highways england

# Lower Thames Crossing
## Route Consultation 2016

www.lower-thames-crossing.co.uk

# Contents

# Introduction

Highways England is consulting on proposals for a new road crossing of the River Thames connecting Kent and Essex. A new crossing is needed to reduce congestion at the existing Dartford crossing and unlock economic growth, supporting the development of new homes and jobs in the region.

There are important choices to be made and your views on our proposals will inform the decision later this year on the route and crossing location.

Please take the time to read this booklet and the supporting material, attend an event and provide us with your comments using our questionnaire.

## Background

For over 50 years, the Dartford Crossing has provided the only road crossing of the Thames east of London. It is a critical part of the UK's major road network carrying local, national and international traffic.

Congestion and closure of the existing crossing occur frequently and this, together with a lack of alternative transport links, creates significant disruption and pollution. This impacts communities and businesses locally, regionally and elsewhere within the UK.

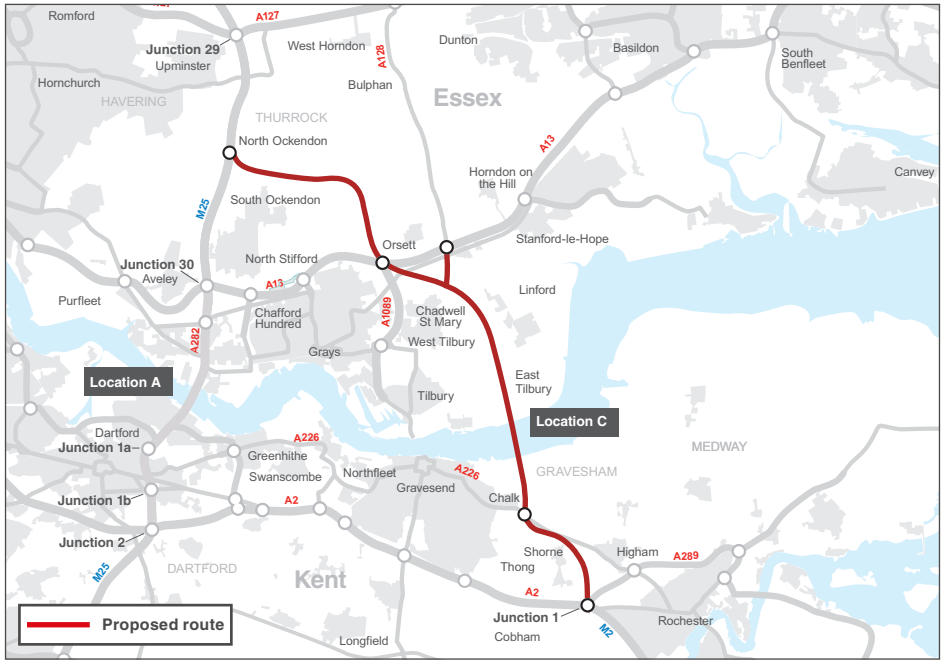
The removal of payment barriers and the introduction of electronic payments recently improved traffic flow and journey times but do not address the need for increased capacity. Already carrying 50 million vehicles a year and with traffic volumes forecast to increase, the freeflow improvements will only relieve congestion in the short term and major improvements are needed to provide a long-lasting solution.

In addition to reducing delays for drivers, a new crossing could transform the region by providing a vital new connection across the Thames. It would stimulate economic growth by unlocking access to housing and job opportunities, and deliver benefits for generations to come. This would not only benefit the region but the whole of the UK, providing better journeys, enabling growth and building for the future.

## A new crossing

Following a series of studies and a public consultation in 2013, the Government commissioned Highways England, the operator of the country's motorways and major roads, to consider options at two locations. These are shown on the map overleaf, at the site of the current crossing, known as Location A, or a new crossing location further east, known as Location C.

At both locations we have developed engineering solutions and assessed them in terms of their economic, traffic, environmental and community impacts. The assessment has also taken into account the significant growth and development plans for the region. At Location C, three potential route options have been identified north of the river in Essex and two south of the river in Kent.




## Our proposal

We have completed our evaluation and are recommending a new road crossing through a bored tunnel at Location C.

Our proposed scheme would be a dual carriageway connecting junction 1 of the M2 to the M25 between junctions 29 and 30. This crosses under the River Thames just east of Gravesend and Tilbury. Of our potential options, this route would provide a 70mph motorway-to-motorway connection with the greatest improvement in journey times and a modern, high quality road along its entire length.

In addition to easing congestion and providing an alternative to the existing crossing, a new road and crossing at Location C would also offer wider economic benefits. Our economic assessment indicates that it could add over £7 billion to the economy by stimulating investment and business opportunities, and create over 5,000 new jobs nationally.

Estimated costs are between £4.3 and £5.9 billion (including allowances for inflation). User charges would be applied, in line with current government policy. Subject to the necessary funding and planning approvals, we anticipate that the new crossing would be open in 2025, if publicly funded. If private funding is also used to meet the costs of the project, we anticipate the crossing being open by 2027.

## Have your say

This is your opportunity to give your views on our proposals. In this booklet you will find a summary of these proposals, where to find further information and how to access our consultation questionnaire. See section six for details on how to respond.

**Please get involved and provide your responses by 24 March 2016.**

## What happens next

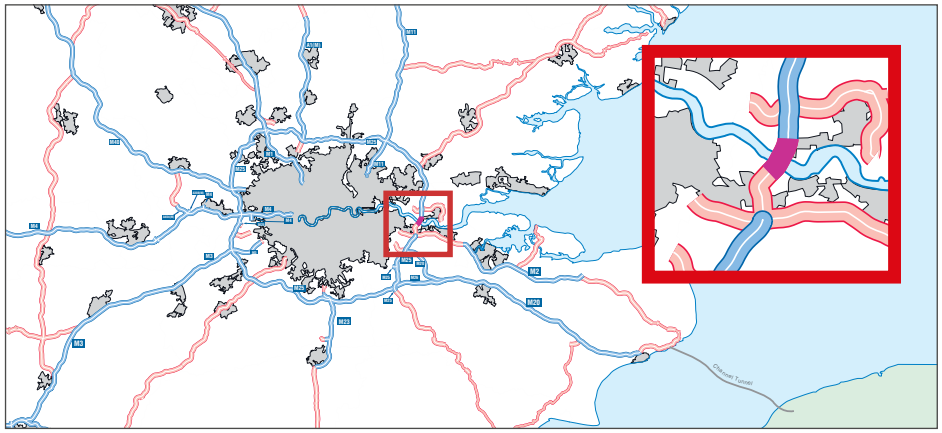
We will review the responses and report our findings and conclusions to the Department for Transport. Your views will help us to inform the Government prior to its decision on the location, route and type of crossing.


1

# The need for a new crossing

# The need for a new crossing

For over 50 years, the Dartford Crossing has provided the only road crossing of the Thames Estuary east of London. The crossing is a critical part of the country's road network. It connects communities and businesses and provides a vital link between the Channel ports, London and the rest of the UK.



**Map showing the importance of the Dartford Crossing in the major road network**

It is one of the busiest roads in the country, used 50 million times a year by commuters, business travellers, haulage companies, emergency services and holidaymakers. It is essential to the provision of reliable services and goods, to enable local businesses to operate effectively and for local residents to access housing, jobs, leisure and retail facilities north and south of the river.

With the exception of the removal of the toll booths and the introduction of electronic payments (Dart Charge), there has been no significant improvement in the capacity of the existing crossing for nearly 25 years, during which time there have been major developments such as Lakeside (1990) and Bluewater (1999).

The existing crossing is at capacity for much of the time and is one of the least reliable sections of the UK's strategic road network of motorways and major roads. Road users regularly experience delays and unreliable journeys and, when there are incidents, the congestion at the crossing quickly causes congestion on local roads and arterial roads in and out of London.

As a consequence of the congestion and delays, the existing crossing is affecting productivity, constraining business and depriving the region of economic growth. Improvements would produce significant economic benefits locally, regionally and nationally. In a recent survey of local businesses, 73% of respondents told us that traffic congestion at Dartford is harming their business. Approximately 60% thought their business would grow and almost half said they could employ more people if the problem of congestion at the crossing were to be solved.

Dart Charge has improved journey times over the last 12 months but we have also seen increased usage of the crossing, meaning it only provides a shorter-term solution. Incidents will still cause major delays and, as traffic volumes increase further, congestion will return to pre-Dart Charge levels within the next ten years. Something needs to be done now to alleviate the problems in the long term and to prepare for the future.

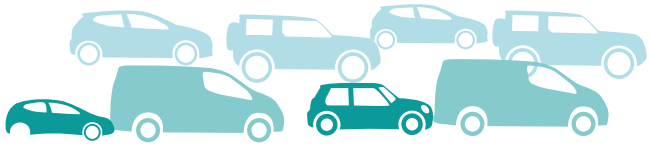
# Dartford Crossing facts and figures

## Capacity

**50 million**
crossings a year and traffic volumes are increasing.


of customer journeys are heavy and light goods vehicles

which is predicted to increase to **34%** **by 2041**



Designed for **135,000** vehicle crossings a day, regularly operating at capacity.

## Performance

**Over 300 times a year**
the crossing is partially or fully closed, on average, for around half an hour due to incidents.

It typically takes
**3 to 5 hours**
for the roads to clear following closure.

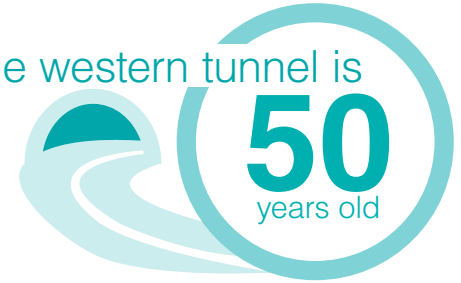

**Road users have no alternative but to:**

- wait it out
- use the Blackwall Tunnel – 30 extra miles
- go the other way around the M25 – 100 extra miles

## Safety and environment

For much of a typical day, air quality in many areas close to the crossing **does not meet current air quality standards.**

The western tunnel is **50** years old



resulting in restrictions to operate safely, including height limit for HGVs.

**One of the highest incident rates on the major road network**

**1963** West tunnel opened

**1980** East tunnel opened

**1991** QEII bridge opened

**2014** **2016** Dart Charge


## East London river crossing proposals

Transport for London is developing proposals for up to three additional river crossings in East London, which are shown on the image above. The first of these would be the Silvertown Tunnel which could be open for traffic in 2022/2023. Additional crossings at Gallions Reach and Belvedere are also being considered for opening in 2025.

While these would reduce congestion and improve the reliability and resilience of the local road network within London, they would not provide significant improvement at the Dartford Crossing.

We are working with Transport for London to ensure that all new river crossing proposals take each other into account.

# 2

# Previous studies

# Previous studies

The opening of the Queen Elizabeth II Bridge in 1991 was followed by a period of growth in both traffic volumes and economic development. Traffic volumes grew quickly and the Department for Transport recognised the need to investigate options for additional crossing capacity as part of its long-term planning for the strategic road network.

In 2009 the Department examined five locations where an additional crossing could be built (referred to as locations A, B, C, D and E). The most easterly of these (at locations D and E), were found to be too far from the existing crossing to ease the problems at Dartford and were eliminated from further consideration. They would have been very expensive (because of the length of the roads and crossing structure), offered poor value for money and would have had significant adverse effects on the ecology of the area. The study also ruled out rail as a solution to the problems at Dartford.

The need for a new crossing was recognised in the *National Infrastructure Plan: November 2011*, where it was included as one of the Government's top 40 priority projects.

In 2012 the Department began an appraisal of the remaining location options A, B and C. This led to a public consultation in 2013, which looked at the need for a new crossing and invited views on locations A (at the existing crossing), B (connecting the A2 and Swanscombe Peninsula with the A1089), C (east of Gravesend) and C Variant (widening of the A229 between the M2 and M20).

Later that year the Government announced its decision not to proceed with location option B because of the impact on local development plans and the limited transport benefits. Further work was carried out to evaluate the remaining options.

The Government published its response to the consultation in July 2014, confirming that there is a need for an additional crossing between Essex and Kent, but that there was no consensus about where it should be.

The Government then commissioned Highways England to carry out a more detailed assessment of the remaining options, which has led to this consultation.

3

# Developing the proposals

# Developing the proposals

Since 2014 Highways England has been investigating and comparing feasible routes for a new crossing. This has involved meeting with local authorities, environmental bodies, commercial organisations and utility companies to understand the constraints, local priorities and development and growth plans.

## Scheme objectives

We have assessed route and crossing options to identify solutions which best meet the following objectives:

### Economic

- To support sustainable local development and regional economic growth in the medium to long term.
- To be affordable to Government and users.
- To achieve value for money.

### Transport

- To relieve the congested Dartford Crossing and approach roads and improve their performance by providing free flowing north-south capacity.
- To improve resilience of the Thames crossings and the major road network.
- To improve safety.

### Community and environment

- To minimise adverse impacts on health and the environment.

## Assessing the options

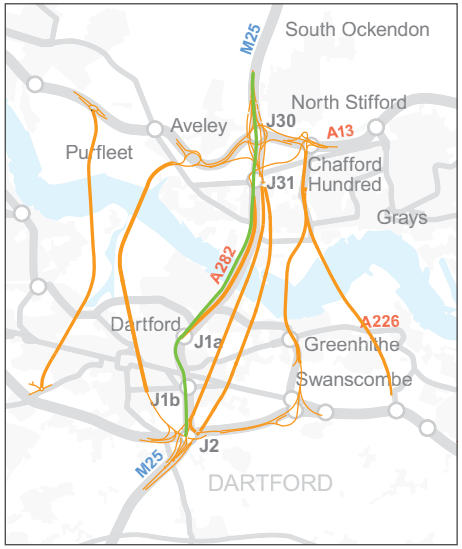
We developed and assessed a wide range of potential solutions and preliminary routes to identify options that were technically feasible. We tested these against the scheme objectives, taking into account traffic flow forecasts, using computer models to calculate reductions in journey times and congestion. These options were evaluated against technical, economic, environmental and traffic criteria as well as cost and value for money. These are illustrated in the maps and tables on page 13.

This early work concluded that four principal route options warranted further consideration. These options were taken forward to be developed and assessed in more detail, which is covered in section four of this booklet.

## C Variant

In addition to assessing options for a new crossing, routes and junctions, we have also considered whether widening the A229 between the M2 and the M20 (called C Variant in earlier studies) would be a necessary part of a new crossing. Our assessment has concluded that this upgrade would have limited benefits, high environmental impact and high cost and is not essential as part of a new crossing scheme. We will give further consideration to this link separately as part of Highways England's ongoing regional route planning.

## Potential solutions and findings



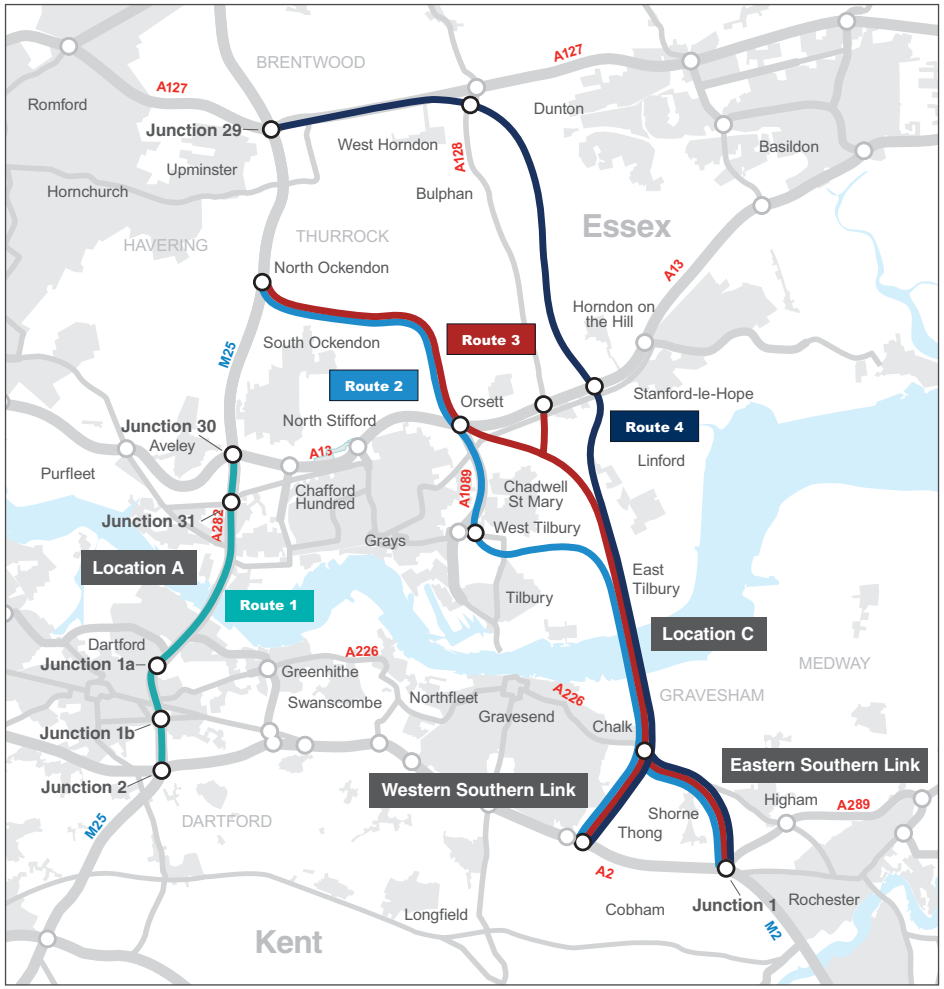

| Location A options | Findings |
|---|---|
| Four lane bridge and twin bored tunnel crossing options immediately west of the existing crossing, with improvements to the approaches and enhancement of junctions 30 and 31. | These options had some merit and elements that warranted further consideration. They would relieve congestion at the Dartford Crossing and provide some resilience. However they are constrained by existing roads and junctions, existing development and infrastructure, restricting the speed limit to 50mph. There would also be substantial construction disruption. |
| Bridge and tunnel crossings immediately to the east of the existing Dartford Crossing. | Not taken forward due to a number of reasons including high cost, poor economic benefits, impact on development and commercial properties, significant disruption to river/jetty operations, high technical risks and potential impacts on sensitive environmental sites. |
| Crossings (bridges, immersed and bored tunnels) further to the east and west of the existing crossing. | |


| Location C options | Findings |
|---|---|
| Long bored tunnels to the east and west of Gravesend. | Not taken forward due to high costs, poor economic benefits, impacts on Tilbury Docks and scheduled monuments. The most easterly route impacts more on sensitive environmental sites than other C routes. |
| Bridge, bored or immersed tunnel crossings. Connects the A2, passing to the east of Chalk before connecting the A13 and the M25 between junctions 29 and 30. | These options had merit and had elements that warranted further consideration. In general, all these options would relieve congestion at the existing crossing, offer greater wider economic benefits, provide network resilience, and improve connectivity and journey times. |
| Bridge, bored or immersed tunnel crossings. Connects the A2 near Shorne Woods Country Park. Enhancement to the A1089 before connecting with the A13 and the M25 between junctions 29 and 30. | |
| Bridge, bored or immersed tunnel crossings. Connects the M2 to the east of Shorne before passing east of Chalk and Tilbury, joining the A127 and connecting into the M25 at junction 29. | |

# Shortlist

One option was shortlisted at Location A. Three options were shortlisted at Location C, based on routes described on page 13 and refined through our technical work and discussions with local authorities and environmental bodies.

The final shortlist is shown below and summarised in the table. These were taken forward to be developed and assessed in more detail. This is described in the next section.




| | | |
|---|---|---|
| **Route 1** | Location A: A bridge or bored tunnel adjacent to the existing Dartford Crossing | |
| **Route 2** | Location C:<br><br>A bridge, bored tunnel or immersed tunnel | South of the river – using either a Western Southern Link from the A2 or an Eastern Southern Link from the M2.<br><br>North of the river – from the crossing following a westerly line via the existing A1089 to the M25 between junctions 29 and 30. |
| **Route 3** | | South of the river – using either a Western Southern Link from the A2 or an Eastern Southern Link from the M2.<br><br>North of the river – from the crossing following a middle-line to the M25 between junctions 29 and 30. |
| **Route 4** | | South of the river – using either a Western Southern Link from the A2 or an Eastern Southern Link from the M2.<br><br>North of the river – from the crossing following an easterly line via the existing A127 to the M25 at junction 29. |

# 4

# Appraisal of the shortlist

# Appraisal of the shortlist

In assessing the shortlist there have been three main considerations:

- **Location** – whether a new crossing should be built at Location A, close to the existing crossing, or at Location C, east of Gravesend and Tilbury.
- **The crossing** – whether the crossing structure should be a bridge or a tunnel.
- **Routes and junctions** – how to strike a balance of environmental factors, local access and highway design standards.

To assess the shortlist we have:

- carried out computer modelling of forecast traffic flows, taking into account planned housing and commercial developments
- developed engineering designs of feasible crossing types
- designed preliminary alignments for highways and junctions
- considered the impact on people and property
- identified the environmental and ecological impacts both long term and during construction
- estimated the costs and benefits to quantify the value for money that each route offers

## Location

A new crossing at Location A (Route 1) performs poorly against the traffic related scheme objectives. As Location A does not provide an alternative route, traffic would still be funnelled through the existing corridor from junctions 2 to 29 and incidents at Dartford would potentially still cause long delays and severe congestion on local roads.

Route 1 would not provide additional connections to local roads and by attracting more traffic to the existing corridor, congestion on the adjacent A2 and A13 would also increase.

Construction would take at least six years and would cause considerable disruption to traffic using the existing Dartford Crossing with 40mph average speed restrictions and complex traffic management affecting millions of journeys. Even when the scheme is complete, there would be limited improvement for drivers as the current 50mph speed limit and closely spaced junctions would remain.

Additionally, a crossing at Location A would offer poor value for money in comparison to Location C and would perform poorly against other scheme objectives such as safety, noise and air quality.

A new crossing at Location C would provide a high quality, safer transport solution with a 70mph road providing improved journeys. Crossing capacity would increase by 70% in the opening year and, as a new route, it could be constructed without impacting the already congested Dartford corridor.

On opening it would draw 14% of existing traffic away from Dartford, improving journey times on the existing crossing by up to 5 minutes in peak time and improving journey times from Kent to the M25 by up to 12 minutes when using the new crossing. It would provide a clear alternative to the existing crossing when incidents occur and traffic flows on the A2 and the A13 would also improve.

Significant economic growth and regeneration would be enabled by connecting key areas (such as Ebbsfleet, Swanscombe and Gravesend to the south and Tilbury and wider areas of Thurrock to the north) to the national road network. Improved access to jobs and services, and more opportunities for new businesses are estimated to generate double the wider economic benefits at Location C compared with Location A.

A crossing at Location C would have greater ecological impacts than one at Location A.

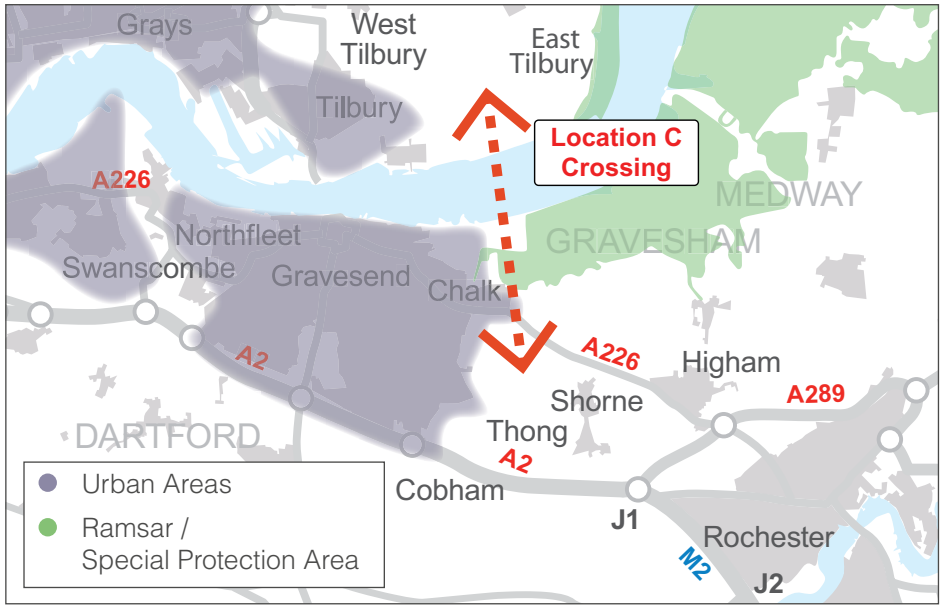
### Conclusion

Location C is proposed because it offers far greater benefits than Location A. It would unlock significant wider economic growth and offers higher transport performance in terms of safety, capacity and resilience. In contrast, a new crossing at Location A would not meet the transport and economic objectives. Also, in comparison with Location C, it offers poor value for money.

We believe Location C best meets the economic and transport objectives, while balancing these with the community and environmental benefits and impacts. The following sections consider the benefits and impacts of crossing type, routes and junctions for a crossing at Location C.

## The crossing

As shown on the map below, there are limited options for the crossing location due a number of constraints. These result in a narrow corridor for the crossing, bounded by Gravesend and environmentally sensitive sites. A crossing west of this point increases the impact on residents and property, whilst moving further east increases the impact on these sensitive sites.



The environmentally sensitive sites south of the river are valuable wetland habitats, the Thames Estuary and Marshes Ramsar site and the Thames Estuary and Marshes Special Protection Area (SPA). These are recognised internationally and are protected by law.

We have considered three types of crossing structure: a bridge, a bored tunnel and an immersed tunnel. All of these are feasible at this location but a bored tunnel would generate the least noise and visual impact and would have the least impact on protected habitats and species by minimising disturbance over much of its length.

## Conclusion

We propose separate northbound and southbound bored tunnels. This would provide a modern 70mph road. It would have the least impact on local communities with less noise and visual impact than a bridge. A bored tunnel structure would also have the lowest impact on protected habitats and species compared with a bridge or immersed tunnel structure.

Illustrative image showing potential tunnel approach north of the river

Illustrative image showing potential tunnel approach south of the river

# Routes and junctions

## North of the river in Essex

We are seeking your views on three routes north of the river. Each route would perform similarly with respect to solving the transport challenges and unlocking economic potential. Each would directly, to some extent, affect greenbelt and areas of ancient woodland.


**Route 2** would be closest to existing urban areas and have greater noise impacts than Routes 3 and 4. It would also impact on ecological and heritage sites and affect an Environment Agency flood storage area. It would involve upgrading the existing A1089, is constrained by closely spaced junctions and would mix local with long distance traffic.


**Route 3** would be the shortest route and would be a completely new road which could be designed to modern highway standards over its whole length. Although it would impact local ecological and heritage sites, the impact would be less than Routes 2 and 4.

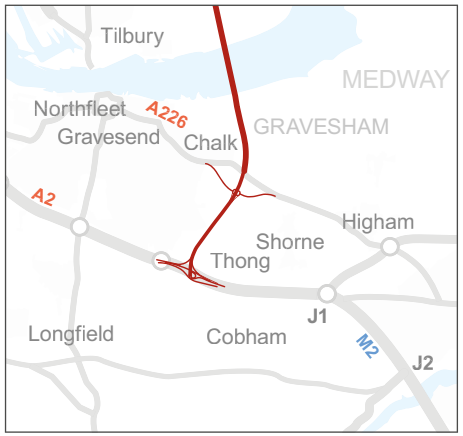

**Route 4** would involve a new road, an upgrade of the existing A127 and an upgraded junction where the A127 joins the M25. It would affect ancient woodland, a conservation area and a registered park and garden. The overall route is longer and more expensive than either Routes 2 or 3.

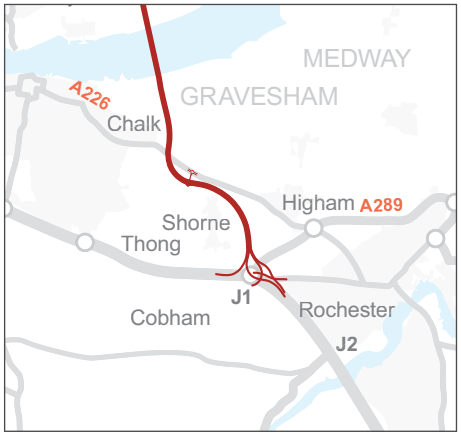
## Conclusion

Route 3 is proposed as it would provide the shortest route, the greatest improvement to journey time and, being an entirely new road, would deliver a modern high quality road. It would also have the lowest environmental impact of the three options.

## South of the river in Kent

We are seeking your views on two alternative routes south of the river. These would both have an impact on existing communities and protected sites, but differ in terms of impacts on transport and economics.




**A Western Southern Link** would connect to a new junction on the A2. This would be constrained by the High Speed 1 rail line and existing development. The junction would need to be of compact design and as such, some connecting roads would be limited to 30mph. This route would have less impact on the Kent Downs Area of Outstanding Natural Beauty.

**An Eastern Southern Link** would provide a direct connection from the M2 to the M25. This would create a motorway-to-motorway connection providing greater benefits than the Western Southern Link, estimated at £560m, at an additional cost of £200m. An Eastern Southern Link would impact Shorne village, would have a greater impact on ancient woodland, the Kent Downs Area of Outstanding Natural Beauty and would also affect a Site of Special Scientific Interest (Great Crabbles Wood).

### Conclusion

The Eastern Southern Link is proposed as it would provide the most direct route and the greatest improvement to journey times, as it would create a motorway-to-motorway link. We recognise this proposal has significant implications for the local community. Section five outlines how we intend to address these in the next phase of the scheme, should this route be taken forward.

## Junctions

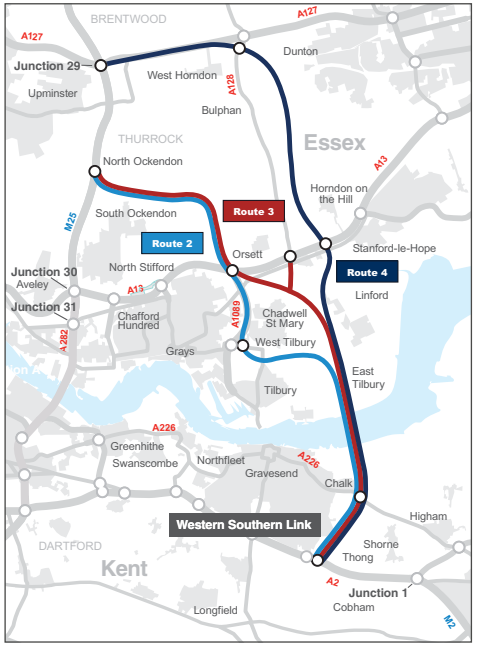
Our route maps show where we are proposing to create junctions with existing roads including the M2/A2, A226, A13 and M25. We would like to understand if additional junctions would be beneficial as part of the Lower Thames Crossing scheme.

## Comparison of community and environmental factors

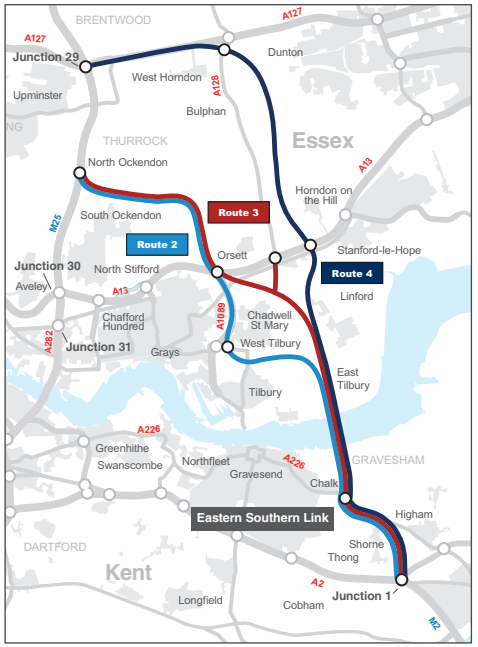
| | North of river | | | South of river | |
|---|---|---|---|---|---|
| **Feature** | **Route 2** | **Route 3** | **Route 4** | **Western Southern Link** | **Eastern Southern Link** |
| **Air quality** | Limited impact on air quality immediately adjacent to the routes but improved air quality at Dartford. | | | Limited impact on air quality immediately adjacent to the routes but improved air quality at Dartford. | |
| **Noise** | All routes reduce noise disturbance for properties close to the existing Dartford Crossing. | | | Reduced noise disturbance for properties close to the existing Dartford Crossing. There is little to differentiate between the Eastern and Western Southern Links in terms of noise. | |
| | Has the greatest impact in terms of noise disturbance as the route is closer to more densely populated areas. | Noise disturbance is less than Route 2 but greater than Route 4. | Has the least impact in terms of noise disturbance as the route is further away from urban centres. | | |
| **Biodiversity** | Routes 2 and 3 have lower impacts on ecological sites than Route 4. | | Greatest impact on ecological sites. | Affects Claylane Wood ancient woodland and Shorne and Ashenbank Woods SSSI**. Less overall effect of the two options. | Affects areas of ancient woodland and local wildlife sites east of Shorne and Great Crabbles Wood SSSI**. |
| **Landscape** | Routes 2 and 3 run through greenbelt in Thurrock. | | Route 4 runs through greenbelt in Thurrock and Brentwood. | Lesser area required within the Kent Downs AONB***. | Greater area required within the Kent Downs AONB***. |
| **Cultural heritage** | Requires land within West Tilbury conservation area and scheduled monuments. Potential impact on listed buildings. | Requires land within a scheduled monument. Potential impact on listed buildings. Avoids conservation areas. Has the least impact of Routes 2, 3 and 4. | Runs through Thorndon Park, a Registered Park and Garden and conservation area. Potential impact on listed buildings. | Potentially impacts the setting of listed buildings. Route is close to but not in the conservation area of Thong. | Potentially impacts the setting of listed buildings. Route is close to but not in the conservation area of Shorne. |
| **Properties*** | 9 residential<br>3 agricultural | 14 residential<br>22 traveller plots<br>3 agricultural | 14 residential<br>9 commercial<br>3 agricultural | 4 residential<br>3 commercial | 10 residential<br>2 commercial |

*Properties which may require demolition, based on preliminary illustrative route design **SSSI = Site of Special Scientific Interest ***AONB = Area of Outstanding Natural Beauty

## Comparison of costs, benefits and reductions in journey time




| Features | Western Southern Link with | | |
|---|---|---|---|
| | Route 2 | Route 3 | Route 4 |
| Estimated cost (nominal) | £4.1 - £5.8 billion | £4.1 - £5.7 billion | £4.4 - £6.2 billion |
| Adjusted benefit cost ratio* | 3.1-2.2 | 3.1-2.2 | 2.9-2.1 |
| Value for money* | High | High | High |
| Reduction in journey time between junctions 3 and 28 on M25 using the Dartford Crossing | 3 mins southbound, 4.5 mins northbound | 3 mins southbound, 4.5 mins northbound | 3 mins southbound, 5 mins northbound |
| Reduction in journey time between M2 junction 4 and M25 junction 28 using new crossing at C | 9 mins | 10 mins | 9 mins |
| Route length | 13.8 miles | 13.3 miles | 15.9 miles |



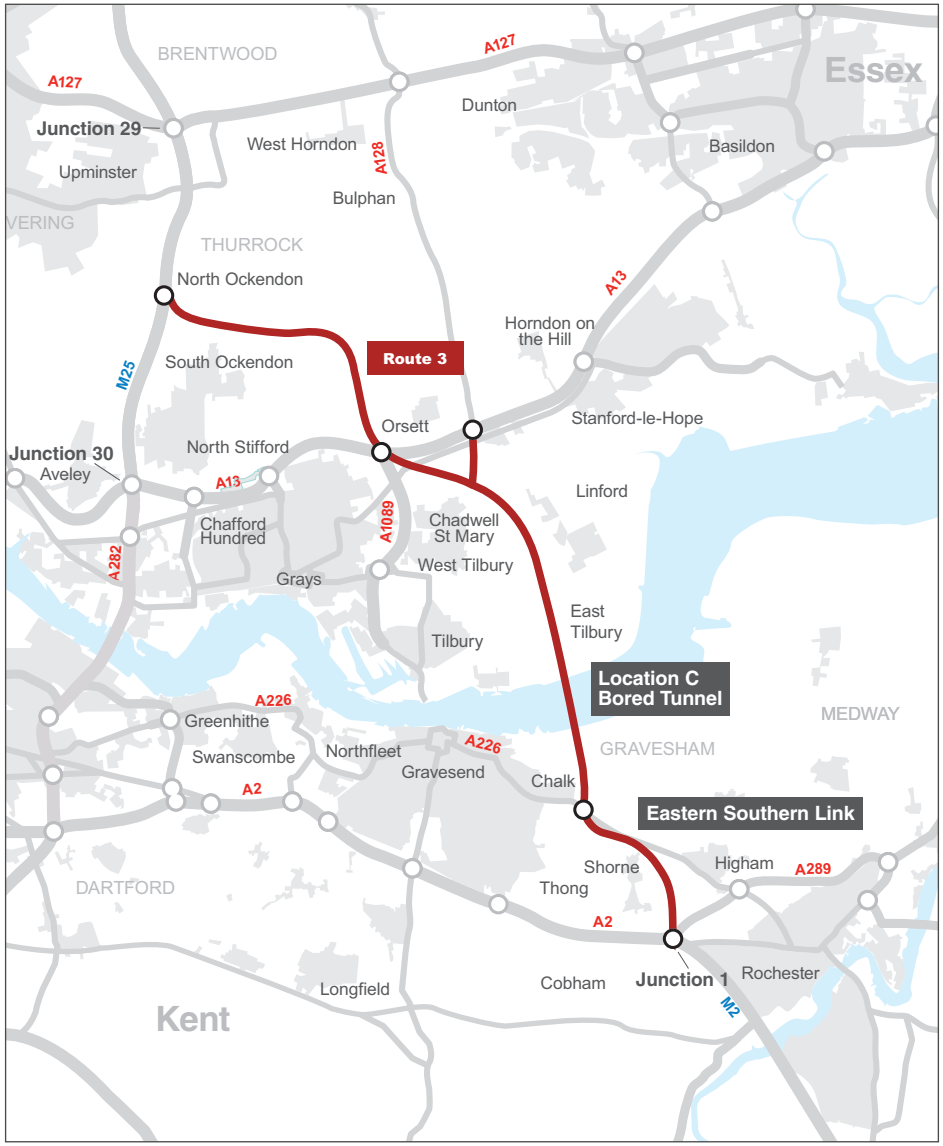

| Features | Eastern Southern Link with | | |
|---|---|---|---|
| | Route 2 | Route 3 | Route 4 |
| Estimated cost (nominal) | £4.3 - £6.0 billion | £4.3 - £5.9 billion | £4.6 - £6.4 billion |
| Adjusted benefit cost ratio* | 3.3-2.4 | 3.4-2.5 | 3.1-2.2 |
| Value for money* | High | High | High |
| Reduction in journey time between junctions 3 and 28 on M25 using the Dartford Crossing | 3 mins southbound, 4.5 mins northbound | 3 mins southbound, 4.5 mins northbound | 3 mins southbound, 5 mins northbound |
| Reduction in journey time between M2 junction 4 and M25 junction 28 using new crossing at C | 11 mins | 12 mins | 11 mins |
| Route length | 14.7 miles | 14.2 miles | 16.8 miles |

*To Department for Transport and Government guidelines

5

# The proposed scheme and what this means for you

# The proposed scheme




## Key features of our proposal

Our proposed scheme would be a dual carriageway connecting junction 1 of the M2 to the M25 between junctions 29 and 30. This crosses under the River Thames just east of Gravesend and Tilbury. Of our potential options, this route would provide a 70mph motorway-to-motorway connection with the greatest improvement in journey times and a modern, high quality road along its entire length.

A **bored tunnel** would provide the required capacity and would have the least impact of all crossing types on local communities, protected habitats and species. It would have two lanes in each direction with space for future capacity and would be about two miles long.

**Route 3** would pass to the west of East Tilbury and then between Chadwell St Mary and Linford. The route would cross the A13 where an upgraded junction would be provided. To the north of the A13 it would pass to the west of Orsett and then pass north of South Ockendon before connecting with the M25 with a one-way junction allowing travel to and from the north on the M25.

The **Eastern Southern Link** would provide a direct connection with junction 1 of the M2 thereby creating a motorway-to-motorway link. It would pass to the east and north of Shorne, with some sections in deep cutting, before connecting to a junction with the A226 east of Chalk.

# What this means for you

## For the economy

It would provide the greatest economic benefit of all the options, stimulating local and regional development as well as supporting national growth. This option offers the greatest value for money and return on investment.

Improving the transport connection at this critical part of the road network would make it easier for businesses to grow and employ more people. This would support both local businesses, employing people in the area, through to national companies and international trade through the Channel and Thames Estuary ports.

As a new route it would open up the region, unlocking potential for investment, housing and regeneration. It would support increased economic activity, enabling future prosperity for the region and the whole of the UK. This could add over £7 billion to the economy and create over 5,000 new jobs.

## For transport

It would reduce congestion and delays at one of the busiest roads in the country, and on approach roads including the A13 and A2. This completely new road would be designed to modern highway standards providing a safer, faster, more reliable road, improving journeys for all users. As an alternative to the existing Dartford Crossing it would transform this critical part of the road network.

A modern 70mph, direct motorway-to-motorway connection would result in shorter journey times, whether it's your daily commute to work or travelling for leisure. This shorter route could save you up to twelve minutes but more importantly provide you with a more reliable journey. It would also enable faster, more reliable delivery of goods and services, both across the region, and from Europe through the rest of the UK.

## For communities and the environment

It would connect communities in Kent and Essex, providing better access to jobs, housing, leisure and retail facilities either side of the river and for those in the east. This would open new opportunities for investment, regeneration and housing, for local businesses to grow and employ more people. The scheme would create jobs, apprenticeships and training opportunities for local people during the construction phase and in the longer term.

We recognise that there would be noise and air quality impacts generated in the vicinity of the proposed scheme. Detailed air quality and noise modelling will be conducted during the next stage of the project to assess the potential effects and how best to mitigate these. By reducing congestion at the existing crossing, the proposed scheme would improve air quality and reduce traffic noise for residents nearby.

We have proposed a bored tunnel rather than a bridge or immersed tunnel as this significantly reduces the visual and noise impacts for those living in the area, as well as significantly reducing the impacts on the landscape, protected habitats and species.

We recognise that our proposed scheme would have an impact on local communities as well as cultural heritage and landscape. These include areas of greenbelt, the Kent Downs Area of Outstanding Natural Beauty and areas of ancient woodland. As the scheme develops we will continue to work to understand how best to avoid and minimise impacts as we have successfully done on other schemes.

We will also conduct seasonal surveys of habitats to understand in more detail the plant and animal species that could be affected. This will help us minimise impacts and develop mitigation measures such as replacement habitats.

## Future development of the scheme

We understand that construction of a new crossing would have impacts which need to be considered and, where possible, minimised. On a scheme of this scale there will also be opportunities to leave a lasting positive legacy and in the next phase we will explore these.

We are at an early stage of the development process and more detailed work will be undertaken at the next stage of the project. Route designs are illustrative at this stage. Once a route is selected, more detailed design and planning would be done, which would involve further investigation and assessment of a wide range of factors. This would include noise, air quality, land and property impacts, cultural heritage, biodiversity, landscape, water resources, construction impacts, costs and charging.

As we progress the design in the next phase of the scheme, this would include developing plans to avoid or minimise impacts on local communities and the environment. Where impacts remain, we will seek to mitigate them as we have done successfully on other schemes.

This next stage of assessment, design and development would be the basis for an application for a Development Consent Order. We would consult on future proposals as part of the statutory planning process.

We are committed to ensuring that community and environmental impacts are fully taken into account in the development, planning and decision-making process. To achieve this we will work closely with local communities, local authorities, environmental bodies and major employers.

Subject to the necessary funding and planning approvals, we anticipate that the new crossing would be open in 2025, if publicly funded. If private funding is also used to meet the costs of the project, we anticipate the crossing being open by 2027.

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# Have your say

# Have your say

Having taken into account the existing conditions, the nature of the problems at Dartford and the needs and plans for the area, we are proposing a scheme which, in our view, best matches the objectives and balances the needs of road users, the community, the environment and business.

There are important choices to be made. Through this consultation we are inviting you to provide your views and comments on our proposals. Your views will be taken into consideration before a final decision is made by the Government later this year.

In summary, our assessment has shown that a crossing at Location A would not solve the traffic problem at Dartford and would do little for the economy locally, regionally or nationally. Our proposal is a bored tunnel crossing at Location C, east of Gravesend and Tilbury.

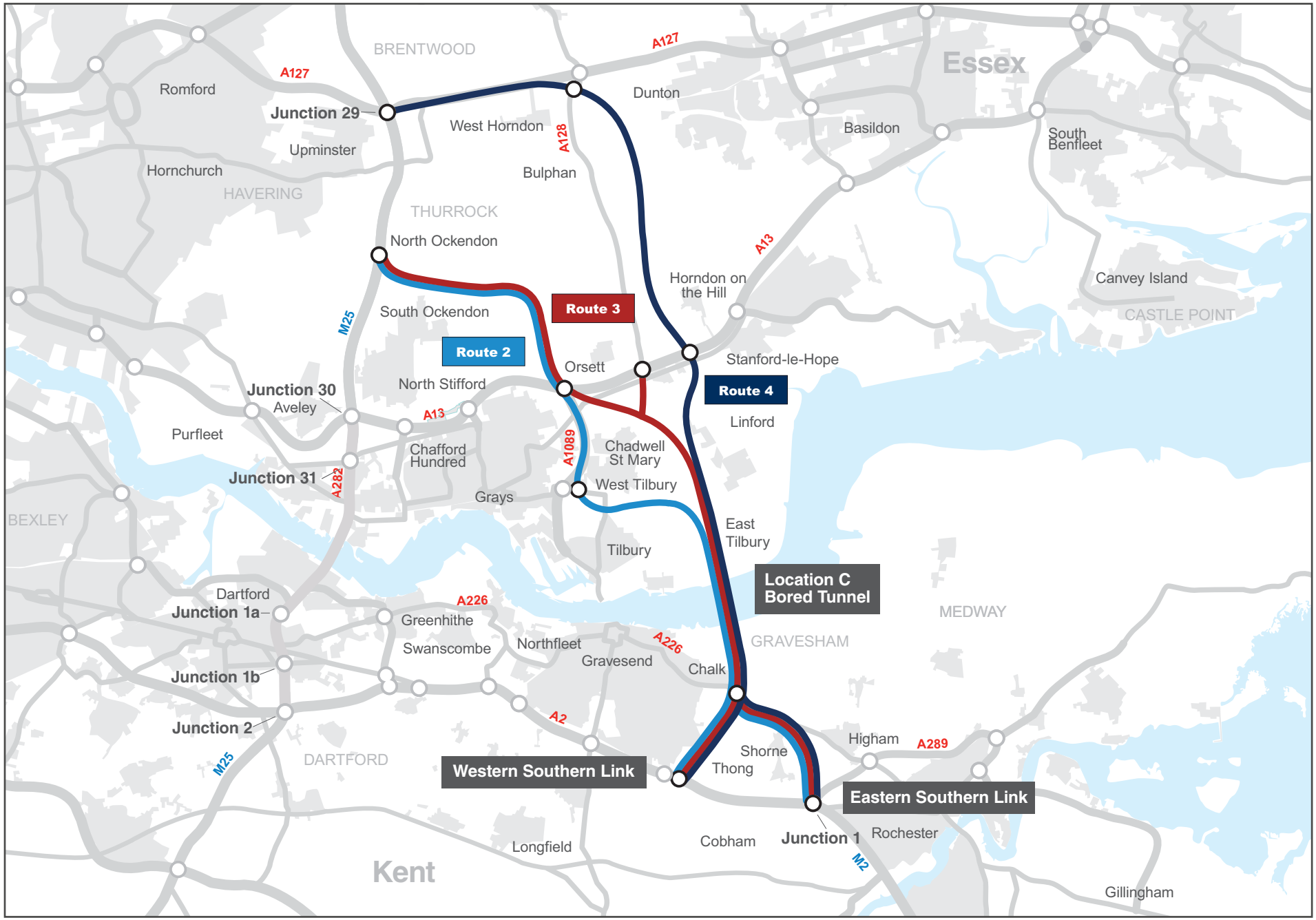
We have developed three routes north of the river and two routes south of the river which meet the scheme objectives and on which we are seeking your views.

**North of the river - Essex**

There are three routes to be considered. Each has potential to unlock opportunities for housing and jobs and all offer high value for money. They each meet the transport objectives, although they offer different opportunities to connect with local roads. While there are important differences in the local and environmental impacts of each option, we consider all of these options to be viable.

**South of the river - Kent**

There are two routes and we consider both of these to be viable. The Eastern Southern Link is a more direct, motorway-to-motorway connection and as a result better meets the economic and transport objectives. It has greater community and environmental impacts. The Western Southern Link has a lower community and environmental impact but, as a less direct route with a lower speed junction on the A2, it is weaker against the economic and transport objectives.


BRENTWOOD
A127
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Junction 29
Upminster
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HAVERING
West Horndon
A128
Bulphan
Dunton
Essex
Basildon
South Benfleet
THURROCK
North Ockendon
A13
Horndon on the Hill
Canvey Island
CASTLE POINT
M25
South Ockendon
Route 3
Route 2
Orsett
Stanford-le-Hope
Route 4
Linford
Junction 30
Aveley
North Stifford
A13
Purfleet
Chafford Hundred
A1089
Chadwell St Mary
Junction 31
A282
West Tilbury
Grays
BEXLEY
East Tilbury
Tilbury
Location C Bored Tunnel
Dartford
Junction 1a
A226
Greenhithe
MEDWAY
Swanscombe
Northfleet
Gravesend
A226
GRAVESHAM
Chalk
Junction 1b
A2
Junction 2
M25
DARTFORD
Western Southern Link
Shorne
Thong
Higham
A289
Eastern Southern Link
Cobham
Junction 1
Rochester
M2
Longfield
Kent
Gillingham

# How to respond

To find out more about our proposals and to provide your views you can:

## Visit our website

View and download maps and other information about our proposals, including factsheets, our pre-consultation scheme assessment report and summary business case.

You can provide your views by completing the questionnaire online at **www.lower-thames-crossing.co.uk**

## Join us at one of our events

Members of our team will be on hand to answer your questions.

## View the proposals

Copies of consultation materials, maps and questionnaires are available to view at a number of locations in your area.

## Phone us

Get in touch by calling **0300 123 5000**.

## Send your response

Completed questionnaires can be sent by freepost to the following address (you do not need a stamp):

Freepost RTTH–GRYG–SCXZ
Lower Thames Crossing Consultation
PO Box 1188, Harrow
HA1 9NU

# What happens next

Your responses to this consultation will be analysed and incorporated into our final recommendation to the Department for Transport. We are expecting Government to make an announcement later this year to confirm the route, location and type of crossing.

**Consultation closes on 24 March 2016.**

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.



This document is also available on our website at **www.gov.uk/highways**

If you have any enquiries about this publication email **info@highwaysengland.co.uk** or call **0300 123 5000***. Please quote the Highways England publications code **PR111/15**

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An Equality Impact Assessment has been completed for this consultation in compliance with the Equality Act 2010.

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