

# 12.0 Green Edge

## 12.1 Green Edge Area

### Green Edge



Fig.178 Green Spaces | Analysis



Fig.179 Great Lines Heritage Park Masterplan | Provided by HTA

## Green Edge

The diagram to the right showcases the different routes to and within the heritage park. The gateways to enter the park are also highlighted

### Key






-  Access routes
-  Pedestrianised routes
-  Gateways
-  Study Area Boundary
-  Design Code Boundary



Fig.180 Entrance Gateways | Analysis

The adjacent diagram shows the greeneries that are planted within the area and their ownership status.

### Key

-  Privately managed trees
-  Publicly managed trees
-  Land covered with tree canopy
-  Land without tree canopy
-  Study Area Boundary
-  Design Code Boundary



Fig.181 Greenery | Analysis

0m  100m 

### Green Edge - Gateways

- Entrance gateways to the Heritage park are through the residential neighbourhoods at the north-eastern edge of Chatham's town centre.
- Having multiple modes such as staircases and ramps, these gateways are easily accessible but mostly hidden and not identifiable as entrances.
- The need to be highlighted as bespoke entrances to the heritage park is crucial to attract more people to use these routes.
- The connectivity for pedestrian routes can be improved as there are currently some routes which are 145-280m long without any other route feeding off of them.



1 | Chelmar Road Gateway



2 | Lines Terrace Gateway



3 | King Street Gateway



4 | Whiffer's Avenue Gateway



Fig.182 Key Map

Fig.183 Heritage park Gateways | Photos by Google Street View

## 12.2 Conclusion: Green Edge

The Heritage Park area type consists of two major parks: Town Hall Gardens Park and the Great Lines Heritage Park. These two parks although are often underappreciated, continue to provide lush wide open green spaces for the people in Chatham. (The Chatham Naval Memorial in the Great Lines Heritage Park, sits outside the red line boundary, celebrates and commemorates Chatham's great Naval history and is at the highest point in Chatham.)

### Connections

Connections from town to this area are not very well developed and are often not well indicated. Relevant and efficient wayfinding system infrastructure should be implemented to ease the movement to and from this area.

There are a few pedestrian paths within the parks meaning entry and exiting of this area is not as easy as it should be. There is potential for the development of a better and more carefully designed network of paths to allow better connections and access.

### Vegetation

Well-loved wide open green spaces and plantings should be maintained and conserved.

### Potential Sites

Although there are no potential sites in this area, there are improvements that could be developed throughout the parks.

The provision of more benches could help create a more inviting and relaxing space of leisure.

An increase in lighting could make park users feel safer and thus promote the usage and engagement of the area.

### Public Comments/ Vision

Majority of public comments are addressed to align with our vision.

The unaddressed comments that cannot be resolved directly through our vision are a minority compared to all addressed comments.

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# Supplementary Guidance



## 13.1 Supplementary Area-wide and Area Type Guidance

Urban Movement  
Chatham Movement Framework 2050  
  
Strategic Macro Modelling Technical Note  
  
8 September 2023  
Version 2.0  
Issue



Urban Movement  
7095 • Chatham Movement Framework 2050 • Strategic Macro Modelling Technical Note  
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- Appendix A: Assigned Volume Plots
- Appendix B: Volume/Capacity Plots
- Appendix C: Assigned Volume Plots - Bus Gate Scenario
- Appendix D: Volume/Capacity Plots - Bus Gate Scenario



## 1 Introduction

### 1.1 Commission

Urban Movement are appointed by Medway Council to develop the Chatham Movement Framework. In particular, they are seeking to understand the implications of reducing The Brook, Dock Road and Maritime Way to one-lane in each direction. Fore Consulting Limited (Fore) are appointed by Urban Movement to undertake strategic modelling of the proposals using the Medway Aimsun Model.

This report sets out the strategic macroscopic modelling results which are to be used to identify the preliminary impacts of the Chatham Movement Framework.

### 1.2 Background

The Medway Aimsun Model covers the whole of UK. The Medway local authority area as well as parts of Gravesham, Tonbridge and Malling, Maidstone and Swale are modelled in detail, providing an appropriate study area for transport studies within Medway.

The model is calibrated and validated at both macroscopic and microscopic levels enabling both the wide-area strategic and local detailed effects of schemes to be assessed. The model base year is 2016 and it covers the AM (0800 to 0900) and PM (1700 to 1800) peak hours, as well as an interpeak hour (1300 to 1400), which can be taken to be representative of the whole interpeak period (1000 to 1600).

The base year model development, calibration and validation is set out in the *Medway Aimsun Model: Model Validation Report* dated 8 June 2017. This has been reviewed by both Medway Council and National Highways (Formally Highways England) and the model is considered fit for purpose for assessing the Medway Local Plan and other proposed development.

As part of the Local Plan STA work, a series of microsimulation subnetworks were developed for the model, which allow the detailed impacts of proposals to be assessed. Modelling has been initially undertaken at a macroscopic level to determine wider reassignment effects and the extent of impact of the proposals. Microsimulation modelling could then be undertaken within relevant microsimulation subnetworks to assesses the detailed impacts of the proposals.



## 2 Modelling Methodology

### 2.1 Future Year Scenario Development

#### 2.1.1 Scenarios

The following scenarios have been modelled:

- 2050 Do Minimum
- 2050 Do Something
- 2050 Do Something Bus Gate

#### 2.1.2 2050 Do Minimum

The 2050 Do Minimum scenario is based on the Reference Case scenarios developed for the latest HIF proposals. As such, this scenario includes the following:

- All committed developments and committed highway improvements in Medway that would be in place by 2050, based on the position at the end of April 2021 and supplemented by additional sites identified through the LTAM Uncertainty Log.
- Development and Infrastructure associated with the HIF.
- Traffic growth for zones outside of Medway based on NTEM (but adjusted in Gravesham, Maidstone, Swale and Tonbridge & Malling to reflect levels of housing growth anticipated in the Adopted Local Plans) and "Road Traffic Forecasts 2015".

#### 2.1.3 2050 Do Something

The 2050 Do Something Scenario has been based on the Do Minimum scenario, but with the inclusion of the proposed network changes. Included in the proposals are three main highway infrastructure changes:

- No access from Maritime Way onto Medway Tunnel via the A289 roundabout.
- The Brook / Dock Road / Maritime Way reduced to one lane in each direction.
- Chatham Town Centre re-design, including removal of Globe Lane bus station loop, severance of Best Street and removal of the gyratory around the Alexandra pub.





## 2.1.4 Highway Infrastructure Changes

### A289 Pier Road / Maritime Way Roundabout

Access from Maritime Way (north and south) onto A289 west towards Medway Tunnel has been removed. In the Do Something scenario the access to Medway Tunnel has been removed as shown on Screenshot 1.

#### Screenshot 1: Medway Tunnel Access

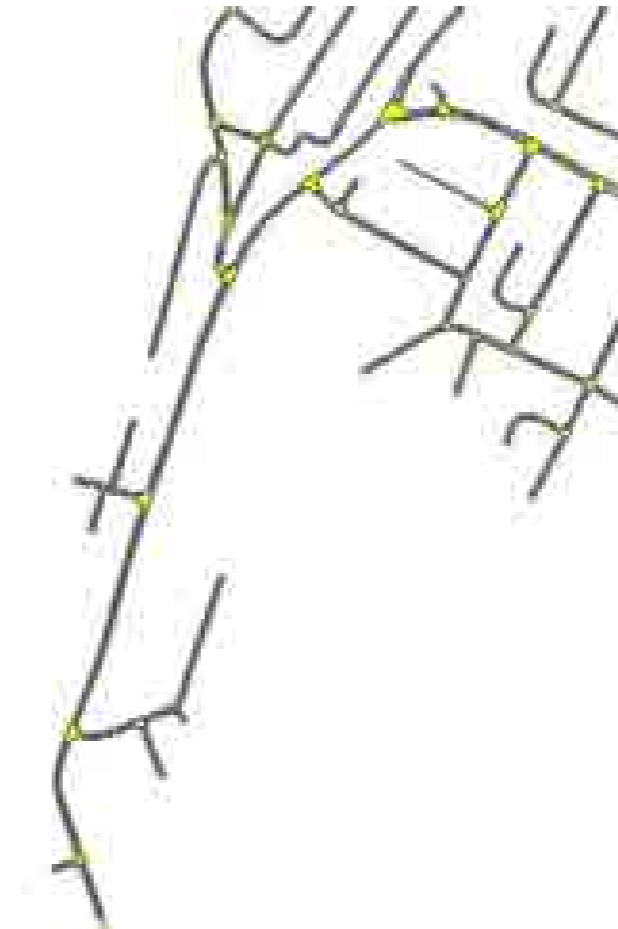


### A231 Dock Road

The A231 Dock Road is reduced to one-lane in each direction. The A321 Dock Road / Middle Street roundabout has also been re-designed to provide a signal-controlled junction with associated cycle and pedestrian facilities. The network coding changes are shown on Screenshot 2.



#### Screenshot 2: A231 Dock Road



### Waterfront Bus Station

The Waterfront Bus Station has been redesigned so that the Globe Lane bus station loop is removed and Waterfront Way now continues north as bus only before joining The Brook with a new signal controlled T-junction. A new cycle only link is provided from The Brook to Waterfront Way connecting west with Medway Street. The network coding changes are shown on Screenshot 3.



Screenshot 3: Waterfront Bus Station



Chatham Town Centre

Changes have been made to Best Street with the road severed adjacent to the Paddock car park. A new road connection is also provided between the Paddock and Rome Terrace. Finally, the gyratory around the Alexandra pub has been removed and replaced with two north/south directional roads remaining. The network coding changes are shown on Screenshot 4.



Screenshot 4: Chatham Town Centre



2.1.5 2050 Do Something Bus Gate

The 2050 Do Something Bus Gate Scenario has been based on the Do Something scenario, but with two changes:

- The access from Maritime Way onto Medway Tunnel via the A289 roundabout has been re-instated
- A bus gate has been added onto The Brook. At this stage the bus gate only allows buses and cyclists to pass through. The bus gate is located north of the new signalised junction on the Brook and south of the Riverside car park.

The network coding changes are shown on Screenshot 5.

Screenshot 5: Proposed Bus Gate



## 2.2 Modelling Methodology

### 2.2.1 Macroscopic Scenarios

Modelling has been initially undertaken at a macroscopic level to determine wider reassignment effects and the extent of impact of the proposals. Microsimulation modelling would be required within relevant microsimulation subnetworks to assess the detailed impacts of the proposals.

## 3 Modelling Results – 2050 Do Something

### 3.1 Introduction

This section of the report presents the macroscopic modelling results for the 2050 Do Something assessment scenarios.

### 3.2 Macroscopic

The Figures at Appendix A present the assigned volume (pcu) for the Do Minimum and Do Something scenarios in AM and PM peak hours. These figures show that changes in assigned volume occur across the modelled area. To consider whether these changes are significant, consideration can be given the level of change in assigned volume considered when validating the model:

- Individual flows should be modelled within 100 pcu/h of counts for flows less than 700 pcu/h
- Individual flows should be modelled within 15% of counts for flows from 700 to 2,700 pcu/h

Considering the first bullet point as a worst case, changes in assigned volume greater than 100 pcu/h have been considered material for the purposes of this initial strategic assessment. At Appendix A, figures 5 to 8 show changes in assigned volume greater than 100 pcu/h.

#### AM Peak

To the north of Chatham town centre, the closure of the westbound on-slip at the Maritime Way Roundabout appears to have strategic and local re-assignment impacts. The overall flow westbound through Medway Tunnel decreases (approximately -430 PCU), however the wider strategic re-routing results in flows on the M2 westbound increasing (approximately +280 PCU).

At a more local level in the AM peak hour there are noticeable decreases in flow along Gads Hill Road. This appears to be caused as a result of vehicles now travelling eastbound along Pier Road, from Maritime Way, before U-turning at the Pier Road / B2004 junction. This reduces capacity at the junction and results in a reduction in flow along Gads Hill Road / Pier Road. This is reflected in the increase in flow both east and westbound on Pier Road. Whilst there is an overall reduction on traffic along Medway Tunnel, the consequentially effect is to increase traffic on some local routes.



Changes to the Luton Arches gyratory has reduced traffic on Luton Road (-521 PCU), whilst increasing traffic on Upper Luton Road (+356 PCU). This appears to be a direct result from the changes to Luton Road in reducing capacity from a two-lane approach to a single lane.

To the south of the A2 New Road, there are changes in assigned volume with both increases and decrease on various minor roads as a result of the scheme.

PM Peak

To the north of Chatham town centre, the closure of direct access from Maritime Way to Medway Tunnel appears to have strategic and local re-assignment impacts. The overall flow westbound through Medway Tunnel decreases (approximately -310 PCU), however the wider strategic re-routing means results in flows on the M2 westbound increasing (approximately +130 PCU).

At a more local level in the PM peak hour there are noticeable decreases in flow along Gads Hill Road. However, the difference for the PM peak is the decrease is mainly for eastbound movements (-156 PCU) as opposed to westbound movements. There are again significant increases in flow on Pier Road as a result of Maritime Way to Medway Tunnel access closure.

Again, changes to the Luton Arches gyratory has reduced traffic on Luton Road (-362 PCU), whilst increasing traffic on Upper Luton Road (+119 PCU). Whilst to the south of the A2 New Road there are again changes in assigned volume, with both increases and decreases on various minor roads as a result of the scheme.

It should be noted that changes around Chatham Town Centre are shown as 'inf' because the network coding change alters the section IDs between the Do Minimum and Do Something scenarios. As such, Table 1 highlights the assigned volume changes on some keys roads, particularly around Chatham Town Centre. The table shows that traffic flows reduce on a number of key roads as a result of the scheme, although there are increases on the A289 Pier Road.



Table 1: Assigned Volume Differences – 2050 Do Something

Location	Direction	Assigned Volume (PCU)					
		AM Peak			PM Peak		
		DM	DS	Diff.	DM	DS	Diff.
Maritime Way	Northbound	1,550	953	-596	1,864	1,134	-730
	Southbound	2,176	1,822	-354	1,180	1,028	-152
Medway Tunnel	Westbound	3,063	2,634	-429	2,707	2,399	-308
	Eastbound	2,753	2,586	-167	2,922	2,751	-172
A289 Pier Road	Westbound	2,438	2,818	+381	1,551	2,554	+1003
	Eastbound	2,161	2,567	+405	2,403	2,975	+572
Gads Hill Road	Westbound	2,101	1,945	-156	1,434	1,407	-27
	Eastbound	1,228	1,053	-175	1,776	1,620	-156
Dock Road	Northbound	1,056	660	-396	1,336	926	-410
	Southbound	1,233	842	-391	1,197	753	-444
The Brook	Northbound	1,071	553	-518	1,069	708	-361
	Southbound	1,219	706	-513	1,253	759	-493
A2 New Road	Westbound	1,040	848	-192	1,037	986	-51
	Eastbound	910	722	-188	938	832	-106
Best Street	Westbound	470	356	-114	343	245	-98
	Eastbound	785	336	-449	849	415	-434

Key Junction Capacity Issues

The plots at Appendix B present the volume over capacity (v/c %) for the Do Minimum and Do Something scenarios in AM and PM peak hours. These figures show turns that are at, over or approaching capacity across the modelled area. It should be noted that some turns already operate over capacity in the 2050 Do Minimum scenario.

Based on these plots and the underlying data, Table 2 presents junctions which contain turns that are anticipated to operate over practical capacity, or which already operate over practical capacity but are modelled to get materially worse, as a result of the proposed scheme. The highest v/c value within the junction is presented. The table shows that there are number of junctions that would experience a material increase in v/c as a result of the proposed scheme, including for junctions on key routes such as the A2 and the A289 Pier Road.



More pertinently, a number of the junctions within the proposed scheme along the A231 are forecast to operate over capacity and with worse performance than in the Do Minimum scenario. This is because the route remains attractive compared to the alternative routes even though capacity of the route has been reduced.

**Table 2: Junction V/C – 2050 Do Something**

Junction	Turn Volume / Capacity (%)					
	AM Peak			PM Peak		
	DM	DS	Diff.	DM	DS	Diff.
A231						
A2 New Road / The Brook	77	92	+15	93	100	+7
A231 The Brook / High Street	68	100	+32	83	113	+30
A231 The Brook / Slicketts Hill	80	94	+14	91	106	+15
A231 Dock Road / Globe Lane	82	116	+34	77	99	+22
A231 Dock Road / Main Gate Road	68	43	-25	64	95	+31
A231 / Dock Road / Middle Street	92	102	+10	102	106	+4
Wood Street						
Wood Street / Mansion Row	89	97	+8	60	92	+32
A289						
A289 Pier Road / B2004	111	124	+13	116	154	+38
A289 The Strand Roundabout	100	110	+10	88	104	+16
A2						
A2 Luton Arches Gyratory	61	98	+37	80	109	+29
A2 / Rock Avenue	99	106	+7	102	109	+7
A2 / Jezreels Road	76	91	+15	54	92	+38
A2 New Road / The Paddock	88	105	+17	102	105	+3
A2 High Street / Canal Road	130	137	+7	123	128	+5
A2 High Street / Commercial Road	93	99	+6	89	90	+1



### Impact on Bus Routes

It should be noted that for the purposes of macroscopic simulation, bus routes which have been affected have been re-routed to the most logical routes. However due to the re-design of Chatham Town Centre some bus routes are now forced to take convoluted routes, in particular, bus routes that previously used New Cut to access New Road Avenue.



## 4 Modelling Results – 2050 Do Something with Bus Gate

### 4.1 Introduction

This section of the report presents the macroscopic modelling results for the 2050 Do Something with Bus Gate assessment scenarios.

### 4.2 Macroscopic

The Figures at Appendix C present the assigned volume (pcu) for the Do Something with Bus Gate scenario in AM and PM peak hours. These figures show that changes in assigned volume occur across the modelled area. The Figures at Appendix C show the changes in assigned volume for the Do Something with Bus Gate compared to the Do Minimum which are greater than 100 pcu/h.

#### AM Peak

To the north of Chatham town centre, the bus gate has the desired effect in reducing traffic on Dock Road / Maritime Way as well as through Medway tunnel in both directions (-195 PCU eastbound and -165 PCU westbound). Again, there are strategic re-assignment impacts on the M2 westbound with flows increasing (approximately +200 PCU).

At a more local level in the AM peak hour there are noticeable increase in flow along Yokosuka Way / Gads Hill Road. This appears to be a result of the bus gate on The Brook resulting in reassignment of traffic onto the wider network. This is reflected by increases in traffic on various routes through Gillingham running north/south as alternatives to The Brook / Dock Road between the A2 and Pier Road.

To the south of the A2 New Road, there are changes in assigned volume with both increases and decrease on various minor roads as a result of the scheme.

#### PM Peak

To the north of Chatham town centre, the bus gate has the desired effect in reducing traffic on Dock Road / Maritime Way as well as westbound through Medway tunnel (approximately -150 PCU). Again there are strategic re-assignment impacts on the M2 with flows increasing (+100 PCU eastbound and +160 PCU westbound).

At a more local level in the PM peak hour there are noticeable increase in flow along Yokosuka Way / Gads Hill Road. This appears to be a result of the bus gate on The Brook pushing traffic onto the wider network. This is reflected by increases in traffic on various routes through Gillingham running on the same north/south line as The Brook / Dock Road between the A2 and Pier Road.



At a more local level in the PM peak hour there are increases in flow along Gads Hill Road. However, the difference for the PM peak is the increase is mainly for eastbound movements (+150 PCU) as opposed to westbound movements.

Again, changes to the Luton Arches gyratory has reduced traffic on Luton Road (-362 PCU), whilst increasing traffic on Upper Luton Road (+119 PCU). Whilst to the south of the A2 New Road there are again changes in assigned volume, with both increases and decreases on various minor roads as a result of the scheme.

It should be noted that changes around Chatham Town Centre are shown as 'inf' because the network coding change alters the section IDs between the Do Minimum and Do Something scenarios. As such, Table 2 highlights the assigned volume changes on some key roads, particularly around Chatham Town Centre. As shown the bus gate leads to significantly more traffic reduction along The Brook and Dock Road compared to the original scheme.



**Table 3: Assigned Volume Differences**

Location	Direction	Assigned Volume (PCU)					
		AM Peak			PM Peak		
		DM	DS	Diff.	DM	DS	Diff.
Maritime Way	Northbound	1,550	1,246	-304	1,864	1,500	-364
	Southbound	2,176	1,676	-501	1,180	934	-246
Medway Tunnel	Westbound	3,063	2,898	-165	2,707	2,556	-151
	Eastbound	2,753	2,558	-195	2,922	2,865	-57
A289 Pier Road	Westbound	2,438	2,373	-65	1,551	1,657	+106
	Eastbound	2,161	2,268	+107	2,403	2,495	+92
Gads Hill Road	Westbound	2,101	2,291	+190	1,434	1,583	+149
	Eastbound	1,228	1,333	+106	1,776	1,826	+50
Dock Road	Northbound	1,056	71	-985	1,336	213	-1123
	Southbound	1,233	317	-916	1,197	72	-1125
The Brook	Northbound	1,071	135	-936	1,069	127	-942
	Southbound	1,219	369	-850	1,253	208	-1044
A2 New Road	Westbound	1,040	806	-234	1,037	991	-46
	Eastbound	910	761	-149	938	827	-111
Best Street	Westbound	470	346	-124	343	235	-108
	Eastbound	785	393	-392	849	447	-402

**Key Junction Capacity Issues**

The plots at Appendix D present the volume over capacity (v/c %) for the Do Minimum and Do Something with Bus Gate scenarios in AM and PM peak hours. These figures show turns that are at, over or approaching capacity across the modelled area. It should be noted that some turns already operate over capacity in the 2050 Do Minimum scenario.

Based on these plots and the underlying data, Table 4 presents junctions which contain turns that are anticipated to operate over practical capacity, or which already operate over practical capacity but are modelled to get materially worse, as a result of the proposed scheme. The highest v/c value within the junction is presented. The table shows that there are number of junctions that would experience a material increase in v/c as a result of the proposed scheme, including for junctions on key routes such as the A2 and the A289 Pier Road.



As with the original scheme, a number of the junctions within the proposed scheme along the A231 are forecast to operate over capacity and with worse performance than in the Do Minimum scenario, although not to the same extent. This is simply a result of traffic that is seeking to access the area.

**Table 4: Junction V/C**

Junction	Turn Volume / Capacity (%)					
	AM Peak			PM Peak		
	DM	DS	Diff.	DM	DS	Diff.
<b>A231</b>						
A2 New Road / The Brook	77	100	+23	93	102	+9
A231 The Brook / High Street	68	69	+1	83	108	+25
A231 The Brook / Slicketts Hill	80	63	-17	91	101	+10
A231 Dock Road / Globe Lane	82	-	-	77	-	-
A231 Dock Road / Main Gate Road	68	22	-46	64	75	+11
A231 / Dock Road / Middle Street	92	103	+11	102	108	+6
<b>Wood Street</b>						
Wood Street / Mansion Row	89	91	+2	60	79	+19
<b>A289</b>						
A289 Pier Road / B2004	111	111	0	116	202	+86
A289 The Strand Roundabout	100	96	-4	88	98	+10
<b>A2</b>						
A2 Luton Arches Gyrotory	61	97	+36	80	105	+25
A2 / Rock Avenue	99	109	+10	102	114	+12
A2 / Jezreels Road	76	95	+19	54	100	+46
A2 New Road / The Paddock	88	104	+16	102	104	+2
A2 High Street / Canal Road	130	137	+7	123	131	+8
A2 High Street / Commercial Road	93	92	-1	89	95	+6

## 5 Recommendations

The results from the strategic macroscopic modelling shows that the Bus Gate scheme operates better than the original scheme which closed access from Maritime Way to Medway Tunnel. The scheme however is still likely to give rise to impacts on the wider highway network including through Gillingham and on the A2 and A289. The modelling also indicates that junctions within the scheme on the A231 would operate overcapacity and with worse performance than in the Do Minimum scenario.

The next stage should be to determine the extent to which impacts can be mitigated through further changes to the proposed scheme without compromising the scheme objectives. For example, it may be appropriate to introduce traffic reduction schemes through Gillingham so that the town benefits from the overall scheme objectives and does not receive the impacts of the traffic re-assignment from Chatham. The routing of buses within the scheme area also needs to be considered further.

Material changes in traffic flows are shown on the M2 westbound and merge and diverge assessments for this part of the Strategic Road Network may be required in due course.

Consideration should also given be to strategies and policies that could be implemented to seek to reduce traffic flows within affected area to seek to manage down the impacts of the scheme.

Following this, it is suggested that microsimulation modelling is undertaken to better understand both the operation of the proposed scheme and to assist in the development of appropriate mitigation measures where there are significant impacts on the network. This could also include modelling and pedestrians and cyclists to ensure that the scheme provides benefits to active modes.

The existing microsimulation subnetwork models that are available in the Medway Aimsun Model in the Chatham area are shown on Figure 1. There are two existing subnetworks which cover the area currently impacted by the scheme. Subnetwork 2 to the north covers Pier Road / A2, whilst Subnetwork 4 covers Strood and Chatham town centres. However, Dock Road is not included in any existing subnetworks, neither are local roads to the south of the A2 New Road. Whilst the existing subnetworks could be used, given the impacts of the current proposed scheme, the development of a new subnetwork created for the purpose of assessing the Chatham Movement Framework could be considered and would allow the most efficient further testing of the scheme and associated mitigation strategies.

Figure 1: Extent of Existing Subnetworks around Chatham

