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**To:** Cabinet 15 July 2013

**Subject:** DfT Consultation on corridor options for a new Lower Thames Crossing

**Classification:** Unrestricted

**Past Pathway of Paper:** Cabinet Committee 19 June 2013

**Future Pathway of Paper:** N/A

**Electoral Division:** All

**Summary:** The Department for Transport (DfT) are currently consulting on three potential corridor options for a new Lower Thames Crossing. This report provides a brief evaluation of each corridor option, summarises the member engagement undertaken during the consultation period and sets out the preferred option in Kent County Council's response to the DfT's consultation.

**Recommendation(s):**

That Cabinet notes and discusses the proposed response to the DfT's consultation on a new Lower Thames crossing as set out in Section 7 of this report.

## **1. Introduction**

1.1 On 21 May 2013, the Department for Transport (DfT) launched a consultation on the need for, and options for, a third Lower Thames Crossing. The consultation closes on 16 July 2013. In arriving at the decision that a new crossing option is required and the three corridor options, the DfT has drawn on a considerable number of studies that have been undertaken over the last few years as well as seeking advice from a Stakeholder Advisory Panel. KCC has been represented at Director level on this DfT Stakeholder Advisory Panel and has fully engaged throughout the early scheme feasibility stage with the prime objective of seeking the delivery of this project at the earliest opportunity. This report summarises the corridor options and their relative merits or disbenefits, reports Member engagement through the process and advises of the option the Leader of the Council will be submitting as KCC's preferred option to DfT.

## **2. Financial Implications**

2.1 This report and any resulting decisions will have no immediate impact on the Council's capital and revenue budgets and spending plans as this project will

be promoted by Government with a public, private or mixed public/private partnership funding model. The public sector funding would come from Government as this project is recognised as a nationally significant one.

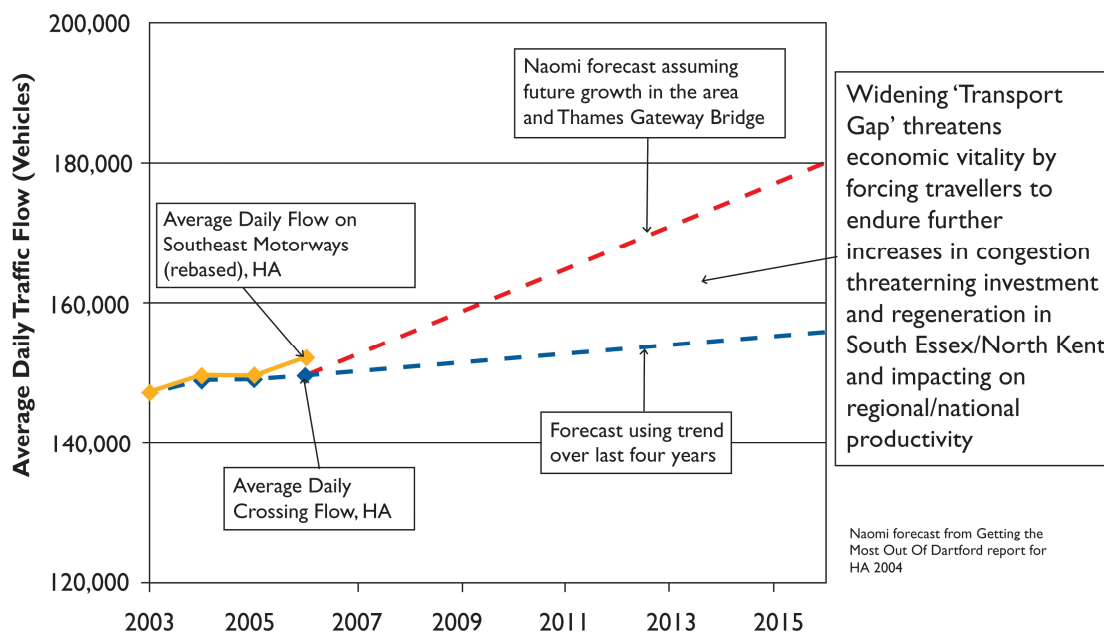
### **3. Bold Steps for Kent and Policy Framework**

- 3.1 A decision to support a particular corridor option will fully support the Council's Medium Term Plan (Bold Steps for Kent) and will directly contribute to two of the three overarching objectives: growing Kent's economy and tackling disadvantage.
- 3.2 A decision to support a particular corridor option will also contribute to a key objective of Growth without Gridlock, the Council's 20 year transport delivery plan, as well as to the Local Transport Plan 2011-16, Kent's statutory transport plan.

### **4. The need for a new crossing**

- 4.1 Kent's geography makes it unique in the transport challenges it faces. The county's position has meant that for centuries Kent has performed the role of a gateway, to the UK from Europe, and to Europe from the UK. While being a gateway brings many benefits, it also brings significant challenges. One of the most important arguably, is the need to ensure high quality, free flow strategic routes which cater for this gateway function, namely strategic trips, without undue disadvantage to the county itself.
- 4.2 KCC has fully recognised for many years the urgent need for a new Lower Thames crossing that will cater for strategic traffic and gateway function as well as providing greater connectivity with Kent's immediate neighbours to boost local and national economic activity and productivity. *Towards 2010*, produced by KCC in 2006 stated the case for additional crossing capacity and resulted in a joint study with Essex County Council to investigate potential options and the impacts of those options. *Unlocking Kent's Potential* in 2009 was similarly clear on the need for a new crossing, and in particular, to cater for significant expansion at the Port of Dover. This would enable traffic from the Eastern and Western Docks to bifurcate and use both the M20 and A2/M2 corridors. A KCC commissioned study by KPMG in 2010 concluded that a new crossing to the east of Gravesend would directly create 6,000 jobs and contribute £12.7bn to local GVA.
- 4.3 *Growth without Gridlock* (GwG) took this further in clearly articulating the need for increased connectivity across the Thames given the significant growth planned for the Thames Gateway. With 160,000 jobs and 225,000 new homes including major developments such as Eastern Quarry, Ebbsfleet and London Gateway which will be the UK's biggest deep sea port and Europe's largest logistics park employing 12,000 people, existing levels of congestion and delay on the Dartford-Thurrock crossing (almost 50% of vehicles are currently delayed in excess of 9 minutes) will simply worsen. GwG evidenced the suppressed demand at the Dartford Crossing. Average daily traffic growth on the Crossing has been at a lower rate than for other motorways in South East England for a number of years which suggests that there is an element of suppressed demand for journeys. This suppressed demand is predicted to increase without additional capacity with an increasingly adverse impact on the economic vitality of the Thames Gateway. This suppressed demand is illustrated in the figure below.

## Dartford Crossing - Transport Gap



4.4 GwG also recognised the wider economic opportunity a new Lower Thames Crossing would provide in not only opening up the regeneration of the Thames Gateway, but also in creating a new strategic corridor from Europe through Kent to the Midlands and beyond. This vision would deliver both network resilience and a strategic route bypassing the congested M25 but, more importantly, increased productivity and a real boost to the national economy. KCC in its 20 year transport delivery plan GwG has been clear that a new Thames Crossing is not just about the short term relief of an existing bottleneck, but about an opportunity to deliver tangible economic benefits to the wider UK economy.

4.5 Government in its consultation documentation is also clear that additional crossing capacity is required. Traffic data shows that the existing Dartford – Thurrock Crossing is over capacity and that even after the introduction of free-flow tolling in October 2014, traffic volumes and delays will continue to increase both at the crossing and its approaches. The cost to the UK economy in terms of reduced productivity and constrained growth will simply be exacerbated. A summary of the main issues presented by the DfT in its consultation documentation are:

- The existing crossing is over capacity and this will only get worse as traffic continues to grow;
- Delays and journey times will continue to increase over the crossing;
- Network resilience and the impact of incidents causing severe delay are likely to worsen;
- the increasing cost of congestion to business will mean productivity declines and economic growth is stifled;
- The considerable growth agenda for the Thames Gateway will not be realised;
- Air quality issues and the resultant negative impact on health will continue to rise for those living in close proximity to the existing crossing and its approaches.

## 5. DfT consultation corridor options and assessment

5.1 The corridor options DfT are consulting on are described below and illustrated in Appendix A. In summary these options are:

- Option A: This option would provide additional long-term capacity at Dartford through the delivery of a new crossing while retaining all existing infrastructure (bridge and tunnels). This offers the shortest crossing route among the options and links the M25 J31 and M25 J1, and therefore directly ties in with the strategic road network.
- Option B: This option would provide a new crossing in the vicinity of the Swanscombe peninsula. It would connect the A2 to the south in the vicinity of Dartford, to the A1089 to the north in the vicinity of Tilbury Docks.
- Option C: This option comprises the provision of a new crossing to the east of Gravesend and Thurrock. It would need to link the M25 with the M2 and thus form a major new piece of infrastructure in the strategic road network. It would potentially provide a direct route for longer distance movements using the north-east section of the M25 and the M2 as well as providing some relief to the existing crossing.
- Option C variant: Option C with an additional improvement to the A229 Bluebell Hill between the M2 and M20 for long distance traffic. This will provide a bypass to the Lord Lees junction and increased capacity on the A229.

5.2 Each option will provide two lanes for traffic in each direction and could be one of three structure types: bridge, immersed tunnel or bored tunnel. An immersed tunnel involves excavating a trench on the riverbed and dropping a tube structure into it. A bored tunnel is literally a circular tunnel bored at depth. Each option is deemed feasible to build.

5.3 As part of its consultation, DfT has issued a considerable amount of supporting evidence. A vast number of factors have been considered with the key ones including:

- a) Cost and value for money
- b) Job creation and economic growth
- c) Environmental impacts
- d) Local impacts including air quality

5.4 More detailed information on each of these factors is included in the appendix to the Cabinet Committee report of 19 June (link provided at end of report), however a high level summary is presented below.

5.5 Each option is likely to offer benefits in excess of the costs and each option is likely to deliver the following, albeit to varying extents:

- Increase traffic levels crossing the lower Thames;
- Reduce congestion and improve journey times on the existing crossing;
- Provide large benefits to business users;
- Increase the population experiencing noise; and,
- Lead to some relocation of jobs eastwards from London.

#### Cost and value for money

5.6 In terms of cost Option A (see Table 5.1 below) is least expensive (£1.2bn to £1.6bn) with each option eastwards getting progressively more expensive. Option B is calculated as £1.8bn - £2.2bn and C £3.1bn- £3.2bn. C variant is the most expensive option at £4.9bn - £5.0bn. The benefit cost ratio (BCR) which represents the likely level of benefits compared to cost with the higher the value meaning the more benefit expected relative to cost, shows that the Option A bridge option has highest return (BCR of 2.4) with Option C bridge and immersed tunnel both next highest (BCR of 2.0). Option B across all three structure options performs worst for value for money.

<b>Table 5.1 Comparison of costs and value for money</b>				
	<b>Option A</b>	<b>Option B</b>	<b>Option C</b>	<b>Option variant C</b>
<b>Estimated capital cost range</b>	£1.2bn – £1.6bn	£1.8bn – £2.2bn	£3.1bn – £3.2bn	Option C + £1.8bn
<b>Indicative Benefit Cost Ratio without wider impacts</b>	1.0 – 1.8	0.5 – 0.8	1.2 – 1.3	1.2
<b>Indicative Benefit Cost Ratio with wider impacts</b>	1.4 – 2.4	1.1 – 1.7	1.9 – 2.0	1.7

5.7 It should be noted however, that as the DfT consultation acknowledges, if Option A is pursued, it is highly likely that significant improvements would be needed at J30/J31 and J2 of the M25. In this case, the cost of option A could reasonably be increased by £1 billion (J30/J31 alone has been costed at £750 million) meaning its cost benefit assessment figure will be reduced.

#### Job creation and economic growth

5.8 Economic growth potential significantly improves the further east each corridor is assessed. This primarily considers factors such as reduced journey times and overall reflects increased productivity and cost savings to business. This is shown in Table 5.2 below.

5.9 Regeneration impacts are measured in terms of job creation. A number of job creation figures are presented in Table 5.2. The DfT figures are calculated based on changes in journey time and show increased benefits the further east the corridor. The KPMG work commissioned by KCC in 2010 to help inform the authority of the likely implications of different crossing options concluded that Option C would be likely to deliver six times the job benefits of Option A. Option B, at that time was not considered as part of this work.

5.10 More recently KCC jointly commissioned with Essex County Council and Thurrock Council the work by the consultancy firm URS to fully understand the likely regeneration impacts of the most recent corridor options being considered by DfT. This work by URS considers a number of factors including the effects of agglomeration, improved links with supply chains, expansion of labour market and increased attractiveness of employment sites as a result of each crossing option. The results shows that Option B performs well when the proposed Paramount Park Resort is taken into account. This assumes that the development could still be delivered with this option and will depend on route alignment and type of structure progressed. Without the Paramount Park Resort, the URS work concluded that Option C would deliver the greatest benefits in terms of job creation.

5.11 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 the Paramount Park Resort) will provide the strongest regeneration benefits. Option A is consistently weak across both economic growth and job creation.

**Table 5.2 Job Creation and Economic Growth**

<b>Job Creation</b>	<b>Option A</b>	<b>Option B</b>	<b>Option C</b>	<b>Option C variant</b>
DfT study (jobs)	500	2100	3000	3200
KPMG study <sup>1</sup> (jobs)	1000	-	6000	-
URS study <sup>2</sup> (jobs)				
Local jobs	7,600	10,600	9,100	
Local +hinterland	23,000	35,807	32,300	
<b>Economic Growth</b>	<b>Option A</b>	<b>Option B</b>	<b>Option C</b>	<b>Option C variant</b>
Total business benefits	£950m	£1,800m	£3,400m	£4,400m

5.12 In terms of impact on development sites, Option B has major constraints. The illustrative route alignment will, in effect, dissect the Ebbsfleet site consented for 3,300 homes and commercial activity as well as preclude the development of Paramount Park Resort for both the bridge or tunnel options promoted by the DfT. The land owners involved in these major development sites (Land Securities, Lafarge and LRCH) are aligned in opposing Option B for these reasons. Options A or C do not impact potential development in this way.

### Environmental impacts

5.13 All corridor options put forward have variable benefits and disbenefits. 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 B increases greenhouse gas emissions with Option A seeing a very marginal decrease. There are environmental impacts (biodiversity, landscape and townscape) for each option, although the pattern tends to be greater impact the further east the route. There are few environmental impacts for Option A. Option B has number of significant heritage constraints and the key issues for Option C are in relation to environmental designations to protect wildlife and habitats. Table 5.3 below illustrates these points.

**Table 5.3 Environmental Impacts**

	<b>Option A</b>	<b>Option B</b>	<b>Option C</b>	<b>Option C Variant</b>

<sup>1</sup> Lower Thames Crossing, KPMG for Kent County Council (August 2010)

<sup>2</sup> Third Thames Crossing Regeneration Impact Assessment (Dec 2012)

Biodiversity	Slight to large adverse □□	Moderate to large adverse □□	Very large adverse □□	Very large adverse □□
Landscape and townscape	Neutral to slight adverse □	Moderate adverse □□	Moderate to large adverse □□	Moderate to large adverse □□
Greenhouse gases	£31m □	- £60m □	£278m □□	£381m □□

Key to Table 5.3	
□	Very positive impact
□□	Positive impact
-	No discernible impact
□	Negative impact
□□	Very negative impact

### Local Impacts

5.14 For localised impacts Table 5.4 shows the main conclusions from the DfT supporting information to its consultation. For air quality it can be seen that Option C variant is forecast to provide the most benefit 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.

5.15 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.

**Table 5.4 Local Impacts**

	Option A	Option B	Option C	Option C variant
Air quality (Present Value Benefits)	£0m	-£2m	£8m	£10m
Noise (Present Value Benefits)	-£9m	-£70m	-£72m	-£79m
Congestion:				
in Dartford	-16%	-17%	-19%	-20%
in Thurrock	1%	1%	-3%	-3%

## Analysis

5.16 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.

5.17 Overall, given the economic growth and job creation potential of Option C as well as its positive impact on network resilience and the creation of a new strategic route offering shorter long distance north - south journeys, it is evident that Option C best meets these objectives. A tunnelled option will help reduce the impact on the internationally protected Marshes. Even with a tunnel option however, the environmental impacts are still a significant concern. Preliminary work by KCC has established that an alternative alignment for the southern section of Option C connecting into the A2/M2 to the west of the M2 Junction 1 will minimise this environmental impact on the Shorne Woods Country Park area which is within the Kent Downs Area of Outstanding Natural Beauty and also a Site of Special Scientific Interest (SSSI). It is estimated that this rearranged junction and an additional length of tunnelling on the Marshes will add in the region of £450m to the overall cost while substantially reducing the impact of this corridor on residents and the environment. This would take the total cost to £3.55 billion.

5.18 While Option C is likely to put most stress on the A229 Bluebell Hill, the DfT work shows that all corridor options will result in some increase in congestion on Bluebell Hill. In order to ensure Kent's road network is at its most resilient, Option C variant should be progressed in association with a realigned and tunnelled Option C and this should be designated part of the trunk road network to be maintained by the Highways Agency.

5.19 Option C and C variant will significantly assist in improving the strategic road network across Kent and to the north of the Thames. However, with relatively inexpensive additional investment a major step change could be achieved by delivering the Council's objective of bifurcation. The improvements required would be:

- upgrading the A2 by dualling the single carriageway sections leading into Dover,
- providing free flow between the M2 and A2 through Brenley Corner
- upgrading the A249 Detling Hill and the junctions at either end (M2 Junction 5 Stockbury and M20 Junction 7).

5.20 These improvements would mean the A2 would function as a high quality strategic route which reduced reliance on the M20 and provides a new strategic route from Europe to the Midlands and the North resulting in reduced journey times and significant cost savings for business. The upgrading of the A249 will provide further relief to the A229 Bluebell Hill and an alternative connection between the A2/M2 and M20. A very preliminary cost estimate for these works is £280 million.

## **6. Member Engagement**



6.1 Considerable member engagement has been carried out as part of the process of determining the preferred corridor option. This has involved:

- a paper to Cabinet Committee on 19 June
- an all Member briefing on 24 June
- a briefing for Gravesham Members on 26 June
- a briefing pack to all local Members inviting comments.

## 7. Conclusions

7.1 In considering the information provided as part of the DfT consultation as well as previous study work the Council has commissioned, and the views of Members through Cabinet Committee and briefings, the preferred option for a new Lower Thames Crossing is:

- Option C with additional tunnelling to minimise impact on residents and the environment and the connection to the A2 realigned to the west of the AONB and Shorne Woods Country Park;
- C variant to upgrade the A229 and bypass Lord Lees junction;
- The upgrade of the A249 and junctions at either end (M2 J5 Stockbury and M20 J7) to provide an alternative link between the M2 and M20 thus relieving the A229 Bluebell Hill.
- The upgrade (bifurcation) of the A2 involving free flow between the M2 and A2 at J7 Brenley Corner and the dualling of sections of single carriageway on the approach to Dover.

7.2 In supporting the above option, strong representations will be made to DfT to ensure that the opportunities for modal shift are maximised through scheme design. KCC will also urge 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 a 2018 start date would be feasible.

7.3 An accelerated project delivery plan would enable the opportunity to make use of private sector investors currently hungry to finance and deliver projects of this scale. 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.

7.4 The proposed response to answer the specific questions posed by the DfT consultation questionnaire on corridor options for a new Lower Thames Crossing is attached at Appendix B and will be submitted by the consultation closing date of 16 July 2013.

## 8. Recommendation(s)

### **Recommendation(s):**

That Cabinet notes and discusses the proposed response to the DfT's consultation on a new Lower Thames crossing as set out in Section 7 of this report.

## 9. Background Documents

9.1 DfT consultation on option for a new Lower Thames Crossing, Cabinet Committee Paper 19 June 2013

<https://democracy.kent.gov.uk/ieListDocuments.aspx?CId=749&MId=4910&Ver=4>

9.2 Review of lower Thames Crossing Options: Final Report, Department for Transport/Aecom April 2013

<https://www.gov.uk/government/consultations/options-for-a-new-lower-thames-crossing>

9.3 Third Thames Crossing Regeneration Impact Assessment, URS, May 2012 and Addendum Report December 2012

[http://www.kent.gov.uk/roads\\_and\\_transport/highway\\_improvements/our\\_transport\\_vision/local\\_transport\\_plan.aspx](http://www.kent.gov.uk/roads_and_transport/highway_improvements/our_transport_vision/local_transport_plan.aspx)

9.4 Review of Environmental Impacts of Lower Thames Crossing Options, Mouchel, November 2012

[http://www.kent.gov.uk/roads\\_and\\_transport/highway\\_improvements/our\\_transport\\_vision/local\\_transport\\_plan.aspx](http://www.kent.gov.uk/roads_and_transport/highway_improvements/our_transport_vision/local_transport_plan.aspx)

9.5 The Dartford River Crossing study into capacity requirements. Parsons Brinckerhoff on behalf of the Department for Transport (2009)

<http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/astategy/capacityrequirements/dartfordrivercrossing/>

9.6 Growth without Gridlock, A transport delivery plan for Kent, KCC, December 2010

[http://www.kent.gov.uk/roads\\_and\\_transport/highway\\_improvements/our\\_transport\\_vision/local\\_transport\\_plan.aspx](http://www.kent.gov.uk/roads_and_transport/highway_improvements/our_transport_vision/local_transport_plan.aspx)

9.7 Local Transport Plan for Kent 2011-16, KCC, April 2011

[http://www.kent.gov.uk/roads\\_and\\_transport/highway\\_improvements/our\\_transport\\_vision/local\\_transport\\_plan.aspx](http://www.kent.gov.uk/roads_and_transport/highway_improvements/our_transport_vision/local_transport_plan.aspx)

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