highways england

Lower Thames Crossing

Traffic Modelling Update

Supplementary consultation 2020

Lower Thames Crossing

Traffic Modelling Update

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1 Introduction

This Traffic Modelling Update gives an overview of the work carried out by Highways England to assess the need for, and impact of, the Lower Thames Crossing project on the road network. It presents the key findings of the differences in the performance of the road network in the future if the Lower Thames Crossing (the 'new crossing') is built or not. It also presents a high-level comparison of the principal changes in traffic flows with the information presented at Statutory Consultation.

We have assessed the need for additional road capacity across the River Thames, east of London, and the impact that the new crossing would have by developing a simulation of the transport system in the Lower Thames Area, called the Lower Thames Area Model (LTAM).

The model contains a detailed representation of the road network in the area and information on where people travelled to and from in an average month (March 2016). It uses an industry-recognised method of predicting future traffic flows and conditions, both with and without the new crossing.

The model shows the number of people choosing to travel by road and rail and the route they use now, and the route they are forecast to use. This enables us to predict how many vehicles will be using each part of the road network in the future and how long it would take to complete a journey.

This document provides some of the key results from our updated model, which has been developed since Statutory Consultation in preparation for our Development Consent Order (DCO) submission.

Broadly, our new model shows similar results to that which was presented at Statutory Consultation. However, we have made a number of changes to our model, which have included:

- updating the list of other road schemes that are likely to be built on the road network, whether the Lower Thames Crossing is built or not
- revising the number of HGVs likely to be on the road network, using more recently published data
- updating the size and location of proposed housing and other developments in the area
- alterations to reflect the design changes made to the project (these are set out in more detail in chapter 3 of The Guide to Consultation)
- updating the modelled years to 2027, 2032, 2042 and 2051.

As such, we have also provided a high-level comparison between the results we presented at Statutory Consultation and those from our updated model.

Background

The Lower Thames Crossing is a proposed new road connecting Kent, Thurrock and Essex through a tunnel beneath the River Thames. It would provide much-needed new

road capacity across the river east of London and deliver the other scheme objectives set out in the consultation materials.

On the south side of the River Thames, the new road would link to the A2 and M2 in Kent. On the north side, it would link to the A13 in Thurrock and the M25 in Havering.

The tunnel crossing is located to the east of Gravesend on the south of the River Thames and to the west of East Tilbury on the north side.

The Lower Thames Crossing proposals will include:

- approximately 14.3 miles (23km) of new roads connecting the tunnel to the existing road network
- three lanes in both directions, apart from the southbound connection between the M25 and A13, where it would be two lanes, and around junctions
- technology providing lane control and variable speed limits up to 70mph
- upgrades to the M25, A2 and A13 where it connects to those roads
- new structures and changes to existing ones including bridges, viaducts and utilities such as electricity pylons
- two 2.6 mile (4.3km) tunnels crossing beneath the river, one for southbound traffic, one for northbound traffic
- a free-flow charging system, where drivers do not need to stop but pay remotely, similar to that at the Dartford Crossing
- traffic regulation measures that include prohibiting use by pedestrians, low-powered motorcycles, cyclists, horse riders and agricultural vehicles
- provision of environment mitigation and replacement of open space and common land

Consultation

We held a statutory consultation in October 2018. We are currently in supplementary consultation where we are presenting changes to our proposals for the Project and to listen to your feedback. The next stage is applying for a Development Consent Order (DCO).

This report forms part of documents we have produced as part of the supplementary consultation we are carrying out to support the DCO application process.

Highways England

Highways England is responsible for the delivery of the Lower Thames Crossing.

We are a government-owned company who work with the Department for Transport (DfT). We operate, maintain and improve England's motorways and major A-roads, also known as the strategic road network. Our aim is to ensure that road users have safer and more reliable journeys and that businesses have the effective road links they need to prosper.

Where to go for further information

More information about how the transport model was built and how the model predicts future traffic levels and information on the traffic forecasts were published in support of our Statutory Consultation in 2018. These documents, the *Local Model Validation Report* and the *Traffic Forecasting Report* are still available on our website at www.lowerthamescrossing.co.uk/publications and www.lowerthamescrossing.co.uk/haveyoursay respectively.

Although these documents are still available and provide a useful background to our work, they are based on a previous version of our transport model. As such, specific details and outputs should not be compared with the outputs contained in this Modelling Update.

Updated versions of these documents will be submitted with our DCO application.

Glossary

You can find explanations of terms and abbreviations used here in the glossary at the back of this document.

2 How we modelled current conditions

This section sets out how we developed our transport model to reflect current conditions.

The transport model was created to represent the transport system in the Lower Thames Area as it was in March 2016. This month was chosen to represent an average month in the Lower Thames Area. The model covers the whole of the UK in order to capture the start and end of every trip, but more comprehensively so in Dartford, Thurrock, Kent, Essex and London.

The hours modelled in the transport model are from 07:00–08:00 (the morning peak) and 17:00–18:00 (the evening peak) as these are the busiest times of day on the main roads in the area. A typical hour in the middle of the day is also modelled (the inter-peak).

Details of the current transport network are taken from digital maps and from other recent transport models of the area. The road network is represented in great detail, for example, it includes the amount of red and green time at traffic signals and the number of lanes along each stretch of road and at junctions.

The information on where people are travelling to and from has been taken from analysis of anonymised movements and travel patterns of millions of mobile phones in the UK in 2015. This information is then scaled to match traffic counts in the area and merged with other data sources to provide the travel patterns of cars, vans and heavy goods vehicles (HGVs).

The transport model is tested by getting the model to predict on which routes vehicles will travel, taking into account:

- where people want to travel to
- people's preference between journey time and journey distance
- the actual speeds of vehicles on the road network

The amount of traffic predicted by the model using the road network is compared to actual counts (where available) of the number of vehicles on the road network, collected from traffic counters laid out on the road or specially commissioned video surveys. The time that journeys are predicted to take are compared with observations from in-vehicle GPS devices which provide actual travel times recorded during the modelled hours in March 2016. This process is known as model calibration and validation.

DfT has issued guidelines on how transport models such as this should be built, and the extent to which the predictions of traffic flows and times made by the model compare with real life. These guidelines are called TAG (Transport Analysis Guidance). LTAM has been accepted by Highways England as suitable to assess the Lower Thames Crossing project.

3 Forecasts without the Lower Thames Crossing

This section sets out how we used the transport model to forecast without the new crossing.

This is called the Do Minimum situation, which is where the new crossing is not built, but where changes to the road network and planned development that is forecast to go ahead (whether the new crossing is built or not) are included.

The transport model is used to predict the conditions on the road network in 2027, 2032, 2042 and 2051, the latter being the final year of DfT published forecasts of traffic growth from its National Trip End Model.

The growth in the number of trips made by vans and HGVs has been taken from updated DfT Road Traffic Forecasts and adjusted to allow for trips made to and from new developments in the area.

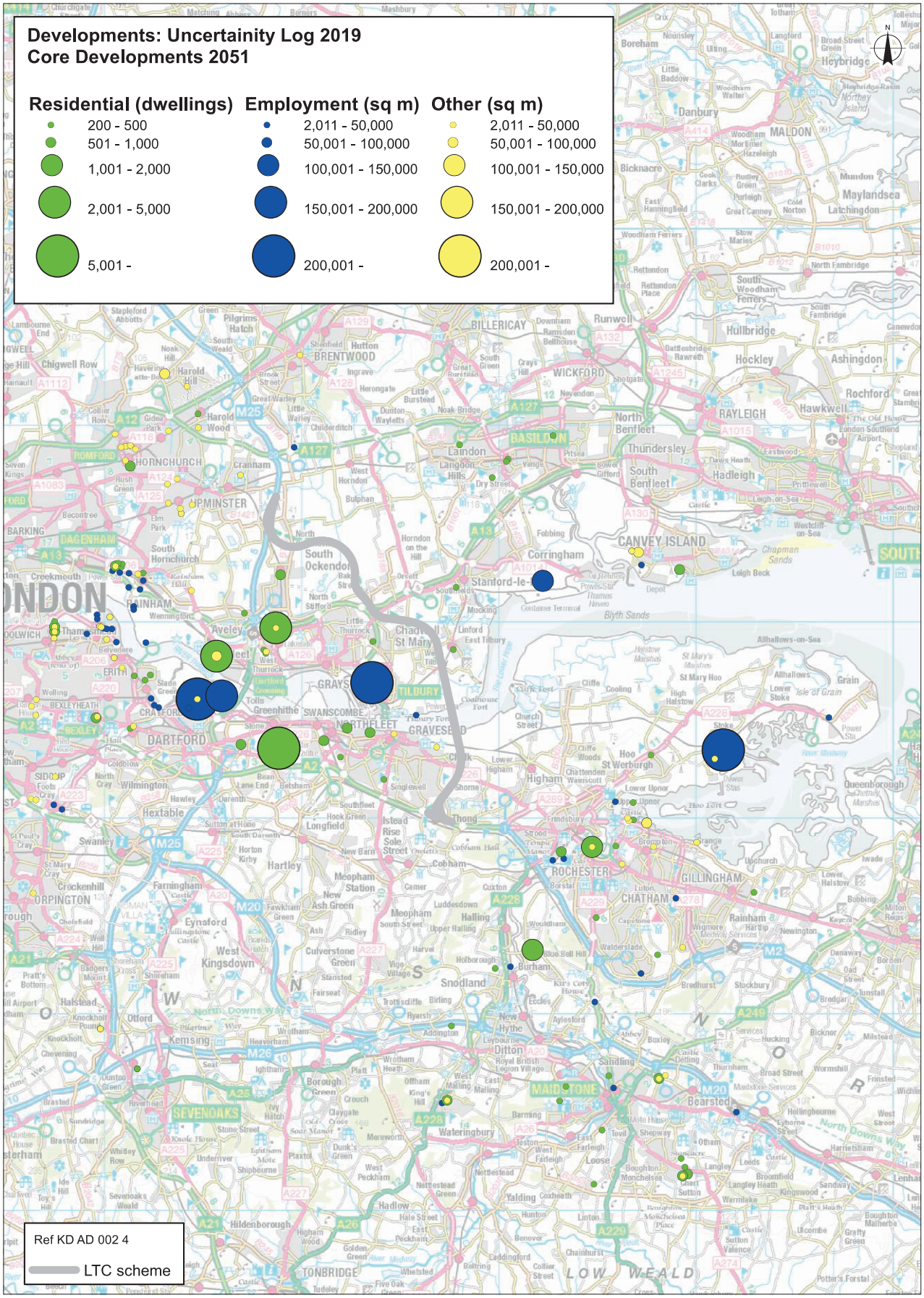
The overall level of growth in car trips is taken from the most recent DfT National Trip End Model forecasts, published in February 2017.

These forecasts are based on estimates from the Office of National Statistics (ONS) on the number of people living in each area. The number of car trips made per person varies according to factors such as age, employment status, car ownership and household size. This is then applied to the number of people forecast in the future for these categories. This produces a forecast of the future number of car trips.

Local adjustments are made to the model to provide more detailed geographic information on the proposed location of new housing and other developments (such as employment, retail and leisure sites). The main future development areas, either with planning permission, a submitted planning application or within an adopted local plan, are included in the model and are shown in Figure 3.1. This information has been refreshed in our updated model, using information provided by local authorities in early 2019.

However, growth associated with government housing targets which have not yet fully progressed through the planning system is not included.

Figure 3.1 Main future development areas included in the transport model



The road network in the transport model is updated for the future years to include road schemes that have been completed since 2016, or are likely to be built, regardless of whether the Lower Thames Crossing is built or not. This information (see Table 3.1) has been provided by Highways England and by local highway authorities in the area and has been refreshed in our updated model, using information provided in early 2019.

Table 3.1 Road schemes included in the transport model

Scheme name	Scheme overview
A127/A132 Nevendon interchange improvement scheme	Junction improvement
A127/ A130 Fairglen Interchange	Junction improvement
A13 North Stifford improvement	Junction improvement
A13 Stanford-le-Hope bypass widening	Carriageway widening
A131 Chelmsford to Braintree Route Based Improvements	Junction and Carriageway improvements
A2/Bean and A2/Ebbsfleet junctions	Junction improvements
A20 access to Dover	Junction improvement
A21 Tonbridge to Pembury	Carriageway widening
A249 Bearsted Road, Maidstone	Junction improvement and carriageway widening
A28 Chart Road improvement scheme	Carriageway widening and junction improvement
A289 Four Elms Roundabout to Medway Tunnel (Medway)	New road
M2 junction 5 improvement	Junction improvement
M3 junctions 2-4a smart motorway	Motorway widening
M4 junctions 3-12 smart motorway	Motorway widening
M11 junction 7a	New junction on the M11 north of junction 7
M11 junction 8	Junction improvements
M20 junctions 3-5 smart motorway	Motorway widening
M20 junction 4 Eastern overbridge widening	Carriageway widening
M20 junction 10a	New junction
M23 junctions 8-10 smart motorway	Motorway widening
M25 junction 2 improvements	Junction improvement

Scheme name	Scheme overview
M25 junction 10/A3 Wisley interchange improvement	Junction improvement
M25 junctions 10-16 smart motorway	Motorway widening
M25 junction 25 improvement	Junction improvement
M25 junction 28 improvement	Junction improvement
M25 junction 30/A13 corridor improvement scheme	Junction improvement
Chelmsford City Growth Package	Various improvements
Maidstone bridges improvement scheme	Carriageway widening and junction improvement
Parkway Corridor, Chelmsford	Junction improvements
Peter's Bridge	New bridge across the River Medway
Rathmore Road Link, Gravesend	Carriageway and junction widening
Silvertown Tunnel scheme	New twin bore tunnel east of the Blackwall Tunnel
St. Clements Way, Greenhithe improvement scheme	Carriageway and junction widening

Our 2016 model, which represents the current situation, shows where people are travelling to and how long their journeys take. In the future, for many people these journeys will take longer (because there are more cars on the roads) but the real cost of making these journeys will decrease. This is because, although fuel prices will rise, vehicles are forecast to become more fuel efficient and as people's incomes rise, journeys by car will feel more affordable.

The model predicts how people will react to these changes in the time and cost of their journeys. The possible changes include how often they make the same trip, a change in the time of day they travel, a switch to or from public transport, where they travel to/from or what route they choose to take.

Evidence suggests that, in the main, people will continue to travel by car but may change where they travel to. As traffic speeds fall, or trips become more expensive, people tend to respond by making shorter journeys and where journeys become quicker or cheaper, some people choose to travel to places further away, for example, they choose employment further away from home.

The transport model shows how many vehicles are expected to use each part of the road network. This information is then used to predict the environmental impacts of traffic (on noise and air quality). The speed on each section of the network and the length of journeys is calculated in the model. This is used to measure the performance of the road network and to provide details on the location and level of congestion.

4 Forecasts with the Lower Thames Crossing

This section sets out how we used the model to predict the use of both the new crossing and other parts of the road network if the new crossing is built. The latest design of the new crossing, including changes made as a result of feedback from Statutory Consultation, have been included. This includes the changes that are presented as part of this Supplementary Consultation.

The model is used to predict:

- how people will react to the changes in the time and cost of their journeys
- the routes they will use as a result of the new crossing

The changes in journey times and costs for all traffic in the area, including for those who do not use the new crossing but have their journey times affected by changes in traffic patterns, form the basis of the assessment of the economic impact of building the new crossing.

The model provides the data on traffic flows and speeds. This data is used to look at the environmental impacts of traffic, accident levels and changes in journey time reliability and demonstrate the economic benefits of the new crossing.

What the model predicts

The key findings as a result of using the model are shown here. Further detail and results will be contained within the *Traffic Forecasting Report* which will be produced in support of our DCO.

The model predicts that the biggest change as a result of the new crossing will be the number of people who choose to travel to the other side of the Thames.

Across the following pages, we have presented information from our model to help show these changes. This information includes:

- Change in flow
- Percentage change in flow
- Percentage of heavy goods vehicles
- Journey times; and
- Change in volume/capacity

We recommend that these are viewed together as a series to help understand what the model predicts.

Change in flow

In the model, the capacity of each part of the road network is given as the number of passenger car units (PCUs) that can use each road link in the model each hour, which is an industry standard approach:

- Cars and vans are defined as 1 PCU
- HGVs are considered to be equivalent to 2.5 PCUs, because they take up more road space

The capacity of a road depends on the type of road, the speed limit, the number of lanes and the road layout. For example, the capacity is often reduced on a motorway where traffic changes lane to leave or join the road at the next junction.

Table 4.1 shows the forecast traffic flows in both directions on the Dartford Crossing and at the new crossing during the morning and evening peak hours, and an average inter-peak hour. Flows are presented for both the model outputs presented at Statutory Consultation in 2018 (Stat Con) and with our updated model for Supplementary Consultation (Supp Con).

The table shows the benefits that the new crossing would bring to the Dartford Crossing, with flows lower than they are today on the Dartford Crossing in the morning and evening peak hours in both the proposed opening and design years with the new crossing.

The table also shows that in the AM peak, the forecast flows between the two versions of the model are very similar. In the PM peak, flows on the Dartford Crossing, both with and without the new crossing are also very similar. However, flows forecast to use the new crossing have increased in our new model; by up to 13% in the design year. In the inter peak period, the table shows that the new model has resulted in a slight increase in flows across both modelled years and both with and without the new crossing.

Table 4.1 Forecast peak and inter-peak two-way hourly flows at the Dartford Crossing and the Lower Thames Crossing (PCUs)

Period	Year	Without new crossing		With new crossing			
		Dartford		Dartford		New crossing	
		Stat Con	Supp Con	Stat Con	Supp Con	Stat Con	Supp Con
AM peak hour	2016	14,290	14,850				
	Opening Year*	15,920	15,970	12,180	12,680	7,620	7,580
	Design Year**	16,220	16,270	13,960	14,600	8,710	8,670
Inter-peak hour	2016	11,340	12,030				
	Opening Year*	13,750	14,030	9,820	10,100	5,850	6,340
	Design Year**	15,400	15,520	11,700	12,280	7,060	7,540
PM peak hour	2016	13,220	13,600				
	Opening Year*	15,130	15,160	11,450	11,540	6,970	7,730
	Design Year**	16,020	16,250	12,970	13,370	7,920	8,930

**Opening Year is 2026 for Stat Con and 2027 for Supp Con. **Design Year is 2041 for Stat Con and 2042 for Supp Con. Source: Lower Thames Area Model (Stat Con: CM6, C8E DCO: BP04, CM12, CS12)*

On a daily basis, our updated model shows that 188,600 PCUs (147,100 vehicles) used the Dartford Crossing in 2016. This is predicted to rise to 213,200 PCUs (166,700 vehicles) in 2027 and 230,200 PCUs (182,400 vehicles) in 2042 without the new crossing. These flows are significantly higher than the daily capacity that the Dartford Crossing was designed for (135,000 vehicles).

Much of the increase in traffic will come from additional trips travelling in the middle of the day and overnight as the Dartford Crossing is already heavily used in the morning and evening, leaving little space for extra vehicles to use it. The overall growth in traffic is however restricted by the lack of sufficient capacity at the Dartford Crossing which deters some people and businesses from making a trip across the Thames because of the delays at the Dartford Crossing.

When the new crossing opens, a significant proportion traffic that currently crosses the Thames using the Dartford Crossing will divert to the new crossing as it is a shorter route. Some of the space this creates at the Dartford Crossing will be taken up by people who were not using it because they were deterred from doing so by the high traffic levels and unpredictable journey times. The model predicts that, even with these additional journeys:

- the overall level of traffic using the Dartford Crossing will fall (by up to 28% in 2027 and up to 21% in 2042 in the peak hours) when compared to the situation without the new crossing
- average speeds on that part of the network will rise and journey times will become more reliable

The traffic model estimates future conditions on the road network.

Over the following pages, we have presented a number of figures showing the road network in the Lower Thames Area, as set out below:

- Figures 4.1 – 4.3 show the change in forecast traffic flows between our model used at Statutory Consultation and our updated model. These changes have occurred for a variety of reasons given the number of changes made to the model; as set out earlier in this document.

  Roads contained within the model are shown in varying shades of blue if traffic levels have decreased between our model at Statutory Consultation and our updated model, and in yellow to red if they are forecast to increase; the darker the colour, the greater the change.

  Overall, the vast majority of the modelled road network does not significantly change as a result of the changes made in our updated model. In the AM and Inter-peak periods, there are changes shown across the Lower Thames Area; the majority of which are increases. In the PM peak, the changes between the two models are similar, although the increases are larger, particularly northbound on the new crossing, and into Medway.

- Figures 4.4 – 4.9 show the change in the predicted amount of traffic in 2027 using our updated model, between the Do Minimum situation and the Do Something situation, which differs as it includes the new crossing.

  Roads contained within the model are shown in varying shades of blue if traffic levels are forecast to decrease and in yellow to red if they are forecast to increase; the darker the colour, the greater the change. The new crossing is shown in red as it is not present in the Do Minimum situation.

  Overall, the impact on traffic as a result of the new crossing is similar during the morning, evening and inter-peak periods, with the changes more pronounced, and covering a wider area, during the morning and evening peaks.

  On many roads to the west of the new crossing, such as the A2, the A13, the Dartford Crossing and the M25 in Thurrock, the number of vehicles will fall when the new crossing opens. However, on roads on the approach to the new crossing, including the M2, A228, A229, and some roads to the east of the new crossing, such as the A13, the A2 and some sections of the M25 will experience an increase in traffic levels as travel across the Thames becomes easier and more reliable.

Figure 4.1 Change in flow between our Statutory Consultation model and our Supplementary Consultation model (with the new crossing): AM peak (07:00–08:00), Opening Year

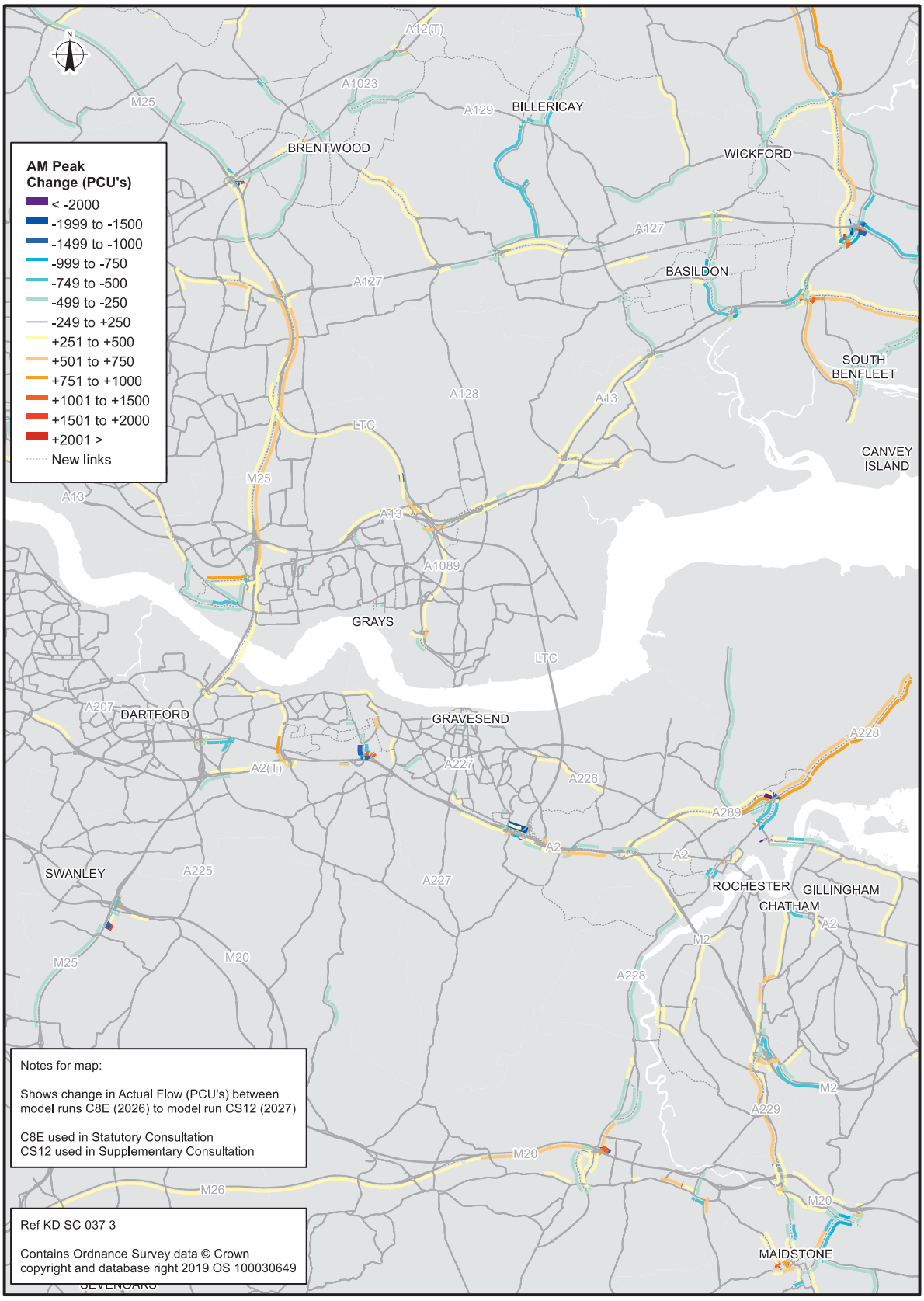


Figure 4.2 Change in flow between our Statutory Consultation model and our Supplementary Consultation model (with the new crossing): Inter-peak, Opening Year

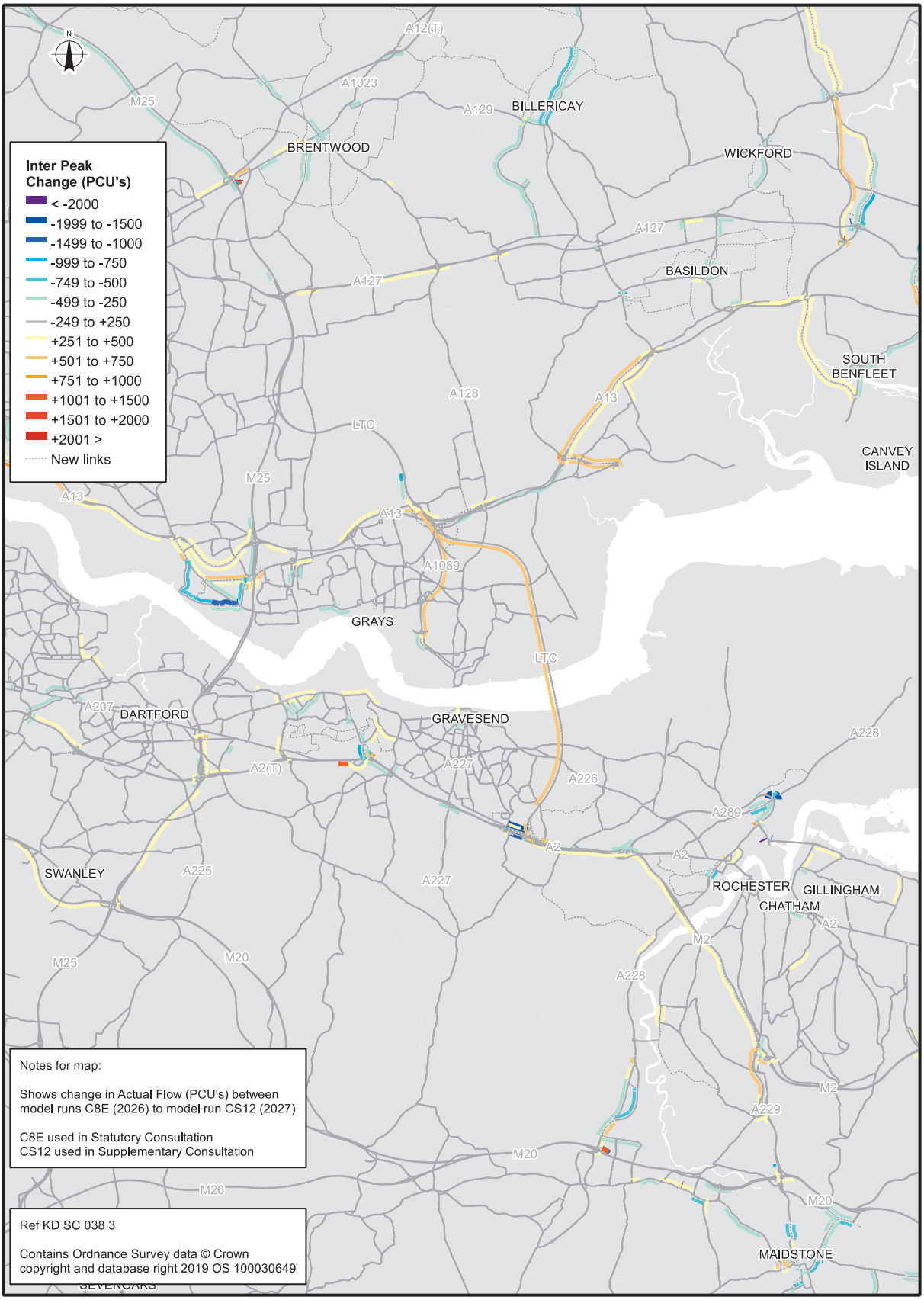


Figure 4.3 Change in flow between our Statutory Consultation model and our Supplementary Consultation model (with the new crossing): PM peak (17:00–18:00), Opening Year

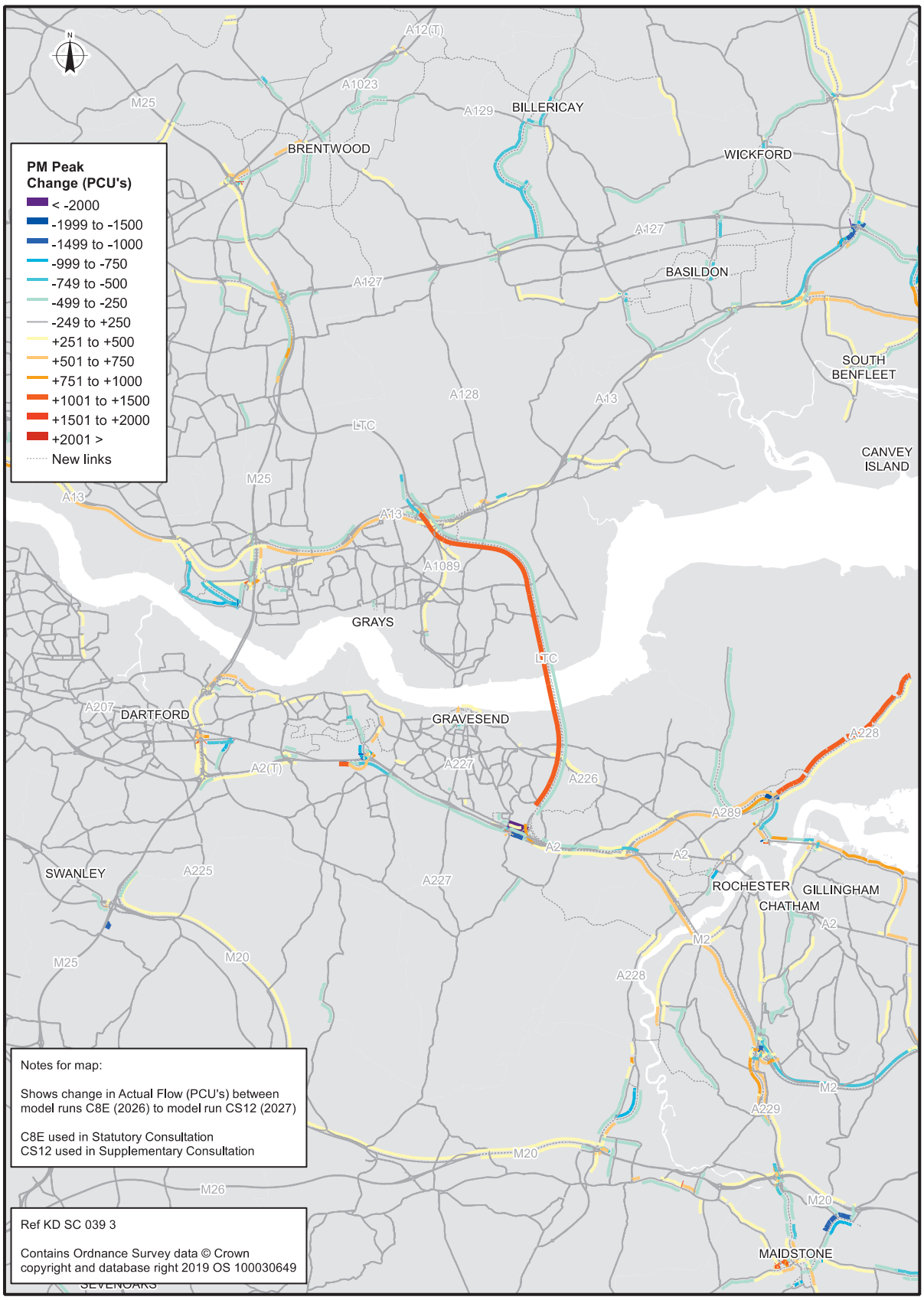


Figure 4.4 Change in flows with the new crossing: AM peak (07:00–08:00), 2027

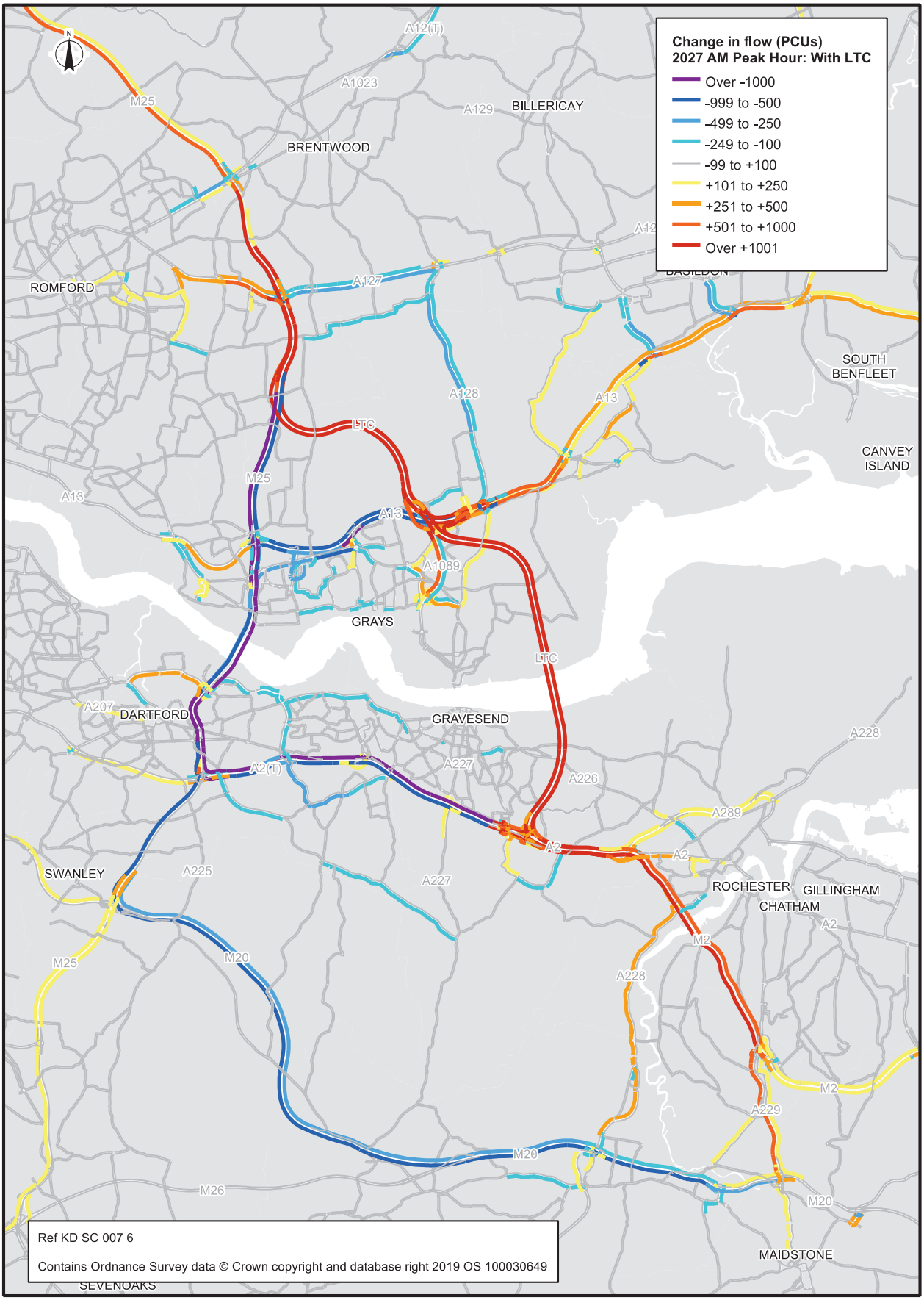


Figure 4.5 Change in flows with the new crossing: AM peak (07:00–08:00), 2027 at the junctions with the A2, A13 and M25

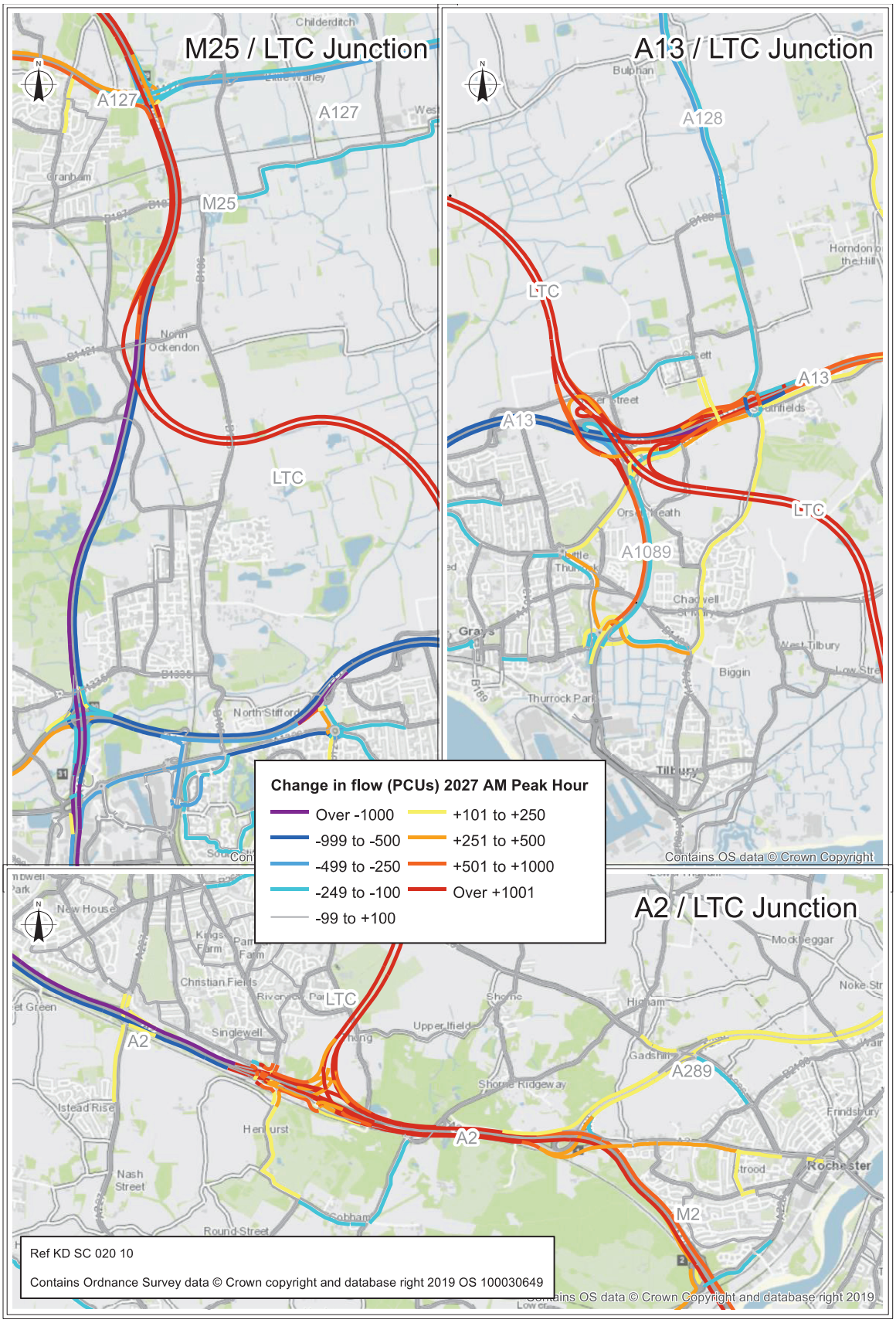


Figure 4.6 Change in flows with the new crossing: Inter-peak, 2027

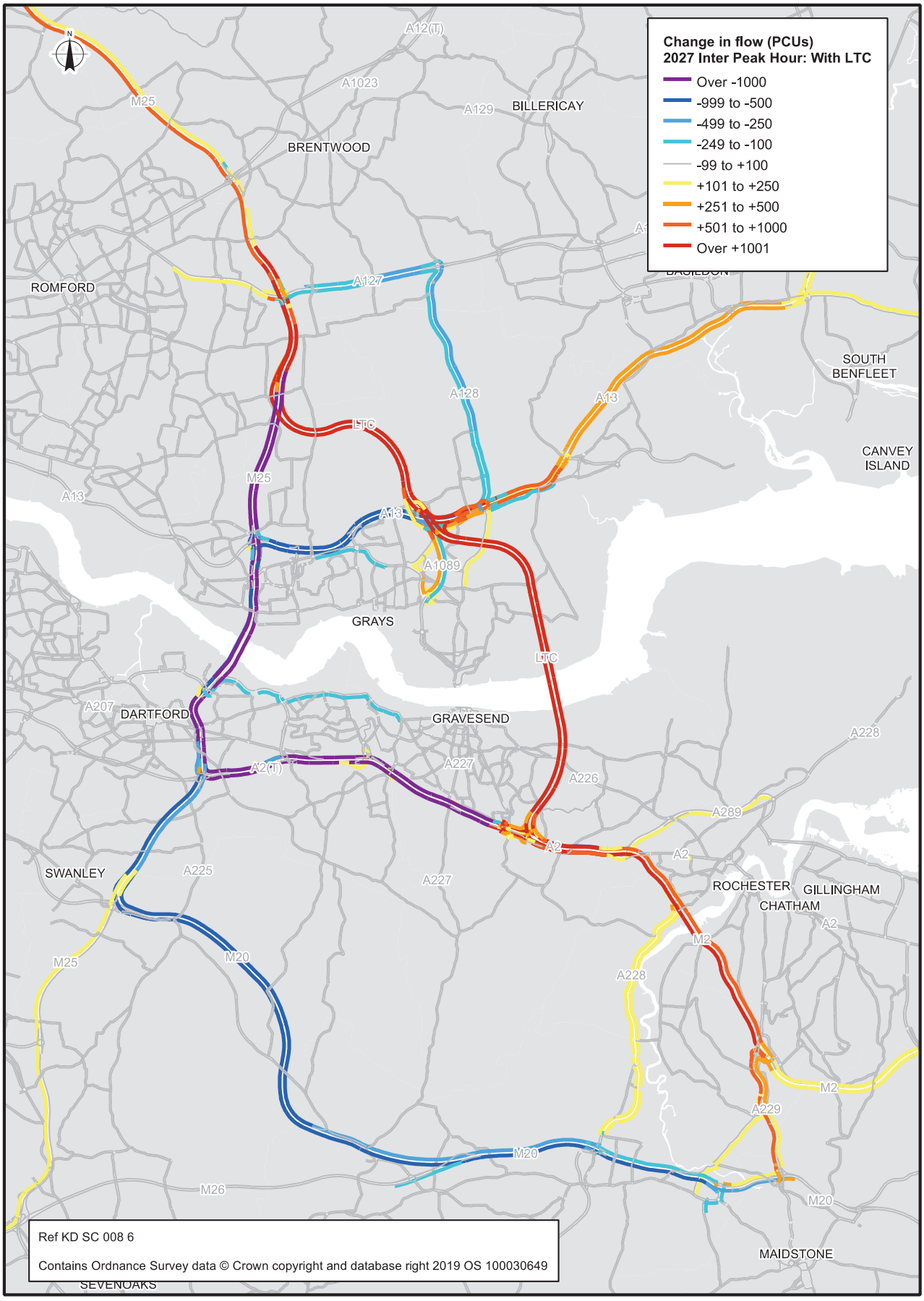


Figure 4.7 Change in flows with the new crossing: Inter-peak, 2027 at the junctions with the A2, A13 and M25

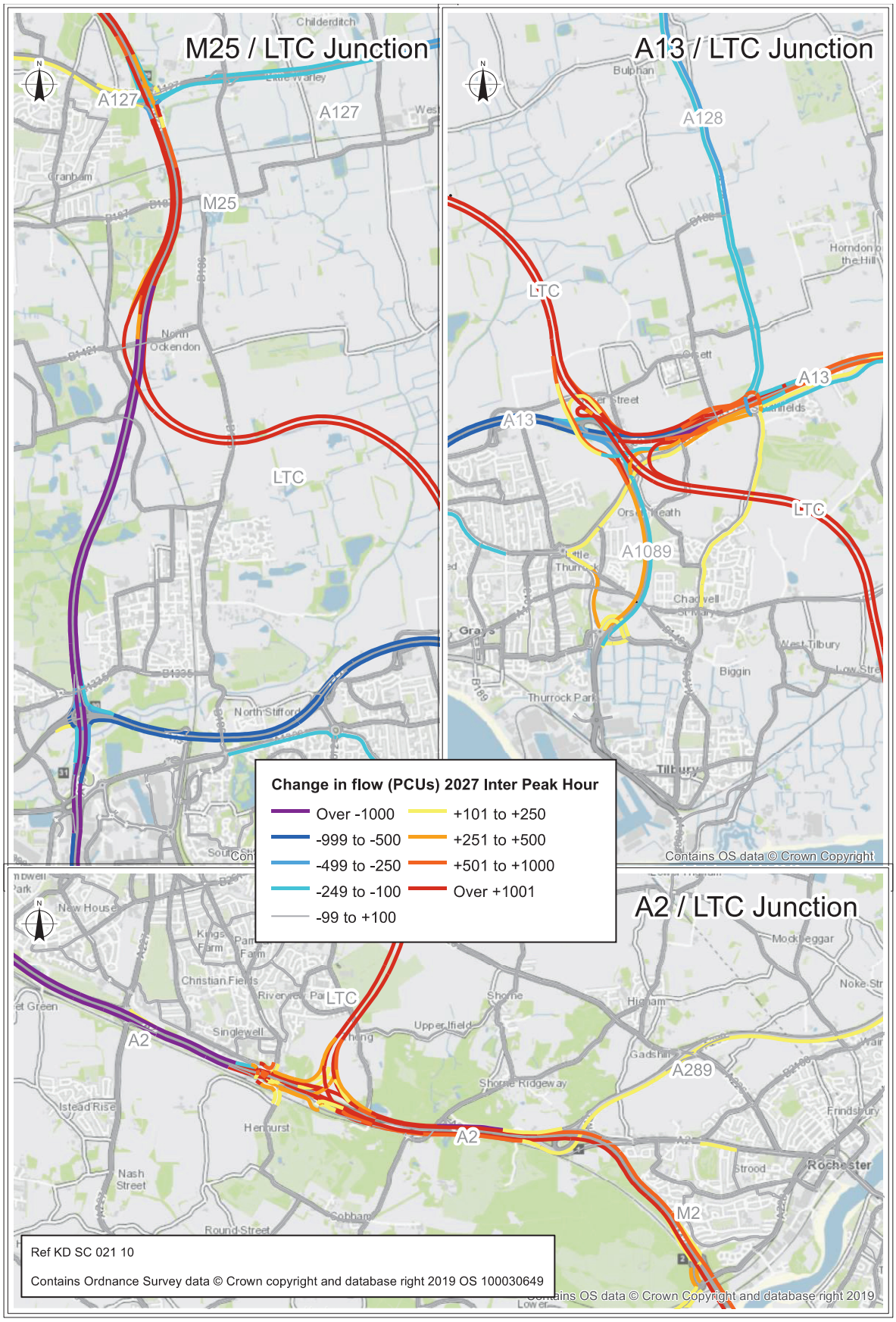


Figure 4.8 Change in flows with the new crossing: PM peak (17:00–18:00), 2027

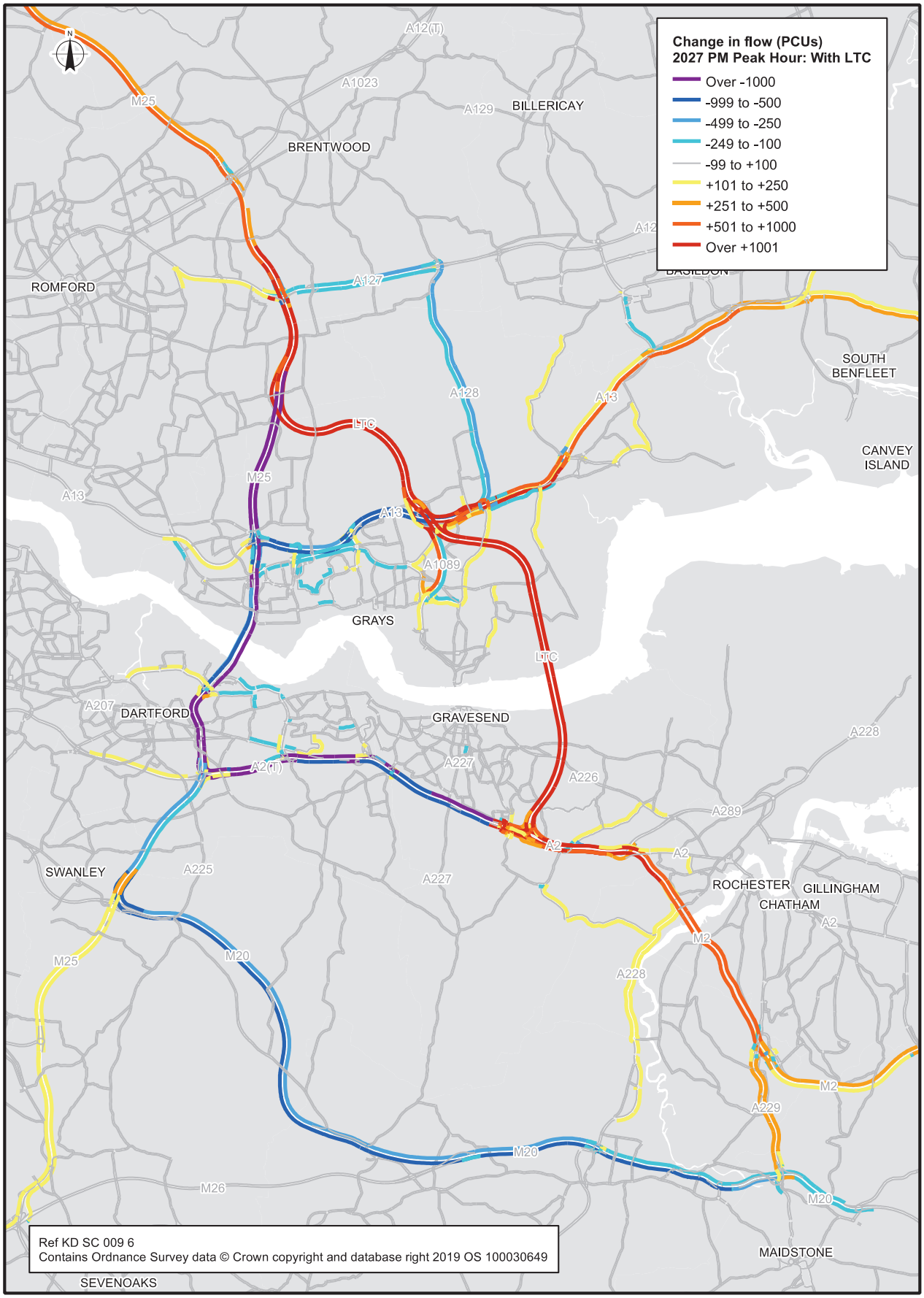
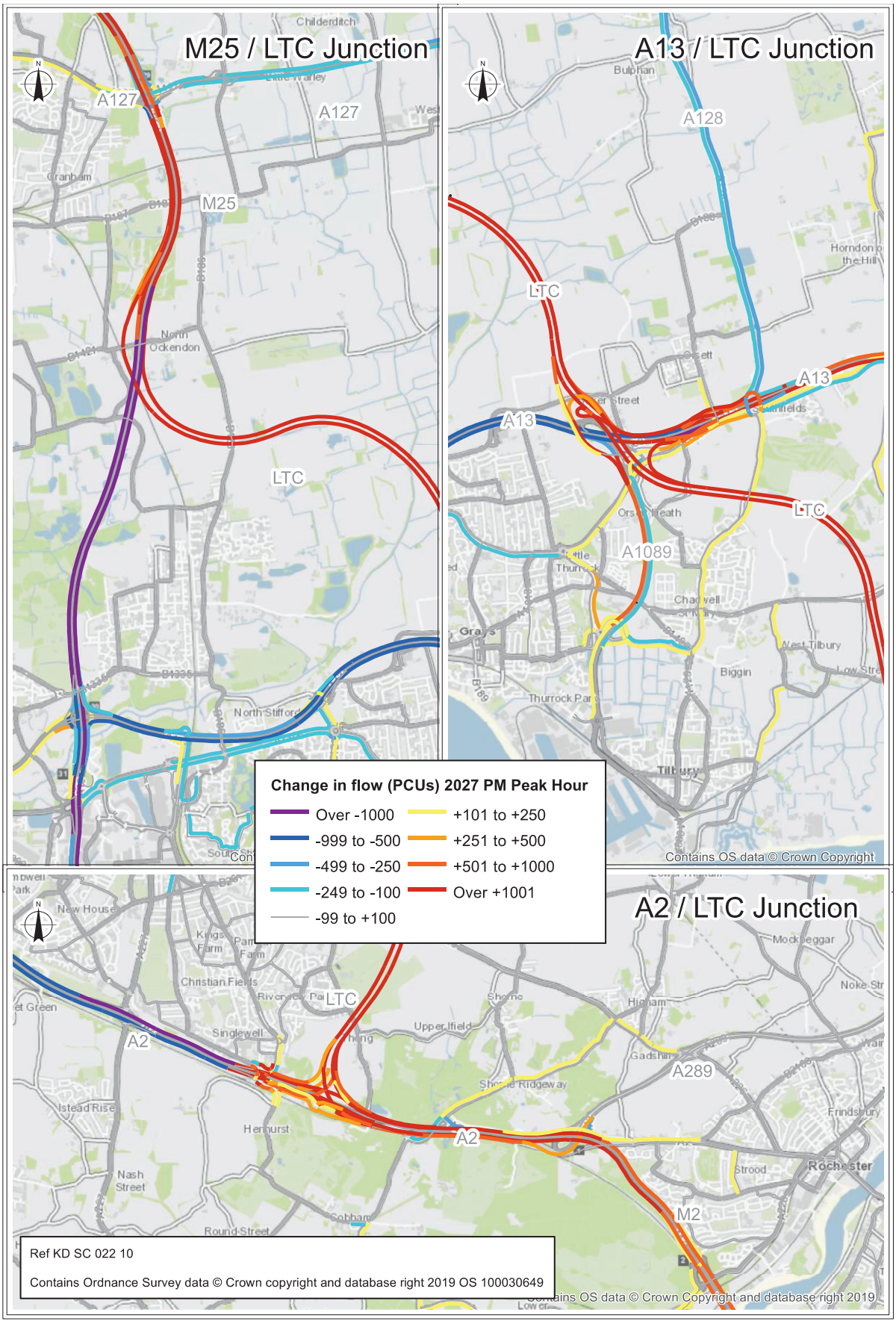


Figure 4.9 Change in flows with the new crossing: PM peak (17:00–18:00), 2027 at the junctions with the A2, A13 and M25



Percentage change in flow

Alongside the change in flow figures, we also present the change in flow forecasted by our updated model as a percentage of the flow without the new crossing (Do Minimum). This shows the relative effect of the change in flow, in relation to the flow that would be present if the new crossing was not built.

In the next set of figures (see Figure 4.10, Figure 4.11 and Figure 4.12) we show the predicted percentage change in traffic in 2027, between the Do Minimum situation and the Do Something situation, which differs as it includes the new crossing.

Roads contained within the transport model are shown in varying shades of blue if a forecast decrease is predicted and in yellow to red if a forecast increase is predicted; the darker the colour, the greater the change. The new crossing and other new links built as part of the scheme are shown in green.

Overall, the pattern of impacts is similar during the morning, evening and inter-peak periods, although they are more pronounced and extensive during the morning and evening peaks.

Generally, local roads with lower traffic flow without the new crossing see higher percentage increase and decreases, whilst roads on the Strategic Road Network, which have a higher level of flow without the new crossing see lower levels of percentage change.

There are some exceptions, such as parts of the A2 to the west of its junction with the new crossing, parts of the M25 and the Dartford Crossing, where high percentage reductions are forecast and flows are already high.

Figure 4.10 Percentage change in flows with the new crossing: AM peak (07:00–08:00)

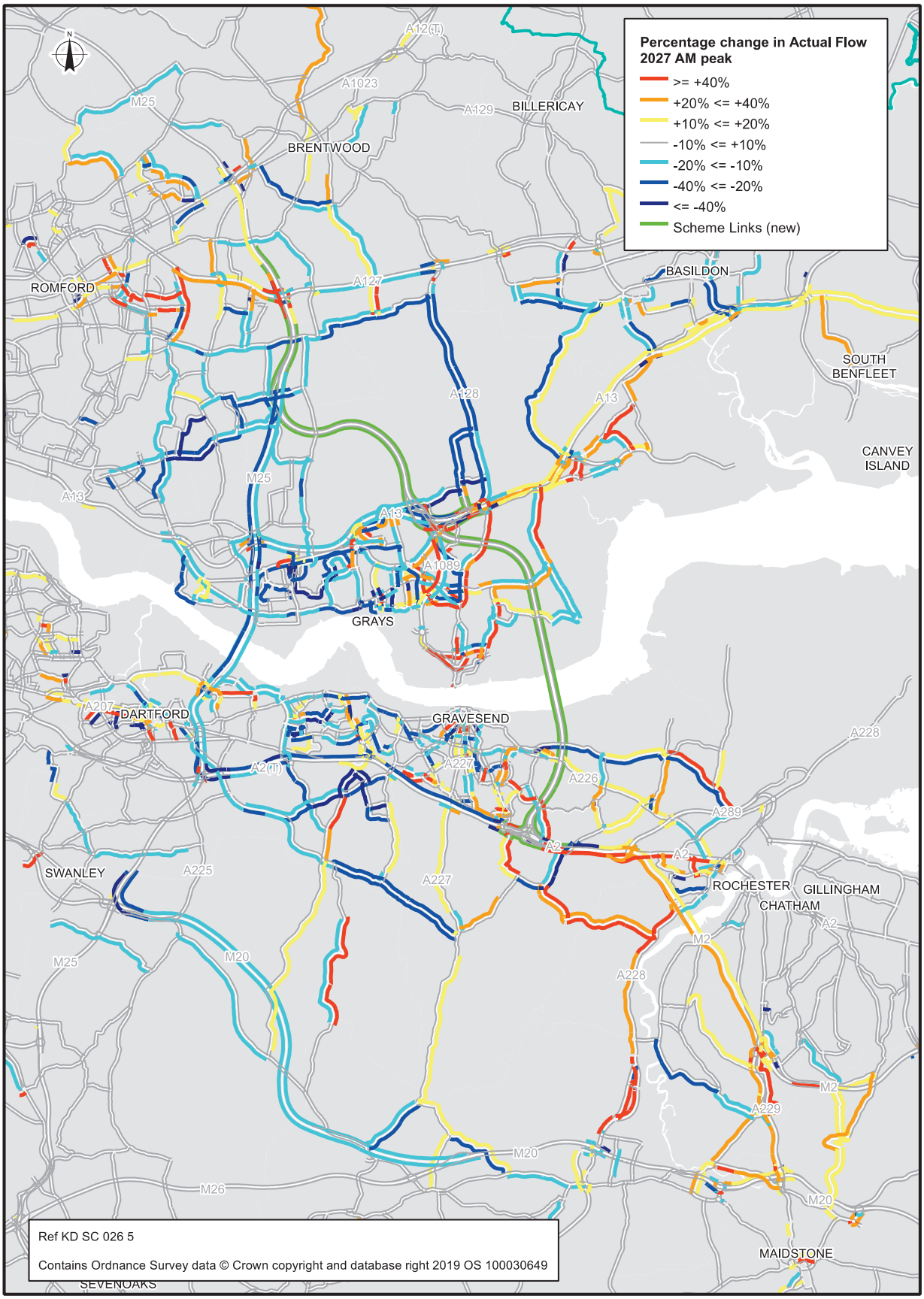


Figure 4.11 Percentage change in flows with the new crossing: Inter peak

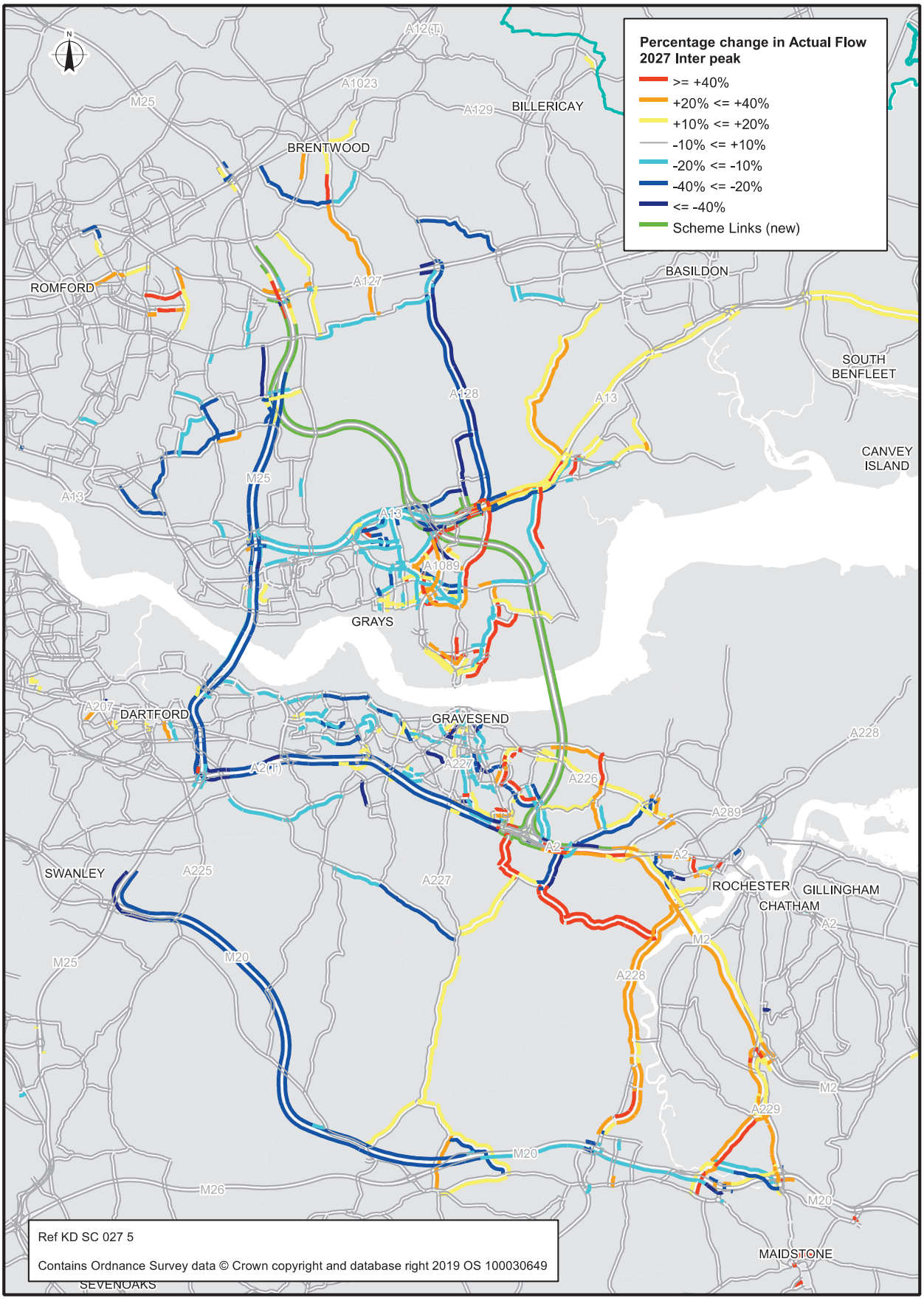
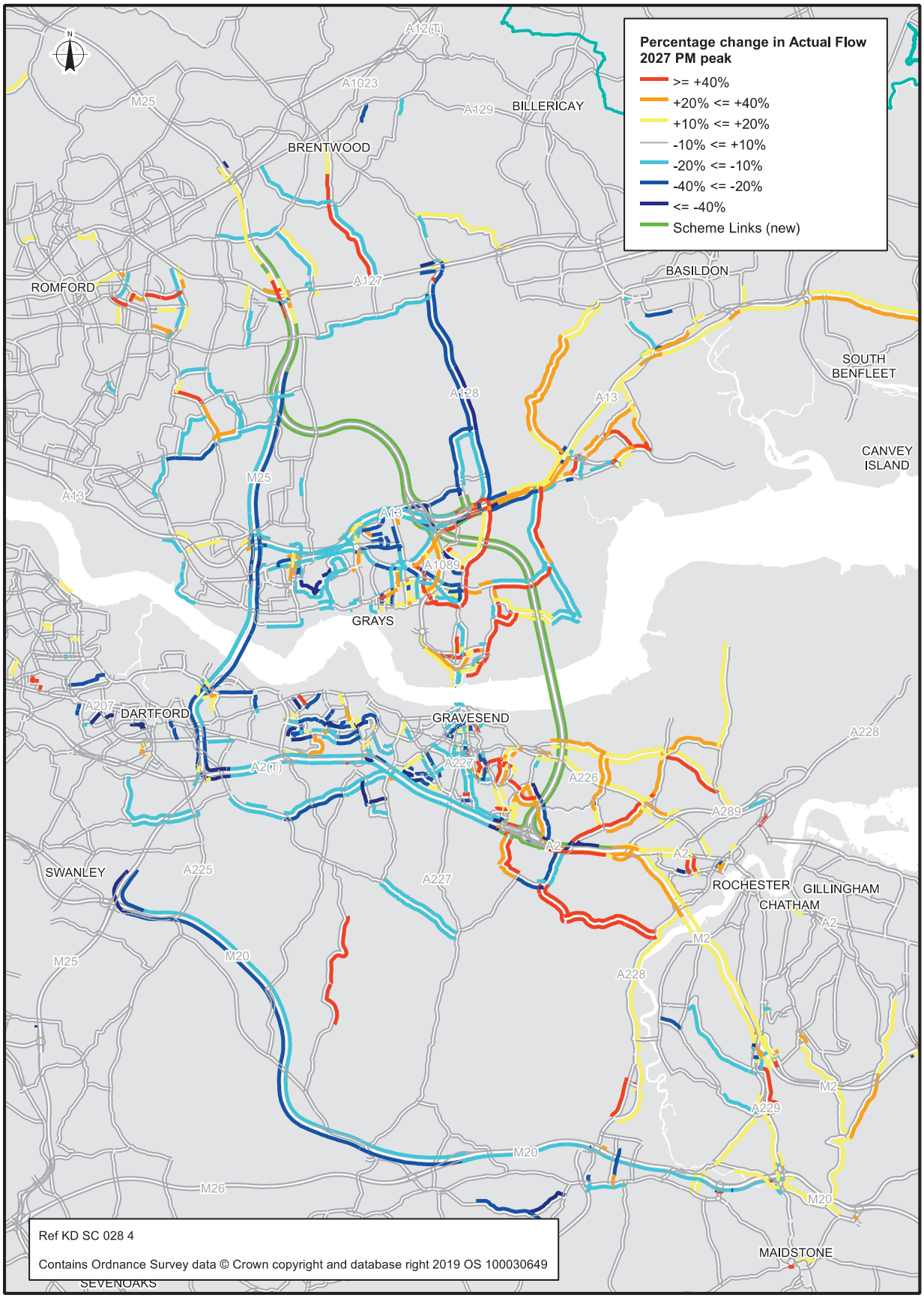


Figure 4.12 Percentage change in flows with the new crossing: PM peak (17:00–18:00)



Percentage of heavy goods vehicles

Our updated traffic model uses more recently published data about the number of HGVs forecast to be on the road network. As a result of this, the number of HGVs in our new model is different from that presented at Statutory Consultation. Table 4.2 provides a comparison between the percentage of vehicles that are HGVs using both the Dartford Crossing and the new crossing in both the model presented at Statutory Consultation (Stat Con) and our updated model for Supplementary Consultation (Supp Con).

In both models, the percentage of vehicles using the Dartford Crossing which are HGVs will fall once the new crossing is built across the morning, evening and inter-peak hours, and is slightly lower on the new crossing than on the Dartford Crossing.

The new crossing will reduce the number of HGVs at the Dartford Crossing as it will be an attractive route for those vehicles travelling to and from the ports and other industrial areas. It will be built to the latest design standards so that it is able to accommodate all HGVs wishing to use the route, without having to use convoys, which is currently the case for some HGVs (such as fuel tankers and abnormal loads) at the Dartford Crossing.

Table 4.2 Percentage of vehicles which are HGVs at the Dartford Crossing and the new crossing

Period	Year	Without new crossing		With new crossing			
		Dartford		Dartford		New crossing	
		Stat Con	Supp Con	Stat Con	Supp Con	Stat Con	Supp Con
AM peak hour	2016	18	18				
	Opening Year*	18	18	14	17	15	13
	Design Year**	18	17	14	15	14	11
Inter-peak hour	2016	25	25				
	Opening Year*	24	26	19	21	24	22
	Design Year**	24	24	18	20	22	17
PM peak hour	2016	14	14				
	Opening Year*	14	13	10	11	13	10
	Design Year**	14	13	10	10	12	8

**Opening Year is 2026 for Stat Con and 2027 for Supp Con. **Design Year is 2041 for Stat Con and 2042 for Supp Con. Source: Lower Thames Area Model (Stat Con: CM6, C8E DCO: BP04, CM12, CS12)*

Journey times

In our updated model, predicted average journey times in the morning peak in 2027 between M25 junction 2 (with the A2) south of the Thames and M25 junction 31 (for

Lakeside) north of the Thames, are forecast to fall from 12 minutes if the new crossing is not built to just seven minutes if it is. In 2042, the journey time almost halves from around 14 minutes without the new crossing to just under eight minutes with the new crossing.

If the new crossing is not built, it is expected that the high levels of traffic using the Dartford Crossing would lead to a higher number of incidents, increased journey times and more days where traffic conditions are worse than typically experienced.

Change in volume/capacity

When the number of vehicles using a road (volume) becomes closer to the number of vehicles that the road can carry (capacity), then the average speed at which traffic travels falls and journey times become more unreliable. The tipping point is at around 85%, when the volume of traffic (in PCUs) is over 85% of the capacity of the road and as a result queuing or slow-moving traffic is often observed.

The next set of figures (Figures 4.13–4.18) show the volume of traffic as a percentage of capacity for the road network in our updated transport model without (Do Minimum) and with the new crossing (Do Something), for the AM peak, inter-peak and PM peak hours.

The roads are coloured:

- grey if below 75% capacity
- yellow if between 75% and 85% capacity
- orange if between 85% and 95% capacity
- red if over 95% capacity

The figures show there will be improvements around the Dartford Crossing and on other roads in Gravesham and Thurrock as a result of the new crossing. On the wider road network conditions remain largely unchanged. In a number of areas, the ratio of volume to capacity on some roads increases, particularly those close to the new crossing.

In the AM peak, without the new crossing (see Figure 4.13) the road network would have a number of roads where the percentage of volume to the road capacity is above 95%, including critical areas like the Dartford Crossing, sections of the M25, A2, A12, A13, and areas around Maidstone and Rochester/Chatham/Gillingham.

The new crossing (see Figure 4.144) would improve the operation of the road network in the AM peak around the Dartford Crossing, as well as on the M20 and on parts of the M25, A13 and A2. However, some increases are shown in the percentage of volume to capacity on sections of the M25 north of the Thames, on the A13 to the east of the new crossing, and on the M2 as traffic switches away from the M20 to use the new crossing.

In the inter-peak (see Figure 4.15 and Figure 4.16) there are fewer places, particularly on the strategic road network, where the percentage of volume to capacity is forecast to be above 75% without the new crossing. The major exception to this is at the Dartford Crossing, which is over 95% without the new crossing, as shown in red in Figure 4.15. However, the introduction of the new crossing reduces this below 75%, as shown in Figure 4.16.

The PM peak (see Figure 4.17 and Figure 4.18) shows a similar pattern to that of the AM peak, in that with the introduction of the new crossing the volume over capacity ratio reduces on sections of the network close to the Dartford Crossing.

Figure 4.13 Traffic volumes as percentage of road capacity, Do Minimum: AM peak, 2027

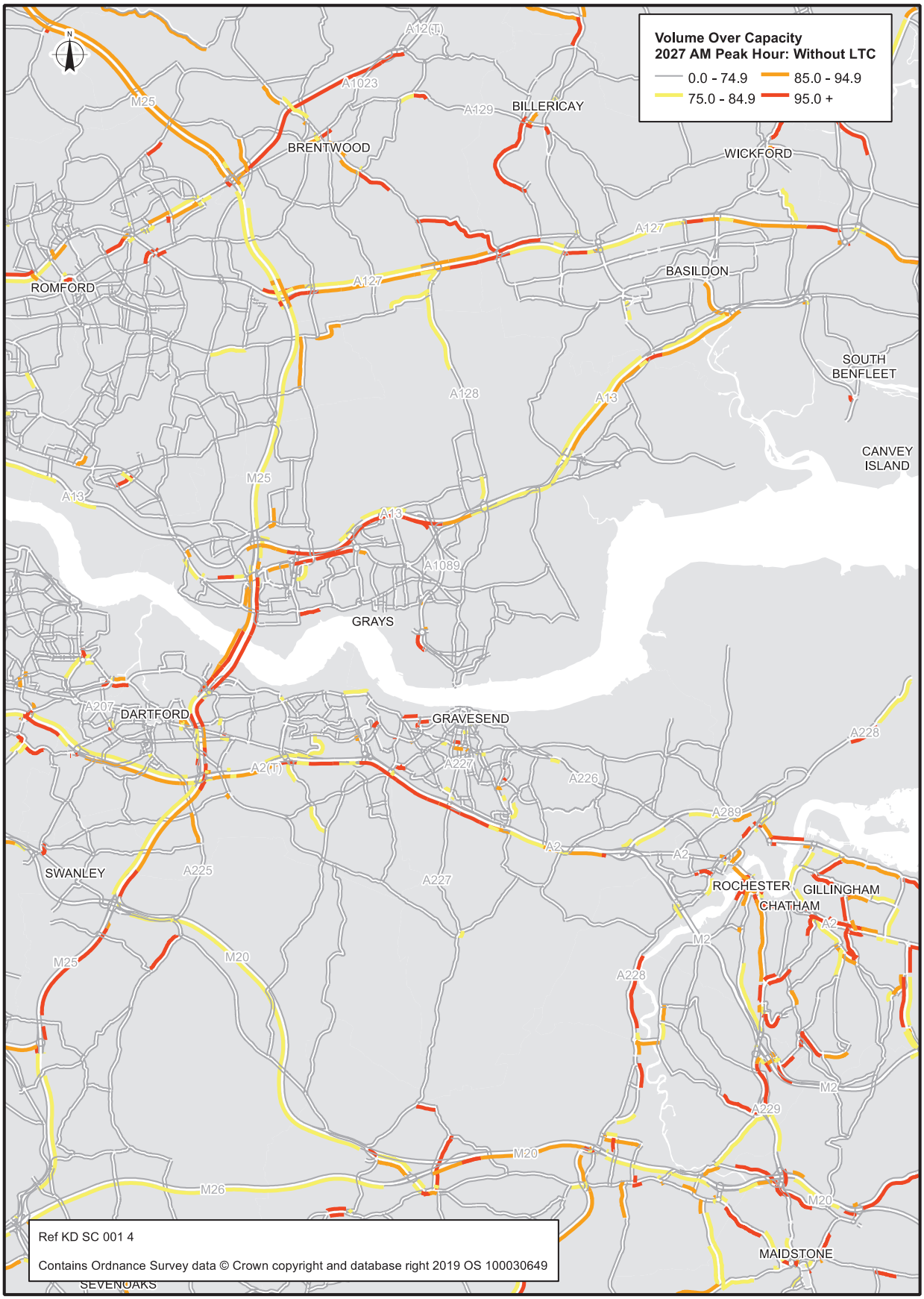


Figure 4.14 Traffic volumes as percentage of road capacity, Do Something: AM peak, 2027

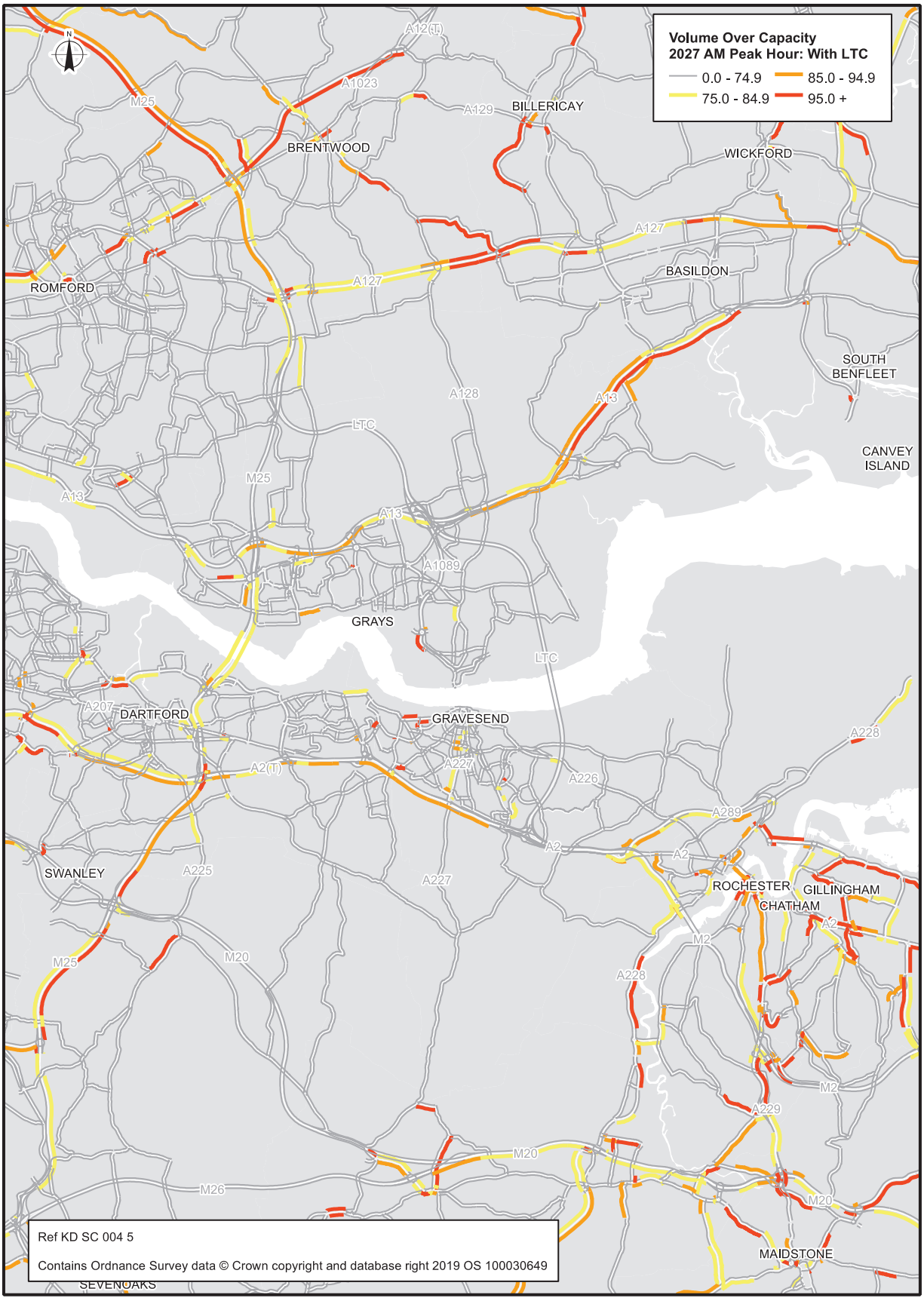


Figure 4.15 Traffic volumes as percentage of road capacity, Do Minimum: Inter-peak, 2027

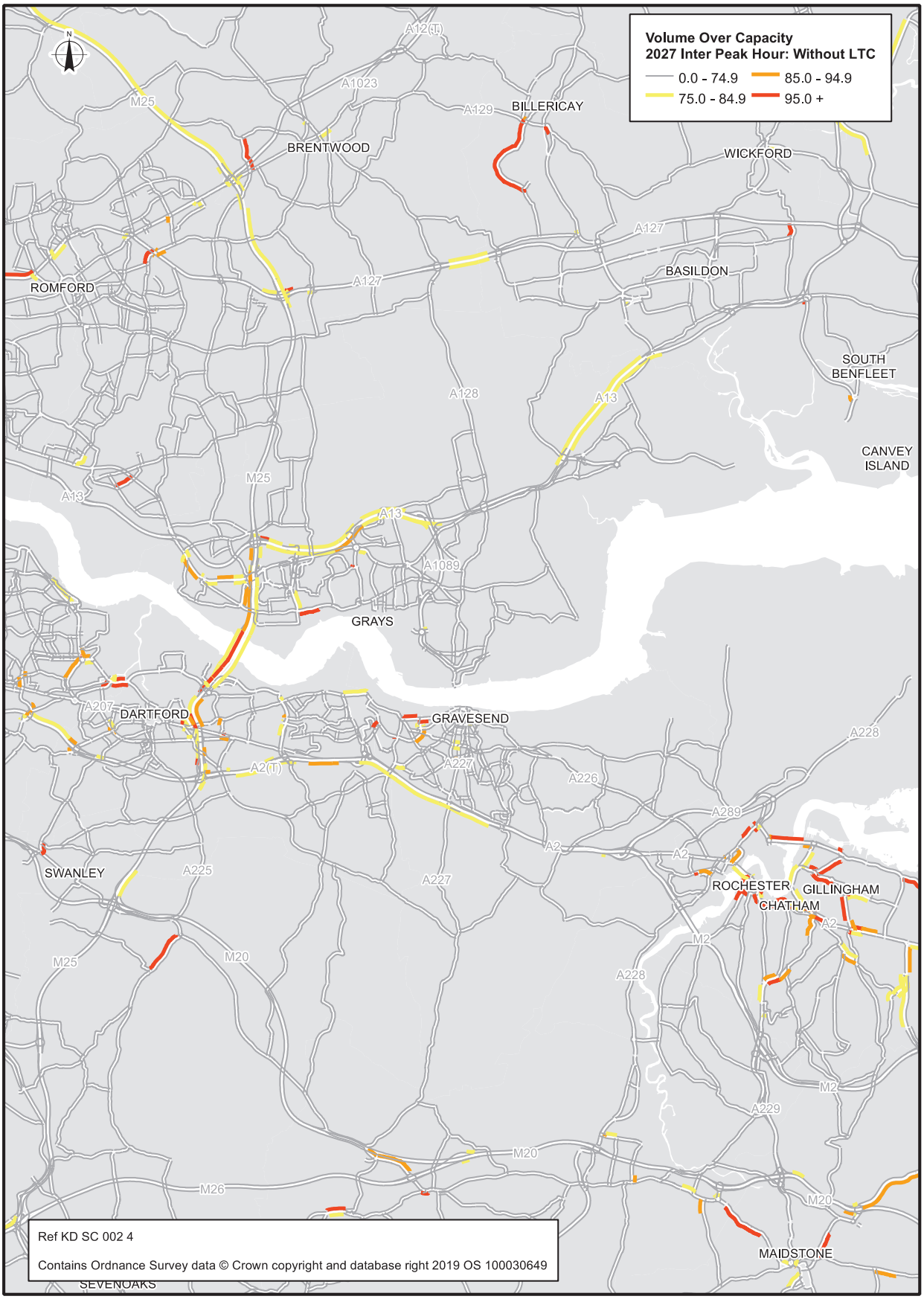


Figure 4.16 Traffic volumes as percentage of road capacity, Do Something: Inter-peak, 2027

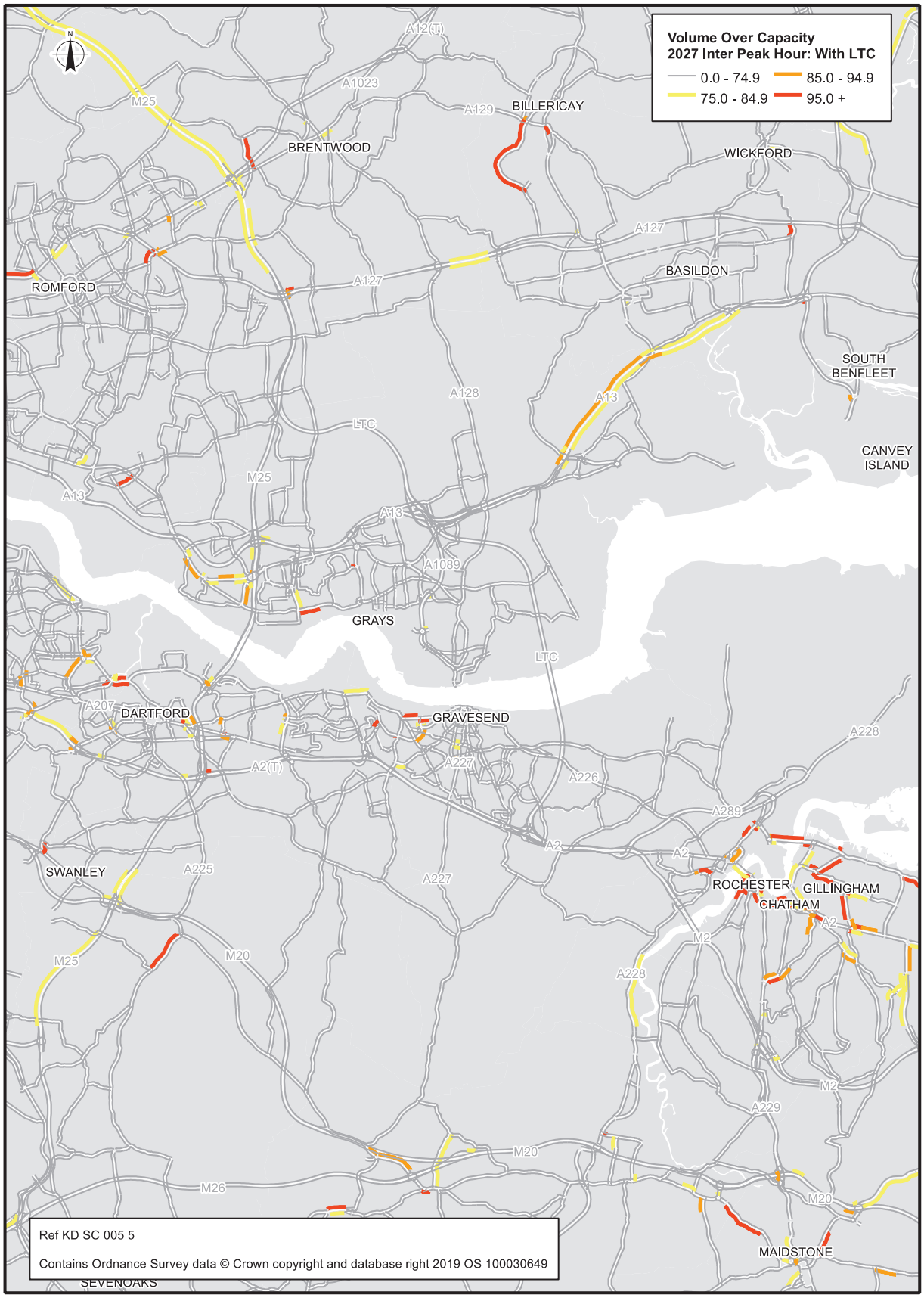


Figure 4.17 Traffic volumes as percentage of road capacity, Do Minimum: PM peak, 2027

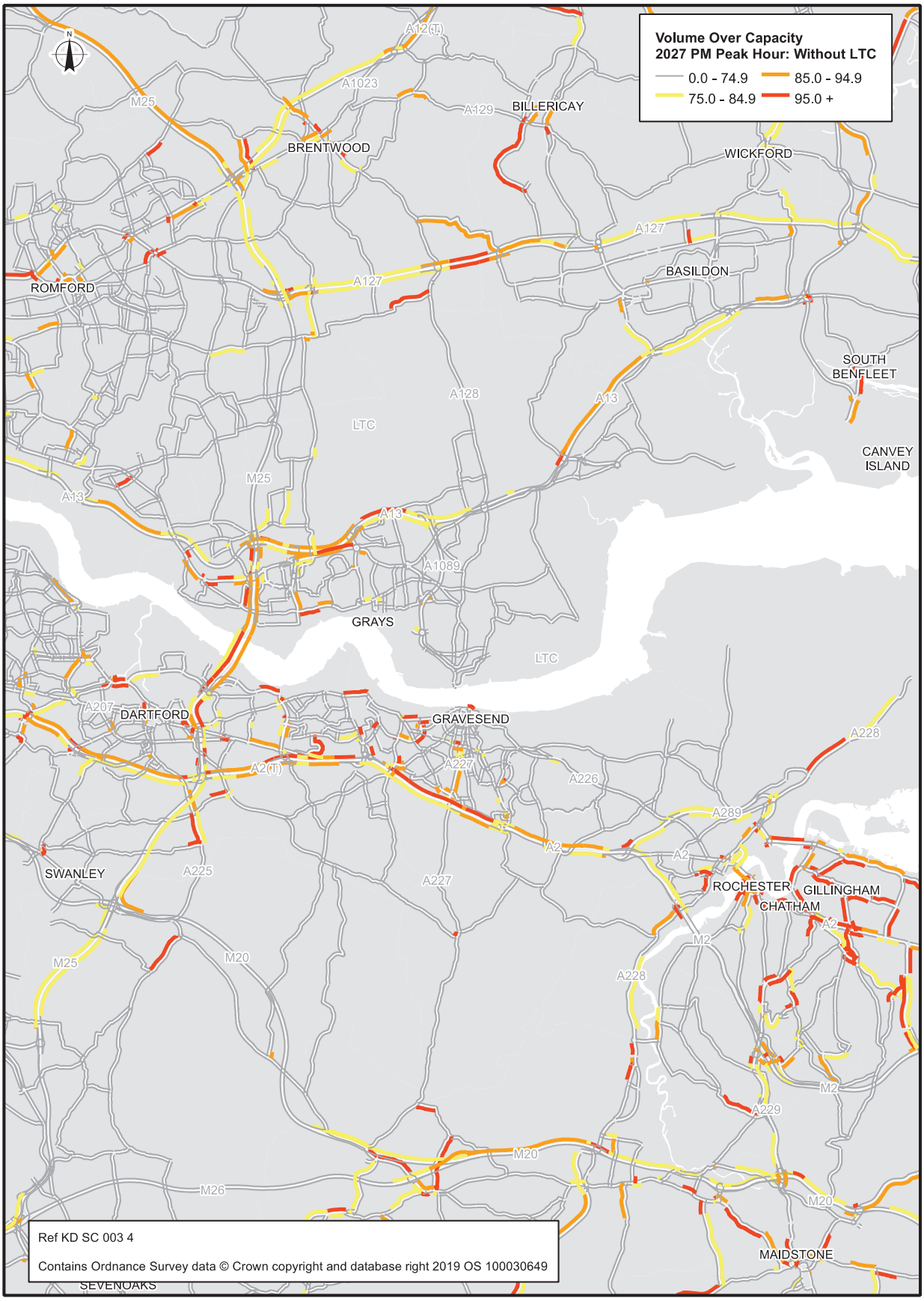
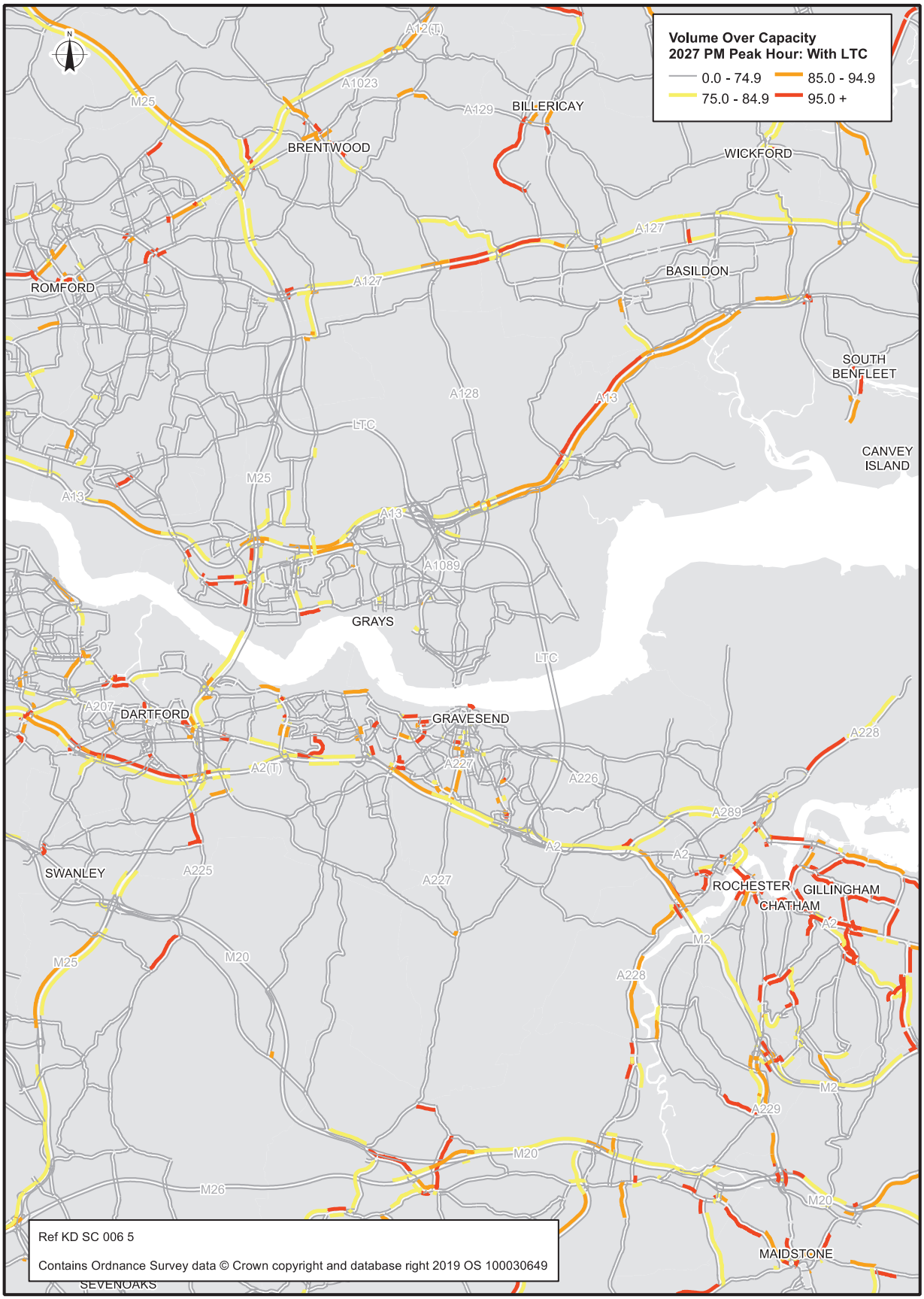


Figure 4.18 Traffic volumes as percentage of road capacity, Do Something: PM peak, 2027



Glossary

Term	Explanation
AM Peak Hour	The hour between 07:00–08:00 within LTAM.
Do Minimum	A future year scenario in LTAM which includes changes to the road network and planned development that is forecast to go ahead, but not the Lower Thames Crossing.
Do Something	A future year scenario in LTAM which includes changes to the road network and planned development that is forecast to go ahead, and the Lower Thames Crossing.
DCO	Development Consent Order: a DCO is similar to planning permission but is designed for NSIPs to make the process clearer, faster and fairer. It does this by allowing many of the consents and permissions needed for a project to be considered at the same time.
DfT	Department for Transport: the government department responsible for the English transport network and a limited number of transport matters in Scotland, Wales and Northern Ireland that have not been devolved.
GPS	Global Positioning System
Inter-peak	An average hour within LTAM to represent an hour within the period 09:00–15:00.
HGV	Heavy goods vehicle
LTC	The Lower Thames Crossing
LTAM	Lower Thames Area Model: the strategic highway model produced by Highways England to appraise the impacts of the Lower Thames Crossing.
M25	London's orbital motorway
NSIP	Nationally Significant Infrastructure Project: major infrastructure developments in England and Wales, such as proposals for power plants, large renewable energy projects, new airports and airport extensions, major road projects.
PCU	Passenger car units. This is a metric to allow different vehicle types within traffic flows in a traffic model to be assessed in a consistent manner. Typical PCU factors are: 1 for a car or light goods vehicle; 2.5 for a bus or heavy goods vehicle; 0.4 for a motorcycle; and 0.2 for a pedal cycle.
PM Peak Hour	The hour between 17:00–18:00 within LTAM.
Smart motorway	Term for a range of types of actively controlled motorway, using technology to optimise use of the carriageway including the hard shoulder.
Volume over capacity	The volume of traffic as a percentage of capacity of a road.

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