

operate the service with a fleet of four vehicles. However, this would result in such little spare time in the timetable to allow for delay that it was felt that it would not be prudent to operate the service with a fleet of four vehicles.

- C.34 By operating the service with a fleet of five vehicles the cost of operating the service increases by around 25%. Further analysis showed that if the service was operated on a 15 minute headway a fleet of four vehicles would suffice.
- C.35 To assess the sensitivity of the patronage forecasts to increasing the headway from 12 to 15 minutes the test with a £4.50 parking charge (with £1.50 fare) was run with the revised headway. The results of the test are shown in Table C.4.

Table C.4 – Park and Ride Forecasts, 2011 AM Peak – Revised Headway

Car Park Charge	Headway	Passengers using West (Bunford) Site	Passengers using East (Babylon Hill) Site
£4.50	12 minutes	165	150
£4.50	15 minutes	163	150

Source: Yeovil Park and Ride Model

- C.36 The test showed that there was little change in patronage as a result of the headway being increased. It was felt that a 15 minute headway should be taken forward as the preferred headway due to the large savings in the cost of operating the park and ride service.

PRIORITY MEASURES

- C.37 The park and ride modelling had assumed that the buses would run amongst other traffic with no priority being provided. It has been seen that to account for the generally lower bus speeds and the time taken at the bus stops the equivalent modelled pcu speeds had been increased by 10%.
- C.38 Yeovil currently has very limited bus priority measures and the YTSR is not recommending any measures that would assist in reducing journey times for park and ride buses. However, the aim for any park and ride service should be to offer journey times that can compete with those for cars.
- C.39 To understand how sensitive the park and ride demand is to journey speeds a sensitivity test was carried out that reduced the journey times to 85% of the modelled pcu speeds which should be compared with the 10% increase used in all the previous tests.
- C.40 At this stage of the park and ride feasibility study it was thought that it would be more appropriate to understand if the effects of increased journey speeds were significant. If that was the case, and park and ride was shown to be financially viable, the next stage would be to assess what priority measures would be needed to deliver the desired journey time improvements.
- C.41 This test was carried out assuming a parking charge of £4.50 and a headway of 15 minutes. The results can be seen in Table C.5.

Table C.5 – Park and Ride Forecasts, 2011 AM Peak – Revised Journey Speeds

Car Park Charge	Bus Time Factor	Passengers using West (Bunford) Site	Passengers using East (Babylon Hill) Site
£4.50	1.10	163	150
£4.50	0.85	177	153

Source: Yeovil Park and Ride Model

- C.42 This test showed that there is only a small increase in demand for park and ride by increasing the speed of the service through some form of priority measures. This change decreased the journey time for a bus passenger travelling from the Bunford site to the bus station by around 2 minutes, whereas it has been shown that a £1.00 increase in car parking charges increases generalised journey costs for cars by around 6.5 minutes. This shows that even if the bus service is improved to a significant extent the effect on park and ride patronage will not be as significant as that which can be achieved through increasing the costs of car travel.

FINANCIAL PERFORMANCE

- C.43 Although it has been shown that with significantly higher car parking charges in Yeovil there is demand for a park and ride service it is important to understand the financial performance of the service. It is essential to know if the service will require any financial support and also the likely level of such support.
- C.44 For each of the runs that have been undertaken the financial performance of each scheme has been calculated and these are shown in Table C.6. The operating costs include the following elements:
- ◆ Driver costs;
 - ◆ Other direct costs;
 - ◆ Overheads;
 - ◆ Margin; and
 - ◆ Depreciation.
- C.45 The costs do not include the capital costs of building the park and ride sites which are likely to be in excess of £3million. There will also be additional non-bus service site costs and monitoring costs associated with the sites which are likely to be in excess of £150,000 per annum.
- C.46 The revenue figures relate to the revenue collected on the park and ride services. It does not include any allowance for revenue abstraction from existing public transport services or changes in parking revenues. This latter figure should increase substantially if parking charges were to be increased significantly.
- C.47 From Table C.6 it can be seen that all of the scenarios show an operating loss of greater than £100,000 per annum and this does not include the additional £150,000+ per annum non-bus service site costs and monitoring costs. The best performing options are those with 15 minute headways due to the lower operating costs.

Table C.6 – Park and Ride Forecasts, 2011 AM Peak – Financial Performance (per annum)

Park & Ride Fare	Parking Charge	Headway	Bus Factor	Fleet Size	Daily Demand	Annual Revenue	Operating Cost	Operating Loss	Cost per car trip removed AM Peak
£1.50	£1.50	12 mins	1.10	5 vehicles	49	£22,686	£441,773	-£419,087	£14,552
£1.50	£2.50	12 mins	1.10	5 vehicles	175	£81,203	£441,773	-£360,570	£3,498
£1.50	£3.50	12 mins	1.10	5 vehicles	324	£150,453	£441,773	-£291,320	£1,525
£1.50	£4.50	12 mins	1.10	5 vehicles	440	£204,785	£441,773	-£236,988	£912
£1.50	£5.50	12 mins	1.10	5 vehicles	532	£247,431	£441,773	-£194,342	£619
£1.00	£1.50	12 mins	1.10	5 vehicles	112	£34,600	£441,773	-£407,173	£6,180
£0.50	£1.50	12 mins	1.10	5 vehicles	202	£31,367	£441,773	-£410,406	£3,435
£1.50	£4.50	15 mins	1.10	4 vehicles	438	£203,854	£353,416	-£149,563	£578
£1.50	£4.50	15 mins	0.85	4 vehicles	462	£214,928	£353,416	-£138,488	£508

Source: Yeovil Park and Ride Model

- C.48 The table also shows the cost per car trip removed in the AM peak hour. This is the operating support (excluding non-bus service site costs and monitoring costs) required for each trip that is removed from the highway network in the AM peak hour. It can be seen that even with the best performing option there is a cost of £508.

ONE SITE OPERATION

- C.49 The analysis reported above assumed that two park and ride sites would be in operation in Yeovil and a service would run between the sites via the town centre. To understand if there could be a financial case for park and ride with just one site in operation a further run of the park and ride model was undertaken.
- C.50 This run included the site at Bunford and modelled the service to the bus station via Augusta Westland. The park and ride charge was £1.50 per passenger and the parking charge in Yeovil Town Centre was increased to £4.50. Analysis of the modelled journey times showed that a three bus fleet could operate a 12 minute headway service but this would leave little spare time or capacity.
- C.51 An initial run was undertaken assuming a 15 minute headway to provide additional spare time to allow a more robust timetable. This showed that the increased demand likely at just one site could not be accommodated on four buses per hour (assuming a bus capacity of 70 passengers).
- C.52 This demand could be accommodated with a 12 minute headway but to operate this service a fleet of four buses would be required with the associated additional operating costs. Further analysis showed that a fleet of four buses could comfortably operate a 10 minute headway service so an additional run was carried out using this assumption to try and gain additional demand.
- C.53 Table C.7 shows the financial performance of each of these tests assuming just one park and ride site. For comparison the first row, in italics, is for the best performing test (assuming no priority measures) with two sites operating. The second row shows the results of the test with one site operating at 15 minutes headway. It has been shown that this demand can not be accommodated by a 15 minute headway and so these results should be treated with some caution.
- C.54 The last test decreases the headway to 10 minutes even though the demand can be accommodated by a headway of 12 minutes. Note that the increase in demand by reducing the service headway is minimal.
- C.55 The table shows that none of the proposed services will cover their operating costs. Non-bus service site costs and monitoring costs are not included in the above costs and these would be expected to be around £150,000 per annum. Construction costs of over £1.5million are also not included in the calculations.
- C.56 It has been shown that by operating the park and ride service from one site the financial performance is similar to operating a two site service although there will be lower capital costs incurred in setting up the service. A two site park and ride service would provide a more comprehensive network to compensate for the threefold increase in daily parking charges in Yeovil Town Centre that would be required to achieve the passenger demand outlined above.

Table C.7 – Park and Ride Forecasts, 2011 AM Peak – Financial Performance (per annum)

Headway	Fleet Size	Daily Demand	Annual Revenue	Operating Cost	Operating Loss	Cost per car trip removed AM Peak
15 mins	4 vehicles	438	£203,854	£353,416	-£149,563	£578
15 mins	3 vehicles	424	£196,928	£280,648	-£83,721	£335
10 mins	4 vehicles	439	£204,017	£353,416	-£149,400	£577

Source: Yeovil Park and Ride Model

SOURCE OF PARK AND RIDE DEMAND

- C.57 Table C.8 shows the origin of the park and ride demand using both the western site (Bunford) and the eastern site (Babylon Hill). These are for the test which assumed the following:
- ◆ Park and ride fare of £1.50 per passenger;
 - ◆ Daily parking charge of £4.50;
 - ◆ Headway of 15 minutes;
 - ◆ Fleet size of 4 vehicles; and
 - ◆ No priority measures.
- C.58 The table shows the percentage of total demand at each site originating in each of the sectors previously identified in Appendix C of the Baseline Review of Traffic Conditions Report.
- C.59 It can be seen that for the western site the majority of the demand is unsurprisingly from the sectors on the western side of Yeovil. The nearby Houndstone/Preston Plucknett provides 25% of the demand at this site. Another 39% of the demand comes from the Martock and Merriott sectors from which traffic accesses Yeovil via the A3088 Cartgate Link adjacent to the park and ride site.
- C.60 The largest origin sector for trips using the eastern site can be seen to be the Trent and Sherborne sector with 31% of the park and ride demand from which most trips would be expected to enter Yeovil via the A30. Other sectors to the east of Yeovil contribute significantly to the demand these include Shaftesbury (15%), Wincanton (8%) and Dorset (5%).
- C.61 A number of trips also originate from the north of Yeovil (e.g. Yeovil North East (14%)) which suggests that the high car parking charges result in lower generalised costs for trips travelling from the urban area out to the park and ride site than travelling direct to the town centre and parking.

Table C.8 – Source of Park and Ride Demand by Sector, 2011 AM Peak

Sector	Origin of Passengers using West (Bunford) Site	Origin of Passengers using East (Babylon Hill) Site
Hollands/College Area	0%	4%
Yeovil North East	0%	14%
Yeovil South West	0%	0%
Westlands Works	12%	0%
Houndstone/Preston Plucknett	25%	8%
Trent & Sherborne	0%	31%
Coker & Barwick	8%	3%
Merriott	19%	0%
Martock	20%	1%
Ilchester	0%	5%
Wincanton	0%	8%
Shaftesbury	0%	15%
Dorset	3%	5%
Chard & Ilminster	4%	0%
Somerton	0%	1%
Taunton	1%	0%
South Bristol	0%	1%
Bristol & Gloucester	1%	0%
Wiltshire & Bournemouth	0%	1%
Devon & Cornwall	3%	0%
North Somerset	2%	0%
Wales and the North	1%	0%

Source: Yeovil Park and Ride Model

NETWORK PERFORMANCE

C.62 Table C.9 shows a comparison of the network summary statistics for the 2011 strategy and the park and ride model run which assumed the following (as also reported above):

- ◆ Park and ride fare of £1.50 per passenger;
- ◆ Daily parking charge of £4.50;
- ◆ Headway of 15 minutes;
- ◆ Fleet size of 4 vehicles; and
- ◆ No priority measures

C.63 It can be seen that the park and ride service results in a reduction of just over 100 vehicles off the highway network. This causes a decrease in the total travel time of 137 pcu-hours, of which 23 pcu-hours is reduced transient queuing time. Average speeds across the network are forecast to increase from 40.9kph to 41.7 kph.

C.64 The reduction in the matrix size would not be expected to be the consistent with the forecast park and ride patronage as the elastic assignment process will allow previously suppressed highway trips to utilise the road space freed up after the introduction of the park and ride service.

Table C.9 – 2011 AM Peak Network Summary Statistics – with Park & Ride

	2011 AM Strategy	2011 AM Strategy with Park & Ride
Matrix Size (vehicles)		
Light vehicles	20,733	20,639
Heavy goods vehicles	1,041	1,044
Total (vehicles)	21,774	21,683
Model Network (pcu-hours or pcu-km)		
Running time	10,004	9,961
Transient queued time	835	812
Over-capacity queued time	550	480
Total travel time	11,389	11,252
Total travel distance	533,463	531,384
Average speed (kph)	40.9	41.7

Source: Yeovil Traffic Model

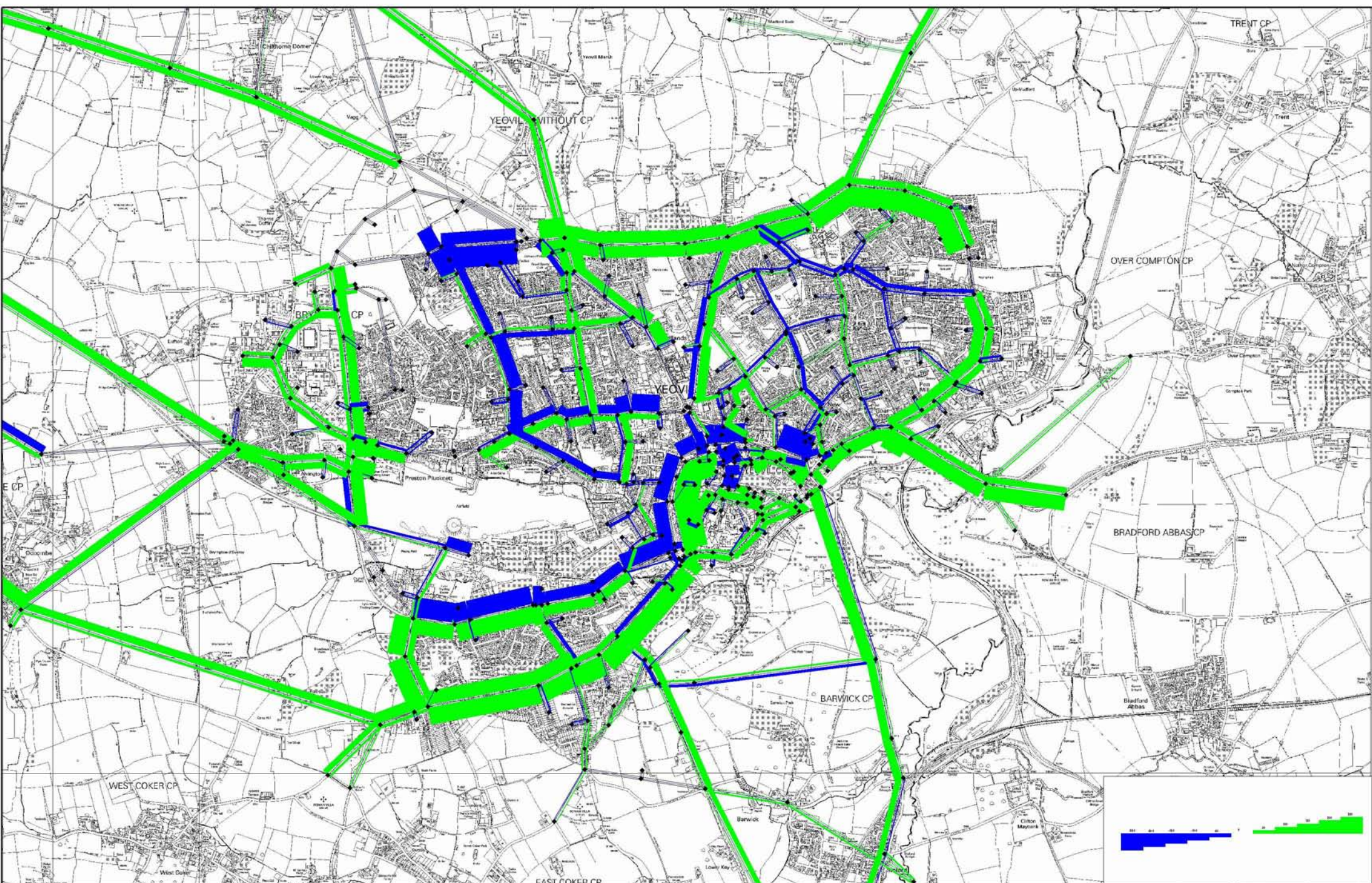
APPENDIX D

Forecast Strategy Traffic Conditions

D. Forecast Strategy Traffic Conditions

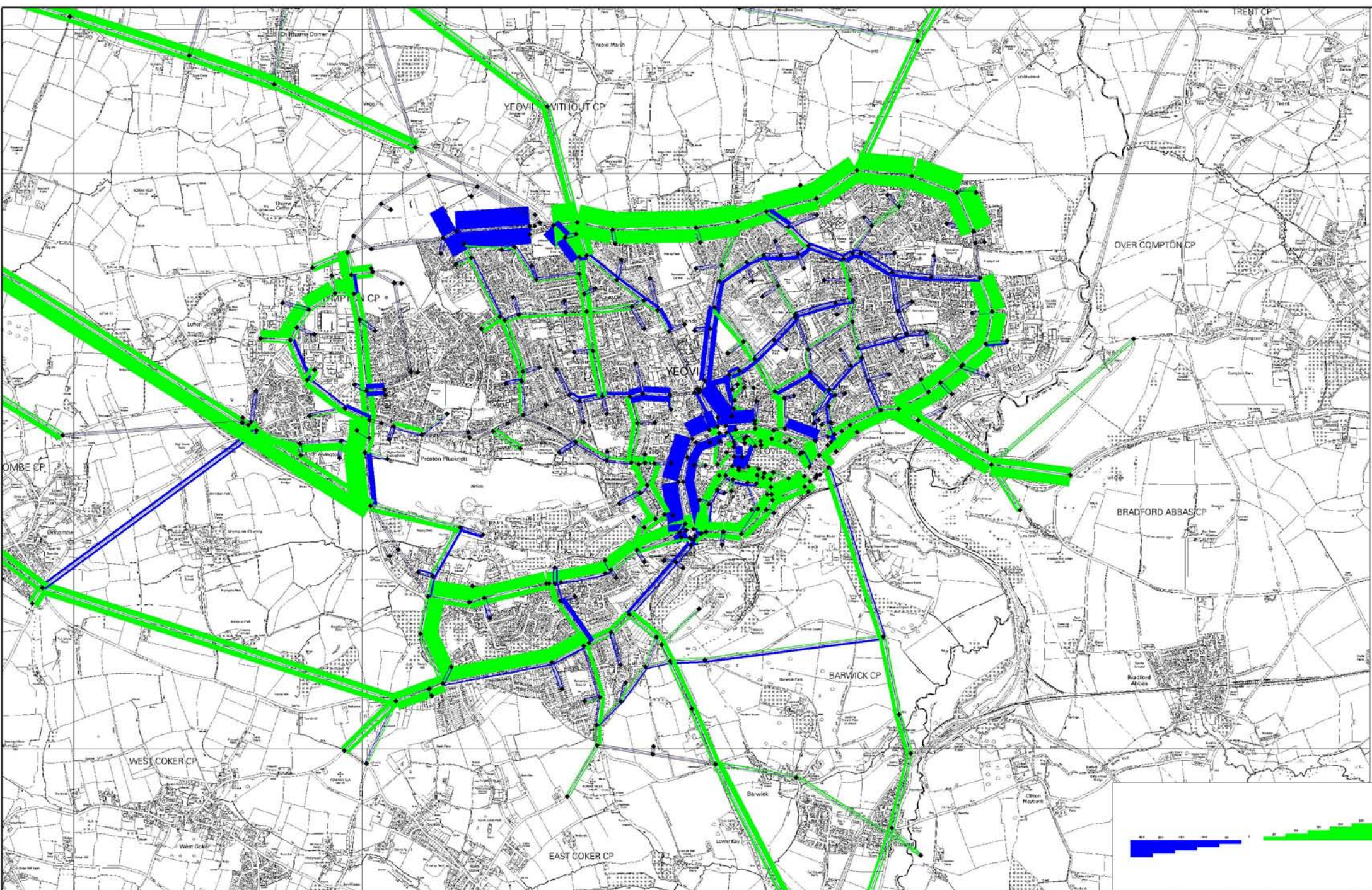
CHANGES IN TRAFFIC FLOWS AND JOURNEY TIMES

- D.1 Figures D.1 and D.2 show the changes in traffic flows across the Yeovil highway network between the 2002 base, 2011 reference case and 2011 strategy scenarios. The blue bands show a decrease in flow and the green bands an increase in flow.
- D.2 Figures D.3 to D.22 show a comparison of journey times along each of the five journey time routes for which data was collected in the base year. The figures display 2002 base year, 2011 reference case and 2011 strategy results by direction and for the AM and PM peak hours.



Yeovil Transport Strategy Review
Figure D.1 - Flow Differences - AM Base 2002 v AM Strategy 2011

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Yeovil Transport Strategy Review
Figure D.2 - Flow Differences - PM Base 2002 v PM Strategy 2011

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