Tonbridge and Malling Local Plan

Forecast Baseline Report

October 2025

Tonbridge and Malling Borough Council

TMBC

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Limitation Statement

The sole purpose of this technical report is to describe the processes by which initial 2042 demand forecasts have been carried out using the Tonbridge and Malling Local Transport Model. It should be noted that this report has been prepared for use of Tonbridge and Malling Borough Council (TMBC). This report should be read in full with no excerpts out of context deemed to be representative of the report and its findings as a whole. This report has been prepared exclusively for Jacobs and Jacobs' end client (TMBC) and no liability is accepted for any use or reliance on the report by third parties.

Several of the figures within this report have been generated in the PTV VISUM software using OpenStreetMap® open source data, licensed under the Open Data Commons Open Database License (ODbL) by the OpenStreetMap Foundation (OSMF). The data is available under the ODbL. For more information see:

http://www.openstreetmap.org/copyright.

1. Introduction

1.1 Background

Tonbridge and Malling Borough Council (TMBC) is preparing a Local Plan (LP) for the borough to address future growth requirements. The current Tonbridge & Malling Borough Development Plan was adopted between 2007 and 2010 and provided the housing, employment and retail development needed for 2007-2021. According to the standard methodology, the annual housing requirement will increase from the current Development Plan figure to up to approximately 1097 homes/year from 2024 to 2042.

TMBC needs to consider, and consult on, reasonable, alternative options for meeting housing and other development needs. As part of this process, TMBC commissioned Jacobs to undertake transport modelling to gather evidence on the transport implications of the emerging draft LP options.

The overall project objectives are to:

1. Assess the quality and capacity of transport infrastructure across the borough and its ability to meet forecast demands – this can be developed through the traffic modelling proposed here.
2. Assess the cumulative impacts of the LP development options on the borough's transport network – this can be developed through the traffic modelling proposed here.
3. Identify proposals and potential measures to mitigate the impacts of development to inform the infrastructure requirements associated with the LP. This should include, but is not limited to:
    a. Identification of potential measures to enable and achieve higher levels of sustainable transport mode share across the borough.
    b. Identification of the potential barriers to the utilisation of sustainable transport modes across the borough.
    c. Identification of potential intervention measures on the transport network

The Tonbridge and Malling Local Transport Model has been checked and enhanced using available data to prepare it for developing forecast scenarios and undertaking spatial assessments. More information can be found in the local base model report[1].

1.2 Purpose of this Document

This Forecast Baseline Report describes the principles, assumptions and methodology employed to develop the future year baseline situation using the Tonbridge and Malling Local Transport Model. The forecast baseline has been developed for the forecast year of 2042, after the completion of the 2019 local base model. This includes a full identification of committed and completed developments and transport schemes.

It should be noted that this report includes outputs from the 2019 base and 2042 forecast baseline models. A separate report has been prepared for the Local Plan Tests.

[1] Stage 2 Tonbridge and Malling and Sevenoaks - Local Model Validation Report v2.docx

1.3 Document Structure

Following this introduction, the structure of this report is as follows:

- **Chapter 2** – provides an overview of the proposed uses of the model and the key model design considerations;
- **Chapter 3** – provides an overview of the 2019 Local Transport Model
- **Chapter 4** - provides an overview of the network and demand forecasting approach;
- **Chapter 5** – presents the forecast results for the future year scenario;
- **Chapter 6** – provides a summary and recommendations

2. Overview of the Model and Key Model Design Considerations

2.1 Study Area

The Kent Transport Model (KTM) has been updated for the development of the Tonbridge and Malling Local Transport Model. As in standard practice, should a model be required for a specific study within the detailed model area (such as a Local Plan review), then an additional review and updates will be needed to refine the validation in the local area. This enables additional focus on model quality in the specific area of interest.

Therefore, the Tonbridge and Malling Local Transport Model network has been developed based on the KTM using PTV VISUM 2020 software (the same software that was used to develop KTM) with necessary updates to check that the local network replicates base conditions. Whilst the data underpinning the demand for the KTM reflects 2019, we have subsequently collected substantial traffic data in 2022 to inform local enhancements within Tonbridge and Malling Borough and Sevenoaks District, supporting the transport evidence bases for their respective local plans. More information can be found in the local model validation report.

The highway assignment model represents a 'neutral' weekday in the following modelled time periods:

- AM peak hour (08:00 – 09:00); and
- PM peak hour (17:00 – 18:00)

These modelled hours were derived from the analysis of traffic counts throughout the study area to ascertain which hours contained the highest overall volume of traffic and the hours where the traffic volume was observed to be the highest at the majority of survey locations.

The 2019 base model was developed for both Tonbridge and Malling Borough and Sevenoaks District. Due to geographical proximity and the similarity of the scope of work, an agreement has been made for joint working. For the 2042 Forecast Baseline, although separate models were prepared for Tonbridge and Malling Borough and Sevenoaks District, the expected growth for both local authorities and other districts in Kent is still captured to ensure the cumulative impact is considered.

Figure 2-1 shows the detailed model area where it includes Tonbridge and Malling Borough, Sevenoaks District and the key junctions outside their boundaries. The detailed model area is where the VISUM Intersection Capacity Assessment (ICA) has been implemented to capture delays generated at urban junctions. Figure 2-2 shows the locations of the junctions with ICA implemented. For areas outside the detailed model area, junctions were not modelled in detail, but delays were captured through network links. Adjustments to the KTM network, zoning and zone connectors were also applied to simplify the external network that did not impact the study area directly (e.g., in Thanet, Dover, rest of London, Surrey, East Sussex etc).

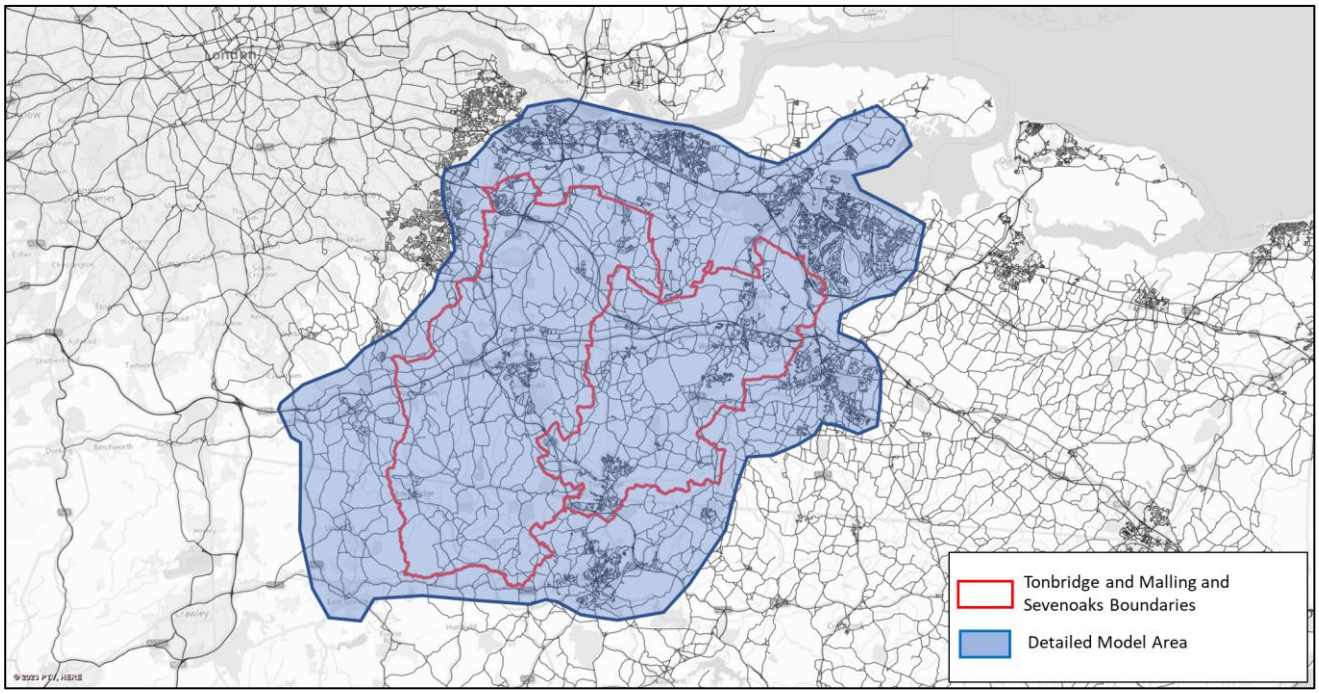

Figure 2-1: Tonbridge and Malling and Sevenoaks Local Model Study Area

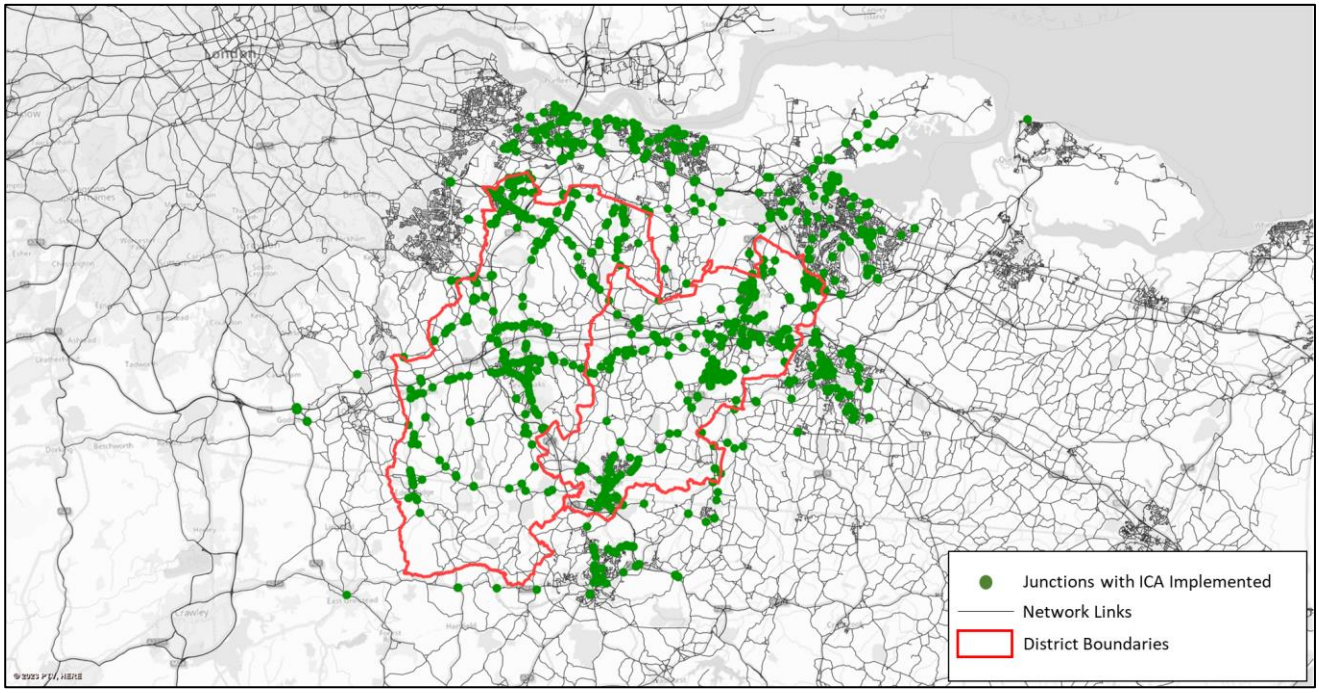

Figure 2-2: Junctions with Intersection Capacity Analysis (ICA) Method Implemented

2.2 Key Model Design Considerations

2.2.1 Software

PTV's VISUM 2020 has been used as the software platform for the highway component of the model. This was also the same software used to develop the KTM. Recognised benefits of using PTV VISUM for this application are:

- The speed with which detailed highway networks can be coded in VISUM;
- The data-handling and visualisation capabilities of VISUM;
- Easy extraction of results to spreadsheet and database formats for analysis and checking;
- The possibility of semi-automatic extraction to interoperable corridor micro-simulation models in the related PTV VISSIM software platform; and
- The possible development of a "real-time" predictive modelling tool based on the VISUM network using the related PTV Optima Software.

2.2.2 Highway Assignment Modelled Responses

The Tonbridge and Malling Local Model is designed to take account of future borough and local growth in population and employment and to be capable of predicting likely travel behaviour in terms of trip distribution with one or both trip-ends within Tonbridge and Malling over a temporal scale of a single peak hour. It is intended to allow for the strategic re-routing of the proposed schemes within the study area. No variable demand or public transport models is associated with the Tonbridge and Malling Local Model development, and therefore highway demand remains fixed.

3. 2019 Local Base Transport Model

3.1 Overview

This section summarises the outputs gathered from the 2019 Tonbridge and Malling Local Transport Model for the AM and PM peak periods. The objective of this is to identify existing key junction and link issues. Junction Level of Service (LOS) and link Volume / Capacity (V/C) ratio were extracted from the transport model. Delay maps were also extracted from the model to identify existing delays in the study area.

In interpreting the results, it should be noted that in strategic modelling, issues on one junction could reflect delays or congestion of the corridor nearby. Furthermore, the outputs from the strategic model provides 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 typically recommended as the next step. This step has been undertaken to help inform the LP at an early stage. More information can be found in the local junction modelling report[2].

3.2 Model Outputs Criteria

Junction Level of Service (LOS) and link Volume / Capacity (V/C) ratio indicators were used as criteria to identify the link and junction "hot spots" in the study area.

Level of service plots provide a qualitative measure of how good the present traffic situation is on a given junction. As actual flow will vary for different days and different times in a day, LOS relates the traffic service quality to a given flow rate of traffic. VISUM defines the LOS based on the mean delay experienced by each vehicle. Table 3-1 defines the LOS by six levels ranging from level A to level F.

A	Level A represents the best quality of traffic where the driver has the freedom to drive with free flow speed.
B	Level B represents good traffic quality where driver can reasonably maintain free flow speed and maneuverability within the traffic stream is slightly restricted.
C	Level C represents stable traffic flows, at or near free flow. Ability to maneuver through lanes is noticeably restricted and requires awareness.
D	Level D represents almost unstable traffic flows. Speeds slightly decrease as traffic volume slightly increase. On this level driver comfort decreases.
E	Level E represents unstable traffic flows, operating at capacity. Driver's level of comfort becomes poor.
F	Level F represents the worst traffic quality with forced or breakdown traffic flows. Travel time cannot be predicted, with generally more demand than capacity.

Table 3-1: Level of Service Description

[2] Tonbridge and Malling Local Plan Junction Modelling Report.docx

On the other hand, volume / capacity is the ratio of assigned traffic volume to the modelled link capacity and the ranges used are set out below.

V/C Ratio	Description
<= 75%	Stable flow with acceptable delay
<= 85%	Approaching unstable flow but with tolerable delay
<= 100%	Unstable flow
> 100%	Over-capacity

Table 3-2: Level of Service Description

3.3 2019 Junction and Link "Hot-Spots"

Figure 3-1 to Figure 3-4 show the junction LOS and link V/C ratio for 2019 AM and PM peak periods. Detailed plots are presented in Appendix A while Appendix C, shows the detailed LOS and V/C ratio information in some key signalised junctions for reference.

In the AM, the majority of the junctions and links in Tonbridge and Malling Borough display little to moderate levels of delay (LOS B to D and V/C < 85%). However, some of the key junctions and links in the borough listed below exhibit severe levels of delay (LOS E and F and V/C > 85%)

Northwest

- A20 London Road (between Pilgrims Way and M26)
- A227 / A20 / Bull Lane Roundabout
- A20 London Road / A25

Northeast

- A228 (Snodland)
- A228 / Holborough Road Junction
- Malling Road
- A229 (Bluebell Hill)
- Rochester Road / Old Chatham Road / Chatham Road
- Forstal Road / Station Road
- M20 (between M26 and M20 J5) - this is due to the roadworks along M20 (between M26 and M20 J6), converting this section of the road to a smart motorway. This impacted the highway capacity and average speeds, which were reduced then. Therefore, the base model incorporates the temporary impacts of these roadworks. This was updated in the future model, reflecting the completion of work.
- M20 J4, M20 J6
- A20/ New Road / Station Road
- New Hythe Lane
- Hermitage lane

- A20/ Hall Road / Mills Road
- Leybourne Way / Lunsford Lane
- A20 / Castle Way / Oxley Shaw Lane / Ashton Way
- A20 / Lunsford Lane / Winterfield Lane
- A20 / New Road

East

- A228 Malling Road (between Gibson Drive and A228 Seven Mile Lane)
- Tonbridge Road / Bow Road / Red Hill

South

- Hadlow Road / Cannon Lane
- B2260 High Street
- Pembury Road
- Vauxhall Roundabout (A2014/A21 Arm)

Similar patterns are found in the PM peak, with A20 London Road / Castle Way / Ashton Way / Oxley Shaw Lane exhibiting LOS E and M2 J3 exhibiting LOS F.

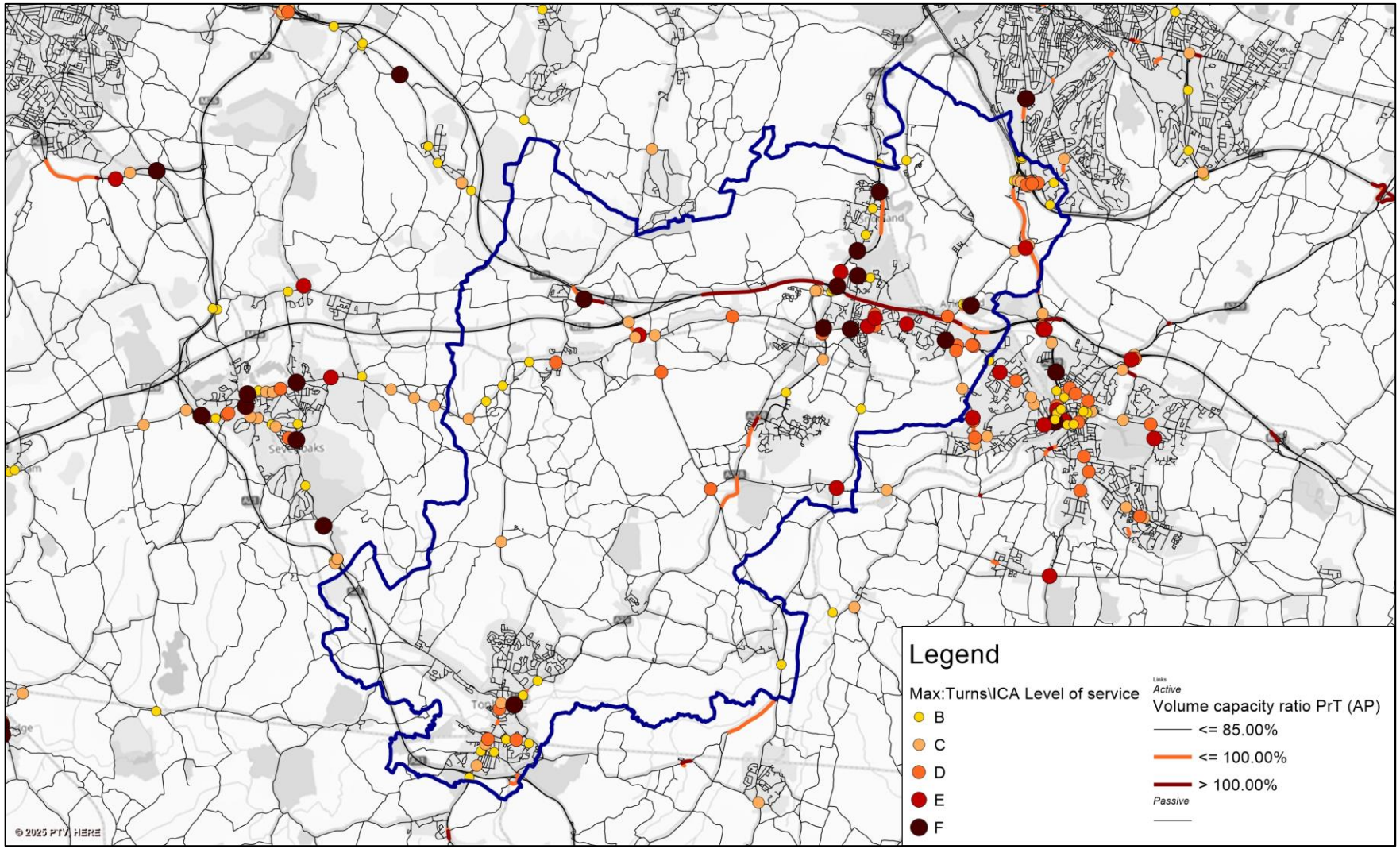

Figure 3-1: 2019 AM Peak Junction and Link "Hot Spots"

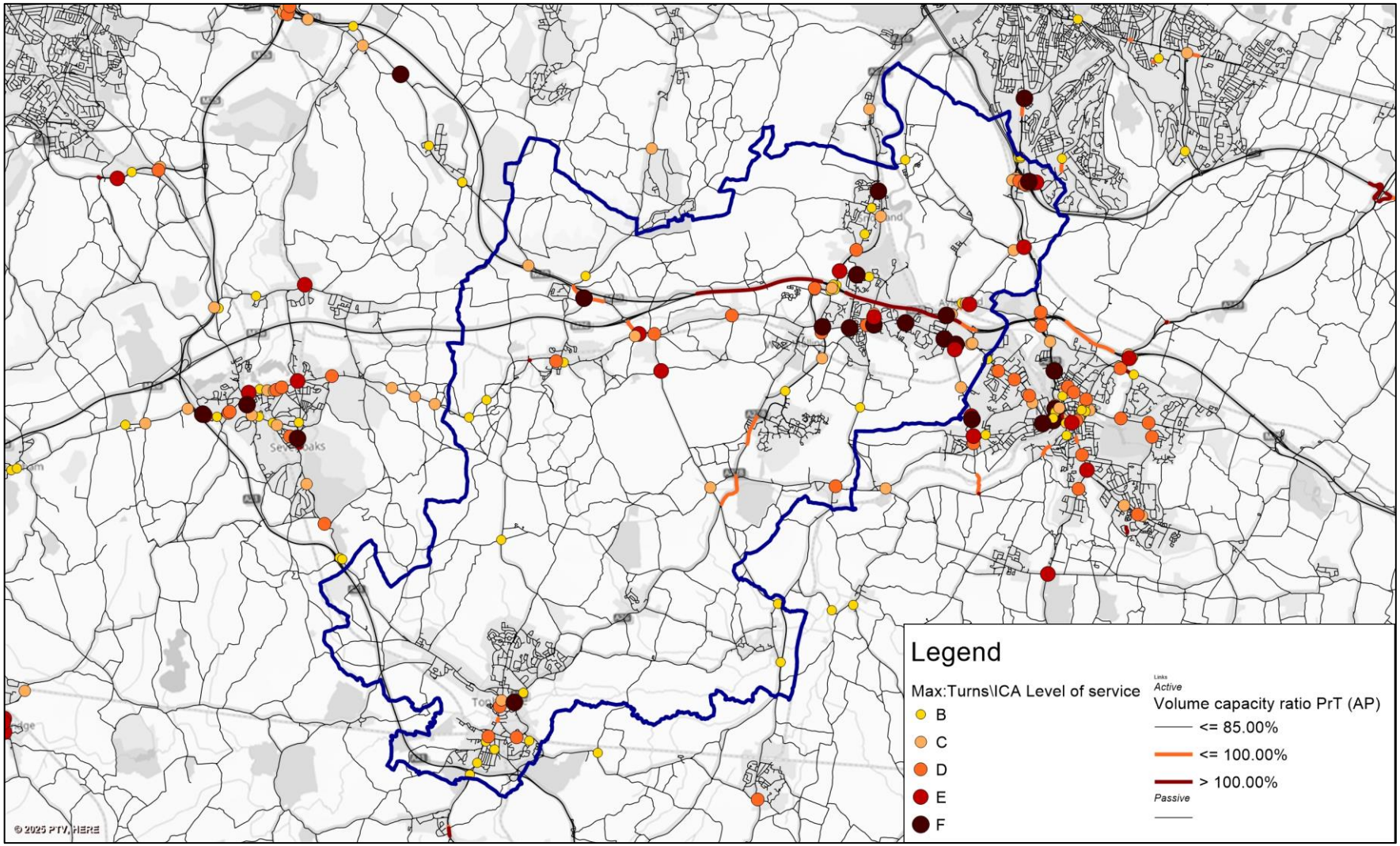

Figure 3-2: 2019 PM Peak Junction and Link "Hot Spots"

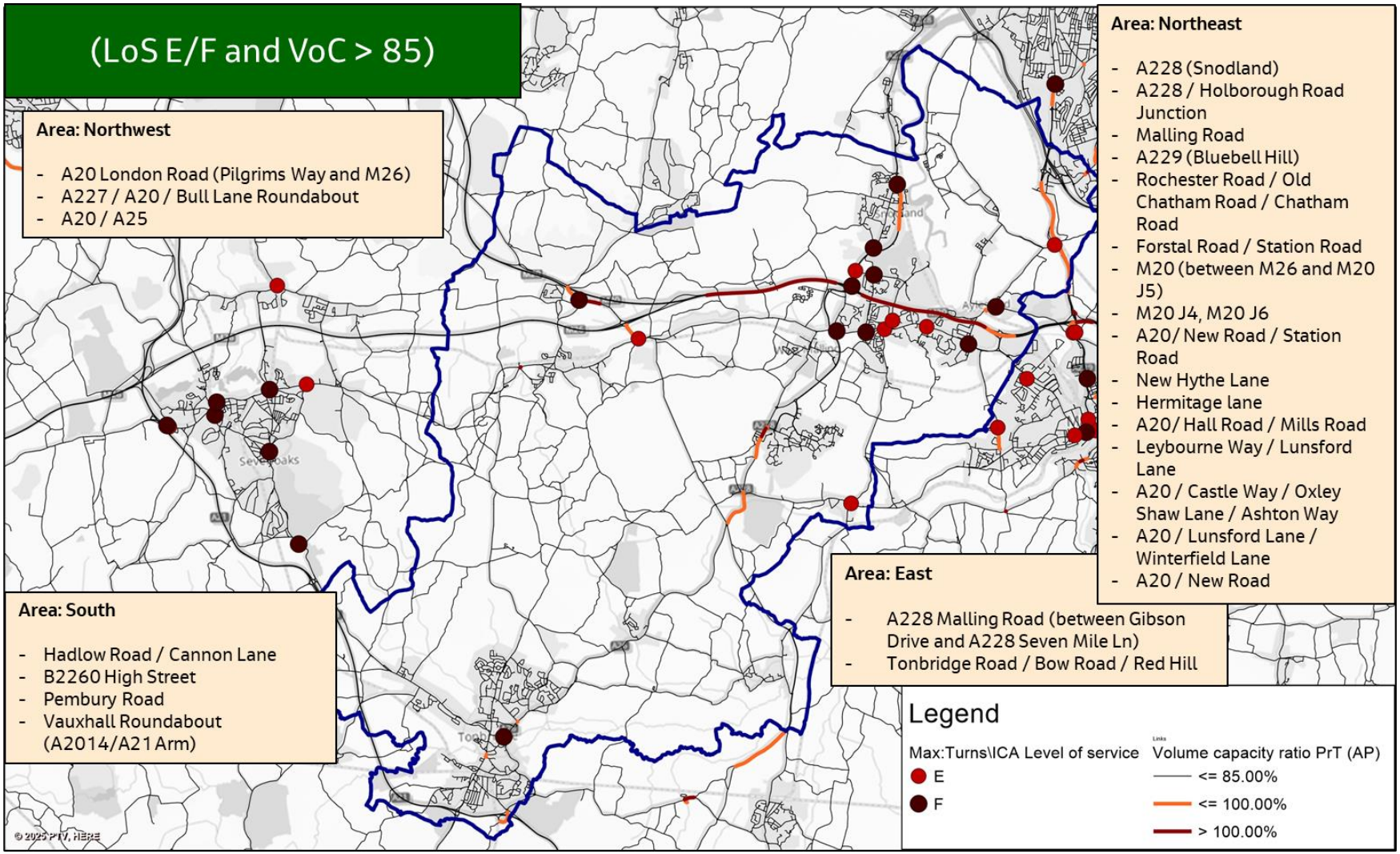

Figure 3-3: 2019 AM Peak Junction and Link "Hot Spots"

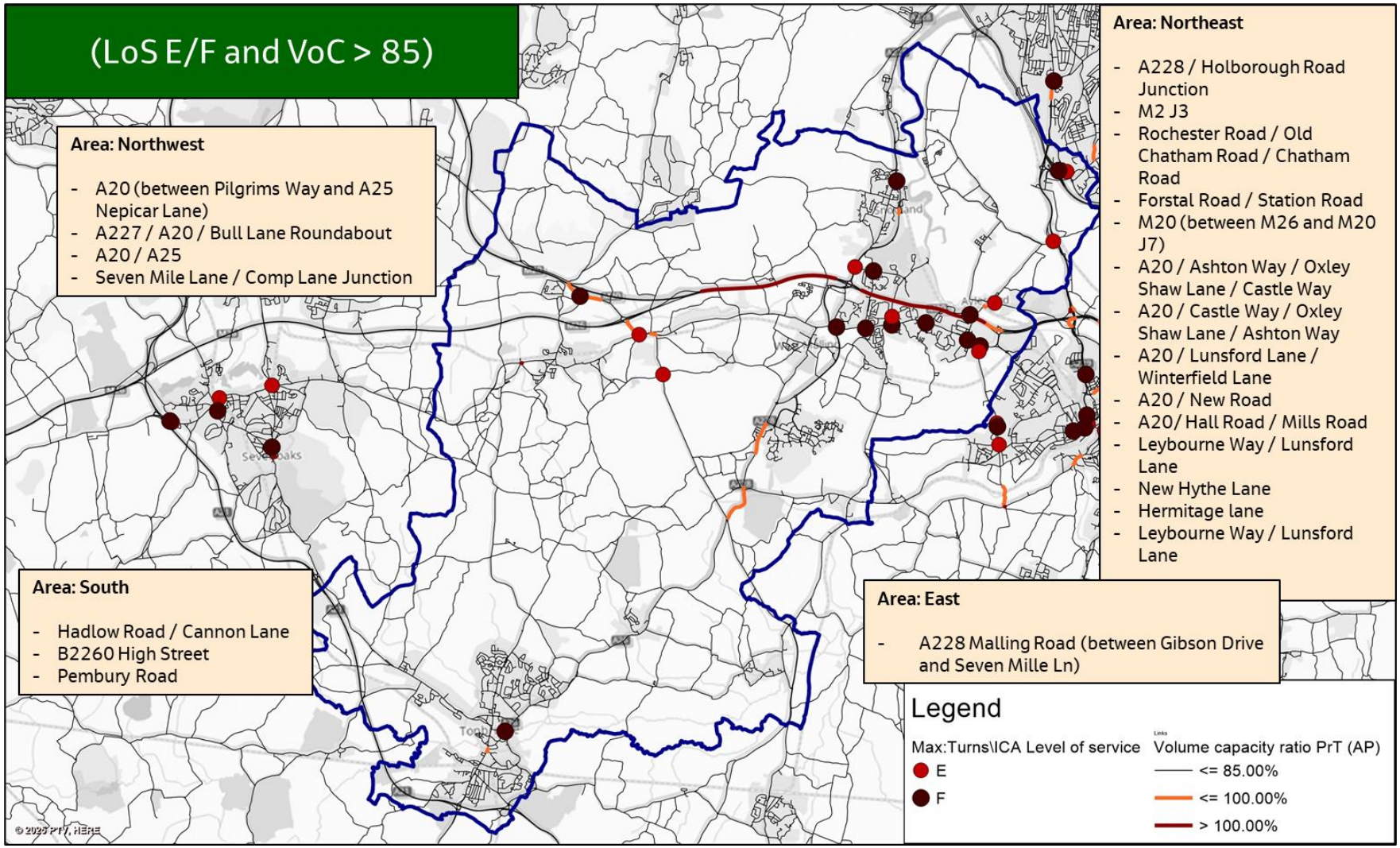

Figure 3-4: 2019 PM Peak Junction and Link "Hot Spots"

4. Approach to Forecasting

4.1 Overview

In accordance with TAG Unit M3.1 guidance, the forecasting approach for the Tonbridge and Malling Local Model involves three basic elements:

- Development of a future year network;
- Derivation of future year demand; and
- Demand assignment.

4.2 Forecast Scenario

A 'Forecast Baseline' has been developed using local growth assumptions in Tonbridge and Malling. This includes completions and consented developments, and infrastructure planned for the 2019 to 2042 growth period within Tonbridge and Malling, combined with the growth assumptions in neighbouring authorities and external areas. More details on the highway growth assumptions are discussed in Section 4.4 of this report.

4.3 Forecast Network Development

A 2042 future year network has been prepared for the purposes of Tonbridge and Malling Local Model forecasts. The network for the forecast year was based on the calibrated and validated base year network and includes additional schemes that may be in place by the forecast year.

A list of potential infrastructure projects based on this guidance were collated and confirmed, in consultation with TMBC and KCC for inclusion in the transport networks.

4.3.1 Highway Schemes

Following discussion with TMBC and KCC, Table 4-1 summarises the infrastructure schemes included in the Forecast Baseline while Figure 4-1 shows the location of the highway schemes implemented in Tonbridge and Malling Borough.

Moreover, Figure 4-2 illustrates the location of the Lower Thames Crossing (LTC). In March 2025, the Secretary of State for Transport granted development consent for the LTC application. A collaborative decision has been made between National Highways (NH), KCC, and TMBC to include LTC in the transport model, as it is now classified as a committed highway scheme. However, should there be any changes to the status of the LTC, a sensitivity analysis can be carried out to accommodate those changes.

Scheme Name	Scheme Description
1 - Link Road Hermitage Lane	Link Road between B246 Hermitage Lane and A20 London Road.
2 - A20 New Road junction improvement	Improvement to A20 London Road / New Road / Hotel Access junction in connection with a development site on land to east of Clare Park Estate, New Road, East Malling
3 - Bellingham Way and Station Rd	Link road between Bellingham Way and Station Road, Aylesford
4 - Beaver Rd, London Road junction improvement	Junction improvement scheme for the Beaver Road arm of A20 / Bunyard Way / A20 / Beaver Road signalized junction, related to the proposed development of 106 dwellings at Land South of London Road and West of Castor Park, Allington

Scheme Name	Scheme Description
5 – Bushey Wood Development	Junction changes in connection with development site. New access arrangement on New Court Road and Bull Lane, junction improvement on New Court Road/Rochester Road and closure of the northern section of Bull Lane
6 – Lorry Park	Access arrangement for a roundabout on the A20 (near Wrotham Heath Interchange Roundabout/M26) for access to development "Land West of the A20 & North of the M26"
7 – Coldharbour Roundabout Scheme	Junction improvement scheme in roundabout connecting the A20 and a link road to the M20 junction 5. Considerable growth planned in the area.
8 – Lower Thames Crossing (LTC)	LTC will be a new road connecting Kent, Thurrock and Essex. The proposed road will be connected to A2/M2 to the M25.

Table 4-1: Forecast Baseline Scheme Description

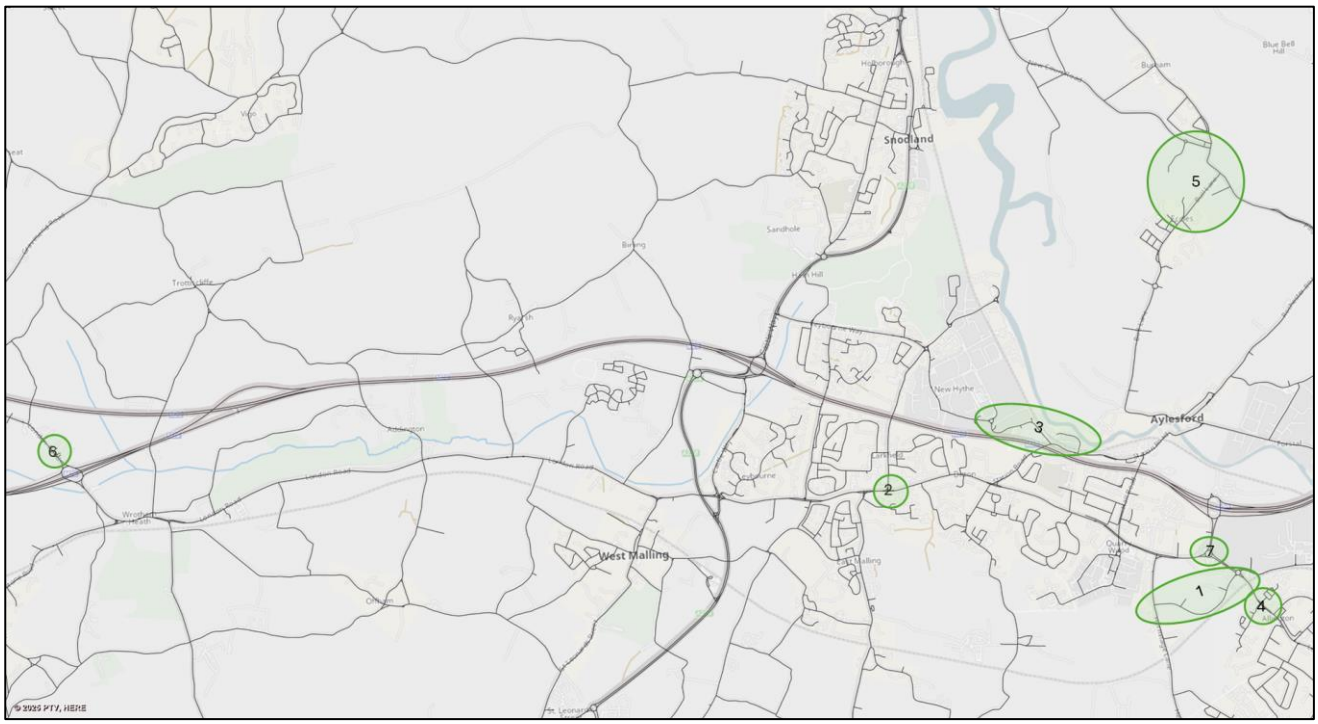

Figure 4-1: Committed and Completed Infrastructure Schemes in Tonbridge and Malling Borough

Figure 4-2: Lower Thames Crossing

4.3.2 Highway Forecast Year Values of Time and Vehicle Operating Costs

The values of the pence per minute (ppm) as Value of Time (VoT) and pence per kilometre (ppk) as Vehicle Operating Costs (VOC) parameters used for the Tonbridge and Malling Local Transport Model highway assignment are based on the latest TAG Unit A1.3 guidance and Data Book available at the time of model development (November 2022 v1.20.1). Network average speed and OGV1/OGV2 proportions were inherited from the base model. The HGV Value of Time (VoT) values are doubled, consistent with the base model.

The final calculated values for highway VoT and VOC for the 2042 forecast year of the Local Tonbridge and Malling Local Transport Model are provided in Table 4-2.

The final input for implementation in VISUM is also shown in the table; the formats required being a coefficient for pence per metre (ppmetre) for VOC as a weighted ratio of the VoT pence per second (pps).

Time Period	User Class	2042 Base Year TAG Databook Value		2042 Base Year VISUM Units		2042 Base Year Final VISUM Coefficients	
		VoT (ppm)	VOC (ppk)	VoT (pps)	VOC (ppmetre)	VOT	VoT (ppm)
AM	UC1 Car Commute	28.3397	4.2695	0.4723	0.0043	1	0.0043
	UC2 Car Business	42.2587	9.0377	0.7043	0.0090	1	0.0090
	UC3 Car Other	19.5522	4.2695	0.3259	0.0043	1	0.0043
	LGV	30.6254	10.7866	0.5104	0.0108	1	0.0108
	HGV (doubled VoT)	61.0000	38.8785	1.0167	0.0389	1	0.0389
PM	UC1 Car Commute	28.4375	4.2912	0.4740	0.0044	1	0.0044
	UC2 Car Business	42.8685	9.1152	0.7145	0.0093	1	0.0093
	UC3 Car Other	20.4752	4.2912	0.3413	0.0044	1	0.0044
	LGV	30.6254	10.8302	0.5104	0.0111	1	0.0111
	HGV (doubled VoT)	61.0000	39.2332	1.0167	0.0393	1	0.0393

Table 4-2: 2042 Highway Generalised Cost Parameters

4.4 Forecast Demand Development

This section describes how future year fixed demand matrices have been developed. A forecast year of 2042 has been modelled with TEMPro and local growth assumptions.

4.4.1 Overview

Table 4-3 summarises the approach undertaken in developing the future demand for Tonbridge and Malling Local Transport Model forecast baseline. The assumptions used were split into three categories to cover the study area, neighbouring authorities and other/external areas. Each component mentioned below (i.e. uncertainty log, TEMPro, trip rates, etc) was also discussed in the succeeding sections in detail.

Area	Assumptions	Purpose
Tonbridge and Malling	Committed and completed developments and infrastructure schemes were assumed in the forecast baseline and no TEMPro uplift was included. In accordance with TAG Unit M4, developments with "Near Certain" and "More Than Likely" status within Tonbridge and Malling were included.	Assumed a hypothetical situation of no further growth in the Borough, to establish the baseline for the Local Plan.
Neighbouring Authorities (Sevenoaks, Maidstone, Tunbridge Wells, Gravesham, Medway, Dartford, Surrey and Southeast London)	TEMPro v8 (with adjustment of the default Housing and Job assumptions to match updated housing need/LP targets where known). In the neighbouring authorities, "Near Certain" developments and potential larger LP sites (which could fall under "More than Likely" or "Reasonably Foreseeable") were included together with background growth from TEMPro v8 using the alternative assumptions tool (subtracted from TEMPro v8 to avoid double-counting).	Takes in to account the likely level of expected growth in the key neighbouring areas.
Other Areas	TEMPro v8 growth was applied.	Takes in to account broader general 'background growth' in area further away from the study area.

Table 4-3: Tonbridge and Malling – 2042 Highway Growth Assumptions

4.4.2 Identification of Planning Data (Uncertainty Log Development)

The primary purpose for developing the Uncertainly Log is to provide spatial distribution of planned developments and transport schemes by using Local Authority planning data for housing and employment.

To develop the forecast baseline, Uncertainty Log information has been provided by TMBC and includes information on completions/demolitions since the base year and a list of future committed developments and infrastructure schemes within Tonbridge and Malling and key neighbouring areas.

The Uncertainty Log information includes:

- Latest available information at the time of model development on completions/demolitions since 2019, including location and size;
- Committed development locations, land use and size (number of dwellings or floorspace);
- Access arrangements and any changes to the existing network related to developments; and
- Committed infrastructure schemes or network changes (i.e. major junction upgrade, new link road or local speed reductions).

The Uncertainty Log was prepared in accordance with TAG Unit M4 which provides classifications of probability of a development shown in Table 4-4. The table includes the development status and the assumption to include in core or alternative scenarios.

Probability of the Input	Status	Core Scenario Assumption
Near certain: The outcome will happen or there is a high probability that it will happen.	Intent announced by proponent to regulatory agencies. Approved development proposals. Projects under construction.	This should form part of the core scenario.
More than likely: The outcome is likely to happen but there is some uncertainty	Submission of planning or consent application imminent. Development application within the consent process.	This should form part of the core scenario.
Reasonably foreseeable: The outcome may happen, but there is significant uncertainty.	Identified within a development plan. Not directly associated with the transport strategy/ scheme but may occur if the strategy/scheme is implemented. Development conditional upon the transport strategy/scheme proceeding. Or, a committed policy goal, subject to tests (e.g. of deliverability) whose outcomes are subject to significant uncertainty.	These should be excluded from the core scenario but may form part of the alternative scenarios.
Hypothetical: There is considerable uncertainty whether the outcome will ever happen.	Conjecture based upon currently available information. Discussed on a conceptual basis. One of a number of possible inputs in an initial consultation process. Or a policy aspiration.	These should be excluded from the core scenario but may form part of the alternative scenarios.

Table 4-4: Classification of Future Development Inputs from TAG Unit M4, Table A2

In accordance with TAG Unit M4, developments with "Near Certain" and "More Than Likely" within Tonbridge and Malling were included in the forecast baseline, which formed the car growth in the borough.

In the neighbouring authorities, "Near Certain" developments and potential larger LP sites (which could fall under "More than Likely" or "Reasonably Foreseeable") were included together with background growth from TEMPro v8 using the alternative assumptions tool to deduct the housing and jobs associated with committed and larger LP sites developments.

Growth outside of Tonbridge and Malling and neighbouring authorities come solely from TEMPro and Road Traffic Forecast (RTF) 22. More details can be found in Sections 4.4.4 and 4.4.5.

4.4.3 Forecast Baseline Developments

As described in the previous section, the Uncertainty Log has been provided by TMBC and analysed to understand the committed developments to be completed before 2042. The final increase of dwellings and employment space between 2019 and 2042 for Tonbridge and Malling is shown in Table 4-5. The location of these

developments is shown in Figure 4-2, and the complete list is presented in Appendix D. This represents the latest available information at the time of model development (May 2025). It should be noted that changes in the use (i.e. demolition of office building to residential building) or demolitions were taken into consideration to avoid double counting.

	Dwellings Units	Floorspace (sqm)
Committed Developments	11,542	33,604

Table 4-5: Tonbridge and Malling Uncertainty Log 2019-2042

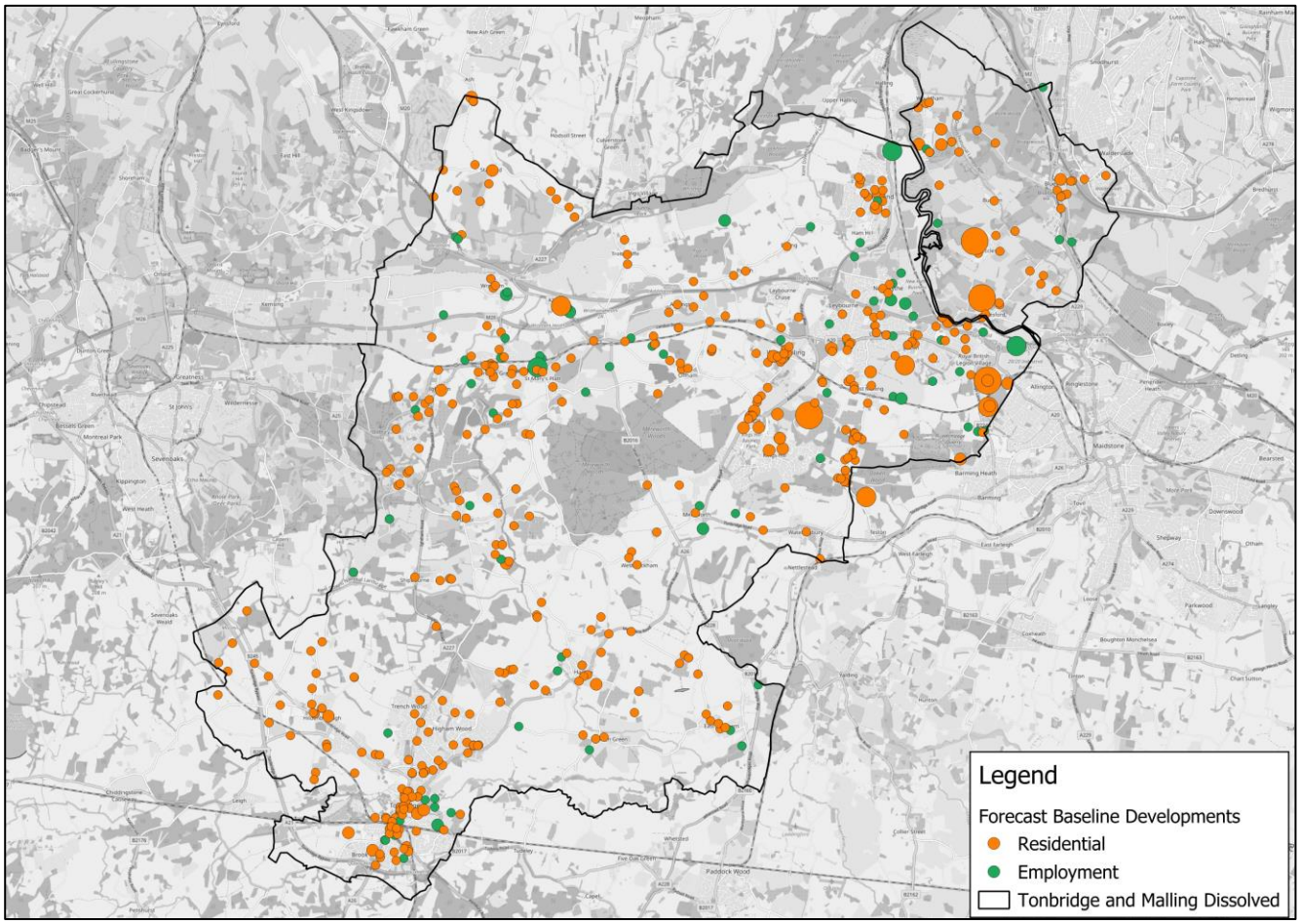

Figure 4-3: Location of Committed Developments in Tonbridge and Malling Borough

4.4.4 TEMPro and Background Growth Calculation

Trip End Model Presentation Program (TEMPro) is a software that summarises the growth forecast from the National Trip End Model (NTEM). This data takes into account national projections of population, employment, housing, car ownership and trip rates. TEMPro v8 datasets were used to calculate the background growth for 2042 forecast year. The number of households or jobs associated with specific developments in the neighbouring authorities was subtracted from NTEM using the 'alternative planning assumptions' within TEMPro to produce factors for the NTEM-based background growth in trip ends. These factors were used to calculate the reduced background growth to avoid double-counting. For the rest of the areas outside the neighbouring authorities, unadjusted TEMPro growth were applied.

4.4.5 Trip Generation

As discussed with KCC and TMBC, trip rates information from TRICS (Trip Rate Information Computer System) were used to calculate the baseline trips, taking into account both proposed and demolished developments as advised by TMBC. This included surveys from 2015 (the current default date set in the software in order to cut off old data from the calculation) up to 2022. Manual edits were made to exclude sites surveyed during the pandemic period and on weekends (Saturday and Sunday).

Where possible, the preferred approach was to exclude sites located outside England or within London, however, the opportunity to apply this was constrained to just a handful of site selections, due to the limited number of surveys available in TRICS for the required land uses. This was also the case when looking to adjust the town centre site selections to reflect the impact of proposed sites with no or low parking provision. With a low number of surveys available when selecting the town centre parameter, this was only able to be applied in one instance (for B1 office land use). In general, where available surveys were limited, it was considered more representative to apply greater number of surveys than to narrow the search selection down to a single survey, and so where possible a minimum of 3 surveys per selection was retained.

For flats and houses, the information from TMBC did not specify what proportion were to be private and what proportion were to be affordable, and so a generalised 40% affordable and 60% private split was applied.

Specific trip rates were also used for the developments based on their location (i.e., Town Centre, Edge of Town Centre, Suburban Area, and Neighbourhood area). While there were houses shown to be located in the town centre locations, this parameter selection was unavailable in the TRICS database. It was agreed to apply the assumption that there would be flats only in the town centre, and both flats and houses outside the town centre due to the TRICS survey limitations.

For several land uses, there were no surveys available either for the required location or in general, and so alternative trip rates were used. Although not preferable, these substitutions were considered to represent the next best available trip rate for the land uses when no other options were available.

Table 4-5 summarises the updated trip rates used in the forecast demand modelling. Trip rates shown are for hourly AM and PM peak periods.

Land Use	Land Use	Units	Location	Sub-category		Trip Rates					
						AM Peak			PM Peak		
						Arrival	Departure	Total	Arrival	Departure	Total
Residential	C3	per dwelling	Town Centre	Flats	*Private*	0.023	0.056	0.079	0.048	0.020	0.068
Residential	C3	per dwelling	Town Centre	Flats	*Affordable*	0.023	0.056	0.079	0.048	0.020	0.068
Residential	C3	per dwelling	Edge of Town Centre	Flats	*Private*	0.043	0.189	0.232	0.170	0.082	0.252
Residential	C3	per dwelling	Edge of Town Centre	Flats	*Affordable*	0.074	0.105	0.179	0.087	0.087	0.174
Residential	C3	per dwelling	Suburban Area	Flats	*Private*	0.051	0.190	0.241	0.148	0.079	0.227
Residential	C3	per dwelling	Suburban Area	Flats	*Affordable*	0.091	0.155	0.246	0.127	0.182	0.309
Residential	C3	per dwelling	Neighbourhood Centre	Flats	*Private*	0.000	0.111	0.111	0.222	0.000	0.222
Residential	C3	per dwelling	Neighbourhood Centre	Flats	*Affordable*	0.000	0.111	0.111	0.222	0.000	0.222
Residential	C3	per dwelling	Town Centre	Houses	*Private*	unavailable in TRICs					
Residential	C3	per dwelling	Town Centre	Houses	*Affordable*	unavailable in TRICs					
Residential	C3	per dwelling	Edge of Town Centre	Houses	*Private*	0.138	0.291	0.429	0.283	0.170	0.453
Residential	C3	per dwelling	Edge of Town Centre	Houses	*Affordable*	0.078	0.094	0.172	0.133	0.102	0.235
Residential	C3	per dwelling	Suburban Area	Houses	*Private*	0.117	0.394	0.511	0.371	0.187	0.558
Residential	C3	per dwelling	Suburban Area	Houses	*Affordable*	0.186	0.276	0.462	0.436	0.340	0.776
Residential	C3	per dwelling	Neighbourhood Centre	Houses	*Private*	0.139	0.296	0.435	0.271	0.141	0.412
Residential	C3	per dwelling	Neighbourhood Centre	Houses	*Affordable*	0.077	0.219	0.296	0.190	0.116	0.306
Residential	C3	per dwelling	Suburban Area	Mixed accommodation	*Private*	0.014	0.16	0.174	0.123	0.042	0.165
Residential	C3	per dwelling	Neighbourhood Centre	Mixed accommodation	*Private*	0.112	0.335	0.447	0.311	0.158	0.469
Residential	C3	per dwelling	Suburban Area	Retirement Flats		0.057	0.062	0.119	0.041	0.047	0.088
Residential	C3	per dwelling	Neighbourhood Centre	Assisted Living		0.084	0.034	0.118	0.034	0.084	0.118
Residential	C3	per dwelling	Suburban Area	Assisted Living		0.085	0.040	0.125	0.068	0.091	0.159
Retail	Ea	per 100sqm	Town Centre	Convenience store		0.500	0.500	1.000	0.000	0.000	0.000

Land Use	Land Use	Units	Location	Sub-category		Trip Rates					
						AM Peak			PM Peak		
						Arrival	Departure	Total	Arrival	Departure	Total
Retail	Ea	per 100sqm	Suburban Area	Convenience store		9.493	9.817	19.310	8.091	8.091	16.182
Retail	Ea	per 100sqm	Neighbourhood Centre	Convenience store		6.406	6.156	12.562	8.108	8.709	16.817
Retail		per 100sqm	Suburban Area	Food superstore		1.517	1.295	2.812	2.001	2.217	4.218
Retail		per 100sqm	Town Centre	local shop-shopping centre		unavailable in TRICs					
Retail		per 100sqm	Suburban Area	motorist DIY		unavailable in TRICs					
Employment	B1a	per 100sqm	Town Centre	Office		0.637	0.122	0.759	0.061	0.345	0.406
Employment	B1a	per 100sqm	Edge of Town Centre	Office		0.921	0.142	1.063	0.101	0.713	0.814
Employment	B1a	per 100sqm	Suburban Area	Office		1.267	0.124	1.391	0.178	0.746	0.924
Employment	B1a	per 100sqm	Neighbourhood Centre	Office		1.085	0.075	1.160	0.050	1.062	1.112
Employment	B2	per 100sqm	Town Centre	Industrial		0.180	0.024	0.204	0.004	0.085	0.089
Employment	B2	per 100sqm	Edge of Town Centre	Industrial		0.180	0.024	0.204	0.004	0.085	0.089
Employment	B2	per 100sqm	Suburban Area	Industrial		0.180	0.024	0.204	0.004	0.085	0.089
Employment	B2	per 100sqm	Neighbourhood Centre	Industrial		0.103	0.031	0.134	0.036	0.106	0.142
Employment	B8	per 100sqm	Town Centre	Warehouse-Storage		0.060	0.042	0.102	0.030	0.072	0.102
Employment	B8	per 100sqm	Edge of Town Centre	Warehouse-Storage		0.060	0.042	0.102	0.030	0.072	0.102
Employment	B8	per 100sqm	Suburban Area	Warehouse-Storage		0.060	0.042	0.102	0.030	0.072	0.102
Employment	B8	per 100sqm	Neighbourhood Centre	Warehouse-Storage		0.232	0.040	0.272	0.020	0.192	0.212
Employment	B8	per 100sqm	Suburban Area	Commercial Warehouse		0.027	0.018	0.045	0.035	0.021	0.056
Hotel-food-drink	A3	per 100sqm	Town Centre	Cafes		0.636	0.000	0.636	0.000	0.500	0.500
Hotel-food-drink	A3	per 100sqm	Suburban Area	Cafes		1.149	0.000	1.149	0.000	0.000	0.000
Hotel-food-drink	A3	per 100sqm	Edge of Town Centre	Restaurants		0.000	0.000	0.000	0.968	0.261	1.229

Land Use	Land Use	Units	Location	Sub-category		Trip Rates					
						AM Peak			PM Peak		
						Arrival	Departure	Total	Arrival	Departure	Total
Hotel-food-drink	A3	per 100sqm	Suburban Area	Restaurants		0.000	0.000	0.000	1.340	0.515	1.855
Hotel-food-drink	A3	per 100sqm	Neighbourhood Centre	Restaurants		0.000	0.000	0.000	0.894	0.335	1.229
Hotel-food-drink	A3	per 100sqm	Town Centre	Pub/Restaurants		0.000	0.000	0.000	0.824	1.059	1.883
Hotel-food-drink	A3	per 100sqm	Suburban Area	Pub/Restaurants		0.305	0.000	0.305	2.035	1.319	3.354
Hotel-food-drink	A3	per 100sqm	Neighbourhood Centre	Pub/Restaurants		0.000	0.000	0.000	2.438	1.343	3.781
Hotel-food-drink	A3	per 100sqm	Neighbourhood Centre	Fast food drive through		27.143	28.571	55.714	12.420	14.331	26.751
Hotel-food-drink	A3	per 100sqm	Town Centre	Take away shop		0.000	0.000	0.000	25.000	23.000	48.000
Hotel-food-drink	C1	per 100sqm	Suburban Area	Hotel		0.083	0.187	0.27	0.208	0.104	0.312
Health	C2	per beds	Suburban Area	Care home		0.066	0.038	0.104	0.019	0.047	0.066
Health	C2	per beds	Neighbourhood Centre	Care home		0.064	0.064	0.128	0.037	0.048	0.085
Health	Ee	per 100sqm	Suburban Area	GP surgery		3.058	2.048	5.106	1.443	2.077	3.520
Health	Ee	per 100sqm	Suburban Area	NHS		2.043	0.553	2.596	0.553	1.319	1.872
Health	Ee	per 100sqm	Edge of Town Centre	Veterinary surgery		2.016	1.613	3.629	2.218	2.823	5.041
Health	Ee	per 100sqm	Suburban Area	Veterinary surgery		2.857	0.357	3.214	1.071	0.714	1.785
Education	F1a	per 100sqm	Edge of Town Centre	Primary school		6.695	3.811	10.506	0.000	0.126	0.126
Education	F1a	per 100sqm	Suburban Area	Primary school		3.212	2.902	6.114	0.072	0.238	0.310
Education	F1a	per 100sqm	Neighbourhood Centre	Primary school		5.178	4.355	9.533	0.164	0.424	0.588
Education	F1a	per 100sqm	Suburban Area	Secondary school		0.819	0.636	1.455	0.130	0.192	0.322
Education	F1a	per 100sqm	Neighbourhood Centre	Secondary school		1.341	0.915	2.256	0.256	0.22	0.476
Education	F1a	per 100sqm	Neighbourhood Centre	Community education		unavailable in TRICs					
Education	F1a	per 100sqm	Suburban Area	Nursery		1.896	1.272	3.168	1.387	2.035	3.422

Land Use	Land Use	Units	Location	Sub-category		Trip Rates					
						AM Peak			PM Peak		
						Arrival	Departure	Total	Arrival	Departure	Total
Leisure	F2b	per site area	Suburban Area	Equestrian Centre		unavailable in TRICs					
Leisure	F2b	per site area	Suburban Area	Football		0.143	0.000	0.143	6.250	1.500	7.750
Leisure	Ed	per 100sqm	Suburban Area	Fitness club		33.333	25.000	58.333	97.222	58.333	155.555
Leisure	Ed	per 100sqm	Neighbourhood Centre	Play centre		unavailable in TRICs					
Car Showroom		per 100sqm	Suburban Area	car showroom		1.711	0.589	2.3	0.370	1.465	1.835
Vehicle Services		site area	Suburban Area	car wash		36.066	24.59	60.656	54.098	78.689	132.787
Vehicle Services		no of bays	Suburban Area	car wash		0.947	0.632	1.579	1.211	1.632	2.843
Petrol Filling Station		site area	Town Centre	petrol filling station		unavailable in TRICs					

Table 4-6: New Hourly Forecasting TRICS Trip Rates per Time Period

4.4.6 Trip Distribution

For each development zone, a donor zone from the base year was chosen to duplicate its trip pattern. The selected donor zone was one that shared the same land use as the proposed development zone, and it was located in reasonable proximity to the zone. This process was undertaken in order to replicate the trip distribution of the developments' zones. This also allowed the future land use of zones to be robustly modelled once the matrix furnessing had been applied. The AM and PM development OD trips developments were divided between purposes based on the donor zone purpose proportion.

4.4.7 Good Vehicle Growth Factors

General growth in LGV and HGV demand has been produced using the growth factors derived from the Road Traffic Forecasts (RTF) 2022 published by DfT. The RTF traffic mileage data for all road types was extracted from the Core scenario for LGV and HGV and then interpolated to derive growth factors for 2042 from 2019. The resulting growth factors are shown in Table 4-1 and applied at an assignment (peak hour) matrix level.

Region	2019 – 2042 Growth Factor	
	LGV	HGV
East Midlands	1.35	1.10
Eastern England	1.34	1.13
London	1.32	1.08
North East	1.37	1.08
North West	1.31	1.11
South East	1.36	1.14
South West	1.31	1.08
West Midlands	1.37	1.11
Yorks & Humber	1.31	1.11
Wales	1.32	1.08
Scotland	-	-

Table 4-7: 2042 LGV and HGV Factors

4.4.8 Forecast Baseline Total Matrix

Table 4-8 provides a summary of highway matrix trip totals at the peak hour level for each highway assignment user class and the percentage change between base and forecast scenarios totals.

Time Period	Segment	Base (2019)	Forecast Baseline (2042)		
		Matrix Total	Matrix Total	Difference to Base	% Difference to Base
AM Peak	Car Commute	136,411	155,738	19,327	14%
	Car Employers' Business	42,159	48,618	6,459	15%
	Car Other	125,705	145,256	19,551	16%
	LGV	225,684	303,378	77,694	34%
	HGV	44,426	50,032	5,606	13%
	Total	574,385	703,022	128,637	22%
PM Peak	Car Commute	118,816	136,629	17,813	15%
	Car Employers' Business	40,842	47,476	6,634	16%
	Car Other	201,015	235,290	34,275	17%
	LGV	189,199	254,457	65,258	34%
	HGV	28,583	32,153	3,570	12%
	Total	578,455	706,005	127,550	22%

Table 4-8: Base and Forecast Baseline Matrices Comparison

5. Forecast Results

5.1 Overview

This section describes the forecast results for the Forecast Baseline scenario. A set of output plots have been produced to show the flow difference, node level of service and change in travel time in order to help identify key "hot-spot" areas from additional growth and developments in the 2042 Forecast Baseline.

5.2 Forecasts Baseline Results

5.2.1 Flow Difference Plots

Flow difference plots have been produced to show the difference in actual flows between the 2042 Forecast Baseline and 2019 Base models. These are presented in Figure 5-1 and Figure 5-2.

Comparing the 2042 and 2019 models, significant increase in traffic is predicted along major corridors such as M20, M2, M25, M26, and A21. These are then followed by increases in traffic predicted along A20 London Road, A26 Tonbridge Road, the new link road (between Hermitage Lane and A20) and roads around the Tonbridge town centre and Borough Green where some of the committed developments are located.

The inclusion of the LTC in the forecast baseline increases the flows using M2 as traffic reroutes from M20. On the other hand, the traffic flows have reduced along A2 as traffic reroutes from Dartford Crossing to LTC.

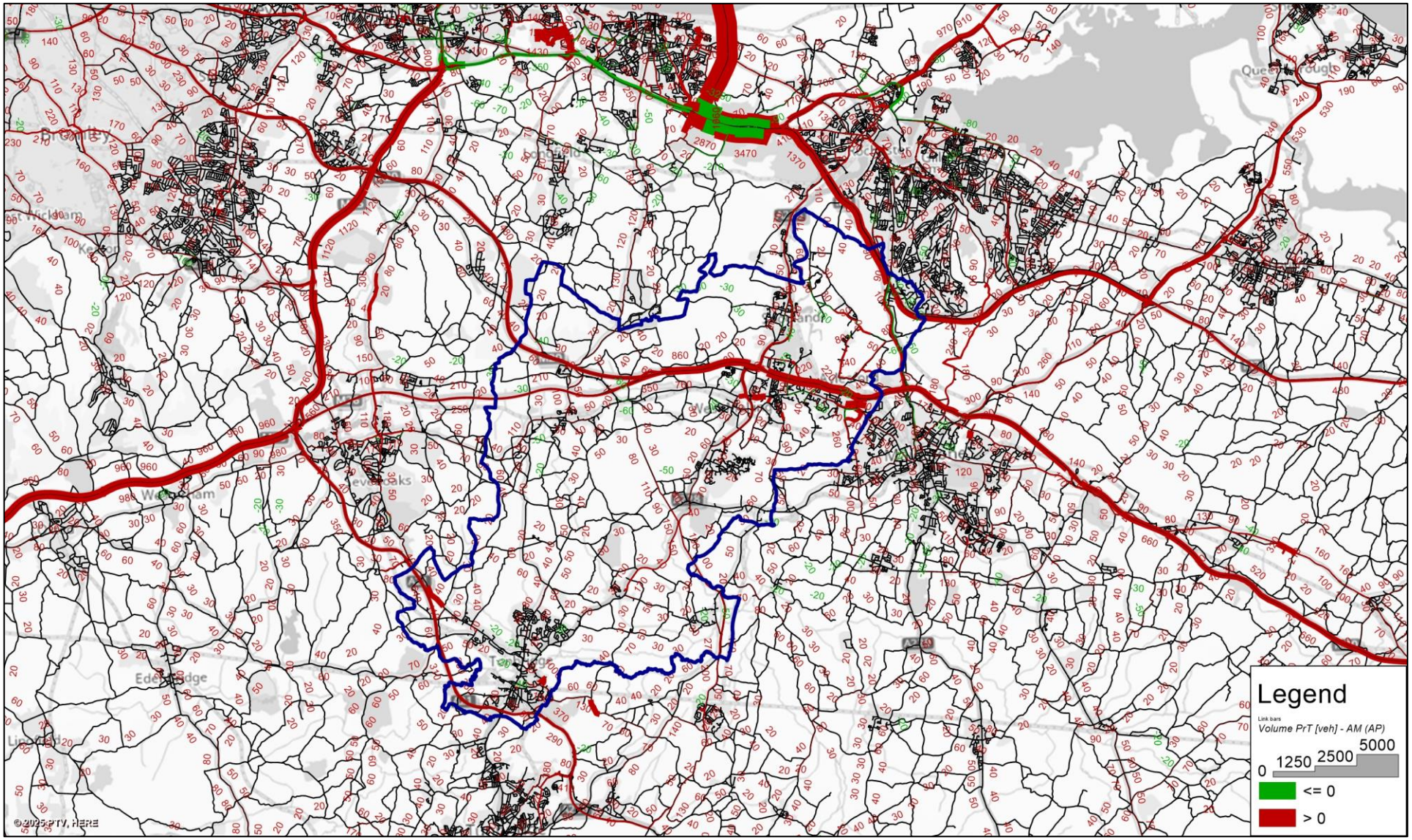

Figure 5-1 – 2042 vs 2019 Flow Difference - AM Peak

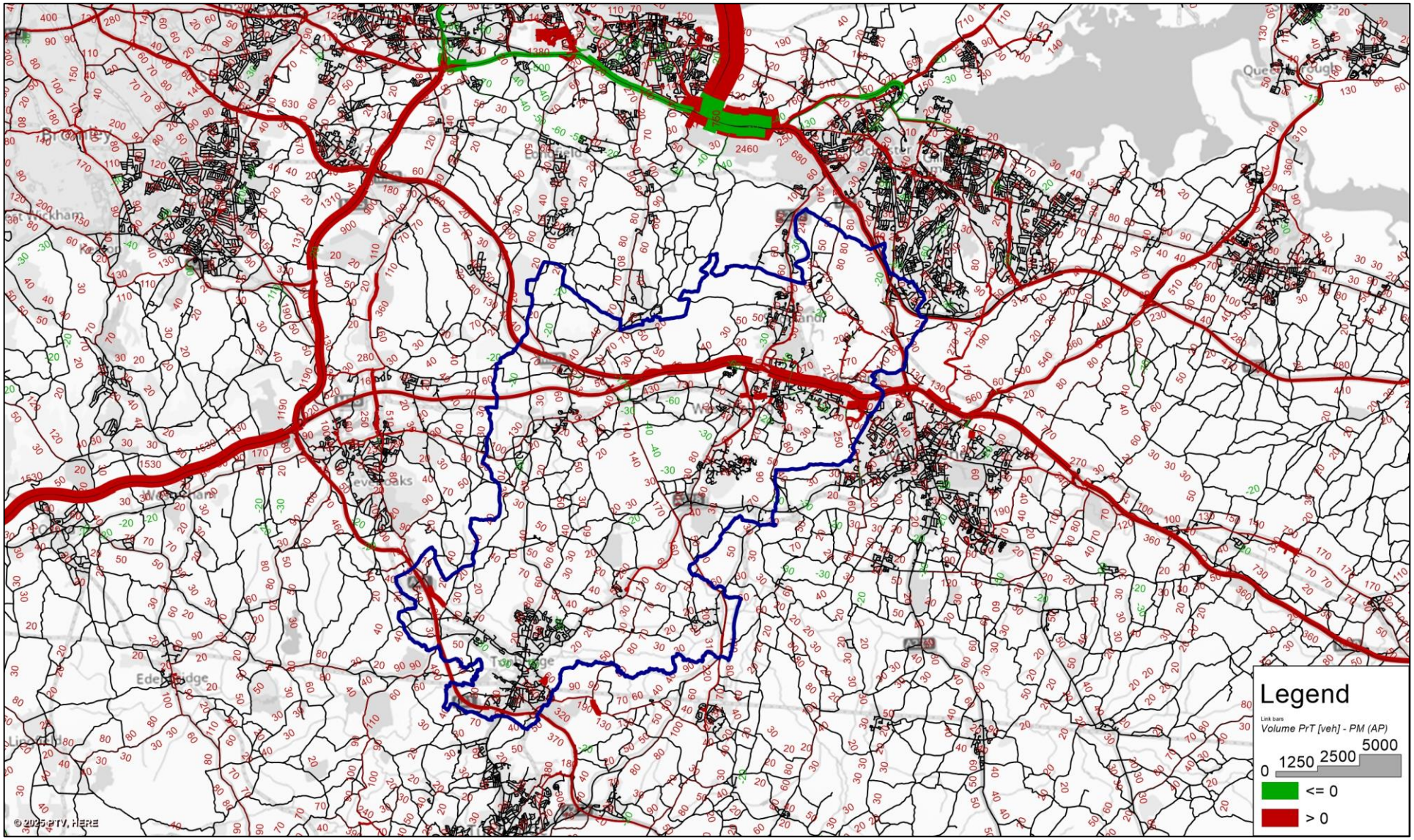

Figure 5-2 – 2042 vs 2019 Flow Difference - PM Peak

5.2.2 2042 Junction and Link "Hot Spots"

Figure 5-3 and Figure 5-4 show the junction LOS and link V/C ratio for 2042 AM and PM peak periods. Figure 5-5 and Figure 5-6 show hotspots areas, where it includes the list of key junctions and links showing LOS E and F and V/C > 85%. Detailed plots are presented in Appendix B while Appendix C, shows the detailed LOS and V/C ratio information in some key signalised junctions for reference.

Most of the junction and link "hot spots" identified in the base model also exist in the 2042 models (highlighted in **black** on the map). These include junctions and links in the north-western and north-eastern parts of the borough and those around Tonbridge town centre.

In addition to these locations, a couple of junctions and links in the 2042 Forecast Baseline were added to the list, which exhibits severe levels of delay (highlighted in **blue** on the map). These include the following:

Northwest

- A25 / Quarry Hill Road / High Street
- A25 / A20
- Seven Mile Lane / Comp Lane

Northeast

- Forstal Road / Station Road (from LOS E to F)
- A228 Rochester Road, Sundridge Hill
- Rochester Road / Forstal Road
- A228 / Bull Road Roundabout
- B2246 Hermitage Lane / Beatrix Drive
- M2 J3
- M25 J5
- A20 / Hall Road / Mile Road

East

- A26 / Bow Road / Red Hill
- B2016 Seven Mile Lane
- A26 (near Hadlow)
- Seven Mile Lane / Mereworth Road

South

- Vale Road / Sovereign Way
- A21 Morley's Roundabout

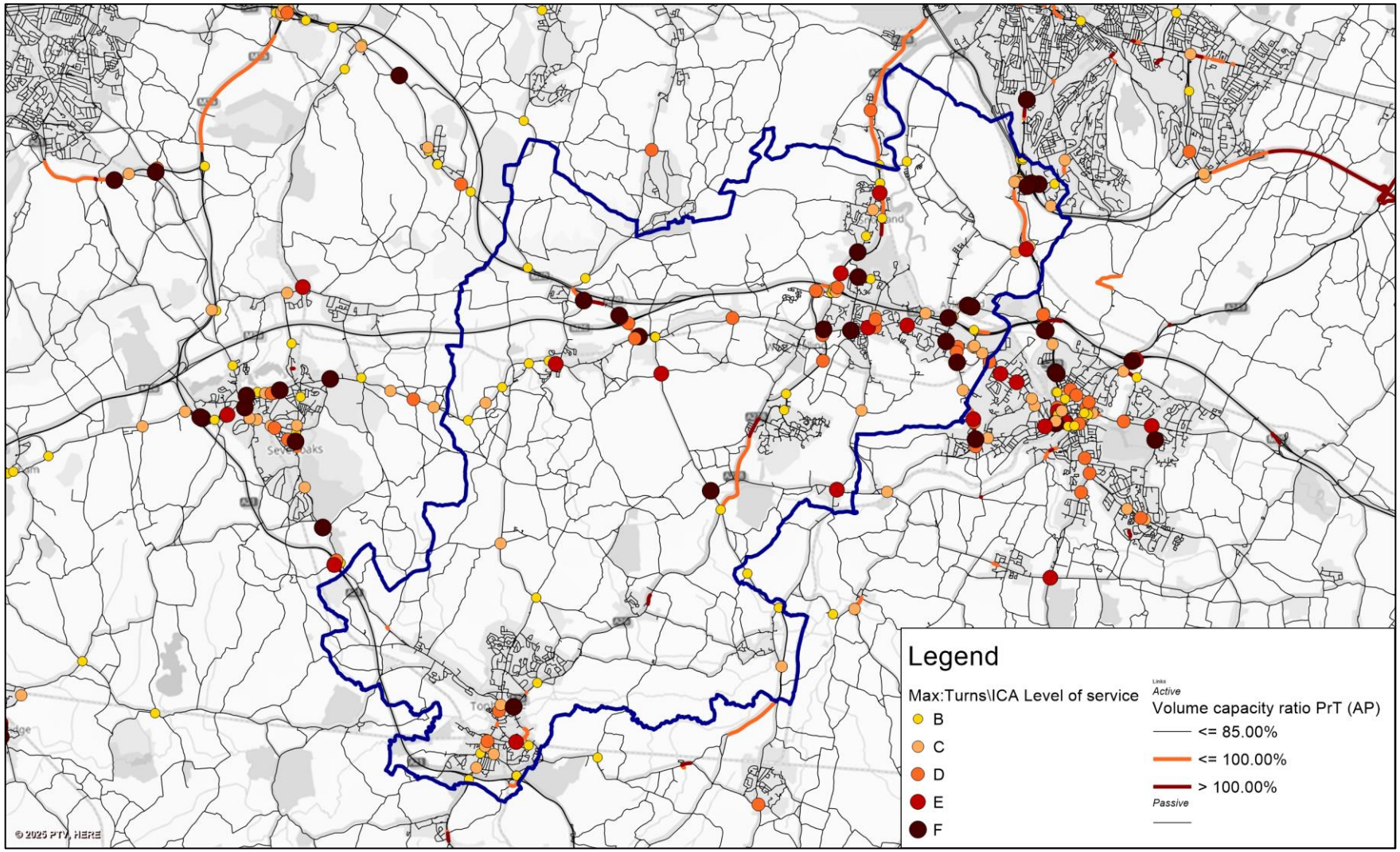

Figure 5-3: 2042 AM Peak Junction LOS and Link Volume Capacity Ratio

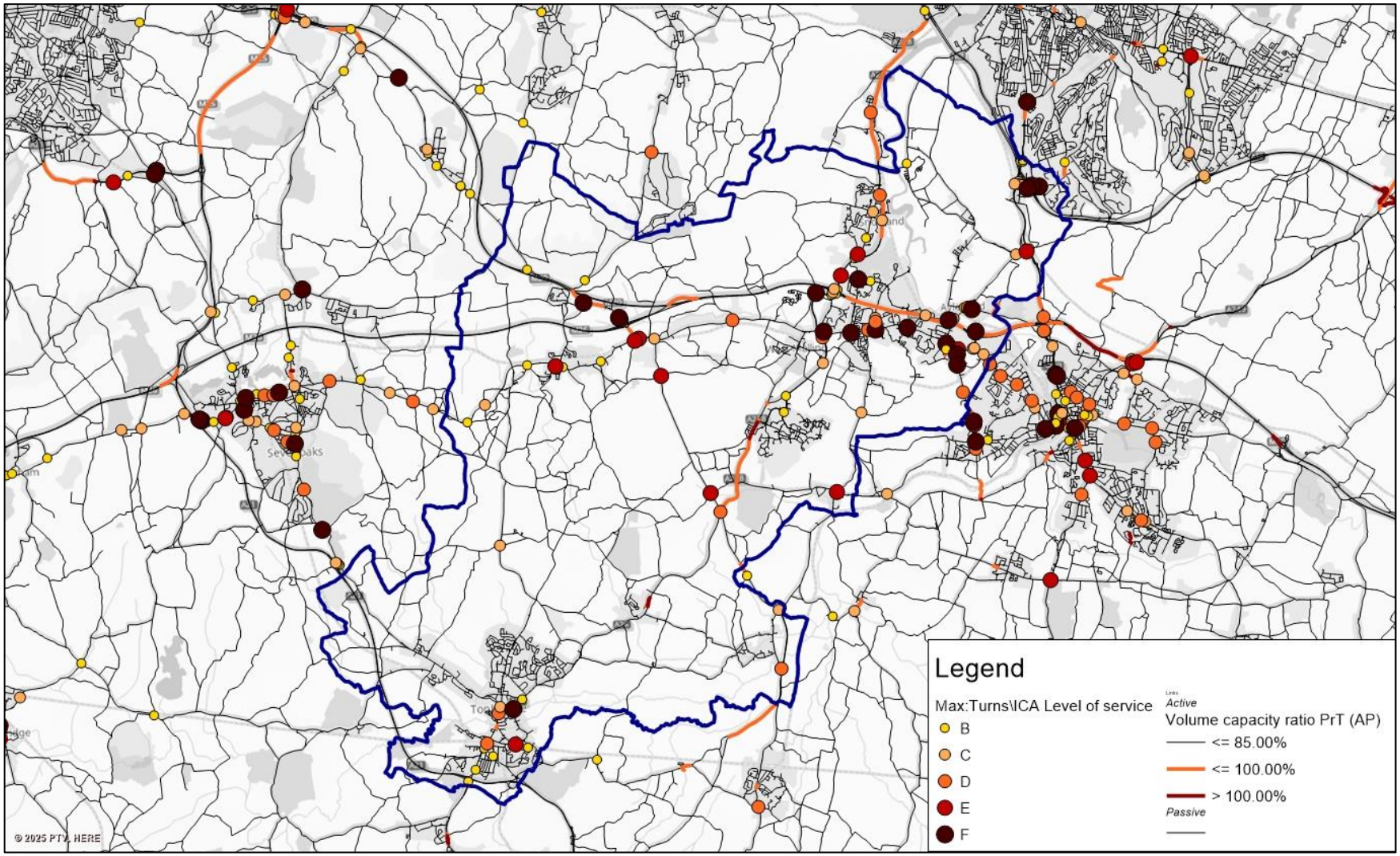

Figure 5-4: 2042 PM Peak Junction LOS and Link Volume Capacity Ratio

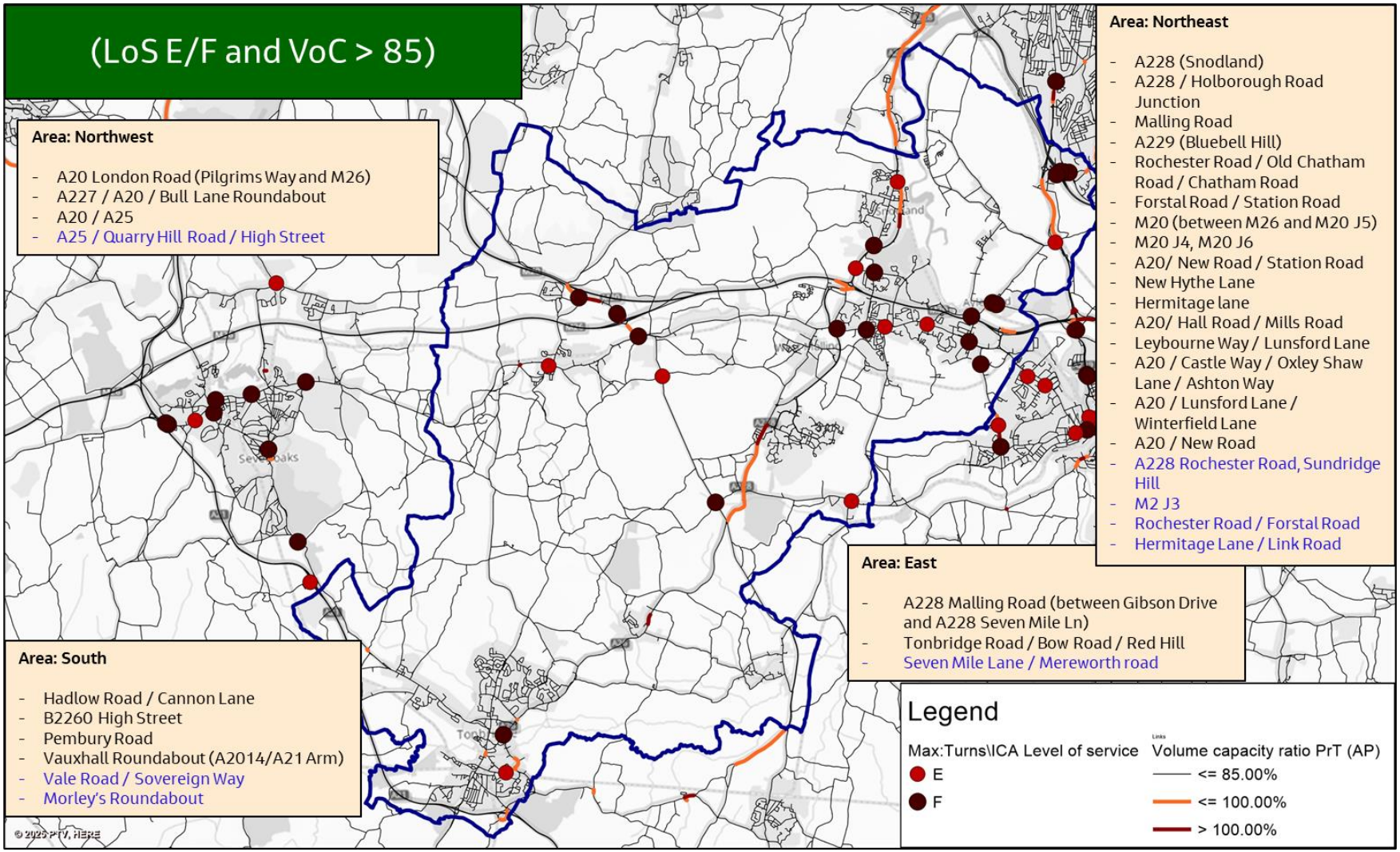

Figure 5-5: 2042 AM Peak Junction and Link "Hot Spots"

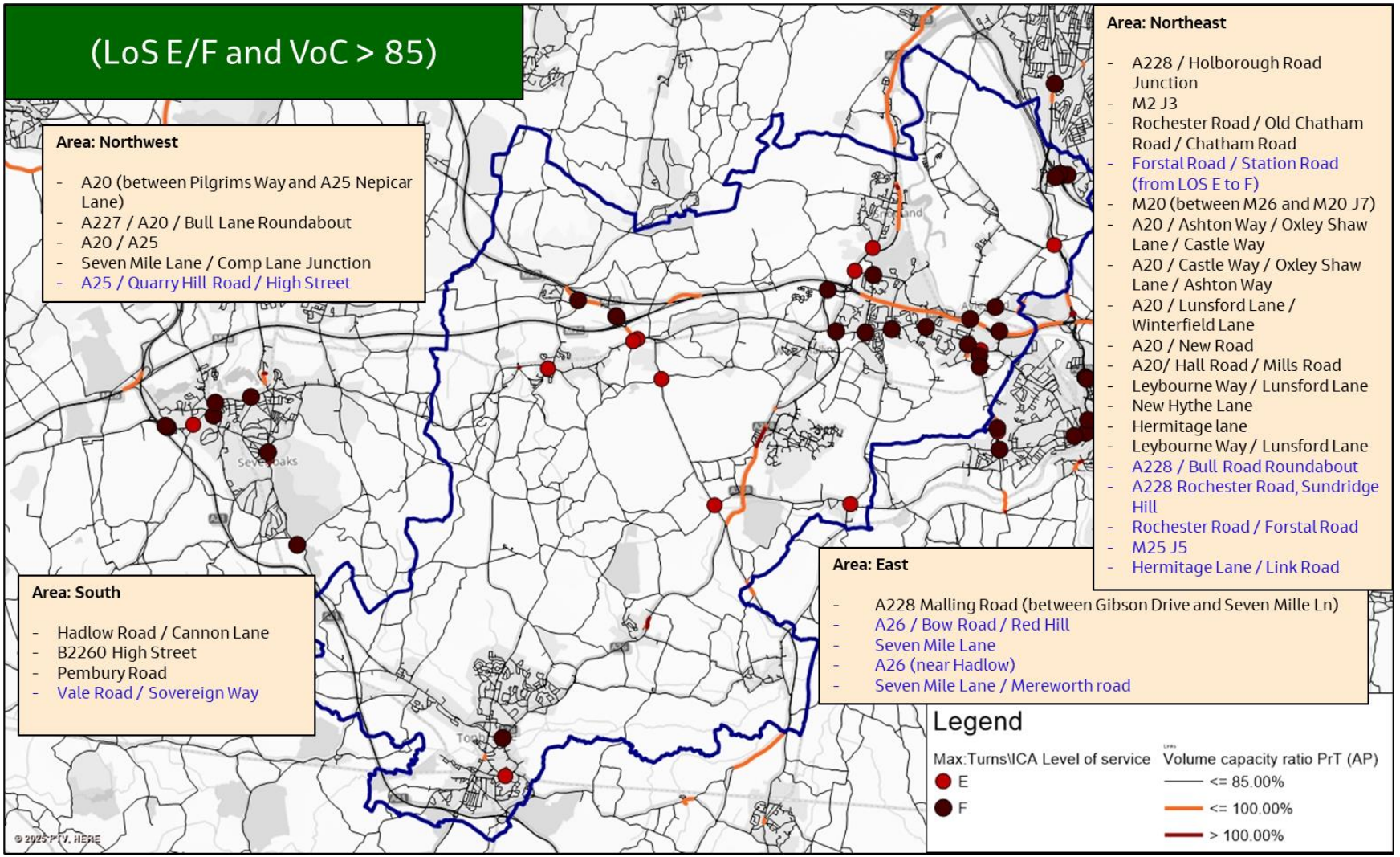

Figure 5-6: 2042 PM Peak Junction and Link "Hot Spots"

5.2.3 Journey Time Comparison

This section focuses on the journey time comparison for local routes in Tonbridge and Malling between the 2042 Forecast Baseline and 2019 Base. The routes used for this analysis are shown in Figure 5-7 and the detailed comparisons for each time period are presented in Table 5-1 and Table 5-2

It is important to highlight that routes 1 to 12 were the original routes utilised in the base model validation. To account for additional delays observed in other areas of the model, the following list outlines some of the original routes that have been extended, as well as new routes that have been incorporated.

Extended Routes

- Route 1 M20 (extended to M20 J7)
- Route 6 A26 / B2260 (extended to Higham Lane)
- Route 7 A21 (extended to Westerham Road Interchange)

New Routes

- Route 13 Pilgrims Way and Rochester Road
- Route 14 A20 (Wrotham Heath)
- Route 15 A227 (Borough Green)
- Route 16 M20 and A229 Blue Bell Hill

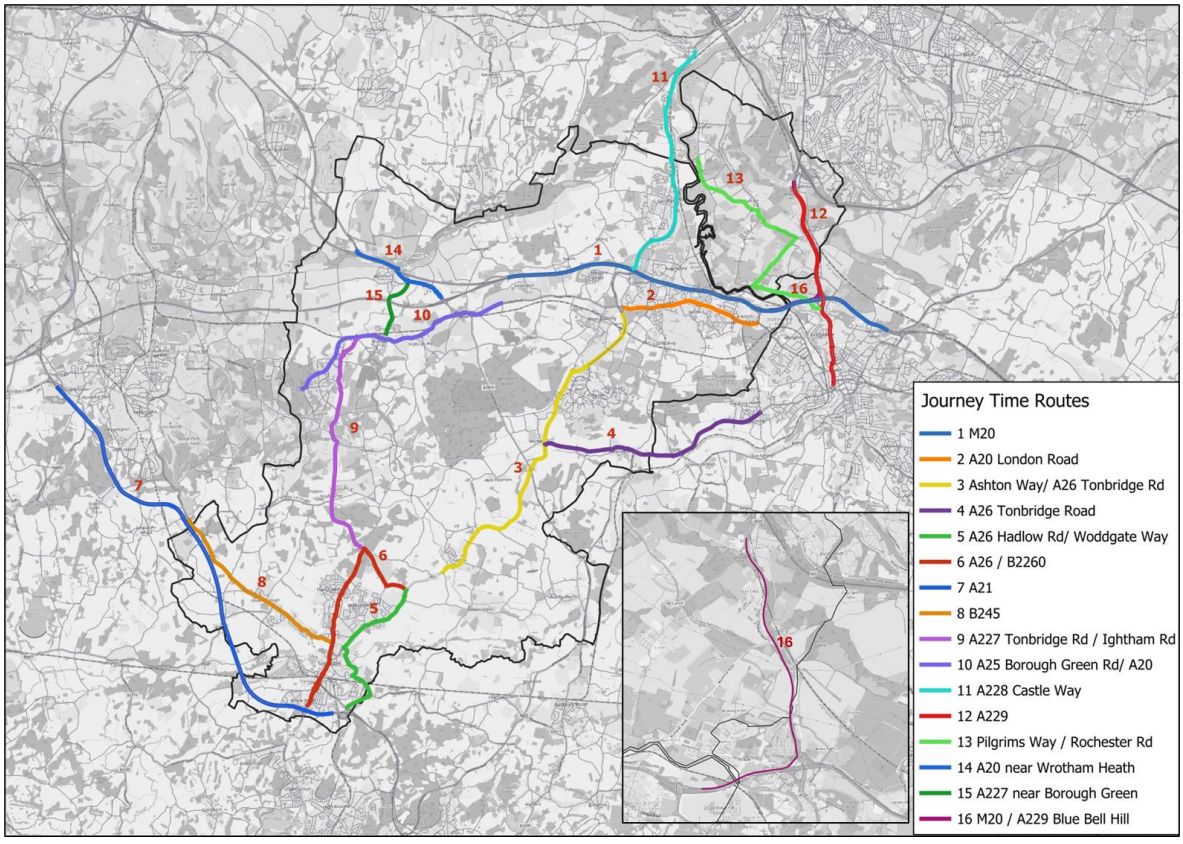

Figure 5-7: Journey Time Routes in Tonbridge and Malling

The following routes exhibit travel time increase of greater than 10% between the 2042 Forecast Baseline and 2019 Base.

- Route 2 along A20 London Road shows an increase of 28% or around 3 minutes in the westbound direction in the PM peak.
- Route 3 along A228 Ashton Way / A26 Tonbridge Road shows an increase of 11% or around 1.5 minutes in the northbound direction in the PM Peak
- Route 5 along A26 Hadlow Road and A26 Woodgate Way shows an increase of 18% or almost 2 minutes in the southbound for the AM and 1 minute increase in journey time for the northbound direction in the PM,
- Route 11 along A228 Castle Way shows an increase of 18% or around 1.5 minutes in the northbound direction in the AM. In the PM, the route shows delays in both directions with an increase of 22% or 2 mins in the northbound direction and 13% or around 1 min in the southbound direction.
- Route 12 along A229 shows an increase in the northbound direction of 61% or around 4 minutes in the AM and 31% or around 2 minutes in the PM.
- Route 14 along the A20 London Road near Wrotham Heath shows an increase in the northbound direction in the AM of 11% or around 40 seconds.
- Route 16 along the A229 between the M20 and the Blue Bell Hill roundabout shows an increase in all time periods and directions. In the AM, the journey time increases by 54% or almost 2 minutes in the northbound direction and 19% or around 1 minute in the southbound. In the PM, the increase is 72% or almost 3 minutes in the northbound and 25% or 1 minute in the southbound.

The improvement shown on Routes 1 M20 is due to the completion of the roadworks along M20 (between M26 and M20 J6) which is reflected in the 2042 Forecast Baseline.

The delays along the roundabouts in Blue Bell Hill and the M20 junction 6 / A229 are reflected in the journey time increase in Routes 12 and 16.

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 have impacts on junction delays, especially in areas where congestion currently exists. Hence, the routes with actual time differences close to 1 minute are also highlighted in the tables.

	Description		AM Peak			
			2019 Base Model [s]	2042 Forecast Baseline [s]	Actual Difference [s]	% Difference
1	M20	01_EB	09:03	07:30	01:33	-17%
	M20	01_WB	11:08	08:15	02:53	-26%
2	A20 London Road	02_EB	08:44	08:09	00:35	-7%
	A20 London Road	02_WB	08:32	08:19	00:13	-3%
3	A228 Ashton Way / A26 Tonbridge Rd	03_SB	13:44	14:38	00:54	7%
	A228 Ashton Way / A26 Tonbridge Rd	03_NB	13:28	14:23	00:55	7%
4	A26 Tonbridge Road	04_EB	10:01	10:02	00:01	0%
	A26 Tonbridge Road	04_WB	10:42	10:36	00:06	-1%
5	A26 Hadlow Road / Woodgate Way	05_SB	09:58	11:47	01:49	18%
	A26 Hadlow Road / Woodgate Way	05_NB	07:53	07:56	00:03	1%
6	A26 / B2260	06_SB	14:20	14:26	00:06	1%
	A26 / B2260	06_NB	11:45	11:45	00:00	0%
7	A21	07_SB	08:50	09:11	00:21	4%
	A21	07_NB	08:47	09:05	00:18	3%
8	B245	08_EB	08:18	08:18	00:00	0%
	B245	08_WB	08:40	08:42	00:02	0%
9	A227 Tonbridge Road / Ightham Road	09_NB	07:29	07:32	00:03	1%
	A227 Tonbridge Road / Ightham Road	09_SB	07:47	07:45	00:02	0%
10	A25 Borough Green Rd/A20 London Rd	10_EB	09:24	09:28	00:04	1%
	A25 Borough Green Rd/A20 London Rd	10_WB	09:21	09:26	00:05	1%
11	A228 Castle Way	11_NB	08:38	10:11	01:33	18%
	A228 Castle Way	11_SB	11:04	10:45	00:19	-3%
12	A229	12_SB	07:52	07:37	00:15	-3%
	A229	12_NB	07:01	11:17	04:16	61%
13	Pilgrims Way / Rochester Road	28_SB	15:09	16:20	01:11	8%
	Pilgrims Way / Rochester Road	28_NB	11:24	11:54	00:30	4%
14	A20 near Wrotham Heath	33_SB	05:26	05:46	00:20	6%
	A20 near Wrotham Heath	33_NB	05:11	05:45	00:34	11%
15	A227 near Borough Green	30_SB	05:54	05:57	00:03	1%
	A227 near Borough Green	30_NB	05:39	05:51	00:12	4%
16	M20/A229 Blue Bell Hill	34_SB	03:30	05:23	01:53	54%
	M20/A229 Blue Bell Hill	34_NB	05:29	06:30	01:01	19%

Table 5-1: Modelled Journey Time Comparison – AM Peak

	Description		PM Peak			
			2019 Base Model [s]	2042 Forecast Baseline [s]	Actual Difference [s]	% Difference
1	M20	01_EB	11:33	09:27	02:06	-18%
	M20	01_WB	08:59	07:19	01:40	-19%
2	A20 London Road	02_EB	09:08	08:51	00:17	-3%
	A20 London Road	02_WB	09:40	12:23	02:43	28%
3	A228 Ashton Way / A26 Tonbridge Rd	03_SB	12:24	13:02	00:38	5%
	A228 Ashton Way / A26 Tonbridge Rd	03_NB	13:31	14:57	01:26	11%
4	A26 Tonbridge Road	04_EB	10:38	10:37	00:01	0%
	A26 Tonbridge Road	04_WB	09:41	09:46	00:05	1%
5	A26 Hadlow Road / Woodgate Way	05_SB	07:36	07:44	00:08	2%
	A26 Hadlow Road / Woodgate Way	05_NB	10:42	12:00	01:18	12%
6	A26 / B2260	06_SB	13:46	13:50	00:04	0%
	A26 / B2260	06_NB	11:53	11:48	00:05	-1%
7	A21	07_SB	08:50	09:09	00:19	4%
	A21	07_NB	08:33	08:53	00:20	4%
8	B245	08_EB	08:04	08:11	00:07	1%
	B245	08_WB	08:20	08:20	00:00	0%
9	A227 Tonbridge Road / Ightham Road	09_NB	07:36	07:38	00:02	0%
	A227 Tonbridge Road / Ightham Road	09_SB	07:32	07:35	00:03	1%
10	A25 Borough Green Rd/A20 London Rd	10_EB	10:15	10:36	00:21	3%
	A25 Borough Green Rd/A20 London Rd	10_WB	10:31	08:36	01:55	-18%
11	A228 Castle Way	11_NB	10:07	12:18	02:11	22%
	A228 Castle Way	11_SB	08:19	09:25	01:06	13%
12	A229	12_SB	06:49	06:56	00:07	2%
	A229	12_NB	07:07	09:21	02:14	31%
13	Pilgrims Way / Rochester Road	28_SB	12:13	13:07	00:54	7%
	Pilgrims Way / Rochester Road	28_NB	11:24	12:11	00:47	7%
14	A20 near Wrotham Heath	33_SB	05:39	06:00	00:21	6%
	A20 near Wrotham Heath	33_NB	04:50	05:15	00:25	9%
15	A227 near Borough Green	30_SB	05:33	05:39	00:06	2%
	A227 near Borough Green	30_NB	06:03	06:14	00:11	3%
16	M20/A229 Blue Bell Hill	34_NB	03:45	06:28	02:43	72%
	M20/A229 Blue Bell Hill	34_NB	04:17	05:22	01:05	25%

Table 5-2: Modelled Journey Time Comparison – PM Peak

6. Summary and Recommendations

This report describes the methods used to develop the initial 2042 Forecast Baseline and approach taken to identify the key junction and link "hots spots" in Tonbridge and Malling Borough.

Overall, the 2019 AM and PM outputs present similar locations of junction and link "hot spots". The majority of the junctions exhibiting LOS E and F, or links displaying unstable flows (>85%) or which are over capacity (>100%), are located along:

Northwest

- A20 London Road (between Pilgrims Way and M26)
- A227 / A20 / Bull Lane Roundabout
- A20 London Road / Seven Mile Lane

Northeast

- A228 (Snodland)
- A228 / Holborough Road Junction
- Malling Road
- A229 (Bluebell Hill)
- Rochester Road / Old Chatham Road / Chatham Road
- Forstal Road / Station Road
- M20 (between M26 and M20 J5) - this is due to the roadworks along M20 (between M26 and M20 J6), converting this section of the road to a smart motorway. This impacted the highway capacity and average speeds, which were reduced then. Therefore, the base model incorporates the temporary impacts of these roadworks. This was updated in the future model, reflecting the completion of work.
- M20 J4, M20 J6
- A20/ New Road / Station Road
- New Hythe Lane
- B2246 Hermitage Lane
- Mile Lane (A20/ Hall Road / Mile Lane
- Leybourne Way / Lunsford Lane
- A20 London Road / Castle Way / Ashton Way / Oxley Shaw Lane
- M2 J3

East

- A228 Malling Road (between Gibson Drive and A228 Seven Mile Ln)
- A26 Tonbridge Road / Bow Road / Red Hill

South

- Hadlow Road / Cannon Lane
- B2260 High Street

- Pembury Road
- Vauxhall Roundabout (A2014/A21 Arm)

The developments categorised as "near certain" and "more than likely" and highway schemes were identified in collaboration with KCC, TMBC and NH were implemented in the 2042 Forecast Baseline together with the growth in the neighbouring authorities.

The 2042 model shows increase in traffic flows in major corridors, particularly around M20, M2, M25, M26 and A21. Increases in traffic flows are also predicted around A20 London Road, A26 Tonbridge Road, Borough Green and Tonbridge Town Centre.

The introduction of the LTC leads to a decrease in traffic on the M20 while simultaneously increasing congestion on A229 Blue Bell Hill, and the M2. Additionally, a reduction in traffic is anticipated along the A2, as vehicles are expected to reroute from the Dartford Crossing to the LTC.

In terms of junction and link "hot spots" in 2042, most of those locations identified in 2019 are still problematic in 2042. However, due to the overall growth assumed, additional junctions and links were identified:

Northwest

- A25 / Quarry Hill Road / High Street
- A25 / A20
- Seven Mile Lane / Comp Lane

Northeast

- Forstal Road / Station Road (from LOS E to F)
- A228 Rochester Road, Sundridge Hill
- Rochester Road / Forstal Road
- A228 / Bull Road Roundabout
- Hermitage Lane / Beatrix Drive
- M2 J3
- M25 J5
- A20 / Hall Road / Mile Road

East

- A26 / Bow Road / Red Hill
- Seven Mile Lane
- A26 (near Hadlow)
- Seven Mile Lane / Mereworth Road

South

- Vale Road / Sovereign Way
- A21 Morley's Roundabout

The following journey time routes show more than 10% travel time increases. Most of these routes cover the hot-spots areas mentioned above.

- Route 2 – A20 London Road
- Route 3 – A228 Ashton Way and A26 Tonbridge Road
- Route 5 – A26 Hadlow Road and A26 Woodgate Way
- Route 11 – A228 Castle Way
- Route 12 – A229
- Route 14 – A227 near Borough Green
- Route 16 – M20 / A229 Blue Bell Hill

This 2042 forecast baseline scenario has been designed to assess the impacts of committed developments and overall growth in the neighbouring districts surrounding Tonbridge and Malling. It is important to recognise that in strategic modelling, issues at one junction may indicate delays or congestion in nearby corridors. The outputs from the strategic model provide a high-level overview of where road capacity might become a concern. Developing local junction models to incorporate accurate geometry and visibility data for specific locations can be considered to verify these issues.

Appendix A. 2019 Detailed Plots

Appendix B. 2042 Detailed Plots

Appendix C. V/C Ratio and LOS

Appendix D. List of Committed Developments in Tonbridge and Malling