Five Year Delivery Programme

8 Five Year Delivery Programme

8.1 Delivery Timescales

A number of measures listed in Chapter 7 are able to be delivered in the short term (i.e. the first three years of the UTP period).

Consideration of priority, feasibility and deliverability has been undertaken to identify measures which are likely to be delivered within the first three years of the UTP period. In addition, a number of other schemes have been identified which will need to be developed in the medium (3 – 5 years) and longer term (5 years +). The majority of these medium and longer term schemes are being delivered in the timescale as they are required to assist in the delivery of development or it is not anticipated that they could be delivered within the first 3 years of the plan.

In dealing with the medium and longer term schemes it has been necessary to consider the schemes against different development scenarios. The first of these is the Do Minimum development scenario which assumes that the forecasts for background traffic growth occur in relation to rising or falling incomes and committed developments which are to be delivered.

The second of these scenarios relates to a Do Something scenario which assumes the volume of development proposed within the East of England Plan is delivered. Presenting the scheme requirements in this way means that those schemes which need to be delivered as a result of the East of England Plan developments can be easily identified.

8.2 Funding Mechanisms

The measures set out in the UTP will be delivered through a variety of funding mechanisms. Depending upon the nature of the proposal it is possible that it could be funded from a variety of sources as described below. In many instances more than one of the funding sources would be applicable as indicated in the following tables.

- **HCC/SBC** – relates to funding from Council Revenue Budgets. Such funding would be typically related to marketing/promotional activities plus maintenance issues such as signing improvements. Alternatively funding could be obtained through GAF.

- **LTP** – relates to funding from the Integrated Transport Block. Such funding would be typically related to the design and implementation of capital schemes.

- **MSBC** – relates to Major Schemes Business Case Bids from DfT through the Regional Funding allocation. Applies to schemes normally greater that £5m.

- **Developer Contributions** – related to funds collected through Section 106 Agreements for which schemes are specific and related to the

development concerned. However, a Pooled Contributions/Tariff for Stevenage is recommended to be delivered through Supplementary Planning Documentation or included as a specific policy within the LDF. Advice on setting up a pooled contribution system is set out within Circular 5/2005 Planning Obligations, together with general advice on the use of Planning Obligations from developers.

- **Receipts** – relates to funding primarily from Parking Charges receipts, although receipts from land sales could be possible. Such funding would primarily relate to car parking measures or where schemes may not qualify for other funding sources.

- **Existing Employers** – relates to funding mainly for travel planning initiatives at the existing workplaces.

8.3 Measures for Delivery in the First Five Years

The prioritised programme for delivery (subject to funding) over the next five years is shown by transport mode in the tables below. The tables have been broken down into schemes and policies. The former can be implemented on the ground, with an appropriate design and cost, whereas the latter represent a recommended approach or action being proposed through the UTP for adoption by the relevant authority(s). A full plan of Stevenage showing the infrastructure schemes to be delivered as part of the UTP is contained as **Appendix C**.

Table 8.1 – Walking schemes and policies to be delivered in the first 5 years

Scheme		Year	Cost	Funding Source	LTP Indicator
WM3	Improve the existing Fairlands Way footbridge (and make available to all users) to enhance link between town centre and old town	Short	£6,000	LTP/ Developer Contributions	Footway Condition, Cycling Trips, Rights of Way
WM7	Support 'no cycling' restrictions in the town centre	Short	£1,480	LTP/Receipts	Rights of Way, Cycling Trips
WM14	Provide a Toucan crossing in front of Lister Hospital	Short	£102,000	LTP	% Who Find it Difficult to Access a Hospital, Rights of

Scheme		Year	Cost	Funding Source	LTP Indicator
					Way
WM15	Provide a footpath along Gresley Way from Six Hills Way to Jackdaw Close	Short	£206,500	LTP	Footway Condition, Rights of Way
WM17	Provide Toucan crossings at Great Ashby Way and Gresley Way	Short	£44,300	LTP/ Developer Contributions	Cycling Trips, Rights of Way
WM18	Provide a zebra crossing across Argyle Way for pedestrians to access to Gunnels Wood	Short	£16,000	LTP/ Developer Contributions	Public Transport Patronage, Rights of Way
WM19	Provide a Toucan crossing across Magpie Crescent to link in to Sainsbury's	Short	£100,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
WM20	Provide pedestrian warning signs on Stevenage Road	Short	£650	LTP	Rights of Way
WM1	Improve pedestrian and cyclist access to the rail station from the West	Medium	£42,000	LTP/ Developer Contributions	Public Transport Patronage, Footway Condition, Cycling Trips
WM2	Redesign the footbridge to provide a covered walkway between leisure centre and the rail station	Medium	£1.5 million	LTP/ Developer Contributions	Public Transport Patronage,
Policy		**Year**	**Cost**	**Funding Source**	**LTP Indicator**
WM8	Introduce incentives for the ‘walking bus’	Short	£1,000 per scheme,	HCC/SBC	To be pursued as part of the

Scheme		Year	Cost	Funding Source	LTP Indicator
	scheme		per annum		School Travel Plans process

Table 8.2 – Cycling schemes and policies to be delivered in the first 5 years

Scheme		Year	Cost	Funding Source	LTP Indicator
CM2	Review the existing cycle-way network	Short	£300,000	Funding already secured through growth area funding	Cycling Trips
CM3	Provide/improve Cycle parking at all entrances to the town centre (7 in all)	Short	£29,624	LTP/ Developer Contributions/ SBC	Cycling Trips
CM17	Provide a cycle crossing over St. Georges Way	Medium	£240,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
CM15	Remove some car parking and relocate cycle parking to the area immediately south of the rail station	Medium	£52,900	SBC	Cycling Trips, Public Transport Patronage
CM7	Introduce a cycle route along Gresley Way	Medium	£861,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
CM7.1	Provide a link from the proposed Gresley Way cycle route to the existing cycle route along Six Hills Way	Medium	£58,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
CM7.2	Provide a link from the proposed	Medium	£30,000	LTP/ Developer	Cycling Trips,

	Gresley Way cycle route to the existing cycle route along Martins Way			Contributions	Rights of Way
CM8	Provide a cycle lane along St Georges Way	Medium	£54,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
CM8.1	Connect existing cycle lanes on the Six Hills Way roundabout with the proposed cycle route along St. Georges Way	Medium	£202,000	LTP/ Developer Contributions	Cycling Trips, Rights of Way
CM10	Separate cyclists and mopeds on the cycle-ways	Medium	N/A	No cost to the UTP- covered in the SBC Cycle Study	Cycling Trips,
CM16	Provide a cycling 'ring' around the leisure centre	Medium	£10,000	SBC	Cycling Trips, Rights of Way
Policy		**Year**	**Cost**	**Funding Source**	**LTP Indicator**
CM5	Improve policing on cycle-ways	Short	N/A	HCC/SBC	Cycling Trips
CM1	Make sure cycle routes are complete and do not stop short of destinations	Medium	No cost to the UTP. Study already commissioned.	HCC/SBC	Cycling Trips, Public Transport Patronage,
CM4	Provide secure storage of cycles at key destinations	Medium	No cost to the UTP	Developer Contributions/ Existing employers/ HCC/SBC	Cycling Trips, Public Transport Patronage

CM9	Provide cycle facilities, e.g. storage, showers etc, through business partnerships	Medium	No cost to the UTP	Developer Contributions/ Existing employers/ HCC/SBC	Cycling Trips

Table 8.3 – Public Transport schemes to be delivered in the first 5 years

Measure		Year	Cost	Funding Source	LTP Indicator
PTM1	Increase marketing of bus/rail services	Short	Costs included in measure SM1	HCC/SBC	Passenger Transport Information, Public Transport Patronage, Bus Service/ User Satisfaction
PTM12	Increase the amount of bus information available at the rail station	Short	£6,500	HCC	Passenger Transport Information, Public Transport Patronage, Bus Service/ User Satisfaction
PTM14	Increase the amount of bus travel information available at the bus station	Short	£1,850	HCC	Passenger Transport Information, Public Transport Patronage, Bus Service/ User Satisfaction
PTM2	Redesign the train station forecourt	Medium	£2,122,000	Network and First Capital Connect/SBC	Passenger Transport Information

Measure		Year	Cost	Funding Source	LTP Indicator
PTM4	Upgrade key bus stops within the study area	Medium	£14,000 per bus stop	Developer Contributions/ HCC	Passenger Transport Information, Public Transport Patronage, Bus Service/ User Satisfaction
PTM9	Provide priority bus lanes/junctions at selected locations	Medium	£1,106,518	LTP/ Developer Contributions	Bus Punctuality, Public Transport Patronage
PTM21	Provide real time information around the network	Medium	Scheme being taken forward by HCC	LTP/ Developer Contributions	Passenger Transport Information, Bus Service/ User Satisfaction

Table 8.4 – Highway schemes and policies to be delivered in the first 5 years

Measure		Year	Cost	Funding Source	LTP Indicator
HM1	Introduce a package of smarter measures such as travel marketing, travel plans, car clubs, to reduce reliance on the car	Short	See SM1	Developer Contributions/ Existing employers/ HA/HCC/SBC	Cycling Trips, Passenger transport information, Public transport patronage
HM4	Install two Toucan Crossings along White Way	Short	£200,000	LTP	Cycling Trips

Measure		Year	Cost	Funding Source	LTP Indicator
HM7	Introduce horizontal traffic calming through pinch points along Rectory Lane	Short	£50,000	LTP	Cycling Trips
HM29	Make it left turn only out of Mobbsbury Road on to Fairlands Way	Short	£4,000	LTP	Congestion*
HM11	Ramp metering on the A1(M)	Medium	£161,000	Highways Agency/	Congestion*
HM8	Increase the throughput of major roundabouts by using either grade separation or filter lanes	Medium	Requires detailed design	LTP/ Developer Contributions	Bus Punctuality,
HM31	Ban right turn in to Sainsbury's from the north, and force traffic to do U-turn at Corey's Mill Lane roundabout	Medium	Requires detailed design, but thought to circa £10,000	Developer Contributions/ GAF Funding	Congestion*
Policy		**Year**	**Cost**	**Funding Source**	**LTP Indicator**
HM18	Implement and achieve the parking policies and ambitions contained in the Parking Strategy (2004)	Short	N/A	SBC/Receipts	Public Transport Patronage,
HM2	Reduce the need to travel through good land use planning	Medium	N/A	SBC/NHDC/ Developer Contributions	Does not need funding
HM9	Carry out further surveys to determine the effect of traffic which appears to	Short	£3,200	HCC/Other	Congestion*

Measure		Year	Cost	Funding Source	LTP Indicator
	re-route along Church Lane to avoid the High Street				

* There are selected towns identified for delivering the Congestion target and it is anticipated that these towns will be prioritised for funding. The schemes highlighted for this target will be considered on an individual basis depending on available funding.

Table 8.5 – Sustainable schemes and policies to be delivered in the first 5 years

Measure		Year	Cost	Funding Source	LTP Indicator
SM1	Improve publicity of sustainable transport options through Marketing Campaign	Short/ Medium	£375,000 + annual cost	HCC/SBC/ LTP/ Developer Contributions	Passenger transport Information, Cycling trips, Public Transport Patronage
SM5	Improve signage for pedestrians	Short	£2,500	SBC/LTP	Rights of Way
SM2	Use a programme of Personal Travel Planning to promote awareness of opportunities for sustainable travel	Short	£500,000	HCC/SBC/ Developer Contributions	Passenger transport Information, Cycling trips, Public Transport Patronage
SM7	Introduce car sharing and car club schemes	Short	£70,000 set up costs and then £40k per annum	Developer Contributions/ Existing Employers/ SBC/HCC	Passenger transport Information, Cycling trips, Public Transport Patronage

Measure		Year	Cost	Funding Source	LTP Indicator
SM6	Increase development and implementation of work travel plans	Medium	£75,000 per annum	Developer Contributions/ Existing Employers/ SBC/HCC	Public Transport Patronage,
Policy		**Year**	**Cost**	**Funding Source**	**LTP Indicator**
SM10	Produce a walking strategy for Stevenage which reviews walking routes in key locations including the Town Centre, Old Town and Pin Green employment area	Short	£75,000	HCC/SBC	Rights of Way

Table 8.6 – Parking schemes to be delivered in the first 5 years

Measure		Year	Cost	Funding Source	LTP Indicator
PM1	Improve signage of car parks - matrix signs with live updates	Medium	£304, 000	SBC/ Receipts	Not Applicable

8.4 Measures for Delivery Post Plan Period

There are a number of measures that have been identified which will need to be included outside of the plan period. This is due to the fact that the development that is proposed will not be implemented until beyond the first years of the plan. Testing in the traffic model has demonstrated that there will be a requirement to implement a number of schemes to ensure that the development can be accommodated. The full descriptions of all the long term schemes are included in **Appendix Volume 1.** Those long term schemes which are recommended in the UTP are detailed in **Table 8.6**. Due to the fact that these schemes fall outside of the plan period they do not have an indicative cost attributed to them.

Table 8.7 – Long term schemes recommended through the UTP

Ref	Measure	Issues Addressed
PTM3	Provide a bus station within the town centre	PT2, PT4, PT9.2, PT12, S3
PTM10	Provide inter-connecting routes between new developments	PT2, PT2.2
HM3	Improve the East-West transport links to the north of Stevenage	H3
HM13	Build a link road parallel to the A1(M) to access Stevenage West	CO1, CO4
HM17	Widening of the A1(M) including continued discussions with stakeholders	CO1, CO4
HM21	Address the Stevenage gyratory system including the removal of traffic from James Way	H2, H3
HM32	Address operational issues at A1(M) Junction 8	CO1, CO4

Assessment of Stevenage Growth Agenda

9 Assessment of Stevenage Growth Agenda

9.1 Background

This section of the UTP discusses in more detail the impact of housing proposals being planned to the north and west of Stevenage. The Stevenage and North Hertfordshire Area Action Plan (SNAP) contains the policies which will guide the development of new homes, employment and associated services to support the new neighbourhoods to the north and west of Stevenage.

This section outlines the testing of the current road infrastructure to the north and west of Stevenage and discusses the potential impact of any future housing growth in these areas. The impact of future growth upon the A1(M) between Junction 6 to 9 is also discussed to ascertain when the motorway will be operating at capacity.

9.2 Future Year Assessment

To assess the potential impact of SNAP housing on the current road infrastructure in the future year, future year networks were required along with future year demand.

Several highway improvements have been proposed to the current road infrastructure in the relevant future years, altering traffic routing patterns and resulting in a shift in potential demand in and around Stevenage from the base year of 2008. To ensure consistent and robust routing patterns in the future years, the base year road network was used in the testing of SNAP housing assumptions within this section. By using a base year network for the testing we are able to ascertain what improvements might be required solely as a result of the SNAP housing assumptions. Whilst we would assume that some other highway improvements would be in place that are recommended within the UTP we cannot be sure of their delivery.

It is understood that using the base year network with future year demand could cause significant delays because proposed improvements have been recommended to mitigate any additional future year demand. To ensure that the base year network could cope in the future, developments outside of the initial study area were removed. Therefore, Hitchin development trips were removed from the future year demand because this level of demand and specific location has not yet be been fully defined. However, other developments around the region have been included through the linkage to the East of England Regional Model as well as background traffic routing through the study area so as to complete journeys whilst maintaining realistic routing patterns.

To summarise, for testing of SNAP housing in the future years of 2014, 2021 and 2031 the base year network was used with the future year demand excluding any Hitchin developments. The future year demand also reflected the sustainable travel measures assumptions in the form of work place and residential travel plans and increased publication of sustainable travel measures which are envisaged to reduce traffic demand. This is explained in more detail in **Appendix Volume 1** as part of HM1.

9.3 SNAP Housing

As discussed, SNAP contains the planning policies to direct future growth in and around Stevenage to the north and west. As part of the future year forecasting process any proposed future year developments planned in and around Stevenage were included in development of the future year demand. Part of this development included SNAP housing to the north and west. The current assumptions on the number of dwellings proposed in each future year is outlined in **Table 9.1**.

Table 9.1 - Cumulative Number of SNAP Houses built by each model future year

Year	Cumulative Number of Houses	
	North	West
2014	1675	0
2021	4475	2500
2031	5900	5000

The location of this development was split up according to the model zone structure used for the base year model. The breakdown of the SNAP housing is shown in **Table 9.2**.

Table 9.2 Breakdown of SNAP Housing by Model Zone and Year

SNAP Development	Year	Number of Houses	Model Zone
NES3	2014	300	5106
Land North of Stevenage	2014	1250	5107
Land West of North Road	2014	125	5108
Land North East of Stevenage (2)	2021	1288	5102
Land North East of Stevenage (5)	2021	137.5	5105
Land North of Stevenage (Part B)	2021	1250	5107
Land West of North Road (Part B)	2021	125	5108
Land West of Stevenage	2021	2500	5109
Land North East of Stevenage (Part B)	2031	1286	5102
Land North East of Stevenage (Part B)	2031	138	5105
Land West of Stevenage (Part B)	2031	2500	5109

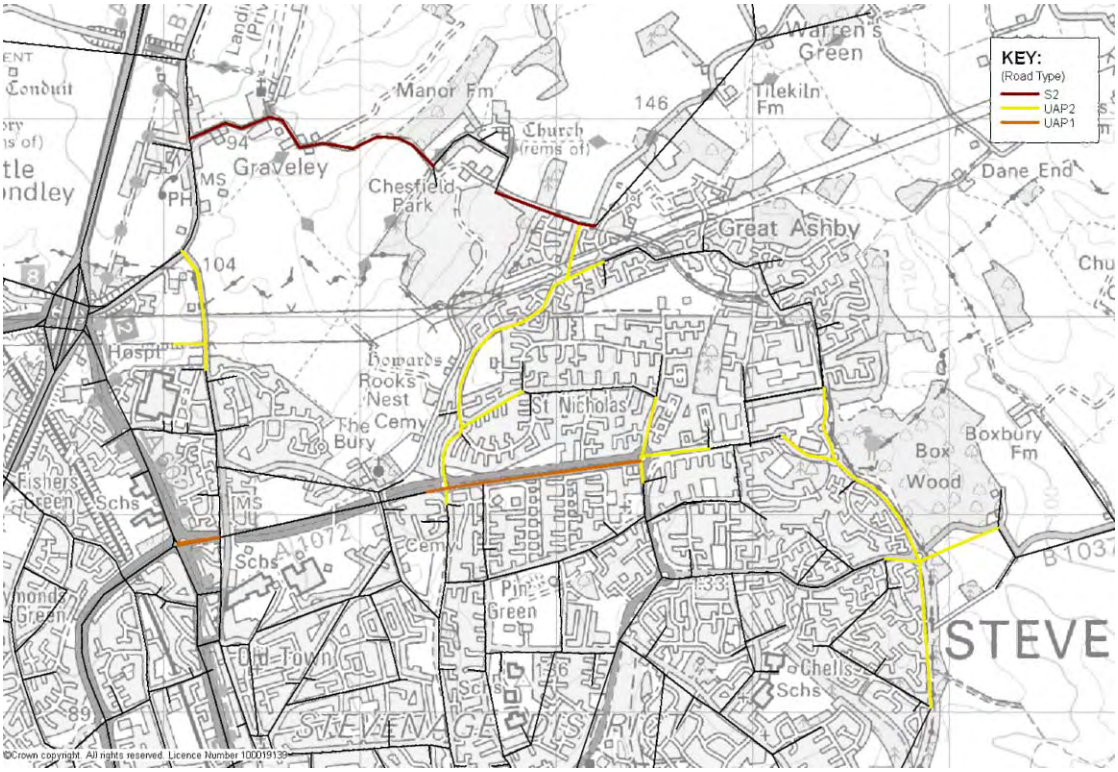
Since the original base year zoning structure was defined, additional detail regarding future year development has been received which has enabled a more detailed assignment of potential development. As a result and as part of the testing, a SNAP zone (5109) has been modified, so that the point of access onto the network is more accurate. This is discussed in more detail as part of the West Network testing.

9.4 North of Stevenage Network

To understand the potential impact of any SNAP development, key road links and approaches to junctions which are likely to come under pressure as a result of the development to the north of Stevenage were identified, **Figure 9.1**. To calculate the current capacity of the identified roads two Traffic Advice notes were used:

- **TA 46/97** Traffic Flow Ranges for Use in the Assessment of New Rural Roads;
- **TA 79/99** Traffic Capacity of Urban Roads.

Figure 9.1- Location of key road links associated with development north of Stevenage



TA 79/99 was predominately used to define the road capacities to the north of Stevenage because of the urban nature of the roads being assessed. Roads were defined as Urban All-purpose 1, 2 or 3 (UAP1, UAP2 or UAP3) according to the description set out in the advice note. TA 46/97 was used to define the capacity of the unclassified rural road to the north (road type S2), with global parameters used due to a lack of available local data for this road. The information below outlines the assumptions that were made in line with road capacities.

Table 9.3 - Adaption of TA 79/99 Table 2 Capacities of Urban Roads, One-way hourly flows in each direction

		Two-way Single Carriageway						Dual C/way
		Total Number of Lanes						Number of Lanes in each direction
		2				4	4	2
Carriageway width		6.1m	6.75m	7.3m	9.0m	13.5m	14.6m	7.3m
Rd Typ	UAP1	1020	1320	**1590**	1860	2800	3050	**3600**
	UAP2	1020	**1260**	1470	1550	**1900**	2100	3200
	UAP3	900	**1110**	1300	1530	n/a	n/a	2600

Notes
Capacities are in vehicle per hour
HGV less than 15% of traffic mix
(n/a) Capacities are excluded where the road width is not appropriate for the road type and where there are too few examples to give reliable figures

The numbers in bold in **Table 9.3** above are the capacities assumed in the testing for the relevant road types. For road type S2, the capacity was defined using TA 46/97 which takes into account local traffic conditions. However due to a lack of available local data, global parameters defined in the advice note were used.

9.4.1 *Impact on the North Network*

SNAP housing to the north of Stevenage puts pressure on the current road network capacity in the morning peak by 2014, **Figure 9.2**. This is exacerbated further by 2021, **Figure 9.3.** By 2031 there are no additional over capacity roads, so the impact by this future year is the same as by 2021. An over capacity link is that which exceeds the design capacity outlined in the relevant Traffic Advice note.

Figure 9.2 - North Network – 2014 AM Peak

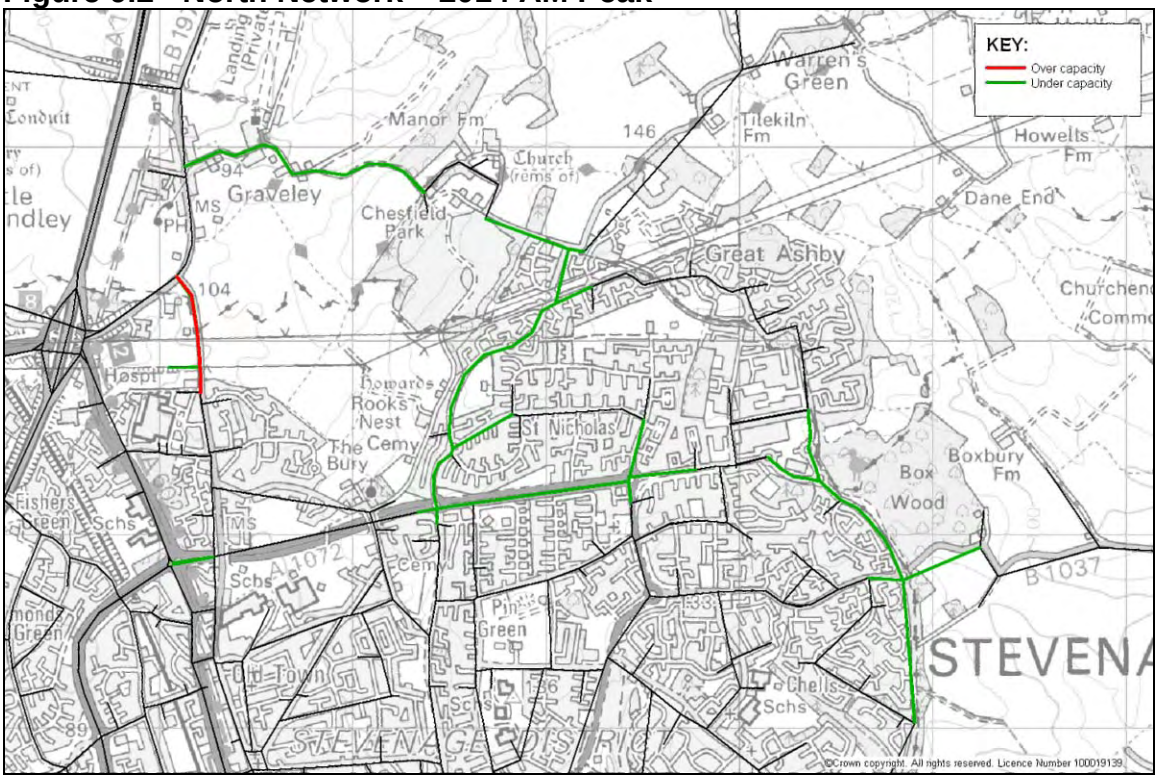
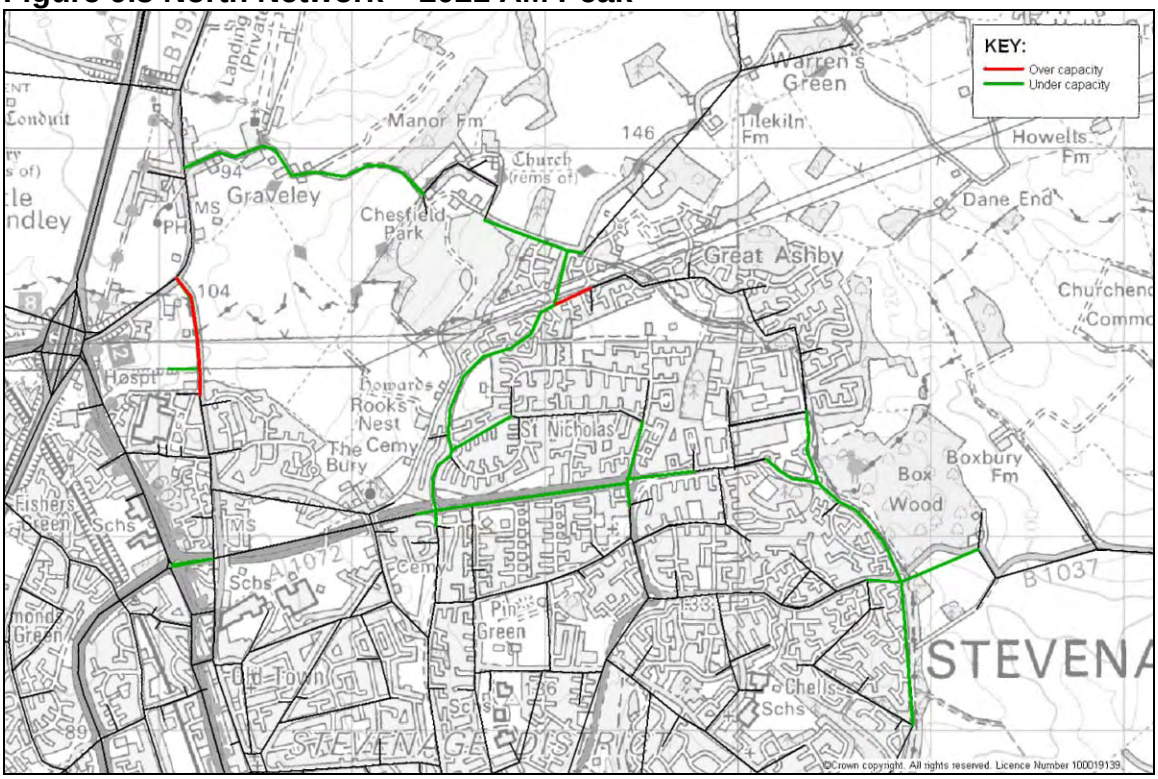


Figure 9.3 North Network – 2021 AM Peak



In the evening peak, the SNAP housing puts pressure on the road network capacity by 2014, **Figure 9.4,** with this further exacerbated by 2021 and 2031, **Figure 9.5** and **9.6** respectively. In both peaks, the road network is operating under capacity in 2008.

Figure 9.4 - North Network – 2014 PM Peak

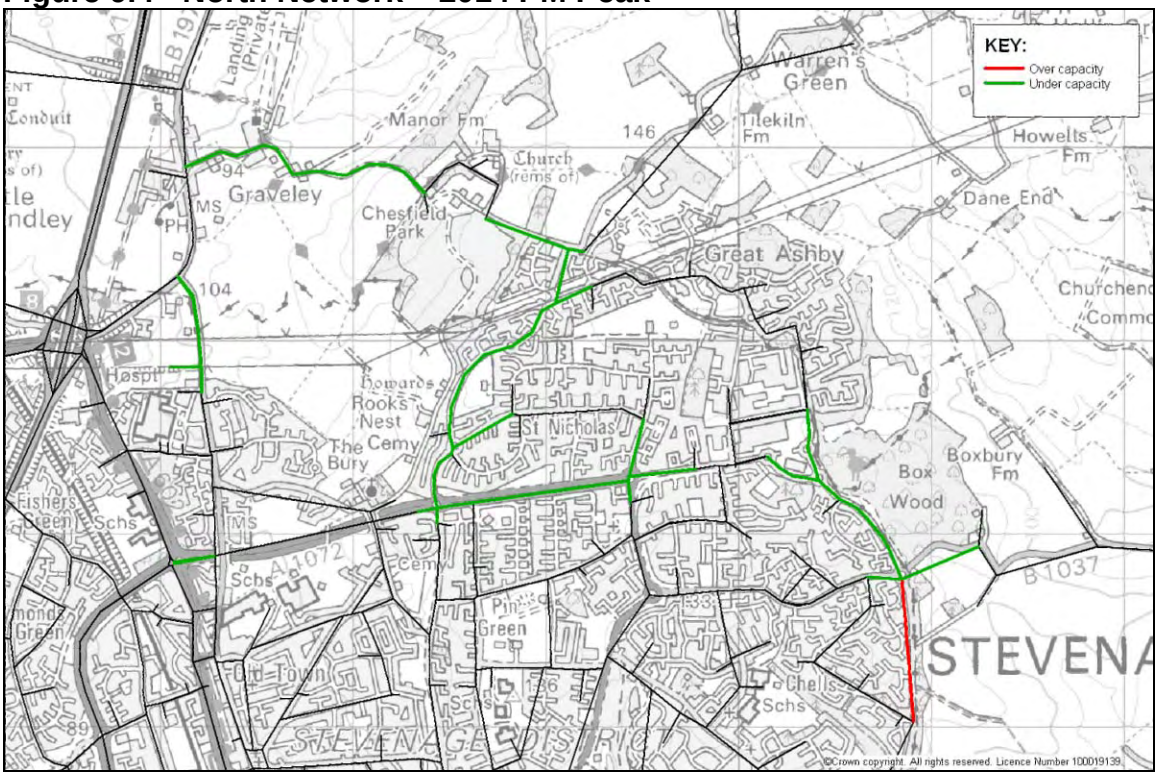


Figure 9.5 - North Network – 2021 PM Peak

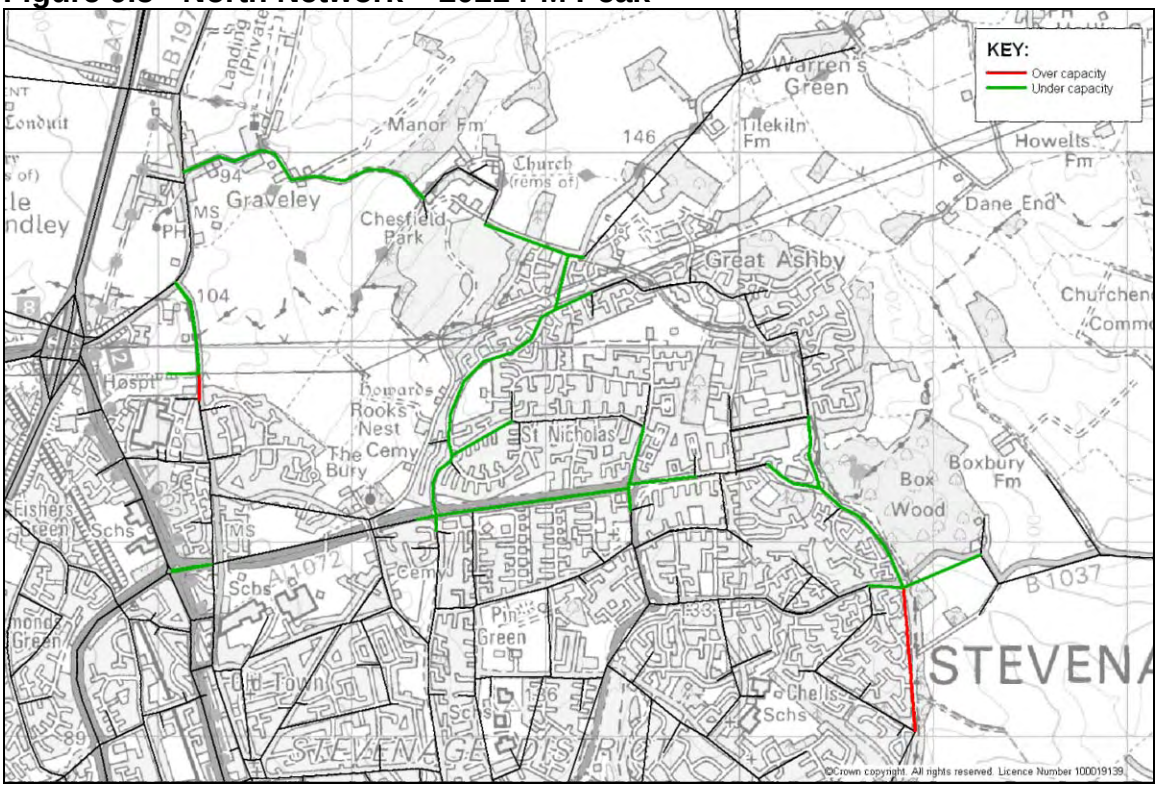
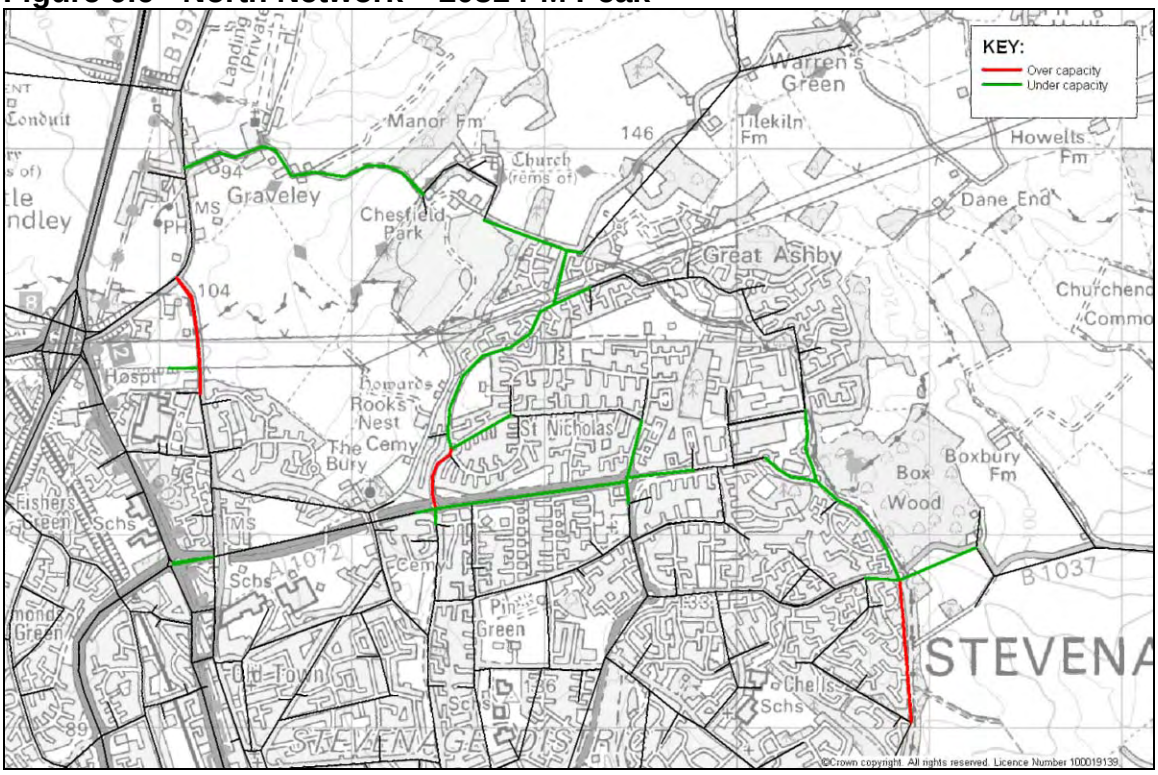


Figure 9.6 - North Network – 2031 PM Peak



9.4.2 *North Network Road Capacity Assessment*

Through detailed analysis of the over capacity roads it is possible to forecast at which particular year the road will be operating at capacity. Assuming the SNAP housing that is built by the forecast years is built uniformly each year until the forecast year, an estimation can then be made on the number of homes the road infrastructure can cope with until it is operating over capacity.

In total there are 3 separate roads identified around the north part of Stevenage which are over capacity by 2031 in the morning peak and 8 in the evening peak, **Table 9.4, Figure 9.7** to **9.17**.

Table 9.4 - North Network Road Capacity Assessment

Location	Peak	Capacity (vehicles/hr)	Year Over Capacity	Over Capacity Houses
To B197 North Road South (southbound)	AM	1260	2010	558
From B197 North Road North (southbound)		1260	2012	1117
From Great Ashby Way North (southbound)		1260	2021	4475
From Gresley Way South (northbound)	PM	1260	2014	1675
To B197 North Road South (southbound)		1260	2019	3675
From B197 North Road South (northbound)		1260	2019	3675
To Gresley Way South (southbound)		1260	2021	4475
From B197 North Road North (southbound)		1260	2023	4760
To B197 North Road North (northbound)		1260	2024	4903
To Canterbury Way (northbound)		1260	2025	5045
From Canterbury Way South (northbound)		1260	2030	5758

Figure 9.7 - To B197 North Road South (southbound) Road Assessment – Morning Peak

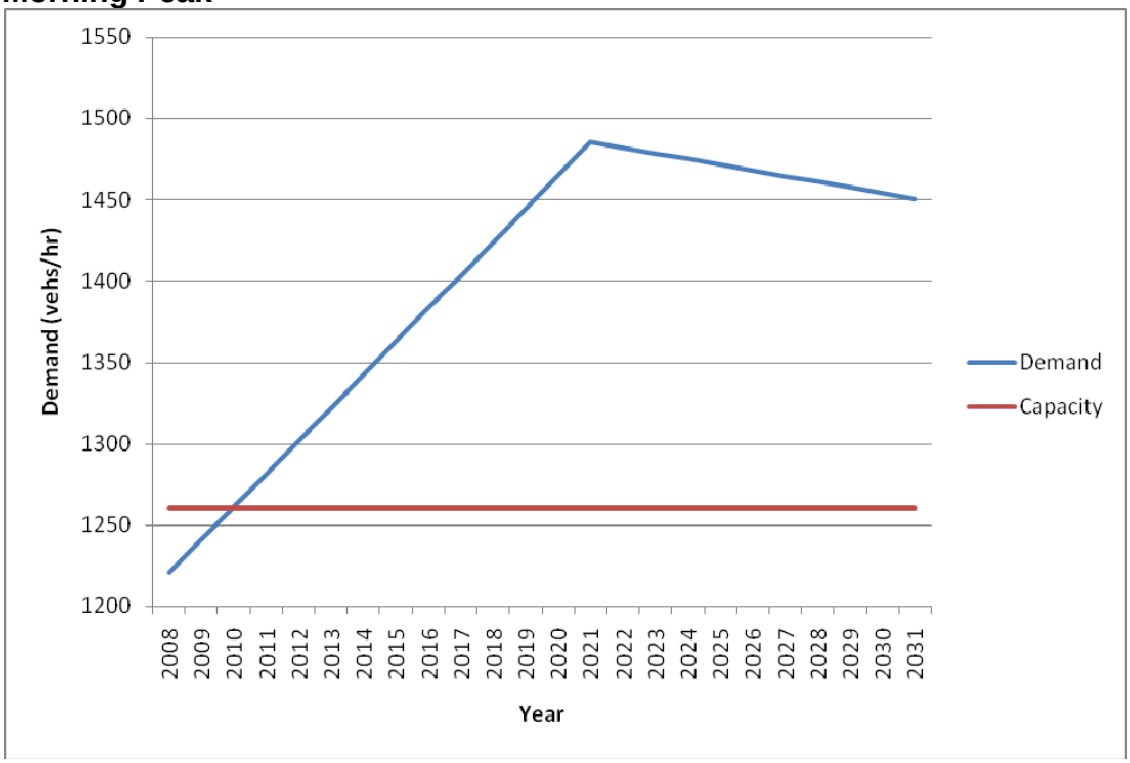


Figure 9.8 - From B197 North Road North (southbound) Road Assessment – Morning Peak

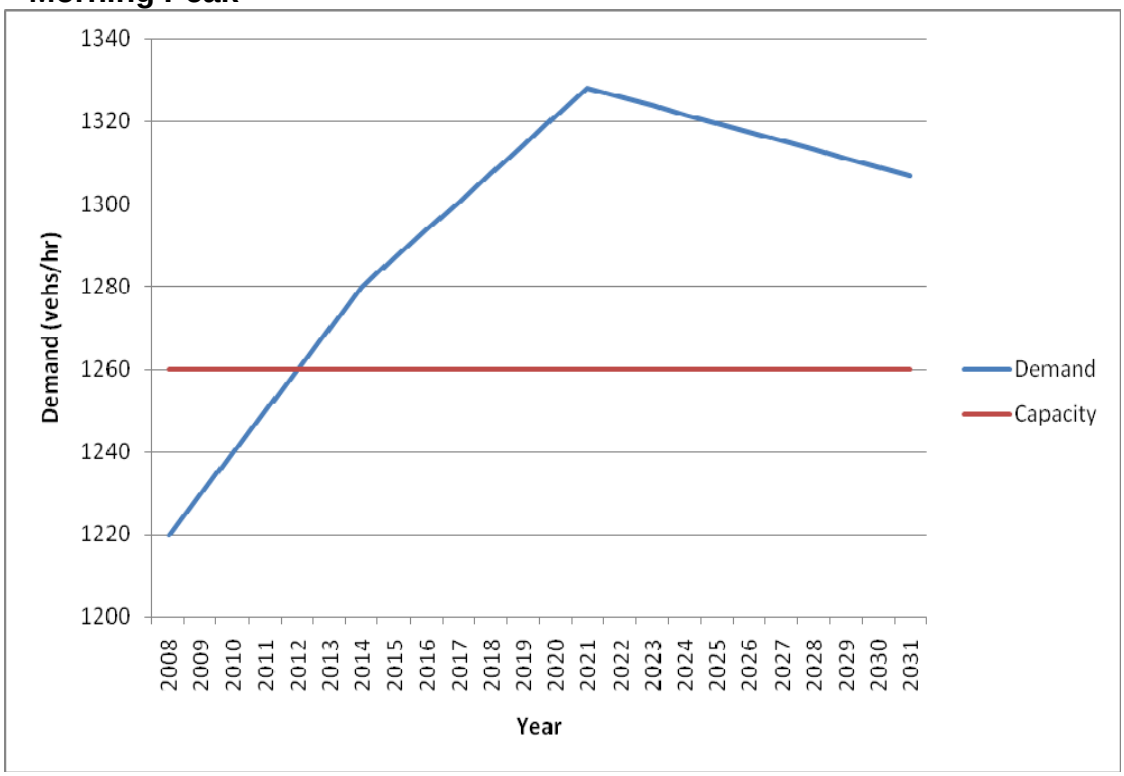


Figure 9.9 - From Great Ashby Way North (southbound) Road Assessment – Morning Peak

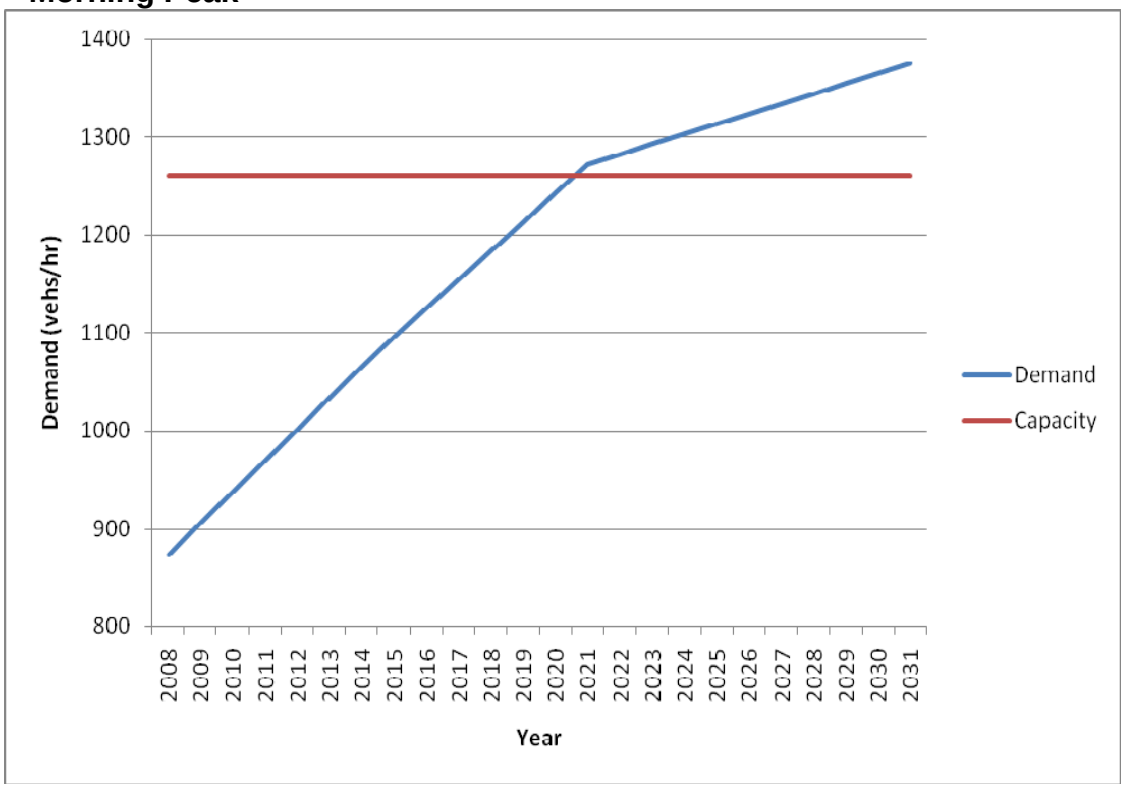


Figure 9.10 - From Gresley Way South (northbound) Road Assessment – Evening Peak

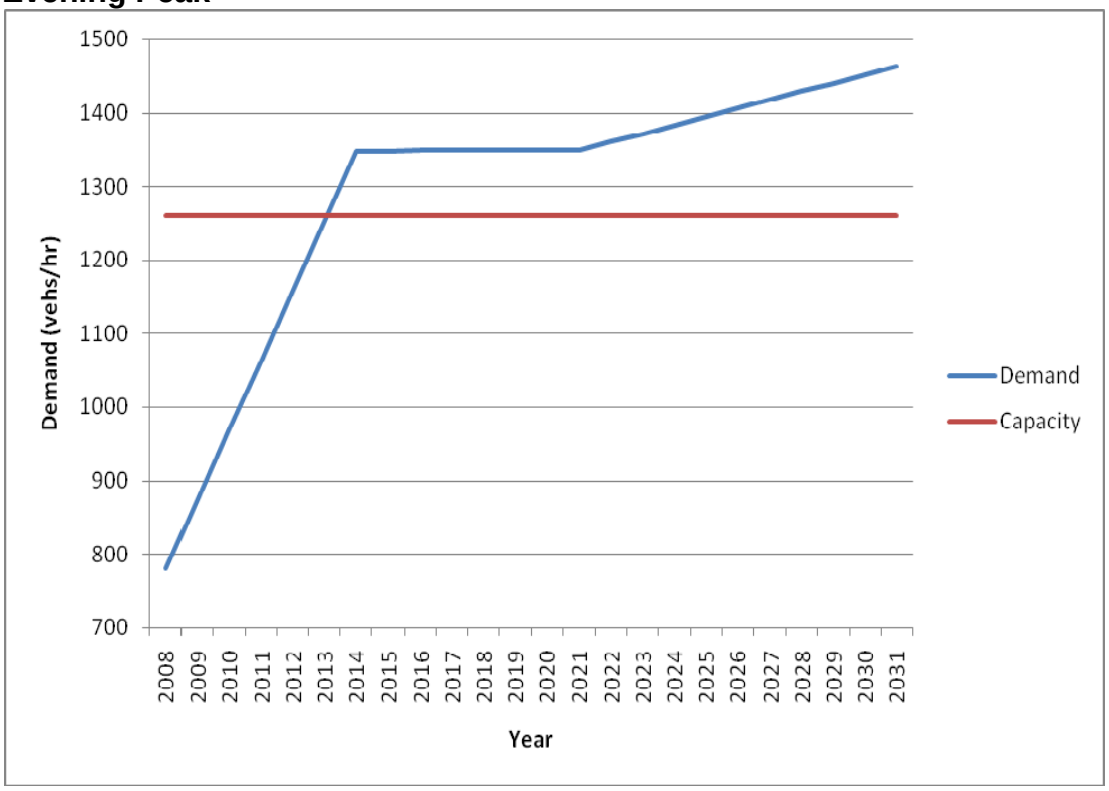


Figure 9.11 - To B197 North Road South (southbound) Road Assessment – Evening Peak

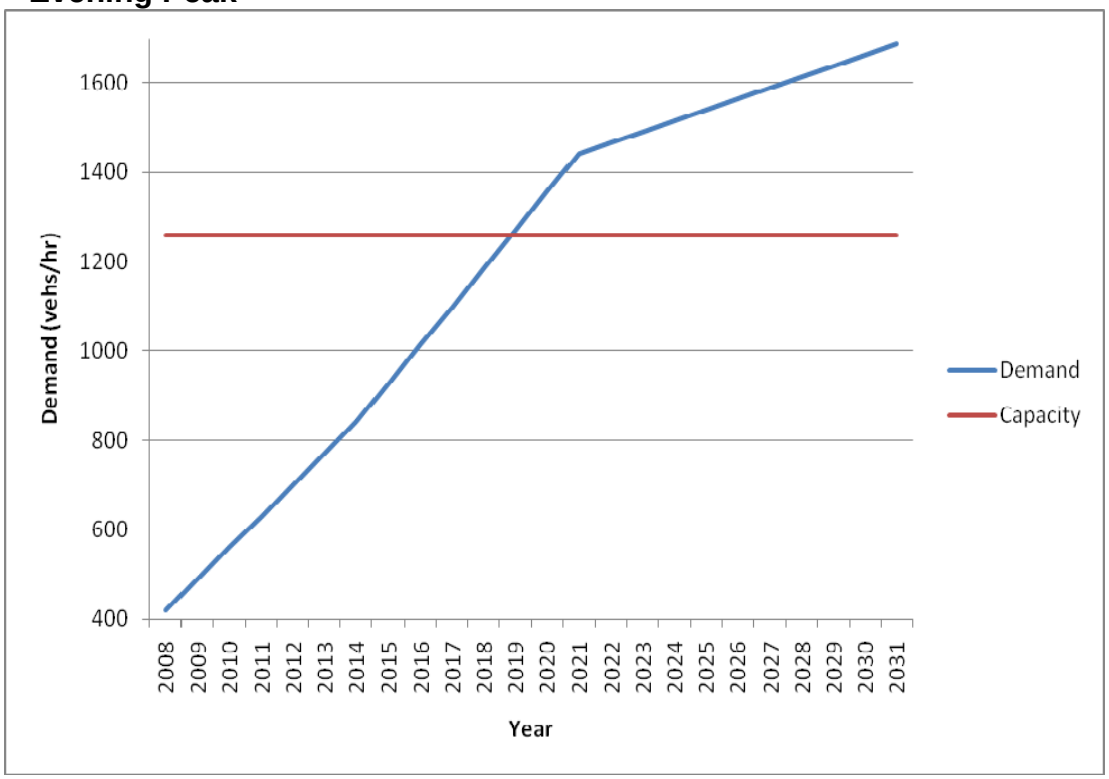


Figure 9.12 - From B197 North Road South (northbound) Road Assessment – Evening Peak

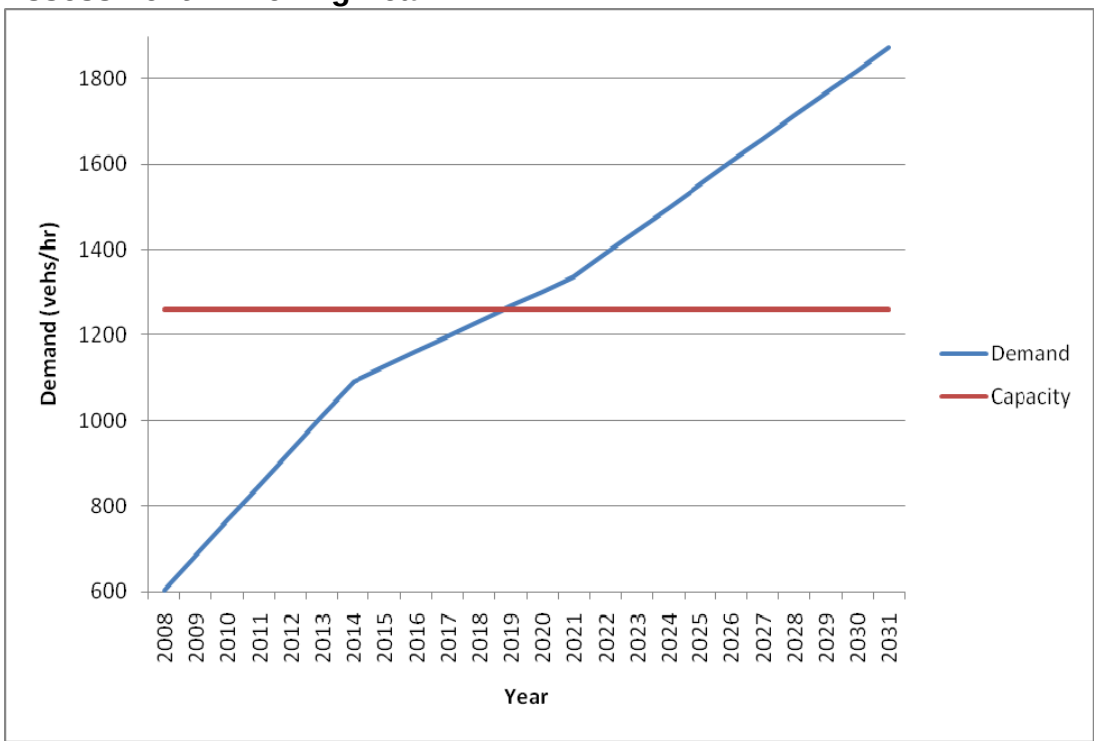


Figure 9.13 - To Gresley Way South (southbound) Road Assessment – Evening Peak

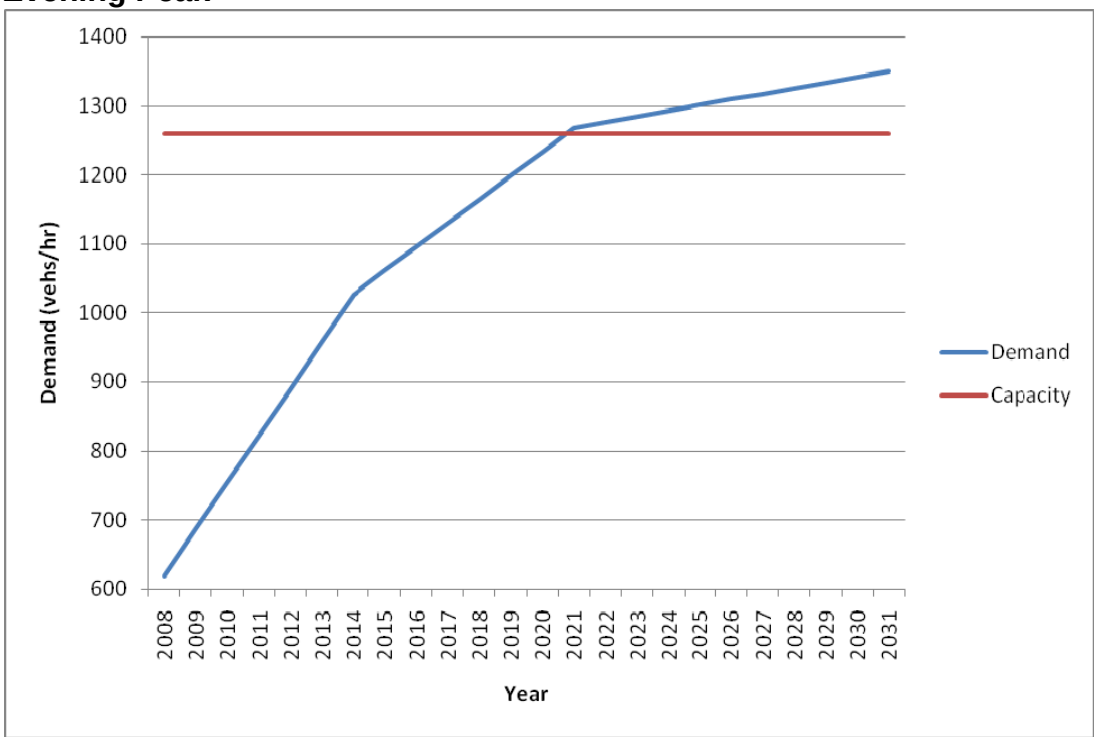


Figure 9.14 - From B197 North Road North (southbound) Road Assessment – Evening Peak

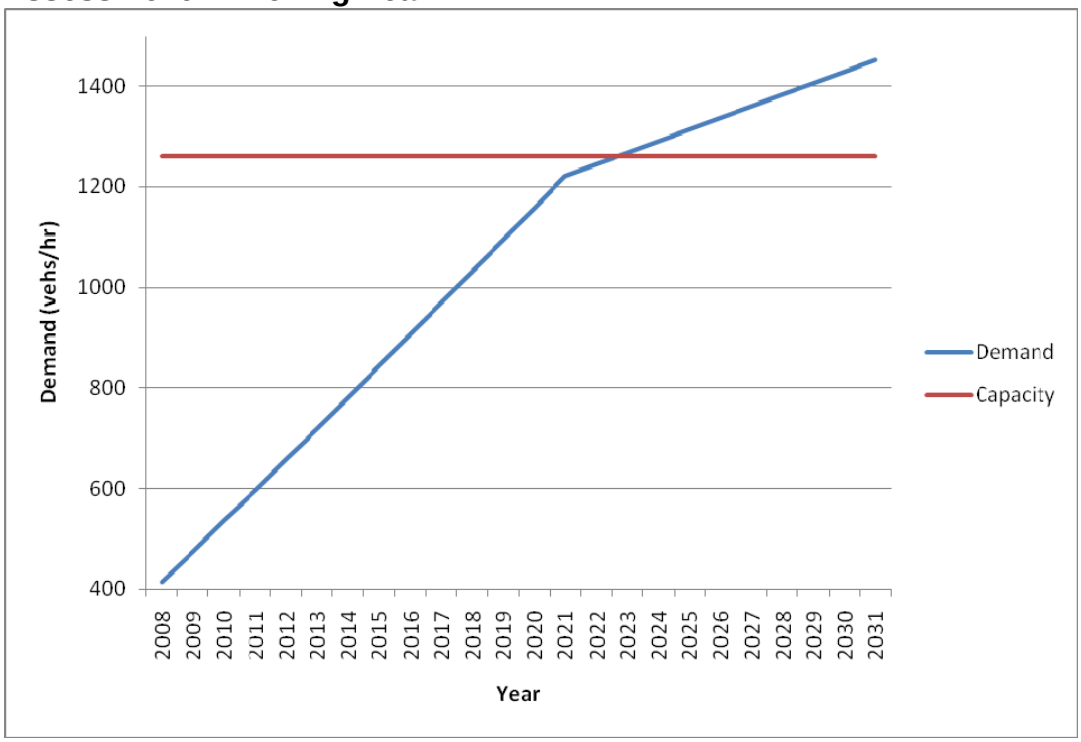


Figure 9.15 - To B197 North Road North (northbound) Road Assessment – Evening Peak

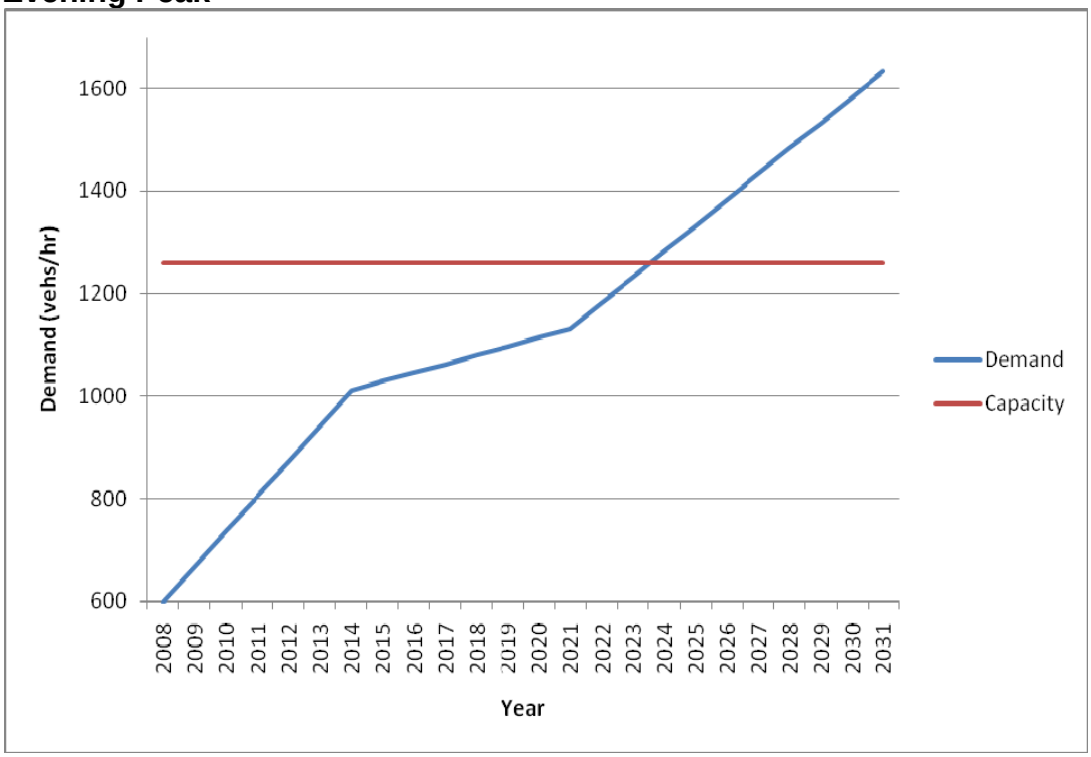


Figure 9.16 - To Canterbury Way (northbound) Road Assessment – Evening Peak

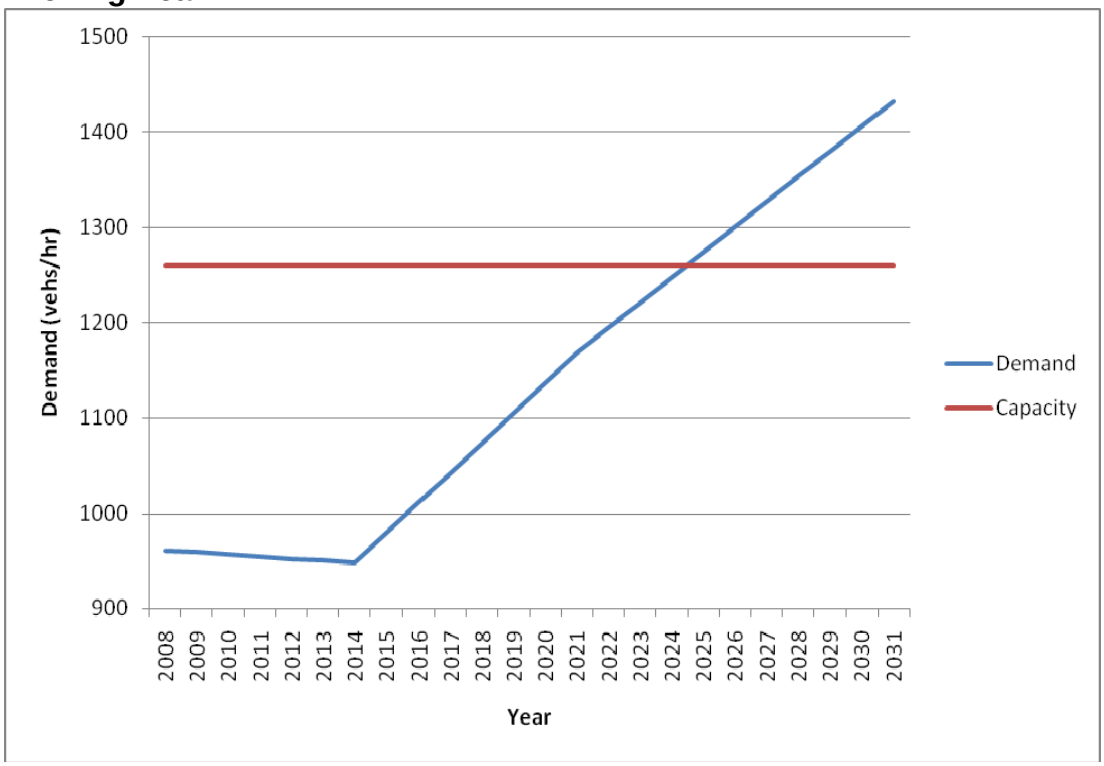
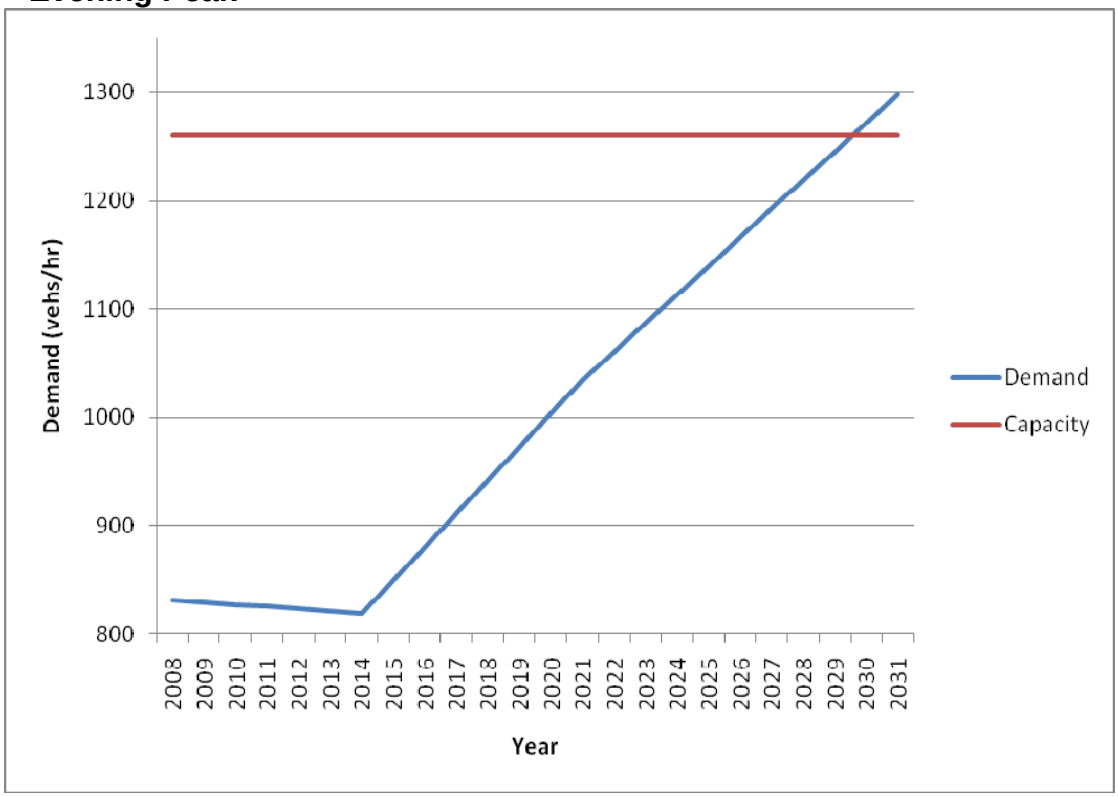


Figure 9.17 - From Canterbury Way South (northbound) Road Assessment – Evening Peak



9.4.3 *North Network Mitigation Schemes*

To mitigate the additional demand created by SNAP housing on the north network new road infrastructure is required.

By 2014, North Road and Gresley Way are expected to be operating over capacity during the peaks. North Road is over capacity due to an increase in background through traffic using North Road as an alternative route to the adjacent A602. Gresley Way is also over capacity due to a growth in background traffic during the evening peak. It is envisaged that by 2014 no mitigation schemes are proposed as part of the UTP, because future pressures on these roads are not as a direct consequence of the SNAP housing.

By 2021 the additional development puts more demand on the network so that Great Ashby Way is over capacity in addition to the two roads discussed in 2014. The pressure on Gresley Way is further exacerbated by the proposed development of SNAP2 during the evening peak. The proposed mitigation measures are:

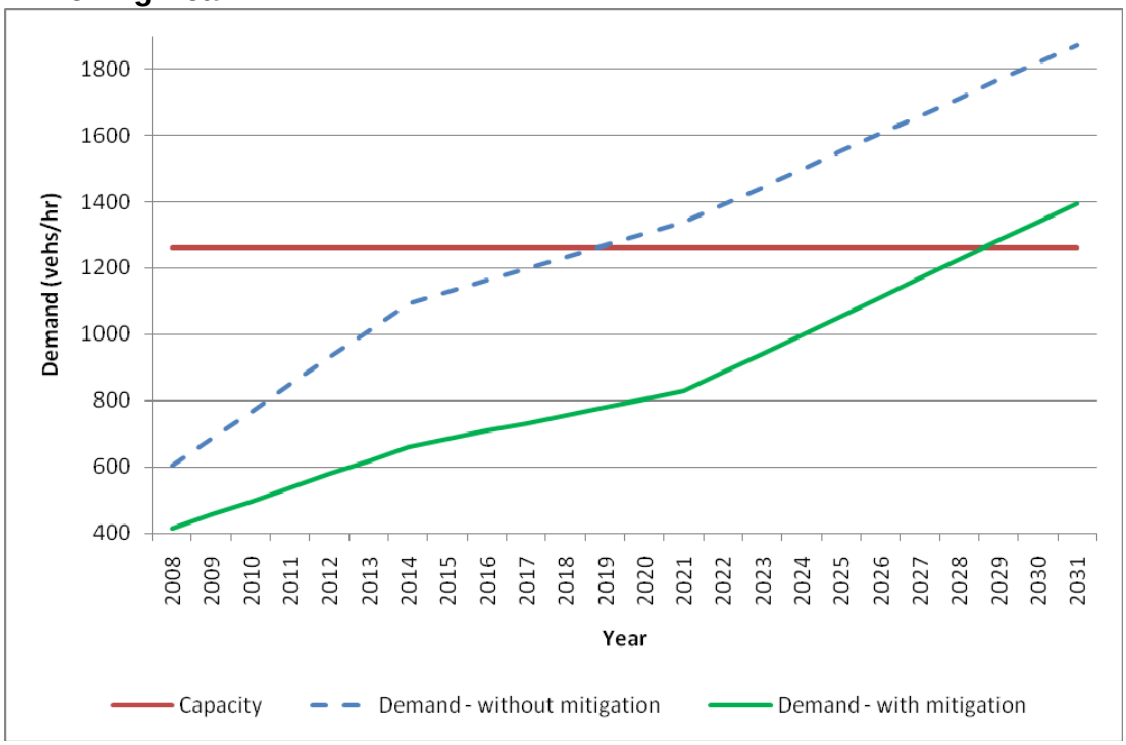
- **2021 North mitigation scheme A**: to provide a link road between North Road and the developments to the eastern side of Great Ashby Way.
- **2021 North mitigation scheme B**: provide link between 2021 mitigation scheme A and Gresley Way via B1037 Stevenage Road, with access for SNAP2 development.
- **2021 North mitigation scheme C**: Provide two separate access points for SNAP8 development. One on North Road and one on Graveley Road.
- **2021 North mitigation scheme D**: Provide access points from 2021 mitigation scheme A for SNAP7 development.

The 2021 North mitigation scheme B would provide a new link road that would avoid the B1037 / Gresley Way junction and provide a bypass for traffic from Stevenage wishing to access the SNAP2 development.

The benefits of these mitigation schemes are to reduce the number of over capacity roads in the north network, and reduce the demand on North Road, Gresley Way and Great Ashby Way during the peak periods.

By 2031 the only additional over capacity road is Canterbury Way. No additional mitigation measures to 2021 are proposed, although Canterbury Way is still over capacity. However the demand has been considerably reduced as a result of implementing the mitigation measures, such that it is only 7 vehicles / hr over capacity during the evening peak. Background growth along North Road has increased by 2031 in the evening peak but the mitigation measures in place have reduced this demand compared to without the mitigation. The reduction in demand is shown for the worst case scenario in the evening peak, from B197 North Rd South (northbound), ***Figure 9.18***. This road is over capacity by approximately 600 vehicles / hour during the evening peak by 2031 without the mitigation schemes in place.

Figure 9.18 - From B197 North Road South (northbound) Mitigation Impact – Evening Peak

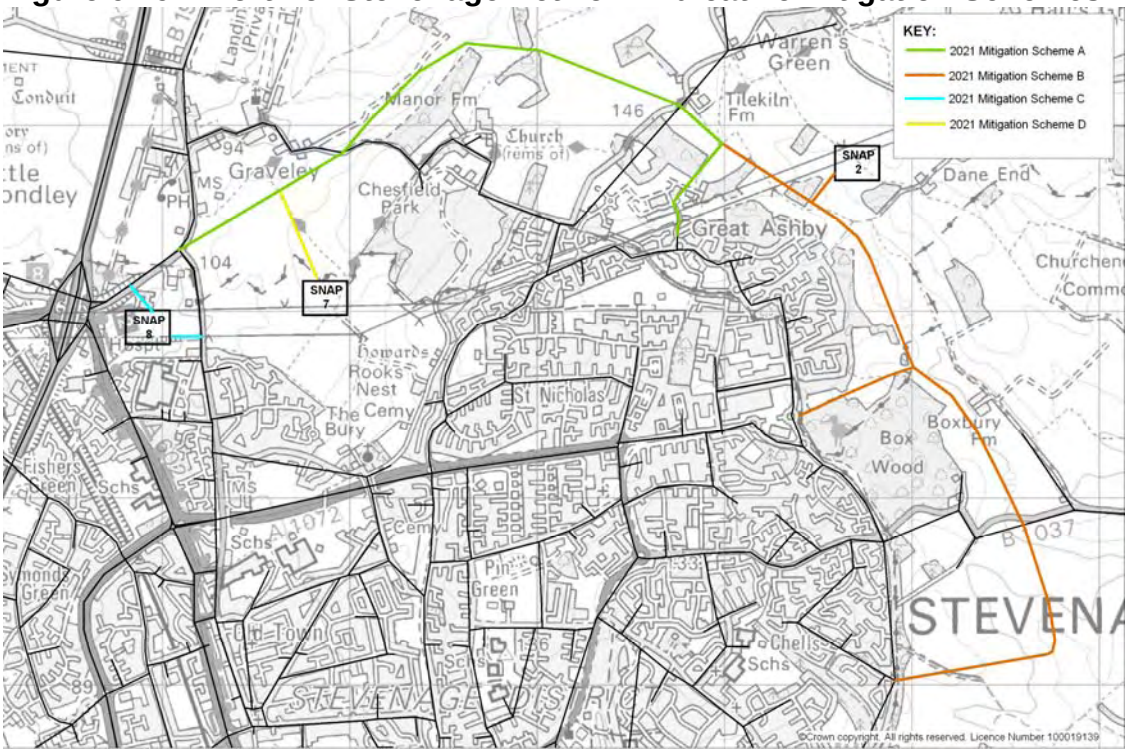


It is expected that the mitigation infrastructure can be phased so that it is constructed as the development demand increases, **Table 9.5**. Although the mitigation schemes are only indicative at present they are shown in **Figure 9.19**.

Table 9.5 - North Network Mitigation Schemes

Year	Over Capacity Roads	Mitigation Scheme	Benefit
2021	North Road Gresley Way Great Ashby Way	2021 mitigation scheme A 2021 mitigation scheme B 2021 mitigation scheme C 2021 mitigation scheme D	North Road – Reduction in Demand Gresley Way - Under capacity Great Ashby Way - Under capacity
2031	North Road Gresley Way Great Ashby Way Canterbury Way	Proposed 2021 mitigation schemes	North Road – Reduction in Demand Gresley Way - Under capacity Great Ashby Way - Under capacity Canterbury Way – Reduction in Demand, (only 7 vehicles/ hr over during PM peak)

Figure 9.19 – North of Stevenage Network Indicative Mitigation Schemes



9.5 West Network

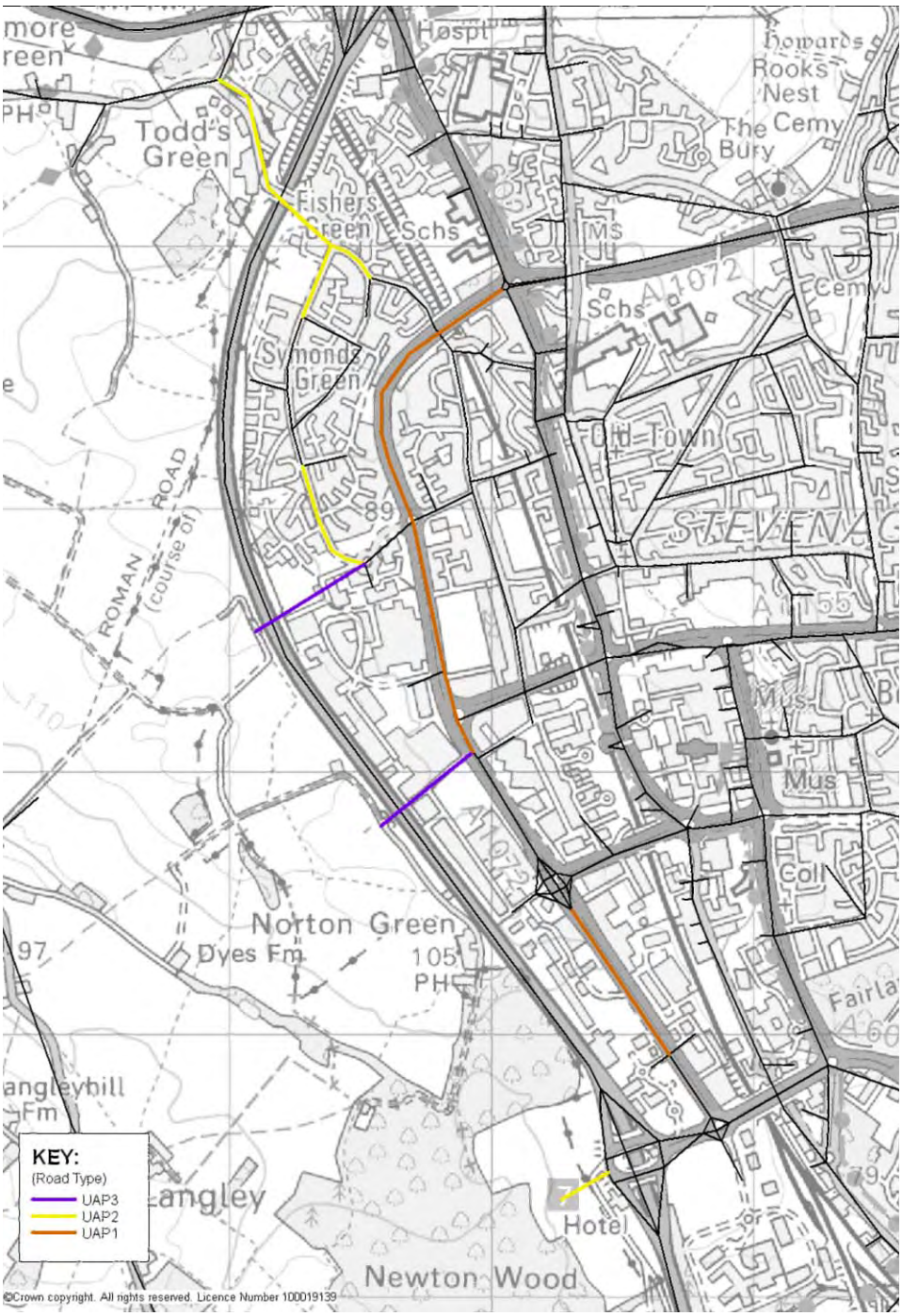
A similar process to the assessment of the north of Stevenage network was undertaken to assess the impact of SNAP developments to the west of Stevenage. The future year SNAP housing to the west is not expected to be constructed until after 2014, therefore there was no 2014 future year test undertaken. Key junction approaches and roads were identified and capacities defined using the industry standards (Design Manual for Roads and Bridges (DMRB) Advice Note TA 79/99) because all the roads identified were urban, with the same road types discussed in **Section 9.4** used.

As discussed in **Section 9.3**, zone 5109 was modified to be more representative of the possible future year network access points. In the base network the current access point for zone 5109 is along Stevenage Road. In the base year the demand from 5109 is negligible, therefore the impact on Stevenage Road and within the model is minimal. It would be unrealistic to assume that by 2031, 5,000 potential new dwellings would access the new developments from Stevenage Road. It is understood that any potential new development to the west will access the current road network via Meadway, Bessemer Drive or both. Two tests were undertaken to assess the impact of SNAP to the west of Stevenage with modifications to the network access point of zone 5109:

- West Network with Meadway access;
- West Network with Meadway and Bessemer Drive access.

The assumptions made about road standard and the links that have been assessed in terms of capacity are shown in the **Figure 9.20** overleaf.

Figure 9.20 - Location of key road links associated with development west of Stevenage



9.5.1 *West Network Results*

The difference between the two sensitivity tests is minimal, with the only impact of changing the access point a change in demand on the access roads so either Meadway or Bessemer Drive is over capacity in the future years. When the test was assessed with just access via Meadway, this access road operates in excess of it design capacity by the future. When both Meadway and Bessemer Drive are used as access points then Bessemer Drive is over capacity. To show the worst case scenario, results are shown for the West Network with Meadway and Bessemer Drive access.

In 2008 all the identified roads are under capacity. Only by 2021 does the network have over capacity links but this is only very minor, with Fishers Green

northbound over capacity by 6 vehicles in the evening peak, ***Figure 9.22***. However by 2031, Fishers Green northbound is over capacity as well as the access road to Bessemer Drive, **Figure 9.23**. In the 2031 morning peak, the only road over capacity is the access road from Bessemer Drive, **Figure 9.21**.

9.5.2 *West Network Road Capacity Assessment*

Similar to the assessment under taken for the north network over capacity roads, the west network has 3 roads over capacity by 2031, one in the morning peak and two in the evening, **Table 9.6, Figure 9.24** to **9.26**. This assessment is using the west network with access via Meadway and Bessemer Drive.

Table 9.6 - West Network with Meadway and Bessemer Drive Access Road Capacity Assessment

Location	Peak	Capacity (vehicles/hr)	Year Over Capacity	Over Capacity Houses
Bessemer Drive (eastbound)	AM	1110	2025	3500
Bessemer Drive (westbound)	PM	1110	2025	3500
Fisher Green (northbound)		1260	2020	2143

Assessment of the west network with access via Meadway only shows Meadway operating over capacity instead of Bessemer Drive and a change in the year when Fisher Green is over capacity, **Table 9.7, Figure 9.26** to **9.28**.

Table 9.7 - West Network with Meadway Access Road Capacity Assessment

Location	Peak	Capacity (vehicles/hr)	Year Over Capacity	Over Capacity Houses
Meadway (eastbound)	AM	1110	2027	4000
Meadway (westbound)	PM	1110	2024	3250
Fisher Green (northbound)		1260	2027	4000

Figure 9.21 - West Network – 2031 AM Peak

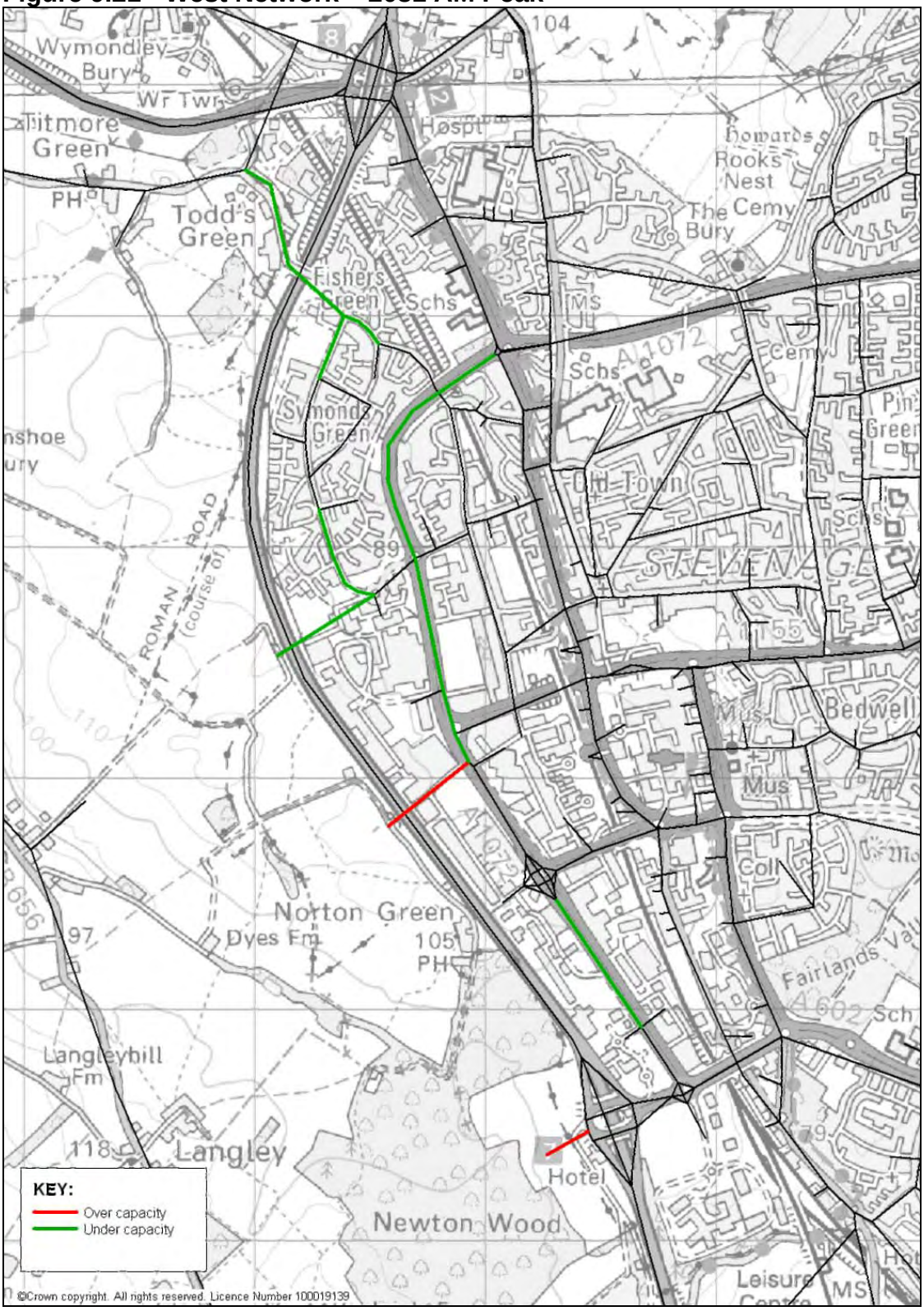


Figure 9.22 - West Network – 2021 PM Peak

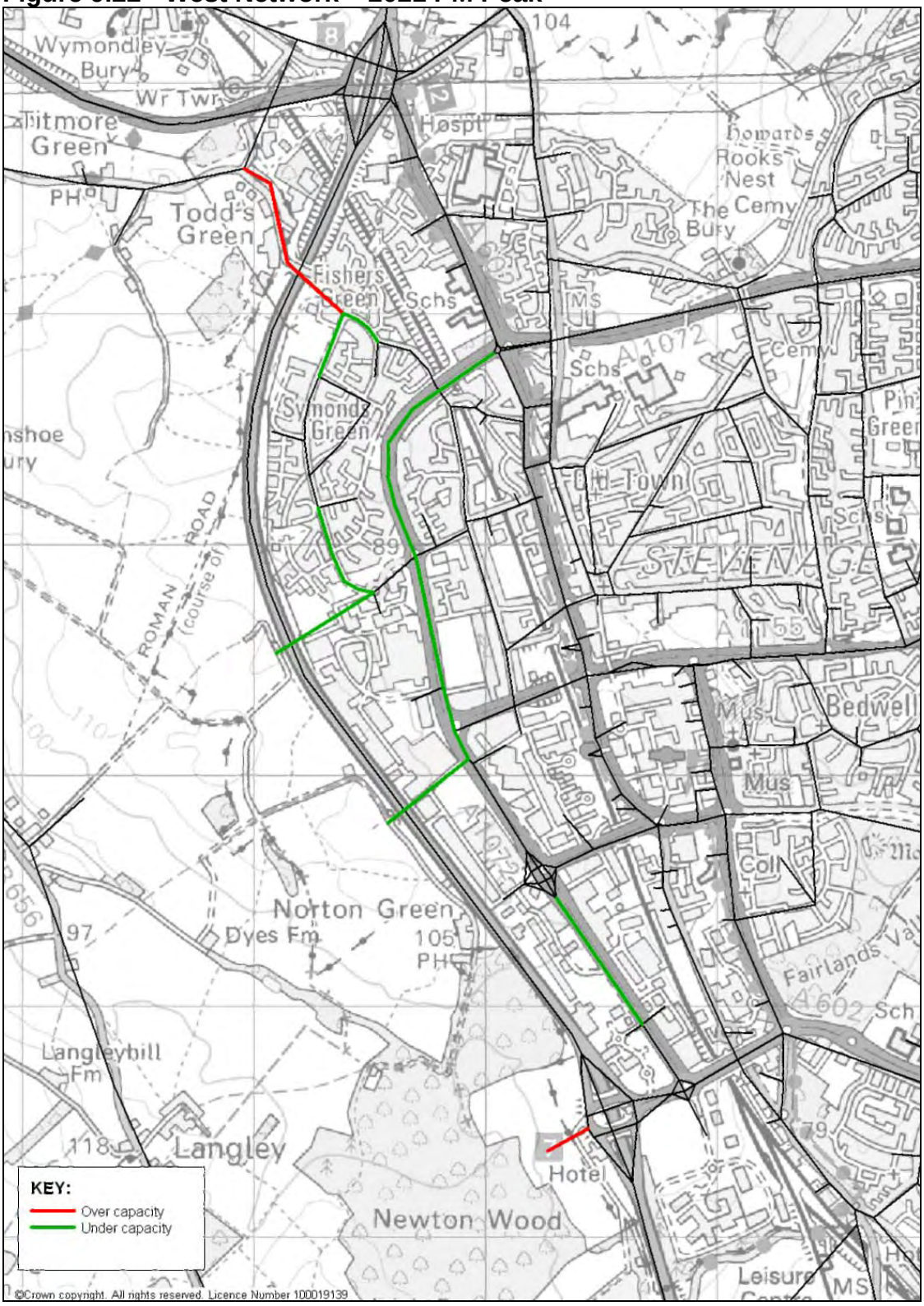


Figure 9.23 - West Network – 2031 PM Peak

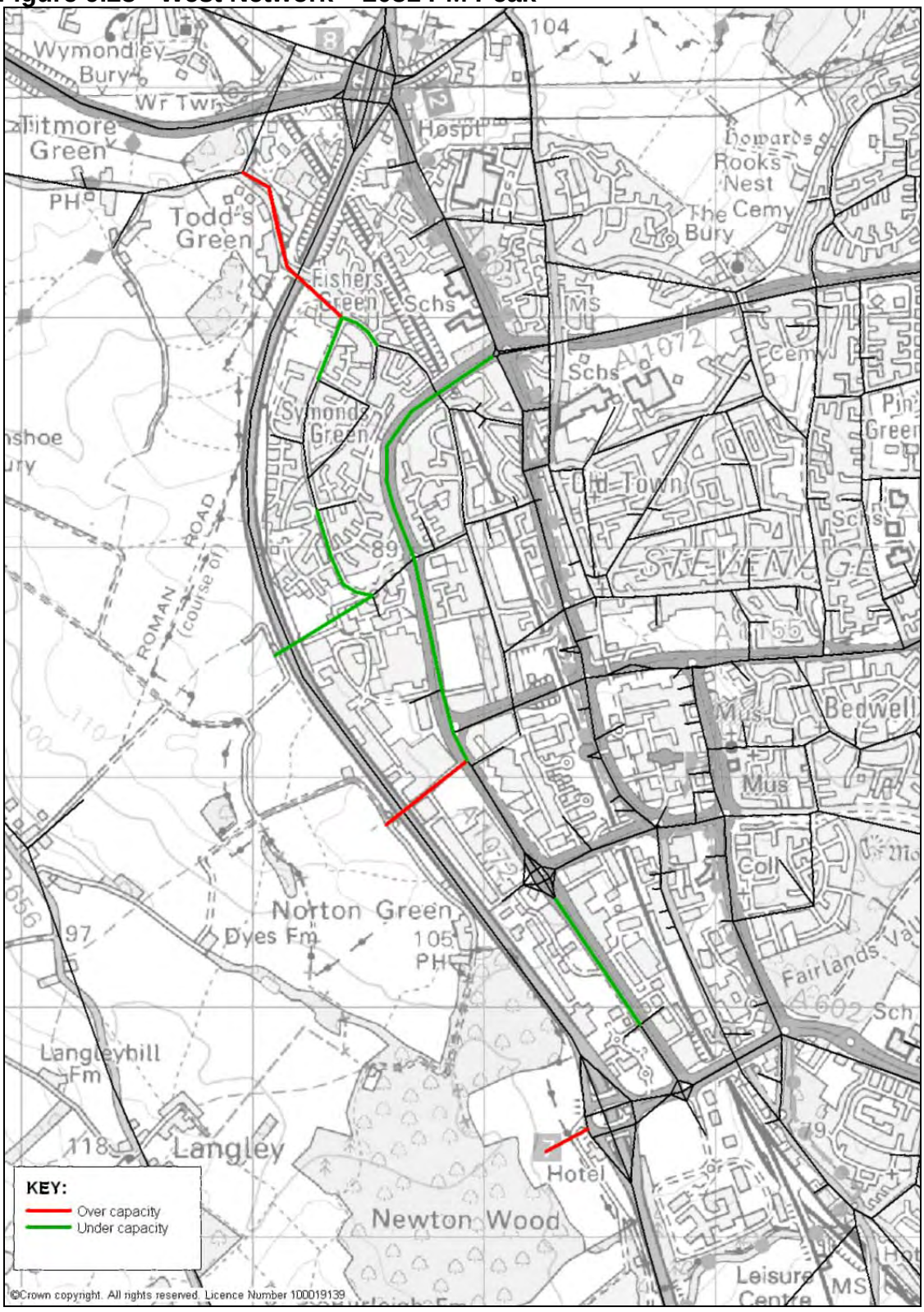


Figure 9.24 - Bessemer Drive (eastbound) Road Assessment – Morning Peak

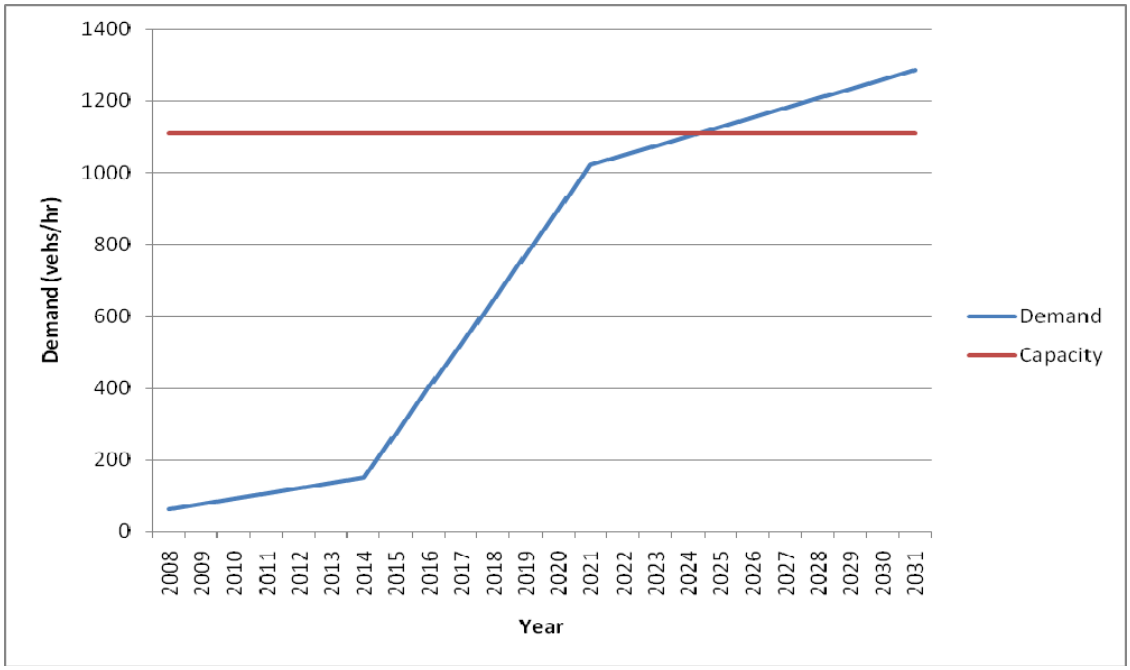


Figure 9.25 - Bessemer Drive (westbound) Road Assessment – Evening Peak

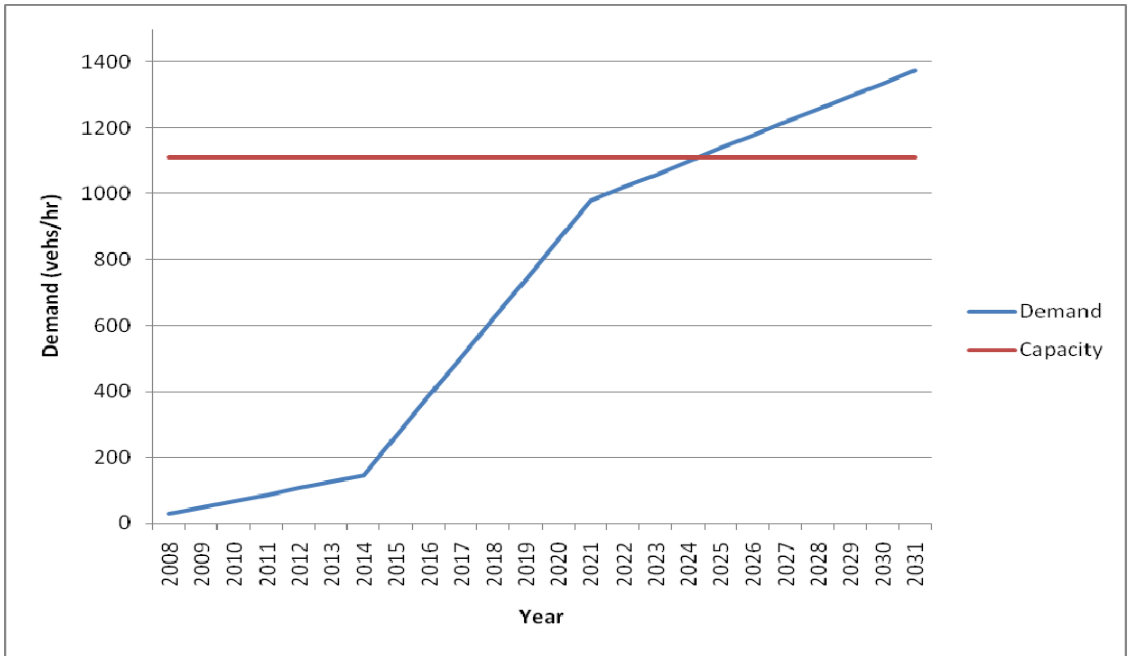


Figure 9.26 - Fisher Green (northbound) Road Assessment – Evening Peak

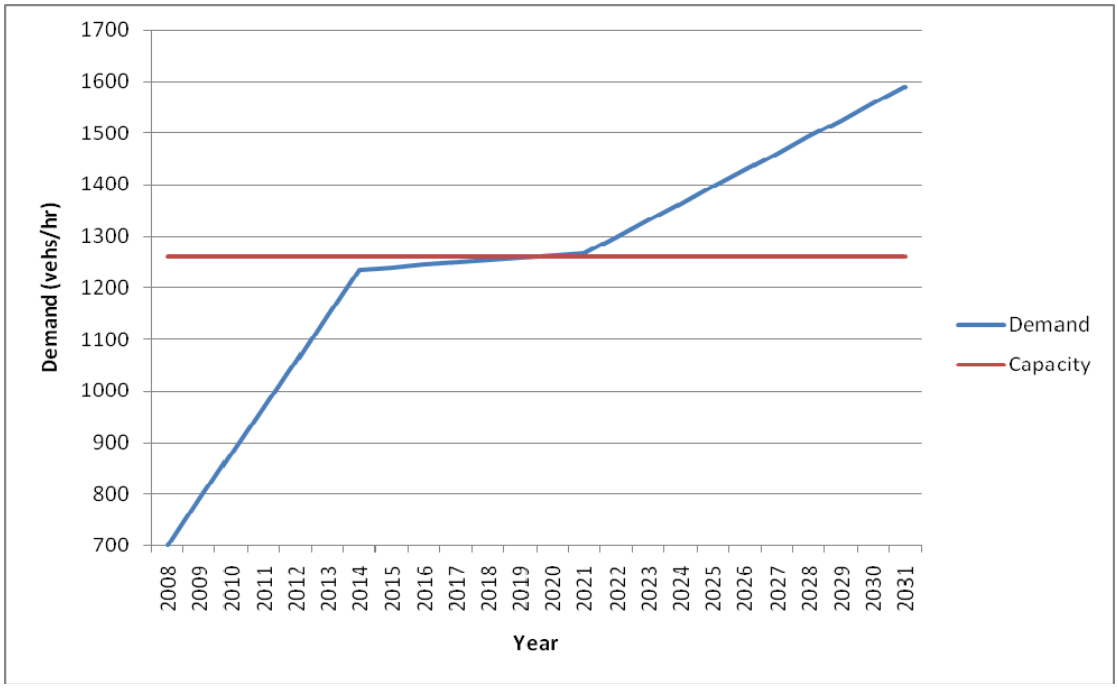


Figure 9.27 - Meadway (eastbound) Road Assessment – Morning Peak

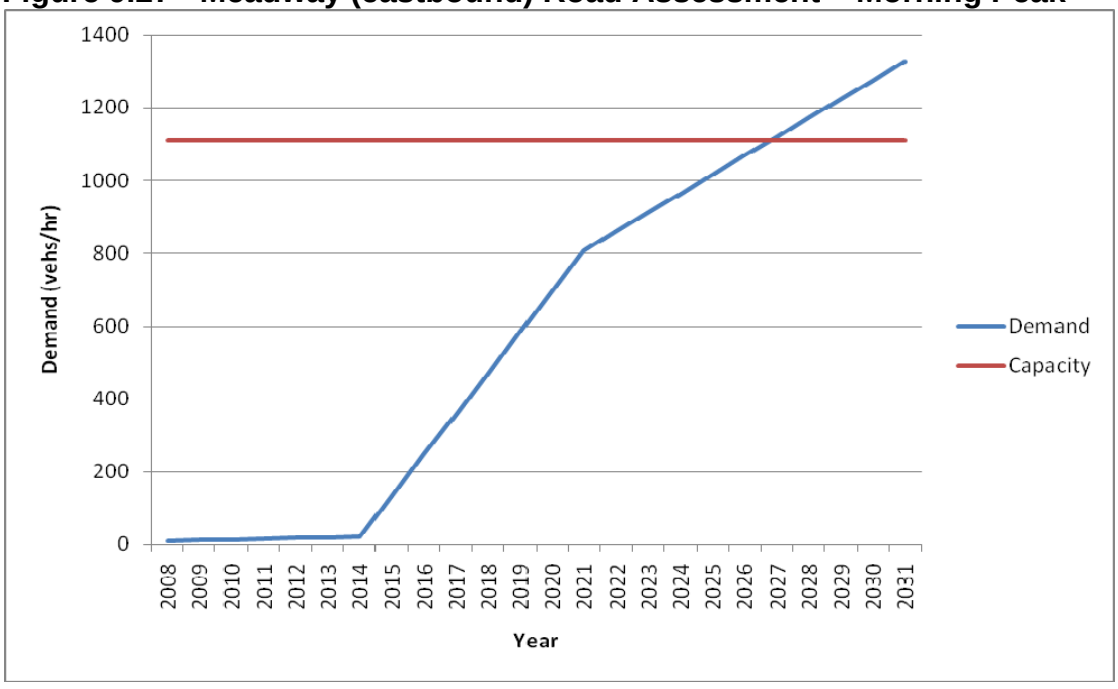


Figure 9.28 - Meadway (westbound) Road Assessment – Evening Peak

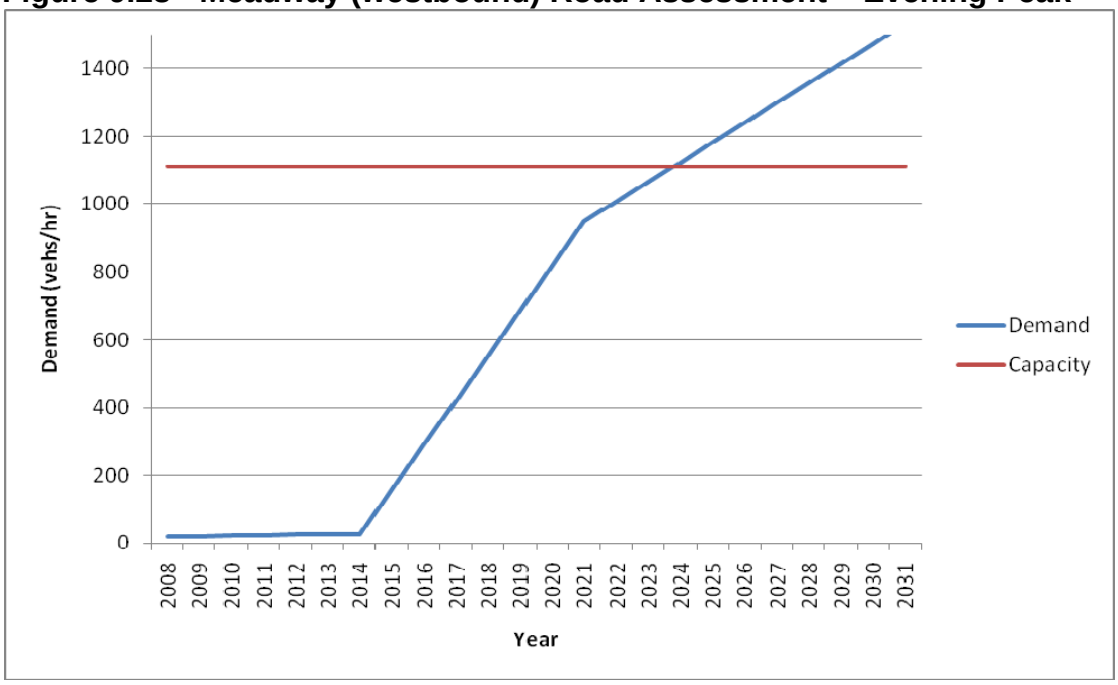
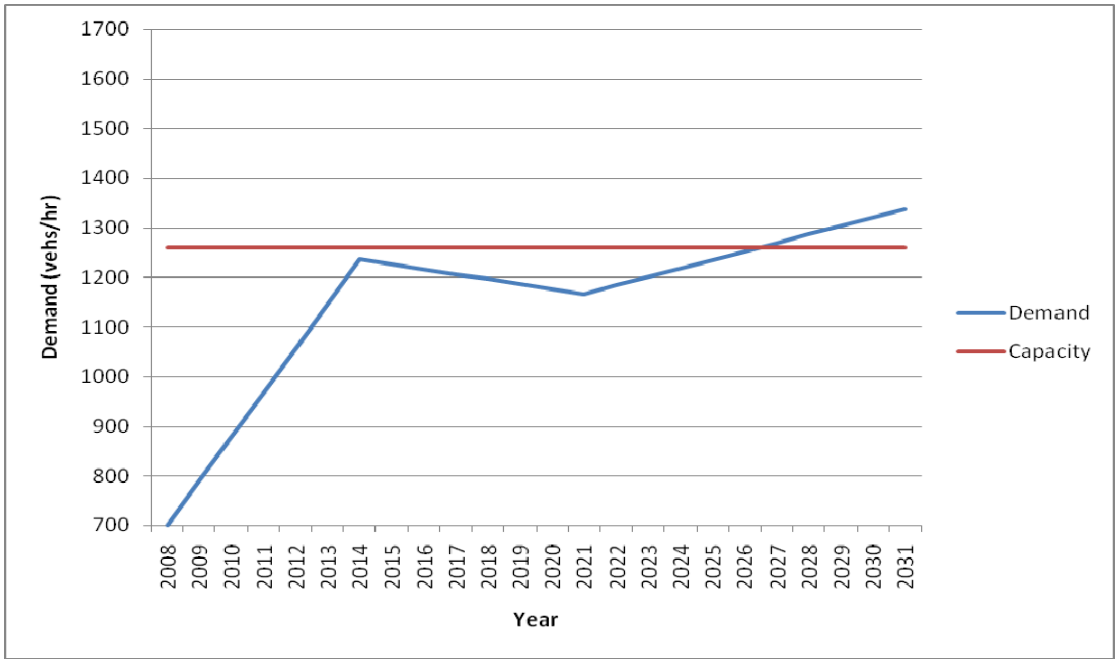


Figure 9.29 - Fisher Green (northbound) Road Assessment – Evening Peak



9.5.3 *West Network Mitigation Schemes*

The SNAP housing to the west of Stevenage is not anticipated to begin construction until after 2014. By 2021 half of the housing development is expected to be complete. The impact of this in the existing road infrastructure is minimal with only Fishers Green marginally over capacity, 6 vehicles / hour during the PM peak in 2021. The impact on Fishers Green during the PM peak is not a direct result of the SNAP housing, but the growth in background traffic from employment areas in Stevenage and Hitchin.

By 2031 the access roads from the development are over capacity in both the morning and evening peak, along with Fishers Green in the evening peak. As discussed the increase in demand on Fishers Green is not a direct result of the SNAP housing. Therefore, the proposed mitigation scheme to alleviate the increase in demand from the development is:

- **2031 West mitigation scheme A**: Improve the standard of road for both Meadway and Bessemer Drive to a minimum standard of Urban all-purpose 2, carriageway width 7.3m. This would give the road a capacity of 1470 vehicles / hour, **Figure 9.30** to **9.32**.

A carriageway width of 9m would be preferable because this would provide the road with a capacity of 1550 vehicles / hour for any future development beyond 2031. If the development only uses Meadway as the access road then the 9m carriageway width would be required to cope with the demand during the evening peak up to 2031, **Figure 9.32**.

Figure 9.30 - Bessemer Drive (eastbound) Road Assessment – Morning Peak

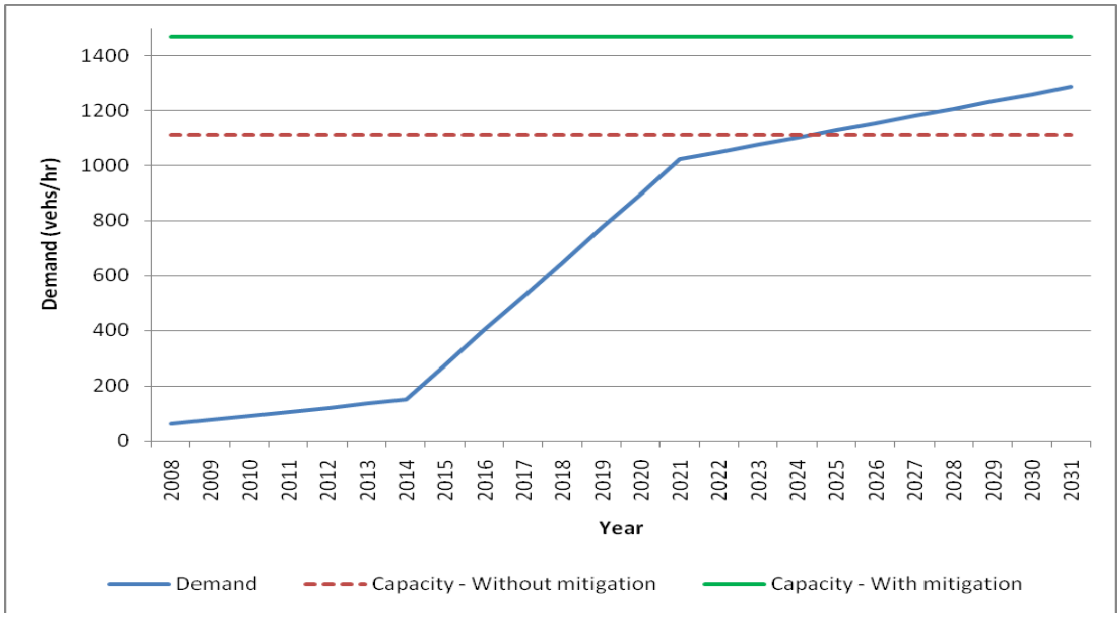


Figure 9.31 - Bessemer Drive (westbound) Road Assessment – Evening Peak

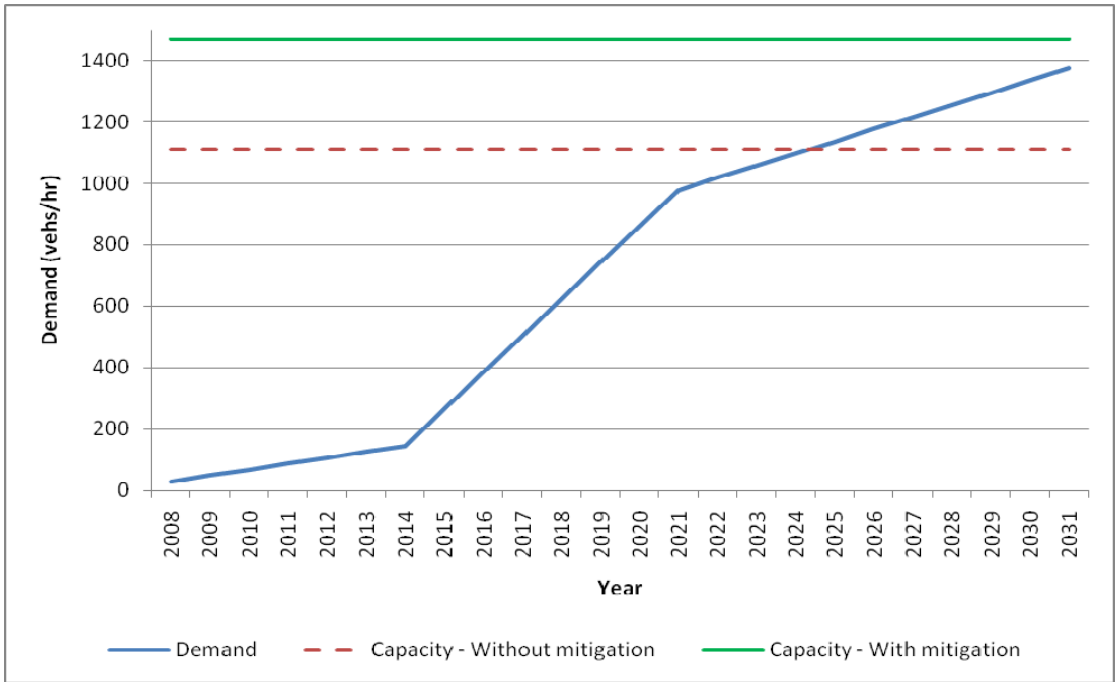


Figure 9.32 - Meadway (eastbound) Road Assessment – Morning Peak

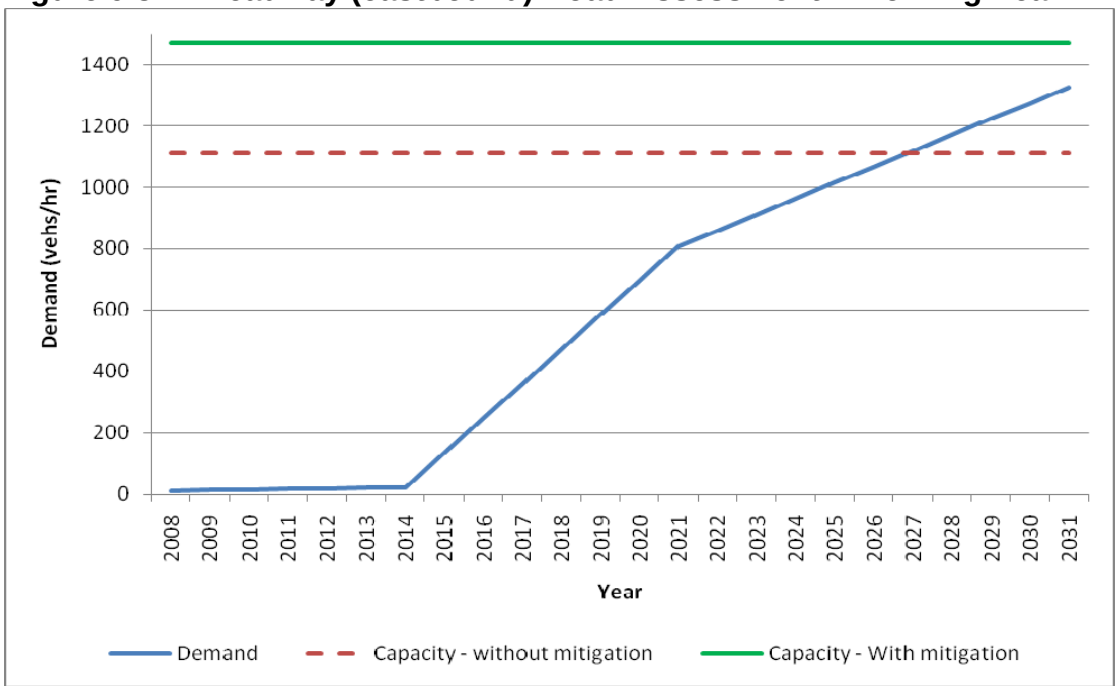
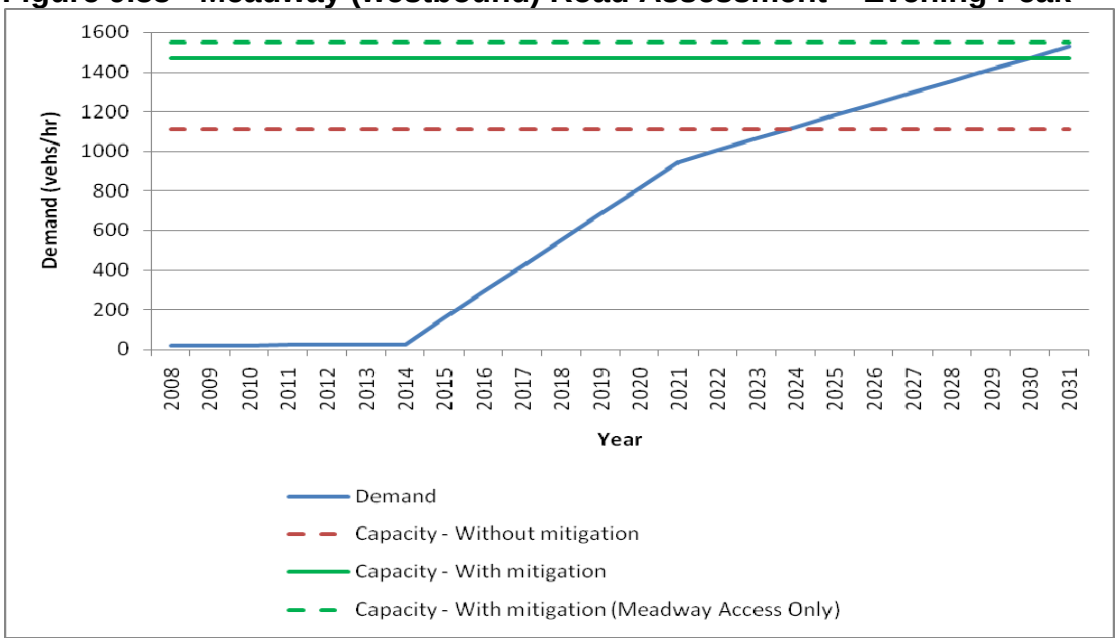


Figure 9.33 - Meadway (westbound) Road Assessment – Evening Peak



9.6 A1(M) Junction 7

Included in the SNAP development to the west of Stevenage is SNAP 11, which includes non-residential development west of A1(M) Junction 7. This development site is sandwiched by the A1(M) Junction 7 to the east and Newton Wood to the West which is Site of Special Scientific Interest (SSSI). Therefore the only realistic access point for this development area is directly onto the A1(M) junction 7. There is currently a minor access road onto the junction from this area of development which has been modelled. Included on the West of Stevenage Network map is the impact of any future year development on this road.

This access road is over capacity in the evening peak by 2021, **Figure 9.22**. As the development continues to grow by 2031 the access road is put under additional pressure such that it is over capacity in both the morning and evening peak in 2031, **Figure 9.21** and **9.23**. This puts huge pressure not only on the access road for the development but also the A1(M) Junction 7.

There are two roads operating over capacity by 2031, with one in each peak, **Table 9.8, Figure 9.34** and **9.35**. The two network tests produce the same result for this road link so it does not matter which west network test is analysed. The results in **Table 9.8** are shown for the West Network with Meadway and Bessemer Drive access.

Table 9.8 - West Network with Meadway and Bessemer Drive Access Road Capacity Assessment

Location	Peak	Capacity (vehicles/hr)	Year Over Capacity	Houses Over Capacity
From A1(M) Junction 7 (westbound)	AM	1260	2031	5000
To A1(M) Junction 7 (eastbound)	PM	1260	2021	2500

Figure 9.34 - From A1(M) Junction 7 (westbound) Road Assessment – Morning Peak

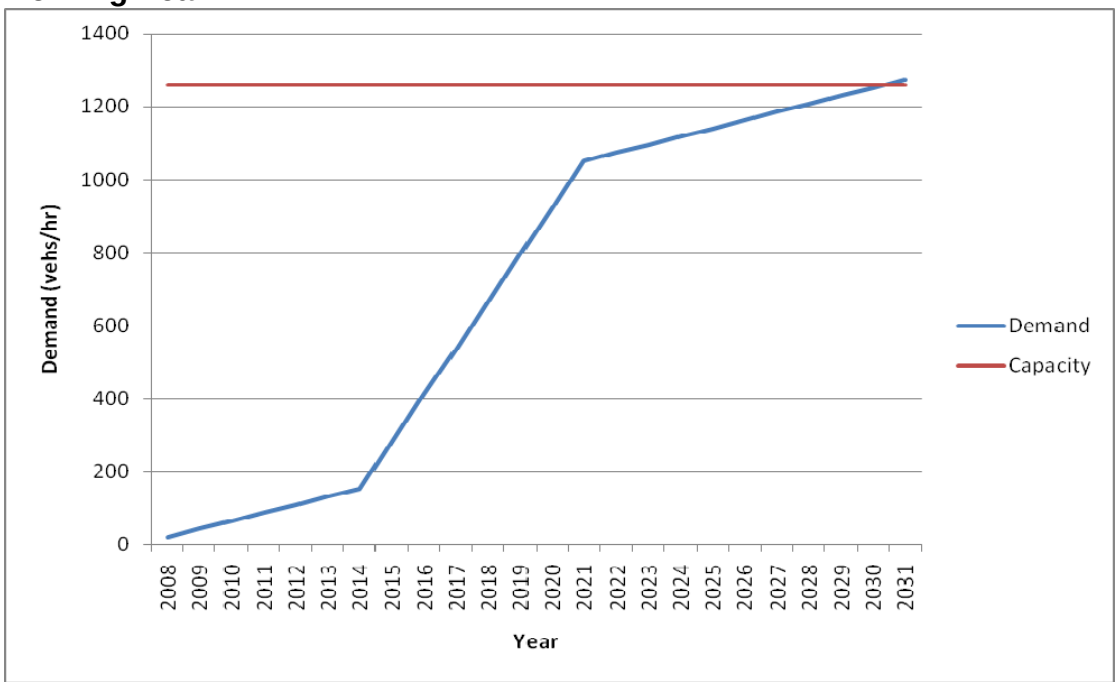
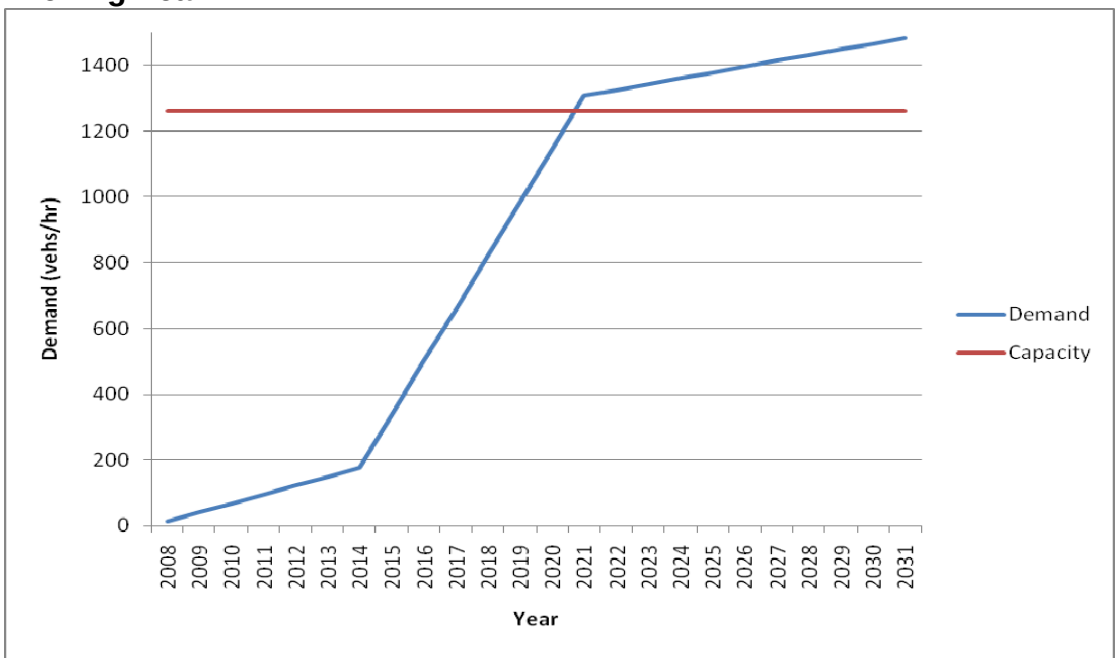


Figure 9.35 - To A1(M) Junction 7 (eastbound) Road Assessment – Evening Peak



9.6.1 *A1(M) Junction 7 Mitigation Schemes*

A proposed mitigation scheme for the access between SNAP site 11 and the A1(M) Junction 7 is to improve the carriageway standard.

- **2031 A1(M) Junction 7 mitigation scheme A**: Improve the standard of the access road to the west of the A1(M) Junction 7 to a minimum standard of Urban all-purpose 2, carriageway width 9m. This would enable a capacity for the road of approximately 1550 vehicles / hour, **Figure 9.36** and **9.37**.

A dual two lane road, carriageway width 7.3m would be preferable but the minimum standard required to cope with the demand is one lane, 9m wide.

Although this mitigation scheme would solve the problem of the access road being over capacity by 2031, the interaction at the junction with the motorway traffic flow would require more detail. It has been proposed through the UTP that the access road approach at the junction will need to be widened to two lanes to allow for extra capacity at the junction by 2021. In addition an access road from the development site may also be required to the south of the junction to provide access for traffic not wishing to access the A1(M) and to relieve the demand at the A1(M) Junction 7 in the future.

Figure 9.36 - From A1(M) Junction 7 (westbound) Road Assessment – Morning Peak

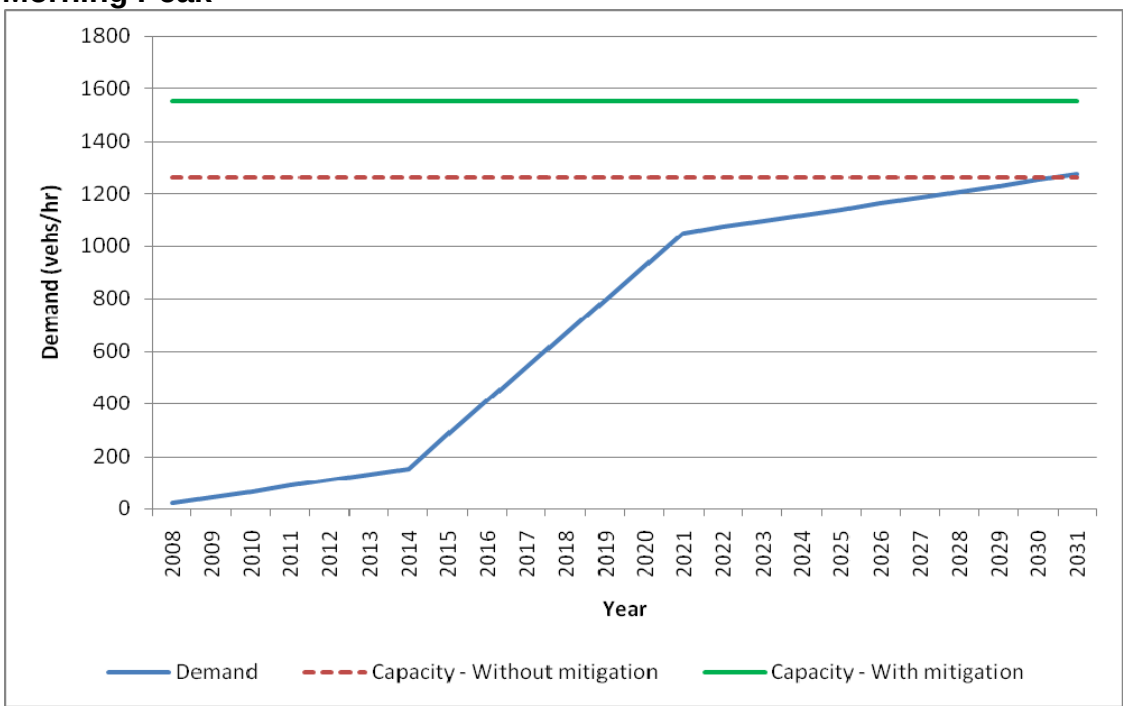
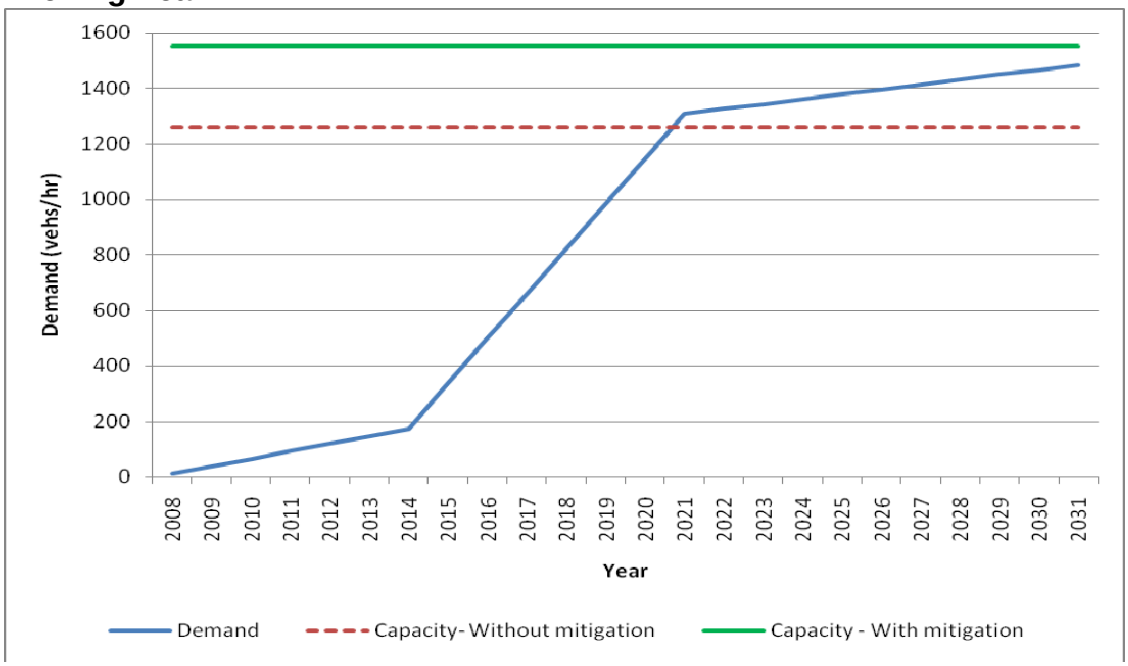


Figure 9.37 - To A1(M) Junction 7 (eastbound) Road Assessment – Evening Peak



9.7 A1 (M) Junction 6 to 9

In addition to assessing the impact of SNAP housing on the road network to the north and west of Stevenage, an assessment has been undertaken on the A1(M) around Stevenage to see at what stage in the future it may be operating at capacity.

The future year networks used for this assessment include the proposed UTP schemes because the motorway is expected to be less sensitive to re-routing. Hitchin demand has also been included for the testing to ensure the worst case scenario.

To define the capacity of the A1(M) between junctions 6 and 9, TA 46/97 was used along with local available data for 2008 from the DfT TRADS website. This assessment of capacity takes into account the two way tidal split, proportion of HGVs and peak hour flow during the peaks to give a more realistic and representative road capacity, **Table 9.9**. The carriageway standards used were dual 2 lane motorway (D2M) and dual 3 lane motorway (D3M).

Table 9.9 - A1(M) Junctions 6 to 9 Capacities

Location	Capacity (vehicles / hour)	
	Morning Peak	Evening Peak
A1(M) Junction 6 - 7 Northbound	3885	4079
A1(M) Junction 6 - 7 Southbound	3994	4092
A1(M) Junction 7 - 8 Northbound	3801	4055
A1(M) Junction 7 - 8 Southbound	3917	4109
A1(M) Junction 8 - 9 Northbound	5594	5899
A1(M) Junction 8 - 9 Southbound	5837	6150

9.7.1 *A1 (M) Junction 6 to 9 Results*

The A1(M) junction 7 to 6 southbound is over capacity in the morning peak by 2014, **Figure 9.38**. This situation is exacerbated with additional pressure by 2021 causing junction 6 to 7 to be over capacity in both directions. By 2031 there is no additional pressure causing a change to the over capacity roads.

In the evening peak, by 2014 the A1(M) between junction 6 to 8 is over capacity, **Figure 9.39**. However, the demand northbound between junction 6 and 7 by 2021 and 2031 has reduced below 2014 levels, resulting in this section of the A1(M) operating within capacity.

This is because of the change in the expected growth outside of the study area in regards to longer distance external to external trips. The strategic East of England Regional Model (EERM) has been used to provide the background growth as this reflects the strategic level of trip making as a result of the RSS proposals. However, EERM which is validated to a 2004 base year only has future forecast years for 2008, 2021 and 2031. There is currently no 2014 run of the EERM model for use in forecasting. Due to the costs and timescales involved the current forecasting matrices for 2014 use the National Road Traffic Forecast (NRTF) factors for background growth of the external to external trips. As a result NRTF factors envisage a higher level of background growth for 2014 from 2008, than EERM does for 2021 for this particular area.

9.7.2 *A1 (M) Junction 6 to 9 Road Capacity Assessment*

Detailed assessment of the A1(M) road capacity can show at what particular year each section is envisaged to be operating at capacity. Assuming that junction 6 to 7 is at capacity by 2014 as shown by **Figure 9.38**, assessment of junction 7 to 8 shows that it is at capacity by 2014 in the evening peak, **Figure 3.39**. Detailed assessment of this section shows that the northbound direction will be operating at capacity by 2011, **Figure 9.40**. The worst case scenario shows that it would require widening by 2011 in order to cope with the northbound demand during the evening peak. It should be made clear that this conclusion is derived from a theoretical modelling exercise, based on assumptions about road capacity and future levels of demand. This however does provide a very strong indication of the areas of the network that will be under stress and by which timeframe.

9.7.3 *A1(M) Junction 6 to 9 Mitigation Schemes*

Mitigation schemes being proposed through the UTP for the A1(M) are as discussed in Appendix Volume 1. It is discussed that widening of the A1(M) junction 6 to 7 is required by 2014, with junction 7 to 8 widened to 3 lanes by 2021. The analysis provided in this Chapter supports these schemes and provides further evidence for the proposed mitigation schemes that widening between junction 6 to 8 is required by at least 2021.

Figure 9.38 - A1(M) Junction 6 to 9 – 2014 AM Peak

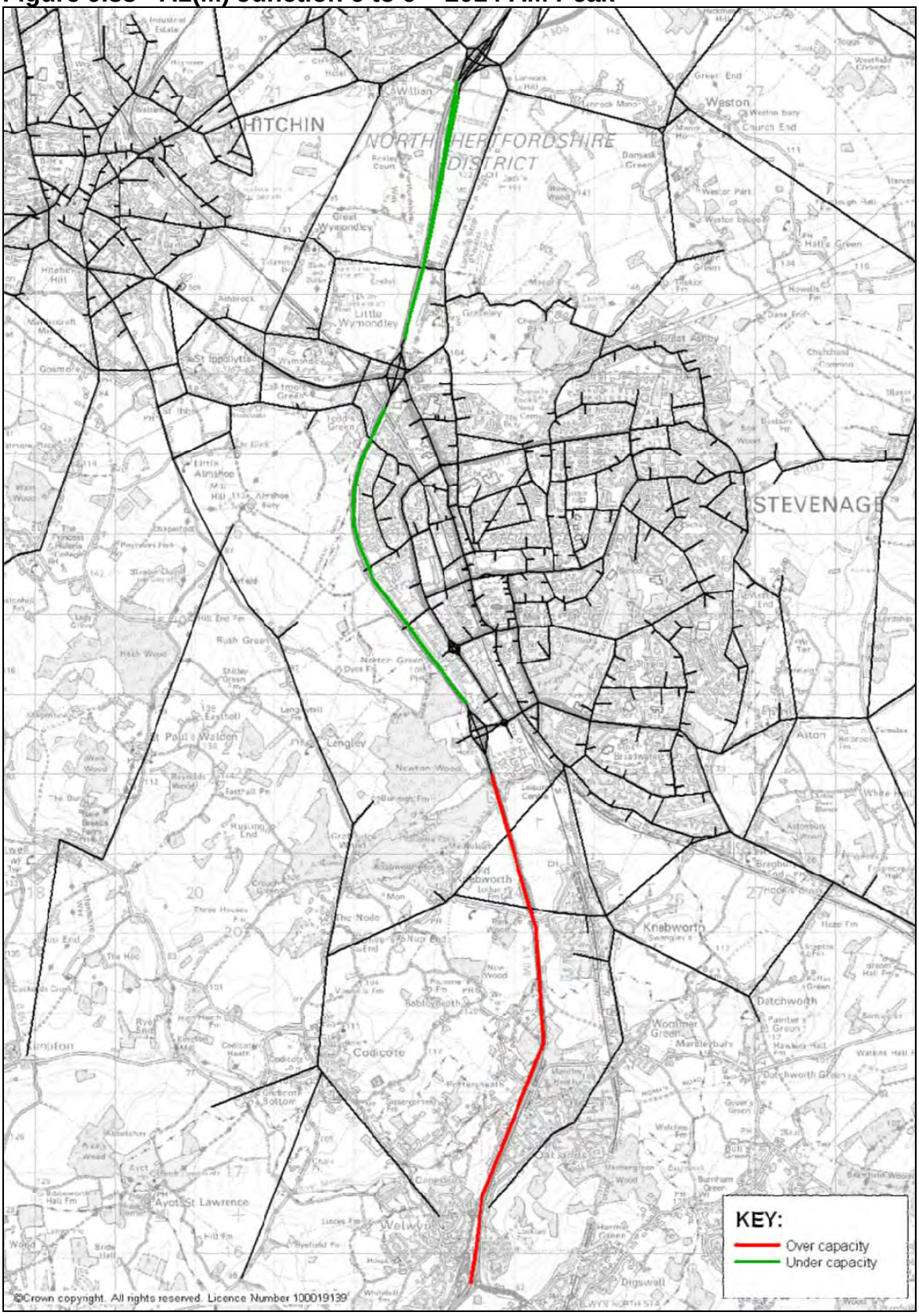


Figure 9.39 - A1(M) Junction 6 to 9 – 2014 PM Peak

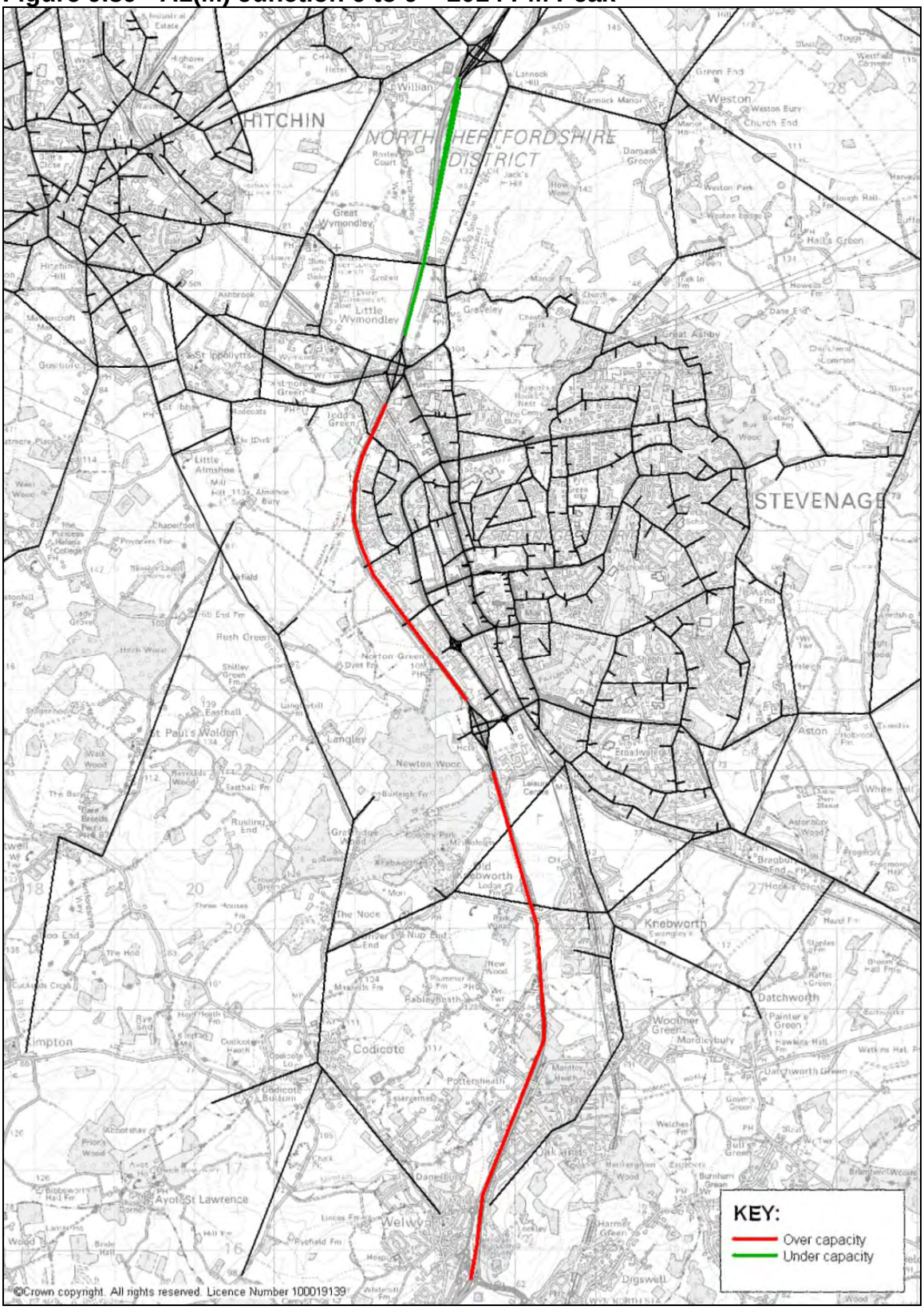
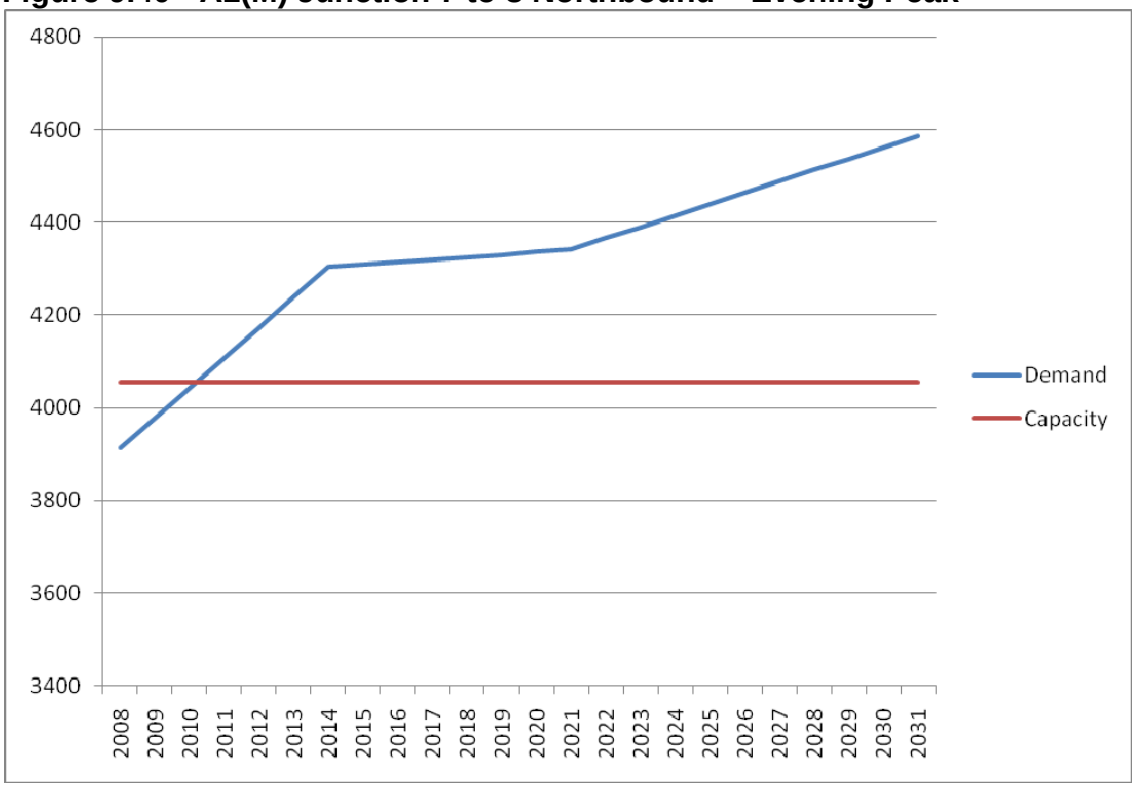


Figure 9.40 - A1(M) Junction 7 to 8 Northbound – Evening Peak



9.8 Summary

The SNAP housing to the north and west of Stevenage is expected to create 10.900 new houses by 2031, **Table 9.1**. This SNAP housing development predictably has an impact on the current road infrastructure to the north and west of Stevenage.

The proposed housing to the north of Stevenage has an impact on the road infrastructure in the north by 2010, with several roads at capacity by 2014, **Figure 9.2** and **9.4**. By 2031 when is it anticipated that 5,900 homes will have been built to the north, the impact on the road network is that 11 roads will be operating over capacity during the morning and evening peaks, **Figure 9.3**, **9.6** and **Table 9.4**. **Table 9.10** summaries the housing that the current road network can cope with before it is operating at capacity and mitigation schemes are required.

Table 9.10 – Housing Impact on the North Road Network and Proposed Mitigation Scheme

Road	Number of houses until road is at capacity	Mitigation Scheme
North Road	558	A, C, D
Gresley Way	1675	A, B
Great Ashby Way	4475	A, B, D
Canterbury Way	5045	A, B, D

Housing to the west of Stevenage is not envisaged to begin being built until after 2014 with 2,500 houses to have been built by 2021 and a further 2,500 by 2031. The impact of this development is first seen on the network to the west by 2020, but only minor with Fishers Green northbound over capacity by 6 vehicles/ hour during the evening peak, **Figure 9.29**. By 2031 the impact is apparent on the access roads to the development as well as along Fishers Green, **Figure 9.21** and **9.23.**

In additon to the housing to the west, future development to the west of the A1(M) Junction 7 is envisaged. This development has an impact on the A1(M) junction 7 link so that it is over capacity by 2021 in the evening peak and 2031 in the morning peak, **Figure 9.34** and **9.35**.

It can be seen that the additon of SNAP housing around Stevenage will place additional pressures on the current road network so that it operates over capacity in certain locations which will need to be mitigated through various schemes. The proposed mitigation schemes are:

- North Network – construct new road infrastruture around the developments and improve access to development sites, **Figure 3.19**.
- West Network – Improve standard of Meadway and Bessemer access roads to provide increased capacity.
- A1(M) Junction 7 – Improve standard of access road to / from the development site to provide increased capacity.

Additional assessment of the A1(M) junction 6 to 9 has shown that it is at capacity between junction 6 to 7 in the morning peak by 2014, **Figure 9.38**. By 2014 the motorway between junction 6 to 8 is at capacity in the evening peak, with future year growth putting additional pressure on the motorway between after this time, **Figure 9.40**.

Monitoring and Date of Plan Review

10 Monitoring and Date of Plan Review

10.1 Introduction

Regular monitoring will enable assessment of the progress of measures in the UTP against the plan. It is a vital element in ensuring that measures proposed within the UTP are delivered at a rate that is in keeping with the priorities to address the problems identified. It also enables assessment of the effectiveness of schemes which have been delivered.

Regular review of the plan allows it to be revised according to evolving demands and is an essential process in ensuring that the Plan remains relevant.

10.2 Monitoring Frequency and Mechanism

A report on the schemes delivered and progress towards the local targets will be published annually. Monitoring involves two elements: output and outcome.

10.2.1 Monitoring output

Output monitoring is essentially monitoring the progress of the delivery of schemes. This will be undertaken by reporting on the completeness of schemes which have been programmed for delivery and the expenditure related to individual schemes. This data will then be compared against the delivery programme.

10.2.2 Monitoring outcomes

Monitoring outcomes will enable an assessment to be made on the effectiveness of schemes which are delivered through the UTP. Monitoring outcome should be in line with procedures already in place which allow local authorities to monitor against the LTP indicators and targets.

The following methods could be used to monitor outcomes:

Screenline surveys to monitor modal split (and modal shift through comparison of previous data). Surveys should be undertaken on both major corridors and minor roads to reflect different travel environments. The existing Travelwise Cordon surveys would provide a key input to this analysis.

Queue and delay surveys to monitor congestion. Surveys should be undertaken at key junctions, in particular those which have been treated.

Patronage figures to monitor modal split (and modal shift through comparison of previous data). Patronage figures should be collected for both bus and rail and across a range of services.

10.3 Date of Plan Review

It is proposed that that the plan is reviewed annually in line with the LTP2 and emerging LTP3 monitoring programmes. It is proposed that the first review take place in July 2011, approximately 18 months after the plan is finalised.

This will provide an opportunity for schemes to begin being implemented and information about their impact gathered. It is likely that much of the information used to review the plan will be linked directly to the TravelWise surveys and LTP monitoring that is already ongoing.

The plan will be reviewed in 2014 at the end of the life of this plan and a modified plan will be published. The five year review will allow for new targets to be added, if appropriate, and for the existing targets to be modified if unforeseen pressures have arisen.

As part of the Plan review, existing measures, and additional measures arising from assessment of unforeseen pressures, will be re-assessed. A new five year delivery programme will be produced to represent the measures to be delivered during the following five year period.

Appendix A – Scheme Assessment Framework

Appendix B – Plan of UTP Infrastructure Schemes

Hertfordshire County Council - making Hertfordshire an even better place to live by providing:

Care for older people
Support for schools, pre-school children, pupils and parents
Support for carers
Fire and rescue
Fostering and adoption
Support for people with disabilities
Libraries
Admission to schools
Road maintenance and safety
Services to safeguard and promote the welfare of children and adults
Trading standards and consumer protection
Household waste recycling centres

These are only some of our services.

Find out more at www.hertsdirect.org
or email us at hertsdirect@hertscc.gov.uk

Every Hertfordshire library has internet access for the public

Printed on recycled paper with a minimum of 75% made from de-inked post consumer waste Design ref: 060289

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