

## AGENDA

### EXTRAORDINARY LOCAL PLAN PANEL MEETING

Date: Thursday, 11 June 2020  
Time: 7.00pm  
Venue: Virtual meeting via \*Skype

#### Membership:

Councillors Mike Baldock (Chairman), Monique Bonney (Vice-Chairman), Alastair Gould, James Hunt, Jackson, Carole Jackson, Benjamin Martin, Richard Palmer, Eddie Thomas and Ghlin Whelan.

Quorum = 3

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Pages

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The Chairman will ask Members if they have any interests to declare in respect of items on this agenda, under the following headings:

(a) Disclosable Pecuniary Interests (DPI) under the Localism Act 2011. The nature as well as the existence of any such interest must be declared. After declaring a DPI, the Member must leave the meeting and not take part in the discussion or vote. This applies even if there is provision for public speaking.

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**Issued on Wednesday, 3 June 2020**

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Chief Executive, Swale Borough Council,  
Swale House, East Street, Sittingbourne, Kent, ME10 3HT

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<b>Local Plan Panel Meeting</b>	
<b>Meeting Date</b>	11 <sup>th</sup> June 2020
<b>Report Title</b>	Swale Borough Local Plan Review: Transport Modelling Evidence
<b>Cabinet Member</b>	Cllr Mike Baldock, Cabinet Member for Planning
<b>SMT Lead</b>	James Freeman
<b>Head of Service</b>	James Freeman
<b>Lead Officer</b>	Natalie Earl
<b>Key Decision</b>	No
<b>Classification</b>	Open
<b>Recommendations</b>	<ol style="list-style-type: none"> <li>1. Note the strategic transport modelling results at Appendix I; and</li> <li>2. Recommend to Cabinet that this work be part of the evidence base used to inform the Preferred Option stage of the Local Plan Review.</li> </ol>

## 1 Purpose of Report and Executive Summary

- 1.1 This report sets out the results of the strategic transport modelling work which has been undertaken as part of the Local Plan Review. The work has been jointly undertaken with the Kent County Council Highways team. The modelling at this stage is highways focused and intended to give a broad overview of how the network will perform with the level of development the Local Plan Review is expected to address. It tested both the Objectively Assessed Need (OAN) for Swale, 1054 dwellings per annum (dpa), and 776 dpa which was the housing target in the adopted Local Plan 2017.
- 1.2 The findings of the work at this point indicate that there are no significant, show stopping challenges to overcome in addressing the traffic network along the A2 corridor, the strategic road network and the junctions which link them. They show that Swale can meet 776 dpa with a reasonably clear network and 1054 dpa with the proposed mitigations.
- 1.3 In progressing the Local Plan Review, once the development strategy has been chosen, it will be necessary to identify further highway improvements and secure significant commitments towards implementing modal shift in order to accommodate the expected development needs over the plan period. Alongside the drafting of the Local Plan Review, the Transport Strategy is being prepared, in conjunction with Kent Highways. The Transport Strategy can set out Swale's aspirations for improving travel and mobility in Swale and deal with some of the issues arising from this transport model. The Strategy will provide a framework to guide the development of transport-based improvements and interventions within Swale for the Plan period.

- 1.4 This technical work will be part of the evidence base needed to inform the generation of the preferred development strategy of the Local Plan Review. A further modelling run will take place once members have chosen their preferred option later this year.
- 1.5 Members are asked to note the report and recommend to Cabinet that it be used to inform the next stages of Local Plan preparation.

## 2 Background

- 2.1 The Swale Transport Model was developed to test the traffic impacts of both new developments and transport infrastructure across Swale.
- 2.2 Following the Local Plan Option Test transport work, which was commissioned in late 2018, undertaken in May 2019 and reported to Local Plan Panel on 25<sup>th</sup> July 2019, Sweco was appointed by Swale Borough Council (SBC) earlier this year to use the model to run additional scenarios to support further assessments for the Local Plan Review with a set of new development assumptions and mitigation measures. The work was done in partnership with Kent Highways.
- 2.3 The Swale Transport Model report (Appendix I) outlines all of the key aspects of the future year traffic forecasts for each scenario and sets out the assumptions on which these forecasts have been based on.

### Local Plan Re-Run Scenarios

- 2.4 The 2037 Swale Local Plan Transport Model tested two options of a “Do-Minimum” test for weekday AM and PM peak hour in the forecast year 2037 as follows:

**776 Scenario Do Minimum (DM):** This is the test at a growth level of 776 dpa with all Bearing Fruits Local Plan developments plus potential new development allocations post 2022. Apart from existing local committed schemes, no further transport mitigations were included. The scenario also considered two variations for with and without the following two transport schemes:

- Brenley Corner Junction Improvement; and
- Grovehurst/A249 and Key Street/A249 junction improvements.

**1054 Scenario Do Minimum (DM):** This is the test at a growth level of the Government’s requirement of 1054 OAN with all Bearing Fruits Local Plan developments plus potential new development allocations post 2022. Apart from existing local committed schemes already included in the reference case (RC) and the Brenley Corner Junction Improvement, no further transport mitigations have been included.

**1054 Scenario Do Something (DS):** Based on the 1054 Scenario Do Minimum (DM), a set of mitigation measures will be identified, along with the potential trip reduction for certain development zones due to modal shift as a result of the provision for public transport and active travel options.

2.5 These model tests are aimed to form a comparable and most importantly, a robust and defensible evidence base, to form an opinion on a suitable development strategy for Swale and to ascertain whether the OAN can be achieved. A summary of the scenarios tested can be seen in the table below:

ID	Scenario description	Two schemes	Additional Mitigation	Trip reduction
1	776 Scenario Do Minimum (DM) without two schemes	No	No	No
2	776 Scenario Do Minimum (DM) with two schemes	Yes	No	No
3	1054 Scenario Do Minimum (DM)	Yes	No	No
4	1054 Scenario Do Something (DS)	Yes	Yes	Yes

### Trip Rates

2.6 It was agreed that the car trip rates for housing development would be reduced from those used in the May 2019 model in response to concerns about the first model that spatially it was producing too many movements across the borough and to ensure a more robust model this time around. These reductions in trip rates assume that mitigation measures to reduce car movements will be made and that modal shift will be a priority for the Council. This will need to be reflected in the emerging Transport Strategy.

### Model Results

2.7 Tables 8.1 and 8.2 in Appendix I summarise the overall performance of the network in the AM and PM peaks over the different scenarios (776 scenarios with and without 2 sets of schemes, and 1054 scenario without mitigations) within the area including the key roads such as A249, A2, M2, M20 etc. It looks at the:

- Total travel time;
- Total travel distance; and
- Simulation network speed.

2.8 The comparisons of the outputs highlighted the following findings:

- i. The average network speed is quite similar between the scenarios which is higher than the Reference Case and previous LP Scenario 1, with 776 Scenario with 2 schemes having the highest average speed largely due to less demand being assigned to the local network;
- ii. Total travel distance and total travel time in these scenarios are lower than the Reference Case and the previous LP Scenario 1, which is lowest in 776 Scenario with 2 schemes, and highest in 1054 Scenario.
- iii. Overall, the outputs of the network performance statistics are sensible.

### Traffic Flows

#### **The 1054 scenario vs previous LP Scenario 1**

2.9 In the 1054 scenario AM Peak, flows are increased in Sittingbourne Town Centre and Faversham Town Centre, and on the A2 West Bound from M2 J7 to Sittingbourne. There are decreases along A249 between M2 J5 and B2005/Grovehurst Road. The PM flow show a similar pattern as there is an increase in flows around Sittingbourne and Faversham in the 1054 scenario. There is also wider reassignment of traffic from the M20 in both directions to the M2, resulting in increased flows along the M2 in both directions. One of the reasons is that the Brenley Corner scheme was not included in the previous LP scenario 1 model.

#### **The 776 scenarios with and without 2 schemes**

2.10 The 776 scenarios with and without 2 schemes have the same additional housing allocations. The only difference between the two scenarios is the network: Brenley Corner Junction Improvement, Grovehurst/A249 and Key Street/A249 junction improvement. In the 776 scenario without 2 schemes, the M2 J7 is overloaded. With the Brenley Corner scheme in place in the 776 Scenario with 2 scheme, the traffic condition at the junction has improved significantly. There is also wider reassignment of traffic from the M20 to the M2.

#### **The 1054 scenarios vs 776 scenarios with 2 schemes**

2.11 The 1054 scenarios and 776 scenarios with 2 schemes have the same networks, but 1054 scenarios have more additional housing developments. In the 1054 scenario, it is found that flows are increased slightly in Faversham Town Centre, Isle of Sheppey and along A249, as well as on the west of M2 J5.

### Network Delays and Congestion

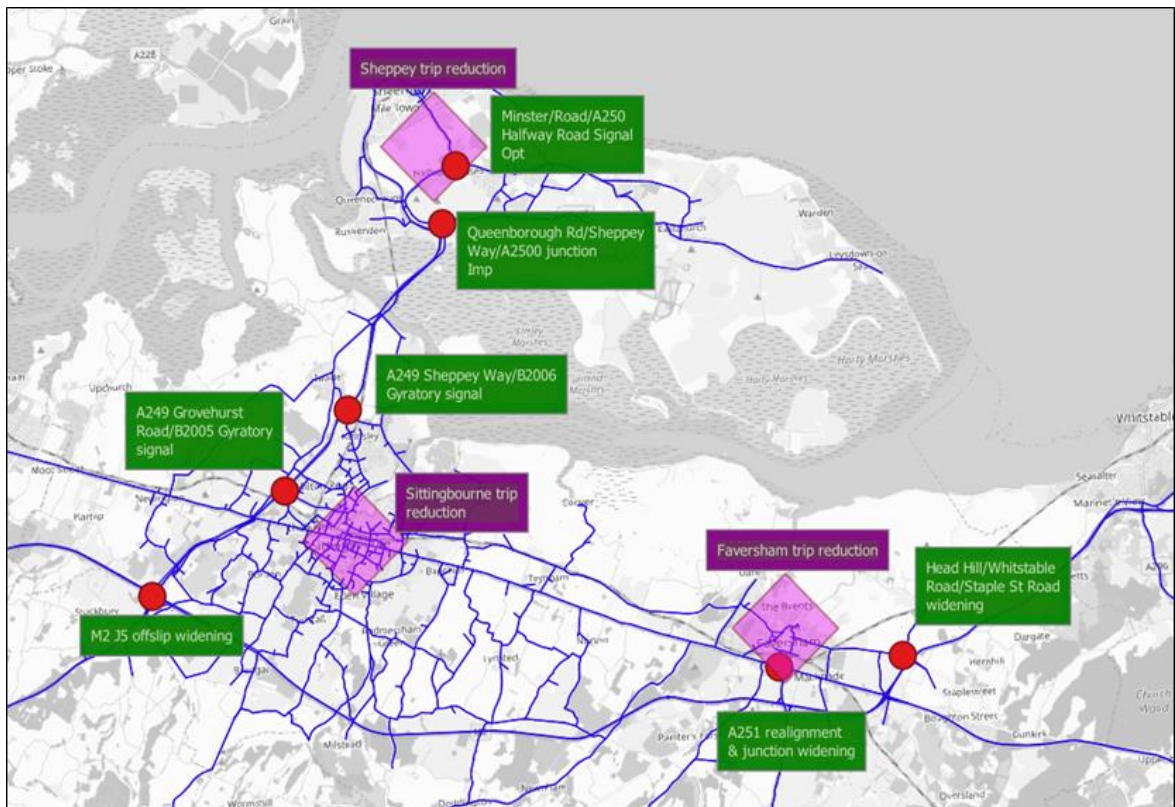
2.12 The model runs have shown that several junctions on the Isle of Sheppey, Sittingbourne town centre and Faversham town centre, junctions along the A249 and Head Hill/Whitstable Road/Staple Street Road junction show heavy



congestion, especially in the AM Peak, in all of the scenarios tested. The detailed results can be seen in Tables 8.3 and 8.4 in Appendix I.

## Mitigation Measures

2.13 Based on the results of 1054 Scenario DM (without mitigations), potential transport mitigation measures to offset the additional vehicle trips generated by the modelled Local Plan developments were identified, along with the potential trip reductions for certain development zones due to the required modal shift as a result of the provision for public transport and active travel options. The key mitigation measures for the Swale LP 2054 scenario in the year 2037 are shown in the picture below. It is assumed that these mitigation measures would be in conjunction with demand reduction methods such as internalisation of trips on development sites and modal shift opportunities.



2.14 Improvements to Brenley Corner have been included as a mitigation measure in the modelling as it has now been announced as a project in RIS2 (Road Investment Strategy) for design purposes so Highways England will work up a potential design. However, a successful RIS3 bid would be required to provide the funding (alongside developer contributions.) It should be noted that any development in East Kent would require an improvement to this junction, so it is

vital that discussions are held between East Kent Council officers and Members to resolve this key issue.

- 2.15 These mitigation measures, alongside additional ones, will need to be reflected in the Swale Transport Strategy and in development allocation policies in the Local Plan.

### 3 Proposals

- 3.1 The proposal is that the transport modelling forms part of the evidence base which will inform the generation of the preferred development strategy for the Local Plan process. The recommendations are therefore to:

- I. Note the strategic transport modelling results at Appendix I; and
- II. Recommend to Cabinet that this work be part of the evidence base to inform the Preferred Option stage of the Local Plan Review.

### 4 Alternative Options

- 4.1 A range of potential development scenarios and highway transport mitigations were tested in 2018/2019 and the results can be seen in the Local Plan Panel report in July 2019. A Local Plan cannot proceed without robust transport evidence and therefore there are no reasonable alternatives to those proposed in 3.1 above

### 5 Consultation Undertaken or Proposed

- 5.1 A well-attended Member presentation was held on 14<sup>th</sup> May where Sweco explained the inputs into the model and the results and their implications for Swale and the Local Plan process.
- 5.2 As a highly technical piece of evidence base no consultation is proposed at this stage. However, when the Local Plan is consulted on in January 2021 at the Regulation 19 stage, consultees will be able to be make comments on this document if they wish to.

### 6 Implications

Issue	Implications
Corporate Plan	Priority 1: Building the right homes in the right places and supporting quality jobs for all. Priority 2: Investing in our environment and responding positively to global challenges
Financial,	None identified at this stage.

Resource and Property	
Legal, Statutory and Procurement	None identified at this stage.
Crime and Disorder	None identified at this stage.
Environment and Sustainability	The whole Local Plan will be subject to a Sustainability Appraisal in the coming months.
Health and Wellbeing	None identified at this stage.
Risk Management and Health and Safety	None identified at this stage.
Equality and Diversity	None identified at this stage.
Privacy and Data Protection	None identified at this stage.

## **7 Appendices**

7.1 The following documents are to be published with this report and form part of the report:

- Appendix I: Swale Highway Model Local Plan Model Rerun Summary Report – Draft (Sweco, 20<sup>th</sup> April 2020)

## **8 Background Papers**

8.1 Swale Highway Model: Local Plan Option Testing Report - Final Draft” (20<sup>th</sup> May 2019) which was an appendix to the Local Plan Panel on 25<sup>th</sup> July 2019.

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# SWALE HIGHWAY MODEL

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LOCAL PLAN MODEL RERUN SUMMARY REPORT- DRAFT



20<sup>TH</sup> APR 2020

SWECO UK LIMITED

**Change List**

<b>VER.</b>	<b>DATE</b>	<b>STATUS</b>	<b>PREPARED</b>	<b>REVIEWED</b>	<b>APPROVED</b>
1	16/04/20	DRAFT	SL		
2	19/04/20	DRAFT	SL	WW	
3	20/04/20	DRAFT	SL	WW	WW
4	28/04/20	COMMENTS FROM KCC ADDRESSED	SL	WW	WW
5	11/05/20	TABLE 8-3 AND 8-4 UPDATED	SL	WW	WW

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## 1 Introduction

### 1.1 Background

The Swale Highway Model (SHM) was developed by Sweco for 2017 (base year), 2027 and 2037 reference case (forecast years) to test the traffic impacts of both new developments and transport infrastructure across Swale. Following the Local Plan Option Test, which was delivered in May 2019, Sweco was appointed by Swale Borough Council (SBC) to use the model to support the assessment of the Local Plan with a set of new development assumptions and mitigation measures. The work was also involved in a series of technical discussions with Kent County Council (KCC) for the key modelling assumptions such as trip rates, house allocation and future transport infrastructure.

### 1.2 Purpose of the Report

This Report is intended to document all key aspects of the future year traffic forecast for each scenario and sets out the assumptions on which these forecasts have been based on. It is intended that the Local Plan Model Rerun Summary Report is a free-standing document that covers all aspects of the forecasting for the Local Plan Model Rerun. However, more detailed aspects of the modelling process can be found in the appropriate reports and technical notes prepared during the study, including:

- Technical note for modelling key assumptions, ref: Swale LP TN\_Key modelling input assumptions\_v4\_Sensitivity Test.docx
- Technical notes for mitigation measures ref: Mitigations Swale Highway Model v2(Wallend Farm changes) for SBC(no TC).docx

Meanwhile, the report of “Swale Highway Model- Local Plan Option Testing Report- Final Draft” (dated 20th May 2019) is also available for further information on the development of the previous Local Plan Option Testing.

## 2 Reference Case and Previous 2037 Swale Local Plan Option Tests

### 2.1 Uncertainty Log- Reference Case

The uncertainty log has been developed following the 'Local Plan' information in the existing Reference Case scenarios provided by KCC. It has been agreed with KCC and SBC to use the following assumptions for housings in the development of the Reference Case:

- I) Keep the housing projections to 2022 as shown in Table 7 of " Statement of Housing Land Supply 2016/2017- Partial Update December 2017";
- II) From 2023 to 2031 allow for an additional 278 units per year which is the difference between 1054 dwellings per annum and 776 per annum as stated for the OAN target (Objectively Assessed Need). This growth (i.e. 278 units) has been applied proportionally to all allocated sites between 2017 and 2031 in the Housing Land Supply document; and
- III) From 2032 to 2037 allow 1054 per year. This growth has been applied proportionally to all sites allocated between 2017 and 2031.

Table 2-1 below shows the total housing each year from 2018 until 2037. It should be noted that for the Local Plan scenarios, the additional housing allocations in II and III were replaced by the new development allocations provided by KCC and SBC.

*Table 2-1 Swale housing growth per year- Reference Case*

Year	Based on Table 7 of the Housing Land supply 2016/17						Target as agreed on 7/8/2018			
	Completed	Allocated LP	Permitted	Pending	Windfalls	Total by year	Total Cumulative	Additional per year	Total by year	Total Cumulative
2017	1830					1830	1830	0	1830	1830
2018		0	432	0	0	432	2262	0	432	2262
2019		50	337	0	0	387	2649	0	387	2649
2020		207	402	1	0	610	3259	0	610	3259
2021		998	355	21	0	1374	4633	0	1374	4633
<b>2022</b>		1427	282	24	0	1733	6366	0	1733	6366
2023		937	189	0	110	1236	7602	278	1514	7880
2024		947	181	0	110	1238	8840	278	1516	9396
2025		842	110	0	110	1062	9902	278	1340	10736
2026		628	74	0	110	812	10714	278	1090	11826
<b>2027</b>		590	19	0	110	719	11433	278	997	12823
2028		595	4	0	110	709	12142	278	987	13810
2029		612	4	0	110	726	12868	278	1004	14814
2030		554	0	0	110	664	13532	278	942	15756
<b>2031</b>		435	0	0	110	545	14077	278	823	16579
2032		0	0	0	0	0	0	1054	1054	17633
2033		0	0	0	0	0	0	1054	1054	18687
2034		0	0	0	0	0	0	1054	1054	19741
2035		0	0	0	0	0	0	1054	1054	20795
2036		0	0	0	0	0	0	1054	1054	21849
<b>2037</b>		0	0	0	0	0	0	1054	1054	22903

Figure 2-1 and Figure 2-2 show the developments identified as the Bearing Fruit developments in year 2027 and 2037 respectively.

Figure 2-1 2027 housing developments

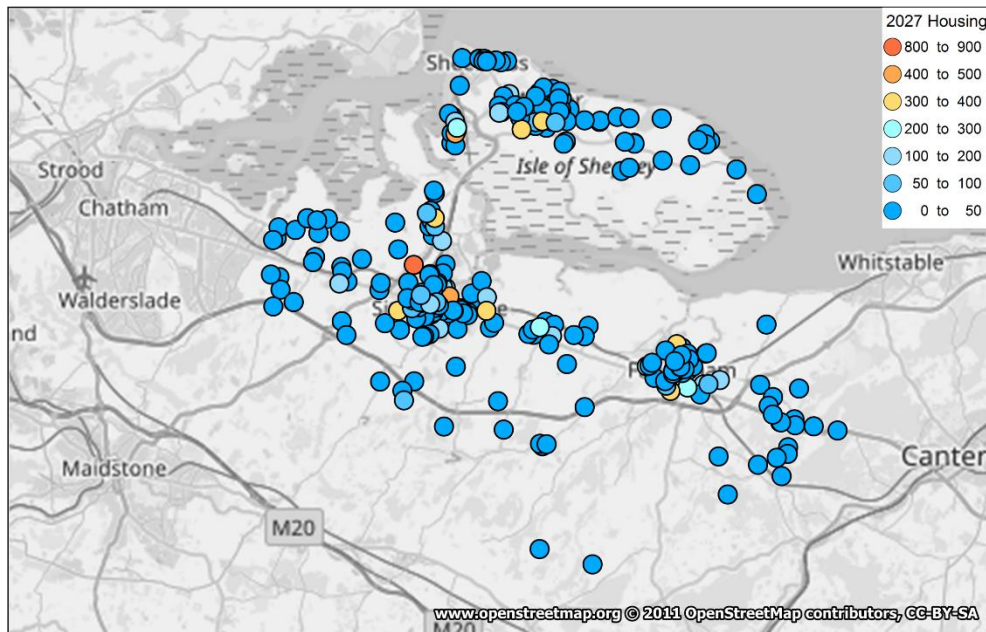
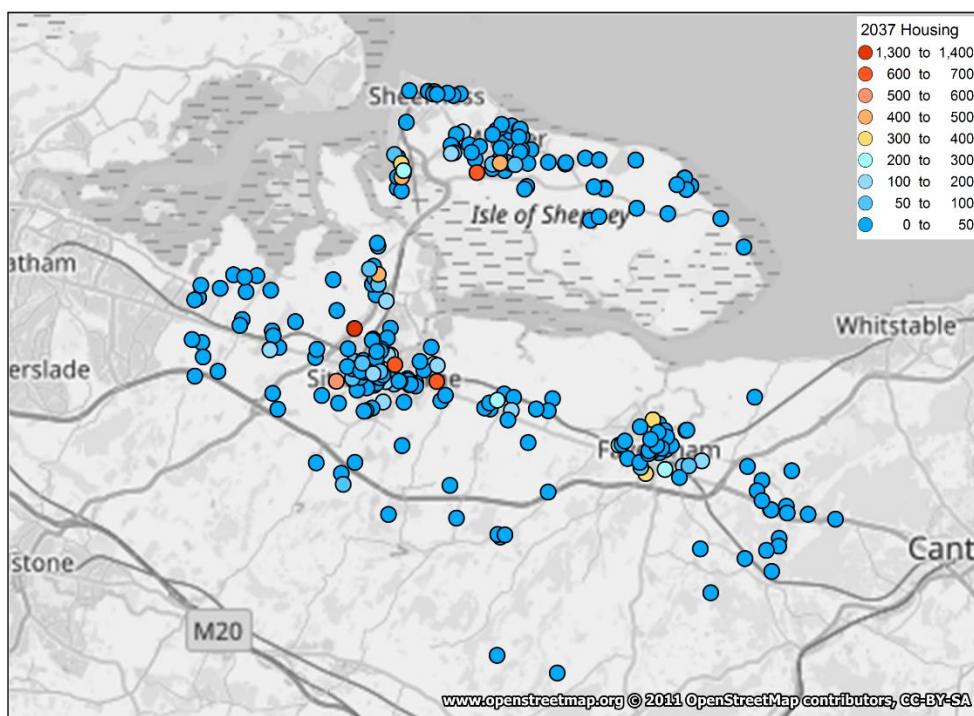


Figure 2-2 2037 housing developments

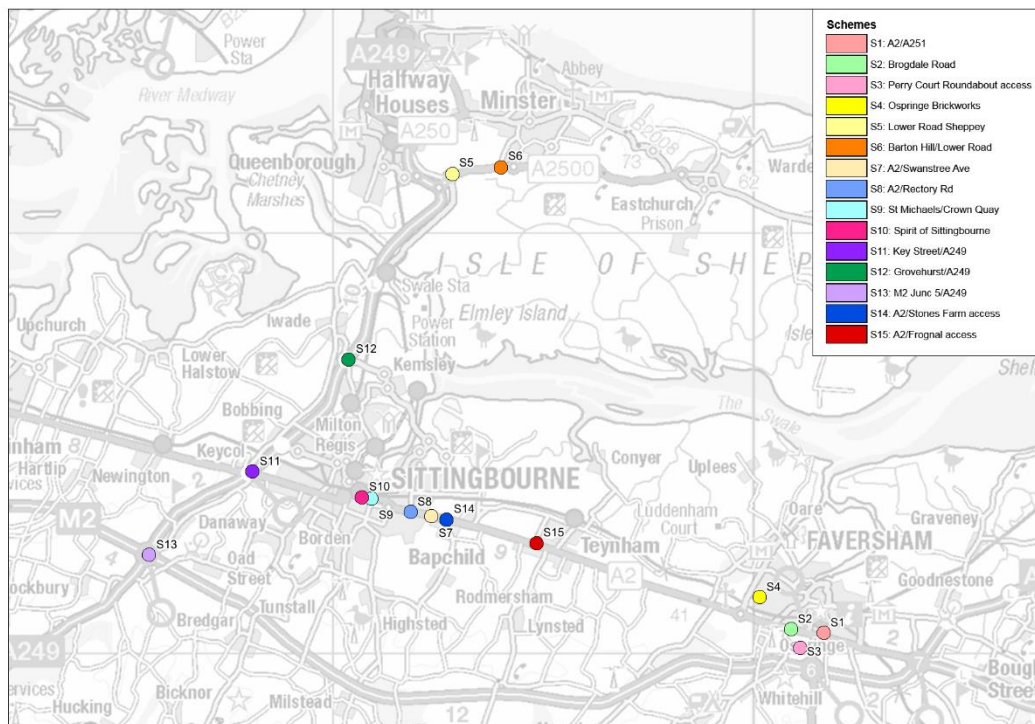


From the uncertainty log the following transport schemes have been identified as either 'Near certain' or 'More than likely' and have hence been included in the Reference Case scenario. These are listed below and can be seen in Figure 2-3:

- A2/A251;
- Brogdale Road;

- Perry Court Roundabout access;
- Ospringe Brickworks access;
- Lower Road Sheppey;
- Barton Hill/Lower Road;
- A2/Swanstree Ave;
- A2/Rectory Rd;
- St Michaels/Crown Quay;
- Spirit of Sittingbourne;
- Key Street/A249;
- Grovehurst/A249;
- M2 Junction 5/A249;
- A2/Stones Farm access Bapchild; and
- A2/Frognaal access Teynham.

Figure 2-3 Transport schemes in Reference Case



## 2.2 Previous Local Plan Option Tests

Four Local Plan scenarios as below for weekday AM and PM peak hour were carried out in the Local Plan Option Test delivered in May 2019.

- Scenario 1 “Do-Minimum” (DM) Weighted Sittingbourne;
- Scenario 2 “Do-Something Weighted Sittingbourne”;
- Scenario 3 “Do-Something Weighted Faversham”; and

- Scenario 4: “Do-Something New Settlement approach”

The previous Scenario 1, which included all Bearing Fruits Local Plan developments plus new development allocations post 2022 shown in Table 2-2 and Table 2-3, will be used as reference scenario to be compared against for the Local Plan model rerun scenarios.

*Table 2-2 Previous 2037 Scenario 1 additional housing*

Ref	Description	Area	Additional Houses 2022- 2037
1	Duchy Fav	Faversham	1940
2	Duchy Fav	Faversham	430
3	East Lady Dane, Fav, SHLAA 18/091	Faversham	1100
4	Boughton SHLAA 18/210 & 150	Faversham	50
5	Dunkirk SHLAA 18/155 & 162	Faversham	160
6	Waterham, Fav	Faversham	0
7	Sittg A2 North	Sittingbourne	0
8	Sittg A2 North QE North	Sittingbourne	250
9	Sittg A2 North QE North	Sittingbourne	300
10	Sittg A2 North QE North	Sittingbourne	300
11	West Frognal Lane	Sittingbourne	0
12	West Frognal La Teynham SHLAA 18/183	Sittingbourne	295
13	South A2 Teynham SHLAA 18/055	Sittingbourne	320
14	Bobbing, Crabtree	Sittingbourne	2000
15	Bobbing	Sittingbourne	50
16	Coleshall Iwade south west SHLAA 18/105	Sittingbourne	650
17	Wallend Farm Sheppey	Isle of Sheppey	0
18	Scocles Farm, East Scocles Rd, Sheppey SHLAA 18/038	Isle of Sheppey	610
19	Leysdown, Sheppey	Isle of Sheppey	100
20	Eastchurch, Sheppey, SHLAA 18/063	Isle of Sheppey	100
21	Pond Farm, Newington SHLAA 18/229	Sittingbourne	340
22	Bredgar, SHLAA 18/084	Sittingbourne	250
<b>Total plan period</b>			<b>9245</b>

*Table 2-3 Previous 2037 Scenario 1 additional employment*

Ref	Area	Additional Employment (sqm)*	
		2022-2027	2022-2037
1	Duchy Fav	200	300
2	Duchy Fav	0	2500

3	Waterham, Fav	24000	24000
4	Sittg A2 North (Eurolink, Tonge Road)	49000	49000
5	West Frognal Lane	28000	42000
6	Bobbing (Crabtree)	3500	10500
7	Wallend Farm Sheppey	35000	95700

\*It has been agreed that all employments sites will be B1:B2:B8 33%:33%:34% except Wallend Farm B1:B8 10%:90%

Since the pervious LP scenario 1 is close to the modelling assumptions for the LP model rerun work, it has been used as the model performance base for the modelled scenario output comparisons.



### 3 2037 Swale Local Plan Rerun Scenarios

It was agreed with SBC to undertake two options of “Do-Min” test for weekday AM and PM peak hour in the forecast year 2037 as follows:

- **“776 Scenario Do-Minimum (DM)”**: This is the test at a growth level of Swale’s preferred platform of 776 OAN with all Bearing Fruits Local Plan developments plus new development allocations post 2022 as provided by SBC (see Section 4). Apart from existing local committed schemes, no further transport mitigations included; The scenarios will also consider two variations for with and without the following two transport schemes, including:
  - Brenley Corner Junction Improvement;
  - Grovehurst/A249 and Key Street/A249 junction improvement;
- **“1054 Scenario Do-Minimum (DM)”**: This is the test at a growth level of the government’s requirement of 1054 OAN with all Bearing Fruits Local Plan developments plus new development allocations post 2022 as provided by SBC (see Section 4). Apart from existing local committed schemes already included in the RC and the Brenley Corner Junction Improvement, no further transport mitigations included;
- **“1054 Scenario Do-Something (DS)”**: Based on the 1054 Scenario Do-Minimum (DM), a set of mitigation measure will be identified, along with the potential trip reduction for certain development zone due to modal shift as a result of the provision for public transport and active travels;

These model tests are aimed to form a comparable and most importantly, defensible, evidence base to form an opinion on both which options are preferable and whether the higher OAN can be reached. A summary of the scenarios to be tested is shown in Table 3-1.

*Table 3-1 Scenarios to be tested for the Swale LP model rerun*

ID	Scenario description	Two schemes	Additional Mitigation	Trip reduction
1	776 Scenario Do-Minimum (DM)-without two schemes	No	No	No
2	776 Scenario Do-Minimum (DM)-with two schemes	Yes	No	No
3	1054 Scenario Do-Minimum (DM)	Yes	No	No
4	1054 Scenario Do-Something (DS)	Yes	Yes	Yes

Note: two schemes including Brenley Corner, and Grovehurst/A249 and Key Street/A249 Junction improvement)



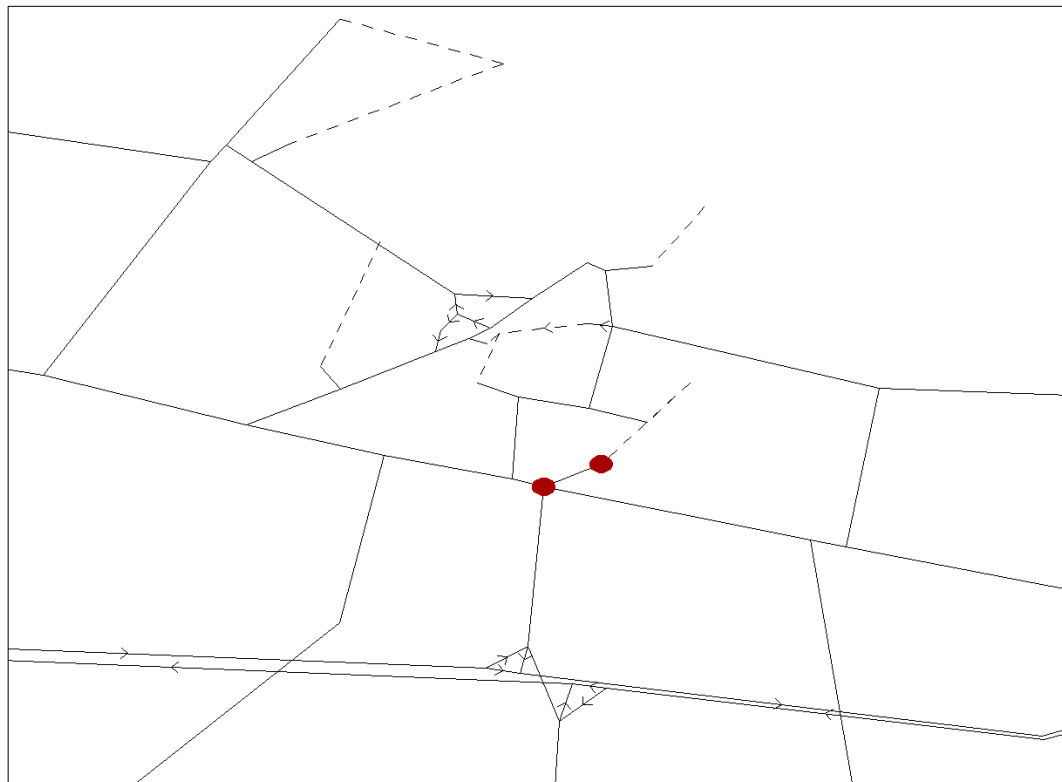
## 4 Transport Network Review and Updates

### 4.1 Network Review

Model checks have been carried out in the Sittingbourne town centre and the major corridors within the simulation area. Network refinement and coding issues found if relevant were updated, as below:

- Free flow speed for some links was coded either inaccurate or inconsistent by direction;
- Give-way gap values for some priority junctions and roundabouts were reset based on HE 's Regional Traffic Models Network Coding Manual;
- The network and zone structure were not detailed enough in the Faversham town centre, and the network refinement, as shown in Figure 4-1, has been done to allow traffic to be loaded onto the network at different locations;
- Routing check by Select Link Analysis on key corridor sections;
- Sense check on total demand changes across all scenarios; and
- Centroid connector update for the zones with additional housing and employment.

*Figure 4-1 Network refinement in Faversham town centre*



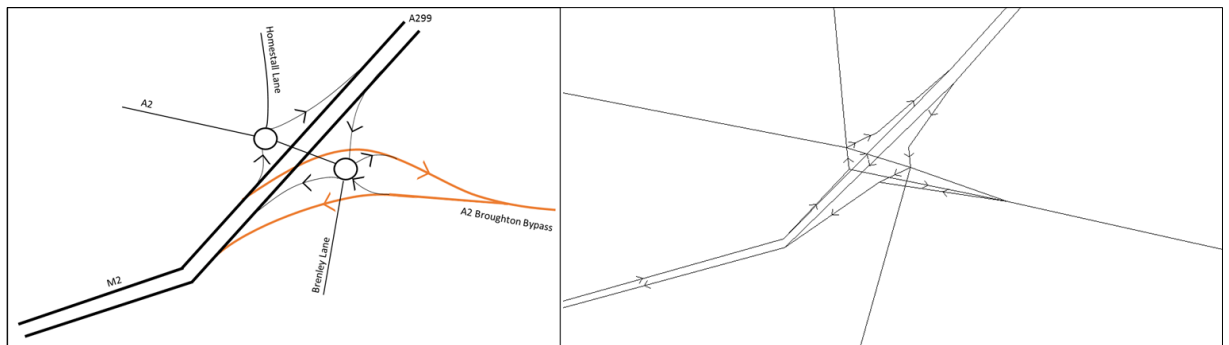
## 4.2 Transport Schemes in the Updated Scenarios

As mentioned in section 1, it was agreed with SBC that two scenarios will be running under the 776 scenario and only the “with2schemes” network will be running under the 1054 scenario:

- **“no\_2schemes” Network:** All the transport scheme that have been identified as either ‘Near certain’ or ‘More than likely’ from the Uncertainty Log have been included in the network except Brenley Corner Improvement, Key Street/A249 (see Figure 2-3, S11) and Grovehurst/A249 (see Figure 2-3, S12) junction improvements;
- **“with2schemes” Network:** The Key Street/A249 and Grovehurst/A249 junction improvements, Brenley Corner Improvement have been included in the network.

The Brenley Cordon Improvement including M2 Junction 7 which is shown in Figure 4-2 and A251/A2 junction improvement which changed from a priority junction to a signalised junction.

Figure 4-2 Schematic layout and Network Coding for the M2 J7



Note that the Sittingbourne Northern Relief Road (SNRR), Sittingbourne Southern Relief Road (SSRR) and M2 J5a are not included in any of the Swale LP model rerun scenarios.

## 5 Local Plan Rerun Scenarios- Developments Allocation

### 5.1 Introduction

Comparing to previous Swale Local Plan Scenario 1 in section 2, in addition to the Local Plan Bearing Fruit allocation, the totals of the additional housing development in Sittingbourne, Isle of Sheppey and Faversham are 4660 and 8865 for the 776 and 1054 scenario respectively. For the employment development, the Sittingbourne A2 North (49,000 sq meters) and Bobbing (10,500 sq meters) sites have been removed and replaced by:

- Sittingbourne Industrial estate: 15,000 sq meters;
- Lamberhurst Farm: 15,000 sq meters;
- Bobbing site reallocation: 30,000 sq meters.

Also, the Wallend Farm Sheppey site has been reduced from 95,700 sq meters to 10,000sq meters.

### 5.2 776 Scenario

The additional housing and employment sites as provided SBC included in 776 Scenario for the whole model period 2017 -2037 are shown in Table 5-1 and Table 5-2 below:

*Table 5-1 776 Scenario Additional Housing*

Ref	Description	Area	Additional Houses 2022- 2037
1	Duchy Fav	Faversham	2000
2	Duchy Fav	Faversham	500
3	Sittingbourne Town Centre	Sittingbourne	750
4	Windfall		1080
5	Selling	Faversham	100
6	Park Homes	Isle of Sheppey and Sittingbourne	150
7	Lamberhurst Farm	Faversham	80
<b>Total in planning period</b>			<b>4660</b>

*Table 5-2 776 Scenario Additional Employment*

Ref	Area	Additional Employment (sqm)* 2022-2037
1	Duchy Fav	300
2	Duchy Fav	2500
3	Waterham, Fav	24000
4	West Frogna Lane	42000
5	Lamberhurst Farm	15000

6	Sittingbourne Industrial estate	15000
7	Bobbing site reallocation	30000
8	Wallend Farm Sheppey	10000
<b>Total in planning period</b>		<b>138800</b>

\*It has been agreed previously that all employments sites will be B1:B2:B8 33%:33%:34% except Wallend Farm B1:B8 10%:90%

Table 5-3 below shows the total house allocation for each year from 2017 to 2037 in the 776 scenario.

*Table 5-3 Total housing each year from 2018 to 2037 for the 776 Scenario*

Year	Based on Table 7 of the Housing Land supply 2016/17							Target as agreed on 7/8/2018			
	Completed	Allocated LP	Permitted	Pending	Windfalls	Total by year	Total Cumulative	Ave per year	Additional per year	Total by year	Total Cumulative
2017	1830					1830	1830		0	1830	1830
2018		0	432	0	0	432	2262		0	432	2262
2019		50	337	0	0	387	2649		0	387	2649
2020		207	402	1	0	610	3259		0	610	3259
2021		998	355	21	0	1374	4633		0	1374	4633
<b>2022</b>		<b>1427</b>	<b>282</b>	<b>24</b>	<b>0</b>	<b>1733</b>	<b>6366</b>	<b>1061</b>	<b>0</b>	<b>1733</b>	<b>6366</b>
2023		937	189	0	110	1236	7602		0	1236	7602
2024		947	181	0	110	1238	8840		0	1238	8840
2025		842	110	0	110	1062	9902		0	1062	9902
2026		628	74	0	110	812	10714		0	812	10714
<b>2027</b>		<b>590</b>	<b>19</b>	<b>0</b>	<b>110</b>	<b>719</b>	<b>11433</b>		<b>0</b>	<b>719</b>	<b>11433</b>
2028		595	4	0	110	709	12142		0	709	12142
2029		612	4	0	110	726	12868		0	726	12868
2030		554	0	0	110	664	13532		0	664	13532
<b>2031</b>		<b>435</b>	<b>0</b>	<b>0</b>	<b>110</b>	<b>545</b>	<b>14077</b>	<b>1564</b>	<b>0</b>	<b>545</b>	<b>14077</b>
2032		0	0	0	180	180	180		597	777	14854
2033		0	0	0	180	180	360		597	777	15631
2034		0	0	0	180	180	540		597	777	16408
2035		0	0	0	180	180	720		597	777	17185
2036		0	0	0	180	180	900		597	777	17962
<b>2037</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>180</b>	<b>1080</b>	<b>180</b>	<b>597</b>	<b>777</b>	<b>18739</b>
<b>Total</b>					<b>2070</b>	<b>14077</b>			<b>3582</b>	<b>17659</b>	<b>18739</b>

### 5.3 1054 Scenario

The additional housing and employment sites as provided by SBC included in the 1054-Scenario for the model period from 2017 to 2037 are shown in Table 5-4 and Table 5-5 respectively. Note that the employment allocation in the 1054 scenario is the same as the 776 scenario.

*Table 5-4 1054 Scenario Additional Housing*

Ref	Description	Area	Additional Houses 2022- 2037
1	Duchy Fav	Faversham	2000
2	Duchy Fav	Faversham	500
3	Queenborough and Rushenden – SHLAA P10	Isle of Sheppey	670
4	Sittingbourne Town Centre	Sittingbourne centre	800
5	East Lady Dane, Fav, SHLAA 18/091	Faversham	1100

6	West Frognal La Teynham SHLAA 18/183	Sittingbourne	295
7	South A2 Teynham SHLAA 18/055	Sittingbourne	320
8	Bredgar, SHLAA 18/084	Sittingbourne	250
9	Sheppey/Brownfield	Isle of Sheppey	500
10	Windfall		1080
11	Selling	Faversham	200
12	Park Homes	Isle of Sheppey and Sittingbourne	500
13	Lamberhurst Farm	Faversham	300
14	Villages	south of M2, including Bredgar, Milstead, EastlingSheldwich, Selling, Boughton, Upchurch, Iwade and Newington	300
15	Lynstead	Sittingbourne	50
<b>Total plan period</b>			<b>8865</b>

Table 5-5 1054 Scenario Additional Employment

Ref	Area	Additional Employment (sqm)* 2022-2037
1	Duchy Fav	300
2	Duchy Fav	2500
3	Waterham, Fav	24000
4	West Frognal Lane	42000
5	Lamberhurst Farm	15000
6	Sittingbourne Industrial estate	15000
7	Bobbing site reallocation	30000
8	Wallend Farm Sheppey	10000
<b>Total plan period</b>		<b>138800</b>

\*It has been agreed that all employments sites will be B1:B2:B8 33%:33%:34% except Wallend Farm B1:B8 10%:90%

Since some of the development zones are rather large and span across several Swale model zones, the distributions of house quantum have been followed SBC's instructions to ensure a sensible zone split following the Local Plan. The development site distribution for housing and employment in the 1054 scenario is shown in Figure 5-1.

Figure 5-1 Development Site Distribution in 1054 Scenario

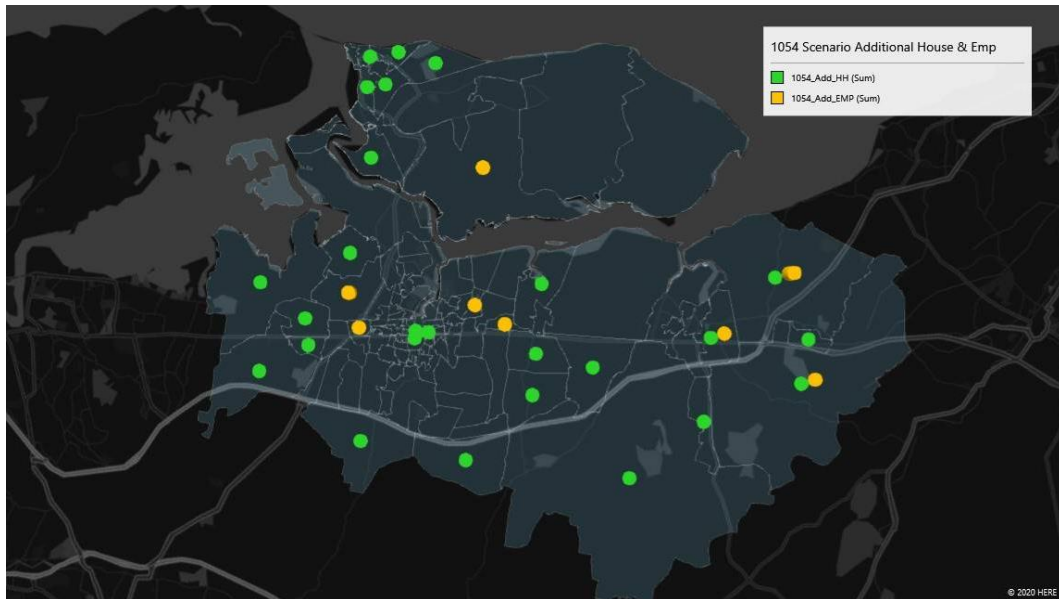


Table 5-6 below shows the total house allocation for each year from 2017 to 2037 in the 1054 scenario.

Table 5-6 Total housing each year from 2018 to 2037 for the 1054 Scenario

Year	Based on Table 7 of the Housing Land supply 2016/17						Target as agreed on 7/8/2018				
	Completed	Allocated LP	Permitted	Pending	Windfalls	Total by year	Total Cumulative	Ave per year	Additional per year	Total by year	Total Cumulative
2017	1830					1830	1830		0	1830	1830
2018		0	432	0	0	432	2262		0	432	2262
2019		50	337	0	0	387	2649		0	387	2649
2020		207	402	1	0	610	3259		0	610	3259
2021		998	355	21	0	1374	4633		0	1374	4633
<b>2022</b>		<b>1427</b>	<b>282</b>	<b>24</b>	<b>0</b>	<b>1733</b>	<b>6366</b>	<b>1061</b>	<b>0</b>	<b>1733</b>	<b>6366</b>
2023		937	189	0	110	1236	7602		197	1433	7799
2024		947	181	0	110	1238	8840		197	1435	9234
2025		842	110	0	110	1062	9902		197	1259	10493
2026		628	74	0	110	812	10714		197	1009	11502
<b>2027</b>		<b>590</b>	<b>19</b>	<b>0</b>	<b>110</b>	<b>719</b>	<b>11433</b>		<b>197</b>	<b>916</b>	<b>12418</b>
2028		595	4	0	110	709	12142		197	906	13324
2029		612	4	0	110	726	12868		197	923	14247
2030		554	0	0	110	664	13532		197	861	15108
<b>2031</b>		<b>435</b>	<b>0</b>	<b>0</b>	<b>110</b>	<b>545</b>	<b>14077</b>	<b>1564</b>	<b>197</b>	<b>742</b>	<b>15850</b>
2032		0	0	0	180	180	180		1002	1182	17032
2033		0	0	0	180	180	360		1002	1182	18214
2034		0	0	0	180	180	540		1002	1182	19396
2035		0	0	0	180	180	720		1002	1182	20578
2036		0	0	0	180	180	900		1002	1182	21760
<b>2037</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>180</b>	<b>1080</b>	<b>180</b>	<b>1002</b>	<b>1182</b>	<b>22942</b>
<b>Total</b>					<b>2070</b>	<b>14077</b>			<b>7785</b>	<b>21862</b>	<b>22942</b>

## 6 Forecast Demand

### 6.1 Overview

It has also agreed that the model will be updated by the unconstrained TEMPro growth method as applied in the previous LP model work, but the car trip rates for the housing development will be based on the TEMPro rather than TRICS. Job trip rates for car were derived from NTEM v7.2 which follows the same method as previous Local Plan Option Testing. LGV and HGV trip rates were derived from TRICs and LGV/HGV growth factors derived from the Department for Transport (DfT) National Transport Model (NTM) database, which follows the same method as previous Local Plan Option Testing as well.

### 6.2 Trip Rates for Housing Developments

As agreed with KCC/SBC, the predicted trip rates for housing development have been changed from TRICs housing trip rates provided by KCC to the housing trip rates derived from NTEM v7.2. However, the trip rates from NTEM v7.2 are 42%–51% lower than those from TRICs and the reason could be the different size and range of the surveys they are based on.

- The TRICs housing trip rates are provided by KCC and based on Transport Assessments from recent actual developments;
- The trip rates from NTEM v7.2 are calculated by dividing the expected NTEM v7.2 output number of trips by the nominated households for each of the areas identified. Trip rates within the NTEM v7.2 are based upon the national travel survey (NTS), a household survey designed to monitor long-term trends in personal travel.

Following the suggestion from the KCC and SBC, a set of uplifting factors by TEMPro zones as shown in Table 6-1 have been applied to the trip rates from NTEM v7.2 to increase the trip rates to the level between NTEM v7.2 and TRICs.

*Table 6-1 Uplifting Factors by TEMPro Zones*

TEMPro Zones	AM	IP	PM
Medway 025	1.93	1.93	1.99
Medway 032	1.39	1.59	1.5
Swale 001	2.52	2.18	2.19
Swale 002	2.65	2.13	2.27
Swale 003	1.64	1.43	1.47
Swale 004	1.61	1.53	1.47
Swale 005	1.7	1.55	1.67
Swale 006	1.43	1.17	1.36
Swale 007	1.45	1.62	1.66
Swale 008	1.42	1.45	1.61
Swale 009	1.55	1.63	1.61
Swale 010	2.2	1.87	1.94
Swale 011	1.67	1.62	1.63
Swale 012	1.5	1.32	1.37

Swale 013	1.37	1.4	1.53
Swale 014	1.47	1.45	1.51
Swale 015	1.71	1.69	1.74
Swale 016	1.6	1.62	1.8
Swale 017	1.55	1.59	1.75

The breakdown of the uplifted car housing trip rates by TEMPro zones are shown in Table 6-2 and Table 6-3 in the AM and PM peak respectively. Note that following the previous model assumptions, the trip rates for housing development are only applied for the home-based trip purposes.

*Table 6-2 2037 AM Housing Car Trip Rates - Uplifted*

Area	TEMPro Zone	2037 AM Housing Car Trip Rates - Uplifted									
		HBW		HBEB		HBO		NHBEB		NHBO	
		O	D	O	D	O	D	O	D	O	D
GB	GB	0.116	0.006	0.015	0.001	0.043	0.014	0.000	0.000	0.000	0.000
Region	SE	0.135	0.007	0.017	0.001	0.049	0.016	0.000	0.000	0.000	0.000
County	Kent	0.132	0.007	0.017	0.001	0.048	0.015	0.000	0.000	0.000	0.000
MSOA	Medway 025	0.243	0.014	0.028	0.001	0.084	0.026	0.000	0.000	0.000	0.000
	Medway 032	0.255	0.014	0.030	0.002	0.072	0.023	0.000	0.000	0.000	0.000
Local Authority	Swale	0.135	0.007	0.017	0.001	0.051	0.015	0.000	0.000	0.000	0.000
MSOA	Swale 001	0.220	0.013	0.027	0.001	0.082	0.027	0.000	0.000	0.000	0.000
	Swale 002	0.210	0.013	0.026	0.001	0.092	0.029	0.000	0.000	0.000	0.000
	Swale 003	0.217	0.012	0.028	0.001	0.086	0.026	0.000	0.000	0.000	0.000
	Swale 004	0.229	0.013	0.029	0.002	0.075	0.023	0.000	0.000	0.000	0.000
	Swale 005	0.211	0.011	0.029	0.002	0.092	0.027	0.000	0.000	0.000	0.000
	Swale 006	0.198	0.010	0.027	0.001	0.105	0.029	0.000	0.000	0.000	0.000
	Swale 007	0.243	0.012	0.033	0.002	0.080	0.024	0.000	0.000	0.000	0.000
	Swale 008	0.231	0.011	0.033	0.002	0.092	0.027	0.000	0.000	0.000	0.000
	Swale 009	0.242	0.013	0.028	0.001	0.077	0.024	0.000	0.000	0.000	0.000
	Swale 010	0.199	0.012	0.022	0.001	0.077	0.024	0.000	0.000	0.000	0.000
	Swale 011	0.224	0.013	0.026	0.001	0.076	0.024	0.000	0.000	0.000	0.000
	Swale 012	0.199	0.012	0.023	0.001	0.077	0.023	0.000	0.000	0.000	0.000
	Swale 013	0.229	0.011	0.032	0.002	0.090	0.026	0.000	0.000	0.000	0.000
	Swale 014	0.190	0.011	0.024	0.001	0.068	0.021	0.000	0.000	0.000	0.000
	Swale 015	0.192	0.011	0.023	0.001	0.066	0.021	0.000	0.000	0.000	0.000
	Swale 016	0.243	0.012	0.034	0.002	0.099	0.029	0.000	0.000	0.000	0.000
	Swale 017	0.249	0.012	0.035	0.002	0.099	0.028	0.000	0.000	0.000	0.000



Table 6-3 2037 PM Housing Car Trip Rates - Uplifted

Area	TEMPro Zone	2037 PM Housing Car Trip Rates - Uplifted									
		HBW		HBEB		HBO		NHBEB		NHBO	
		O	D	O	D	O	D	O	D	O	D
GB	GB	0.008	0.071	0.002	0.009	0.044	0.062	0.000	0.000	0.000	0.000
Region	SE	0.009	0.082	0.002	0.011	0.049	0.069	0.000	0.000	0.000	0.000
County	Kent	0.009	0.081	0.002	0.011	0.047	0.066	0.000	0.000	0.000	0.000
MSOA	Medway 025	0.020	0.156	0.004	0.019	0.089	0.123	0.000	0.000	0.000	0.000
	Medway 032	0.020	0.168	0.004	0.021	0.085	0.114	0.000	0.000	0.000	0.000
Local Authority	Swale	0.009	0.082	0.002	0.011	0.048	0.068	0.000	0.000	0.000	0.000
MSOA	Swale 001	0.016	0.122	0.003	0.015	0.078	0.108	0.000	0.000	0.000	0.000
	Swale 002	0.015	0.115	0.002	0.014	0.081	0.114	0.000	0.000	0.000	0.000
	Swale 003	0.014	0.121	0.003	0.016	0.079	0.109	0.000	0.000	0.000	0.000
	Swale 004	0.015	0.130	0.003	0.017	0.076	0.103	0.000	0.000	0.000	0.000
	Swale 005	0.012	0.124	0.003	0.018	0.074	0.111	0.000	0.000	0.000	0.000
	Swale 006	0.011	0.115	0.003	0.017	0.077	0.118	0.000	0.000	0.000	0.000
	Swale 007	0.014	0.164	0.004	0.024	0.083	0.119	0.000	0.000	0.000	0.000
	Swale 008	0.013	0.155	0.004	0.023	0.087	0.128	0.000	0.000	0.000	0.000
	Swale 009	0.019	0.156	0.004	0.019	0.084	0.115	0.000	0.000	0.000	0.000
	Swale 010	0.016	0.112	0.003	0.013	0.070	0.097	0.000	0.000	0.000	0.000
	Swale 011	0.018	0.136	0.003	0.017	0.077	0.106	0.000	0.000	0.000	0.000
	Swale 012	0.015	0.114	0.003	0.014	0.068	0.096	0.000	0.000	0.000	0.000
	Swale 013	0.013	0.153	0.004	0.023	0.084	0.124	0.000	0.000	0.000	0.000
	Swale 014	0.014	0.121	0.002	0.016	0.074	0.101	0.000	0.000	0.000	0.000
	Swale 015	0.015	0.122	0.003	0.015	0.074	0.101	0.000	0.000	0.000	0.000
	Swale 016	0.014	0.163	0.004	0.024	0.093	0.137	0.000	0.000	0.000	0.000
	Swale 017	0.014	0.167	0.004	0.025	0.094	0.138	0.000	0.000	0.000	0.000

The comparisons of the two-way car hourly trip rate for housing development are illustrated in Figure 6-1 and tabulated in Table 6-4.

Figure 6-1 Two-Way Car Hourly Trip Rate Comparison – TRICS, TEMPro and Uplifted

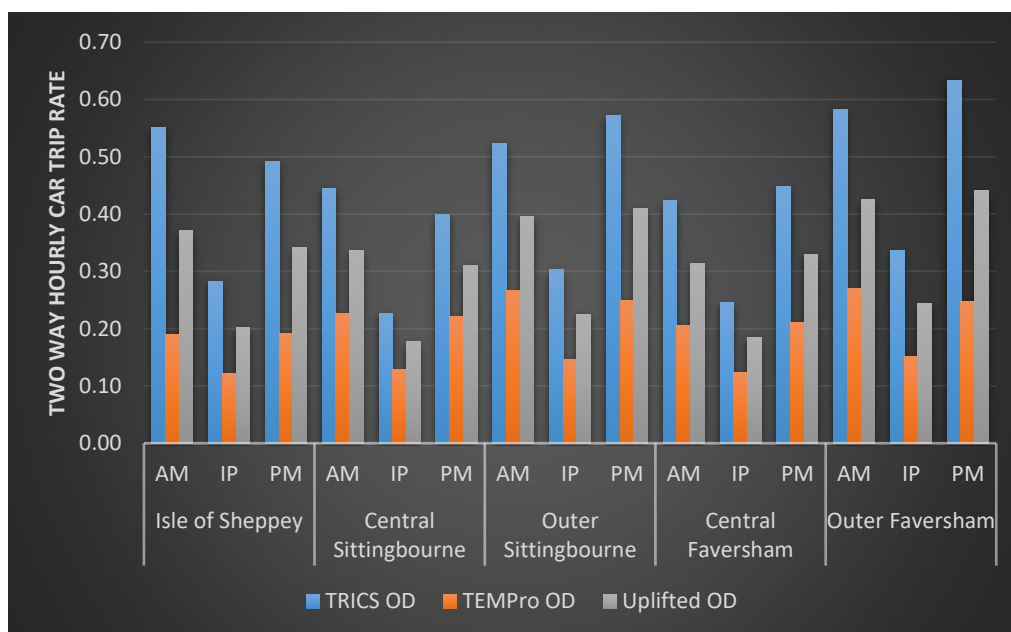


Table 6-4 Two-Way Car Hourly Trip Rate Comparison – TRICS, TEMPro and Uplifted

Area	Time Period	TRICS OD	TEMPro OD	Uplifted OD
Isle of Sheppey	AM	0.552	0.190	0.371
	IP	0.282	0.121	0.202
	PM	0.492	0.192	0.342
Central Sittingbourne	AM	0.445	0.227	0.336
	IP	0.227	0.128	0.178
	PM	0.400	0.221	0.311
Outer Sittingbourne	AM	0.524	0.266	0.395
	IP	0.303	0.147	0.225
	PM	0.572	0.249	0.410
Central Faversham	AM	0.423	0.206	0.314
	IP	0.245	0.123	0.184
	PM	0.448	0.211	0.330
Outer Faversham	AM	0.582	0.270	0.426
	IP	0.337	0.151	0.244
	PM	0.634	0.248	0.441

### 6.3 Trip Generation

The new trips generated from the proposed developments were calculated by applying the uplifted NTEM v7.2 trip rates to the proposed developments. The trip ends for employment development sites follows the same method as previous Local Plan work. The target trip ends were then obtained by adding the existing trip ends to the new trips from the proposed developments.

The car trip ends of the additional housing and employment development for all the model scenarios are shown in the 3D plots in Figure 6-2 to Figure 6-5 below. A sense check on additional house and development demand by time period, land use, site distribution, origin and destination across modelled scenarios has been undertaken. Overall, it is found the trip ends produced are logical.

Figure 6-2 Additional Development Car Tripends\_776 Scenario AM

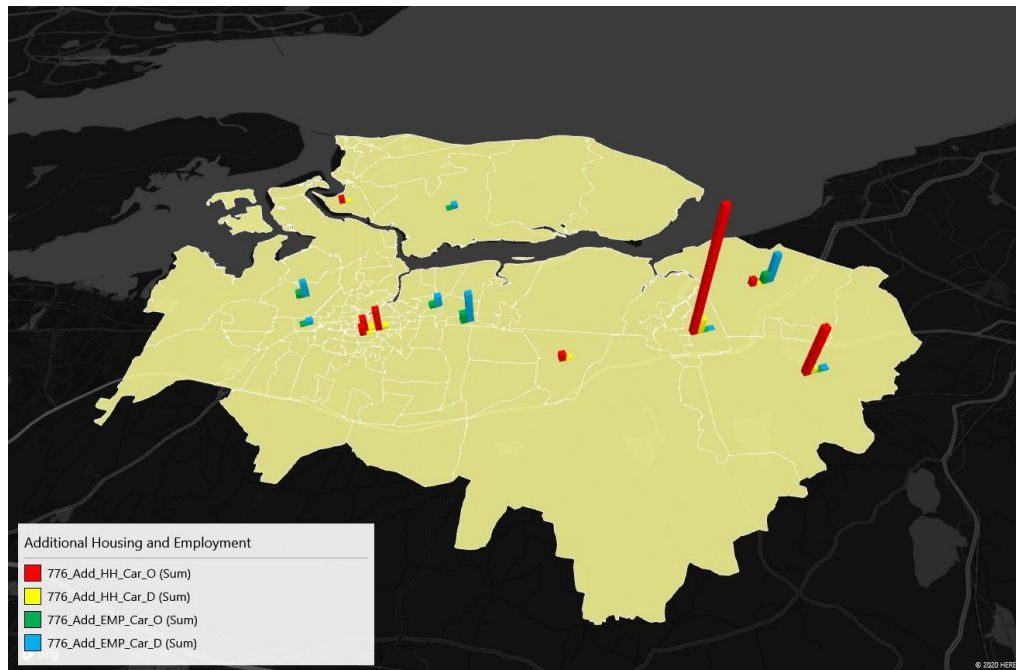


Figure 6-3 Additional Development Car Tripends\_776 Scenario PM

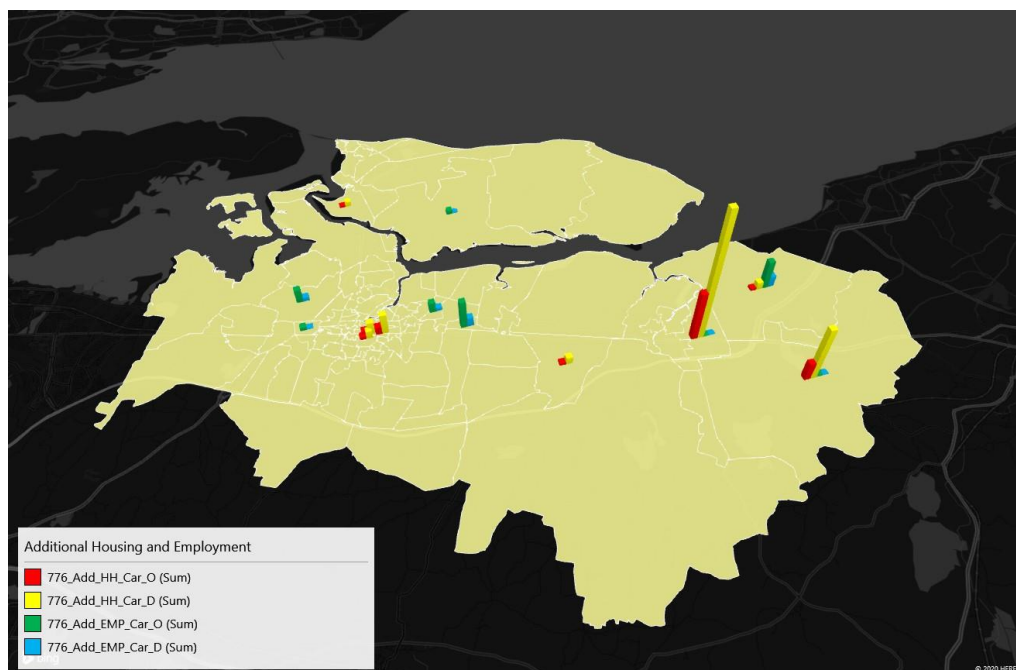


Figure 6-4 Additional Development Car Tripends\_1054 Scenario AM

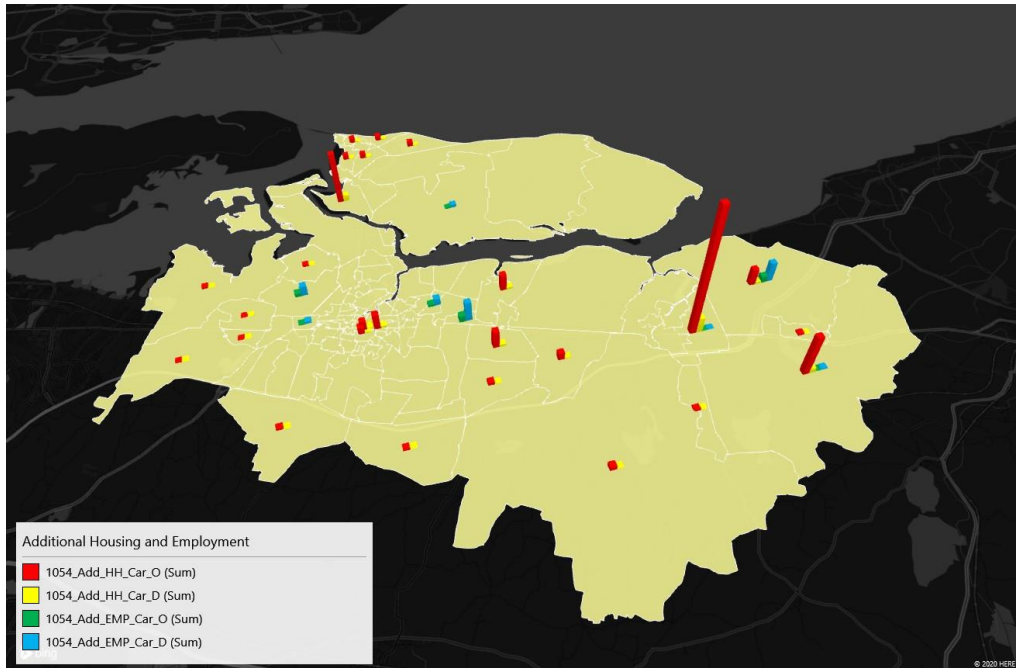
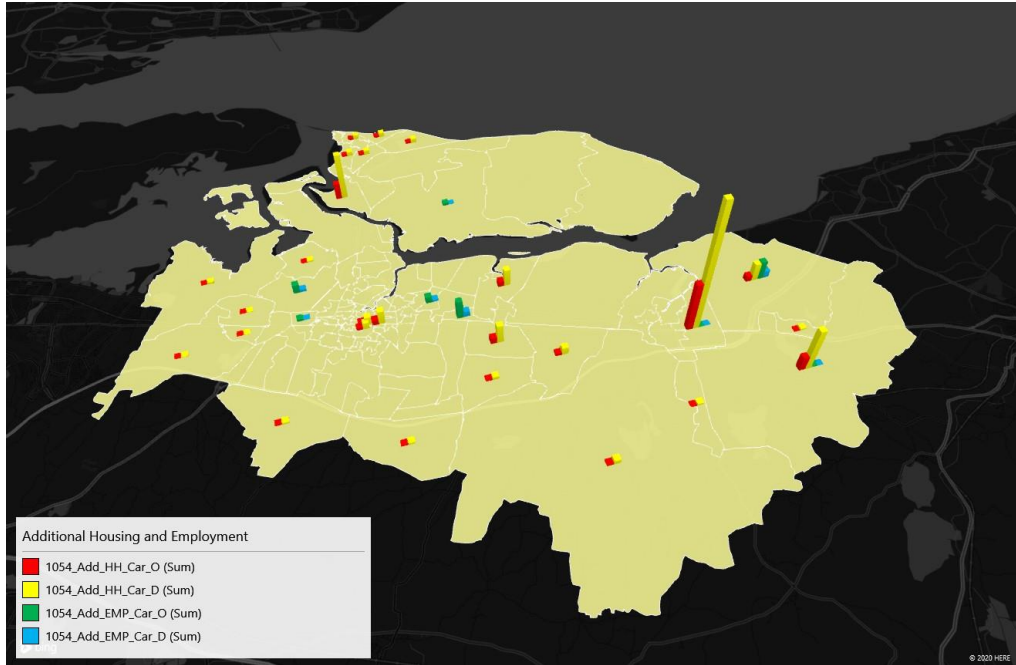


Figure 6-5 Additional Development Car Tripends\_1054 Scenario PM



## 6.4 Matrix Building

### 6.4.1 Growth Factors

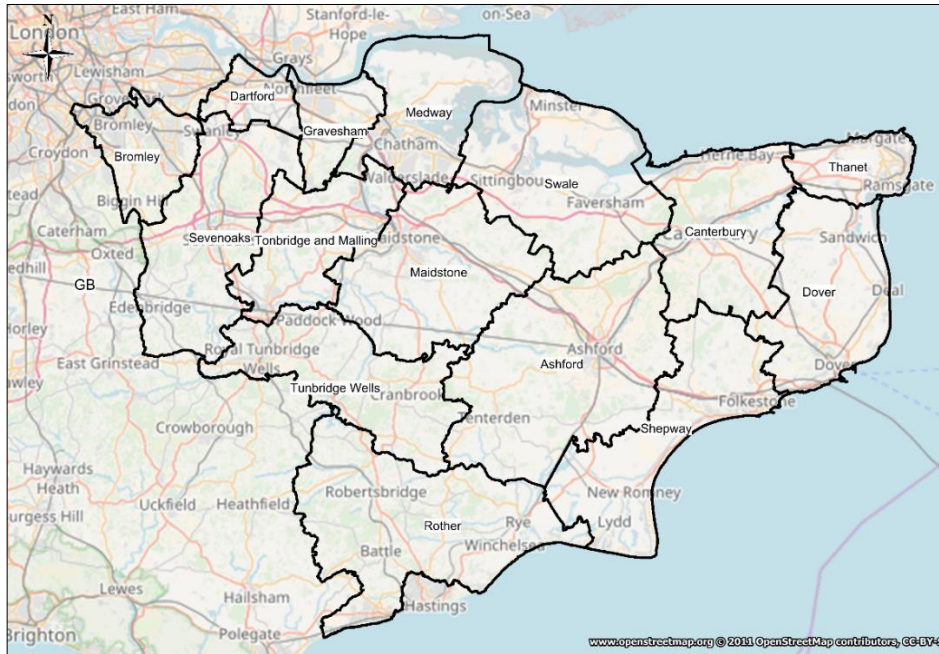
Car background growth factors across the entire modelled area were derived from TEMPRO and split by purpose and time period. Table 6-5 below shows a summary of the NTEM v7.2 growth factors for 2037 AM and PM.

*Table 6-5 NTEM v7.2 growth factors for 2017-2037 for AM and PM peak hours*

Area	2017-2037 AM						2017-2037 PM					
	EMP		Work		Other		EMP		Work		Other	
	O	D	O	D	O	D	O	D	O	D	O	D
GB	1.143	1.143	1.137	1.137	1.121	1.121	1.139	1.139	1.124	1.124	1.192	1.192
Bromley	1.086	1.142	1.076	1.131	1.137	1.136	1.137	1.093	1.124	1.065	1.226	1.201
Rother	1.143	1.152	1.131	1.143	1.132	1.132	1.149	1.142	1.130	1.121	1.212	1.214
Ashford	1.187	1.142	1.188	1.132	1.180	1.179	1.144	1.179	1.123	1.179	1.273	1.305
Canterbury	1.159	1.139	1.156	1.129	1.164	1.163	1.139	1.152	1.120	1.145	1.246	1.260
Dartford	1.176	1.142	1.188	1.132	1.166	1.167	1.148	1.170	1.129	1.176	1.273	1.274
Dover	1.132	1.139	1.118	1.127	1.165	1.163	1.136	1.130	1.115	1.108	1.240	1.258
Gravesham	1.122	1.137	1.117	1.127	1.148	1.148	1.139	1.125	1.121	1.106	1.243	1.234
Maidstone	1.131	1.139	1.119	1.128	1.159	1.158	1.135	1.129	1.116	1.109	1.233	1.247
Medway	1.115	1.137	1.099	1.126	1.148	1.145	1.132	1.113	1.113	1.088	1.215	1.220
Sevenoaks	1.030	1.133	0.995	1.121	1.109	1.107	1.120	1.037	1.104	0.984	1.164	1.147
Shepway	1.060	1.135	1.028	1.123	1.139	1.136	1.124	1.064	1.107	1.017	1.190	1.187
Swale	1.086	1.135	1.064	1.124	1.140	1.139	1.127	1.089	1.109	1.055	1.204	1.209
Thanet	1.069	1.135	1.042	1.123	1.130	1.127	1.126	1.073	1.106	1.027	1.191	1.184
Tonbridge and Malling	1.115	1.137	1.101	1.126	1.149	1.148	1.133	1.116	1.115	1.091	1.226	1.236
Tunbridge Wells	1.073	1.135	1.046	1.123	1.136	1.133	1.127	1.076	1.110	1.033	1.200	1.195

A tiered approach to growth factors has been applied. Growth factors have been adopted at a district level for Swale, and for the rest of the south east. External zones have TEMPRO factors for GB applied to them. This structure is displayed in Figure 6-6.

Figure 6-6 TEMPRO regions



Growth factors calculated from the Department for Transport (DfT) National Transport Model (NTM) database was used to forecast growth in LGV and HGV for 2037. These can be found in Table 6-6 below.

Table 6-6 LGV and HGV NTM factors 2037

Vehicle Class	Growth	Factor
LGV	52.0%	1.520
HGV	14.6%	1.146

#### 6.4.2 Unconstrained growth scenarios within Swale

Within the TEMPRO Swale district trip end forecasts were calculated based on the development assumptions in the uncertainty log and the trip rates defined in section 6.2. To be able to assess the impact of the local plan with different quantum and distribution of housing in Swale, it has been agreed with KCC and SBC that the growth within Swale should be unconstrained. This means that growth within Swale is determined by the new trips generated from the new developments in the uncertainty log, without having to constrain the growth to TEMPRO as required by WebTAG. Growth for areas outside of Swale have been based on TEMPRO growth factors.

#### 6.4.3 Trip Distribution

The future forecast matrices were created through the SATURN Furness process to output the 776 Scenario and 1054 Scenarios in 2037. The Furness process attempts to match the target trip ends for each zone for both Origins and Destinations and as such it goes through several iterations until the total trip ends are balanced. Therefore, it is possible that when there are more new housings (mainly origins in AM peak) than new jobs then the destination trips are factored up accordingly in the process until the trip ends are balanced.



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The distribution of future developments was based on the existing distribution for the associated zone. In rare occurrences where the base zone was empty, a nearby zone with a similar travel pattern was chosen to distribute the development trips. The same approach has been adopted when development trips were missing in the base year matrices, and in that case, a distribution taken from a nearby similar zone was used. This tended to occur where new development was allocated in the post-2022 period where there was very little other development in the zone (such as for the new settlements). The results were also 'sense checked' for how the model was allocating trips from such development to the network and adjusted if necessary.

#### **6.4.4 Matrix Totals**

The comparisons of demand matrix totals in the forecast year 2037 by user class for the 776 and 1054 scenarios against the RC and the previous LP Scenario 1 are shown in

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Table 6-7 and Table 6-8 in the AM Peak hour (08:00-09:00) and PM Peak hour (17:00-18:00) respectively. It is found that the trip total for the 1054 scenario is reduced by 1.0 % in the AM and 0.8% in the PM Peak.

Table 6-9 and Table 6-10 show the changes in matrix totals of the Swale and non-Swale model zones in the detailed simulation area, and the buffer zones against the previous LP Scenario 1. Figure 6-7 shows the Swale and non-Swale model zones in the detailed simulation area, and the buffer zones.

In general, the changes are sensible, and the demand reductions are due to some factors, as summarised below:

- The quantum of additional house allocation and site plan between the LP 776 and 1054 scenarios;
- Different car trip rates between RC & previous LP Scenario 1 (TRICS based) and 776 & 1054 scenario (uplifted TEMPro based); and
- Trip balancing by Furness in the trip distribution process.
- Small discrepancy in the additional employment quantum.



Table 6-7 Demand Matrix total comparisons by user class (2037 AM Peak hour)

User Class	Reference case	Previous LP Scen1	Scen1 vs. RC (% Diff)	776 Scenario	776s vs. Scen1 (% Diff)	1054 Scenario	1054s vs. Scen1 (% Diff)
<b>Car Business</b>	19225	19231	0.0%	18926	-1.6%	19044	-1.0%
<b>Car Commute</b>	79818	79915	0.1%	77284	-3.3%	78175	-2.2%
<b>Car Other</b>	113436	113439	0.0%	112615	-0.7%	112967	-0.4%
<b>LGV</b>	26805	26759	-0.2%	26770	0.0%	26770	0.0%
<b>HGV</b>	15643	15741	0.6%	15614	-0.8%	15614	-0.8%
<b>Total</b>	<b>254928</b>	<b>255084</b>	<b>0.1%</b>	<b>251208</b>	<b>-1.5%</b>	<b>252570</b>	<b>-1.0%</b>

Table 6-8 Demand Matrix total comparisons by user class (2037 PM Peak hour)

User Class	Reference case	Previous LP Scen1	Scen1 vs. RC (% Diff)	776 Scenario	776s vs. Scen1 (% Diff)	1054 Scenario	1054s vs. Scen1 (% Diff)
<b>Car Business</b>	17660	17677	0.1%	17495	-1.0%	17574	-0.6%
<b>Car Commute</b>	60302	60503	0.3%	58801	-2.8%	59360	-1.9%
<b>Car Other</b>	135412	135526	0.1%	134411	-0.8%	134890	-0.5%
<b>LGV</b>	25797	25763	-0.1%	25772	0.0%	25772	0.0%
<b>HGV</b>	10367	10421	0.5%	10355	-0.6%	10355	-0.6%
<b>Total</b>	<b>249537</b>	<b>249890</b>	<b>0.1%</b>	<b>246834</b>	<b>-1.2%</b>	<b>247952</b>	<b>-0.8%</b>

Figure 6-7 Swale Highway Model Zones

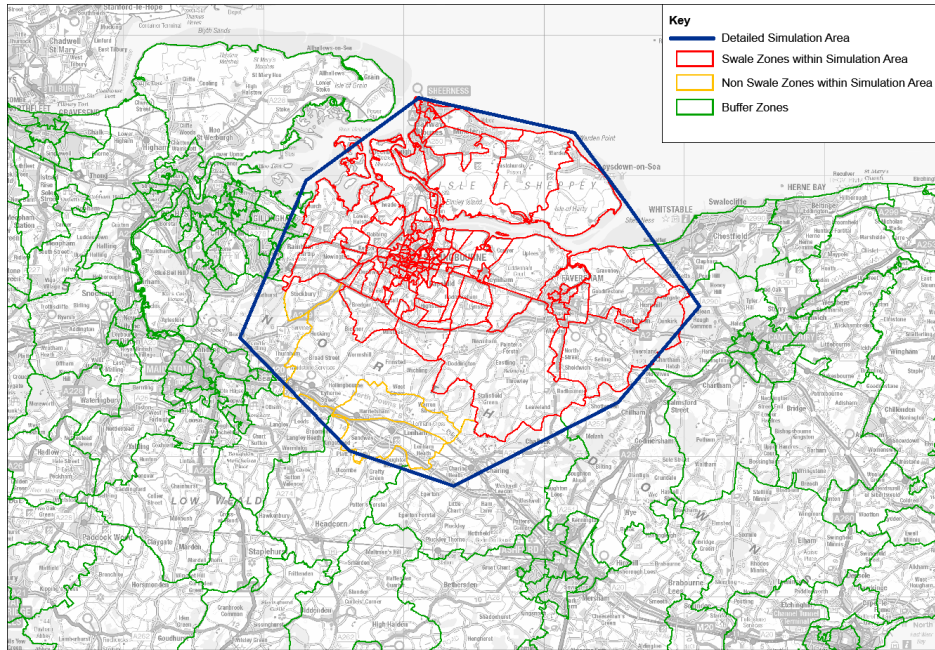


Table 6-9 Demand Matrix total comparisons by zone type (2037 AM Peak hour)

Zones	Previous LP Scen1		776 Scenario		776s vs. Scen1 (% Diff)		1054 Scenario		1054s vs. Scen1 (% Diff)	
	O	D	O	D	O	D	O	D	O	D
Swale zones (red)	30105	22721	26308	21810	-12.6%	-4.0%	27618	22073	-8.3%	-2.9%
Other Zones (yellow and green)	224979	232363	224900	229398	0.0%	-1.3%	224952	230497	0.0%	-0.8%
<b>Total</b>	<b>255084</b>	<b>255084</b>	<b>251208</b>	<b>251209</b>	<b>-1.5%</b>	<b>-1.5%</b>	<b>252570</b>	<b>252571</b>	<b>-1.0%</b>	<b>-1.0%</b>

Table 6-10 Demand Matrix total comparisons by zone type (2037 PM Peak hour)

	Previous LP Scen1		776 Scenario		776s vs. Scen1 (% Diff)		1054 Scenario		1054s vs. Scen1 (% Diff)	
	O	D	O	D	O	D	O	D	O	D
Swale zones (red)	24422	29113	23109	26095	-5.4%	-10.4%	23569	27169	-3.5%	-6.7%
Other Zones (yellow and green)	225467	220776	223725	220738	-0.8%	0.0%	224383	220783	-0.5%	0.0%
<b>Total</b>	<b>249889</b>	<b>249890</b>	<b>246834</b>	<b>246834</b>	<b>-1.2%</b>	<b>-1.2%</b>	<b>247952</b>	<b>247951</b>	<b>-0.8%</b>	<b>-0.8%</b>

## 7 Forecast Supply

### 7.1 Cost coefficients

The Value of Time (VoT) and Vehicle Operating Cost (VOC) in the forecast year networks are the same as the values applied in the previous Local Plan Option Tests.

Table 7-1 below details the highway generalised cost coefficients used for 2037 in pence per minute (PPM) and pence per kilometre (PPK).

*Table 7-1 PPK and PPM values (2010 prices, 2037 values)*

User Class	PPM		PPK
	AM	PM	same for all time periods)
Car - Employer's Business	42.32	42.93	11.87
Car - Commuting	28.38	28.48	5.26
Car - Other	19.58	20.51	5.26
LGV	29.91	29.91	13.78
HGV	69.85	69.85	47.65

### 7.2 Network changes for the transport mitigations

The network changes for the 1054 scenarios with proposed transport mitigation measures are detailed in chapter 9.

## 8 LP Model Results

### 8.1 Forecast Network Overall Performance

Table 8-1 to Table 8-2 summarise the overall performance of the network in the AM and PM peaks over different scenarios (776 scenarios with and without 2 sets of schemes, and 1054 scenario without mitigations) within the simulation area including the key roads such as A249, A2, M2, M20 etc.:

- Total travel time, PCU hrs: The sum of all time taken for all vehicles to travel across the simulation network for all link and junctions;
- Total travel distance, PCU, kms: The sum of all distance travelled in the simulation network; and
- Simulation network speed, kph: Defined by total simulation distance / total simulation time.

*Table 8-1 Network performance AM Peak*

metrics	Reference Case	Previous LP Scen1	776 Scenario no2schemes	776 Scenario with2schemes	1054 Scenarios with2schemes
Simulation network Speed (kph)	46	45	57	58	56
Total travel time (PCU hrs)	73125	73482	67268	66863	68223
Total travel distance (PCU kms)	4214230	4214705	4102157	4097678	4132168

*Table 8-2 Network Performance PM Peak*

metrics	Reference Case	Previous LP Scen1	776 Scenario no2schemes	776 Scenario with2schemes	1054 Scenarios with2schemes
Simulation network Speed (kph)	52	53	59	60	59
Total travel time (PCU hrs)	69708	69736	66435	66208	67020
Total travel distance (PCU kms)	4123867	4133841	4038375	4037650	4065898

Figure 8-1 to Figure 8-3 show the average simulation network speeds, total travel time, and total travel distances graphically, for the different scenarios tested.

The comparisons of the model outputs have the following findings:

- The average network speed in the simulation area is quite similar between the Local Plan Model Rerun scenarios which is higher than the RC and previous LP Scenario 1, with 776 Scenario with2schemes having the highest average speed

within the simulation area (58kph in the AM and 60kph in the PM), largely due to the less demand being assigned to the local network;

- Total travel distance and total travel time the Local Plan Model Rerun scenarios are lower than the RC and the previous LP Scenario 1, which is lowest in 776 Scenario with2schemes, and highest in 1054 Scenario.

Overall, the outputs of the network performance statistics are sensible.

Figure 8-1 Simulation Network speed (kph)

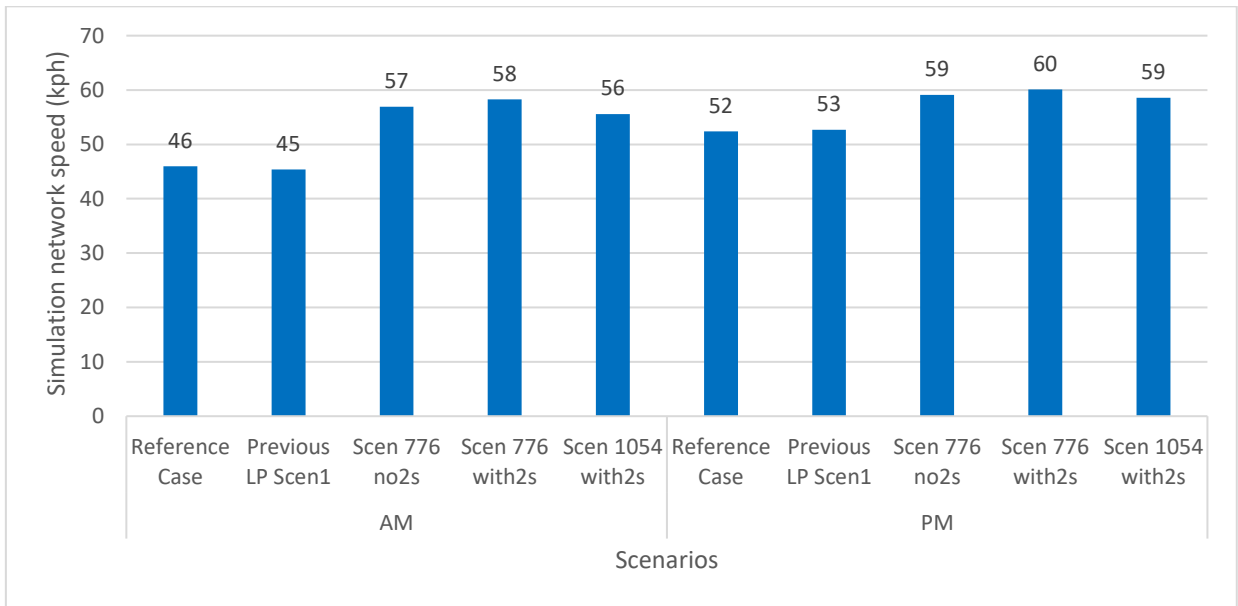


Figure 8-2 Total travel time (PCU hrs)

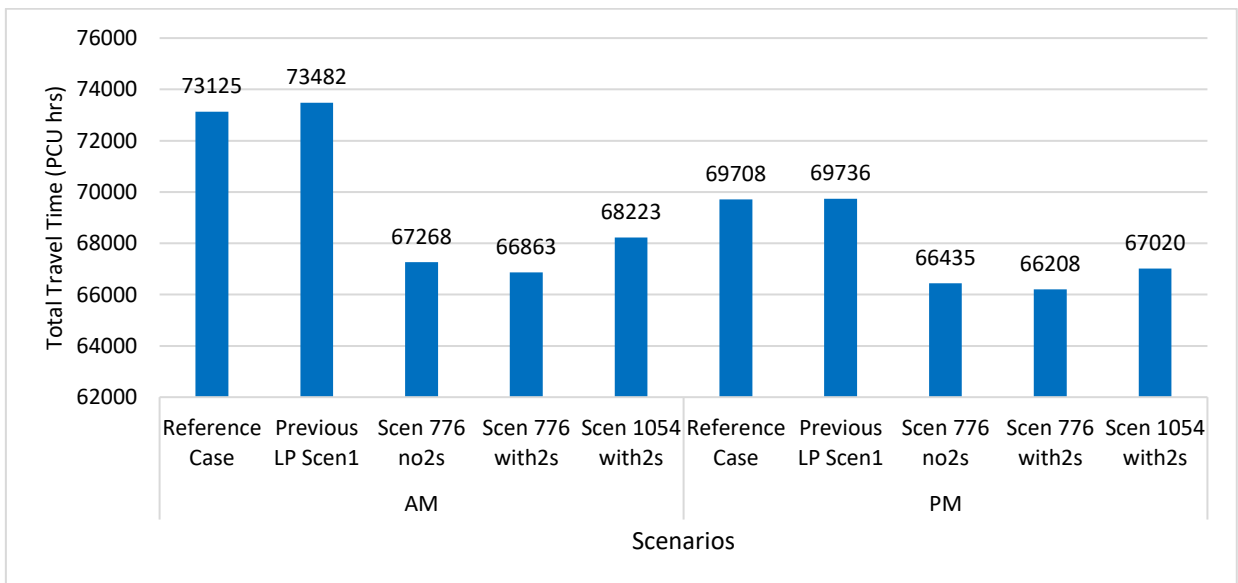
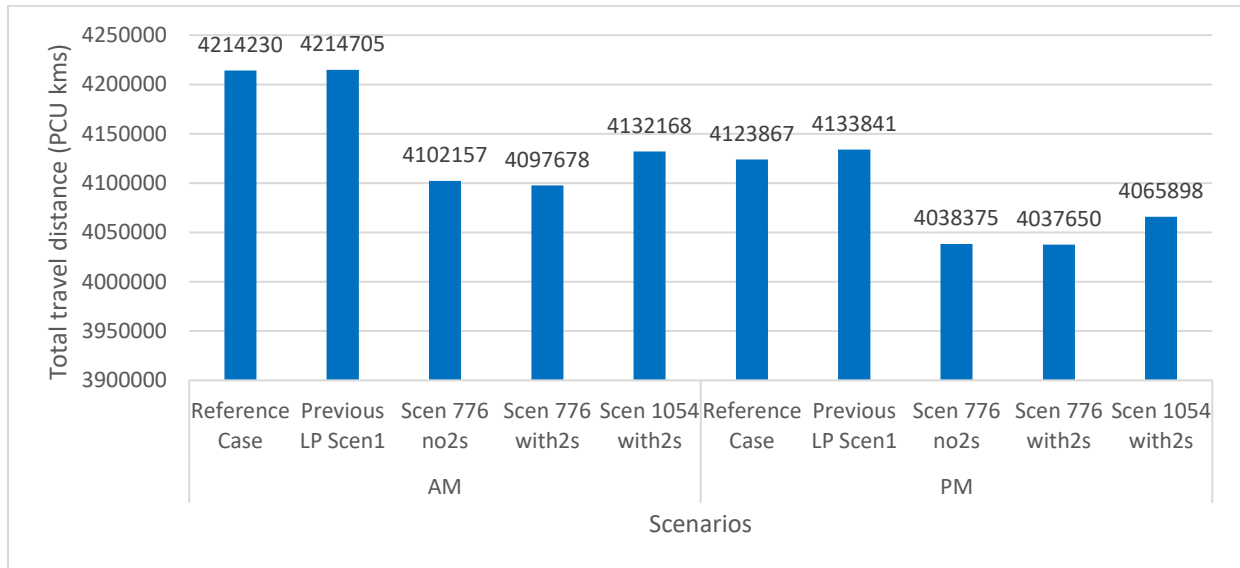


Figure 8-3 Total travel distance (PCU kms)



## 8.2 Traffic Flows

Figure 8-4 to Figure 8-9 below show the total flow (PCU) difference plots for the following scenarios:

- Between the 1054 scenarios (without mitigation) vs previous LP Scenario 1
- Between the 776 scenarios with and without 2 schemes
- Between the 1054 scenarios (without mitigation) vs 776 scenarios (with 2 schemes)

In the figures, the green bars indicate an increase in modelled flow, and blue bars indicate a decrease. The figures show the area around Sittingbourne, Faversham and Isle of Sheppey.

### The 1054 scenario vs previous LP Scenario 1

The flow differences between the 1054 scenarios (with 2 set of schemes) and the previous LP Scenario 1 are shown in the Figure 8-4 and Figure 8-5 in the AM and PM peak respectively.

In the 1054 scenario AM Peak, flows are increased in Sittingbourne Town Centre and Faversham Town Centre, and on the A2 WB from M2 J7 to Sittingbourne. There are decreases along A249 between M2 J5 and B2005/Grovehurst Road. The PM flow shows a similar pattern as there is an increase in flows around Sittingbourne and Faversham in the 1054 scenario. There is also wider reassignment of traffic from the M20 in both directions to the M2, resulting in increased flows along the M2 in both directions. One of the reasons is that the Brenley corner schemes were not included in the previous LP scenario 1 model.



Figure 8-4 Model flow difference- the 1054 scenario vs previous LP Scenario 1 – AM

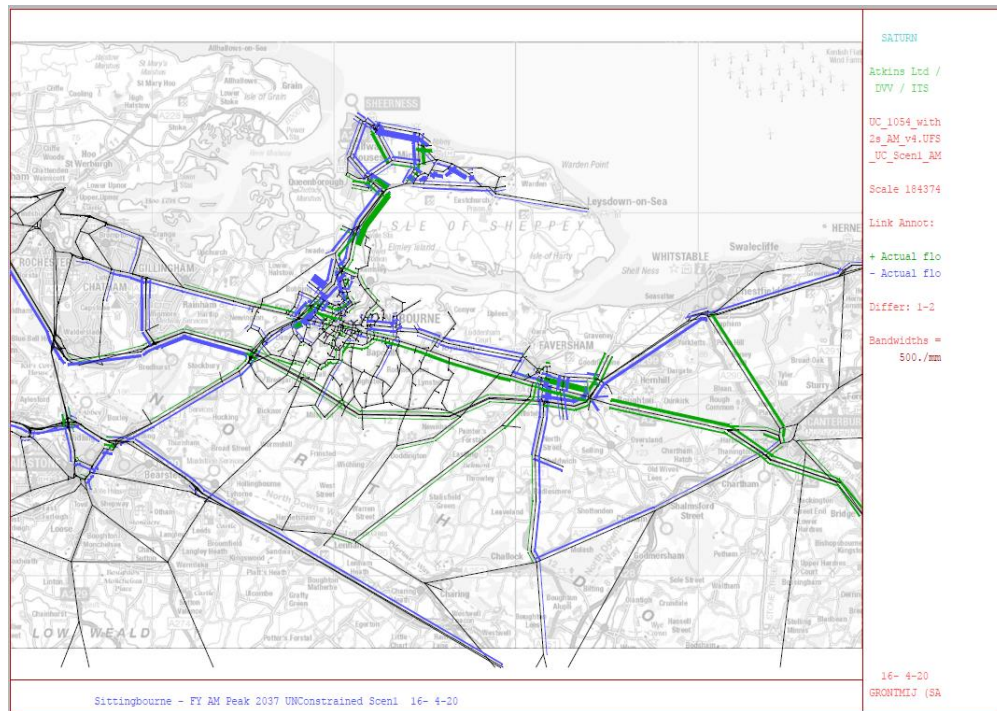
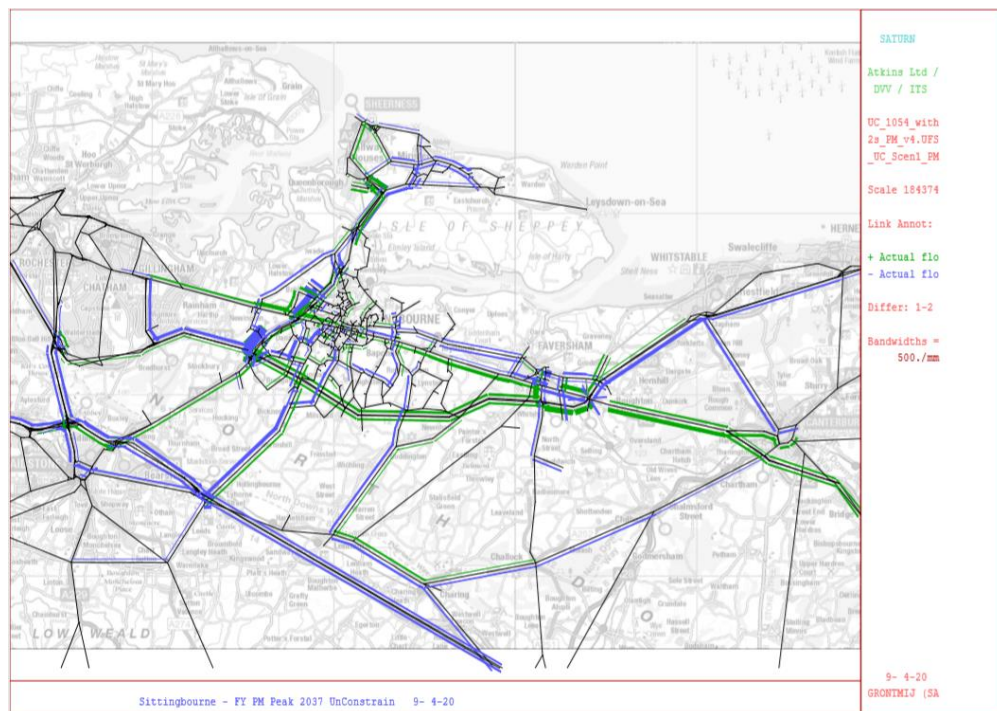


Figure 8-5 Model flow difference- the 1054 scenario vs previous LP Scenario 1 - PM



**The 776 scenarios with and without 2 schemes**

The flow differences between the 776 scenarios with and without 2 set of schemes are show in the Figure 8-6 and Figure 8-7 in the AM and PM peak respectively.

The 776 scenarios with and without 2 schemes have the same additional housing allocations. The only difference between the two scenarios is the network: Brenley Corner Junction Improvement, Grovehurst/A249 and Key Street/A249 junction improvement. In the 776 scenario without 2 schemes, the M2 J7 is overloaded. With the Brenley Corner scheme in place in the 776 Scenario with 2 scheme, the traffic condition at the junction has improved significantly. There is also wider reassignment of traffic from the M20 to the M2.

Figure 8-6 Model flow difference between 776 scenarios with and without 2 schemes - AM

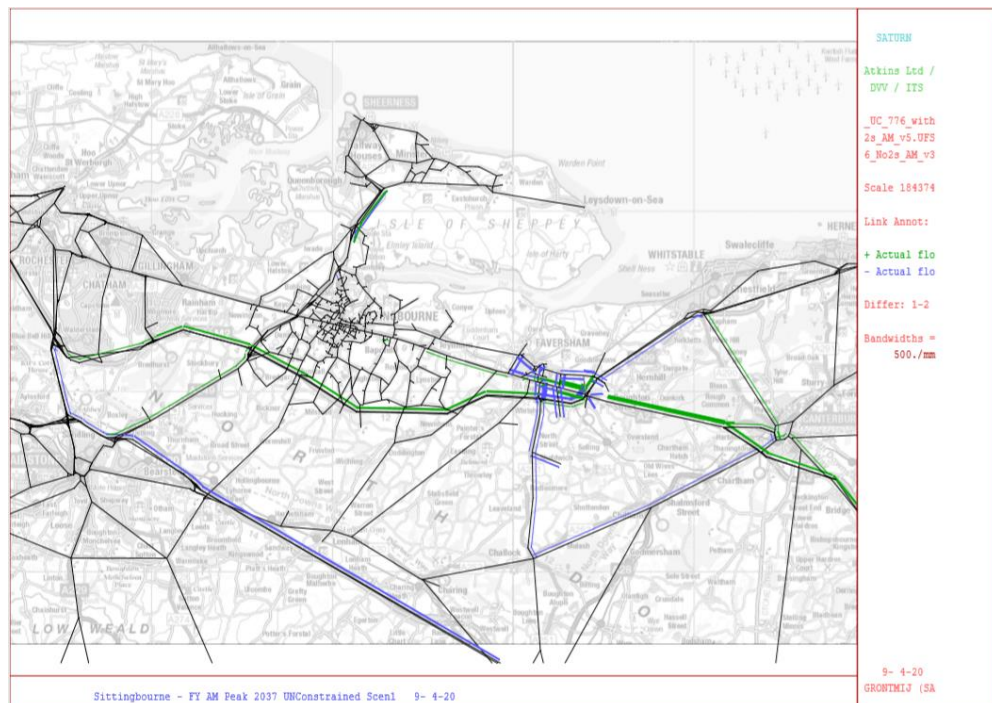
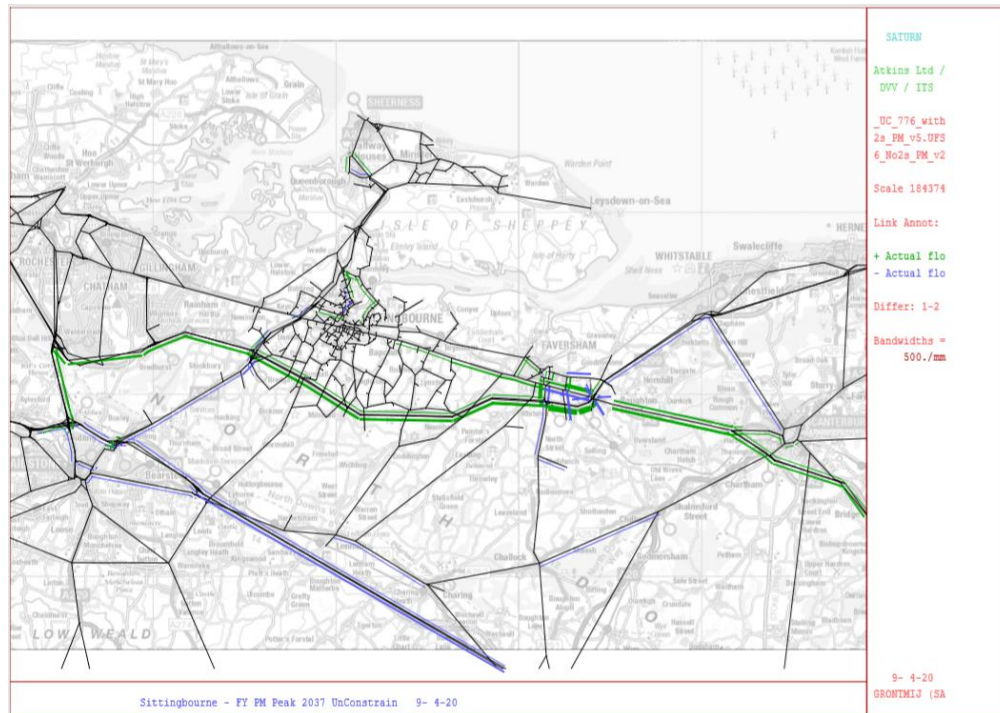




Figure 8-7 Model flow difference between 776 scenarios with and without 2 schemes - PM



**The 1054 scenarios vs 776 scenarios with 2 schemes**

The flow differences between the 776 and 1054 scenarios, both with 2 set of schemes , are show in the Figure 8-8 and Figure 8-9 in the AM and PM peak respectively.

The 1054 scenarios and 776 scenarios with 2 schemes have the same networks, but 1054 scenarios have more additional housing developments. In the 1054 scenario, it is found that flows are increased slightly in Faversham Town Centre, Isle of Sheppey and along A249, as well as on the west of M2 J5.

Figure 8-8 Model flow difference between 1054 scenarios vs 776 scenarios with2scheams-AM

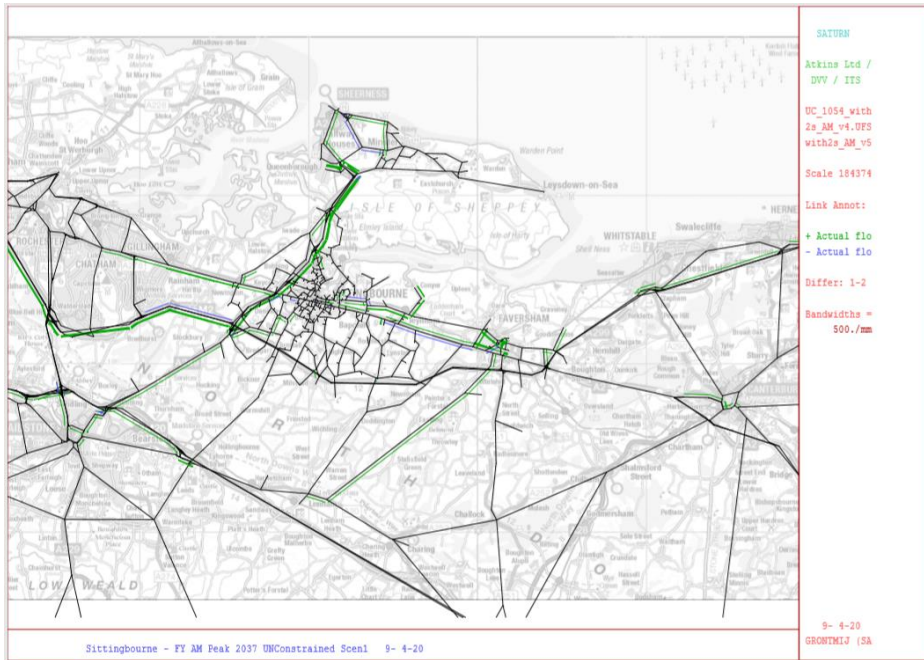
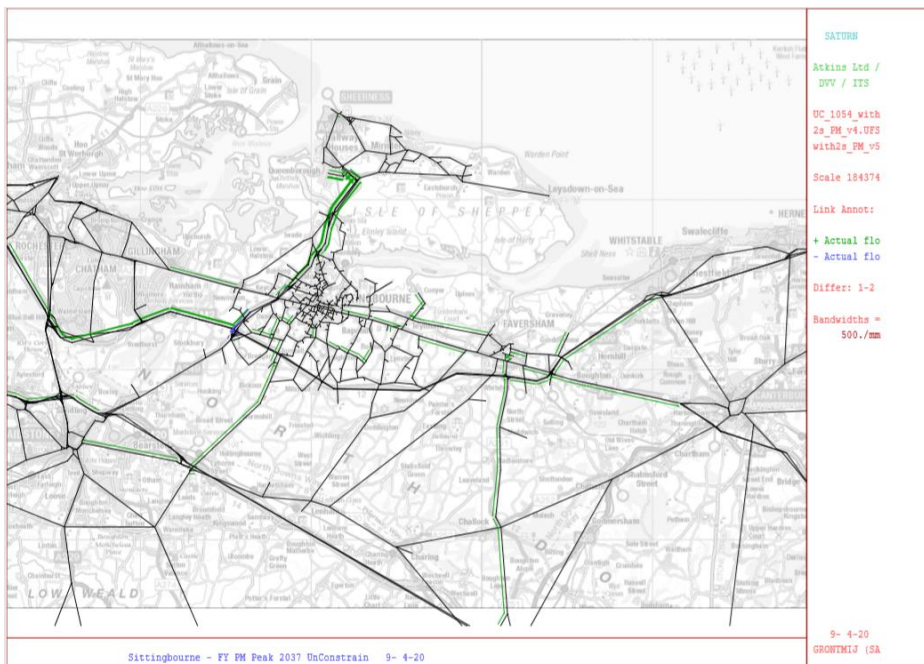


Figure 8-9 Model flow difference between 1054 scenarios vs 776 scenarios with2scheams-PM



### 8.3 Network Delays and Congestion

Volume over Capacity ratio (V/C, also known as Degree of Saturation) can provide useful indication of network delays and congestions at key junctions and links. Figure 8-10 below shows the locations of the 85 junctions with the V/C analysis.

Figure 8-10 Junctions within the model for V/C analysis

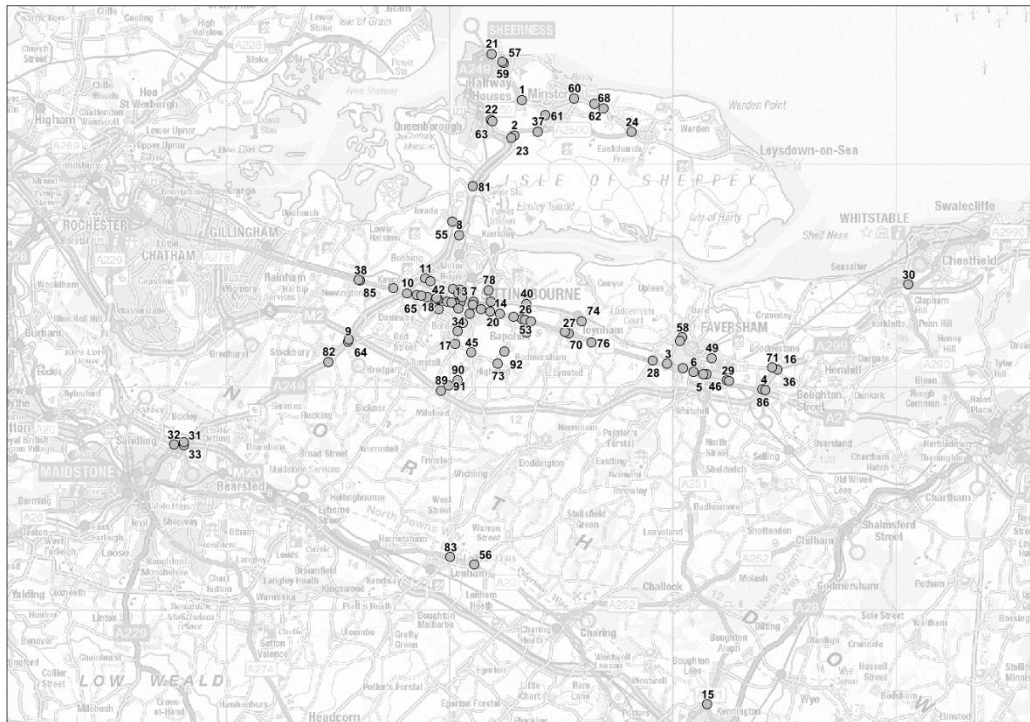


Table 8-3 and Table 8-4 show a summary of the congestion (weighted V/C% and highest V/C% respectively) comparisons in the AM and PM peak across the scenarios in a tabular form with different colours representing degree of congestions as defined below:

- Overloaded (>100%);
- Above practical capacity (95-100%);
- At practical capacity (90-95%);
- Exceeding capacity threshold (85-90%);
- Approaching capacity threshold (80-85%); and
- Below 80% capacity.

The heat diagrams shown in Figure 8-11 and Figure 8-12 below show the degree of saturation analysed for the highest V/C (i.e. highest V/C on any of the approach arms to the junction) at the 93 key junctions in Swale for the 1054 scenarios (without mitigations).

It is found that several junctions in Isle of Sheppey, Sittingbourne town centre and Faversham town centre, also junctions along A249 and Head Hill/Whitstable Road/Staple St Road junction show heavy congestion, especially in the AM Peak, in all scenarios.

Table 8-3 Summary of the congestions (weighted junction V/C)

JunctionID	Description	Weighted									
		Scenario 1		Scenario 776 no2s		Scenario 776 with2s		Scenario 1054 DM		Scenario 1054 DS	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Minster Road/ A250 Halfway Road	122.3	96.3	90.1	89.6	90.2	89.4	97.0	91.1	80.3	85.4
2	A250 Lower Road/Sheppey Way	123.7	104.2	82.0	63.8	77.0	53.9	77.3	55.4	77.1	55.8
3	A2 London Road/Western Link	89.3	88.8	79.8	81.1	73.8	87.5	82.7	90.7	73.2	88.3
4	M2 Junction 7	87.4	99.3	81.9	92.1	49.4	49.9	51.5	51.0	46.5	44.8
5	A2/A251 Ashford Road	98.8	99.3	98.6	99.8	74.4	91.6	74.4	96.1	36.6	56.4
6	A2/Brogdale Road	78.5	71.0	66.4	63.2	62.1	66.7	72.7	69.5	63.2	69.2
7	B2006 Eurolink Way/Crown Quay Lane	80.0	80.3	76.3	78.1	76.0	77.6	77.9	77.4	78.1	80.1
8	Grovehurst/ Swale Way/B2005	67.9	61.9	81.9	81.2	55.3	57.1	56.2	58.3	59.1	64.1
9	M2 Junction 5	20.4	78.3	20.1	70.1	19.6	68.8	18.6	72.4	44.2	74.8
10	A2 Key Street/A249	60.0	65.0	79.6	76.1	73.3	70.2	74.7	69.0	78.2	69.3
11	A249/B2006	80.3	74.5	83.4	76.9	83.1	75.3	82.8	75.0	73.2	72.3
12	A2 Canterbury Road/Murston Road/Rectory Road	81.6	76.1	79.8	73.5	80.4	73.4	81.5	74.7	80.4	74.4
13	A2 Dover Street/Milton Road	81.1	84.1	60.1	66.0	60.4	65.8	61.7	66.7	60.6	67.3
14	A2 Canterbury Road/Swanstree Avenue	68.4	80.4	69.7	64.8	71.4	64.3	74.7	66.1	72.4	65.4
15	A2042 Faversham Road/Trinity Road	104.9	87.7	103.4	84.5	102.7	84.3	103.5	86.1	105.1	85.0
16	A299 Thanet Way/Staple St	67.5	90.1	64.2	77.3	58.8	75.1	58.6	77.4	58.0	76.5
17	Tunstall Rd/Woodstock Rd	70.5	66.3	77.3	66.2	79.0	64.5	79.8	65.6	77.2	65.8
18	A2 London Road/Wises Lane	61.3	55.8	57.6	58.1	57.7	57.9	56.8	57.3	56.8	56.0
19	B2006/ B2005	79.3	90.3	82.8	90.5	83.3	91.3	83.5	91.2	80.5	90.5
20	A2 St Michael's Road/East Street	64.3	60.3	61.9	66.9	62.8	66.1	62.8	66.8	62.6	67.6
21	A250 Millenium Way/High Street	84.0	85.4	76.2	79.8	76.1	79.2	77.6	83.0	73.8	74.7
22	A249 Brielle Way /B2007	48.0	50.7	41.0	50.8	41.0	51.2	43.8	52.8	46.5	53.9
23	A249/A2500	95.4	94.0	88.8	68.5	84.9	62.2	90.8	67.5	91.3	71.3
24	Lower Road/East Church Road	57.4	65.9	56.0	60.2	56.3	60.1	57.2	59.8	54.0	61.8
25	B2006 Staplehurst Road/Chalkwell Road	60.5	87.4	67.2	82.4	66.9	84.2	66.4	84.6	62.5	83.1
26	A2 London Road/Hempstead Lane	66.6	75.0	75.1	72.3	77.2	76.5	77.3	76.5	78.3	77.4
27	A2 London Road/Station Road (Teynham)	51.3	49.2	51.1	56.0	51.7	59.4	53.5	65.6	65.8	72.7
28	A2 London Road/Faversham Road	48.5	58.1	50.9	60.2	52.6	64.3	53.4	65.9	53.7	66.4
29	A2 Canterbury Road/Selling Road	22.9	69.9	42.7	65.2	40.0	52.3	40.0	53.7	37.4	50.6
30	A299 Thanet Way/Clapham Hill	7.2	23.2	6.1	23.4	6.1	23.4	6.6	23.3	6.4	23.4
31	M20 J7	106.9	100.4	104.2	97.4	104.2	104.1	105.7	103.9	106.1	102.5
32	M20J7 Onslip WB	100.8	83.4	100.5	93.2	100.8	91.9	100.8	91.8	100.8	89.5
33	M20J7 Offslip EB	66.5	90.0	67.1	89.4	69.5	89.7	68.6	89.7	68.7	89.9
34	Gore Court Road/Bell Road/Park Avenue	63.3	72.0	68.8	58.1	70.7	58.8	70.3	62.1	71.6	59.7
35	Bell Road/Capel Road/Brenchley Road	58.3	49.7	62.4	48.8	64.5	48.0	65.0	48.6	64.8	46.5
36	A299 Thanet Way/Whitstable Road	69.0	61.0	69.3	65.5	77.1	66.5	78.3	67.4	82.5	67.3
37	A2500 Lower Road/Barton Hill Drive	90.5	97.0	89.4	88.8	89.5	88.6	90.1	89.0	87.7	80.7
38	A2 High Street/Church Lane (Newington)	54.1	28.6	48.6	39.1	47.8	38.4	54.1	38.4	50.0	37.9
39	B2006 Mill Way/ExitCarpark	80.7	88.7	80.7	89.6	81.2	89.5	82.0	88.9	79.7	88.9
40	Church Road/Lomas Road	57.5	66.9	36.2	67.5	36.3	66.7	32.5	68.5	36.4	65.7
41	Bell Road/Stanhope Avenue	83.6	80.8	84.9	81.8	85.4	82.1	85.4	81.9	85.4	81.1
42	A2 London Road/Adelaide Drive	50.4	42.5	52.2	52.6	52.3	52.1	50.2	51.4	49.7	49.8
43	B2006/Sonora Way	67.9	80.2	64.2	80.9	64.7	82.0	62.6	82.5	52.7	81.0
44	Borden Lane/Homewood Avenue	72.7	57.4	73.1	67.4	73.4	63.7	72.6	65.8	71.2	63.6
45	Cromer Road/Highsted Road	63.0	72.5	60.5	69.8	58.1	70.1	58.7	74.5	59.1	74.8
46	A2 Canterbury Road/B2041	84.3	81.9	86.1	75.3	85.2	73.6	86.8	76.0	86.1	83.2
47	A2 St Michael's Road/Crown Quay Lane	91.4	81.7	85.4	81.0	85.6	80.6	88.5	82.1	87.7	81.4
48	A2 London Road/Hawthorn Road	64.9	56.7	66.6	59.0	67.2	58.1	67.1	58.7	67.1	56.9
49	East Street/B2040 (Faversham)	102.3	96.8	93.6	86.3	87.1	81.9	98.0	88.0	88.0	92.1
50	A2/Westlands Avenue	54.6	45.6	52.2	52.6	52.3	52.1	50.2	51.4	49.7	49.8



JunctionID	Description	Weighted									
		Scenario 1		Scenario 1054		Scenario 1054		Scenario 1054 DM		Scenario 1054 DS	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
51	<b>A2/Chalkwell Road</b>	59.9	50.3	57.1	50.2	57.6	50.9	58.6	50.6	58.8	47.6
52	<b>A2/Burley Road</b>	73.8	61.6	75.2	64.3	74.7	64.5	74.6	64.7	76.2	61.4
53	<b>A2/School Lane</b>	67.0	85.3	67.7	79.2	69.5	79.2	72.6	81.8	71.0	80.4
54	<b>A2/B2040 South Road</b>	86.4	92.0	77.7	69.7	69.2	73.1	78.7	77.2	74.5	79.0
55	Sheppey Way/Grovehurst Road	48.8	34.9	36.2	22.0	38.4	22.2	42.0	22.5	28.4	23.0
56	<b>A20 Ashford Road/Hubbards Hill</b>	40.0	39.6	39.8	40.4	39.0	39.9	42.2	39.8	39.5	40.2
57	Invicta Road/Cavour Rd Sheppey	109.4	27.4	13.7	27.0	13.7	28.2	15.9	27.5	13.8	26.4
58	Western Link Road/Bysing Wood Road	69.8	49.1	64.8	44.7	49.2	46.8	61.9	49.1	39.1	42.7
59	Cavour Road/Alma Road Sheppey	101.1	21.5	6.9	23.4	7.2	24.3	6.3	23.4	7.1	23.0
60	Minster Road/Back Lane Sheppey	83.2	37.7	68.9	30.3	68.9	30.3	69.7	29.6	61.7	31.9
61	Barton Hill Drive/Plover Road	76.3	60.7	53.4	47.2	52.4	47.2	57.6	47.6	69.6	59.3
62	Chequers Road/Elm Lane	80.8	35.4	49.2	28.8	49.2	28.8	50.2	27.9	46.7	30.0
63	<b>A250/Queenborough Road</b>	49.3	36.3	39.2	23.7	39.1	23.9	46.3	27.3	38.3	34.4
64	<b>M2J5</b>	84.7	68.3	78.6	59.9	79.2	60.3	82.8	60.1	78.9	66.8
65	<b>A2/Sandford Road</b>	61.4	51.9	58.2	60.9	58.3	60.3	56.3	59.4	56.6	57.6
66	<b>A2/Staplehurst Road</b>	54.1	44.6	54.2	49.8	54.4	49.3	53.7	48.6	54.5	47.2
67	Staplehurst Road/Gadby Road	66.5	12.5	22.0	13.5	22.1	13.5	22.2	13.5	21.6	13.7
68	Chequers Road/East Church Road	80.6	38.1	49.3	29.8	49.3	29.8	50.3	29.0	46.8	31.0
69	<b>A2/Panteny Road</b>	44.1	45.2	47.6	43.4	48.4	43.7	49.9	45.0	48.7	44.6
70	<b>A2/Lynsted Lane</b>	45.6	46.8	48.2	48.4	49.6	51.1	49.8	53.0	48.4	51.9
71	Whitstable Road/Head Hill	53.9	48.9	55.4	44.4	59.1	43.8	66.2	47.4	23.4	20.9
72	<b>A2/Love Lane</b>	49.5	58.1	60.3	53.3	54.3	56.3	55.2	57.1	50.0	45.4
73	Church Street/Connecting Road	23.6	59.0	23.2	36.5	22.8	36.9	23.3	43.9	25.2	42.2
74	The Crescent/Conyer Road	44.7	24.3	21.2	15.6	20.7	15.4	36.0	20.8	32.6	20.1
75	Western Link/Bysing Wood Road W	36.9	29.5	36.3	24.2	31.1	26.2	36.0	26.7	23.0	23.4
76	<b>A2/Lewson Street</b>	45.3	52.2	46.8	55.9	47.6	58.9	49.8	61.8	49.7	62.7
77	Tonge Road/Church Road	60.6	58.3	54.8	54.1	54.7	55.6	53.9	56.4	54.5	60.7
78	Castle Road/Dolphin Road	76.7	63.8	66.8	61.7	67.6	63.4	70.5	64.9	69.0	68.5
79	Eurolink Way/Milton Road	76.8	74.4	76.3	74.5	76.8	75.5	77.1	75.4	76.7	76.7
80	Park Road/Albany Road	69.5	73.4	75.2	65.7	77.1	66.3	77.5	67.5	76.5	72.0
81	Sheppey Way/Old Ferry Road	41.8	39.9	29.5	39.8	29.4	39.3	31.2	38.9	29.7	41.1
82	<b>A249/S Green</b>	60.6	79.0	55.7	81.0	56.3	80.2	57.9	80.8	58.5	80.4
83	<b>A20 Ashford Road/ Faversham Road</b>	83.0	89.7	82.8	82.6	83.7	81.5	88.5	81.6	83.5	82.0
84	<b>A2/Rook Lane</b>	53.0	29.1	50.7	46.3	49.4	45.6	53.6	44.8	51.2	45.3
85	<b>A2/Bull Lane</b>	58.9	69.2	53.8	62.3	52.9	63.1	57.7	69.3	53.2	54.9

Bolded- Major junctions with link capacity issue

Key

- Overloaded (>100%)
- Above practical capacity (95-100%)
- At practical capacity (90-95%)
- Exceeding capacity threshold (85-90%)
- Approaching capacity threshold (80-85%)
- Below 80% capacity

Table 8-4 Summary of the congestions (highest junction V/C)

JunctionID	Description	Highest									
		Scenario 1		Scenario 776 no2s		Scenario 776 with2s		Scenario 1054 DM		Scenario 1054 DS	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Minster Road/ A250 Halfway Road	143.0	108.2	95.1	100.0	95.7	100.1	102.9	100.3	101.3	100.5
2	A250 Lower Road/Sheppey Way	172.1	115.7	109.1	75.7	109.4	61.9	113.1	61.5	100.6	68.8
3	A2 London Road/Western Link	122.4	99.0	101.5	88.7	83.1	92.8	104.7	96.1	79.4	102.5
4	M2 Junction 7	142.1	123.9	121.6	121.3	88.2	90.1	100.5	101.9	69.8	102.2
5	A2/A251 Ashford Road	110.6	117.9	101.9	111.1	89.0	99.5	86.8	103.1	37.1	64.6
6	A2/Brogdale Road	136.4	110.4	87.1	87.6	71.1	96.4	87.2	103.1	75.5	85.6
7	B2006 Eurolink Way/Crown Quay Lane	97.3	100.3	90.7	97.2	90.4	94.4	95.5	95.5	93.0	94.0
8	Grovehurst/ Swale Way/B2005	105.9	91.2	105.6	106.1	105.0	76.6	105.6	79.3	91.4	94.5
9	M2 Junction 5	24.2	107.0	24.1	96.5	23.4	94.9	20.9	100.1	62.3	106.3
10	A2 Key Street/A249	82.7	120.9	101.8	110.9	101.7	111.2	103.3	113.2	104.8	108.9
11	A249/B2006	113.4	90.0	105.0	84.7	104.9	81.8	105.1	85.5	105.4	85.0
12	A2 Canterbury Road/Murston Road/Rectory Road	112.1	107.8	103.3	103.2	103.1	103.0	107.2	104.5	104.5	103.1
13	A2 Dover Street/Milton Road	102.9	100.0	73.7	88.7	73.7	87.6	75.7	88.1	73.1	87.9
14	A2 Canterbury Road/Swanstree Avenue	96.2	102.7	96.1	83.0	96.8	80.7	96.4	82.4	96.7	80.9
15	A2042 Faversham Road/Trinity Road	137.2	111.1	137.2	110.5	137.2	110.5	137.2	110.7	137.2	110.6
16	A299 Thanet Way/Staple St	136.9	92.7	119.1	101.3	87.1	79.2	94.9	77.5	94.7	76.6
17	Tunstall Rd/Woodstock Rd	92.3	94.4	95.6	93.8	96.0	91.9	94.6	94.0	88.0	95.3
18	A2 London Road/Wises Lane	82.6	94.8	83.4	79.6	84.1	80.7	87.9	83.2	83.2	88.9
19	B2006/ B2005	99.9	100.4	100.2	100.3	100.2	99.0	100.1	99.6	99.9	99.5
20	A2 St Michael's Road/East Street	68.6	72.6	68.3	73.4	68.9	72.6	69.2	74.2	69.8	74.5
21	A250 Millenium Way/High Street	100.5	101.4	97.1	91.2	97.0	90.9	97.6	94.0	95.7	85.6
22	A249 Brielle Way /B2007	64.6	96.1	50.4	88.1	50.2	89.7	54.4	90.2	55.5	89.1
23	A249/A2500	124.6	123.7	105.3	83.8	104.2	76.1	104.8	84.3	105.3	90.7
24	Lower Road/East Church Road	102.7	96.2	99.9	89.9	100.5	89.7	100.5	89.6	101.0	89.9
25	B2006 Staplehurst Road/Chalkwell Road	78.2	100.1	81.8	92.6	81.4	97.1	80.2	98.0	78.3	95.9
26	A2 London Road/Hempstead Lane	118.9	103.7	101.1	102.3	100.7	101.6	105.0	103.1	102.0	102.4
27	A2 London Road/Station Road (Teynham)	118.4	92.9	98.5	95.4	96.4	95.0	105.1	97.7	100.0	96.7
28	A2 London Road/Faversham Road	58.6	114.2	53.8	104.8	62.3	105.8	57.8	109.5	73.0	102.3
29	A2 Canterbury Road/Selling Road	38.6	116.0	64.2	106.7	45.8	68.8	46.4	74.6	44.3	61.8
30	A299 Thanet Way/Clapham Hill	23.7	137.6	20.9	137.5	20.9	137.4	22.2	137.6	21.6	137.7
31	M20 J7	123.4	112.2	120.6	109.7	120.6	109.2	123.4	110.3	123.8	110.8
32	M20J7 Onslip WB	102.9	84.0	101.8	102.3	102.7	101.2	102.9	101.1	102.8	96.9
33	M20J7 Offslip EB	80.3	100.0	81.0	100.0	83.9	100.0	82.8	100.0	82.8	100.0
34	Gore Court Road/Bell Road/Park Avenue	81.9	95.8	93.2	73.0	95.9	74.7	96.4	79.7	97.6	78.2
35	Bell Road/Capel Road/Brenchley Road	78.9	62.2	83.7	58.4	88.0	57.0	90.1	59.3	88.9	56.3
36	A299 Thanet Way/Whitstable Road	144.1	96.9	123.4	97.4	96.1	86.3	101.1	86.7	97.6	75.4
37	A2500 Lower Road/Barton Hill Drive	103.7	111.7	102.2	109.3	102.5	108.9	103.4	109.8	100.5	103.7
38	A2 High Street/Church Lane (Newington)	94.6	33.7	58.5	39.8	57.0	39.4	82.7	40.4	65.7	38.8
39	B2006 Mill Way/ExitCarpark	90.3	103.1	88.8	103.7	89.4	102.8	90.0	102.6	89.8	101.5
40	Church Road/Lomas Road	92.5	122.0	58.9	105.1	58.9	105.6	47.7	108.3	58.7	106.0
41	Bell Road/Stanhope Avenue	103.5	97.4	104.1	101.2	104.7	100.8	105.3	100.7	105.0	98.6
42	A2 London Road/Adelaide Drive	66.1	67.7	96.4	58.6	96.6	57.8	92.4	58.0	87.9	57.7
43	B2006/Sonora Way	102.0	94.4	82.6	89.7	84.0	93.0	81.5	93.9	67.5	93.4
44	Borden Lane/Homewood Avenue	95.2	69.4	93.2	92.3	94.0	87.1	95.3	92.4	91.0	85.6
45	Cromer Road/Highsted Road	78.8	102.7	77.1	90.5	74.0	90.6	74.7	96.9	75.1	96.1
46	A2 Canterbury Road/B2041	124.5	100.3	127.4	104.1	122.9	90.8	122.9	96.3	97.8	94.5
47	A2 St Michael's Road/Crown Quay Lane	102.5	99.7	94.5	96.4	94.9	95.8	96.4	98.1	95.2	96.0
48	A2 London Road/Hawthorn Road	81.1	71.5	83.4	71.3	83.8	70.4	84.3	71.1	83.0	69.1
49	East Street/B2040 (Faversham)	103.9	118.6	103.6	98.8	103.6	98.7	103.6	106.9	103.5	102.1
50	A2/Westlands Avenue	100.3	63.4	96.4	58.6	96.6	57.8	92.4	58.0	87.9	57.7

JunctionID	Description	Highest									
		Scenario 1		Scenario 1054		Scenario 1054		Scenario 1054 DM		Scenario 1054 DS	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
51	<b>A2/Chalkwell Road</b>	104.0	57.4	94.5	55.3	96.5	55.1	97.5	56.8	98.2	51.7
52	<b>A2/Burley Road</b>	93.6	81.4	96.0	77.0	95.2	78.4	94.9	81.7	97.4	81.6
53	<b>A2/School Lane</b>	102.3	109.8	102.2	104.0	102.2	104.5	102.8	107.0	102.8	105.7
54	<b>A2/B2040 South Road</b>	146.8	107.9	115.1	92.2	107.8	85.3	112.9	85.8	96.2	94.9
55	Sheppey Way/Grovehurst Road	89.7	36.7	47.3	23.2	50.0	23.2	54.9	23.7	35.7	24.3
56	<b>A20 Ashford Road/Hubbards Hill</b>	45.6	40.9	44.9	46.5	44.5	47.1	72.2	46.7	44.9	46.8
57	Invicta Road/Cavour Rd Sheppey	116.0	29.6	18.1	29.2	18.2	30.4	20.5	29.6	18.3	28.5
58	Western Link Road/Bysing Wood Road	115.8	75.8	104.0	70.9	67.4	73.0	97.7	75.3	63.3	64.6
59	Cavour Road/Alma Road Sheppey	104.0	27.4	7.6	32.0	7.9	33.3	7.0	31.9	7.8	31.6
60	Minster Road/Back Lane Sheppey	102.0	44.3	85.7	33.4	85.8	33.5	87.1	33.0	79.1	35.0
61	Barton Hill Drive/Plover Road	101.3	73.1	61.7	53.0	60.9	52.9	68.1	52.9	81.4	73.3
62	Chequers Road/Elm Lane	92.8	40.7	58.7	34.4	58.7	34.3	59.8	33.3	56.3	35.8
63	<b>A250/Queenborough Road</b>	66.5	50.1	46.8	32.3	46.5	32.8	54.8	33.5	52.4	42.6
64	<b>M2J5</b>	97.4	83.0	90.2	70.6	90.7	71.0	95.0	70.6	90.5	75.1
65	<b>A2/Sandford Road</b>	90.3	62.1	62.2	61.6	62.3	61.1	59.6	61.3	57.9	61.0
66	<b>A2/Staplehurst Road</b>	101.0	56.7	89.6	55.4	90.0	53.9	92.7	55.8	94.7	54.4
67	Staplehurst Road/Gadby Road	100.3	15.1	40.7	17.2	40.8	17.2	40.9	17.2	39.8	17.3
68	Chequers Road/East Church Road	92.3	44.0	58.5	35.3	58.6	35.2	59.7	34.2	56.2	36.7
69	<b>A2/Panteny Road</b>	93.3	104.0	94.0	97.9	94.8	98.9	93.6	101.9	95.1	100.7
70	<b>A2/Lynsted Lane</b>	55.7	96.1	55.7	66.6	60.9	67.5	64.9	81.1	66.7	75.2
71	Whitstable Road/Head Hill	84.8	76.9	87.9	72.3	93.4	70.5	103.9	76.4	32.2	34.2
72	<b>A2/Love Lane</b>	81.0	97.6	105.7	93.1	100.0	81.1	102.0	82.4	83.1	66.9
73	Church Street/Connecting Road	31.7	76.2	35.3	45.9	34.5	46.1	35.7	56.5	37.5	53.5
74	The Crescent/Conyer Road	85.5	29.5	41.7	19.2	40.2	19.2	69.9	25.9	55.7	25.4
75	Western Link/Bysing Wood Road W	70.0	81.2	41.1	26.6	34.4	27.8	40.7	31.5	49.6	27.6
76	<b>A2/Lewson Street</b>	59.0	93.0	75.6	95.4	77.9	103.4	92.1	104.5	97.1	103.9
77	Tonge Road/Church Road	101.1	96.6	100.7	70.1	100.6	78.6	100.9	80.0	100.9	94.7
78	Castle Road/Dolphin Road	108.6	92.4	95.8	90.7	96.8	91.5	103.7	95.6	98.3	97.4
79	Eurolink Way/Milton Road	93.9	89.1	92.7	88.5	94.1	91.0	94.9	89.3	93.6	91.4
80	Park Road/Albany Road	71.6	81.4	79.0	71.6	81.2	72.4	82.3	74.5	79.4	81.1
81	Sheppey Way/Old Ferry Road	91.2	48.2	33.3	47.4	33.3	46.6	33.7	45.5	33.4	48.3
82	<b>A249/S Green</b>	109.3	106.0	85.4	106.0	85.0	104.5	95.7	105.1	98.3	106.5
83	<b>A20 Ashford Road/ Faversham Road</b>	106.0	103.8	110.8	98.7	115.6	96.5	119.1	96.4	106.9	97.6
84	<b>A2/Rook Lane</b>	107.8	33.8	59.5	53.5	62.3	52.7	68.9	52.1	75.4	52.2
85	<b>A2/Bull Lane</b>	87.3	105.3	69.7	84.2	67.7	85.8	76.8	95.3	70.2	72.9

**Bolded**- Major junctions with link capacity issue

Key

- Overloaded (>100%)
- Above practical capacity (95-100%)
- At practical capacity (90-95%)
- Exceeding capacity threshold (85-90%)
- Approaching capacity threshold (80-85%)
- Below 80% capacity

Figure 8-11 Scenario 1054 Junction and Link V/C Plot – AM Peak

**1054 Scenario Do-Minimum (DM) - AM**

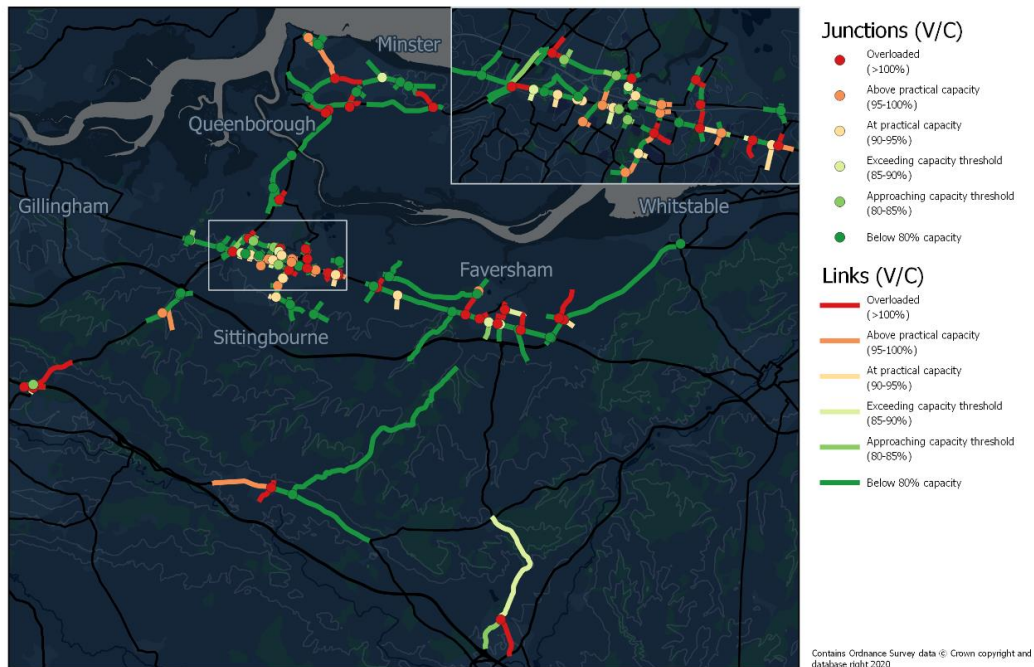
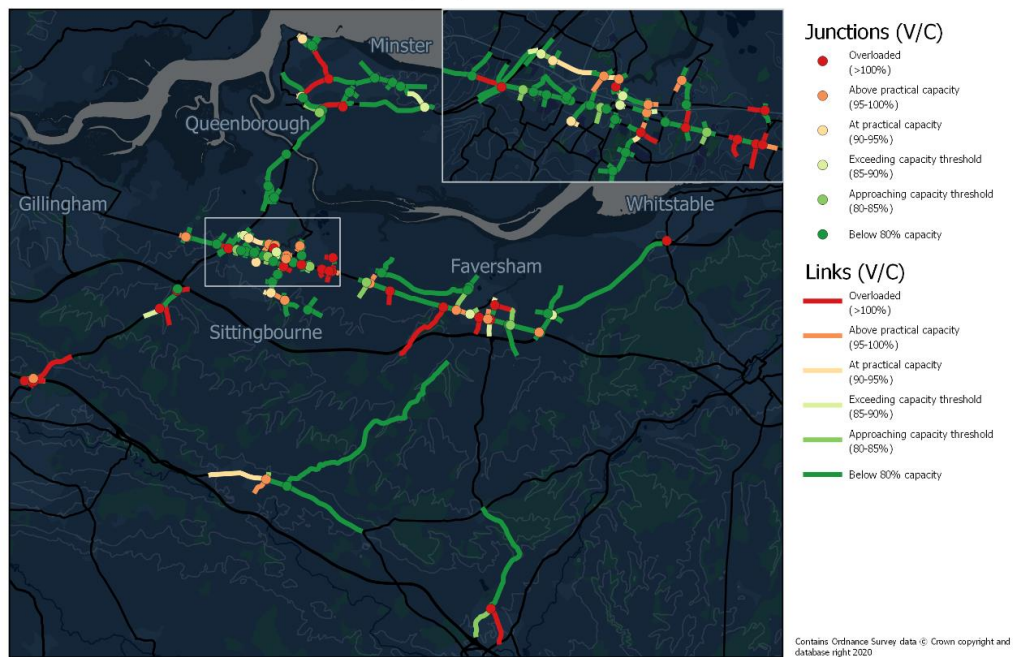


Figure 8-12 Scenario 1054 Junction and Link V/C Plot – PM Peak

**1054 Scenario Do-Minimum (DM) - PM**

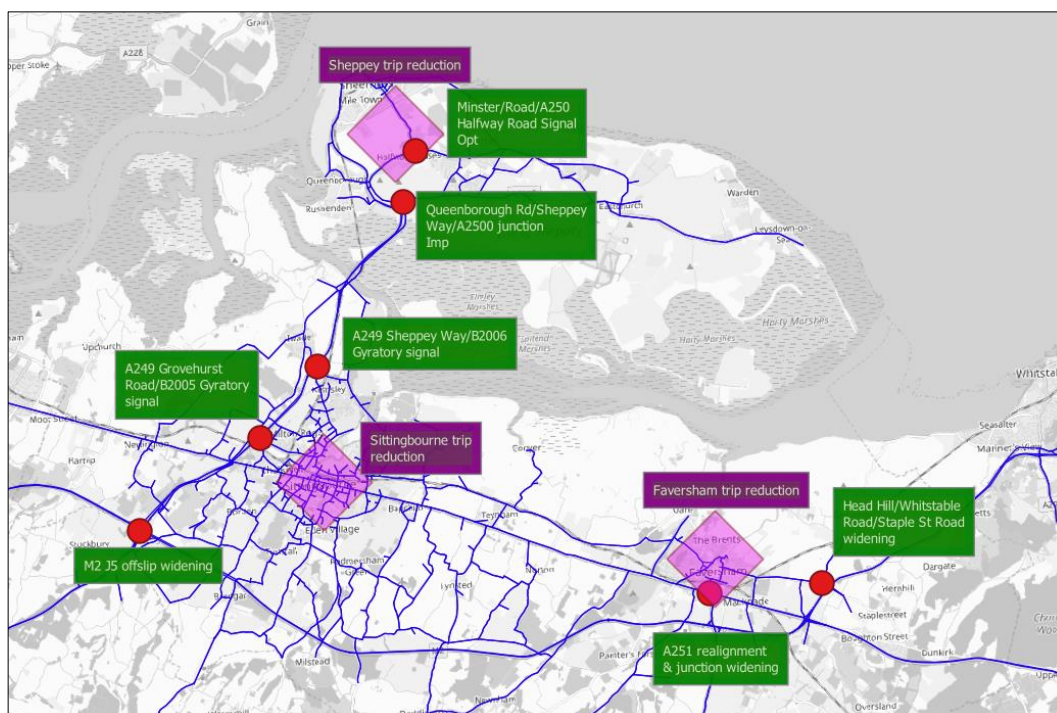




## 9 Mitigation Measures

Based on the results of 1054 Scenario DM (without mitigations), potential transport mitigation measure to offset the additional vehicle trips generated by the new Local Plan developments were identified, along with the potential trip reduction for certain development zone due to modal shift as a result of the provision for public transport and active travels. The key mitigation measures for the Swale LP 2054 scenario in the year 2037 is illustrated in Figure 9-1.

Figure 9-1 key Swale LP mitigation measures-1054 scenario



The mitigation packages identified follow a pragmatic approach, considering scheme implementation, land & scheme cost constraints. Note that they are not aimed to solve all the traffic issue. They should be working in conjunction with the demand reduction as a result of internalisation and modal shift.

### 9.1 Demand Mitigations

From the data of the additional houses in section 5 that there are several big Local Plan house development sites for the 1054 scenario, including:

- Queenborough / Rushenden
- Sittingbourne two centre
- East of Faversham (East Lady Dane, Duchy Fav)

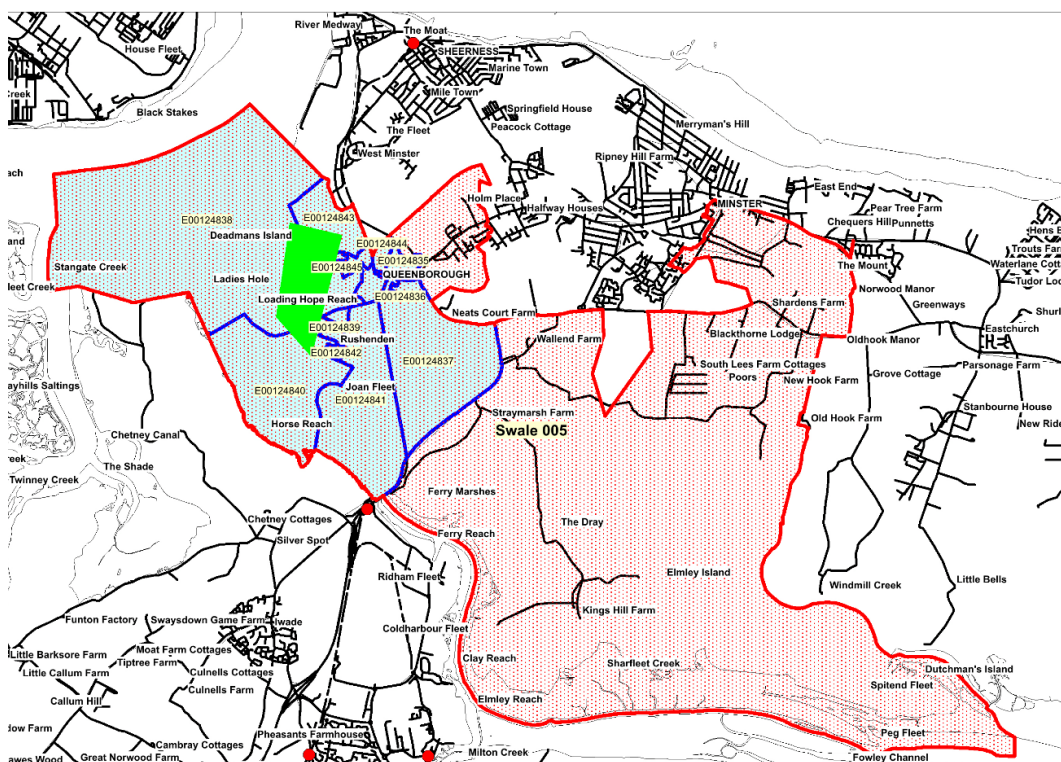
Of these developments, Queenborough / Rushenden and East of Faversham fall within larger TEMPro zones that cover trips both for urban periphery and rural hinterland. A more localised trip rate may be appropriate as these developments are being planned as a mix of urban infill/extension rather than standalone. For Sittingbourne two centre, there may be scope for more ambition non-car trip rates when taking account of the sites compact nature close to the town centre and key transport hubs.

### 9.1.1 Queenborough / Rushenden

The key sites at Queenborough / Rushenden comprise of 670 homes. This development is located within census MSOA zone Swale 005. The approximate location of the development sites related to the census MSOA and Output Area zones is shown in Figure 9-2.

From the 2011 census Journey to work data, the car trip mode share for MSOA zone 005 is 76.4%. The existing plans for the development focus the development around the existing town centres. Upon review of the mode share for Queenborough / Rushenden using Census Output Areas, it can be seen that its mode share for cars is 70%, an 8% drop on the MSOA value. A further analysis identifies that Output Area zones E00124838 and E00124838 have a car mode share of 63%, a fall of 18% in car trip rates from MSOA zone 005. This shows that this mode share is achievable for this area if the development has the right conditions. As a result of our analysis, a minimum car trip rate reduction of 8-10% on currently modelled car trip rates would be suggested for the development.

Figure 9-2 Development location (Green) of Queensborough in comparison to MSOA(Red) and Output Area (Blue) Census zones



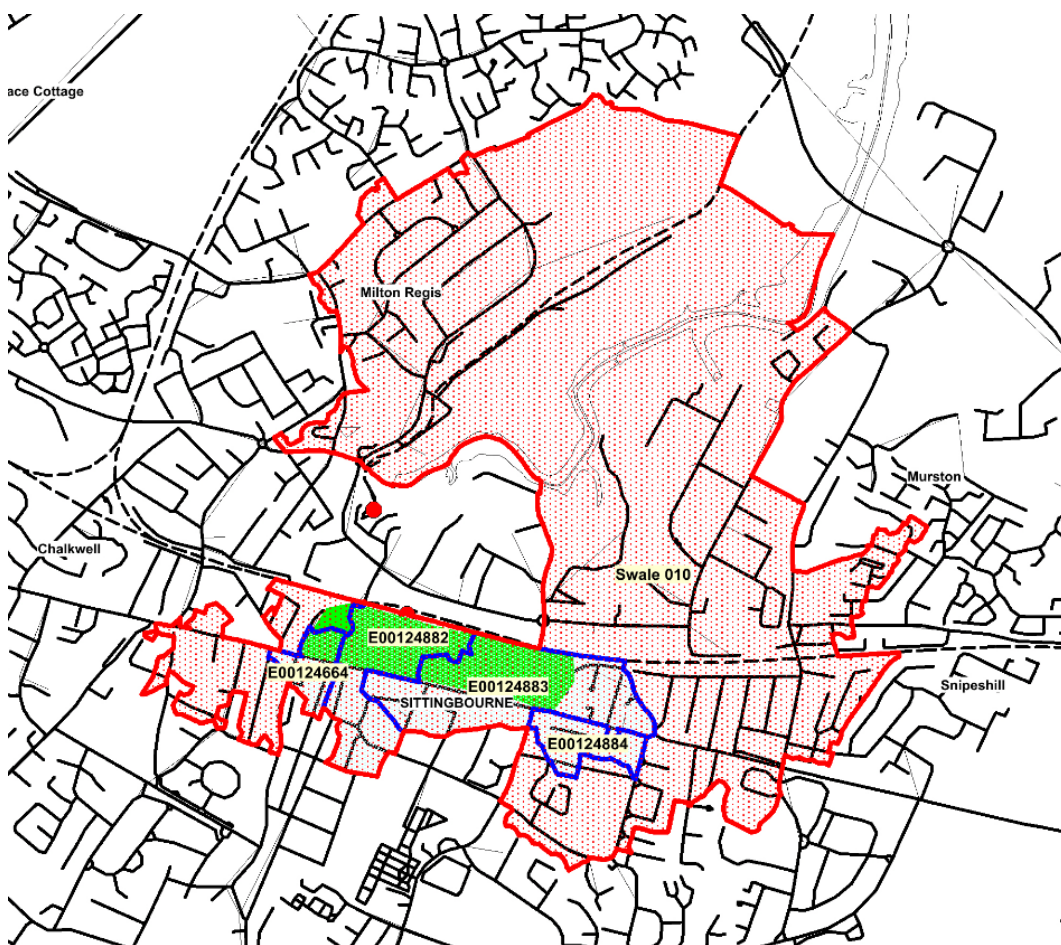
### 9.1.2 Sittingbourne Town Centre

The key sites at Sittingbourne Town Centre comprise of 800 homes. This development is located within census MSOA zone Swale 010. The approximate location of the development sites related to the census MSOA and Output Area zones is shown in Figure 9-3.

The latest 2011 car trip mode share for the specific MSOA zone 010 in this area is 57%. The existing plans for the development focus the development between the High Street and the railway station / bus hub. Upon review of the mode share for this specific area

Census Output Area zones, it is found that the mode share for cars is 45%, a 21% drop on this MSOA value. Further analysis of specific output area zones in the area sees a car mode share of between 44%-47%. The analysis shows that a lower car trip mode share than the average for MSOA zone 010 is achievable for this area if the development has the right conditions. A trip rate reduction of 20% on currently modelled car trip rates would be suggested for the development.

Figure 9-3 Development location (Green) of Sittingbourne in comparison to MSOA(Red) and Output Area (Blue) Census zones



### 9.1.3 East of Faversham

The key sites East of Faversham comprise of a total of 3,600 homes (2,500 Duchy development and 1,100 East Lady Dane). These developments are located within census MSOA zone Swale 015 and MSOA zone Swale 017. The approximate location of the development sites related to the census MSOA and Output Area zones is shown in Figure 9-4.

The latest 2011 car trip mode shares for these zones are 60.9% (Swale zone 15) and 77% (Swale zone 17). The existing plans for the development focus on the development of urban extensions to the east of Faversham. Upon review of the mode share for the Census Output Areas on the eastern edge of Faversham Town, it is found that the mode share for cars is 69%. This is an increase on MSOA zone 15 car trip rate but a reduction of 10% on car trips for MSOA zone 017. It is noted that though MSOA zone 015 already





## 9.2 Transport Mitigations

### 9.2.1 Mitigations package Isle of Sheppey

The key interventions are as follows:

- Queenborough Rd/Sheppey Way/A2500 Roundabout, widening the approach arm from A2500 Lower Road from 1 lane to 2 lanes to increase the turning capacity— **directly modelled in highway model**;
- Review signal staging at the junction 1 Minster Road/ A250 Halfway Road junction based on the newly committed scheme;
- Build a new cycle and pedestrian crossing across the A249 to improve the connection between Rushenden / Neats Court Retail Park and the Sheppey Way / Queenborough Road cycling corridor. This will also connect with the ongoing cycle/walk upgrades along the A2500 Lower Road. – Reflect within lower car trips generated from new Local Plan developments in model;
- Invest in Sheerness Way walk and cycle route to improve connectivity from Rushenden/Queenborough to Sheerness and rest of the Isle of Sheppey. Key location for improvement is connections across the railway from Queenborough around Cromwell Road. Existing crossing bridge narrow. Potential opportunities for a wider bridge further north between Cromwell Road and New Road. – Reflect within lower car trips generated from new Local Plan developments in the model;
- Financial support for turn up and go level bus service (3-4 buses an hour) linking Rushenden/Queenborough to Sheerness. Potentially designate Whiteway Road as bus-only through access to Queenborough. Maintain bus link to Sittingbourne. – Reflect within lower car trips generated from new Local Plan developments in the model;
- Ensure all stations on Sheerness rail branch are step free and stations are accessible to all non-car modes to enable people to connect to the local rail by non-car modes – Reflect within lower car trips generated from new Local Plan developments in the model.

These interventions will particularly support the connectivity and accessibility for sustainable transport modes for the new Local Plan developments at Rushenden / Queenborough.

### 9.2.2 Mitigations package Faversham

The key interventions are as follows:

- Realign A251 and connect it to B2041 directly, widen approach arms from the A2 EB, A2 WB and A251 NB to 3 lanes by appropriate turning lane allocation, and optimise signal setting and phases - **directly modelled in the highway model**;
- Widen the approach arms from 1 lane to 2 lanes for SB, EB and WB arm at the Head Hill/Whitstable Road/Staple St Road- **directly modelled in the highway model**;
- Create a cohesive, comprehensive network of walk and cycle paths both within new Local Plan developments and connecting the new development to central Faversham and railway station – Reflect within lower car trips generated from new Local Plan developments in the model;
- Pay for bus extension from central Faversham to new developments to provide turn up and go connection to the town centre – Reflect within lower car trips generated from new Local Plan developments in the model.

The new Local Plan residential development to the East of Faversham are significant in scale. There will be a need to reduce car trips from this area to ensure there is enough capacity on the surrounding highway links and junctions.

### 9.2.3 Mitigations package Sittingbourne

The key interventions are as follows:

- A249 Sheppey Way/B2006 Gyratory, signalise SB approach arm from A249 SB offslip road (junction 11) - **directly modelled in highway model;**
- A249 Grovehurst Road/B2005 Gyratory, signalise SB approach arm from A249 SB offslip road (junction 8)- **directly modelled in highway model;**
- A249 to M2 J5 SB offslip road widening-lane drop diverge-- **directly modelled in highway model;**
- M2 J5 EB offslip widening-lane drop diverge-- **directly modelled in highway model;**
- Develop high quality segregated cycle link along B2205 / B2006 corridor between Iwade, Kemsley, and Sittingbourne to support the local walk and cycle trips in the area. This will help reduce local car trip demand for commuting, retail, and education trips including from new Local Plan developments in Sittingbourne Town Centre. - – Reflect within lower car trips generated from the new Local Plan developments in the model.

### 9.3 Wider Mitigations

There are a number of key wider mitigations that can be designed as a result of the new development in the Local Plan. The three primary initiatives are summarised below. They complement the largest house developments proposed through the Local Plan. They are summarised as follows:

- Upgrade Sheppey Way link to increase bus and cycle demand linking between Sheerness and Sittingbourne;
- Develop an east-west cycle corridor parallel to the A2 linking Sittingbourne to Faversham using existing side roads;
- Work with developers east of Faversham to develop a comprehensive local walk, cycle, and bus priority network to link the new developments to Faversham town centre.

### 9.4 1054 Scenario DS (with mitigation) Test

#### 9.4.1 Network Statistics

Table 9-1 summarises the overall performance of the network in the AM and PM peaks between the 1054 scenarios with mitigation and without mitigation within the simulation area including the key roads such as A249, A2, M2, M20 etc.

Table 9-1 Network statistics comparison between 1054 Scenario with and without mitigation

Metrics	AM		PM	
	Scenario 1054 without mitigation	Scenario 1054 with mitigation	Scenario 1054 without mitigation	Scenario 1054 with mitigation
Simulation network Speed (kph)	56	59	59	60
Total travel time (PCU hrs)	68223	67239	67020	66629
Total travel distance (PCU kms)	4132168	4122536	4065898	4062482

Figure 9-5 to Figure 9-7 show the average simulation network speeds, total travel time, and total travel distances graphically between the 1054 scenarios with mitigation and without mitigation.

Figure 9-5 Simulation Network Speed comparison between 1054 Scenario with and without mitigation

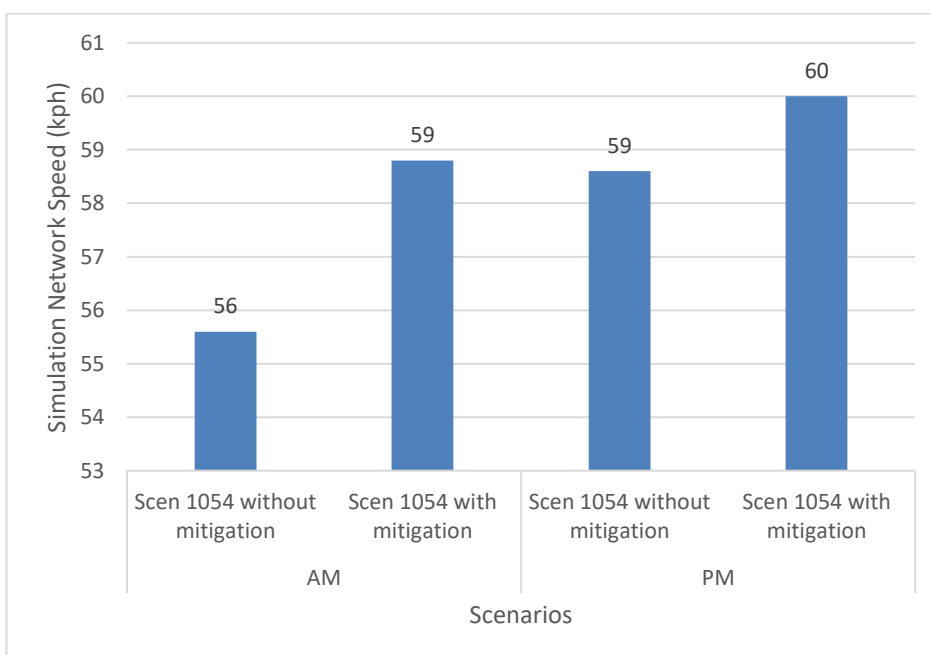


Figure 9-6 Total Travel Time comparison between 1054 Scenario with and without mitigation

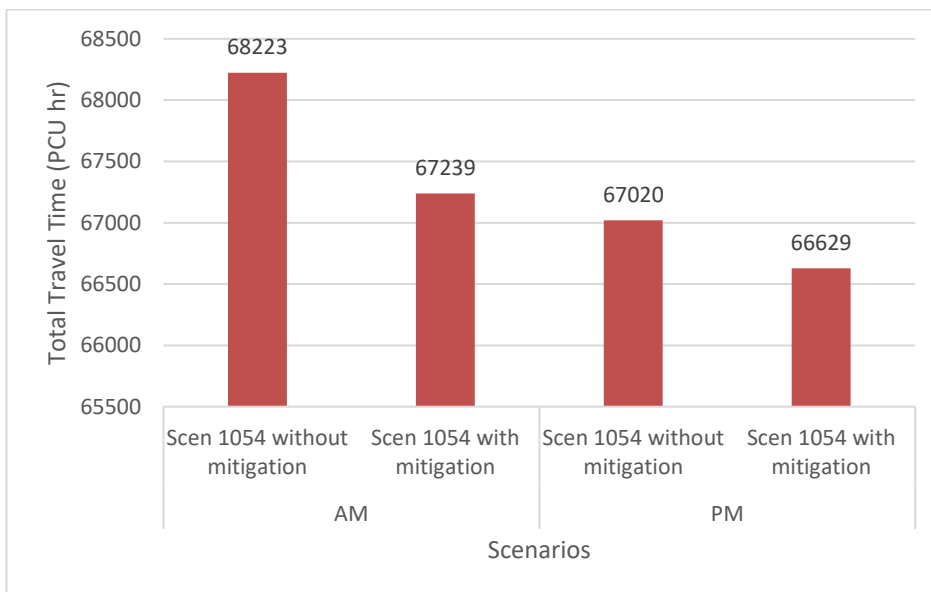
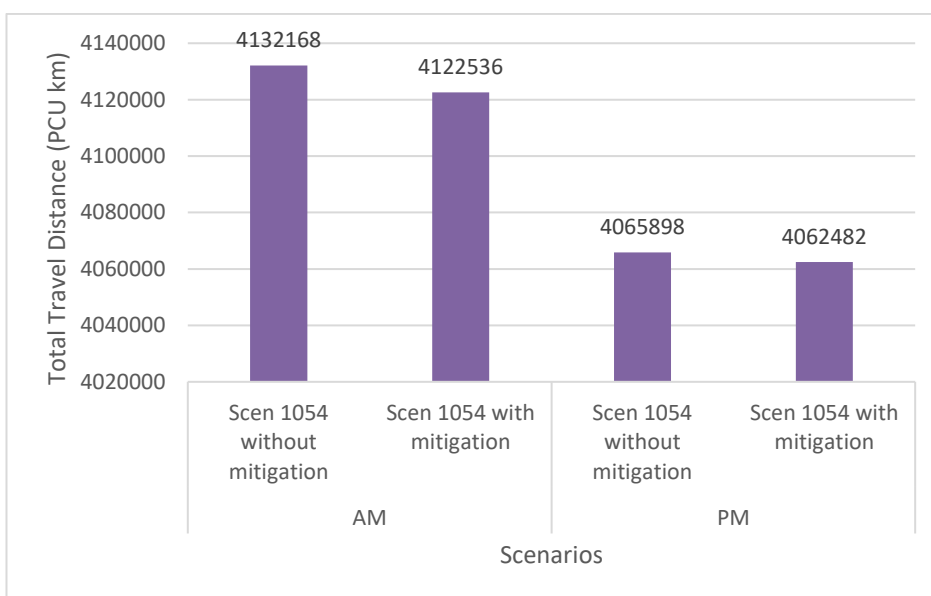


Figure 9-7 Total Travel Distance comparison between 1054 Scenario with and without mitigation



The average network speed in the simulation area in the 1054 scenarios with mitigation is higher than the 1054 scenarios without mitigation. Total travel distance and total travel time in the 1054 scenarios with mitigation are lower than the 1054 scenarios without mitigation. Overall, the results are sensible.

#### 9.4.2 Traffic Flow

Figure 9-8 and Figure 9-9 below show the total flow (PCU) difference plots between the 1054 scenarios with mitigation and without mitigation. The green bars indicate an increase in modelled flow, and blue bars indicate a decrease. The figures show the areas around Sittingbourne, Faversham and Isle of Sheppey.



Figure 9-8 Flow difference plots between 1054 Scenario with and without mitigation - AM

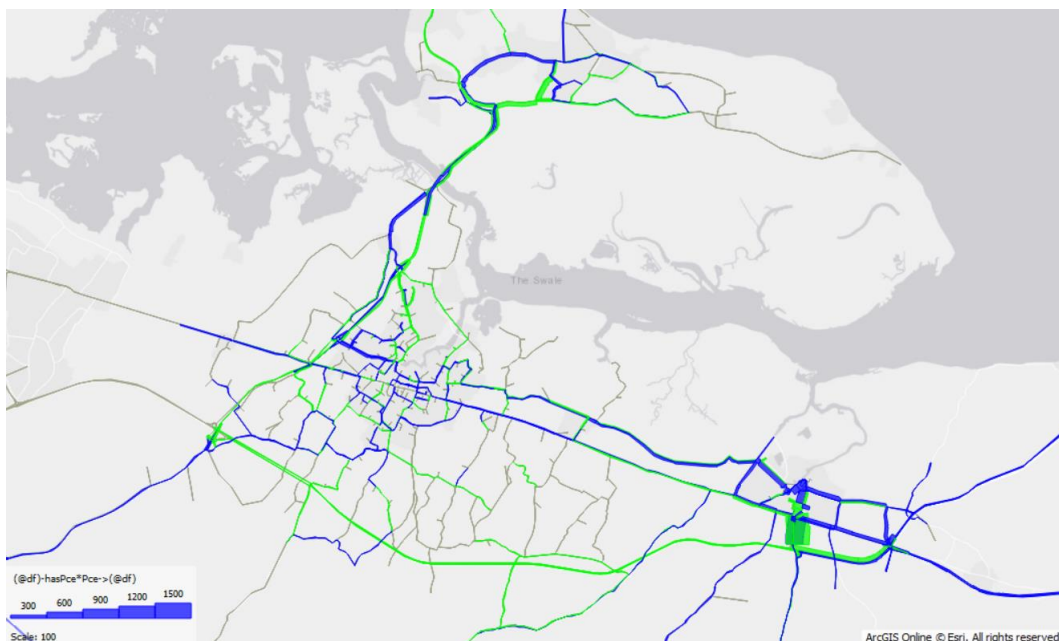
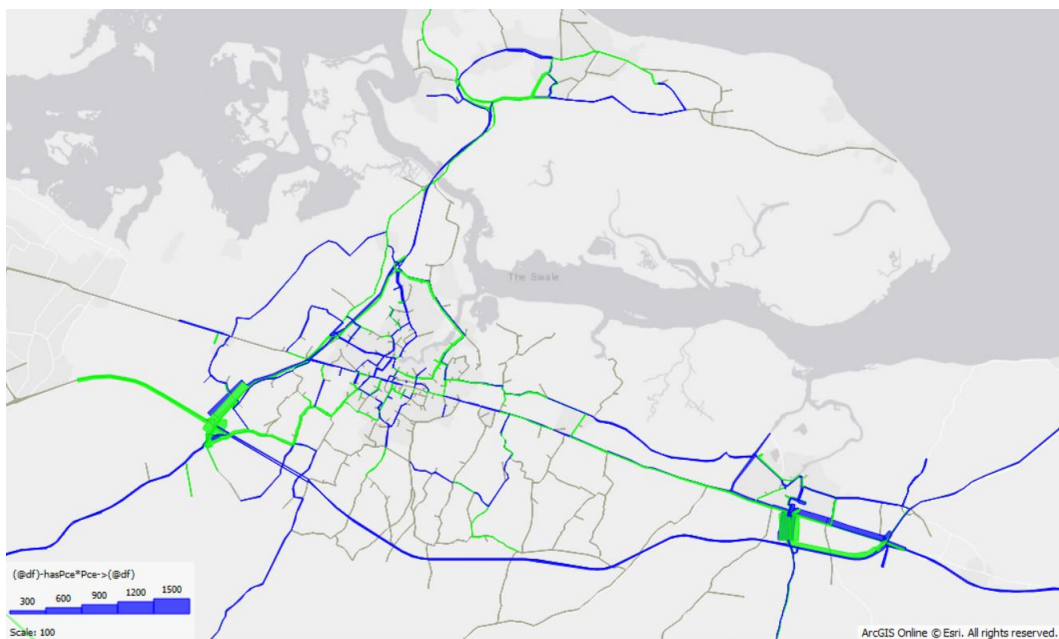


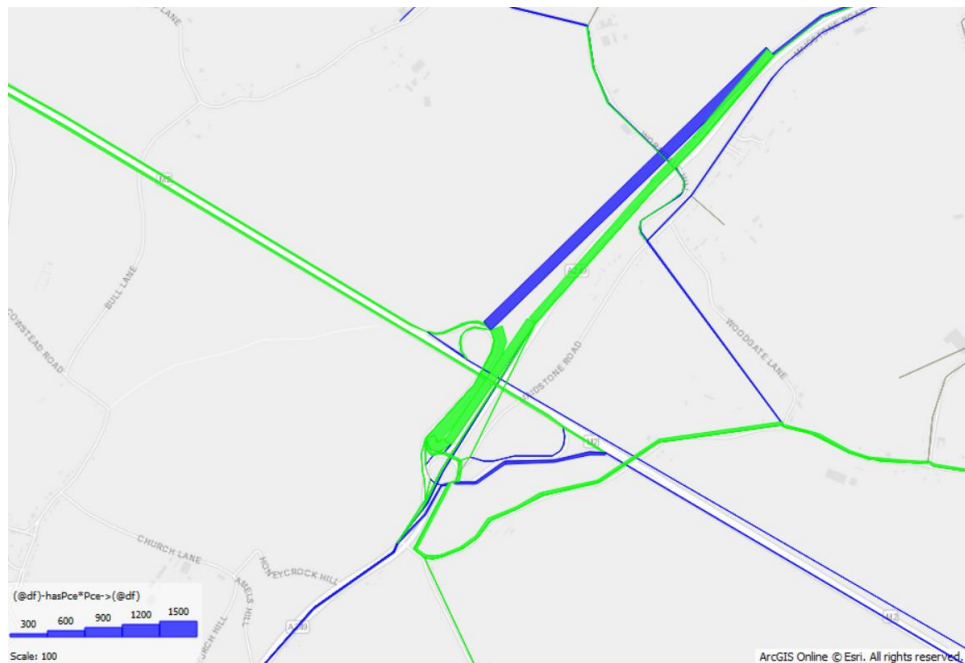
Figure 9-9 Flow difference plots between 1054 Scenario with and without mitigation - PM



In the 1054 scenario with mitigation AM Peak, the flow increases along A249 between M2 J5 and A2500, M2 and Faversham. There is a reassignment of traffic from the A2 WB to Lower Road WB between Sittingbourne and Faversham, resulting in decreased flows along the Lower Road WB. In the Faversham town centre, significant flow reassignment was found between the A251 and the Canterbury Road towards M2 J7, largely due to the mitigation measures of the A251 realignment scheme. In the PM Peak, it is found the dedicated on-slip road from M2 EB to A249 NB is overcapacity in the 1054 Scenario with mitigation measure, resulting in a traffic reassignment onto the A249 mainline section though the current roundabout in the south, as shown in Figure 9-10. This also attributes to the slight flow decrease between the M2 J5 and J6, as well as the A249 in the north

close to the Isle of Sheppey. The rest of the network in the PM flow show a similar pattern as the AM peak.

Figure 9-10 Flow difference plots between 1054 Scenario with and without mitigation (M2 J5) - PM



### 9.4.3 Average Junction Delays (1054 Scenario AM)

The comparison of the congestion (weighted V/C% and highest V/C% respectively) between 1054 Scenario DS with other scenarios are shown in **Error! Reference source not found.** and **Error! Reference source not found.**

Figure 9-11 to Figure 9-14 show the comparison of the average junction delay between 1054 Scenario without and with demand and transport mitigations in 2037 AM. The average junction delay focusing on the magnitude of delay time weighted by the arrival flow at each junction approach arm. This highlights where the largest delay occurs in the model. In the 1054 Scenario with mitigation AM, the average junction delays reduced significantly in Isle of Sheppey, Faversham town centre, and along A249.

Figure 9-11 1054 Scenario 2037 AM without mitigation vs. with mitigation – Overall

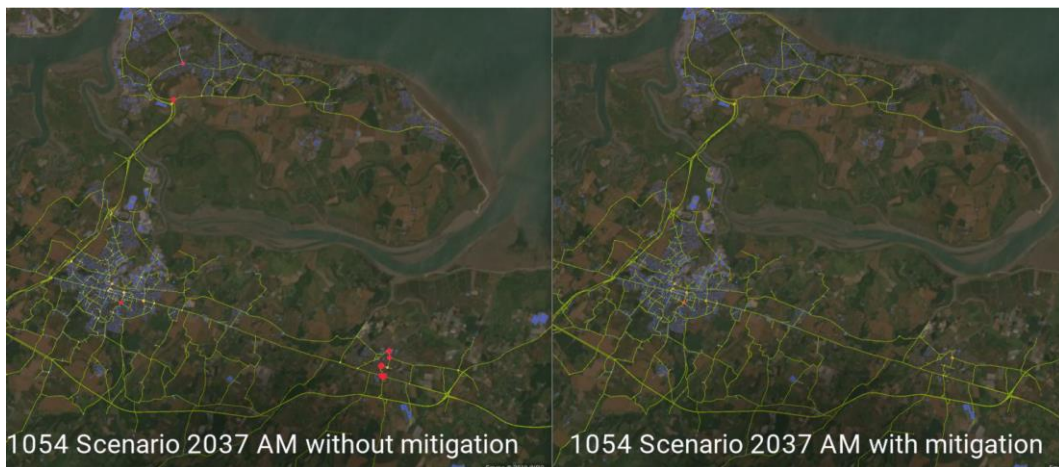


Figure 9-12 1054 Scenario 2037 AM without mitigation vs. with mitigation – Faversham

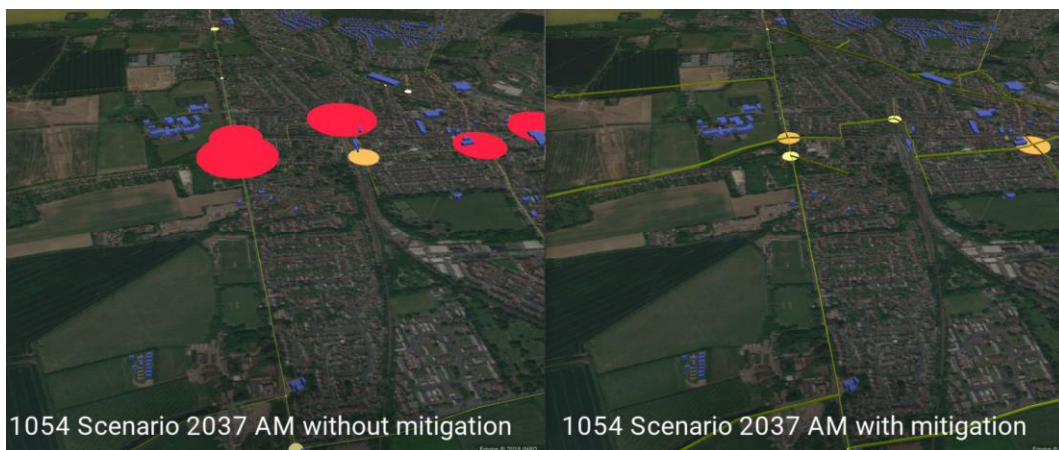


Figure 9-13 1054 Scenario 2037 AM without mitigation vs. with mitigation – A249 Corridor

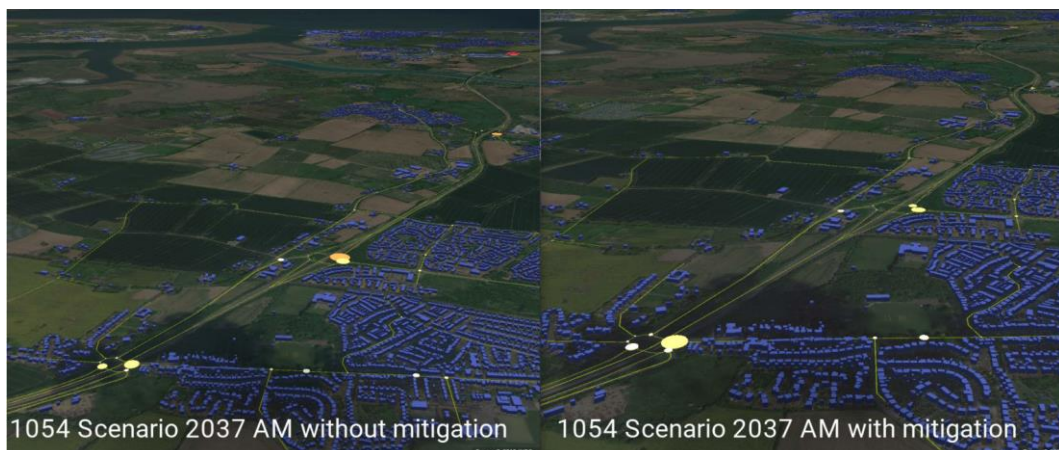




Figure 9-14 1054 Scenario 2037 AM without mitigation vs. with mitigation – Isle of Sheppey



## 10 Conclusions

The Swale Local Plan model rerun was carried out in accordance with DfT’s TAG guidance. The forecasts described above appear to show reasonable and plausible results that are in line with expectations about how the different housing and employment allocations for the Local Plan scenarios impact on the highway network. During the process, a good understanding of the model strengths and weaknesses was obtained which will help SBC to enhance the model platform/application in the future.

<b>Local Plan Panel Meeting</b>	
<b>Meeting Date</b>	11 June 2020
<b>Report Title</b>	Sequential Test
<b>Cabinet Member</b>	Cllr Mike Baldock, Cabinet Member for Planning
<b>SMT Lead</b>	James Freeman
<b>Head of Service</b>	James Freeman
<b>Lead Officer</b>	Aaron Wilkinson
<b>Key Decision</b>	No
<b>Classification</b>	Open
<b>Recommendations</b>	It is recommended that Members note the content of the Sequential Test and recommend to the Cabinet that it be published and used as part of the evidence base for the Local Plan Review.

## 1 Purpose of Report and Executive Summary

- 1.1 As part of the Local Plan Review (LPR), additional land will need to be allocated to meet the Borough's future development needs. A crucial topic area when selecting sites is flood risk and its mitigation and management. A sequential test has been prepared to demonstrate the flood risk on the sites that could be considered, as required by the National Planning Policy Framework (NPPF).

## 2 Background

- 2.1 The NPPF is clear that local plans should take full account of long-term flood risk and at paragraph 155, states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. One of the ways in which this is done is by carrying out a sequential test on the sites that have been promoted for development and which need to be considered as part of the LPR process.
- 2.2 The aim of the sequential test is to assess, in fine grain detail, the sites that have been promoted for development and to steer new development to areas with the lowest risk of flooding. It should be based upon data provided by an up-to-date Strategic Flood Risk Assessment (SFRA). A Level 1 SFRA was completed and reported to the Local Plan Panel in November 2019 and this has been used as the basis for applying the sequential test.
- 2.3 The Council held 'Call for Sites' exercises in 2017 and 2018. These have provided a pool of sites from which the Council can select land allocations for development. Using the Level 1 SFRA, the Sequential Test appended to this report demonstrates the proportion of each site which falls within each flood zone.

- 2.4 This information is then cross checked with the table of flood risk vulnerability classification which is set out within the planning practice guidance and reproduced within the Sequential Test for reference. This table shows which types of development are appropriate in which flood zones and therefore pass the sequential test. The Sequential Test appended to this report provides the assessment results for each individual site. When selecting sites for allocation, the sites which pass should be considered first.
- 2.5 Sites which do not pass the sequential test would, in an ideal world, be discounted as potential development sites. However, if the Council's development needs cannot be met from the sites that pass the sequential test, for example due to wider sustainability issues, then sites which do not pass are applicable to the exception test (unless the proposed use is entirely incompatible with the flood zone present). The sites which would be applicable to the exception test have been shown in the Sequential Test appended to this report.
- 2.6 The exception test seeks evidence that demonstrates these sites would provide wider sustainability benefits to the community that outweigh the flood risk and that any development on them would be safe for its lifetime by evidencing that any risks could be mitigated. If the Council needs to consider these sites, the exception test will need to be informed by a further Level 2 SFRA which looks at the flood risk in more detail.
- 2.7 It should be noted that sequential tests are based upon flood zones which only take into account the existing risk of fluvial and tidal flooding. However, the Council will need to consider surface water flooding, and the impact of climate change on the flood zones in the future which may alter the frequency of flood events.
- 2.8 As such, and for reference, the Sequential Test appended to this report also shows the proportion of each site at risk from the 30, 100 and 1000 year surface water flooding events. If sites are selected which show such a risk, a Level 2 SFRA will again be needed to look at this risk in more detail.
- 2.9 The impacts of climate change on the flood zones in the future is already available at Appendix K of the Level 1 SFRA (link in the Background Papers section of this report). When selecting sites in the initial instance, the Sequential Test appended to this report and the existing Level 1 SFRA will need to be considered together.

### **3 Proposals**

- 3.1 The proposal, therefore, is that Members note the content of the Sequential Test and recommend to the Cabinet that it be published and used as part of the evidence base for the LPR.

### **4 Alternative Options**

- 4.1 A sequential test is required by the NPPF and has been completed in accordance with this and the accompanying guidance set out within the planning practice

guidance. A local plan cannot proceed without it and, as such, there are no reasonable alternatives to that proposed in paragraph 3.1 above.

## 5 Consultation Undertaken or Proposed

- 5.1 No consultation has been undertaken or is proposed as this is a technical piece of evidence based on data extracted from the already published Level 1 SFRA. However, when the LPR is consulted on at the Regulation 19 stage, consultees will be able to make comments on this document if they wish to.

## 6 Implications

Issue	Implications
Corporate Plan	The proposals would align with: Priority 1: Building the right homes in the right places and supporting quality jobs for all. Priority 2: Investing in our environment and responding positively to global challenges.
Financial, Resource and Property	None identified at this stage – the work has been carried out within the Planning Policy budget.
Legal, Statutory and Procurement	None identified at this stage.
Crime and Disorder	None identified at this stage.
Environment and Sustainability	The new Local Plan will be subject to a Sustainability Appraisal.
Health and Wellbeing	None identified at this stage.
Risk Management and Health and Safety	None identified at this stage.
Equality and Diversity	None identified at this stage.
Privacy and Data Protection	None identified at this stage.

## 7 Appendices

- 7.1 The following documents are to be published with this report and form part of the report:
- Appendix I: Sequential Test



## 8 Background Papers

- 8.1 The Sequential Test has been prepared using data extracted from the Level 1 SFRA which was reported to Local Plan Panel on 27 November 2019. Links to some of the key information and maps from it can be found below.

Site Screening (Appendix K) -

[https://services.swale.gov.uk/assets/Planning%20Policy%202019/Appendix\\_K.pdf](https://services.swale.gov.uk/assets/Planning%20Policy%202019/Appendix_K.pdf)

Flood Zones - [https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20C%20-%20Flood%20Zones%20and%20Surface%20Water%20Functional%20Flood%20Zones-%20District%20-%20A2%20-%20\(v3\).pdf](https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20C%20-%20Flood%20Zones%20and%20Surface%20Water%20Functional%20Flood%20Zones-%20District%20-%20A2%20-%20(v3).pdf)

Climate Change - [https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20D%20-%20Climate%20Change%20-%20District%20\(v3\).pdf%20Feb%202020.pdf](https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20D%20-%20Climate%20Change%20-%20District%20(v3).pdf%20Feb%202020.pdf)

Surface Water Flood Risk - [https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20E%20-%20Risk%20of%20Flooding%20from%20Surface%20Water%20-%20District%20\(v2\).pdf](https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20E%20-%20Risk%20of%20Flooding%20from%20Surface%20Water%20-%20District%20(v2).pdf)

Historic Flooding - [https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20A%20-%20Historic%20Flooding%20-%20District%20\(v2\).pdf](https://services.swale.gov.uk/assets/Planning-General/Planning-Policy/SFRA%202020/2019s0345%20-%20Appendix%20A%20-%20Historic%20Flooding%20-%20District%20(v2).pdf)

# Swale Borough Council Sequential Test

Draft Report  
May 2020



**1. Background and Policy Context**

1.1 The Council is currently undertaking a Local Plan Review (LPR) and will need to allocate enough land to meet the Borough’s future development needs. The National Planning Policy Framework (NPPF) is clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere. To achieve this, local plans should apply a sequential, risk-based approach to the location of development and the first step in doing so is to apply the sequential test, and then, if necessary, the exception test.

1.2 Paragraph 158 of the NPPF states:

*“The aim of the sequential test is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.”*

1.3 This sequential test is therefore based upon the data provided by the up-to-date Level 1 Strategic Flood Risk Assessment (SFRA) completed by JBA Consulting in February 2020. The planning practice guidance provides detail on how to apply the sequential test for local plan preparation, as shown in Figure 1 below.

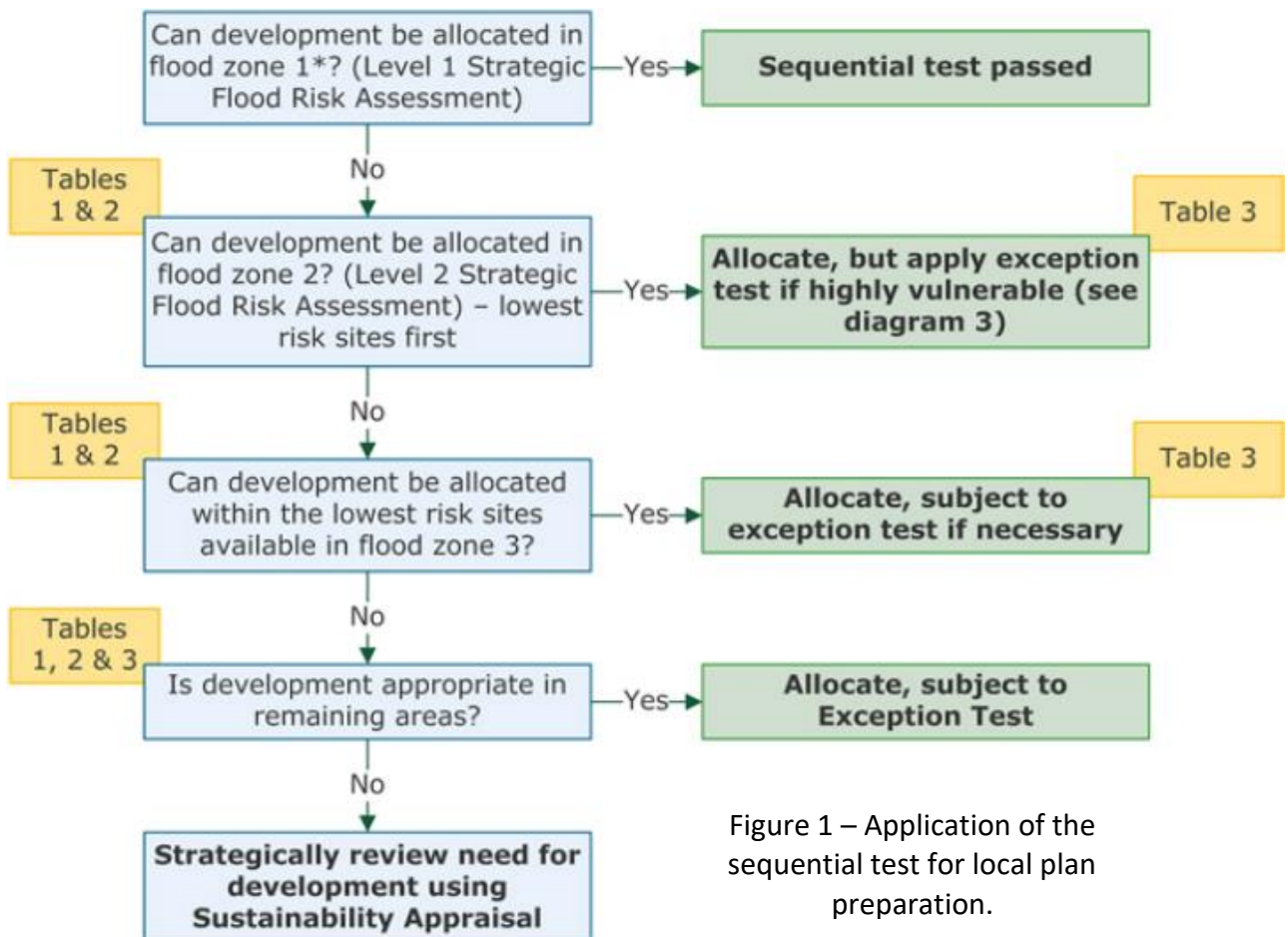


Figure 1 – Application of the sequential test for local plan preparation.

1.4 The tables referenced in Figure 1 set out what the flood zones are (Table 1), the flood risk vulnerability classification of different land uses (Table 2) and the compatibility of the flood zones

with a land use’s vulnerability classification (Table 3). Tables 1 and 2 are provided in Appendix I of this document for reference. Table 3 is shown in the Methodology in paragraph 2.4.

## 2. Methodology

- 2.1 As part of the Local Plan Review (LPR), the Council held ‘Call for Sites’ exercises in 2017 and 2018. These have provided a pool of sites from which the Council can select land allocations for development. All sites were assessed against a range of criteria to determine their suitability, availability and achievability in the Strategic Housing Land Availability Assessment completed in May 2020. This included an initial and high-level consideration of sites at the highest risk of tidal and fluvial flooding which gave an early indication of sites that may not be suitable as a result.
- 2.2 It is necessary to consider this flood risk, in all flood zones, in more detail through the application of the sequential test. To assist in the assessment of sites, the Council commissioned the Level 1 SFRA. As part of this, the boundaries of the sites received during the ‘Call for Sites’ exercises were screened against flood risk information to determine the proportion of each site at risk in each flood zone.
- 2.3 This information has been extracted from the Level 1 SFRA and can be seen in Figure 2 in columns ‘e’ to ‘j’. As detailed in the Level 1 SFRA, Swale Borough has an additional flood zone covering Faversham Creek and a Surface Water Functional Flood Zone. It is also sets out how the sequential test should be applied to sites in these additional zones.
- 2.4 This data is then cross checked with the proposed use of the sites, and Table 3. Table 3 sets out which land uses, in which flood zones are appropriate, and therefore pass the sequential test.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	x	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	x	x	x	✓*

Key:

✓ Development is appropriate

x Development should not be permitted.

Table 3 - Compatibility of flood zones with a land use’s vulnerability classification.

- 2.5 Column ‘o’ in Figure 2 shows whether the site passes the sequential test or not.

### **3. Results**

3.1 When selecting sites for allocation, the Council should consider sites which pass the sequential test first. This would meet the NPPF's requirement for the Council to attempt to meet its development needs in areas at the lowest risk of flooding. At this stage, 200 out of the 235 sites assessed, approximately 85%, pass the sequential test and are the most/more compatible with their proposed used in current fluvial and tidal flood risk terms.

3.1 However, following the application of the sequential test, Paragraph 159 of the NPPF goes on to state that:

*"If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in national planning guidance."*

3.2 If the sequential test is not passed, either the exception test is required, or development is considered inappropriate. If the Council cannot meet its development needs from sites that pass the sequential test, for example due to wider sustainability issues, then sites which do not pass the sequential test but are applicable to the exception test can be considered. Again, using Table 3, column 'p' of Figure 2 shows which sites would require the application of the exception test to be progressed further in the LPR. Paragraph 168 of the NPPF states that:

*"The application of the exception test should be informed by a strategic or sites specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the exception test to be passed it should be demonstrated that:*

- a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall."*

### **4. Recommendations**

4.1 These results should be used in the site selection process to attempt to meet the Council's development needs in areas at the lowest risk of flooding. If this cannot be done, other sites can be considered in a sequential manner and by carrying out the exception test. Exception testing would need to be informed by a further Level 2 SFRA which looks at the flood risk of these sites in more detail.

4.2 It should be noted that sequential tests are based upon flood zones which only take into account the existing risk of fluvial and tidal flooding. However, the Council will need to consider surface water flooding, and the impact of climate change on the flood zones in the future which may alter the frequency of flood events. This is a further requirement of the NPPF.

4.3 As such, and for reference, Figure 2 also shows the proportion of each site at risk from the 30, 100 and 1000 year surface water flooding events in columns 'k' to 'm'. If sites are selected which show such a risk, a Level 2 SFRA will again be needed to look at this risk in more detail. Column 'n' shows the proportion of each site which has experienced a historic flood event. This could also be used as an indication of the need for more site specific detail in a Level 2 SFRA.

- 4.4 The impacts of climate change on the flood zones is already available at Appendix K of the Level 1 SFRA. When selecting sites in the initial instance, this Sequential Test and the existing Level 1 SFRA will need to be considered together.



Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/001	Land West of Sheppey Way	4.23	Residential	100%	0%	0%	0%	0%	0%	1%	1%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/002	Land West of Kaine Farm House, Breach Lane	0.69	Residential	89%	7%	0%	0%	0%	4%	0%	0%	2%	0%	Yes	No	The site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/003	Gardening World, Lower Hartlip Road	1.53	Residential	18%	5%	0%	0%	0%	77%	77%	90%	100%	0%	Yes	No	The site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/004	Land at Pheasant Farm (West), Sheppey Way	1.64	Residential	100%	0%	0%	0%	0%	0%	4%	5%	18%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site forms part of an existing local plan allocation.
SLA18/005	Land Rear of The Street and Hempstead Lane	3.80	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/007	Land East of Sheppey Way	1.00	Commercial/leisure	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/008	Land South of School Lane	0.51	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/009	Church Farm, Sheppey Way	1.41	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/010	Land at Cellar Hill	0.57	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/011	Land Rear of 66 Scrapsgate Road	2.13	Residential	0%	0%	98%	0%	2%	0%	23%	74%	99%	100%	No	Yes	The majority of the site lies in FZ3a with a small portion in 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/012	Land at Hopes Hill	0.59	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/013	Land East of Chaffes Lane	6.00	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/014	Danley Farm, Drove Road	51.16	Mixed	0%	1%	57%	0%	43%	0%	2%	4%	65%	100%	No	Yes	The majority of the site lies within FZ3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/015	High Oak Hill Farm, High Oak Hill, Iwade Road	0.53	Residential	100%	0%	0%	0%	0%	0%	0%	0%	6%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water				q		
				e	f	g	h	i	j	k	l	l	n		o	p
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/016	Land Rear of Bramblefield Lane and Grovehurst Road	0.87	Residential	100%	0%	0%	0%	0%	0%	0%	0%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/017	Land at Ufton Court Farm, Starveacre Lane	27.19	Residential	100%	0%	0%	0%	0%	0%	0%	1%	9%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/018	Land off Lower Road	5.14	Mixed	57%	19%	23%	0%	0%	0%	0%	5%	52%	0%	No	Yes	The majority of the site lies within FZ1 and 2 with a portion in FZ3a. This part of the site may be allocated subject to satisfying the Exception Test.
SLA18/019	Syndale Park, London Road	3.50	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/020	Monkshill Farm, Monkshill Road	26.63	Mixed	84%	1%	15%	0%	0%	0%	1%	1%	2%	0%	No	Yes	The majority of the site lies within FZ1 and 2 but with a significant portion in FZ3. The site may be allocated subject to satisfying the Exception Test.
SLA18/021	Chilton Manor Farm, Highsted Road	7.14	Mixed	100%	0%	0%	0%	0%	0%	1%	1%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/022	Land at Hearts Delight Road	6.87	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/023	Bowl Reed, Oad Street	2.00	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/024	Land Adjacent to Bowl Reed, Oad Street	1.75	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/025	Land West of Frogna Lane	23.92	Residential	100%	0%	0%	0%	0%	0%	10%	15%	25%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/026	Land off Hempstead Lane	1.99	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/027	Land at Radfield Farm, London Road	3.00	Residential	99%	0%	0%	0%	0%	1%	1%	1%	2%	0%	Yes	No	The site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/028	Land at Queen Court Farm, Faversham	44.27	Residential	100%	0%	0%	0%	0%	0%	0%	1%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water				q		
				e	f	g	h	i	j	k	l	l	n		o	p
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/029	Swan Quay, Belvedere Road	0.25	Residential	0%	0%	3%	97%	0%	0%	0%	0%	5%	0%	No	Yes	The site lies within FZ3a and 3a(i) and can be allocated subject to satisfying the Exception Test.
SLA18/030	Land at Lion Field, London Road	1.45	Residential	100%	0%	0%	0%	0%	0%	0%	0%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/031	Land at Plough Road	1.08	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/032	Neats Court, Queenborough Road	0.38	Residential	9%	41%	50%	0%	0%	0%	0%	0%	30%	0%	No	Yes	The site lies across FZ1, 2 and 3a and may be allocated subject to satisfying the Exception Test.
SLA18/033	Windy Gap, Chequers Road	13.43	Mixed	100%	0%	0%	0%	0%	0%	4%	7%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/034	Land West of The Street	3.35	Residential	100%	0%	0%	0%	0%	0%	11%	16%	29%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/035	Land East of Painters Farm, Painters Forstal Road	0.75	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/036	Southfield, Wardwell Lane	0.42	Residential	100%	0%	0%	0%	0%	0%	0%	0%	9%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/037	Land South of Dunlin Walk	0.54	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/038	Land East of Scocles Road	27.37	Residential	100%	0%	0%	0%	0%	0%	1%	1%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/039	Land Adjacent The Chapel, Oad Street	0.17	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/040	Land Adjacent Hope Cottage, Oad Street	0.06	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/041	Oad Street Farmyard, Oad Street	0.21	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/042	Land Adjacent Wren's Oast, Sutton Baron Road	0.52	Residential	100%	0%	0%	0%	0%	0%	0%	4%	11%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/043	Land Adjacent Sunnyside, Wren's Road	0.54	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/044	Land Adjacent Filmer House, Wren's Road and Hearts Delight Road	7.58	Residential	100%	0%	0%	0%	0%	0%	1%	5%	11%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/045	Land Opposite Uplands, Hearts Delight Road	0.67	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/046	Land South of Hearts Delight, Hearts Delight Road	2.16	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/047	Land at Street Farm, Pond Farm Road	0.62	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/048	Land Opposite Rookery Close, Primrose Lane	1.77	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/049	Firs Farm, Deans Hill Road	0.40	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/050	Land at Danaway, Maidstone Road	1.27	Residential	34%	7%	0%	0%	0%	60%	42%	52%	69%	0%	Yes	No	The site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/051	Land at Wetham Green	0.54	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/052	Rushett Farm Buldings, Rushett Lane	0.42	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/053	Blue House Field, Rear of Mountview	4.56	Residential	100%	0%	0%	0%	0%	0%	0%	0%	8%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/054	Land South and South-West of Iwade	24.52	Residential	93%	1%	1%	0%	5%	0%	2%	4%	14%	0%	No	Yes	The majority of the site lies within FZ1 and 2 with small portions in 3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/055	Land at Lynsted Lane	1.80	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/056	Land West of Mount Farm Cottages	0.41	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/057	Church Farm, Kays Lane	0.90	Residential	100%	0%	0%	0%	0%	0%	2%	3%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/058	Land at New Hook Farm, Lower Road	31.06	Residential	100%	0%	0%	0%	0%	0%	1%	3%	15%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/059	Land Adjacent to Kingsborough Farm, Eastchurch Road	17.27	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/060	Land at Wallend, Lower Road	35.57	Residential	66%	8%	26%	0%	0%	0%	2%	4%	15%	5%	Yes	No	The site lies across FZ1, 2 and 3a and may be allocated subject to satisfying the Exception Test.
SLA18/061	Land at Queenborough Road	0.65	Residential	0%	0%	100%	0%	0%	0%	12%	15%	61%	100%	No	Yes	The site lies wholly within FZ3a and may be allocated subject to to satisfying the Exception Test.
SLA18/062	39 Abbey Fields	7.70	Residential	100%	0%	0%	0%	0%	0%	1%	1%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/063	Land North of Eastchurch	34.54	Residential	100%	0%	0%	0%	0%	0%	4%	7%	19%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/064	Land at Highfield Road	1.53	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/065	Land East of Abbey Farm	52.60	Residential	80%	7%	8%	0%	5%	0%	0%	1%	4%	0%	No	Yes	The majority of the site lies within FZ1 and 2 with small portions in 3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/066	Land at Parsonage Farm, The Street	0.39	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/067	Land off Elm Lane	0.99	Residential	100%	0%	0%	0%	0%	0%	0%	0%	44%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/068	Land at Perry Court Farmhouse, Brogdale Road	2.53	Residential	100%	0%	0%	0%	0%	0%	0%	0%	6%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/069	Land Adjacent 8 Bobbing Hill, Key Street	0.41	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/070	Land at Hollybushes, Manor Road	0.18	Residential	100%	0%	0%	0%	0%	0%	0%	0%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/071	Land at Bluetown, Downcourt Road	0.12	Residential	100%	0%	0%	0%	0%	0%	0%	0%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/072	Former Doddington Primary School, The Street	0.91	Residential	100%	0%	0%	0%	0%	0%	5%	7%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/073	Land West of The Street	11.08	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/074	Land North of Bexon Lane	0.56	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/075	Land at St Mary's View	0.74	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/076	Land at Ellen's Place, High Street	2.29	Residential	100%	0%	0%	0%	0%	0%	0%	0%	9%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/077	Land at Ham Road	6.06	Residential	100%	0%	0%	0%	0%	0%	2%	9%	22%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/078	Lady Dane Farm Buildings, Love Lane	0.64	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/079	Queens Court Farm Yard, Water Lane	1.71	Residential	31%	5%	0%	0%	0%	64%	10%	20%	34%	0%	Yes	No	The site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/080	Land at Halfway Road, Halfway Houses	5.63	Residential	2%	27%	71%	0%	0%	0%	8%	13%	20%	98%	No	Yes	The site lies across FZ1, 2 and 3a and may be allocated subject to satisfying the Exception Test.
SLA18/081	Land at London Road and Western Link	3.22	Residential	100%	0%	0%	0%	0%	0%	0%	0%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/082	Land North of The Street/Canterbury Road	5.21	Residential	100%	0%	0%	0%	0%	0%	6%	18%	40%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/083	Land off Dargate Road	2.05	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/084	Land at Gibbens Farm, The Street	6.49	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/085	Land Rear of 142-146 The Street	1.95	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/086	Churchmans Farm, Stalisfield Road	0.30	Residential	100%	0%	0%	0%	0%	0%	11%	19%	35%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.



Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water				q		
				e	f	g	h	i	j	k	l	l	n		o	p
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/087	Land Adjoining/Rear of Jubilee Fields	1.72	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/088	Land South West of Belgrave Road	1.75	Residential	100%	0%	0%	0%	0%	0%	0%	0%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/089	Land at Home Farm, The Street	0.38	Residential	100%	0%	0%	0%	0%	0%	33%	37%	56%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/090	Land at Former Gas Yard, The Street	0.29	Residential	100%	0%	0%	0%	0%	0%	1%	4%	14%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/091	Land at Lady Dane Farm	42.71	Mixed	100%	0%	0%	0%	0%	0%	0%	1%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/092	Land West of Norham Farm, Selling Road	0.79	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/093	Land Adjacent Monica Close	1.18	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/094	Land East of Selling Road	0.54	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/095	Norham Farm, Selling Road	1.79	Residential	100%	0%	0%	0%	0%	0%	2%	4%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/096	Land East of Selling Road (2)	1.08	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/097	Tonge Country Park, Hempstead Lane	5.77	Mixed	100%	0%	0%	0%	0%	0%	7%	10%	21%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/098	Land at Otterham Quay Lane	1.53	Residential	96%	1%	1%	0%	1%	0%	0%	0%	0%	0%	No	Yes	The majority of the site lies within FZ1 and 2 with small portions in 3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/099	Land South of 93 Chaffes Lane	0.70	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/100	148 High Street	0.50	Residential	100%	0%	0%	0%	0%	0%	9%	13%	25%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/101	Land at Hill Farm	18.32	Residential	100%	0%	0%	0%	0%	0%	0%	1%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/102	Milstead Manor Farm, Manor Road	0.82	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/103	Land South of Oak Hill	0.59	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/104	Land at The Street	1.75	Residential	100%	0%	0%	0%	0%	0%	0%	0%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/105	Halfway Egg Farm, Featherbed Lane	2.93	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/106	Land at Barrow Green Farm, London Raod	13.25	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/107	Land East of Faversham Industrial Estate, Graveney Road	1.78	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/108	Land at Brett House, Bysing Wood Road	2.74	Residential	36%	38%	0%	0%	26%	0%	1%	2%	7%	0%	No	Yes	The site lies across FZ1, 2 and 3b. The site can be allocated subject to the design and layout avoiding FZ3b.
SLA18/109	Land Adjacent St Clements School, Leysdown Road	3.96	Residential	100%	0%	0%	0%	0%	0%	0%	1%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/110	Land West of Bredgar, Wrens Road	9.63	Residential	100%	0%	0%	0%	0%	0%	0%	2%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/111	Hartlip Industrial Estate	5.92	Residential	100%	0%	0%	0%	0%	0%	1%	6%	22%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/112	Land at Sittingbourne Golf Centre, Church Road	5.81	Mixed	6%	16%	78%	0%	0%	0%	0%	0%	6%	84%	Yes	No	The majority of the site lies within FZ3a with only smaller portions in FZ1 and 2. Allocation of the site would require satisfying the Exception Test.
SLA18/113	Land at The Port of Sheerness, Rushennden Road	79.99	Mixed	0%	81%	16%	0%	3%	0%	0%	0%	4%	98%	No	Yes	The majority of the site lies within FZ2 but with a significant portion in FZ3a and a small part in FZ3b. The site is also entirely surrounded by FZ3a. Allocation of the site would require satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/114	Land at Brent Road	2.81	Residential	41%	4%	18%	37%	0%	0%	1%	3%	9%	0%	No	Yes	The site lies across FZ1, 2, 3a and 3a(i). The site can be allocated subject to satisfying the Exception Test.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/115	Land at 18 The Courtyard, Seed Road	0.38	Residential	100%	0%	0%	0%	0%	0%	26%	31%	46%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/116	Land South of London Road/West of Lynsted Lane	6.30	Residential	100%	0%	0%	0%	0%	0%	5%	6%	15%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/117	Land Adjacent Westfield, Swanton Street	1.59	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/118	Land North of/Adjacent to 124 Borden Lane	0.93	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/119	Land at Long Field	2.38	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/121	Seaview Park, Warden Bay Road	5.44	Park Homes	71%	13%	14%	0%	1%	0%	1%	2%	6%	27%	No	Yes	The majority of the site lies within FZ1 and 2 with portions in 3a and 3b. Park homes are classed as highly vulnerable and the site can be allocated subject to satisfying the Exception Test and the design and layout avoid FZ3a and 3b.
SLA18/122	Land at Claxfield Road (Site 1)	6.04	Residential	100%	0%	0%	0%	0%	0%	5%	11%	27%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/123	Land at Claxfield Road (Site 2)	0.52	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/124	Land at The Tracies	0.27	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/125	Northern Plot opp Westfield Cottages, Breach Lane	0.24	Residential	100%	0%	0%	0%	0%	0%	5%	8%	11%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/126	Southern Plot opp Westfield Cottages, Breach Lane	0.29	Residential	100%	0%	0%	0%	0%	0%	0%	0%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/127	Land SW of Boyse's Hill Farm	12.34	Residential	100%	0%	0%	0%	0%	0%	0%	0%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/128	Old Green Sheds, Standard Quay	0.07	Residential	0%	17%	74%	9%	0%	0%	0%	0%	0%	0%	No	Yes	The site lies across FZ2, 3a and 3a(i). The site can be allocated subject to satisfying the Exception Test.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/129	Keycol Farm, Keycol Hill	7.30	Residential	100%	0%	0%	0%	0%	0%	0%	1%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/130	Land North of The Valance	4.10	Residential	100%	0%	0%	0%	0%	0%	7%	11%	32%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/131	Land adjacent to allocation A12	2.54	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/132	Medlar House, Lynsted Lane	0.69	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/133	Land at Bartletts Close, Halfway	0.57	Residential	100%	0%	0%	0%	0%	0%	3%	4%	11%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/134	Stocks Paddock	0.30	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/135	Land at Graveney Road, East of Faversham	8.41	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/136	Land North of Canterbury Road	1.38	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/137	Land between A2 Bapchild and existing Northern Relief Road	91.68	Mixed	91%	1%	0%	0%	0%	8%	7%	9%	18%	0%	Yes	No	The majority of the site lies within FZ1 and 2. The proposed use is compatible with both.
SLA18/138	Land at Fox Hill/School Lane	6.29	Mixed	100%	0%	0%	0%	0%	0%	4%	6%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/139	Land at South-West Sittingbourne	11.89	Residential	77%	1%	0%	0%	0%	22%	9%	12%	19%	0%	Yes	No	The majority of the site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/140	Callum Park, Basser Hill	1.75	Residential	100%	0%	0%	0%	0%	0%	0%	1%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/141	Land West of Martindale, Elm Lane	0.51	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/142	Land at The Nurseries, Pond Farm Road	2.71	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/143	Land at Home Farm	12.01	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/144	Land at Starveacre Lane and Hearts Delight	25.90	Residential	96%	0%	0%	0%	0%	4%	1%	3%	5%	0%	Yes	No	The majority of the site lies within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water				q		
				e	f	g	h	i	j	k	l	l	n		o	p
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/145	Church House, Church Path	0.28	Residential	99%	1%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The majority of the site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/146	Lime Kiln Shaw, Lime Kiln Road	0.29	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/147	Land at Forstal Farm (West), Selling Road	11.06	Residential	100%	0%	0%	0%	0%	0%	0%	0%	7%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/148	Land at Forstal Farm (East), Selling Road	6.73	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/149	Land at Oare Gravel Works, Ham Road	5.06	Residential	96%	4%	0%	0%	0%	0%	0%	1%	4%	0%	No	No	The majority of the site lies within FZ1 with a small portion in FZ2. Residential development is compatible with both.
SLA18/150	The Former Garden Hotel (no 169), The Street	0.73	Residential	100%	0%	0%	0%	0%	0%	6%	11%	27%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/151	Land at Warden, South of Knoll Way	6.62	Residential	95%	1%	2%	0%	1%	0%	4%	5%	10%	0%	No	Yes	The majority of the site lies within FZ1 and 2 with small portions in 3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/152	Land south of A2 London Road/West of Water Lane	7.79	Residential	100%	0%	0%	0%	0%	0%	0%	0%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/153	Land south of Dover Castle Inn, A2 London Road/Cellarhill	1.46	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/154	Land at Lamberhurst Farm	22.54	Residential	100%	0%	0%	0%	0%	0%	4%	7%	14%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/155	Land off of Canterbury Road	5.12	Residential	100%	0%	0%	0%	0%	0%	0%	0%	3%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/156	Foresters Lodge Farm	68.52	Residential	100%	0%	0%	0%	0%	0%	3%	6%	27%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/157	Wellbrook Farm (Site A)	3.12	Residential	100%	0%	0%	0%	0%	0%	1%	1%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/158	Wellbrook Farm (site B)	17.05	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/159	Land West of Mustards Road	2.86	Residential	31%	17%	30%	0%	22%	0%	27%	34%	56%	43%	No	Yes	Significant portions of the site lie within FZ3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/160	Land at Norton Ash Garden Centre	9.06	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/161	Plough Leisure Caravan Park	1.39	Mixed	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/162	Bossenden Farm Frontage Land	0.81	Residential	100%	0%	0%	0%	0%	0%	0%	0%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/163	Oakside Park, London Road	0.33	Residential	100%	0%	0%	0%	0%	0%	0%	0%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/164	Land South of Hearts Delight, Hearts Delight Road	5.17	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/165	Land East of Queenborough	26.71	Residential	94%	2%	4%	0%	0%	0%	1%	2%	10%	0%	No	Yes	The site lies across FZ1, 2 and 3a and may be allocated subject to satisfying the Exception Test.
SLA18/166	Land rear of Solna, Keycol Hill	2.70	Residential	100%	0%	0%	0%	0%	0%	1%	2%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/167	Land West of Western Link	36.17	Mixed	100%	0%	0%	0%	0%	0%	2%	3%	7%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/169	97-103 Ashford Road	0.32	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/170	Former Bus Depot, East Street	0.46	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/171	Between 11 & Sunset, Southsea Avenue	3.39	Residential	36%	57%	7%	0%	0%	0%	0%	1%	6%	60%	Yes	No	The site lies across FZ1, 2 and 3a and may be allocated subject to satisfying the Exception Test.
SLA18/172	Otterham Quay, Otterham Quay Lane	4.40	Residential	0%	5%	86%	0%	1%	0%	1%	3%	7%	0%	No	Yes	The majority of the site lies within FZ3a with a small portion in 3b. The site can be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.



Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water				q		
				e	f	g	h	i	j	k	l	l	n		o	p
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/173	Former Funton Brickworks	6.59	Residential	84%	9%	2%	0%	5%	0%	3%	5%	20%	15%	No	Yes	The majority of the site lies within FZ1 and 2 with small portions in 3a and 3b. The site may be allocated subject to satisfying the Exception Test and the design and layout avoiding FZ3b.
SLA18/174	Land at Ham Farm, Ham Road	1.11	Residential	100%	0%	0%	0%	0%	0%	5%	10%	19%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/175	Land north of Key Street, Sittingbourne	1.55	Residential	50%	6%	0%	0%	0%	43%	6%	72%	81%	0%	Yes	No	The majority of the site lies within FZ1 and 2 and is an existing local plan allocation.
SLA18/176	Land at Belgrave Road	5.17	Residential	100%	0%	0%	0%	0%	0%	0%	0%	9%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/177	Land at Cowstead Farm, Lower Road	29.55	Residential	100%	0%	0%	0%	0%	0%	1%	2%	12%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/178	Preston Fields, Canterbury Road, Faversham	14.33	Residential	100%	0%	0%	0%	0%	0%	7%	10%	19%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/179	The Foundary, Rushenden Road	0.37	Residential	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	No	No	The site lies entirely within FZ3a but is an existing local plan allocation and has already passed the Exception Test.
SLA18/180	Nil Desperandum, Rushenden Hill	1.06	Residential	89%	7%	4%	0%	0%	0%	0%	0%	1%	0%	No	No	The majority of the site lies within FZ1 and 2 with a small portion in 3a. The site is an existing local plan allocation and has already passed the Exception Test.
SLA18/181	Shellness Road and Park Avenue	0.16	Residential	100%	0%	0%	0%	0%	0%	0%	0%	7%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/182	Land North of Quinton Road	61.21	Mixed	99%	0%	1%	0%	0%	0%	2%	3%	9%	0%	No	No	The majority of the site lies within FZ1 and 2 with a small portion in 3a. The site forms part of an existing local plan allocation and has already passed the Exception Test.
SLA18/183	Land at Frogal Lane	30.47	Residential	100%	0%	0%	0%	0%	0%	2%	4%	16%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/184	Land at Pheasant Farm, East of Sheppey Way	10.40	Residential	100%	0%	0%	0%	0%	0%	1%	2%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/185	Land at Great Grovehurst Farm	4.67	Residential	100%	0%	0%	0%	0%	0%	1%	2%	8%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site forms part of an existing local plan allocation.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/186	Halfway Houses Primary School, Southdown Road	1.51	Residential	100%	0%	0%	0%	0%	0%	1%	1%	6%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/187	Iwade fruit and produce	0.46	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/188	Iwade Village Centre	0.19	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/189	Land north of High Street, Eastchurch	0.76	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/190	Land East of Station Road	4.36	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/191	Bull Lane	0.52	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/192	Faversham Police Station, Church Road	0.18	Residential	100%	0%	0%	0%	0%	0%	0%	0%	5%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/193	Land at Minster County Primary School, Preston Skreens, Minster Road	0.29	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/194	Bysingwood Primary School, Hazebrouck Road	0.75	Residential	100%	0%	0%	0%	0%	0%	0%	3%	17%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/195	152 Staplehurst Road	1.85	Residential	100%	0%	0%	0%	0%	0%	1%	2%	13%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/196	35, High Street, Milton Regis	0.18	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/197	Adj Manor Road	0.09	Residential	0%	44%	56%	0%	0%	0%	0%	0%	1%	0%	No	No	The site lies within FZ2 and 3a but is an existing local plan allocation and has already passed the Exception Test.
SLA18/198	Plover Road, Minster	3.83	Residential	100%	0%	0%	0%	0%	0%	0%	0%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/199	West Street, Queenborough	1.45	Residential	23%	19%	58%	0%	0%	0%	1%	1%	2%	8%	No	No	The site lies across FZ1, 2 and 3a but is an existing local plan allocation and has already passed the Exception Test.
SLA18/200	Swale House	0.58	Residential	100%	0%	0%	0%	0%	0%	1%	5%	29%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/201	Central Avenue	0.93	Residential	100%	0%	0%	0%	0%	0%	0%	1%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/202	St Michaels Road/East Street	0.10	Residential	0%	0%	0%	0%	0%	100%	0%	0%	13%	0%	Yes	No	The site is an existing local plan allocation.
SLA18/203	Provender Mil, New Creek Road	0.95	Mixed	3%	14%	21%	62%	0%	0%	0%	1%	6%	0%	No	No	The site lies across FZ1, 2, 3a and 3a(i). The site forms part of an existing Neighbourhood Plan allocation and has already passed the Exception Test.
SLA18/204	Opposite 1, New Creek Road	0.15	Residential	86%	9%	5%	0%	0%	0%	0%	0%	0%	0%	No	No	The site lies across FZ1, 2 and 3a. The site forms part of an existing Neighbourhood Plan allocation and has already passed the Exception Test.
SLA18/205	Adj Quayside House, Standard Quay	0.18	Residential	0%	0%	20%	80%	0%	0%	0%	0%	0%	0%	No	No	The site lies within FZ3a and 3a(i). The site forms part of an existing Neighbourhood Plan allocation and has already passed the Exception Test.
SLA18/206	Standard House, New Creek Road	0.19	Residential	0%	7%	88%	5%	0%	0%	0%	0%	0%	0%	No	No	The site lies across FZ2, 3a and 3a(i). The site forms part of an existing Neighbourhood Plan allocation and has already passed the Exception Test.
SLA18/207	South of Queenborough Creek	7.03	Residential	0%	41%	58%	0%	1%	0%	0%	0%	4%	100%	No	No	The majority of the site lies across FZ1, 2 and 3a with a small portion in 3b. The site is an existing local plan allocation and has already passed the Exception Test.
SLA18/208	Former McDonald's Mailing Centre, Staplehurst Road	1.50	Residential	100%	0%	0%	0%	0%	0%	0%	3%	16%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/209	Land at Minster Academy, Admiral Walk Minster	1.29	Residential	100%	0%	0%	0%	0%	0%	1%	3%	13%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/210	Land off Colonels Lane, Boughton	0.75	Residential	100%	0%	0%	0%	0%	0%	1%	3%	17%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/211	Land South of Colonels Lane, Boughton	0.31	Residential	100%	0%	0%	0%	0%	0%	29%	61%	83%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/212	Land Adjoining Mayfield, London Road, Teynham	0.33	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/213	Barrow Green Farm, Barrow Green, Teynham	1.09	Residential	100%	0%	0%	0%	0%	0%	0%	0%	1%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/214	Former Istil site Rushenden Road/Thomsett Way	4.00	Residential	0%	0%	100%	0%	0%	0%	1%	5%	36%	100%	No	No	The site lies entirely within FZ3a but is an existing local plan allocation and has already passed the Exception Test.
SLA18/215	Crown Quay Lane	18.24	Residential	30%	23%	8%	0%	39%	0%	7%	13%	37%	25%	No	No	The majority of the site lies within FZ1 and 2 but with a significant portion in 3a and 3b. The site forms part of an existing local plan allocation and has already passed the Exception Test.
SLA18/216	Bell House, Bell Road	0.80	Residential	100%	0%	0%	0%	0%	0%	15%	63%	95%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/217	Land West of Wises Lane	33.69	Residential	100%	0%	0%	0%	0%	0%	2%	3%	9%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding. The site is an existing local plan allocation.
SLA18/218	North East Sittingbourne	50.92	Mixed	49%	38%	13%	0%	0%	0%	1%	2%	6%	46%	Yes	No	The majority of the site lies within FZ1 and 2 but with a significant portion in 3a. The site is an existing local plan allocation and has already passed the Exception Test.
SLA18/219	Land East of Iwade	66.52	Mixed	78%	4%	17%	0%	1%	0%	2%	5%	11%	13%	Yes	No	The majority of the site lies within FZ1 and 2 but with a significant portion in 3a and 3b. The site is an existing local plan allocation and has already passed the Exception Test.
SLA18/220	West of Rushenden Road	10.52	Residential	0%	0%	98%	0%	2%	0%	2%	5%	43%	96%	Yes	No	The site lies almost entirely within FZ3a with a small portion in 3b. The site is an existing local plan allocation and has already passed the Exception Test.
SLA18/221	Land at Lady Dane Farm, Love Lane	15.91	Residential	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/222	Land at Manor Farm, Key Street	2.23	Residential	100%	0%	0%	0%	0%	0%	4%	5%	7%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/223	Land at Ashford Road, North Street, Sheldwich	309.00	Residential	100%	0%	0%	0%	0%	0%	1%	2%	7%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/224	Land at Bobbing	416.00	Mixed	100%	0%	0%	0%	0%	0%	2%	3%	10%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/225	South East Sittingbourne	800.00	Mixed	93%	1%	0%	0%	0%	6%	2%	3%	9%	0%	Yes	No	The majority of the site lies within FZ1 and 2. The proposed use is compatible with both.
SLA18/226	South East Faversham	130.72	Residential	100%	0%	0%	0%	0%	0%	1%	1%	4%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/227	45 Key Street	0.21	Residential	22%	7%	0%	0%	0%	71%	30%	100%	100%	0%	Yes	No	The site lies across FZ1 and 2. Residential development is compatible with both.
SLA18/228	Land adjacent Newington Manor, Bull Lane	0.28	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/229	Land at Pond Farm, Newington	12.80	Residential	100%	0%	0%	0%	0%	0%	0%	1%	14%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/230	Sittingbourne adult education, College Road	0.72	Residential	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/231	Flood Lane, Faversham	0.15	Residential	0%	7%	37%	56%	0%	0%	0%	0%	20%	0%	No	Yes	The site lies across FZ2, 3a and 3a(i). The site can be allocated subject to satisfying the Exception Test.
SLA18/232	Land at Stickfast Lane	115.00	Residential	99%	0%	0%	0%	1%	0%	5%	8%	15%	0%	Yes	No	The majority of the site lies within FZ1 with very small portions in FZ2 and 3b. The site can be allocated subject to the design and layout avoiding FZ3b.
SLA18/233	Land adjacent to Cryalls Lane, Sittingbourne	3.80	Residential	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/234	Land at Plough Road, Minster	1.08	Residential	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/235	Land at Perry Court Farm, London Road, Faversham	1.70	Residential	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.

Figure 2 – Sequential Test

a	b	c	d	Flood Zone						Surface Water			n	o	p	q
				e	f	g	h	i	j	k	l	l				
Site Reference	Site Name	Site Area	Proposed Use	1	2	3a	3a(i)	3b	Surface Water Functional Flood Zone	30 year	100 year	1000 year	Historic	Sequential Test Passed?	Exception Test Required?	Notes
SLA18/236	Land to the north of Vigo Cottage, Lynsted Lane, Teynham	3.20	Residential	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/237	Land to the north of Vigo Cottage, Lynsted Lane, Teynham	0.40	Residential	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.
SLA18/238	Land at southern end of Southdown Road, Halfway	2.87	Mixed	100%	0%	0%	0%	0%	0%	TBC	TBC	TBC	TBC	Yes	No	The site lies wholly within FZ1 and is at the lowest risk of flooding.



# Appendix I

Table 1: Flood Zones

<b>Flood Zone</b>	<b>Definition</b>
Zone 1 – Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 – Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a – High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b – The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

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Table 2 - Flood risk vulnerability classification of different land uses

<b>Essential Infrastructure</b>	<b>Highly Vulnerable</b>	<b>More Vulnerable</b>	<b>Less Vulnerable</b>	<b>Water Compatible Development</b>
<ul style="list-style-type: none"> <li>Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.</li> <li>Essential utility infrastructure which has to be located in a flood risk area for operational</li> </ul>	<ul style="list-style-type: none"> <li>Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.</li> <li>Emergency dispersal points.</li> <li>Basement dwellings.</li> </ul>	<ul style="list-style-type: none"> <li>Hospitals</li> <li>Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.</li> <li>Buildings used for dwelling houses, student halls of residence,</li> </ul>	<ul style="list-style-type: none"> <li>Police, ambulance and fire stations which are not required to be operational during flooding.</li> <li>Buildings used for shops; financial, professional and other services; restaurants,</li> </ul>	<ul style="list-style-type: none"> <li>Flood control infrastructure.</li> <li>Water transmission infrastructure and pumping stations.</li> <li>Sewage transmission infrastructure and pumping stations.</li> <li>Sand and gravel working.</li> </ul>

<p>reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.</p> <ul style="list-style-type: none"> <li>• Wind turbines.</li> </ul>	<ul style="list-style-type: none"> <li>• Caravans, mobile homes and park homes intended for permanent residential use.</li> <li>• Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').</li> </ul>	<p>drinking establishments, nightclubs and hotels.</p> <ul style="list-style-type: none"> <li>• Non-residential uses for health services, nurseries and educational establishments.</li> <li>• Landfill and sites used for waste management facilities for hazardous waste.</li> <li>• Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.</li> </ul>	<p>cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.</p> <ul style="list-style-type: none"> <li>• Land and buildings used for agriculture and forestry. <ul style="list-style-type: none"> <li>• Waste treatment (except landfill* and hazardous waste facilities).</li> <li>• Minerals working and processing (except for sand and gravel working).</li> </ul> </li> <li>• Water treatment works which do not need to remain operational during times of flood. <ul style="list-style-type: none"> <li>• Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Docks, marinas and wharves.</li> <li>• Navigation facilities.</li> <li>• Ministry of Defence installations.</li> <li>• Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.</li> <li>• Water-based recreation (excluding sleeping accommodation).</li> <li>• Lifeguard and coastguard stations.</li> <li>• Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.</li> <li>• Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.</li> </ul>
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<b>Local Plan Panel Meeting</b>	
<b>Meeting Date</b>	11 June 2020
<b>Report Title</b>	Preparation of Swale Infrastructure Delivery Plan
<b>Cabinet Member</b>	Cllr Mike Baldock, Cabinet Member for Planning
<b>SMT Lead</b>	James Freeman
<b>Head of Service</b>	James Freeman
<b>Lead Officer</b>	Karen Sinclair
<b>Key Decision</b>	No
<b>Classification</b>	<b>Open</b>
<b>Recommendations</b>	1. That the report is noted.

## 1 Purpose of Report and Executive Summary

- 1.1 The provision of the right type and level of infrastructure in the right place and at the right time is essential to support the delivery of new homes, economic growth and for the creation of sustainable communities.
- 1.2 The National Planning Policy Framework (NPPF) clearly sets out that the delivery of infrastructure is key to sustainable communities and that a Local Plan's strategic policies should make sufficient provision for infrastructure. There is also an expectation that the identification and delivery of infrastructure will be undertaken through effective collaboration with infrastructure providers from early in the plan making process.
- 1.3 The Infrastructure Delivery Plan (IDP) will establish what improved or new infrastructure and service needs are required to support the level of development to be included in the reviewed Swale Local Plan over the plan period (to 2038). It will form part of the technical evidence base to support the preparation and then implementation of the Local Plan, helping to ensure that the identified additional infrastructure and service needs are delivered in a timely, co-ordinated, and sustainable way.
- 1.4 The purpose of this report is to briefly outline the stages of preparing the IDP.

## 2 Background

- 1.1. The purpose of the IDP is to identify the infrastructure schemes that are required to successfully deliver planned growth across the Borough. At the examination in public, the Inspector will need to be satisfied that the growth proposals and delivery of the proposed housing supply are consistent with existing and where necessary increased infrastructure and service provision and that there is a reasonable prospect of any new infrastructure being delivered over the plan period. The IDP will form, therefore, a key part of the evidence base underpinning the delivery of the Swale Local Plan.

1.2. The preparation of the IDP will draw on the outcomes from other pieces of Local Plan evidence base work including the transport modelling, Swale Transport Strategy and air quality evidence work and there will be close links with the Whole Plan Viability Assessment (WPVA), ensuring a co-ordinated approach to the development of the Local Plan. The latter is particularly important as the WPVA provides a consideration of the impact of policies in the Local Plan on site viability and consequently the ability to fund necessary infrastructure. As these various pieces of evidence base work come before Members over the next several months then the outcomes of this engagement will be reflected in the preparation of the IDP.

1.1. Infrastructure can be grouped into three main types:

- Physical infrastructure such as: transport infrastructure (roads, public transport, cycling and walking routes), gas and electricity infrastructure, water supply and wastewater treatment;
- Social infrastructure such as: primary and secondary schools, healthcare, emergency services, libraries, sports and recreational facilities, community facilities, cultural services; and
- Green infrastructure such as: open space, formal and informal green space, green and blue corridors.

1.2. It should be recognised that the IDP is not intended to be a comprehensive list to capture every infrastructure project being planned across the Borough or a 'shopping list' for developer contributions. It will focus on the types of infrastructure that will be fundamental to the delivery of the Local Plan development strategy and to support the intended levels and locations of growth. It is not intended, therefore, that the IDP will consider: the provision of infrastructure that would be part of the normal site development process i.e. water supply or utility connections, unless this were a strategic issue having a cumulative impact on a number of sites and potentially impacting on when sites could be delivered; open space or recreation/sports provision in accordance with relevant adopted standards; or affordable housing provision.

1.3. A three-stage approach is being taken to preparing the IDP, as set out below. The preparation of the IDP is tied to progress on the Local Plan review i.e. agreeing the preferred development strategy and site allocations, but an indicative timescale for completing each of the stages is given.

- *Evidence base gathering and analysis of current infrastructure provision (May-June 2020)*

The IDP will build upon the previous Implementation and Delivery Schedule (IDS), which was produced to support 'Bearing Fruits 2031'. Given the relatively recent adoption of the Bearing Fruits Plan, it is likely several of the infrastructure projects identified in the IDS will be carried forward into the IDP. As a starting point, therefore, through monitoring of relevant planning applications (both permitted and current) and engagement with those infrastructure providers and service delivery organisations identified in the IDS as being the lead delivery agency, an up to date position on the delivery of the identified infrastructure is currently being established.

The initial stage of preparation is also looking at an overview of current infrastructure quality and capacity to identify any infrastructure issues which could be barriers to growth. This is drawing from the responses to the 2018 'Looking Ahead' consultation, the outcomes of a workshop held with infrastructure providers in June 2018 (see Section 5) and completed and emerging Local Plan evidence base reports, such as the ongoing traffic modelling work.

The 'Looking Ahead' consultation and infrastructure workshop identified the following key infrastructure issues as matters to be addressed:

- M2 Junction 7
- M2 Junction 5/A249
- Sittingbourne Northern Relief Road
- A2 and A249 corridors
- Education provision, particularly the provision of secondary school places
- Primary healthcare provision
- Rail station improvements

This early discussion with infrastructure providers did not identify any 'show stoppers' but as part of the engagement with infrastructure providers and service delivery organisations referred to above, they have been asked to provide an updated position on any significant infrastructure capacity/delivery issues that may limit growth or options for growth across the Borough. They have also been asked to advise of any plans or investment strategies that could inform the preparation of the IDP and provide details of any key infrastructure investments and improvements that are planned to serve Swale Borough. By undertaking this exercise, the Council can establish the current baseline and anticipate any trends which may emerge when the location of final sites is known. At the time of writing this report, the information requested from infrastructure providers was awaited.

- *Infrastructure testing and drafting IDP (June – August 2020)*

The second stage will be to assess the implications of potential growth scenarios/development options to inform the selection of a preferred growth strategy and development sites. This will result in a more detailed position on infrastructure, detailing the specific infrastructure requirements of the Council's preferred growth strategy and development sites. The IDP will also provide information on the agencies involved in implementation, an overview of the risks and contingencies associated with each infrastructure type or specific project and, where known, delivery timescales, costs, and likely sources of funding.

This will be informed by further engagement with infrastructure providers, Duty to Co-operate discussions where there are cross boundary implications for infrastructure requirements and engagement with site promoters of preferred site allocations.

- *Informal consultation on draft IDP with infrastructure providers/service delivery organisations (September 2020)*

The third stage will involve focussed consultation with infrastructure providers to confirm the understanding of the identified infrastructure issues. The IDP will be updated to reflect any feedback.

- 1.3. Identifying infrastructure over the period of the local plan can be difficult as few infrastructure providers actively plan for that length of timeframe and infrastructure needs may be influenced by changes in technology and changes to the arrangements for the planning and delivery of infrastructure. It is also the case that where growth is planned for through significant new developments there may not be the certainty and/or funding secured for any necessary strategic infrastructure at the time the plan is produced. Therefore, whilst the Council will need to be clear on the infrastructure needed to deliver growth in the early stages of the plan period and to be able to demonstrate that this is deliverable in a timely manner, in the later stages of the plan period there is a degree of flexibility in that for any strategic infrastructure requirements the Council will need to demonstrate these are not beyond what could reasonably be considered to be achievable within the timescales envisaged.
- 1.1. Planning for infrastructure is therefore, a continuous and iterative process. The IDP will be a 'live' document that will be updated at appropriate stages during and beyond the plan making process to reflect the latest available information on infrastructure requirements and provision. The updating of the IDP will feed back into the legal requirement to review Local Plans every five years (to assess whether it needs to be updated), providing evidence as to whether the Local Plan remains deliverable.

### **3 Proposals**

- 3.1 The proposal is for the report to be noted.

### **3 Alternative Options**

- 1.1. National policy and guidance require local planning authorities to assess and set out the infrastructure needed to support growth over the plan period. The infrastructure requirements to support the emerging Local Plan will be set out in the IDP: it is, therefore, an important document which will demonstrate due consideration has been given to the infrastructure needed to underpin the delivery of the Local Plan.
- 1.2. There would be no benefit for Members to disregard the content of this report as it sets out the various stages of preparing the IDP and is for information purposes only. It highlights that the proposed approach is in accordance with national policy and without the IDP the Local Plan review would fail at examination. Should the Council decide not to proceed with a Local Plan review as per the NPPF and national planning policy guidance this could place the Council at risk of intervention by the Ministry of Housing, Communities and Local Government and potentially increase the risk of ad-hoc unplanned development taking place.



## 5 Consultation Undertaken or Proposed

- 5.1 The ‘Looking Ahead’ consultation, which ran between April and June 2018, included specific questions on the future social and physical infrastructure priorities for the Borough and how these could be delivered. An Infrastructure Workshop was also held in June 2018 with neighbouring local authorities and infrastructure providers and service delivery organisations, including representatives from: Highways England, the local Clinical Commissioning Groups (CCG), Southern Water, Network Rail and Kent County Council (KCC). The workshop provided an opportunity for an initial discussion about infrastructure constraints and potential barriers to growth in the Borough.
- 1.4. As set out in Section 2, there will be ongoing engagement and consultation with infrastructure providers throughout the preparation of the IDP. In addition to those identified above, approaches have also been made to South East Water, National Grid, UK Power Networks and SGN.
- 1.5. The information in the IDP is based on factual information and the professional opinion provided by the relevant infrastructure providers using their own assessment methodologies and mitigation assessments. As a technical evidence base document, therefore, it does not require public consultation although it will form part of the submission documents and part of the future examination in public.

## 6 Implications

Issue	Implications
Corporate Plan	The IDP preparation supports the Council’s corporate priorities of: Building the right homes in the right places and supporting quality jobs for all (Priority 1) Investing in our environment and responding positively to global challenges (Priority 2) Tackling deprivation and creating equal opportunities for everyone (Priority 3)
Financial, Resource and Property	There are no direct financial implications in preparing the IDP.
Legal, Statutory and Procurement	None identified at this stage.
Crime and Disorder	None identified at this stage.
Environment and Climate/Ecological Emergency	The Local Plan will be subject to a Sustainability Appraisal and Habitats Regulations Assessment.

Health and Wellbeing	It is expected that the IDP will include infrastructure requirements for health and social care reflecting the outcome of discussions with Kent and Medway CCG and KCC.
Risk Management and Health and Safety	None identified at this stage.
Equality and Diversity	The Local Plan will be subject to an Equality Impact Assessment at appropriate stages.  Preparing the IDP will help demonstrate delivery of the reviewed Local Plan and assist the Council and its delivery partners in achieving the timely and effective delivery of infrastructure to meet the future needs of all residents in the Borough.
Privacy and Data Protection	None identified at this stage.

## 7 Appendices

7.1 None.

## 8 Background Papers

Bearing Fruits: Implementation and Delivery Schedule (2016) can be found online at:

<https://services.swale.gov.uk/meetings/documents/s14530/Interim%20Policy%20Statement%20Residential%20Park%20Homes%20REPORT%2028.04.20.pdf>

Responses to 'Looking Ahead' Consultation can be found online at:

<https://services.swale.gov.uk/meetings/documents/s14530/Interim%20Policy%20Statement%20Residential%20Park%20Homes%20REPORT%2028.04.20.pdf>