Technical Note F

Project:	Wisbech Area Transport Study	**To:**	FDC
Subject:	Fenland LDF Neighbourhood Planning Options	**From:**	Atkins
Date:	4th January 2013	**cc:**	CCC

1. Introduction

This Technical Note summarises the changes to the 2031 Do Minimum land use and DS land use forecast scenarios and the findings as requested by Fenland District Council (FDC) for testing a series of potential mitigation measures for the developments.

The forecast year to be modelled is 2031. This is consistent with the recent Fenland Communities Development Plan consultation document from July 2011 and July 2012, together with the Neighbourhood Planning Stage 2 Report.

In terms of network development, detailed information on values of time (PPM) and values of operating cost (PPK) in the updating of the Future Year network is provided in Technical Note D – 'TN D Wisbech SFF Tech Note.docx ' with an update for year 2031 in the coding of infrastructure for the options.

This assessment picks up on some minor Do Minimum network changes that have been implemented since the original 2008 transport model was developed; hence there are marginal differences in the latest Do Minimum networks compared to the previous stages of the Wisbech assessments.

The detailed information of initial assessment of the impacts of the Neighbourhood Planning study for forecast year 2031 is provided in 'TN E Wisbech 2031 modelling Note_v2.docx'. From the information available, only the following options were undertaken to test the revised development commitments and mitigations measures:

- Do – Minimum scenarios for 2031, to include all committed developments and background growth, controlled to TEMPRO 6.2 growth projections (DM) for areas outside Wisbech;
- Do – Something 1 scenarios for 2031, to include the DM above, + growth Option 1 (East Opportunity & West Opportunity developments) controlled to TEMPRO 6.2 growth projections (DS1) for areas outside Wisbech;

It is anticipated that a further land use permutation will be required to include the development within King's Lynn West Norfolk district which is subject to reaching agreement over the respective loading points and configuration of the site under consideration.

2. Forecast Year Scenario Definitions

The forecast year for this study is 2031; and the forecast scenarios for this study are Do Minimum (DM), Do Something 1 scenario with Growth option 1 (DS1) limited to East & West opportunity developments. The definitions of these forecast year scenarios are given in the sections below.

Do Minimum

The DM scenario consists of all committed developments within Wisbech. For light vehicles, the total growth level is controlled to the levels as defined by TEMPRO 6.2 (Trip End Model Projections) growth forecasts, for areas outside Wisbech. For heavy vehicles, the total growth level is controlled to the levels as defined by National Transport Model (NTM) 2009 (Revised May 2010).

The DM scenario consists of all committed housing and employment developments as outlined in the revised brief. Table 2.1 shows the committed housing developments within Wisbech that have been defined in the updated brief dated December 2011.

Table 2.1 – Housing Growth Figures 2011-2031

Wisbech	Number of Dwellings
Commitments	860
Windfall	600
Total Housing	**1460**

* *Commitments from 2008-2011 is 265 dwelling units as per updated brief*

Where known housing development sites have been identified, the trips associated with the developments have been distributed into specific zones, representative of the geographical location of the sites. There is no change in these housing assumptions from the previously reported DM.

For employment developments, existing planning application documents for all committed employment developments have been reviewed. The previous assumption of 500 jobs has been revised to 551 jobs to accommodate the changes in Wisbech Stadium and Tesco stores site commitments. The change in Gross Floor Area (GFA) assumptions for these two sites along with change in total number of jobs assumed is presented in Table 2.2.

Table 2.2 – Revised Employment Growth Figures 2011-2031

	Old Assumptions	Present Assumptions
Wisbech Stadium site	4,792 m^2 Retail Park Having non-food retail (A1), cinema (D2), ten pin bowling facility (D2) and associated food and drink facilities (A3)	10,219m^2 food retail (Tesco), 3,041m^2 cinema (D2), and 1,035m^2 restaurants (A3)
Tesco store site	1,889 m^2 of food retail as extension to existing food retail Tesco.	Re-use of existing Tesco as comparison retail development
Revised Jobs	**500**	**551**

Similar to the housing developments, trips associated with known employment development sites have been distributed into specific zones. The growth of trips outside Wisbech was controlled to TEMPRO 6.2 levels.

Do Something 1

The DS1 scenario includes all the committed developments included in the DM scenario and developments from option 1. The locations of the sites are shown in Figure 2.1.

.The revised levels of housing developments considered in the DS option 1 (for 2011 to 2031) are described in Table 2.3 along with the housing assumptions considered in previously reported DS1.

Table 2.3 – Option 1 housing Elements

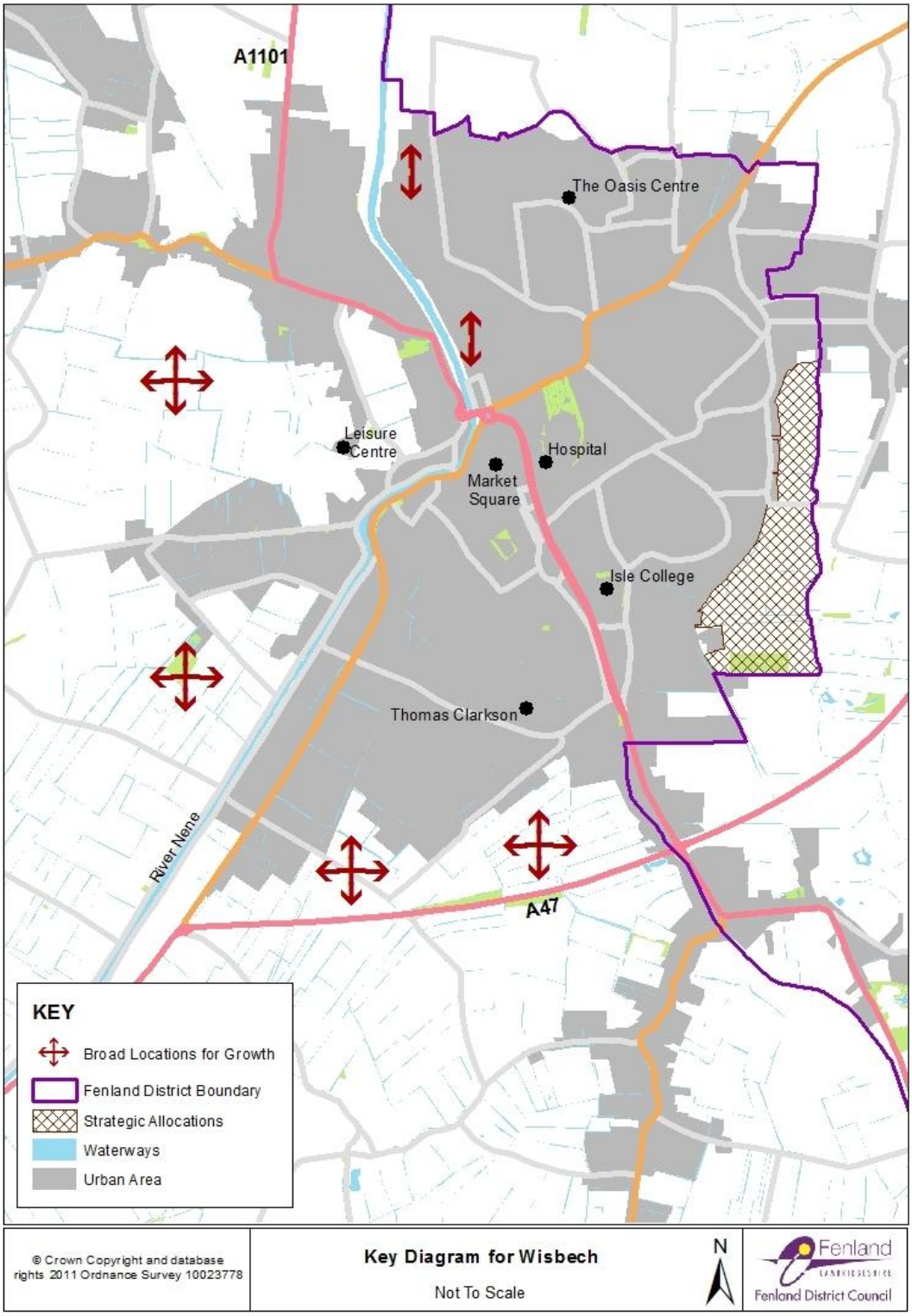
Housing Trajectory Element	No of Dwellings (2011 – 2031)	
	Old Assumptions	Present Assumptions
Commitments	860	860
Windfall	600	600
Kings Lynn & West Norfolk – new development	500	-
Fenland – East Opportunity Zone	1000	1000
Fenland – West Opportunity zone	750	750
TOTAL Housing	**3710**	**3210**

* *Commitments from 2008-2011 is 265 dwelling units as per updated brief*

Total jobs increase in DS1 is assumed to be 1304 jobs which are distributed among the proposed employment sites including the changes to the Wisbech Stadium site and Tesco stores sites assumptions as mentioned in DM scenario.

Similar to the DM scenario, the overall growth for DS1 scenario outside Wisbech has been controlled to the TEMPRO 6.2 levels.

Figure 2.1 – Opportunity Zone Locations



Forecast Year Network Changes

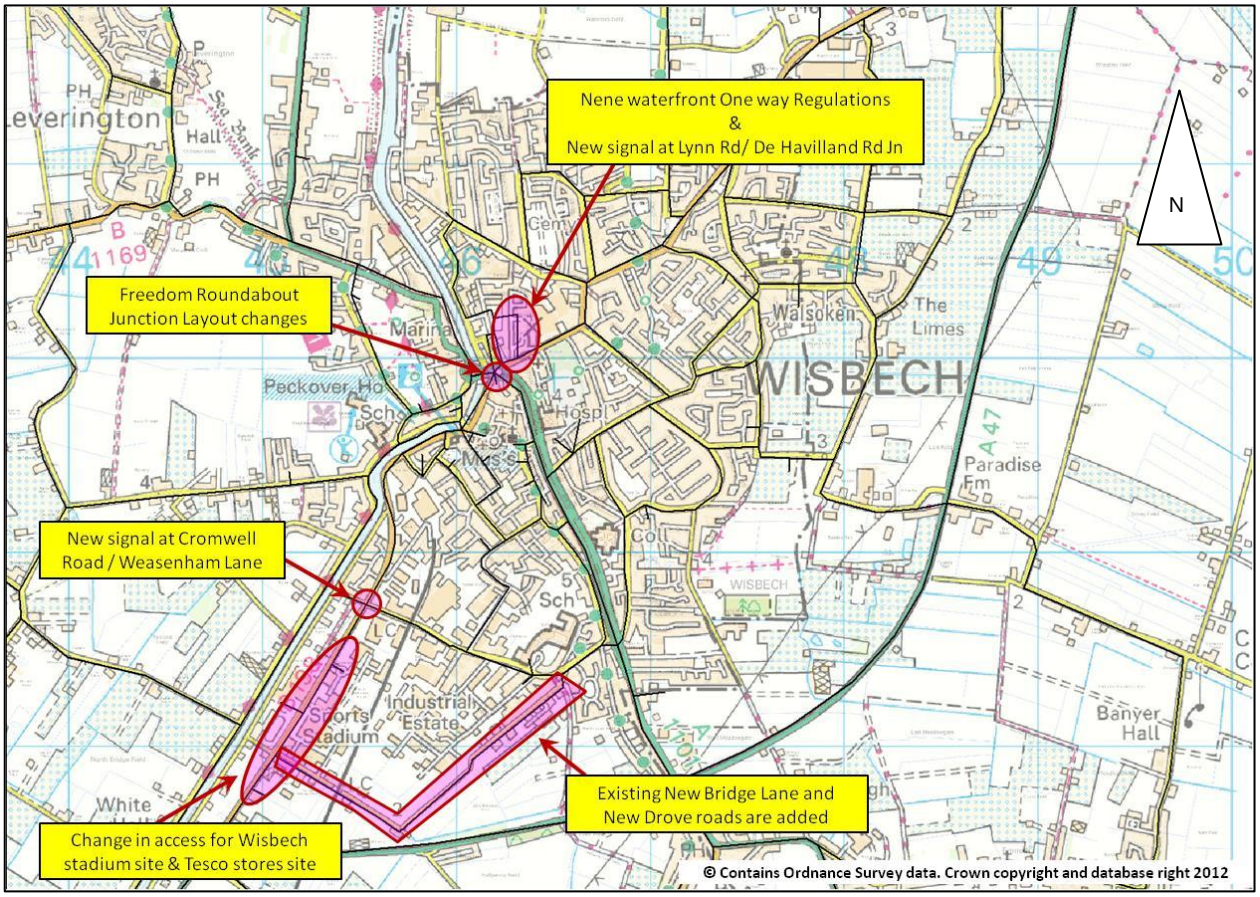
The forecast year networks have been updated to include the latest schemes, changes and mitigation measures considered. The DM forecast networks have been updated to include the following:

- The new junction layout at Freedom Bridge Roundabout.
- One way regulations near Nene Waterfront.
- New traffic signals at Lynn Road / De Havilland Road junction.
- New traffic signals at Cromwell Road / Weasenham Lane.
- Existing New Bridge Lane and New Drove roads are added to the model.
- Change in junction layouts of access junctions to Wisbech stadium site and Tesco stores site.

One way system at Park Avenue, Henry St and St Augustine's Rd has not been included as these minor roads are not present in the base year model.

Figure 2.2 shows the location of above mentioned updates.

Figure 2.2 – DM Network updates

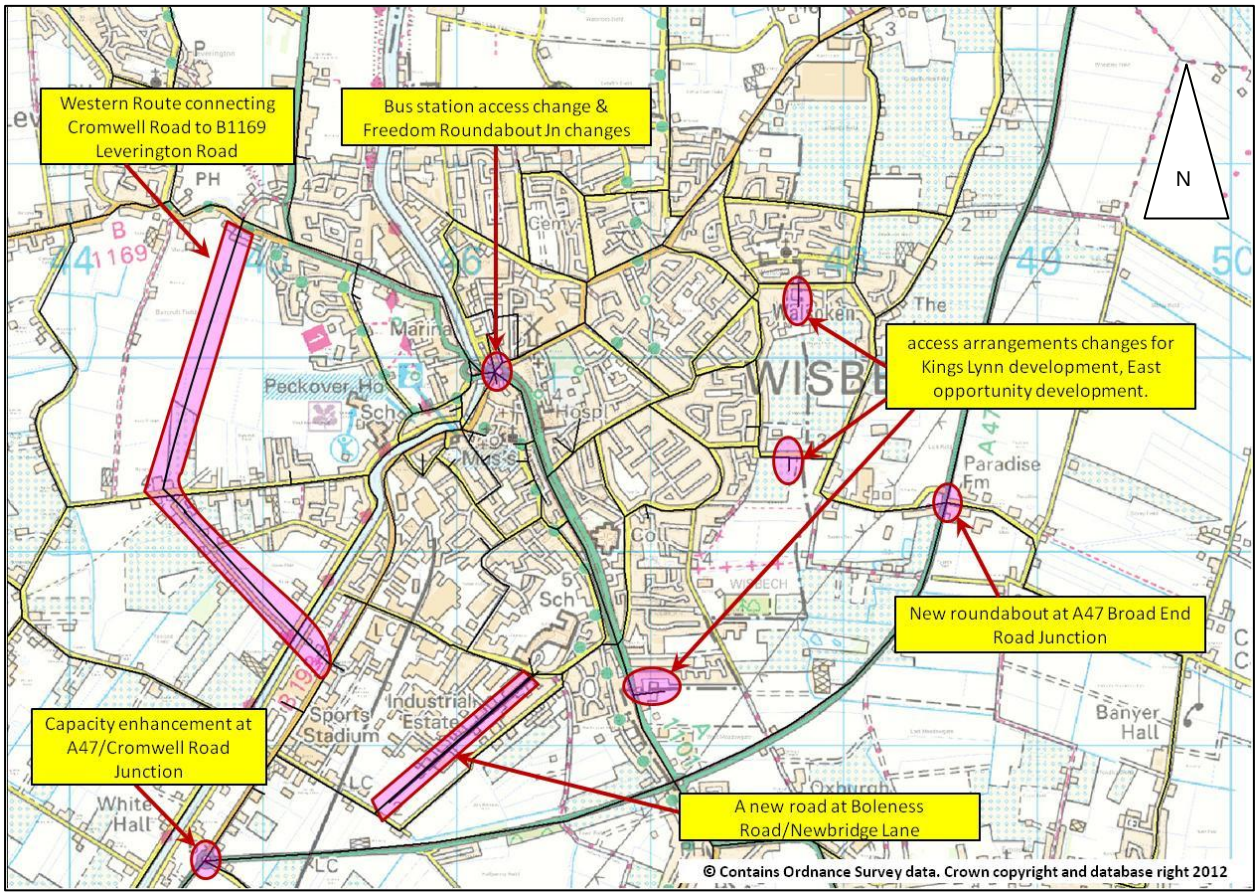


In addition to above mentioned changes in DM network the following schemes and mitigation measures has been considered in DS scenario:

- New roundabout at A47 Broad End Road Junction;
- Changes to access arrangements from Kings Lynn development, East opportunity development;
- Changes to the bus station entrance and corresponding changes to Freedom Bridge Roundabout junction layout;
- A new road at Boleness Road/Newbridge Lane linking Weasenham Lane to Cromwell Road;
- New bridge and bypass road connecting B198 Cromwell Road to B1169 Leverington Road following the route of Cox's Lane crossing Barton Road;
- Increased entry and exit capacity for movements along A47 at A141 Guyhirn Roundabout and A47/B198 Cromwell Road Roundabout.

Figure 2.3 shows the updates that were introduced to the DS network in addition to DM network changes. It should be noted that all mitigation measures were added to the network in one step. There has been no sequential testing or scheme optimisation process involved in this stage of traffic modelling.

Figure 2.3 – DS Network updates



Forecast Year Demand

The methodology to produce the forecast year demands for 2031 demand matrices for the WATS SATURN model are set out below. The process uses several different growth sources:

- TEMPRO 6.2 provides projections of growth over time for use in local and regional transport models. It presents projections of growth in planning data, car ownership, and resultant growth in trip-making by different modes of transport under a constant cost assumption. The information is provided for over 2,500 zones, and can be aggregated into towns, districts or counties. For this study, trip end growth data for Wisbech, Fenland, Cambridgeshire and Rest of Country has been extracted from TEMPRO and is used to provide forecasts of all light vehicle user classes (i.e. UC1 to UC4) for areas outside Wisbech.
- User classes UC1 to UC4 in the model represents lights vehicles which consist of cars and LGVs combined (LV). Generally growth in car traffic is derived from TEMPRO and LGVs from ERTG. Since the Wisbech model does not have separate cars and LGV a combined growth factor has been calculated taking into account the time period of the model and the proportional split between LGV and cars for each of the four user classes. These growth factors have been used to calculate uplifts that have been applied to the TEMPRO car only growth factors. The uplift applied to respective time periods for UC1 to UC4 are shown in Table 2.4.

Table 2.4 – LV uplift factors applied to 2031 TEMPRO car only growth factors

Time Period	Uplift applied
AM	6.00 %
IP	5.02 %
PM	4.37 %

- The growth factor above adds extra LGVs to the car only TEMPRO growth by taking into account the higher growth forecast for LGV's in ERTG as derived from NTM2009
- For the heavy vehicle user classes (i.e. UC5 & UC6), trip end growth factors from NTM 2009 (May 2010 revision) was used. The NTM 2009 published by Department for Transport (DfT) provides forecasts of road traffic growth by region and by vehicle type.
- The FDC SHLAA document, 2007 Employment Land Review document and other planning application data provide information on the committed housing and employment developments in and around Wisbech which are included in all forecast year scenarios (i.e. DM, DS1 & DS2).
- The Neighbourhood Planning study provides housing and employment information to be included in the DS1 scenario supplemented by updated housing and employment growth figures provided by FDC in December 2011.
- TRICS (Trip Rate Information Computer System) is a database of surveys from developments across the county, which can be interrogated to provide an estimate of the number of trips that will be generated by a new development. The information can be tailored to suit the individual development, taking into account trends in that area of the country, and/or location of the development within or outside a town, and/or its size etc.
- The forecast year demand matrices were calculated separately for each user class, time period, forecast year and scenario. Table 2.5 below summarises the growth approach undertaken for forecasting matrices to 2031.

Table 2.5 - Matrix growth factors for light vehicle user clases from 2008 to 2031

Origins /Destinations	Growth Factors
Development sites	TRICS/Fuel/Income
Wisbech Town	Fuel/Income
Rest of Model	TEMPRO/Fuel/Income

Final Forecast Year Matrices

Matrix Totals

Table 2.6 below show the demand matrix totals for the 2031 forecast year, each time period and the DM and DS modelled scenarios compared to the 2008 base year demand matrices.

As described in the modelling brief, mode choice factors from the Preferred Public Transport Option detailed in PT Tech Note dated 6th January 2011 have been taken into account. Thus after creating the demand matrices, a part of the demand which represents the likely ridership due to additional DM Bus Service – Route D has been sieved out from car user classes.

New Cycle ways proposed in Wisbech area along Cromwell Road, Weasenham Lane, Elm Road, Sandy Lane to A1101 through the College of West Anglia Isle campus, old rail line between Wisbech and March, has been considered while building the DS matrices. The potential shift to cycle from car because of the new cycle ways has been calculated through the proportion of highway trip length getting benefited by the cycle way. These trips are then sieved out from the car user classes of the final DS matrices.

Table 2.6 below represents the final demand matrix totals after considering for the PT ridership abstraction to proposed new bus service and transfer from car to cycle as a result of new designated cycle ways.

Table 2.7 summarises the PT ridership on the new committed bus service – Route D for various modelled scenarios. Table 2.8 summarises the number of potential car trips which will be shifting to cycle because of new proposed cycle ways in DS.

Table 2.6 – Matrix Totals

Scenario		AM	IP	PM
2008 Base		10,459	9,830	11,289
2031 DM		14,060	13,955	15,297
2031 DM – 2008 Base	*Difference*	*3,601*	*4,125*	*4,008*
	% Difference	*34.43%*	*41.96%*	*35.50%*
2031 DS1		14,757	14,546	16,112
2031 DS1 – 2008 Base	*Difference*	*4,298*	*4,716*	*4,823*
	% Difference	*41.09%*	*47.98%*	*42.72%*

Table 2.7 – PT Ridership on new bus service

	DM	DS1
AM 2031	80	106
IP 2031	26	37
PM 2031	81	108

Table 2.8 – Cycle Ridership on new Cycle Ways

	DM	DS1
AM 2031	-	73
IP 2031	-	76
PM 2031	-	78

3. Forecast Results

Network Statistics

The results from each forecast year and time period vary in terms of the level of congestion, delay and overall journey time in and around Wisbech, therefore each value has been taken from the AM, IP and PM time periods, with the worse performing time period highlighted.

Table 3.1 below summarises the key SATURN statistics.

- Transient Queues (in PCU hours) – For example, at traffic signals the transient queue corresponds to the queue that develops during the red phase and then dissipates during the subsequent green phase.
- Over-Capacity Queues (in PCU hours) – These occur only for turning movements in excess of capacity where a permanent queue builds up which is unable to clear in a single cycle.
- Link Cruise Time (in PCU hours) – This is the time spent travelling on links within the model, as distinct from time spent in queues at junctions.
- Total Travel Time (in PCU hours) – This is the sum of Transient Queue time, Over-Capacity Queue time and Link Cruise time.
- Total Distance (in km) – This is the total distance travelled by all vehicles in the network.
- Average Speed (in kph) – This is the average speed of vehicles in the network. (It is simply the Total Distance divided by the Total Travel Time).
- Average Trip Time (in PCU hours) – This is the average length of time taken for each trip. (It is calculated as the Total Travel Time divided by the number of trips.)
- Average Trip Distance (in km) – This is the average distance covered by each trip. (It is calculated as the Total Distance divided by the number of trips.)

The SATURN summary statistics from Table 3.1 clearly show that as demand increases on the Do-Minimum network from the 2008 base to the forecast years, the level of congestion and delay increases through time as expected. This is reflected in the increase of the Total Travel Time, Transient and Over-Capacity queues, along with the decrease in Average Speed across the network.

Table 3.1– Summary of SATURN Statistics

Indicator	Time Period	2008	2031 DM	2031 DS1
Transient Queues (PCU hrs)	AM	283	642	652
	IP	232	634	626
	PM	318	865	873
Over-Capacity Queues (PCU hrs)	AM	20	311	172
	IP	1	286	154
	PM	4	620	430
Link Cruise Time (PCU hrs)	AM	1432	2134	2092
	IP	1342	2101	2051
	PM	1582	2334	2304
Total Travel Time (PCU hrs)	AM	1735	3087	2916
	IP	1575	3021	2831
	PM	1904	3818	3608
Total Distance (km)	AM	92224	129003	132557
	IP	87130	128364	130942
	PM	100980	139999	144033
Average Speed (kph)	AM	53.2	41.8	45.5
	IP	55.3	42.5	46.3
	PM	53	36.7	39.9
Average Trip Time (PCU hrs)	AM	0.17	0.22	0.20
	IP	0.16	0.22	0.19
	PM	0.17	0.25	0.22
Average Trip Distance (km)	AM	8.82	9.17	8.98
	IP	8.86	9.20	9.00
	PM	8.95	9.15	8.94
Trips Loaded	AM	10459	14060	14757
	IP	9830	13955	14546
	PM	11289	15297	16112

Table 3.2 below compares the 2031 DM model with the 2031 DS forecast. We can see that the demand in DS is higher than that of DM. This correspondingly gets reflected in increased total distance travelled. But meanwhile the decrease in average trip distance 0.2 km suggests improvement in accessibility between places.

Similarly the decrease in total travel time along with average trip time shows that the DS network is faster than DM network even with increased demand. This also becomes evident from decrease in transient queues and over capacity queues (by up to 45%) and increase in average speed. The improvement in accessibility and reduction in delay in DS scenario can be attributed to the new infrastructure provided and ancillary mitigation measures considered, despite the take up of additional demand due to new developments.

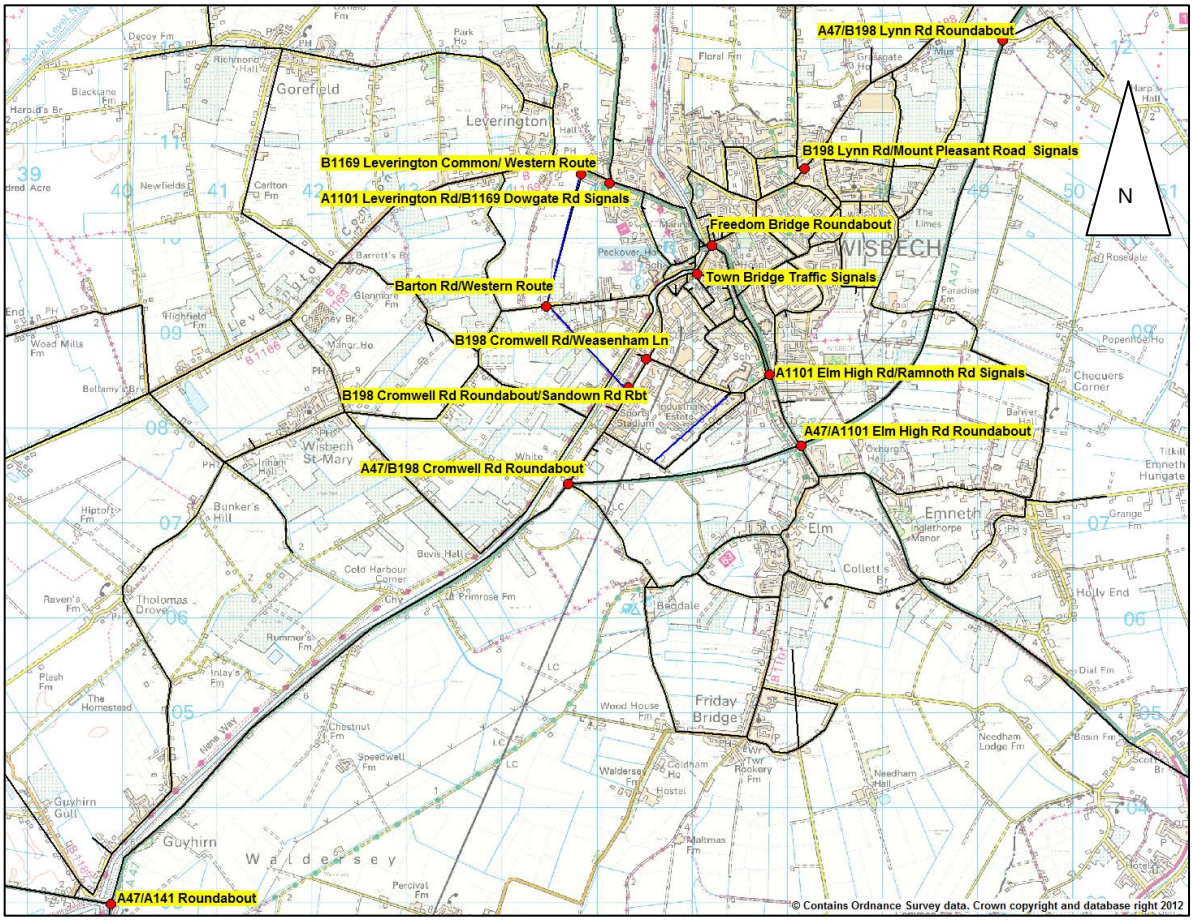
Table 3.2– Comparison of DM and DS 2031 SATURN Statistics

Indicator	Time Period	2031 DM	2031 DS	Difference	percentage
Transient Queues (PCU hrs)	AM	642	652	10	1%
	IP	634	626	-9	-1%
	PM	865	873	9	1%
Over-Capacity Queues (PCU hrs)	AM	311	172	-139	-45%
	IP	286	154	-133	-46%
	PM	620	430	-190	-31%
Link Cruise Time (PCU hrs)	AM	2134	2092	-42	-2%
	IP	2101	2051	-49	-2%
	PM	2334	2304	-29	-1%
Total Travel Time (PCU hrs)	AM	3087	2916	-171	-6%
	IP	3021	2831	-191	-6%
	PM	3818	3608	-210	-6%
Total Distance (km)	AM	129003	132557	3554	3%
	IP	128364	130942	2578	2%
	PM	139999	144033	4034	3%
Average Speed (kph)	AM	41.8	45.5	3.7	9%
	IP	42.5	46.3	3.8	9%
	PM	36.7	39.9	3.2	9%
Average Trip Time (PCU hrs)	AM	0.22	0.20	-0.02	-10%
	IP	0.22	0.19	-0.02	-10%
	PM	0.25	0.22	-0.03	-10%
Average Trip Distance (km)	AM	9.17	8.98	-0.19	-2%
	IP	9.20	9.00	-0.20	-2%
	PM	9.15	8.94	-0.21	-2%
Trips Loaded	AM	14060	14757	697	5%
	IP	13955	14546	592	4%
	PM	15297	16112	815	5%

Demand and Delays at Key Junctions

Key junctions within the study area have been identified and have been monitored in terms of delays and flows to provide an indication of the stress at each junction under each scenario. The key junctions set out are shown in Figure 3.1.

Figure 3.1– Key Junctions



Tables 3.3 to 3.5 below summarises the flows and delays at key junctions mentioned above.

It is to be noted that at some of the junctions the actual flow for DS1 is less than DM. This is because of a shift in routing to the new bypass road between B1169 Leverington Road to Cromwell Road from A1101 and Cromwell Road north of Weasenham Lane junction. The main junctions benefiting from this bypass are Town Bridge Traffic signals and B198 Cromwell Road / Weasenham Lane junction, where we can see decrease in both demand and delays.

In case of Freedom Bridge Roundabout the demand remains almost the same as the trips rerouted to western route have been replaced by trips generated by West Opportunity development zone. The delay at A1101 Leverington Road / B1169 Dowgate Road traffic signals also increased slightly as the demand to and from Downgate Road is increased because of new west development zone.

Also increased flow with decrease in delay time has been observed at the junctions along A47 as expected where the capacity of A47 movements has been increased to accommodate more traffic.

Table 3.3– AM Peak - Summary of Junction Delay and Flow Comparison

Junction		2031 DM	2031 DS1
A47 / A141 rbt	Delay	22	17
	Actual Flow	3207	3395
	Demand Flow	3384	3485
A47 / B198 Cromwell Road rbt	Delay	24	22
	Actual Flow	3169	3381
	Demand Flow	3350	3477
A47 A1101 Elm High Road rbt	Delay	186	118
	Actual Flow	3404	3445
	Demand Flow	3452	3470
A47 / B198 Lynn Road rbt	Delay	17	16
	Actual Flow	2723	2712
	Demand Flow	2777	2732
A1101 Leverington Road / B1169 Dowgate Road traffic signals	Delay	143	184
	Actual Flow	1890	1878
	Demand Flow	1905	1893
Town Bridge Traffic signals	Delay	74	49
	Actual Flow	1733	1525
	Demand Flow	1779	1554
Freedom Bridge rbt	Delay	30	39
	Actual Flow	3480	3442
	Demand Flow	3579	3525
B198 Lynn Road / Mount Pleasant Road traffic signals	Delay	23	23
	Actual Flow	1021	1033
	Demand Flow	1036	1046
A1101 Elm High Road / Ramnoth Road traffic signals	Delay	80	70
	Actual Flow	2322	2301
	Demand Flow	2426	2374
B198 Cromwell Road / Weasenham Lane junction	Delay	167	61
	Actual Flow	1746	1560
	Demand Flow	1801	1590
B198 Cromwell Rd Roundabout/Sandown Rd Rbt	Delay	37	72
	Actual Flow	2070	2570
	Demand Flow	2212	2614
Barton Rd/Western Route	Delay	-	98
	Actual Flow	684	1221
	Demand Flow	692	1234
B1169 Leverington Common/ Western Route	Delay	-	7
	Actual Flow	666	1051
	Demand Flow	672	1071

Table 3.4– IP Peak - Summary of Junction Delay and Flow Comparison

Junction		2031 DM	2031 DS1
A47 / A141 rbt	Delay	25	17
	Actual Flow	3205	3358
	Demand Flow	3342	3427
A47 / B198 Cromwell Road rbt	Delay	22	20
	Actual Flow	3237	3448
	Demand Flow	3379	3526
A47 A1101 Elm High Road rbt	Delay	113	83
	Actual Flow	3483	3465
	Demand Flow	3541	3487
A47 / B198 Lynn Road rbt	Delay	16	16
	Actual Flow	2393	2393
	Demand Flow	2432	2409
A1101 Leverington Road / B1169 Dowgate Road traffic signals	Delay	134	146
	Actual Flow	1801	1810
	Demand Flow	1820	1814
Town Bridge Traffic signals	Delay	57	38
	Actual Flow	2011	1640
	Demand Flow	2078	1649
Freedom Bridge rbt	Delay	34	21
	Actual Flow	3397	3408
	Demand Flow	3486	3443
B198 Lynn Road / Mount Pleasant Road traffic signals	Delay	15	15
	Actual Flow	845	875
	Demand Flow	858	880
A1101 Elm High Road / Ramnoth Road traffic signals	Delay	62	66
	Actual Flow	1909	1770
	Demand Flow	1978	1805
B198 Cromwell Road / Weasenham Lane junction	Delay	95	58
	Actual Flow	1950	1682
	Demand Flow	1992	1692
B198 Cromwell Rd Roundabout/Sandown Rd Rbt	Delay	79	85
	Actual Flow	2451	2884
	Demand Flow	2522	2901
Barton Rd/Western Route	Delay	-	89
	Actual Flow	720	1194
	Demand Flow	725	1203
B1169 Leverington Common/ Western Route	Delay	-	6
	Actual Flow	642	997
	Demand Flow	657	1017

Table 3.5– PM Peak - Summary of Junction Delay and Flow Comparison

Junction		2031 DM	2031 DS1
A47 / A141 rbt	Delay	24	35
	Actual Flow	3482	3560
	Demand Flow	3659	3727
A47 / B198 Cromwell Road rbt	Delay	127	100
	Actual Flow	3281	3630
	Demand Flow	3406	3764
A47 A1101 Elm High Road rbt	Delay	176	133
	Actual Flow	3801	3808
	Demand Flow	3942	3906
A47 / B198 Lynn Road rbt	Delay	18	17
	Actual Flow	2924	2818
	Demand Flow	3031	2877
A1101 Leverington Road / B1169 Dowgate Road traffic signals	Delay	155	176
	Actual Flow	1770	1772
	Demand Flow	1823	1795
Town Bridge Traffic signals	Delay	134	71
	Actual Flow	1863	1649
	Demand Flow	1954	1679
Freedom Bridge rbt	Delay	33	48
	Actual Flow	3698	3705
	Demand Flow	3893	3796
B198 Lynn Road / Mount Pleasant Road traffic signals	Delay	23	23
	Actual Flow	1247	1316
	Demand Flow	1289	1356
A1101 Elm High Road / Ramnoth Road traffic signals	Delay	82	104
	Actual Flow	2179	1945
	Demand Flow	2320	2014
B198 Cromwell Road / Weasenham Lane junction	Delay	64	48
	Actual Flow	2006	1649
	Demand Flow	2073	1687
B198 Cromwell Rd Roundabout/Sandown Rd Rbt	Delay	89	75
	Actual Flow	2356	2862
	Demand Flow	2421	2935
Barton Rd/Western Route	Delay	-	91
	Actual Flow	819	1206
	Demand Flow	853	1243
B1169 Leverington Common/ Western Route	Delay	-	6
	Actual Flow	547	1093
	Demand Flow	576	1129

Flow and Delay Difference

Figures 3.1 to 3.2 below shows the flow and delay difference plots for 2031 DS1 scenarios as compared to 2031 DM. Flow difference plots highlight the areas within Wisbech where additional development traffic routes in each of the respective scenario.

Figure 3.2 shows trips loading from the Eastern developments in AM peak hour. The network configuration includes the mitigation infrastructure. In the specific case of the Eastern Developments there is evidence that the upgraded junction on the A47 (one of the specific mitigation measures) accommodates additional flow on the minor arm from Wisbech compared to the DM.

Figure 3.3 highlights the junctions which experience reduction in delays due to the improved infrastructure and mitigation measures in DS1. It can be seen that the delays are reduced at B198 Cromwell Road / Weasenham Lane junction, A47 / A141 roundabout, A47 / B198 Cromwell Road roundabout and A47 A1101 Elm High Road roundabout.

Figure 3.2– 2031 AM peak Do Something 1 – Do Minimum demand flow difference plot

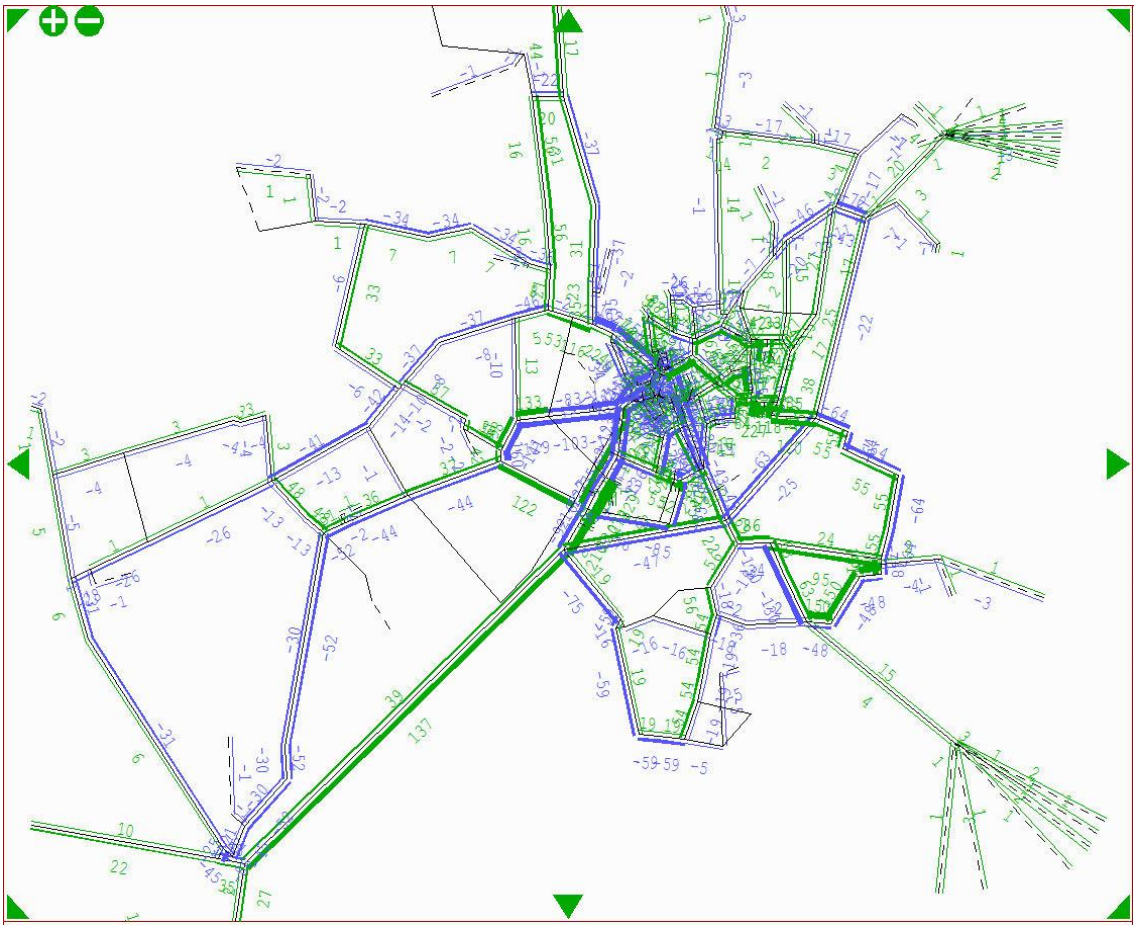
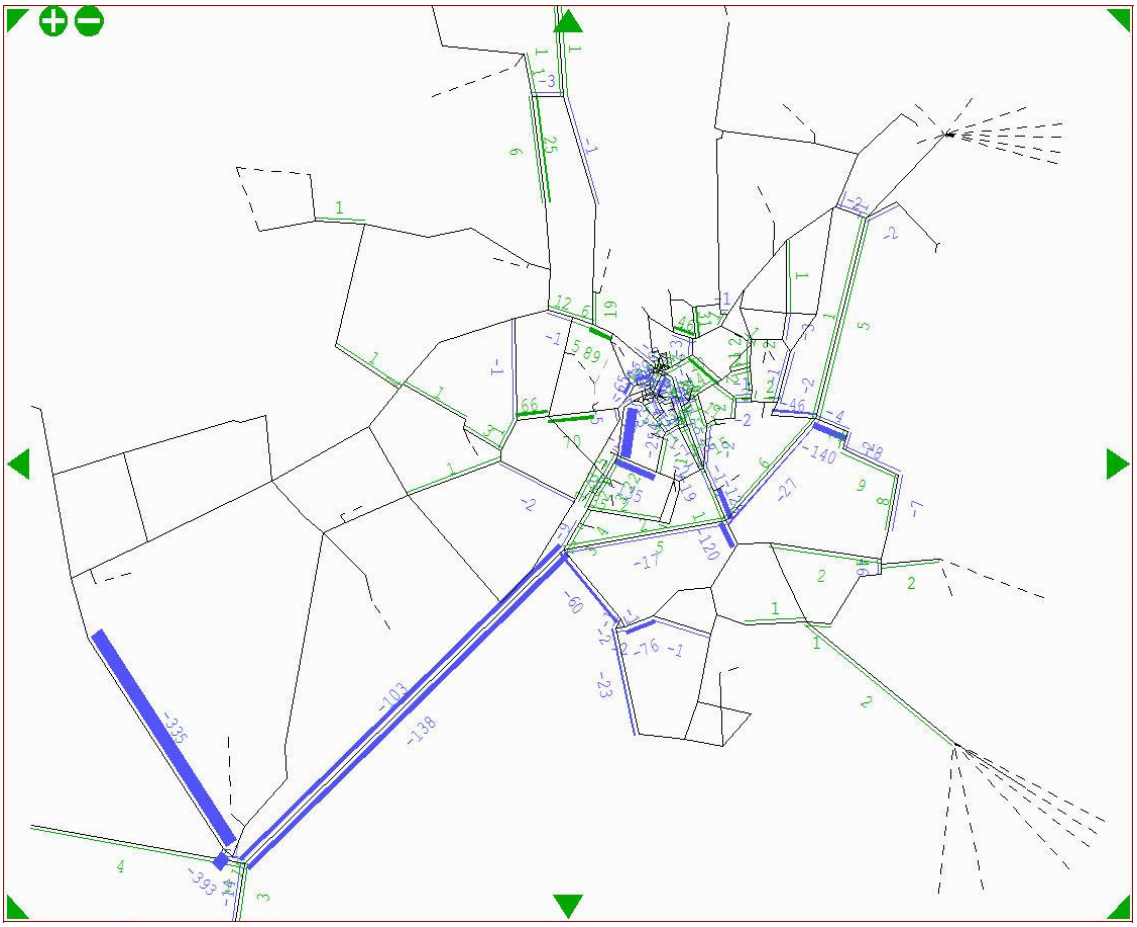


Figure 3.3 – AM 2031 Do Something 1 – 2031 Do Minimum delay difference plot



4. Summary

This piece of work has had three distinct aspects.

- The underlying forecast road network configuration and known planning commitments have been updated to ensure the Do Minimum conditions up to 2031 are as robust and consistent as possible;
- The treatment of LGV growth has been amended to reflect the disproportionate growth LGV is forecast to have compared to car growth in particular. This is carried through both DM and DS forecast scenarios;
- A series of mitigation measures have been worked up and tested at a strategic level. Some of the measures are defined highway infrastructure measures whilst other measures are reflected through modified demand patterns to show transfer of demand from one mode to another (primarily cycling and PT in this case).

The results of the modelling demonstrate that the mitigation measures have the capability of reducing the impacts associated with the development changes. The capacity enhancements at junctions and within the Wisbech network for DS scenario indicates that the forecast year junction and link delays can be improved and are comparable to the corresponding DM scenario – recognising that these delays will be higher than base year delays.