

## Chapter 11: Newtown, Stone Castle, Stone House, Bridge and Temple Hill wards

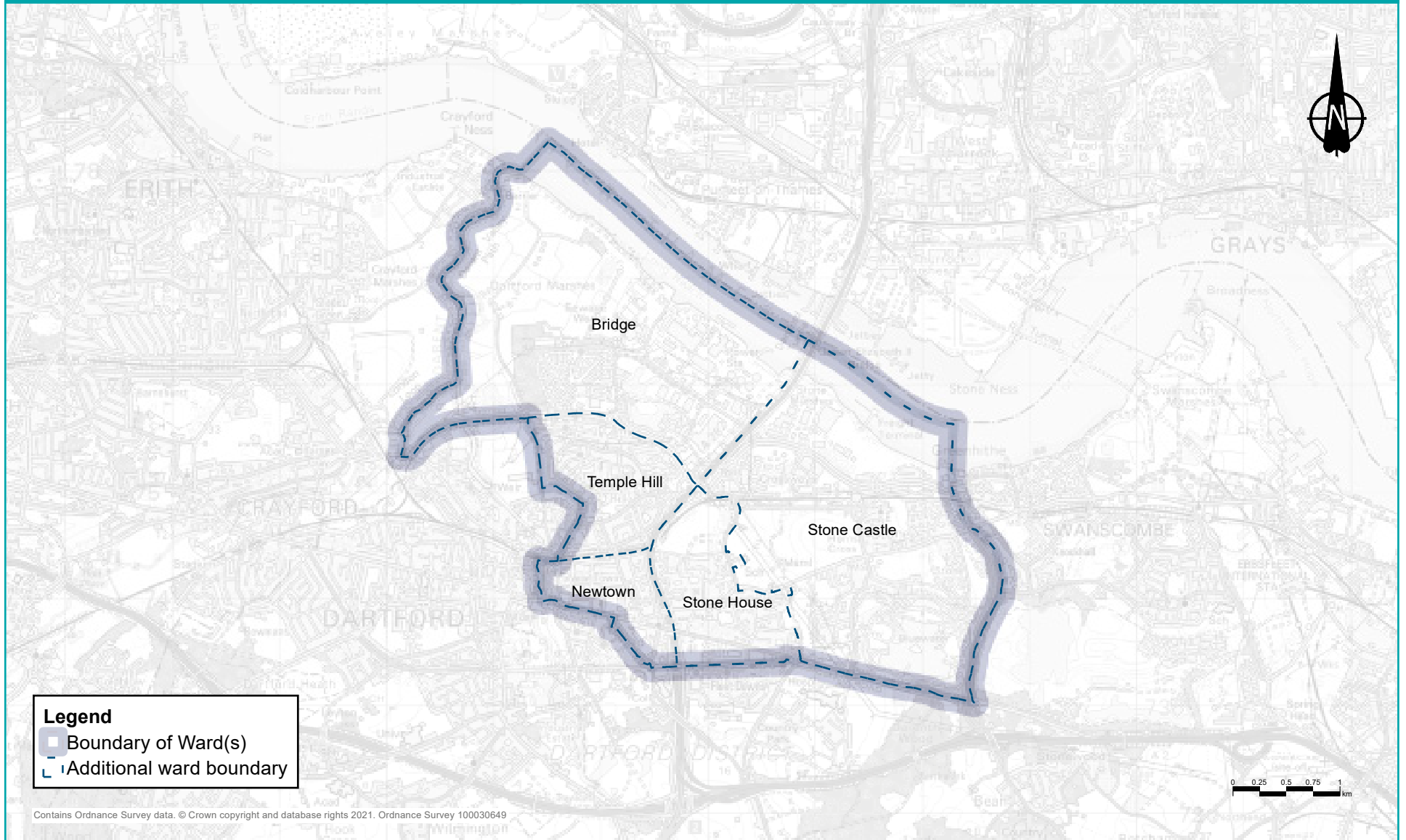
This chapter summarises the activities in Newtown, Stone Castle, Stone House, Bridge and Temple Hill wards relating to the project's construction and operational phase (when the new road is open). These wards comprise the area of Dartford closest to the Dartford Crossing, where the project is likely to have substantial impacts due to changes in traffic flow. The activities within, and impacts on, these five wards are presented together in one chapter because they are all affected by the project in similar ways due to their proximity to the Dartford Crossing.

These wards do not include any elements of the project's construction or operation and have been included in our Ward impact summaries because they would experience impacts due to changes in traffic flows at the Dartford Crossing that are a result of the implementation of the Lower Thames Crossing. We predict a reduction in traffic flow at the Dartford Crossing of 21% in 2029, the project's opening year, which would have an impact on journey times, noise and air quality in these wards. The reduction in traffic at the Dartford Crossing is one of the key objectives of the project.

For more information about the assessments in this chapter and other information available during this consultation, see chapter 1, which also includes a map showing all the wards described in this document.

Within this document, we sometimes advise where additional information can be found in other consultation documents, including the Construction update, Operations update, You said, we did, Register of Environmental Actions and Commitments (REAC), Code of Construction Practice (CoCP), Outline Traffic Management Plan for Construction (OTMPfC) and Design principles. To find out more about these documents, see chapter 1. References to these documents provide an indication as to how our proposals to reduce the project's impacts will be secured within our application for development consent.

Figure 11.1: Ward boundary map for Newtown, Stone Castle, Stone House, Bridge and Temple Hill wards



## 11.1 Overview

### 11.1.1 About these wards

The five wards of Newtown, Stone Castle, Stone House, Bridge and Temple Hill are in Dartford, which is located to the west of the project. The district of Dartford has an area of around 72km<sup>2</sup> and a population of 112,606<sup>1</sup>. The A282 runs north-south through the area, carrying traffic from the M25 over the Dartford Crossing. The Dartford Crossing comprises tunnels flowing northbound and the Queen Elizabeth Bridge southbound. The crossing is prone to congestion, especially during peak periods, and congestion can spill out into local roads in Dartford as rat-running traffic tries to avoid delays. There are train stations at Dartford and Stone Crossing within these wards.

---

<sup>1</sup> Office for National Statistics, 2018 ward-level population estimate

## 11.1.2 Summary of impacts

**Table 11.1: Summary of impacts during the project's construction and operation**

Topic	Construction	Operations
<p><b>Traffic</b></p>	<p>There would be no discernible impact on the performance of the highway network during construction and therefore no mitigation is required.</p>	<p><b>Impact</b></p> <p>There would be substantial decrease in traffic flows on the A2 and A282. In these wards, there would be little change in traffic flows on the local road network, and a small increase along Bob Dunn Way. More information about the impacts on traffic flows once the road is open can be found in the Traffic section of this chapter.</p> <p><b>Mitigation</b></p> <p>None required.</p>
<p><b>Public transport</b></p>	<p><b>Buses</b></p> <p>There would be no impacts on buses during construction.</p> <p><b>Rail</b></p> <p>There would no impacts on rail services or access times to stations.</p>	<p><b>Buses</b></p> <p>In addition, it is not predicted that there would be changes to bus routes once the road opens. Three bus routes are predicted to experience a reduction in journey times: the 700, X80 and Fastrack A.</p> <p><b>Rail</b></p> <p>There would be no discernible change in local access times to local stations and no change to the rail services at those stations when the road is open.</p>
<p><b>Footpaths, bridleways and cycle routes</b></p>	<p>No footpaths, bridleways or cycle routes would be affected during construction in these wards. For other potential impacts, see the other sections in this chapter, such as Visual and Noise and vibration.</p>	<p>No footpaths, bridleways or cycle routes would be affected in these wards when the road opens. For other potential impacts, see the other sections in this chapter, such as Visual and Noise and vibration.</p>
<p><b>Visual</b></p>	<p>There would be no visible effects in these wards.</p>	

Topic	Construction	Operations
<b>Noise and vibration</b>	<p><b>Impact</b></p> <p>There would be negligible changes in road traffic noise during all construction years.</p> <p><b>Mitigation</b></p> <p>None required.</p>	<p><b>Impact</b></p> <p>Once the road is open, changes in road traffic noise are predicted to range from minor decreases to minor increases in noise levels.</p> <p><b>Mitigation</b></p> <p>None required.</p>
<b>Air quality</b>	<p><b>Impact</b></p> <p>Our analysis of construction traffic along the A282 corridor predicts that the air quality impact on all roads in these wards would be negligible.</p> <p><b>Mitigation</b></p> <p>None required.</p>	<p><b>Impact</b></p> <p>If the road is not built, it is predicted the air quality thresholds would be exceeded in this area. However, with the project in place, our modelling predicts that the air quality thresholds for NO<sub>2</sub> in these wards would not be exceeded.</p> <p><b>Mitigation</b></p> <p>None required.</p>
<b>Health</b>	<p><b>Impact</b></p> <p>The construction phase of the project would present opportunities to access work and training.</p> <p><b>Mitigation</b></p> <p>None required</p>	<p><b>Impact</b></p> <p>Positive health outcomes are expected in this ward as a result of:</p> <ul style="list-style-type: none"> <li>▪ reductions in noise</li> <li>▪ improvements in air quality</li> <li>▪ reduction in congestion and stationary traffic at and around the Dartford Crossing</li> <li>▪ improved connectivity and accessibility</li> </ul> <p><b>Mitigation</b></p> <p>None required</p>
<b>Biodiversity</b>	<p>These wards are over 5km from the Order Limits. There are no ecological features in these wards, or any construction or operational impacts.</p>	
<b>Built heritage</b>	<p>No buildings of historic relevance have been identified within the Dartford wards that would be affected by the road during its construction or when it opens.</p>	
<b>Contamination</b>	<p>There are no known medium or high-risk sources of contamination within these wards that could be at risk of being disturbed during construction of the new road.</p>	

## 11.2 Project description

These wards do not include any elements of the project's construction or operation and have been included in our Ward impact summaries because they would experience impacts due to changes in traffic flows at the Dartford Crossing that are a result of the opening of the Lower Thames Crossing. We predict a reduction in traffic flow at the Dartford Crossing of 21% in 2029, the project's opening year, which would have an impact on journey times, noise and air quality in this ward. The reduction in traffic at the Dartford Crossing is one of the main objectives of the project.

## 11.3 Traffic

We carried out traffic assessments to understand how construction and operation would affect nearby roads, compared with the situation if the project was not implemented. Information about how we carried out these assessments can be found in chapter 4 of the Operations update.

### 11.3.1 Construction

#### Construction impacts

There would be no works, traffic management or construction routes in Newtown, Stone Castle, Stone House, Bridge or Temple Hill wards. There would be no discernible impact on the performance of the highway network in these wards during construction.

### 11.3.2 Operations

#### Operational impacts

The project's primary purpose is to relieve congestion at the Dartford Crossing and on its approach roads by providing a new, free-flowing north-south crossing over the River Thames. It would also make Thames crossings, and key sections of the strategic road network, safer and more resilient.

Traffic modelling has been carried out to predict the change in traffic flows on roads in the area, including those within or on the boundary of Dartford for the first year of operation, 2029.

Figures 11.2, 11.4 and 11.6 show the predicted changes in traffic in the morning peak (7am to 8am), interpeak (an average hour between 9am and 3pm) and evening peak (5pm to 6pm) measured in Passenger Car Units (PCUs per hour), where 1 PCU is equivalent to a car, and 2.5 PCUs is equivalent to an HGV. Figures 11.3, 11.5 and 11.7 show the predicted percentage changes in traffic flow during the morning, interpeak and evening peak. For information about how we assessed operational traffic impacts, see chapter 1. For more information about how we carried out our traffic modelling, see chapter 4 of the Operations update.



In these wards, there would be a large decrease in flows on the A2 and A282, and a small increase along Bob Dunn Way.

Over the Dartford Crossing, there would be a reduction in traffic northbound of more than 1,000 PCUs an hour in the morning peak hour and an average interpeak hour. This is a reduction of between 10% and 20% in the morning peak hour, and between 20% and 40% in an average interpeak hour. There would be a reduction in flows of between 500 and 1,000 PCUs in the evening peak hour, a decrease of between 10% and 20%. Southbound, there would be a decrease of over 1,000 PCUs an hour during all modelled periods. This is a reduction of between 10% and 20% in the morning peak hour, and between 20% and 40% in an average interpeak hour and the evening peak hour.

On the A282 on the approach to the Dartford Crossing, between the junction with Princes Road and the junction with Bob Dunn Way and Cotton Lane (junction 1a), there would be a substantial decrease in traffic flows on over 1,000 PCUs in all the modelled hours and in both directions. In the morning and evening peak hours in each direction, this is a decrease of between 10% and 20%. In an average interpeak hour, this is a reduction in traffic flows by between 20% and 40%. Transferring some of the traffic that was using the Dartford Crossing to the Lower Thames Crossing frees up capacity at Dartford. Some of this would be filled up by other trips, as those who previously stayed one side of the River Thames travel to destinations on the other side. This would result in additional traffic on some roads leading to the Dartford Crossing. Bob Dunn Way lies to the east of the Dartford Crossing and leads to the A282. There would be an increase in traffic here between 250 and 500 PCUs, an increase of between 20% and 40% in traffic flows westbound in the morning peak hour. In all other modelled time periods westbound, and in all modelled time periods eastbound, there would be an increase on traffic flows of between 50 and 250 PCUs, an increase of between 0% and 10%.

Figure 11.2: Predicted change in traffic flows (PCUs) with the project during the morning peak in 2029

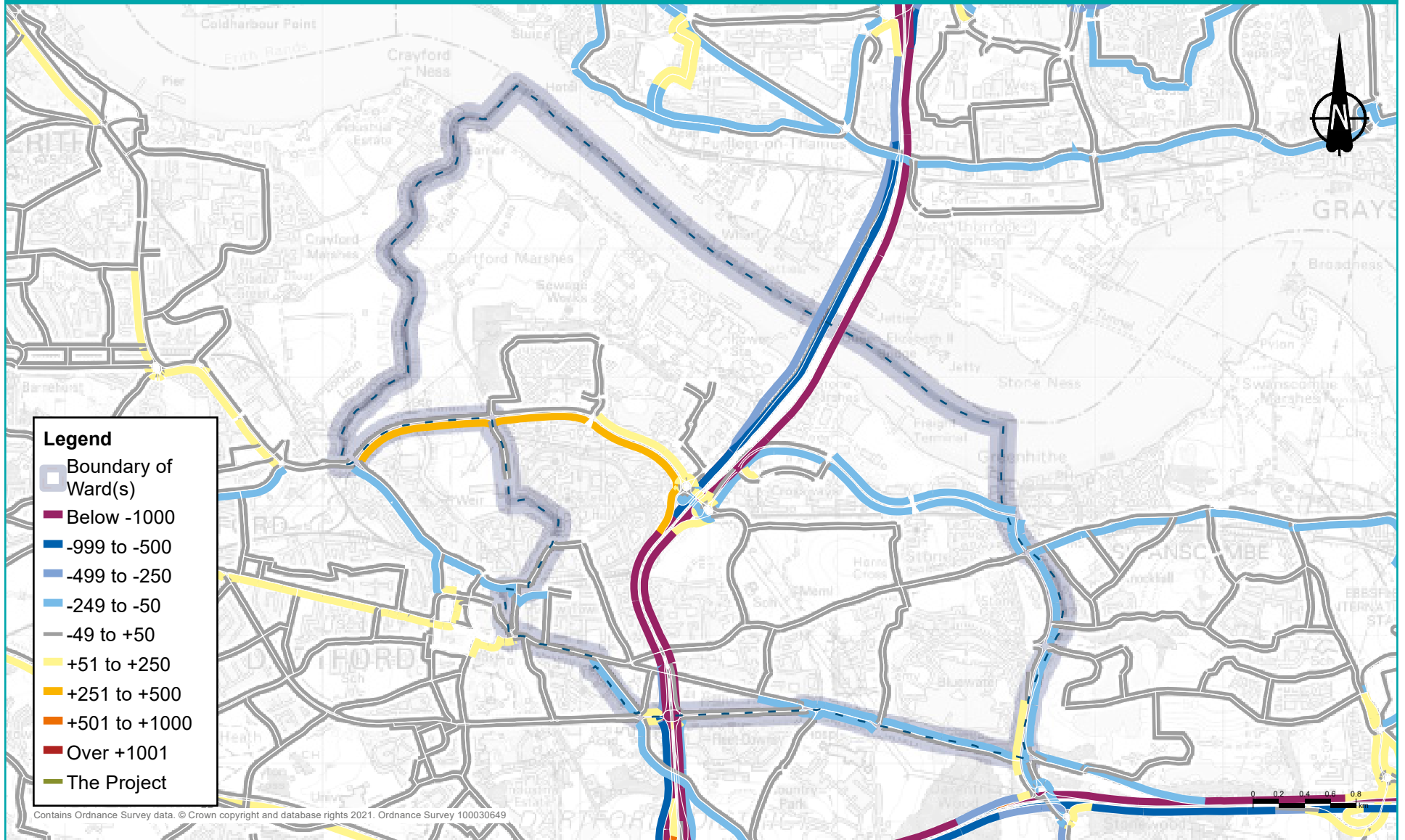


Figure 11.3: Predicted percentage change in traffic flows with the project during the morning peak in 2029

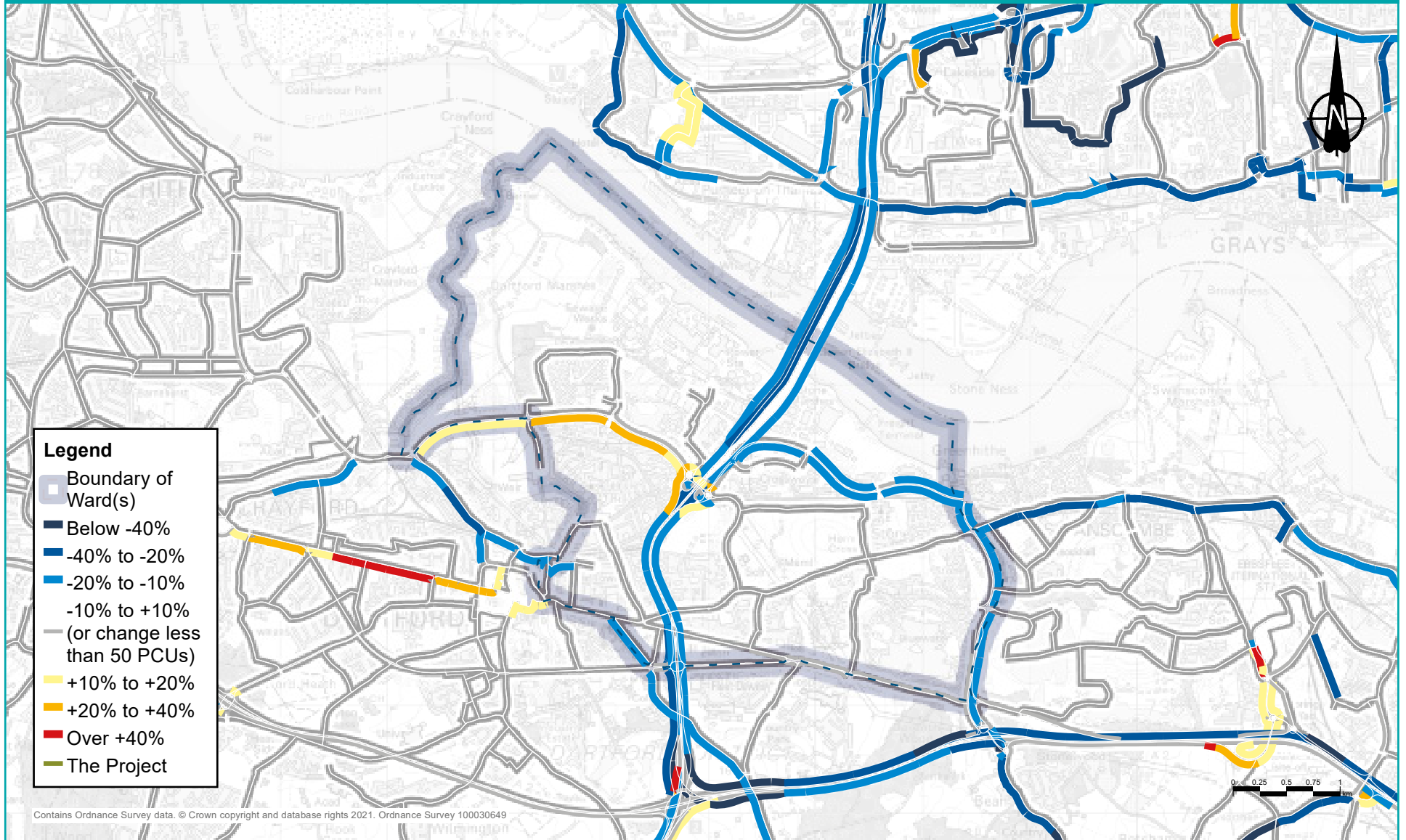


Figure 11.4: Predicted change in traffic flows (PCUs) with the project during the interpeak period in 2029

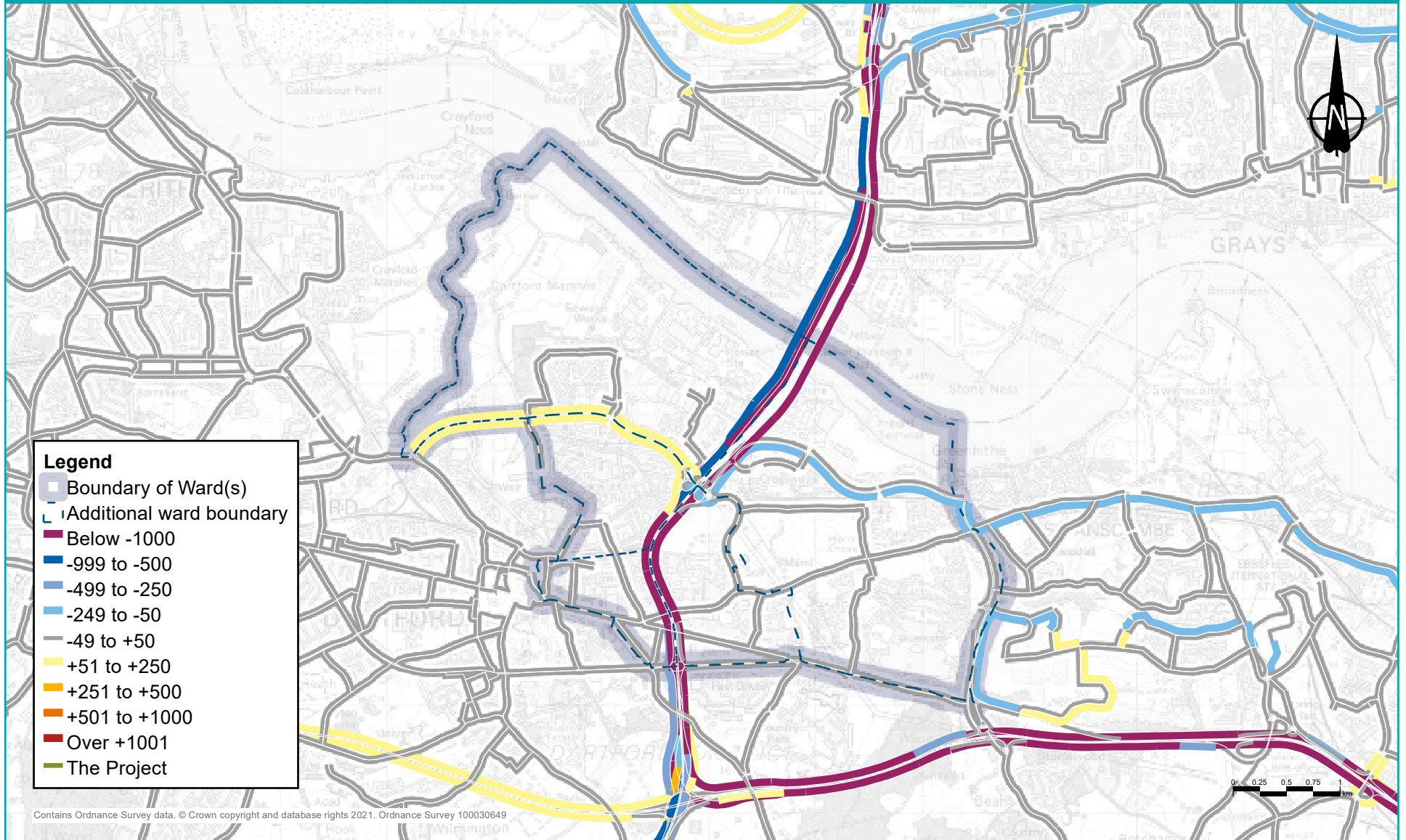




Figure 11.5: Predicted percentage change in traffic flows with the project during the interpeak period in 2029

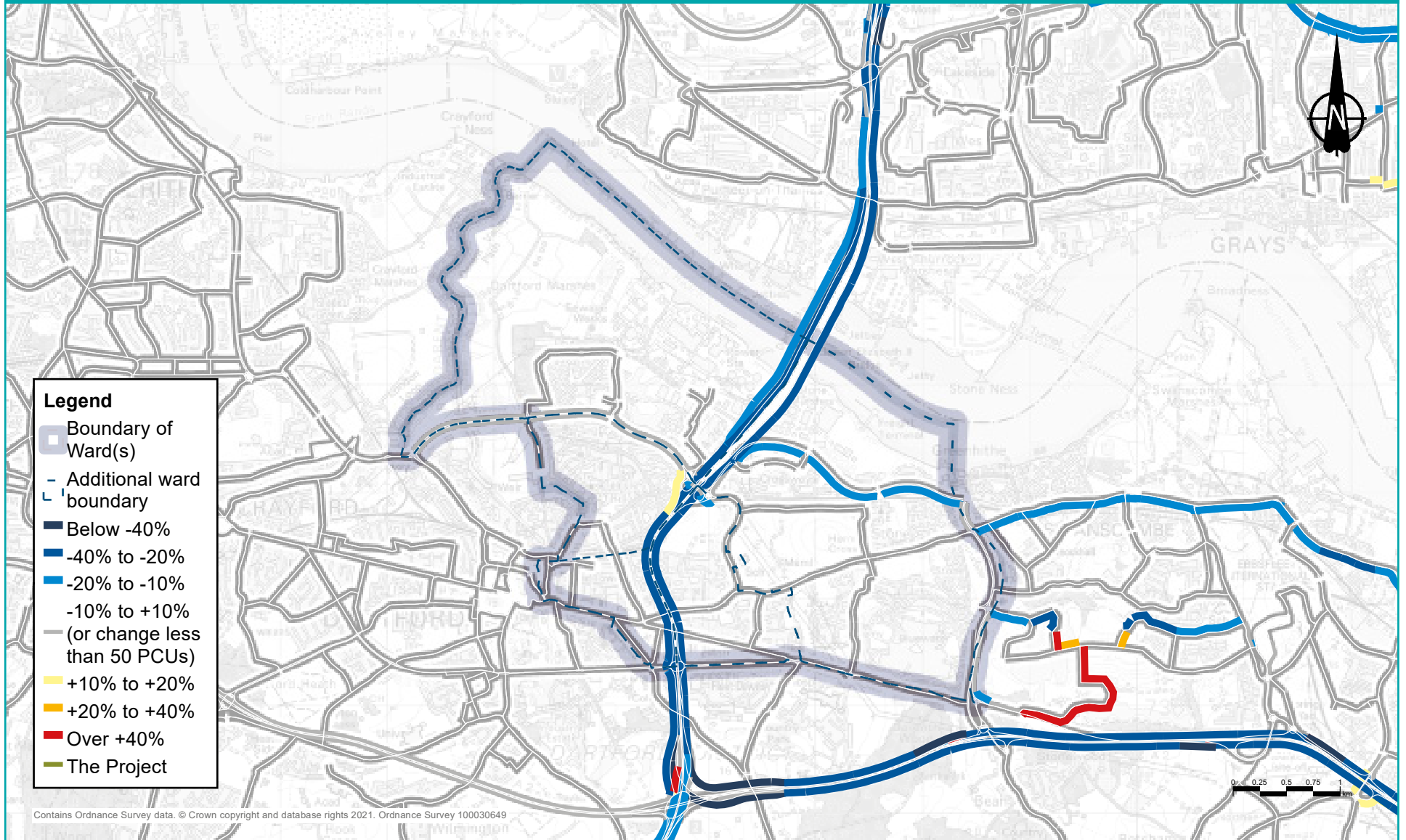


Figure 11.6: Predicted change in traffic flows (PCUs) with the project during the evening peak in 2029

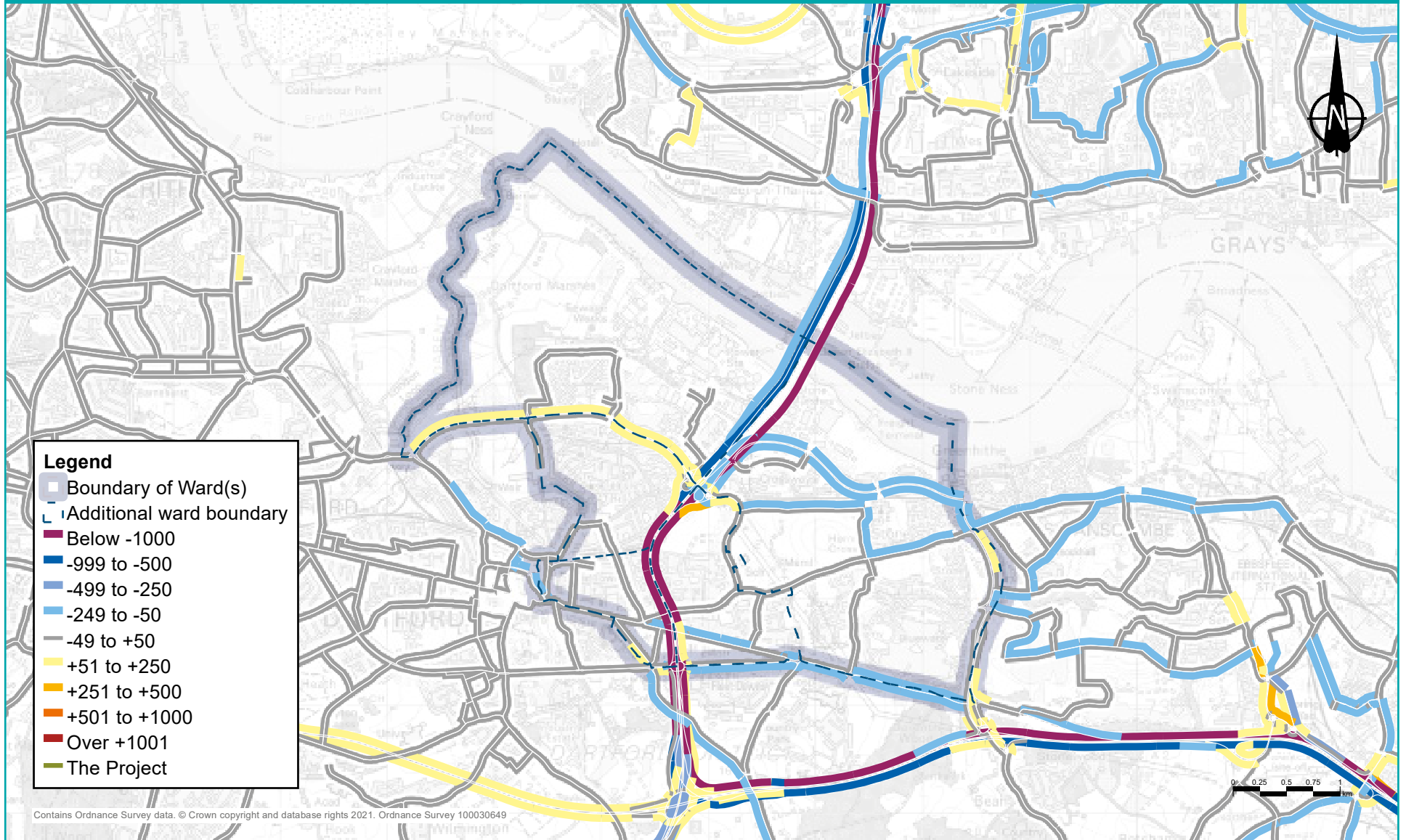
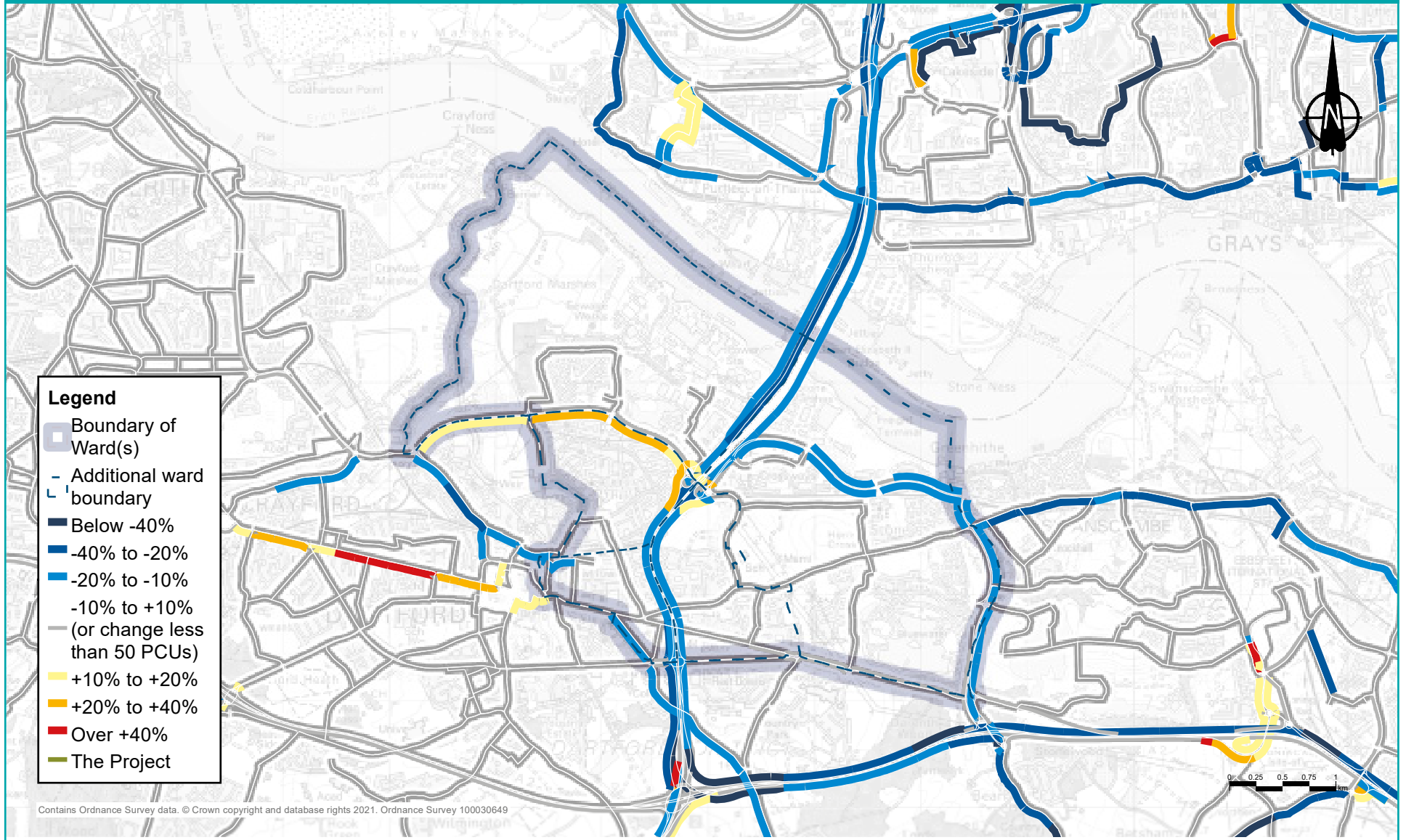


Figure 11.7: Predicted percentage change in traffic flows with the project during the evening peak in 2029

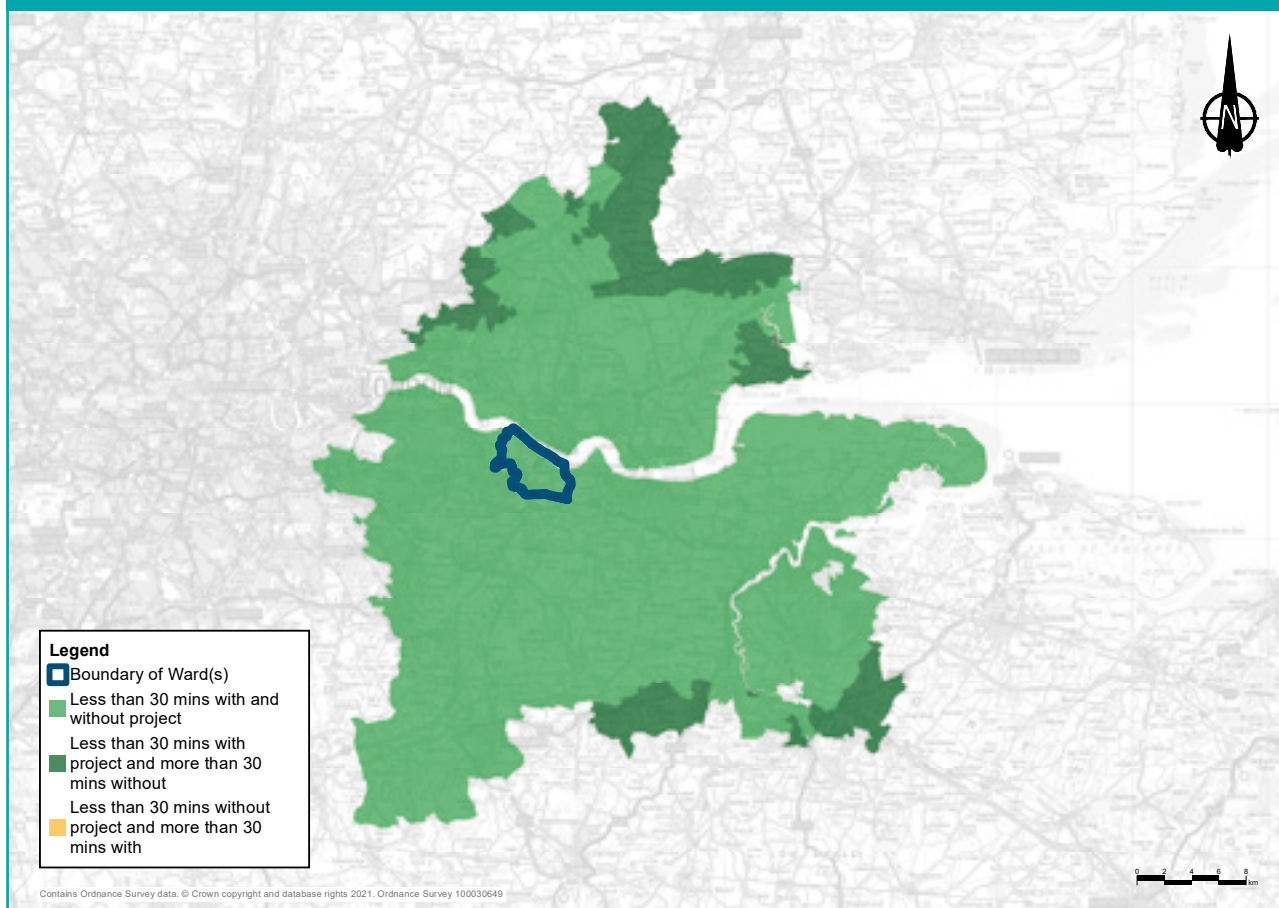




## Changes to journey times

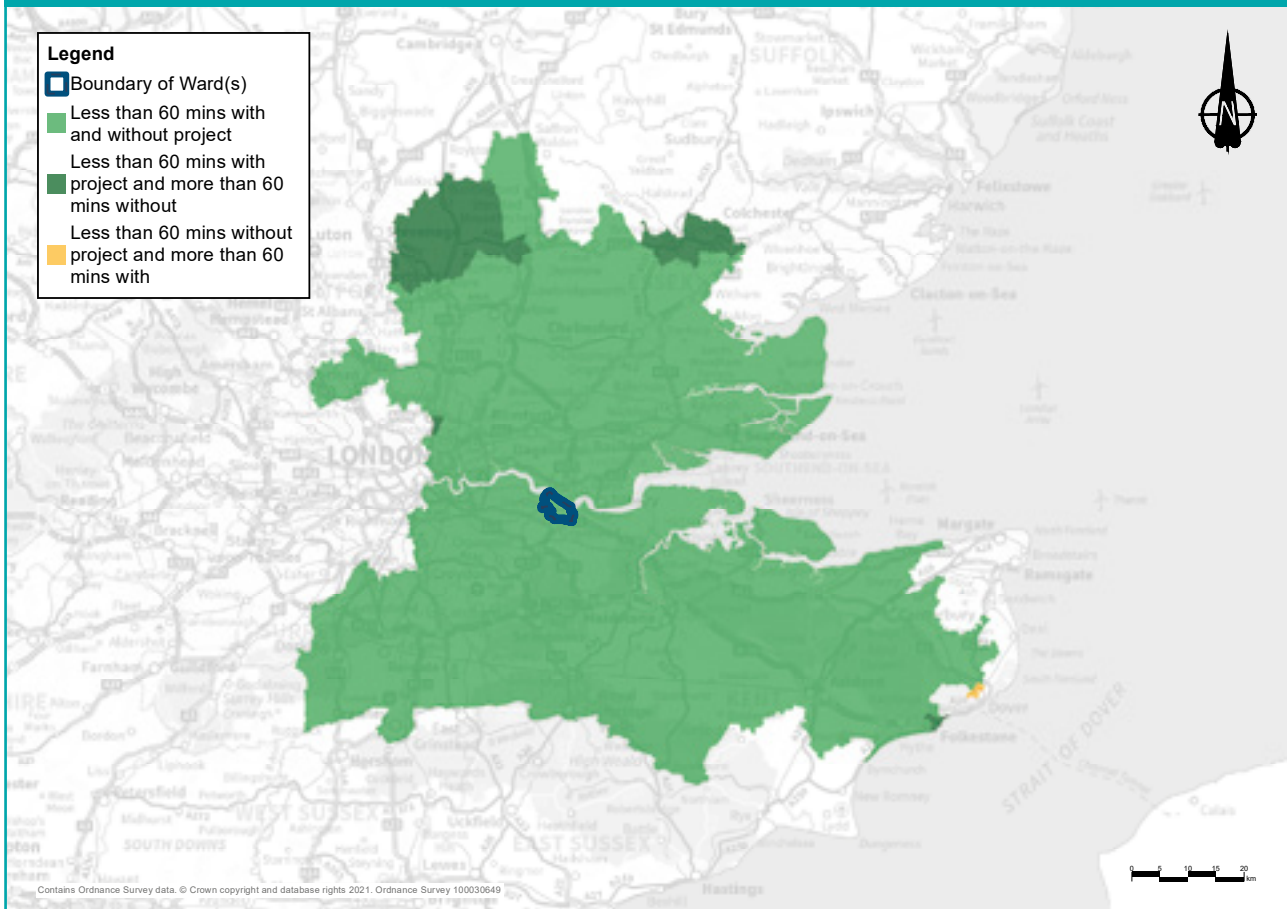
Figure 11.8 shows the change in the area that could be reached within a 30-minute drive of the centre of the wards without the new road and with it. Figure 11.9 shows the change in areas within a 60-minute drive. The drive times have been calculated for the morning peak hour (7am to 8am). The number of jobs within a 30-minute drive would increase by 20%, an increase of 134,300 jobs, and within a 60-minute drive would increase by 2%, an additional 86,000 jobs.

**Figure 11.8: Change in area that motorists could drive to within 30 minutes from the Dartford area**





**Figure 11.9: Change in area that motorists could drive to within 60 minutes from Dartford area**



Despite the project providing a substantial net gain in access for motorists within the wards, there is a small area (shown in orange in figure 11.9) that would no longer be accessible by car within 60 minutes because of changes to traffic flows on the wider road network.

**Operational traffic flows**

No mitigation required.

## 11.4 Public transport

### Existing situation

The Dartford area is served by Dartford and Stone Crossing railway stations, both of which are used by Southeastern services from Kent to London, and Thameslink services, which run from Kent across Greater London to destinations including St Albans, Luton and Bedford.

There are numerous buses serving the area, including the 228, 3, 34, 414, 423, 428, 429, 433, 474, 475, 477, 480, 481, 484, 485A, 490, 492, 96, D2, Dart1, Dart2, Dart3, Fastrack A, Fastrack B, S1, 483 and the X80.

### 11.4.1 Construction

There are no anticipated impacts on public transport associated with the construction of the project in these wards.

### 11.4.2 Operations

#### Rail

There would be no discernible change in local access times to Dartford or Stone Crossing stations, and no change to the rail services at those stations when the road is open.

#### Buses

No changes to bus routes would be required in these wards once the road opens. There are two bus routes that would experience a small change in journey times: the 700 and Fastrack A. The 700 from Bluewater to Strood, Rochester and Chatham Waterfront would experience a quicker journey by just over a minute throughout the day, and Fastrack A services would be slightly quicker in the evening peak hour eastbound.

The main change in bus journey times would be for the hourly X80 service that runs from Bluewater, over the Dartford Crossing, to Lakeside and Chafford Hundred station. There would be a reduction in journey time of around five minutes during all modelled periods for the northbound route and around three to four minutes in the peak hours southbound.

## **11.5 Footpaths, bridleways and cycle routes**

No footpaths, bridleways or cycle routes would be affected during construction or operation of the new road in these wards.

## **11.6 Visual**

There are no views of the land on which the project would be built from any of these five wards in Dartford. So there would be no visual effects experienced during construction or operation.

## 11.7 Noise and vibration

We have carried out noise and vibration assessments for both the construction and operational phases of the project. As explained in chapter 1, some of the assessments set out below are based on earlier versions of the project. The information provided still presents a reasonable representation of the likely effects from the proposals presented during this consultation.

### Existing situation

The existing noise environment in Dartford wards is mainly characterised by traffic noise, with a contribution from railway noise and human activity. The main sources of road traffic noise within these wards are from the M25, A13, A282, A126, A226, A206 and A296.

As part of our environmental assessment process, we carried out surveys of existing background noise at two locations in these wards, which were agreed with the local authority. We recorded average existing noise levels at these locations in the range of 57 to 58 dB(A)<sup>2</sup> during the day.

To understand how noise levels would vary with and without the project, we used noise modelling to predict what noise levels would be like in the project's proposed opening year if the project was not built. We modelled this because we cannot assume that noise levels when the road opens would be the same as they are now. For example, our assessment of the opening year noise levels takes into account predicted changes in traffic levels.

We also modelled the predicted noise levels for the opening year with the project in place. This provides a useful comparison as to how the new road would change the noise levels in its opening year if the project was to go ahead.

---

2 Decibel (dB) is the unit used to measure noise levels, with dB(A) being a standardised way of averaging noise levels that accounts for how humans hear sounds. The typical level of sounds in the environment ranges from 30 dB(A), which is a quiet night-time level in a bedroom, to 90 dB(A), which is how it would sound by a busy road. See chapter 1 for more information about what decibel levels mean.

In the opening year, noise levels without the project are predicted to range, on average, from 48 to 79dB(A) during the day and from 36 to 69dB(A) during the night at the identified locations within the wards. So our noise assessments predict that by opening year, noise levels would increase compared with the existing situation even if the road is not built. Information about noise levels during construction and operation are below.

## **11.7.1 Construction**

### **Daytime construction noise impacts**

No construction activities and construction routes are expected to make noise or vibration in these wards.

There are no main works compounds or Utility Logistics Hubs currently proposed to be located within the Dartford wards, nor are there any haul roads proposed.

Within these wards, there are no percussive or vibratory works proposed.

### **Construction traffic noise impacts**

Maps showing the predicted changes in road traffic noise within these wards during each year of construction can be found in chapter 7 of the Construction update. Based on the currently available traffic data (which offers a representative picture of what receptors within these wards are likely to experience), during the construction period there would be negligible changes in road traffic noise (less than 1 dB change in noise levels) during all construction years.

### **Measures to reduce construction noise levels**

As no construction noise and vibration impacts are expected, no specific mitigation measures would be required in these wards.

## **11.7.2 Operations**

### **Operational impacts**

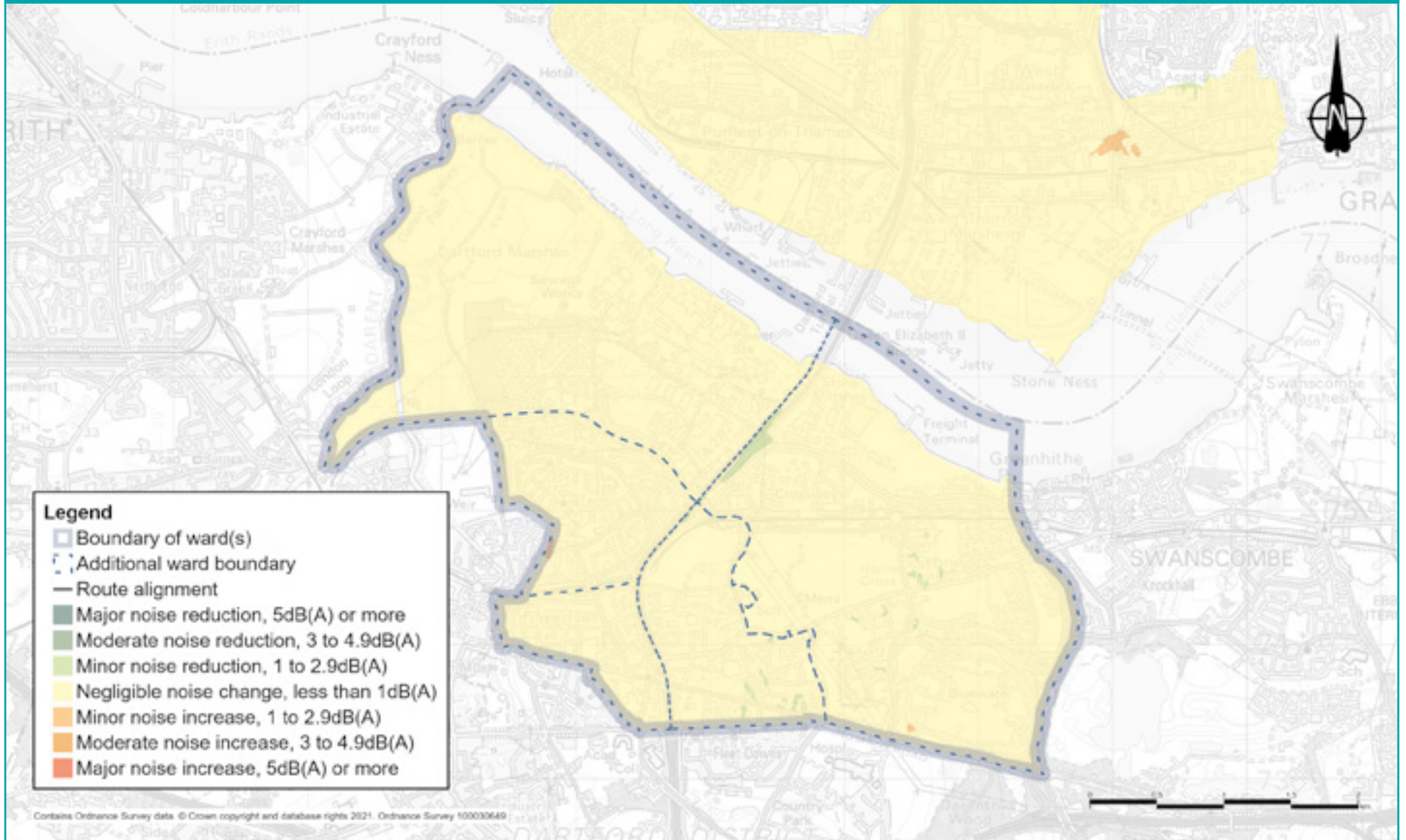
These Dartford wards are located approximately 8km to the west of the main project route and, as such, there would be no direct noise impacts from the project. Noise impacts within these wards would be as a result of changes in traffic flow, the number of HGVs, and traffic speeds on the existing road network in the wards.

Figure 11.10 below shows the predicted changes in traffic noise in the opening year of the road. Within these wards, changes in road traffic noise at identified noise sensitive locations (such as nearby properties) are predicted to range from minor decreases in noise levels of between 1.0 and 2.9 dB to a minor increase in noise levels of between 1.0 and 2.9 dB. For more information about how we define noise impacts (negligible, minor, moderate and major), see chapter 1.

### **Measures to reduce traffic noise and vibration during operation**

There are no noise mitigation measures proposed in these wards because they are not adversely impacted by changes in traffic noise as a result of our project.

Figure 11.10 Noise impacts during operation in Dartford wards





## 11.8 Air quality

We have carried out air quality assessments for both the construction and operational phases of the project. As explained in chapter 1, some of the assessments set out here are based on earlier versions of the project. The information provided here still presents a reasonable representation of the likely effects from the proposals presented during this consultation.

### Existing situation

Within Dartford wards, the A282 corridor, London Road and Dartford Town has been declared an Air Quality Management Area (AQMA) due to yearly levels of airborne pollution being above accepted standards. AQMAs are areas that have been identified by local authorities as areas of poor air quality that require additional monitoring and controls. No other areas within the wards have been identified as AQMA.

### 11.8.1 Construction

#### Construction impacts

There are no construction activities in these wards, so there is no risk of airborne dust from the project affecting local people.

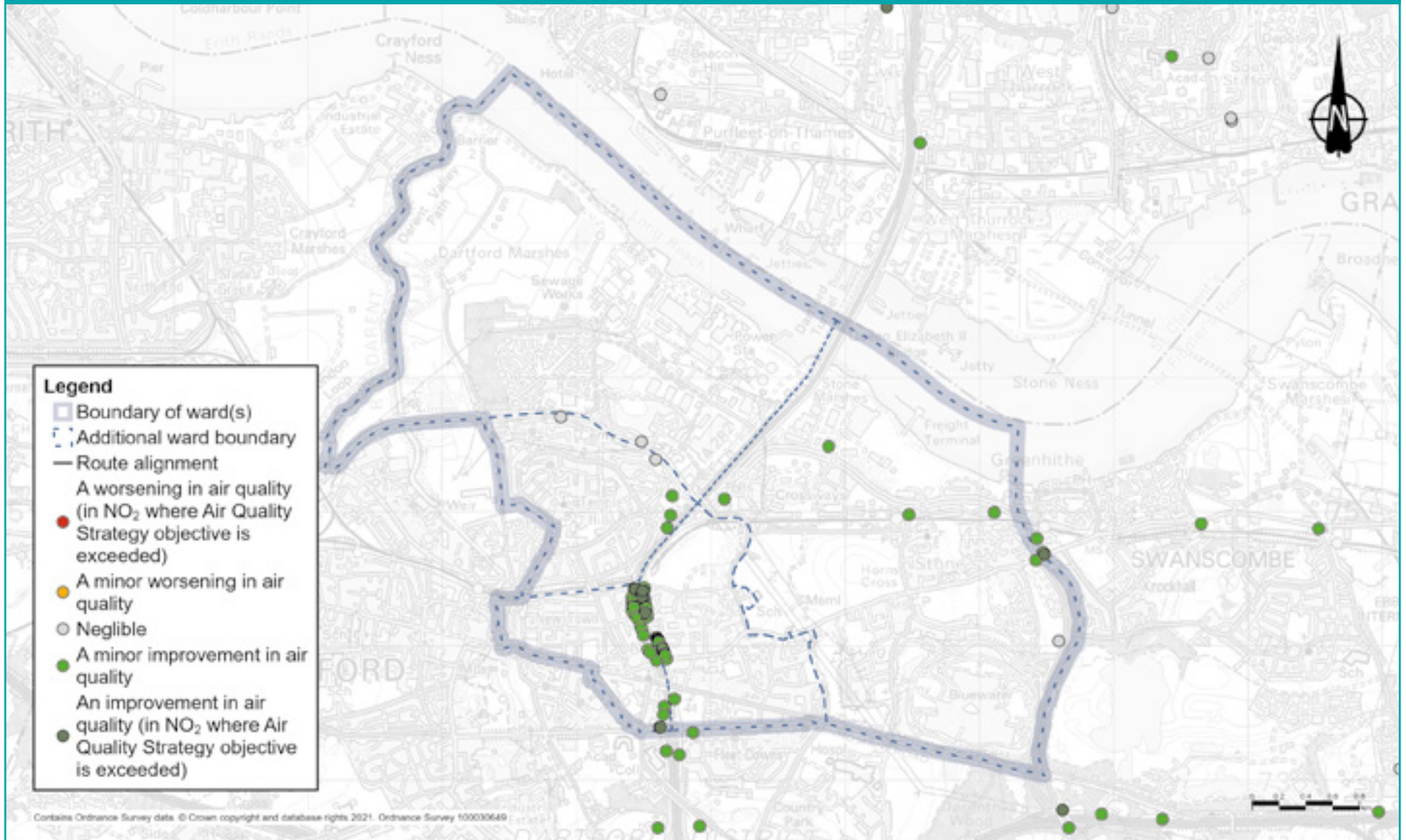
Our analysis of construction traffic (along the A282 corridor) predicts that the impact on all roads in these wards would be negligible. More information about construction traffic impacts on air quality can be found in chapter 7 of the Construction update.

#### Measures to reduce air quality impacts during construction

There are no air quality mitigation measures proposed in these wards because they are not adversely impacted by construction activities as a result of our project.



Figure 11.11: Predicted changes in NO<sub>2</sub> levels in the Dartford wards once the new road is open



## 11.8.2 Operations

### Operational impacts

We have carried out an assessment of the operational impacts of the new road on air quality. The assessment area includes a 200-metre buffer around the roads within the affected road network, with this area being the most likely to experience changes to air quality as a result of the new road. More information about air quality impacts once the road is open can be found in chapter 5 of the Operations update.

At all locations within these wards, an improvement in air quality is predicted. There are receptors (properties or habitats that are sensitive to changes in air quality) within the Dartford wards of Newtown, Stone Castle, Stone House, Bridge and Temple Hill that are predicted to experience an improvement in the air quality for nitrogen dioxide (NO<sub>2</sub>), the main traffic-related pollutant<sup>3</sup>. The highest modelled yearly average NO<sub>2</sub> concentration within these wards with the new road in place is 39.0µg/m<sup>3</sup>, which is below the yearly average threshold of 40µg/m<sup>3</sup>. Without the new road being built, the modelled yearly average would be 43.6µg/m<sup>3</sup>, which would exceed the yearly average threshold.

Our assessment is based on our opening year model, which represents a worst-case scenario, without accounting for the increase in less-polluting vehicles on our roads over time.

### Measures to reduce air quality impacts during operation

The assessed air quality impacts in this area as a result of the project would be an improvement in air quality, so there would be no need for monitoring or other mitigation measures once the new road is open.

---

<sup>3</sup> NO<sub>2</sub> levels are measured in 'micrograms per cubic metre', or µg/m<sup>3</sup>, where a microgram is one millionth of a gram.

## 11.9 Health

### Existing situation

A range of personal, social, economic and environmental factors influence our health. Different groups within the population may be more sensitive to these factors than others – for example, children, older people or those with pre-existing health conditions.

When compared with Dartford as a whole, the combined wards have:

- a higher proportion of people under the age of 16 (26% compared with 23.2% for Dartford)
- a lower proportion of residents aged 60 and over (13.4% and 18.9% respectively)
- a higher proportion of black residents (5.5% and 3.7% respectively)

According to the English Index of Multiple Deprivation, levels of deprivation across the area vary significantly. For example, areas found in Bridge and Stone Castle are in the top 20% most deprived in England, whereas another area in Stone Castle is in the 40% least deprived.

Economic activity rates are lower across the combined wards, when compared with Dartford as a whole. Home ownership rates are significantly lower across the combined wards, when compared with Dartford as a whole, with the remainder socially rented.

Around 83% of residents across the wards report their health to be very good or good (slightly lower than for Dartford as a whole). A slightly higher proportion of residents across the wards than Dartford as a whole report their day-to-day activities as limited a lot, or a little, as a result of long-term health problems or disability, when compared with Dartford as a whole.

Life expectancy at birth for residents across the wards averages 78.3 for men and 83.2 for women. When compared with UK average life expectancy recorded (2013 – 2017), rates are slightly lower for males and slightly higher for females, 79.1 and 82.3 respectively. Rates of deaths from all causes (these are causes where all or most deaths could potentially be prevented by public health interventions in the broadest sense) and respiratory diseases are lower across the wards when compared with Dartford as a whole. Conversely, deaths from coronary heart diseases and from all cancers are higher across the wards than is the case for Dartford as a whole.

## 11.9.1 Construction

### Construction health impacts

There are no main construction works or activities that are expected to have a noise or vibration impact in these wards.

Other potential impacts are presented below:

- Journey times for buses using the Dartford Crossing would improve, improving accessibility for those who are more dependent on public transport and have less choice about how they travel and the route they take.
- Residents may experience positive health outcomes as a result of access to work and training opportunities presented by construction activities.
- Any increase in road traffic noise on the existing road network during construction is predicted to be less than 1 dB(A).
- There would be no views of construction activities from any of these five Dartford wards.
- There are no properties in these Dartford wards within 200 metres of the Order Limits (the area of land required to construct and operate the project, formerly known as the development boundary), so there is no risk of dust from the project's construction.

### Measures to reduce construction health impacts

No essential mitigation specifically to address health outcomes has been identified within these wards over and above mitigation relating to noise and visual impacts described elsewhere.

## 11.9.2 Operations

### Operational health impacts

Residents may experience positive outcomes in these Dartford wards:

- Some residents are likely to benefit from positive health benefits associated with reductions in noise.
- Reducing congestion and stationary traffic at and around the Dartford Crossing is expected to improve air quality and therefore be beneficial for local communities and improve the lives of local residents.

- We have carried out an assessment of the operational impacts of the new road on air quality. The assessment area includes a 200-metre buffer around the roads within the affected road network, with this area being the most likely to experience changes to air quality as a result of the new road. More information about air quality impacts once the road is open can be found in chapter 5 of the Operations update. At all locations within these wards, an improvement in air quality is predicted. There are receptors (properties or habitats that are sensitive to changes in air quality) within the Dartford wards of Newtown, Stone Castle, Stone House, Bridge and Temple Hill that are predicted to experience an improvement in the air quality for nitrogen dioxide (NO<sub>2</sub>), the main traffic-related pollutant.
- Residents are predicted to benefit from changes in opportunity to access healthcare, shopping facilities, the town centre, open space, education and jobs.
- Dartford would benefit from improved connectivity and resilience across the wider road network, with reduced congestion at the Dartford Crossing.
- Positive mental health outcomes are anticipated.

### **Measures to reduce operational health impacts**

No essential mitigation measures to address health outcomes have been identified within these wards apart from those relating to noise and visual impacts described elsewhere.

## **11.10 Biodiversity**

These wards are over 5km from the Order Limits. There are no ecological features in these wards, or any construction or operational impacts.

## **11.11 Built heritage**

No buildings of historic relevance have been identified within the Dartford wards that would be affected by the project during its construction or operation.

## **11.12 Contamination**

There are no known medium or high-risk sources of contamination within these wards that could be at risk of being disturbed during construction of the project.