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Contact: Bartholomew Wren
Email: [REDACTED]@tmbc.gov.uk
Your ref: TR010032

Date: 03 October 2023

Dear Rynd

RE: Application by National Highways for an Order Granting Development Consent for the Lower Thames Crossing – Further evidence of local traffic impact

Following the submission of our Local Impact Report in July, I write to provide the initial outputs from the council's Local Plan modelling work which includes a scenario test based upon objectively assessed growth needs up to 2040/41, and a Lower Thames Crossing (LTC) scenario test. These reinforce the predominantly negative impacts of LTC upon the local road network that were outlined in our Local Impact Report.

The technical note included at Annex 1 has been prepared by transport consultant's Jacobs. The Local Plan test was informed by a broad distribution of growth which aligns to the council's current settlement hierarchy, the "with LTC" scenario was then based upon this. This reflects the current 'working' spatial strategy and should be considered a worst-case scenario. The spatial strategy is subject to further change and refinement and does not constitute at this point the approach within the forthcoming Local Plan. Please also note that in the LTC test Jacobs didn't include the proposed mitigation scheme at M2 J3, as this is not yet a committed and funded highways scheme.

In the AM peak with LTC in place, traffic increases are predicted on the local roads between Tonbridge and Malling and Medway, as shown in Figure 9. The A229 and M2 eastbound show a reduction in traffic due to the significant queueing building up shown in Figure 10 along M2 J3 and Bluebell Hill Roundabout due to traffic rerouting to connect to LTC. This represents the traffic not being able to pass through the junctions. As vehicles need to transfer between the motorways and with the Bluebell Hill and M2 J3 Roundabouts already congested, blocking back issues will likely worsen.

Figure 14 and Figure 15 show the junction level of service and link volume capacity ratios for the Local Plan Test with LTC in the AM and PM peak periods. These include the list of key junctions and links showing LOS E and F and V/C > 85%.

In the AM peak, most of the junction and link "hot spots" identified in the 2040/41 Local Plan Test also exist in the LTC scenario. However, it can be seen that the link volume

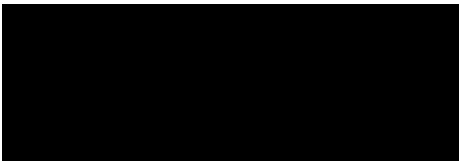
capacity ratio along A229 has worsened due to the increase in queueing in Bluebell Hill when LTC is in place. Similar patterns can be seen in the PM peak.

As shown in figure 16, the northbound direction of Route 12 along A229 is predicted an increase of up to 43% in the journey time due to the congestion at Bluebell Hill and M2 J3. Despite Route 11 along A228 northbound showing percentage increase of less than 10%, the actual travel time increase is around 1 minute. If either route becomes blocked this could lead to significant volumes of traffic seeking to divert to the other using unsuitable local roads. It's clear that without mitigation the local road network between M20 and M2 will become significantly less resilient.

Further to the response provided to Ex Q4.3.8 – Benefits to Tonbridge & Malling's Network, a reduction in traffic is predicted along M20 due to the traffic rerouting to M2 via A228 to connect to LTC. Some reductions in traffic are also predicted along A20 London Road (between A20/Mills Road/Hall Road and A20/A25), these are comparatively minor and unlikely to be noticed by local residents and those who work in the borough.

I hope this additional evidence further reinforces the concerns already expressed by Kent County Council, neighbouring Medway Council and ourselves.

Yours sincerely



Eleanor Hoyle
Director of Planning, Housing and Environmental Health

Subject Tonbridge and Malling Local Plan and LTC Tests

Attention Bartholomew Wren, Gudrun Andrews

From Fabian Florek, Melanie Tobias

Date 02 October 2023

1 Introduction

Tonbridge and Malling Borough Council (TMBC) have commissioned Jacobs for consultancy support for Local Plan (LP) Development Testing to understand the likely impacts of the LP development’s traffic on the network. In addition, a scenario assessing the impacts of Lower Thames Crossing has also been requested by TMBC.

This Technical Note sets out the assumptions and methodology used and the results of the analysis.

2 Approach and Methodology

2.1 Scenario 1 - 2040/41 Local Plan Test (OAN) – Broad Location

The 2040/41 Tonbridge and Malling Forecast Baseline was used to develop the 2040/41 Local Plan Test. The local plan test includes the residential dwelling units provided by TMBC and presented in Table 1 below.

Table 1 Broad Distribution of Developments in Tonbridge and Malling¹

Area	%	OAN
Tonbridge	41%	6840
Kings Hill	10%	1596
Medway (Ditton, Larkfield, Leybourne, Forstal, Allington, including part of Eat Malling and Aylesford)	10%	1596
Snodland	10%	1596
Walderslade	0%	0
Borough Green	7%	1140
East Peckham	3%	570
Hadlow	3%	570
Hildenborough	3%	570
West Malling	3%	570
Addington	1%	91
Addington Clearway	0%	0
Aylesford Village	0%	0
Birling	0%	0

¹ Developments listed in the table were provided by TMBC on the 24th August 2023.

Area	%	OAN
Blue Bell Hill	0%	0
Burham	1%	91
Crouch	1%	91
Dunks Green	0%	0
East Malling village	1%	91
Eccles	1%	91
Fairseat	0%	0
Golden Green	0%	0
Hale Street	1%	91
Ightham	1%	91
Leybourne Chase	1%	91
Mereworth	1%	91
Offham	1%	91
Peters Village	1%	91
Platt	1%	91
Plaxol	1%	91
Ryarsh	1%	91
Snoll Hatch	1%	91
Trottiscliffe	0%	0
Wateringbury	1%	91
West Peckham	0%	0
Wouldham	1%	91
Wrotham Heath	1%	91
Wrotham	1%	91
Total	100%	16780

Since no specific location was allocated for the housing developments, the number of dwellings presented in Table 1 was equally allocated in each area (i.e, the 6,840 dwellings were equally allocated to the model zones in Tonbridge). Figure 1 presents model zones where these developments were allocated.

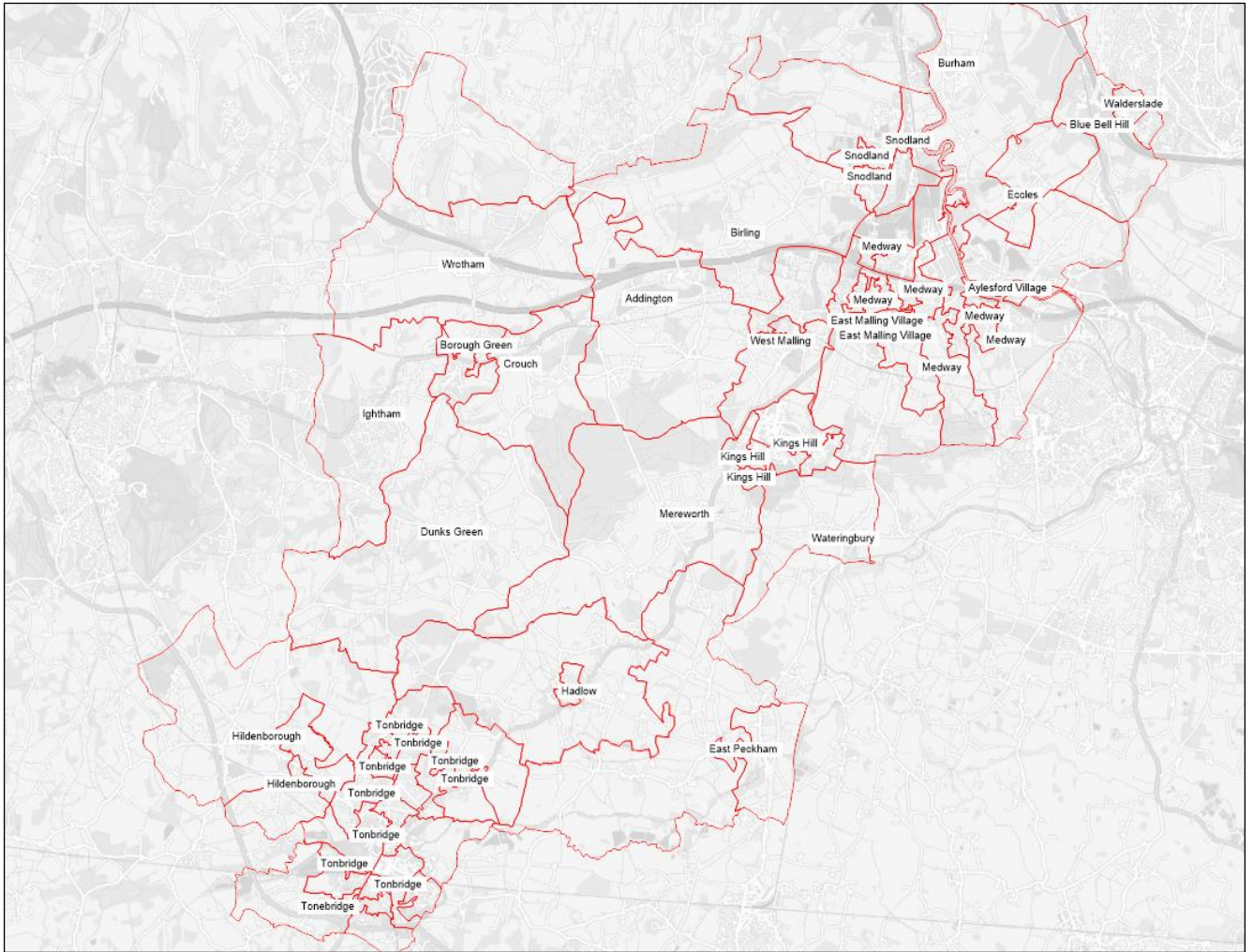


Figure 1 Model Zones and Development Allocation in Tonbridge and Malling

To calculate the origin and destination (departures and arrivals) trips for each development for the AM and PM peak, the trip rates extracted from TRICs for the 2040/41 Forecast Baseline have been used. Table 2 shows calculated trips for each development area/settlement taking growth.

Table 2 Peak Periods Trips Calculated for each Development Area

TMBC Name	AM Peak			PM Peak		
	Arrivals (Destinations)	Departures (Origins)	Total	Arrivals (Destinations)	Departures (Origins)	Total
Tonbridge	157	383	540	328	137	465
Kings Hill	107	281	388	223	192	415
Medway	107	281	388	223	192	415
Snodland	107	281	388	223	192	415
Walderslade	0	0	0	0	0	0
Borough Green	76	201	277	159	137	296
East Peckham	38	100	139	80	69	148
Hadlow	38	100	139	80	69	148
Hildenborough	38	100	139	80	69	148
West Malling	38	100	139	80	69	148
Addington	6	16	22	13	11	24
Addington Clearway	0	0	0	0	0	0
Aylesford Village	0	0	0	0	0	0
Birling	0	0	0	0	0	0
Blue Bell Hill	0	0	0	0	0	0
Burham	6	16	22	13	11	24
Crouch	6	16	22	13	11	24
Dunks Green	0	0	0	0	0	0
East Malling Village	5	14	19	12	8	20
Eccles	6	16	22	13	11	24
Fairseat	0	0	0	0	0	0
Golden Green	0	0	0	0	0	0
Hale Street	6	16	22	13	11	24
Ightham	6	16	22	13	11	24
Leybourne Chase	6	16	22	13	11	24
Mereworth	6	16	22	13	11	24
Offham	6	16	22	13	11	24
Peters Village	6	16	22	13	11	24
Platt	6	16	22	13	11	24
Plaxol	6	16	22	13	11	24
Ryarsh	6	16	22	13	11	24
Snoll Hatch	6	16	22	13	11	24
Trottscliffe	0	0	0	0	0	0
Wateringbury	6	16	22	13	11	24
West Peckham	0	0	0	0	0	0
Wouldham	6	16	22	13	11	24
Wrotham Heath	6	16	22	13	11	24
Wrotham	6	16	22	13	11	24
Total	822	2130	2952	1715	1328	3043

As discussed earlier, the allocation of the trips has been done equally. For example, the developments in Tonbridge have been allocated to 22 zones in the model that are located in Tonbridge, therefore, the

383 departures (origin) and 157 arrivals (destination) have been split equally for 22 zones – A similar approach has been made in other areas. Table 3 shows the example of trip allocation in the model zones for the Tonbridge development area.

Table 3 Example of Trip Allocation in the Model Zones for Tonbridge Development Area

NO	AREA	DESTAM	ORIGINAM	DESTPM	ORIGINPM
1	Tonbridge	7.15	17.41	14.92	6.22
2	Tonbridge	7.15	17.41	14.92	6.22
3	Tonbridge	7.15	17.41	14.92	6.22
4	Tonbridge	7.15	17.41	14.92	6.22
5	Tonbridge	7.15	17.41	14.92	6.22
6	Tonbridge	7.15	17.41	14.92	6.22
7	Tonbridge	7.15	17.41	14.92	6.22
8	Tonbridge	7.15	17.41	14.92	6.22
9	Tonbridge	7.15	17.41	14.92	6.22
10	Tonbridge	7.15	17.41	14.92	6.22
11	Tonbridge	7.15	17.41	14.92	6.22
12	Tonbridge	7.15	17.41	14.92	6.22
13	Tonbridge	7.15	17.41	14.92	6.22
14	Tonbridge	7.15	17.41	14.92	6.22
15	Tonbridge	7.15	17.41	14.92	6.22
16	Tonbridge	7.15	17.41	14.92	6.22
17	Tonbridge	7.15	17.41	14.92	6.22
18	Tonbridge	7.15	17.41	14.92	6.22
19	Tonbridge	7.15	17.41	14.92	6.22
20	Tonbridge	7.15	17.41	14.92	6.22
21	Tonbridge	7.15	17.41	14.92	6.22
22	Tonbridge	7.15	17.41	14.92	6.22
Total		157.32	383.04	328.32	136.80

Base donor zone in the location of the new development has been used to get a similar origin and destination trip distribution pattern. This process has been done for each development to distribute vehicle trips around the network.

2.2 Scenario 2 - 2040/41 Local Plan Test with LTC

As Scenario 1 but with the addition of the Lower Thames Crossing (LTC) scheme. Figure 2 shows the LTC alignment coded into the model.

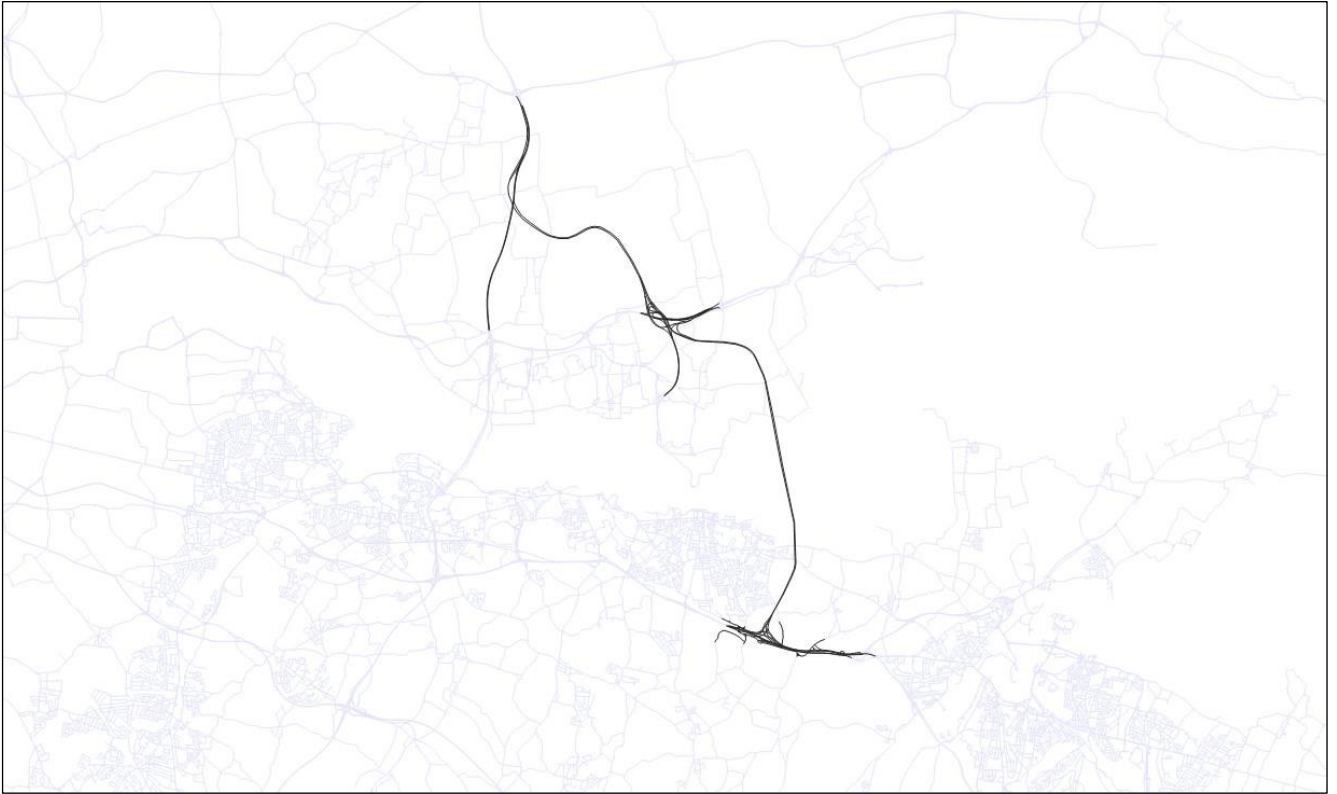


Figure 2 Lower Thames Crossing Scheme

3 Scenario 1 - 2040/41 Local Plan Test (OAN) – Broad Location

3.1 Flow Difference Plots

Figure 3 and Figure 4 show the flow difference plots (presented in total actual vehicles and considering blocking back and queue effect) for each peak period comparing the 2040/41 Local Plan Test and Forecast Baseline.

In the AM, traffic increases are predicted along the M20 motorway and local roads in Tonbridge and Malling. Traffic increases are also predicted along A228, A20, A25, A227 between Wrotham and Borough Green, B2016 near Wrotham, along Tower View and Gibson Drive near Kings Hill and B2260, B245 and A227 Shipbourne Road in Tonbridge Town. Some traffic decreases predominantly along A21 are due to the congestion issues on Morleys Roundabout (A21 / B245), which limits the traffic passing through the junctions.

Similar trip patterns can be seen in the PM peak, with slightly more traffic using M20 compared to the AM peak.

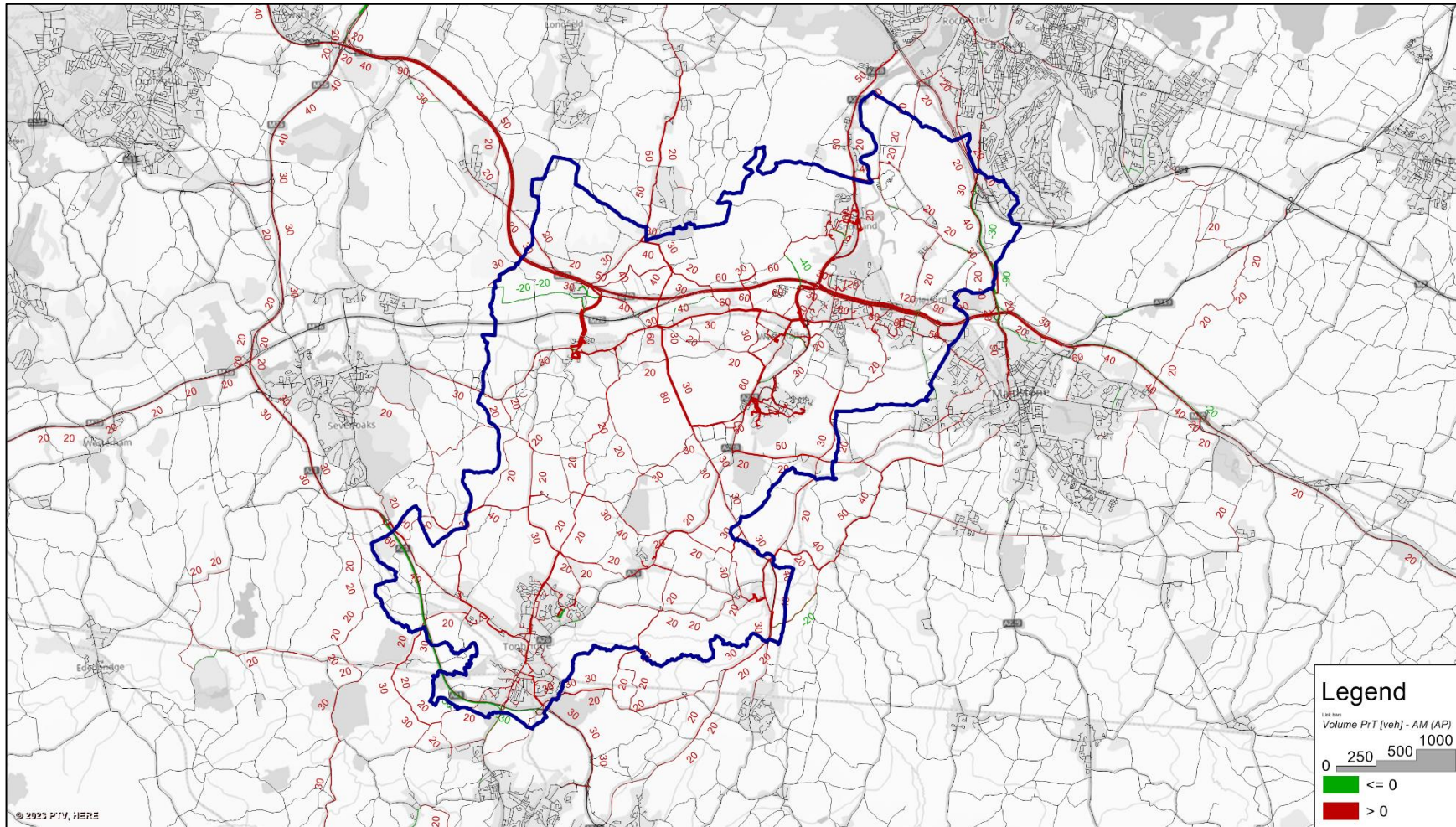


Figure 3 2040/41 Local Plan Test vs Forecast Baseline - AM Peak

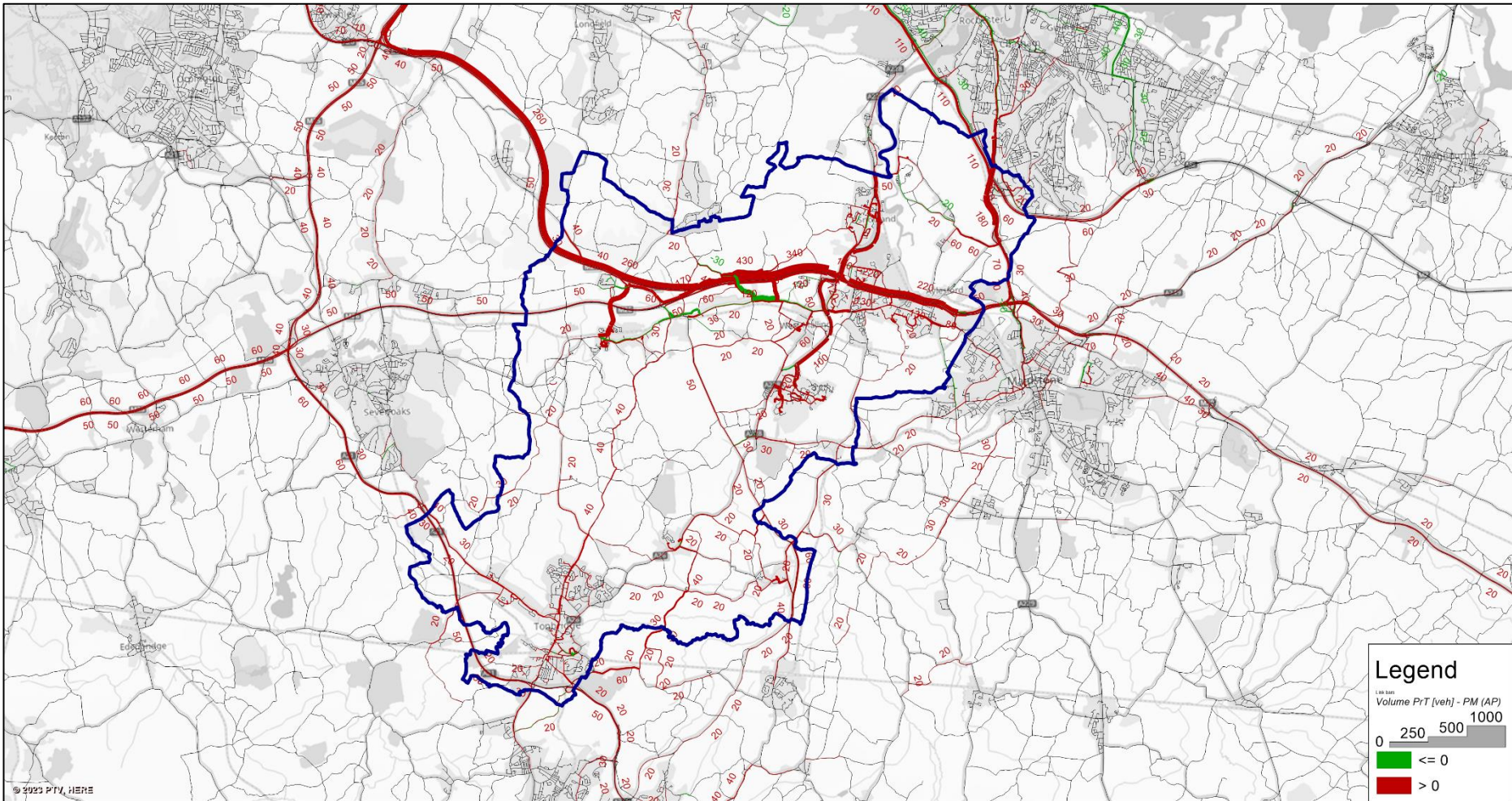


Figure 4 2040/41 Local Plan Test vs Forecast Baseline - PM Peak

3.2 Junction and Link “Hot-Spots”

Figure 5 and Figure 6 show the junction level of service and link volume capacity ratios for the Local Plan Test AM and PM peak periods. These include the list of key junctions and links showing LOS E and F and $V/C > 85\%$.

In the AM peak, most of the junction and link “hot spots” identified in the 2040/41 Forecast Baseline also exist in the Local Plan Test. In addition to these locations, a couple of junctions and links exhibiting severe delays were added to the list (highlighted in blue text) due to the additional trips generated by the local plan developments distributed in broad locations. These include the section of M20 from A20 to M25, A227 Tonbridge Road / Hildenborough Road / Back Lane and A20 / New Road / Station Road.

Similar to the AM, most of the junction and link “hot spots” identified in the 2040/41 Forecast Baseline also exist in the Local Plan Test PM peak, but with the addition of A227 between Borough Green Road and A20 and A20 / New Road / Station Road.

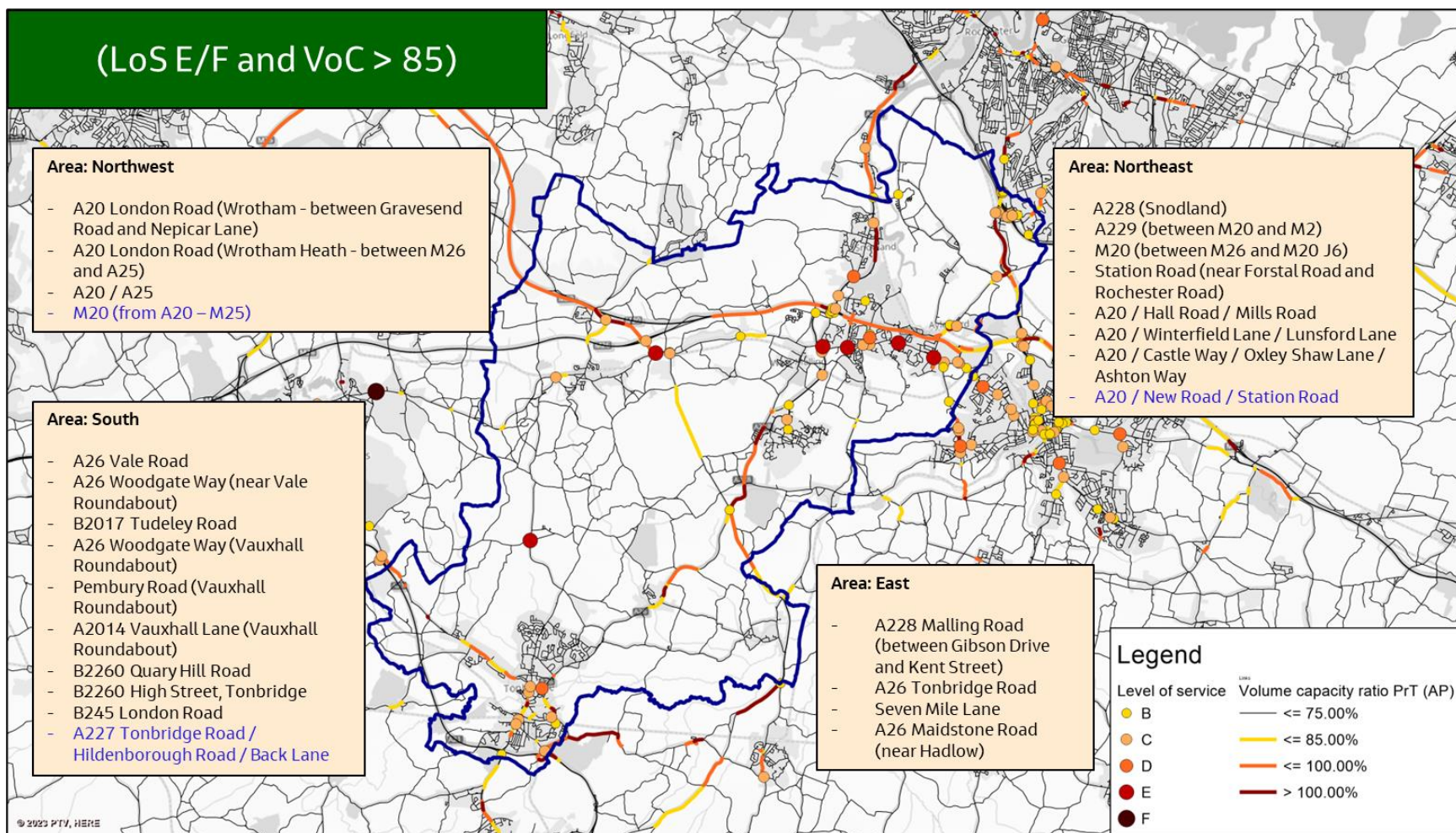


Figure 5 Local Plan Test Junction and Link Hot Spots – AM Peak

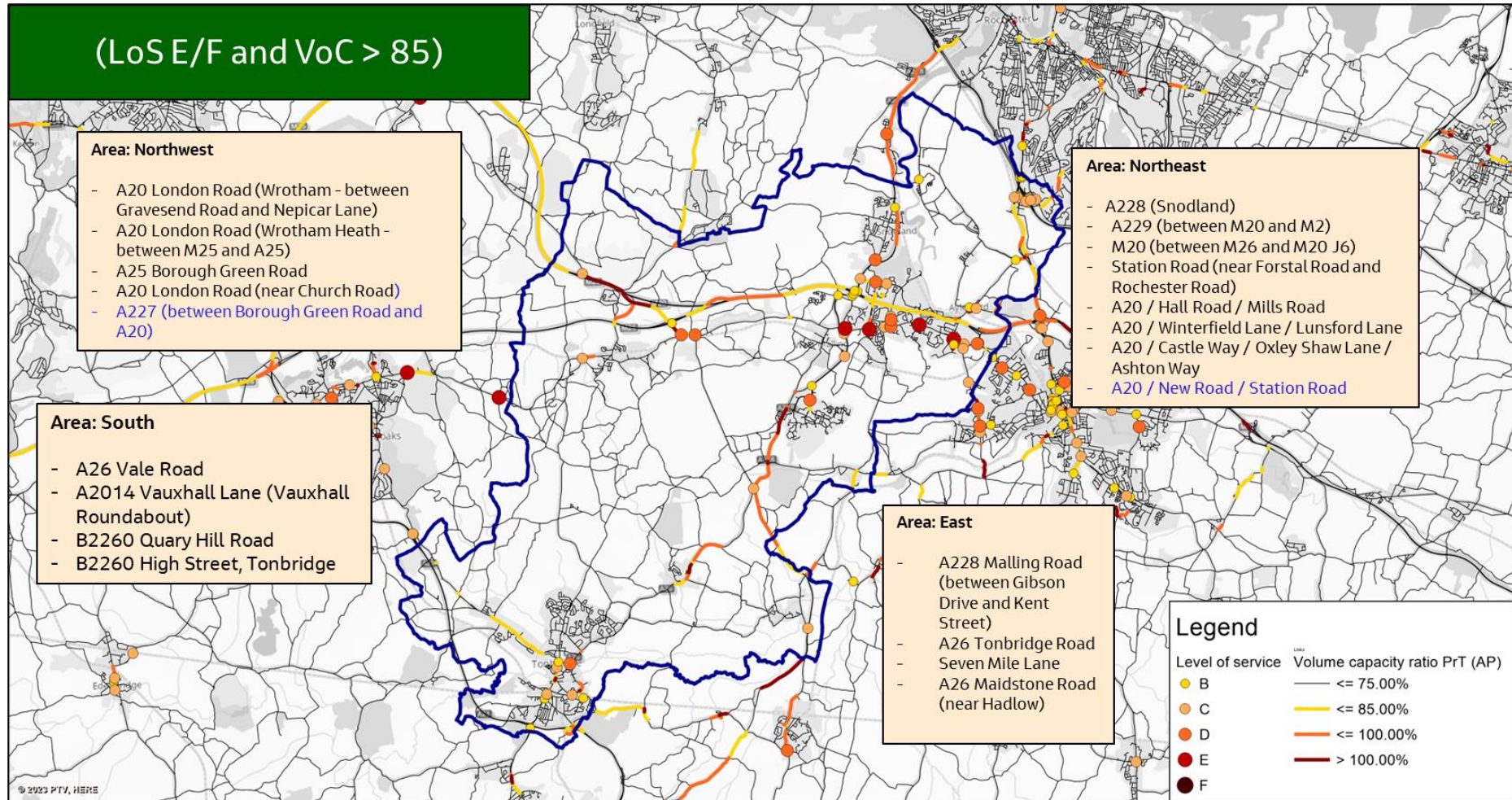


Figure 6 Local Plan Test Junction and Link Hot Spots – PM Peak

Table 4 Actual Volumes and Level of Service Comparison Between 2040/41 Local Plan Test and Forecast Baseline

Junction name	AM				PM				AM		PM	
	2040 Baseline T&M		LP Test Sc 1		2040 Baseline T&M		LP Test Sc 1		LP Test Sc 1 vs 2040 Baseline Difference			
	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	%	Actual Vehicles [veh.]	%
A20 London Road / New Hythe Lane - Larkfield	1858	C	1916	C	1928	D	2014	D	58	3%	86	4%
A20 London Road / A25 Maidstone Road (Wrotham Heath) - Wrotham	2136	E	2160	E	2792	D	2639	D	24	1%	-153	-5%
A227 High Street / Bordyke - Tonbridge	1580	C	1671	C	1352	C	1448	C	91	6%	96	7%
A20 London Road / Station Road - Ditton	1575	E	1606	E	1672	E	1715	E	31	2%	43	3%
A20 London Road / B2246 Hermitage Lane - Aylesford	2537	C	2563	C	3194	C	3281	C	26	1%	87	3%
A20 London Road / Hall Road - Aylesford	2926	E	2933	E	3593	E	3732	E	7	0%	138	4%
A26 Quarry Hill Road / A21 London Road - Tonbridge	1243	B	1279	B	880	B	935	B	36	3%	55	6%
A20 London Road / New Road - East Malling	1598	C	1664	C	1479	C	1569	C	66	4%	90	6%
A20 London Road / Lunsford Lane - Larkfield	2245	E	2325	E	2298	E	2424	E	80	4%	126	5%
A20 London Road / Castle Way - Leybourne	2390	E	2568	E	2229	E	2407	E	178	7%	178	8%
A2045 Walderslade Woods / Walderslade Woods Link - Bluebell Hill	1907	B	1913	B	2492	C	2547	C	6	0%	55	2%
A228 Leybourne Bypass / Castle Way - West Malling	2280	B	2364	B	1576	B	1766	B	84	4%	190	12%
A228 Ashton Way / Ashton Wat Link - West Malling	4048	C	4197	C	3563	C	3783	C	149	4%	219	6%
A228 Ashton Way / Station Access - West Malling	3500	D	3550	C	3445	B	3610	C	50	1%	165	5%
A228 Castle Way / Leybourne Way - Lunsford	3559	C	3701	C	3571	C	3816	C	142	4%	245	7%

Table 4 shows the LOS and actual volume comparison between the 2040/41 Local Plan Test and Forecast Baseline on the key signalized junctions. Despite the additional demand, the LOS on the junctions generally remains at the same level, which means that the junction delays between the two scenarios stay very similar in these locations.

3.3 Journey Time Comparison

Figure 7 presents the routes considered for the journey time comparison. Detailed journey time comparison between the 2040/41 Local Plan Test and Forecast Baseline are shown in Table 5.

In the AM Peak, Route 5 (A26 Hadlow Road and Woodgate Way) in both directions exhibit a travel time increase greater than 10%. This is due to the additional congestion in the Hadlow Road / Cannon Lane signalized junction. Both directions, southbound and northbound, show an increase of 10% and 12% respectively. In the PM peak, Route 10 along Borough Green Rd/A20 London Road's eastbound direction shows an increase greater than 10% due to the congestion in the A25 / A20 junction in Wrotham.

Although the report highlights the routes with a journey time difference of greater than 10%, it should be noted that a low percentage increase can still impact junction delays, especially in areas where congestion currently exists. The routes with actual time differences close to 1 minute are also highlighted in the table.

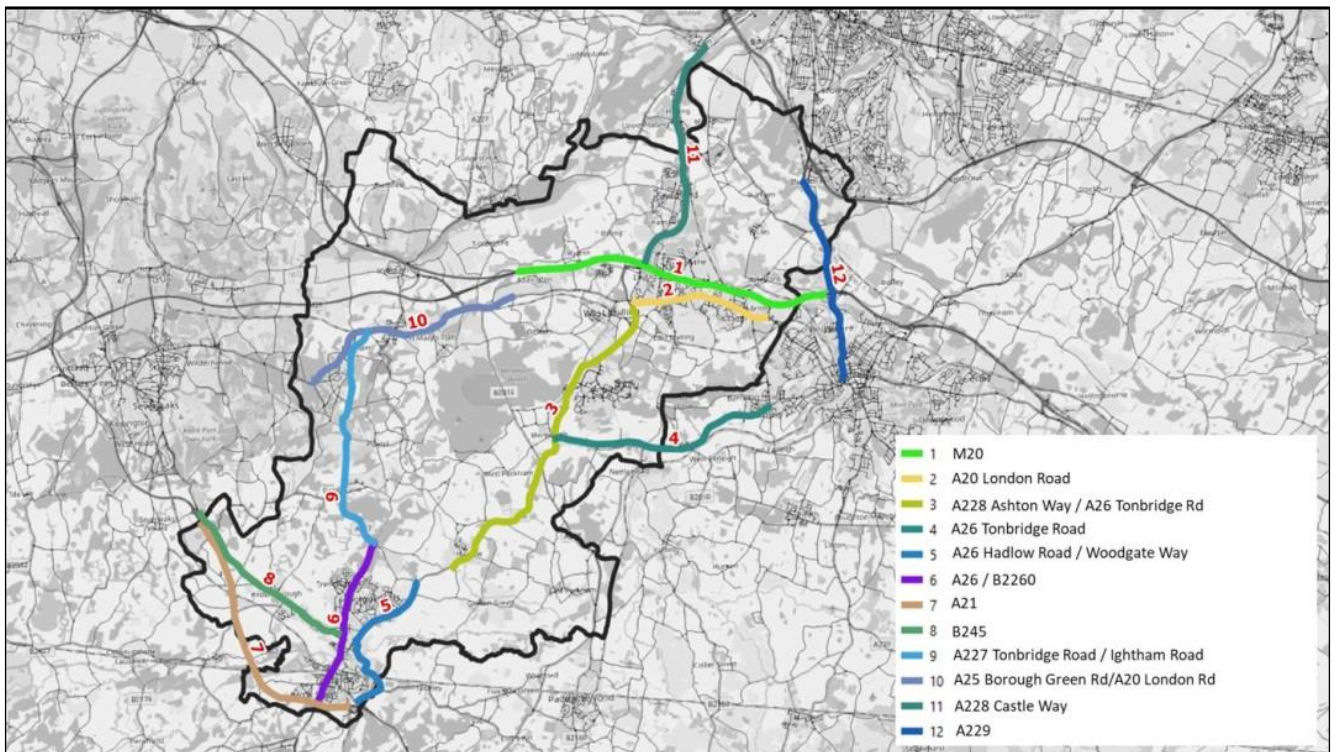


Figure 7 Journey Times Routes in Tonbridge and Malling

Table 5 2040/41 Local Plan Test vs Forecast Baseline Journey Times Comparison

Route	Description	Direction	2040 Baseline Model [min:sec]		2040 LP Test Sc 1 [min:sec]		Actual Difference [min:sec]		% Difference	
			AM	PM	AM	PM	AM	PM	AM	PM
1	M20	01_EB	06:33	12:04	06:35	12:23	00:01	00:18	0%	3%
	M20	01_WB	07:19	06:15	07:21	06:16	00:02	00:01	0%	0%
2	A20 London Road	02_EB	14:32	10:46	14:55	11:26	00:23	00:40	3%	6%
	A20 London Road	02_WB	11:31	08:53	11:40	08:38	00:08	00:15	1%	-3%
3	A228 Ashton Way / A26 Tonbridge Rd	03_SB	15:47	13:31	16:02	13:43	00:15	00:11	2%	1%
	A228 Ashton Way / A26 Tonbridge Rd	03_NB	15:44	16:27	16:29	16:36	00:44	00:08	5%	1%
4	A26 Tonbridge Road	04_EB	10:14	11:13	10:23	11:18	00:09	00:04	2%	1%
	A26 Tonbridge Road	04_WB	11:25	09:58	11:34	10:06	00:08	00:08	1%	1%
5	A26 Hadlow Road / Woodgate Way	05_SB	15:17	09:12	16:50	09:10	01:32	00:02	10%	0%
	A26 Hadlow Road / Woodgate Way	05_NB	10:12	13:37	11:26	13:50	01:14	00:13	12%	2%
6	A26 / B2260	06_SB	12:57	11:29	13:13	11:40	00:16	00:11	2%	2%
	A26 / B2260	06_NB	13:03	12:32	13:25	12:52	00:21	00:19	3%	3%
7	A21	07_SB	05:24	05:15	05:24	05:15	00:00	00:00	0%	0%
	A21	07_NB	06:19	04:57	06:28	04:59	00:08	00:01	2%	1%
8	B245	08_EB	08:49	08:32	08:58	08:44	00:08	00:11	2%	2%
	B245	08_WB	09:17	08:33	09:30	08:42	00:12	00:09	2%	2%
9	A227 Tonbridge Road / Ightham Road	09_NB	07:41	07:49	07:43	07:50	00:02	00:01	1%	0%
	A227 Tonbridge Road / Ightham Road	09_SB	08:05	07:38	08:07	07:40	00:01	00:01	0%	0%
10	A25 Borough Green Rd/A20 London Rd	10_EB	09:50	13:21	10:06	15:14	00:15	01:53	3%	14%
	A25 Borough Green Rd/A20 London Rd	10_WB	11:01	14:01	11:07	14:54	00:05	00:53	1%	6%
11	A228 Castle Way	11_NB	12:03	14:01	12:10	13:41	00:07	00:19	1%	-2%
	A228 Castle Way	11_SB	17:43	09:29	18:27	09:45	00:44	00:16	4%	3%
12	A229	12_SB	11:05	06:52	10:52	06:55	00:13	00:03	-2%	1%
	A229	12_NB	11:05	08:51	11:04	08:13	00:01	00:37	0%	-7%

4 Scenario 2 - 2040/41 Local Plan Test with LTC

4.1 Flow Difference Plots

This section focuses on the results of the Local Plan Test with Lower Thames Crossing scenario.

In the AM and with LTC in place, Figure 8 shows that the traffic moved away from the Dartford Crossing to the LTC scheme. Increases in traffic along M2 westbound and A228 northbound are also predicted due to its direct connection to LTC. Traffic increases are also predicted on the local roads between Tonbridge and Malling, and Medway, as shown in Figure 9. The A229 and M2 eastbound show a reduction in traffic due to the significant queueing building up shown in Figure 10 along M2 J3 and Bluebell Hill Roundabout due to traffic rerouting to connect to LTC. This represents the traffic not being able to pass through the junctions. As vehicles need to transfer between the motorways and with the Bluebell Hill and M2 J3 Roundabouts already congested, blocking back issues will likely worsen.

On the other hand, a reduction in traffic is predicted along M20 due to the traffic rerouting to M2 and A228 to connect to LTC. Some reductions in traffic are also predicted along A20 London Road (between A20/Mills Road / Hall Rad and A20/A25).

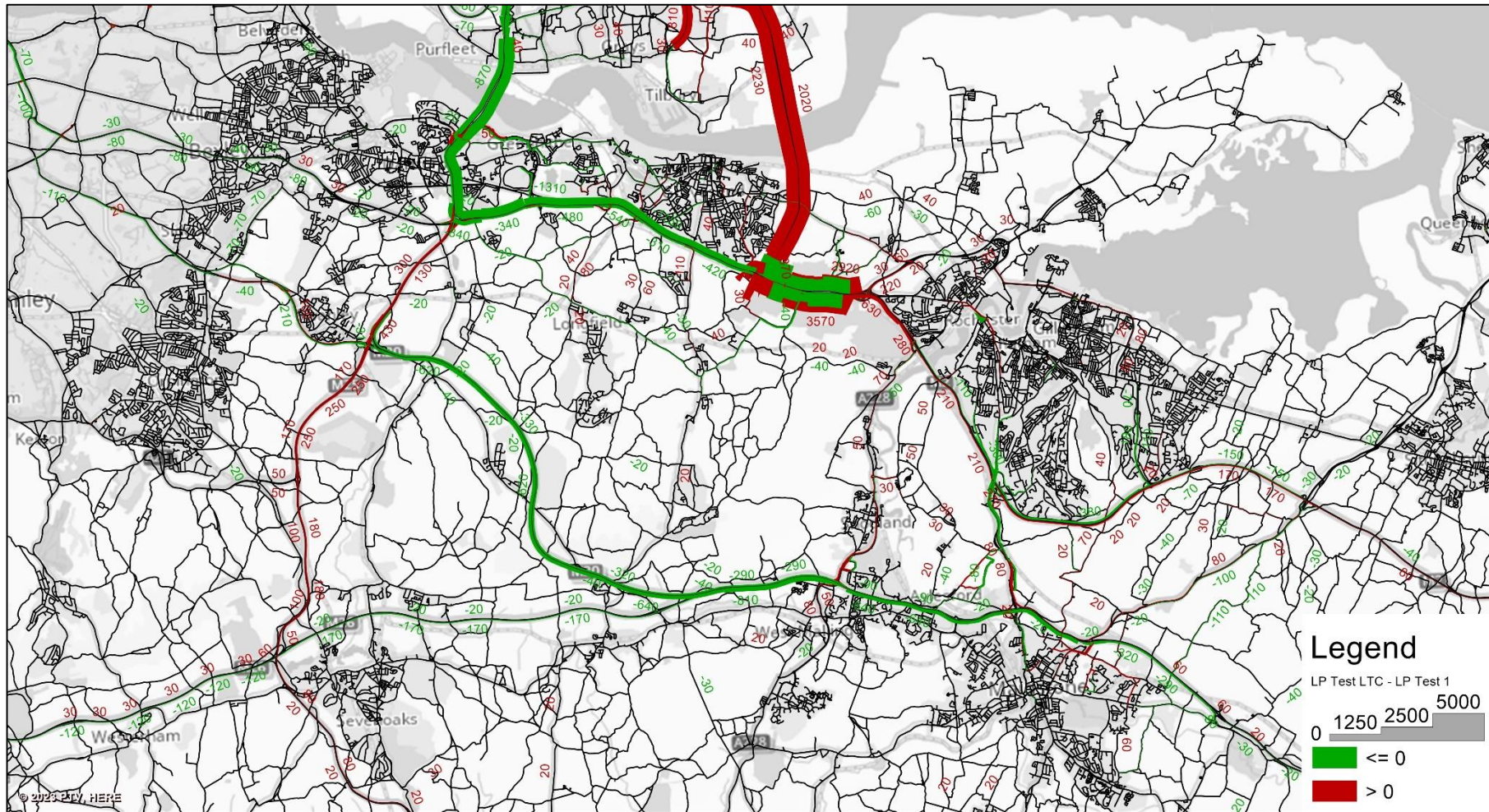


Figure 8 2040/41 Local Plan Test With and Without LTC – AM Peak

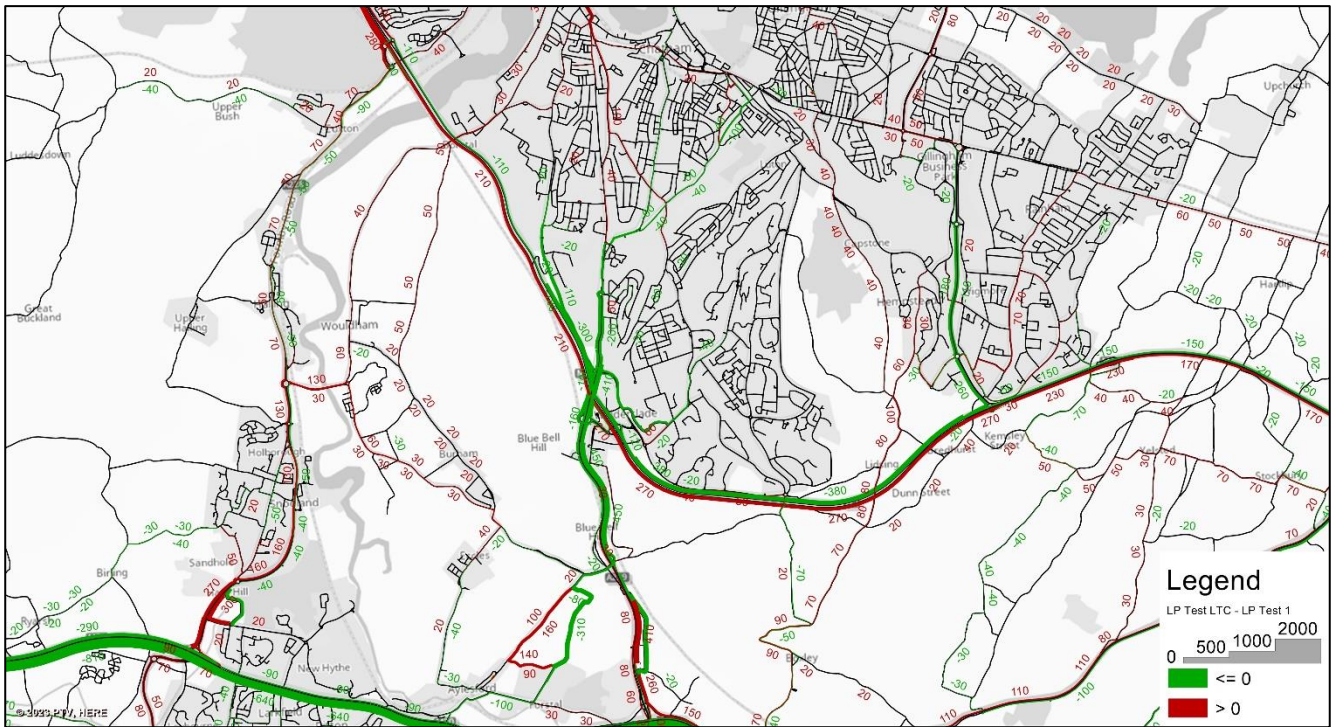


Figure 9 2040/41 Local Plan Test With and Without LTC Blue Bell Hill Area – AM Peak

The issues on the Blue Bell Hill with LTC in place have been also mentioned in the A229 Blue Bell Hill consultation document issued in October 2020.² The same pattern and congestion problem can be observed in the LP Test with LTC scenario.

*"Blue Bell Hill is part of the Major Road Network (MRN) and serves as a key link between the two Strategic Road Network (SRN) roads of M2 and M20. These also provide onward connectivity to the M25, the Dartford Crossing and in time the LTC. It is also an important route for local traffic between the Medway towns and Maidstone. Blue Bell Hill and the M20 and M2 junctions are frequently congested, which leads to congestion and queuing on the motorways."*³

*"The number of vehicles using Blue Bell Hill is expected to increase significantly with local growth and once the new Lower Thames Crossing (LTC) is opened in 2027. Future forecast data indicates population growth of around 20-30% in the area around Blue Bell Hill between 2016 and 2041. Additionally, significant growth in jobs and households is predicted across the area, including in the three local boroughs of Maidstone, Medway, and Tonbridge and Malling. Medway, Maidstone and Tonbridge and Malling's Local Plans also indicate large increases in housing by 2031."*⁴

"In addition to this localised growth, Highways England's LTC, a proposed new road connecting Kent and Essex through a tunnel beneath the river Thames, will be another source of growth. With LTC in place, some traffic will move away from the Dartford Crossing to the LTC scheme, thereby increasing the traffic on Blue Bell Hill as vehicles need to transfer between the motorways. Modelling undertaken for LTC has

² Blue Bell Hill consultation document - <https://www.kent.gov.uk/roads-and-travel/road-projects/planned-road-projects/a229-blue-bell-hill#tab-1,2,3>

³ Blue Bell Hill consultation document, Section 4, page 7

⁴ Blue Bell Hill consultation document, Section 4, page 8-9

identified a significant increase in vehicles per day using Blue Bell Hill, affecting both the northbound and southbound stretches of the road. Congestion issues will therefore likely worsen because of planned developments and LTC. This scheme is required to improve capacity on Blue Bell Hill and its associated junctions to allow it to accommodate the increase in future traffic"⁵

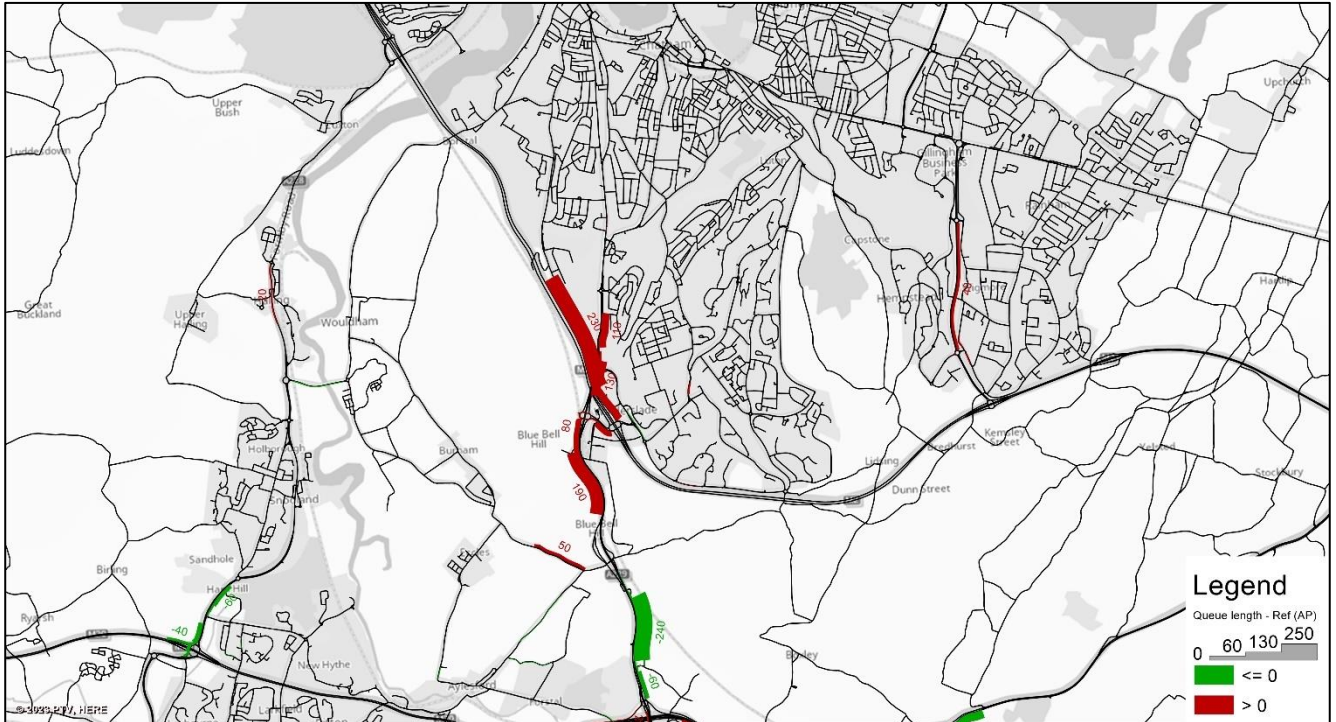


Figure 10 2040/41 Local Plan Test With and Without LTC Queue Difference - AM Peak

Figure 10 shows the queue length difference between 2040/41 Local Plan Test with LTC and Forecast Baseline. The increase in traffic due to LTC worsen the congestion on Blue Bell Hill.

Similar pattern can be seen in the PM peak shown in Figure 11, Figure 12 and Figure 13.

⁵ Blue Bell Hill consultation document, Section 4, page 11

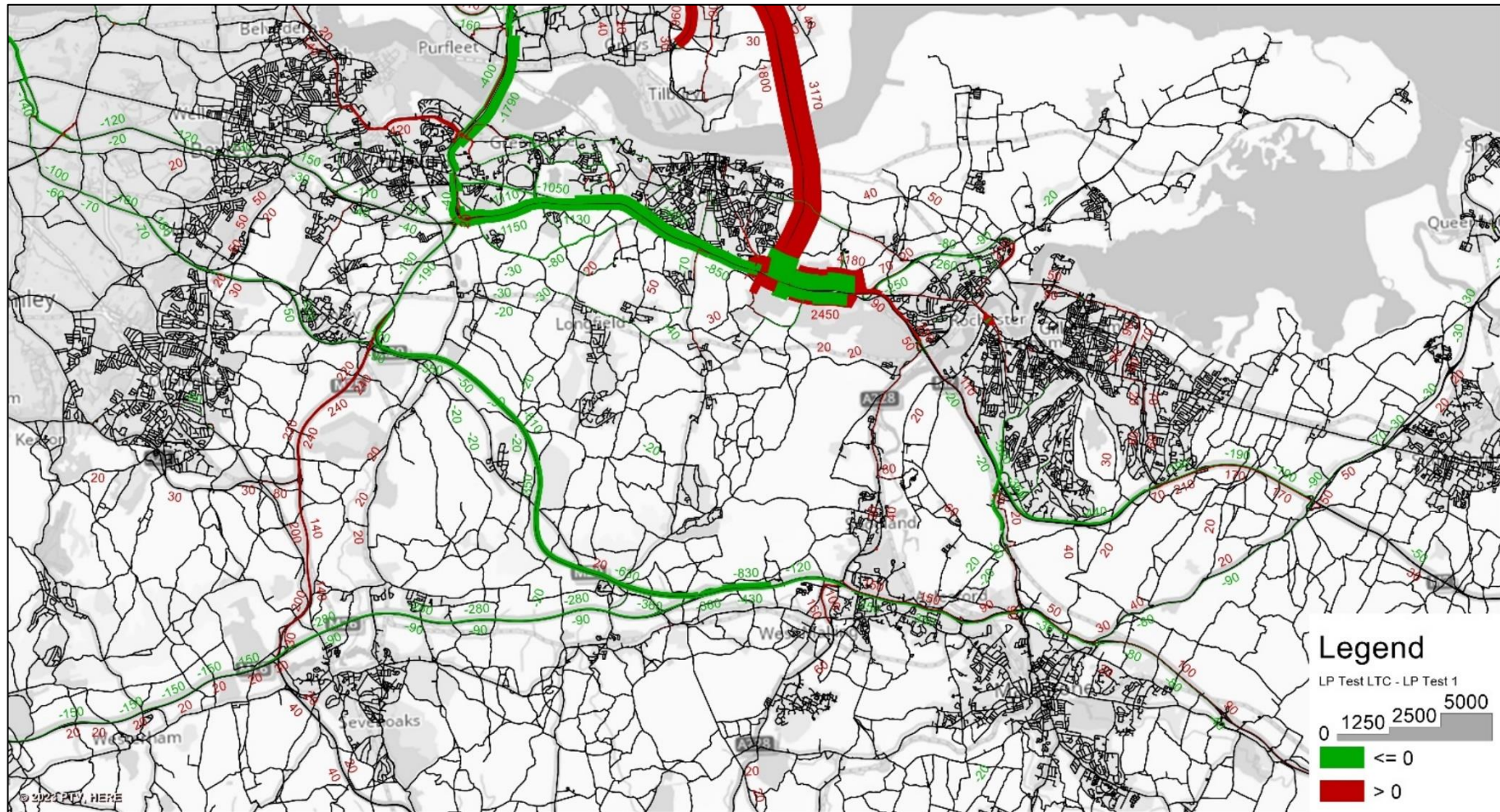


Figure 11 2040/41 Local Plan Test With and Without LTC – PM Peak

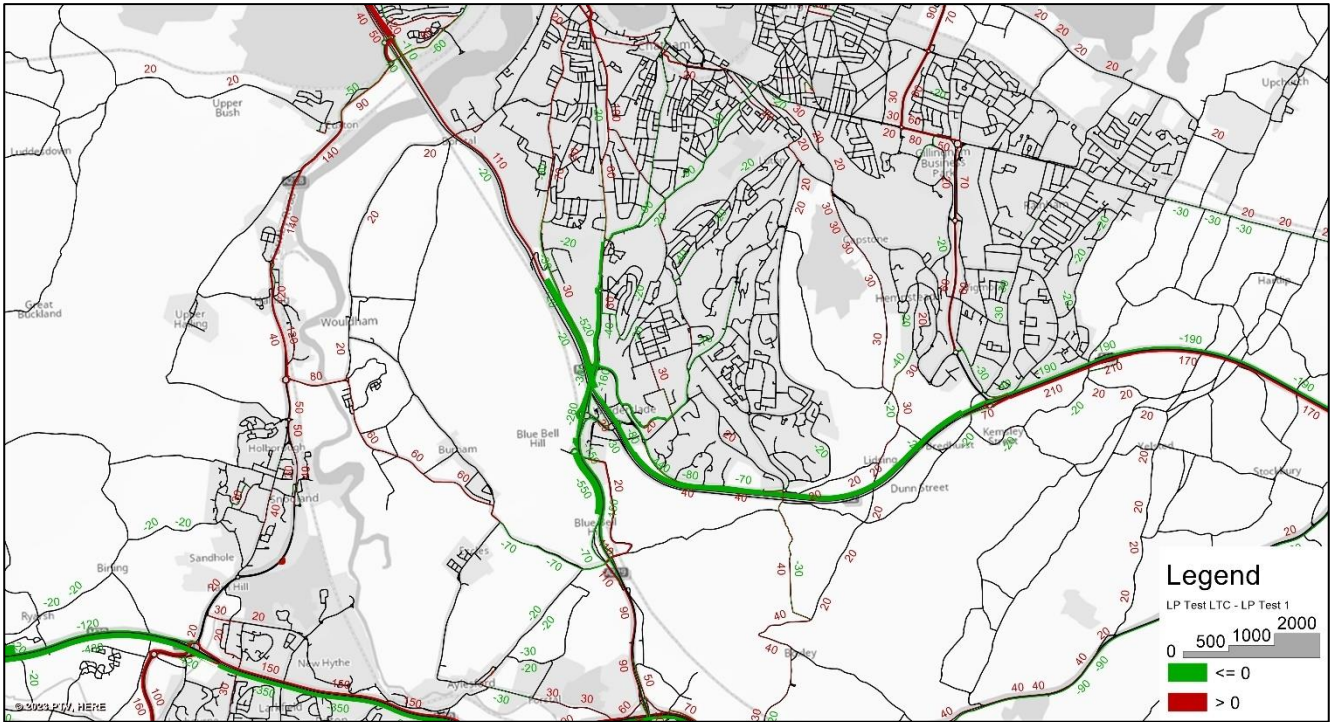


Figure 12 2040/41 Local Plan Test With and Without LTC Blue Bell Hill Area – PM Peak

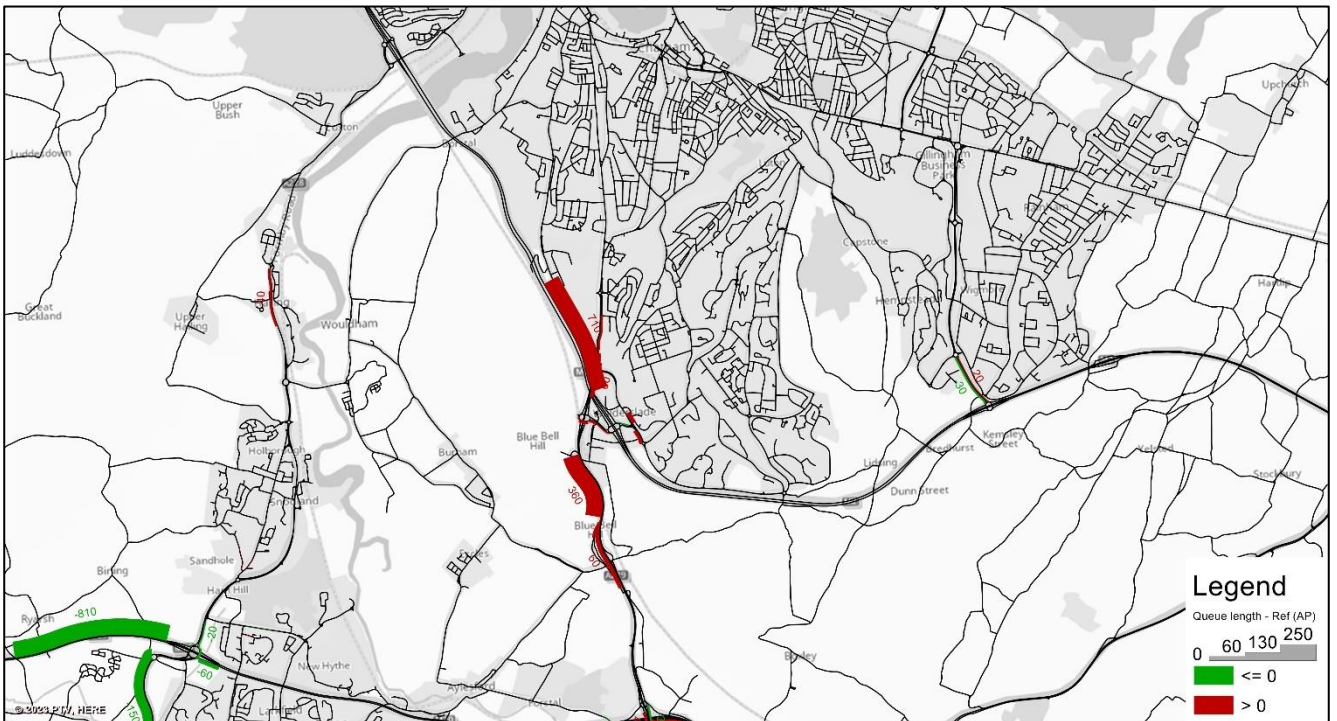


Figure 13 Local Plan Test With and Without LTC Queue Difference - PM Peak

4.2 Junction and Link “Hot-Spots”

Figure 14 and Figure 15 show the junction level of service and link volume capacity ratios for the Local Plan Test with LTC in the AM and PM peak periods. These include the list of key junctions and links showing LOS E and F and V/C > 85%.

In the AM peak, most of the junction and link “hot spots” identified in the 2040/41 Local Plan Test also exist in the LTC scenario. However, it can be seen that the link volume capacity ratio along A229 has worsened due to the increase in queueing in Bluebell Hill when LTC is in place. On the other hand, the link volume capacity ratio along M20 and junction level of service in A20 / New Road / Station Road have improved due to traffic rerouting to M2.

Similar patterns can be seen in the PM peak.

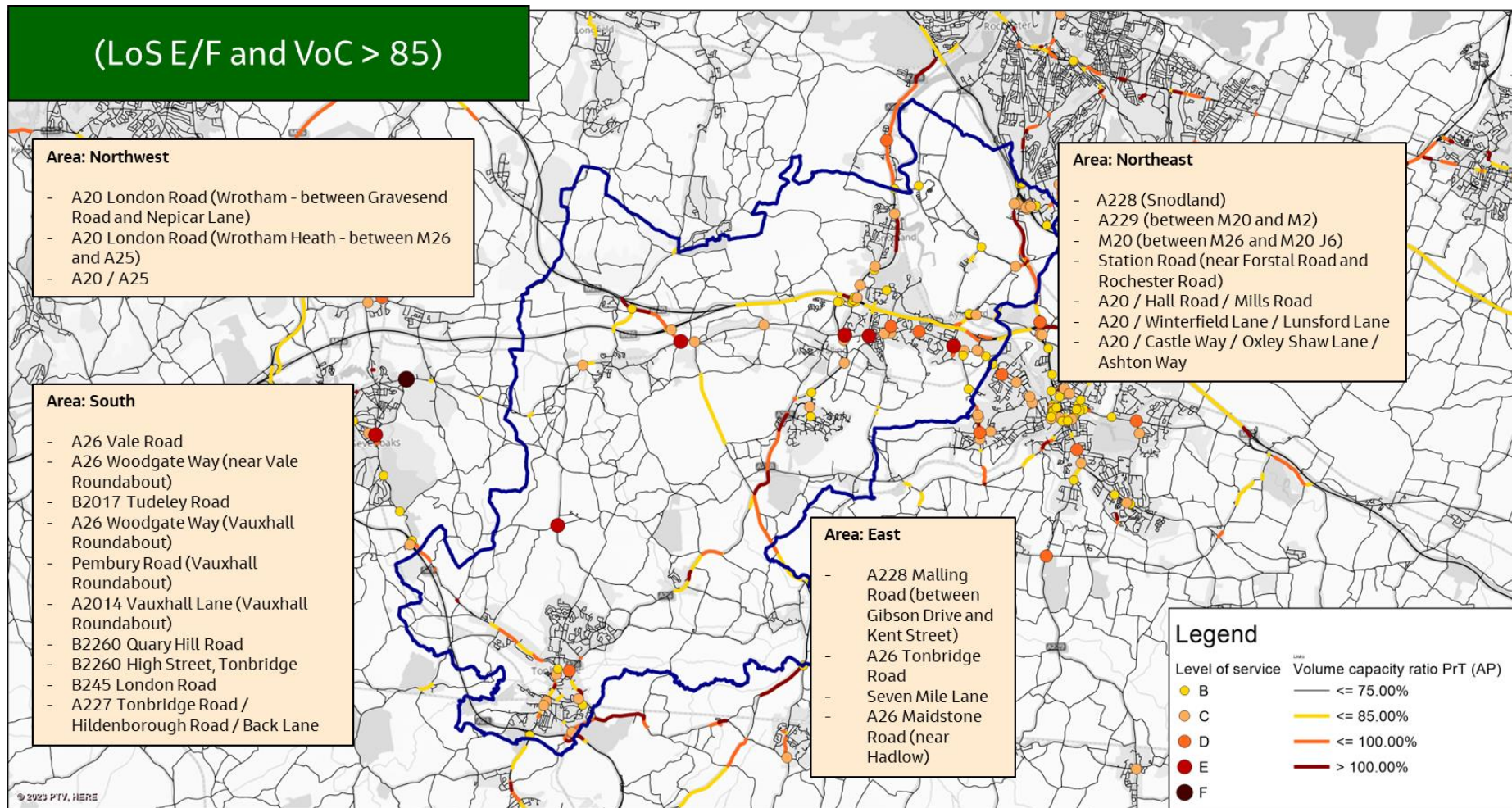


Figure 14 2040/41 Junction and Link Hot Spots With and Without LTC – AM Peak

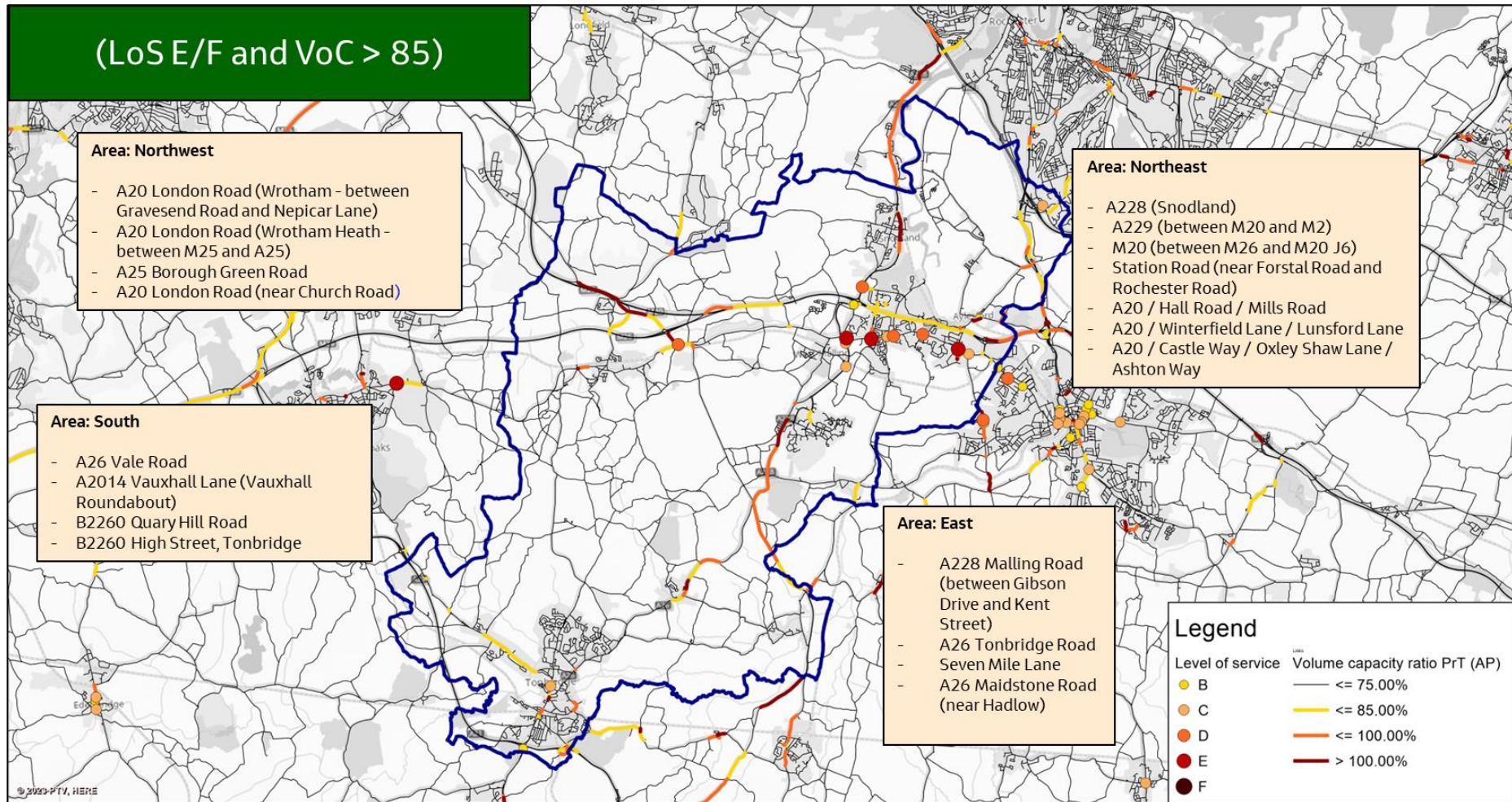


Figure 15 2040/41 Junction and Link Hot Spots With and Without LTC – PM Peak

Table 6 Actual Volumes and Level of Service comparison Between With and Without LTC Scenarios

Junction name	AM				PM				AM		PM	
	LP Test Sc 1		LP Test Sc 2 LTC		LP Test Sc 1		LP Test Sc 2 LTC		LP Test Sc 2 LTC vs LP Test Sc 1			
	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	LOS	Actual Vehicles [veh.]	%	Actual Vehicles [veh.]	LOS
A20 London Road / New Hythe Lane - Larkfield	1916	C	1874	C	2014	D	1970	D	-42	-2%	-44	-2%
A20 London Road / A25 Maidstone Road (Wrotham Heath)	2160	E	2131	E	2639	D	2765	D	-29	-1%	126	5%
A227 High Street / Bordyke - Tonbridge	1671	C	1650	C	1448	C	1413	C	-21	-1%	-35	-2%
A20 London Road / Station Road - Ditton	1606	E	1557	D	1715	E	1689	D	-50	-3%	-26	-2%
A20 London Road / B2246 Hermitage Lane - Aylesford	2563	C	2601	C	3281	C	3275	C	37	1%	-6	0%
A20 London Road / Hall Road - Aylesford	2933	E	2925	E	3732	E	3677	E	-8	0%	-54	-1%
A26 Quarry Hill Road / A21 London Road - Tonbridge	1279	B	1290	B	935	B	952	B	10	1%	17	2%
A20 London Road / New Road - East Malling	1664	C	1651	C	1569	C	1538	C	-13	-1%	-31	-2%
A20 London Road / Lunsford Lane - Larkfield	2325	E	2305	E	2424	E	2411	E	-20	-1%	-13	-1%
A20 London Road / Castle Way - Leybourne	2568	E	2557	E	2407	E	2393	E	-11	0%	-14	-1%
A2045 Walderslade Woods / Walderslade Woods Link -	1913	B	1882	B	2547	C	2387	C	-31	-2%	-160	-6%
A228 Leybourne Bypass / Castle Way - West Malling	2364	B	2441	B	1766	B	1883	B	77	3%	117	7%
A228 Ashton Way / Ashton Wat Link - West Malling	4197	C	4283	C	3783	C	3883	C	86	2%	100	3%
A228 Ashton Way / Station Access - West Malling	3550	C	3545	C	3610	C	3682	C	-5	0%	73	2%
A228 Castle Way / Leybourne Way - Lunsford	3701	C	4055	C	3816	C	3848	D	354	10%	32	1%

Table 6 shows the LOS and actual volume comparison between 2040/41 Local Plan Test with and without LTC on the key signalized junctions. Similar to the LP Test Scenario 1, the level of service on the main signalised junctions stay mostly at the same level.

4.3 Journey Time Comparison

Figure 16 presents the routes considered for the journey time comparison. Detailed journey time comparisons with and without LTC are shown in Table 7. In this analysis, the routes considered for comparison are consistent with those used in the base model validation, which focuses on the key routes around Tonbridge and Malling. Therefore, not all routes (i.e those in neighbouring authorities) in the strategic model were assessed.

Route 5 (A26 Hadlow Road and Woodgate Way) in both directions exhibit a travel time increase of greater than 10% between the two scenarios. As discussed in the earlier section of this report, this is due to the congestion in Hadlow Road / Cannon Lane signalized junction. This increase is not a direct impact of LTC but the sensitivity of an already congested junction.

The northbound direction of Route 12 along A229 predicted an increase of up to 43% in the journey time due to the congestion in Bluebell Hill and M2 J3. Despite Route 11 along A228 northbound showing percentage increase of less than 10%, the actual travel time increase is around 1 minute. Consideration should also be given to this junction.

On the other hand, the journey time improves along Route 1 M20 due to traffic rerouting to M2. The improvements in journey time along Route 11 A228 southbound and Route 12 A229 southbound are also related to the reduction of traffic and improvements in journey time in M20.

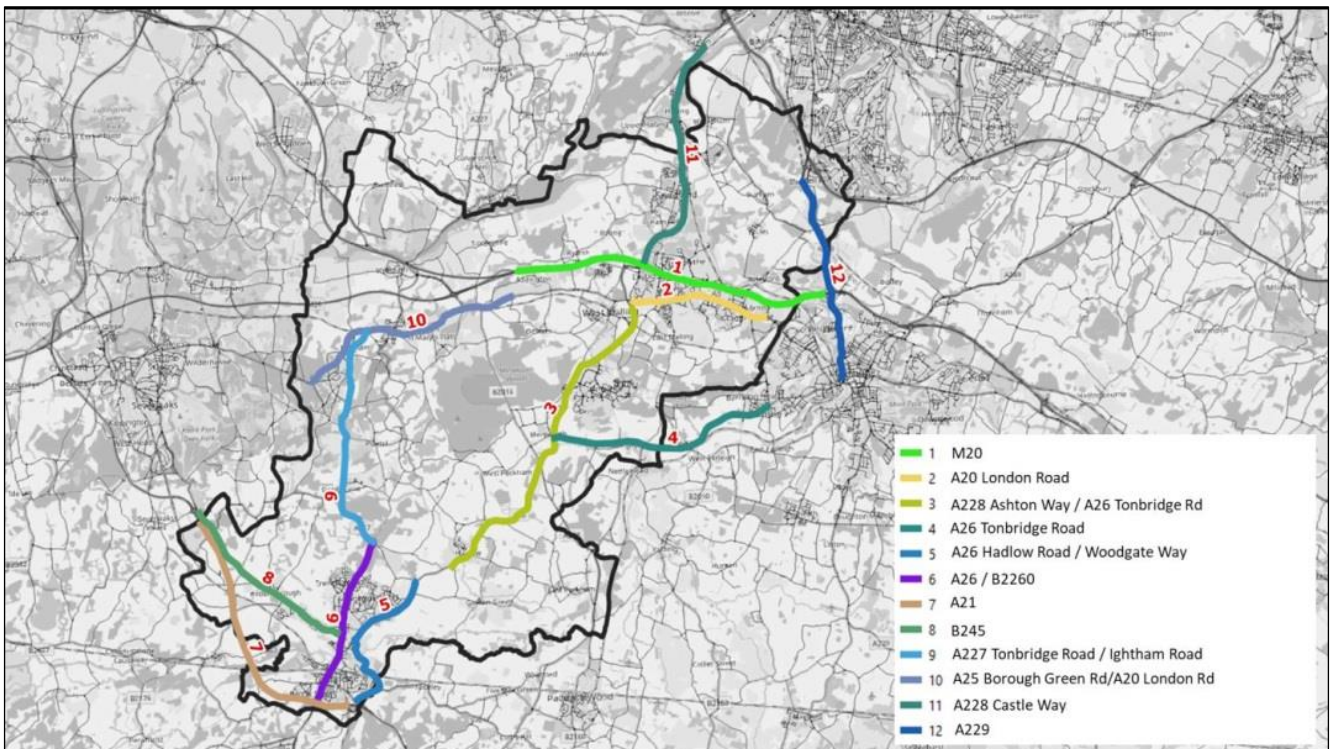


Figure 16 Journey Times Routes in Tonbridge and Malling

Table 7 2040/41 Local Plan Test With and Without LTC Journey Times comparison

Route	Description	Direction	LP Test Sc 1 [min:sec]		2040 LP Test Sc 2 [min:sec]		Actual Difference [min:sec]		% Difference	
			AM	PM	AM	PM	AM	PM	AM	PM
1	M20	01_EB	06:35	12:23	06:30	08:58	00:04	03:24	-1%	-28%
	M20	01_WB	07:21	06:16	06:53	06:10	00:28	00:06	-6%	-2%
2	A20 London Road	02_EB	14:55	11:26	14:43	11:45	00:12	00:18	-1%	3%
	A20 London Road	02_WB	11:40	08:38	11:20	09:00	00:20	00:22	-3%	4%
3	A228 Ashton Way / A26 Tonbridge Rd	03_SB	16:02	13:43	15:51	13:51	00:10	00:08	-1%	1%
	A228 Ashton Way / A26 Tonbridge Rd	03_NB	16:29	16:36	16:30	16:39	00:01	00:03	0%	0%
4	A26 Tonbridge Road	04_EB	10:23	11:18	10:22	11:09	00:01	00:08	0%	-1%
	A26 Tonbridge Road	04_WB	11:34	10:06	11:32	10:05	00:02	00:01	0%	0%
5	A26 Hadlow Road / Woodgate Way	05_SB	16:50	09:10	16:58	10:06	00:08	00:55	1%	10%
	A26 Hadlow Road / Woodgate Way	05_NB	11:26	13:50	11:39	15:03	00:12	01:12	2%	9%
6	A26 / B2260	06_SB	13:13	11:40	13:07	11:40	00:06	00:00	-1%	0%
	A26 / B2260	06_NB	13:25	12:52	13:26	12:49	00:01	00:03	0%	0%
7	A21	07_SB	05:24	05:15	05:28	05:15	00:03	00:00	1%	0%
	A21	07_NB	06:28	04:59	06:29	05:00	00:00	00:00	0%	0%
8	B245	08_EB	08:58	08:44	08:55	08:44	00:02	00:00	-1%	0%
	B245	08_WB	09:30	08:42	09:28	08:39	00:01	00:03	0%	-1%
9	A227 Tonbridge Road / Ightham Road	09_NB	07:43	07:50	07:46	07:48	00:03	00:01	1%	0%
	A227 Tonbridge Road / Ightham Road	09_SB	08:07	07:40	08:06	07:40	00:01	00:00	0%	0%
10	A25 Borough Green Rd/A20 London Rd	10_EB	10:06	15:14	10:23	13:40	00:17	01:34	3%	-10%
	A25 Borough Green Rd/A20 London Rd	10_WB	11:07	14:54	10:34	14:07	00:32	00:47	-5%	-5%
11	A228 Castle Way	11_NB	12:10	13:41	11:56	14:43	00:14	01:01	-2%	7%
	A228 Castle Way	11_SB	18:27	09:45	16:40	10:20	01:47	00:35	-10%	6%
12	A229	12_SB	10:52	06:55	07:50	06:54	03:01	00:01	-28%	0%
	A229	12_NB	11:04	08:13	11:38	11:44	00:34	03:30	5%	43%

5 Summary

This Technical Note summarises the assumptions and methodology for developing the 2040/41 Local Plan and Lower Thames Crossing Tests.

With the additional demand from local plan developments, increases in traffic are predicted on the following roads.

- M20
- A228
- A20
- A25
- A227 between Wrotham and Borough Green
- B2016 near Wrotham
- Tower View and Gibson Drive near Kings Hill
- B2260, B245, A227 and Shipbourne Road in Tonbridge Town

In addition, the 2040/41 Local Plan Test shows that most of the junction and link “hot spots” identified in the Forecast Baseline still exist in the Local Plan Test scenario. However, due to the additional growth incorporated into the model, new junctions and links were identified showing LOS E and F or V/C ratio >85%.

- M20 (from A20 to M25)
- A227 (between Borough Green Road and A20)
- A227 Tonbridge Road / Hildenborough Road / Back Lane
- A20 / New Road / Station Road

Regarding journey time, the following routes show more than 10% travel time increases. The routes with actual time differences close to 1 minute are also included for consideration.

- Route 2 along A20 London Road
- Route 3 along A228 Ashton Way and A26 Tonbridge Road
- Route 5 along A26 Hadlow Road and Woodgate Way
- Route 10 along Borough Green Rd/A20 London Road
- Route 11 along A228 Castle Way

The scenario with LTC in place shows traffic increases along the following roads due to its direct connection and proximity to the proposed scheme.

- M2 Westbound
- A228 Northbound
- Local roads between Tonbridge and Malling and Medway

On the other hand, a reduction in traffic is shown along A229 and M2 eastbound due to the significant queueing building up along M2 J3 and Bluebell Hill. However, the reduction along M20 reflects the traffic rerouting to M2 and A228 to connect to LTC. Some reductions in traffic are also predicted along A20 London Road (between A20/Mills Road / Hall Rad and A20/A25).

The journey time comparison with LTC shows a significant increase in travel time on Route 12 along A229 northbound and Route 11 along A228 northbound. On the other hand, improvements along Route 1 M20 are predicted due to traffic rerouting to M2.

In interpreting the results, it should be noted that in strategic modelling, issues on one junction or link could reflect delays or congestion of the corridor nearby. Furthermore, the outputs from the strategic model provide a high-level indication of where the capacity of the road will likely be an issue. Development of the local junction models (to include accurate geometry and visibility information for specific locations) is recommended as the next step.

The initial local plan test included in this analysis was based on broad location and will be used by TMBC as a starting point for their spatial strategy. It is expected that further scenarios will be tested for more site-specific allocations later on.