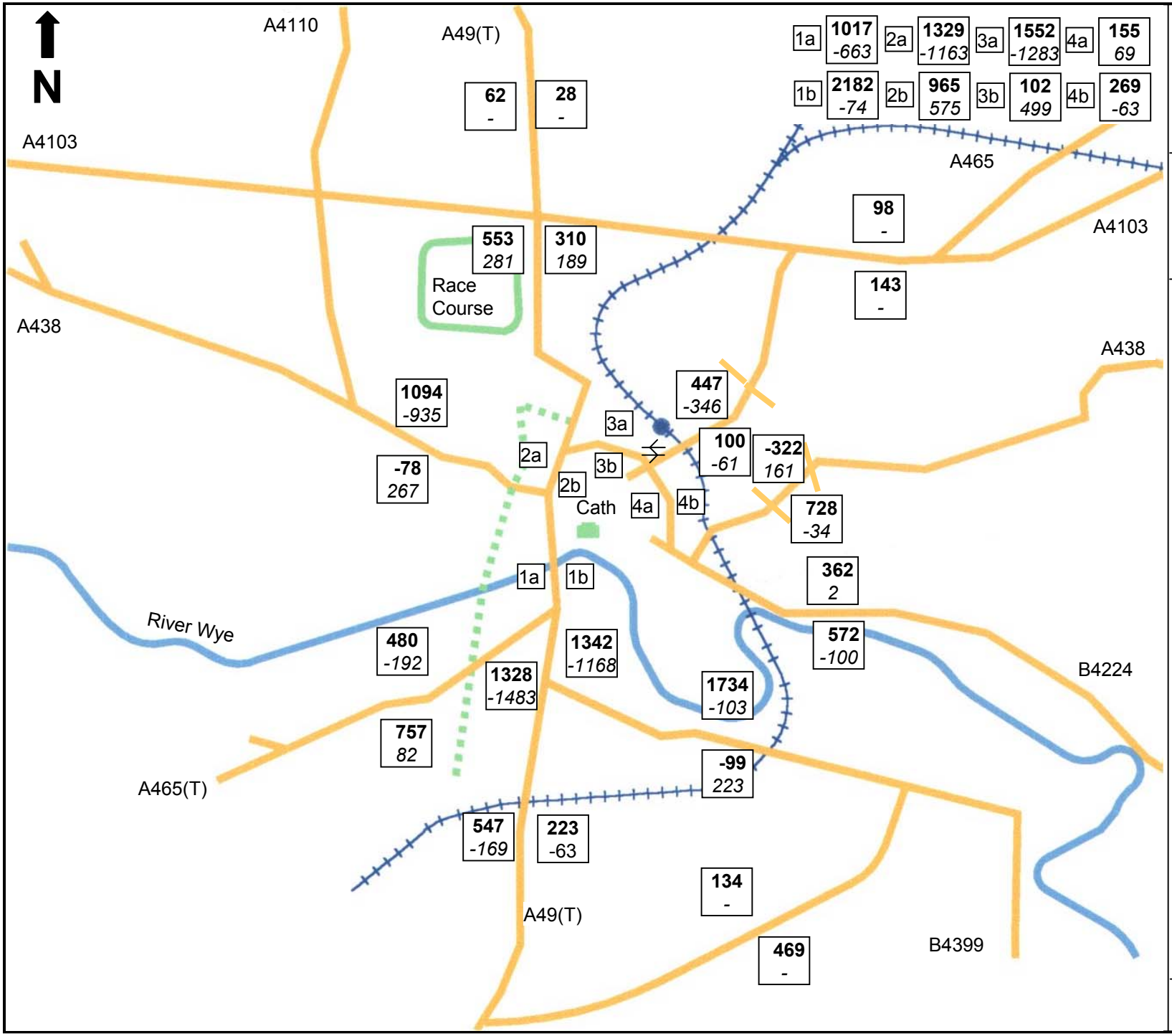
% Car	59
% HGV	6
% Pub trans	14
% Ped	16
% Cycle	5
pcu kms/hour	122943
pass kms/hour	20884

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B9



Hereford Transport Review

Option Appraisal Reference Case

2031 AM Peak Hour
(Option Flows - 2002 Base)

Summary Statistics

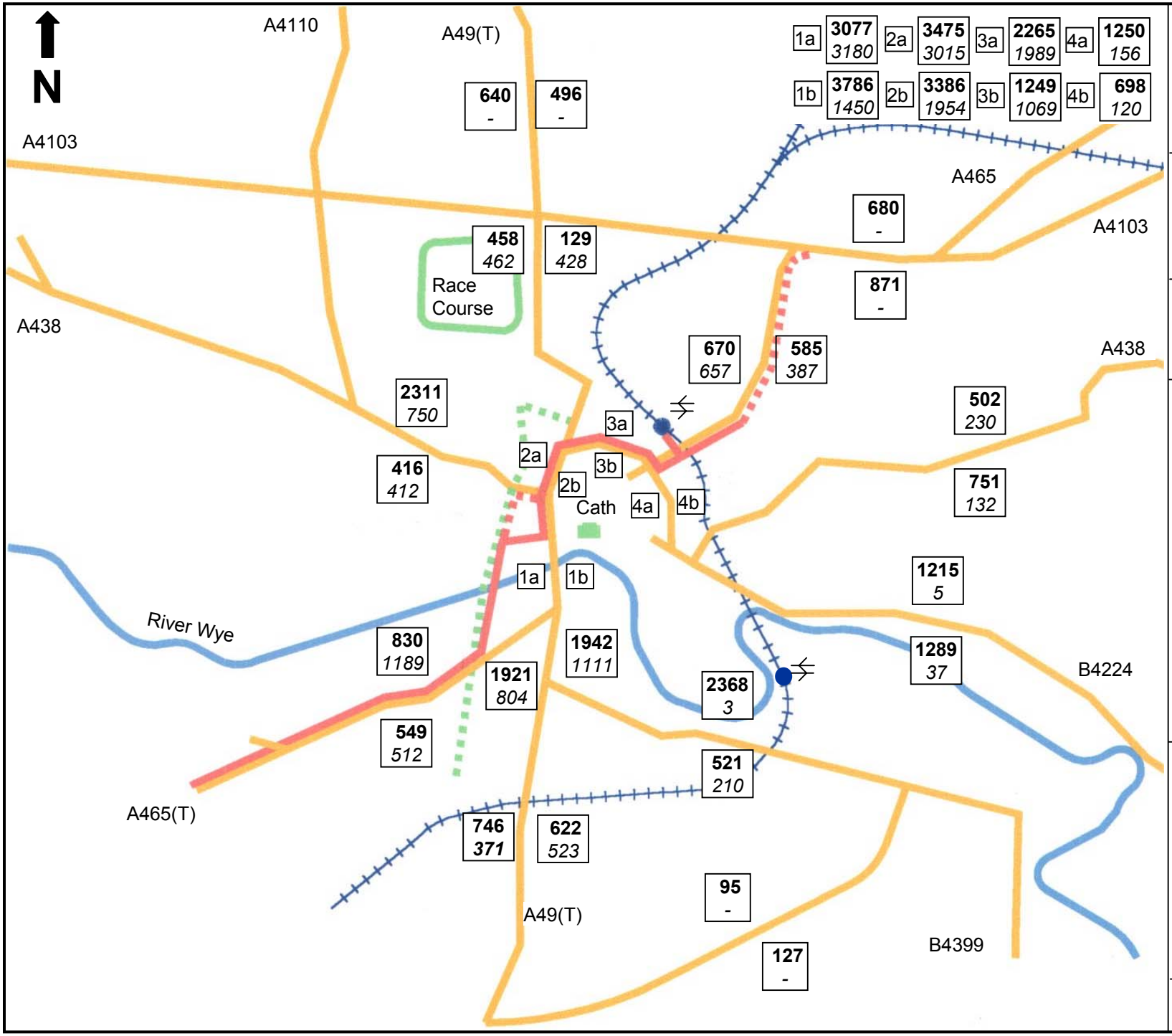
% Car	59
% HGV	6
% Pub trans	14
% Ped	16
% Cycle	5
pcu kms/hour	122943
pass kms/hour	20884

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B10



Hereford Transport Review

Option Appraisal Package 1

(Sustainable inc. Metro)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

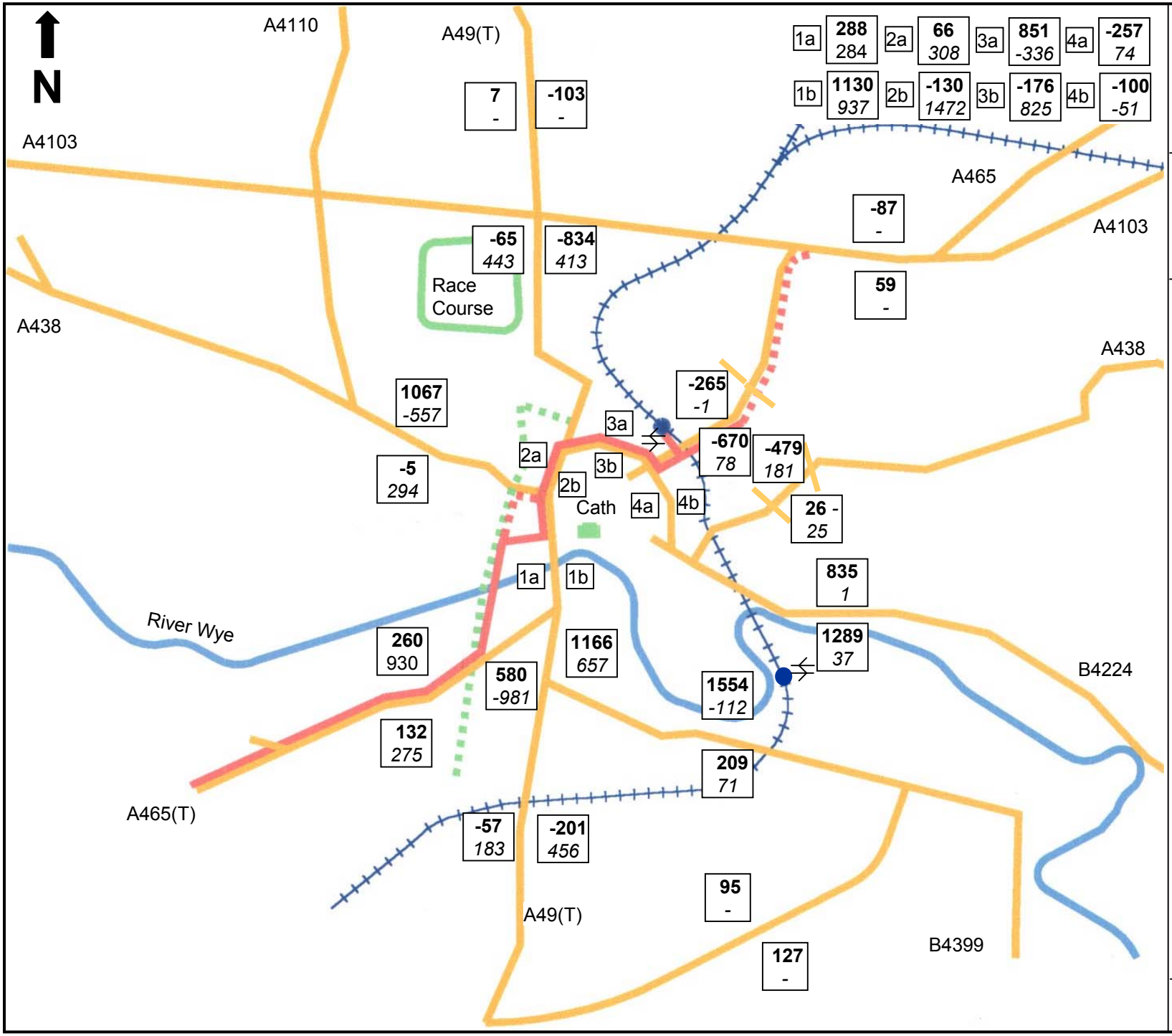
% Car	54
% HGV	6
% Pub trans	19
% Ped	16
% Cycle	5
pcu kms/hour	111170
pass kms/hour	31542

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B11



Hereford Transport Review

Option Appraisal Package 1

(Sustainable inc. Metro)

2031 AM Peak Hour

(Option Flows - 2002 Base)

Summary Statistics

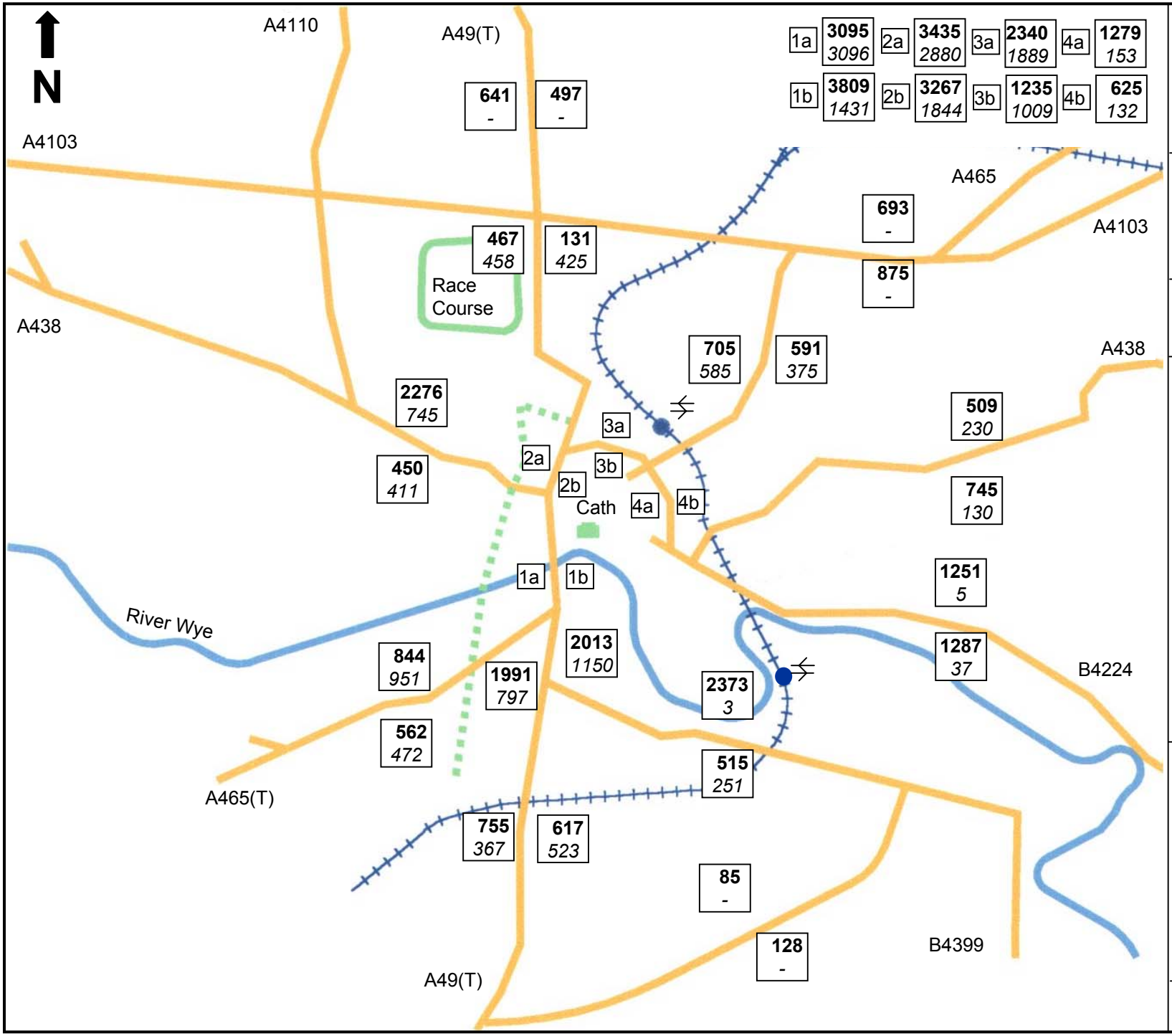
% Car	54
% HGV	6
% Pub trans	19
% Ped	16
% Cycle	5
pcu kms/hour	111170
pass kms/hour	31542

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B12



Hereford Transport Review

Option Appraisal Package 2

(As 1; No Metro Less P&R)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

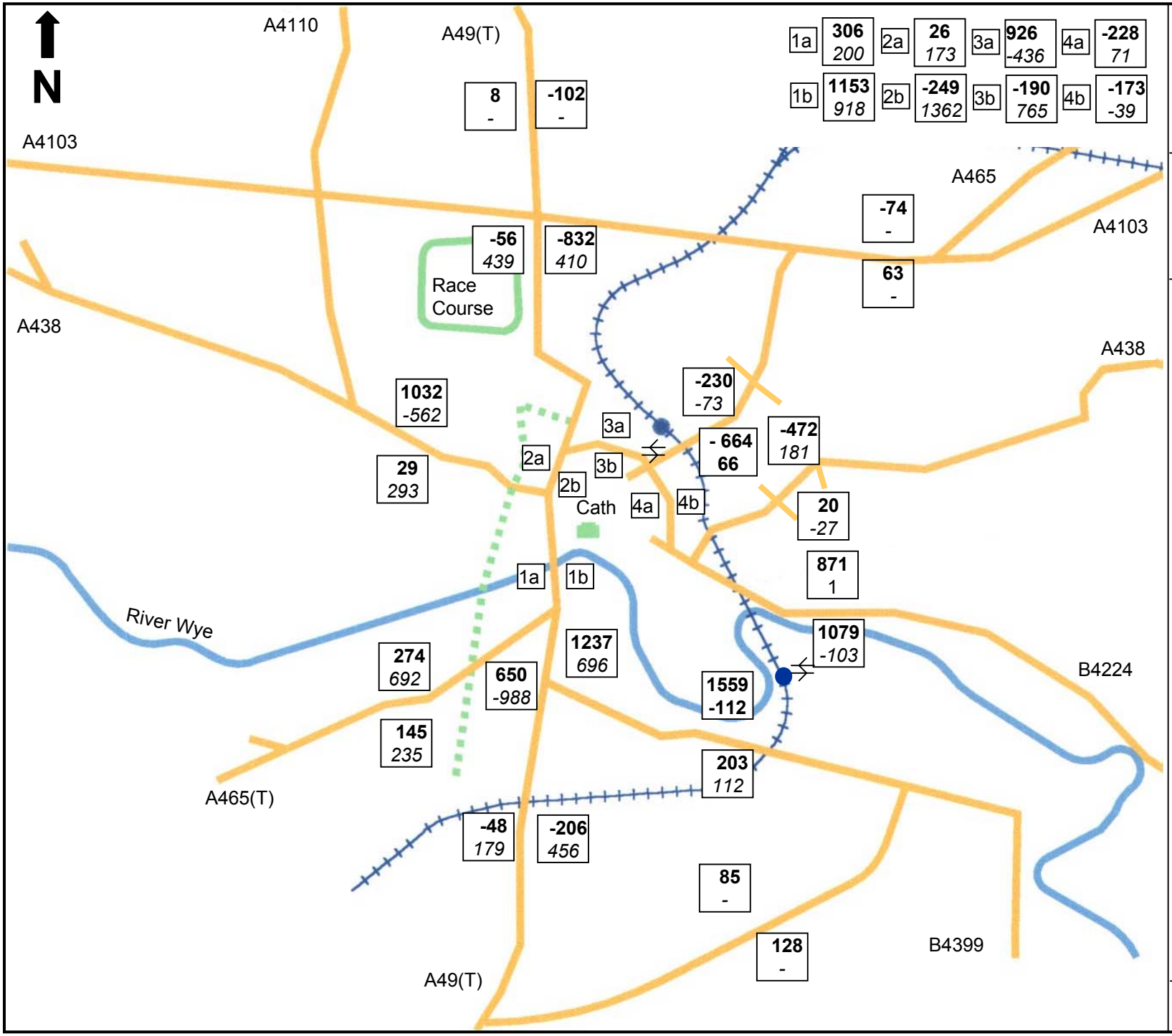
% Car	55
% HGV	6
% Pub trans	18
% Ped	16
% Cycle	5
pcu kms/hour	111446
pass kms/hour	31042

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B13



Hereford Transport Review

Option Appraisal Package 2

(as 1, No Metro, Less P&R)

2031 AM Peak Hour

(Option Flows - 2002 Base)

Summary Statistics

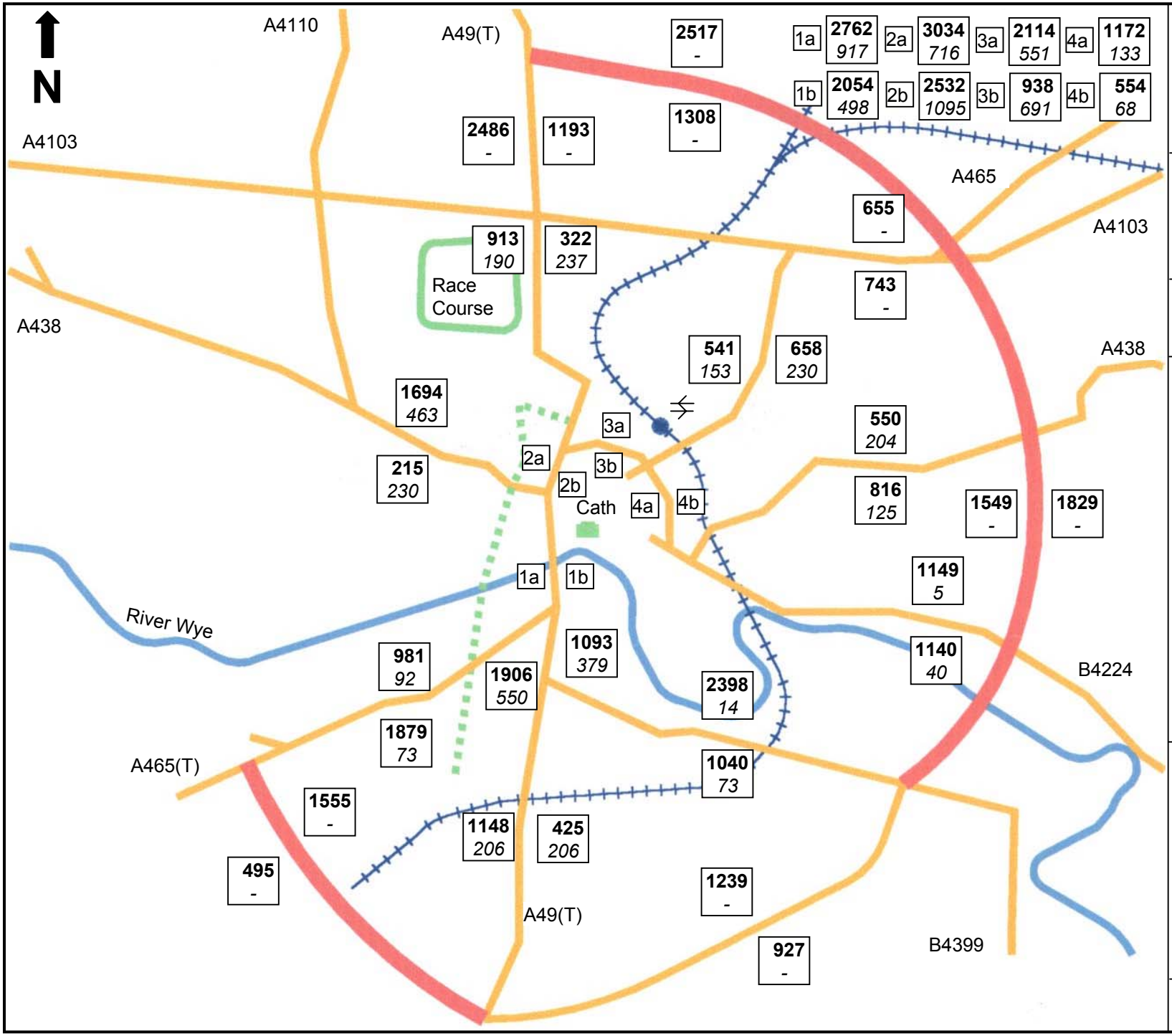
% Car	55
% HGV	6
% Pub trans	18
% Ped	16
% Cycle	5
pcu kms/hour	111446
pass kms/hour	31042

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B14



Hereford Transport Review

Option Appraisal Package 3

(Eastern Outer Distributor)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

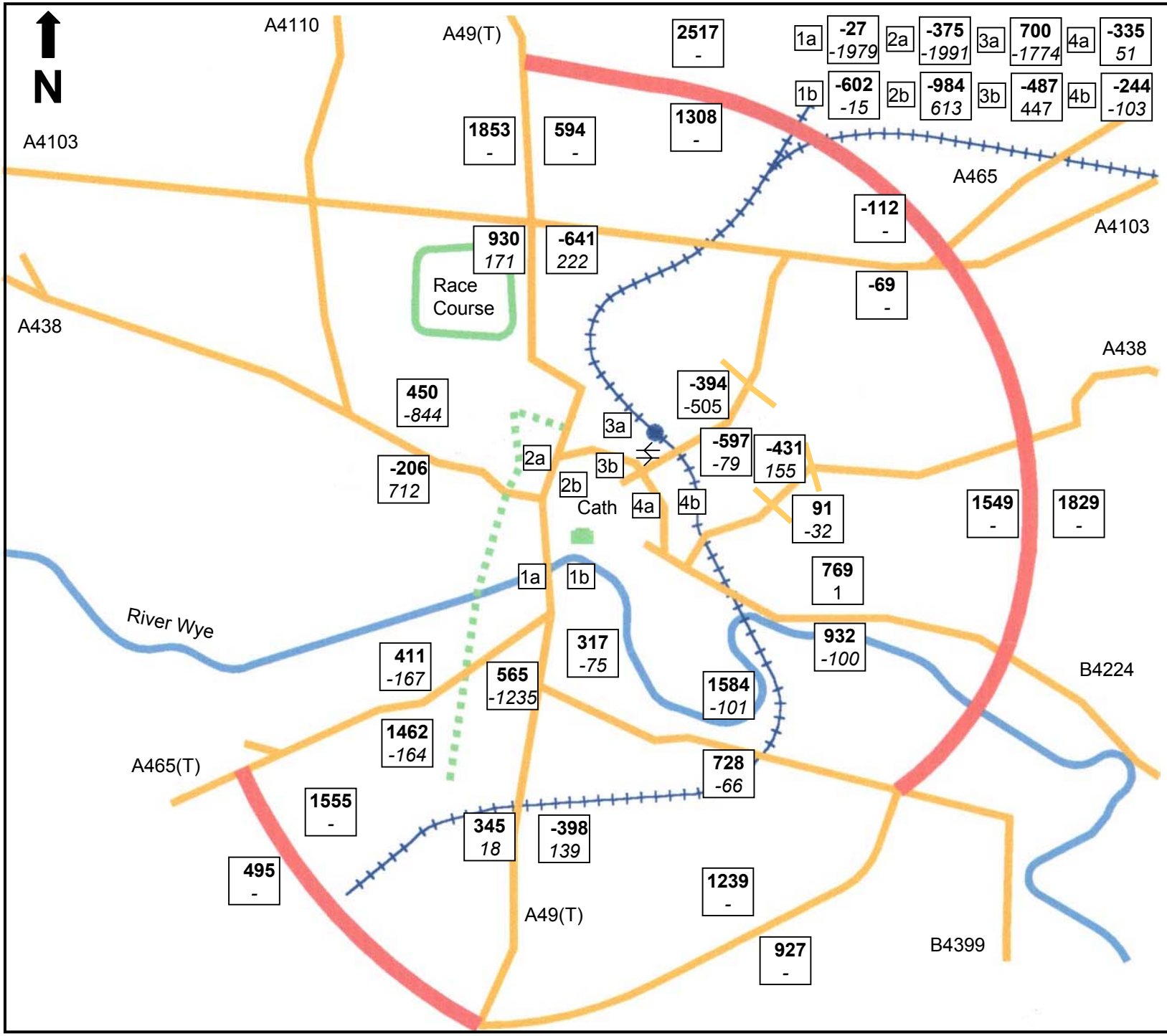
% Car	63
% HGV	6
% Pub trans	11
% Ped	16
% Cycle	4
pcu kms/hour	150210
pass kms/hour	14717

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B15



Hereford Transport Review

Option Appraisal Package 3

(Eastern Outer Distributor)

2031 AM Peak Hour

(Option Flows - 2002 Base)

Summary Statistics

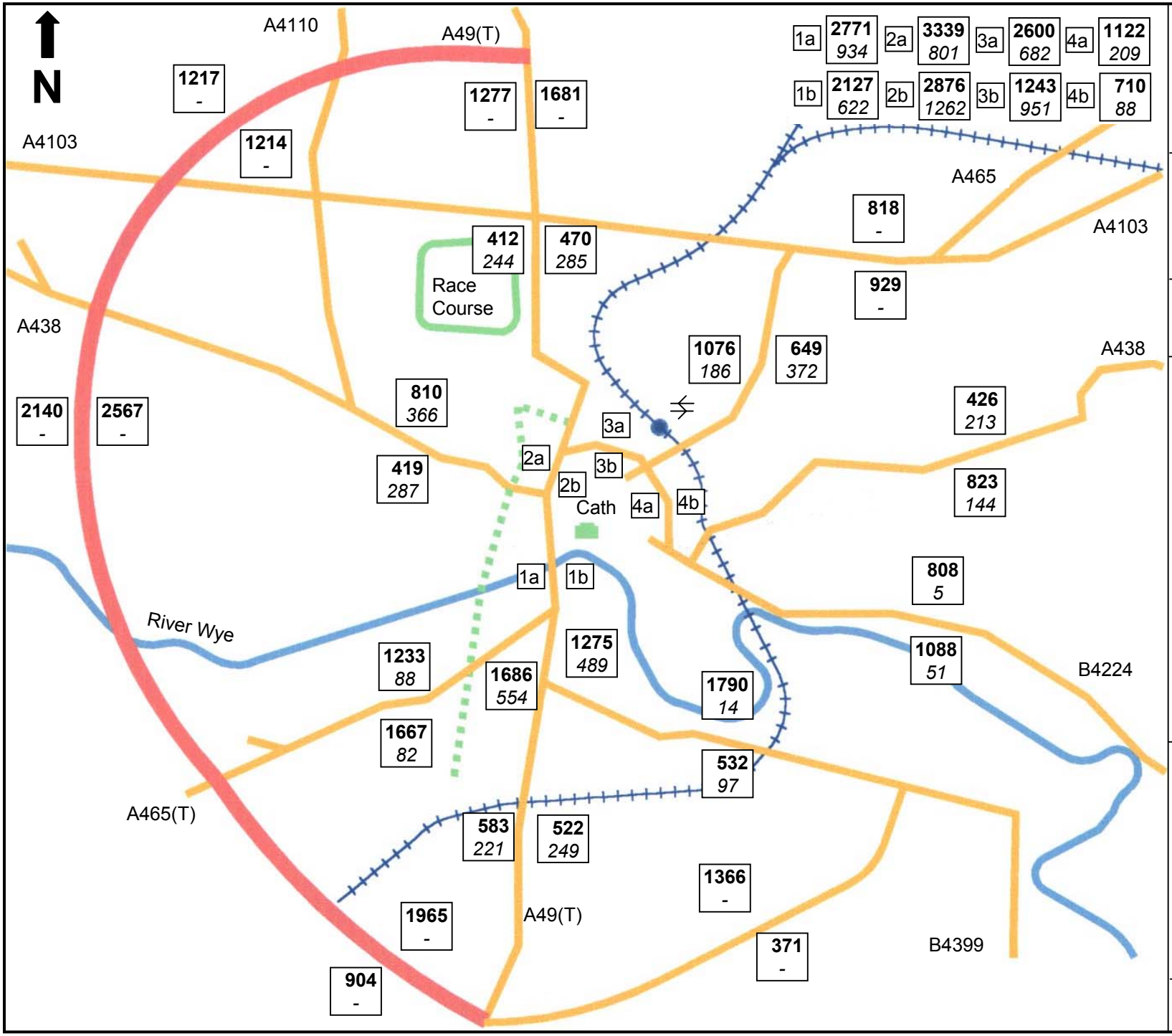
% Car	63
% HGV	6
% Pub trans	11
% Ped	16
% Cycle	4
pcu kms/hour	150210
pass kms/hour	14717

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B16



Hereford Transport Review

Option Appraisal Package 4

(Western Outer Distributor)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

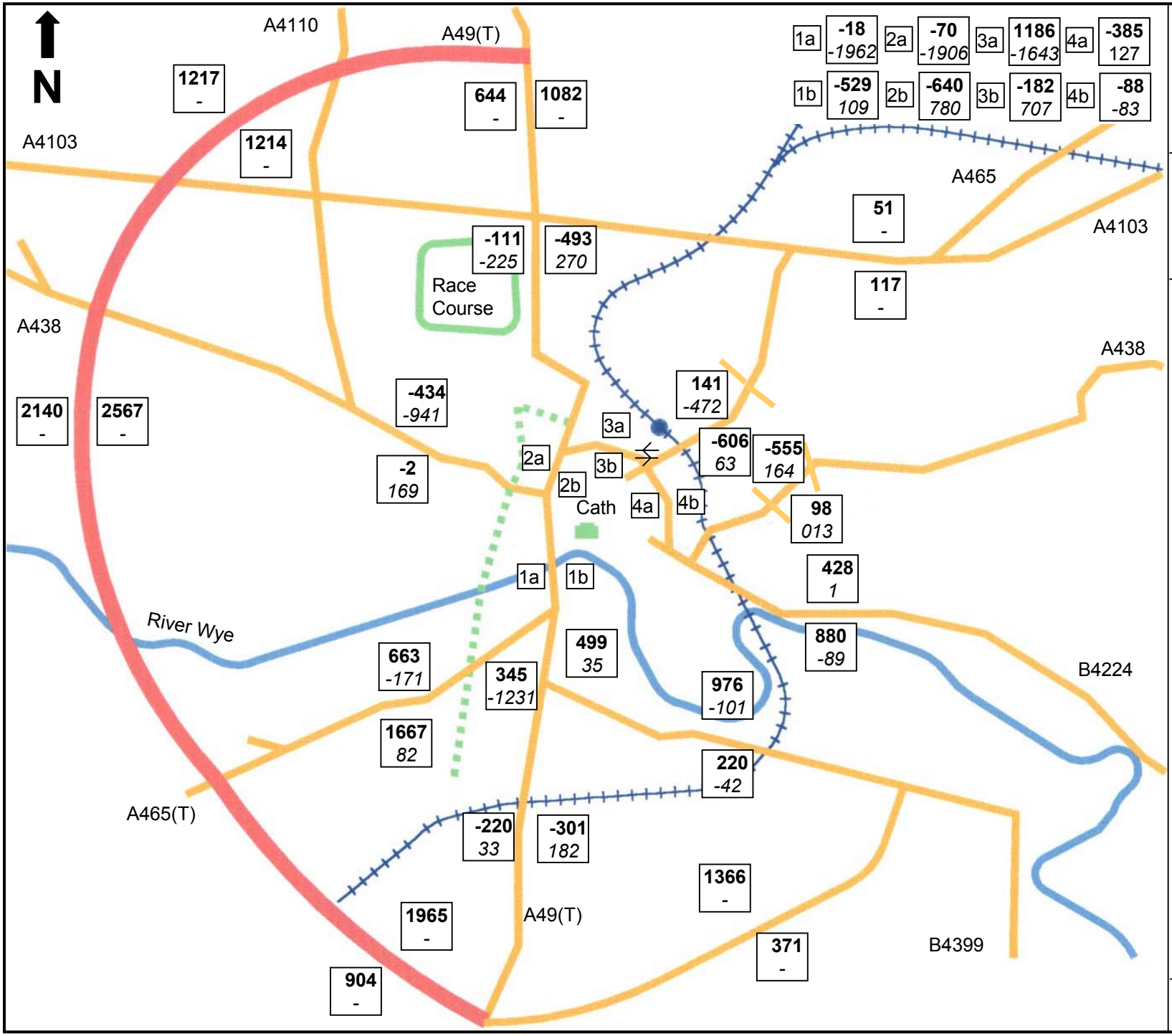
% Car	61
% HGV	6
% Pub trans	13
% Ped	16
% Cycle	4
pcu kms/hour	146330
pass kms/hour	17282

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B17



Hereford Transport Review

Option Appraisal Package 4
(Western Outer Distributor)

2031 AM Peak Hour
(Option Flows - 2002 Base)

Summary Statistics

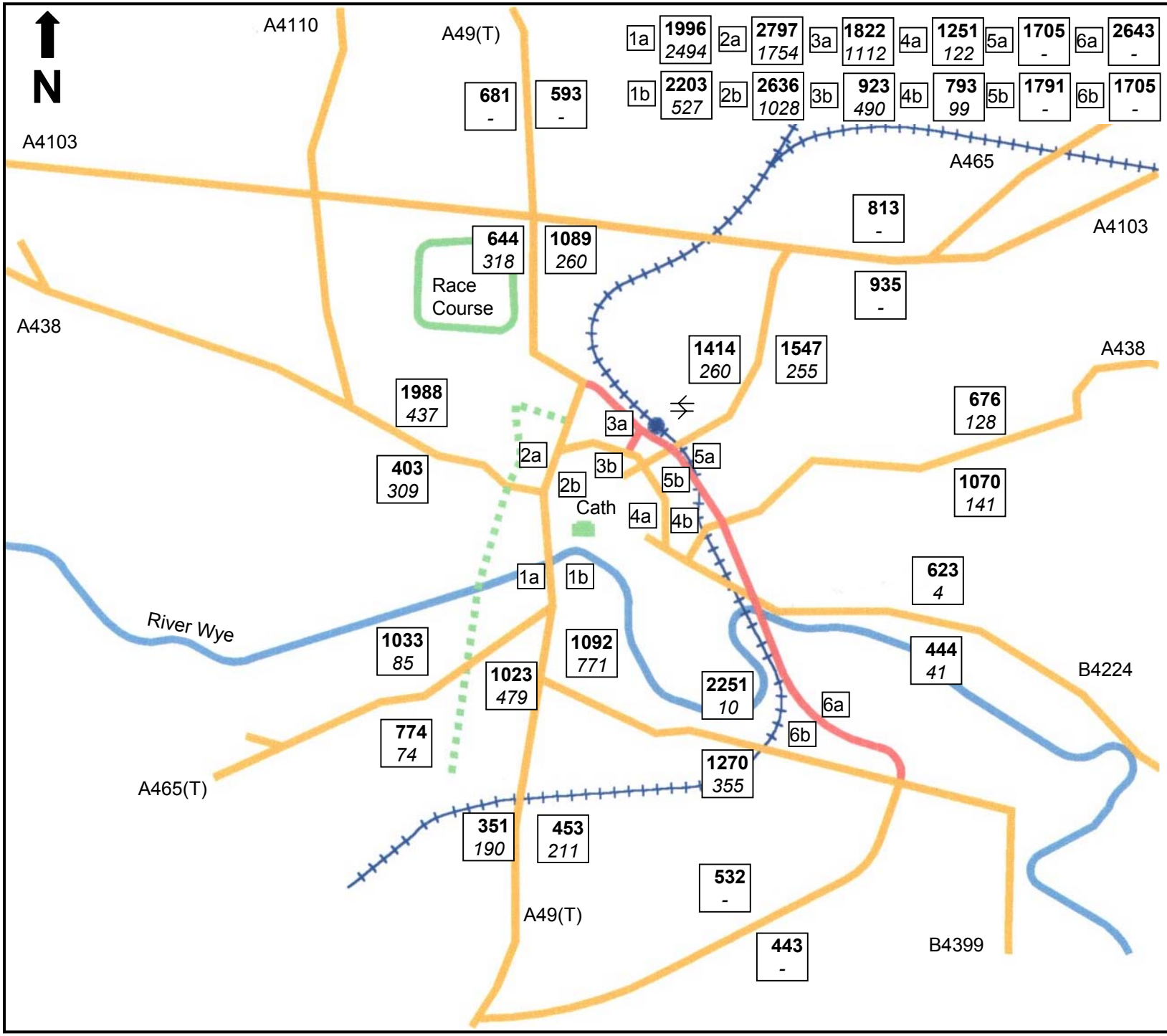
% Car	61
% HGV	6
% Pub trans	13
% Ped	16
% Cycle	4
pcu kms/hour	146330
pass kms/hour	17282

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B18



Hereford Transport Review

Option Appraisal Package 5

(Eastern Inner Bridge)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

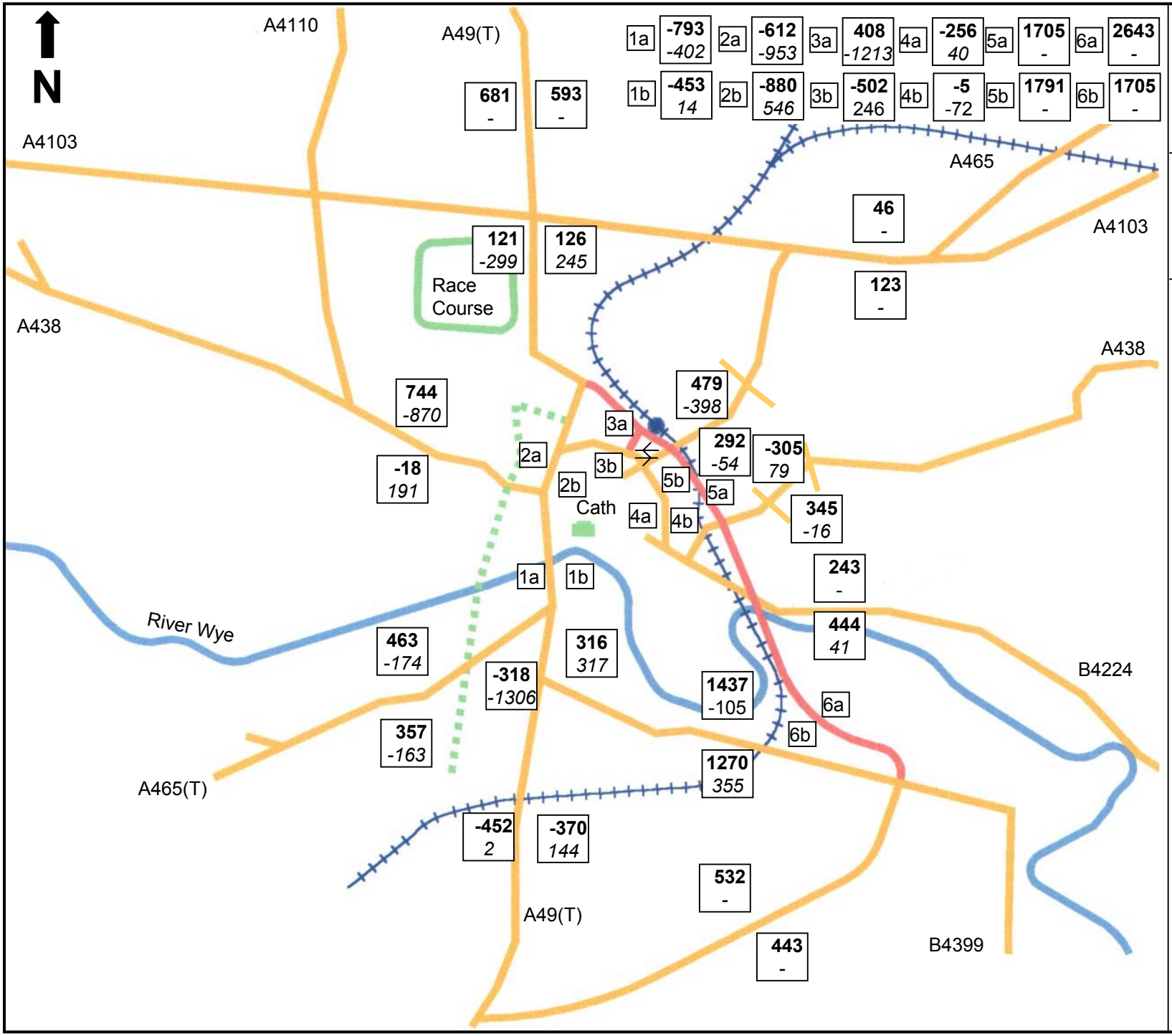
% Car	59
% HGV	6
% Pub trans	14
% Ped	16
% Cycle	5
pcu kms/hour	122293
pass kms/hour	21745

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B19



Hereford Transport Review

Option Appraisal Package 5
(Eastern Inner Bridge)

2031 AM Peak Hour
(Option Flows - 2002 Base)

Summary Statistics

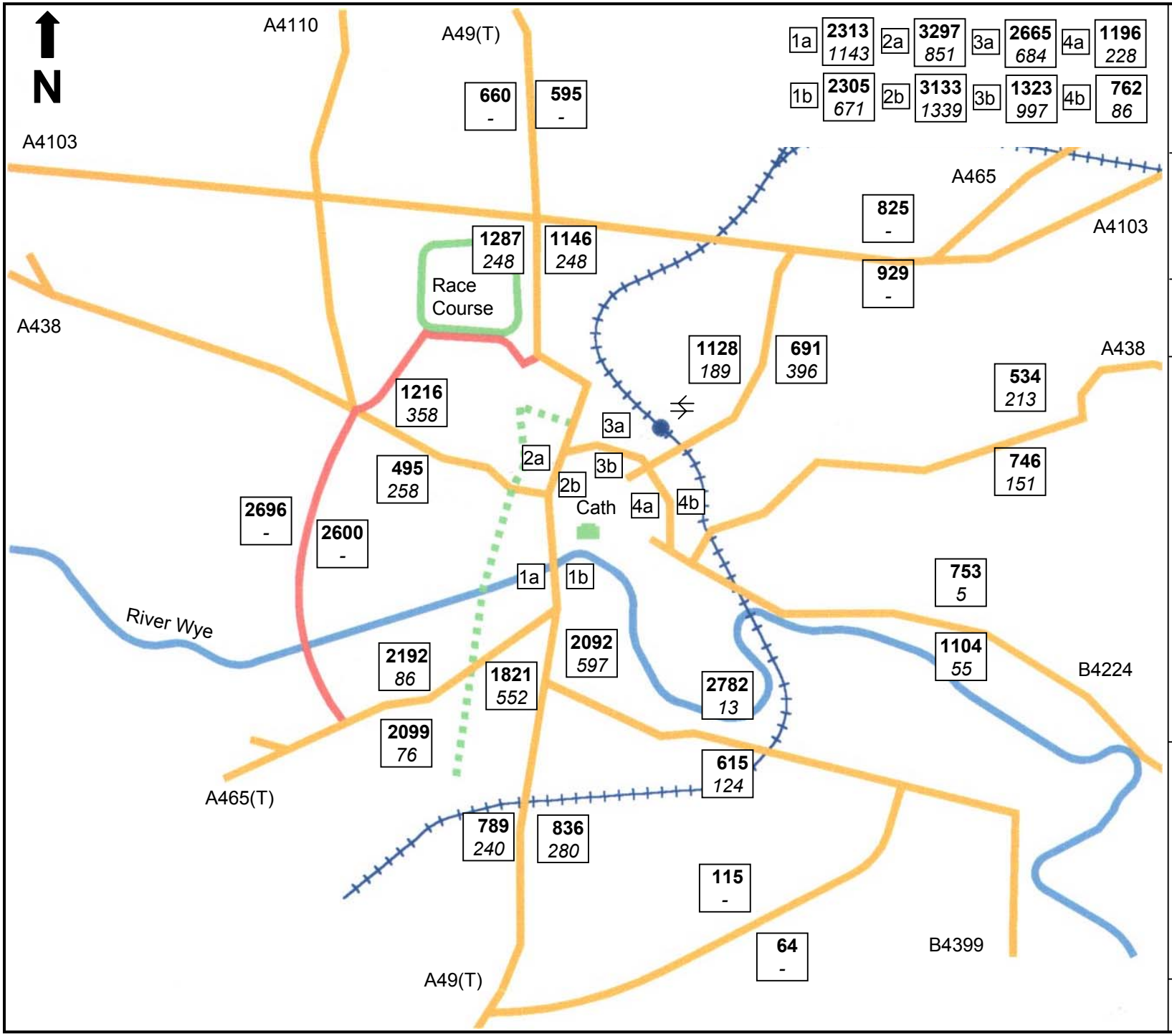
% Car	59
% HGV	6
% Pub trans	14
% Ped	16
% Cycle	5
pcu kms/hour	122293
pass kms/hour	21745

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B20



Hereford Transport Review

Option Appraisal Package 6

(Western Inner Bridge)

2031 AM Peak Hour ASSIGNMENT

Summary Statistics

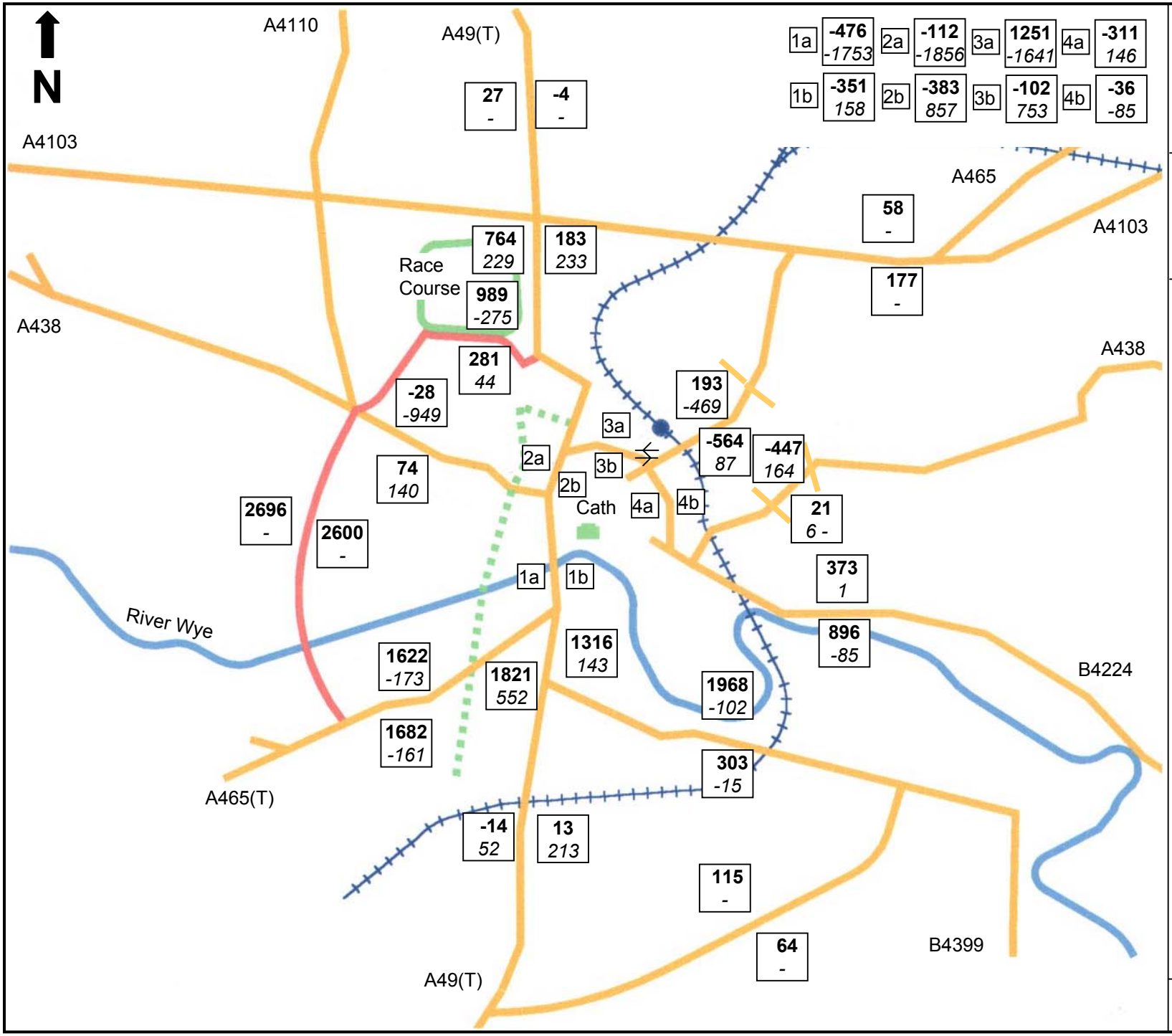
% Car	60
% HGV	6
% Pub trans	13
% Ped	16
% Cycle	5
pcu kms/hour	126243
pass kms/hour	17978

Key:

pcu/hour – Car & HGV
pass/hour **–** Public Transport Passengers

TPi

Figure B21



Hereford Transport Review

Option Appraisal Package 6

(Western Inner Bridge)

2031 AM Peak Hour

(Option Flows - 2002 Base)

Summary Statistics

% Car	60
% HGV	6
% Pub trans	13
% Ped	16
% Cycle	5
pcu kms/hour	126243
pass kms/hour	17978

Key:

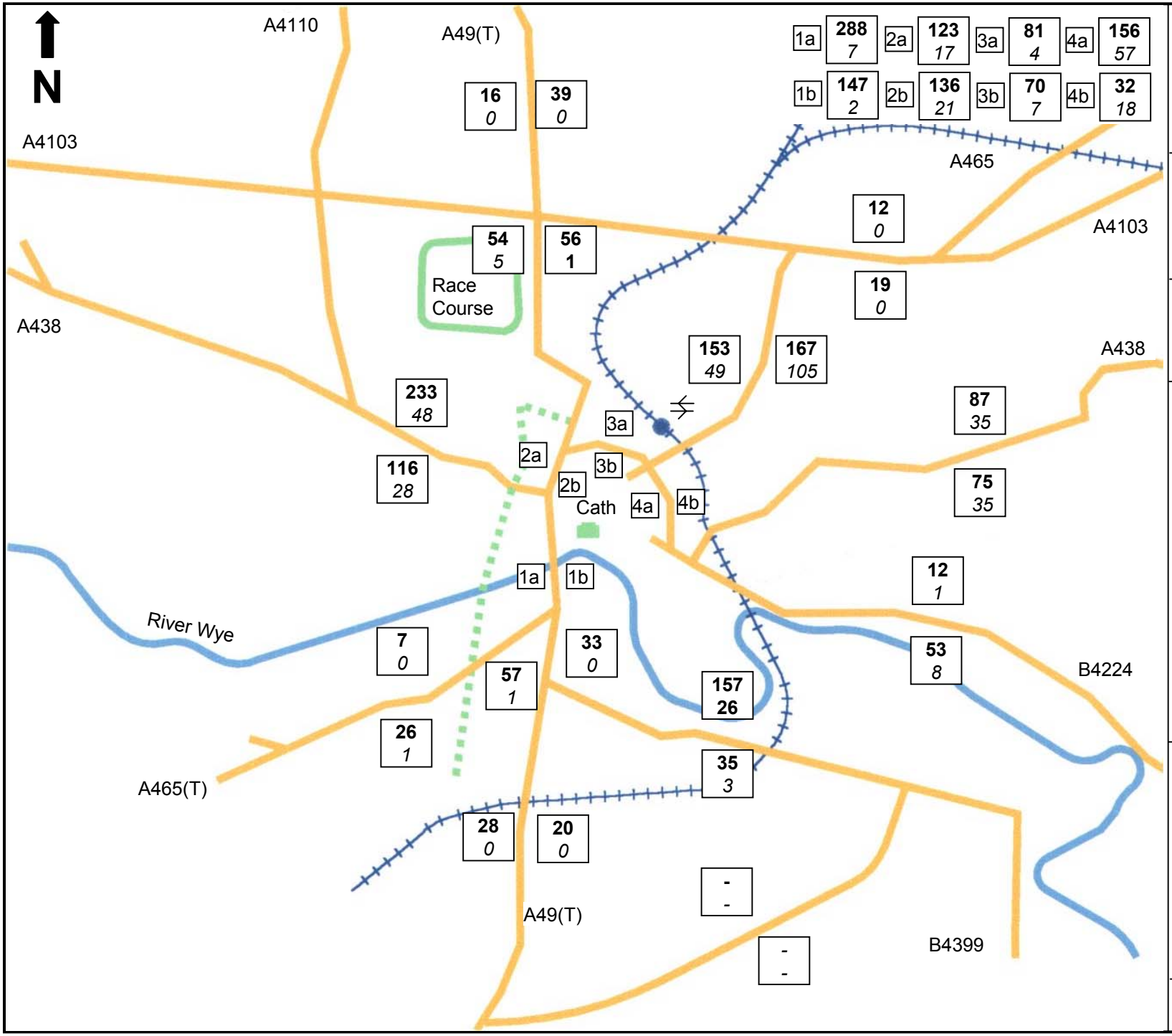
pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure B22

APPENDIX C

Blended Packages and Key Statistics 2011 and 2031



Hereford Transport Review

Reference Case

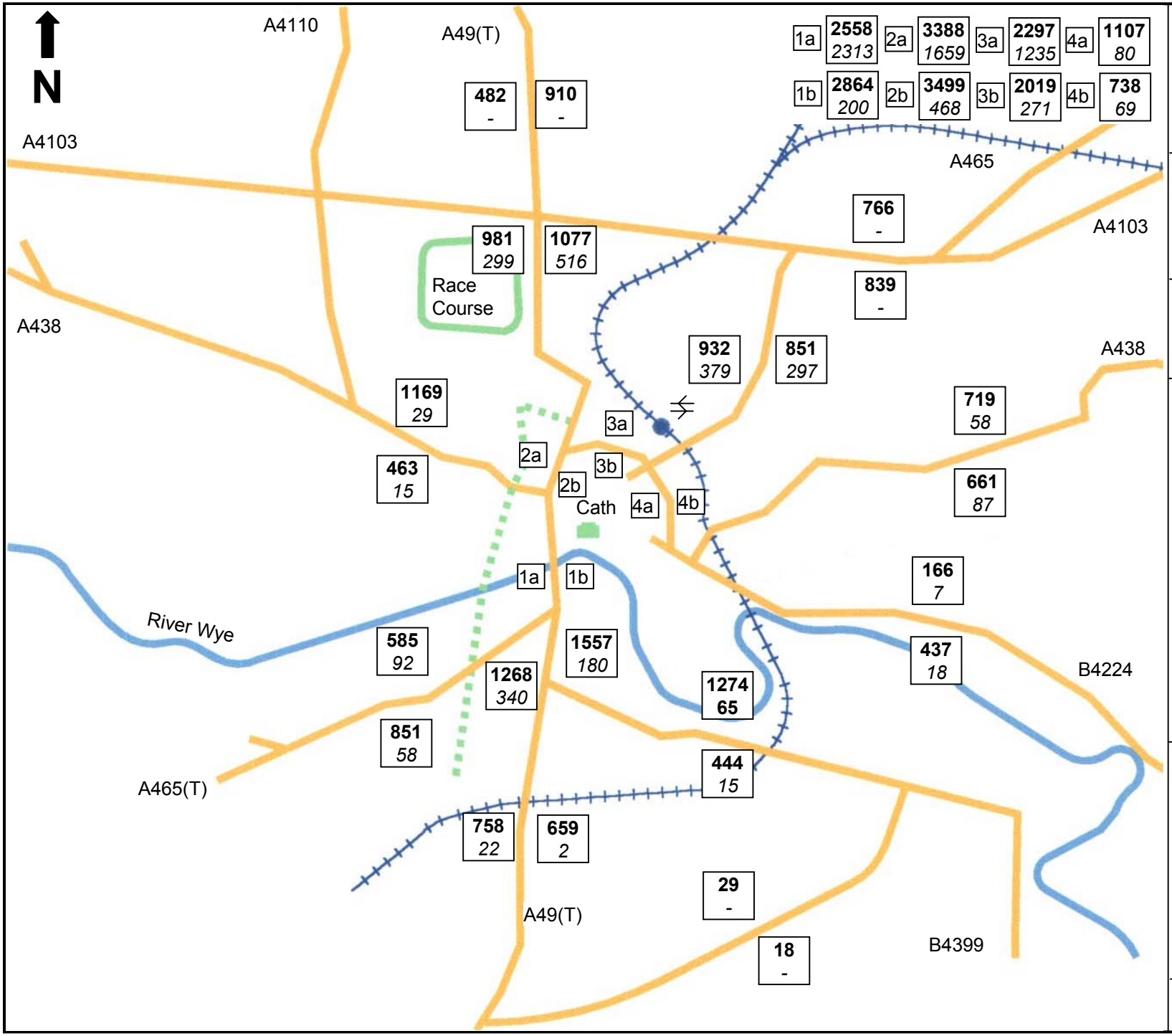
2011 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C1



Hereford Transport Review

Reference Case

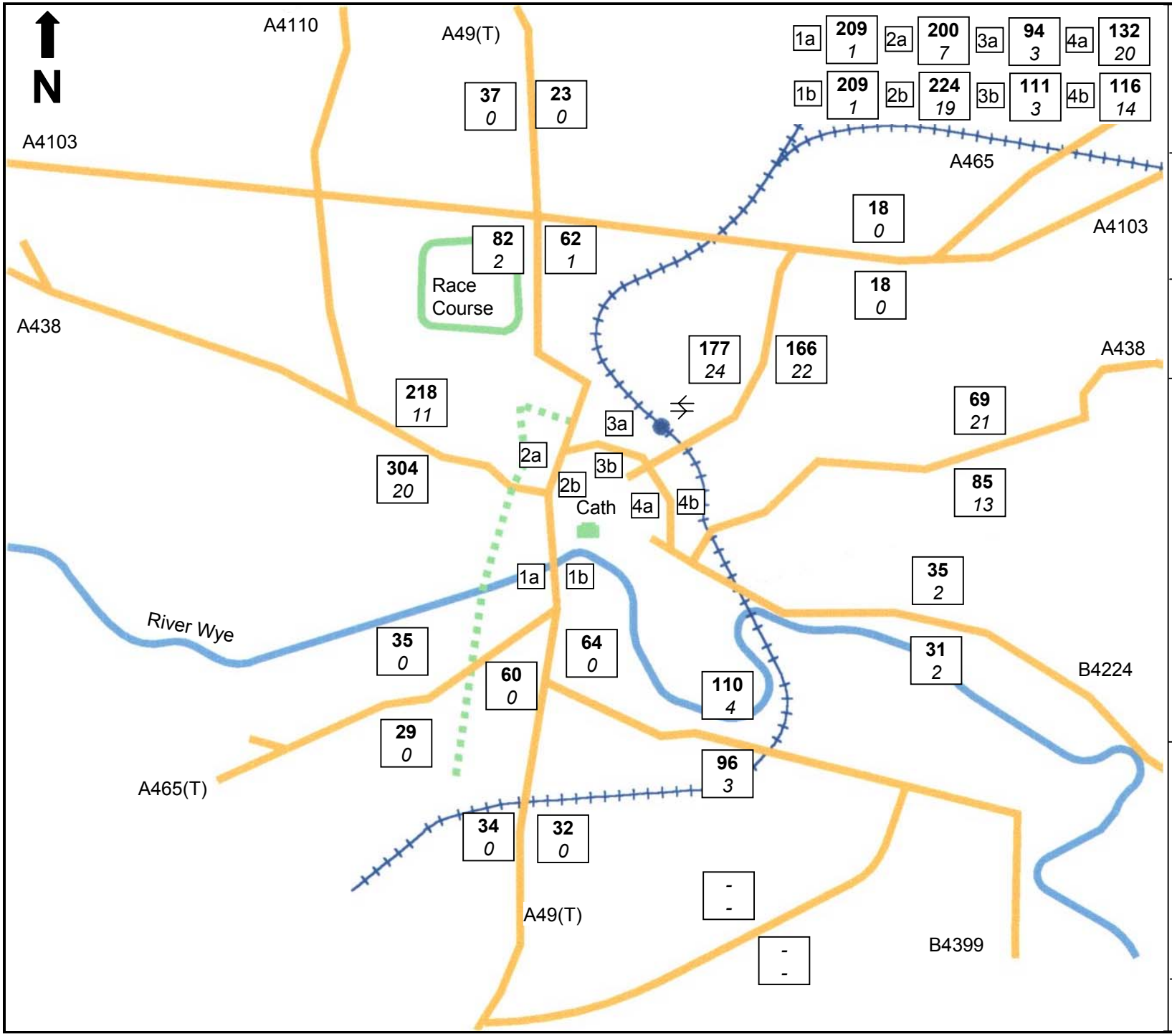
2011 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C2



Hereford Transport Review

Reference Case

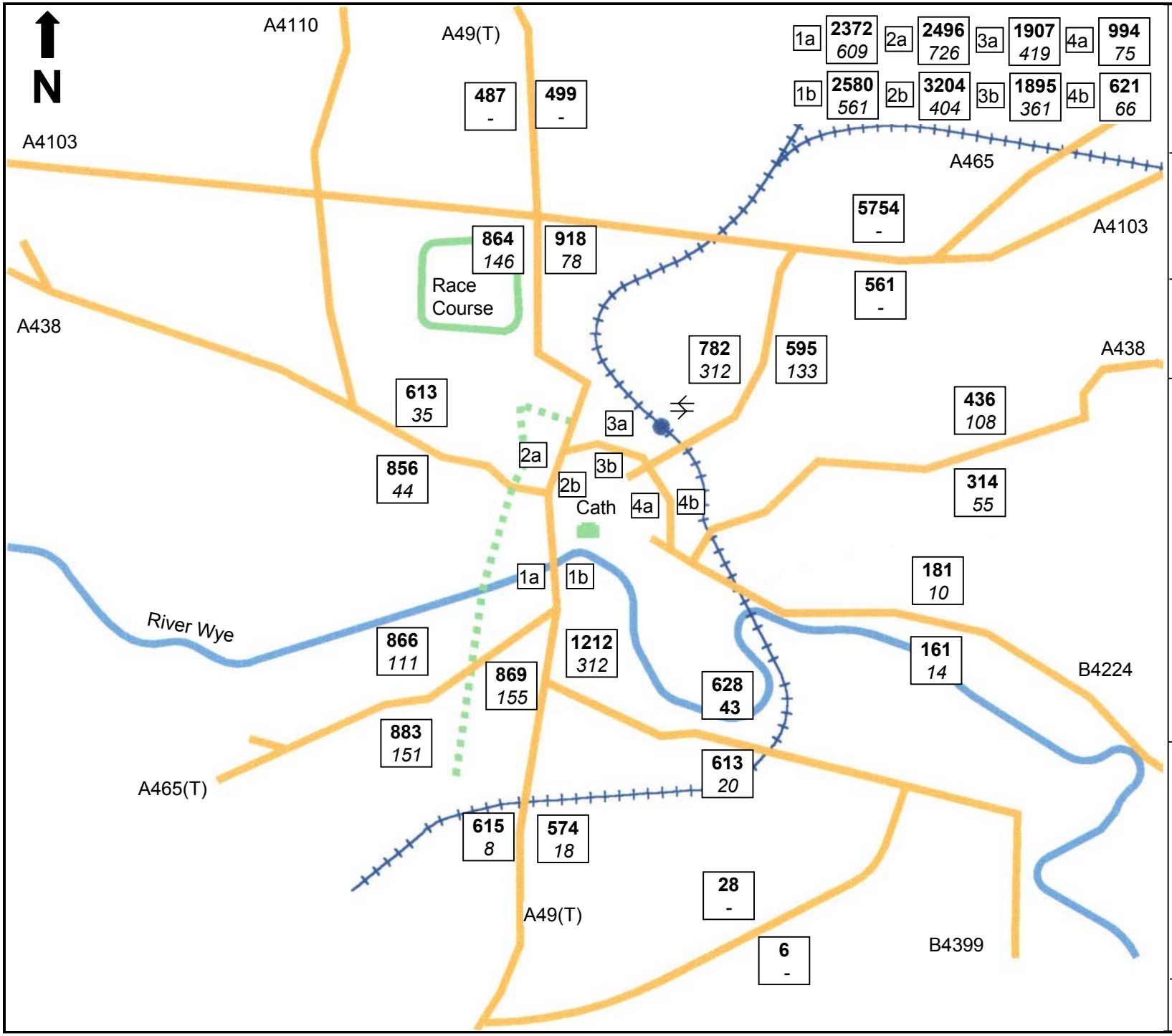
2011 Inter Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C3



Hereford Transport Review

Reference Case

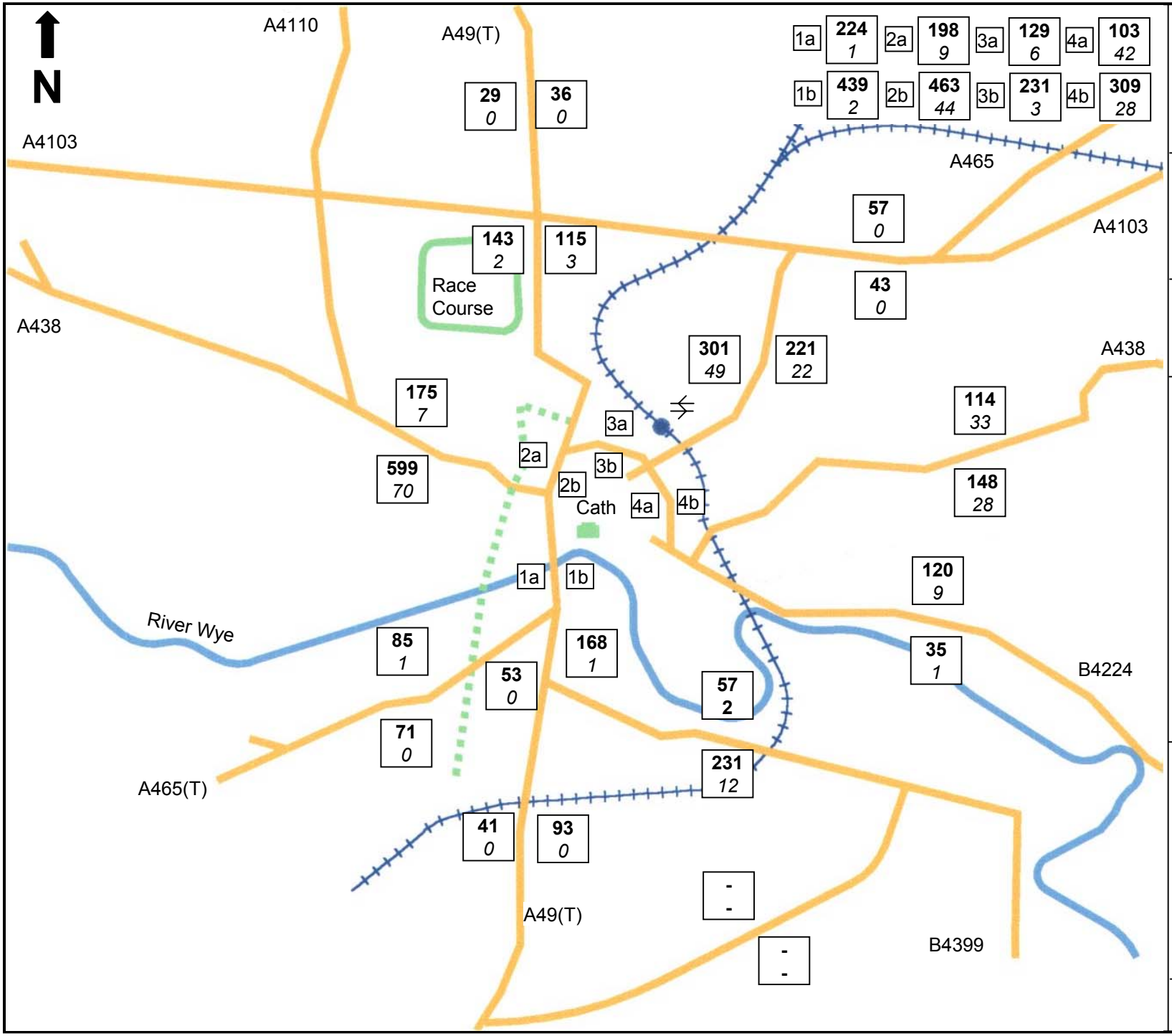
2011 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C4



Hereford Transport Review

Reference Case

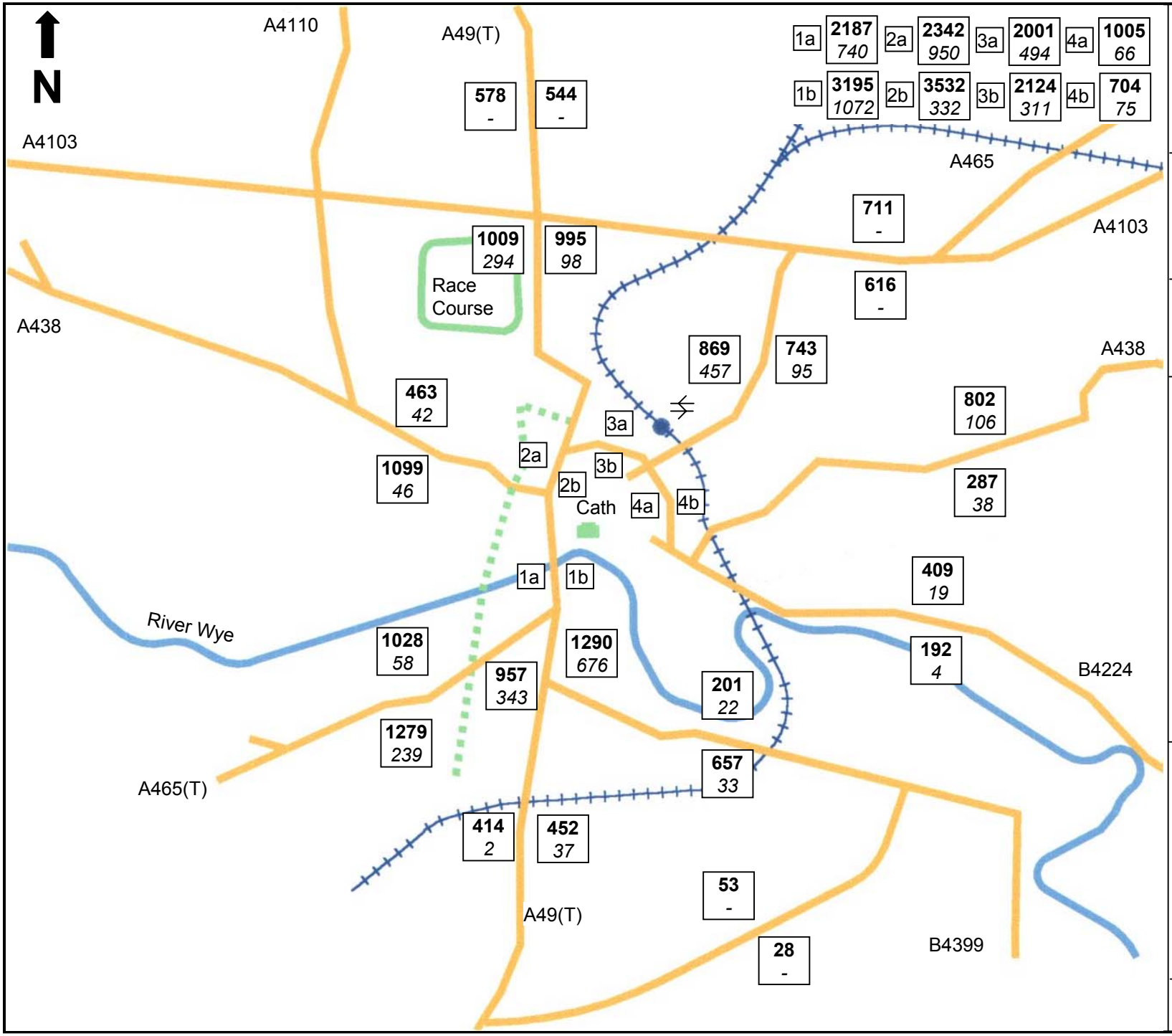
2011 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C5



Hereford Transport Review

Reference Case

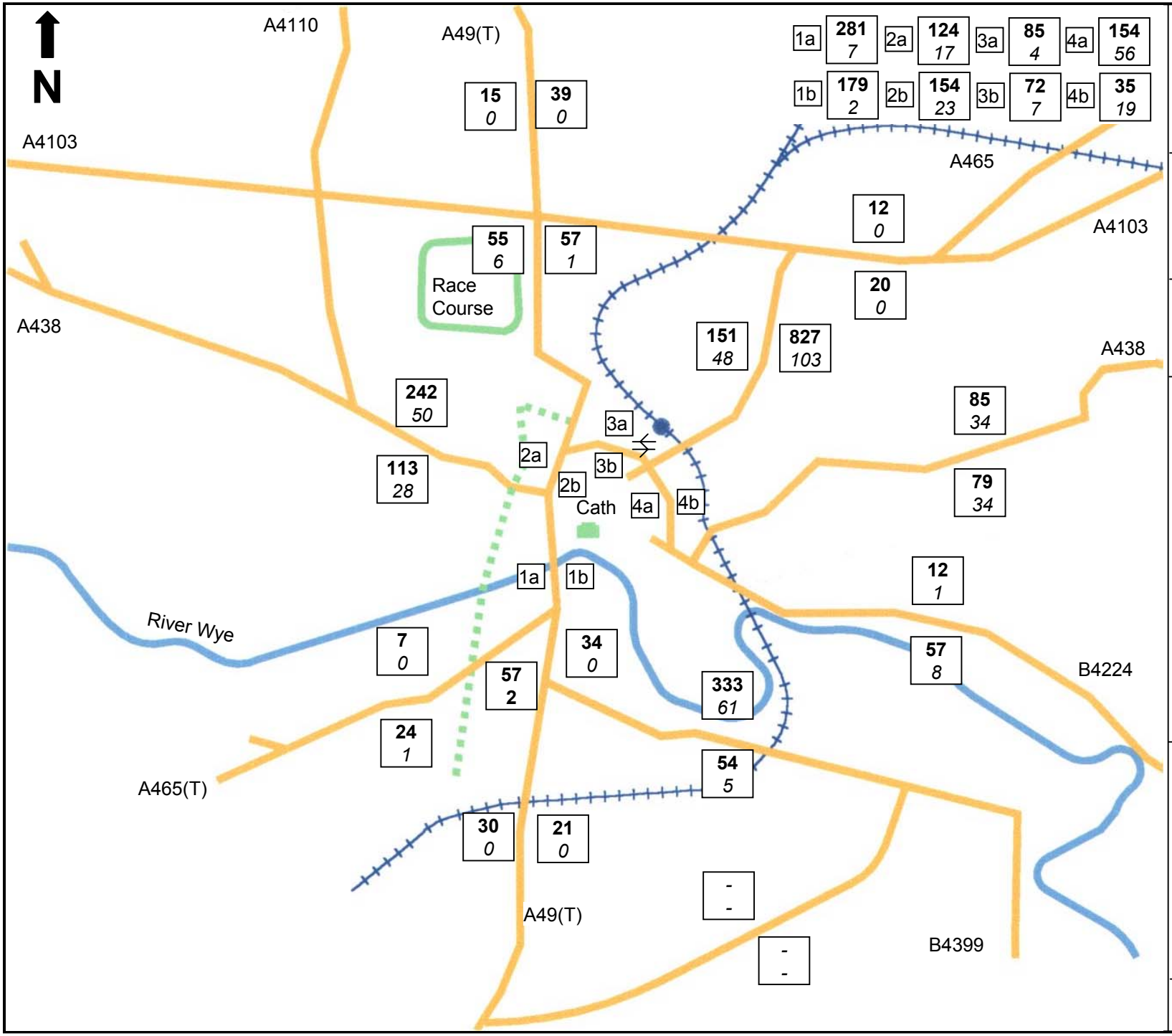
2011 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C6



Hereford Transport Review

Reference Case

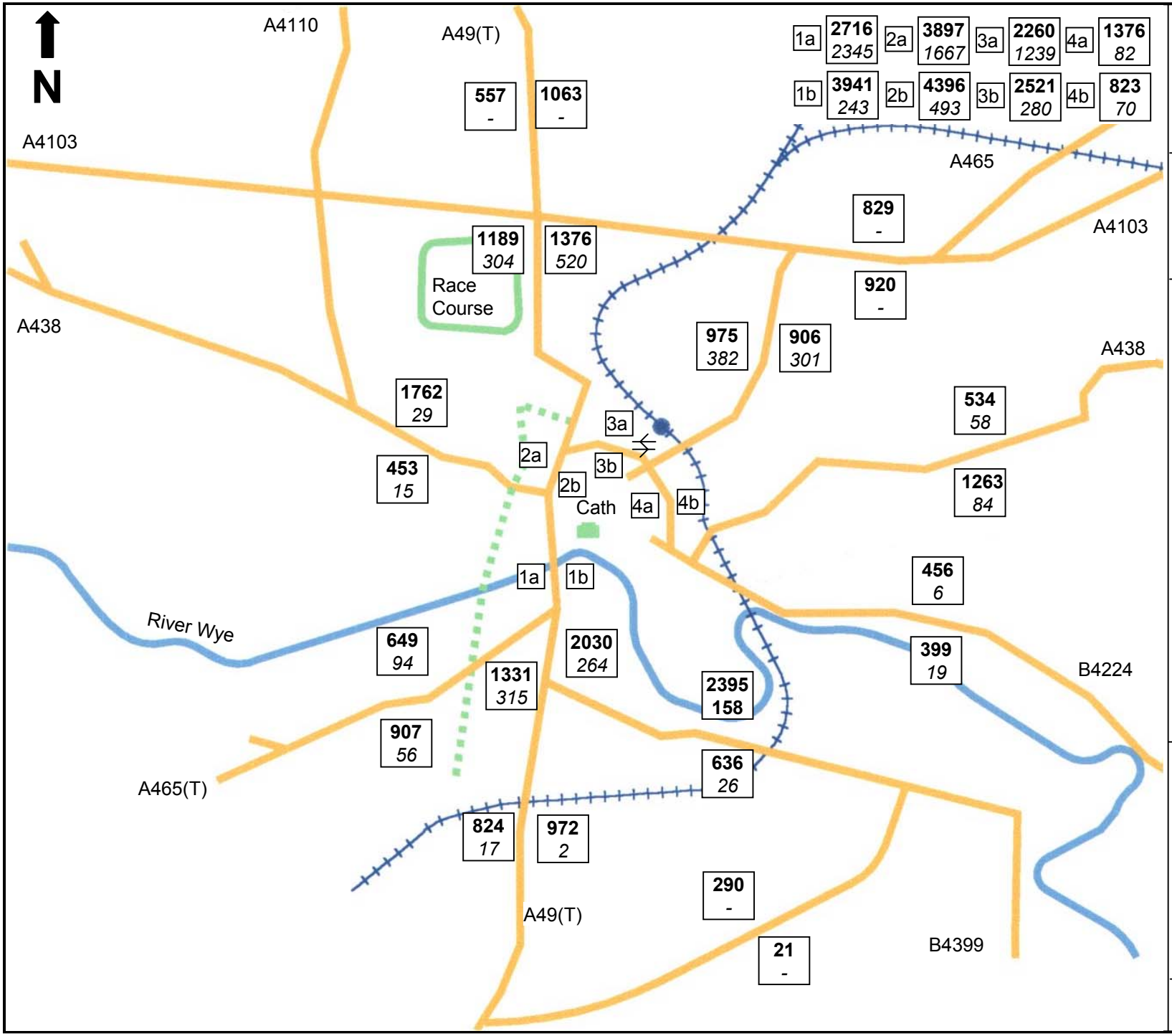
2031 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C7



Hereford Transport Review

Reference Case

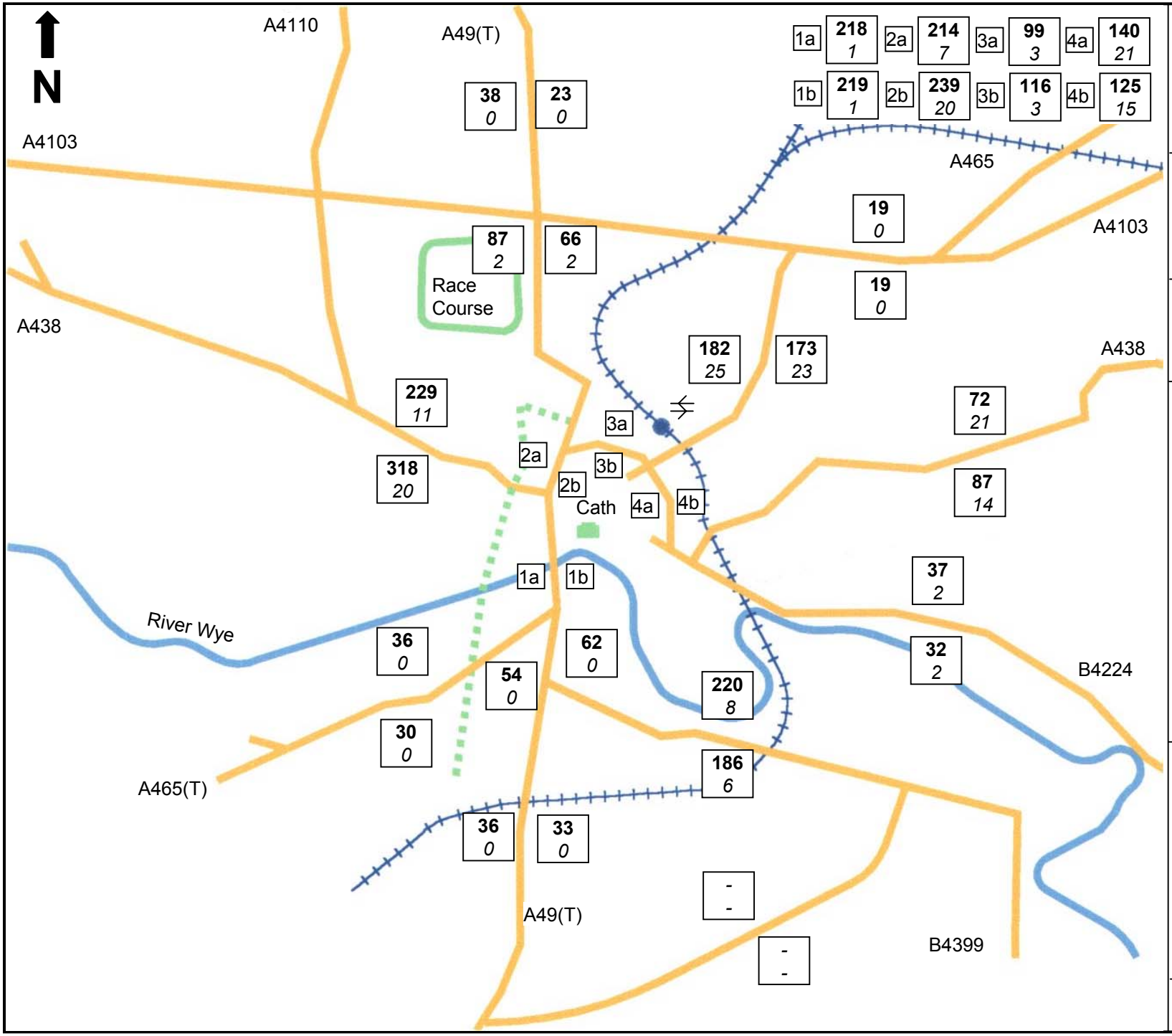
2031 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C8



Hereford Transport Review

Reference Case

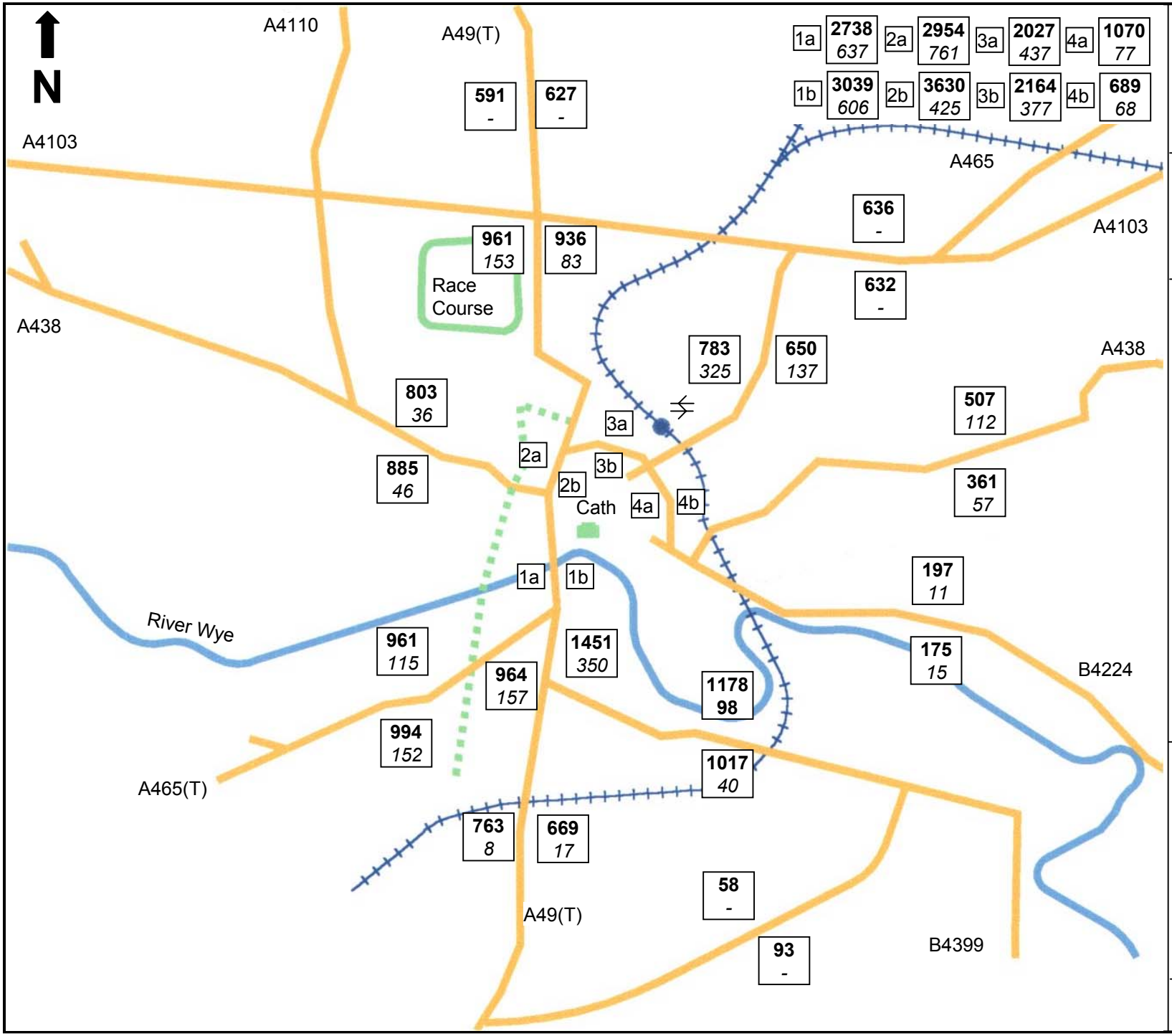
2031 Inter Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C9



Hereford Transport Review

Reference Case

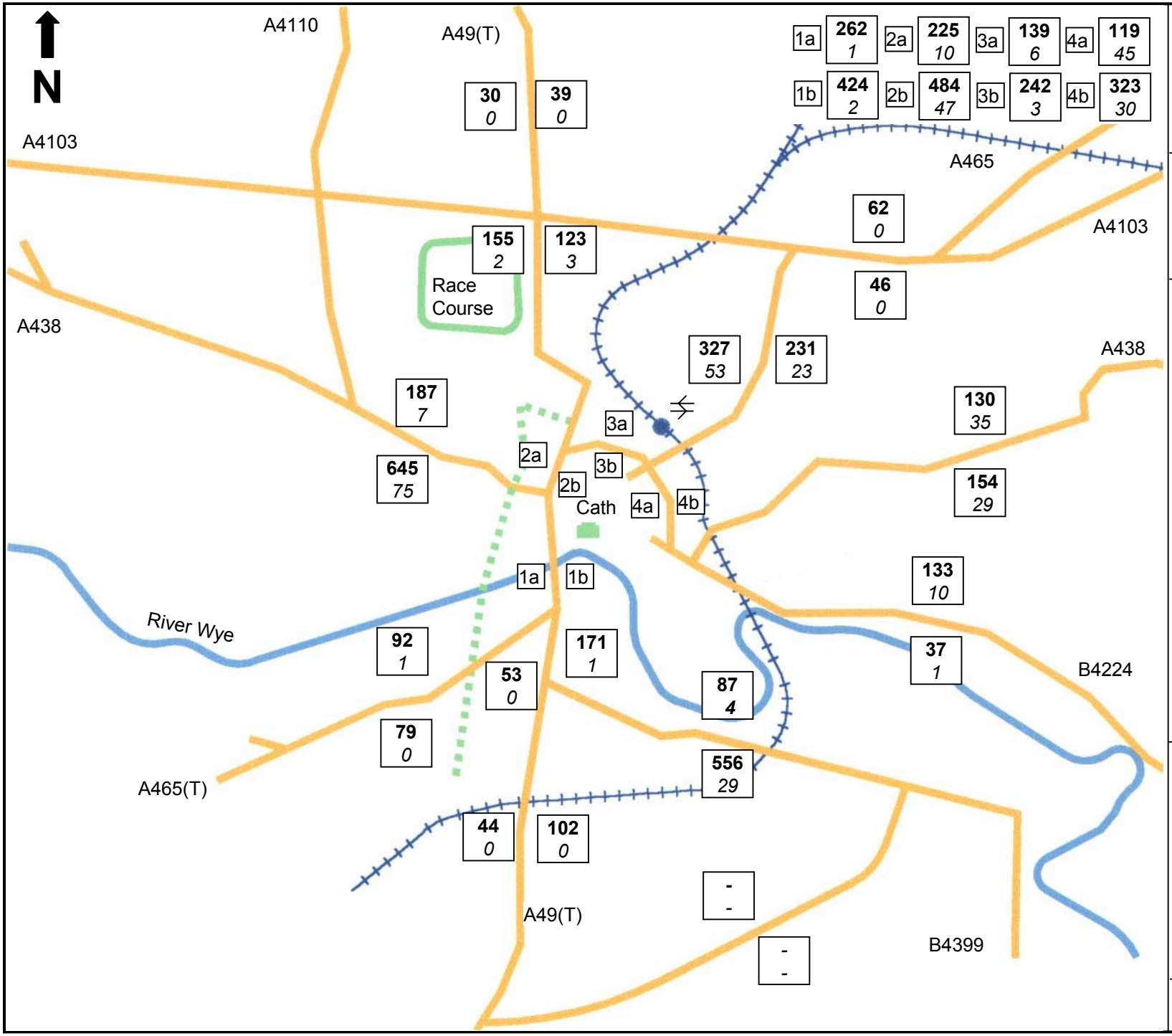
2031 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C10



Hereford Transport Review

Reference Case

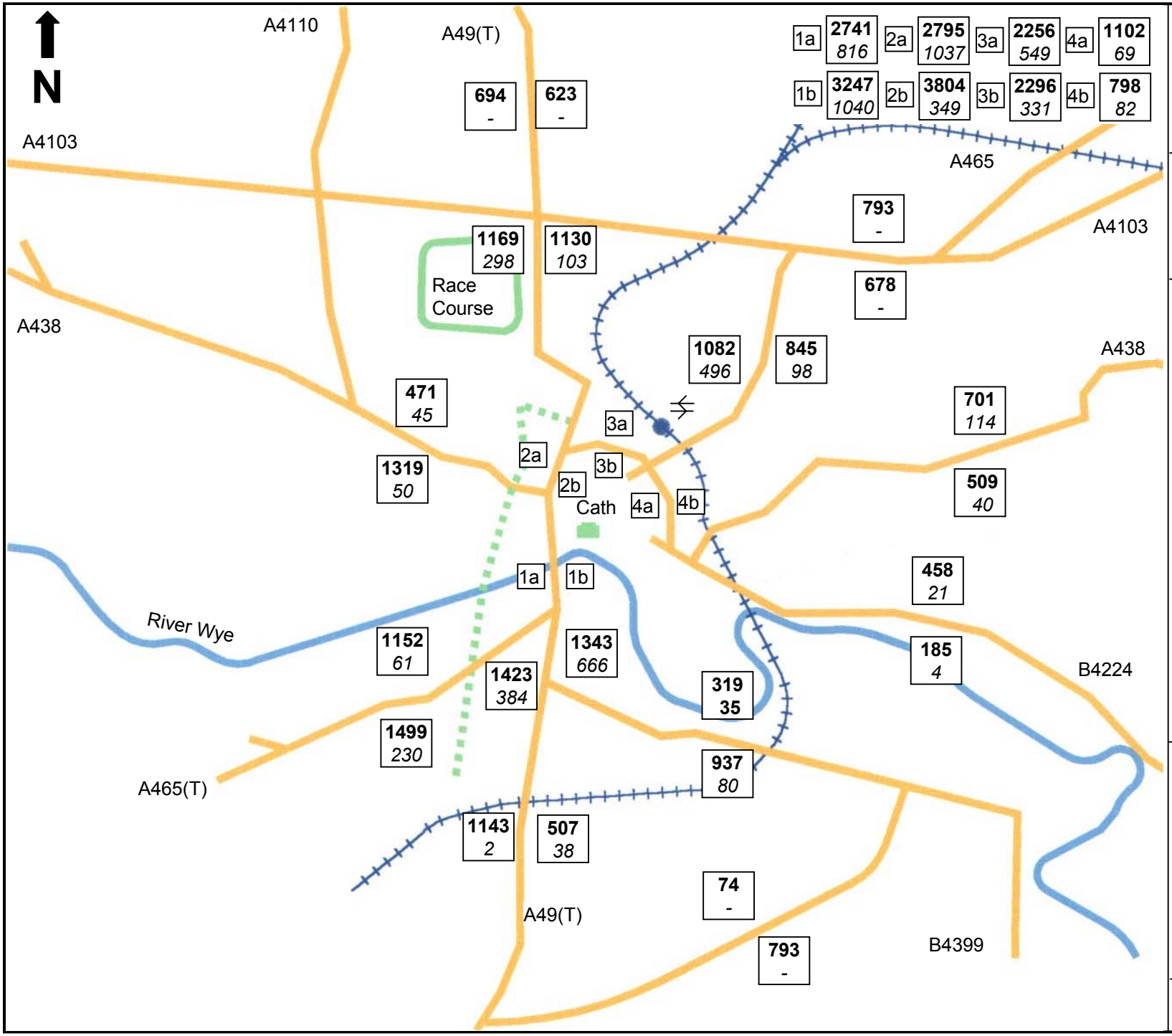
2031 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C11



Hereford Transport Review

Reference Case

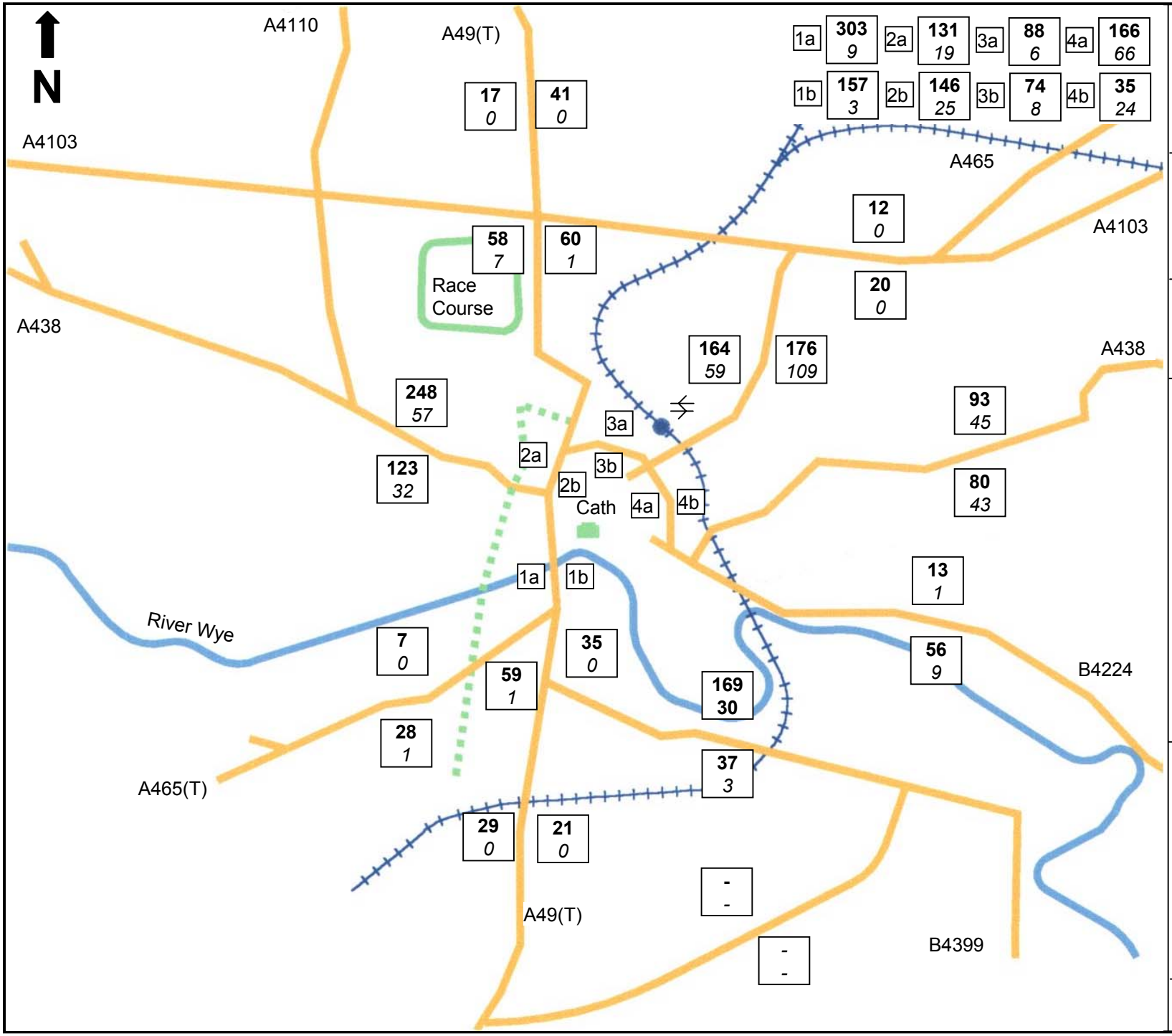
2031 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C12



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

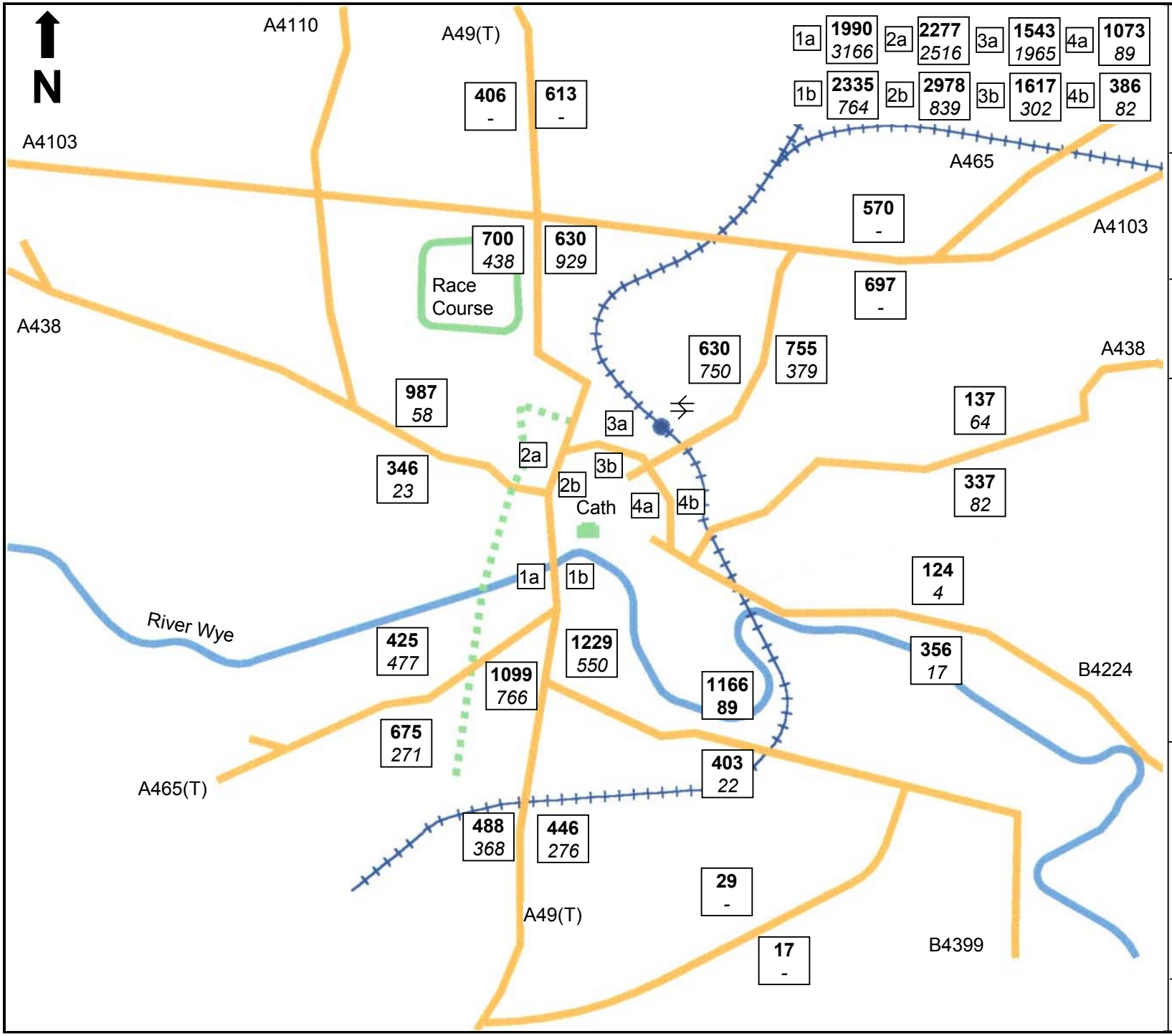
2011 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C13



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

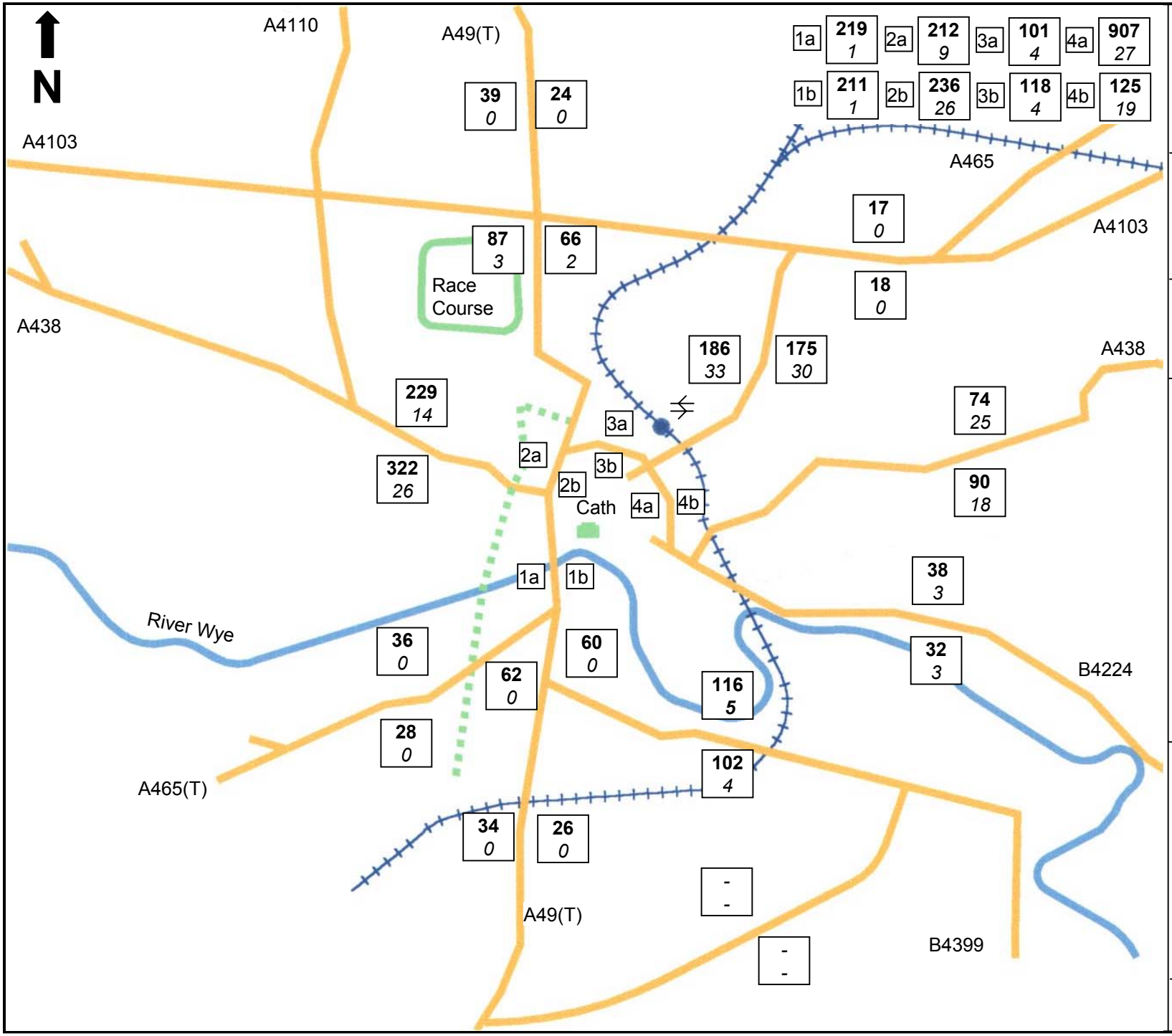
2011 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C14



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

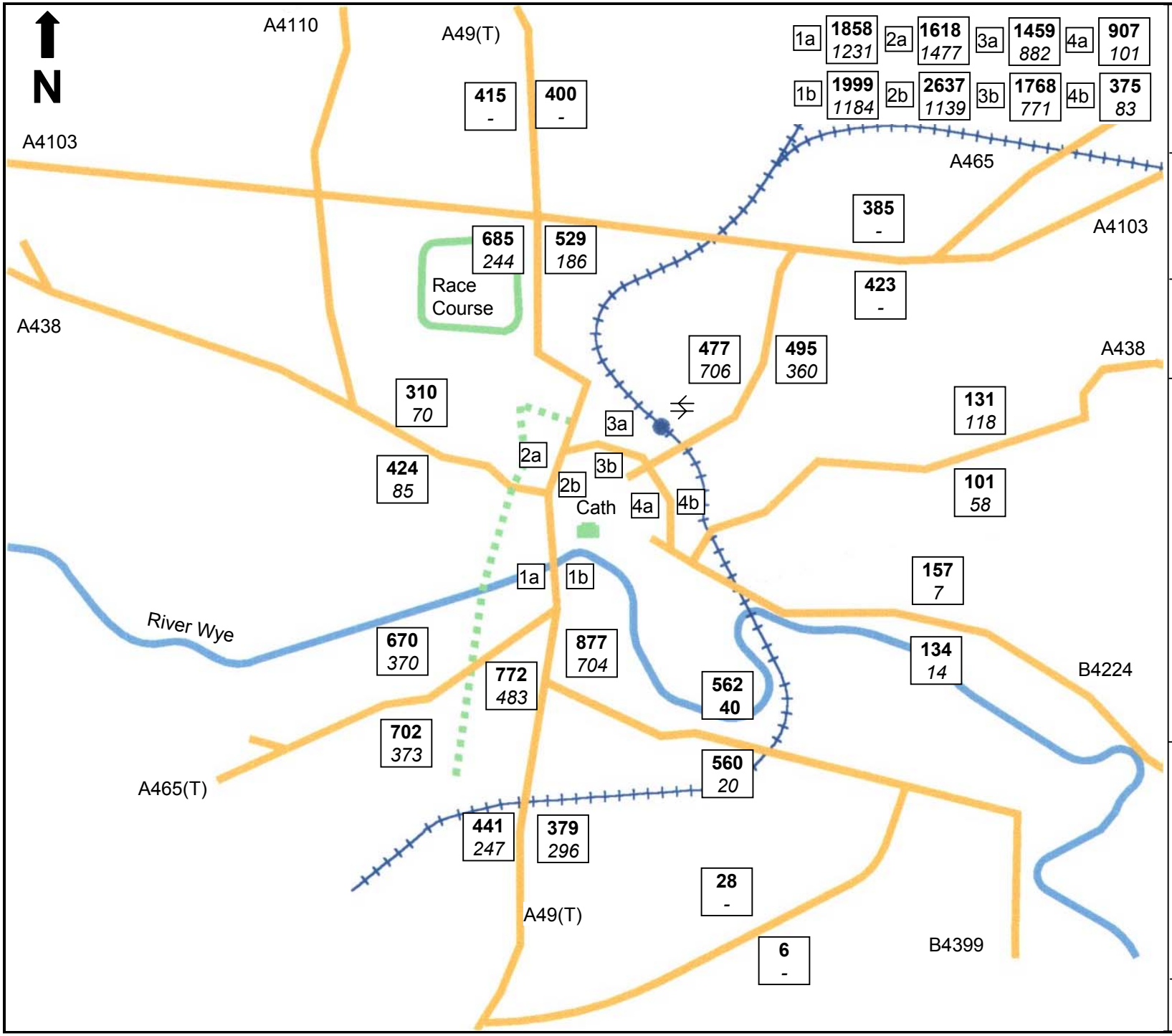
2011 Inter Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C15



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

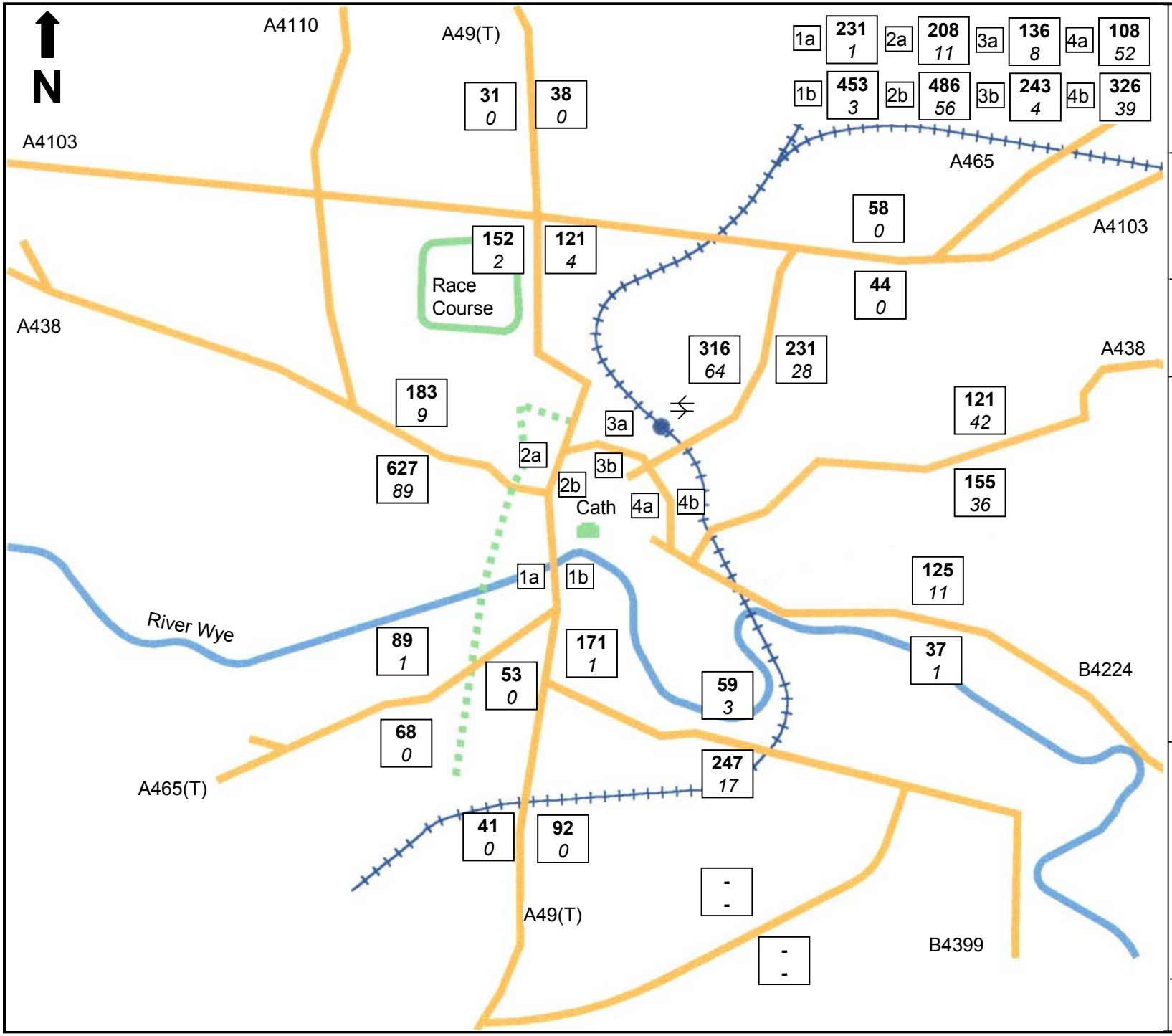
2011 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C16



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

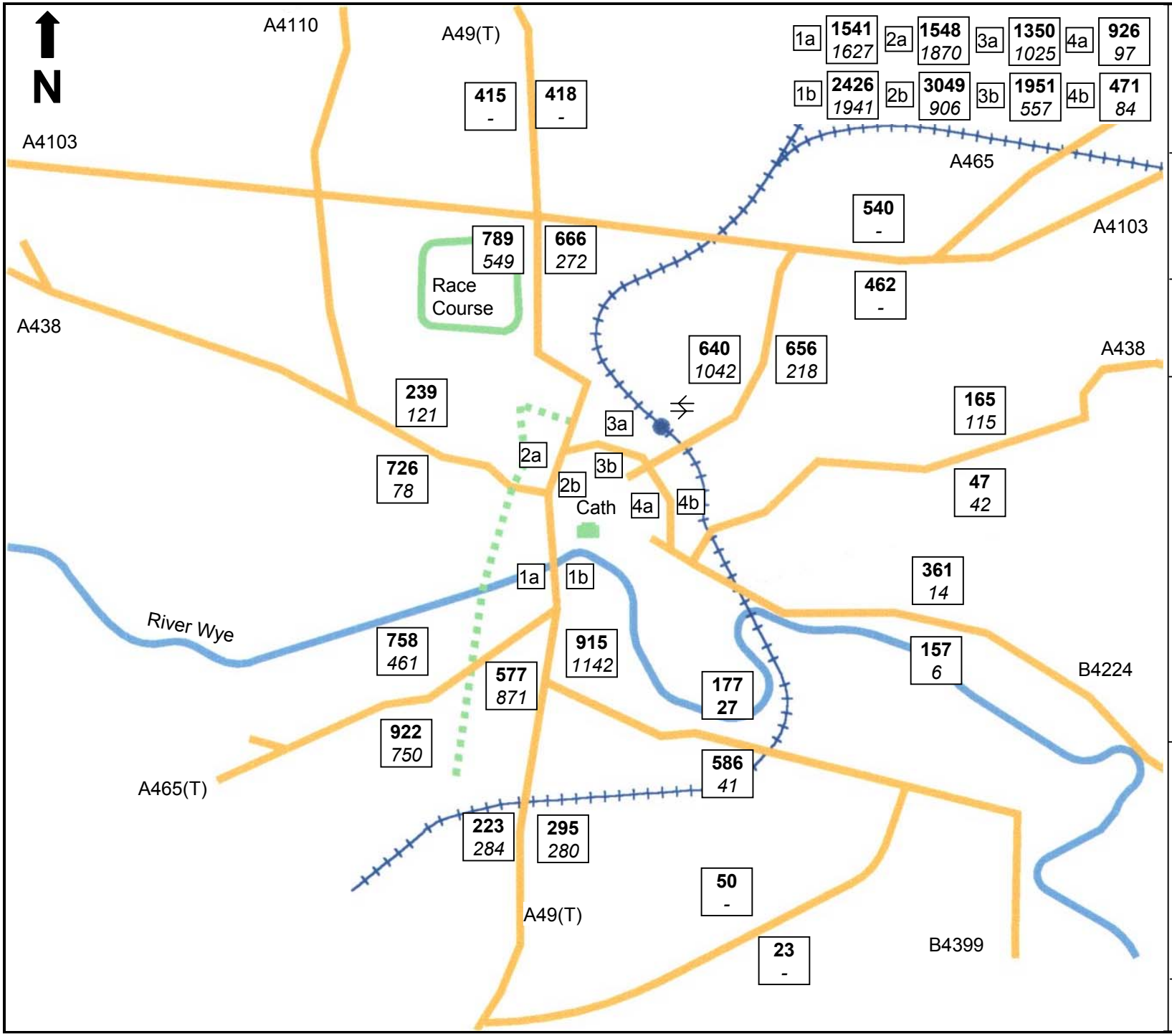
2011 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C17



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

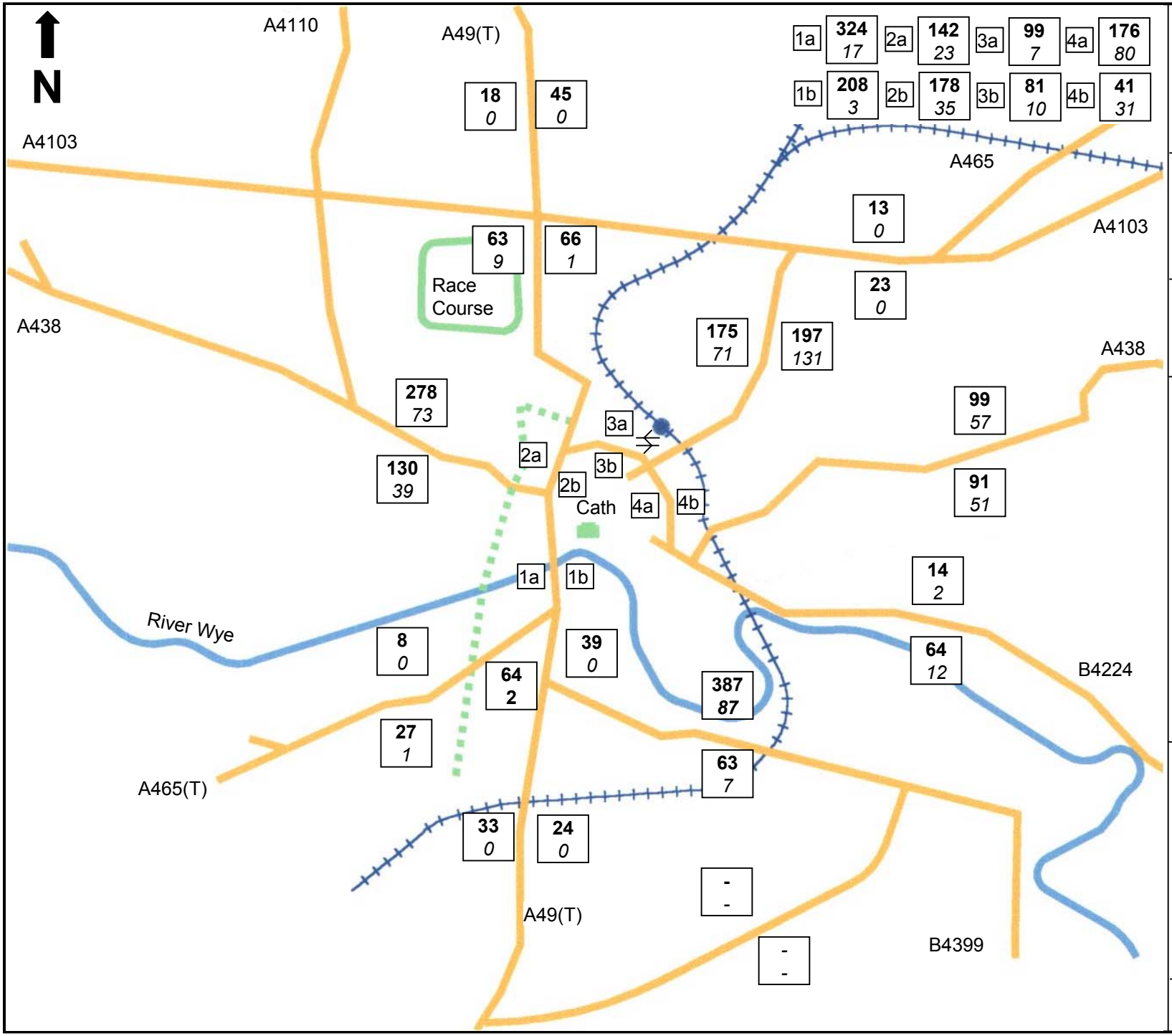
2011 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C18



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

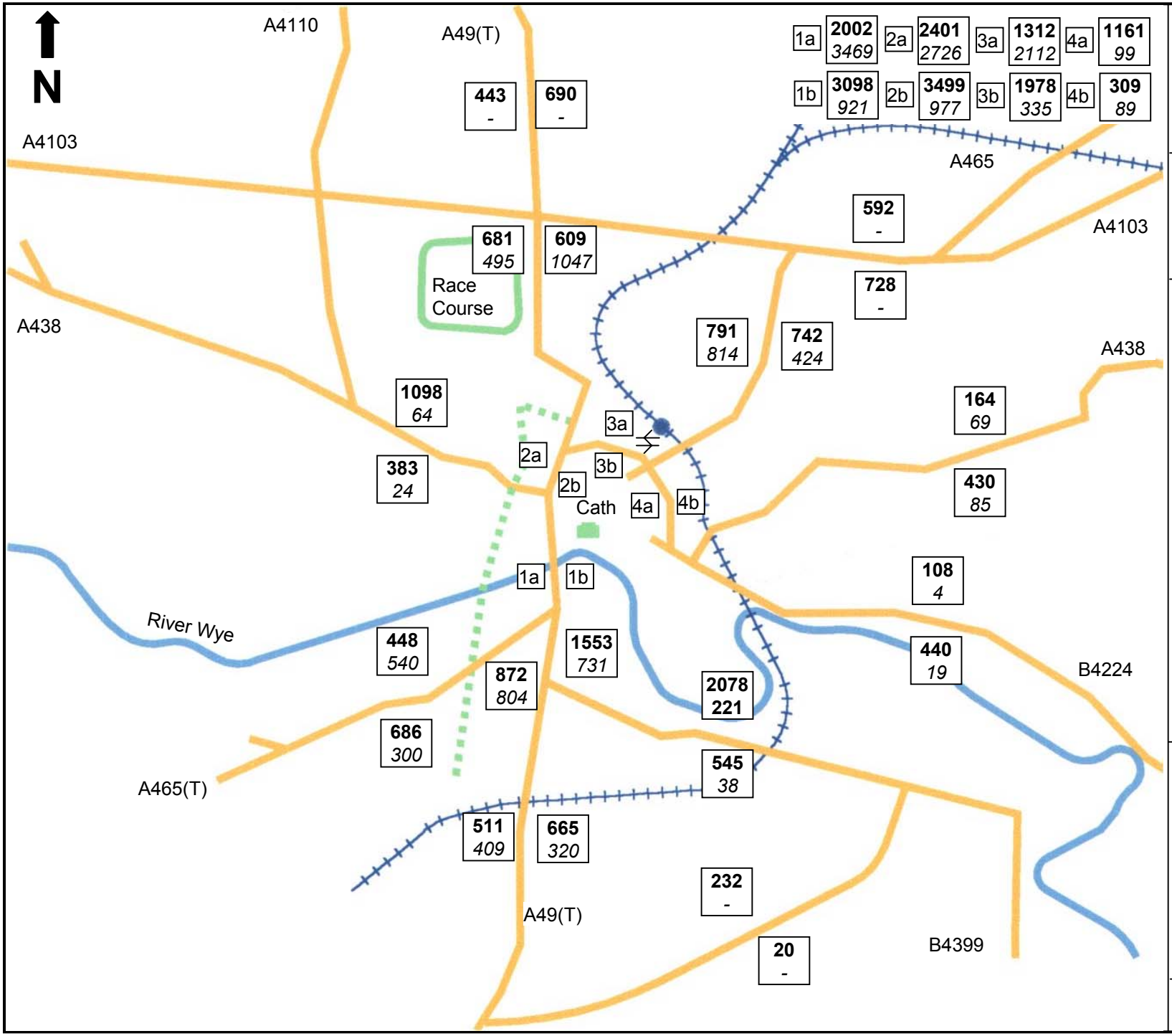
2031 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C19



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

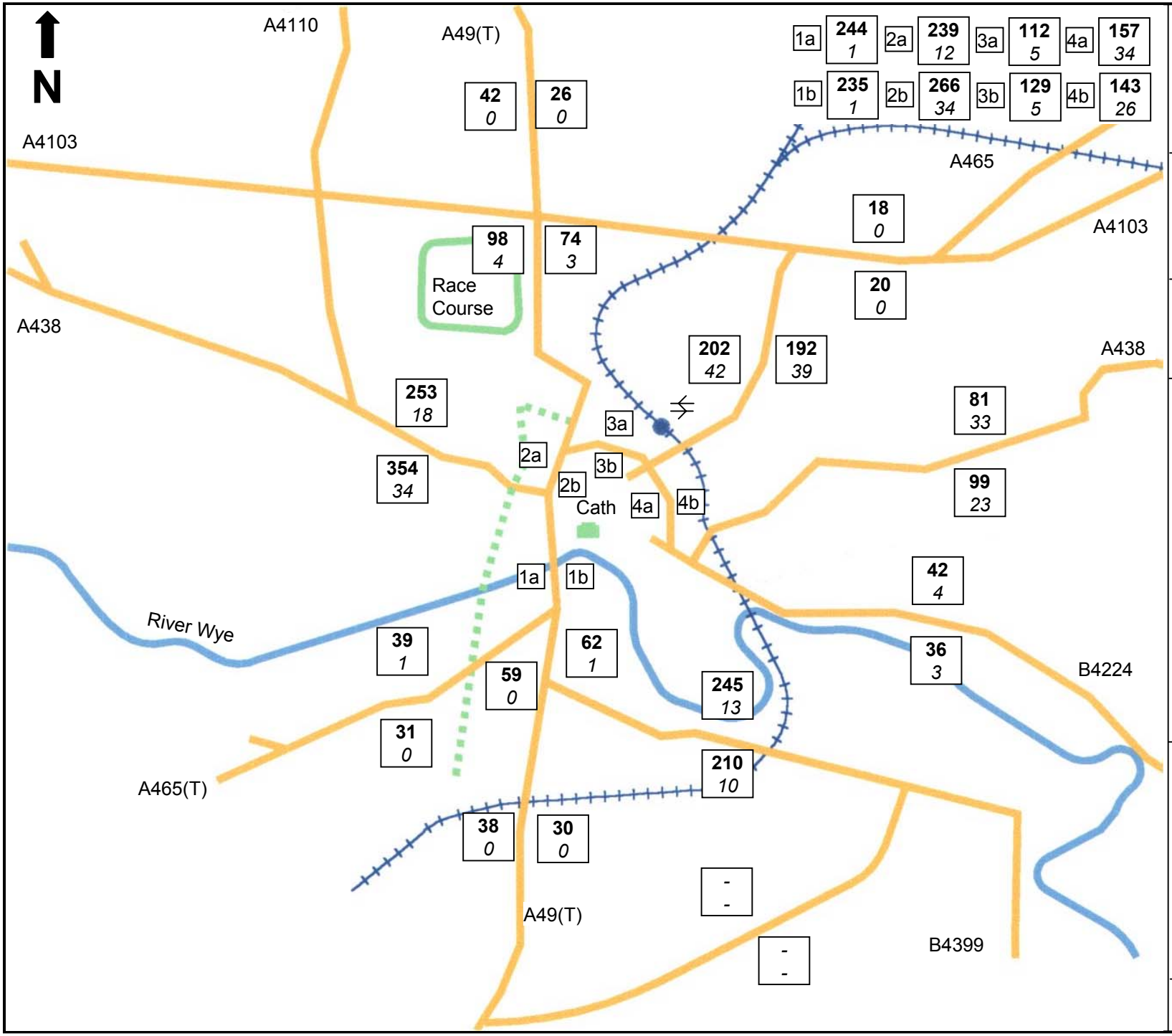
2031 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C20



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

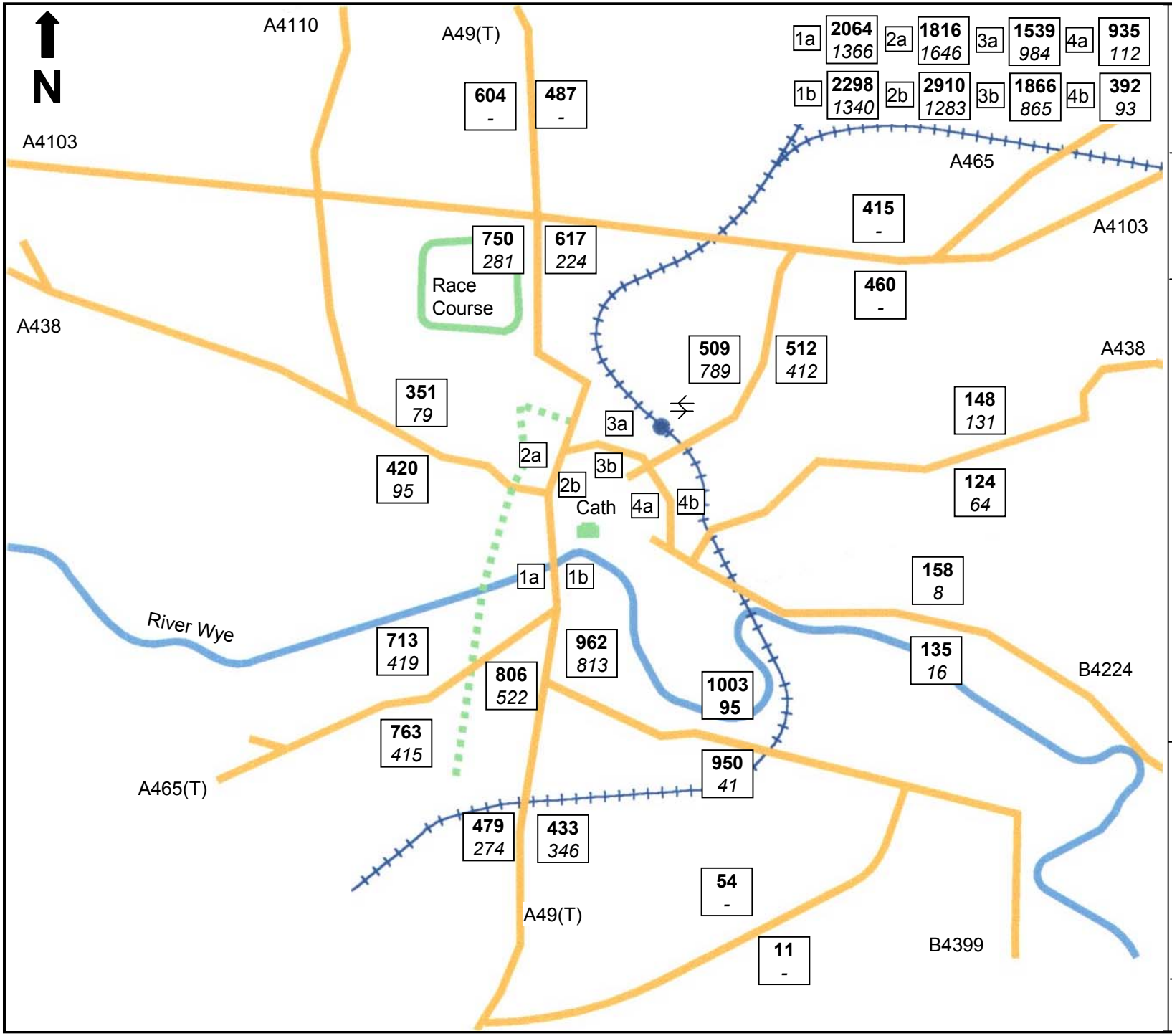
2031 Inter Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C21



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

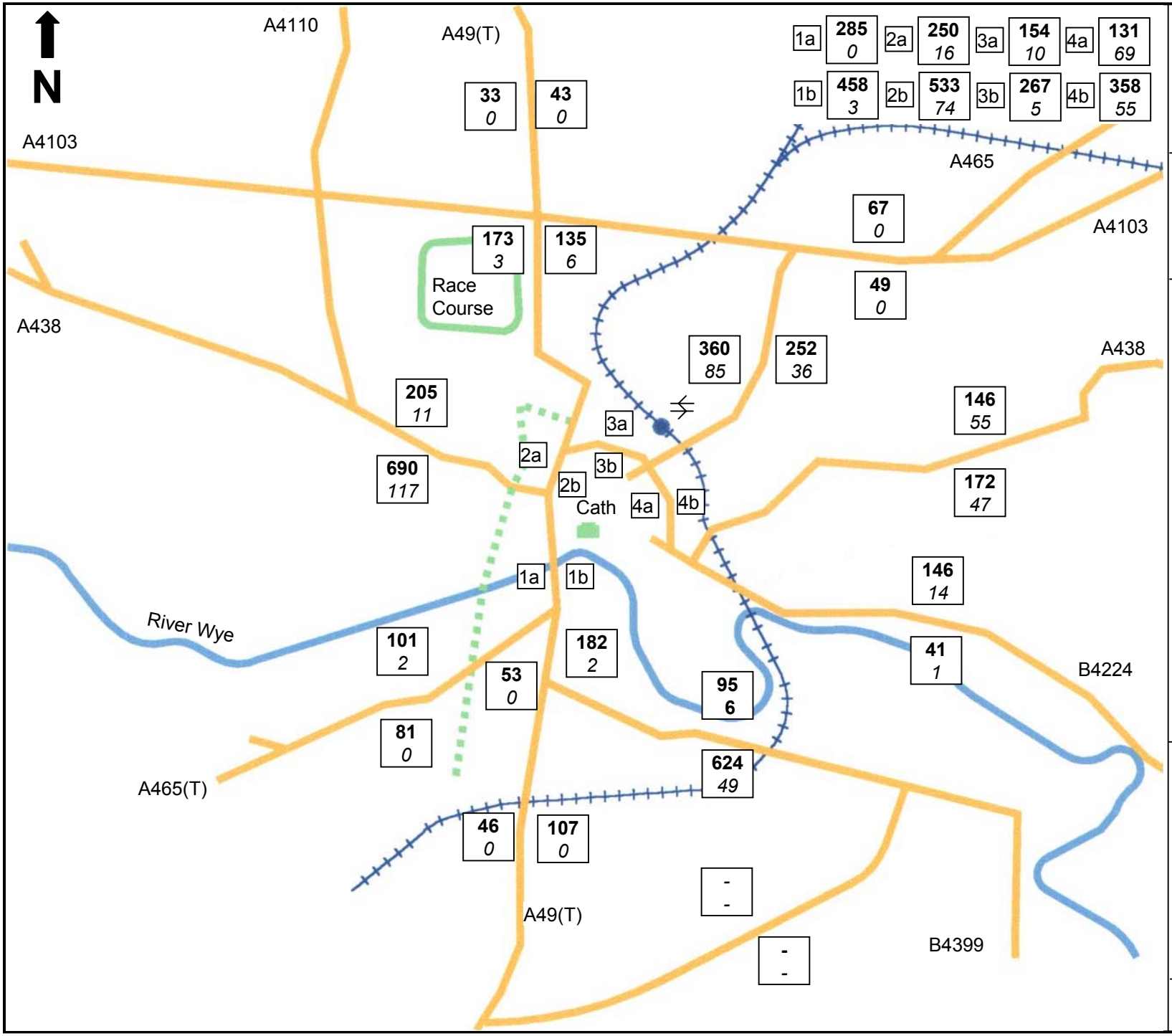
2031 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C22



Hereford Transport Review

Blended Package
(Without Western Outer Distributor)

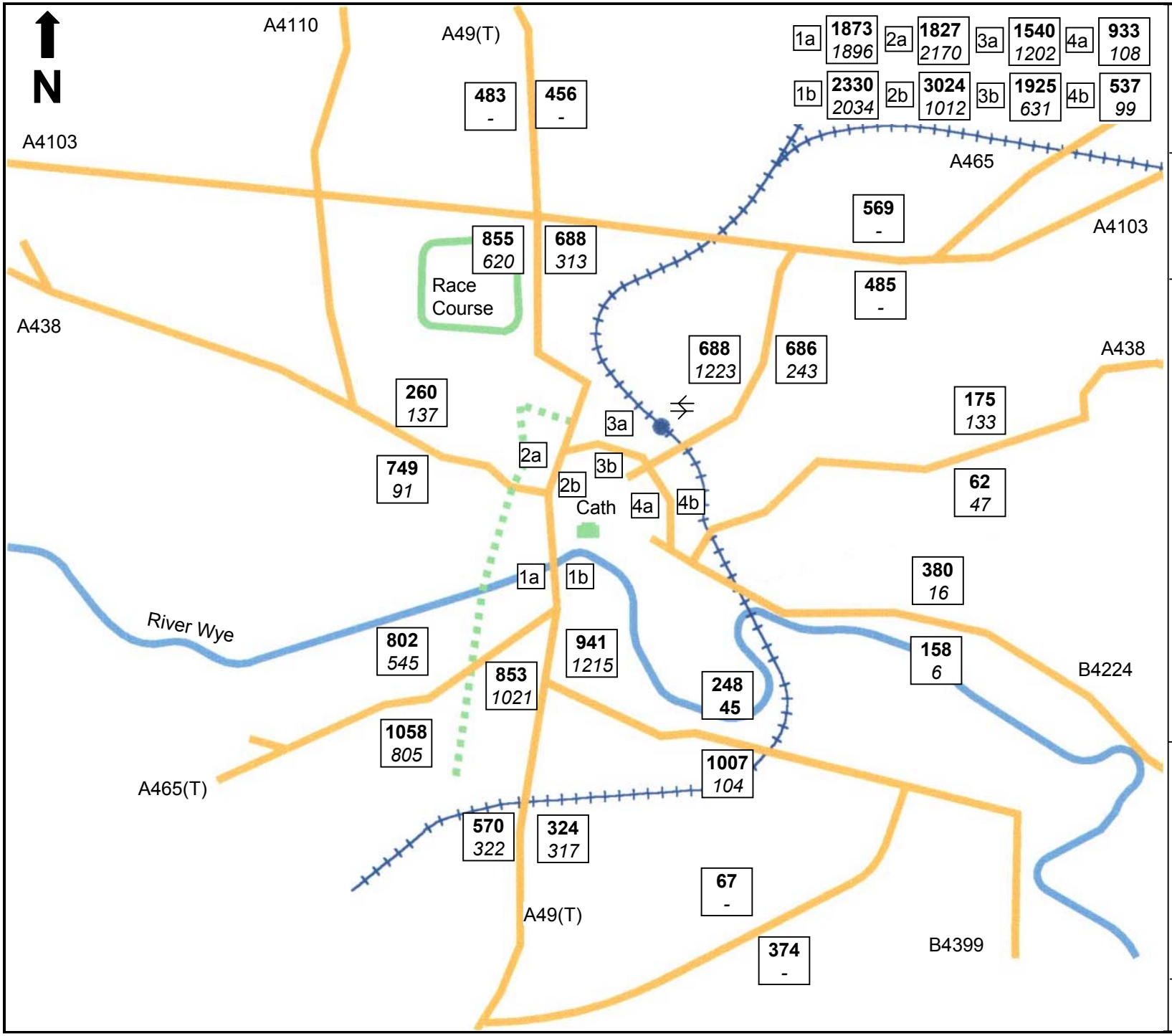
2031 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C23



Hereford Transport Review

Blended Package

(Without Western Outer Distributor)

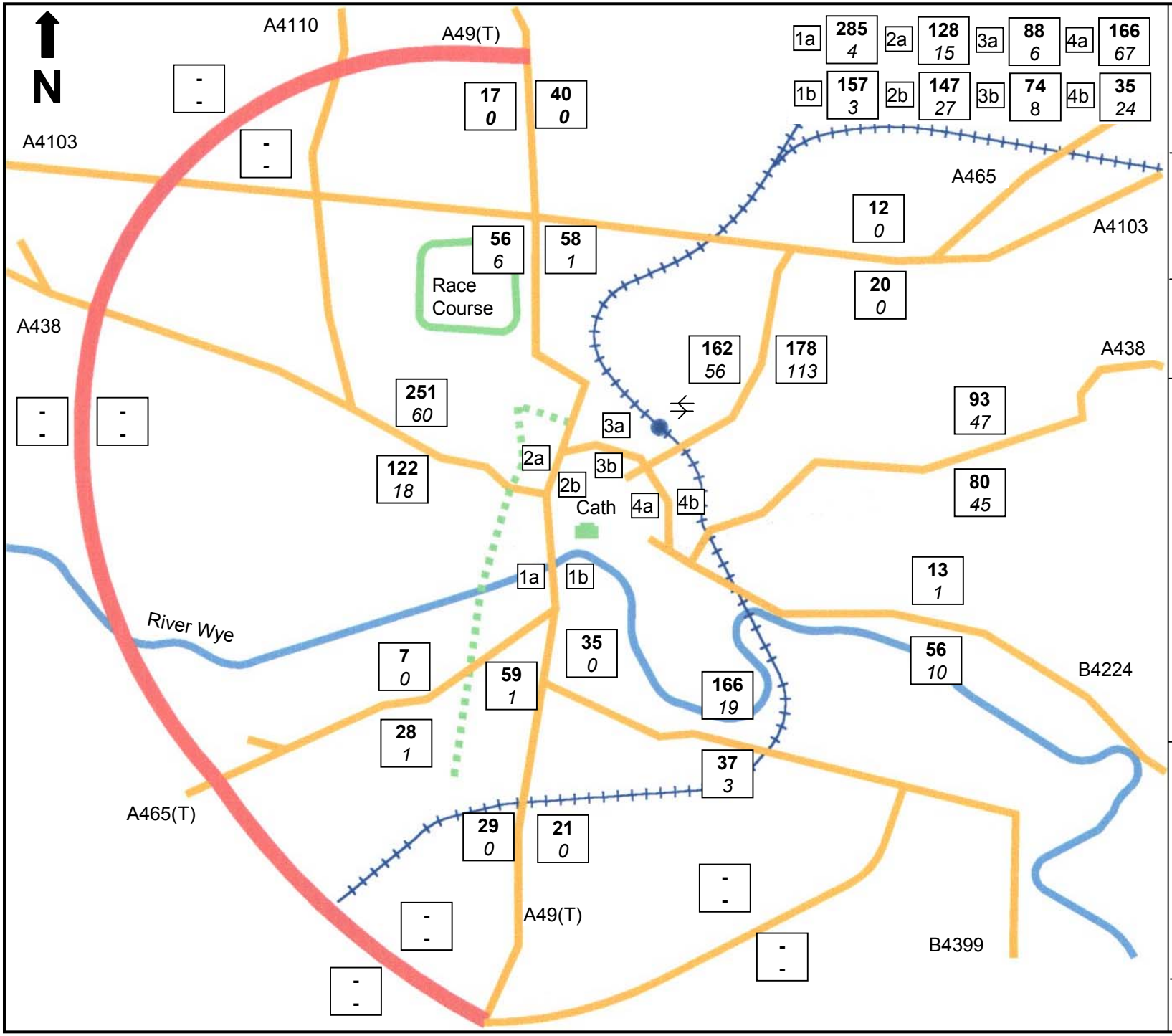
2031 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C24



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

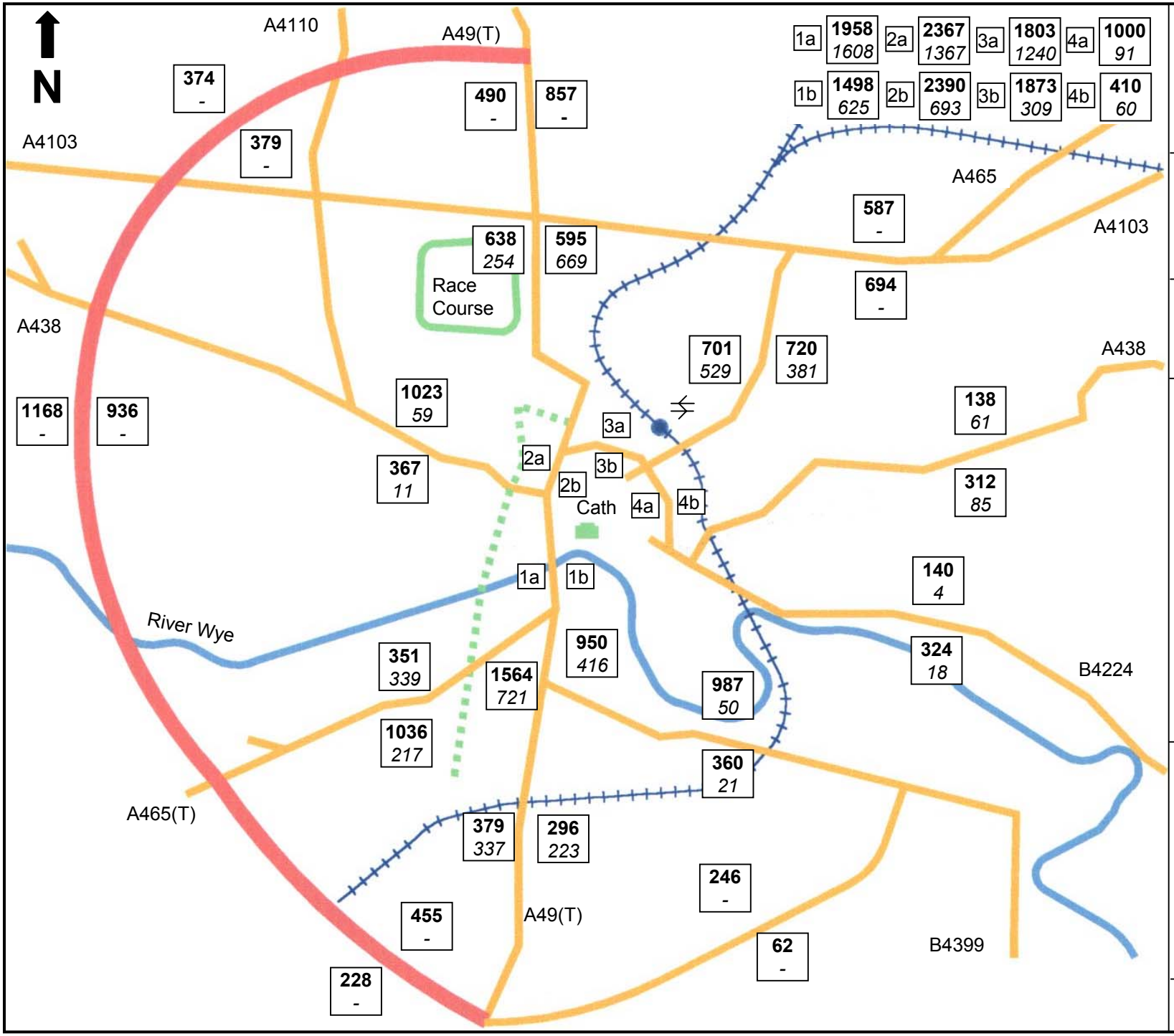
2011 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C25



Hereford Transport Review

Blended Package
(With Western Outer Distributor)

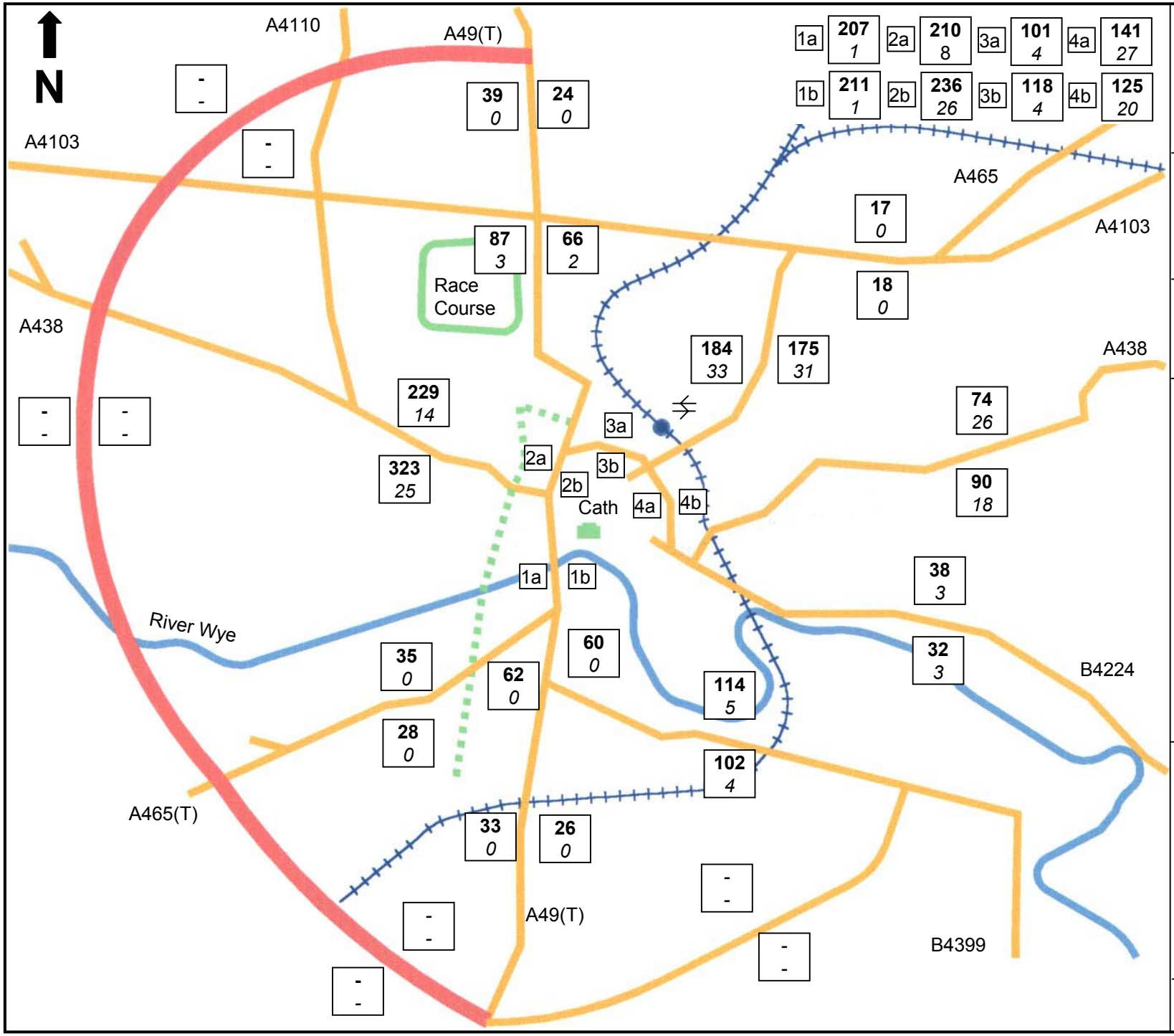
2011 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C26



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

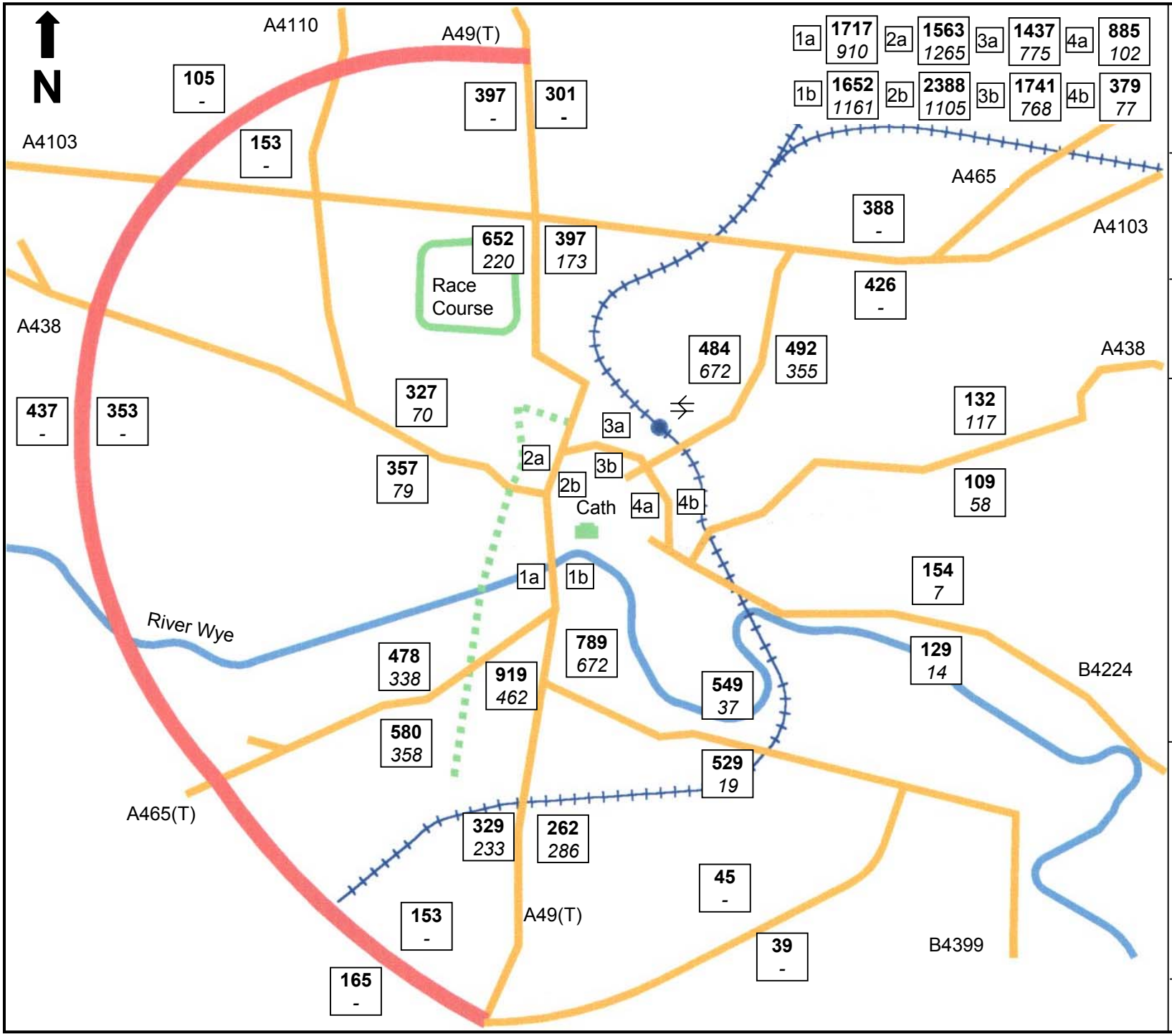
2011 Inter Peak Hour ASSSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C27



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

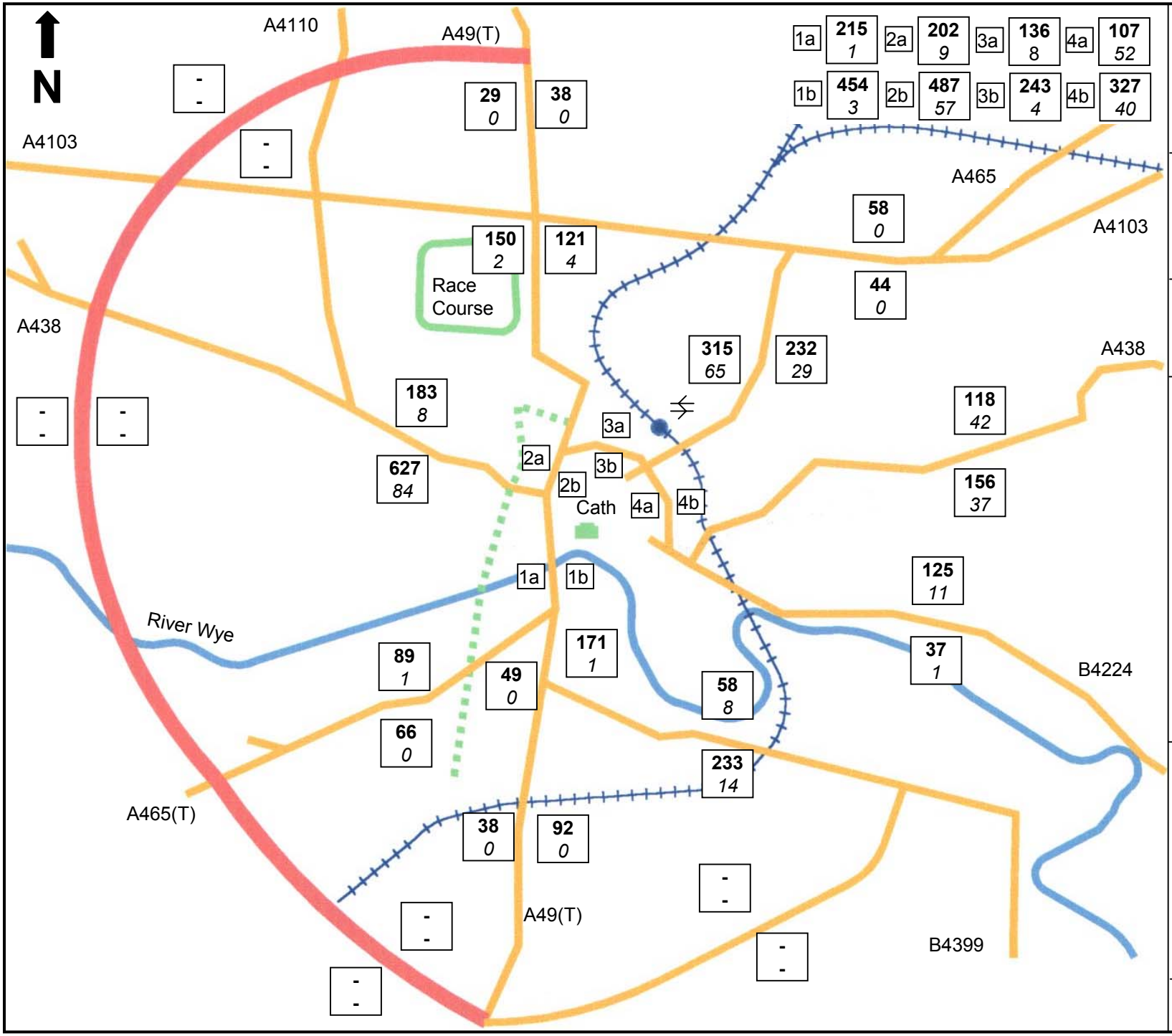
2011 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C28



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

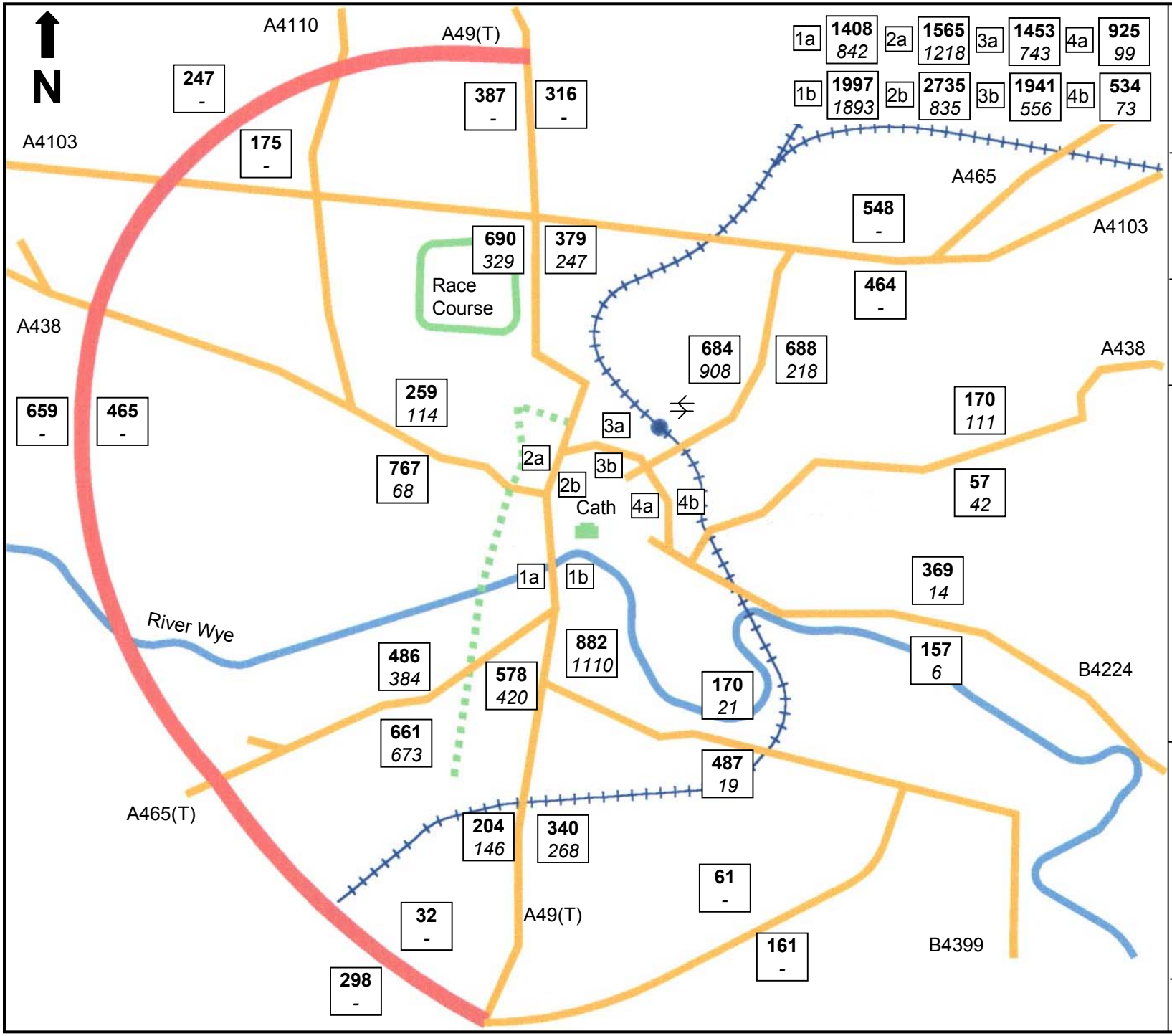
2011 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C29



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

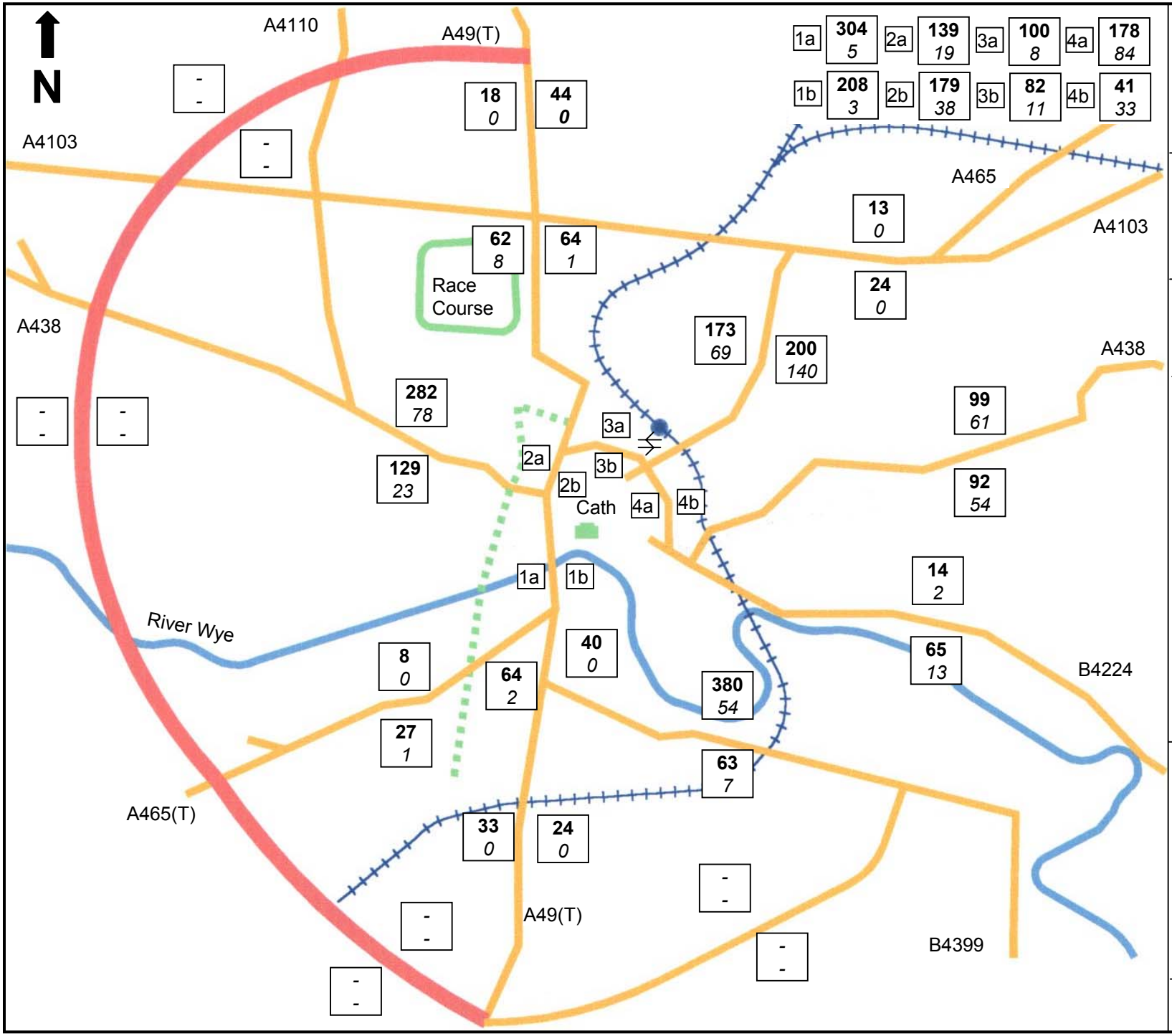
2011 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C30



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

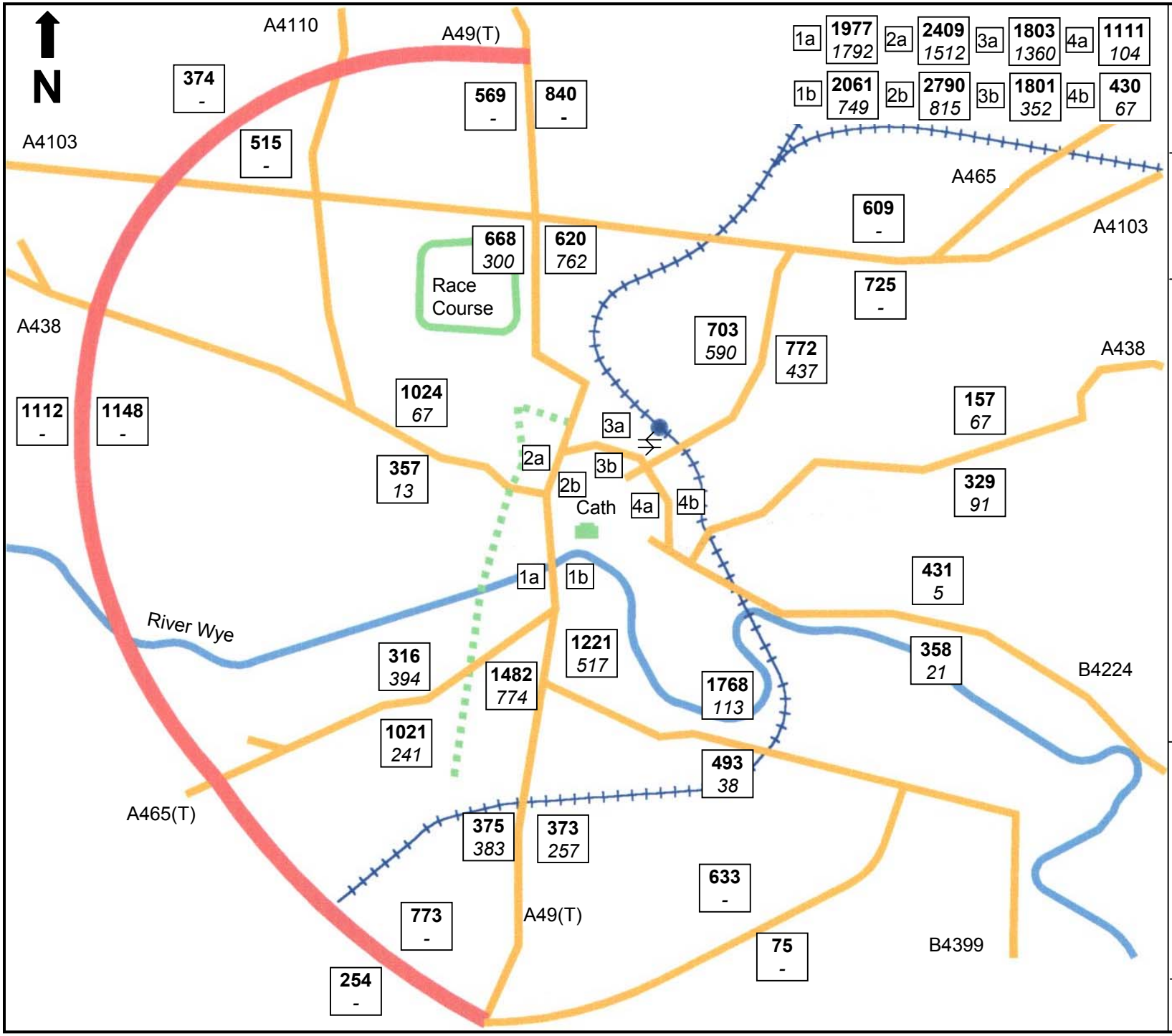
2031 AM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C31



Hereford Transport Review

Blended Package
(With Western Outer Distributor)

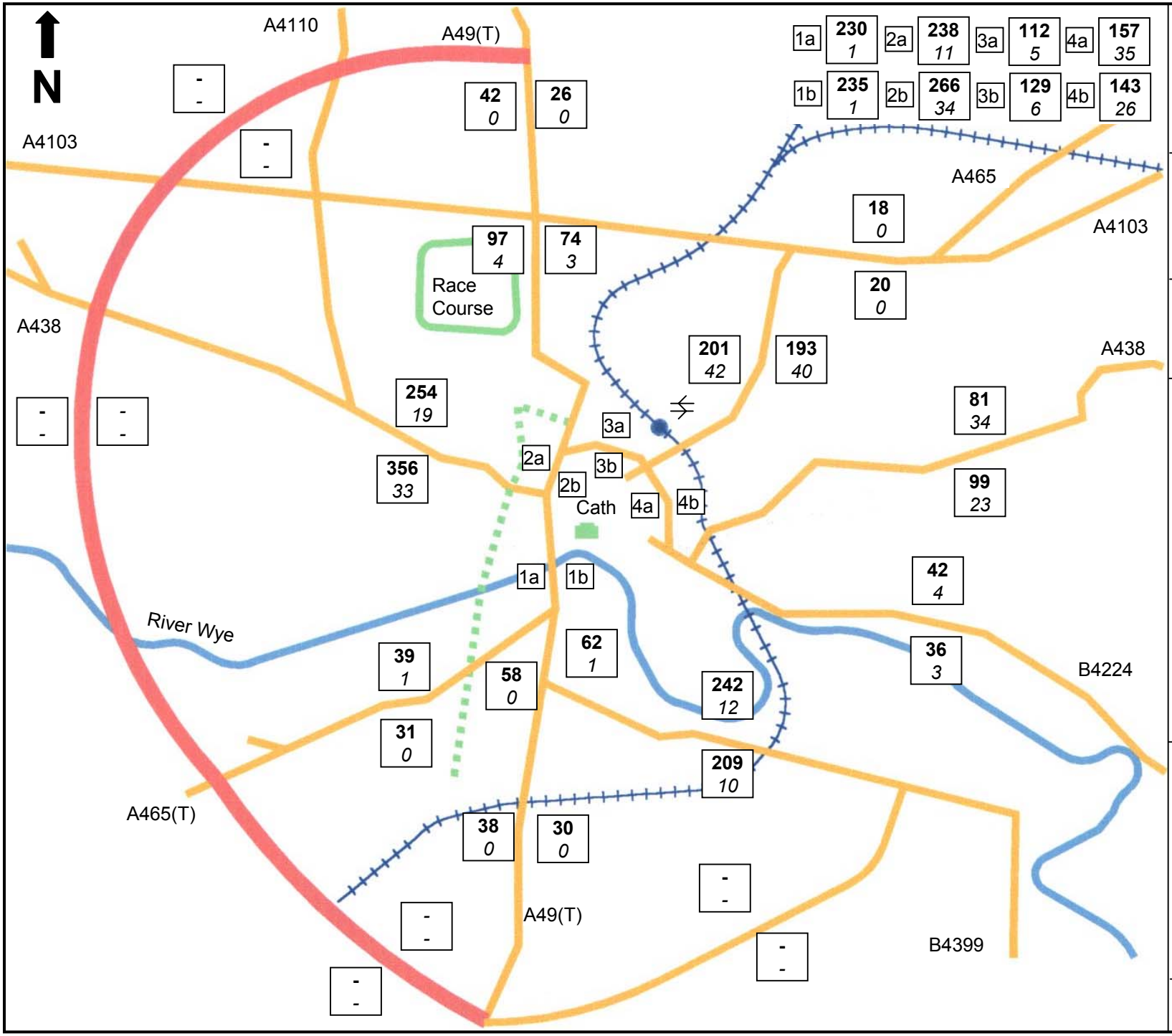
2031 AM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C32



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

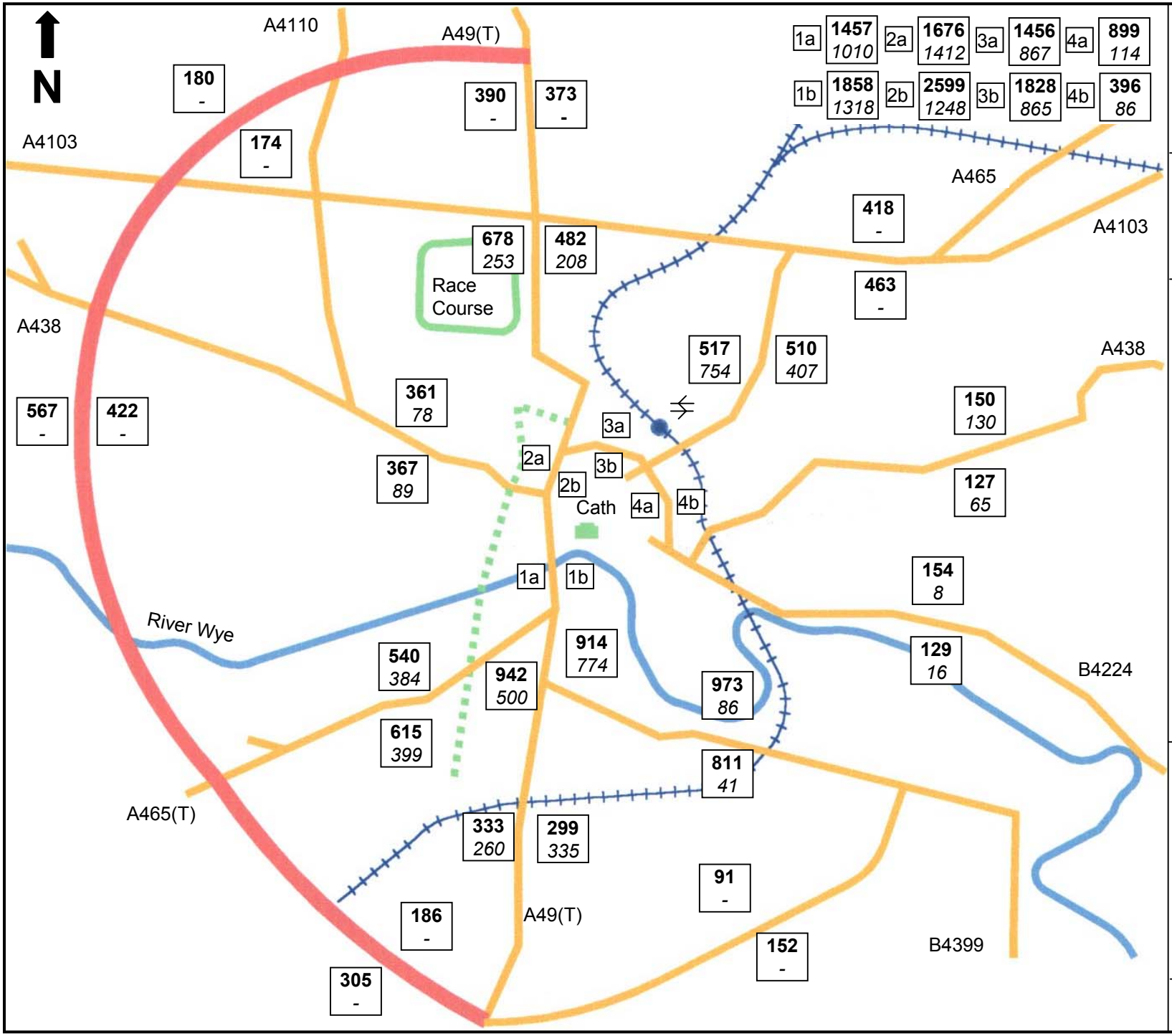
2031 Inter Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C33



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

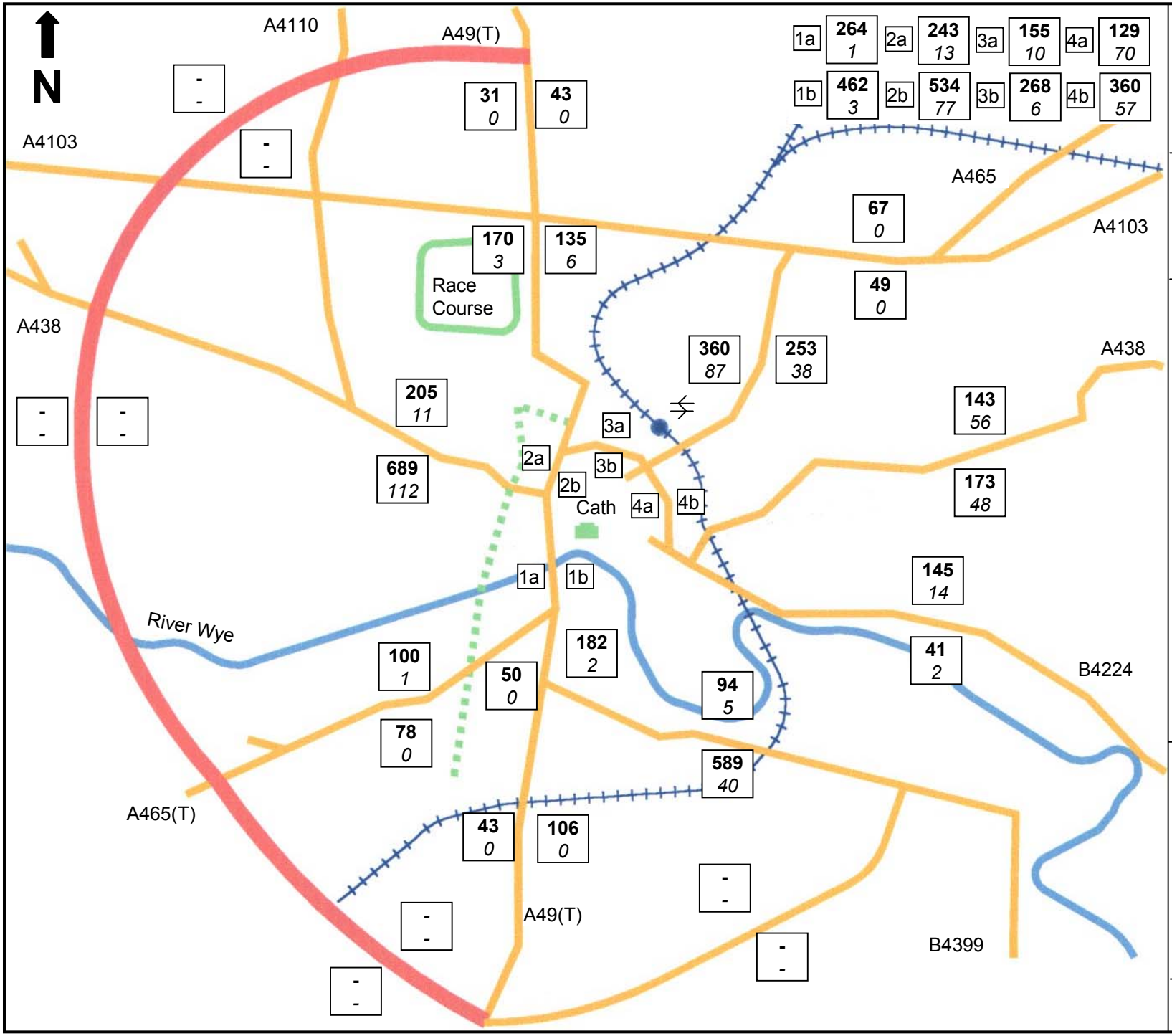
2031 Inter Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C34



Hereford Transport Review

Blended Package

(With Western Outer Distributor)

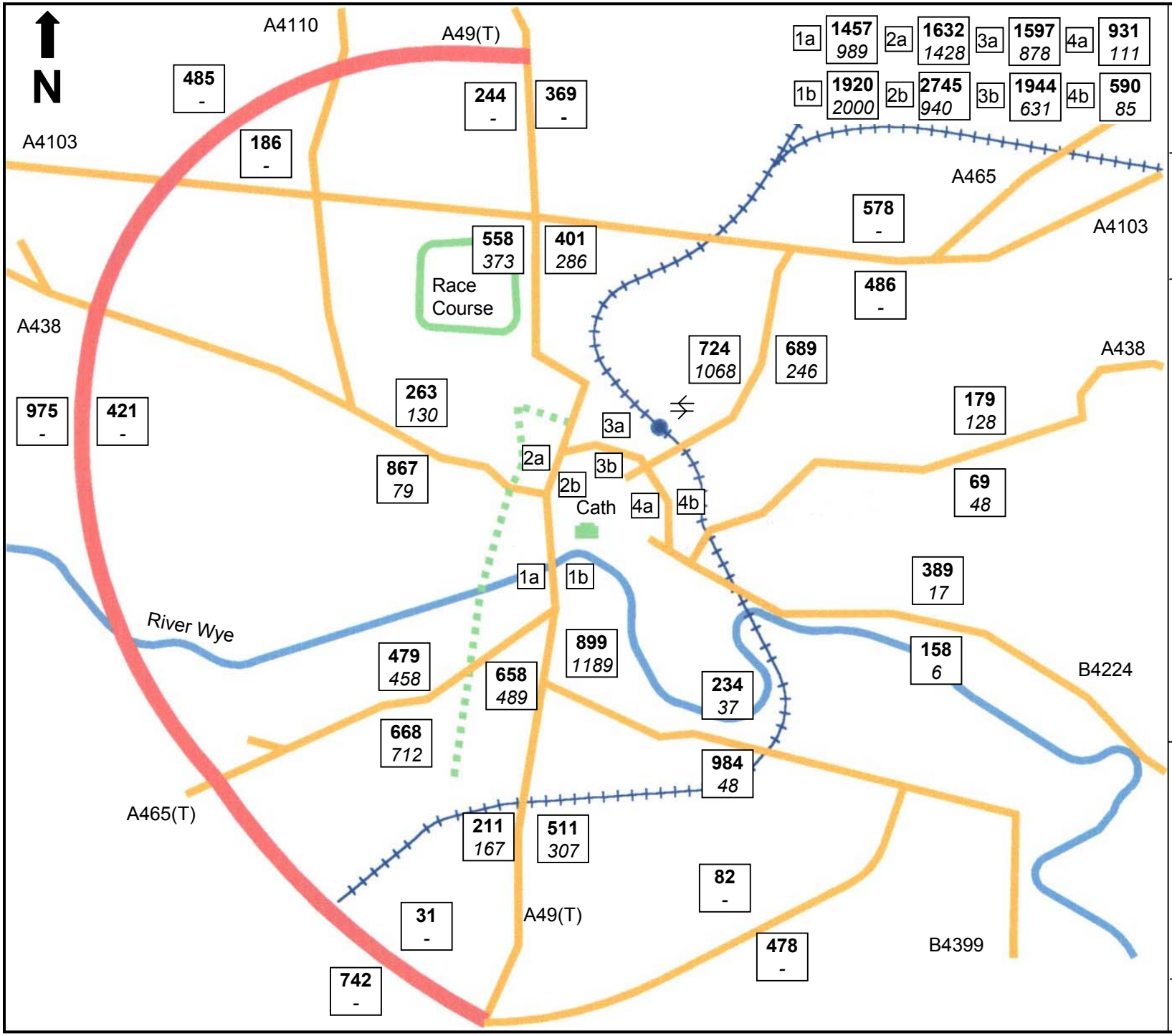
2031 PM Peak Hour ASSIGNMENT

Key:

ped/hour – Pedestrians
cyc/hour **–** Cyclists

TPi

Figure C35



Hereford Transport Review

Blended Package
(With Western Outer Distributor)

2031 PM Peak Hour ASSIGNMENT

Key:

pcu/hour – Car & HGV
pass/hour – Public Transport Passengers

TPi

Figure C36

Table C1 Future Year 2011 Trip Matrix Totals and % Split by Travel Mode

	AM Peak		PM Peak		Inter Peak	
Travel Mode	**No. Person Trips**	**% Total Trips**	**No. Person Trips**	**% Total Trips**	**No. Person Trips**	**% Total Trips**
Reference Case						
Car & LGV	27352	62.3	28191	59.8	23396	59.4
Public Transport	5473	12.5	5225	11.1	4506	11.4
Pedestrian	6630	15.1	10326	21.9	7557	19.2
Cycle	2003	4.6	1875	4.0	1325	3.4
HGV	2412	5.5	1530	3.2	2582	6.6
Total	43870	100.0	47148	100.0	39366	100.0
Combined Package – with W. Distributor						
Car & LGV	26042	59.4	25107	53.3	20567	52.2
Public Transport	6060	13.8	7419	15.7	6580	16.7
Pedestrian	7057	16.1	10771	22.8	7923	20.1
Cycle	2298	5.2	2320	4.9	1715	4.4
HGV	2412	5.5	1530	3.2	2582	6.6
Total	43869	100.0	47147	100.0	39367	100.0
Combined Package – with no W. Distributor						
Car & LGV	24156	55.1	24127	51.2	20144	51.2
Public Transport	7839	17.9	8293	17.6	6940	17.6
Pedestrian	7074	16.1	10821	23.0	7960	20.2
Cycle	2389	5.4	2375	5.0	1741	4.4
HGV	2412	5.5	1530	3.2	2582	6.6
Total	43870	100.0	47146	100.0	39367	100.0

Table C2 Future Year 2031 Trip Matrix Totals and % Split by Travel Mode

	AM Peak		PM Peak		Inter Peak	
Travel Mode	**No. Person Trips**	**% Total Trips**	**No. Person Trips**	**% Total Trips**	**No. Person Trips**	**% Total Trips**
Reference Case						
Car & LGV	29847	62.5	31459	59.8	25822	59.1
Public Transport	5647	11.8	5613	10.7	4802	11.0
Pedestrian	6945	14.5	11406	21.7	8163	18.7
Cycle	2085	4.4	2059	3.9	1439	3.3
HGV	3259	6.8	2067	3.9	3488	8.0
Total	47783	100.0	52603	100.0	43714	100.0
Combined Package – with W. Distributor						
Car & LGV	26572	55.6	26343	50.1	21284	48.7
Public Transport	6927	14.5	8537	16.2	7530	17.2
Pedestrian	8017	16.8	12494	23.8	9053	20.7
Cycle	3008	6.3	3161	6.0	2358	5.4
HGV	3259	6.8	2067	3.9	3488	8.0
Total	47783	100.0	52602	100.0	43713	100.0
Combined Package – with no W. Distributor						
Car & LGV	24679	51.6	25287	48.1	20860	47.7
Public Transport	8778	18.4	9508	18.1	7907	18.1
Pedestrian	7995	16.7	12543	23.8	9084	20.8
Cycle	3073	6.4	3197	6.1	2374	5.4
HGV	3259	6.8	2067	3.9	3488	8.0
Total	47784	100.0	52602	100.0	43713	100.0

APPENDIX D

Membership of Steering Group

APPENDIX E

Membership of the Wider Reference Group

Membership of the Steering Group

Chairman:	Stephen Oates	- Head of Engineering and Transportation, Herefordshire Council
	Ian Smith	- Government Office for the West Midlands (part)
	Peter Todd	- Government Office for the West Midlands (part)
	Peter Williams	- Government Office for the West Midlands (part)
	Yvette Keenahan	- Government Office for the West Midlands (part)
	Paige Mitchell	- West Midlands Sustainability Forum
	Rachel Bestwick	- Advantage West Midlands
	William Lyons	- Hereford and Worcester Chamber of Commerce
	Jonathon Felton	- Countryside Agency
	Paul Hillman	- Highways Agency
	Sam Chapman	- Highways Agency
	John Colyer	- Herefordshire Council
	Richard Ball	- Herefordshire Council

Consultant's representatives:

Terence M. Mulroy	- Project Director, Transportation Planning International Ltd.
Les Darrall	- Associate Project Director, Waterman Burrow Crocker

WIDER REFERENCE GROUP MEMBERSHIP	
Name	**Organisation**
Mark Pierce	Advantage West Midlands
Duncan Green	Bulmers
William Lyons	Chamber of Commerce H&W/Hereford City Partnership
Hereford Dial A Ride	Community Transport Forum
Jonathon Felton	Countryside Agency
Jon Ralph	County Youth Service
Bob Widdowson	CPRE
Anthony Davies	Eign Enterprises
Ann Plackett	English Heritage
Helen Stace	English Nature
Stuart Thomas	Environment Agency
Rodger Bird	Freight Transport Association
Brin Davies	Government Office
Ian Smith	Government Office
David Price	Herefordshire Pedestrian Forum
The Secretary	Hereford City Council
Alison Alsbury	Hereford City Partnership
Austin Birks	Herefordshire Bus Operators Forum
David Morris	Herefordshire Bus Operators Forum
Gordon Selway	Herefordshire Cycle Forum
Jean Howard	Herefordshire Primary Care Trust
Barry Shaw	Herefordshire Industrial Association
Tim Lewis	Herefordshire Taxi Association
Tom Barry	Highways Agency
Dennis Wheeler	Highways Agency
Claire Robinson	National Farmers Union
Richard Birt	Rail for Herefordshire
Paul Stanford	Railtrack Great Western
Dr M.P.I. Caton	Railway Development Society
Debbie Gittoes	Rotherwas Access Group
John Donaldson	SRA Stakeholder relations manager
Tom Inglis	Sun Valley
Chief Superintendent Guy Rutter	West Mercia Police
Alistair Glover	Wiggin Special Metals
Paige Mitchell	Hereford Transport Review Steering Group / Friends of the Earth
Paul Bainbridge	Herefordshire Rural Transport Partnership / Herefordshire Association of Local Councils
Brenda Jacobs	Voluntary Sector Assembly

Herefordshire Council	
Neil Pringle	Herefordshire Council Chief Executive
Graham Dunhill	Herefordshire Council – Director of
Environment	
Eddie Oram	Herefordshire Council Director of Education
Jane Jones	Herefordshire Council Director of Policy and Community
Sue Fiennes	Herefordshire Council Director of Housing and Social Care
Dave Nicholson	Herefordshire Council Chief Forward Planning Officer
Stephen Oates	Herefordshire Council Head of Engineering and Transportation
John Colyer	Herefordshire Council Transportation Manager
Richard Ball	Herefordshire Council Lead Planner (Transportation)
Anne Dowdeswell	Herefordshire Partnership

APPENDIX F

Initial Option Packages,

Appraisal Summary Tables

and Scheme Costs

TABLE F 1 Appraisal Summary Table

Option Package 1	Package Description:	Implementation Cost at Current (2002) Prices = £ 84M
	One bus based park and ride site (A49 south) **Metro linked to park and ride sites A465 north and south** **Maximum bus priorities** **City centre full pedestrianisation (Widemarsh St, High St, Broad St – access for bus, cyclists and pedestrians)** **New rail station at Rotherwas** **Improved cycle and pedestrian facilities** **20mph zones in residential areas** **One rail based park and ride site at Withington** **Dedicated school bus provision** **No new road schemes**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	**Noise**	Reduction in Study Area road traffic produces a slight benefit in respect of noise.	%age change in annual vehicle kms.	-10.1%
	Local Air Quality	Reduction in road vehicle traffic in Study Area has a slight benefit on the local air quality.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	-10.1% -6.5 tonnes/year -0.5 tonnes/year
	Greenhouse Gases	Reduction in road vehicle traffic in the Study Area reduces green house gas emissions	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	-10.1% -12,485 tonnes/year
	Landscape	Metro linked park and ride gives a potentially moderate adverse impact on landscape. Bus and rail park and ride slight adverse. Remainder neutral.	1 Scheme moderate adverse. 2 Schemes slight adverse. 7 Schemes neutral.	Moderate Adverse.
	Townscape	Moderate impact on townscape from metro. Slight impact rail-based park and ride. Moderate beneficial effect from pedestrianisation.	1 Scheme moderate adverse. 1 Scheme slight adverse. 7 Schemes neutral/moderate beneficial.	Moderate Adverse.
	Heritage of Historic Resources	Potential positive effects from removal of traffic from historic area. Negative effects from the new rail station at Rotherwas.	7 Schemes Mixed. 2 Schemes Potential Positive. 1 Scheme Negative	Negative Impact
	Biodiversity	Probably minor negative impact on biodiversity from bus/rail park & ride sites and rail station. Probably intermediate negative impact from metro park & ride sites.	3 Schemes probably minor negative impact. 1 Scheme probably intermediate negative impact. 6 Schemes insignificant impact.	Probably Intermediate negative impact.
	Water Environment	Mixed impacts from metro linked and rail park & ride and rail stations. Other impacts insignificant.	3 Schemes mixed impact. 7 Schemes insignificant impact.	Mixed Impact.
	Physical Fitness	The overall effect of the package of measures is a slight shift from car to soft modes (walk and cycle) giving physical fitness benefits.	%age Mode shift from car to soft modes.	+0.20%
	Journey Ambience	Rail based park and ride, and metro linked to park and ride provide moderate beneficial impacts. One bus-based park and rode, maximum bus priorities, new rail station at Rotherwas, and improved cycle and pedestrian facilities provide slight beneficial impact.	2 schemes moderate beneficial impact 4 schemes slight beneficial impact 4 schemes neutral impact	Slight beneficial impact
SAFETY	**Accidents**	Reduction in road vehicle traffic will lead to a proportionate reduction in accidents.	Reduction in all personal injury accidents	40no. (-9.4%)
	Security	Metro linked to park and ride, pedestrianisation, a new rail station at Rotherwas and improved cycle/pedestrian facilities provide a slight beneficial impact.	4 Schemes slight beneficial impact 6 Schemes neutral impact	Slight beneficial impact.
ECONOMY	**Transport Economic Efficiency**	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private: -£270.5m Goods: £104.2m Public Transport: £9.4m	Overall NPV -£227m Overall PVC -£59m PVC to Gov. -£56m (Grant/Subsidy -£55m) Overall BCR -2.8
	Reliability	The reduction in vehicle-kilometres due mainly to fewer car trips results in less traffic delay due to congestion on the network.	% Change in congestion delay.	-29%
	Wider Economic Impacts	Improved access to Rotherwas industrial area by train. Improved access to City commercial centre via metro and bus and park & ride.	No. of regeneration, commercial and industrial areas with improved transport access.	2 areas
ACCESSIBILITY	**Option Values**	Increased bus service frequencies, park and ride, metro and new rail station will increase travel options.	Change in public service vehicle-kms. % Mode shift from car to public transport.	+30% increase in psv kms +10.3% shift to public transport
	Severance	The central area has a large benefit with an average 24% reduction in traffic flow, whilst the A49 also has a large benefit with an average 40% reduction. Similarly the A465 benefits with an average 30% reduction. In addition the metro has a moderate disbenefit due to loss of amenity on the proposed metro route.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The metro, improved bus priorities and frequencies, rail station, improved cycle and pedestrian facilities will all benefit those who do not have access to a car.		Strong Beneficial
INTEGRATION	**Transport Interchange**	New interchanges as a result of one bus based park and ride, metro linked park and ride sites, one rail based park and ride and a new rail station at Rotherwas.	No. of new or improved transport and freight interchanges.	6 new interchanges
	Land-Use Policy	The Package 1 plan options will support the draft UDP Town Centres and Retail policies, and the Rotherwas station will mitigate access constraints to the Rotherwas employment area.	Three point GOMMMS scale	Beneficial

TABLE F2 Appraisal Summary Table

Option Package 2	Package Description:	Implementation Cost at Current (2002) Prices = £ 42M
	Three bus based park and ride sites (A49 south, A465 north and south) **Maximum bus priorities** **City centre full pedestrianisation (Widemarsh St, High St, Broad St – access for bus, cyclists and pedestrians)** **New rail station at Rotherwas** **Improved cycle and pedestrian facilities** **20mph zones in residential areas** **One rail based park and ride site at Withington** **Dedicated school bus provision** **No new road schemes**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	Increase in road vehicle traffic has a slight benefit on noise.	%age change in annual vehicle kms.	-9.9%
	Local Air Quality	Increase in road vehicle traffic has a slight benefit on the local air quality.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	-9.9% -6.4 tonnes/year -0.47 tonnes/year
	Greenhouse Gases	Increase in road vehicle traffic in the study area should be taken in a wider context.	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	-9.9% -12,311tonnes/year
	Landscape	Bus based park and ride potential moderate impact; Slight impact from rail base park and ride. Other schemes neutral.	1 Scheme moderate adverse. 1 Scheme slight adverse. 7 Schemes neutral.	Moderate adverse.
	Townscape	3 bus based park and ride potentially slight to moderate adverse. Rail based park and ride slight adverse. City centre pedestrianisation moderate beneficial.	1 Scheme moderate adverse. 1 Scheme slight adverse. 6 Schemes neutral. 1 Scheme moderate beneficial.	Moderate adverse
	Heritage of Historic Resources	Potential negative impact from 3 bus based park and ride sites, positive impact of city centre pedestrianisation.	1 Scheme negative impact. 1 Scheme positive impact. 7 Schemes mixed impact.	Negative impact.
	Biodiversity	Bus and rail park and ride, and rail station probably minor negative impact, other schemes insignificant.	3 Schemes probably minor negative impact. 6 Schemes insignificant impact.	Probably minor negative.
	Water Environment	Potential mixed impact from 3 bus-based and rail park and ride sites and rail station, other schemes likely to be insignificant.	3 Schemes mixed impact. 6 Schemes insignificant impact.	Mixed impact.
	Physical Fitness	The overall effect of the package of measures is to reduce the number of car trips which have no physical fitness benefit.	%age Mode shift from car to soft modes.	+0.2%
	Journey Ambience	Three bus-based and one rail-based park and ride sites provide a moderate beneficial impact. Maximum bus priorities and a new rail station at Rotherwas provide a slight beneficial impact.	2 Schemes moderate beneficial impact 2 Schemes slight beneficial impact 5 Schemes neutral impact	Slight beneficial impact.
SAFETY	Accidents	Reduction in road vehicle traffic will lead to a proportionate reduction in accidents.	Reduction in all personal injury accidents	40no. (-9.4%)
	Security	New rail station at Rotherwas and improved cycle/pedestrian facilities provide a slight beneficial impact.	2 Schemes slight beneficial impact 7 Schemes neutral impact	Slight beneficial impact.
ECONOMY	Transport Economic Efficiency	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private User Benefits: -£307.5m Goods Vehicles Benefits: £106.8m Public Transport User Benefits: £8.9m	Overall NPV -£233m Overall PVC -£31m PVC to Gov. -£28m (Grant/Subsidy -£27m) Overall BCR -6.5
	Reliability	The reduction in vehicle-kilometres due mainly to fewer car trips results in less traffic delay due to congestion on the network.	% Change in congestion delay.	-29%
	Wider Economic Impacts	Improved access to Rotherwas by train. Improved access to city centre via bus and park and ride.	No. of regeneration, commercial and industrial areas with improved transport access.	2 areas
ACCESSIBILITY	Option Values	Increased bus service frequencies, park and ride and new rail station will increase travel options.	Change in public service vehicle kms. % Mode shift from car to public transport.	+27% increase in psv kms +10.0% shift to public transport
	Severance	The central area has a large benefit with an average 25% reduction in traffic flow, whilst the A49 also has a large benefit with an average 40% reduction. Similarly, the A465 benefits with an average 28% reduction.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The improved bus priorities and frequencies, rail station, improved cycle and pedestrian facilities will all benefit those who do not have access to a car.		Strong Beneficial
INTEGRATION	Transport Interchange	New interchanges as a result of three bus based park and ride sites, a new rail station and a rail based park and ride.	No. of new or improved transport and freight interchanges.	5 interchanges
	Land-Use Policy	The Package 2 plan options will support the draft UDP policies S4 Employment, S5 Town centres and retail and S6 Transport	Three point GOMMMS scale	Beneficial

TABLE F3 Appraisal Summary Table

Option Package 3	Package Description:	Implementation Cost at Current (2002) Prices = £ 53.2M
	One bus based park and ride site (A49 South) **Limited bus priorities** **City centre pedestrianisation (Widemarsh St, High St)** **Improved cycle and pedestrian facilities** **One rail based park and ride site at Withington** **Eastern distributor (incl. A49 South to A465 South link)**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	Increase in road vehicle traffic has a slight adverse impact on noise.	%age change in annual vehicle kms.	+15%
	Local Air Quality	Increase in road vehicle traffic has a slight adverse impact on the local air quality. The impact will be proportionately less than the increase in traffic as vehicle speeds will be increased and vehicles will operate more efficiently.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	+15% +14.6 tonnes/year + 0.5 tonnes/year
	Greenhouse Gases	Increase in road vehicle traffic in the study area should be taken in a wider context. The impact will be proportionately less than the increase in traffic as vehicle speeds will be increased and vehicles will operate more efficiently.	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	+15% +3,247 tonnes/year
	Landscape	Eastern distributor large adverse. Bus and rail park and ride slight adverse. Remaining schemes neutral.	1 Scheme large adverse. 2 Schemes slight adverse. 3 Schemes neutral.	Large adverse.
	Townscape	Rail based park and ride slight adverse impact, city centre pedestrianisation moderate beneficial, other schemes neutral.	1 Scheme slight adverse. 4 Schemes neutral. 1 Scheme moderate beneficial.	Slight adverse.
	Heritage of Historic Resources	Positive impacts from 1 bus park and ride and city centre pedestrianisation other impacts mixed.	2 Schemes potential positive impact. 4 Schemes mixed impact.	Mixed impact.
	Biodiversity	Eastern distributor probably major negative impact, bus park and ride and rail based park and ride probably minor negative impact, other schemes insignificant.	1 Scheme probably major negative impact 2 Schemes probably minor impact. 3 Schemes insignificant impact.	Probably Major Negative.
	Water Environment	Potential significant negative impact from Eastern distributor, rail based park and ride mixed impact other schemes insignificant.	1 Scheme significant negative impact. 1 Scheme mixed impact. 4 Schemes insignificant impact.	Significant Negative.
	Physical Fitness	The overall effect of the package of measures is to increase the number of car trips which have no physical fitness benefit.	%age Mode shift from car to soft modes.	-1.1%
	Journey Ambience	Rail-based park and ride and the eastern distributor road provide a moderate beneficial impact. One bus-based park and ride provides a slight beneficial impact.	2 Schemes moderate beneficial impact. 1 Scheme slight beneficial impact. 3 Schemes neutral impact.	Slight beneficial impact.
SAFETY	Accidents	Although there is an increase in road vehicle traffic, some of this traffic will transfer to new safer roads.	Reduction in all personal injury accidents	20no. (-4.7%)
	Security	City centre partial pedestrianisation and improved cycle/pedestrian facilities provide a slight beneficial impact.	2 Schemes slight beneficial impact 4 Schemes neutral impact	Slight beneficial impact.
ECONOMY	Transport Economic Efficiency	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private: £842.3m Goods: £116.3m Public Transport: -£0.3m	Overall NPV £913m Overall PVC - £32m PVC to Gov. -£35m (Grant/Subsidy -£3.5) Overall BCR 29.7
	Reliability	Less congestion due to traffic moving from the centre and using the new eastern distributor road.	% Change in congestion delay.	-42.9%
	Wider Economic Impacts	Improved access to city centre via bus park and ride. Improved access to Holmer Road and Rotherwas industrial areas by road.	No. of regeneration, commercial and industrial areas with improved transport access.	3 areas
ACCESSIBILITY	Option Values	Improved bus priorities and frequencies and park and ride will increase travel options.	Change in public service vehicle kms. % Mode shift from car to public transport.	-5.2% decrease in psv kms -0.4% shift to car
	Severance	The central area has a very large benefit with an average 39% reduction in traffic flow. Both the A49 and A465 have large adverse impacts close to the junctions with the Eastern distributor with a 65% increase in flow. However, large benefits are gained on the A465 north and A49 south with 40% reductions in flow.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The improved bus priorities, and improved cycle and pedestrian facilities will benefit those who do not have access to a car.		Moderate Beneficial
INTEGRATION	Transport Interchange	New interchanges as a result of one bus-based and one rail-based park and ride sites.	No. of new or improved transport and freight interchanges.	2 interchanges
	Land-Use Policy	The Package 3 plan options will support the draft UDP policies S4 Employment, S5 Town centres and retail and S6 Transport.	GOMMMS three point scale	Beneficial

TABLE F4 Appraisal Summary Table

Option Package 4	Package Description:	Implementation Cost at Current (2002) Prices = £ 43.3M
	One bus based park and ride site (A49 South) **Limited bus priorities** **City centre pedestrianisation (Widemarsh St, High St)** **Improved cycle and pedestrian facilities** **One rail based park and ride site at Withington** **Western distributor (A49 South to A49 North)**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	Increase in road vehicle traffic has a slight adverse impact on noise.	%age change in annual vehicle kms.	+13.4%
	Local Air Quality	Increase in road vehicle traffic has a slight adverse impact on the local air quality. The impact will be proportionately less than the increase in traffic as vehicle speeds will be increased and vehicles will operate more efficiently.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	+13.4% +13.0 tonnes/year + 0.4 tonnes/year
	Greenhouse Gases	Increase in road vehicle traffic in the study area should be taken in a wider context. The impact will be proportionately less than the increase in traffic as vehicle speeds will be increased and vehicles will operate more efficiently.	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	+13.4% +2,195 tonnes/year
	Landscape	Western distributor large adverse, bus based park and ride and rail based park and ride slight adverse, other schemes neutral.	1 Scheme large adverse. 2 Schemes slight adverse. 3 Schemes neutral.	Large adverse.
	Townscape	City centre pedestrianisation moderate beneficial. Rail based park and rise slight adverse, other schemes neutral.	1 Scheme slight adverse. 4 Schemes neutral. 1 Scheme moderate beneficial.	Slight adverse.
	Heritage of Historic Resources	City centre pedestrianisation and bus based park and ride potential positive, other schemes mixed impact.	2 Schemes potential positive. 4 Schemes mixed impact.	Mixed impact.
	Biodiversity	Western distributor probably intermediate negative, bus and rail based park and ride probably minor negative, other schemes insignificant.	1 Scheme probably intermediate negative. 2 Schemes probably minor negative. 3 Schemes insignificant.	Probably Intermediate Negative.
	Water Environment	Western distributor probably significant negative. Rail based park and ride mixed impact. Other schemes insignificant.	1 Scheme probably significant negative impact. 1 Scheme mixed impact. 4 Schemes insignificant impact.	Significant Negative.
	Physical Fitness	The overall effect of the package of measures is to increase the number of car trips which have no physical fitness benefit.	%age Mode shift from car to soft modes.	-0.9%
	Journey Ambience	Rail-based park and ride and the western distributor road provide a moderate beneficial impact. One bus-based park and ride provides a slight beneficial impact.	2 Schemes moderate beneficial impact. 1 Scheme slight beneficial impact. 3 Schemes neutral impact.	Slight beneficial impact.
SAFETY	Accidents	Although there is an increase in road vehicle traffic, some of this traffic will transfer to new safer roads.	Reduction in all personal injury accidents	18no. (-4.2%)
	Security	City centre partial pedestrianisation and improved cycle/pedestrian facilities provide a slight beneficial impact.	2 Schemes slight beneficial impact 4 Schemes neutral impact	Slight beneficial impact.
ECONOMY	Transport Economic Efficiency	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private £452.0m Goods: £77.7m Public Transport: -£0.4m	Overall NPV £499m Overall PVC -£27m PVC to Gov. -£30m (Grant/Subsidy -£5.0m) Overall BCR 19.14
	Reliability	Less congestion due to traffic moving from the centre and using the new western distributor road.	% Change in congestion delay	-29.3%
	Wider Economic Impacts	Improved access to city centre via bus and park and ride. Improved road access to Rotherwas and Holmer Road industrial/commercial areas.	No. of regeneration, commercial and industrial areas with improved transport access.	3 areas
ACCESSIBILITY	Option Values	The new Western Distributor results in a 1.3% decrease in public service vehicle kilometres but the more frequent bus services and park and ride schemes result in a 0.17% shift from car to public transport.	Change in public service vehicle kms. % Mode shift from car to public transport.	-1.3% decrease in PSV kms +0.17% mode shift from car to Public transport
	Severance	The central area has a large benefit with an average 31% reduction in traffic flow. Both the A49 and A465 have large adverse impacts close to the junctions with the Western distributor with a 30-70% increase in flow. However, large benefits are gained on the A465 north and A49 south with 20-50% reductions in flow.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The improved bus priorities, and improved cycle and pedestrian facilities will benefit those who do not have access to a car.		Moderate Beneficial
INTEGRATION	Transport Interchange	New interchanges as a result of one bus-based and one rail-based park and ride sites	No. of new or improved transport and freight interchanges.	2 interchanges
	Land-Use Policy	The Package 4 plan options will support the draft UDP policies S4 Employment, S5 Town centres and retail and S6 Transport.	GOMMMS three point scale	Beneficial

TABLE F5 Appraisal Summary Table

Option Package 5	Package Description:	Implementation Cost at Current (2002) Prices = £ 46.9M
	One bus based park and ride site (A49 South) **Limited bus priorities** **City centre pedestrianisation (Widemarsh St, High St)** **Improved cycle and pedestrian facilities** **One rail based park and ride site at Withington** **New link and river bridge within City – East – A49 Newtown roundabout to B4399 Rotherwas** **Dualling A49 completed within urban area**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	**Noise**	Reduction in road vehicle traffic has a slight benefit on noise.	%age change in annual vehicle kms.	-1.2%
	Local Air Quality	Reduction in road vehicle traffic has a slight benefit on the local air quality.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	-1.2% +3.6 tonnes/year -0.2 tonnes/year
	Greenhouse Gases	Reduction in road vehicle traffic in the study area should be taken in a wider context.	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	-1.2% -11,291 tonnes/year
	Landscape	New river bridge in city east moderate adverse, and 1 bus based park and ride and rail based park and ride slight adverse.	2 Schemes slight adverse. 1 Scheme moderate adverse 4 Schemes neutral.	Moderate adverse.
	Townscape	New river bridge in city east and dualling A49 moderate adverse. Rail based park and ride slight adverse. City centre pedestrianisation moderate beneficial, others neutral.	2 Schemes moderate adverse. 1 Scheme slight adverse. 3 Schemes Neutral. 1 Scheme moderate beneficial.	Moderate adverse.
	Heritage of Historic Resources	New river bridge in city east and dualling A49 negative. City centre pedestrianisation and bus based park and ride potential positive.	2 Schemes negative. 2 Schemes positive. 3 Schemes mixed.	Negative Impact.
	Biodiversity	New bridge in city east probably intermediate negative, rail based park and ride and bus based park and ride probably minor negative, other schemes insignificant.	2 Schemes probably minor negative. 1 Scheme probably intermediate negative. 4 Schemes insignificant.	Probably Intermediate Negative.
	Water Environment	New bridge in city east significant negative impact. Rail based park and ride mixed. Other schemes insignificant impact.	1 Scheme significant negative. 1 Scheme mixed. 5 Schemes insignificant.	Significant Negative.
	Physical Fitness	The overall effect of the package of measures is to reduce the number of car trips which have no physical fitness benefit.	%age Mode shift from car to soft modes.	-0.45%
	Journey Ambience	Rail-based park and ride, improved cycle and pedestrian facilities, and the new river bridge all provide a moderate beneficial impact. One bus-based park and ride and dualling of the A49 provide slight beneficial impact.	3 Schemes moderate beneficial impact 2 Schemes slight beneficial impact 2 Schemes neutral impact	Slight beneficial impact.
SAFETY	**Accidents**	A slight reduction in traffic and the safer new and improved roads will lead to a reduction in accidents.	Reduction in all personal injury accidents	71no. (-16.6%)
	Security	City centre partial pedestrianisation and improved cycle/pedestrian facilities provide a slight beneficial impact.	2 Schemes slight beneficial impact 5 Schemes neutral impact	Slight beneficial impact.
ECONOMY	**Transport Economic Efficiency**	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private: £755.0m Goods: £134.1m Public Transport: -£0.4m	Overall NPV £840m Overall PVC -£30m PVC to Gov. -£31m (Grant/Subsidy -£3.4m) Overall BCR 29.4
	Reliability	Less congestion due to traffic moving from the centre and using the new link and river bridge and dualled A49.	% change in congestion delay	-39.6%
	Wider Economic Impacts	Improved access to city centre via bus and park and ride. Improved access to Rotherwas via new link and river bridge.	No. of regeneration, commercial and industrial areas with improved transport access.	2 areas
ACCESSIBILITY	**Option Values**	Improved bus priorities and frequencies and park and ride increase travel options.	Change in public service vehicle kms. % Mode shift from car to public transport.	+12.3% + 1.5%
	Severance	The central area has a large benefit with an average 39% reduction in traffic flow, whilst the A49 also has a large benefit with an average 40% reduction. A very small increase in flow occurs on the A465 but this is negligible.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The improved bus priorities, and improved cycle and pedestrian facilities will benefit those who do not have access to a car.		Moderate Beneficial
INTEGRATION	**Transport Interchange**	New interchanges as a result of one bus-based and one rail-based park and ride sites	No. of new or improved transport and freight interchanges.	2 interchanges
	Land-Use Policy	The Package 5 plan options will support the draft UDP policies S4 Employment, S5 Town centres and retail and S6 Transport.	GOMMMS three point scale	Beneficial

TABLE F6 Appraisal Summary Table

Option Package 6	Package Description:	Implementation Cost at Current (2002) Prices = £ 44.9M
	One bus based park and ride site (A49 South) **Limited bus priorities** **City centre pedestrianisation (Widemarsh St, High St)** **Improved cycle and pedestrian facilities** **One rail based park and ride site at Withington** **New link and river bridge within City – West – A438 Kings Acre Rd to A465 Belmont Rd and road improvements to connect to A49 (North)** **Dualling A49 completed within urban area**	

OBJECTIVE	SUB- OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	**Noise**	Increase in road vehicle traffic has a slight adverse impact on noise.	%age change in annual vehicle kms.	+2.7%
	Local Air Quality	Increase in road vehicle traffic has a slight adverse impact on the local air quality.	%age change in annual vehicle kms. Approx. change in NOx emissions (tonnes/year) Approx. change in PM emissions (tonnes/year)	+2.7% +5.9 tonnes/year -0.1 tonnes/year
	Greenhouse Gases	Increase in road vehicle traffic in the study area should be taken in a wider context.	%age change in annual vehicle kms. Approx. change in CO_2 emissions (tonnes/year)	+2.7% -11,240 tonnes/year
	Landscape	New bridge in city west large adverse. 1 bus based park and ride and rail based park and ride slight adverse, other schemes neutral.	1 Scheme large adverse. 2 Schemes slight adverse. 4 Schemes neutral.	Large adverse.
	Townscape	New bridge in city west and dualling A49 moderate adverse. Rail and bus based park and ride slight adverse. City centre pedestrianisation moderate beneficial, other schemes neutral.	2 Schemes moderate adverse. 2 Schemes slight adverse. 2 Schemes neutral. 1 Scheme moderate beneficial.	Moderate adverse.
	Heritage of Historic Resources	New bridge in city west and A49 dualling potential negative. City centre pedestrianisation and 1 bus based park and ride potential positive.	2 Schemes negative. 2 Schemes positive. 3 Schemes insignificant impact.	Negative impact.
	Biodiversity	New bridge west has a probably intermediate negative impact, 1 bus and rail park and ride have a probably minor negative impact, other 4 schemes insignificant.	2 Schemes probably minor negative impact. 1 Scheme probably intermediate negative impact. 4 Schemes insignificant impact.	Probably Intermediate Negative.
	Water Environment	Significant negative impact from bridge crossing. Mixed impact from rail based park and ride. Other schemes insignificant.	1 Scheme significant negative impact. 1 Scheme mixed impact. 5 Schemes insignificant impact.	Significant Negative.
	Physical Fitness	The overall effect of the package of measures is to increase the number of car trips which have no physical fitness benefit.	%age Mode shift from car to soft modes.	-0.8%
	Journey Ambience	Rail-based park and ride, improved cycle and pedestrian facilities, and new link and river bridge all provide moderate beneficial impact. One bus-based park and ride and dualling of the A49 provide slight beneficial impact.	3 Schemes moderate beneficial impact. 2 Schemes slight beneficial impact 2 Schemes neutral impact.	Slight beneficial impact.
SAFETY	**Accidents**	Although there is an increase in road vehicle traffic, some of this traffic will transfer to new safer roads.	Reduction in all personal injury accidents	64no. (-14.9%)
	Security	City centre partial pedestrianisation and improved cycle/pedestrian facilities provide a slight beneficial impact.	2 Schemes slight beneficial impact 5 Schemes neutral impact	Slight beneficial impact.
ECONOMY	**Transport Economic Efficiency**	Current analysis is evaluating Transport Economic Efficiency over the period 2010 to 2031 using two modelled years 2011 and 2031	Forecast Users Benefits by mode – Private: £399.3m Goods: £69.1m Public Transport: -£0.4m	Overall NPV £436m Overall PVC -£28m PVC to Gov. -£31m (Grant/Subsidy -£4.9m) Overall BCR 16.3
	Reliability	Less congestion due to traffic moving from the centre and using the new link and river bridge and dualled A49.	% change in congestion delay	-21.1%
	Wider Economic Impacts	Improved access to city centre via bus and park and ride.	No. of regeneration, commercial and industrial areas with improved transport access.	1 areas
ACCESSIBILITY	**Option Values**	Improved bus priorities and frequencies and park and ride will increase travel options.	Change in public service vehicle kms. % Mode shift from car to public transport.	0% change in psv kms +0.3% mode shift to Public Transport
	Severance	The central area has a large benefit with an average 29% reduction in traffic flow, whilst the A49 has a moderate benefit south of the River Wye with an average 29% reduction. The new western link has a large adverse effect on the A465 south with a 143% increase in traffic flow.	Assessment from the change in am peak hour 2 way road vehicle flows	Large benefit due to the significant reduction in traffic within the central area.
	Access to the Transport System	The improved bus priorities, and improved cycle and pedestrian facilities will benefit those who do not have access to a car.		Moderate Beneficial
INTEGRATION	**Transport Interchange**	New interchanges as a result of one bus-based and one rail-based park and ride sites	No. of new or improved transport and freight interchanges.	2 interchanges
	Land-Use Policy	The Package 6 plan options will support the draft UDP policies S4 Employment, S5 Town centres and retail and S6 Transport.	Three point GOMMMS scale	Beneficial