

From: Matthew Balfour, Cabinet Member for Environment and Transport
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To: Cabinet – 21 March 2016

Subject: **Proposed Response to the Highways England Consultation on proposed route options for a new Lower Thames Crossing**

Classification: **Unrestricted**

Past Pathway of Paper: Growth, Economic Development and Communities Cabinet Committee – 3 March 2016; Environment and Transport Cabinet Committee – 11 March 2016

Future Pathway of Paper: N/A

Electoral Division: Gravesham Rural – Bryan Sweetland, Gravesham East – Colin Caller, Jane Cribbon

Summary:

This report outlines the proposed response to Highways England's (HE) consultation (26th January to 24th March) on the Lower Thames Crossing (LTC) route options.

It is proposed that Kent County Council (KCC) responds in support of HE's selection of a bored tunnel at Location C (the east of Gravesend) as the only viable crossing location. A new Crossing at this location will provide the greatest economic benefits, network resilience and create a new strategic route. However, regarding the route in Kent, KCC makes clear its support of the Western Southern Link (not HE's preferred route) in line with KCC's response to the previous 2013 consultation by the Department for Transport (DfT) as this avoids the village of Shorne and is comparatively less environmentally damaging than the Eastern Southern Link.

The proposed response sets out KCC's concerns as to several issues arising from the proposed Crossing, including the impact on the local area, the need for compensation for property owners affected by the proposals, and the need for measures to mitigate negative impacts of the proposals on air quality, noise and visual intrusion.

The proposed response calls for HE to urgently reconsider the inclusion of C Variant (enhancements to the A229 link between the M2 and M20) and to improve the link via the A249 (M2 Junction 5 at Stockbury to M20 Junction 7 at Detling Hill). A phased programme of wider network improvements are needed along the M2/A2 corridor including dualling of the A2 from Lydden to Dover and improvements to M2 Junction 7 (Brenley Corner). KCC's support is also contingent on the selection of the Western Southern Link as well as suitable compensation, environmental mitigation, increased tunnelling, removal of the junction with the A226, and optimisation of the junction with the A2.

Recommendation:

The Cabinet is asked to consider and endorse, subject to any recommended changes, Kent County Council's response to the Highways England consultation on the proposed route for a new Lower Thames Crossing as set out in Section 3 and Appendix C of this report.

1. Background

1.1 For many years, Kent County Council (KCC) has campaigned for increased capacity crossing the River Thames. In doing so, the key objectives for KCC have been:

- The ability to maximise the opportunity to provide real economic benefits both locally and nationally, and;
- To provide urgently needed network resilience and reliability, and improved strategic connectivity.

In pursuing both objectives, however, KCC has made clear that any solutions would need to mitigate against potential adverse impact on people and the environment.

1.2 This latest consultation is the next step in a project that has been ongoing for a number of years, with the previous consultation carried out in 2013. The details of the 2013 consultation can be found in Appendix A. The current consultation is non-statutory in advance of a preferred route being chosen by the DfT, the necessary detailed design and assessments will then be completed before a Development Consent Order is sought.

1.3. In response to the DfT's 2013 consultation, KCC expressed strong support for locating the new crossing at Option C (to the east of Gravesend), given the economic growth and job creation potential along with its positive impact on network resilience and the creation of a new strategic route from Dover to the Midlands and the North. This was supported on the condition that the connection of the proposed new Crossing to the M2 was moved westwards, thus connecting into the A2 and avoiding significant adverse environmental impact on the Kent Downs Area of Outstanding Natural Beauty (AONB), a Site of Special Scientific Interest (SSSI), ancient woodland and KCC's flagship country park (Shorne Woods). KCC's proposed western alignment would connect to the A2 between the East of Gravesend and Cobham junctions. Tunnelling was also supported as it was considered that this method would help to reduce the impact on the internationally protected Marshes. KCC also supported the Option C Variant (improvements to the A229 Bluebell Hill), recognising the importance of connectivity between the two motorway corridors.

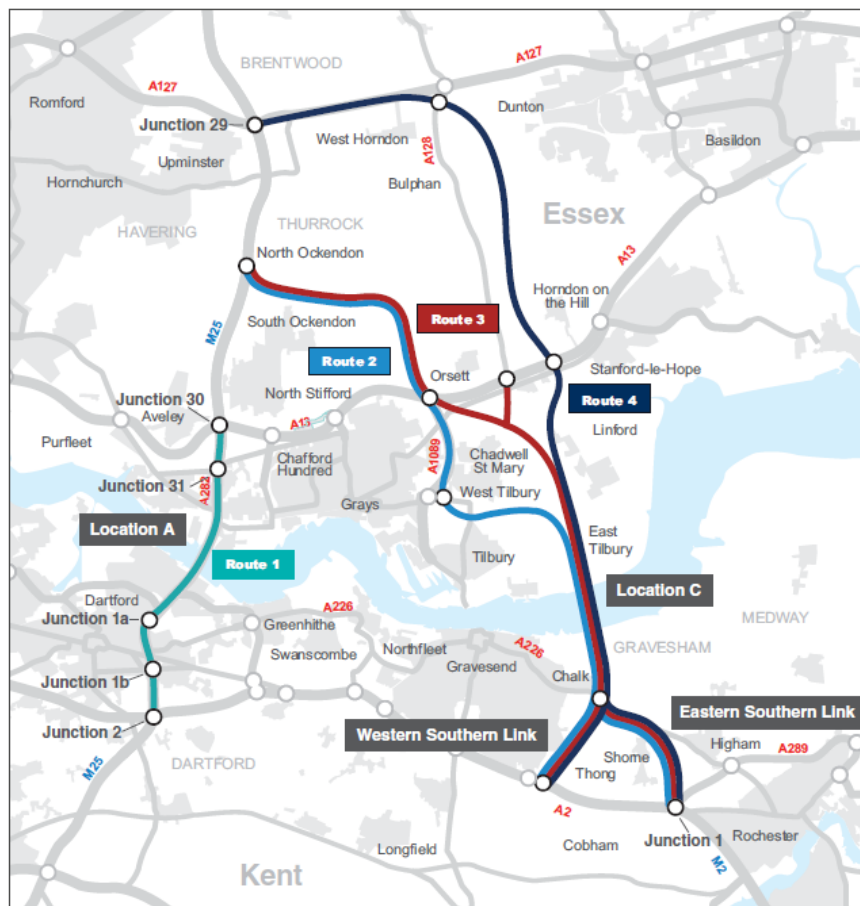
1.4 KCC's full response to the Department for Transport's 2013 consultation on a new Lower Thames Crossing is attached at Appendix A.

2. Current consultation – January 26th to March 24th 2016

2.1 Following the 2013 consultation, Highways England (HE) was tasked with investigating route options for a new crossing. Location A (in the vicinity of the existing Dartford Crossing) and Location C (east of Gravesend) were assessed

and, following further appraisal, a shortlist of four routes has been arrived at. The routes at Location C have two possible alignments in Kent: the Western Southern Link and the Eastern Southern Link. These proposed alignments, along with route options 1, 2, 3 and 4 through Essex are shown in Figure 1 and in detail for Kent in Appendix D.

Figure 1- Lower Thames Crossing Route Consultation 2016 – Options



2.2 The current public consultation defines a proposed scheme within the Option C corridor¹: Route 3 with the Eastern Southern Link (ESL). This would be a dual carriageway connecting Junction 1 of the M2 to the M25 between Junctions 29 and 30, using a twin bored tunnel. There would also be a new junction with the A226. This proposal is stated to best meet the scheme objectives, which are:

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

¹ Consultation available at: <https://highwaysengland.citizenspace.com/cip/lower-thames-crossing-consultation>

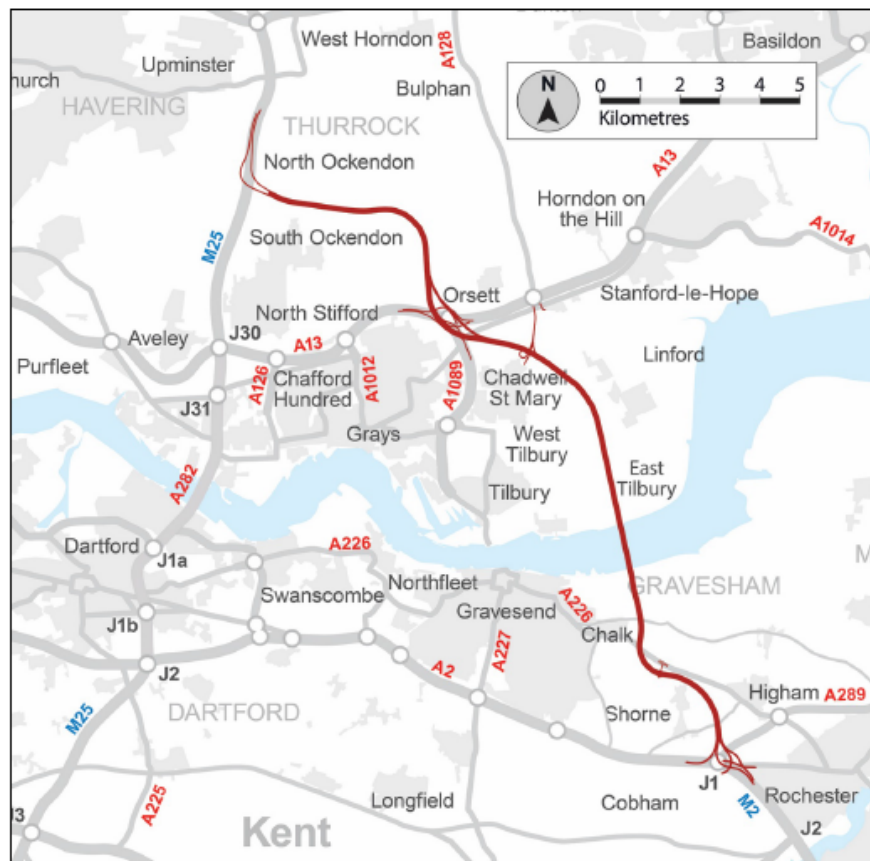
- To minimise adverse impacts on health and the environment,

2.3 HE's proposed scheme has been recommended on the grounds that it:

- Provides the best economic benefits of all the shortlisted routes evaluated and reduces traffic at Dartford and therefore reduces congestion.
- Can be largely constructed off-line avoiding the disruption caused by on-line works at Location A.
- Provides network resilience through a second independent crossing of the Thames.
- Provides a motorway-to-motorway experience for drivers.
- Reduces air and noise pollution along the existing A282 corridor at Dartford, whilst recognising that there are environmental and community impacts in the vicinity of the new scheme, including noise and air quality on communities alongside the proposed route.
- Will provide a new strategic link to the local, regional and strategic road network, increasing resilience and addressing future increases in traffic demand.

2.4 HE's proposed scheme is shown in Figure 2. The estimated the cost of construction is £4.3bn - £5.9bn.

Figure 2 - Highways England's Proposed Scheme – Route 3 with ESL



2.5 HE's analysis rejects additional capacity at the Dartford Crossing (Location A) as not meeting the transport and economic objectives for a new crossing. According to HE analysis, traffic would still have to be funnelled through the existing Dartford corridor junctions, so severe constraints on the network would remain, resulting in congestion. In addition, construction is anticipated to cause

considerable disruption to the existing crossing for an estimated period of at least 6 years involving reduced speed limits and extensive traffic management. Finally, it was concluded that this location offered far less value for money compared to the three route options at Location C. However, the DfT are clear that Location A is still an option that they will consider in making their decision.

- 2.6 The two proposed route options in Kent will have varying impacts on the surrounding area. These, and more information on the current proposals, are explained in Appendix B.

3. Proposed KCC Response to the Highways England Consultation

- 3.1 Appendix C sets out the proposed detailed response to the Consultation Questionnaire. The key principles of this draft response are set out below. The response has been formulated taking into account the views of the Growth Economic Development and Communities Cabinet Committee (3rd March), Environment and Transport Cabinet Committee (11th March), local Members and officers. Comments from Cabinet will also feed into the final response which will be submitted by the close of the consultation on 24th March.

- 3.2 KCC agrees with the proposal for a new Crossing at Location C, but calls for HE to urgently reconsider the inclusion of C Variant (enhancements to the A229 link between the M2 and M20) and to improve the link via the A249 (M2 Junction 5 at Stockbury to M20 Junction 7 at Detling Hill). A phased programme of wider network improvements are needed along the M2/A2 corridor including dualling of the A2 from Lydden to Dover and improvements to M2 Junction 7 (Brenley Corner). KCC's support is also contingent on the selection of the Western Southern Link as well as suitable compensation, environmental mitigation, increased tunnelling, removal of the junction with the A226, and optimisation of the junction with the A2. The reasons for agreeing with Location C are:

- **Economic benefits** – fundamentally the economic benefits of a new Crossing at Location C are significant and this location has the greatest potential for regeneration and job creation. Further, these benefits are of a substantially greater scale than expansion of capacity at Dartford can provide (see Table 1). The 2010 KPMG study calculated that Location C could contribute £12.7 billion to the local economy. Many of the benefits will be felt in North Kent. To enhance the geographic scope of these wider economic benefits, road network improvements to support the LTC should be implemented as part of the scheme, such as enhancements to the M2/A2 corridor and the links between the M2 and M20.
- **Network resilience** – the provision of an independent crossing built to modern standards and suitable for all users will not only radically improve the resilience of crossing the Lower Thames but also the resilience of the strategic road network (SRN) between Kent, the Midlands/North and mainland Europe.
- **Strategic transport benefits** – the HE consultation documents and other studies have shown that during incidents at Dartford, traffic diverts to other crossings (notably the Blackwall Tunnel) or the long way around the M25. Therefore by providing a suitable alternative crossing point, with the dual benefit of releasing capacity at Dartford, capacity will be released elsewhere

on the SRN. The provision of a faster, more reliable route to the Midlands and North from the Kent ports will be particularly attractive to long-distance freight traffic and will have the benefit of diverting many of these journeys away from Dartford.

- **Bifurcation** – the new Crossing will enable Kent's policy objective of bifurcation to be implemented, splitting traffic to and from the Eastern and Western Docks in Dover between the M2/A2 and M20/A20 corridors. With the addition of the improvements to the M2/A2 this will create a high quality strategic corridor that will cater for the likely significant growth of the Port and thereby release capacity on the M20. By varying tolls linked to the Dartford Crossing, traffic can be encouraged to choose a particular route. A bifurcated route to the Channel Ports will also help to relieve the pressure on the M20, especially during times of disruption to Channel crossings and during the implementation of Operation Stack.

Table 1: KCC commissioned studies by KPMG and URS – job creation

	Location A	Location C
KPMG (jobs)	1000	6000
URS (jobs)		
Local jobs	7,600	9,100
Local + hinterland (all of Kent and Essex counties)	23,000	32,300

- 3.3 Essex County Council (ECC) is supporting KCC's route choice south of the river and, given that ECC is best placed to assess the impacts of the three route options north of the river, it is proposed that KCC take into account the views and analysis of ECC, which recommends Route 3. Route 3 is also HE's preferred route.
- 3.4 KCC strongly supports the **Western Southern Link (WSL)**. This is not HE's proposed route. The reasons for this route choice are:
- **KCC's proposals** – in 2014 KCC commissioned work to design an alternative alignment because the DfT's indicative route in the 2013 consultation went centrally through Shorne Woods Country Park. It is KCC's alignment that is referred to as the WSL in the 2016 consultation and therefore historically we have supported it.
 - **Junction with the A2/M2** – the Eastern Southern Link (ESL) would terminate with the M2 at Junction 1. This is already a complex junction and using this will require a fourth level of slip roads on viaducts up to 23m high. The increase in complexity will also have possible safety implications and could lead to the whole junction locking up if there is an incident on one part of it. Conversely the WSL would create a new junction on the A2. Although this would require realignment of the A2, this could be completed with minimal disruption to the running of the A2.
 - **Environmental impacts** – the WSL would mostly be located outside of the Kent Downs Area of Outstanding Natural Beauty (AONB) whereas the ESL has a greater footprint within it, as well as impacting on the Great Crabbles Wood Site of Special Scientific Interest (SSSI) Both would have impacts on the area's heritage but the ESL would divide Shorne Parish and be in closer

proximity to a number of listed buildings. The current design of the WSL would require the demolition of 4 residential properties and 3 commercial, whereas the ESL would demolish 10 residential and 2 commercial properties. The WSL also provides a possible opportunity for the road embankment to enhance flood defences for Gravesend.

- **Traffic flows** – the choice of WSL or ESL does not have a significant impact on the total volume of traffic using the Crossing but it does influence the distribution of traffic on the existing road network. The ESL tends to attract more HGV traffic but with the WSL more light vehicles would divert from Dartford. The ESL provides more relief to the A2 west of M2 Junction 1 and to the M20 at Maidstone, but puts significantly greater pressure on the M2 west of Junction 1 compared to the WSL.

- 3.5 KCC believes that an optimised design can be achieved for the LTC/A2 junction that improves the turning radii on the slip roads. KCC will ask HE to investigate this and ensure the access arrangements for the Gravesend East and Brewers Road are suitable.
- 3.6 KCC will argue that it is essential that property owners, who have already been blighted by the two proposed routes, are fully compensated for the loss of property value and inability to now sell if they need or want to move. This consultation has caused considerable distress in the local community and a swift decision on the preferred route option must be taken by Government following the consultation so as to minimise the uncertainty around the two potential routes through the community.
- 3.7 If Location C is chosen, irrespective of whether the WSL or ESL is built, there will be an improvement in air quality at Dartford on opening year owing to the forecast 14% decrease in traffic at the existing Crossing. The HE modelling has shown that no sensitive receptors (residential properties) will be at risk of exceeding air quality limits on any of the Location C routes. However, full modelling will be carried out at the next stage of project development. KCC is liaising with Gravesham Borough Council (GBC) on the air quality implications. For noise impacts the modelling has shown a net benefit as properties close to roads where traffic flow will decrease will have a reduction in noise levels but those in the vicinity of the new road or roads where traffic volumes will increase will have likewise experience an increase in noise levels. KCC has liaised with GBC on this issue and is asking HE to commit to working with KCC Public Health, GBC, Medway and other relevant organisations to ensure they have appropriate mitigation measures for air quality, noise and visual impacts.
- 3.8 KCC strongly supports the choice of a bored tunnel because this would minimise the impacts on residents and the environment in North Kent. It will also eradicate the risk of a closure due to high winds, which already affects the Dartford Crossing. A bored tunnel will provide the most resilient river crossing. Of the three crossing alternatives (bored tunnel, bridge or immersed tunnel), the bored tunnel provides the least damaging environmental impacts, KCC therefore agrees with the HE contention that it is the only viable option. KCC insists that HE must use up-to-date traffic modelling to ensure that the design capacity of the tunnel and the connecting roads is future-proofed.

3.9 Longer distance traffic using the new Crossing should remain on the Strategic Road Network (motorways and trunk roads) and not leak onto the Local Road Network which would cause traffic problems for KCC's roads. KCC does not support the proposals for a new junction with the A226. The reasons for this are:

- The new junction will improve accessibility to Gravesend, the Medway Towns and via the rural roads from the Hoo Peninsula. It is likely that traffic on the A226 (including through Higham) will increase as well as that on the local road network leading into the A226. The HE modelling shows an increase in the order of 8,000 vehicles per day on average using the A226 on opening year but it does not state which proportion will be from the west or east of the junction. Modelling demonstrating the effects on the local road network has not been made available.
- Likewise, in the event of an incident at the junction with the A2/M2, the alternative junction with the A226 will become the alternative route. This would lead to a build-up of traffic on local roads, as happens at Dartford at present.
- With the WSL, to accommodate the LTC/A226 junction, the A226 will need significant realignment and this will limit the extent of the LTC that can be in tunnel. Extending the length of the Crossing in tunnel will reduce the impact on Chalk as without this junction, the tunnel portal entrance could be a lot further south. KCC urges that as much of the route as possible should be in tunnel, especially to at least as far south of the river as the A226 and in the section that passes close to Riverview Park and Thong village.

3.10 KCC urges the HE and DfT to address the C Variant (upgrades to the A229 Bluebell Hill, including the possibility of free-flow slips at the M2 and M20 junctions). Although KCC welcomes the commitment to consider the A229 in regional route planning, the A229 is the most direct link between the M20 and M2 and already suffers from significant congestion and stress at peak times. The link between the two motorway corridors needs to be considered as part of the Lower Thames Crossing project. The reasons for this are:

- KCC has to date not been able to assess any traffic modelling that demonstrates why the C Variant has been ruled out. However, the information available shows that the A229 will have an increase in traffic. It can be inferred that a high proportion of the decrease in traffic volumes on the M20 west of the A228 would have diverted to the M2, with the A229 being the most attractive route. This is in the order of 5,000 vehicles a day.
- Not addressing the junctions at either end of the A229 but nevertheless encouraging increase traffic will have possible safety implications, with the slip roads blocking back on the A229. Information on how the junctions have been modelled is not available in the consultation documents and therefore it is unknown if this is fully taken account of.

3.11 KCC recommends a number of wider network improvements and believes these must be delivered in conjunction with the Crossing to fully realise its benefits. It is vital to the UK economy that the Channel Corridor operates efficiently and is resilient to incidents on the network. By splitting Port traffic between the M2/A2 and M20/A20 corridors (bifurcation) a second strategic

route is available. To make this a high quality route the following upgrades are required:

- M2 Junction 7 (Brenley Corner) improvements to increase capacity and provide free-flow between the M2 and A2.
- Dualling sections of single carriageway on the A2 north of Dover along Jubilee Way to Whitfield and near Lydden.
- M20 Junction 7 improvements to provide ease of access between the A249 and M20.
- M2 Junction 5 Stockbury improvements to provide free-flow between the M2 and A249, which will improve another strategic link between the M2 and M20.

3.12 These upgrades have been costed at a high level by KCC and could be delivered for a modest sum in comparison to the total cost of the proposed Crossing.

3.13 This consultation, whilst it is focused on route options, also needs to consider the impact on existing junctions on the local road network. Where improvements are required as a result of the changing traffic flows created by the new Crossing then such improvements should be funded as part of the scheme to avoid future problems for the Highway Authority.

3.14 KCC believes that the anticipated opening year of 2025 is unacceptably far away when congestion at the Dartford Crossing is a problem today. KCC disagrees with the contention that using private sector funding would lead to a 2 year delay in opening the Crossing, and has conducted research that demonstrates that private infrastructure investors across the world are ready to be involved in such a project today.

3.15 Other technical details are set out in the response, including the impacts on minerals, surface water, compensation for community assets (including Shorne Country Park), biodiversity, the historic environment, emergency planning, and the construction programme.

3.16 Finally, the Consultation Questionnaire asks for comments on the consultation itself. It is proposed to state:

- The consultation was launched unexpectedly without prior stakeholder notification. Hard copies of the Scheme Assessment Report were received a week after launch and hard copies of the appendices (including detailed maps) a week after that.
- Information has been sporadically released on the consultation website throughout the first few weeks of the consultation, including relating to property blight which will be particularly pertinent and sensitive to the communities on the proposed routes.
- A range of technical information that is necessary in assessing the impacts of the proposed scheme and relative merits of the different routes is not available, and has not been forthcoming following multiple requests to HE. This has also been the experience of other stakeholders, including Medway Council who have also tried to get the same information.

- It is evident that members of the public are confused by the route options and the confirmation by Transport Minister Andrew Jones that Location A (Dartford) is still under consideration as this contradicts the position that is set out in the HE consultation documents.

4. Financial Implications

- 4.1 It is unknown if there are any financial implications at this time. This is considered to be dependent on the final route chosen by the DfT.

5. Legal implications

- 5.1 In terms of KCC's consultation response, no known legal implications.

6. Equalities implications

- 6.1 In terms of KCC's consultation response, no known equalities implications.

7. Other corporate implications

- 7.1 In terms of KCC's consultation response, no known corporate implications.

8. Governance

- 8.1 The delivery of a new Lower Thames Crossing is being led by Highways England and KCC is part of a Stakeholder Advisory Panel.

9. Conclusions

- 9.1 Highways England's route consultation will close on 24th March 2016, after which they will make a recommendation to the Secretary of State on the preferred option. A final decision by the Secretary of State is expected before summer recess. At present, the expected timescales for delivery are for construction of the new crossing to commence in 2020/21 during the next Road Investment Strategy (RIS), with an anticipated operational date of 2025.

10. Recommendation

- 10.1 The Cabinet is asked to consider and endorse, subject to any recommended changes, Kent County Council's response to the Highways England consultation on the proposed route for a new Lower Thames Crossing as set out in Section 3 and Appendix C of this report.

11. Background Documents

Appendix A – KCC's Full Response to the Department for Transport's 2013 Lower Thames Crossing Consultation.

Appendix B – Background to the Lower Thames Crossing consultation and further details on the 2016 route options.

Appendix C – KCC's detailed proposed response to the consultation.

Appendix D – Extract from Highways England Maps of Western Southern Link and Eastern Southern Link.

12. Contact details

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Appendix A

Options for a new Lower Thames crossing KCC draft response to the Department for Transport's (DfT) 2013 consultation questionnaire

1. Do you agree that there is a strong case to increase road-based river crossing capacity in the Lower Thames area?

Agree.

Kent County Council (KCC) categorically agrees that it is clear from existing traffic volumes and levels of congestion on the Dartford -Thurrock Crossing that more road based capacity is needed across the Lower Thames now.

Traffic volumes are such that the design capacity of the crossing is regularly exceeded and the regular average delay per vehicle (almost 50% of vehicles in excess of 9 minutes) clearly points to the fact that the existing crossing is a current and real constraint to growth. The Council believes the DfT's estimated cost to the economy of this congestion of £15m is significantly underestimated (the DfT have previously quoted £40m) and that in reality, this figure should be substantially higher.

DfT's 2011 forecasts of traffic growth of 41% by 2035¹ on top of the existing congestion levels are sufficient to establish that the introduction of free-flow tolling will not create anything other than very short term relief. The fundamental issues of the crossing being over capacity and providing extremely low levels of network resilience will remain.

In addition to this the Thames Gateway is Europe's biggest regeneration area with 160,000 houses and 225,000 jobs planned by 2026. There are a number of substantial developments coming forward within this area including London Gateway opening in the 4th quarter of 2013 which will be the UK's biggest deep water port and Europe's largest logistics park generating 12,000 jobs and proposals for Paramount Park Resort generating 27,000 jobs with an anticipated opening in 2018.

Current congestion on the existing crossing along with forecast traffic growth and the significant scale of potential development makes additional crossing capacity top priority to ensure growth is not constrained across the Thames Gateway and the area delivers its full potential for the local and national economies.

While KCC agrees that more crossing capacity is required in the Lower Thames area and that in the first instance this needs to be roads based, the Council also urges DfT to maximise the opportunities for modal shift through scheme design.

¹ DfT Road Traffic Forecasts 2011

2. Which of the following location options for a new crossing do you prefer?

Option C variant: connecting the M2 with the A13 and the M25 between junctions 29 and 30, and additionally widening the A229 between the M2 and the M20.

Other

If other, please provide details.

KCC supports Option C variant on the condition that the connection to the M2 is moved westwards thus connecting into the A2. By realigning this connection westwards, significant adverse environmental impact on the Kent Downs Area of Outstanding Natural Beauty, a Site of Special Scientific Interest (SSSI), ancient woodlands and KCC's flagship country park can be minimised. This western alignment would connect in to the A2 between the East of Gravesend and Cobham junctions. KCC acknowledges it is likely there will be some impact for local access options where insufficient merge/weave lengths on the A2 may require the closure of a slip road. The Council's view is that overall, given the potential extent of the environmental impact of the DfT proposed connection, this realigned connection would be preferable and is a feasible and deliverable alternative.

In addition, to reduce the impact of this route on the residents on the eastern edge of Gravesend and on a SSSI to the north east of Chalk, KCC would want to see the tunnelling start south of Lower Higham Road (approx. chainage 2500 rather than chainage 4000).

Option C variant provides a clear opportunity for the DfT to not only radically improve the capacity and resilience of crossing the Lower Thames, but to also provide urgently needed resilience in the strategic network across Kent and between Kent's ports and the Midlands and the North. KCC has bifurcation, the splitting of traffic to and from the eastern and western dock facilities in Dover, between the M20/A20 and M2/A2 corridors, as a key objective of its transport policy. In addition to a new Lower Thames Crossing, bifurcation involves a number of improvements on the A2 to deliver a high quality strategic corridor that will cater for the significant growth planned at Dover with its plans for a new terminal, and Calais which is set to double in size by 2016, as well as general traffic and freight growth. DfT forecasts are for HGV volumes to growth by 43% and LGVs by 88% by 2035¹. In addition Government forecasts growth in Roll on Roll off (RoRo) traffic will grow by 101% by 2030². This would equate to 3.8 million HGVs using Dover with around 1.3 million of these using a Lower Thames crossing.

These improvements to achieve bifurcation of traffic between the M20/A20 and M2/A2 corridors to and from Dover include:

- A2 Lydden dualling and dualling of a number of single carriageway sections on approach to Dover

² National Ports Statement

- M2 J7 Brenley Corner improvement to increase capacity and provide free flow between the M2 and A2
- M2 J5 Stockbury to provide free flow between the M2 and A249 to enable the A249 link between the M2 and M20 to provide relief to the A229 link and additional network resilience
- Improvements to A249 including widening and straightening of A249 Detling Hill and 2 underpasses to remove local access
- M20 J7 improvements to provide ease of access between A249 and M20.

KCC has carried out preliminary work to assess the feasibility of the above works and concludes that these schemes are feasible and deliverable. A preliminary cost estimate for the above works is £280 million.

KCC advocates in the strongest terms and presses Government to deliver as a matter of urgency:

1. Option C variant with the connection to the M2 J1 realigned to the west between East of Gravesend and Cobham junctions
2. An increased length of tunnelling from chainage 4000 to chainage 2500
3. The bifurcation improvement works and A249 resilience works outlined above and costed at £280 million.

KCC firmly believes the above offers the best option to support local and national economic growth.

Conversely, Options A and B lack strategic vision, are a missed opportunity to deliver real economic growth, and the lack of network resilience and reliability afforded by each of these corridors would lead to continued misery for motorists and costs to business. Also a significant omission and fundamental flaw in DfT's cost estimates is the exclusion of the cost of M25 J30/J31 at £750 million and J2 improvements (not costed). This would significantly reduce the BCR and hence value for money of either Option A or B.

3. Please indicate how important the following factors were in influencing your preference for the location of a new crossing, in answer to Q2.

	Not Important	Important	Very Important
Forecast contributions to the national economy			x
Forecast reductions in congestion at the existing Dartford-Thurrock Crossing and forecast improvements to the resilience of the surrounding road network			x
Forecast reductions in greenhouse gas emissions			x
Smaller forecast adverse impacts on environmentally sensitive areas and larger forecast improvements in quality of life relative			x

to other location options			
Smaller forecast adverse impacts on planned development relative to other location options			x
The distribution of forecast impacts on people within a range of different income groups		x	
Lower estimated costs relative to other location options	x		
Forecast value for money		x	
Other			

The key objectives for KCC in securing additional crossing capacity of the River Thames are:

- The ability to maximise the opportunity to provide real economic benefits both locally and nationally, and;
- To provide urgently needed network resilience and reliability, and improved strategic connectivity

while achieving both these elements with the least adverse impact on people and the environment.

Economic benefit, network resilience and strategic connectivity

In terms of the economic growth and regeneration aspects, a number of studies have been carried out over the years. The table below sets out the results of 3 of those studies.

Regeneration	Option A	Option B	Option C	Option C variant
DfT study (jobs)	500	2100	3000	3200
KPMG study ³ (jobs)	1000	-	6000	-
URS study ⁴ (jobs)				
Local jobs	7,600	10,600	9,100	-
Local + hinterland	23,000	35,807	32,300	-

Economic Growth	Option A	Option B	Option C	Option C variant
Total business benefits	£950m	£1,800m	£3,400m	£4,400m

For regeneration potential and the creation of jobs, the DfT work as part of the current consultation shows that Option C and C variant will provide the greatest job numbers. The KPMG study commissioned by KCC in 2010 similarly shows that Option C would contribute £12.7 billion to local GVA, through a six-fold increase in jobs over Option A. The most recent study by consultancy firm URS, jointly

³ Lower Thames Crossing, KPMG for Kent County Council (August 2010)

⁴ Third Thames Crossing Regeneration Impact Assessment (December 2012)

commissioned with Essex County Council and Thurrock Council, shows that Option B has slightly greater job potential than Option C and significantly greater than Option A. These URS figures include the Paramount Park Resort development and therefore assume that this development would be compatible with Option B. The DfT Option B corridor, however, clearly impacts on the potential to deliver the Paramount Park Resort as well as the already consented Ebbsfleet development for 3,300 dwellings and commercial quarter. An earlier iteration of the URS work without Paramount Park Resort concluded that Option C performed better than Option B for the number of jobs created.

While all 3 studies have used different methodologies in assessing regeneration impacts, they are relatively consistent in concluding that Option C (this is the case for the URS work without Paramount Park Resort) will provide the strongest regeneration benefits.

For total business benefits again Option C and C variant provide substantially higher returns than either Options A or B.

Regarding the network resilience aspect key to the objectives KCC would want from any new crossing it is clear that Option A, while relieving the immediate crossing will not do anything to the approaches to the crossing. Congestion and incidents on these approaches will to a large extent negate the benefits from the additional crossing capacity in this location. Peak traffic volumes of up to 180,000 vehicles per day will still gridlock J30/31 and J2 and the approach roads and will lead to queuing traffic for 18 hours a day. This will simply reduce UK productivity and competitiveness and result in a missed opportunity to boost British business and the national economy.

The DfT's own modelling work concludes that Option B is attractive for local trips and therefore will operate to add traffic to the already congested local road network while providing none of the network resilience or strategic connectivity so vital to productivity and economic growth.

Environmental and local impacts

For environmental factors covering biodiversity, landscape and townscape, the pattern is greater impact the further east the route on the Kent side of the Thames. Option B has number of significant heritage constraints in Kent and the key issues for Option C in Kent are in relation to environmental designations to protect wildlife and habitats. For greenhouse gas emissions Option C variant and C are strongest as they produce the greatest reductions due to the reduced journey distances for long distance traffic.

Option C variant is forecast to provide the most benefit in relation to local impacts on air quality due to the shortened journey distances for long distance trips combined with free flow traffic conditions over a greater area of the road network. Option B performs worst in relation to air quality. Option A is forecast to have least impact in terms of noise with this impact increasing as the corridor options move east.

For congestion Options C and C variant produce the greatest congestion reduction in Dartford and Thurrock and also the most network resilience through the creation of a new strategic route as an alternative to the existing crossing corridor. The table below summarises this.

Key to Table	
□□	Very positive impact
□	Positive impact
-	No discernible impact
x	Negative impact
xx	Very negative impact

	Option A	Option B	Option C	Option C variant
Biodiversity	Slight to large adverse xx	Moderate to large adverse xx	Very large adverse xx	Very large adverse xx
Landscape and townscape	Neutral to slight adverse x	Moderate adverse xx	Moderate to large adverse xx	Moderate to large adverse xx
Greenhouse gases	£31m □	-£60m x	£278m □□	£381m □□
Air quality	£0m	-£2m	£8m	£10m
Noise	-£9m	-£70m	-£72m	-£79m
Congestion: - In Dartford - In Thurrock	-16% 1%	-17% 1%	-19% -3%	-20% -3%

It is KCC's view that the only option that will provide a real opportunity to boost economic growth, assist regeneration and provide the strategic connectivity business needs to boost productivity and competitiveness while 7 minimising adverse impacts, is Option C variant with the additional improvements specified in Q2 above.

4. Is your preference for the location of a new crossing, in answer to Q2, conditional on whether a bridge, bored tunnel or immersed tunnel is provided?

Yes

Either bored or immersed tunnel

KCC would want to see either a bored or immersed tunnel structure for Option C as this presents good value for money for this route which would, with an additional 1.5km of tunnel from chainage 4000 to chainage 2500, minimise impact to residents and the environment in North Kent. A tunnel option will also eradicate the issue of

disruption and congestion caused by restrictions or closure of a bridge due to high winds.

5. Do you wish to add any further comments?

KCC has held extensive discussions with North American private sector investors who regularly finance large scale tolled roads projects and are keen to be involved in the delivery a new Lower Thames crossing. They firmly hold the view that this scheme could be delivered at no cost to the public purse and are hungry for such opportunities.

KCC also urges DfT to significantly accelerate their programme of delivery to a 2018 start on site and an opening year of 2020 rather than the DfT stated starting date of not later than 2021 with an opening year of 2025. With a clear lead from Government, KCC believes a 2018 start date would be feasible and more importantly, is essential, given the clear and immediate need for additional crossing capacity.

KCC firmly believes the option set out under Q2 presents a real and deliverable opportunity for Government to show the kind of leadership and vision that the Victorians demonstrated in building the great transport systems of over a century ago which are still critical to business and society today. Choosing the least cost option would obviously be the easy option, but it would also be a real missed opportunity that the UK economy simply cannot afford. DfT needs to make a bold decision that will be the right choice for not only Kent, but also the Treasury through the long term returns to the national economy.

The vision KCC's preferred option will deliver is not only a resilient and futureproofed strategic network, but a massive and much needed boost to the local Thameside economy and more importantly, to UK plc.

Appendix B – Background to the Lower Thames Crossing consultation and further details on the 2016 route options.

1 Background

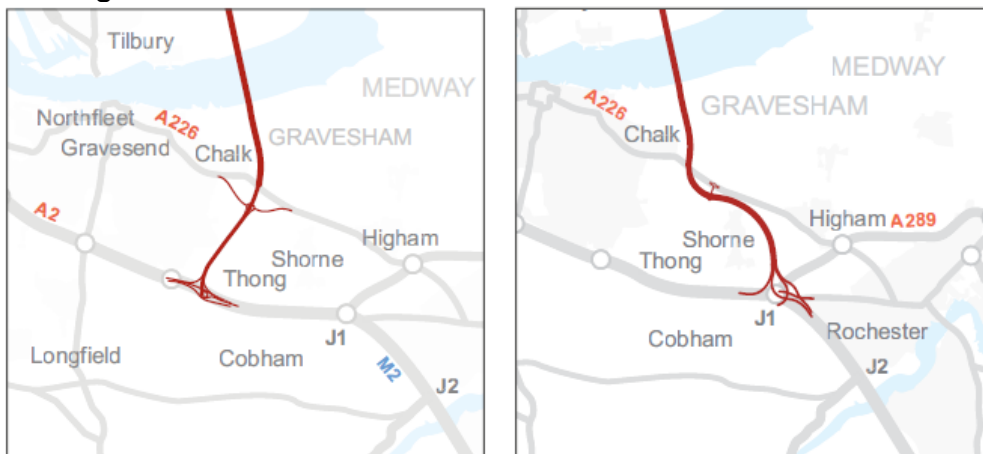
- 1.1 On the 21st May 2013, the Department for Transport (DfT) launched their first consultation on the need and options for a third Lower Thames Crossing. This consultation focused on three corridor options: Option A (at the existing Dartford Crossing), Option B (crossing the Swanscombe Peninsula) and Option C (a route to the East of Gravesend). There was also an Option C Variant providing additional improvements to the A229 Bluebell Hill, the link between the M2 and the M20.
- 1.2 In response to the DfT's 2013 consultation, KCC expressed strong support for locating the new crossing at Option C, given the economic growth and job creation potential along with its positive impact on network resilience and the creation of a new strategic route from Dover to the Midlands and the North. This was supported on the condition that the connection of the proposed new Crossing to the M2 was moved westwards, thus connecting into the A2 and avoiding significant adverse environmental impact on the Kent Downs Area of Outstanding Natural Beauty (AONB), a Site of Special Scientific Interest (SSSI), ancient woodland and KCC's flagship country park (Shorne Woods). KCC's proposed western alignment would connect to the A2 between the East of Gravesend and Cobham junctions. Tunnelling was also supported as it was considered that this method would help to reduce the impact on the internationally protected Marshes. KCC also supported the Option C Variant in response to the 2013 consultation, recognising the importance of connectivity between the two motorway corridors.
- 1.3 As a result of the 2013 consultation, Option B (Swanscombe) was discounted by the DfT due to it posing significant risk of jeopardising major redevelopment of the Swanscombe Peninsula combined with a lack of public support. The DfT then instructed Highways England (HE) to further investigate Option A, C and C Variant.

2 Current consultation – January 26th to March 24th 2016

- 2.1 Following the 2013 consultation, HE appraisal ruled out the C Variant because, according to HE assessment, it was shown to have insufficient impact in transferring traffic from the existing Dartford Crossing to the new Lower Thames Crossing, would have a high capital cost, and a high environmental impact on the AONB. However, it does anticipate giving further consideration to this link separately as part of HE's ongoing regional route planning.
- 2.2 A shortlist of four routes was then produced, one at Location A and three at Location C that take different routes through Thurrock and Essex. The Location C routes each have two options south of the river in Kent; the Eastern Southern Link (running to the east of Shorne village) and the Western Southern Link (to the west of the village of Thong).

- 2.3 The current public consultation was launched by HE on 26th January 2016, proposing a preferred route within the Option C corridor¹. The proposed scheme is Route 3, a dual carriageway connecting Junction 1 of the M2 to the M25 between Junctions 29 and 30, using a twin bored tunnel. The Eastern Southern Link has been identified by HE as the option best meeting the scheme objectives. However, KCC has to date favoured the connection being to the west into the A2 to minimise environmental impacts. Both options include a new junction with the A226, which will affect traffic flows on the local road network in Gravesend and from the Medway towns. The reasons for the HE's route recommendation are that it:
- Provides the best economic benefits of all the shortlist routes evaluated and reduces traffic at Dartford and therefore reduces congestion.
 - Can be largely constructed off-line avoiding the disruption caused by on-line works at Location A.
 - Provides network resilience through a second independent crossing of the Thames.
 - Provides a motorway-to-motorway experience for drivers.
 - Reduces air and noise pollution along the existing A282 corridor at Dartford, whilst recognising that there are environmental and community impacts in the vicinity of the new scheme, including noise and air quality on communities alongside the proposed route.
 - Will provide a new strategic link to the local, regional and strategic road network, increasing resilience and addressing future increases in traffic demand.
- 2.4 HE's analysis rejects Route 1 (additional capacity at the existing Dartford Crossing) as not meeting the transport and economic objectives for a new crossing. However, this is still an option that the DfT will consider in choosing their preferred route.
- 2.5 The two possible route alignments in Kent will have different impacts. These are explained in more detail below, and outline plans of the routes are shown in Figure 1.
- 2.8 **Western Southern Link (alignment proposed by KCC in 2014)**
To the north of the A2, the route would be on an embankment before moving to a cutting and passing under Thong Lane between Gravesend and Thong and then crossing the golf course towards the A226. The tunnel portal would be between the A226 and Lower Higham Road. At the A226 to the east of Chalk would be an all movements grade separated junction. To achieve the required slip road length, the A226 would have to be realigned approximately 1km from the tunnel portal.
- 2.9 The junction with the A2 would be all movements free-flowing but owing to limited space, it would require the realignment of the A2 to the north over a length of approximately 2.5km. Owing to tight curvatures, speeds on the slip roads would be limited, some to 30mph. There would also be some changes

¹ Consultation available at: <https://highwaysengland.citizenspace.com/cip/lower-thames-crossing-consultation>



Appendix C: Lower Thames Crossing Route Consultation 2016

KCC's proposed detailed response to the consultation

1 **Q: On balance, do you agree or disagree with our proposal for the location of a crossing, at Location C?**

KCC **agrees** with the proposal for a new Crossing at Location C but strongly encourages Highways England (HE) to urgently reconsider the inclusion of C Variant (enhancements to the A229 link between the M2 and M20) and to improve the link via the A249 (M2 Junction 5 at Stockbury to M20 Junction 7 at Detling Hill). A phased programme of wider network improvements are needed along the M2/A2 corridor including dualling of the A2 from Lydden to Dover and improvements to M2 Junction 7 (Brenley Corner). KCC's support is also contingent on the selection of the Western Southern Link as well as suitable compensation, environmental mitigation, increased tunnelling, removal of the junction with the A226, and optimisation of the junction with the A2.

1.1 KCC agrees with the proposal for a new Crossing at Location C (east of Gravesend and Tilbury) compared with extra capacity at Dartford (Location A). The reasons for this are set out below.

1.2 **Economic benefits**

Fundamentally, the economic benefits of a new Crossing at Location C are significant in their own right. Further, they are substantially greater at Location C than at Location A. Work undertaken by the Department for Transport (DfT) as part of the 2013 consultation identified that Location C and the C Variant had the greatest potential for regeneration and job creation.

1.3 KCC has also previously commissioned studies to further investigate the potential economic benefits of each proposed location. In 2010, KPMG produced a high level assessment of the economic benefits of a new crossing based on an opening year of 2021. This calculated that Location C has the potential to contribute £12.7 billion to the local economy, mainly through job creation. This is six times higher than at Location A. Subsequently, in 2012 URS carried out a more detailed assessment of the regeneration impacts. The findings supported the KPMG work and found Location C would generate the highest number of jobs and housing development. These studies are summarised in Table 1.

Table 1: KPMG and URS studies job creation

	Location A	Location C
KPMG (jobs)	1000	6000
URS (jobs)		
Local jobs	7,600	9,100
Local + hinterland (all of Kent and Essex counties)	23,000	32,300

- 1.4 A new Lower Thames Crossing (LTC) at Location C would also benefit the logistics sector (both in Kent and nationally) by enabling more reliable and quicker journey times and thereby reducing operating costs. Access to potential employees and to other businesses would be improved, including to the Midlands and North (and its aspirations to become the Northern Powerhouse), which will in turn make Kent a more attractive place to do business.
- 1.5 The growth of Heavy Goods Vehicle (HGV) traffic crossing the Thames is severely constrained by the current congestion and capacity problems at Dartford. HGV activity is correlated with economic activity and the HE analysis has shown that generally the Location C routes increase HGV traffic over and above the Location A route, which is indicative of the increased potential for economic growth at Location C.
- 1.6 In addition, growth in the Dartford area (particularly that generating employment opportunities), is constrained by the congestion at Junctions 1a, 1b and on the A2. This prevents access to the Strategic Road Network (SRN) for businesses and causes the frequent severance of Dartford town centre from the rest of the Borough. Congestion at these junctions and on the A2 can result in the B255 St Clements Way and the A206 Crossways Boulevard being used as an alternative route with implications for Junction 1a and, importantly, the A2 Bean Junction and the A226 London Road/St Clements Way Junction. A new Crossing at Location A would not resolve these problems but would in fact worsen them, imposing constraint on the planned growth for the Ebbsfleet Garden City.
- 1.7 Many of the economic benefits arising from the LTC will be felt in North Kent. To enhance the geographical scope of the wider economic benefits, road network improvements to support the LTC should be implemented as part of the scheme, such as enhancements to the M2/A2 corridor and the links between the M2 and M20.
- 1.8 It is also worth noting that it is for economic reasons that KCC opposed the now ruled out Location B. The principle reason for this is the detrimental impact it would have on plans for growth and regeneration in North Kent, which have now been given further impetus with the formation of the Ebbsfleet Development Corporation and the Government's plans to create a 21st Century Garden City at Ebbsfleet and the proposal for the London Paramount Entertainment Resort. Other issues with Location B include:
- The density of the existing community to the north of the Thames at Grays/Tilbury.
 - The potential negative impact on Tilbury Docks.
 - The ability of the A1089 corridor to deal with both strategic and local traffic.
- 1.9 **Network resilience**
Although the introduction of free-flow tolling (Dart Charge) has seen some improvements in journey time and congestion at the Dartford Crossing, it has done nothing for resilience when incidents occur that affect the flow of traffic

at or around the Crossing. The provision of an independent crossing built to modern standards and suitable for all users will not only radically improve the resilience of crossing the Lower Thames but also the resilience of the strategic road network between Kent, the Midlands/North, and mainland Europe.

- 1.10 The new crossing will enable Kent's policy objective of bifurcation to be implemented, splitting traffic to and from the Eastern and Western Docks in Dover between the M20/A20 and M2/A2 corridors. With the addition of some improvements to the M2/A2, this will create a high quality strategic corridor that will cater for the significant likely growth of the Port and thereby release capacity on the M20. A bifurcated route to the Channel Ports will also help to relieve the pressure on the M20, especially during times of disruption to Channel crossings and during the implementation of Operation Stack. Bifurcation is key to the success of the LTC.
- 1.11 With the annual forecast for growth at the Port of Dover of between 2% and 4% and up to 30% over the next 5 years at Eurotunnel, there will be an increase in average daily flows of HGVs from the current 10,000 per day up to 16,000 per day over the next decade. KCC considers it vital that Government looks at strategic transport issues in Kent and the wider UK holistically and for alternative solutions, such as increasing the proportion of freight carried by rail, alongside increased road capacity.
- 1.12 Whilst Route 1 at Location A would provide extra capacity at the existing Dartford Crossing itself, it would not mitigate constraints on the road network on the approach to the Crossing. The same issues when either the tunnels or the QEII Bridge have to be closed would remain, with the resultant congestion affecting not only the strategic road network but the local road network in Dartford and south east London. The QEII closure on 8th February 2016 due to high winds resulted in 11 hours of delays, which not only demonstrates that Dartford is not a suitable location for providing extra capacity but also that any new crossing should not be a bridge if such disruptions are to be avoided. The HE consultation itself states that on average the Dartford Crossing is closed for 27 minutes 300 days a year and that this level of disruption must be avoided at the new Crossing.
- 1.13 Congestion and incidents on the approaches will to a large extent negate the benefits of additional crossing capacity. Constructing the Crossing at Route 1 would be a missed opportunity to boost British business and the national economy, and enhance transport connectivity between Kent and Essex, as well as nationally and internationally. Conversely, constructing a new crossing at Location C provides an alternative route in the event of an incident at the Dartford Crossing that can be accessed by remaining on the Strategic Road Network.
- 1.14 **Strategic transport benefits**
Aside from the clear benefits to Kent and Essex from having two crossing points on the Lower Thames, there will also be impacts felt nationwide due to

increased connectivity between the rest of the UK and Kent, which is the Gateway to mainland Europe.

- 1.15 Information released in the HE consultation documents and supported by a freight study commissioned by the South East Local Enterprise Partnership (Atkins, 2013) shows that when there is congestion at the Dartford Crossing traffic diverts to other crossings (notably the Blackwall Tunnel) or uses the long way around the M25. Therefore, by releasing capacity at Dartford and increasing resilience in the event of any incident by providing a crossing at Location C, capacity elsewhere on the wider transport network will also be released. Location C will also relieve sections of the A13 and A2 and journeys to the strategically important ports in East Anglia and Kent will be improved both in terms of journey time and reliability.
- 1.16 Further, the two possible locations for the Crossing will attract different users. If extra capacity is provided at Dartford then the same users as today will be served in greater number (i.e. suppressed demand will be released). However, by locating the Crossing at Location C, the route will attract mainly traffic travelling between Kent/the Channel Ports and the M25/East Anglia. It will also attract a higher total volume of traffic crossing the Thames than expansion at Dartford would because of the higher capacity and improved connectivity. The provision of a faster, more reliable route to the Midlands and North from the Kent ports will be particularly attractive to long-distance freight traffic and will have the benefit of diverting many of these journeys away from Dartford.
- 1.17 It is clear that a new LTC must provide a strategic network solution rather than primarily catering for shorter journeys. Location C provides this connectivity both from Kent into neighbouring Essex and, most significantly, from Europe to the concentration of distribution centres in the Midlands and the North. As a result, increased capacity at Dartford (Route 1, Location A) will not provide nearly the same scale of benefits as LTC to the east of Gravesend (Location C).

2 Q: There are three route options north of the river in Essex – Routes 2, 3 and 4. Where do you think the route should be located north of the river?

KCC believes the location of the route north of the river should be Route 3.

- 2.1 Given that Essex County Council (ECC) is best placed to assess the impacts of the three route options north of the river, KCC has taken into account their analysis and therefore supports Route 3. Route 3 provides the shortest route for the LTC and offers significant journey time savings compared to using the Dartford Crossing.

3 Q: Thinking about the three route options north of the river, on balance do you agree or disagree with our proposals for each of these?

Route 2 – **Neither agree nor disagree**

Route 3 – **Tend to agree**

Route 4 – **Neither agree nor disagree**

4 Q: There are two route options south of the river in Kent – the Western Southern Link (WSL) and the Eastern Southern Link (ESL). Where do you think the route should be located south of the river?

4.1 KCC strongly supports the **Western Southern Link (WSL)**.

4.2 LTC junction with the A2/M2

The Eastern Southern Link (ESL) would terminate with the M2 at Junction 1. This is already a complex junction and using this will require a fourth level of slip roads on viaducts with piers up to 23m in height. The number of slip roads could result in safety issues owing to its increased complexity. Further, as this would not be a dedicated junction an incident on one part of it could potentially affect the whole junction, with implications for traffic diverting on the local road network. It would not provide sufficient resilience to an incident of this nature.

4.3 Conversely, the WSL would create a new junction on the A2. Although this would require some realignment of the A2 the majority of the work can be completed offline. There will be some changes to local access arrangements due to the proximity of the adjacent Gravesend East and Brewers Road junctions. These local access arrangements and the tight radii of the current proposed slip should be reassessed by HE. KCC is confident that an improved junction can be designed within the available space that still has minimal impact on the surrounding countryside. KCC intends to commission work to optimise the junction design and will send this work to the HE/DfT once completed.

4.4 Impacts on the built and natural environment

The Crossing route should be selected to minimise negative environmental impacts as much as possible. The WSL would have less negative environmental impact compared to the ESL, which passes directly adjacent to Shorne village. Further, the current design of the WSL would require the demolition of 4 residential properties and 3 commercial, whereas the ESL would demolish 10 residential and 2 commercial properties.

4.5 The WSL would mostly be located outside of the Kent Downs AONB, with only a slip road located within it. Although the new road would be visible from parts of the AONB, the alternative ESL has a greater footprint within the AONB. Both routes would result in the loss of ancient woodland but the ESL will result in a greater loss of ancient woodland in the Great Crabbles Wood Site of Special Scientific Interest (SSSI) which is also a designated Local Wildlife Site. Both possible alignments would have an impact on listed buildings, including Chalk Church.

- 4.6 There are major strategic issues for surface water in relation to the location of the route and potential impacts relating to construction. Both routes cross the Thames Estuary Marshes but the ESL for a greater length is underlain by SPZ 3 (Groundwater Source Protection Zone) and may have restrictions as a result of crossing SPZ 1 and 2. Whereas the WSL provides an opportunity to enhance flood defences for Gravesend, the ESL would require more detailed assessment so that a final design can be formed that does not compromise flood defence plans. There is potential for the embankments required for the WSL alignment to be dual purpose and enhance local flood defences. The Thames Estuary 2100 plan (TE2100) requires a secondary defence to Gravesend and the WSL could provide this.
- 4.7 Both Kent route options will result in a direct loss of designated sites, but no information has been provided considering the impact on species (including protected/notable species) and indirect impacts the route will have on designated sites (and other habitats). Until a full assessment has been carried out, there is no clear understanding of what the impact will be and what mitigation will be required. However, there is currently some connectivity between Great Crabbles Wood and Puckle Hill/Shorne Woods where a mosaic of orchards, hedgerows and residential gardens enable species to move between the sites. However, the proposed ESL will result in a direct loss of connectivity between the woodlands and therefore an isolation of species.
- 4.8 A new road, whether the WSL or ESL, will result in a worsening of air quality. Although the initial HE air quality modelling shows that no properties along the new route are at risk of exceeding legal limits, the more detailed modelling to follow needs to consider the effect on background air quality and the cumulative effect of additional traffic in future years. The same applies to noise impacts. For both air quality, noise and visual impacts mitigation measures need serious consideration, such as noise-reducing fencing and appropriate landscaping. In developing mitigation measures, HE should commit to working with KCC, Gravesham Borough Council, Medway Council, and other relevant organisations.
- 4.9 **Traffic flows**
The choice of WSL or ESL does not have a significant impact on the total volume of traffic using the LTC, but it does affect the distribution of traffic on the local network and between the two river crossings.
- 4.10 The ESL provides greater relief to the A2 west of the LTC (M2 Junction 1) and to the M20 at Maidstone, but it puts significantly greater pressure on the M2 east of Junction 1 compared to the WSL (in the region of 10,000 additional vehicles a day on average). There is little difference on opening year between the two southern links on how much extra traffic they attract to the A226, but by 2041 the WSL increases average traffic on the A226 significantly more so than the ESL. On opening year, Average Annual Daily Traffic (AADT) on the A226 to the east of Gravesend is forecast to more than double with both the

WSL and ESL. The significance of this increase in traffic is one reason why KCC does not support the proposed junction with the A226.

4.11 Historic environment

On the basis of present evidence, there are no currently identifiable major differences in the impact on the historic environment between the WSL and ESL, and no currently designated heritage assets are directly affected by the proposed links; however, the setting of several designated heritage assets will be affected and should be assessed further. In line with the National Planning Policy Framework (NPPF), undesignated nationally important heritage assets of archaeological interest should be treated as if they were scheduled and the potential for significant archaeological remains to be present should be assessed further before a route choice is made.

- 4.12 The WSL involves less potential property demolition than the ESL, and has a lesser impact on the Built Environment than the ESL, but the local topography means the WSL will have visual intrusion onto Thong Conservation Area. The ESL crosses Pear Tree Lane, Shorne where there are two Grade II listed buildings close to the route, and then passes to the north east around Shorne village with its Conservation Area and numerous listed buildings, including the Grade II* Little St. Katherine's, a Wealden Hall House, which sits at the northern end of Shorne close to the proposed route.

- 4.13 The routes of the WSL and ESL converge at the A226 position, and it is this final section of the route up to the crossing portal that will have greatest impact on heritage assets. A realignment of this section of the route to the east of the church of St Mary Chalk (a Grade II* listed building) would mitigate the potential effect of isolating it from its parish. There is no mention of this heritage asset or mitigation directly in the consultation documentation. Immediately adjacent to the proposed tunnel mouth is Grade II listed Filborough Farmhouse complex. Although in a cutting at this point, the road will inevitably have an impact on these heritage assets both during and after construction simply because of proximity. Extending the amount of the route covered in tunnel could also offer some mitigation here.

4.14 Public Rights of Way

Both the WSL and ESL affect a number of Public Rights of Way (PROW). The WSL affects PROW NG7, NG8, NS169 and NS167, with the first three being well-used links between residential Gravesend and the open countryside to Shorne Woods Country Park, Shorne village and Higham. The WSL would also cross the cycle track to Shorne Woods Country Park, which links to the Cyclopark, and this important route would need to be retained.

- 4.15 The ESL affects PROW NG8, NS163A, NS158, NS156, NS159, NS160, NS321 and NS161, as well as cutting through Great Crabbles Wood SSSI, which has its own recreational value. The Darnley Trail would also be impacted by the slip road at Park Pale; this is an important circular recreation route for walkers, cyclists and equestrians and could be severed by the scheme. This has been heavily invested in by KCC as mitigation for wider growth, and as a minimum, the retention or improvement of the Park Pale

equestrian bridge crossing would have to be included. Further mitigation would be needed in terms of crossings for the above impacted PROW, and a new route through Great Crabbles Wood.

- 4.16 The ESL would require far greater mitigation for the impact on these community assets, as well as mitigating its greater blight on river views from the walking routes in Shorne. Putting more of the route in cutting is the only possible mitigation against this and should be a requirement if the ESL is constructed. The WSL requires less mitigation.

4.17 **Concluding remarks**

There is forecast to be relatively little difference between the WSL and the ESL in the traffic attracted to the LTC, however, each route has substantially different impacts on the environment and local community. Considering the range of potential negative impacts that the HE's preferred ESL route option has, KCC supports the Western Southern Link. On balance, the WSL would have comparatively fewer negative environmental impacts on the historic and natural environment, a reduced impact on and community assets, and is the only option creating a dedicated junction with the Strategic Road Network.

5 **Q: Thinking about the two route options south of the river, on balance do you agree or disagree with our proposal for each of these?**

Eastern Southern Link – **Strongly disagree**

Western Southern Link – **Strongly Agree**

- 5.1 KCC agrees that Location C is the right corridor in which to locate the new Crossing. The WSL is KCC's preferred route in Kent for the reasons set out above and for those reasons KCC implore the DfT to disregard HE's preference for the ESL.

6 **Q: Having evaluated the options, our proposed scheme is a new bored tunnel road crossing at Location C, following Route 3 north of the river and the Eastern Southern Link south of the river. On balance, do you agree or disagree with our proposed scheme?**

- 6.1 KCC agrees with the choice of the Location C corridor for the new Lower Thames Crossing but this support is contingent on the selection of the Western Southern Link as well as suitable compensation, environmental mitigation, increased tunnelling, removal of the junction with the A226, and optimisation of the junction with the A2. KCC strongly encourages Highways England to urgently reconsider the inclusion of C Variant (enhancements to the A229 link between the M2 and M20) and to improve the link via the A249 (M2 Junction 5 at Stockbury to M20 Junction 7 at Detling Hill). A phased programme of wider network improvements are needed along the M2/A2 corridor including dualling of the A2 from Lydden to Dover and improvements to M2 Junction 7 (Brenley Corner).

- 6.2 KCC strongly supports the choice of a bored tunnel because this would minimise the impacts on residents and the natural and historic environment in

North Kent. It will also eradicate the risk of a closure due to high winds, which already affects the Dartford Crossing. Of the three crossing alternatives (bored tunnel, bridge or immersed tunnel), the bored tunnel provides the least damaging environmental impacts and the most resilient crossing. KCC therefore agrees with the HE contention that it is the only viable option. KCC insists that HE must use up-to-date traffic modelling to ensure that the design capacity of the tunnel and the connecting roads is future-proofed.

- 6.3 However, further assessment should be undertaken before the tunnel portal location is finalised, including of the historic environment and buried archaeological resource both on land and within the River Thames.
- 6.4 Where more of the route can be covered to minimise the impact on the environment and communities in the vicinity of the route, then this should be done, including extending the tunnel as close to the A226 as possible to minimise the impact on Chalk (and for the WSL also covering the section that passes closest to urban Gravesend between Riverview Park and Thong village).
- 6.5 KCC supports the choice of Route 3 north of the river, and urges HE and DfT to work with Essex County Council in relation to environmental and traffic concerns in their area.
- 6.6 However, KCC strongly disagrees with the choice of the Eastern Southern Link and urges HE/DfT to instead support the Western Southern Link. The reasons for this support are explained in the previous two questions but include the comparatively reduced environmental impact, the reduced impact on heritage sites, the dedicated new junction with the A2, the greater distance from residential properties (whereas the ESL would divide Shorne Parish), and the potential benefit to flood defences.

7 Q: We are proposing to create junctions with existing roads including the M2/A2, A226, A13 and M25. We would like to hear your views on whether you believe additional junctions would be beneficial. We would welcome any comments you may have on our proposals for junctions.

7.1 A226

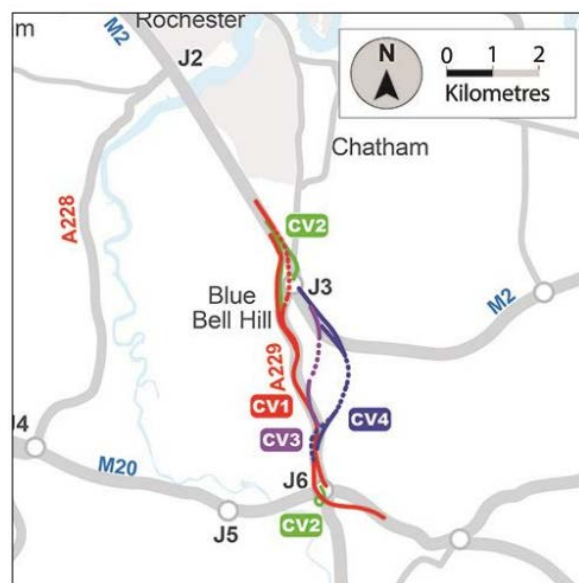
The proposed junction with the A226 would improve accessibility to Gravesend and divert traffic from the A2 to join the LTC at the A226. Under this scenario, it is likely that traffic on the local road network leading into the A226 would also increase. Whilst development in the Ebbsfleet Valley should have improved access to the A2 at Ebbsfleet, planned development along the riverside could see the A226 as a better route to/from the LTC. However, it is more likely that the A226 would be the more attractive route to the LTC from the Medway towns rather than using the A2. This would see an increase in traffic through Higham and on the local road network in the Hoo Peninsula.

- 7.2 It is KCC's view that longer distance traffic using the new Crossing should remain on the Strategic Road Network (motorways and trunk roads) and not leak onto the Local Road Network, which would cause traffic problems for

KCC's roads. Modelling has not been provided that demonstrates the impact of this junction on traffic flows through urban Gravesend, Higham and Medway, or on the individual junctions and links that would likely be stressed by redistributed traffic.

- 7.3 The enhanced connectivity with the LTC could lead to a build-up of traffic on local minor roads at times, especially through the villages and Conservation Areas as happens regularly in Dartford at present. A major intersection between the proposed routes and the A226 close to Chalk Church will only further erode the setting of this Grade II* heritage asset and intensify the isolation of the church from its Parish.
- 7.4 With the WSL, to accommodate this junction the A226 will need significant realignment and this will limit the extent of the LTC that can be in tunnel. Extending the length of the Crossing in tunnel will reduce the impact on Chalk as without this junction the tunnel portal could be a lot further south. KCC urges that as much of the route as possible should be in tunnel, especially to at least as far south of the river as the A226 and in the section that passes close to Riverview Park and Thong village.
- 7.5 Therefore, KCC does not support the proposal for a junction with the A226 and this should be removed from subsequent iterations of the design.
- 7.6 **C Variant**
The C Variant was proposed in earlier consultations as a route upgrade associated with the construction of a LTC at Location C because it is a key link between the M20 and M2. Although in this consultation it is primarily referred to as widening of the A229 Bluebell Hill, the possible route options considered (diagram below) also include changes to the junctions at either end, such as free-flow slips.

C Variant – all route options considered by HE



- 7.7 However, the C Variant has been ruled out of the proposals and it has been stated to have no influence over route choice between Dartford and the LTC. The modelling to support this contention is not provided in the consultation documents and has not been provided following requests from KCC to HE to do so. The A229 is the most direct link between the M20 and M2 and already suffers from significant congestion and stress at peak times, especially at junction points. The link between the two motorway corridors needs to be considered as part of the Lower Thames Crossing project in order to maximise the potential of the new Crossing.
- 7.8 The limited traffic modelling data provided shows that on the M20 between the A228 (Junction 4) and the M26 (Junction 3) there is a forecast decrease in vehicles of 5,000 on average per day with the WSL and 6,400 with the ESL in 2025. Traffic flow data for the A229 is not provided but it can be inferred that these vehicles have diverted from the M20 to the M2, and it is likely that they will have used the A229 as the shortest and most direct link. Given that the A229 is at present a congested and stressed part of the road network in both the morning and evening peaks this clearly demonstrates that the C Variant is required to support the LTC.
- 7.9 Another consideration is the safety implications of increasing traffic on the A229. As the gyratory system at M2 Junction 3 is currently saturated at peak times, the extra traffic will increase blocking back on to the A229 from the off-slip road. The HE safety assessment shows a worsening of the accident rate on this road, but without access to the modelling report to assess how the queuing has been modelled, it is unclear if this is fully taken into account. With this in mind, the need for free-flow slips at M2 Junction 3 and M20 Junction 6 requires further detailed consideration.
- 7.10 Whilst KCC recognises and welcomes the HE's commitment to consider the A229 in ongoing regional route planning this is a foreseeable problem that can, and should, be resolved within the current planning and design work for the LTC.
- 7.11 **Wider network improvements**
It is vital to the UK economy that the Channel Corridor operates efficiently at all times and is resilient to incidents on the network. Port traffic is currently routed along the M20/A20, which results in severance between Dover town centre and the harbour. With the construction of the new LTC, a second strategic route will be available between Dover and the Midlands and North – i.e. the potential bifurcation of the strategic route from the Southeast to the Midlands and North of the country. The project to revive the Dover Western Docks plus expansion of the existing Port would naturally split traffic so that for the Western Docks and Channel Tunnel would use the M20/A20, and traffic for the Eastern Docks would be encouraged to use the M2/A2 and LTC. Bifurcation will also facilitate growth of Whitfield, Folkestone, Ashford and Maidstone by releasing capacity on the M20.
- 7.12 The LTC cannot be looked at in isolation. KCC recommends a number of wider network improvements and believes these must be delivered in

conjunction with the Crossing to fully realise its benefits. It is vital to the UK economy that the Channel Corridor operates efficiently and is resilient to incidents on the network. By splitting Port traffic between the M2/A2 and M20/A20 corridors (bifurcation) a second strategic route is available. To make this a high quality route the following upgrades are required:

- M2 Junction 7 (Brenley Corner) improvements to increase capacity and provide free-flow between the M2 and A2.
- Dualling sections of single carriageway on the A2 north of Dover along Jubilee Way to Whitfield and near Lydden.
- M20 Junction 7 improvements to provide ease of access between the A249 and M20.
- M2 Junction 5 Stockbury improvements to provide free-flow between the M2 and A249, which will improve another strategic link between the M2 and M20.

These upgrades have been costed at a high level by KCC and could be delivered for a modest sum in comparison to the total cost of the proposed Crossing.

- 7.13 Finally, the likely impact of the proposal in terms of future traffic flows/travel patterns across the wider area need to be made. Particularly, the emerging Ebbsfleet Garden City and potential major developments, such as London Paramount Entertainment Resort, should be acknowledged. This consultation, whilst it is focussed on route options, also needs to consider the impact on existing junctions on the local road network and identify where improvements would be required. Where these are as a result of the new LTC such improvements should be funded as part of the scheme to avoid them becoming issues for the Highway Authority at a later date.

8 Q: We would welcome any other comments you may have on our proposals.

8.1 Financing the Crossing

The anticipated opening year of 2025 is unacceptably far away when serious capacity and congestion problems at Dartford are an issue today. The consultation documents state that using private sector funding would lead to a 2 year delay in opening the crossing (in 2027) but it is not clear why this is the case. KCC research has shown significant interest from the private sector in financing a new Lower Thames Crossing and that there are infrastructure investors in Europe, North America and elsewhere that are ready to be involved in such a project today.

- 8.2 KCC has, in 2016, updated the previously commissioned work looking at the appetite for private finance for a new crossing, the conditions that would be needed to secure such investment and the level of investment that would be needed. Key findings from this work which surveyed the views international banks, construction parties, fund managers and pension investors include:

- Option C is prioritised over Option A as the only option, given its overwhelming benefits to the UK, London, Essex & Kent, as evidenced in a number of reports.
- Use of tolls will allow the project to be self-funding and therefore can be delivered without the need for public funds. Toll setting is not an issue if there is a controllable trade-off between toll level and concession term length, allowing Government to control the parameters of the tolling rate.
- A Design, Build, Finance and Maintain (DBFM) model is desirable with a 35+ year concession arrangement that includes toll revenue from the existing Dartford Crossing.
- The tolling model should incorporate the existing (Dartford) and new Crossing and tolling regulations should be transparent and certain over the life of the concession.
- Government should consider holding confidential market meetings with identified funders and investors to discuss how to bring forward the project.
- The new Crossing and the Dartford Crossing should be integrated for project financing and the tolls should be aligned to provide optimal efficiency and traffic management. Not linking the two crossings will create a traffic volume risk situation that will render a private financing option for the new Crossing untenable for many investors.
- Traffic risk and Government willingness to see tolls increased are key to revenue forecasting and must form part of an acceptable model for Government and investors.

8.3 Although the details of the future charging regime are not part of this consultation, it is nevertheless stated that it is Government policy to toll estuarial crossings. Whether privately or publically operated, the tolls need to be operated in conjunction with the existing crossing so that they can be set to encourage bifurcation between the M2/A2 and M20/A20 corridors to/from the Port of Dover.

8.4 **Minerals**

There are known mineral deposits (Sub-Alluvial River Terrace Deposits and River Terrace Deposits) that are threatened with sterilisation by the potential development at Location C. Therefore, the proposed development should identify the minerals that are threatened with sterilisation and in accordance with the National Planning Policy Framework's drive for sustainable minerals use in Section 142, seek to ensure that prior extraction is fully investigated for the chosen route.

8.5 **Surface water**

The Assessment identifies major strategic issues for surface water in relation to location of the route and potential impacts in relation to construction. The Assessment, however, does not clearly state the impacts in relation to increased surface water flow from construction of the project itself, whether in relation to water quantity or quality. It would be expected that impacts relating to construction and operation will be mitigated through compliance with regulation for surface water management.

8.6 **Compensation**

It is essential that property owners, who have already been blighted by the two proposed routes, are fully compensated for the loss of property value and inability to now sell if they need or want to move. This consultation has caused considerable distress in the local community and a swift decision on the preferred route option must be taken by Government following the consultation so as to minimise the uncertainty around the two potential routes through the community.

- 8.7 Likewise, where community assets/facilities are affected then suitable compensation should be arranged to offset the impact. HE should work with local asset managers and owners, such as Shorne Woods Country Park, to identify a package of suitable mitigation measures.

8.8 **Biodiversity**

Any route chosen will have an impact and KCC expects information to be submitted that enables the assessment of that impact (from construction **and** operation) on the following:

- Direct impact on designated sites.
- Indirect impact on designated sites.
- Impact on protected/notable species – individually and the populations.

The impact should be assessed through detailed species and habitat surveys. The surveys should cover the whole survey season to ensure there is full understanding of the impacts (this may take a number of years). These surveys should also be carried out before the finalised design is completed to ensure that it can be designed to take into account the ecological impact and the mitigation hierarchy (avoid, minimise, restore, offset). The scope of these surveys should be discussed with KCC before they begin.

- 8.9 KCC expects information to be provided to demonstrate that the proposed mitigation can be implemented. Such mitigation that should be included is green bridges along the route – the green bridge on the A21 is a prime example of how successful they can be (dormouse have been recorded on it). One possible location for the creation of a green bridge might be across the realigned A2 if Thong Lane bridge needs replacement as this would provide a connection between Shorne Woods and Ashenbank Woods. Bat corridors could also be created to avoid them being hit by lorries, as these animals will be disrupted by noise and light pollution.

- 8.10 Although it is proposing to use a bored tunnel (which will avoid the direct loss of habitat within the SPA/SSSI/Ramsar), the proposed crossing still has the potential to have a negative impact on these designated sites (for example due to air quality/noise) and so there will be a requirement for a Habitat Regulations Assessment to be carried out.

8.11 **Historic environment**

The SAR Environment Assessment Volume 6 Section 5 has not adequately assessed the impact of any of the crossing options on the historic

environment. In particular currently undesignated, nationally important heritage assets should be considered together with historic landscape and geological information. The impact of the various options on the Grade II* Church of St Mary should be assessed in detail.

- 8.12 In general, there is a need for further detailed assessment of the historic environment for both ESL and WSL and for the crossing options. The assessment carried out so far is not sufficiently detailed to enable an informed choice between the various route options to be made. KCC has two principle concerns in relation to the SAR. Firstly, the HE SAR assessment of environmental issues (SAR Volume 6) is extremely brief. Insufficient data has been assessed, especially regarding the potential buried archaeological resource. The proposed Lower Thames Crossing is routed through undeveloped, green field sites. Data on the historic environment, particularly on archaeology, is gained mainly from formal investigations related to development. The majority of the proposed routes have not been subject to formal investigations and the data on the archaeological resource in particular is limited. Therefore, there is potential for significant as yet unknown archaeology to survive on either the WSL or the ESL and final decisions on preferred routes should not be made until more detailed field assessments have been undertaken. Historical and literary associations and community value of heritage assets should be included in the assessment
- 8.13 Section 6 consideration of environmental issues does not mention impact from lighting. This could be a major harm factor for a variety of receptors, including setting of designated heritage assets, especially listed buildings, and the Grade II* Cobham Park. In addition, as this scheme runs through a rural area, lighting could have a wider impact on the historic character of the landscape.
- 8.14 **Resilience/emergency planning**
A number of design and operational matters require consideration as the scheme is progressed, including:
- The Location C corridor and bored tunnel route is in close proximity to a number of gas pipelines, of both local and national significance.
 - CCTV, mobile telephone, variable speed cameras and emergency services radio coverage should ideally be uninterrupted along the entire route.
 - VMS or other appropriate public warning and information signage.
 - A multi-disciplinary risk assessment should be undertaken to inform the drafting and subsequent operation of a Lower Thames Crossing multi-agency emergency plan.
 - Achieving safe access and egress by the emergency services, and public evacuation from stretches of highway within cutting and the tunnel bores.
 - The propensity of this estuarial landscape to become intermittently shrouded by mist or fog should be addressed, including technology to slow or stop traffic.
 - Appropriate technical measures to vent smoke and/or fumes from the tunnel bores.

- Design of cross passages between tunnel bores should accommodate emergency services requirements in relation to operational activity and evacuation, including unhindered movement of equipment such as breathing apparatus and stretchers.
- Technology utilised in any required mechanical de-watering of the tunnel bores, and potentially the cutting, should be resilient and robust - with the potential for utilising any resultant potable water resource explored with local water companies (Kent being a water-stressed county), alternatively compensatory wetland habitat re-creation potential using non-potable supply could be considered.
- The precise locations for the Kent portals must be sufficiently distant from the tidal flood plain of the River Thames to sustainably accommodate worst-case sea level rise.
- All planting should utilise a diverse palette of appropriate native shrub and tree species to maximise resilience of local bio-diversity, and reduce bio-security risk and vulnerability to plant diseases (i.e. the route of Option C is within the current range of tree pathogens including Ash Dieback (*Hymenoscyphus fraxineus*) and *Phytophthora ramorum*, and is located adjacent to semi-natural ancient woodland), with natural regeneration of vegetation, with its lower bio-security risks, favoured over introduced new planting and seeding.

8.15 **Construction**

This should be programmed taking account of other major projects in the area in order to minimise disruption to the A2.

9 **Q: Do you have any feedback on this consultation – events, information provided, advertising, etc.?**

- 9.1 The consultation was launched on 26th January 2016 without prior stakeholder notification and in a considerably rushed and unexpected way. Hard copies of the Scheme Assessment Report were sent to KCC a week after launch, and hard copies of the appendices (including the detailed plans) were received a week after that. The duration of the consultation, being only 8 weeks long, is a short period of time.
- 9.2 Information that is particularly pertinent to members of the public on the proposed routes, such as that relating to property blight, only became available online two weeks after the consultation had commenced. This is unacceptable and presumably unhelpful to the consultation because members of the public would have been able to submit a response before they had the full information available.
- 9.3 Of substantial concern to KCC is that a range of technical information that would have been helpful in assessing the impacts of the proposed scheme and route options is not available; and on requesting this information from HE it has still not been forthcoming. Traffic volumes on key local links have also not been published despite these being of known importance to KCC and other stakeholders. For example, it is stated that the C Variant (upgrades to the A229) has been rejected from further investigation because it has been

shown not to affect route choice between the Dartford Crossing and the LTC but the parameters used in the modelling are not known, including how the junctions and congestion at either end have been modelled. Similarly, the forecast traffic increases on the A229 Bluebell Hill have not been made explicit; rather the traffic volume data for both the M2 and M20 has been shown as links starting at the junctions with the A228. Therefore, increases in traffic on the A229 can only be inferred from this information.

- 9.4 Finally, it has been evident from meeting with members of the public and receiving many letters on the LTC consultation that there has been a general lack of understanding about what is being consulted on. This includes confusion with the route as proposed in 2013. Further, there has been substantial press coverage on the Transport Minister Andrew Jones confirming that Option A (extra capacity at Dartford) is still an option the Government will consider in making a final route decision. However, this directly contradicts the strong position in the HE consultation materials that denounce Dartford as unviable. This has been misleading.

Appendix D – Extract from Highways England consultation maps of the Western Southern Link and Eastern Southern Link

