

# **Wealden Local Plan Shared Transport Evidence Base (STEB):**

## **Initial Growth Option (1) – Interim Assessment and Mitigation Strategy (Transport Note 01)**

*Prepared for*  
**ESCC & WDC**

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**A partnership between:**

**COSTAIN CH2M**  
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# Contents

| Section                                                  | Page        |
|----------------------------------------------------------|-------------|
| <b>Document Issue.....</b>                               | <b>vii</b>  |
| <b>Acronyms and Abbreviations .....</b>                  | <b>viii</b> |
| <b>Executive Summary .....</b>                           | <b>11</b>   |
| <b>1 Introduction .....</b>                              | <b>16</b>   |
| <b>2 General Approach .....</b>                          | <b>17</b>   |
| 2.1 Shared Transport Evidence Base.....                  | 17          |
| 2.2 ‘Planning for People and Places’ .....               | 17          |
| 2.3 Application of STEB Approach .....                   | 19          |
| <b>3 Wealden Context .....</b>                           | <b>20</b>   |
| 3.1 Initial Growth Option .....                          | 20          |
| 3.2 New Wealden Local Plan 2019-2039 Vision.....         | 20          |
| 3.3 Wider Policy Context .....                           | 21          |
| 3.4 Area Profile.....                                    | 24          |
| 3.4.1 Local Geography.....                               | 24          |
| 3.4.2 Travel Trends.....                                 | 24          |
| 3.4.3 Transport Connectivity .....                       | 25          |
| 3.5 Issues and Challenges .....                          | 28          |
| <b>4 Transport Scheme Pipeline .....</b>                 | <b>30</b>   |
| 4.1 Overview.....                                        | 30          |
| 4.2 Longlist of Schemes .....                            | 30          |
| 4.3 LCWIP Schemes .....                                  | 34          |
| 4.4 TfSE Draft Strategic Investment Plan (SIP) .....     | 35          |
| <b>5 Forecast Modelling.....</b>                         | <b>37</b>   |
| 5.1 STEB Model Overview .....                            | 37          |
| 5.2 Limitations and assumptions .....                    | 37          |
| 5.3 STEB Inputs .....                                    | 38          |
| 5.3.1 Background Traffic Growth .....                    | 38          |
| 5.3.2 Initial Growth Option (1) Trip Generation .....    | 38          |
| 5.3.3 Districtwide potential development impacts .....   | 39          |
| 5.3.4 Development trip distribution and assignment ..... | 40          |
| 5.4 Isolated Wealden Local Plan Outputs.....             | 41          |
| 5.4.1 Forecast Flows.....                                | 41          |
| 5.4.2 Highway link capacities and impacts.....           | 43          |
| 5.4.3 Summary of link capacities and impacts .....       | 46          |
| 5.5 In-Combination ‘All District’ Sensitivity Test.....  | 49          |
| 5.5.1 Cross-boundary Growth.....                         | 49          |
| 5.5.2 Cumulative Impacts in Wealden .....                | 49          |
| 5.5.3 Cross-boundary Impacts of Wealden Local Plan ..... | 55          |
| 5.6 Key Junction Impacts .....                           | 55          |
| 5.7 Assessment Summary.....                              | 58          |
| <b>6 Sustainable Transport .....</b>                     | <b>60</b>   |

| Section                                                            | Page       |
|--------------------------------------------------------------------|------------|
| 6.1 The Case for Mitigation .....                                  | 60         |
| 6.2 Wider Evidence .....                                           | 60         |
| 6.2.1 TfSE – Sustainable Route to Growth .....                     | 60         |
| 6.2.2 Sustainable Travel Towns.....                                | 63         |
| 6.2.3 Funding considerations.....                                  | 64         |
| 6.3 Sustainable transport and future mobility options .....        | 65         |
| 6.3.1 Planning for sustainable transport and future mobility ..... | 65         |
| 6.3.2 Accessibility at new development .....                       | 65         |
| 6.3.3 Behaviour change .....                                       | 68         |
| 6.3.4 Active Travel .....                                          | 71         |
| 6.3.5 Public Transport.....                                        | 73         |
| 6.3.6 Future Mobility .....                                        | 77         |
| 6.4 Potential for modal shift .....                                | 82         |
| 6.5 Framework Action Plan.....                                     | 83         |
| 6.6 Headline outcomes .....                                        | 87         |
| <b>7 Highway Mitigation Options .....</b>                          | <b>88</b>  |
| 7.1 Overview.....                                                  | 88         |
| 7.1 A2270 Corridor .....                                           | 89         |
| 7.2 A27 SRN Corridor.....                                          | 90         |
| 7.3 A22 Corridor .....                                             | 93         |
| 7.4 Wider Mitigation.....                                          | 98         |
| 7.5 Summary .....                                                  | 99         |
| <b>8 Summary and Next Steps .....</b>                              | <b>101</b> |
| 8.1 Impacts of potential Local Plan growth in Wealden .....        | 101        |
| 8.2 Potential cross-boundary impacts.....                          | 102        |
| 8.3 Initial mitigation options .....                               | 102        |
| 8.4 Next steps.....                                                | 103        |

## Appendices

Appendix A: Scheme Pipeline Summary  
Appendix B: LCWIP Schemes List  
Appendix C: Phase 1 Model Build Technical Note  
Appendix D: STEB Limitations & Assumptions  
Appendix E: Land Use Trip Rates  
Appendix F: Propensity to Cycle Tool Outputs  
Appendix G: Local Junction Models Outputs

## Table(s)

|                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------|----|
| Table 2-1 Evolution of Transport Planning policy (source: TfSE Transport Strategy for the south East) ..... | 18 |
| Table 3-1 New Wealden Local Plan key opportunities, challenges and themes .....                             | 20 |
| Table 3-2 Wider transport policy and guidance .....                                                         | 21 |
| Table 3-3 Bus routes and frequency (Source: cartogold-ESCC).....                                            | 26 |
| Table 3-4 Rail routes, journey times and frequency .....                                                    | 26 |
| Table 3-5 Wealden Railway Stations, Cycle Parking Provision .....                                           | 27 |
| Table 4-1 Key relevant studies and documents .....                                                          | 30 |
| Table 4-2 Wealden District Council Pipeline Schemes and Status .....                                        | 30 |
| Table 5-1 Key STEB modelling parameters .....                                                               | 37 |
| Table 5-2 Initial Growth Option (1) Development only trip generation by land use (Total Vehicles).....      | 39 |

| Section                                                                                                                                | Page |
|----------------------------------------------------------------------------------------------------------------------------------------|------|
| Table 5-3 New development only total vehicle trip generation and by key settlement .....                                               | 39   |
| Table 5-4: Total peak hour trip generation of larger potential sites and key impact on the network .....                               | 39   |
| Table 5-5 2019 & 2040 link flows, capacities and volume over capacity (%), AM Peak .....                                               | 44   |
| Table 5-6 2019 & 2040 link flows, capacities and volume over capacity (%), PM Peak .....                                               | 45   |
| Table 5-7: 2019, 2040 Reference Case and isolated spatial distribution AM VOC (%) .....                                                | 48   |
| Table 5-8: 2019, 2040 Reference Case and isolated spatial distribution PM VOC (%) .....                                                | 48   |
| Table 5-9 Emerging Local Plan Options – All ESCC Districts (latest assumptions for early testing only and all subject to change) ..... | 49   |
| Table 5-10 Additional net uplift of emerging Cumulative Options on Isolated Wealden Option AM .....                                    | 51   |
| Table 5-11 Additional net uplift of emerging Cumulative Options on Isolated Wealden Option PM .....                                    | 52   |
| Table 5-12 'Cumulative Option 1 & 2' comparison with Reference Case and Wealden Isolated Option link capacity VoC (%), AM Peak .....   | 53   |
| Table 5-13 'Cumulative Option 1 & 2' comparison with Reference Case and Wealden Isolated Option link capacity VoC (%), PM Peak .....   | 54   |
| Table 5-14 Cumulative and Wealden isolated development only junction impacts (total veh. / % increase) – AM & PM peak hour .....       | 57   |
| Table 6-1 Potential changes to Wealden cycling commuter mode share (PCT) .....                                                         | 72   |
| Table 6-2 Overarching mitigation timeline .....                                                                                        | 83   |
| Table 6-3 Initial Strategy Headline Outcomes .....                                                                                     | 87   |
| Table 7-1 Key junctions reviewed .....                                                                                                 | 88   |
| Table 7-2 Summary of concept review options .....                                                                                      | 99   |

## Figure(s)

|                                                                                                                   |    |
|-------------------------------------------------------------------------------------------------------------------|----|
| Figure 2-1 RTPI Sustainable Accessibility and Mobility Framework .....                                            | 17 |
| Figure 2-2 Overview of initial STEB approach .....                                                                | 19 |
| Figure 3-1 Wealden context and journeys to work patterns with neighbouring areas (Census 2011) .....              | 25 |
| Figure 3-2 Current Wealden EV charging locations (Source: DfT ZapMap) .....                                       | 28 |
| Figure 4-1 Scheme Pipeline by Status .....                                                                        | 33 |
| Figure 4-2 LCWIP Cycling Schemes .....                                                                            | 34 |
| Figure 4-3 LCWIP Walking Schemes in Hailsham .....                                                                | 35 |
| Figure 4-4 Map extract of TfSE draft SIP Packages and Wealden (TfSE, 2022) .....                                  | 36 |
| Figure 5-1 Wealden Local Plan Initial Growth Option (1) development site locations .....                          | 38 |
| Figure 5-2 Isolated Wealden Local Plan Indicative Flows, AM & PM Peaks .....                                      | 42 |
| Figure 5-3 Link reference map .....                                                                               | 47 |
| Figure 5-4 Link reference points .....                                                                            | 50 |
| Figure 5-5 Map of key corridors and junctions .....                                                               | 56 |
| Figure 6-1 Transport Strategy for the South East, Mode Shift by Scenario (source TfSE 2019) <sup>16</sup> .....   | 61 |
| Figure 6-2 TfSE Future Mobility Strategy – Interventions for Urban, Rural and Remote Rural Areas by priority ..   | 62 |
| Figure 6-3 Integrating sustainable transport, placemaking and behaviour change strategy .....                     | 65 |
| Figure 6-4 Levels of Accessibility of Local Plan Initial Growth Option 1 sites in relation to key corridors ..... | 66 |
| Figure 7-1 Reference map of key junction locations .....                                                          | 89 |
| Figure 7-2 W1 - A2270/Huggetts Lane concept review summary .....                                                  | 90 |
| Figure 7-3 W8 - A2270/Wannock Road Junction concept review summary .....                                          | 90 |
| Figure 7-4 W2 - A27 Drusillas Roundabout concept review summary .....                                             | 91 |
| Figure 7-5 W3 - A27/A2270 Junction concept review summary .....                                                   | 92 |
| Figure 7-6 W4 - Cophall Roundabout concept review summary .....                                                   | 92 |
| Figure 7-7 W5 - Golden Jubilee Roundabout concept review summary .....                                            | 93 |
| Figure 7-8 W32 - Dittons Road Roundabout concept review summary .....                                             | 93 |
| Figure 7-9 W31 - A22/A295 The Eagles Roundabout concept review summary .....                                      | 94 |
| Figure 7-10 W30 - A22/Diplocks Way Roundabout concept review summary .....                                        | 95 |
| Figure 7-11 W26 - A22/A271/A267 Boship Roundabout concept review summary .....                                    | 95 |
| Figure 7-12 W25 - A22/B2124 Priority Junction concept review summary .....                                        | 96 |
| Figure 7-13 W24 - A22 Shaw Roundabout concept review summary .....                                                | 96 |
| Figure 7-14 W23 - A22/B2192 Halland Roundabout concept review summary .....                                       | 97 |
| Figure 7-15 W18 - A22 Lampool Roundabout concept review summary .....                                             | 97 |
| Figure 7-16 W19 - A22/A275 Priority Junction concept review summary .....                                         | 98 |
| Figure 7-17 W22 - A22/Priory mini-roundabouts concept review summary .....                                        | 98 |



# Document Issue

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# Acronyms and Abbreviations

|         |                                                                                |
|---------|--------------------------------------------------------------------------------|
| ASL     | Advanced Stop Line                                                             |
| BRT     | Bus Rapid Transit                                                              |
| BSIP    | Bus Service Improvement Plan                                                   |
| B2C     | Business-to consumer                                                           |
| C2X     | Consumer-to-all-parties                                                        |
| CIHT    | Chartered Institution of Highways & Transportation                             |
| CIL     | Community Infrastructure Levy                                                  |
| CREATE  | Congestion Reduction in Europe: Advancing Transport Efficiency                 |
| DaSA    | Development and Site Allocations Local Plan (Adopted)                          |
| DDRT    | Digitally Demand Responsive Transport                                          |
| DfT     | Department for Transport                                                       |
| DoS     | Degree of Saturation                                                           |
| EA      | Environment Agency                                                             |
| EAST    | Early Assessment & Sifting Tool                                                |
| EBC     | Eastbourne Borough Council                                                     |
| ESCC    | East Sussex County Council                                                     |
| ESCWTM  | East Sussex Countywide Transport Model / referred to as "the countywide model" |
| ESH     | East Sussex Highways                                                           |
| EV      | Electric Vehicle                                                               |
| GPS     | Global Positioning Satellite                                                   |
| HBC     | Hastings Borough Council                                                       |
| HELAA   | Housing and Economic Land Availability Assessment                              |
| HIF     | Housing Infrastructure Fund                                                    |
| HPE MAC | Hailsham Polegate and Eastbourne Movement & Access Corridor                    |
| HS1     | High Speed 1                                                                   |
| IDP     | Infrastructure Delivery Plan                                                   |
| JTW     | Journey to Work                                                                |
| LCWIP   | Local Cycling and Walking Infrastructure Plans                                 |
| LGF     | Local Growth Fund                                                              |
| LGV     | Light Goods Vehicle                                                            |
| LP      | Local Plan                                                                     |
| LPA     | Local Planning Authority                                                       |
| LSOA    | Lower Super Output Area                                                        |
| LSTF    | Local Sustainable Travel Fund                                                  |
| LTA     | Local Transport Authority                                                      |

|           |                                                     |
|-----------|-----------------------------------------------------|
| LTP       | Local Transport Plan                                |
| MaaS      | Mobility as a Service                               |
| MASHH     | Movement & Access Strategy for Hailsham & Hellingly |
| MEH       | Major Economic Hub                                  |
| MRN       | Major Road Network                                  |
| MSOA      | Middle Layer Super Output Area                      |
| NCN       | National Cycle Network                              |
| NH        | National Highways / Formerly HE - Highways England  |
| NPPF      | National Planning Policy Framework                  |
| NPS       | National Policy Statement                           |
| NTS       | National Transport Statistics                       |
| PCT       | Propensity to Cycle Tool                            |
| PPG       | Planning Policy Guidance                            |
| PRC       | Practical Reserve Capacity                          |
| PT        | Public Transport                                    |
| QBP / QBC | Quality Bus Partnership / Quality Bus Corridor      |
| RDC       | Rother District Council                             |
| RIS       | Road Investment Strategy                            |
| RTPI      | Royal Town Planning Institute                       |
| SDNPA     | South Downs National Park Authority                 |
| SELEP     | South East Local Enterprise Partnership             |
| SEP       | Strategic Economic Plan                             |
| SIP       | Strategic Investment Plan                           |
| SOBC      | Strategic Outline Business Case                     |
| SRN       | Strategic Road Network                              |
| STEB      | Shared Transport Evidence Base                      |
| STA       | Sustainable Transport Audit                         |
| STT       | Sustainable Travel Town                             |
| SWETS     | South Wealden & Eastbourne Transport Study          |
| SVD       | Select Vehicle Detection                            |
| TC        | Town Centre                                         |
| TEMPro    | Trip End Model Presentation Program                 |
| TN        | Transport Note                                      |
| TfSE      | Transport for the South East                        |
| TfWM      | Transport for West Midlands                         |
| TRICS     | Trip Rate Information Computer System               |
| UCL       | University College London                           |
| VOC       | Volume Over Capacity                                |

|       |                                    |
|-------|------------------------------------|
| WDC   | Wealden District Council           |
| WLPTS | Wealden Local Plan Transport Study |
| ZED   | Zero Energy Development            |

# Executive Summary

## Purpose of this Transport Note

Wealden District Council (WDC) is preparing a new Local Plan as a framework for future development up to 2039. The Council is undertaking evidence gathering and further engagement to help inform and shape the draft Local Plan before the Regulation 18 consultation, planned for early 2023.

The transport impacts of future growth are a key consideration in the production of the Local Plan alongside other planning matters. The Council are testing an Initial Growth Option (1), based on sites promoted through a 'Call for Sites' consultation in 2021. The purpose of the assessment was to gain an early understanding of the likely impacts of a growth scenario on the transport network and the potential need for mitigation with further testing of alternative growth options likely to be undertaken going forward. The work was undertaken in collaboration and continued engagement with key transport stakeholders, including East Sussex County Council (ESCC) and National Highways (NH).

The assessment makes use of an interim high-level spreadsheet-based modelling tool, as an initial step known as the interim Wealden Local Plan Shared Transport Evidence Base (STEB), and in advance of using the recently developed East Sussex Countywide Transport Model (ESCWTM / "the countywide model"). The countywide model will be used in subsequent stages to underpin and develop a detailed Shared Transport Evidence Base (STEB) to assess the transport impacts of the potential growth distribution in Wealden and from other emerging Local Plans in the county and surrounding area. This Transport Note (TN-01) sets out the outcomes of an assessment of an initial Wealden growth distribution scenario, including up to 16,000 houses and 170,000 sqm of employment, retail and community floorspace, and provides additional early sensitivity testing of the cumulative growth form neighbouring districts across the county.

## Local Plan context

Any Local Plan is expected to mitigate the severe impacts of new development on the transport system. However, the wider policy agenda looks beyond this expectation and identifies the need to deliver a decarbonised, sustainable transport system and healthy, inclusive and high-quality places. In 2019, the Council declared a 'climate emergency' and the Local Plan will need to provide the right framework to assist the Council in becoming a net zero carbon district by 2050. The Council set out the following key issues, opportunities and challenges in its Local Plan Direction of Travel Consultation (November 2020) and considered these central to identifying a vision for its local plan. The Council is currently working on its emerging Regulation 18 Local Plan which will provide a draft vision and objectives, its preferred spatial strategy and subsequent draft policies.

- 
- **Tackling Climate Change:** to achieve carbon zero outputs and improve air quality
  - **Infrastructure Delivery:** to support growth and change, meeting the needs of communities
  - **Housing:** deliver the right type of homes, in the right location and to a high standard
  - **Commercial:** support local business, increase jobs and ensure a thriving, diverse and a locally sustainable economy
  - **Tourism:** improve the existing offer and increase visitor spend
-

- 
- **Town Centres:** support and regenerate local centres by attracting the right investment and create vibrant places that cater for community's needs
  - **Natural Environment:** protect and enhance, increasing biodiversity and the quality of green and blue spaces
  - **High Quality Landscapes:** protect heritage and cultural assets
  - **High Quality Places:** through design and accounting for local character and distinctiveness
  - **Local Communities:** help communities to thrive, living safe, inclusive and healthy lives
- 

## Transport Issues and Challenges

The high level of car ownership and car travel, coupled with gaps in sustainable transport infrastructure and poor connectivity within rural areas, are key challenges within the district and wider functional geography. The current transport scheme pipeline, being developed by ESCC, WDC and NH, seeks to address some of these issues through existing strategies. Funding transport schemes is a key constraint and more will need to be done to support delivery, as well as identifying funding for any more substantive measures, such as those set out in the Transport for the South East (TfSE) Draft Strategic Investment Plan (SIP), needed to mitigate the impacts of Local Plan growth.

The plan-making process provides an opportunity to plan for people and places, through a decarbonised and sustainable transport system, rather than rely on planning for unconstrained traffic growth. At this stage, an initial potential growth distribution has been assessed. Further option testing is needed going forward to test different levels and distributions of development before identifying a preferred option for growth.

### Transport impacts of Initial Growth Option (1)

The potential growth distribution was assessed, alongside existing and future baseline scenarios, using the interim STEB spreadsheet-based modelling tool to understand the current and likely future impact on the highway network in the weekday AM and PM peak hours.

The level of growth assessed could generate between 9,000-10,000 additional development related vehicle trips on the network in the respective weekday AM and PM peak hours. Over 50% of this traffic is likely to be generated by potential development in and around the settlements of Hailsham, Uckfield and East Hoathly, with a focus on the key north-south A22 corridor running through the district.

Recognising that further detailed assessment of potential options will be undertaken in the countywide model, the traffic impact of the potential growth distribution was assessed against the capacity of the district road network to provide an indication of where impacts, without mitigation, are likely to be severe and cause additional congestion and delay to journeys. The analysis indicates:

- The network could be at risk of increased congestion and delays on the A22 corridor, A27 SRN, A2270 into Eastbourne, A26 towards Lewes and at key junctions across the district in the future
- The traffic generated by this potential growth distribution would have the greatest impact on the A22, particularly on the section of single carriageway north of Hailsham, and the dual carriageway section to the south of Hailsham
- Mitigation is likely to be needed to improve sustainable travel options and also at specific locations along key corridors, particularly on the constrained A22 and

- The impact of traffic growth to the north of the district and through the Ashdown Forest Special Area of Conservation (SAC) will need further assessment within a Habitats Regulation Assessment (HRA)

### **Cumulative impacts of neighbouring Local Plan growth**

The interim STEB spreadsheet-based modelling tool has also been used to begin to understand the potential cross-boundary impact of the emerging spatial picture in neighbouring authorities in the county. Each district, apart from Hastings, is still at an early stage of option testing prior to consulting on a preferred option. The strategies are likely to change going forward and the assessment is an early sensitivity test only to understand the possible impacts of cross boundary growth.

The current level of projected growth that is initially being tested by adjoining authorities could deliver around 25,000 houses and over 200,000 sqm of retail / employment uses. The additional traffic impact of this level of growth could add a further 15% traffic growth, over and above the Wealden Initial Growth Option (1), to the district network. The additional growth is likely to further impact on the potential capacity issues identified on the A22, A27 and A2270 corridors and key junctions, which could require additional mitigation.

Acknowledging the fluidity of all Local Plans across the county, and neighbouring counties, further agreement will be needed on how cross boundary growth is treated, within any future countywide modelling assessment, and the scale of impact expected to be specifically mitigated by a new Wealden Local Plan. Similarly, the cross-boundary impacts of any growth in Wealden from neighbouring authorities needs to be considered in the same duty to cooperate context.

### **Planning for sustainable transport and future mobility**

The modelling indicates that the potential growth distribution tested, and cross boundary growth, could have some severe impacts on the district road network, which is likely to need mitigation. The preferred approach is to plan for people and places and consider the role sustainable and future mobility options could play prior to defaulting to traditional highway capacity solutions. An initial framework strategy has been included in this study, which considers wider evidence within the district context, assesses early mitigation options, the potential for mode shift and reducing car use.

Transport for the South East (TfSE) has published its' draft Strategic Investment Plan (SIP) and set out a 'Sustainable Route to Growth' in their transport and future mobility strategies, which targets the need for £45bn of capital investment in transport infrastructure across the region and a 9% reduction in forecast car use, by:

- Making active travel the first choice for short journeys
- Enhanced partnerships and improvements to interurban and rural public transport services
- Placing zero emission bus rapid transit (BRT) at the centre of the transport system
- Planning for and adapting to technology 'place-based bundles', reducing car dependency and ownership

Elsewhere, the DfT's Sustainable Travel Town (STT) research indicates similar levels of reduction in car use could be achieved through investment in 'smart choice' programmes over a sustained period. Wealden, with varied geographies, has the potential to achieve similar levels of car use reduction by enhancing sustainable links

on the A22 corridor, between Polegate, Hailsham, Uckfield and neighbouring Eastbourne. The rural areas and smaller towns in the central and northern areas of the district present a number of challenges, such as access to public transport and the proximity of key services, and a lower reduction in forecast car use is more likely, depending on the measures deployed. The eventual strategy will need to integrate a range of mobility solutions with the principles of placemaking and the transport needs of residents to deliver the desired outcomes, including:

|                    |                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accessibility      | development to plan for '20-minute' neighbourhoods with easy access to key services, public transport and active travel networks                                                |
| Behaviour change   | reduce the need to travel and level of car ownership in accessible town centre locations and support the switch to electric vehicles                                            |
| Active travel      | move away from car dominated roads to create safe and connected corridors for pedestrians, cyclists and other micro-mobility options                                            |
| Bus                | develop enhanced partnerships, prioritised zero-emission mass bus rapid transit (BRT) and digital demand responsive transport (DDRT) solutions to serve more remote rural areas |
| Rail               | continued improvement to level of service, introduction of High-Speed rail and better integration with bus, active and micro-mobility options                                   |
| Future mobility    | explore the concept of Mobility as a Service (MaaS), potential for shared mobility hubs and alternatives to traditional car ownership                                           |
| Last-Mile delivery | innovative solutions to consolidate deliveries and reduce goods vehicles on network                                                                                             |

At this stage, a framework package of mitigation measures has been identified, which would need to be delivered at intervals across the Local Plan period with varying levels of complexity based on cost, deliverability and technological advancement. This has allowed an early assumption for a range of 5% (less accessible locations) to 10% (more accessible areas and key corridors) reduction in forecast car use to be applied to the initial modelling outputs across the district network to identify potential residual issues requiring further consideration.

Further modelling will be needed in the countywide model with more detailed mode shift analysis of specific measures, journey-purposes and corridors to understand a more precise geographical distribution of modal shift on the network. Careful consideration will need to be given to how these measures can be funded and delivered within the context of a Local Plan Infrastructure Delivery Plan (IDP) and viability.

## Planning for residual traffic impacts

The application of these initial headline mode shift targets could mitigate some of the impacts of potential growth on the network. The key exceptions are the A22, A27 Strategic Road Network (SRN), A26 and A2270 corridors where sections of road are currently at or approaching capacity. Other junction 'hotspots' across the wider district local road network could also be further impacted by potential cross-boundary growth from neighbouring districts and would need consideration going forward.

An initial capacity review of the potential local junction 'hot spots' on the key corridors has been undertaken to advise on early concept improvements. Design recommendations have been combined with advice from previous studies and are subject to more detailed design feasibility and assessment in the countywide and local junction models. Generally, reasonable local junction improvements could be implemented at many locations to improve capacity and complement the potential

sustainable transport options. From the assessments undertaken at this stage, some key locations could still have some residual design or capacity issues towards the end of the plan period, which may need further consideration through further detailed modelling in the countywide model, including:

- Sections of the single carriageway A22 corridor between Hailsham and Uckfield
- The intersection of the A22 SRN and A2270 corridor into Eastbourne
- Key junctions in and around the key settlements of Hailsham and Uckfield
- The A22 corridor through the Ashdown Forest SAC

The impacts of wider additional cross-boundary Local Plan growth on the Wealden network will also need to be considered within the context of the eventual need for mitigation. Equally, the cross-boundary impacts of the Wealden Local Plan will need to be considered too, particularly in neighbouring Eastbourne.

Initial engagement with NH has highlighted that a longer term ‘monitor and manage’ approach could be adopted across the Local Plan period. This would only require the implementation of proposed mitigation if the prevailing future traffic conditions actually rose to the modelled forecast levels. NH have clarified that, while this is a preferred, pragmatic and proportionate approach, they would still expect to see evidence to maximise and justify any future sustainable mode shift assumptions and any necessary mitigation identified to a basic level of design and feasibility to ensure it is a reasonably deliverable solution if required in the future. This approach could be similarly adopted, in agreement with ESCC, for any mitigation on the local road network.

### **Summary and next steps**

An initial assessment has been undertaken of a potential growth distribution for Wealden with the key objectives to understand the likely high-level transport impacts, early mitigation solutions and any residual risks to the district transport network, in advance of developing a preferred growth option and in advance of the countywide model being available.

The assessment indicates that development growth could have significant impact on key corridors, including the A22, A27 SRN, A26 and A2270. An initial framework of sustainable, and progressively innovative, transport solutions has been promoted as a priority to explore the potential for modal shift and reduce forecast levels of car use. A range of 5% to 10% reduction in peak hour car trips has been tested as a reasonable ambition for the district over the plan period and identifies some residual impacts on the A22 and A2270 corridors, which will need further consideration in the countywide model, further option testing and possible additional mitigation.

Further consideration will also need to be given to the cross-boundary impacts of Local Plan growth in neighbouring districts on the Wealden network and, equally, the corresponding impacts of the Wealden Local Plan growth on their networks.

As a next step the SATURN-based strategic East Sussex Countywide Transport Model (ESCWTM / “the countywide model”) will be used to refine the modelling methodology, assess impacts in more detail and further develop the transport evidence base as the Local Plan is prepared further.

# 1 Introduction

A new Local Plan for Wealden is currently being prepared and will be the key planning document to shape economic regeneration and the delivery of housing across the district up to 2039. The public consultation on the first stage Local Plan Direction of Travel concluded in January 2021 and the Council will now undertake evidence gathering and further engagement to help inform and shape the new Local Plan prior to a Regulation 18 consultation on a draft Local Plan.

The need for investment in transport infrastructure to meet current demand and provide alternatives to car travel, particularly through reducing the need to travel and providing for sustainable modes, is widely recognised through national and local policy. The likely impacts of further growth will present additional transport challenges across the district and wider region, which will need assessment and appropriate mitigation as evidence to support the acceptability and soundness of the Local Plan. Equally, the capacity of the existing transport network and the potential for it to change / expand will influence the quantum and location of additional growth that can be accommodated in the district and will be one factor influencing the extent to which Wealden is able to meet its objectively assessed needs, particularly for housing. A SATURN based East Sussex Countywide Transport Model (ESCWTM / referred to as the “countywide model”) is currently being developed to further test the emerging spatial picture in Wealden and the neighbouring Local Planning Authorities (LPAs) in the county as part of a Shared Transport Evidence Base (STEB). The countywide model will be used to refine a Preferred Option and provide the foundation for the transport evidence base to deliver housing and economic growth in the district.

In advance of using the countywide model, there is an immediate requirement to understand the likely impacts of Local Plan options on the transport system and gain an early indication of the possible scale and type of mitigation needed. A high-level interim spreadsheet-based modelling tool has been developed for each of the five districts in the county as an initial step in the STEB process. The ‘STEB’ model has been used to assess the known Local Plan options at both an isolated district level and also in-combination at a countywide level to identify potential constraints on the transport network, likely scale of mitigation needed and any residual impacts that could present risks to the delivery of each Local Plan within East Sussex. This approach has been discussed at every stage and agreed with the Local Planning Authorities (LPA’s), County Council as Highway Authority and also National Highways.

This document (Transport Note – TN01) sets out the outcomes of the early STEB analysis for a Wealden Local Plan growth option. It acknowledges the wider spatial picture where other adjoining local authorities are at a similar early stage, however, the analysis provides sensitivity testing of the possible additional cross-boundary impacts of emerging Local Plan options in each district.

This phase of work delivers an overview of the existing transport and movement challenges facing the district geography, the assessment approach used and early mitigation advice. These outcomes will assist the consideration of Local Plan growth options and will guide more detailed testing of transport impacts and further mitigation planning in subsequent phases using the countywide model.

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1 [Wealden Local Plan - Direction of Travel Consultation - Wealden District Council - Wealden District Council](#)

## 2 General Approach

### 2.1 Shared Transport Evidence Base

The impacts of new development will extend beyond the local area and across boundaries into neighbouring districts. LPAs and county councils are under a duty to cooperate with each other, and with other prescribed bodies, on strategic matters, including delivering effective infrastructure to support and mitigate the significant impacts of new development.

The current emerging status of all Local Plans within the county provides an opportunity to assess each Local Plan on its respective merits and potential in-combination effects with its neighbouring areas. The outcome of the initial STEB assessment will enable the LPAs and ESCC to work collaboratively to consider high-level impacts and early scalable mitigation solutions countywide, which can evolve as the eventual preferred spatial strategies are progressed and finalised.

### 2.2 ‘Planning for People and Places’

The minimum expectation for any Local Plan is to mitigate the severe impacts of new development on the transport system, however, the wider policy agenda looks beyond this expectation to deliver a decarbonised and sustainable transport system through the plan-making process. In response, the Council has committed to working with stakeholders to deliver a carbon neutral district by 2050 at the latest. Decarbonising the transport impacts of a Local Plan, by reducing the need to travel and prioritising sustainable transport, including more active travel options, are important to delivering this commitment. The Royal Town Planning Institute (RTPI)<sup>2</sup> has identified a framework (see Figure 2-1) to guide the role of spatial planning and achieve a decarbonised net-zero transport system.

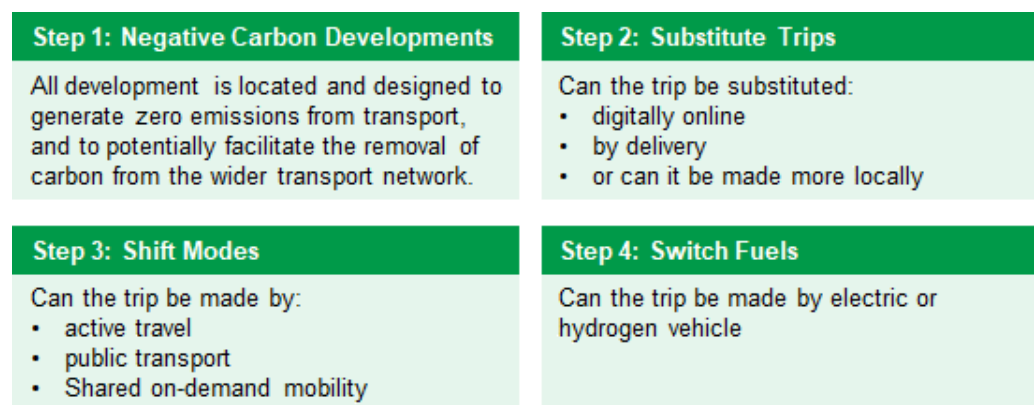


Figure 2-1 RTPI Sustainable Accessibility and Mobility Framework

This approach emphasises the need to move away from the traditional ‘predict & provide’ approach, where historic trends are used to forecast hypothetical futures to justify continual, and unsustainable provision of additional highway capacity, ultimately risking unconstrained levels of car-dependency. Wider industry guidance (TRICS<sup>3</sup> and

<sup>2</sup> [Net Zero Transport: the role of spatial planning and place-based solutions \(RTPI 2021\)](#)

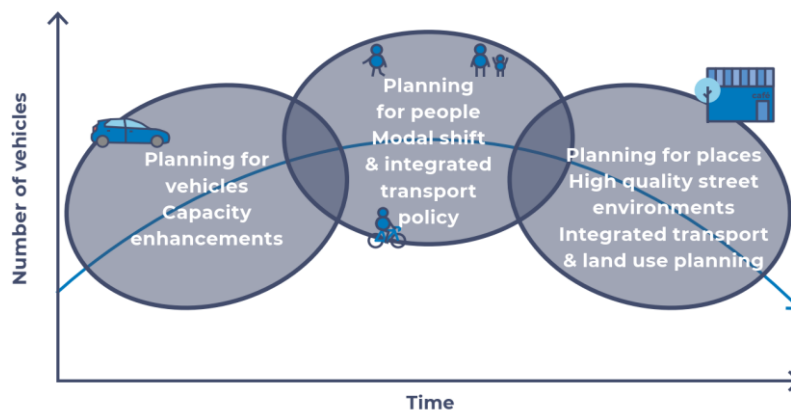
<sup>3</sup> [Better planning, Better transport, Better places \(CIHT 2019\)](#)

CIHT<sup>4</sup>) is also pushing for a change, where a ‘decide and provide’ approach, to actively choose preferred transport outcomes, is advocated. TfSE applies this in their strategy and Draft Strategic Infrastructure Plan<sup>5</sup> to deliver sustainable growth and transport solutions up to 2050<sup>6</sup> in the South East region. The TfSE approach is a relevant blueprint to cascade down to the countywide STEB and start planning a preferred outcome for the Wealden Local Plan.

TfSE has initially adopted a traditional forecast demand modelling approach to understand how and where the transport network is likely to be constrained. However, rather than immediately applying car-based capacity solutions, the strategy invests in public transport alternatives, integrated land use planning, demand management and embracing emerging technologies to solve problems in the future.

The approach follows three stages of evolution of transport planning policy perspectives (see Table 2-1), developed by Professor Peter Jones – UCL, to help guide transport and land use policy. The stages demonstrate how moving away from ‘planning for vehicles’ (predict and provide) to ‘planning for people and places’ (decide and provide) can reduce car use over time and deliver high quality places and environments for people to live:

*Table 2-1 Evolution of Transport Planning policy (source: TfSE Transport Strategy for the south East)*



|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stage 1:</b><br><b>Planning for Vehicles</b> | TfSE recognise that the region is still largely in this first stage and in the short term, and potentially longer term, targeted highway-based schemes will still be needed to address congestion hotspots and also provide complementary measures for bus and active modes.                                                                                                                     |
| <b>Stage 2:</b><br><b>Planning for People</b>   | Focuses on the needs of different transport users, including pedestrians, cyclists, public transport passengers, people with reduced mobility, freight operators and car, van and powered two-wheeler drivers. Understanding these needs and encouraging modal shift to more sustainable transport modes could manage future demand and minimise adverse impacts on society and the environment. |
| <b>Stage 3:</b><br><b>Planning for Places</b>   | Promotes the integration of transport and land use that both encourage sustainable travel choices and also reduce the need and/or distance to travel.                                                                                                                                                                                                                                            |

<sup>4</sup> [Guidance Note on The Practical Implementation of The Decide & Provide Approach \(TRICS 2021\)](#)

<sup>5</sup> [TfSE \(2022\) – Draft Strategic Investment Plan](#)

<sup>6</sup> [Transport Strategy for the South East \(TfSE 2019\)](#)

The framework and initiatives for planning for people and places, by delivering well-planned, sustainable places for people to live and work, are already evident at a policy and physical level in the region. However, there is emphasis that more will need to be done, at a faster rate, to put people and places at the heart of the transport system. The Wealden Local Plan presents an opportunity to proactively plan development and transport in response to changing socio-economic, environmental, and technological futures.

## 2.3 Application of STEB Approach

The initial STEB approach (shown in Figure 2-2) generally follows the TfSE principles at a local level and provides an early assessment of traffic growth and potential risks to key parts of the transport system and to enable sustainable transport and more active travel options to come forward. A 'decide and provide' future is the priority, and the primary focus will be on sustainable transport opportunities across the network and at key developments to start 'planning for people and places'. This will rely on evidence from elsewhere to start developing different future scenarios and, depending on the packages of interventions, the varying potential for modal shift.

The approach also recognises that an element of 'planning for vehicles' is still likely to be needed, at some point in the future, to address residual impacts on the highway network. Any highway options should be on a monitor and manage basis and consider integrating measures for all road users and not just vehicles. Key challenges and opportunities for all transport users will be identified to inform further detailed testing of mitigation in the countywide model.

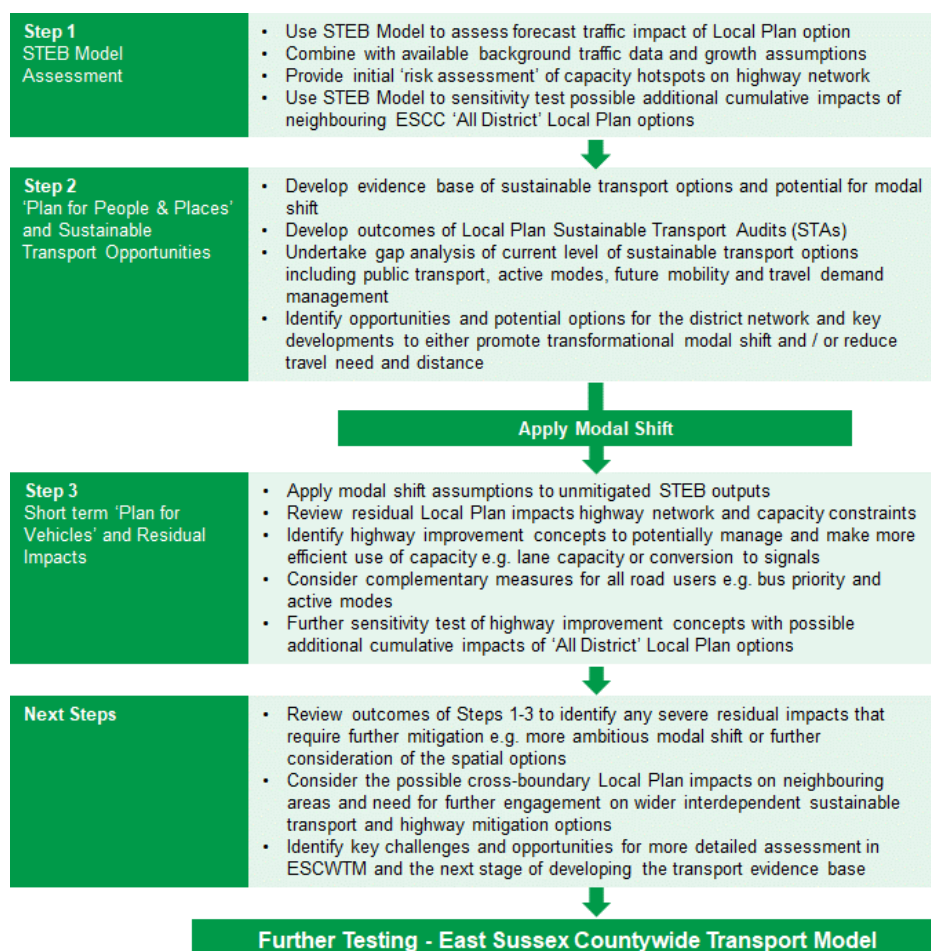


Figure 2-2 Overview of initial STEB approach

## 3 Wealden Context

### 3.1 Initial Growth Option

The new Local Plan for Wealden will plan and manage growth and change in the district up to 2039. The public and other stakeholders have already responded through an early Local Plan engagement process as part of the Council's Direction of Travel Consultation (November 2020 – January 2021) and WDC are now considering an Initial Growth Option (1), which could deliver an additional 16,000 houses and 170,000sqm of employment, retail and other floorspace (in addition to that already permitted), prior to a draft Local Plan (Regulation 18) consultation expected in early 2023. This is an initial option assessment and it is anticipated that further growth distributions and scales of development will be tested in future stages of work.

### 3.2 New Wealden Local Plan 2019-2039 Vision

In 2019 WDC declared a 'climate emergency' in the district and, in their Direction of Travel<sup>7</sup> consultation document, identified the need for a Local Plan vision with clear objectives to support the delivery of a Climate Emergency Action Plan. Planning policy will be central to the success of this vision and the Local Plan will need to respond to a number of key issues, opportunities and challenges, as set out in the Council's early consultation. The Direction of Travel report was accompanied by a Sustainability Appraisal Scoping report. This also identified challenges as well as some key transport themes that the emerging Local Plan will need to consider. The opportunities, challenges and themes are summarised in Table 3-1.

*Table 3-1 New Wealden Local Plan key opportunities, challenges and themes*

| Opportunities, Challenges and Themes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <b>Tackling Climate Change:</b> to achieve carbon zero outputs and improve air quality</li> <li>• <b>Infrastructure Delivery:</b> to support growth and change, meeting the needs of communities</li> <li>• <b>Housing:</b> deliver the right type of homes, in the right location and to a high standard</li> <li>• <b>Commercial:</b> support local business, increase jobs and ensure a thriving, diverse and a locally sustainable economy</li> <li>• <b>Tourism:</b> improve the existing offer and increase visitor spend</li> <li>• <b>Town Centres:</b> support and regenerate local centres by attracting the right investment and create vibrant places that cater for community's needs</li> <li>• <b>Natural Environment:</b> protect and enhance, increasing biodiversity and the quality of green and blue spaces</li> <li>• <b>High Quality Landscapes:</b> protect heritage and cultural assets</li> <li>• <b>High Quality Places:</b> through design and accounting for local character and distinctiveness</li> <li>• <b>Local Communities:</b> help communities to thrive, living safe, inclusive and healthy lives.</li> </ul> |                                                                                                                                                                                                                                                                                                               |
| Key Challenges                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Key Transport Themes <sup>8</sup>                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>• High dependency on the private car for travel in the district</li> <li>• District suffers with poor public transport, primarily due to its rural nature</li> <li>• Funding the creation of new cycle/walking infrastructure</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Encourage active and sustainable transport</li> <li>• Provision of walking &amp; cycling infrastructure</li> <li>• Implementing parking standards</li> <li>• Ensure the right infrastructure is provided in sustainable locations at the appropriate time</li> </ul> |

<sup>7</sup> [Wealden Local Plan – Direction of Travel](#)

<sup>8</sup> [WLP SA SEA Scoping Report November 2020 \(Wealden.Gov.Uk\)](#)

- 
- The district experiences high car use with transport infrastructure at capacity during peak time and congestion on the road network
  - Most people commute out of the district for work and do so by car/van. Those who work within the district rely heavily on private cars
  - Favour development in locations where existing sustainable routes are in place
  - Ensure distances to recreational facilities are minimised and can be made by foot/cycle
  - Public realm improvements
  - Design safe and accessible walking and cycling networks
- 

## 3.3 Wider Policy Context

The development of the Local Plan transport evidence base and the need for mitigation will also need to respond to wider policy objectives and guidance. Table 3-2 summarises key national, regional and local transport policy guidance relevant to plan-making.

*Table 3-2 Wider transport policy and guidance*

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### National Policy

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#### **The National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2021)**

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The NPPF sets out the government's planning policies for England and requires all plans to promote a sustainable pattern of development and be genuinely plan-led. It advises that transport issues should be considered from the earliest stages of plan-making so that potential impacts on transport networks can be addressed so that opportunities for existing or proposed transport infrastructure, including charging technology and usage are realised, so that opportunities to promote walking, cycling and public transport are identified and pursued so that the environmental impacts are identified, assessed and taken into account and so that patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places. It advises that significant growth should be focused on locations which are or can be made accessible, through limiting the need to travel and offering a genuine choice of transport modes.

It requires planning policies to be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned.

The STEB assessment provides an initial assessment to understand the scale of likely impacts on the network.

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#### **National Planning Policy Guidance (NPPG) (Department for Communities and Local Government, 2021)**

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The PPG provides further plan-making guidance on preparing a transport evidence base, including recommending assessment at initial evidence stage, options testing and as preparation of the final submission.

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#### **DfT Circular 02/2013 - The Strategic Road Network and the Delivery of Sustainable Development (2013) & The strategic road network Planning for the future - A guide to working with Highways England on planning matters (2015)**

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National Highways (NH) has been, and will continue to be, engaged throughout the development of the emerging Local Plan evidence base. Circular 02/2013 sets out that through the Local Planning process developments should be promoted in sustainable locations and that capacity enhancements and infrastructure required to deliver strategic growth should be identified at the Local Plan stage.

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#### **Bus Back Better: National bus strategy for England (DfT, 2021)**

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The strategy provides a long-term commitment to funding and delivering more frequent, reliable and easier to use bus services to significantly increase passenger numbers and reduce congestion, carbon and pollution. The vision is for fully integrated and inclusive services, multi-modal ticketing, increased bus priority, reliable real-time information and turn-up-and-go frequencies. Funding is recognised as a key challenge, and the strategy provides support to Local Transport Authorities (LTAs) to access franchising powers. It also places an expectation on LTAs to commit to establishing, more flexible, Enhanced Partnerships across their entire areas and publish a Bus Service Improvement Plan (BSIP) to access continued central funding and support. The Local Plan will need to reflect the BSIP and integrate new housing and employment with enhanced public transport services and infrastructure delivery.

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#### **Gear Change: A bold vision for cycling and walking (DfT, 2020)**

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The Government has set out a vision for a step-change in cycling and walking, to double uptake over the next decade, and transform their role in the transport system where “Places will be truly walkable... Cycling and walking will be the natural first choice for many journeys with half of all journeys in towns and cities being cycled or walked by 2030.” Cycling and walking needs to be placed at the heart of the decision-making and Local Plan-making process to deliver healthier, greener and safer environments with convenient access to travel.

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#### **Regional Policy**

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##### **Transport for the South East Transport Strategy (TfSE)**

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The TfSE transport strategy aims to support their vision for a net-zero carbon South East by 2050. The strategy sets out the different priorities underpinning the strategy for the environment and economy. Key themes of the strategy include promoting active travel and healthier lifestyles reducing the impact of, and the need to travel an affordable, accessible transport network and a digitally smart transport network.

In relation to Wealden, the strategy acknowledges that sustainable initiatives and benefits of new technology should be shared between urban and more rural areas but that roads serving urban areas offer opportunities to look at the balance of road space between cars, PT and active modes. Wealden is also identified as part of a strategic corridor, with the A22 running through it.

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##### **TfSE Draft Strategic Investment Plan (SIP, 2022)**

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TfSE consulted on their draft SIP in mid-2022 and are currently preparing a revised draft in response to the consultation and input from local authorities across the region, government, Network Rail, National Highways and other key stakeholders. The draft SIP builds on the transport strategies, discussed above, and a wider evidence base to provide an emerging framework for investment in strategic multi-modal transport infrastructure, services and regulatory interventions up to 2050. The plan is seen as an enabler of future economic growth across different sectors and is intended to present a compelling case for government and private investors that a £45bn capital investment over 27 years (£1.5bn per year) could deliver the following by 2050 across four regional packages:

- 21,000 additional new jobs
- additional £4bn GVA per annum
- 1.4 mega tonnes reduction in equivalent CO<sub>2</sub> emitted
- 500,000 more rail trips each weekday
- 4 million fewer car trips each weekday
- 1.5 million more trips by bus, mass transit and ferry each weekday

Wealden is covered principally by the London to Sussex coast package of interventions with an expected capital investment of £3.6bn needed up to 2050. TfSE recognises that funding the SIP will be the principal financial challenge and, at this stage, schemes have been prioritised into short, medium and longer term delivery timescales with high level advice around the expected next steps to develop the business case and feasibility with key delivery partners.

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##### **South East Local Enterprise Partnership’s (SELEP) Strategic Economic Plan (2014)**

---

SELEP has identified that a lack of investment on and around the A27 South Wealden and Eastbourne is inhibiting potential growth in the area and is considered a barrier to growth. To enable developments and business growth in the Wealden growth corridor ( Uckfield, Hailsham and Polegate), the SELEP has proposed improvements to the A22/A27 corridor, particularly around

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Polegate. The strategy also identifies a need for a sustainable transport corridor between Eastbourne and Hailsham. These proposals will be considered within the context of this study.

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### **SELEP's Economic Recovery & Renewal Strategy (2021)**

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The strategy outlines the opportunities and needs of the SELEP area and the actions they will take to drive the South East into new economic growth as the country recovers from the COVID-19 pandemic and establishes new ways of working internationally following the EU Transition. The strategy highlights four priority areas that have been identified as the unique driving forces behind the South East economy:

- Business Resilience and Growth
- UK's Global Gateway
- Communities for the Future
- Coastal Catalyst

The strategy includes key relevant priorities around improving connectivity to ports and addressing the impacts of poorer physical connectivity on coastal and rural economies. The strategy needs to be delivered within framework of delivering clean growth, by cutting carbon emissions to move to net-zero and closing the digital divide to build a smart connected South East.

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### **Local Policy**

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#### **ESCC Local Transport Plan 3 (LTP3) (2011-2026)**

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The East Sussex LTP3 sets out the county's vision and objectives and the strategy from 2011 to 2026. The LTP3 sets out ten transport specific objectives including congestion reduction, connectivity improvement, increasing the uptake of sustainable and active modes, reducing greenhouse gas emissions and air and noise pollution from transport. Wealden is identified within LTP3 as an area to facilitate housing growth and to create sustainable communities. An updated LTP4 is due to be completed in 2022 and will provide a fresh set of objectives and outcomes for the transport context in the county

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#### **East Sussex Bus Service Improvement Plan (BSIP)**

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In line with the expectations of the Bus Back Better: National bus strategy for England, ESCC have prepared a BSIP. A key target of the BSIP is to initially reverse the decline in bus patronage and then grow it significantly in future years. This will be delivered by quality improvements, including bus priority schemes to improve reliability and punctuality, simplified and reduced fares and improved services in rural areas.

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#### **East Sussex's Local Cycling & Walking Infrastructure Plan: Let's get cycling and walking (ESCC, 2021)**

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The LCWIP sets out a proposed network of cycling and walking routes and measures in specific areas of the County. Importantly this will sit alongside the County Council's wider plans to improve mobility and transport over the next ten years and to deliver healthier, safer and more accessible new housing and employment through Local Plans. The LCWIP places people at its centre and focuses on understanding their needs and the places they want to get to by delivering an ambitious network of additional cycling and walking routes and measures to integrate with existing cycling and walking infrastructure.

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#### **Wealden District Core Strategy Local Plan (2013 – 2027)**

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The Core Strategy notes that over half of the district's population live outside towns in rural areas of the district and lack of accessibility to public transport has created a reliance on private vehicles. The main transport objectives include providing sustainable transport alternative to the private vehicle and focussing development in areas best served by public transport. In particular, the strategy notes required interventions to support development in Polegate, east Willingdon, Uckfield and Hailsham.

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## 3.4 Area Profile

### 3.4.1 Local Geography

Wealden is in the centre of East Sussex, bordering Eastbourne to the South, Lewes to the South-West and Rother to the East. The district also borders the counties of West Sussex, Surrey and Kent. The South Downs National Park Authority (SDNPA) also covers the south west of the district and have planning responsibilities for Alfriston, East Dean and Friston to the west of Eastbourne.

Wealden has a population estimate of 160,100 (2021)<sup>9</sup> people which makes up approximately 29% of the population of East Sussex as a whole. The district includes the principal towns of Crowborough, Uckfield, Heathfield, Hailsham and Polegate, where over 50% of the district's population live. The remaining population predominantly reside in rural areas with reduced accessibility to sustainable modes of travel.

### 3.4.2 Travel Trends

The Census 2021 travel to work data will not be available until 2023 and, for the purposes of this study, the Census 2011<sup>10</sup> data has been used in both the STEB modelling and as a guide to typical travel trends in the district:

- The average private vehicle mode share for journey to work trips across Wealden – including those in to and out of the district – is 74%
- Approximately 58% of residents travel out of the district for work with 13% travelling to neighbouring Eastbourne, 9% to London and 27% to the rest of the UK
- Travel to and from neighbouring authorities is generally made by car with approximately 85% of journeys to work made by private vehicle
- 42% of residents who live and work within the district and private vehicle mode share makes up around 69% of all trips with 31% made by sustainable modes.
- Public transport use within the district is relatively low at approximately 3% of trips.
- Car ownership within Wealden (2011) shows that approximately 87% of households in Wealden have access to one or more cars, which is notably higher than the national average of 74%.

A general overview of transport connectivity for Wealden and the travel to work patterns to/from neighbouring districts in the county is shown in Figure 3-1.

<sup>9</sup> [East Sussex on Figures](#)

<sup>10</sup> [Wu03uk \(Location of Usual Residence And Place of Work By Method of Travel To Work\) - Nomis - Official Labour Market Statistics \(Nomisweb.Co.Uk\)](#)

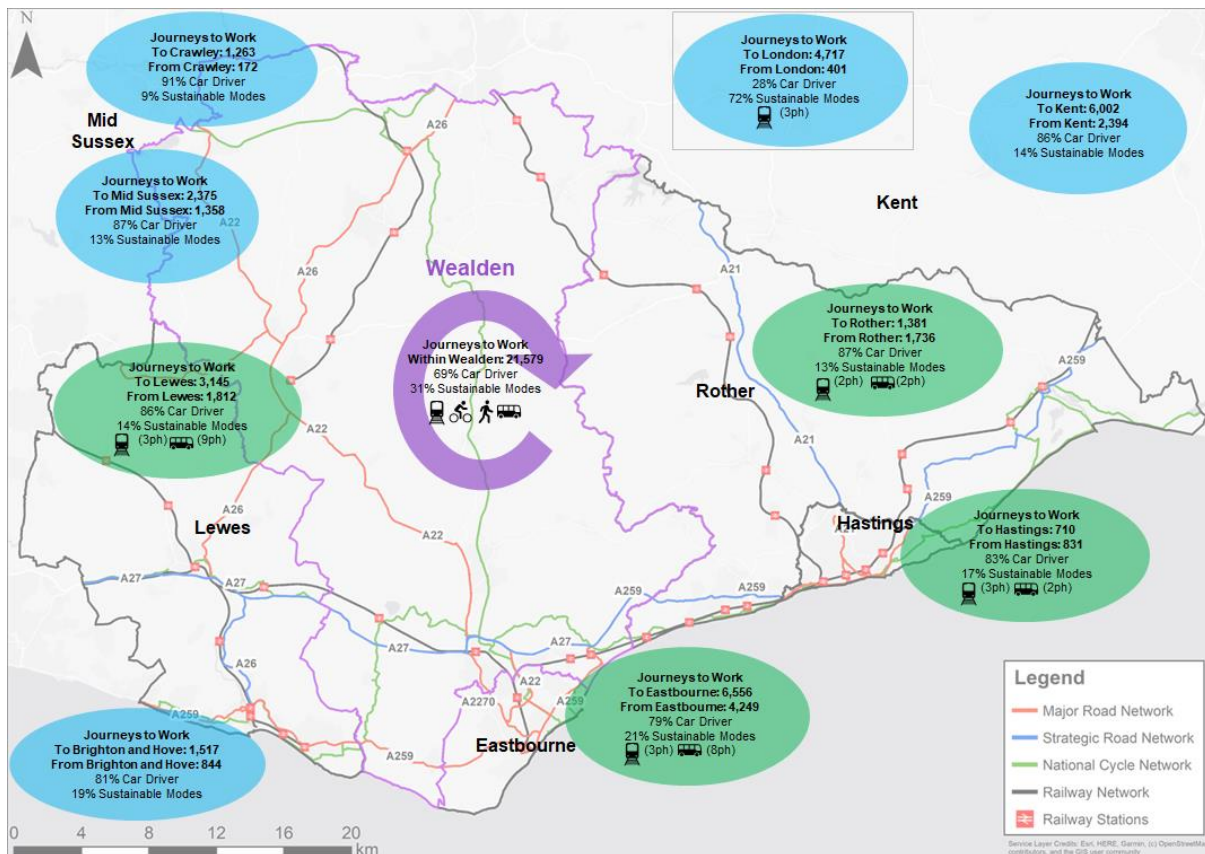


Figure 3-1 Wealden context and journeys to work patterns with neighbouring areas (Census 2011)

### 3.4.3 Transport Connectivity

#### Road

The district is connected to the Major Road Network (MRN) via the A22 and A26, and to the Strategic Road Network (SRN) to the south of the district on the A27. Several key junctions and roads on these corridors are currently at, or reaching capacity, and experience congestion and delay during peak hours. A package of highway improvement schemes on the southern end of the A22 are currently being developed into an Outline Business Case (OBC) as part of an MRN bid to the DfT. The bid is being prepared by ESCC and submission is anticipated for early 2023. National Highways (NH) are also implementing highway improvements on the A27 as part of their RIS programmes.

#### Bus

The level of bus accessibility in the district is generally low and there are only a few services with frequency of more than one per hour linking the principal towns, local centres and the neighbouring cross boundary destinations of Brighton, Eastbourne and Hastings. Rural areas are not well served and there are limited cross boundary services to Lewes, West Sussex and Kent. An overview of the current level of bus service in Wealden, connecting with neighbouring authorities, is summarised in Table 3-3.

*Table 3-3 Bus routes and frequency (Source: [cartogold-ESCC](#))*

| Route Number | Destinations                 | Typical Hourly Frequency      |
|--------------|------------------------------|-------------------------------|
| 1X           | Hellingly - Eastbourne       | 2                             |
| 26           | Hastings – Conquest Hospital | 3                             |
| 28/29        | Brighton – Tunbridge Wells   | 2-4                           |
| 31/31A       | Cuckfield – Uckfield         | 6 times daily                 |
| 37           | Hailsham – Beachlands        | 2 times (Saturdays only)      |
| 54           | Uckfield – Eastbourne        | 1                             |
| 143          | Lewes - Hailsham             | 5 services daily (Mon to Fri) |
| 252          | Tunbridge Wells – Heathfield | 1                             |

## Rail

Wealden is predominantly rural and whilst a railway line service operates between Uckfield to London Bridge and between Hastings and London Charing Cross (via Wadhurst) along the eastern side of the district, several of the urban areas within the district are not directly served by rail, including Hailsham and Heathfield.

The existing key rail services operating from railway stations within Wealden are shown in Table 3-4. There are east-west connections via the East Coastway, Hastings and Marshlink lines and rail journey times are generally comparable with peak hour car journey times from Polegate towards Hastings (35mins) and Brighton (45mins). Services and journey times to London and Kent from the south coast are considered slow and constrained by level-crossings on the Marshlink line towards Kent and high demand towards London Victoria. Services from Wadhurst and Crowborough, in the north of the district, provide quicker journey times towards Kent and London.

*Table 3-4 Rail routes, journey times and frequency*

| Origin   | Destination          | Key Local Calling Points          | Average Journey Time (from Origin) | Typical Hourly Frequency |
|----------|----------------------|-----------------------------------|------------------------------------|--------------------------|
| Polegate | London Victoria      | Lewes, Haywards Heath,            | 1h39 (peak), 1hr30 (off-peak)      | 2                        |
|          | Bexhill              | Eastbourne, Pevensey & Westham    | 30 mins                            | 2                        |
|          | Brighton             | Berwick, Lewes, Falmer            | 41 mins (peak), 50 mins (off-peak) | 2                        |
|          | Hastings             | Hampden Park, Eastbourne, Bexhill | 32 mins                            | 3                        |
|          | Eastbourne           | Hampden Park                      | 10 mins                            | 3                        |
| Uckfield | London Bridge        | Buxted, Crowborough, Eridge       | 1h20                               | 1                        |
| Wadhurst | London Charing Cross | Frant, Tunbridge Wells            | 1h05                               | 2                        |
|          | Hastings             | Stonegate, Battle                 | 40 mins                            | 2                        |

## Active Travel

Wealden currently benefits from National Cycle Network (NCN) Route 21 running north-south through the middle of the district and makes use of the Cuckoo Trail a

mainly off-road cycling route from Polegate to Heathfield and on-road from Heathfield to Groomsbridge. Route 21 then links into Route 18 to connect Groomsbridge to Tunbridge Wells Common, south west of Royal Tunbridge Wells.

According to the 2011 Census, less than 2% of commuting trips are made by bicycle both within the district and cross-boundary into neighbouring districts/boroughs which can be partially attributed to the 58% of residents travelling longer distances outside the district for work, which is the highest level across each district in the county. Cycle parking is provided at most railway stations in Wealden (Table 3-5) to encourage cycling as the first or last mile mode choice for wider rail trips.

*Table 3-5 Wealden Railway Stations, Cycle Parking Provision*

| Station                    | Cycle Parking Spaces |
|----------------------------|----------------------|
| Polegate                   | 48                   |
| Uckfield                   | 20                   |
| Crowborough                | 18                   |
| Wadhurst                   | 20                   |
| Pevensey Bay               | 5                    |
| Pevensey & Westham         | 12                   |
| Berwick                    | 20                   |
| Eridge                     | 16                   |
| Ashurst (Kent)             | 22                   |
| Buxted                     | 10                   |
| Frant (at Bells Yew Green) | 12                   |

The East Sussex Pedal Power Scheme, eligible to anyone living within East Sussex and wishing to commute by bicycle, allows individuals to rent a bike for a chosen length of time with the option to return the bike or buy it outright at the end of the loan period. This scheme aims to make cycling more accessible and targets employees across all Districts within East Sussex. As part of the Government's Emergency Active Travel Fund, East Sussex were awarded funding to install cycle stands across the county's five districts and boroughs to encourage and improve opportunities to cycle. Installation locations in Wealden include car parks and shopping centres in Hailsham, close to the Cuckoo Trail cycle network to integrate with the existing cycle network.

The Healthy Wealden website focuses on encouraging walking around the district, for commuting and pleasure and directs residents and tourists towards self-led walks, an annual walking festival and guided walks. Wealden Walks are a collection of self-guided walks available throughout the district which have all been recently tested and improved. The initiative aims to help encourage walking within the district and was launched for the Council's millennium commemoration.

ESCC have prepared a series of Local Cycling and Walking Infrastructure Plans (LCWIPs), in partnership with the districts, to plan improvements to the active travel network across the county and in Wealden. The Wealden LCWIP is discussed in more detail in section 4.

## Electric Vehicle Infrastructure

In Wealden, there are approximately 23 EV public-use and customer-only charging points (see Figure 3-2) with a combination of rapid, fast or slow charging and primarily located at Supermarkets, Pubs, Railway Stations, Council Offices or retail areas. On-street charging points are not currently provided.

There are currently no on-street points and most EV charging points are located at workplaces (e.g. Council office), leisure destinations (e.g. Public Houses, Community Hubs) or retail locations (e.g. Asda Hailsham, Tesco Uckfield) and are restricted to staff / visitors / customers only. The District are working with charge point operators to increase the number of publicly accessible points, meet anticipated demand and also encourage uptake. ESCC are also starting to prepare an EV strategy for the county and will engage with the District to meet the demands of existing residents as well as supporting the delivery of new development through the Local Plan, including EV ready homes and on-street infrastructure.

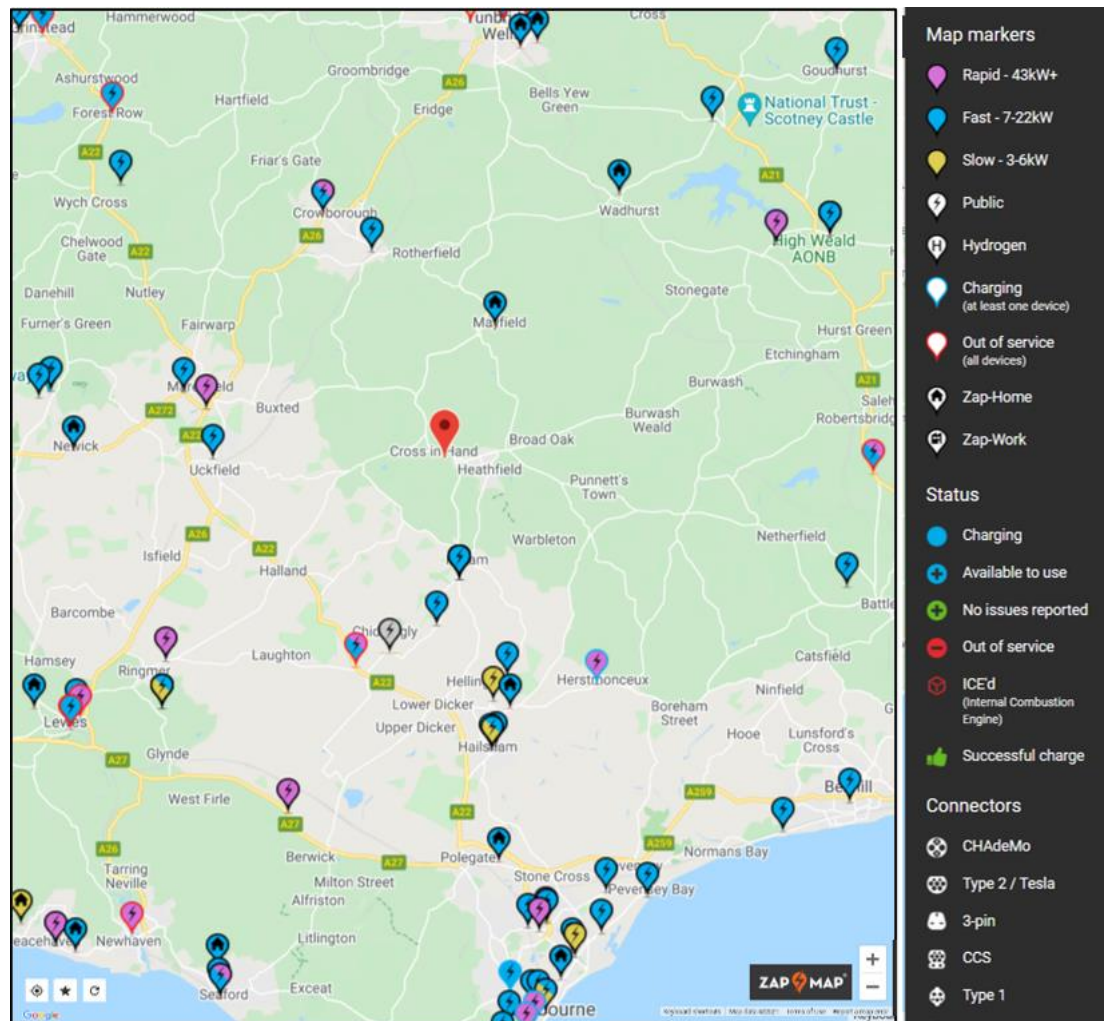


Figure 3-2 Current Wealden EV charging locations (Source: [DfT ZapMap](#))

## 3.5 Issues and Challenges

There are varying levels of accessibility across the predominantly rural Wealden district. Railway stations at Polegate, Uckfield, Crowborough and in rural locations to the north and south of the district offer good access to rail. However, overall public transport provision is generally poor for most of the district. Some of the key challenges Wealden has around transport and connectivity include:

- The lowest levels of existing sustainable travel across East Sussex, with only 31% of internal Wealden trips made by non-private vehicle modes
- The high proportion of commuters working outside the district makes sustainable travel initiatives and incentives hard to encourage, unless connectivity is improved cross-boundary
- A high proportion (79%) of commuting between Wealden and Eastbourne is by car. >86% of trips to Lewes, Hastings, Rother and other counties and 82% of all commuter trips into the district are all made by car
- Car ownership levels, 87% of households in Wealden have one or more cars. This is significantly higher than the national average (74%) and
- 50% of the population live in rural or remote areas and, with the exception of at Stonecross, Westham, Pevensey, Wadhurst, Frant (at Bell Yews Green), Eridge and Buxted, many areas do not have direct access to rail connections or a frequent bus service

# 4 Transport Scheme Pipeline

## 4.1 Overview

In advance of identifying new mitigation options, there are a range of schemes and initiatives already in the pipeline across Wealden and the wider area, which also need to be considered. The following reports/studies have been used, alongside engagement with key stakeholders, to obtain the details of schemes that are already known about:

*Table 4-1 Key relevant studies and documents*

|                                                                                                         |
|---------------------------------------------------------------------------------------------------------|
| <a href="#">South Wealden and Eastbourne Transport Study<sup>11</sup></a> (SWETS - 2010)                |
| Polegate Movement & Access Strategy (2012)                                                              |
| Movement and Access Strategy for Hailsham and Hellingly (MASHH 2012)                                    |
| Hailsham - Polegate - Eastbourne Management Access Corridor Business Case (HPE MAC - 2017)              |
| <a href="#">Wealden Local Plan Transport Study<sup>12</sup></a> (WLPTS - 2018)                          |
| A22 Corridor Package OBC Updated Option Assessment Report (2022)                                        |
| A22 / A2290 Corridor Transport Study – Final Stage 1 Option Development Report (2020 ongoing)           |
| Local Cycling and Walking Infrastructure Plans (LCWIP 2021)                                             |
| TfSE – Draft Strategic Investment Plan (2022) <sup>13</sup> and Transport Strategy (2019) <sup>14</sup> |

## 4.2 Longlist of Schemes

A long list of transport schemes has been identified with the Council and ESCC and categorised by the 'level of certainty', mode of transport and lead promoting body in Table 4-2 and approximate locations shown in Figure 4-1. Appendix A includes a more detailed summary of each scheme.

*Table 4-2 Wealden District Council Pipeline Schemes and Status*

| Ref                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Scheme name                                                                                   | Mode(s)        | Lead body |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------|-----------|
| <b>Committed (near certain / more than likely)</b> – funding and permissions are largely secured either through developer S106 and / or public funding. It is either near certain or more than likely that the scheme will be delivered in its current form to address known issues on the network and the impacts of growth in the currently adopted Local Plan i.e. <b>these schemes would be considered as part of the baseline and not necessarily to mitigate the impact of new Local Plan growth.</b> |                                                                                               |                |           |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor Phase 1                           | Bus/walk/cycle | ESCC      |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A27 Improvements – Shared-use path stretching from Polegate to the junction with Firle Bostal | Walk/cycle     | NH        |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A27 Improvements – Berwick Roundabout Upgrade                                                 | Car/bus        | NH        |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A27 Improvements – Wilmington Junction Upgrade                                                | Car/walk       | NH        |

<sup>11</sup> [South Wealden and Eastbourne Transport Study \(2010\)](#)

<sup>12</sup> [Wealden Local Plan Transport Study \(2018\)](#)

<sup>13</sup> [Draft Strategic Investment Plan TfSE \(2022\)](#)

<sup>14</sup> [Transport Strategy for the South East \(TfSE 2019\)](#)

| Ref                                                                                                                                                                                                                                                      | Scheme name                                                                                              | Mode(s)             | Lead body |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------|-----------|
| 5                                                                                                                                                                                                                                                        | A27/A2270 Polegate Junction                                                                              | Car/walk            | NH        |
| 6                                                                                                                                                                                                                                                        | A27 link lane widening between A2270 and Cophall Roundabout                                              | Car                 | NH        |
| 7                                                                                                                                                                                                                                                        | A27 – Station Road Drusillas Roundabout                                                                  | Car                 | NH        |
| 8                                                                                                                                                                                                                                                        | South Road / Ersham Road / Diplocks Road                                                                 | Car                 | ESCC      |
| 9                                                                                                                                                                                                                                                        | Polegate High Street Public Realm Improvements                                                           | Walk/cycle          | ESCC      |
| <b>Planned (reasonably likely)</b> – permissions and funding yet to be confirmed, but options and feasibility designs have been progressed and a funding route has either been partially secured, or is known, and/or a business case is being developed |                                                                                                          |                     |           |
| 10                                                                                                                                                                                                                                                       | A22 - B2124 Golden Cross Junction (A22 MRN OBC)                                                          | Car/bus             | ESCC      |
| 11                                                                                                                                                                                                                                                       | Golden Cross to Boship Roundabout (A22 MRN OBC)                                                          | Bus                 | ESCC      |
| 12                                                                                                                                                                                                                                                       | Boship to Horsebridge                                                                                    | Bus                 | ESCC      |
| 13                                                                                                                                                                                                                                                       | Horsebridge to Hailsham                                                                                  | Car/bus             | ESCC      |
| 14                                                                                                                                                                                                                                                       | A22 Boship Roundabout                                                                                    | Car/bus             | ESCC      |
| 15                                                                                                                                                                                                                                                       | A22 Hempstead Lane New Roundabout                                                                        | Bus                 | ESCC      |
| 16                                                                                                                                                                                                                                                       | A22 Eagles Roundabout                                                                                    | Bus                 | ESCC      |
| 17                                                                                                                                                                                                                                                       | A27 A22 Golden Jubilee Roundabout                                                                        | Bus                 | ESCC      |
| 18                                                                                                                                                                                                                                                       | A22 Dittons Road Signalised Junction                                                                     | Bus                 | ESCC      |
| 19                                                                                                                                                                                                                                                       | A22 Diplocks Way                                                                                         | Car                 | ESCC      |
| 20                                                                                                                                                                                                                                                       | A259 Brighton-Eastbourne- Pevensey (South Coast) MRN corridor                                            | PT/walk/cycle       | ESCC      |
| 21                                                                                                                                                                                                                                                       | Exceat Bridge replacement                                                                                | Car/walk            | ESCC      |
| 22                                                                                                                                                                                                                                                       | B2147 Dittons Road Cycle Provision                                                                       | Cycle               | ESCC      |
| 23                                                                                                                                                                                                                                                       | A22/A2270/A2021 Hailsham – Polegate – Eastbourne Movement and Access Corridor (Future phases)            | Bus/walk/cycle /car | ESCC      |
| 24                                                                                                                                                                                                                                                       | Junction improvement at A27 / Gainsborough Lane                                                          | Car                 | NH        |
| 25                                                                                                                                                                                                                                                       | Re-configuration of The Triangle                                                                         | All                 | ESCC      |
| 26                                                                                                                                                                                                                                                       | Coppice Avenue and Farmlands Way Traffic Calming                                                         | Walk/cycle          | ESCC      |
| 27                                                                                                                                                                                                                                                       | Castle Road Shuttle Working                                                                              | Car                 | ESCC      |
| 28                                                                                                                                                                                                                                                       | Pevensey High Street Pedestrian Crossing Facility                                                        | Walk                | ESCC      |
| 29                                                                                                                                                                                                                                                       | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor PHASE 3 Ersham Road roundabout, Hailsham     | All                 | ESCC      |
| 30                                                                                                                                                                                                                                                       | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor PHASE 4 A2021 Kings Drive/Rodmill Roundabout | All                 | ESCC      |
| <b>Concept (uncertain)</b> – still at a hypothetical level of planning with options still to be considered, further feasibility needed and funding route to be confirmed.                                                                                |                                                                                                          |                     |           |
| 31                                                                                                                                                                                                                                                       | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor PHASE 5 – Rodmill roundabout to town centre  | All                 | ESCC      |
| 32                                                                                                                                                                                                                                                       | Uckfield Bypass                                                                                          | Car                 | ESCC      |

| Ref | Scheme name                                                                                                   | Mode(s)        | Lead body           |
|-----|---------------------------------------------------------------------------------------------------------------|----------------|---------------------|
| 33  | A27 - Cophall Roundabout                                                                                      | Car/bus        | NH                  |
| 34  | Hawks Road Roundabout and Urban improvements Hailsham                                                         | Car/walk/cycle | ESCC                |
| 35  | A27 Falmer Polegate bus laybys                                                                                | Bus            | NH                  |
| 36  | Strategic Mobility Hub - West of Polegate                                                                     | PT/walk/cycle  | Network Rail / ESCC |
| 37  | Uckfield electrification                                                                                      | Rail           | Network Rail / TfSE |
| 38  | Reinstate Uckfield - Lewes Railway Line                                                                       | Rail           | Network Rail / TfSE |
| 39  | Hailsham to Eastbourne dedicated connected Quality Bus Corridor (QBC) / Bus Rapid Transit and Active Corridor | Active / Bus   | ESCC / TfSE / NH    |
| 40  | Potential off line A27 realignment scheme to the west of Polegate as part of RIS3                             | Car/PT/Active  | NH                  |

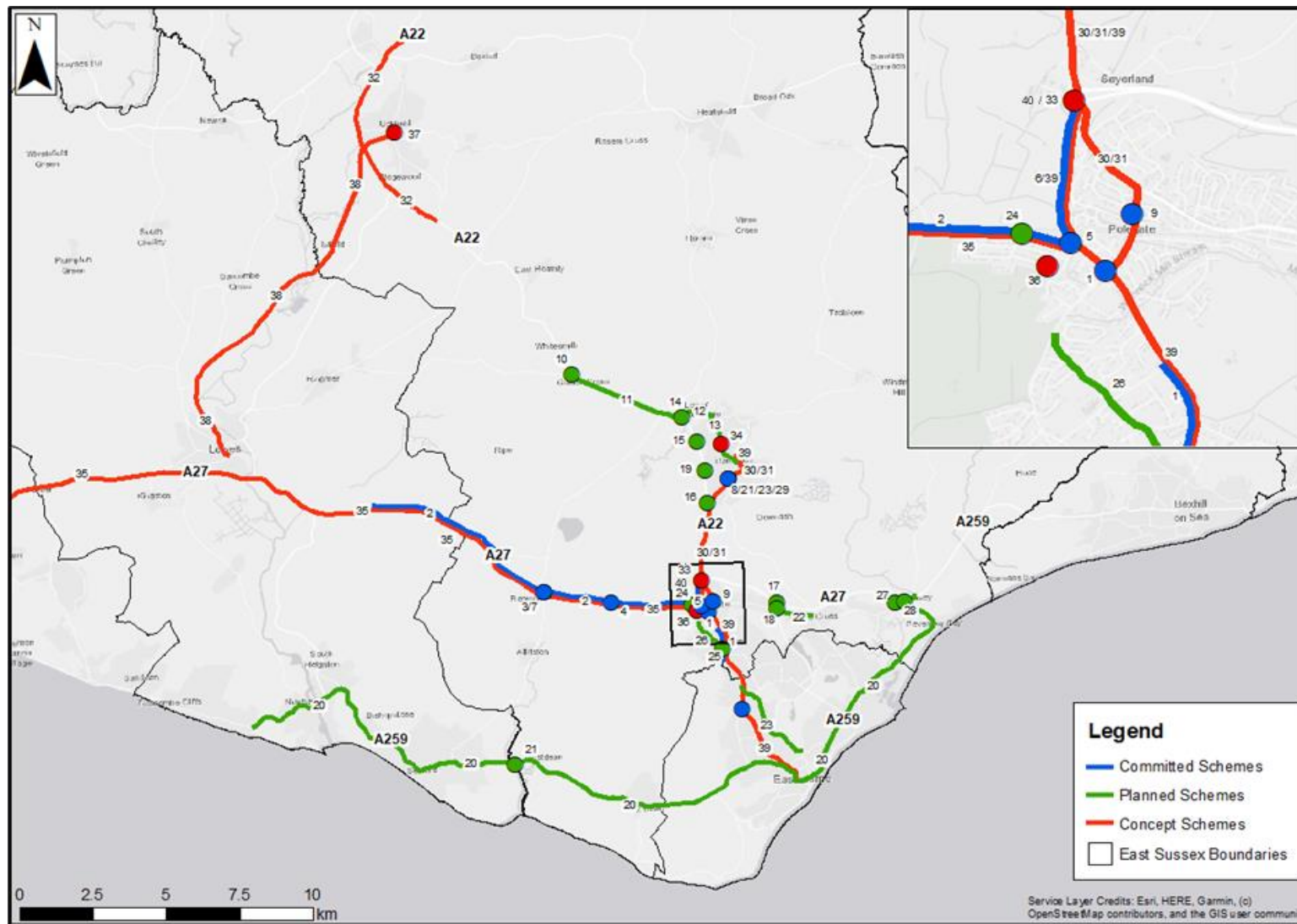


Figure 4-1 Scheme Pipeline by Status

## 4.3 LCWIP Schemes

The East Sussex Local Cycling & Walking Infrastructure Plan (LCWIP) sets out proposed cycling and walking networks and measures within specific areas of the County and received Member approval at a Cabinet meeting on 30th September 2021. It is focussed on areas of the county where there are the greatest opportunities to increase levels of cycling and walking, with an emphasis on delivering infrastructure improvements which will support those people who currently do not cycle or walk. The walking and cycling proposals for Wealden as part of LCWIP are shown in Figure 4-2 and Figure 4-3. Appendix B includes a corresponding list of LCWIP scheme names.

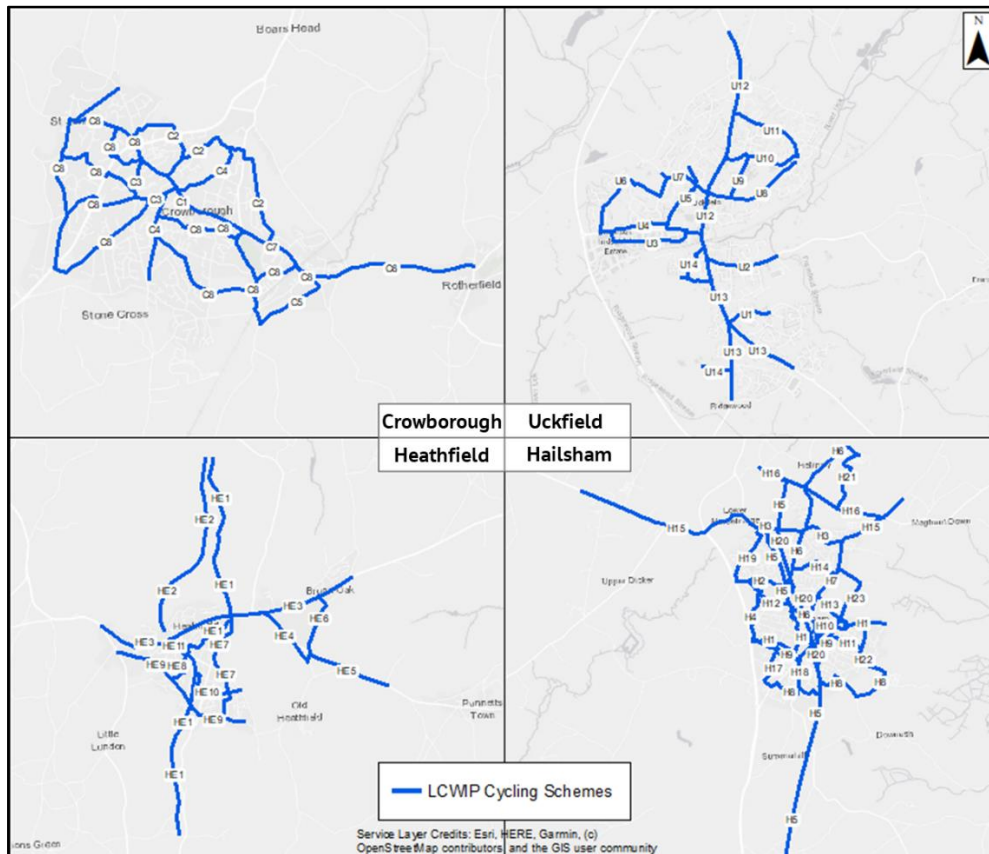


Figure 4-2 LCWIP Cycling Schemes

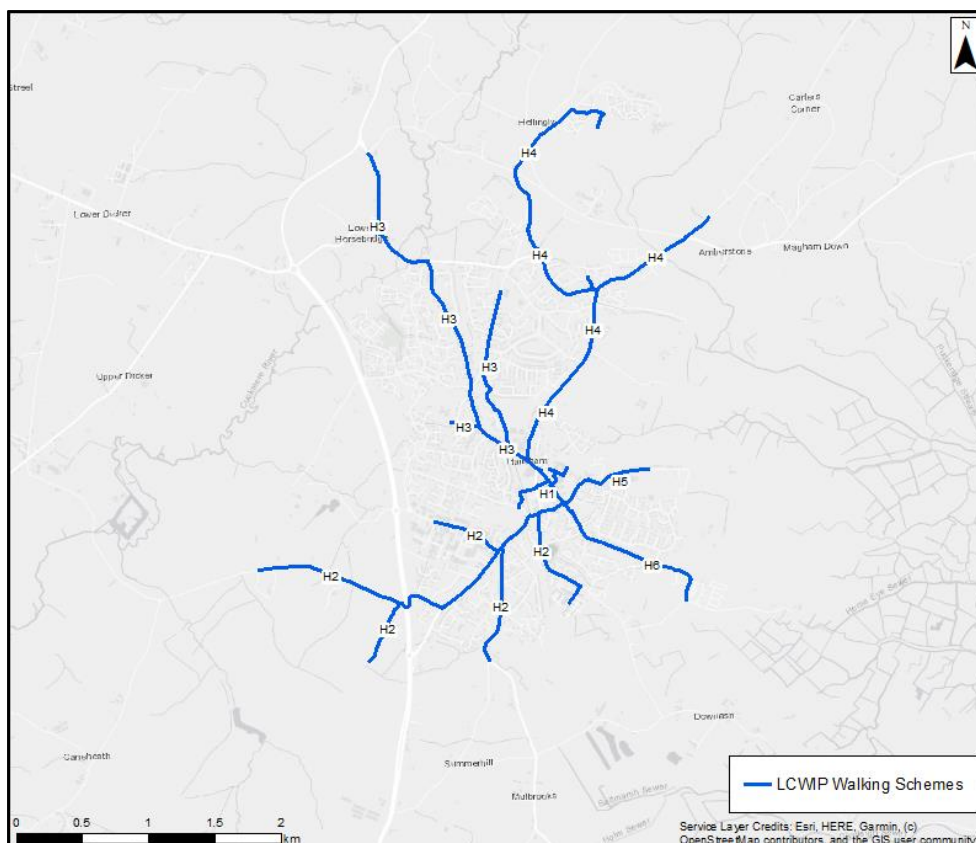


Figure 4-3 LCWP Walking Schemes in Hailsham

## 4.4 East Sussex Bus Service Improvement Plan

In line with the expectations of the Bus Back Better: National bus strategy for England, ESICC have prepared a Bus Service Improvement Plan (BSIP). A key target of the BSIP is to initially reverse the decline in bus patronage and then grow it significantly in future years. This will be delivered by quality improvements, including:

- Bus priority schemes, including bus lanes and traffic lights to improve reliability and punctuality
- Districtwide rural digital demand responsive transit (DDRT) in Hailsham, Heathfield, Crowborough and Uckfield
- Mobility hubs across the district linking up with DDRT schemes and improved bus shelters or interchanges
- Simplified and reduced fares using a digital 'Sussex App' with improved realtime passenger information

## 4.5 TfSE Draft Strategic Investment Plan (SIP)

TfSE consulted on their Draft SIP<sup>15</sup> in mid-2022 and the final draft was presented to their Partnership Board in November 2022 and, subject to board approval, will be adopted in March 2023. The draft SIP builds on a suite of TfSE transport strategies and a wider evidence base to provide an emerging framework for investment in

<sup>15</sup> [TfSE \(2022\) – Draft Strategic Investment Plan](#)

strategic multi-modal transport infrastructure, services and regulatory interventions up to 2050.

Wealden is covered principally by the proposed London to Sussex Coast package of interventions, while the south of the district sits in the Solent & Sussex Coast package and the far east of the district sits in Kent, Medway & East Sussex package. These packages identify the need for a capital investment of approximately £35bn up to 2050 and includes key improvements to rail, a mass transit between Hailsham and Eastbourne, active mode and highway improvements in the district. The potential schemes are at various levels of certainty, which overlap with the existing wider scheme pipeline, set out earlier in this section. TfSE recognises that securing funding will be the principal financial challenge. Acknowledging that the draft SIP is subject to review, following the 2022 consultation, Figure 4-4 illustrates the locations of the key schemes identified in the proposed London to Sussex Coast package of interventions in or on the border with Wealden. Further engagement with TfSE and key partner bodies, including government and private investors, will be required to establish how these schemes will come forward within the Local Plan period.

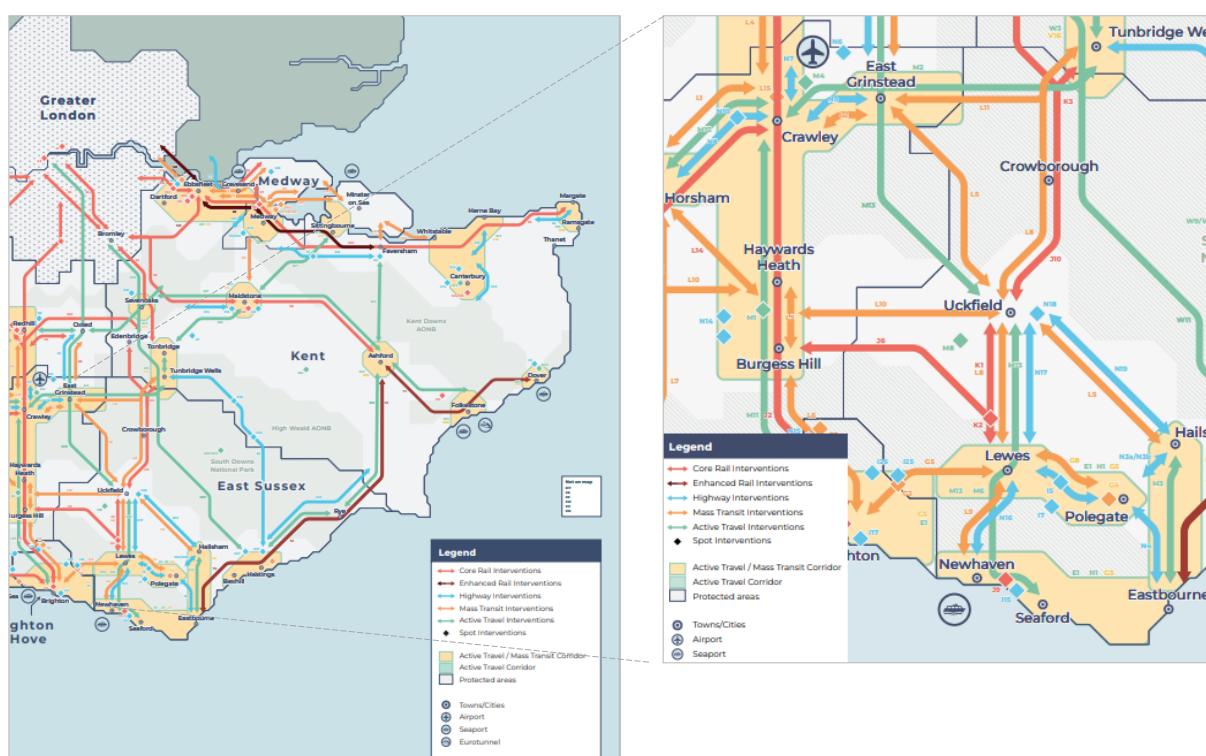


Figure 4-4 Map extract of TfSE draft SIP Packages and Wealden (TfSE, 2022<sup>16</sup>)

<sup>16</sup> TfSE (2022) – Draft Strategic Investment Plan

# 5 Forecast Modelling



## 5.1 STEB Model Overview

A STEB highway assignment model (STEB Model) has been developed as one initial component of an overarching process to develop a common transport evidence base to support each of the emerging Local Plans across the county. Reference should be made to the separate Phase 1 – Model Build Technical Note (East Sussex Highways April 2021) for full details of the model build (see Appendix C).

The ultimate objective is to develop a robust and appropriate evidence base for each Local Plan using the recently developed strategic countywide model going forward. The STEB Model is an interim spreadsheet modelling solution developed in the strategic transport modelling software 'VISUM' to assign new Local Plan development only vehicle trips to the highway network. The outputs for each district are then combined to provide cumulative 'All District' Local Plan options to assess the full level of potential growth across the county. The development only flows are then combined with existing background traffic data (i.e. observed traffic data), where available, and TEMPro growth to provide future 'with Local Plan' traffic scenarios for the five districts/boroughs separately ('Isolated Assessment') and in-combination with each other ('Cumulative Assessment'). Table 5-1 summarises the key modelling parameters applied.

Table 5-1 Key STEB modelling parameters

| Base Year | Forecast Year                                | Time Periods               | Trip Generation | Trip Distribution                 | Assignment                                                          |
|-----------|----------------------------------------------|----------------------------|-----------------|-----------------------------------|---------------------------------------------------------------------|
| 2019      | 2040 using TEMPro*<br>AM: 1.098<br>PM: 1.099 | 08:00-09:00<br>17:00-18:00 | TRICS v7.8.3    | 2011 Census Journey to Work (JTW) | VISUM based single route choice assignment based on road hierarchy. |

\* 2040 was agreed as a common forecast year to account for the varying horizon years of each Local Plan. TEMPro growth factors have been adjusted to account for committed development only as a Reference Case for comparing and adding Local Plan growth.

## 5.2 Limitations and assumptions

The STEB model is intended to be an interim solution and has a number of limitations with functionality and assumptions made on how outputs should be interpreted. A summary of these limitations and assumptions are included at Appendix D and generally focus on trip purpose, network detail and the lack of dynamic reassignment to less congested routes in the STEB model. These will need to be addressed by the countywide model.

Notwithstanding these limitations, the model provides an acceptable tool to gain an early understanding of the potential stress to the highway network and where mitigation solutions are most likely needed to inform the Local Plan process, as agreed with National Highways.

## 5.3 STEB Inputs

### 5.3.1 Background Traffic Growth

The STEB model is a development only highway assignment model and does not explicitly model background traffic and growth. Recent 2019 turning count and link count data has been extracted, where available, for junctions and links to establish a baseline. A 2040 TEMPro growth factor (Table 5-1) for Wealden, with planning assumptions adjusted to account for committed development with planning permission only (7,440 houses / 188 jobs), has then been applied to establish a future year scenario, known as the “Reference Case”, to compare the ‘with’ and ‘without’ Local Plan options.

### 5.3.2 Initial Growth Option (1) Trip Generation

The traffic uplift for the Local Plan growth option has been calculated by applying appropriate trip rates from the TRICS database for different land uses. Some secondary trip factors (see Appendix D) have been applied solely to retail uses to account for pass-by and linked trips and remove double counting. All trip rates have been provisionally agreed with ESCC and NH for the purposes of this assessment and are subject to further review and refinement as part of any subsequent option testing in the countrywide model. A map showing the sites included in the Initial Growth Option (1) is shown in Figure 5-1.

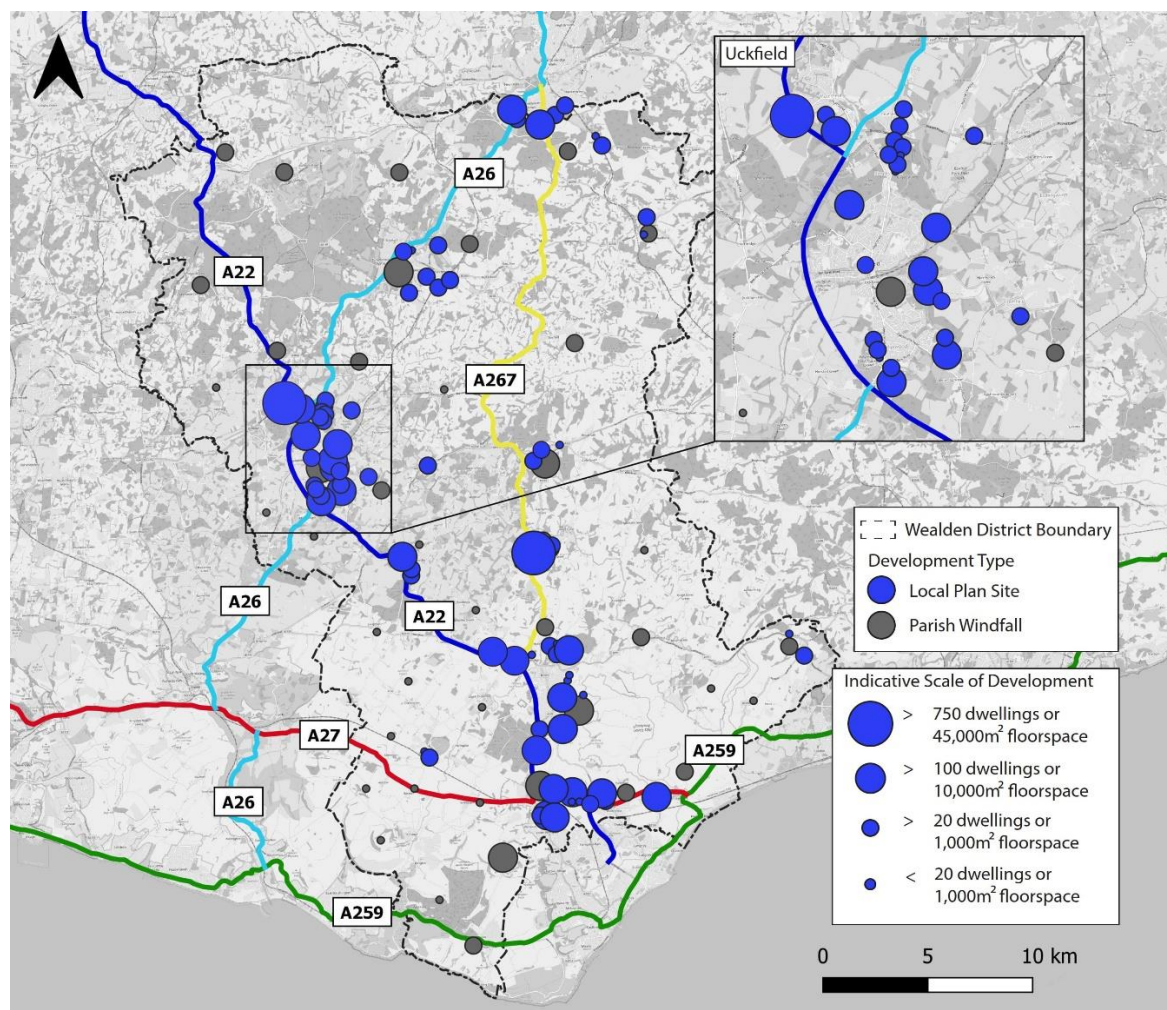


Figure 5-1 Wealden Local Plan Initial Growth Option (1) development site locations

A breakdown of the trip rates applied to the different land uses and location types proposed in the Local Plan option is included in Appendix E. The development only total vehicle trip generation by specific land use is summarised in Table 5-2 and shows that the residential developments will generate a significantly higher volume of vehicle trips than the commercial developments in each of the peak hours.

*Table 5-2 Initial Growth Option (1) Development only trip generation by land use (Total Vehicles)*

|                                      | Dwellings (units) | Commercial / Other<br>Floorspace (sqm) |                    |
|--------------------------------------|-------------------|----------------------------------------|--------------------|
| <b>Potential Growth Distribution</b> | <b>16,186</b>     | <b>170,600</b>                         | <b>Total Trips</b> |
| <b>AM Trips</b>                      | 7123              | 1896                                   | <b>9019</b>        |
| <b>PM Trips</b>                      | 7269              | 2592                                   | <b>9861</b>        |

Table 5-3 only displays the increase in trips related to new development as put forward in the Initial Growth Option (1) within the key towns in Wealden. It shows that over 75% of the total trips are generated in the five key towns, with Hailsham having the highest trip generation of up to 28.3% followed by other towns situated along the A22 including Uckfield and East Hoathly.

*Table 5-3 New development only total vehicle trip generation and by key settlement*

|                                  | AM                         |            | PM                         |            |
|----------------------------------|----------------------------|------------|----------------------------|------------|
| Town                             | Total Trips                | % of total | Total Trips                | % of total |
| Hailsham                         | 2509                       | 28%        | 2793                       | 28%        |
| Uckfield                         | 1588                       | 18%        | 1693                       | 17%        |
| East Hoathly                     | 1481                       | 16%        | 1577                       | 16%        |
| Polegate                         | 908                        | 10%        | 1008                       | 10%        |
| Crowborough                      | 268                        | 3%         | 323                        | 3%         |
| <b>Total (Local Plan Option)</b> | <b>9,019 vehicle trips</b> |            | <b>9,861 vehicle trips</b> |            |

The trip rates are considered robust and unmitigated at this stage, i.e. with no modal shift, to present a 'worse case' for initial stress testing of the network and identifying potential constraints on link and junction capacity. Further consideration and refinement to specific land use trip characteristics will be needed as more development detail comes forward and the countywide model is used.

### 5.3.3 Districtwide potential development impacts

Further analysis has been undertaken of the larger potential development sites and clusters to understand their respective traffic impacts on the network. Table 5-4 summarises the vehicle trip generation of these sites and the principal corridor where the traffic joins the Wealden network.

*Table 5-4: Total peak hour trip generation of larger potential sites and key impact on the network*

| Corridor | Potential Development Site | Land Use | Development Only Total Flow |    |
|----------|----------------------------|----------|-----------------------------|----|
|          |                            |          | AM                          | PM |
|          | Sharnfold Farm             | Res      | 75                          | 73 |

| Corridor                                                   | Potential Development Site                                                                               | Land Use  | Development Only Total Flow |      |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------|-----------------------------|------|
|                                                            |                                                                                                          |           | AM                          | PM   |
| A22 (between Dittons Roundabout and Cophall Roundabout)    | Land at and adjacent to The Downs View and Emberson                                                      | Res       | 30                          | 29   |
|                                                            | Land bounded by A27 and Levett Road                                                                      | Res       | 64                          | 65   |
|                                                            | Land at Shepham Lane                                                                                     | Res       | 96                          | 98   |
|                                                            | Polegate and Stone Cross                                                                                 | Emp       | 112                         | 180  |
|                                                            | Polegate Town Windfall                                                                                   | Res       | 26                          | 38   |
|                                                            | Westham Parish Windfall                                                                                  | Res       | 40                          | 39   |
| A22 (between Cophall Roundabout and Boship Roundabout)     | Hailsham Town Centre and Vicarage Lane                                                                   | Mixed Use | 344                         | 539  |
|                                                            | Bolneys Farm                                                                                             | Res       | 30                          | 29   |
|                                                            | Land south of Hailsham, Land east of Ersham Road and Land west of Station Road                           | Res       | 100                         | 97   |
|                                                            | West Hailsham (south & west of A22 - close to Boship)                                                    | Mixed Use | 1164                        | 1209 |
|                                                            | Hailsham Town Windfall                                                                                   | Res       | 62                          | 90   |
| A22 (between Boship Roundabout and The Shaw Roundabout)    | Land off South Street                                                                                    | Res       | 15                          | 15   |
|                                                            | Broomy Lodge Field                                                                                       | Res       | 15                          | 18   |
|                                                            | Land east of South Street (Site A)                                                                       | Res       | 48                          | 46   |
|                                                            | Harrison's, south of London Road                                                                         | Res       | 77                          | 88   |
|                                                            | East Hoathly - 'new' settlement (mainly to north-west of village, with smaller around to east and south) | Mixed Use | 1318                        | 1402 |
| A22 (between The Shaw Roundabout and Blackdown Roundabout) | Land at Thorncrest                                                                                       | Res       | 18                          | 17   |
|                                                            | Ridgewood House                                                                                          | Res       | 13                          | 12   |
|                                                            | Land south west of Ridgedown                                                                             | Res       | 28                          | 27   |
|                                                            | Land at Downlands Farm                                                                                   | Res       | 225                         | 218  |
|                                                            | Land at Horstedpond Farm                                                                                 | Res       | 225                         | 218  |
|                                                            | Uckfield Town Centre                                                                                     | Emp       | 197                         | 307  |
|                                                            | Uckfield Town Windfall                                                                                   | Res       | 44                          | 63   |

### 5.3.4 Development trip distribution and assignment

Census 2011 journey to work (JTW) trip information, using an MSOA zoning system, was used for the distribution of development trips. An appropriate MSOA zone was identified for each Local Plan development site to generate development only trip distribution matrices. In the absence of detailed access information for all sites, each development zone is allocated up to three zone connectors, using development

access information where possible, to best reflect likely loading points on to the network. Specific locations of Windfall development are not known and up to five zone connectors have been allocated to distribute traffic at a local network level.

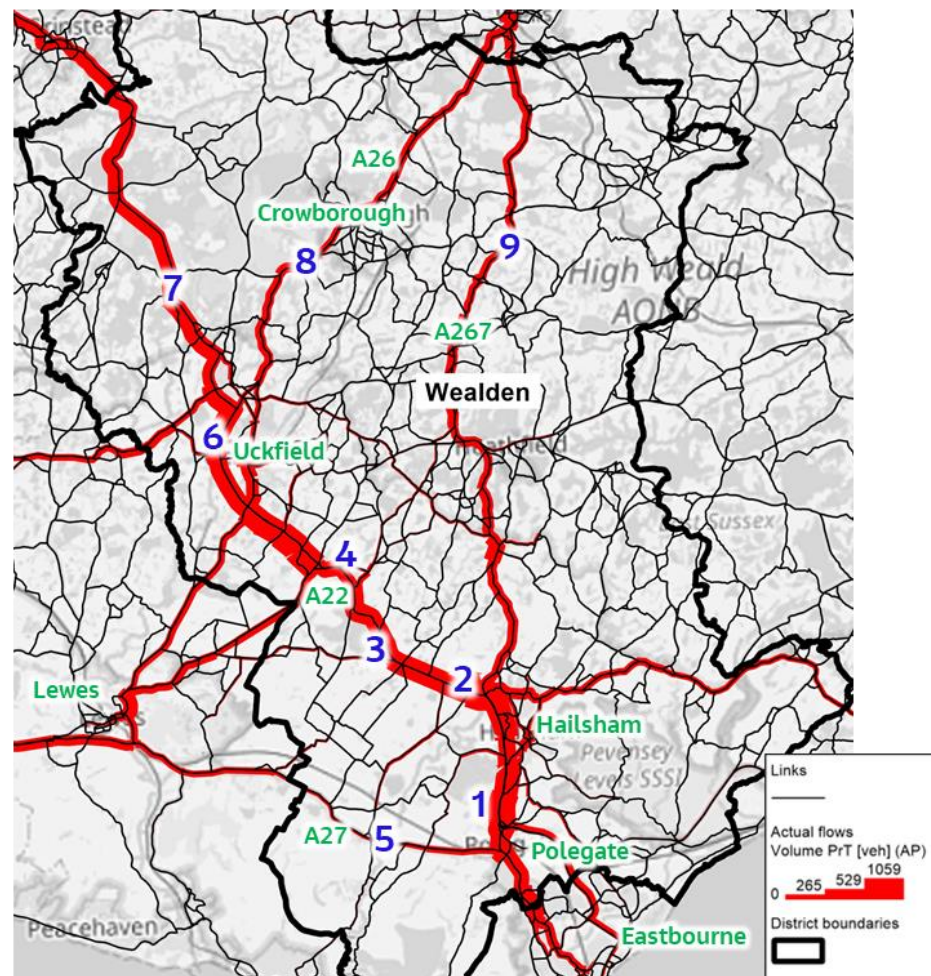
The VISUM component of STEB is then used to assign development vehicle trips on to the network using the 'most likely' route choice based exclusively on link length and free-flow speed. It is to be noted the assignment process does not reflect full dynamic reassignment, in response to modelled congestion, generalised cost and driver behaviour, and uses a simplified assignment based on free-flow speed.

## 5.4 Isolated Wealden Local Plan Outputs

### 5.4.1 Forecast Flows

Figure 5-2, overleaf, provides an indication of the AM and PM peak hour development only assignment patterns for the potential growth distribution and references (numbered 1-9) the key corridors likely to be impacted. The outputs show that the flows will be heaviest along the major corridors such as the A22, A26 and A267 throughout the district. These patterns could be subject to change when a development option is assessed in detail using the countywide full assignment model, where traffic may seek out alternative routes across the network to avoid congestion.

AM Actual Flow



PM Actual Flow

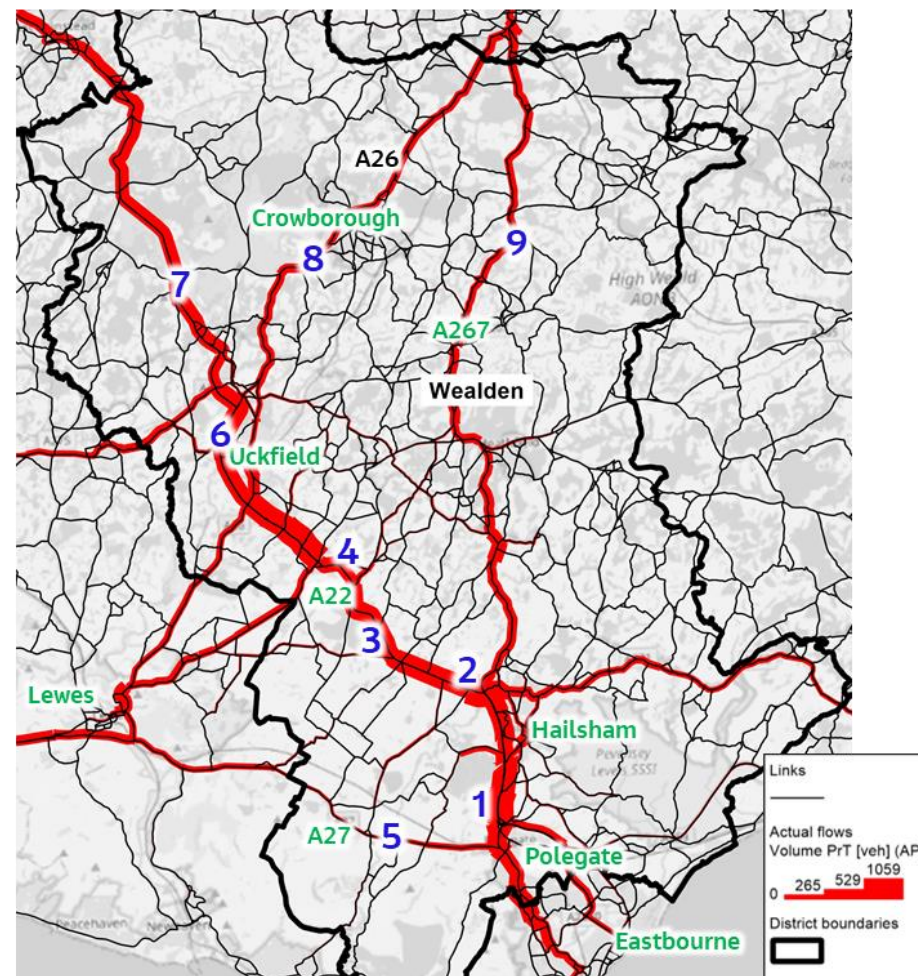


Figure 5-2 Isolated Wealden Local Plan Indicative Flows, AM &amp; PM Peaks

### 5.4.2 Highway link capacities and impacts

Observed 2019 link flows have been factored to a 2040 forecast year, using TEMPro and committed development growth, as a Reference Case. The STEB development only flows are then added to establish the forecast Local Plan initial option. Table 5-5 compares the directional impact of the 2019 and 2040 Local Plan option peak hourly flows with the hourly theoretical link design capacity for key routes across the district ('Ref.' numbers correlate with the numbered key link labelling references in Figure 5-2). A link is generally considered to be approaching theoretical design capacity when the volume over capacity (VoC) is between 75-90%, given there is insufficient spare capacity to address typical +/- flow changes throughout the peak hour. This provides an early indication, prior to the consideration of further capacity constraints at individual junctions, of how severely different roads will be impacted and whether there is sufficient network capacity.

The analysis indicates that the A22 between Boship roundabout and Coldharbour Road, the A22 at Lewes Road and the A22 between Copwood roundabout and Black Down roundabout (Ref. 2, 3 & 6), already exceed capacity (without Local Plan growth). The additional impact of the Local Plan option will exacerbate the impact at these locations with respective links significantly exceeding capacity. The A22 between South Street and Shaw roundabout, the A27 between A2270 and Station Road and the A22 between Bell Lane and Chelwood Gate Road (Ref. 4, 5 & 7), will also be approaching capacity with the addition of the Local Plan option growth, leading to potential severe delays on these corridors.

The level of impact is likely to be severe on these links and poses a significant risk to the operability of the network. Elsewhere, at a link level at least, the impacts are less severe, however, this will need further consideration at a junction capacity level.

Table 5-5 2019 &amp; 2040 link flows, capacities and volume over capacity (%), AM Peak

| Ref | Count Location                                           | Direction  | One-way Link Capacity | AM Peak Hour Observed Flow (2019) | AM VoC ratio (2019) | AM Peak Hour Ref Case Flow (2040) | AM flow from STEB model (2040) | AM VoC ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|-----------------------------------|---------------------|-----------------------------------|--------------------------------|---------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 1527                              | 36%                 | 1676                              | 527                            | 49%                 |
|     |                                                          | Southbound | 4200                  | 1599                              | 38%                 | 1755                              | 758                            | 56%                 |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 804                               | 60%                 | 882                               | 1016                           | 135%                |
|     |                                                          | Westbound  | 1350                  | 1261                              | 93%                 | 1384                              | 764                            | 150%                |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 1206                              | 89%                 | 1324                              | 550                            | 130%                |
|     |                                                          | Eastbound  | 1350                  | 703                               | 52%                 | 772                               | 482                            | 88%                 |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 738                               | 55%                 | 810                               | 381                            | 83%                 |
|     |                                                          | Southbound | 1350                  | 455                               | 34%                 | 499                               | 255                            | 53%                 |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 979                               | 73%                 | 1074                              | 59                             | 77%                 |
|     |                                                          | Westbound  | 1350                  | 1001                              | 74%                 | 1099                              | 125                            | 83%                 |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 1080                              | 80%                 | 1185                              | 679                            | 130%                |
|     |                                                          | Southbound | 1350                  | 1040                              | 77%                 | 1141                              | 311                            | 100%                |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 365                               | 27%                 | 401                               | 211                            | 43%                 |
|     |                                                          | Northbound | 1350                  | 652                               | 48%                 | 716                               | 539                            | 88%                 |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 690                               | 51%                 | 757                               | 303                            | 74%                 |
|     |                                                          | Westbound  | 1350                  | 809                               | 60%                 | 888                               | 196                            | 74%                 |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 742                               | 55%                 | 814                               | 266                            | 75%                 |
|     |                                                          | Southbound | 1350                  | 380                               | 28%                 | 417                               | 121                            | 37%                 |

Key:

|       |                                                                                             |
|-------|---------------------------------------------------------------------------------------------|
| >100% | Link is exceeding total design capacity (little or no reserve capacity)                     |
| >75%  | Link is exceeding theoretical design capacity (allowing for fluctuations in traffic levels) |
| >50%  | Link is approaching theoretical design capacity                                             |
| >50%  | Link is well within theoretical and total design capacity                                   |

Table 5-6 2019 & 2040 link flows, capacities and volume over capacity (%), PM Peak

| Ref | Count Location                                           | Direction  | One-way Link Capacity | PM Peak Hour Observed Flow (2019) | PM VoC ratio (2019) | PM Peak Hour Ref Case Flow (2040) | PM flow from STEB model (2040) | PM VoC ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|-----------------------------------|---------------------|-----------------------------------|--------------------------------|---------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 1298                              | 31%                 | 1427                              | 654                            | 46%                 |
|     |                                                          | Southbound | 4200                  | 2010                              | 48%                 | 2210                              | 834                            | 68%                 |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 1324                              | 98%                 | 1456                              | 976                            | 170%                |
|     |                                                          | Westbound  | 1350                  | 771                               | 57%                 | 848                               | 811                            | 117%                |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 664                               | 49%                 | 730                               | 545                            | 90%                 |
|     |                                                          | Eastbound  | 1350                  | 1054                              | 78%                 | 1159                              | 594                            | 122%                |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 502                               | 37%                 | 552                               | 300                            | 59%                 |
|     |                                                          | Southbound | 1350                  | 684                               | 51%                 | 752                               | 399                            | 80%                 |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 981                               | 73%                 | 1078                              | 107                            | 81%                 |
|     |                                                          | Westbound  | 1350                  | 850                               | 63%                 | 934                               | 82                             | 69%                 |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 1103                              | 82%                 | 1213                              | 375                            | 109%                |
|     |                                                          | Southbound | 1350                  | 1126                              | 83%                 | 1238                              | 663                            | 133%                |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 738                               | 55%                 | 811                               | 522                            | 93%                 |
|     |                                                          | Northbound | 1350                  | 400                               | 30%                 | 440                               | 252                            | 48%                 |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 819                               | 61%                 | 900                               | 236                            | 78%                 |
|     |                                                          | Westbound  | 1350                  | 643                               | 48%                 | 707                               | 308                            | 70%                 |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 351                               | 26%                 | 386                               | 145                            | 37%                 |
|     |                                                          | Southbound | 1350                  | 713                               | 53%                 | 784                               | 283                            | 74%                 |

Key:

|       |                                                                                             |
|-------|---------------------------------------------------------------------------------------------|
| >100% | Link is exceeding total design capacity (little or no reserve capacity)                     |
| >75%  | Link is exceeding theoretical design capacity (allowing for fluctuations in traffic levels) |
| >50%  | Link is approaching theoretical design capacity                                             |
| >50%  | Link is well within theoretical and total design capacity                                   |

### 5.4.3 Summary of link capacities and impacts

A review of the level of traffic impact on highway link capacity, for key parts of the network in the AM and PM peaks, is summarised in Table 5-7 and 5-8 overleaf. Figure 5-3 references the locations of each link used in the analysis. This covers the 2019 current and the 2040 Reference Case and potential Wealden scenario. The analysis indicates that:

- Most parts of the network (Site Ref 1, 4, 5, 7, 8 and 9) are currently operating within theoretical link capacity at current peak hours and any delays and congestion are more likely to be caused by local junction capacity issues
- Parts of the network (Site Ref 2, 3 and 6) are operating close to their theoretical capacity in at least one direction in the base year
- The A22 between Boship Roundabout and Coldharbour Road westbound and A22 with Lewes Rd westbound are approaching theoretical capacity (89-93%) and are most likely to be at risk of congestion and delays at peak times in the future
- The 2040 Reference Case, representing a ‘without’ Local Plan forecast scenario for benchmarking, includes approximately 10% traffic growth to account for already consented (committed) development and an element of background growth. The A22 (Site Ref 2) will be over capacity westbound and the A27 (Site Ref 6) and A22 (Site Ref 7) will be approaching their theoretical capacity (80-85% VoC respectively)
- The level of growth in the isolated potential Local Plan growth distribution scenario will have the greatest impact on the A22, between Boship Roundabout and Coldharbour Rd and between Copwood Roundabout and Black Down roundabout, where theoretical capacity will be exceeded
- Without mitigation, the level of impact of the potential Local Plan distribution tested is likely to be high on the links approaching 100% and on the A22 in particular. Elsewhere, at a link level at least, the impacts are less severe, however, this will need further consideration at a junction capacity level, which can further constrain capacity on the network and lead to additional congestion and delay.

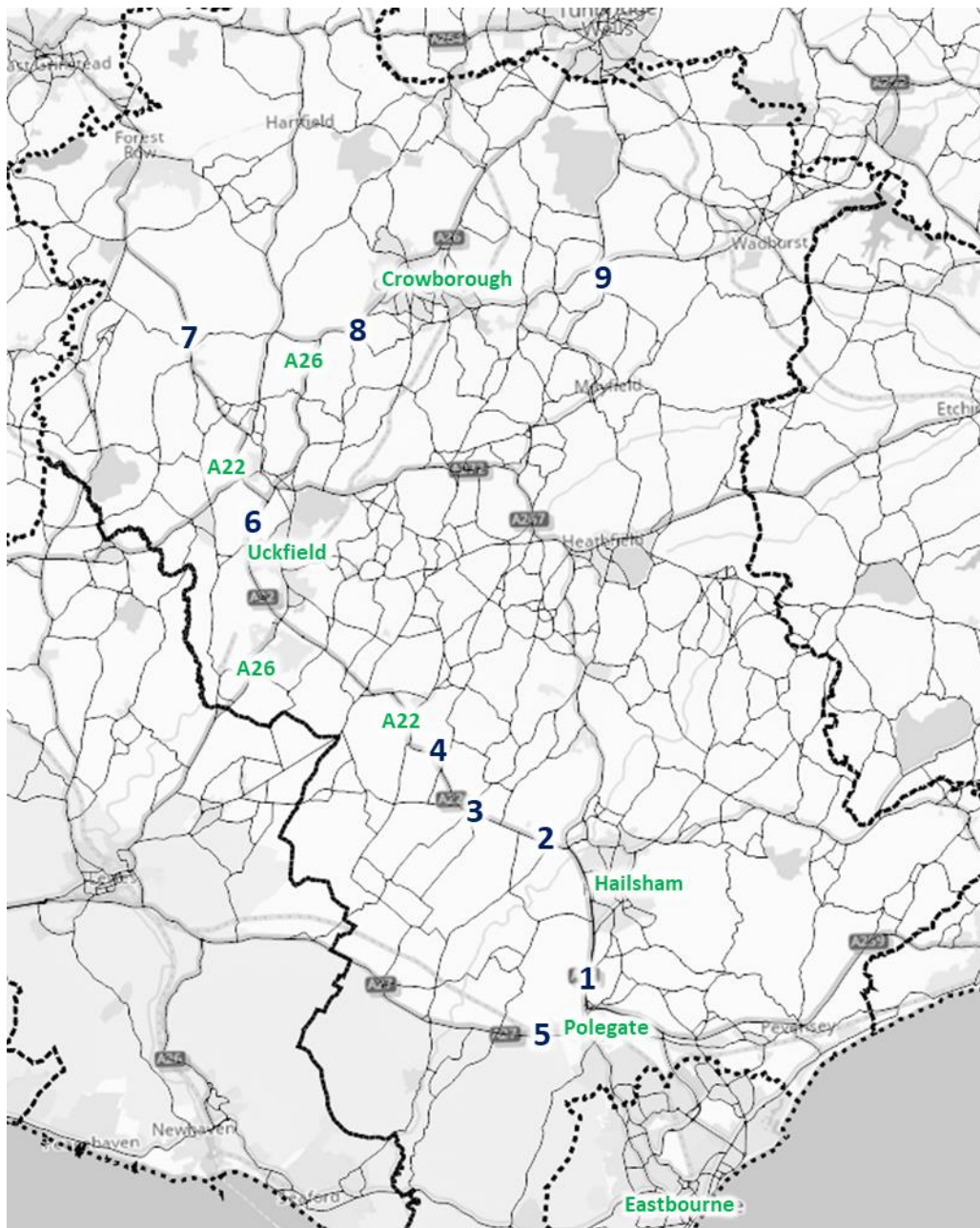


Figure 5-3 Link reference map

Table 5-7: 2019, 2040 Reference Case and isolated spatial distribution AM VOC (%)

| Ref | Count Location                                           | Direction  | One-way Link Capacity | AM VoC ratio (2019) | AM VoC Ref. Case (2040) | AM VoC ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|---------------------|-------------------------|---------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 31%                 | 40%                     | 46%                 |
|     |                                                          | Southbound | 4200                  | 48%                 | 42%                     | 68%                 |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 98%                 | 65%                     | 170%                |
|     |                                                          | Westbound  | 1350                  | 57%                 | 103%                    | 117%                |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 49%                 | 98%                     | 90%                 |
|     |                                                          | Eastbound  | 1350                  | 78%                 | 57%                     | 122%                |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 37%                 | 60%                     | 59%                 |
|     |                                                          | Southbound | 1350                  | 51%                 | 37%                     | 80%                 |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 73%                 | 80%                     | 81%                 |
|     |                                                          | Westbound  | 1350                  | 63%                 | 81%                     | 69%                 |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 82%                 | 88%                     | 109%                |
|     |                                                          | Southbound | 1350                  | 83%                 | 85%                     | 133%                |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 55%                 | 30%                     | 93%                 |
|     |                                                          | Northbound | 1350                  | 30%                 | 53%                     | 48%                 |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 61%                 | 56%                     | 78%                 |
|     |                                                          | Westbound  | 1350                  | 48%                 | 66%                     | 70%                 |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 26%                 | 60%                     | 37%                 |
|     |                                                          | Southbound | 1350                  | 53%                 | 31%                     | 74%                 |

Table 5-8: 2019, 2040 Reference Case and isolated spatial distribution PM VOC (%)

| Ref | Count Location                                           | Direction  | One-way Link Capacity | PM VoC ratio (2019) | PM VoC Ref. Case (2040) | PM VoC ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|---------------------|-------------------------|---------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 31%                 | 34%                     | 46%                 |
|     |                                                          | Southbound | 4200                  | 48%                 | 53%                     | 68%                 |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 98%                 | 108%                    | 170%                |
|     |                                                          | Westbound  | 1350                  | 57%                 | 63%                     | 117%                |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 49%                 | 54%                     | 90%                 |
|     |                                                          | Eastbound  | 1350                  | 78%                 | 86%                     | 122%                |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 37%                 | 41%                     | 59%                 |
|     |                                                          | Southbound | 1350                  | 51%                 | 56%                     | 80%                 |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 73%                 | 80%                     | 81%                 |
|     |                                                          | Westbound  | 1350                  | 63%                 | 69%                     | 69%                 |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 82%                 | 90%                     | 109%                |
|     |                                                          | Southbound | 1350                  | 83%                 | 92%                     | 133%                |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 55%                 | 60%                     | 93%                 |
|     |                                                          | Northbound | 1350                  | 30%                 | 33%                     | 48%                 |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 61%                 | 67%                     | 78%                 |
|     |                                                          | Westbound  | 1350                  | 48%                 | 52%                     | 70%                 |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 26%                 | 29%                     | 37%                 |
|     |                                                          | Southbound | 1350                  | 53%                 | 58%                     | 74%                 |

Key:

|       |                                                                                             |
|-------|---------------------------------------------------------------------------------------------|
| >100% | Link is exceeding total design capacity (little or no reserve capacity)                     |
| >75%  | Link is exceeding theoretical design capacity (allowing for fluctuations in traffic levels) |
| >50%  | Link is approaching theoretical design capacity                                             |
| >50%  | Link is well within theoretical and total design capacity                                   |

## 5.5 In-Combination ‘All District’ Sensitivity Test

The STEB model has also been used to test the likely in-combination and cross-boundary effects of additional growth from the emerging spatial strategies of all ESCC districts. It is important to note that this is a sensitivity test, for information purposes, given development information is still at the early option testing stage and likely to change. Furthermore, modelled traffic patterns need to be considered within the limitations and assumptions of the STEB model (see Appendix D), the effects of which are potentially amplified by applying STEB at a larger countywide scale. The countywide model will provide a more refined tool to analyse these impacts going forward.

As the modelling exercise evolves, agreement will also be needed on how cross boundary growth is treated within the assessment, particularly concerning the level of growth that is included in the Reference Case and the scale of impact to be mitigated by the new Wealden Local Plan.

### 5.5.1 Cross-boundary Growth

The latest Local Plan options for each of the districts is summarised in Table 5-9 and identifies up to 26,000 new houses and approximately 220,000 sqm of commercial / other use floorspace that could be delivered over and above the Wealden option in the next 15-20 years. Both Eastbourne and Lewes are currently considering more than one option Eastbourne is assessing two different combinations of higher housing/lower commercial and lower housing/higher commercial whereas Lewes are assessing a west of district versus east of district pattern of development.

*Table 5-9 Emerging Local Plan Options – All ESCC Districts (latest assumptions for early testing only and all subject to change)*

| District/Borough            | Cumulative Option 1 |                                     | Cumulative Option 2 |                                     |
|-----------------------------|---------------------|-------------------------------------|---------------------|-------------------------------------|
|                             | Dwellings (units)   | Commercial / Other Floorspace (sqm) | Dwellings (units)   | Commercial / Other Floorspace (sqm) |
| Wealden                     | 16,180              | 170,600                             | 16,180              | 170,600                             |
| Eastbourne (2 Options)      | 3,350               | 95,620                              | 5,679               | 70,875                              |
| Lewes (2 options)           | 9,714               | 11,500                              | 8,820               | 26,500                              |
| Rother                      | 6,831               | 24,088                              | 6,831               | 24,088                              |
| Hastings                    | 4,612               | 91,134                              | 4,612               | 91,134                              |
| <b>Total (exc. Wealden)</b> | <b>24,509</b>       | <b>222,347</b>                      | <b>25,942</b>       | <b>212,597</b>                      |

### 5.5.2 Cumulative Impacts in Wealden

The additional traffic uplift of the ‘Cumulative Options’ (summarised in Table 5-10 and Table 5-11) demonstrates an approximate average network wide uplift of 13%-15% in each peak hour compared to the isolated assessment for Wealden. The impact on

individual links (see location references in Figure 5-4) is highest on the A22 between South Street and Shaw roundabout and the A27 between A2270 and Station Road (Ref. 4 & 5). There are also notable increases along other sections of the A22 corridor (Ref. 2, 3, 6 & 7).

Table 5-12 and 5-13 provide a comparison of link capacities across the existing, reference case, isolated and cumulative scenarios. The link capacity issues, identified previously in the existing and isolated assessments on the A22 and A27 corridors, will worsen with a number of links well in excess of theoretical capacity and are at risk of severe congestion and delay.

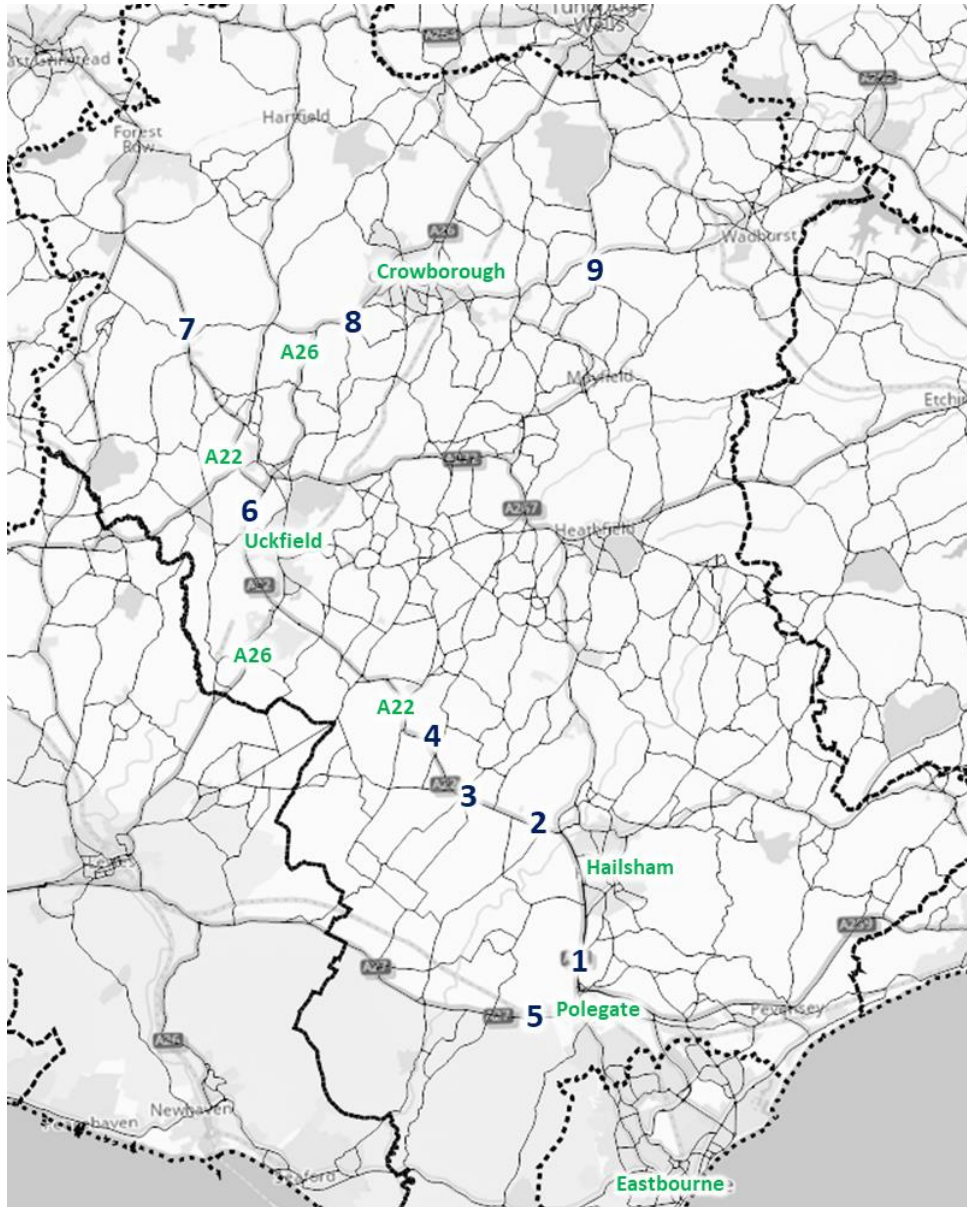


Figure 5-4 Link reference points

Table 5-10 Additional net uplift of emerging Cumulative Options on Isolated Wealden Option AM

| Ref                                | Count Location                                           | Direction | Cumulative 1 | Cumulative 2 | Uplift to Isolated (vs Cumulative 1) | Uplift to Isolated (vs Cumulative 2) | Uplift to Isolated (vs Cumulative 1) | Uplift to Isolated (vs Cumulative 2) |
|------------------------------------|----------------------------------------------------------|-----------|--------------|--------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| 1                                  | A22 Between Cophall Roundabout and Eagles Roundabout     | NB        | 2255         | 2254         | 201                                  | 200                                  | 10%                                  | 10%                                  |
|                                    |                                                          | SB        | 2555         | 2532         | 198                                  | 175                                  | 8%                                   | 7%                                   |
| 2                                  | A22 Between Boship Roundabout and Coldharbour Rd         | EB        | 2046         | 1996         | 226                                  | 176                                  | 12%                                  | 10%                                  |
|                                    |                                                          | WB        | 2323         | 2316         | 299                                  | 291                                  | 15%                                  | 14%                                  |
| 3                                  | A22 with Lewes Rd                                        | WB        | 2040         | 2031         | 284                                  | 275                                  | 16%                                  | 16%                                  |
|                                    |                                                          | EB        | 1403         | 1353         | 218                                  | 168                                  | 18%                                  | 14%                                  |
| 4                                  | A22 Between South Str and Shaw Roundabout                | NB        | 1347         | 1344         | 228                                  | 225                                  | 20%                                  | 20%                                  |
|                                    |                                                          | SB        | 828          | 819          | 119                                  | 110                                  | 17%                                  | 15%                                  |
| 5                                  | A27 Between A2270 and Station Rd                         | EB        | 1178         | 1201         | 140                                  | 162                                  | 13%                                  | 16%                                  |
|                                    |                                                          | WB        | 1421         | 1425         | 295                                  | 299                                  | 26%                                  | 27%                                  |
| 6                                  | A22 Between Copwood Roundabout and Black Down Roundabout | NB        | 2046         | 1990         | 287                                  | 231                                  | 16%                                  | 13%                                  |
|                                    |                                                          | SB        | 1487         | 1460         | 136                                  | 109                                  | 10%                                  | 8%                                   |
| 7                                  | A22 Between Bell Ln and Chelwood Gate Rd                 | SB        | 659          | 653          | 83                                   | 77                                   | 14%                                  | 13%                                  |
|                                    |                                                          | NB        | 1390         | 1368         | 199                                  | 177                                  | 17%                                  | 15%                                  |
| 8                                  | A26 Between Chillies Ln and Sheep Plain                  | EB        | 1087         | 1060         | 94                                   | 67                                   | 9%                                   | 7%                                   |
|                                    |                                                          | WB        | 1043         | 1038         | 37                                   | 33                                   | 4%                                   | 3%                                   |
| 9                                  | A267 Between B2100 and Lake Str                          | NB        | 1091         | 1091         | 84                                   | 83                                   | 8%                                   | 8%                                   |
|                                    |                                                          | SB        | 549          | 549          | 48                                   | 48                                   | 10%                                  | 10%                                  |
| Approximate Network Average Uplift |                                                          | AM        |              |              |                                      |                                      | 14%                                  | 13%                                  |

Table 5-11 Additional net uplift of emerging Cumulative Options on Isolated Wealden Option PM

| Ref                                | Count Location                                           | Direction | Cumulative 1 | Cumulative 2 | Uplift to Isolated (vs Cumulative 1) | Uplift to Isolated (vs Cumulative 2) | Uplift to Isolated (vs Cumulative 1) | Uplift to Isolated (vs Cumulative 2) |
|------------------------------------|----------------------------------------------------------|-----------|--------------|--------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| 1                                  | A22 Between Cophall Roundabout and Eagles Roundabout     | NB        | 2069         | 2066         | 117                                  | 114                                  | 6%                                   | 6%                                   |
|                                    |                                                          | SB        | 3221         | 3212         | 377                                  | 367                                  | 13%                                  | 13%                                  |
| 2                                  | A22 Between Boship Roundabout and Coldharbour Rd         | EB        | 2611         | 2593         | 311                                  | 292                                  | 14%                                  | 13%                                  |
|                                    |                                                          | WB        | 1810         | 1786         | 228                                  | 203                                  | 14%                                  | 13%                                  |
| 3                                  | A22 with Lewes Rd                                        | WB        | 1427         | 1402         | 218                                  | 192                                  | 18%                                  | 16%                                  |
|                                    |                                                          | EB        | 1948         | 1929         | 300                                  | 281                                  | 18%                                  | 17%                                  |
| 4                                  | A22 Between South Str and Shaw Roundabout                | NB        | 945          | 938          | 143                                  | 136                                  | 18%                                  | 17%                                  |
|                                    |                                                          | SB        | 1317         | 1314         | 234                                  | 231                                  | 22%                                  | 21%                                  |
| 5                                  | A27 Between A2270 and Station Rd                         | EB        | 1395         | 1408         | 307                                  | 321                                  | 28%                                  | 29%                                  |
|                                    |                                                          | WB        | 1140         | 1143         | 208                                  | 210                                  | 22%                                  | 23%                                  |
| 6                                  | A22 Between Copwood Roundabout and Black Down Roundabout | NB        | 1640         | 1611         | 162                                  | 133                                  | 11%                                  | 9%                                   |
|                                    |                                                          | SB        | 2078         | 2022         | 289                                  | 233                                  | 16%                                  | 13%                                  |
| 7                                  | A22 Between Bell Ln and Chelwood Gate Rd                 | SB        | 1460         | 1439         | 200                                  | 178                                  | 16%                                  | 14%                                  |
|                                    |                                                          | NB        | 757          | 748          | 105                                  | 97                                   | 16%                                  | 15%                                  |
| 8                                  | A26 Between Chillies Ln and Sheep Plain                  | EB        | 1097         | 1088         | 42                                   | 32                                   | 4%                                   | 3%                                   |
|                                    |                                                          | WB        | 1048         | 1033         | 97                                   | 82                                   | 10%                                  | 9%                                   |
| 9                                  | A267 Between B2100 and Lake Str                          | NB        | 538          | 538          | 42                                   | 42                                   | 9%                                   | 8%                                   |
|                                    |                                                          | SB        | 1087         | 1087         | 91                                   | 91                                   | 9%                                   | 9%                                   |
| Approximate Network Average Uplift |                                                          | PM        |              |              |                                      |                                      | 15%                                  | 14%                                  |

Table 5-12 'Cumulative Option 1 & 2' comparison with Reference Case and Wealden Isolated Option link capacity VoC (%), AM Peak

| Ref | Count Location                                           | Direction  | One-way Link Capacity | AM VoC Ratio (2019) | AM VoC Ref. Case (2040) | AM Wealden Local Plan Option VoC ratio (2040) | AM All District Cumulative 1 VoC Ratio (2040) | AM All District Cumulative 2 VoC Ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|---------------------|-------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 36%                 | 40%                     | 49%                                           | 54%                                           | 54%                                           |
|     |                                                          | Southbound | 4200                  | 38%                 | 42%                     | 56%                                           | 61%                                           | 60%                                           |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 60%                 | 65%                     | 135%                                          | 152%                                          | 148%                                          |
|     |                                                          | Westbound  | 1350                  | 93%                 | 103%                    | 150%                                          | 172%                                          | 172%                                          |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 89%                 | 98%                     | 130%                                          | 151%                                          | 150%                                          |
|     |                                                          | Eastbound  | 1350                  | 52%                 | 57%                     | 88%                                           | 104%                                          | 100%                                          |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 55%                 | 60%                     | 83%                                           | 100%                                          | 100%                                          |
|     |                                                          | Southbound | 1350                  | 34%                 | 37%                     | 53%                                           | 61%                                           | 61%                                           |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 73%                 | 80%                     | 77%                                           | 87%                                           | 89%                                           |
|     |                                                          | Westbound  | 1350                  | 74%                 | 81%                     | 83%                                           | 105%                                          | 106%                                          |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 80%                 | 88%                     | 130%                                          | 152%                                          | 147%                                          |
|     |                                                          | Southbound | 1350                  | 77%                 | 85%                     | 100%                                          | 110%                                          | 108%                                          |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 27%                 | 30%                     | 43%                                           | 49%                                           | 48%                                           |
|     |                                                          | Northbound | 1350                  | 48%                 | 53%                     | 88%                                           | 103%                                          | 101%                                          |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 51%                 | 56%                     | 74%                                           | 81%                                           | 78%                                           |
|     |                                                          | Westbound  | 1350                  | 60%                 | 66%                     | 74%                                           | 77%                                           | 77%                                           |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 55%                 | 60%                     | 75%                                           | 81%                                           | 81%                                           |
|     |                                                          | Southbound | 1350                  | 28%                 | 31%                     | 37%                                           | 41%                                           | 41%                                           |

Key:

|       |                                                                                             |
|-------|---------------------------------------------------------------------------------------------|
| >100% | Link is exceeding total design capacity (little or no reserve capacity)                     |
| >75%  | Link is exceeding theoretical design capacity (allowing for fluctuations in traffic levels) |
| >50%  | Link is approaching theoretical design capacity                                             |
| >50%  | Link is well within theoretical and total design capacity                                   |

Table 5-13 'Cumulative Option 1 &amp; 2' comparison with Reference Case and Wealden Isolated Option link capacity VoC (%), PM Peak

| Ref | Count Location                                           | Direction  | One-way Link Capacity | PM VoC Ratio (2019) | PM VoC Ref. Case (2040) | PM Wealden Local Plan Option VoC ratio (2040) | PM All District Cumulative 1 VoC Ratio (2040) | PM All District Cumulative 2 VoC Ratio (2040) |
|-----|----------------------------------------------------------|------------|-----------------------|---------------------|-------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 1   | A22 Between Cophall Roundabout and Eagles Roundabout     | Northbound | 4200                  | 31%                 | 34%                     | 46%                                           | 49%                                           | 49%                                           |
|     |                                                          | Southbound | 4200                  | 48%                 | 53%                     | 68%                                           | 77%                                           | 76%                                           |
| 2   | A22 Between Boship Roundabout and Coldharbour Rd         | Eastbound  | 1350                  | 98%                 | 108%                    | 170%                                          | 193%                                          | 192%                                          |
|     |                                                          | Westbound  | 1350                  | 57%                 | 63%                     | 117%                                          | 134%                                          | 132%                                          |
| 3   | A22 with Lewes Rd                                        | Westbound  | 1350                  | 49%                 | 54%                     | 90%                                           | 106%                                          | 104%                                          |
|     |                                                          | Eastbound  | 1350                  | 78%                 | 86%                     | 122%                                          | 144%                                          | 143%                                          |
| 4   | A22 Between South Str and Shaw Roundabout                | Northbound | 1350                  | 37%                 | 41%                     | 59%                                           | 70%                                           | 70%                                           |
|     |                                                          | Southbound | 1350                  | 51%                 | 56%                     | 80%                                           | 98%                                           | 97%                                           |
| 5   | A27 Between A2270 and Station Rd                         | Eastbound  | 1350                  | 73%                 | 80%                     | 81%                                           | 103%                                          | 104%                                          |
|     |                                                          | Westbound  | 1350                  | 63%                 | 69%                     | 69%                                           | 84%                                           | 85%                                           |
| 6   | A22 Between Copwood Roundabout and Black Down Roundabout | Northbound | 1350                  | 82%                 | 90%                     | 109%                                          | 121%                                          | 119%                                          |
|     |                                                          | Southbound | 1350                  | 83%                 | 92%                     | 133%                                          | 154%                                          | 150%                                          |
| 7   | A22 Between Bell Ln and Chelwood Gate Rd                 | Southbound | 1350                  | 55%                 | 60%                     | 93%                                           | 108%                                          | 107%                                          |
|     |                                                          | Northbound | 1350                  | 30%                 | 33%                     | 48%                                           | 56%                                           | 55%                                           |
| 8   | A26 Between Chillies Ln and Sheep Plain                  | Eastbound  | 1350                  | 61%                 | 67%                     | 78%                                           | 81%                                           | 81%                                           |
|     |                                                          | Westbound  | 1350                  | 48%                 | 52%                     | 70%                                           | 78%                                           | 76%                                           |
| 9   | A267 Between B2100 and Lake Str                          | Northbound | 1350                  | 26%                 | 29%                     | 37%                                           | 40%                                           | 40%                                           |
|     |                                                          | Southbound | 1350                  | 53%                 | 58%                     | 74%                                           | 81%                                           | 81%                                           |

Key:

|       |                                                                                             |
|-------|---------------------------------------------------------------------------------------------|
| >100% | Link is exceeding total design capacity (little or no reserve capacity)                     |
| >75%  | Link is exceeding theoretical design capacity (allowing for fluctuations in traffic levels) |
| >50%  | Link is approaching theoretical design capacity                                             |
| >50%  | Link is well within theoretical and total design capacity                                   |

### 5.5.3 Cross-boundary Impacts of Wealden Local Plan

The key cross-boundary impacts of the isolated Wealden Local Plan Initial Growth Option (1) have been assessed and the greatest impacts will be towards Eastbourne with additional two-way peak hour flows of up to 950 vehicles on the A2270 and 400 vehicles on the A22 corridors leading south towards Seaside and Lottbridge roundabouts on the A2290 and the A2270 towards Rodmill, Willingdon and Eastbourne town centre. The Wealden development traffic also has a high impact on the peak hour flows in some areas of West Sussex. There is an addition of up to 700 two-way flows on the A22 corridor leading northwest through East Grinstead towards Crawley.

Wealden local plan development flows have high cross boundary impacts for Lewes district with up to 250 two-way flows travelling on the A26 between Lewes and Little Horsted roundabout and an additional 350 vehicles travelling on the B2192 between Lewes and Halland roundabout. This traffic is likely to impact a number of key junctions on the A26 corridor in Lewes including Earwig Corner, 'Snail' / Cuilfail roundabout and Southerham roundabout.

Cross-boundary impacts of the Wealden development traffic will also impact key corridors towards the north of the district. This will include the addition of two-way peak hour flows of 350 vehicles on the A26 and up to 500 on the A267 corridors towards Tunbridge Wells in neighbouring Kent. This could impact on key roads leading into Tunbridge Wells including the A26/A267 roundabout. The impact is lower on the wider network and towards the other ESCC districts but will need further assessment in the countywide model.

## 5.6 Key Junction Impacts

The STEB analysis has identified the key corridor impacts of the initial Wealden Local Plan growth option and also the Cumulative 'All District' growth. A list of key junctions on these corridors has been identified to understand specific impacts at key nodes on the network, including junctions on the SRN and in the north of Eastbourne and Lewes, which could be at risk in the future. These have been determined based on existing Google<sup>®</sup> traffic data, studies (see Table 4-1 in section 4) and in consultation with key stakeholders. The key junctions and corridors are shown and referenced in Figure 5-5.

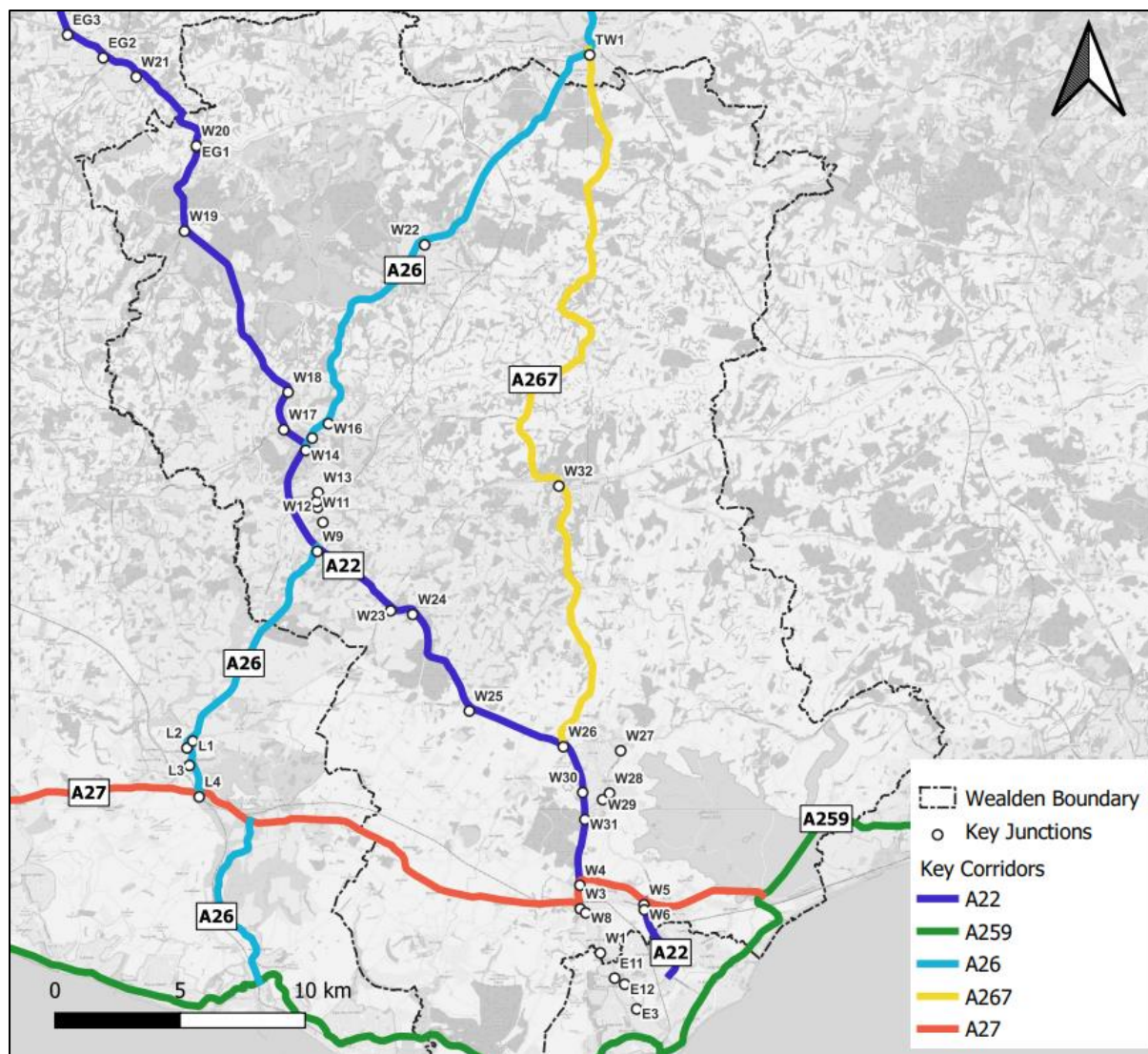


Figure 5-5 Map of key corridors and junctions

The isolated development only total vehicle flows (all junction arms) and percentage impacts at key junctions for the isolated option and the Cumulative 'All District' options are summarised in Table 5-14 below with higher impacts highlighted in increasingly darker red.

Table 5-14 Cumulative and Wealden isolated development only junction impacts (total veh. / % increase) – AM &amp; PM peak hour

|                                 | Ref | AM              |                   |                     |                       |                     |                       | PM              |                   |                     |                       |                     |                       |
|---------------------------------|-----|-----------------|-------------------|---------------------|-----------------------|---------------------|-----------------------|-----------------|-------------------|---------------------|-----------------------|---------------------|-----------------------|
|                                 |     | Isolated Impact | Isolated % Impact | Cumulative 1 Impact | Cumulative 1 % Impact | Cumulative 2 Impact | Cumulative 2 % Impact | Isolated Impact | Isolated % Impact | Cumulative 1 Impact | Cumulative 1 % Impact | Cumulative 2 Impact | Cumulative 2 % Impact |
| A26 London Road                 | W22 | 360             | 18%               | 443                 | 22%                   | 421                 | 21%                   | 407             | 22%               | 495                 | 26%                   | 478                 | 25%                   |
| A267 A265 Heathfield            | W32 | 423             | No Base           | 801                 | No Base               | 800                 | No Base               | 511             | No Base           | 943                 | No Base               | 947                 | No Base               |
| A22 Boship Roundabout           | W26 | 1770            | 56%               | 2329                | 74%                   | 2276                | 72%                   | 1782            | 47%               | 2371                | 63%                   | 2332                | 62%                   |
| A22 Diplocks Way Roundabout     | W30 | 1029            | No Base           | 1305                | No Base               | 1276                | No Base               | 999             | No Base           | 1315                | No Base               | 1298                | No Base               |
| A22 Eagles Roundabout           | W31 | 1066            | 31%               | 1364                | 40%                   | 1342                | 39%                   | 1214            | 31%               | 1574                | 40%                   | 1564                | 40%                   |
| A22 Little Horsted RBT          | W9  | 1454            | 57%               | 1980                | 78%                   | 1861                | 73%                   | 1559            | 59%               | 2120                | 80%                   | 1997                | 76%                   |
| A22 B2192 Halland Roundabout    | W23 | 887             | 42%               | 1216                | 57%                   | 1199                | 56%                   | 1379            | 60%               | 1733                | 76%                   | 1718                | 75%                   |
| A22 Shaw Roundabout             | W24 | 703             | 44%               | 1056                | 66%                   | 1025                | 64%                   | 773             | 45%               | 1156                | 67%                   | 1124                | 65%                   |
| B2124 A22                       | W25 | 939             | 45%               | 1398                | 66%                   | 1344                | 64%                   | 1036            | 54%               | 1507                | 78%                   | 1467                | 76%                   |
| A22 Black Down Roundabout       | W14 | 1017            | 32%               | 1468                | 47%                   | 1406                | 45%                   | 1086            | 33%               | 1565                | 48%                   | 1511                | 46%                   |
| A22 Batts Bridge RBT            | W17 | 859             | 37%               | 1234                | 53%                   | 1207                | 51%                   | 911             | 38%               | 1311                | 55%                   | 1293                | 54%                   |
| A22 Lampool Roundabout          | W18 | 602             | 40%               | 865                 | 57%                   | 835                 | 55%                   | 706             | 44%               | 992                 | 62%                   | 960                 | 60%                   |
| A22 A275                        | W19 | 680             | 42%               | 1076                | 67%                   | 1038                | 65%                   | 700             | 39%               | 1102                | 61%                   | 1065                | 59%                   |
| A22 Priory Road RBT             | W20 | 712             | No Base           | 1100                | No Base               | 1055                | No Base               | 752             | No Base           | 1147                | No Base               | 1107                | No Base               |
| A2270 Wannock Road              | W8  | 541             | 22%               | 806                 | 33%                   | 800                 | 33%                   | 1002            | 36%               | 1664                | 60%                   | 1659                | 60%                   |
| Huggetts Lane A2270             | W1  | 892             | No Base           | 1390                | No Base               | 1381                | No Base               | 997             | No Base           | 1570                | No Base               | 1560                | No Base               |
| Eastbourne Rd Lewes Rd New Town | W10 | 609             | No Base           | 711                 | No Base               | 677                 | No Base               | 657             | No Base           | 762                 | No Base               | 727                 | No Base               |
| B2102 Framfield                 | W11 | 805             | 62%               | 919                 | 71%                   | 886                 | 69%                   | 915             | 63%               | 1034                | 71%                   | 1000                | 69%                   |
| High Street B2102 Bell Lane     | W12 | 712             | 40%               | 791                 | 45%                   | 773                 | 44%                   | 613             | 32%               | 653                 | 34%                   | 647                 | 33%                   |
| High Street Church Street       | W13 | 356             | No Base           | 365                 | No Base               | 366                 | No Base               | 447             | No Base           | 456                 | No Base               | 457                 | No Base               |
| A26 Budletts RBT                | W15 | 399             | 17%               | 539                 | 23%                   | 519                 | 22%                   | 464             | 18%               | 612                 | 24%                   | 600                 | 24%                   |
| A26 Five Ash Down               | W16 | 401             | 32%               | 520                 | 41%                   | 491                 | 39%                   | 447             | 34%               | 573                 | 43%                   | 550                 | 41%                   |
| A295 A271 Roundabout            | W27 | 421             | 28%               | 718                 | 47%                   | 701                 | 46%                   | 461             | 31%               | 747                 | 51%                   | 729                 | 50%                   |
| A295 Station Road               | W28 | 573             | No Base           | 689                 | No Base               | 687                 | No Base               | 740             | No Base           | 869                 | No Base               | 867                 | No Base               |
| A295 Ersham Road Roundabout     | W29 | 569             | No Base           | 698                 | No Base               | 696                 | No Base               | 664             | No Base           | 800                 | No Base               | 798                 | No Base               |
| A27 Cophall Roundabout          | W4  | 728             | No Base           | 934                 | No Base               | 913                 | No Base               | 1347            | No Base           | 1997                | No Base               | 1993                | No Base               |
| A27 A2270                       | W3  | 536             | 17%               | 791                 | 25%                   | 792                 | 25%                   | 585             | 16%               | 1116                | 31%                   | 1120                | 31%                   |
| Goldon Jubilee Roundabout       | W5  | 333             | 8%                | 737                 | 18%                   | 742                 | 18%                   | 431             | 11%               | 955                 | 24%                   | 961                 | 24%                   |
| A22 Dittons Roundabout          | W6  | 450             | No Base           | 621                 | No Base               | 620                 | No Base               | 496             | No Base           | 684                 | No Base               | 684                 | No Base               |
| Willington Roundabout           | E11 | 828             | No Base           | 1361                | No Base               | 1352                | No Base               | 923             | No Base           | 1547                | No Base               | 1537                | No Base               |
| Rodmill Roundabout              | E3  | 491             | 13%               | 1249                | 34%                   | 1243                | 33%                   | 613             | 18%               | 1447                | 42%                   | 1438                | 42%                   |
| Decoy Roundabout                | E12 | 573             | No Base           | 1171                | No Base               | 1160                | No Base               | 713             | No Base           | 1429                | No Base               | 1415                | No Base               |
| Southernham RBT                 | L4  | 538             | 12%               | 1369                | 32%                   | 1239                | 29%                   | 577             | 17%               | 1495                | 45%                   | 1362                | 41%                   |
| A26 Church Lane                 | L2  | 654             | No Base           | 1331                | No Base               | 1009                | No Base               | 693             | No Base           | 1396                | No Base               | 1059                | No Base               |
| A26 A2029 RBT                   | L3  | 710             | 23%               | 1669                | 53%                   | 1381                | 44%                   | 748             | 28%               | 1757                | 65%                   | 1461                | 54%                   |
| Earwig Corner                   | L1  | 654             | 31%               | 1331                | 62%                   | 1009                | 47%                   | 693             | 31%               | 1396                | 63%                   | 1059                | 48%                   |
| A22 B2110 Hillside RBT          | EG1 | 715             | No Base           | 1103                | No Base               | 1057                | No Base               | 742             | No Base           | 1137                | No Base               | 1097                | No Base               |
| A22 B2110 RBT                   | W21 | 239             | 13%               | 357                 | 20%                   | 347                 | 19%                   | 426             | 25%               | 649                 | 38%                   | 623                 | 36%                   |
| A22 Lingfield Road RBT          | EG2 | 583             | No Base           | 930                 | No Base               | 887                 | No Base               | 598             | No Base           | 950                 | No Base               | 910                 | No Base               |
| A22 A264                        | EG3 | 583             | No Base           | 931                 | No Base               | 888                 | No Base               | 598             | No Base           | 951                 | No Base               | 911                 | No Base               |
| A26 A267 Roundabout             | TW1 | 923             | No Base           | 1330                | No Base               | 1320                | No Base               | 981             | No Base           | 1344                | No Base               | 1333                | No Base               |

The STEB modelling indicates that total flows will increase significantly at key junctions across the network in both the isolated and cumulative assessments, including:

- **A22 Corridor** – the analysis shows very high increases, in both the isolated and the cumulative with an increase in total flows of up to 56% (+1770 veh) in the isolated and 74% (+2329 veh) in the cumulative assessment compared to the base. The highest flow increases occur between Uckfield and Polegate and these flow uplifts will need to be considered alongside the A22 data currently being assessed as part of an associated corridor study.
- **A259 Corridor** – the development traffic on the A259 in Wealden mostly impacts the east of the district, around Pevensey Roundabout. However, the additional local plan traffic is mostly a result of cross boundary trips from Eastbourne, Rother and Hastings developments with an additional 863 vehicles using the roundabout in the PM peak.
- **A26 Corridor** – the A26 provides the principal southwest-northeast route to the north of the district and with neighbouring Lewes. The A26 exhibits some very high development flows, in particular, where the road meets the A22 at Little Horsted roundabout with traffic increases of 59% (1559 veh) in the isolated and 80% (+2120 veh) in the cumulative assessment compared to the base. The impacts further to the north on the A26 are also high with flows at the A26/London junction in Crowborough increasing by up to 22% (+407 veh) in the isolated and 26% (+495 veh.) in the cumulative assessment.
- **A267 Corridor** - the corridor provides a north-south alternative to the A22 and A26 for trips towards the east of the district. Flow increases are less than the A22 with an additional 511 vehicles in the isolated and 947 in the cumulative assessment. This demonstrates that the corridor junctions could be significantly impacted by the isolated and cumulative growth.
- **A27 Corridor** – the A27 provides the key east-west route to the south of the district and is already congested at times. The A27 exhibits some very high development flows, in particular, between the A2270 and Golden Jubilee roundabout with traffic increases at the A27/A2270 of 16% (+585 veh) in the isolated and 31% (+1120 veh) in the cumulative assessment compared to the base.

## 5.7 Assessment Summary

The STEB model provides a high-level assessment of future traffic impacts over the plan period (2023-2039) on the key road network in Wealden. The traffic data used is considered robust and 'worse case' to stress test network capacity and highlight the potential risks to further congestion, constraints and where mitigation is most likely needed. The initial analysis at this stage indicates the following:

- The key A22, A26, A27 SRN and A2770 corridors will experience the greatest impacts in both the isolated and cumulative assessments. It is likely that highway link capacity will be significantly exceeded, as well as junction capacity, on these corridors and mitigation is likely to be needed.
- The STEB model assigns much of the wider north-south development trips to the A22 corridor and it is feasible that a full assignment model will redistribute some of this traffic to the A267 / A26 corridors.

- The large development sites in East Hoathly and to the west of the A22 in Hailsham are potentially attracting significant levels of traffic along the A22 corridor.
- Mitigation, to encourage sustainable modal shift and potential highway improvements are likely to be needed to address impacts on the road network and local congestion 'hotspots' at junctions.

The development trip information, including trip rates and journey purposes, will need to be refined through further scenario testing in the countywide model as more detailed development information becomes known.

# 6 Sustainable Transport



## 6.1 The Case for Mitigation

The STEB modelling indicates that the level of Local Plan related traffic growth, and from elsewhere in the region, could be significant with parts of the network severely constrained in the future if car dependency is left unchecked. The network is already constrained, and interventions are needed to encourage both entrenched and future car users to use other more sustainable modes.

An initial review of the likely scale and type of interventions needed to encourage modal shift and reduce predicted levels of car use on the network has been undertaken. These interventions would need to be developed into a comprehensive sustainable mitigation strategy to confirm what is deliverable and how it could support sustainable growth through the Local Plan.

To pursue this growth distribution, a phased approach is likely to be needed across the plan period, moving from an enhanced 'business as usual' scenario in the short term towards more 'ambitious' scenarios towards the end of the Plan, transforming travel behaviour and responding to new and emerging technologies. Similarly, the study growth distribution is being assessed against forecast traffic patterns some 15+ years in the future, and uncertainties around external drivers of travel behaviour, such as net-zero carbon, technological changes, fuel prices, new ways of working and global events, emphasises the need for a proportionate and flexible approach to delivering specific measures.

This section provides an initial framework of evidence, specific opportunities and challenges facing the proposed Local Plan vision, objectives and key transport themes (summarised in section 3.1) to outline the potential for modal shift in Wealden.

## 6.2 Wider Evidence

The mapping of future travel behaviour trends is subject to levels of uncertainty with different socio-economic, environmental, and technological drivers. The following sections explore the wider evidence of where future sustainable scenarios have been assessed and where initiatives have worked in practice, which could be applied in Wealden.

### 6.2.1 TfSE – Sustainable Route to Growth

TfSE<sup>17</sup> has tested distinct scenarios around the drivers of travel behaviour change to arrive at a preferred 'Sustainable Route to Growth', combining economic aspirations with the positive aspects of 'sustainable' and 'digital' futures:

- Investment in sustainable transport to support cross-regional travel
- Targeted investment in orbital coastal strategic corridors (especially rail)
- Fast adoption of digital technology and,

<sup>17</sup> [Transport Strategy for the South East – Scenario Forecasting Summary Report \(Steers 2019\)](#)

- Demand management policies.

TfSE looks beyond the 2039 Wealden Local Plan period, up to 2050. It provides an appropriate projection of the impacts of wider strategy interventions in the region, which could be translated into potential modal shift at a local level. Figure 6-1 illustrates TfSE's expected reductions in car use (9%-15%), and corresponding increases in sustainable modes, for both their preferred Sustainable Route to Growth and also their Sustainable (demand management focused) Future in comparison to a Business as Usual scenario.

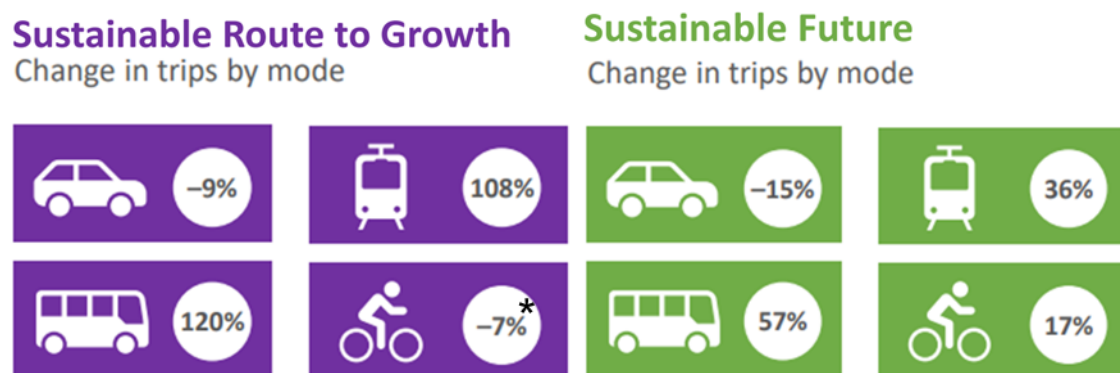


Figure 6-1 Transport Strategy for the South East, Mode Shift by Scenario (source TfSE 2019)<sup>17</sup>

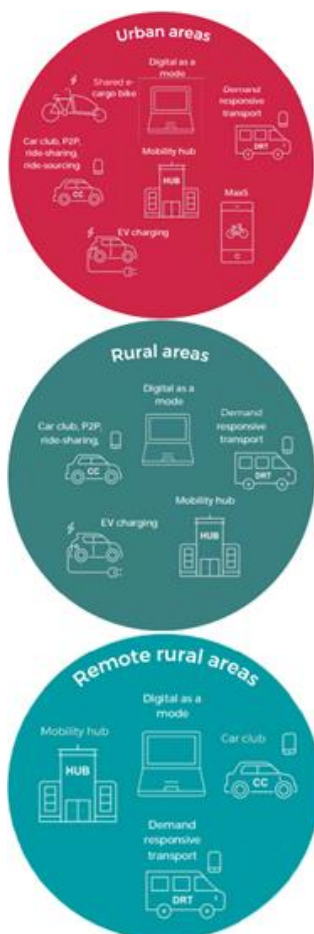
\*Walking and cycling trips potentially fall (-7%) in the Sustainable Route to Growth scenario due to a relative decline in the cost of other modes

The roles of future mobility and digital connectivity are still in their infancy with only emerging evidence around 'what-works-well-and-where'. The TfSE Future Mobility Strategy<sup>18</sup> sets out a vision for the South East and provides a prioritised framework for 'place-based bundles' for different geographies. Figure 6-2 illustrates TfSE's priorities (from very low to very high) and the range of interventions to typically be delivered across Wealden, including and not limited to:

- Prioritising mobility hubs and digital connectivity across all geographies
- Prioritising demand responsive transport (DRT) in rural and remote areas to fill gaps in the public transport network
- Providing shared mobility opportunities such as car sharing platforms, car clubs and on demand private hire/taxi schemes in urban, rural areas and some remote areas
- Local and micro freight consolidation opportunities with e-cargo bikes to reduce number of deliver vehicles in constrained urban areas

Wealden has a diverse, largely rural, geography. The south of the district, at Stone Cross, Pevensey, Polegate and Willingdon, are, in transport terms an extension of neighbouring Eastbourne with good opportunity for sustainable links to a major economic hub. The towns of Uckfield and Crowborough would be classified as urban centres, with a higher propensity for London commuting via rail access, whereas Hailsham and Heathfield are more local centres with limited access to public transport. Other than the villages of Buxted, Eridge, Wadhurst and Frant (at Bell Yews Green), the remainder of the district is largely rural and consists of small villages and hamlets with limited sustainable accessibility.

<sup>18</sup> [FUTURE MOBILITY STRATEGY \(TFSE 2021\)](#)



| Intervention                                                            | Urban bundle | Rural bundle | Remote rural bundle |
|-------------------------------------------------------------------------|--------------|--------------|---------------------|
| Shared mobility - e-bike                                                | M            | L            | L                   |
| Shared mobility - e-scooter                                             | M            | L            | L                   |
| Shared mobility - P2W (powered two wheeler)                             | M            | M            | L                   |
| Shared mobility - peer to peer vehicle sharing                          | H            | H            | M                   |
| Shared mobility - ride-sharing platforms                                | H            | H            | M                   |
| Shared mobility - business to customer vehicle sharing (e.g. car club)  | H            | H            | H                   |
| Shared mobility - ride-sourcing - 'on-demand private hire/taxi'         | H            | M            | M                   |
| Shared mobility - digital demand responsive transport (DDRT)            | H            | VH           | VH                  |
| Automated (and ultimately autonomous) road mass transit                 | L            | L            | VL                  |
| Automated (and ultimately autonomous) FMLM shuttles                     | L            | L            | VL                  |
| FMLM delivery robots / shuttles (land-based)                            | M            | L            | VL                  |
| Low level air (drones) - freight                                        | L            | M            | M                   |
| Low level air (drones) - passenger                                      | L            | L            | L                   |
| Shared mobility - e-cargo bike                                          | H            | L            | L                   |
| Digital-as-a-mode communications / services                             | VH           | VH           | VH                  |
| Hubs (mobility / community asset / service)                             | VH           | VH           | VH                  |
| MaaS platform (including mobility credits and gameification)            | H            | M            | L                   |
| Digital kerbside management applications                                | L            | L            | VL                  |
| Consolidation centres (regional, urban, micro)                          | M            | L            | VL                  |
| Business to business freight capacity exchanges                         | H            | M            | M                   |
| Business to customer freight capacity exchanges                         | H            | M            | M                   |
| Flexible streetscape                                                    | M            | L            | VL                  |
| Road space reallocation to future mobility modes e.g. lanes, kerb space | M            | L            | VL                  |
| Hydrogen refuelling infrastructure (all modes)                          | M            | L            | L                   |
| EV charging infrastructure (all modes)                                  | M            | M            | L                   |

Figure 6-2 TfSE Future Mobility Strategy – Interventions for Urban, Rural and Remote Rural Areas by Very High (VH) to Very Low (VL) priority

The TfSE approach provides a framework for Wealden to start moving from an enhanced ‘business as usual’ short term future to a more sustainable and technology based longer term future, by applying the following measures to reduce car dependency and ownership:

- making active travel the first choice for short journeys
- Placing zero-emission, frequent and accessible public transit connections between homes, places of work and key destinations
- Improvements to interurban and rural public transport services to improve connectivity and reduce private vehicle dominance and,
- planning for and adapting to technology ‘place-based bundles’, reducing car dependency and ownership.

Applying this to Wealden will not be straightforward, given the diverse geography, and will require significant investment on key corridors beyond current levels of investment in sustainable transport. Careful consideration will need to be given to how this can be funded and delivered within the context of the Local Plan Infrastructure Delivery Plan and viability.

### 6.2.2 Sustainable Travel Towns

The DfT selected three Sustainable Travel Towns (STTs) in 2004, at Darlington, Peterborough and Worcester, to receive a joint total of £10 million in funds to implement ‘smart choice’ programmes over a period of five years. An evaluation of the longer term impact of this investment was undertaken in 2016 to understand the overall effects and it concluded that the programmes were broadly successful in meeting these objectives, reducing total traffic levels by approximately 2% together with a reduction of 7-10% in the number of car driver trips per resident over 10 years.

In all three STTs, the Smart Choices Programme focussed on urban areas with a population of 100-140,000 people. Whilst none of the towns are directly comparable to Wealden, where 50% of the population live in rural or remote areas, the following similarities can be drawn:

- Car ownership levels in Worcester are higher than the national average (74% of households having at least one car)
- Towns in Peterborough have large flows of commuters travelling to London by train and,
- Darlington borough consists of 85% countryside.

The STTs of Darlington, Peterborough and Worcester provide positive examples of where the application of a tailored package of smarter choices has proved to be successful. Investment in a range of similar measures in Wealden, to encourage use of sustainable options and discourage reliance on single-occupancy car use, that could be replicated in Wealden’s urban and local centres, as well as larger new developments. Funding will be a key element for any programme in Wealden, and both Darlington and Peterborough used wider LSTF and developer S106 funding to increase their investment over 10 years to approximately £15m each (average >£100 per head of population). The STT approach could reasonably deliver similar traffic reductions, or better with a greater level of investment, in Wealden.

### 6.2.3 Funding considerations

Applying this to Wealden will not be straightforward, given its diverse geography, and will require significant investment on key corridors beyond current levels of investment in sustainable transport. It is also acknowledged that a varying package of measures will be required for the various geographies across Wealden and measures to reduce car dominance in urban Crowborough, Uckfield or Hailsham may differ to the challenges in the wider rural district. Careful consideration will need to be given to how this can be funded and delivered within the context of the Local Plan Infrastructure Delivery Plan and overall viability. Funding considerations could include:

- The 2021 Autumn Budget and Spending Review included £3 billion for buses (including support for 4000 Zero emission buses). In April 2022 the Government allocated £1.08bn of this funding to Local Authorities, including ESCC, to deliver bus improvements through their BSIPs. The Spending Review also included £2 billion for walking and cycling and £1.3 billion to support the roll out of charging infrastructure for Electric Vehicles
- TfSE have published their draft SIP for their region. Wealden is covered principally by the London to Sussex Coast package of interventions with a capital investment of £3.6bn needed up to 2050. TfSE recognises that funding the SIP will be the principal financial challenge and will involve both making the best use of funds directed from government and identifying new and innovative approaches that tap into the local and regional value that the interventions could generate. At this stage, schemes have been prioritised into short-, medium- and longer-term delivery timescales with high level advice around the expected next steps to develop the business case and feasibility with key delivery partners
- The ESCC BSIP and enhanced partnerships with operators will help unlock central funding and further support for public transport as part of a countywide approach
- The delivery of an updated ESCC Local Transport Plan (LTP) 4 will allow available funding for infrastructure and sustainable travel to be tailored to the emerging spatial strategy across the county
- Developer contributions, through Section 106 and Community Infrastructure Levies (CILs), provide the mechanism for securing development specific funding for infrastructure in a district as well as match funding for any available central and regional funding opportunities
- Explore wider funding opportunities, as and when they are announced, to support growth and infrastructure, similar to previous rounds of the Housing Infrastructure Fund (HIF), Local Growth Fund (LGF) and MRN funding, as well as the emerging NH Route Investment Strategy (RIS3) for any impacts on the SRN. While these opportunities have traditionally tended to allocate funding towards highway infrastructure, potentially locking in car dependent growth, a fresh approach is needed to deliver positive outcomes for innovative and sustainable transport infrastructure.

Conventional appraisal metrics typically focus on car journey time savings and highway capacity, but do not capture carbon, health, wellbeing, economic and environmental impacts. It might be appropriate to consider developing alternative multi-criteria approaches to modelling and appraisal with broader metrics relating to place, social interactions and quality. The DfT Early Assessment Sifting Tool (EAST) could be used with wider metrics to complement the transport planning policy

perspective of 'planning for people and places' developed by Professor Peter Jones – UCL (see Table 2-1).

## 6.3 Sustainable transport and future mobility options

### 6.3.1 Planning for sustainable transport and future mobility

The emerging Local Plan process is an opportunity to integrate behaviour change and apply a single strategy approach across a range of different interventions to reduce car travel. This approach will need to integrate the infrastructure and technology requirements of physical interventions with the principles of urban design and placemaking (shown in Figure 6-3). This will maximise the sum of the parts of each intervention and develop a coherent delivery strategy that encourages modal shift and improves the overall fabric of the district environment and public realm.

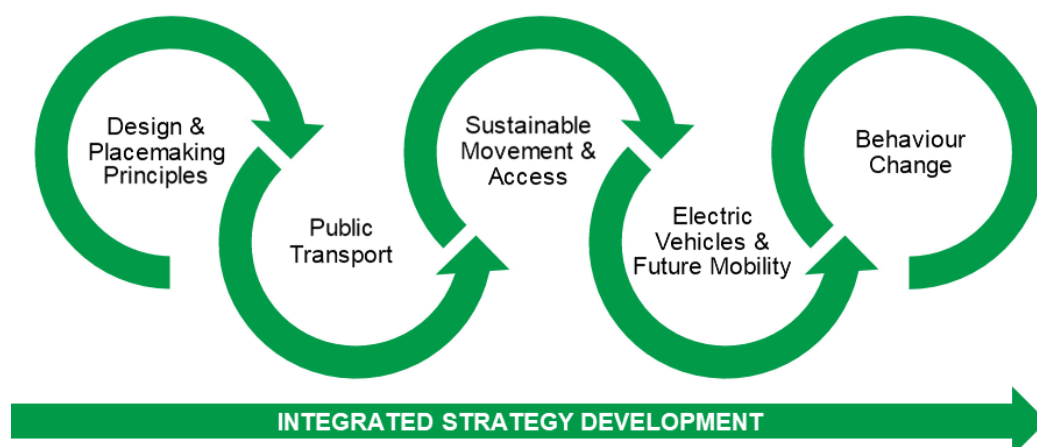


Figure 6-3 Integrating sustainable transport, placemaking and behaviour change strategy

### 6.3.2 Accessibility at new development

A key component of promoting accessibility to new development is a strategy for 'door to door' journeys that provides good sustainable travel options so that a higher proportion of trips can be made using these modes. A parallel Sustainable Transport Audit (STA) study is being undertaken to understand the existing level of sustainable accessibility to potential development sites. Analysis included the assessment of travel times and distance between key service attractors (destinations) and Local Plan developments (origins). Further analysis of catchment areas for non-residential and mixed use (residential and non-residential) developments was also undertaken, to assess levels of accessibility to key catchment areas for employees and customers.

For every site, the minimum travel time via public transport, cycle and walk has been calculated to each of the nearest attractor types and accessibility scores were allocated based on journey time bands appropriate for each attractor type and each mode. These journey time bands allowed an overall score to be allocated to each site for access to key attractors, for each mode, out of a total score. Scores are expressed as a % with 60%-100% representing good accessibility across all modes (public transport (PT), walking and cycling).

Accessibility to key services within reasonable time periods varies widely between different residential locations. Some sites would offer a poor ability for potential residents to access necessary services via Public Transport, foot or cycle without intervention, due to the limited accessibility to efficient and reliable rail and bus connections in rural parts of the district.

Figure 6-4 illustrates the collective levels of accessibility by sustainable modes for the Local Plan sites in relation to the key travel corridors identified to be most impacted by forecast traffic growth in Section 5.

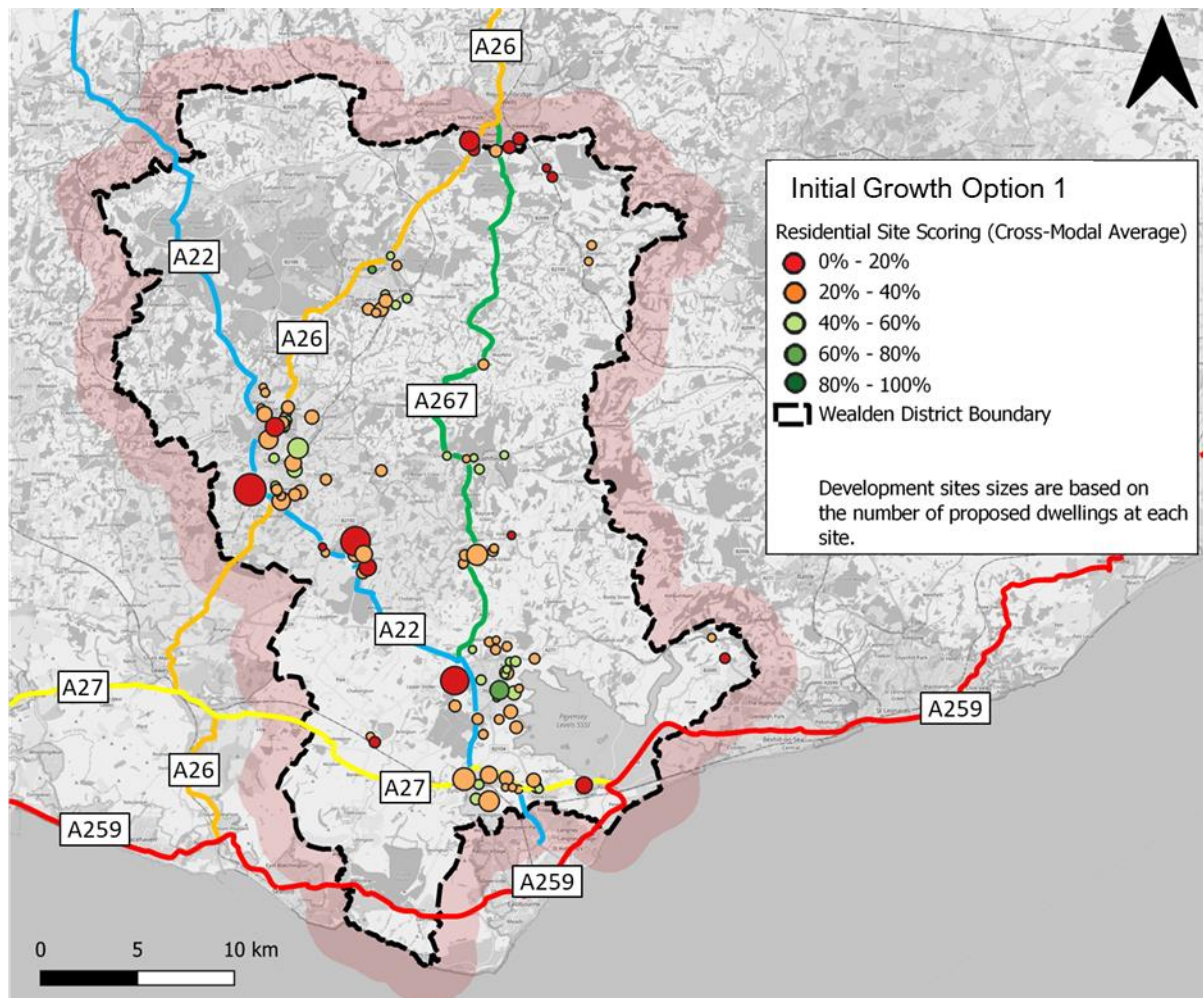


Figure 6-4 Levels of Accessibility of Local Plan Initial Growth Option 1 sites in relation to key corridors

The general accessibility levels in Wealden are relatively low, with the lowest levels of accessibility (0-20%) located in more rural areas of the district such as west of Hailsham bypass, south of the A22 and near Halland, north of the A22. The two largest developments have the lowest levels of accessibility however developments that are significant in size are more likely to include on-site provisions of schools, healthcare centres and other local facilities which will reduce the need to travel for these purposes. Larger developments will also provide greater opportunities to implement active and sustainable travel measures which could further improve PT, walking and cycling accessibility in these areas.

Accessibility along key transport corridors - A22, A27 and A259 – varies depending on the proximity to urban and local centres, such as Uckfield and Crowborough, the availability of rail connection and frequency of bus services with potential to promote sustainable and active travel modal shift in the future. The greatest levels of accessibility are located in Crowborough and towards the south of the district in Polegate and Stone Cross. Several proposed developments located south of the A27, Polegate Bypass and A22 corridor have moderate to good accessibility as they benefit from close proximity to Polegate Railway Station and increased bus services that the proximity of Eastbourne offers.

A second phase of STA work has also been undertaken to overlay the long list of ESCC Local Cycling and Walking Infrastructure Plan (LCWIP) routes (see Section 4) with the New Local Plan options. This provided a gap analysis of where routes could be prioritised to help serve future development and improve the network.

The analysis indicated that the LCWIP proposals and existing routes meant distances to the cycle network are generally quite long, over 500m and the process identified 9 significant locations where potential cycle connections between prioritised locations and LCWIP Proposed Cycle Network were explored, and recommendations made to upgrade space or implement segregation where appropriate to enhance the overall cycle experience and maximise further modal shift.

The quality of footpath provision for prioritised locations to access the LCWIP proposed walking network was fairly positive, however, some proposed footpaths utilised quiet rural roads which lacked any pavement, causing concerns for safety. The narrow footways and a lack of segregation from vehicles also reduced the comfort scoring on certain links.

## **New development accessibility and active travel opportunities and challenges**

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### **Opportunities:**

- Develop design principles to ensure that active travel and public transport connectivity (c. 400m from most homes) is planned for from the start of the planning process, to deliver attractive and healthy streets from day one and create '20-minute' neighbourhoods where larger scale or major development is proposed
- Explore the potential to improve networks and connectivity to rural settlements and more remote rural areas e.g. potential for demand responsive bus services to supplement traditional fixed bus services
- Secure effective Travel Plans to complement and deliver the overarching Wealden approach
- Deliver high quality housing close to attractive employment opportunities and/or close to public transport links (for travel outside of the district e.g to Hastings, **Eastbourne or London**) and key services
- Negotiate Developer contributions for wider off-site improvements to active travel, bus, car clubs, micro-mobility initiatives, and improvement of crossing facilities on 'key streets' and junctions
- Provide EV charging infrastructure for vehicles, e-bikes and e-scooters
- Deliver ultrafast/5G digital connectivity in urban areas and improve existing 3G/4G connectivity in rural or remote rural parts of the district
- Provide services, live/work balance and 'first/last mile' micro-hubs at larger sites, urban areas or larger villages, where multi-modal interchanges are likely to occur
- Review parking standards and consider car free/reduced parking at potential development in accessible/town centre locations e.g. higher density residential at / or near rail stations

### **Challenges:**

- Unpredictable and phased delivery of measures

- Connecting development in rural or remote rural areas to the urban areas and reliable public transport links
- Negotiating with developers, viability and level of contribution available
- Coordinating meaningful and sustained public transport contributions across groups of developers
- Additional traffic generation on constrained corridors e.g. A22, A27 & A26
- Capacity on existing public transport services within urban areas and/or frequency of services to remote or remote rural areas of the district.

### 6.3.3 Behaviour change

Behaviour change needs to be a key outcome of the strategy to change ‘hearts and minds’ and engender a partnership approach. Campaigns have traditionally focused on engagement with businesses and organisations to set up workplace and school travel plans to promote broader travel awareness and underpin more targeted initiatives to reduce car travel. Other emerging interventions, including the following, will also need to be considered as technologies and working practices continue to evolve.

#### Homeworking / Impact of Covid-19 opportunities and challenges

##### Opportunities:

In response to the COVID-19 pandemic, many organisations asked their employees to work from home where possible. This work-from-home initiative has potentially accelerated and increased trends towards more flexible and remote working practices, digitalisation, and tele-working. There is consensus that UK businesses aim to implement hybrid work models, signalling that working from home and some level of travel reduction is likely to stay beyond the COVID-19 pandemic.

In early 2021, WDC undertook a consultation to understand how the restrictions of the pandemic have helped to change travel and transport habits and behaviour across the district<sup>19</sup>. The results showed that 47% of respondents would like to use active travel (running, cycling or walking) more to get to work post Covid-19, with 58% of people saying availability of parking is the most influential factor in choosing their method of travel, followed by proximity to public transport (49%). Of those who took part in the consultation, 24% of people wished to walk more and 12% to cycle more. The results will help identify any opportunities and barriers to enabling sustained positive change but at a high-level this demonstrates the propensity to encourage modal shift across the district and the key influences in facilitating this shift.

Analysis of DfT<sup>20</sup> data, comparing recent transport use with pre COVID-19 levels, shows that September 2022 car use is still approximately 5%-8% lower on different weekdays. This offset by an increase in LGV and HGV levels and overall motor vehicle use is nearer 1%-3% lower than pre COVID-19 levels. Rail and bus use are still 10%-20% lower than pre COVID-19 levels and a number of bus routes in and around Wealden could be subject to changes<sup>21</sup> and / or reduced levels of service as

<sup>19</sup> Has Covid-19 Changed Us? - Wealden District Council - Wealden District Council

<sup>20</sup> [Transport use during the coronavirus \(COVID-19\) pandemic – \(DfT 5/10/2022\)](#)

<sup>21</sup> [A new bus network for East Sussex](#) (Stagecoach September 2022)

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revenues fall. Levels of cycling have generally seen a sustained increase of 20%-40%.

The data is fluctuating and travel patterns will potentially change as other policies influence behaviour, e.g. cost of living, however the lower levels of car use, higher levels of cycling and the adoption of more hybrid and flexible working arrangements can contribute to reduced and more sustainable travel in the future. Equally, reduced patronage, revenue and investment in bus networks presents a significant challenge that will need further consideration as part of any local or wider bus strategy going forward.

The continued investment and roll out of digital superfast broadband and 5G networks and the facilitation of local teleworking-hubs in new development and key destinations are also likely to enable travel reducing behaviours in Wealden.

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### **Challenges:**

- Potential for traffic levels to return to normal once restrictions are lifted without counter measures
  - Evidence also points towards a potential substitution effect whereby people might be driving less for work but, at the same time, they might be driving more often for other purposes such as shopping, socialising or recreation at other times of day
  - COVID-19 has led to reductions in public transport use, loss of revenue and the potential removal of marginal, yet vital, services
  - Impacts on viability, vibrancy and service sector in town centres and the need to travel further for services
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## **Reduced Car Ownership opportunities and challenges**

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### **Shared Mobility Opportunities:**

Car Clubs are short-term car rental services that allow member's access to locally parked cars and the ability to pay by the minute, hour or day. Car clubs offer an alternative model to private car ownership and can reduce the need for private parking and can encourage individuals to give up car ownership, inspiring a shift towards walking, cycling and PT, whilst still having access to a vehicle for occasional journeys.

Within Wealden, there is currently one Car Club via Enterprise, located on Bell Lane (Uckfield). Co Wheels is a pay-as-you-go membership-based community car hire scheme and currently operates within Lewes and Hastings. Increasing the number of accessible car clubs within Wealden could help to encourage individuals to give up car ownership, inspiring a shift towards walking, cycling and PT, whilst still having access to a vehicle for occasional journeys.

Car Sharing initiatives or recommendations within large residential areas and/or town and village centres can help to encourage increased vehicle occupancy. Several applications are widely available for mobile phones that can facilitate car sharing and incentives (such as priority parking) can help to encourage uptake, particularly if included within residential or commercial travel plans or packs.

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Vehicle sharing opportunities – such as car clubs or car sharing initiatives – are identified by TfSE as a high priority for urban, rural and remote rural areas meaning that their implementation could benefit Wealden district as a whole.

### **Reduced parking opportunities:**

Car free or reduced parking development has been considered in larger urban areas, such as Brighton<sup>22</sup>, where there are higher levels of public transport and active travel access with key services in close proximity. This concept will be harder to justify across the whole of Wealden, however, it could be considered in some parts of key urban settlements close to public transport or mobility hubs e.g. near to Uckfield or Polegate railway stations. Some areas of housing in new larger development could also be considered for car free or reduced parking where it is close to key services and /or new BRT or frequent bus provision.

### **Challenges:**

- Not a universal solution to reduced car travel or congestion
- Repurposing existing car parking for dedicated car club spaces and/or priority parking for car sharing initiatives
- The cost of short-term car hire vs the subjective convenience of car ownership
- Many rural or remote rural parts of Wealden could still be a significant distance from a car club / car sharing scheme (likely to be based in urban or local centres)

## **Electric Vehicles opportunities and challenges**

### **Opportunities:**

In 2020 the Government announced sales of new petrol and diesel cars will end in the UK by 2030 and over £1.8bn will be invested in infrastructure and grants to increase access to zero-emission vehicles. At a local level, EVs will support the decarbonisation of the Local Plan and the district will need to support their uptake by significantly enhancing the existing charging network (23 locations across Wealden, primarily at supermarkets or retail units) and through a range of policies e.g. providing private residential off-street charging at new development, retrofitting existing development, workplace destination charging, public accessible car parks, traffic regulation orders, parking tariffs, residential parking zones and EV on-street infrastructure and at new developments. On-street charging across Wealden, on the existing road network, can also be used to provide additional charging facilities for EVs and help to encourage the overall uptake in their usage.

### **Challenges:**

- EV strategy needed to define the technology and appropriate roll out of infrastructure
- Not necessarily a universal solution to reducing car travel, congestion, overall particulate emissions or car ownership
- Implementing energy networks to supply EV charging infrastructure

<sup>22</sup> [Car Free City Centre and Ultra Low Emissions Zone: Initial Options Study \(Steers Oct-2020\)](#)

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- Planning and physical constraints to delivering widespread on-street charging infrastructure
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### 6.3.4 Active Travel

Where possible, walking and cycling need to be the primary travel choices for shorter journeys. The LCWIP schemes provide a valuable starting point to improve the overall active travel environment in Wealden to:

- Ensure the existing street network is attractive for walking and cycling and design principles are developed to masterplan connectivity to deliver attractive and healthy streets from day one
- Improve walking and cycling connectivity between rural and urban areas (as well as cross-boundary with Eastbourne, where almost 11,000 residents travel between the two districts for employment)
- Filling in key missing links in the district's existing cycling and walking network
- Provide safe and convenient connections to the wider active travel network

#### Active travel opportunities and challenges

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##### Opportunities:

In 2022 the Highway Code<sup>23</sup> updated the hierarchy for road users placing those most at risk in the event of a collision at the top of the hierarchy. This hierarchy will need to be established around key corridors and local connections to complement the overall public realm strategy. This design approach will promote a move away from car dominated roads and deliver seamless active, public transport and shared mobility sustainable movement corridors. There are a number of opportunities to capitalise on the ongoing LCWIP programme:

- Speed management / limit programme including 20mph zones for residential areas
- Designated quiet Lanes in rural areas
- Gateway / entry treatments into residential areas
- Continue to identify and address key gaps in the walking and cycling networks
- Improve crossing facilities on 'key streets' and at junctions
- Provide secure cycle parking and e-bike charging at destinations
- Develop programme of 'sustainable movement corridors' placing active travel, public transport and future shared-mobility at the heart of the network.

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##### Potential for cycling:

The DfT Propensity to Cycle Tool (PCT)<sup>24</sup> for England and Wales provides a strategic planning tool and an evidence base to inform future cycling investment and policies that seek a wider shift towards sustainable transport. It tests different

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<sup>23</sup> [The Highway Code: 8 changes you need to know from 29 January 2022](#) (GOV.UK)

<sup>24</sup> Propensity to Cycle Tool (PCT) ([www.PCT.Bike](http://www.PCT.Bike))

scenarios of change, at a local area level (MSOA or LSOA<sup>25</sup>), to understand the potential uptake in cycling that could be achieved in different parts of the country, including:

- the UK Governments target to double cycling in a decade
- a more ambitious ‘Go Dutch’ scenario, applying cycling levels equivalent to the Netherlands (allowing for English and Welsh hilliness and trip distances)
- greater uptake of e-bikes.

Cycling potential is calculated using a function based on trip distance and local gradient. The tool forecasts the following ranges in cycling to work mode share for Crowborough, Uckfield, Hailsham, Polegate, Heathfield and rural Wealden commuter trips for each scenario compared to the Census 2011 levels (see Table 6-1). This indicates that over and above the Government’s policy expectation of doubling cycling, a greater level of investment in infrastructure, engagement and uptake in e-bikes could significantly increase cycling mode share across the district, particularly in the e-Bike scenario (see Appendix F for corresponding plots for each scenario).

*Table 6-1 Potential changes to Wealden cycling commuter mode share (PCT)*

|                     | <b>Census 2011</b> | <b>DfT Target</b> | <b>‘Go Dutch’</b> | <b>E-Bikes</b> |
|---------------------|--------------------|-------------------|-------------------|----------------|
| Crowborough         | 0-1%               | 2-3%              | 6-7%              | 10-14%         |
| Uckfield            | 1-2%               | 2-3%              | 10-14%            | 15-19%         |
| Hailsham & Polegate | 2-3%               | 4-6%              | 15-19%            | 23-26%         |
| Heathfield          | 1-2%               | 2-3%              | 6-7%              | 12-15%         |
| Rural Wealden       | 0-1%               | 2-3%              | 6-7%              | 10-14%         |

### **Challenges:**

- Limited cycling and walking networks on key corridors within the growth areas of South Wealden
- Inconsistent provision for cycling and walking connecting residential areas and key local trip attractors
- Distance between some rural / remote rural areas and urban centres with access to key facilities and/or PT connectivity
- The demographic of Wealden (26.5% of population >65), vs the South East and UK as a whole (18-19% >65) could reduce propensity to use active modes
- Topography across the district: Hailsham town is relatively flat, whilst much of Heathfield and Crowborough along with parts of Uckfield has steeper gradients, meaning that comfort for cycling activity is varied across the district
- Lack of scope for fully segregated active travel on network due to land availability, building lines and on street parking
- Traffic congestion creating unhealthy, unsafe and car dominated environments

<sup>25</sup> MSOA: middle layer super output area, av. population 7,500 / LSOA: lower layer super output area, av. population 1,650

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- Delivering continuous high quality, safe and convenient routes across the network to ultimately place 'sustainable movement corridors' at the top of street hierarchy
  - Severance and safety concerns associated with the level crossings, road quality (e.g potholes, manhole covers) on rural and key routes may discourage active travel
  - Ensuring the level of healthier active travel activities is not substantially replaced by less active, but more convenient, new sustainable modes, e.g. e-scooters, e-bikes and BRT.
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### 6.3.5 Public Transport

Smaller urban areas, such as the market towns within Wealden, have well-developed public transport networks but they tend to be less comprehensive than those in major economic hubs, such as neighbouring Eastbourne, and as such there tends to be greater reliance on car travel as a result. Public transport initiatives will therefore need to be at the heart of encouraging transformation change to improve the provision, reliability and access to real-time information for all transport needs in order to reduce private vehicle reliance, particularly for shorter journeys.

#### Bus opportunities and challenges

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##### Opportunities:

The BSIP provides a clear opportunity with secured funding to improve bus services in the shorter term. In addition, the following opportunities are at various stages of development and being considered along the key movement corridors and cross boundary routes:

- A22/A27 corridor – junction improvements at B2124 Golden Cross Junction, A22 Boship Roundabout, Hempstead Lane new roundabout and Diplocks way which will reduce congestion and improve PT journey time reliability
  - Localised interventions along the A259 Brighton – Eastbourne corridor for public transport to improve capacity and journey time reliability
  - Provision on bus priority along the A22 corridor between Golden Cross and Boship Roundabout
  - Public transport improvements and improved provision at A22 Eagles Roundabout, Golden Jubilee Roundabout and Dittons Road signalised junction
  - Longer term potential for a strategic mobility hub at a relocated Polegate station in Wealden with the opportunity for Parkway, Park & Ride / Rail link with Eastbourne
  - Movement towards cleaner fuels and (EV, hydrogen or other) for the bus fleet will be needed to support the decarbonisation of the Local Plan and enhance the district environment. The role of autonomous vehicles will also need to be reviewed in the longer term as technology and legislation permits
  - There is an opportunity, with the planned infrastructure, to increase the frequency of routes 44, 54, 142 and 143 or divert existing services from adjacent corridors. Additional services along this corridor would also benefit the two
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largest developments proposed as part of the Wealden LP, located within the vicinity of the A22, which are currently shown to have 0-20% accessibility

- There are currently only limited services running to the west of Polegate towards Lewes and increased frequency of routes 36, 25 and 26 could help to encourage modal shift and improve PT accessibility, benefitting any developments proposed to be located along this corridor.
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### **Challenges:**

- Lack of scope on network for fully segregated bus priority due to land availability, building lines and on street parking
  - Traffic congestion and severance from level crossings leading to bus journey time delay and reliability issues
  - Current bus services do not match the key movement corridors in their entirety
  - Lack of frequency of some services serving rural parts of the district and the cost of implementing more frequent services.
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## **Demand Responsive Transport (DRT) opportunities and challenges**

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### **Opportunities:**

ESCC are currently considering options for DRT through their Bus Service Improvement Plan (BSIP). DRT is a flexible service that provides shared transport to users who specify their desired location and time of pick-up and drop-off. A number of UK schemes have trialled DRT buses in recent years and they are seen as a potentially more flexible alternative to conventional buses, particularly for less profitable and rural routes, and would be expected to use cleaner fuels with the opportunity to ultimately be autonomous as technology permits.

DRT has the potential to connect rural and remote rural parts of Wealden with urban / local centres and railway stations without running a frequent daily service and would provide a significant improvement on current accessibility levels. DRT is identified as a very high priority for rural and remote rural areas within TfSE's Future Mobility Strategy.

ArrivaClick was piloted in Sittingbourne, Kent between 2017-19 enabling people to order a minibus via a mobile phone app. The technology matches people travelling to determine the route by entering their pick-up point and destination. While the pilot has now ended, Arriva identified:

- The equivalent of 12% of Sittingbourne's population downloaded the app
  - 61% of customers used the service more than once a week, with 43% for their daily commute and
  - 52% of customers switched from private motor transport.
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### **Case study:**

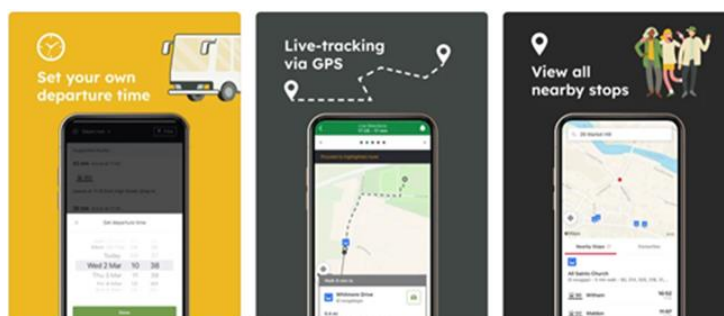
Essex County Council, as part of their Technology Strategy for Transport, undertook two pilot studies in 2018/19 to explore the effectiveness of digital tools to make passenger transport more efficient. These involved digitising home to school journeys through a commercially available app to match shared routes, vehicles and passengers. The pilots deployed a demand responsive service, over six months, to

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two relatively inaccessible colleges to explore demand, awareness of the scheme, route optimisation and revenue potential.

The pilots applied a data-led approach to demonstrate DDRT was technically feasible and provide a flexible alternative to traditional modes of travel or fill gaps in the transport network. This led to a successful £2.5m bid through the DfT's 2020 Rural Mobility Fund to deliver two DDRT services to connect and level-up areas in Essex that currently have little or no provision of public transport. "DigiGo"<sup>26</sup> was launched in 2022 connecting rural areas, to the south of Braintree and in central Essex, to key services and transport interchanges. Services are booked through a bespoke TravelEssex app (see figure), allowing users to specify when and where they want to travel, their fare and also monitor vehicle progress in real-time. The app also provides additional information on other available multi-modal options e.g. buses, trains and micro-mobility options (e-scooters and bike hire).



*TravelEssex App (source Essex County Council)*

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### Challenges:

- Developing successful business models to minimise any public subsidy and provide a good level of service.
- DRT is not necessarily a cheaper alternative and it should be seen as part of a blended solution with conventional fixed route services.

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## Bus-based Rapid Transit (BRT) opportunities and challenges

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### Opportunities:

Fully segregated BRT would provide one of the greatest opportunities for modal shift in a district such as Wealden, particularly on the key A22 and A27 corridors. The physical segregation of bus services from traffic enables BRT services to operate with a limited-stop service to enhance the directness and reduce journey times. A review of international<sup>27</sup> case studies demonstrate that BRT is emerging as a leading mode of urban passenger transit. Success partly accredited to the evidence of moderate implementation costs, whilst maximising existing resources and stakeholder buy-in. The research indicates BRT can deliver significant reduction in car use on key corridors.

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### Case Study:

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<sup>26</sup> <https://www.essexhighways.org/getting-around/ddrtdigigo/digigo>

<sup>27</sup> [Effects of New Bus and Rail Rapid Transit Systems – An International Review \(Ingvardson and Nielsen 2018\)](#)

Key examples in the South East include:

- Fastway in West Sussex (opened 2003) - 19% reduction<sup>28</sup> in traffic levels on key corridors from 2006-2013.
- Fastrack at Ebbsfleet, Kent (opened 2006) - 19% of BRT passengers previously used private vehicles.



The schemes rely on fully integrated, high quality bus services with segregated corridors to deliver improved and reliable public transport journey times to achieve modal shift. In their Draft SIP (2022)<sup>29</sup>, TfSE have highlighted the need for a potential bus-based (BRT) mass rapid transit corridor between Hailsham and Eastbourne. The constrained A22, particularly between Uckfield, Hailsham and Eastbourne, will stand to benefit most from a potential BRT solution and help deliver the principle of 'sustainable movement corridors'.

### Challenges:

- Number of service providers and complexity of negotiating with several parties on ticketing prices and mechanisms.
- Physical constraints of land availability, building lines, on-street parking and network capacity to deliver fully segregated bus priority.
- Uncertainty, complexity and cost of delivering bus based mass rapid transit and required infrastructure.
- Delivering energy networks for cleaner buses e.g. EV or hydrogen fuelled.

## Rail opportunities and challenges

### Opportunities:

TfSE identify rail travel as a priority in their Sustainable Route to Growth and, together with Network Rail and other stakeholders, are currently exploring longer term options to improve rail services in the region, including:

- Concept schemes to include electrification of the existing Uckfield rail line branch in addition to reinstating the Lewes to Uckfield line – this has strategic significance, linking the London line to the coastal towns and reliving congestion on the Brighton mainline.
- The reinstating of the Uckfield line would also improve PT connectivity for proposed developments along the western side of Wealden.

Uckfield, Crowborough and Polegate railway stations could also benefit from the introduction of a Mobility Hub (see Section 6.3.6 below) offering improved interchange to a range of first and last mile active or micro-mobility options, better access to bus services and a complementary high quality public realm offer.

<sup>28</sup> [Crawley Fastway Case Study \(Greener Transport Council\)](#)

<sup>29</sup> [TfSE \(2022\) – Draft Strategic Investment Plan](#)

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### Challenges:

- Uncertainty, complexity and cost of delivering rail solutions and required infrastructure.
  - Integrating services across all modes to optimise interchange at a mobility hub.
  - Improvements will have less impact in rural and remote rural areas where distances to rail stations are longer and multi-modal trips (possibly made by private vehicle) are still required.
  - Securing the delivery of these improvements within the Local Plan period.
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### 6.3.6 Future Mobility

The trajectory towards future mobility is less certain than more traditional interventions and it will take time to pilot, evaluate and deliver a specific strategy for Wealden. Partnerships with established providers and digital incubators can work towards securing the transport data needed for the development of Mobility as a Service (MaaS), smart ticketing and digital demand responsive options. MaaS, as illustrated in the figure opposite<sup>30</sup>, is the use of digital technology to seamlessly integrate and enhance public and private transport services through better journey information, integrated ticketing and payment systems to meet the complete mobility needs of the customer.



In practice, customers could have a choice of either pay-per-ride or monthly subscriptions where pre-purchase 'mobility packages / bundles' allows a customer to consume mobility across all providers participating in the scheme up to set limits e.g. a certain amount of travel by e-bike, travel by bus, use of a car club etc.

The concept of MaaS is still in its infancy and schemes are being rolled out with varying degrees of success across the world. The following opportunities and challenges will need to be considered as a starting point for future mobility measures.

### Mobility as a Service (MaaS)

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#### Opportunities:

The long-term trajectory for travel planning is towards MaaS, where consumers purchase mobility on a 'pay as you go' basis and as part of blended travel 'bundle' across a range of modes and providers, within a seamless mobility marketplace.

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<sup>30</sup> MaaS Concept ([Source: Greener Transport Solutions](#))

Digital platforms for transport services, with real-time trip planning, can provide the opportunity to better manage demand across the network by using pricing mechanisms to incentivise travel at less busy times, by more sustainable modes and make travel more accessible to a range of different user groups<sup>31</sup>.

Moovit currently provide a branded mobility application with real-time travel planning and information services in neighbouring Eastbourne. WDC could seek to establish an integrated fare payment system similar to Moovit as the company has successfully provided this service elsewhere through a 'plan, pay, and ride' system.

Transport for the West Midlands and Whim are currently pioneering an app-based MaaS scheme integrating taxis, National Express buses, Midland Metro trams, local train services, city bikes, rental cars and car club vehicles.

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### Case Study:

In March 2018, Transport for West Midlands (TfWM) joined forces with MaaS Global/Whim to trial the UK's first app-based MaaS scheme integrating taxis, National Express buses, Midland Metro trams, local train services, city bikes, rental cars and car club vehicles. The trial ended in 2021 and, while overall participation was lower than expected, lessons learned from the scheme have shown that a transport authority-led approach to MaaS was the right fit for the region and TfWM are in the process of tendering for a new MaaS partner. The key difference from the pilot being that they will look to build this on top of TfWM's successful Swift smartcard ticketing system.

Evidence is generally limited at this stage and the data from the TfWM Whim trial is commercially sensitive and not readily available. However, a 2019 study undertaken by Ramboll Group<sup>32</sup> of a similar MaaS Global/Whim scheme in Helsinki, implemented in 2017, highlights possible emerging travel trends associated with the scheme:

- A higher proportion (63%) of Whim members ride public transport than the metropolitan average (48%).
- Whim users are more likely to combine different modes with public transport including bicycle and taxi to solve the issue of first and last mile.
- 95% of Whim trips are made by public transport and 68% of all Whim trips occur in areas with the highest public transport accessibility.
- Amongst speculation that unlimited MaaS packages might lead to a significant upsurge in total trips and travel, the number of daily trips made by Whim users is similar to the metropolitan average (3.4 per day).

Cycling, walking, and not just private car, trips could be replaced by increased uptake of public transport and taxi trips leading to potential active travel, health and well-being disbenefits.

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### Challenges:

- Inertia to change and uncertainties around appropriate business model and likely return for investors and partners.
- 

<sup>31</sup> [MOBILITY AS A SERVICE \(MAAS\) IN THE UK: CHANGE AND ITS IMPLICATIONS \(GOVERNMENT OFFICE FOR SCIENCE 2018\)](#)

<sup>32</sup> [WHIMPACT Insights from the world's first Mobility-as-a-Service \(MaaS\) system \(Ramboll 2019\)](#)

- 
- Management of pricing and revenue distribution due to the complexity of the different fare systems and partners involved.
  - Negotiating with a number of major transport providers and procurement barriers to the range of services.
  - Unanticipated societal and environmental implications that could arise from a wholesale adoption of MaaS e.g. reduction in active travel, increased use of taxis to replace car trips.
  - Establishing a secure and accessible digitally connected eco-system.
- 

## Shared Mobility Travel Hubs

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### Opportunities:

Mobility/Travel Hubs consist of decision, movement and opportunity spaces for users to seamlessly navigate between primary transport modes with more appropriate active or micro-mobility travel modes to conveniently fulfil the first or last mile of a journey. Hubs can, but not exclusively, be provided at key public transport interchanges, such as railway and bus stations, to encourage modal shift for longer journeys and provide secure, convenient and safe interchange between modes. A network of micro-hubs would also enable end-to-end destinations to access different travel options, such as docking-hire stations, a car club (peer to peer vehicle sharing) or cycle freight, at a local level to support reduced car ownership and the burden of parking.

Mobility Hubs are identified as very high priority for urban, rural and remote rural areas within TfSE's Future Mobility Strategy. The integration of strategic mobility hubs at Uckfield, Crowborough and Polegate railway stations, with integrated connectivity with bus services and provision of safe, secure cycling parking and high-quality public realm will help facilitate the transition of first mile / last mile trips by active of sustainable modes.

### Case Study:

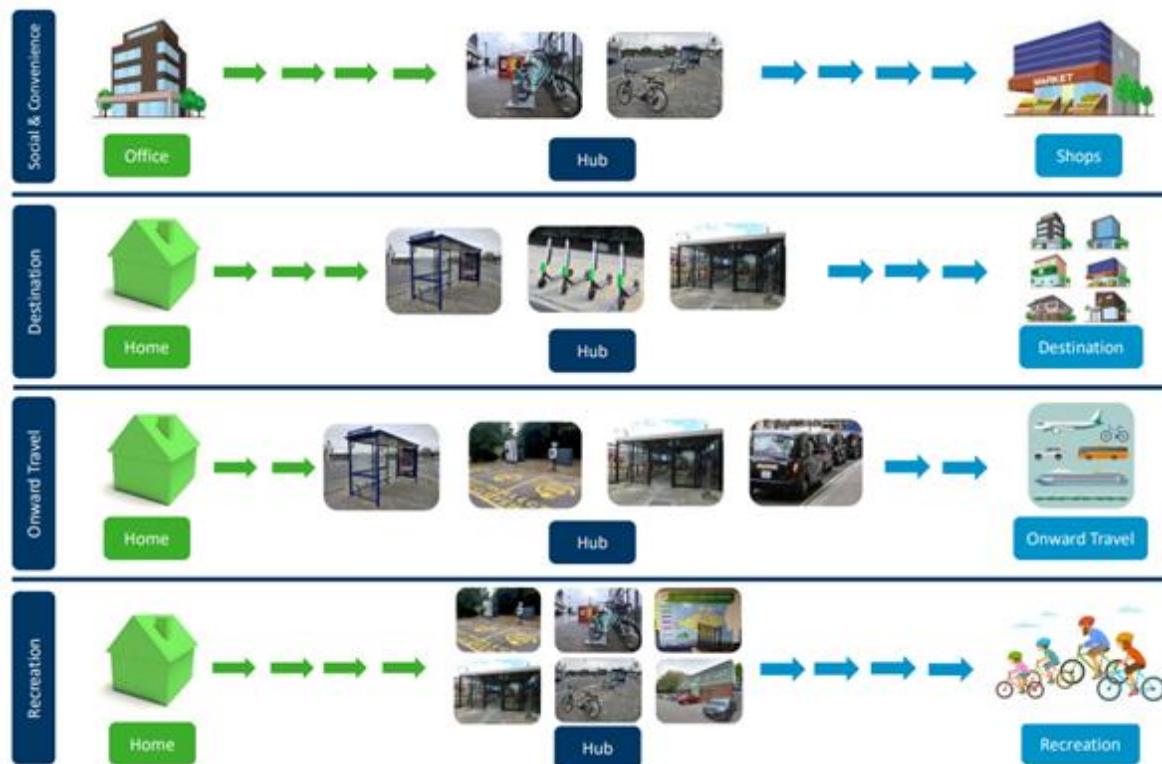
Solent Transport have developed a design guide<sup>33</sup> to help councils and transport authorities deliver successful Mobility Hubs for communities. The guide identifies four key purposes the hub could be used for:

- Destination – a hub that enables users to access a key destination e.g. place of work, gym, hospital or education and provides a range of mode choices including public transport, bicycles and scooters.
  - Onward travel – a larger hub located adjacent to connections with other modes of transport e.g. rail and bus stations where the use will be for a longer period of time and largely during commuter hours.
  - Social and Convenience – a smaller hub that allows the user to make shorter trips by bus, cycle or scooter with a quicker turnaround of use and linking key destinations.
- 

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<sup>33</sup> [Mobility Hub Design Guide](#) (Solent Transport)

- Recreation – a hub linking users with events, leisure destinations and access to rural areas. Hubs may be seasonal or temporary and provide different transport options to cater for a broader range of users.



*Mobility hub design concept (Source: Solent Transport)*

### Challenges:

- General lag with uptake, uncertainty and complexity of technological advancement and delivery.
- Funding and investment in delivering digital network and new technologies.
- Achieving 'critical mass' of hubs and micro-hubs to deliver truly flexible, convenient and accessible options for all.
- Mobility hubs could provide the most benefit in urban or local centres where the majority of modes are likely to interact.

### Freight and last-mile deliveries

The movement of freight and last-mile delivery to homes and businesses is growing with the rise of on-line shopping and digital services. The number of LGVs on the road is expected to rise by more than 20% (DfT)<sup>34</sup> over the next 15 years. COVID-19 restrictions have also increased deliveries for many goods and Royal Mail<sup>35</sup> has forecast that UK parcel volumes in the Business-to consumer (B2C) and Consumer-to-all-parties (C2X) sub-sectors will grow at approximately 5% per annum in the medium term. Local Plan growth will influence this and there are a number of

<sup>34</sup> [Road Traffic Forecasts 2018 \(DfT\)](#)

<sup>35</sup> [Last mile urban freight in the UK: how and why is it changing? \(Government Office for Science – 2019\)](#)

opportunities and challenges that could be considered to make last-mile freight delivery more sustainable in the district's communities:

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### Opportunities:

- Freight, loading and delivery restrictions and / or consolidation points (e.g. lockers) in new development to reduce the number of trips, distances travelled and encourage use of more sustainable modes for last-mile delivery.
- A network of cargobikes and e-cargobikes (see opposite) at mobility hubs and appropriate destinations can form a part of a district-wide shared mobility system.
- 'Lifestyle' couriers are becoming more common, often app-based and using sustainable transport modes, they provide a more flexible interface with the main logistics provider.
- Mobile depots (see opposite) and micro-consolidation hubs can be used as staging posts on the edge of congested urban centres for smaller sustainable transport modes to undertake the last-mile delivery.
- Technology and innovation will also play a significant role with the application of improved GPS tracking, dynamic route optimisation and the emerging potential of autonomous drone delivery vehicles in the air and on the ground being trialled e.g. Amazon, DHL, Starship and Matternet.



e-cargo bike ([Source: Cycling UK](#))



Mobile depot ([Source: STRAIGHTSOL](#))

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### Challenges:

- Carriers' ability to cope with the ever-growing demand for parcel deliveries during peak periods will require additional infrastructure investment.
  - Consumers are demanding ever-faster, more reliable and convenient delivery services.
  - Rise in less efficient B2C and C2X deliveries with high first-time failure rates, lower drop densities and higher inter-drop distances.
  - Competition for road space between kerbside deliveries, priority for sustainable active and public transport modes and impacts of road traffic delays.
  - Impact of 'free' delivery options leading to low pricing models and restricting investment in more efficient infrastructure and cleaner carrier fleets.
  - Physical, legal and regulatory barriers to autonomous airborne and land-based drone delivery technology.
-

## 6.4 Potential for modal shift

The wider evidence, discussed above, indicates that a package of different mobility solutions has very good potential to reduce car use in parts of the district, such as Polegate, Uckfield and Crowborough, as well as Hailsham if a BRT corridor is delivered, and reasonable potential in some of the smaller and more rural locations, notably:

- Up to 10% reduction in car trips with area wide ‘smarter choice’ travel strategy and investment similar to the Sustainable Travel Town (STT) programme in Polegate, Stone Cross and neighbouring Eastbourne
- Potential for Bus Rapid Transit (BRT) to reduce car use by up to 20% on key corridors, within the district and cross-boundary, and be complemented by enhanced partnerships with bus operators and Digital Demand Responsive Transport (DDRT) services in rural areas and
- Continued investment, scheme delivery and promotion of the health and wellbeing benefits of cycling and walking, coupled with greater uptake of e-bikes, could significantly increase cycling and walking mode share for trips within parts of the district.

The TfSE regional target of a 9% reduction in overall forecast car trips (see Figure 6-1) is a realistic ambition for a location similar to the Polegate or Hailsham area of the district. With a more joined up approach with the neighbouring larger urban area of Eastbourne, increased investment, delivery of frequent bus-based rapid transit and by embracing a more ‘sustainable’ and ‘digital’ future, a greater reduction (>10%) could be achieved by the end of the Local Plan period.

At smaller settlements and at the rural level, a lower level of modal shift is more likely to be achieved, providing there is sufficient investment and improved connectivity at a wider scale. A reduction of 5% in overall forecast car trips is more likely to be achieved with some potential to exceed this if a more ‘sustainable’ and ‘digital’ future can be secured by the end of the Local Plan period.

These are a **headline range of modal shift targets as a starting point at this stage** and equates to reducing the overall number of forecast peak hour car trips by 10%+ in better connected areas and 5%+ in the smaller settlement / rural areas. The level of reduction will vary across the district network, subject to the eventual schemes delivered and for specific trip purposes, e.g. higher modal shift for urban shorter trips versus lower modal shift on wider cross-boundary trips and less accessible locations. Further modelling will be needed in the countywide model to undertake more detailed mode shift analysis of specific measures, journey-purposes and corridors to understand a more precise geographical distribution of modal shift on the network.

Acknowledging that a package of measures will need to be delivered at intervals across the Local Plan period, with varying levels of complexity based on cost, deliverability and technological advancement, the following timescales (see Table 6-2) set out an indicative evolutionary timeline for a strategy in Wealden.

Table 6-2 Overarching mitigation timeline

| Phase                        | Timescale  | Geography                      | Reduction in car trips* | Rationale                                                                                                                                                  |
|------------------------------|------------|--------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 'Enhanced Business as Usual' | 0-5 years  | Larger towns and key corridors | 0-5%                    | Continuation of current policies and interventions with increased funding, supporting behaviour change strategy and enhances bus partnerships and services |
|                              |            | Rural                          | (>)0%                   |                                                                                                                                                            |
| 'More Ambitious'             | 5-10 years | Larger towns and key corridors | 5%-10%                  | Initial BRT services, improved rail, car-free development, electric vehicles, shared-mobility and early digital roll out                                   |
|                              |            | Rural                          | 2-5%                    |                                                                                                                                                            |
| 'Digital Sustainable Future' | 10+ years  | Larger towns and key corridors | (>)10%                  | Full segregated BRT, full digital roll out and reduced car ownership in urban areas                                                                        |
|                              |            | Rural                          | (>)5%                   |                                                                                                                                                            |

\*Headline range % reduction in forecast modelled car trips across the network

The following sections highlight specific transport-related measures, across different modes, that could be implemented in Wealden, and a summary action plan to help achieve the 'more ambitious' and 'digital sustainable future' mode shift targets set out above.

## 6.5 Framework Action Plan

The case for mitigation has identified a framework of interventions that are potentially needed as a minimum requirement to support the Local Plan. The package is by no means exhaustive and will need enhancing, adapting and complementing throughout the Local Plan period. Further strategy work around feasibility, funding and engagement will also be needed to develop this framework into real-world solutions.

The eventual strategy will need to focus on types of journeys (short, medium and long distance) and the most appropriate mode for different movement corridors. A suggested outline framework action plan to deliver the potential necessary measures is summarised overleaf to reflect the proposed strategy timeline of moving from an 'Enhanced Business as Usual' to the 'Digital Sustainable Future'. The action plan includes both the known scheme pipeline and additional measures, highlighted in blue, at key locations to deliver the range of sustainable options to support the Council's proposed growth strategy, vision and objectives.

## Outline Action Plan: 0 to 5 years ‘Enhanced Business as Usual’ – target 0%-5% car trip reduction

| Scheme Location / Package                                                | Mode                                 | Measures                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A27 Corridor                                                             | All                                  | <ol style="list-style-type: none"> <li>1. Shared-use path adjacent to A27, from Polegate to Firle Bostal and provision of toucan crossings</li> <li>2. Berwick Roundabout improvements and upgrade of crossing to Pegasus</li> <li>3. Wilmington Junction provision of Pegasus crossing, reduction of speed limit in village</li> </ol>                                           |
| Polegate                                                                 | All Active                           | <ol style="list-style-type: none"> <li>4. High street public realm improvements in favour of pedestrians, cyclists</li> </ol>                                                                                                                                                                                                                                                     |
| Hailsham/Polegate/Eastbourne Movement & Access Corridor                  | All                                  | <ol style="list-style-type: none"> <li>5. Enhanced pedestrian and cyclist facilities</li> <li>6. Bus lane and junction improvements</li> </ol>                                                                                                                                                                                                                                    |
| Hailsham/Polegate/Eastbourne Sustainable Transport Corridor              | Car/Bus                              | <ol style="list-style-type: none"> <li>7. Phase 3 Ersham Road roundabout, Hailsham: improving congestion and safety in the area</li> <li>8. Phase 4 A2021 Kings Drive/Rodmill Roundabout</li> <li>9. Phase 5 – Rodmill roundabout to town centre</li> </ol>                                                                                                                       |
| A22 Corridor Improvements                                                | All                                  | <ol style="list-style-type: none"> <li>10. Golden Cross highway capacity improvements</li> <li>11. Golden Cross to Horsebridge via Boships Roundabout bus priority measures</li> <li>12. Improved public transport provision at Eagles Roundabout, Golden Jubilee Roundabout and Dittons Road junction</li> </ol>                                                                 |
| Pevensey                                                                 | Walk                                 | <ol style="list-style-type: none"> <li>13. Pedestrian crossing facility on Pevensey High Street</li> </ol>                                                                                                                                                                                                                                                                        |
| LCWIP & town centre cycle routes – All corridors and urban/local centres | All Active                           | <ol style="list-style-type: none"> <li>14. Prioritisation and roll out of LCWIP schemes to all corridor, town centre and new development</li> <li>15. Improved cycle parking in urban areas and at new developments</li> </ol>                                                                                                                                                    |
| A259 Seaside Corridor (Eastbourne)                                       | Bus                                  | <ol style="list-style-type: none"> <li>16. Replacement of A259/A2290 Seaside Roundabout with signals with bus priority, journey time and reliability improvements for cross boundary services between Wealden and Eastbourne</li> </ol>                                                                                                                                           |
| Develop Branded Travel Behaviour Change Strategy and Campaign            | All                                  | <ol style="list-style-type: none"> <li>17. Develop districtwide branded strategy and campaign with public transport operators, ESCC, local groups and digital incubators &amp; service providers</li> </ol>                                                                                                                                                                       |
| Public Transport – Districtwide                                          | Bus/Rail                             | <ol style="list-style-type: none"> <li>18. Enhance partnerships with existing operators and ESCC</li> <li>19. Develop districtwide public transport strategy and action plan in partnership with ESCC, TfSE rail and bus operators</li> <li>20. Explore TfSE opportunities for BRT and more flexible forms of public transport, e.g. DDRT, to support existing network</li> </ol> |
| New Developments – Districtwide                                          | All                                  | <ol style="list-style-type: none"> <li>21. Develop design principles to plan for sustainable movement in and around new development</li> <li>22. Reduce parking, where feasible and supported, in urban areas and depending on proximity to key rail corridors</li> </ol>                                                                                                         |
| Mobility Hubs – Key destinations                                         | Bus/Rail/<br>First Mile<br>Last Mile | <ol style="list-style-type: none"> <li>23. Propose mobility hubs and improve interchange for bus, DRT, rail and ‘first and last mile’ travel modes at Polegate, Uckfield and Crowborough railway station.</li> </ol>                                                                                                                                                              |

|                                                 |                                 |                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                 |                                 | 24. Explore potential to create mobility hubs for key destinations without rail at Hailsham, Heathfield and new large residential developments in district                                                                                                                                                                                                    |
| Electric Vehicles (EV) – Districtwide           | Low Emission Vehicles           | 25. Develop district-wide EV strategy and action plan in partnership with ESCC<br>26. Increased roll out of EV charging infrastructure on-street and at key destinations<br>27. Greening of public transport fleet to low-emission vehicles and deliver associated energy networks e.g. hydrogen                                                              |
| Future Mobility / MaaS / Shared-Mobility        | All                             | 28. Develop districtwide Future Mobility strategy and action plan in partnership with ESCC, TfSE and digital incubators & service providers<br>29. Engage with shared-mobility providers e.g. car clubs, e-scooters and explore potential for micro-mobility hubs<br>30. Engage with infrastructure providers to deliver ultra-fast broadband and 5G coverage |
| 'Sustainable Movement Corridors' – Districtwide | Bus/Active/First Mile Last Mile | 31. Develop a districtwide movement and access strategy and action plan to create seamless public transport and active mode movement corridors                                                                                                                                                                                                                |

## Outline Action Plan: 5 to 10 years 'More Ambitious' – target 5%-10% car trip reduction

| Scheme Location / Package                                      | Mode       | Measures                                                                                                                                                                                                          |
|----------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A27 Corridor                                                   | All        | 32. A27/A2270 signalised junction and link between A27/A22 Cophall Roundabout and A27/A2270 signalised junction<br>33. Potential off line A27 realignment scheme to the west of Polegate as part of RIS3          |
| LCWIP & cycle routes – All corridors and urban centres         | All Active | 34. Continued roll out of LCWIP schemes and districtwide cycle schemes                                                                                                                                            |
| A259 Brighton-Eastbourne- Pevensey (South Coast) MRN corridor  | All        | 35. Introduce multi-modal transport measures to improve A259 corridor between Pevensey and Brighton for vehicles and buses                                                                                        |
| Uckfield                                                       | Rail       | 36. Network Rail have submitted case for electrification of the Uckfield railway branch to DfT and awaiting decision                                                                                              |
| TfSE Bus-based Rapid Transit – Districtwide and Cross-boundary | BRT        | 37. Phased roll out of core BRT and early infrastructure requirements – potential to combine with A259 & Eastbourne to Hailsham QBCs                                                                              |
| TfSE Rural / Interurban Bus – Districtwide and Cross-boundary  | Bus        | 38. Roll out district-wide public transport strategy and action plan<br>39. Enhance multiple rural / interurban routes to interface with BRT via traditional fixed services and DDRT                              |
| Branded Travel Behaviour Change Strategy and Campaign          | All        | 40. Roll out districtwide branded strategy and campaign with established partners                                                                                                                                 |
| Additional highway enhancements                                | All        | 41. Monitor local junction capacity, public transport and active mode improvements to support Local Plan mitigation if required                                                                                   |
| Reduced car ownership                                          | All        | 42. Increased provision of car clubs, car sharing initiatives and priority parking for these measures in urban areas<br>43. Lower parking at developments in urban areas or close proximity to key rail corridors |

| Scheme Location / Package                                          | Mode                                   | Measures                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key Destination Mobility Hubs & Micro-mobility Hubs - Districtwide | Bus/Rail/<br>First Mile<br>Last Mile   | 44. Create strategic and micro-mobility hubs at key destinations, including Polegate Stations and at wider and peripheral locations micro-mobility hubs located in urban and local centres (Uckfield, Crowborough)                                                                               |
| Electric Vehicles (EV) – Districtwide                              | Low<br>Emission<br>Vehicles            | 45. Continued roll out of EV Strategy, energy networks and charging infrastructure<br>46. Low/Zero Emission public transport fleet                                                                                                                                                               |
| Future Mobility /MaaS / Shared-Mobility                            | All                                    | 47. Roll out MaaS consumer platform and digitally demand responsive shared-mobility options across network of mobility & micro-mobility hubs<br>48. Establish fully connected ultra-fast broadband and 5G coverage in urban areas and improve 4G connectivity in rural and remote rural areas    |
| 'Sustainable Movement Corridors' – Districtwide                    | Bus/Active/<br>First Mile<br>Last Mile | 49. Commence delivery of early infrastructure for 'sustainable movement corridors' including reduced traffic, segregated sustainable modes and on-street parking removal on core network<br>50. Explore opportunities for further 'sustainable movement corridors' on other parts of the network |

### Outline Action Plan: 10 to 15 years 'Digital Sustainable Future' – target >5% - >10% car trip reduction

| Scheme Location / Package                                      | Mode                                   | Measures Rationale                                                                                                                                                                                                                                |
|----------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increased rail services (Uckfield)                             | Rail                                   | 51. Make the case with Network Rail, TfSE and DfT for reinstating the Uckfield to Lewes Railway Line, improve rail connectivity in Wealden                                                                                                        |
| TfSE Bus-based Rapid Transit – Districtwide and Cross-boundary | BRT                                    | 52. Full roll out of core BRT service and infrastructure requirements<br>53. Explore potential for bus related automated technology                                                                                                               |
| TfSE Rural / Interurban Bus – Districtwide and Cross-boundary  | Bus                                    | 54. Roll out enhance multiple rural / interurban routes to interface with BRT via traditional fixed services and DDRT                                                                                                                             |
| Electric Vehicles (EV) – Districtwide                          | Low<br>Emission<br>Vehicles            | 55. Comprehensive EV charging network and conversion of district car and fleet ownership in line with net-zero targets                                                                                                                            |
| Additional highway enhancements                                | All                                    | 56. Monitor local junction capacity, public transport reliability and active mode improvements to support Local Plan mitigation if required (see Section 7)                                                                                       |
| MaaS / Shared-Mobility                                         | All                                    | 57. Roll out MaaS consumer platform and digitally demand responsive shared-mobility options across network of mobility & micro-mobility hubs<br>58. Update Future Mobility Strategy to explore and adapt to emerging technologies e.g. automation |
| 'Sustainable Movement Corridors' – Districtwide                | Bus/Active/<br>First Mile<br>Last Mile | 59. Complete core network of fully segregated 'sustainable movement corridors'<br>60. Explore potential for automation at a corridor level                                                                                                        |

## 6.6 Headline outcomes

A set of suggested initial headline outcomes, based on the initial growth strategy provided, which generally respond to the approach discussed in this section, are listed in Table 6-3. It is important to note that these provide an initial framework as they are underpinned by an interim evidence base. The preferred outcomes that the eventual strategy will seek to deliver need to be tailored with further transport assessment work and agreed with the Council and key stakeholders throughout the development of the Local Plan transport evidence base.

The Local Plan horizon year of 15+ years in the future and uncertainties, around external drivers of travel behaviour, emphasise the need for a more flexible, monitor and manage approach to delivering these outcomes. A monitoring and evaluation strategy would be an important component of any strategy to develop evidence around the effectiveness and future delivery of different interventions and to measure the eventual agreed outcomes.

*Table 6-3 Initial Strategy Headline Outcomes*

| Initial Headline Outcome |                                                                                                                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                       | A reduction in forecast car trips across a range of 5% to 10% or more, of journeys to work made by sustainable modes across the district before the end of the Local Plan period                       |
| 2.                       | Transport network is sustainable, easy to access, convenient and inclusive to all and connects housing and rural areas with key settlements, services and employment                                   |
| 3.                       | Strong culture of walking and cycling placing active modes as the default travel choice, where possible, for short trips across the district, and particularly cross-boundary South Wealden-Eastbourne |
| 4.                       | High quality, segregated, frequent and rapid public transport is available that competes with car journey times, convenience and serves key destinations within and outside the district               |
| 5.                       | Resilient transport network which, where possible, can adapt and respond to changing technologies, trends and associated opportunities                                                                 |
| 6.                       | Transport system contributes to achieving the commitment for a carbon neutral Wealden                                                                                                                  |

# 7 Highway Mitigation Options



## 7.1 Overview

The objective of this stage of work was to understand the risks posed to the transport network by the initial Local Plan growth scenario and provide early options, which align the Council's vision for carbon neutrality, to mitigate the impacts. While the focus needs to be on sustainable solutions, it is acknowledged some form of improvements to highway capacity may be needed. This section provides an initial capacity and concept review of the key district junctions listed in Table 7-1 and referenced in Figure 7-1. Any design commentary is purely observational at this stage and subject to more detailed design feasibility and assessment in both strategic and local junction models.

Acknowledging there will be potential impacts across the Wealden network, the scope of the concept review focuses on the A22 / A27 corridor as the critical link likely to be at most risk from future Local Plan growth, as identified by the STEB analysis. The concept review translates the outputs from the initial STEB model assessment, the potential for modal shift and uses local junction modelling, where available from the A22 / A27 Corridor Package and HPE MAC Phase 1 Study, together with professional judgement to advise on potential capacity issues and solutions at the key junctions. Consideration is also given to the possible cross-boundary effects that the Wealden Local Plan could have on key parts of the network and any emerging mitigation requirements from the related wider STEB work in other districts.

It should be noted, a number of key junctions are subject to a separate ongoing mitigation assessment as part of third-party work with developments coming forward in Uckfield. These junctions have been excluded from this review at this stage and will be considered in subsequent stages of work. The eventual outcomes will be assessed in the countywide model going forward. Similarly, junctions at a local level within key centres, such as Uckfield or Hailsham, will also need careful consideration.

Table 7-1 Key junctions reviewed

| Ref | Junction                  | Corridor | Ref | Junction                 | Corridor |
|-----|---------------------------|----------|-----|--------------------------|----------|
| W1  | A2270/Huggetts Lane       | A2270    | W30 | Diplocks Way Roundabout  | A22      |
| W8  | A2270/Wannock Road        | A2270    | W26 | Boship Roundabout        | A22      |
| W3  | A27/A2270                 | SRN      | W25 | B2124 Priority Junction  | A22      |
| W2  | A27 Drusillas Roundabout  | SRN      | W24 | Shaw Roundabout          | A22      |
| W4  | Cophall Roundabout        | SRN      | W23 | B2192 Halland Roundabout | A22      |
| W5  | Golden Jubilee Roundabout | SRN      | W18 | Lampool Roundabout       | A22      |
| W32 | Ditton Road Roundabout    | SRN/A22  | W19 | A275 Priority Junction   | A22      |
| W31 | Eagles Roundabout         | A22      | W20 | Priory Road Roundabouts  | A22      |

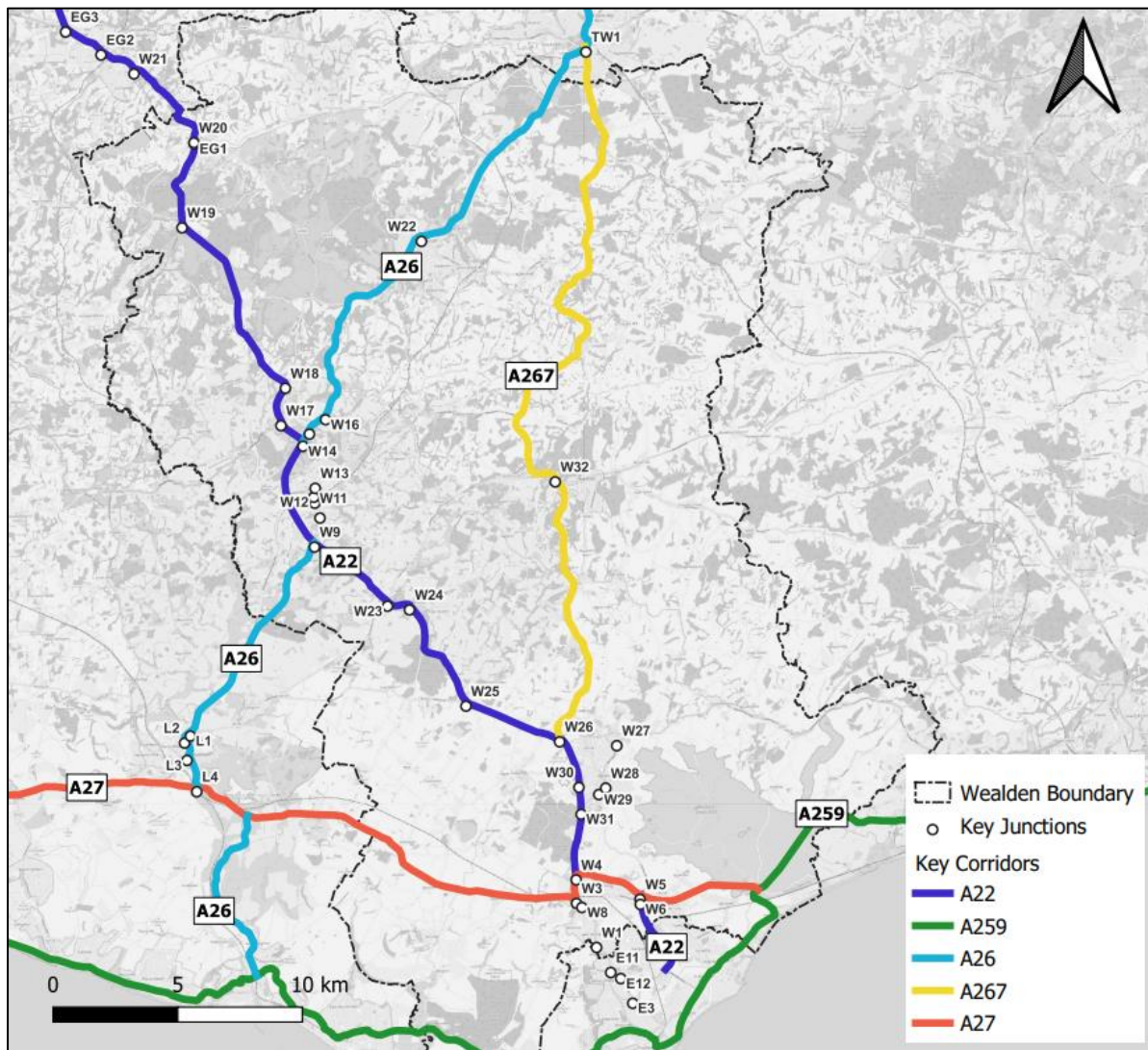


Figure 7-1 Reference map of key junction locations

This is an early concept review of key junctions only and considers the 10% modal shift car trip reduction to the higher Isolated Local Plan option traffic growth and the Cumulative 'All District' Options to test the network. Further testing in the countywide model could identify different results, and stress elsewhere on the network, which will need further consideration, updated assessment, and potential solutions. The need for any solutions should be monitored against the prevailing traffic conditions and the potential for further modal shift across the Local Plan period prior to implementing.

## 7.1 A2270 Corridor

The A2270 corridor in Wealden and Eastbourne forms part of the HPE MAC assessing different options to deliver capacity, bus priority and active mode improvements at key junctions between the A27 and Eastbourne, in general. The emerging options have not previously been tested with the expected additional growth from the Wealden Local Plan Initial Growth Option (1) assessed in this document. The available local junction models have been updated to test the impact on the proposed designs and initial results are included at Appendix G.

A further review of the A2270/Huggetts Lane signalised junction located downstream of the Wannock Road suggests similar capacity issues. Junction modelling has not

been undertaken as part of this Report, however, the expected level of demand in both the isolated and cumulative options indicate there will be capacity issues. The existing signalised layout would also need further improvements as additional southbound lane to accommodate increased local plan demand. Figure 7-2 summarises the junction review and recommends further changes to the layout at this stage. However, further modelling is needed in the countywide model to understand flows and residual capacity at this junction.

#### Site W1 - A2270/Huggetts Lane

**Scheme Proposal:** Existing three-arm signalised junction would require further capacity augmentation to cater for an increase in north-south movements

##### Impacts and Constraints:

- Local Plan will add approximately 890-990 veh per hour during the peak periods.
- With the projected increase in isolated and cumulative LP scenarios, the existing signalised junction would operate over its saturation.
- Highway boundary is limited to implement a full two lane exit lane capacity; therefore, a continuity lane gradual merge required.
- Potential mitigation measures to improve junction capacity include
  - Extending flare lengths on Huggetts Lane approach
  - Adding two exit lanes for allowing two-lanes of northbound and southbound movements
  - Extending flare lengths on southern approach for RT movements
  - Extending flare lengths on northern approach for southbound movements

##### Opportunities:

- Proposed improvements is expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows
- Select Vehicle Detection (SVD) for the future to implement bus priority measures.



Imagery ©2021 Google, Imagery ©2021 Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, Map data ©2021

Figure 7-2 W1 - A2270/Huggetts Lane concept review summary

The junction modelling for A2270 / Wannock Road junction indicated that the improved HPE MAC layout would operate over capacity with the isolated growth and with cumulative growth. The junction is likely to require further mitigation and Figure 7-3 summarises the junction review and provides further design considerations, including additional green time and additional lane length, to improve capacity.

#### Site W8 – A2270/Wannock Road

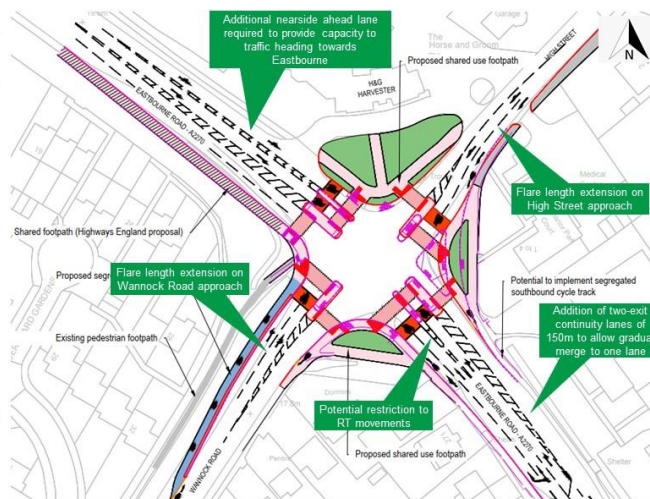
**Scheme Proposal:** An improvement to signalised layout suggested within MAC study to improve cycle crossing facilities need additional traffic capacity for increased north-south flows and get priority over side road capacity.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 25-27% (810-1,000 veh per hour) during the peak periods, most of around 50% increase would be along A2270 south to north direction and vice-versa depending on the tidal pattern.
- A LinSig model from a previous study and used for indicative capacity assessment. This is a combined junction model with A27/A2270 Junction. Wannock Road junction is interdependent to the A27 East of Lewes scheme
- A recent cycle-friendly layout is currently in consideration, which improves over the previous layout suggested within the MAC study.
- Forecasted demand flows on A2270 SB are around 1,700 veh per hour, which is significantly higher for a single lane link capacity, with a predicted capacity of 1,300-1,400 veh per hour in the busy southbound direction of travel.
- In both peaks, the junction would experience high delays, mostly at A2270 northern and Wannock Road approaches. Further signal optimisation and prioritisation of the A22 SB direction, occasional delays are likely to occur on the High Street arm.

##### Opportunities:

- Improve junction capacity further by restricting conflicting turning movements, such as restricting movements from A2270 (S) to High Street.
- Highway land available for an extra SB lane on northern approach
- Dedicated, safe and convenient crossing facility for pedestrians and cyclists
- Select Vehicle Detection (SVD) for the future to implement bus priority measures



Improved HPE MAC junction proposal with added cycling improvement measures

Figure 7-3 W8 - A2270/Wannock Road Junction concept review summary

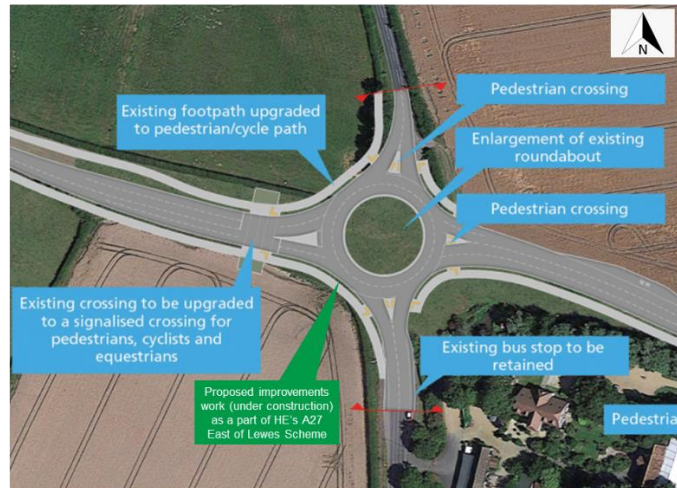
## 7.2 A27 SRN Corridor

The A27 has sections of dual-carriageway, where it meets the A22 at Polegate, and single carriageway leading to west to Lewes and east to Rother. The STEB modelling

indicates that the A27 corridor is likely to be impacted by additional Local Plan growth and a review of key junctions has been undertaken.

Junction modelling has not been undertaken for Drusillas Roundabout and a high-level review suggests a recently implemented improved roundabout layout as a part of A27 East of Lewes scheme would provide adequate capacity to cater for the level of demand in both the isolated and cumulative options (see Figure 7-4).

|                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Site W2 - Station Rd/A27/Alfriston Rd (Drusillas Rbt) Roundabout</b>                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>Scheme Proposal:</b> No further measures needed in addition to existing NH's A27 East of Lewes Scheme improvement layout.                                                                                                                                                                                                                                                                                                            |  |
| <b>Impacts and Constraints:</b>                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| <ul style="list-style-type: none"> <li>Local Plan will add approximately 630-705 veh per hour during the peak periods.</li> <li>The under construction improved roundabout would substantially improve in both of the A27 east-west directions at this junction.</li> <li>With the projected increase in isolated and cumulative LP scenarios, the improvement roundabout would likely operate below its threshold capacity.</li> </ul> |  |
| <b>Opportunities:</b>                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <ul style="list-style-type: none"> <li>Proposed improved roundabout is expected to accommodate the forecasted Wealden Local Plan and Cumulative Local Plan flows.</li> <li>Proposed layout already includes a dedicated crossing at this west for all NMU's.</li> </ul>                                                                                                                                                                 |  |



From - National Highways, A27 East of Lewes - Preferred route scheme drawings

Figure 7-4 W2 - A27 Drusillas Roundabout concept review summary

The A27/A2270 signalised junction is an existing key constraint on the A27 SRN and A2270 corridor. An improvement to the current layout and a two-lane dual-carriageway on the A27 (north) is being implemented, as highlighted in the blue text boxes in Figure 7-5. The available local junction model has been rerun and shows the improved junction would be slightly over capacity with the isolated and cumulative growth. The A27 scheme is already maximising available road space to deliver the signal junction, and the review in Figure 7-5 can only recommend (green text boxes) limited improvement through additional southbound lane capacity at this stage. This measure will improve the isolated and cumulative results. However, this junction needs to be considered within the context of the immediate downstream A2270/Wannock Road junction to the south, which would be significantly overcapacity and could block back into the A27 junction. Further consideration of managing and reducing demand at this location will be needed going forward. There would be a need to consider southbound A2270 movements to be coordinated across both the junctions so that the queues from Wannock Road junction does not impact the A27 junction.

**Site W3- A27/A2270 Junction**

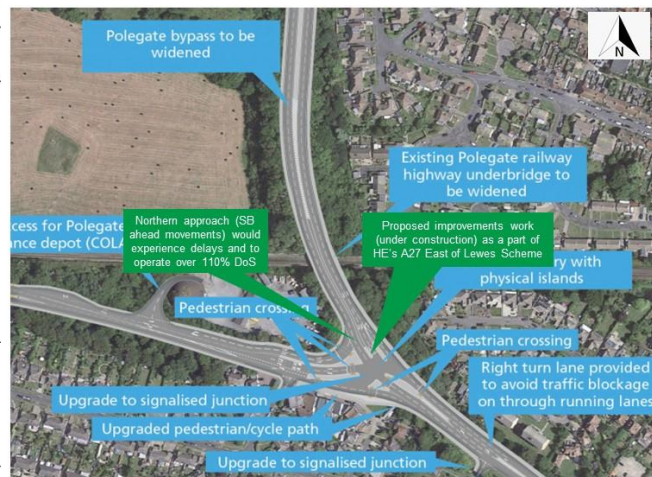
**Scheme Proposal:** On completion of NH's 'A27 East of Lewes' scheme which includes an upgraded junction, a further flare length increase on the northern arm is suggested.

**Impacts and Constraints:**

- Local Plan will increase demand by approximately 14% (537-585 veh per hour) during the peak periods.
- With the projected increase in isolated and cumulative LP scenarios, the northern arm of A27 would operate slightly over its saturation.
- Minor increase in flare capacity on the A27 SB approach suggested as part of LP mitigation works.
- The actual capacity of the SB lane would be dependent on the performance of the downstream A2270/Wannock Road Junction.
- It would be essential that less frequent block back occurs on the SB approach of the Wannock Road junction. The SB movement across both junctions needs coordination to minimise delays.

**Opportunities:**

- Proposed improved signalised junction with further improvement to SB approach is expected to generally accommodate the forecasted Wealdon Local Plan and Cumulative Local Plan flows
- Select Vehicle Detection (SVD) for the future to implement bus priority measures.



From - National Highways, A27 East of Lewes - Preferred route scheme drawings

Figure 7-5 W3 - A27/A2270 Junction concept review summary

The A22/A27 Cophall is a significant five-arm roundabout located at the junction of two busy corridors. It provides a critical east-west route to bypass the Polegate and connects Eastbourne and Wealden. Without further improvements, the isolated and cumulative growth is expected to need further mitigation to Cophall Roundabout. Following the A22/A27 MRN corridor study, a few improvements have been looked at in response to National Highways' concern of future traffic increase. These proposals include the signalisation of both the A27 (east and south) approaches. The signalisation of the southern approach would tie with the dualling currently being implemented (see Figure 7-6).

**Site W4- Cop Hall Roundabout**

**Scheme Proposal:** On completion of NH's 'A27 East Lewes', which includes a dual carriageway on the A27 (S), signalisation of both A27 approaches (eastern and southern arms) is suggested.

**Impacts and Constraints:**

- Local Plan will increase demand by approximately 13-20% (730-1,350 veh per hour) during the peak periods.
- With the projected increase in isolated and cumulative LP scenarios, both the A27 priority controlled arms would operate over its saturation.
- Proposed signalised improvements are proposed are not included within the A27 East of Lewes work and also not included in A22/A27 MRN study.
- Proposed works are suggested as part of LP mitigation works
- Signalised approaches would mitigate future delays which would otherwise occur on A27 (S) and A27 (E) approaches

**Opportunities:**

- Proposed partial signalisation of the Cop Hall Roundabout is expected to generally accommodate the forecasted Wealdon Local Plan and Cumulative Local Plan flows
- In addition, supplementary measures such as an increase in flare length at few approaches can be considered, if necessary.
- Select Vehicle Detection (SVD) for the future to implement bus priority measures

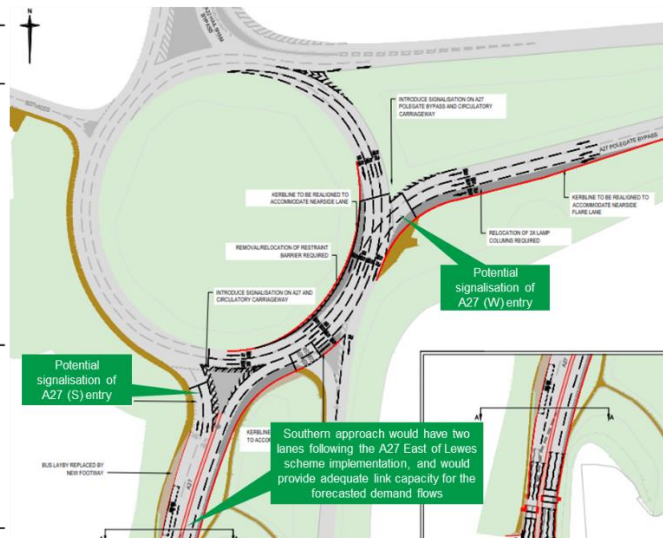


Figure 7-6 W4 - Cophall Roundabout concept review summary

The Golden Jubilee is a three-arm roundabout on A27 and A22 corridor and it essentially provides a parallel north-south route of A2270 and connects to the eastern side of the Eastbourne borough. The Golden Jubilee roundabout forms part of the same east-west route that connects Polegate (East), Stone Cross and other settlements on the outskirts of Eastbourne located off A2290 with the wider Wealden district. The available local junction model from A22/A27 corridor MRN study for this roundabout has been rerun. The updated junction modelling demonstrated that the proposed junction improvements in the A22/A27 Corridor Study would accommodate both the isolated and cumulative growth options. (see Figure 7-7).

#### Site W5 – Golden Jubilee Roundabout

**Scheme Proposal:** Improved priority roundabout, suggested as a part of the A22/A27 MRN study, including additional approach lane on its western and southern approach. No further improvement is required.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 7-10% (335-431 veh per hour) during the peak periods, most of the increase would be along A27 west to A22 south direction and vice-versa depending on the tidal pattern.
- Improvement roundabout is likely to operate at capacity in the worst AM peak.
- It is suggested to improve the A27 (East) by increasing the length of existing flare, the approach would operate at a higher degree of saturation, but less than 100%
- No further improvement would be required.

##### Opportunities:

- The proposed improved priority control roundabout is expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows.



Figure 7-7 W5 - Golden Jubilee Roundabout concept review summary

The A22 Dittons Road roundabout located 175m south of Golden Jubilee is not on the SRN, however, it would impact on the capacity of the adjacent A27 and Golden Jubilee roundabout and needs considering as part of the A27 corridor. The proposals for the A22/A27 MRN corridor would convert this priority roundabout to a four-arm signalised junction with east-west pedestrian and cyclist facilities. The available local junction model for the proposed signalised junction layout has been rerun, and modelling demonstrated that further moderate improvements would be required to accommodate both the isolated and cumulative growth options. Figure 7-8 summarises the junction review and provides further design considerations to improve this signalised junction further if needed.

#### Site W32 – A22/B2247 Dittons Road Roundabout

**Scheme Proposal:** Full signalised crossroads junction suggested as a part of the A22/A27 corridor study need further improvements

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 8-10% (420-510 veh per hour) during the peak periods, most of the increase would be along A22 north-south direction and vice-versa depending on the tidal pattern.
- LinSig modelling is available as a combined junction with A27/A22 HE Junction is used for indicative capacity assessment would be interlinked with the A22/A27 Golden Jubilee Roundabout.
- Proposed signalised layout is predicted to operate slightly over of 110% saturation with the cumulative LP flows. In both peaks, mostly the southern and western arms would experience higher delays and operate at saturation of 110%, might need further improvements, if regular monitoring suggests.
- In the AM peak, the northern arm would experience delays but would not generate sustained queues, which would severely impact the operation of the A22/A27 Junction.

##### Opportunities:

- The proposed layout to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows; minor mitigation might be required.
- Junction capacity could be improved further by adding lane capacity along with the western and southern approaches.
- Dedicated, safe and convenient crossing facility for pedestrians and cyclists
- Select Vehicle Detection (SVD) for the future to implement bus priority measures

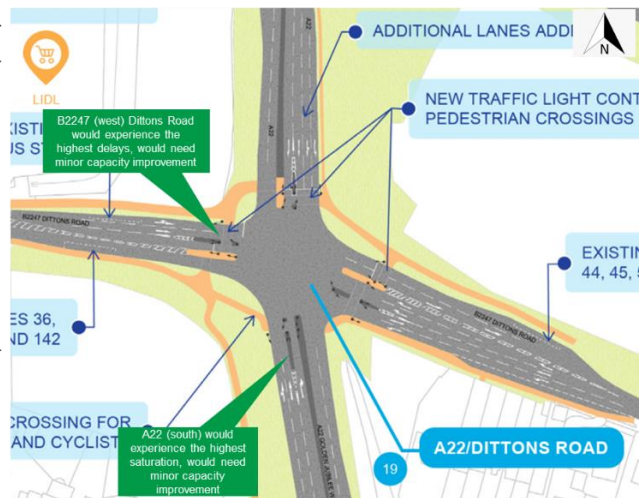


Figure 7-8 W32 - Dittons Road Roundabout concept review summary

NH are in the early stages of considering an offline A27 realignment to the west of Polegate as part of their RIS3 longlist of schemes, which could provide a more comprehensive solution to the constrained A27 / A22 / A2270 sections of the network, as well as improvements for active modes and public transport. This would need more detailed modelling in the countywide model due to the scale of reassignment this type of infrastructure could introduce.

## 7.3 A22 Corridor

The A22 corridor is the principal north-south route between Wealden and Eastbourne and the wider county. The STEB modelling identifies significant growth on this corridor,

and it is likely to exceed link capacity at various isolated stretches, particularly on the single carriageway section west of Boship roundabout and north towards Uckfield. Furthermore, an element of caution should be applied, given STEB is assigning most of the cross-boundary traffic to this corridor, rather than the alternative A26 / A27 corridor for trips towards the south and east of the district. The countywide model will need to be used to assess how traffic is balanced on the network when capacity and congestion is considered. The A22 corridor in between Cophall and Boship roundabouts is a dual-carriageway, where link capacity is less of concern, but junction capacity will need consideration.

The Eagles roundabout is a three-arm junction and it essentially provides a southern connection to Hailsham Town. The A22 / A27 corridor proposal at this junction includes three-lane approaches on both the A22 approaches and a segregated left turn on the A295 South Road approach. The available local junction model has been rerun and demonstrates that the proposed improvements would generally accommodate both the isolated and cumulative growth options. (see Figure 7-9). Moderate enhancements to the current proposals could be considered to provide further resilience and junction capacity, on a monitor and manage basis, if required.

#### Site W31 – A22/A295 South Road Eagles Roundabout

**Scheme Proposal:** Improved priority roundabout, suggested as a part of the A22/A27 MRN study, includes additional approach lane on its northern and southern approach as well as left segregated slip lane on South Road approach. Further minor improvements would be required.

#### Impacts and Constraints:

- Local Plan will increase demand by approximately 24% (around 1,070-1,210 veh per hour) during the peak periods, out of which, most of the increases (around 60%) would be in between A22 (north) and A22 (south) arms i.e. north-south movements.
- In both peaks, the northern arm would experience higher delays and operate slightly over the saturation of 110%.
- The congestion along the northern arm due to an increase in SB and right turning traffic increase on NB approach. The indirect signal control on the southern approach is likely to minimise delays during the peak periods.
- The improved priority control layout is expected to accommodate the forecast flows with minor further capacity increase required on the northern approach.

#### Opportunities:

- With further measures, the proposed improved priority control layout expected suggested within A22/A27 MRN study to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows

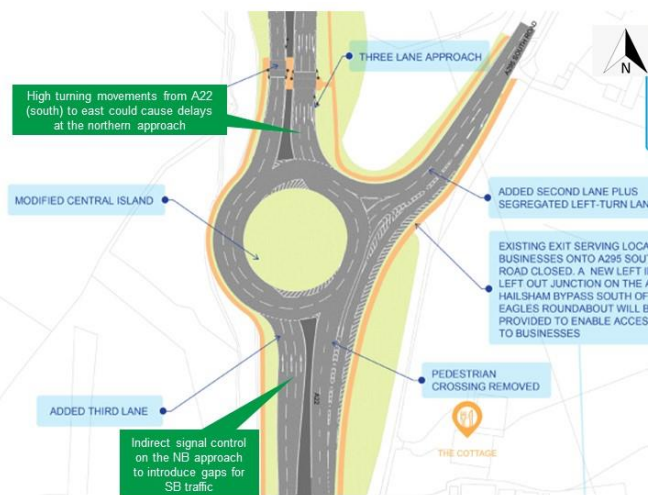


Figure 7-9 W31 – A22/A295 The Eagles Roundabout concept review summary

The available local junction model from A22/A27 corridor study for Diplocks Way roundabout has been rerun. The updated junction modelling with LP flows demonstrated that the existing roundabout would generally accommodate both the isolated and cumulative growth options and no further improvements have been identified at this stage.

#### Site W30 – A22/Diplocks Way Roundabout

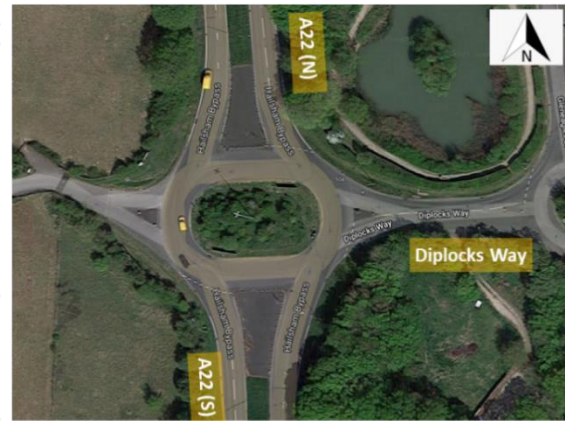
**Scheme Proposal:** Existing priority roundabout, no mitigation required.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 24% (around 1,000 veh per hour) during the peak periods, out of which, most of the increases (around 70%) would be in between A22 (north) and A22 (south) arms, i.e. north-south movements.
- No improvement roundabout suggested as a part of the A22/A27 MRN study.
- In both peaks, the roundabout would operate within saturation of 100%.
- The worse congestion is likely to be in the PM peak along the southern arm of A22 (95%) due to an increase in SB and right turning traffic increase on the NB approach.

##### Opportunities:

- The existing priority control roundabout is expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows
- Dedicated, safe and convenient crossing facility for pedestrians and cyclists can be provided, linking to various Hailsham LCWIP schemes.



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Figure 7-10 W30 – A22/Diplocks Way Roundabout concept review summary

Boship Roundabout is a key junction on the A22 corridor. It is a transition point of traffic movements from the two-lane dual carriageway of the A22 Hailsham Bypass at the south towards the single carriageway A22 section to its west. It also provides access to other key A267 and A271 routes. STEB forecasts that one-way peak hourly traffic along the A22 western approach could exceed 2,000 veh per hr, which is significantly high for a single carriageway link. The A22 (west) link capacity will be considerably overcapacity, and further consideration of managing and reducing demand at this location will be needed going forward.

Notwithstanding the link capacity issues, a review of Boship Roundabout for the proposed signalised roundabout has been undertaken using the local model available from the A22/A27 corridor study. The future impacts of the initial Local Plan growth strategy will require further mitigation. The review (see Figure 7-11) proposal uses the available land, subject to highway boundary confirmation, which could provide additional capacity on some arms but is not likely to provide adequate capacity. The land availability on the western approach is a key constraint to providing further capacity at this junction and needs further design and modelling considerations. The countywide model will need to assess how traffic is balanced on the network when overall network capacity and congestion are considered.

#### Site W26 – A22/A271/A267 Boship Roundabout

**Scheme Proposal:** Full signalised roundabout layout suggested as a part of the A22/A27 MRN Corridor Study, improved pedestrian crossing facilities along the key desire lines suggested within the proposal.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 32-36% (around 1,770 veh per hour) during the peak periods, out of which, most of the increases (around 50%) would be in between A22 (west) and A22 (south) arms.
- Proposed signalised layout is predicted to operate over its saturation threshold of 110% with the cumulative LP flows. Improved signalised roundabout is likely to operate well over its capacity in the worst PM peak period.
- The A22 (west) approach would operate at a higher degree of saturation, over 110%. High turning movements from west to south would also saturate the A271 (East) give-way approach.
- Further mitigation would be required. Additional capacity is required on A22 (West), and A22 (south) approaches. A271 (east) approach would need signalisation.
- Forecasted demand flows on A22(west) is over 2,000 veh/hr, which is significantly higher for a single carriageway section (max capacity around 1,300 veh/hr)

##### Opportunities:

- Dedicated, safe and convenient crossing facility for pedestrians and cyclists
- Select Vehicle Detection (SVD) for the future to implement bus priority measures

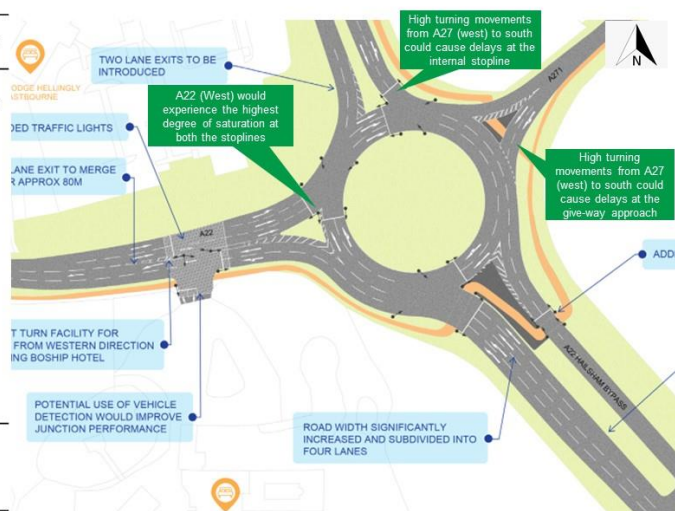


Figure 7-11 W26 – A22/A271/A267 Boship Roundabout concept review summary

The STEB modelling continues to identify significant growth westwards along the A22, in both the isolated and cumulative options, towards East Hoathly and Uckfield where

significant development is proposed. The A22/B2124 junction would experience a substantial increase in movements along A22, particularly on the southern arm. Due to such high predicted two-way flows along A22, B2124 traffic would find it challenging to find gaps and could exceed capacity in the future. Signalising the junction would be a potential option (see Figure 7-12) subject to further feasibility and junction modelling.

#### Site W25 – A22/B2124 Priority Junction

**Scheme Proposal:** Existing priority junction is proposed to be signalised.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 30-31% (700-770 veh per hour) during the peak periods, out of which, most of the increases (around 85%) would be in between A22 (north) and A22 (south) arms
- The A22 is a single carriageway road; link capacity is predicted to be around 1,400 to 1,500 veh per hour in the busiest direction. In the AM peak, traffic expected on the A22 (S) arm about 1,800 veh per hour (in cumulative LP scenario). Similar traffic volumes (1,730 veh per hour) are expected in the PM peak for the southern arm in the southbound direction.
- The link capacity predicted along the A22 south of the junction is expected to exceed its capacity. The link capacity on the northern arm would be adequate to cater to forecasted flows.
- In total, 2,500 veh per hour (two-way) are predicted along this section of the A22. Therefore, it would be challenging for the exiting traffic from B2124 to find gaps. Therefore, significant delays would occur that would need mitigation.
- It suggested converting this junction as a signalised T-junction.

##### Opportunities:

- To convert existing priority junction to a signalised layout expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows.
- Select Vehicle Detection (SVD) for the future to implement bus priority measures



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Figure 7-12 W25 - A22/B2124 Priority Junction concept review summary

The Shaw Roundabout would likely need minor improvements to accommodate future growth (see Figure 7-13). As a potential solution, two streams of traffic from the west to the southeast would need to be facilitated by an additional lane added to the eastbound approach and corresponding exit.

#### Site W24 – A22 Shaw Roundabout

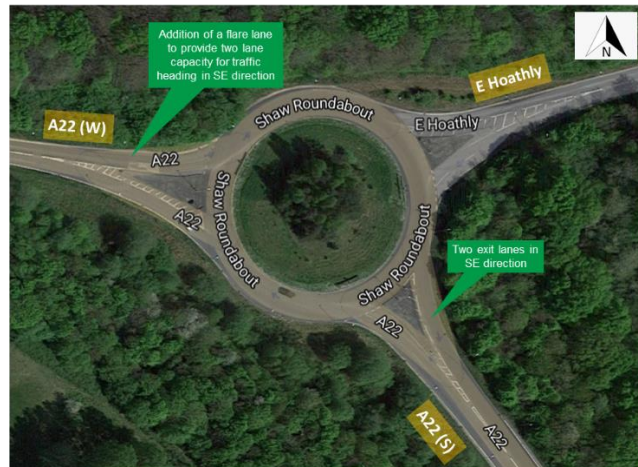
**Scheme Proposal:** Minor capacity improvement as addition of a flare lane on the A22 western approach is suggested.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 30-31% (around 700-770 veh per hour) during the peak periods, out of which, most of the increases (around 80%) would be in between A22 (west) and A22 (south) arms
- In both peaks, both A22 approaches would cater to substantial traffic volumes. Although they would give way to insignificant circulating traffic, hence would continue to operate under saturation levels.
- The worst capacity could be expected on the A22 (W) approach in the PM peak, it would cater to traffic levels approximately 1,500 veh per hour (in cumulative LP scenario). This flow is higher than the predicted traffic capacity (max 1,400 veh per hour) of the single carriageway in the busiest direction.
- To mitigate the cumulative LP mitigation impacts, it is likely that the western approach would need a long lane and two exit lane on the A22 southern approach to provide two stream of traffic heading towards the southern approach.
- The link capacity on the southern arm is expected to be adequate to cater forecasted flows.

##### Opportunities:

- The priority control layout is expected to accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows with minor further LP mitigation required on the northern approach.



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Figure 7-13 W24 - A22 Shaw Roundabout concept review summary

The A22/B2192 Halland Roundabout is a key junction on the A22 corridor, which provides an alternative route to Lewes for settlements located alongside the corridor, such as East Hoathly and Blackboys. The Local Plan forecasts indicate substantial flow increases on the northern approach from Uckfield and heading southeast on the A22. This would add congestion and delays on the north approach and likely require mitigation. An option of an additional lane (see Figure 7-14) on the NW roundabout approach with corresponding two lanes on the exit side on the SE arm could be considered.

#### Site W23 – A22/B2192 Halland Roundabout

**Scheme Proposal:** Addition of the SE bound traffic capacity for the NW approach (subject to design feasibility). If not feasible, a signalised crossroads layout is to be considered.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 42% (around 1,550-1,660 veh per hour) during the peak periods, most of the increases (around 50%) would be either heading towards or originating from the A22 (NW) arm.
- In both peaks, the northern arm would experience higher delays and operate over its saturation (over 110%, worst in the PM peak).
- The predicted traffic volumes along the A22 (NW) arm is expected to exceed its capacity. The link capacity on the SE arm would be adequate to cater to the forecast.
- The congestion along the NW arm is due to heavy traffic increase and inadequate capacity currently provided by the single lane give-way approach. Mitigation measures would be required for this approach.
- A long flare lane is proposed on the NW approach and to provide two-lane exit capacity on the south-eastern approach.
- During AM peak, the A22 (SE) would experience minor delays, however, expected to operate below the threshold capacity.

##### Opportunities:

- With mitigation measures, the proposed improved priority control layout expected to generally accommodate the Wealden Local Plan and Cumulative Local Plan flows.
- An alternative to improve traffic capacity is to convert roundabout to a signalised crossroads that would incorporate crossing facilities and SVD for bus movements.



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Figure 7-14 W23 - A22/B2192 Halland Roundabout concept review summary

The A22 Lampool Roundabout is unlikely to need any mitigation to accommodate future growth (see Figure 7-12).

#### Site W18 – A22 Lampool Roundabout

**Scheme Proposal:** No mitigation required.

##### Impacts and Constraints:

- Local Plan will increase demand by approximately 28-30% (around 600-700 veh per hour) during the peak periods, out of which, most of the increases (around 90%) would be in between A22 (northwest) and A22 (south) arms.
- In both peaks, it is anticipated that the A22 approaches would cater to substantial traffic volumes. Although they would give-way to insignificant circulating traffic, hence would operate under saturation levels.
- The maximum delays would occur along the A22 (NW) approach and still expected operate less than 85% of saturation level.
- The predicted traffic volumes along the A22 arms would be adequate to cater to forecasted link flows.
- Therefore, no mitigation is suggested.

##### Opportunities:

- The priority control roundabout layout is expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows.



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Figure 7-15 W18 - A22 Lampool Roundabout concept review summary

The existing A22/A275 priority junction would experience a substantial increase in movements along the A22. Due to such high predicted two-way flows of around 2,500 movements per hour along the A22, A275 traffic would find it challenging to find gaps. Delays on the A275 approach could increase in the future and signalling would be a potential option (see Figure 7-16), subject to further feasibility and junction modelling. The realignment of the A275 approach should also be investigated to improve intervisibility among three arms and forward visibility of the signal heads.

**Site W19 – A22/A275 Priority Junction****Scheme Proposal:** Existing priority junction proposed to be signalised.**Impacts and Constraints:**

- Local Plan will increase demand by approximately 28-30% (around 680-700 veh per hour) during the peak periods, out of which, most of the increases would be in between A22 (north) and A22 (south) arms.
- The predicted traffic volumes along the A22 arms would be under the predicted link capacity, therefore adequate to cater to forecasted link flows.
- However, approximately 2,500 (veh per hour) two-way flows are predicted along this section of the A22. Therefore, it would be challenging for the A275 traffic to find gaps. Therefore, substantial delays would occur, particularly with the cumulative local plan flows and would need mitigation.

**Opportunities:**

- Convert priority junction as a signalised T-junction. There is potential to realign A275 southwards, providing adequate forward visibility to the proposed signal heads.
- Converting the existing priority junction to a signalised layout expected to generally accommodate the forecast Wealden Local Plan and Cumulative Local Plan flows.
- Select Vehicle Detection (SVD) for the future to implement bus priority measures.



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Figure 7-16 W19 - A22/A275 Priority Junction concept review summary

The STEB forecasts significant increases at the A22/Priory Road mini-roundabout on the A22 approaches and the constrained double mini-roundabout layout will need mitigation. Signalising would be a potential option (see Figure 7-17), subject to further feasibility and junction modelling. This study recommends investigating the feasibility of a combined staggered signalised junction due to its proximity to the B2110 junction.

**Site W20 – A22/B2110 Priory Road Roundabout****Scheme Proposal:** Existing double mini-roundabout to be converted to a staggered signalised junction**Impacts and Constraints:**

- Local Plan will add approximately around 700-750 veh per hour during the peak periods, out of which, most of the increases (around 95%) would be in between A22 (north) or London Road and A22 (south) arms
- Current mini-roundabout layout would not offer a significant capacity. During the PM peak, a considerable volume of traffic would be in the SB direction and the NB direction in the AM peak.
- Existing constrained highway boundary would be limiting the potential options available, particularly on the southern approach, thereby adding capacity to north-south movements.
- With the predicted traffic volumes, A22 (N) arm is expected to exceed its capacity. The link capacity on the SE arm would be adequate to cater to forecasted flows.

**Opportunities:**

- Convert the existing double mini-roundabout to a staggered signalised layout with two lanes on both A22 approaches for ahead movements
- Full signalisation (including the junction with B2110) is expected to generally accommodate the forecast Eastbourne Local Plan and Cumulative Local Plan flows (subject to further traffic modelling).
- Dedicated, safe and convenient crossing facility for pedestrians and cyclists
- Select Vehicle Detection (SVD) for the future to implement bus priority measures



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Figure 7-17 W22 - A22/Priory mini-roundabouts concept review summary

## 7.4 Wider Mitigation

The impacts of wider additional cross-boundary Local Plan growth, from other districts on the Wealden network, will also need to be considered within the context of the eventual need for mitigation. Equally, the cross-boundary impacts of the Wealden Local Plan will need to be considered as well.

The STEB assessment of the isolated Wealden Local Plan option indicated that it could generate the significant increases on key routes into neighbouring authorities. These impacts will potentially change with further countywide modelling, however, at this stage the following cross-boundary corridors will potentially need closer consideration:

- A27/A2270 and A22/A2290 corridors into Eastbourne

- A26 and A27 corridors into Lewes
- A22 corridor into Mid Sussex
- A26 corridor into Tunbridge Wells
- A26 and A267 corridors into Tunbridge Wells

## 7.5 Summary

The high-level outcomes of this initial highway mitigation concept review are summarised in Table 7-2. Generally, reasonable local improvements could be implemented to improve junction capacity. However, all designs are subject to more detailed feasibility, land availability and modelling and further consideration will be needed to explore the full potential for active modes and bus priority to support the sustainable mode shift needed to mitigate the Local Plan. Furthermore, the impact of an initial off line A27 scheme, currently being considered to the west of Polegate by NH in their RIS3, has not been included in this assessment and would need detailed testing in the countywide model to understand the implications for reassignment.

Junction capacity is not the overriding constraining factor and the STEB model has identified that the A2270 and some sections of the A22 could significantly exceed link capacity, which would significantly reduce the effectiveness of any junction improvements. The limitations of STEB need to be acknowledged and the potential for reassignment across less congested parts of the network will need to be explored as part of the next stage of assessment in the countywide model.

*Table 7-2 Summary of concept review options*

| Junction                 | Ref | Corridor | Mitigation Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|-----|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A2270/Huggetts Lane      | W1  | A2270    | Additional lane capacity is recommended on both the northern and western approaches, supported by two continuity exit lanes in both directions of A2270.                                                                                                                                                                                                                                                                                                                                                         |
| A2270/Wannock Road       | W8  | A2270    | Additional capacity envisaged to be provided by the HPE MAC proposal by adding two lanes of SB movement along A2270. The proposal potentially needs further capacity improvement, changes to crossing arrangements and restricting the minor conflicting crossing movements.<br><br><b>A2270 link capacity will be exceeded. Further modelling and investigation needed.</b>                                                                                                                                     |
| A27/A2270                | W3  | SRN      | Minor improvements to existing NH's A27 East of Lewes Scheme improvement layout potentially required to provide additional flare capacity on the SB approach.<br><br><b>The impact of southbound queuing from the adjacent A2270 Wannock Road (W8) junction on this junction would need to be considered further, given the proximity and interrelationship of the two junctions.</b><br><br><b>The impact of any A27 off-line solution to the west of Polegate would also need consideration going forward.</b> |
| A27 Drusillas Roundabout | W2  | SRN      | No further improvements necessary to existing NH's A27 East of Lewes Scheme improvement layout currently being implemented.                                                                                                                                                                                                                                                                                                                                                                                      |
| Cophall Roundabout       | W4  | SRN      | On completion of NH's A27 East of Lewes schemes, the A27 (S) arm will be a dual-carriageway. Further, partial                                                                                                                                                                                                                                                                                                                                                                                                    |

| Junction                  | Ref | Corridor | Mitigation Summary                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|-----|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |     |          | signalisation of the eastern and southern arm (both approaches of the A27) could be needed.                                                                                                                                                                                                                                                                                                     |
| Golden Jubilee Roundabout | W5  | SRN      | An improved priority layout is suggested as a part of the A22/A27 MRN study, additional approach lane capacity on western and southern approaches, increased flare length on the eastern approach. No further improvement is required to the current proposal.                                                                                                                                  |
| Dittons Road Roundabout   | W32 | SRN/A22  | A signalised crossroads junction layout is suggested as a part of the A22/A27 MRN study with provision for crossing facilities for active modes. Potential additional need for further capacity on western and southern approaches.                                                                                                                                                             |
| Eagles Roundabout         | W31 | A22      | As a part of the A22/A27 MRN study, it is suggested to improve to existing roundabout with minor capacity improvements on SB approach. Indirect signal control on NB approach could be a potential option to introduce gaps                                                                                                                                                                     |
| Diplocks Way Roundabout   | W30 | A22      | Retain existing roundabout layout, no mitigation required at this stage.                                                                                                                                                                                                                                                                                                                        |
| Boship Roundabout         | W26 | A22      | A signalised roundabout with additional approaches is suggested within A22/A27 MRN study. Substantial additional link and junction capacity is required to increased movements along the A22. Such improvements could involve land take on the western arm of the junction.<br><b>A22 (west) link capacity will be exceeded on both directions. Further modelling and investigation needed.</b> |
| B2124 Priority Junction   | W25 | A22      | Option to signalise existing priority junction.                                                                                                                                                                                                                                                                                                                                                 |
| Shaw Roundabout           | W24 | A22      | Option to improve existing roundabout to provide capacity for two lanes of the west to southeast simultaneous movements along the A22.                                                                                                                                                                                                                                                          |
| B2192 Halland Roundabout  | W23 | A22      | Retain existing priority control roundabout layout with additional lane capacity along A22 southbound to cater two streams of traffic.<br><b>A22 (northwest) link capacity will be exceeded in both directions. Further modelling and investigation needed.</b>                                                                                                                                 |
| Lampool Roundabout        | W18 | A22      | Retain existing roundabout layout, no mitigation required at this stage.                                                                                                                                                                                                                                                                                                                        |
| A275 Priority Junction    | W19 | A22      | Option to signalise existing priority junction with the realignment of A275 arm to improve forward visibility.                                                                                                                                                                                                                                                                                  |
| Priory Road Roundabouts   | W20 | A22      | Option to signalise existing mini-roundabouts and make provision for active modes.                                                                                                                                                                                                                                                                                                              |

## 8 Summary and Next Steps



### 8.1 Impacts of potential Local Plan growth in Wealden

Wealden District Council (WDC) is preparing a new Local Plan as a framework for future development up to 2039. An initial assessment has been undertaken of an Initial Local Plan growth option (1), with the key objectives to:

- Understand the likely high-level transport impacts of the growth option
- Develop early mitigation concept solutions to address key transport challenges
- Identify potential residual risks to the transport network and the need for further assessment

The assessment approach aligns with wider guidance, and the Council's own 'direction of travel' for the Local Plan, to place sustainable transport at the centre of any mitigation solutions and move away from traditional 'predict and provide' towards a preferred 'decide and provide' future, which aims to reduce reliance on a car dependant transport system.

The rural district faces a number of transport-based challenges around car ownership, car dependency and congestion on key corridors. Connectivity to rural settlements by public transport, away from the urban areas adjacent to neighbouring Eastbourne, is limited and there is a high level of car-based movement, within the district and between Rother, Eastbourne and Lewes.

The assessment tests 16,186 houses and 170,600 sqm employment / retail / other floorspace as an Initial Growth Option (1) and identifies that, without mitigation, the potential level of Local Plan traffic growth could have severe impacts on key parts of the district transport network, including the following observations:

- In advance of considering the potential for sustainable modal shift, the development tested could add between 9000-9,800 new vehicle trips to the district network in the peak hours
- Over 50% of this traffic is likely to be generated by potential development in and around the settlements of Hailsham, Uckfield and East Hoathly, with a focus on the key north-south A22 corridor running through the district. The larger strategic sites at West of Hailsham and East Hoathly could respectively contribute up to 1,200 and 1,400 additional vehicles in the peak hours
- The already constrained single carriageway section of A22 between Boship Roundabout, north of Hailsham, and Black Down Roundabout, to the north of Uckfield is likely to exceed overall link capacity by more than 50% in peak times and have severe impacts on most of the junctions along the route
- The A27 SRN and A2770 corridors and key junctions around Polegate and south into Willingdon and Eastbourne would be severely impacted with a number of junctions, particularly on the A2270, needing mitigation to avoid queues impacting on the A27 SRN and local traffic

- There will also be a number of more localised impacts on other key corridors, including the A26, A267 and A271, rural routes and town centres where potential impacts would need further consideration and potential mitigation

## 8.2 Potential cross-boundary impacts

An initial sensitivity test of neighbouring Local Plan growth also illustrates that potential additional cross boundary Local Plan growth could add a further 10%-15% traffic on the Wealden network. This is likely to have further traffic impacts, over and above the Wealden Local Plan growth, particularly on the A27, A22, A2270 and A26 corridors. Similarly, the potential Wealden Local Plan growth will impact on key corridors in neighbouring Rother, Lewes, Eastbourne and towards Kent.

Further consideration will need to be given going forward to how these additional impacts are treated within the context of the eventual Wealden Local Plan, and what it is expected to mitigate, noting that all future growth across the county is an emerging picture, subject to change and discussion between LPAs as part of their Duty to Co-operate with one another.

## 8.3 Initial mitigation options

The assessment adopts a preferred approach of ‘planning for places and people’ exploring the potential for sustainable modal shift before opting for physical highway capacity enhancements. This will need to build on the existing scheme pipeline and emerging TfSE draft Strategic Investment Plan (SIP) to maximise modal shift and reduce car use within the context of the Wealden geography, including:

- Develop enhanced partnerships with operators and the evidence for zero emission bus-based rapid transit (BRT) on key corridors and connecting key destinations
- Developing the evidence for a network of public transport, active mode and micro-mobility solutions to provide alternative seamless travel routes to the key highway corridors and desire lines in urban areas
- Consideration of digital demand responsive transport (DDRT) options to complement fixed bus services and better connect rural areas with key towns and rail interchange
- Reduction in car ownership, parking demand and car use in the town centre and surrounding area, where supported by good access to public transport and active travel networks and
- Progressive adoption of innovative technologies.

At this early stage, a headline range of sustainable travel targets of a 5% to 10% reduction in forecast peak hour car trips has been considered as part of the mitigation approach to reflect some potential for sustainable access in different parts of the district. This is only a headline consideration at this stage, for the purposes of an initial assessment, and will need refining as the Local Plan option evolves, more detailed assessment will be undertaken in the countywide model and where there is more certainty of the package of measures to be delivered.

A concept design review of an initial list of key junctions has been undertaken to identify where a possible highway design solution could reasonably mitigate the impacts of the Local Plan and wider growth. The analysis indicates that solutions could be delivered at many locations across the network. However, there are still severe

residual impacts on the A22, A2270 and local junction 'hotspots', which could pose a potential risk to the delivery of the eventual Local Plan option and for this reason need further consideration, including:

- The A27 / A2270 corridor between Wealden and Eastbourne
- The impact of overall link capacity on parts of the A22 corridor between Boship roundabout and to the north of Uckfield
- Consideration will also need to be given to locations on other corridors, the minor road network and in town centres such as Uckfield, Crowborough and Hailsham

All junction designs are concept only and subject to more detailed feasibility and, in all cases, the overall traffic impact will need to be tested further in the countywide model to fully understand the impacts of updated origin / destination information, traffic reassignment, modal shift and overall network capacity before finalising the level of mitigation required. This will need to assess the impact of an A27 off-line solution currently being considered as part of the NH RIS3 package to the west of Polegate.

## 8.4 Next steps

At this stage, the initial STEB spreadsheet-based modelling has shown that the Wealden Initial Growth Option (1) could generally be accommodated on parts of the key network with a combination of sustainable modal shift and local highway improvements. However, there are still likely to be residual severe impacts on sections of the A22, A26 and A27/A2270 corridors that will need further assessment, mitigation or consideration of lower levels of development and alternative growth distributions.

In the shorter term the Council are testing three additional Growth Options (2-4) in a further round of STEB spreadsheet-based modelling. This will look at lower levels of growth and alternative strategic sites along the constrained A22 corridor in particular. The outcomes of this work will be reviewed in a subsequent Transport Note (TN02) and will be used to help refine the Local Plan option and further develop the highway mitigation package outlined in section 7 of this report.

Beyond this, the countywide model will be used to refine the modelling methodology, assess impacts in more detail and further develop the transport evidence base as the Local Plan is developed further. The key analyses to be considered going forward is likely to include, but not be limited to, the following:

- Further option testing of different scales and distribution of development in locations including those with the greatest opportunity for sustainable access
- Development of initial framework of sustainable options into an integrated delivery strategy across different interventions to drive behaviour change including, place-making, public transport, cycling, walking, electric vehicles and future mobility
- Updated origin and destination information using mobile phone data rather than historic Census 2011 data
- Full dynamic reassignment to balance demand across a number of feasible routes based on available capacity, travel time, congestion and generalised cost variables
- Consideration of a range of journey purposes, and not just travel to work, to refine trip distribution patterns and understand the impacts of both shorter and longer distance trips

- Further refinement of specific land use trip rates including any potential for car free development and sustainable travel options
- Continue to develop evidence and assess corridor specific modal shift accounting for full range of sustainable options including BRT, bus, rail, walking, cycling and other transport options
- Further testing of cumulative and cross boundary impacts of all Local Plan growth on the transport network within Wealden and in neighbouring districts
- Sensitivity testing and design of potential highway interventions and junction improvements and

A key consideration going forward is that, given their nature, Local Plans are assessed against forecast traffic patterns some 15+ years in the future where there are uncertainties around key external drivers of travel behaviour, including net-zero carbon, technological changes, fuel prices, new ways of working and global events, which could fundamentally change the predicted outcomes. A proportionate, flexible, monitor and manage approach to delivering specific measures and outcomes, is therefore needed, which can respond to these changes.

# Appendix A: Scheme Pipeline Summary

| Scheme Number | Scheme name                                                                                             | Description                                                                                                                                                                                                                                                                                                                                                              |
|---------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Committed     |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                          |
| 1             | Hailsham/Polegate/<br>Eastbourne Sustainable<br>Transport Corridor Phase 1                              | A package of cycling, walking and public transport interventions.<br>Phase one works include:<br>Wannock Road/Polegate High Street/Eastbourne Road signalised junction improvement<br>Eastbourne Road bus lane between Broad Road and Huggett Lane including enhanced pedestrian and cycle facilities<br>Victoria Drive bus lane on approach to Eastbourne Road junction |
| 2             | A27 Improvements –<br>Shared-use path stretching<br>from Polegate to the junction<br>with Firle Boastal | The provision of 7 miles of shared-use path adjacent to the A27, stretching from Polegate to the junction with Firle Boastal, provision of toucan crossings as well as the construction of a new footway/cycle bridge spanning the River Cuckmere                                                                                                                        |
| 3             | A27 Improvements –<br>Berwick Roundabout<br>Upgrade                                                     | Enlarged Berwick Roundabout with new connection to Station Road, forming part of the improved trunk road.<br>Provision of 2 lane flared entries and exits on the A27 arms<br>Crossing upgraded from Toucan to Pegasus standard                                                                                                                                           |
| 4             | A27 Improvements –<br>Wilmington Junction<br>Upgrade                                                    | A new option for upgrading Wilmington junction, making it easier for drivers to join or leave the A27.<br>Provision of a Pegasus crossing<br>Reduction in the village speed limit<br>Minor alterations to local accesses                                                                                                                                                 |
| 5             | A27/A2270 Polegate<br>Junction                                                                          | Reduced "Cannon" layout with/without pedestrian crossings<br>A27/A2270 signalised junction and link between A27/A22 Cophall Roundabout and A27/A2270 signalised junction                                                                                                                                                                                                 |
| 6             | A27 link lane widening<br>between A2270 and Cophall<br>Roundabout                                       | <a href="#">A27 East of Lewes Improvements   iM2ltd.com</a>                                                                                                                                                                                                                                                                                                              |
| 7             | A27 – Station Road Drusillas<br>Roundabout                                                              | Improvements to A27, Station Road and Alfriston Road to mitigate congestion and achieve acceptable operating conditions                                                                                                                                                                                                                                                  |
| 8             | South Road / Ersham Road /<br>Diplocks Road                                                             | Consolidation of the separate but closely spaced junctions of South Road with Diplocks Way and Ersham Road into single small roundabout                                                                                                                                                                                                                                  |
| 9             | Polegate High Street Public<br>Realm Improvements                                                       | Reconfiguration in favour of pedestrians, cyclists and regular high street uses and activities. Closure of southern approach to St Johns Road onto High Street                                                                                                                                                                                                           |
| Planned       |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                          |
| 10            | A22 - B2124 Golden Cross<br>Junction                                                                    | Local junction improvements to improve highway capacity                                                                                                                                                                                                                                                                                                                  |
| 11            | Golden Cross to Boship<br>Roundabout                                                                    | Provision of bus priority                                                                                                                                                                                                                                                                                                                                                |
| 12            | Boship to Horsebridge                                                                                   | Provision of bus priority                                                                                                                                                                                                                                                                                                                                                |
| 13            | Horsebridge to Hailsham                                                                                 | Local capacity improvements                                                                                                                                                                                                                                                                                                                                              |

|    |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                              |
|----|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14 | A22 Boship Roundabout                                                                                | Congestion, journey time reliability and a negative business perception around certain roads                                                                                                                                                                                                                                                                 |
| 15 | A22 Hempstead Lane New Roundabout                                                                    | Not on principal Bus Route - Land / EIA / Traffic Volumes. New junction enables development but results in significant increases in traffic along his link                                                                                                                                                                                                   |
| 16 | A22 Eagles Roundabout                                                                                | Improved public transport provision                                                                                                                                                                                                                                                                                                                          |
| 17 | A27 A22 Golden Jubilee Roundabout                                                                    | Improved public transport provision                                                                                                                                                                                                                                                                                                                          |
| 18 | A22 Dittons Road Signalised Junction                                                                 | Improved public transport provision                                                                                                                                                                                                                                                                                                                          |
| 19 | A22 Diplocks Way                                                                                     | Layout improvements                                                                                                                                                                                                                                                                                                                                          |
| 20 | A259 Brighton-Eastbourne-Pevensey (South Coast) MRN corridor                                         | Identify localised interventions for public transport, improvements to enable people to cycle or walk for all or part of their journeys, alongside localised road and junction capacity improvements and the potential use of smart technology along and around the hinterland of this corridor.                                                             |
| 21 | Exceat Bridge replacement                                                                            | Replace the existing bridge at Exceat with a new two-lane two way bridge which will ensure the free flow of traffic and include safer crossing points for pedestrians, whilst taking into consideration the landscape and environmental sensitivities of the area.                                                                                           |
| 22 | B2147 Dittons Road Cycle Provision                                                                   | Provision of formal cycle facilities on the B2147 Dittons Road to the east of the A22 Golden Jubilee Way                                                                                                                                                                                                                                                     |
| 23 | A22/A2270/A2021 Hailsham – Polegate – Eastbourne Movement and Access Corridor (Future phases)        | A package of cycling, walking and public transport interventions. Further phases of works will include:<br>Bus based interventions on the A2021 Kings Drive serving the District General Hospital and Sussex Coast College.<br>Proposed four arm roundabout at the Ersham Road/South Road/Diplocks Way junction                                              |
| 24 | Junction improvement at Gainsborough Lane                                                            | Provision of a signalised junction                                                                                                                                                                                                                                                                                                                           |
| 25 | Re-configuration of The Triangle                                                                     | The total closure of the southern junction of The Triangle and the provision of an all movements signalised junction to the north<br>Discourage existing rat-running through Willingdon on Coppice Avenue and Farmlands Way and also create safer access to the A2270 from Willingdon                                                                        |
| 26 | Coppice Avenue and Farmlands Way Traffic Calming                                                     | Traffic calming scheme to discourage 'through traffic' from using Coppice Avenue and Farmlands Way                                                                                                                                                                                                                                                           |
| 27 | Castle Road Shuttle Working                                                                          | Signalised shuttle working on B2191 Castle Road immediately adjacent the bend around the castle walls. Such a scheme will not only protect the castle walls but also discourage unnecessary "through traffic" on the B2191.                                                                                                                                  |
| 28 | Pevensey High Street Pedestrian Crossing Facility                                                    | Provision of pedestrian crossing facility on Pevensey High Street                                                                                                                                                                                                                                                                                            |
| 29 | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor PHASE 3 Ersham Road roundabout, Hailsham | Replacing the existing staggered junction with a single roundabout will improve safety and traffic flow in the area, particularly for those waiting to exit Diplocks Way. This roundabout will be of greatest benefit if delivered as part of package of measures covering Western Road and Summerheath Road. The Village Green in the area need relocating. |
| 30 | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor                                          | <a href="#">Hailsham, Polegate and Eastbourne Transport Corridor – East Sussex County Council</a>                                                                                                                                                                                                                                                            |

|                                              |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PHASE 4 A2021 Kings Drive/Rodmill Roundabout |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                               |
| Concept                                      |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                               |
| 31                                           | Hailsham/Polegate/Eastbourne Sustainable Transport Corridor<br>PHASE 5 – Rodmill roundabout to town centre    | <a href="#">Hailsham, Polegate and Eastbourne Transport Corridor – East Sussex County Council</a>                                                                                                                                                                                                                                                             |
| 32                                           | Uckfield Bypass                                                                                               | New lay-by on Uckfield by-pass which will replace an existing one                                                                                                                                                                                                                                                                                             |
| 33                                           | A27 - Cophall Roundabout                                                                                      | Provision of three lane approaches on the A27 northbound and A27 westbound arms plus signals at Cophall Roundabout. Significant strategic capacity-related benefits, including improved bus movement                                                                                                                                                          |
| 34                                           | Hawks Road Roundabout and Urban improvements Hailsham                                                         | Improvements to the existing mini-roundabout at the junction of Hawks Road, London Road and Hempstead Lane                                                                                                                                                                                                                                                    |
| 35                                           | A27 Falmer Polegate bus laybys                                                                                | Improvements to allow buses to re-join A27 following the use of bus laybys                                                                                                                                                                                                                                                                                    |
| 36                                           | Strategic Mobility Hub - West of Polegate                                                                     | Potential for relocation of Polegate station and create multi-modal mobility hub to include potential park and ride                                                                                                                                                                                                                                           |
| 37                                           | Uckfield electrification                                                                                      | Electrification of the Uckfield rail line branch                                                                                                                                                                                                                                                                                                              |
| 38                                           | Reinstate Uckfield - Lewes Railway Line                                                                       | The Lewes-Uckfield railway line route has a potential strategic significance. By linking the current London/East Croydon/Oxted/Uckfield branch line to Lewes and the coastal towns beyond, it could provide a new rail corridor through East Sussex and Surrey, relieve congestion on the Brighton Main line, and assist in accommodating sustainable growth. |
| 39                                           | Hailsham to Eastbourne dedicated connected Quality Bus Corridor (QBC) / Bus Rapid Transit and Active Corridor | TfSE SIP proposal for a BRT and active mode mass transit corridor between Hailsham and Eastbourne                                                                                                                                                                                                                                                             |
| 40                                           | Potential off line A27 realignment scheme                                                                     | Being considered to the west of Polegate as part of NH RIS3                                                                                                                                                                                                                                                                                                   |

# Appendix B: LCWIP Schemes List

|                                                    |
|----------------------------------------------------|
| Scheme Proposal                                    |
| Cycling Schemes                                    |
| Hailsham                                           |
| H1 - Diplocks Way (A22) - Phoenix Academy          |
| H2 - Hempstead Lane                                |
| H3 - Cuckmere Close - Battle Road                  |
| H4 - Diplocks Way/A22 - Hempstead Lane             |
| H5 - Polegate - Hellingly                          |
| H6 - High Street - Hellingly                       |
| H7 - London Road - Battle Road - Hawkswood Road    |
| H8 - South Road - Mill Road                        |
| H9 - A22 - Vicarage Lane                           |
| H10 - Summerheath Road - High Street               |
| H11 - Vicarage Road - Hamlins Park Close           |
| H12 - Gleneagles Drive - London Road               |
| H13 - Battle Road - White House School             |
| H14 - Hawks Road - Harebeating Road                |
| H15 - Lower Dicker - Park Gate Road                |
| H16 - Hellingly - Park Gate                        |
| H17 - Arlington Road East - Upper Horsebridge Road |
| H18 - Ersham Road - South Road                     |
| H19 - Hempstead Lane - Upper Horsebridge Road      |
| H20 - South Road Car Park - Upper Horsebridge Road |
| H21 - New Road - The Drive                         |
| H22 - Mill Lane - Marshfoot Lane                   |
| H23 - White House School Harebeating Lane          |
| <b>Uckfield</b>                                    |
| U1 - Mallard Drive                                 |
| U2 - Framfield Road                                |
| U3 - Belfarm Road to Bell Lane                     |
| U4 - Belfarm Road Greenway                         |
| U5 - Belmont Road - Manor Way                      |
| U6 - Batchelor Way - Rocks Park                    |
| U7 - Church Street                                 |
| U8 - Hempstead Lane                                |

---

U9 - Lime Tree Avenue

---

U10 - Southview Drive/ Downsview Crescent

---

U11 - Browns Lane

---

U12 - B2102 Ringles Cross – Framfield Road

---

U13 - New Town – Ridgewood

---

U14 - New Town to Railway Station (via Victoria Pleasure Ground)

---

**Heathfield**

---

HE1 - NCN Route 21

---

HE2 - Cuckoo Trail Extension

---

HE3 - A265 Snatchells Farm – Broad Oak

---

HE4 - Battle Road West

---

HE5 - Battle Road East

---

HE6 - Halley Road

---

HE7 - A256 – Sandy Cross Lane

---

HE8 - Leeves Common

---

HE9 - Sheepsetting Lane – Sandy Cross Lane

---

HE10 - Cuckoo Drive – Green Lane

---

HE11 - Thorny Close Link

---

**Crowborough**

---

C1/C3/C7 - B21 from the A27 - junction Green Lane and the Croft Road/Church Road Triangle

---

C2 - Jarvis Brook – St Johns via Medway and Millbrook Road

---

C4 - North/South link via Queens Road and Poundfield

---

C5 - Jarvis Brook – Mount Pleasant – via Tubwell Lane

---

C6 - Jarvis Brook - Rotherfield C8 Area based improvements – residential areas

---

**Hailsham Walking Schemes**

---

H1 - Core Walking Zone

---

H2 - South Road to Arlington Road East

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H3 - London Road to Church Road

---

H4 - Battle Road New Road

---

H5 - Marshfoot Lane

---

H6 - Mill Road

---

# Appendix C: Phase 1 Model Build

# Phase 1 – Model Build Technical Note

*Prepared for*

**East Sussex County Council**

21<sup>st</sup> April 2021



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# Contents

| Section                                                         | Page       |
|-----------------------------------------------------------------|------------|
| <b>Document Issue.....</b>                                      | <b>iii</b> |
| <b>Acronyms and Abbreviations.....</b>                          | <b>iv</b>  |
| <b>1 Introduction .....</b>                                     | <b>1</b>   |
| 1.1 Background.....                                             | 1          |
| 1.2 Steering Group .....                                        | 1          |
| 1.3 Purpose and Objectives.....                                 | 2          |
| 1.4 Report Structure .....                                      | 3          |
| <b>2 Overview of Methodology and Assumptions.....</b>           | <b>4</b>   |
| 2.1 General Approach.....                                       | 4          |
| 2.2 Key Assumptions .....                                       | 4          |
| <b>3 Network Coding.....</b>                                    | <b>6</b>   |
| 3.1 Overview.....                                               | 6          |
| 3.2 Network Preparation .....                                   | 6          |
| 3.3 Network Refining .....                                      | 7          |
| 3.3.1 Nodes.....                                                | 8          |
| 3.3.2 Links.....                                                | 8          |
| 3.3.3 Committed Schemes.....                                    | 8          |
| 3.4 Link Allocation.....                                        | 8          |
| 3.5 Development Zones.....                                      | 10         |
| 3.6 External Zone Identification .....                          | 10         |
| <b>4 Future Base Demand .....</b>                               | <b>13</b>  |
| 4.1 Overview.....                                               | 13         |
| 4.2 Traffic Count Data.....                                     | 13         |
| 4.2.1 ATC Data .....                                            | 14         |
| 4.2.2 CTC Data .....                                            | 16         |
| 4.3 Creating 2019 average flows by vehicle classification ..... | 17         |
| 4.4 Generate TEMPro growth factors .....                        | 17         |
| 4.5 Flow Plots .....                                            | 19         |
| <b>5 Development Demand.....</b>                                | <b>21</b>  |
| 5.1 Overview.....                                               | 21         |
| 5.2 Trip Distribution.....                                      | 21         |
| 5.3 Aggregate MSOA zones/external trips.....                    | 22         |
| 5.4 Create Development Zones .....                              | 22         |
| 5.5 Trip Generation.....                                        | 22         |
| <b>6 Assignment.....</b>                                        | <b>25</b>  |
| 6.1 Import Demand .....                                         | 25         |
| 6.2 Assign .....                                                | 25         |
| 6.3 Results.....                                                | 25         |
| <b>7 Next Stages.....</b>                                       | <b>26</b>  |
| 7.1 Phase 2 – Model Application .....                           | 26         |
| 7.2 Model Refinements .....                                     | 26         |

| Section                                          | Page |
|--------------------------------------------------|------|
| 7.2.1 JTW Trip Distribution Bias.....            | 26   |
| 7.2.2 Double Counting of Development Trips ..... | 27   |
| 7.3 Phase 3 - Mitigation Strategies .....        | 27   |

## Table(s)

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| Table 2-1: Key Assumptions .....                                              | 5  |
| Table 3-1: Modelled Link Types .....                                          | 9  |
| Table 3-2: Road Attribute Link Type Correspondence .....                      | 10 |
| Table 3.3: External MSOAs with multiple connectors.....                       | 12 |
| Table 4.1: 2015 Employment Densities.....                                     | 18 |
| Table 4.2: LPA Committed Developments .....                                   | 18 |
| Table 4-3: Car growth factors derived from TEMPro .....                       | 18 |
| Table 4-4: South East growth factors for goods vehicles derived from RTF..... | 19 |

## Figure(s)

|                                                           |    |
|-----------------------------------------------------------|----|
| Figure 1-1: Project Phases.....                           | 2  |
| Figure 3-1: Network Coding Process.....                   | 6  |
| Figure 3-2: ITN Structure.....                            | 7  |
| Figure 3-3: Identification of External Zones.....         | 11 |
| Figure 4-1 Location of Traffic Counts in ESCC .....       | 14 |
| Figure 4-2 ATC Counts data availability .....             | 15 |
| Figure 4-3 Average hourly flow for all of ATC sites ..... | 16 |
| Figure 4-4 CTC Counts data availability.....              | 17 |
| Figure 5-1: Development Demand Process .....              | 21 |
| Figure 5-2: Zone Definition.....                          | 22 |
| Figure 5-3: Schematic of development matrix .....         | 24 |

# Document Issue

## Revision History

| Issue | Author       | Date                        | Description  |
|-------|--------------|-----------------------------|--------------|
| 1     | James Glover | 21 <sup>st</sup> April 2021 | Draft Report |

## Technical Check

| Role               | Name       | Signature         | Date                        |
|--------------------|------------|-------------------|-----------------------------|
| Associate Director | Tom Withey | <i>Tom Withey</i> | 21 <sup>st</sup> April 2021 |

## Approval

| Role                   | Name         | Signature           | Date                        |
|------------------------|--------------|---------------------|-----------------------------|
| Director of Operations | Tim Cuthbert | <i>Tim Cuthbert</i> | 21 <sup>st</sup> April 2021 |

## ESH Approval

| Role | Name | Signature | Date |
|------|------|-----------|------|
|      |      |           |      |

# Acronyms and Abbreviations

|        |                                     |
|--------|-------------------------------------|
| ESCC   | East Sussex County Council          |
| EBC    | Eastbourne Borough Council          |
| EiP    | Examination in Public               |
| HE     | Highways England                    |
| JTW    | Journey to Work                     |
| LDC    | Lewes District Council              |
| LP     | Local Plan                          |
| LPA    | Local Planning Authority            |
| MSOA   | Middle Layer Super Output Area      |
| NTEM   | National Trip End Model             |
| NTM    | National Transport Model            |
| NTS    | National Travel Survey              |
| RDC    | Rother District Council             |
| STEB   | Shared Transport Evidence Base      |
| TEMPro | Trip End Model Presentation Program |
| WDC    | Wealden District Council            |

# 1 Introduction

## 1.1 Background

The Local Planning Authorities (LPAs) in East Sussex are currently developing draft Local Plan (LP) options, which contain various combinations of proposals for development in their respective authority. To achieve their programmes for pre-submission and stakeholder engagement, the LPAs will need to start testing their LP options by the start of summer 2021.

In order to provide an evidence base in the short term for assessing the transport impacts of LP proposals, Jacobs has been commissioned by East Sussex County Council alongside four of the Borough/District Councils to undertake the Shared Transport Evidence Base (STEB) project. The intention of this project is to enable the Local Planning Authorities (LPAs) in East Sussex to test their initial LP growth options in absence of a more comprehensive transport model.

The project is specifically required to produce a set of tools that can assess the impacts of the additional traffic on the highway network forecast from the proposed LP developments, as well as the undertaking of these assessments and development of mitigation strategies to accommodate this additional traffic.

Given the timeframe for testing LP options, the tools that will be developed to enable this must be complete by the beginning of June 2021 at the latest. This is ahead of a full Countywide Model being developed, which will provide the ultimate transport evidence base for each submission version LP and its Examination in Public (EIP).

The LPAs in East Sussex for which this project relates to are as follows:

- Eastbourne Borough Council (EBC)
- Lewes District Council (LDC)
- Rother District Council (RDC)
- Wealden District Council (WDC)

## 1.2 Steering Group

A steering group for the STEB project has been established for the purpose of agreeing approaches to the modelling, as well as reviewing the assessment outputs. The steering group includes representatives from the following:

- East Sussex County Council (ESCC)
- The LPAs (as detailed in Section 1.1)
- Highways England (HE) and their consultant

## SECTION 1

- Jacobs

HE are included in the steering group in order to help ensure that the modelling is appropriate for assessing impacts on the Strategic Road Network (SRN) within the study area (i.e. A21, A26 south of A27 to Newhaven, A27 and A259 east of Pevensey).

### 1.3 Purpose and Objectives

During a steering group meeting on 7<sup>th</sup> January 2021, the STEB Steering Group agreed to progress a spreadsheet and assignment-based modelling approach, as part of an appropriate set of tools to test the emerging LP growth options in the short-term. It was also agreed that junction models be obtained (or built if necessary) to assess the performance of selected junctions impacted by the higher flows indicted by the spreadsheet and assignment-based model. These junction models will also be used to develop strategies that mitigate any forecast reduction in the level of service.

To meet these project requirements, a three-phased process was agreed by the steering group, as shown in Figure 1-1.

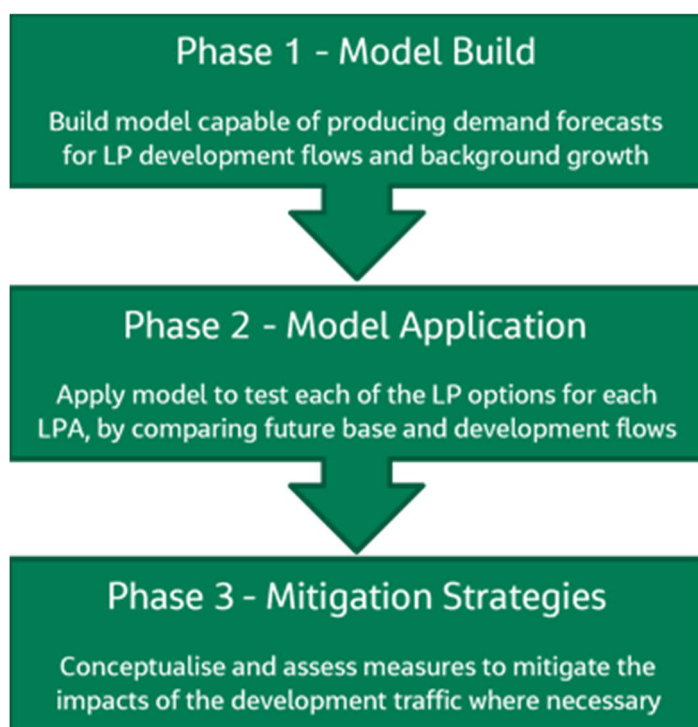


Figure 1-1: Project Phases

**This report specifically relates to the “Phase 1 Model Build”**, which concerns the development of the spreadsheet and assignment-based transport model that covers the whole of East Sussex (with the exception of Hastings). The model must be capable of producing LP development flows for both AM and PM peaks to indicate potential locations of stress on the local and strategic network.

## SECTION 1

The model must also include a means of comparing these flows against a reference case (i.e. a future scenario without LP development, also known as the “future base” scenario) derived from count data growthed appropriately based on background growth assumptions stemming from committed development. This will allow the LPAs to compare various options of LP proposals against each other and undertake high level sifting of those options.

On completion of Phase 1, this report will be reviewed by HE and any feedback will be addressed prior to commencing Phase 2. The proposals for the next stages of work are documented in Section 7 of this report.

## 1.4 Report Structure

The remainder of the report is structured as follows:

- **Section 2** provides an overview of the methodology and general assumptions of the project.
- **Section 3** details the work undertaken to code the network.
- **Section 4** details the work undertaken to produce the future base demand
- **Section 5** details the work undertaken to produce the forecast development demand
- **Section 6** discusses the assignment using dummy data
- **Section 7** looks at the proposed next stages of the work

## 2 Overview of Methodology and Assumptions

### 2.1 General Approach

Phase 1 is comprised of four stages:

**1. Create the Network (Section 3 of this report)**

A network with appropriate detail for the high-level assessment of the LP options has been prepared and imported into a strategic modelling platform.

**2. Produce the Future Base Flows (Section 4 of this report)**

Observed traffic count data has been growthed to produce the forecast background traffic flows for a common LP horizon year, assuming population growth and committed development, but without allocated or windfall developments, which are considered non-committed.

**3. Build the Development Demand (Section 5 of this report)**

A bespoke spreadsheet modelling exercise has been undertaken to produce the forecast LP development traffic flows for the LP horizon year. No background traffic is included in these flows.

**4. Run a Dummy Assignment (Section 6 of this report)**

Dummy development demand has been assigned to the network, to ensure that the model is behaving as expected, and producing logical results.

### 2.2 Key Assumptions

The key assumptions underlying the modelling methodology are:

- **The Future Base flows consist purely of growthed observed traffic data.** Data is limited to those locations for which surveys have previously been undertaken.
- **The Development Demand consists of forecast development flows calculated through the spreadsheet modelling exercise,** which are then added to the future base flows. Where future base flows are not available, the various LP options can be compared against each other, but not against a reference case.
- **Dummy development data has been used to populate the demand matrices.** This has been necessary to set up the model and will be replaced with actual data in Phase 2.

## SECTION 2

Some headline parameters for this project that have been discussed with the steering group are shown in Table 2-1.

| Parameter               | Assumption                        | Comments                                                                                                                                                                                                                                   |
|-------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base year               | 2019                              | Observed traffic counts taken from most recent year prior to Covid-19. Several counts were also taken from 2018.                                                                                                                           |
| Forecast year           | 2040                              | To provide a single forecast year that is consistent for all the modelling undertaken. Considering the LP horizon dates are either 2038, 2039 or 2040, the year 2040 was agreed as most appropriate.                                       |
| AM peak hour            | 08:00 to 09:00                    | Concluded through the count data to be the busiest AM hour.                                                                                                                                                                                |
| PM peak hour            | 17:00 to 18:00                    | Concluded through the count data to be the busiest PM hour.                                                                                                                                                                                |
| Vehicle classifications | Cars, LGVs and HGVs               | The presence of HGVs in the data is important because they take up increased capacity through junctions.                                                                                                                                   |
| Trip distribution data  | Census 2011 Journey to Work (JTW) | Most recently available data on trip distribution                                                                                                                                                                                          |
| Trip generation         | TRICS                             | Widely used and accepted for derivation of trip rates.                                                                                                                                                                                     |
| Assignment              | Single iteration                  | Since only development trips are included in the assignment model a full 'Frank-Wolfe' type assignment is not realistic, so route choice will be decided based on prevailing road conditions and only a single iteration will be required. |

Table 2-1: Key Assumptions

## 3 Network Coding

### 3.1 Overview

The model has been developed in an up to date version of VISUM software (version 2020).

In order for the model to be used for the proposed purposes mentioned above in section 2 it was important that the model accurately allows for the movement of vehicles within East Sussex, and also key areas within the county, including; Eastbourne, Lewes, Rother and Wealden.

The process undertaken to code the network is illustrated in *Figure 3-1* and described in the following subsections.

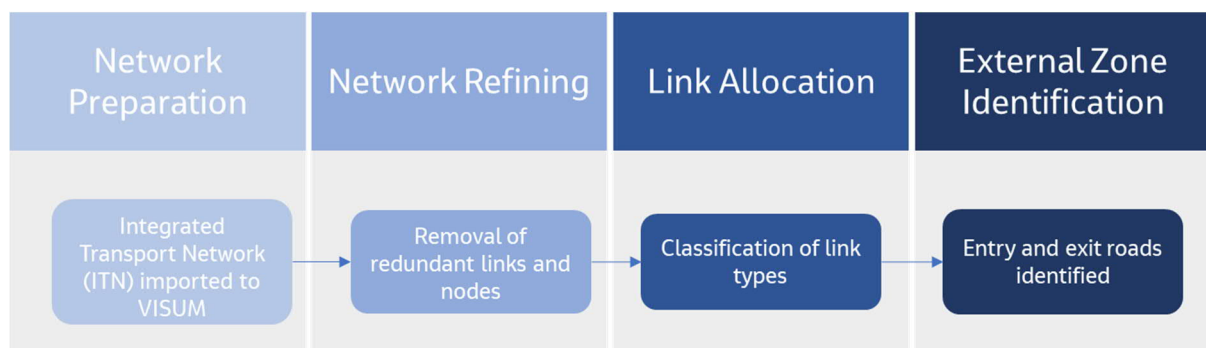


*Figure 3-1: Network Coding Process*

### 3.2 Network Preparation

The Integrated Transport Network (ITN) was employed as a foundation for the link structure in the model. The ITN, produced by Ordnance Survey, is a dataset containing details of the national transport network. The dataset contains road geometry data as well as the following link information:

- The class of road (A-road, B-road etc.)
- The forms of way (single carriageway, dual carriageway, roundabout, etc.)
- Road names
- Road widths

The ITN was analysed using GIS and it was concluded that the level of detail in the raw ITN was much higher than was required for the purposes of this project. Therefore, using the road class attribute, the more minor links not expected to carry any significant volumes of development traffic (e.g. access roads, local roads and restricted roads) were removed from the network.

### SECTION 3

Figure 3-2 shows the structure of the ITN for East Sussex. Roads shown in black have been imported to VISUM for further refinement, these consist of the following highway classes:

- Motorways
- A Roads
- B Roads
- Minor Roads
- Local Roads (residential streets etc.) - partial coding

The redundant roads, displayed in red, were removed from the network. This allowed for a network structure which included all roads with the potential for carrying development trips, without having extraneous levels of detail.

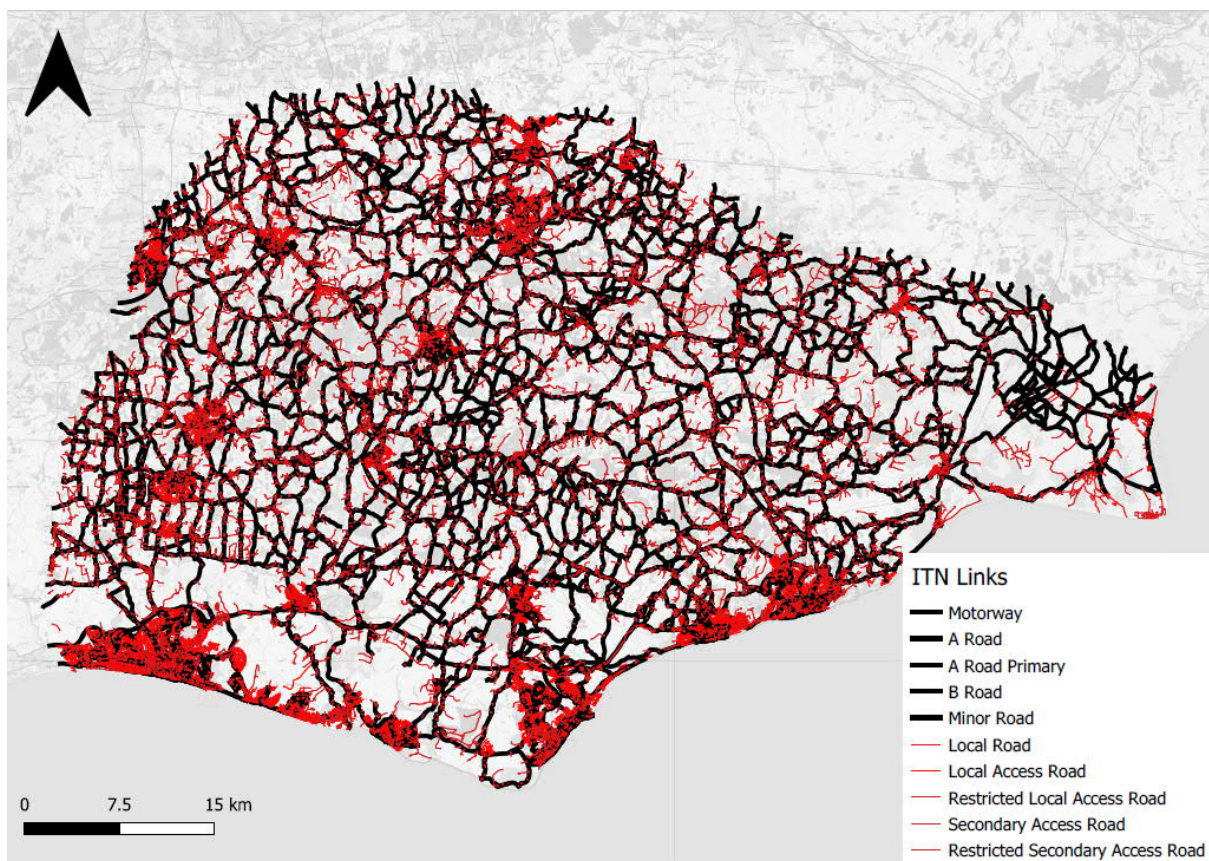


Figure 3-2: ITN Structure

## 3.3 Network Refining

The network was loaded into VISUM, which converted it into a series of links and nodes appropriate for modelling. Characteristics of the network were sense checked using Google Earth/Street View.

### SECTION 3

The ITN, when imported to VISUM, created an excessive number of nodes in the model as intermediate points within a single link, which served no purpose other than to increase the number of links and nodes in the model. An effective VISUM model should contain nodes at all vehicle decision points in the network however, the ITN produced many excessive nodes in areas of the network where there should be no vehicle decisions e.g. lay-bys, bus stops and bends in the road.

#### 3.3.1 Nodes

Nodes connected to only one link were filtered and removed, these nodes were dead-end access roads that would not be used by vehicles in the model. At these nodes, the conjoining link was also removed. Nodes that were connected to two links were also filtered and removed from the model. The remaining nodes in the network corresponded to actual junctions and were coded without any capacity constraint. U-turns were closed at all nodes in the model to ensure there were no irregular movements.

#### 3.3.2 Links

Upon importing the links into the model, all roads were open to all traffic in each direction. Therefore, the movement of traffic on the reverse direction of each dual carriageway in the model has been closed, as has the reverse direction of the major one-way roads including the anti-clockwise flow of traffic on roundabouts.

#### 3.3.3 Committed Schemes

Schemes to deliver capacity improvements, such as junction upgrades or additional lanes, will have no impact on the model since only development trips are being modelled, and therefore existing capacity will not be reached. The only schemes that will impact route behaviour in the model are those that introduce a new road, and currently there are no such schemes proposed in any of the LPAs included in this work.

### 3.4 Link Allocation

The attributes of modelled links such as number of lanes, capacity and free flow speed are derived from associating each link with a road classification defined by the route hierarchy and form of way attributes in the ITN data. To cover a suitable range of road types, vehicle speeds and volume capacities, a total of 8 link types have been defined in the model. The link type definitions can be found in Table 3-1. Based on the estimated number of lanes and vehicle speeds for the links in the network, each route hierarchy and form of way combination has been assigned to one of the 8 defined link types, this is shown in Table 3-2.

| Description       | Assigned link number | Link type              |
|-------------------|----------------------|------------------------|
| 3 Lane Motorway   | 4                    | Rural dual 3 motorway  |
| 2 Lane Roundabout | 12                   | Roundabout Circulate 2 |

### SECTION 3

|                          |    |                                            |
|--------------------------|----|--------------------------------------------|
| <b>1 Lane Roundabout</b> | 13 | Roundabout Circulate 1                     |
| <b>50 mph 2 Lane</b>     | 26 | Rural single carriageway 7.3m good 2 lanes |
| <b>40 mph 2 Lane</b>     | 36 | Suburban dual 2 slight development         |
| <b>40 mph 1 Lane</b>     | 39 | Suburban single slight development         |
| <b>30 mph 2 Lane</b>     | 38 | Suburban dual 2 heavy development          |
| <b>30 mph 1 Lane</b>     | 54 | Urban non-central 50% development          |

Table 3-1: Modelled Link Types

| Route Hierarchy       | Form of way                     | Speed Estimate | Number of Lanes Estimate | Link Number |
|-----------------------|---------------------------------|----------------|--------------------------|-------------|
| <b>B Road</b>         | Traffic Island Link at Junction | 30             | 1                        | 54          |
|                       | Slip Road                       | 30             | 1                        | 54          |
|                       | Roundabout                      | 30             | 1                        | 13          |
|                       | Dual Carriageway                | 40             | 1                        | 39          |
|                       | Single Carriageway              | 30             | 1                        | 54          |
|                       | Traffic Island Link             | 30             | 1                        | 54          |
| <b>A Road Primary</b> | Traffic Island Link at Junction | 40             | 2                        | 36          |
|                       | Slip Road                       | 40             | 2                        | 36          |
|                       | Roundabout                      | 30             | 2                        | 12          |
|                       | Dual Carriageway                | 50             | 2                        | 26          |
|                       | Single Carriageway              | 40             | 2                        | 36          |
|                       | Traffic Island Link             | 40             | 2                        | 36          |
| <b>A Road</b>         | Traffic Island Link at Junction | 30             | 1                        | 54          |
|                       | Slip Road                       | 30             | 1                        | 54          |
|                       | Roundabout                      | 30             | 1                        | 13          |
|                       | Dual Carriageway                | 40             | 1                        | 39          |
|                       | Single Carriageway              | 30             | 1                        | 54          |
|                       | Traffic Island Link             | 30             | 1                        | 54          |

## SECTION 3

|                   |                                 |    |   |    |
|-------------------|---------------------------------|----|---|----|
| <b>Motorway</b>   | Slip Road                       | 40 | 2 | 38 |
|                   | Dual Carriageway                | 70 | 3 | 4  |
| <b>Minor Road</b> | Traffic Island Link at Junction | 30 | 1 | 54 |
|                   | Slip Road                       | 30 | 1 | 54 |
|                   | Roundabout                      | 30 | 1 | 13 |
|                   | Dual Carriageway                | 30 | 1 | 54 |
|                   | Single Carriageway              | 30 | 1 | 54 |
|                   | Traffic Island Link             | 30 | 1 | 54 |

Table 3-2: Road Attribute Link Type Correspondence

The allocation of link types to roads is done purely to insure an appropriate hierarchy and relative attractiveness of roads for the purposes of route choice.

## 3.5 Development Zones

Development zones will be connected to appropriate network loading points upon confirmation of the developments and their access details within each local plan option. Subsequent reporting will confirm the development and loading assumptions.

## 3.6 External Zone Identification

In addition to the coding of the LPAs, it was also important that the model accurately reflected the movement of vehicles across the county borders. As the scope of the network did not extend significantly beyond the East Sussex border (approximately 10km in each direction), a number of external zones were added to the model to replicate the movement of vehicles which would cross the county boundary via major roads in the network.

A total of 15 major roads that would represent the external zones for vehicle travelling to and from external MSOAs were identified. These roads were determined based on vehicle routing choices calculated in Google Maps. Figure 3-3 displays the major roads used to represent the entry and exit points for trips to and from external MSOA's.

## SECTION 3

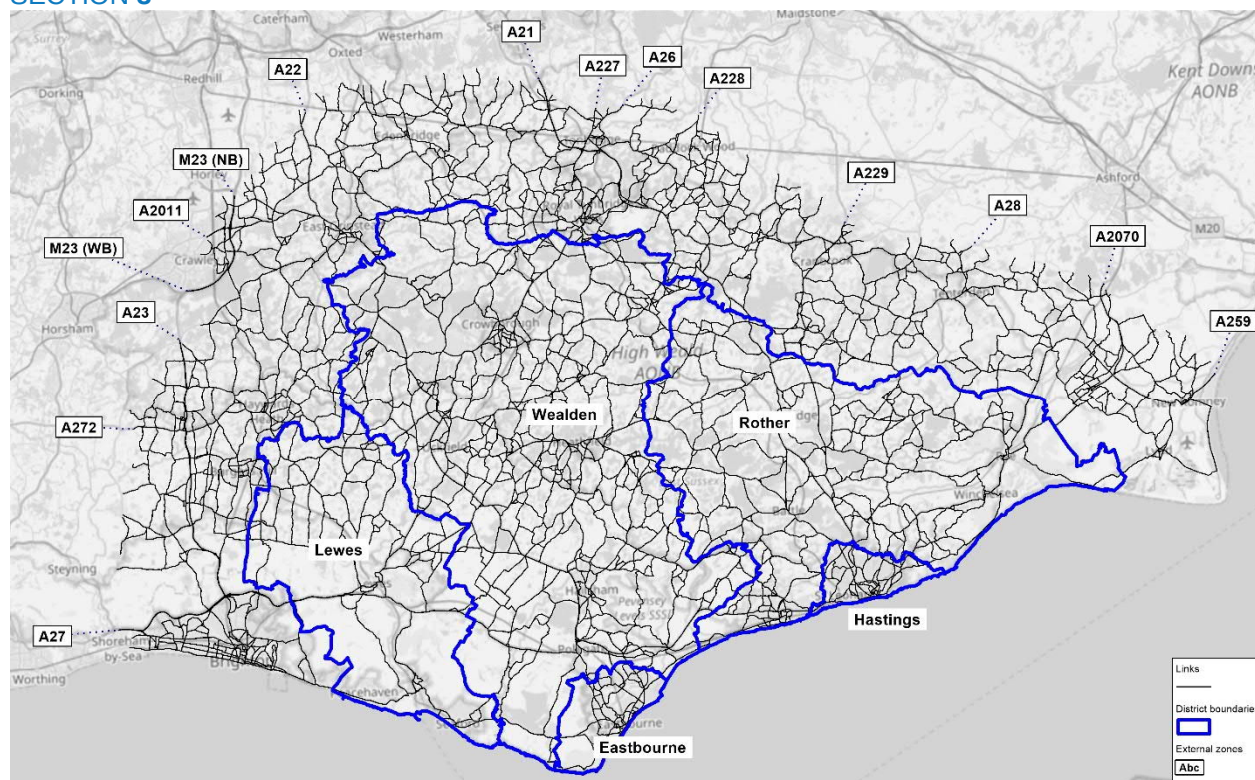


Figure 3-3: Identification of External Zones

MSOA's located outside of the East Sussex border but within the modelled network e.g. Brighton and Hove, Mid Sussex and Tunbridge Wells were assigned up to three zones so that trips to and from these locations would be spread out among different loading points.

The external MSOA's on the peripheral of the network that should be accessed from multiple entry/exit roads have been coded as zones. These zones have been coded with up to three connectors (based on route choices calculated in Google Maps) to replicate vehicles travelling to the MSOA's from different areas of the model. A total of 29 MSOA's with multiple entry/exit roads have been coded. Based on Google Maps journey time calculations, time delays have been applied to each connector to ensure vehicles load onto or exit the network at a location which best resembles real world route choices.

The identified external MSOA's that have been coded as zones are shown in Table 3.3.

| External MSOA zone       | Connector 1      | Connector 2   | Connector 3   |
|--------------------------|------------------|---------------|---------------|
| <b>Arun</b>              | A27              | A272          |               |
| <b>Ashford</b>           | A28              | A2070         |               |
| <b>Bexley</b>            | A21              | M23 (N)       |               |
| <b>Brighton and Hove</b> | Central Brighton | West Brighton | East Brighton |

### SECTION 3

|                              |                    |                  |                  |
|------------------------------|--------------------|------------------|------------------|
| <b>Bromley</b>               | A21                | M23 (N)          | A22              |
| <b>Canterbury</b>            | A2070              | A228             | A28              |
| <b>Crawley</b>               | A2011              | M23 (W)          | A23              |
| <b>Croydon</b>               | M23 (N)            | A21              | A22              |
| <b>Dover</b>                 | A259               | A28              | A228             |
| <b>East Hampshire</b>        | M23 (N)            | A272             |                  |
| <b>Epsom and Ewell</b>       | M23 (N)            | A21              | A22              |
| <b>Gravesham</b>             | A21                | A229             |                  |
| <b>Horsham</b>               | M23 (W)            | A23              | A272             |
| <b>Lewisham</b>              | M23 (N)            | A21              | A22              |
| <b>Maidstone</b>             | A229               | A26              | A228             |
| <b>Medway</b>                | A228               | A26              | A229             |
| <b>Merton</b>                | M23 (N)            | A21              | A22              |
| <b>Mid Sussex</b>            | Mid Sussex Central | Mid Sussex North | Mid Sussex South |
| <b>Mole Valley</b>           | M23 (N)            | M23 (W)          |                  |
| <b>Reigate and Banstead</b>  | M23 (N)            | A21              | A22              |
| <b>Sevenoaks</b>             | A21                | A22              | M23 (N)          |
| <b>Shepway</b>               | A259               | A28              | A2070            |
| <b>Southwark</b>             | M23 (N)            | A21              | A22              |
| <b>Sutton</b>                | M23 (N)            | A21              | A22              |
| <b>Swale</b>                 | A2070              | A228             | A28              |
| <b>Tandridge</b>             | A22                | A21              |                  |
| <b>Tonbridge and Malling</b> | A26                | A21              | A227             |
| <b>Waverley</b>              | M23 (W)            | A23              | A272             |
| <b>Worthing</b>              | A27                | A272             |                  |

Table 3.3: External MSOAs with multiple connectors

## 4 Future Base Demand

### 4.1 Overview

Observed traffic count data has been processed and growthed to produce the forecast background traffic flows for the LP horizon year, assuming committed development, but without allocated or windfall developments.

A consistent forecast year has been assumed for the future year modelling for all the LPAs. This year coincides with the date furthest in the future to ensure it captures all LP development. Considering the LP horizon dates as detailed below, the year 2040 has been chosen.

- EBC: 2038
- LDC: 2040
- RDC: 2039
- WDC: 2038

### 4.2 Traffic Count Data

Automated Traffic Count (ATC) data was used to determine the total number of vehicles travelling along a particular road, whereas Classified Turning Count (CTC) data was used to determine the vehicle classification proportions.

All available ATC data from ESCC's permanent monitoring sites were collated for Eastbourne, Lewes, Rother and Wealden, with the exception of 12 locations on minor roads not included in the Phase 1 model network. In total 95 ATCs were used.

For the CTC data, specific locations were selected to correspond geographically with each ATC location. ATC and CTC "pairs" were then created whereby the ATC flows were apportioned by the relevant CTC vehicle classification ratios. In total 80 CTCs were used.

The location of the counts are shown in Figure 4-1.

## SECTION 4

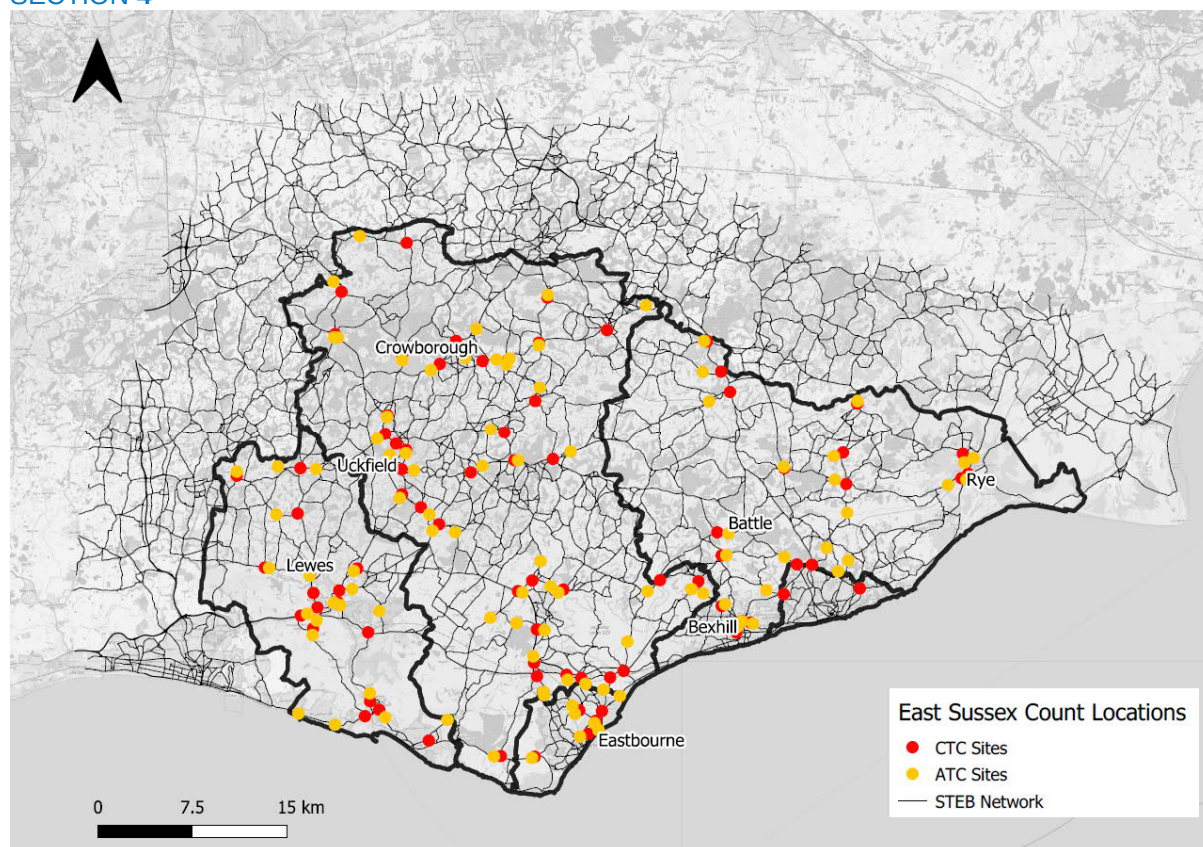


Figure 4-1 Location of Traffic Counts in ESCC

### 4.2.1 ATC Data

ATC data contains hourly total number of vehicles by location, presented for both directions. Data for all ATC locations is for 2019, with the exception of three locations for which only 2018 data was available. It should be noted that due to the Covid-19 pandemic, traffic levels for 2020 are unlikely to be considered “representative” and therefore counts for this year were not be used. The locations and associated years of the ATCs are shown in Figure 4-2.

The ATC data was processed to produce average hourly flows for neutral days in the whole of 2019 (or 2018) in accordance with TAG guidance, i.e. only Mondays to Thursdays in neutral months that were not compromised by school or national holidays.

## SECTION 4

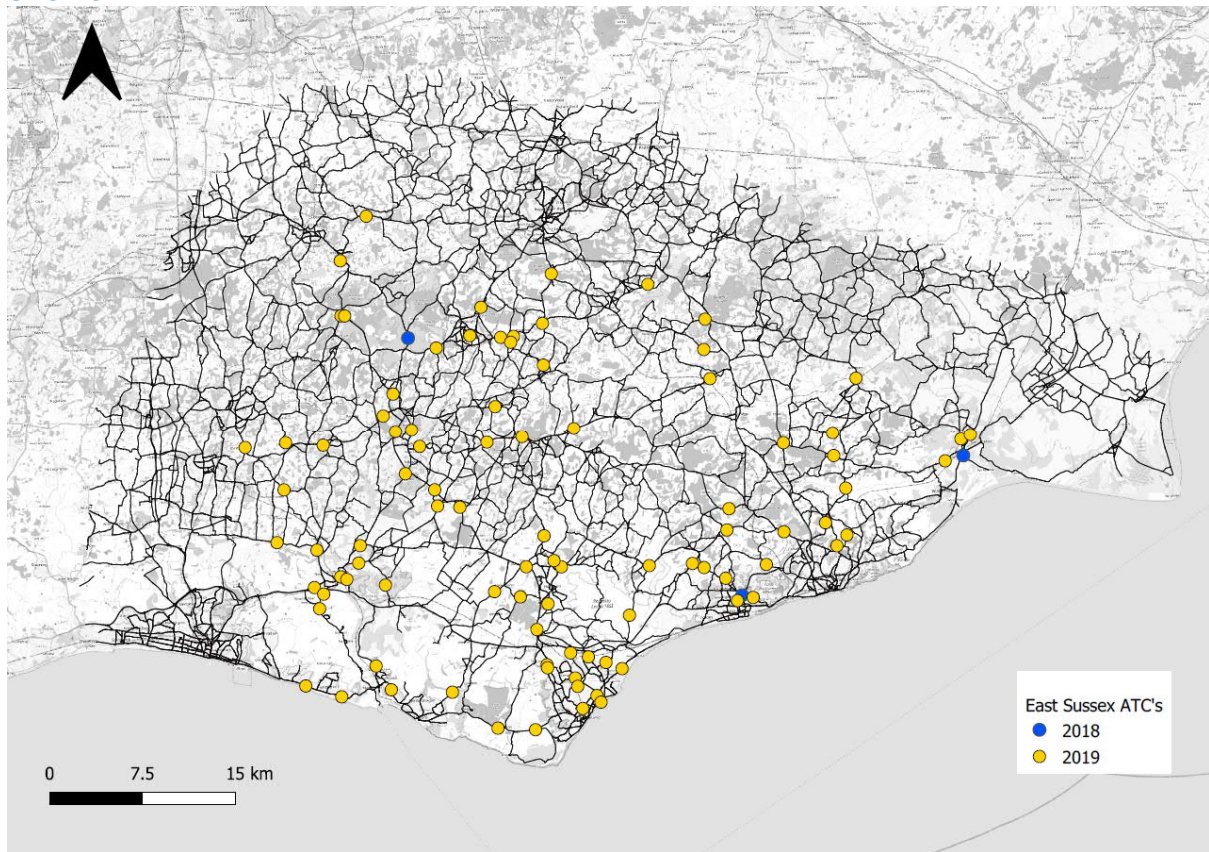


Figure 4-2 ATC Counts data availability

Peak hours were concluded based on averages of ATC data for the whole county, which showed the highest volumes at:

- 08:00 for AM peak
- 17:00 for PM peak

The profile of flows throughout the average day, including for the chosen modelled hours, is shown in Figure 4-3.

## SECTION 4

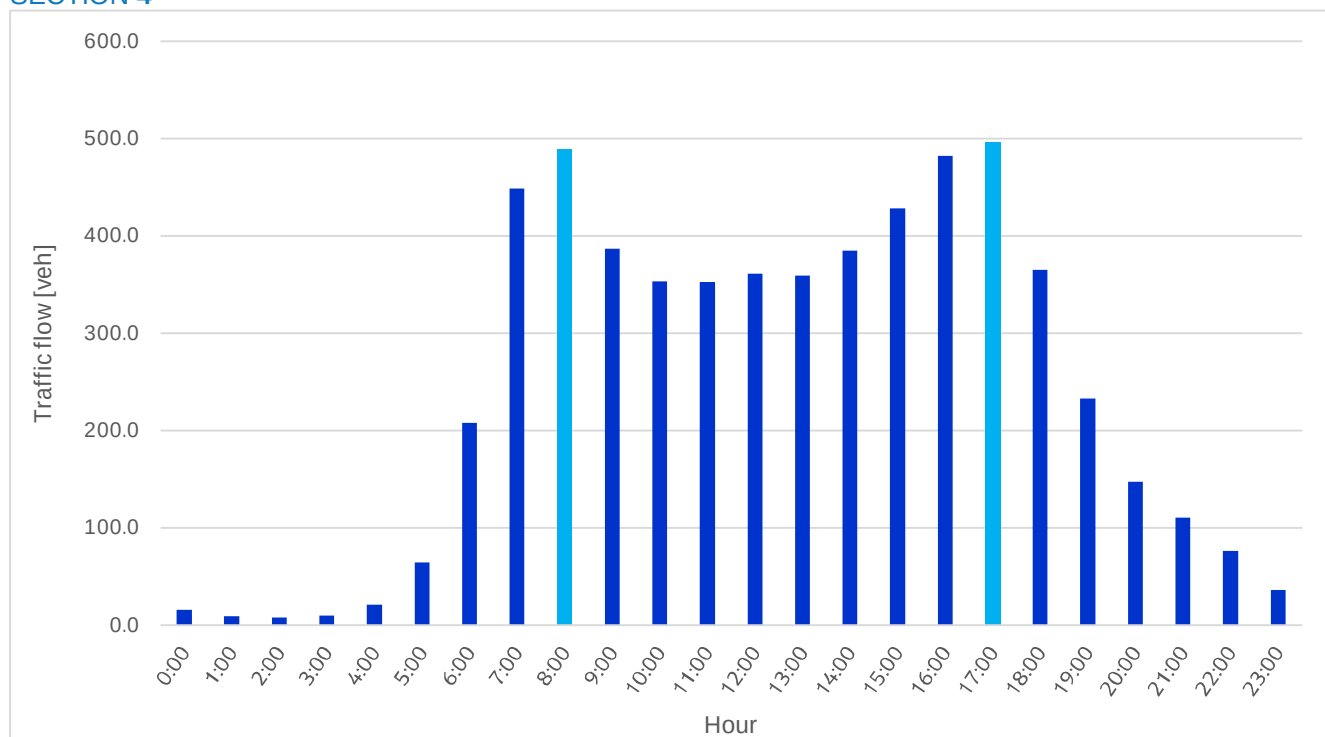


Figure 4-3 Average hourly flow for all of ATC sites

### 4.2.2 CTC Data

CTC data represents turning movements at junctions. It contains 15-minute interval traffic flows categorised by the following vehicle classes:

- Cars
- Buses
- Motorcycles
- Bikes
- Light goods vehicles (LGVs)
- Articulated trucks (HGVs)

Because of the cyclical nature of its collection, CTC data was available for single days in 2016, 2017, 2018 and 2019, the locations of which are presented in Figure 4-4.

The flows were categorized into the following vehicle types: Car, LGV, HGV. This allowed the relevant growth factors to be applied at a later stage, so that when the categories would be amalgamated into Lights and Heavies, the correct proportions would have been carried through.

## SECTION 4

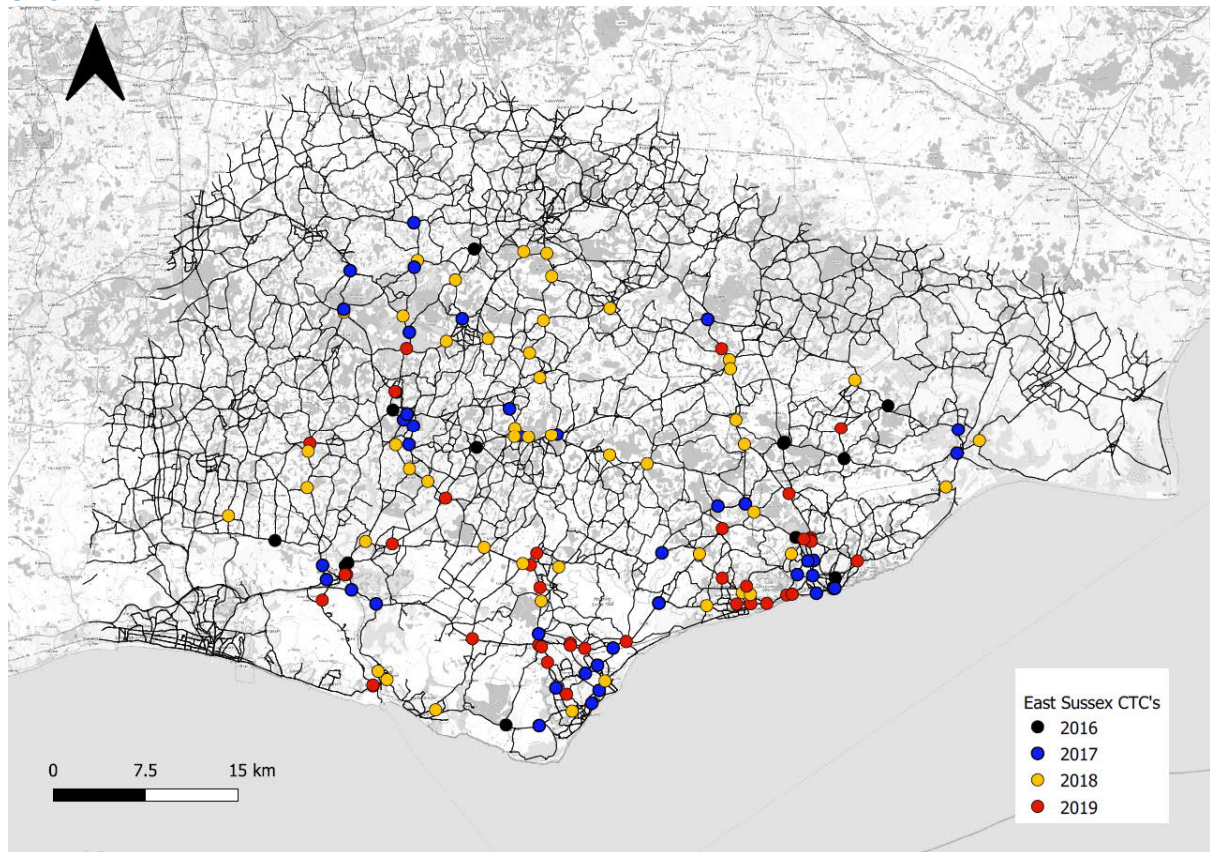


Figure 4-4 CTC Counts data availability

### 4.3 Creating 2019 average flows by vehicle classification

CTC data was used to determine vehicle class proportions for each ATC. CTCs were paired to ATCs based on proximity and road type similarities. Some CTCs have been used to classify multiple ATCs in areas of the network where there is a low density of CTCs. Vehicle class proportions were calculated from CTC flows corresponding with the nominated peak hours.

### 4.4 Generate TEMPro growth factors

The 2019 count data was growthed to the 2040 forecast year based on background growth assumptions and committed developments to reflect the future year household and employment forecasts for each authority, as understood from their available planning data. This was achieved through NTM (RTF 2018 data) adjusted TEMPro v7.2 growth factors, by adjusting the NTEM land use assumptions within TEMPro to reflect committed developments.

Total figures for committed residential and employment developments were provided by each of the LPAs, whereby the residential developments were represented as dwelling units, and the employment developments were represented as floor space (gross floor area in square metres). For each LPA, a total jobs figure was calculated from appropriate employment density estimates, to convert floor space to Full Time

## SECTION 4

Equivalent (FTE) member of staff for each land use, based on the Employment Densities Guide 2015<sup>1</sup>. The employment densities are shown in Table 4.1.

| Employment Type        | Average Area per FTE (m <sup>2</sup> ) |
|------------------------|----------------------------------------|
| Retail                 | 41.67                                  |
| Office                 | 11                                     |
| Industrial             | 36                                     |
| Storage & Distribution | 80.67                                  |
| Community & Leisure    | 115.56                                 |
| Other                  | 50.98                                  |

Table 4.1: 2015 Employment Densities

The specific type of employment was not available from the LPAs so an average of separate densities by different land use type was assumed. The total jobs figure, along with the total dwelling units figure provided the inputs to TEMPro to adjust the NTEM assumptions. The jobs and dwellings figures for each LPA are displayed in Table 4.2.

| LPA        | Total Dwelling Units | Total Jobs |
|------------|----------------------|------------|
| Eastbourne | 1138                 | 345        |
| Lewes      | 2037                 | 198        |
| Rother     | 4604                 | TBC        |
| Wealden    | 7440                 | 188        |

Table 4.2: LPA Committed Developments

The growth factors were derived for AM and PM for each LPA and applied to counts which fall in the respective district/borough. The calculated factors are presented in Table 4-3.

| District   | Local Growth Factor |       |
|------------|---------------------|-------|
|            | AM                  | PM    |
| Eastbourne | 1.106               | 1.100 |
| Lewes      | 1.096               | 1.093 |
| Rother     | TBC                 | TBC   |
| Wealden    | 1.098               | 1.099 |

Table 4-3: Car growth factors derived from TEMPro

A different approach was applied for factoring up LGV and HGV count data, since NTEM does not provide data on freight movement. In those cases, DfT Road Traffic Forecasts (RTF) based on the National Transport Model for the South East region

<sup>1</sup> Housing & Communities Agency: Employment Densities Guide 3<sup>rd</sup> Edition – November 2015

## SECTION 4

were used in place of NTEM. RTF does not contain district level or time period data, so a common South East growth factor was applied to all counts for both the AM and PM peak hours. These factors are presented in Table 4-4.

| Vehicle class | Growth Factor |
|---------------|---------------|
| LGV           | 1.291         |
| HGV           | 1.113         |

Table 4-4: South East growth factors for goods vehicles derived from RTF

## 4.5 Flow Plots

The future year AM and PM peak hour traffic count forecasts for car, LGV and HGV were represented spatially by allocating them to their relevant link in the VISUM network.



## 5 Development Demand

### 5.1 Overview

A process was developed to automate the generation of development trip matrices for AM and PM, corresponding to the development zones in the VISUM model. The process populates the cells of the matrix with the forecast origin and destination trips between the development zones and MSOAs, based on the following inputs:

- Trip distribution (based on data from Census 2011 JTW)
- Development quanta (dummy data has been used for Phase 1)
- Trip rates (based on data from TRICS)

This development demand process is illustrated in Figure 5-1 and described in the following subsections.

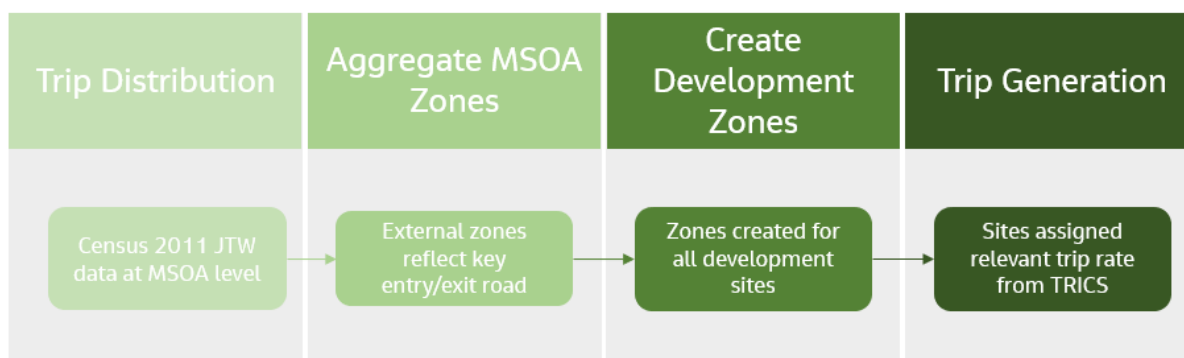


Figure 5-1: Development Demand Process

### 5.2 Trip Distribution

Census 2011 JTW trip information was used for the distribution of development trips, therefore JTW data was required for all car driver trips that have an origin or destination in East Sussex. This data is based on an MSOA zoning system, which includes 69 zones for East Sussex and 2729 zones for the rest of the UK.

A process was created to build a matrix at MSOA level, which would define trip distribution for all potential residential and employment zones as defined in the various local plan options. This is described in Figure 5-2:

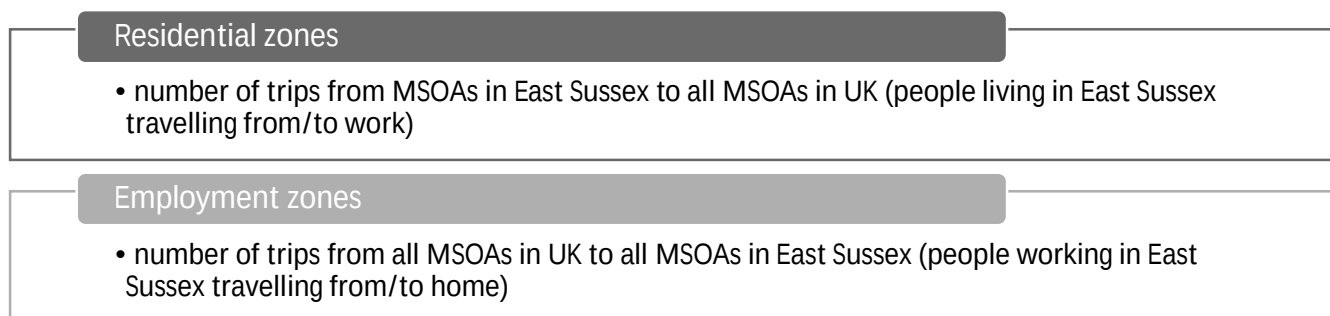


Figure 5-2: Zone Definition

Each matrix contains the number of car trips between zones as detailed in the Census JTW data. This was used to provide proportionate movements that reflect typical trip patterns.

### 5.3 Aggregate MSOA zones/external trips

MSOAs outside of the East Sussex network that would only be realistically accessed from a single entry/exit road were aggregated to 15 external zones to reflect key roads connecting the county to the surrounding area, as described in section 3.6. Each MSOA region was aggregated to an external zone which represent access points to the modelled area. Journey time, class of roads and distance between MSOAs and external zones were not taken into consideration during aggregation process.

### 5.4 Create Development Zones

Using dummy development data, zones were created for each development site. Residential developments have been classified as residential zones while other land uses are classified as employment zones, to correspond with the two trip distribution matrices. If a site contains both residential and other land use, it is split into a residential zone and an employment zone.

The development sites were represented spatially in GIS using eastings and northings, which allowed them to be allocated to an MSOA. That MSOA was used as the basis for the trip distribution of the development, as a 'donor' distribution. Zone numbers of development zones were then created based on their donor MSOA and type of development.

Trip distribution of development is based on trip distribution for MSOA within which the development lies (donor MSOA).

### 5.5 Trip Generation

Trip generation is calculated for every development zone, based on the type of development and its quantum, expressed in floorspace (square metres) or dwelling units. This has been achieved by defining each zone by land use, general geography, likely mode share and time period. Average trip rates aggregated from sites across the whole of the UK in TRICS with corresponding attributes have then been applied to each development site.

## SECTION 5

- Residential
- Retail
- Office
- Industrial
- Warehouse & Distribution
- Community & Leisure

Once the planning data has been made available for the Phase 2 - LP assessment work, the full list of proposed trip rates will be produced as described above and shared with HE for approval.

To ensure trip rates are reflective of the local conditions within the vicinity of each development, such as existing and proposed sustainable travel connectivity, TRICS sites will be chosen with comparable public transport provision and approximate location (i.e. town centre, suburban area, edge of town, neighbourhood centre).

Furthermore, active travel measures at the sites will be accounted for by suppressing car trip generation based on evidence demonstrated from the Government's Sustainable Travel Towns Study<sup>2</sup>. Again, these proposed figures will be shared with HE for their approval prior to use in Phase 2.

During a discussion with HE's consultant an issue was raised specifically pertaining to the trip generation of land use with parcel delivery. As a result, this land use will be specifically noted in the development data to ensure that appropriate trip rates are applied.

The trip rates for each development site have been broken down by car, LGV and HGV, as provided by TRICS (OGV in TRICS has been used for HGV). Origin and destination values for every development zone has then been factored according to the trip distribution proportions calculated in section 5.2, to produce AM and PM demand matrices for car, LGV and HGV (six matrices in total).

A schematic of the final demand matrices that the process creates is shown in Figure 5-3.

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<sup>2</sup> <https://www.gov.uk/government/publications/sustainable-travel-towns-evaluation-of-the-longer-term-impacts>

SECTION 5

|                   | MSOAS in ESCC                                         | External zones | Development zones                                             |
|-------------------|-------------------------------------------------------|----------------|---------------------------------------------------------------|
| MSOAS in ESCC     | blank cells                                           |                | populated cells, column totals match development destinations |
| External zones    |                                                       |                |                                                               |
| Development zones | populated cells, row totals match development origins |                | blank cells                                                   |

Figure 5-3: Schematic of development matrix

## 6 Assignment

### 6.1 Import Demand

LP development zones and, associated trip matrices are imported into the VISUM network. The former requires the specification of development locations using geospatial data provided by each LPA. Each zone is connected to the network via up to three connectors, representing the actual locations at which trips generated from the development would access the highway network.

### 6.2 Assign

The VISUM model, containing internal MSOA zones, the 15 external entry/exit zones, the 29 MSOA zones on the peripheral of the network with multiple connectors and new development zones connected to the network, is assigned. The intention of the assignment is to identify the likely route choice of the development trips. This could be done manually but using a network assignment effectively automates the process. Because only trips from new development are included in the demand, speed-flow relationships cannot be reliably represented (because the 'flow' part of the equation only represents a small portion of all traffic flows). Therefore, route choice is based exclusively on link length and free-flow speed, and therefore a simple single iteration assignment is sufficient.

Because of this simplified assignment method, the route choices in the model must be sense checked.

### 6.3 Results

The results from an initial assignment using dummy flows showed that the overall assignment of traffic in the model was good, with vehicles mostly assigning to major roads in order to travel across the network. The assignment identified some incorrect routing decisions caused by one-way roads that were opened in both directions e.g. on dual carriageways and anti-clockwise roundabout links, which were rectified. The routes chosen by the model were checked against real world route choices (as defined in Google Maps and AA route planner) and found to be appropriate.

## 7 Next Stages

### 7.1 Phase 2 – Model Application

The model built in Phase 1 will be used to test the LP options for each of the LPAs detailed in Section 1. This will be achieved by replacing the dummy development data with actual LP option data. Once the demand macro has produced new development matrices, the routes chosen by the assignment will be reviewed and if necessary, link definitions revised to correct any incorrect routes chosen by the model. The development flows will be assessed alongside the Future Base flows to indicate where the most significant impacts on the network are forecast to be. This assessment will examine the impacts of all non-consented development in the LP's against existing development plus planning consents and commitments. Where count data is missing for the Future Base, modelling data and/or local knowledge will be considered.

Individual LP assessments will be made for the LPAs in isolation, but in addition to this a combined assessment for all four LPAs could be undertaken. The assessment strategy, including specification of scenarios to test, will be agreed by the STEB steering group at the next meeting (scheduled for 5 May), along with the development sites from adjoining authorities that are to be included in the individual LP assessments.

### 7.2 Model Refinements

It is likely that some adjustments to the model will be required based on some of the assumptions that have been necessary in its development. Proposals for these adjustments are best made once some initial testing has been undertaken, and then discussed with the steering group.

There are two key adjustments that are expected to be necessary, which are detailed below:

#### 7.2.1 JTW Trip Distribution Bias

The assumption of JTW trip distributions for all of the trip purposes associated with residential development will likely over-estimate the amount of traffic on the corridor, since home-based employment trips are typically longer distance in nature than those associated with school, retail etc. Accordingly, the journeys modelled in this work will occupy the highway network for a longer stretch than would be the case in practice. Therefore, a means of offsetting this bias to produce a more representative forecast may be required.

It has been discussed with HE's consultant that supplementary trip distribution data could be used in the model, such as a National Travel Survey (NTS) data. Possible updates to the model will be considered using NTS data and/or an alternative approach once initial testing has been performed.

## SECTION 7

### 7.2.2 Double Counting of Development Trips

At present, the demand model does not allow for trips between new developments, e.g. a trip originating from a residential development which destines at an employment development. If this development-development trip is considered to be a possibility, yet the model does not allow it, then the model will effectively be overestimating the number of development trips, because, in the given example, that is a single trips which is counted at two developments.

Therefore, an allowance for these sorts of trips be required, to avoid overestimating the number of development trips in the model.

## 7.3 Phase 3 - Mitigation Strategies

The results from Phase 2 will be used to identify key junctions on the network that are impacted by the LP's. Junction models will be obtained where they exist, or built if necessary, for junctions that are impacted by the higher flows. Flows through the junctions will be taken from the combination of the future base flows (where available from count data) and the development flows. The performance of the junctions will then be assessed and used to develop strategies that mitigate any forecast reduction in the level of service.

# Appendix D: STEB Limitations & Assumptions

| Limitation                       | Assumption                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trip Distribution                | <p>Based on 2011 Census JTW at MSOA level and will potentially differ from the ESCWTM.</p> <p>JTW trips doesn't capture employer business/education/leisure/shopping, however for cumulative assessments NTS trip purpose proportions were applied to cross boundary trips <b>only</b>. Based on the NTS data, a discount of 34% and 10% was applied as a proxy for education trips in the AM and PM respectively. In addition, a discount of 2% and 12% was applied as a proxy for shopping trips in the AM and PM peak.</p>                                                                                                                                                                                                                            |
| Zoning and network detail        | <p>Highway network includes a simplified road hierarchy structure with network imported from ITN 2019. Also, for LP assessments no future committed transport infrastructure was included.</p> <p>Junctions were not coded in detail therefore delay from junctions are not captured.</p> <p>For zones, up to three connectors were coded to provide access to the nearest highway network.</p>                                                                                                                                                                                                                                                                                                                                                          |
| Traffic Assignment               | <p>Traffic assignment was based on a simplified road hierarchy structure with free flow speed taken into account. There is no capacity constraint in the model and therefore there is no impact on route choice.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Trip Pairing                     | <p>Considers all LP employment trips as new i.e. does not factor in LP resi/emp trip pairing, nor displacement, erosion, relocation and conversion of existing employment sites (some of which will become new LP residential e.g. office to flats)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Secondary trips - retail uses    | <p>TRICS does not account for pass by/linked trips and trip characteristics require discounting at following uses in specific locations:</p> <p><b>Shopping Parade</b> – nature of these shops serving local residential area and reasonably high level of pass-by trips.</p> <p><b>Town Centre</b> –reflect very high linked trip to other town centre uses, pass by with station commuters and good sustainable access. Uses are very unlikely to be sole trip attractors and the new trips will predominantly be employees and deliveries rather than customers.</p> <p><b>Existing Retail Park</b> – pass by / linked trip assumption with those already passing site entrance and diverting in or linking visit with other retail uses on site.</p> |
| Car Free Residential Development | <p>This has not been explicitly modelled at this stage, but will contribute towards overarching modal shift assumptions. Further assessments can be undertaken when specific sites are identified.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Windfall housing sites           | <p>Distribution and location based on historic trends and consolidated into geographical clusters with notional highway connections for modelling purposes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Existing traffic data            | <p>Existing traffic data, where available was used, but new data was not collected due to COVID limitations. It is anticipated that the ESCWTM will fill the gaps once made available.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

# Appendix E: Land Use Trip Rates

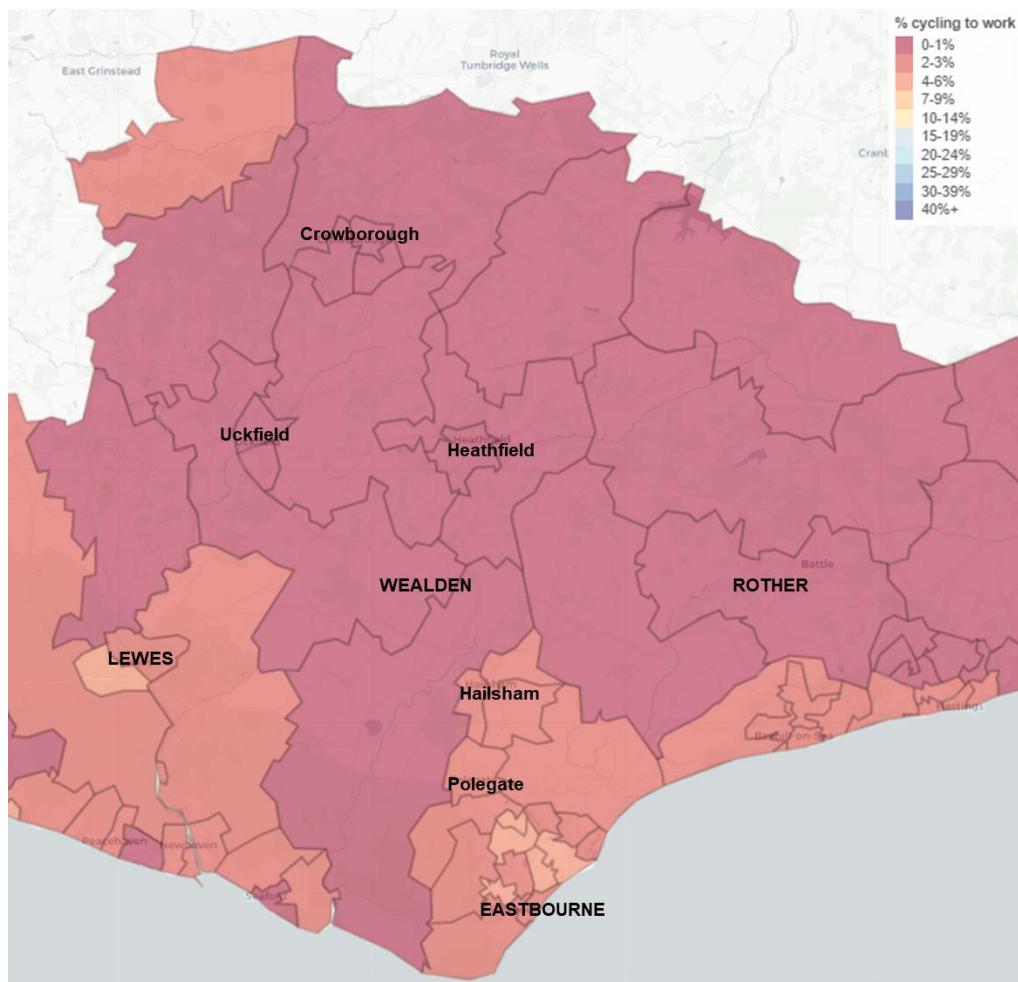
| Vehicular class | Type of development | Development location | AM<br>Origin | AM<br>Destination | PM<br>Origin | PM<br>Destination | Trip Rate<br>Parameter |
|-----------------|---------------------|----------------------|--------------|-------------------|--------------|-------------------|------------------------|
| Total Veh.      | Residential         | Town Centre          | 0.20000      | 0.02500           | 0.07500      | 0.25000           | per dwelling           |
| Total Veh.      | Residential         | Neighbourhood Centre | 0.32300      | 0.10400           | 0.12500      | 0.31100           | per dwelling           |
| Total Veh.      | Residential         | Suburban Area        | 0.40100      | 0.11800           | 0.18300      | 0.37000           | per dwelling           |
| Total Veh.      | Residential         | Edge of Town         | 0.36600      | 0.13500           | 0.15100      | 0.33300           | per dwelling           |
| Total Veh.      | Residential         | Edge of Town Centre  | 0.30400      | 0.14600           | 0.18500      | 0.24300           | per dwelling           |
| Total Veh.      | Residential         | Free Standing        | 0.36100      | 0.15300           | 0.18100      | 0.40300           | per dwelling           |
| Total Veh.      | Retail              | Town Centre          | 0.02539      | 0.03057           | 0.04286      | 0.04704           | per 1sqm               |
| Total Veh.      | Retail              | Neighbourhood Centre | 0.01527      | 0.02134           | 0.04707      | 0.04728           | per 1sqm               |
| Total Veh.      | Retail              | Suburban Area        | 0.01445      | 0.02028           | 0.03539      | 0.02973           | per 1sqm               |
| Total Veh.      | Retail              | Edge of Town         | 0.01923      | 0.02279           | 0.03611      | 0.03233           | per 1sqm               |
| Total Veh.      | Retail              | Edge of Town Centre  | 0.02306      | 0.02569           | 0.06403      | 0.05736           | per 1sqm               |
| Total Veh.      | Retail              | Free Standing        | 0.00000      | 0.00000           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Office              | Town Centre          | 0.00117      | 0.01628           | 0.01351      | 0.00080           | per 1sqm               |
| Total Veh.      | Office              | Neighbourhood Centre | 0.00091      | 0.01260           | 0.01340      | 0.00047           | per 1sqm               |
| Total Veh.      | Office              | Suburban Area        | 0.00185      | 0.01292           | 0.01041      | 0.00145           | per 1sqm               |
| Total Veh.      | Office              | Edge of Town         | 0.00091      | 0.01260           | 0.01340      | 0.00047           | per 1sqm               |
| Total Veh.      | Office              | Edge of Town Centre  | 0.00234      | 0.01810           | 0.01634      | 0.00220           | per 1sqm               |
| Total Veh.      | Office              | Free Standing        | 0.00091      | 0.01260           | 0.01340      | 0.00047           | per 1sqm               |
| Total Veh.      | Industrial          | Town Centre          | 0.00000      | 0.00000           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Industrial          | Neighbourhood Centre | 0.00208      | 0.00634           | 0.00660      | 0.00184           | per 1sqm               |
| Total Veh.      | Industrial          | Suburban Area        | 0.00171      | 0.00403           | 0.00280      | 0.00105           | per 1sqm               |
| Total Veh.      | Industrial          | Edge of Town         | 0.00208      | 0.00634           | 0.00660      | 0.00184           | per 1sqm               |
| Total Veh.      | Industrial          | Edge of Town Centre  | 0.00071      | 0.00128           | 0.00185      | 0.00199           | per 1sqm               |
| Total Veh.      | Industrial          | Free Standing        | 0.00017      | 0.00217           | 0.00200      | 0.00025           | per 1sqm               |
| Total Veh.      | Warehouse           | Town Centre          | 0.00000      | 0.00000           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Warehouse           | Neighbourhood Centre | 0.00061      | 0.00320           | 0.00244      | 0.00015           | per 1sqm               |
| Total Veh.      | Warehouse           | Suburban Area        | 0.00000      | 0.00000           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Warehouse           | Edge of Town         | 0.00061      | 0.00320           | 0.00244      | 0.00015           | per 1sqm               |
| Total Veh.      | Warehouse           | Edge of Town Centre  | 0.00000      | 0.00000           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Warehouse           | Free Standing        | 0.00044      | 0.00112           | 0.00070      | 0.00016           | per 1sqm               |
| Total Veh.      | Leisure             | Town Centre          | 0.00276      | 0.00310           | 0.01759      | 0.01310           | per 1sqm               |
| Total Veh.      | Leisure             | Neighbourhood Centre | 0.00050      | 0.00075           | 0.00000      | 0.00000           | per 1sqm               |
| Total Veh.      | Leisure             | Suburban Area        | 0.00020      | 0.00030           | 0.00050      | 0.00076           | per 1sqm               |
| Total Veh.      | Leisure             | Edge of Town         | 0.00052      | 0.00076           | 0.00172      | 0.00187           | per 1sqm               |
| Total Veh.      | Leisure             | Edge of Town Centre  | 0.00077      | 0.00092           | 0.00240      | 0.00265           | per 1sqm               |
| Total Veh.      | Leisure             | Free Standing        | 0.00052      | 0.00076           | 0.00172      | 0.00187           | per 1sqm               |

Source TRICS ® v7.8.1 - data extracted 2021

# Appendix F: Propensity to Cycle Tool Outputs

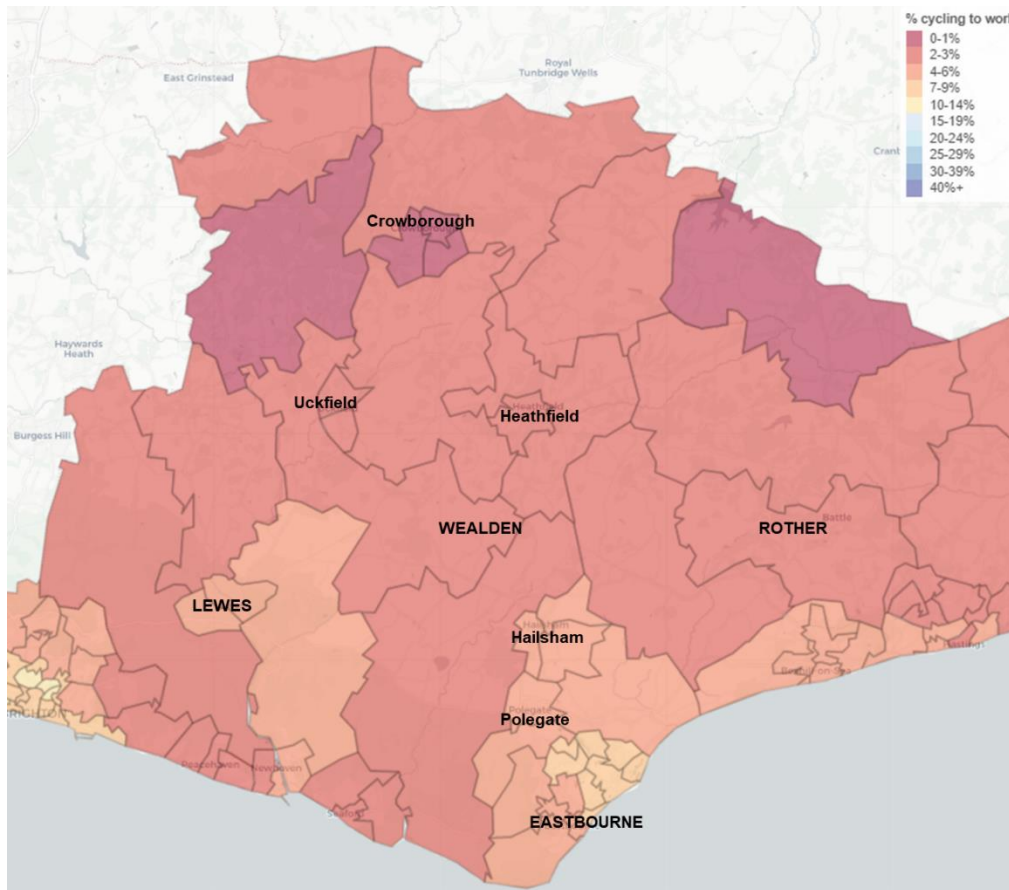
Source: DfT Propensity to Cycle Tool (PCT<sup>36</sup>) – date October 2022

## Census 2011

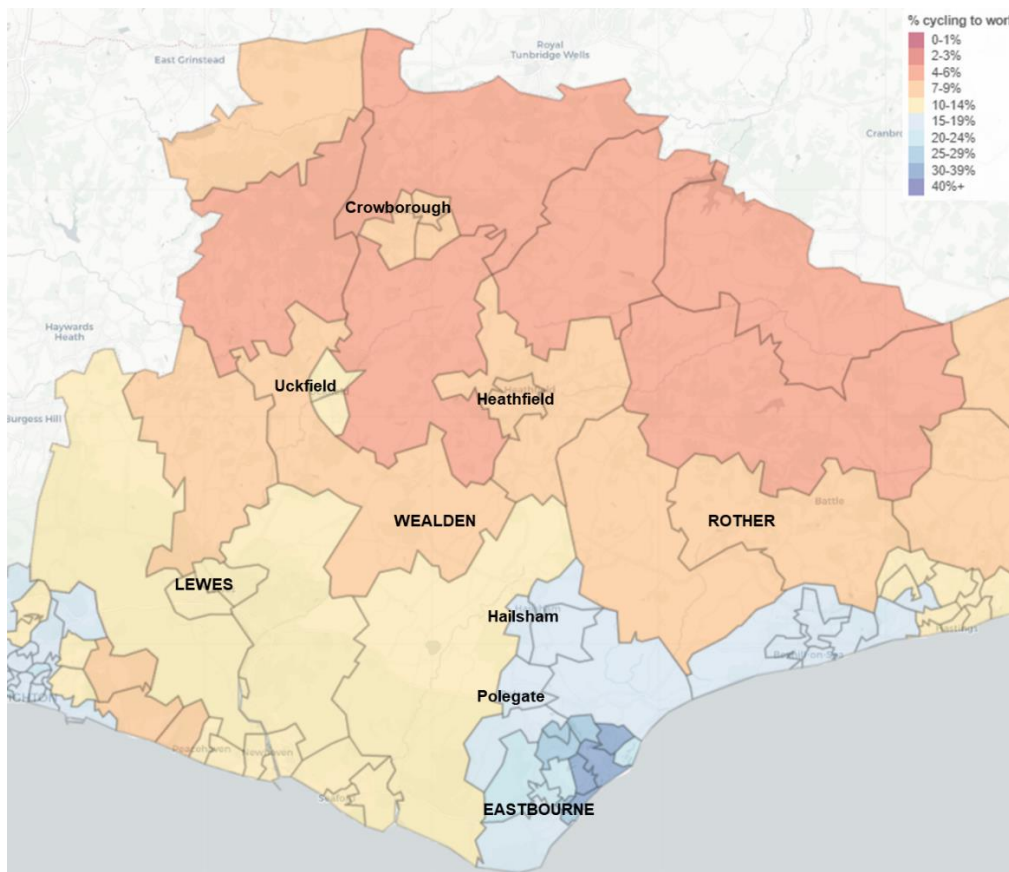


<sup>36</sup> [www.pct.bike](http://www.pct.bike)

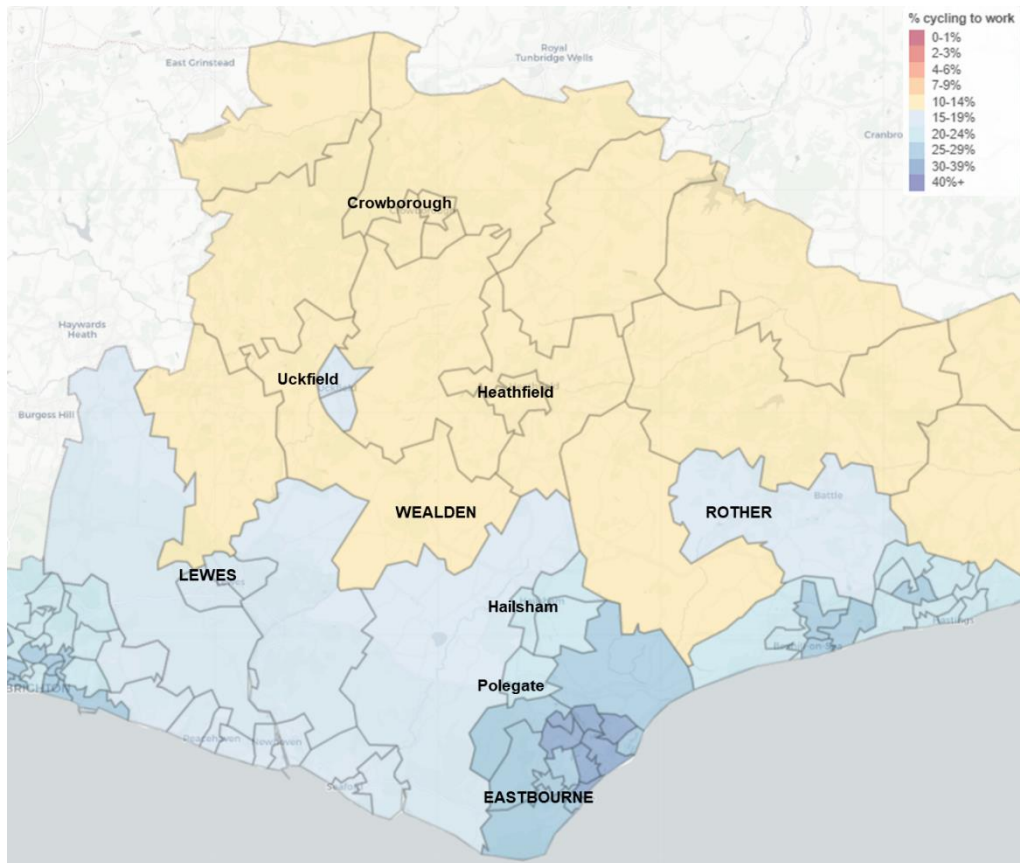
## Government Target



## ‘Go Dutch’



## E-Bikes



# Appendix G: Local Junction Models

## A2270/Wannock Road Junction - Modelling Results

| Arms /Movements          | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|--------------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A2270 (S)                | 68.9%                          | 70.1%                          | 65.7%                             | 63.7%                             |
| High Street              | 130.1%                         | 114.9%                         | 129.1%                            | 141.2%                            |
| Wannock Road             | 129.3%                         | 144.8%                         | 126.4%                            | 136.1%                            |
| A2270 (N) (Ahead & Left) | 132.4%                         | 163.9%                         | 130.4%                            | 148.5%                            |
| A2270 (N) (Right)        | 23.8%                          | 27.3%                          | 22.5%                             | 29.3%                             |
| <b>PRC</b>               | <b>-47.1%</b>                  | <b>-82.1%</b>                  | <b>-44.9%</b>                     | <b>-61.5%</b>                     |

## A27/A2270 Junction - Modelling Results

| Arms /Movements | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A2270 (S) NB    | 66.3%                          | 79.6%                          | 62.9%                             | 58.0%                             |
| A2270 (S) Left  | 50.9%                          | 52.1%                          | 50.6%                             | 42.2%                             |
| A27 (W) (RT)    | 130.0%                         | 119.4%                         | 130.2%                            | 136.3%                            |
| A27 (N) SB      | 60.9%                          | 96.0%                          | 56.1%                             | 83.8%                             |
| A27 (N) (RT)    | 73.1%                          | 66.1%                          | 70.5%                             | 127.4%                            |
| <b>PRC</b>      | <b>-44.4%</b>                  | <b>-32.7%</b>                  | <b>-44.7%</b>                     | <b>-63.0%</b>                     |

## A27/A2270 Junction (with mitigation) - Modelling Results

| Arms /Movements | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A2270 (S) NB    | 78.0%                          | 71.9%                          | 77.3%                             | 67.8%                             |
| A2270 (S) Left  | 53.0%                          | 43.5%                          | 50.8%                             | 47.1%                             |
| A27 (W) (RT)    | 66.2%                          | 97.9%                          | 67.8%                             | 112.3%                            |
| A27 (N) SB      | 66.5%                          | 99.2%                          | 62.7%                             | 84.4%                             |
| A27 (N) (RT)    | 71.5%                          | 80.8%                          | 69.0%                             | 95.6%                             |
| <b>PRC</b>      | <b>13.3%</b>                   | <b>-10.2%</b>                  | <b>13.9%</b>                      | <b>-24.7%</b>                     |

## A27/A22 Golden Jubilee Roundabout - Modelling Results

| Arms /Movements | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A27 (East)      | 100.1%                         | 95.2%                          | 100.1%                            | 95.3%                             |
| A22 (S)         | 62.6%                          | 64.5%                          | 56.8%                             | 65.9%                             |
| A27 (West)      | 72.6%                          | 90.7%                          | 72.6%                             | 89.9%                             |
| <b>PRC</b>      | <b>-11.2%</b>                  | <b>-5.7%</b>                   | <b>-11.3%</b>                     | <b>-5.9%</b>                      |

#### A22/B2247 Dittons Road Roundabout - Modelling Results

| Arms /Movements      | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|----------------------|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A22 (N)              | 99.2%                          | 91.1%                          | 98.8%                             | 89.5%                             |
| B2247 Dittons Rd (E) | 116.8%                         | 67.3%                          | 108.9%                            | 74.0%                             |
| A22 (S)              | 117.4%                         | 112.4%                         | 115.0%                            | 110.8%                            |
| B2247 Dittons Rd (W) | 82.1%                          | 103.2%                         | 58.3%                             | 110.1%                            |
| <b>PRC</b>           | <b>-30.5%</b>                  | <b>-26.1%</b>                  | <b>-27.8%</b>                     | <b>-23.8%</b>                     |

#### A27 Cophall Roundabout - Modelling Results

| Arms /Movements         | 2040 AM<br>Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-------------------------|--------------------------------|-----------------------------|-----------------------------------|-----------------------------------|
| A27 (East)              | 85.1%                          | 97.3%                       | 85.6%                             | 89.6%                             |
| Internal Link - A27 (E) | 71.9%                          | 77.9%                       | 68.7%                             | 77.7%                             |
| B2247 Hailsham Road     | 30.3%                          | 24.3%                       | 29.5%                             | 23.4%                             |
| A27 (West)              | 95.1%                          | 95.9%                       | 87.6%                             | 91.7%                             |
| Internal Link - A27 (S) | 94.0%                          | 89.9%                       | 84.8%                             | 88.9%                             |
| Services Access         | 35.4%                          | 30.7%                       | 32.9%                             | 31.3%                             |
| A22 (North)             | 49.6%                          | 65.0%                       | 47.9%                             | 62.6%                             |
| <b>PRC</b>              | <b>-5.7%</b>                   | <b>-8.1%</b>                | <b>-2.8%</b>                      | <b>-1.9%</b>                      |

#### A295 South Road - Eagles Roundabout - Modelling Results

| Arms /Movements | 2040 AM<br>Peak_Isolated LP | 2040 PM<br>Peak_Isolated LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------------|
| A22 North       | 78.0%                       | 110.0%                      | 80.0%                             | 115.0%                            |
| A295 South Road | 30.0%                       | 30.0%                       | 30.0%                             | 29.0%                             |
| A22 South       | 65.0%                       | 66.0%                       | 67.0%                             | 67.0%                             |
| <b>PRC</b>      | <b>19.0%</b>                | <b>-10.0%</b>               | <b>17.0%</b>                      | <b>-14.0%</b>                     |

#### Diplocks Way Roundabout - Modelling Results

| Arms /Movements | 2040 AM<br>Peak_Isolated LP | 2040 PM<br>Peak_Isolated LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|-----------------------------|-----------------------------|-----------------------------------|-----------------------------------|
| A22 North       | 83.0%                       | 83.0%                       | 85.0%                             | 88.0%                             |
| Diplocks Way    | 61.0%                       | 85.0%                       | 63.0%                             | 96.0%                             |
| A22 South       | 74.0%                       | 68.0%                       | 75.0%                             | 69.0%                             |
| <b>PRC</b>      | <b>15.0%</b>                | <b>1.0%</b>                 | <b>13.0%</b>                      | <b>-3.0%</b>                      |

#### Boship Roundabout - Modelling Results

| Arms /Movements | 2040 AM Peak_Isolated<br>LP | 2040 PM<br>Peak_Isolated<br>LP | 2040 AM<br>Peak_Cummulative<br>LP | 2040 PM<br>Peak_Cummulative<br>LP |
|-----------------|-----------------------------|--------------------------------|-----------------------------------|-----------------------------------|
| A22 South       | 81.3%                       | 66.5%                          | 101.4%                            | 71.4%                             |
| A22 West        | 94.6%                       | 106.3%                         | 86.1%                             | 116.6%                            |
| A267            | 74.2%                       | 100.8%                         | 111.5%                            | 103.9%                            |
| A271            | 94.3%                       | 90.8%                          | 95.2%                             | 98.4%                             |
| <b>PRC</b>      | <b>-5.1%</b>                | <b>-20.1%</b>                  | <b>-23.9%</b>                     | <b>-29.6%</b>                     |