A14
Cambridge to Huntingdon improvement scheme
Development Consent Order Application

Response to ExA's Second Written Questions:
Huntingdon Viaduct Response Collated

August 2015

The Infrastructure Planning (Examination Procedure) Rules 2010
A14 Cambridge to Huntingdon improvement scheme

Development Consent Order Application
Response to ExA's Second Written Questions:
Huntingdon Viaduct Response Collated

HE/A14/EX/93
August 2015
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Huntingdon Viaduct response

Introduction

Twelve of the Examining Authority’s second written questions (29 July 2015) are specifically concerned with the proposed removal of the road viaduct over the East Coast Main Line railway in Huntingdon (the ‘Huntingdon Viaduct’) in relation to issues regarding traffic, design, costs, environmental, social and economic impacts. These questions are relevant to several of the principal issues, as identified in Annex C of the Rule 6 letter.

The purpose of this Report is to provide Highways England’s response to written questions regarding the removal of Huntington Viaduct and provide a reference document to the examination. The Report is one of a suite of documents Highways England has submitted in response to the Examining Authority’s second written questions (Applicant reference: HE/A14/EX/80-93).

Highways England’s responses to questions concern the proposed removal of the Huntington Viaduct have been collated into this Report to assist the Examining Authority and Interested Parties in the consideration of issues concerning the proposed removal of the viaduct. This includes responses to the questions listed below.

<table>
<thead>
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<th>Design and Engineering Standards</th>
</tr>
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<tbody>
<tr>
<td>2.5.1</td>
</tr>
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<td>2.5.3</td>
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<tr>
<td>2.5.4</td>
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<td>2.5.8</td>
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<tr>
<td>2.5.9</td>
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</tbody>
</table>
## Economic and social effects

**2.7.2** In view of reduced costs for specific items of works, what would be the effect of excluding the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme on its overall cost, the economic appraisal for the scheme and the projected benefit to cost ratio?

## Environmental Impact Assessment

**2.8.8** What would be the consequences of the omission of the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme in terms of the ES?

## Transportation and Traffic

**2.12.17** What would be the specific consequences of the omission of the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme?

**2.12.18** Why is removal of the existing A14 Huntingdon viaduct and the associated road works a necessary element of the A14 improvement scheme?

**2.12.19** ‘It is expected that a significant proportion of people would continue to use the existing A14’ if the existing viaduct was retained in the context of the availability of the re-routed A14 as now proposed. Has any modelling work been carried out to support this expectation? If so, please provide details; if not, why not? (REP5-029, page 22)
Question 2.5.1

What is the forecast cost of removing the Huntingdon viaduct and providing the link roads? (REP2-006 para29)

Response

1. Within Highways England's *Comments on the Written Representations Report 6: Non-Statutory Organisations and Businesses* (Applicant reference HE/A14/EX/54, PINS reference REP4-016) at paragraph 2.3.1 a breakdown of scheme costs is provided. This confirms a budget of £45 million for works around Huntingdon. This includes the demolition of the Huntingdon Viaduct over the East Coast Main Line railway and the new link roads in the town. It is confirmed that this figure is fully inclusive, including elements such as: construction; design fees; payments to statutory undertakers; Highways England’s costs; and non-recoverable VAT and risk.
Question 2.5.3

How would the retention of the viaduct prevent connection with the link roads within Huntingdon if appropriate junctions were provided with the de-trunked A14? Could some of the new link roads be provided with the viaduct retained? (REP2-006 para62)

Response

2. In terms of the engineering works, if the viaduct were to remain, the proposed Views Common Roundabout and Views Common Link could still be provided, with the south-eastern arm of the roundabout being the retained and de-trunked A14 viaduct approach. The roundabout would have to be larger in plan to accommodate the additional arm and significantly increased through traffic flows, due to the retained and de-trunked A14, when compared with if the Huntingdon Viaduct was not present. The other junctions in the Hinchingbrooke area could be retained as per the DCO application design as shown on HTC Sheet 1 of the updated General Arrangement Drawings (Applicant reference HE/A14/EX/11, PINS reference APP-774). However, if the viaduct were retained, traffic from Views Common Roundabout Link utilising the Views Common Link could only connect to the existing Huntingdon Ring Road (via Brampton Road), as there would be no direct access back to the de-trunked A14 east of the railway.

3. The Mill Common Link, and thus the connection from the east to Brampton Road / Edison Bell Way, could not be provided because the proposed Mill Common Link would be built on the same line of the existing viaduct but at a lower elevation. This is due to physical constraints represented by the Huntingdon station, properties to south of the A14, and Mill Common (north of the A14).

4. If the Huntingdon viaduct were to remain, the proposed Pathfinder Link and junction with the de-trunked A14 could also be retained, generally as per the DCO application design, since this Pathfinder Link road would not directly be affected by the removal or retention of the viaduct. However with the additional through traffic, due to the retained de-trunked A14, when compared with if the viaduct was not present, the Pathfinder link junction may need to be enlarged from that currently proposed, which would require the Mill Common underpass to be widened.

5. In terms of road geometry and geotechnical considerations, retaining the Huntingdon Viaduct and its eastern approach embankment would also preclude the construction of the new southern access to the station car park; where the access joins the line of the existing A14, the level of the existing A14 is around 4m higher than the level of the Mill Common Link as proposed in the DCO application design – hence the car park access would be on a much higher embankment which cannot be accommodated in the space between the rear of the cottages and the western end of Mill
Common Lane.

6. Highways England does not propose the retention of the Huntingdon Viaduct. Whilst it is feasible to retain the viaduct, significant changes to the scheme would be required, which are not part of the application by Highways England. This is because the planning benefits of removing the Huntingdon Viaduct are significantly greater than those resulting from its retention. Retention of the Huntingdon Viaduct would not provide the vital link connections at the heart of Huntingdon proposed by the A14 scheme, nor would it deliver the various other benefits, as outlined in Highways England response to Examining Authority question 1.7.9 (Highways England’s Response to ExA’s First Written Questions: Report 7 Economic and Social Effects (Applicant reference HE/A14/EX/34, PINS reference REP2-008)).

7. For further detail on why the removal of the A14 Huntingdon Viaduct is considered to be a necessary element of the A14 improvement scheme refer to the response to written question 2.12.18.
Question 2.5.4

How would the retention of the viaduct not resolve congestion at Brampton Hut, Spittals Interchange or Bar Hill and exacerbate congestion on the Cambridge Northern Bypass? Why is it thought that, even with a higher standard bypass, traffic would continue to use the de-trunked road through the at-grade A14 Spittals Interchange? (REP2-006 para62)

Response

Continued use of the de-trunked road through Spittals Interchange

8. In a scenario where the Huntingdon Viaduct is retained in conjunction with the proposed scheme, there would be a direct connection between the A1 and the Huntingdon Southern Bypass (HSB), giving traffic travelling to and from the A1 to the north and the A14 to the west of Huntingdon a choice of routes.

9. Traffic travelling from the A1 to the north could either use the existing A14 through Huntingdon (including the Huntingdon Viaduct) or continue south on the A1 and use the HSB. The route through Huntingdon on the existing A14 would be the shorter and quicker route for long-distance traffic travelling from the A1 north to the A14 east and M11 south and also for traffic travelling to and from Huntingdon and its environs. Consequently, the majority of traffic from the A1 north would be expected to continue to use the existing A14 passing under the Spittals Interchange as it does currently.

10. Traffic from the A14 west could either use the existing A14 through Huntingdon (including the Brampton Hut junction and Spittals Interchange) or use the HSB. The route via the HSB would be shorter and quicker for long-distance traffic travelling from A14 west to the A14 east and M11 south and therefore all this traffic would be expected to use this route, bypassing Brampton Hut and Spittals junctions. However, the route via the existing A14 would be the quicker and shorter route for traffic travelling to and from Huntingdon and its environs and therefore this traffic would continue to pass through the Brampton Hut and Spittals junctions.

11. The amount of long-distance traffic to and from the A1 to the north of Huntingdon is a little higher than the amount of traffic to and from the A14 to the west, therefore, there would be more long-distance traffic using the existing A14 than using the HSB. The long-distance traffic on the existing A14 would be mixed with traffic travelling to and from Huntingdon and its environs and as a consequence, the total flow on the existing A14 would be substantially higher than on the HSB.

12. Thus it can be concluded that retention of the Huntingdon Viaduct in conjunction with the proposed scheme would result in a significant
portion of traffic continuing to use the existing A14, passing directly through or beneath the Spittals Interchange.

**Brampton Hut, Spittals Interchange, Bar Hill and the Cambridge Northern Bypass**

13. All options that include a southern bypass of Huntingdon, whether or not the Huntingdon Viaduct is retained, would result in some relief of Brampton Hut junction and Spittals Interchange as traffic from the A14 west would be expected to use the Huntingdon Southern Bypass and would therefore be removed from these junctions. Traffic flows at Bar Hill and on the Cambridge Northern Bypass would be largely unaffected whether or not the viaduct is retained, provided the widening of the existing A14 and junction improvements proposed as part of the scheme are delivered.

14. The relief of Bar Hill junction (Junction 29) and the Cambridge Northern Bypass is dependent on the widening of the existing A14 and junction improvements proposed as part of the proposed scheme. Hence, any alternative scheme design including retention of the viaduct would be expected to offer relief to the Bar Hill junction and the Cambridge Northern Bypass only if the on-line widening element of the proposed scheme is also progressed. Compared to the proposed scheme, any option that retained the Huntingdon Viaduct would result in a small increase in traffic in the A14 corridor as some trips from the A1 north to the M25 would take advantage of the improved conditions to transfer to the A1/A14/M11 route. Hence, the relief offered by schemes with the viaduct retained would be slightly less than that offered by the proposed scheme.

15. The statements made in para 62 of REP2-006 and para 54 of REP2-008 were mistakenly dealing with the 'Do-Minimum' scenario. As shown in the Traffic Modelling Update Report (Applicant reference HE/A14/EX/44, PINS reference REP2-018), in the 'Do Minimum' scenario where the Huntingdon Viaduct is retained and there is no Huntingdon Southern Bypass (HSB), the volume of traffic would continue to rise on the A14. Congestion would increase at Spittals Interchange, Brampton Hut, Bar Hill and Cambridge Northern Bypass as a result, as there would be no viable alternative route, particularly for long distance trips.
Question 2.5.5

Why would the viaduct require widening, if retained as part of the scheme, within 10 years due to anticipated increases in traffic volumes? (REP2-006 para63)

Response

16. The Development Consent Order (DCO) application includes the demolition of the Huntingdon Viaduct and the construction of local road connections within Huntingdon.

17. The section of the A14 between Spittals (Junction 23) and Godmanchester (Junction 24), which includes the Huntingdon Viaduct, is very congested particularly in the peak hours. The theoretical capacity of a dual carriageway would be approximately 2,000 passenger car units (pcu) per hour per lane. However the practical capacity at which flow breakdown becomes more common is lower than this. Flow breakdown is already observed to occur on the A14 between Spittals and Godmanchester during the peak hours, indicating that this section of the A14 is already reaching its practical capacity. Conditions are worsened by traffic joining and leaving the A14 at the junctions at either end of the Huntingdon Viaduct. The fact that driving conditions are so poor on this section of road and there are frequent flow breakdowns is a major justification for the proposed scheme, as set out in the Case for the Scheme (Applicant reference 7.1, PINS reference APP-755).

18. The Base Year traffic flows on the Huntingdon Viaduct based on version 1 and version 3a of the Cambridge to Huntingdon A14 Road Model (CHARM1 and CHARM3a respectively) are shown in Table 1. Modelled flows are shown for CHARM1 which had a Base Year of 2011 and for CHARM3a which has a Base Year of 2014. CHARM1 flows are shown as this version of the model was used to assess scheme options (which included options with and without the Huntingdon Viaduct) in 2014, while CHARM3a is the latest version of the model.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Direction</th>
<th>CHARM1 2011</th>
<th>CHARM3a 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>EB</td>
<td>3,100</td>
<td>2,950</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3,750</td>
<td>3,550</td>
</tr>
<tr>
<td>PM</td>
<td>EB</td>
<td>3,550</td>
<td>3,300</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3,600</td>
<td>3,500</td>
</tr>
</tbody>
</table>

Units: pcus per hour, rounded to nearest 50

19. The CHARM3a flows are similar to, but slightly lower than, those in CHARM1 indicating that there has been no peak hour growth on this section between 2011 and 2014 as it is already operating at its practical
capacity. The similarity in Base Year flows between the two versions of CHARM gives confidence that the CHARM1 forecasts give a reliable indication of the future conditions on the Huntingdon Viaduct.

20. Retaining the viaduct would allow trips from the M11 and A14 east to the A1(M) north a choice of route. They may use the existing road over the viaduct or they may use the HSB. This has not been modelled as it would provide significantly more capacity than would be necessary, resulting in an operationally inefficient design.

21. Option 5a was modelled in CHARM1 at the start of the ‘Development’ phase of the A14 improvement scheme, shortly after the decision not to toll the HSB was announced. Using the results of this assessment it is possible to make a reasonable assessment of the implications for traffic flows on the Huntingdon Viaduct if it is retained in the present scheme.

22. Table 2 summarises the forecast modelled flows on the existing A14 and the HSB in 2016 and 2031 based on the CHARM1 Option 5a scenario. This shows that forecast traffic volumes on the existing A14 would be substantially higher than on the HSB, indicating that Option 5a would provide comparatively very little relief to congestion on the Huntingdon Viaduct.

Table 2: CHARM1 Option 5a Forecast Modelled Flows (pcus)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Direction</th>
<th>Existing A14</th>
<th>HSB</th>
<th>Proportion of traffic on existing A14</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 AM</td>
<td>EB</td>
<td>2550</td>
<td>1200</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>2950</td>
<td>1300</td>
<td>69%</td>
</tr>
<tr>
<td>2016 PM</td>
<td>EB</td>
<td>2950</td>
<td>1350</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>2850</td>
<td>1200</td>
<td>70%</td>
</tr>
<tr>
<td>2031 AM</td>
<td>EB</td>
<td>3250</td>
<td>1500</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3600</td>
<td>1550</td>
<td>70%</td>
</tr>
<tr>
<td>2031 PM</td>
<td>EB</td>
<td>3500</td>
<td>1800</td>
<td>66%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3500</td>
<td>1450</td>
<td>71%</td>
</tr>
</tbody>
</table>

Units: pcus per hour, rounded to nearest 50

23. Table 3 compares forecast flows on the Huntingdon Viaduct in Option 5a against the Base Year (2011) model flows. This analysis shows that there would be some short-term relief to traffic flows on the Huntingdon Viaduct from the implementation of Option 5a in 2016. However, by 2031, forecast flows on the Huntingdon Viaduct would have risen to a comparable level to those in the Base Year, suggesting that conditions would be similar to the conditions currently experienced, which is one of the major justifications for the scheme as proposed.
24. Retaining the viaduct as part of the proposed scheme, thereby making the existing road the strategic route to the A1 north, has major implications for traffic flow. The proportion of long-distance trips to and from the A1 north is a little higher than the proportion to and from the A14 west. As indicated in the response to question 2.5.4, the existing A14 would remain the shortest and quickest route from the M11 and A14 east to the A1 north. Hence, these long-distance trips would be expected to use the existing A14 (and Huntingdon Viaduct) rather than the HSB and would be mixed with local traffic associated with Huntingdon, Godmanchester and St Ives (thereby failing the objective of ensuring that local and strategic traffic used appropriate roads). As a consequence, the total flow on the existing A14 would be substantially higher than on the HSB.

25. Thus it can be concluded that conditions in 2031 on the Huntingdon Viaduct would be similar to the conditions currently experienced, which are one of the major justifications for the proposed scheme. The return of unacceptable levels of congestion to the Huntingdon Viaduct by 2031 would require a further intervention to provide additional capacity. In this situation, the most appropriate solution would be widening of the existing road across the Huntingdon Viaduct as this would remain the preferred route to the A1 north. However, it should be noted that the Huntingdon Viaduct cannot be easily widened.

Table 3: CHARM1 Comparison of HV Modelled Flows

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Direction</th>
<th>Base Year 2011</th>
<th>Option 5a 2016</th>
<th>Option 5a 2031</th>
<th>Forecast 2031 Flow as % of 2011 Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>EB</td>
<td>3100</td>
<td>2550</td>
<td>3250</td>
<td>104%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3750</td>
<td>2950</td>
<td>3600</td>
<td>95%</td>
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<tr>
<td>PM</td>
<td>EB</td>
<td>3550</td>
<td>2950</td>
<td>3500</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>3600</td>
<td>2850</td>
<td>3500</td>
<td>98%</td>
</tr>
</tbody>
</table>

Units: pcus per hour, rounded to nearest 50
Question 2.5.8

In detailed terms, how is it envisaged that the existing A14 Huntingdon viaduct would be demolished?

Response

Existing Layout

26. The Huntingdon Viaduct carries the existing A14, which represents the top portion of a three-level transport intersection. The middle level is the B1514 supported on Brampton Road Bridge and the bottom level is the East Coast Main Line (ECML) Railway.

27. The top level Huntingdon Viaduct is a six-span structure. The central span bridges over both the B1514 Brampton Road and the East Coast Main Line Railway. It is in cantilever and suspended span formation. The suspended span comprises longitudinal pre-tensioned and transverse post-tensioned concrete box beams (also known as drop-in beams) with a reinforced concrete topping over the concrete beams. See the response to question 1.5.5 in Highways England’s First Written Questions Report 5 (Applicant reference HE/A14/EX/32, PINS reference REP2-006), for further details on the layout of the existing Huntingdon Viaduct.

Proposed Demolition Works

28. Demolition of the existing six-span viaduct structure would be carried out by a specialist demolition contractor in multiple phases. It is to be noted that the methodology described below is currently envisaged as a ‘Potential Methodology’ for the demolition of the existing Huntingdon Viaduct. The detailed design of the demolition works would be agreed between Highways England and the relevant contractor after the making of
the DCO (if granted), within the parameters of the DCO. Flexibility is required to accommodate potential additional constraints and the specialist contractor’s preferred method of demolition following the completion of the detailed design phase.

29. During the main demolition works, the A14 between Godmanchester junction and Spittals junction would be closed to traffic with the new Huntingdon Southern By-pass open for all traffic. Brampton Road would continue to remain open to traffic throughout the works. However, some night time closures would be expected on the existing Brampton Road during the demolition works subject to having agreement in place with the local authorities prior to the works commencing.

Phase 1

30. Prior to the commencement of any demolition works, a protection deck would need to be installed over the existing East Coast Main Line railway (ECML) as shown in Phase 1 plan view above. The protection deck would not be designed to sustain a dropped load. The purpose of the protection deck would be purely to prevent any debris falling onto the railway during the demolition works and to gain access to the underside of the viaduct to undertake preparatory works prior to commencing the main demolition of the existing viaduct.

31. In order to install the protection deck over ECML, the following activities would need to be undertaken;
   a. Construct new overhead line equipment (OLE) foundations under ‘Rules of the Route’ possession (a possession occurring overnight) at new locations for OLE masts.
   b. New OLE masts to be installed on top of the foundations and overhead electric lines transferred onto new masts during ‘Rules of the Route’ possession.
c. Once the above activities are complete, only then can the protection deck be installed which is envisaged to occur during a ‘Blockade’ possession (a possession lasting several days during off peak periods) over Christmas 2019.

**Phase 2 (2A & 2B)**

32. Prior to the commencement of main demolition works, piling operations would be carried out for the erection of temporary trestles underneath the A14, in the region adjacent to the supports of the central drop-in beams. Piling and temporary trestles would be required to support the deck of the existing A14 and distribute the load of the cranes that would be positioned on the top of the existing A14 on either side of the pier supports of the central span to allow removal of the central drop-in beams.

33. Demolition of the central drop-in span would be carried out in two phases known as Phase 2A and Phase 2B as shown in the above sketches.
34. Under Phase 2A, the west side of the central drop in span would be demolished first by setting up the plant & machinery to the east side of the existing viaduct. Once Phase 2A demolition works are finished, Phase 2B demolition works would commence for demolishing the east side of the central drop in span by switching the plant & machinery to the west side of the viaduct.

35. Prior to commencing any demolition works, a temporary through steel girder bridge with ramps attached on either side would be moved into position on top of the A14 to aid in the removal of the central drop in beam sections. During the main demolition, the transverse pre-stressing and concrete infill between beams would be made free first by wire sawing over the central drop-in beams that are currently over the ECML. Each beam would then be wire saw-cut longitudinally and removed under multiple railway possessions and isolation of the OLE.

36. Once the beams are wire saw-cut, they would be lifted ‘in tandem’ using suitable sized cranes positioned on the top of the existing A14 on either side of the pier supports of the central span. The beams would be landed on tractor-trailer units that would be located on the existing A14 to allow removal from site.

37. The temporary through steel girder bridge would be removed following the removal of central drop-in beam section.

**Phase 3 (3A, 3B & 3C)**

![Diagram](figure5.png)

*Figure 5: Phase 3A*
38. Following the removal of the central drop-in span, one approach span to the south and two approach spans to the north would be demolished along with the south abutment.

39. Demolition would be carried out in three phases named as Phase 3a, 3b and 3c. Detailed demolition phasing are shown in the sketches above.

40. Under Phase 3a demolition stage, temporary supports would be erected at Support 6 to provide end bearing to all box beams in that span that would require to be demolished. Once the temporary supports have been erected around Support 6, demolition of the span between Support 6 and south abutment would be carried out.

41. Following Phase 3a demolition, temporary supports would be erected at Support 2 and Support 1 in order to provide end bearing to all box beams that would require to be demolished in that span.

42. Once temporary supports have been erected at Support 1 and Support 2, Phase 3b demolition stage would begin which would demolish the span that exists between the north abutment and support 2.

43. Once the span between the north abutment and support 2 has been demolished under Phase 3b demolition, the south abutment would be completely demolished.

44. Following the completion of Phase 3b demolition, preparatory works for Phase 3c demolition would commence. Phase 3c demolition preparatory works would include erecting temporary supports at Support 2 and 3 to provide end bearing to all box beams that would require to be demolished in that span.
45. Once the temporary supports are erected around Support 2 and Support 3, demolition of the span between Supports 2 and 3 would commence.

46. Following the completion of Phase 3c demolition all temporary supports would be removed.

**Phase 4 (4A & 4B)**

![Diagram of Phase 4A](image)

**Figure 7: Phase 4A**

![Diagram of Phase 4B](image)

**Figure 8: Phase 4B**

47. Following the completion of Phase 3c demolition stage, the Phase 4a demolition process would commence.

48. Phase 4a demolition stage would involve the installation of piles and a temporary piled platform to allow the erection of temporary slide platforms and slide tracks adjacent to supports 5 & 6.

49. Following the erection of temporary slide platforms and slide tracks, temporary collars would be erected adjacent to Supports 5 & 6 to transfer the deck load spanning between Supports 5 & 6.
50. Transferring the deck load spanning between supports 5 & 6 onto the collars erected adjacent to the pier supports would allow for the demolition of the top of piers at supports 5 & 6.

51. Once the top of the piers at support 5 & 6 have been demolished, the phase 4b demolition process would commence.

52. Under Phase 4b demolition stage, the southern cantilever section and the side span of the bridge deck would be slid away from the East Coast Main Line (ECML) tracks and would be demolished on site away from the railway.

53. Once the sections of the bridge deck have been demolished to manageable sized chunks, they would be removed from site in accordance with the approved waste management procedure.

54. Temporary piled platforms that were erected adjacent to supports 5 & 6 prior to the demolition would be removed following the completion of Phase 4b demolition stage.

**Phase 5 (5A & 5B)**

![Figure 9: Phase 5A](image_url)
55. Phase 5a and 5b would be identical to Phase 4a and 4b described above however, the demolition works would now be conducted on the northern side of the viaduct.

56. Temporary slide platforms, slide tracks and collars would be erected adjacent to supports 3 & 4 following installation of temporary piled platforms.

57. Once collars have been erected adjacent to supports 3 & 4 and the deck load has been transferred on to the collars, the top of the piers at supports 3 & 4 would be demolished. At this stage, piers at supports 5 & 6 would be completely demolished.

58. The northern cantilever section of the bridge deck along with the side span would be then slid away from the East Coast Main Line (ECML) railway and demolished on site away from the railway.

59. At this stage, pier supports 3 & 4 would become redundant and would be completely demolished.

60. Following the completion of phase 5a & 5b demolition stage, the temporary piled platforms at supports 3 & 4 would be removed.

61. Finally, northern abutment would be demolished following the completion of the remainder of the viaduct.
Phase 6

Figure 11: Phase 6

62. Once the demolition works above the existing ECML railway are completely finished, the protection deck would be removed from over the railway under a ‘Blockade Possession’ envisaged to be during Christmas 2020.

Indicative Timescales

Table 4: Indicative timescales for main activities within demolition works

<table>
<thead>
<tr>
<th>Work Elements</th>
<th>Activities</th>
<th>Approximate Date</th>
<th>Approx. Duration (weeks)</th>
<th>Plant Types and Quantities</th>
<th>Out of Hours Working</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install temporary protection deck [Phase 1]</td>
<td>Temporary protection to railway either side of Brampton Road bridge - steel structure</td>
<td>Dec 19 Dec 19</td>
<td>1</td>
<td>Mini piling rigs and cranes</td>
<td>Part to be carried out during railway possession and night time working.</td>
</tr>
<tr>
<td>Removal of suspended drop in span [Phase 2]</td>
<td>Removal of box beams - wire sawing jetting to separate, tandem lift by crawler crane and transport away via temporary bridge.</td>
<td>Jan 20 Apr 20</td>
<td>16</td>
<td>Wire sawing equipment, crawler cranes and temporary bridge.</td>
<td>Part to be carried out during railway possession and night time working.</td>
</tr>
<tr>
<td>Work Elements</td>
<td>Activities</td>
<td>Approximate Date</td>
<td>Approx. Duration (weeks)</td>
<td>Plant Types and Quantities</td>
<td>Out of Hours Working</td>
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<tr>
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<td>---------------------</td>
</tr>
<tr>
<td>Removal of spans 1, 2 &amp; 6 + Abutment [Phase 3]</td>
<td>Removal of box beams - wire sawing to separate, tandem lift by crawler crane and transport away via temporary bridge.</td>
<td>Apr 20 to Jun 20</td>
<td>13</td>
<td>Wire sawing equipment, crawler cranes and temporary bridge. Demolition at ground level using hydraulic concrete breakers</td>
<td>Part to be carried out during railway possession and night time working. No demolition during night time</td>
</tr>
<tr>
<td>Removal of spans 3 and 5 [Phase 4 &amp; 5]</td>
<td>Sliding back northern and southern cantilever away from railway envelope by strand jacking. Break down columns and lower cantilevers by strand jacking to ground level for demolition</td>
<td>Jun 20 to Sep 20</td>
<td>16</td>
<td>Strand Jacks + power packs. Demolition at GL using hydraulic concrete breakers</td>
<td>Part to be carried out during railway possession and night time working. No demolition during night time</td>
</tr>
<tr>
<td>Removal of protection deck [Phase 6]</td>
<td>Removal of temporary protection deck</td>
<td>Dec 20 to Dec 20</td>
<td>1</td>
<td>Cranes</td>
<td>Part to be carried out during railway possession and night time working.</td>
</tr>
<tr>
<td>Roadworks</td>
<td>Huntingdon improvement works including construction of new link roads connecting de-trunked A14 to Huntingdon town</td>
<td>Jan 20 to Mar 21</td>
<td>64</td>
<td>Tracked backhoe excavators, articulated dump trucks, tracked dozers and rollers - Paving machines, road wagons, rollers</td>
<td>Mostly during daytime hours. Part night time working.</td>
</tr>
</tbody>
</table>
**Question 2.5.9**

**Taking into account any remedial work planned to take place before the DCO scheme opening, what is the projected design life of the existing A14 Huntingdon viaduct with and without the DCO scheme?**

**Response**

63. The major strengthening work that has been undertaken on the Huntingdon Viaduct, comprising large steel sections to support weak joints within the concrete structure, has a design life of 120 years. The remaining structure would have had a design life of 120 years at its time of construction in 1975. However, design life and actual remaining life may not be the same; it is impossible to predict with precision the remaining life of an existing structure.

64. £342,000 is spent annually on monitoring the condition of the viaduct and on ongoing maintenance. No major repairs are planned within the next five years.

65. With the DCO scheme it is anticipated that the Huntingdon Viaduct would be demolished in 2020, within the design life for both the structure and recent repairs. Without the DCO scheme ongoing monitoring and maintenance would continue, to ensure structural integrity and serviceability is maintained. It is likely that the degree of maintenance would increase over time until a point is reached where the cost of maintenance is considered prohibitive. It is difficult to predict this date, more so because of premature deterioration requiring recent repairs, but it is unlikely to reach the full design life of 2095.
Question 2.5.10

Please explain the final 2 sentences on page 23 of Document REP5-029 in terms of ‘foreseeable future’ and ‘no longer than 10 years’.

Response

66. In response to the Examining Authority’s question 2.5.9, Highways England has confirmed that new structural elements that are supporting the central span of Huntingdon Viaduct are designed to provide a life of 120 years. Once a structure is erected, however, there are multiple external factors that can influence its life such as: the regularity of maintenance, the level of use against that predicted, and unforeseen impacts of the environment on materials over a prolonged period. For reasons such as these, it is not possible to predict the exact duration of the physical life of the viaduct. Highways England therefore used the term ‘foreseeable future’, which confirms that it is now considered that the central span is structurally sound following recent strengthening work.

67. Economic life and design life are rarely the same; the usefulness of an asset can expire before its physical capability. In the case of the viaduct, an anticipated increase in traffic if the viaduct was retained (explained in our response to question 2.5.4 and 2.5.5) would cause the existing congestion and capacity problems on the viaduct to be repeated by 2031 at the latest. To resolve this would require widening of the structure, as explained in our response to question 2.5.5. Given the complexities of undertaking this widening, the age of the viaduct and the structural integrity of the supported section, it is considered more likely that in this scenario the existing structure would be demolished and a new structure erected. It is for this reason that the economic life of the viaduct in its current form is considered to be approximately 10 years.

68. Highways England notes that CHARM 1 and CHARM3a use 2031 as the key comparison year, and so it is considered that it would be more accurate to say that an intervention is likely in 10 to 15 years. However, if the viaduct were to be retained, it is likely that work in developing a scheme for its widening, and the costs associated with that, would need to begin with 10 years to allow for capacity upgrades to be ready within that period.
Question 2.7.2

In view of reduced costs for specific items of works, what would be the effect of excluding the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme on its overall cost, the economic appraisal for the scheme and the projected benefit to cost ratio?

Response

Background

69. As described in Chapter 4 of The Case for the Scheme (Applicant reference 7.1, PINS reference APP-755), several options were considered and assessed during the scheme development process. This process was guided by an examination of the identified issues and objectives, and ultimately led to the scheme, as set out in the Development Consent Order application, being identified as the preferred solution.

70. As a result of the decision not to toll the scheme, Highways England re-evaluated the business case for the proposed scheme alongside the alternatives previously considered. These alternatives included Option 5a\(^1\), which provided a dual two-lane Huntingdon Southern Bypass and retained the existing Huntingdon Viaduct, and Option 7b (the proposed scheme), which provided a dual three-lane Huntingdon Southern Bypass and included de-trunking of the existing A14 and removal of the existing Huntingdon Viaduct.

Overall cost

71. While the forecast cost saving associated with the retention of the existing Huntingdon Viaduct and associated road works is £45 million (refer to the response to question 2.5.1), removal of the Huntingdon Viaduct would save £342,000 per annum which is currently spent on monitoring the condition of the viaduct and on ongoing maintenance. The initial reduction in capital expenditure associated with retaining the Huntingdon Viaduct, would be further offset by costs associated with re-design and subsequent re-analysis of the scheme, including provision of potential further options consultation, as well as inflationary effects associated with subsequent delays to the start of scheme construction and scheme opening.

72. As part of the above evaluation exercise it was estimated that Option 5a, which only provides a dual two-lane Huntingdon Southern Bypass, would be approximately £200 million cheaper than Option 7b (the proposed scheme). However, it was recognised that Option 5a would require significant additional investment around a decade after opening to avoid flow breakdown on the existing A14.

\(^1\) Option 5a represents Option 5, as included in consulted in September and October 2013, developed to include value-engineered elements.
73. This investment would be likely to include additional lanes on the Huntingdon Southern Bypass (the Huntingdon Viaduct cannot be easily widened from two to three lanes in both directions), a junction between the bypass and the A1 and speed restrictions on the A14 through Huntingdon. The cost of these works was estimated at between £150m and £250m, effectively negating any capital cost-savings associated with retention of the Huntingdon Viaduct.

**Economic appraisal of the scheme**

74. Omission of the removal of the existing Huntingdon Viaduct (and associated road works in Huntingdon) is expected to result in a significant proportion of people continuing to use the existing A14, rather than the proposed Huntingdon Southern Bypass, because it would remain the shortest route to the A1(M) and the north (as explained in the response to written question 2.5.4). A significant consequence of the omission of the removal of the existing Huntingdon Viaduct would be a failure to deliver traffic relief to the A14 through Huntingdon.

75. Differences in route choice and projected traffic flows would impact the economic appraisal of the scheme through changes to forecast travel time savings, journey time reliability benefits and monetised environmental benefits.

76. Work carried out after 4 December 2013 when it was confirmed that the scheme would not be tolled included comparison of the economic performance of Option 5a and Option 7b and the resulting Benefit to Cost Ratio of each option.

77. At the time of the assessment the unadjusted Net Present Value (NPV) for Option 5a and Option 7b was £1,259million and £576million respectively.

78. Journey-time reliability (JTR) between Swavesey and Girton was similar for both Option 7b and Option 5a (£356 and £363million of benefits respectively). However, Option 7b generated significantly more JTR benefits (£366 million) on the Huntingdon Southern Bypass than Option 5a.

79. In addition, Option 7b generated approximately £17million of noise benefits, compared to Option 5a which provided approximately £4million of noise benefits. The impact of JTR and noise benefits on the NPV of Option 5a and 7b is an adjustment of £367million and £739million respectively.

80. The adjusted NPV for Option 5a and 7b (including reliability and noise benefits) was calculated to be £1,626million and £1,315million respectively. It was considered unlikely that Option 5a would continue to attract local authority contributions. Taking this into account, the adjusted NPV for Option 5a and Option 7b (including reliability and noise benefits) is £1,566million and £1,315million respectively.

81. Overall, considering the JTR benefits and air quality benefits of Option 7b,
against the loss of local authority contributions, of Option 5a, the difference in NPV between Option 5a and Option 7b was calculated at £251million.

Projected Benefit to Cost Ratio

82. Based on the above economic analysis Option 5a was, at the time of the assessment, projected to have an adjusted Benefit to Cost Ratio of 2.9. Option 7b was projected to have an adjusted Benefit to Cost Ratio of 2.3. This is a result of the higher NPV associated with Option 5a in conjunction with the lower cost of Option 5a (circa £200m cheaper than Option 7b as outlined in paragraph 71), which only provides a dual two-lane Huntingdon Southern Bypass.

83. It was recognised at the time of the assessment that this did not represent a true 'like-for-like' comparison as it did not include for further improvement work associated with Option 5a, which would be expected to be required to address congestion on the A14 through Huntingdon (refer to paragraph 71 and paragraph 72 above).

84. Traffic congestion and journey time reliability problems on the A14 would gradually re-appear after an initial period of temporary relief. Additional future investment would be required to address these issues, estimated at between £150m and £250m.

85. In summary, Option 7b (the proposed scheme), which includes removal of the Huntingdon Viaduct, provides a long-term solution to the problems of congestion on the A14 between Cambridge and Huntingdon and the short-term economic saving of Option 5a was considered to be outweighed by:

- The need for further investment (estimated at between £150 to £250m) within 10 to 15 years;
- Further significant disruption on the road network associated with a second phase of construction;
- A failure to support local regeneration in Huntingdon (Huntingdonshire District Council and Cambridgeshire County Council have stated that they would not support any scheme which retained the Huntingdon Viaduct as it would constrain local regeneration and economic development);
- Reduced noise benefits;
- Associated ongoing maintenance costs estimated at £342,000 per annum (at current prices); and
- Delay to the scheme, due to re-design and subsequent re-analysis of the scheme, including provision of potential further options consultation and cost increases due to inflationary effects associated with subsequent delays to the start of scheme construction and scheme opening.
**Question 2.8.8**

What would be the consequences of the omission of the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme in terms of the ES?

**Response**

**Background**

86. The retention of the existing Huntingdon Viaduct was considered within the A14 Study for the Department for Transport (Atkins, 2012), which generated and sifted options in the A14 corridor.

87. Between 2012 and 2013, the then Highways Agency ‘Options’ phase was undertaken. Options that included retention of the viaduct were consulted on in September and October 2013, including Option 5 (similar to the current scheme but excluding the works in Huntingdon, A1 connectivity and A1 widening improvements).

88. Option 5a (Option 5 developed to include some value-engineered elements), comprised a dual two-lane Huntingdon Southern Bypass around Huntingdon with retention of the existing A14 corridor through Huntingdon (including the Huntingdon Viaduct) from the A14 to the A1. This option is discussed further in paragraph 4.5.2 of the *Environmental State* (ES) (Applicant reference 6.1, PINS reference APP-335). In broad terms, Option 5a is similar to the preferred option (Option 7b, taken forward and refined to create the current proposals) but does not include removal of the Huntingdon Viaduct and thus requires no new infrastructure in Huntingdon.

89. Highways England considered criteria including the strategic case; resilience; reliability; affordability; maintenance liability of the viaduct and social considerations in addition to traditional quantifiable criteria to reach a decision to remove the viaduct.

**Appraisal findings**

90. In December 2013 to February 2014, the then Highways Agency re-evaluated the Business Case for the proposed scheme (the version of the proposed scheme current at that time is referred to as Option 7b) alongside Option 5a. This included undertaking a supplementary environmental review to provide more detail on the environmental impacts of Option 5a relative to Option 7b.

91. The review found that retention of the viaduct reduced various environmental benefits in the Huntingdon locality apparent in Option 7b, including noise, air quality and ecology, as outlined in the paragraphs below.

92. In terms of noise impacts, differences in the distribution of traffic volumes
between Option 5a and Option 7b resulted in significant noise impact variation between the two options with Option 5a providing significantly reduced noise benefits compared to Option 7b, particularly in regards to nuisance and monetary analysis. This reduction in benefits was associated with the smaller forecasted reduction in traffic volume along the existing A14 between Fen Drayton to the south east and the A1 interchange to the North West, as explained in the response to questions 2.5.4 and 2.5.5.

93. In terms of air quality impacts, Option 5a would have reduced improvements to air quality in the Air Quality Management Areas (AQMAs) compared to Option 7b. Option 5a provides a lesser level of certainty that the annual mean objectives for NO₂ would not be exceeded in the future, thus allowing the AQMAs to be revoked. Option 5a would give a lesser improvement in air quality at the majority of locations in comparison to Option 7b, particularly in the wider Huntingdon area and in Fenstanton. In Huntingdon, Option 5a would have a smaller air quality improvement due to the viaduct allowing traffic through the town.

94. Option 5a would result in reduced benefits compared to Option 7b in regards to ecology, with smaller improvement in air quality at sensitive sites, including the Portholme Special Area of Conservation and the Hemingford Grey Meadow site of special scientific interest (SSSI).

95. Option 5a would result in mixed benefits compared to Option 7b in regards to cultural heritage in the Huntingdon area. Retention of the viaduct would have reduced benefits on significant receptors including the Huntingdon Conservation Area and listed buildings close to the current A14. However, Option 5a would avoid additional infrastructure in Huntingdon compared to Option 7b and thus would avoid some of Option 7b’s adverse impacts on cultural heritage.

96. On landscape and visual, Option 5a does not produce the beneficial impacts on townscape, severance and visual intrusion that would result from removal of the viaduct. However, it would avoid additional infrastructure in Huntingdon thus it would avoid some of Option 7b’s adverse impacts on landscape.

Consequences in terms of the ES

97. The appraisal of the potential environmental impacts of Option 5a was undertaken at an appropriate level of detail for an options appraisal. It utilised the Department for Transport (DfT) Transport Analysis Guidance (TAG) methodology for the noise assessment and the Design Manual for Roads and Bridges (DMRB) methodology for the air quality assessment. Desktop reviews and high level appraisals were undertaken for cultural heritage, landscape/townscape and biodiversity.

98. The consequences in terms of the ES of the omission of the removal of the existing Huntingdon Viaduct and the associated road works from the scheme are therefore increased noise, air quality, community severance
and ecology impacts and therefore reduced benefits in all of those areas; and mixed effects on townscape/landscape and heritage.
Question 2.12.17

What would be the specific consequences of the omission of the removal of the existing A14 Huntingdon viaduct and the associated road works from the scheme?

Response

99. Omission of the removal of the existing Huntingdon Viaduct (and associated road works in Huntingdon) is expected to result in:

- A failure to deliver traffic relief to the A14 in Huntingdon and its local environs;
- A failure to support local regeneration in Huntingdon (Huntingdonshire District Council and Cambridgeshire County Council have stated that they would not support any scheme which retained the Huntingdon Viaduct as it would constrain local regeneration and economic development); and
- A delay to the start of scheme construction and scheme opening.

100. Omission of the removal of the existing Huntingdon Viaduct (and associated road works in Huntingdon) is expected to result in a significant proportion of people continuing to use the existing A14, rather than the proposed Huntingdon Southern Bypass, because it would remain the shortest route to the A1(M) and the north (as explained in the response to written question 2.5.4).

101. Subsequently, a significant consequence of the omission of the removal of the existing Huntingdon Viaduct would be a failure to deliver traffic relief to the A14 through Huntingdon.

102. As outlined in Figure 7.1 of the Transport Assessment (Applicant reference 7.2, PINS reference APP-756) and subsequent Development Consent Order Application Errata Report (Applicant reference HE/A14/EX/10, PINS reference APP-773) traffic growth in the area of the Huntingdon Viaduct without the proposed scheme is projected to be 78,600 vehicles per day in 2020, which is significantly above the design standard of 66,000 vehicles a day used when the road was built. This is projected to increase by 15% between 2020 and 2035 to 90,500 vehicles a day, exacerbating existing congestion problems.

103. As noted above, while some traffic would re-route onto the Huntingdon Southern Bypass, a significant proportion of people would continue to use the existing A14 because it would remain the shortest route to the A1(M) and the north.

104. Failure to deliver traffic relief to A14 in Huntingdon would mean that

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2 A through route would be maintained for light traffic by means of new single-carriageway links to Brampton Road in Huntingdon from the de-trunked A14 at Mill Common and Views Common.
problems associated with congestion would continue to worsen due to people continuing to use the existing A14. This would impact the local environment in Huntingdon in terms of road traffic noise, air quality and related quality of life aspects (as explained in the response to question 2.8.8). While some traffic would transfer to the Huntingdon Southern Bypass as congestion worsens, there would remain a large proportion of traffic that would continue to use the existing A14 through Huntingdon.

105. Removal of the existing Huntingdon Viaduct and provision of associated road works from the scheme would deliver significant traffic relief to Huntingdon and its environs as a result of traffic re-routing onto the Huntingdon Southern Bypass. This would provide associated environmental benefits to the area in the form of reduced road traffic noise and air pollution.

106. As outlined in section 5.4 of the Case for the Scheme (Applicant reference 7.1, PINS reference APP-755) the removal of the existing Huntingdon Viaduct would benefit the townscape of, and some views in Huntingdon, particularly the setting of the Huntingdon Conservation Area, improve views from public rights of way and accesses to Huntingdon railway station as well as improving the setting of the listed canopy of the railway station; and offer the opportunity for regeneration within Huntingdon town centre by removing the severance caused by the viaduct.

107. Removal of the existing Huntingdon Viaduct and provision of road improvements in Huntingdon would also support local regeneration in Huntingdon, notably local aspirations for development to the western side of Huntingdon Town Centre.

108. The benefits associated with the removal of the viaduct are widely recognised in adopted local planning policy, including the Huntingdonshire District Council Core Strategy Development Plan Document (DPD) and the Huntingdon West Area Action Plan.

109. The Huntingdonshire District Council Core Strategy DPD was adopted on 23 September 2009 and sets out the strategic spatial planning framework for how Huntingdonshire will develop up to 2026.

110. One of the key factors of the Spatial Vision set out in the Core Strategy is an increased capacity on the transport network. The A14 scheme is cited as a key mechanism for assisting much of the development in the Huntingdon area and improving access to and around the town centre.

111. Para 5.4 of the Core Strategy recognises the importance of the Huntingdon Spatial Planning Area as a “key driver of the local economy, particularly in the retail, leisure and office based sectors”. The Core Strategy refers specifically to the importance of the A14 scheme and the removal of the viaduct in bringing forward future development in the area:

112. “The Strategic Housing Land Availability Assessment (SHLAA) has
identified significant opportunities for development, including previously
developed land west of Huntingdon town centre and at RAF Brampton. The realignment of the A14 and proposed removal of the viaduct over the railway will help facilitate further development in Huntingdon West after 2015.” (Para 5.4)

113. The Huntingdon West Area Action Plan (HWAAP) was adopted on 23 February 2011 and cites several benefits associated with the proposed A14 scheme and the removal of the viaduct.

114. Policy HW1 ‘New and Enhanced Local Road Networks’ recommends that the A14 scheme should be brought forward to promote better accessibility and enable redevelopment. At the time of the HWAAP adoption, the original A14 scheme had been withdrawn, however the HWAAP notes that the government still recognises that the A14 corridor faces severe congestion, and that mobility along the route is critical for economic success and growth.

115. Policy HW3 ‘The Railway Station’ seeks improvements to the Huntingdon Railway Station and regards the proposed changes to the station associated with the proposed viaduct removal as bringing “desirable” improvements to access.

116. Para 6.4 of the HWAAP refers to environmental benefits associated with the proposed road improvements in the area, including improved air quality in the Huntingdon and Brampton air quality management areas and visual improvements along the entrance to Huntingdon via Brampton Road if the viaduct were demolished.

117. The HWAAP notes that employment development at Hinchingbrooke Community Campus and Water Tower Site would be facilitated by the removal of the viaduct. It is acknowledged that development could proceed were the viaduct retained, however this could restrict the extent of development; “such development will need to respond to the physical constraint of the viaduct” (para 2.12, Appendix 2).

118. While the forecast cost of removing the A14 Huntingdon viaduct and providing associated road works is £45million (refer to the response to written question 2.5.1), removal of the existing A14 Huntingdon viaduct would save £342,000 per annum which is currently spent on monitoring the condition of the viaduct and on ongoing maintenance.

119. In addition to the above, omission of the removal of the existing Huntingdon viaduct (and associated road works) from the scheme at this time would result in delay to the scheme. This would be due to re-design and subsequent re-analysis of the scheme, including provision of potential further options consultation.
Question 2.12.18

Why is removal of the existing A14 Huntingdon viaduct and the associated road works a necessary element of the A14 improvement scheme?

Response

120. Omission of the removal of the existing Huntingdon Viaduct (and associated road works in Huntingdon) is expected to result in a significant proportion of people continuing to use the existing A14, rather than the proposed Huntingdon Southern Bypass, because it would remain the shortest route to the A1(M) and the north (refer to the response to written question 2.5.4).

121. As outlined in the response to written question 2.12.17, a significant consequence of the omission of the removal of the existing Huntingdon Viaduct would be a failure to deliver traffic relief to the A14 through Huntingdon.

122. One of the objectives of the scheme is to combat congestion, making the route between Huntingdon and Cambridge more reliable and providing capacity for future traffic growth. As outlined in the response to written question 2.12.17 a failure to deliver traffic relief to A14 in Huntingdon would mean that problems associated with congestion would continue to worsen due to people continuing to use the existing A14. This would impact the local environment in Huntingdon in terms of road traffic noise, air quality and related quality of life aspects. While some traffic would transfer to the Huntingdon Southern Bypass as congestion worsens, there would remain a large proportion of traffic that would continue to use the existing A14 through Huntingdon.

123. Removal of the existing Huntingdon Viaduct and provision of associated road works from the scheme would deliver significant traffic relief to Huntingdon and its environs as a result of traffic re-routing onto the Huntingdon Southern Bypass. This would provide associated environmental benefits to the area in the form of reduced road traffic noise and air pollution.

124. Another scheme objective is to unlock growth, enabling major residential and commercial developments to proceed, leading to increased economic growth, regionally and nationally. As outlined in the response to written question 2.12.17, removal of the existing Huntingdon Viaduct and provision of road improvements in Huntingdon would also support local regeneration in Huntingdon, notably local aspirations for development to the western side of Huntingdon Town Centre.

125. Another scheme objective is to connect people, by placing the right traffic on the right roads and freeing up local capacity for all types of road user, including pedestrians, cyclists and equestrians. Removal of the
viaduct would result in significant re-routing of traffic, notably strategic 'through' traffic to the Huntingdon Southern Bypass traffic, freeing up capacity on the exiting A14 for local traffic movements.

126. Another scheme objective is to improve safety, designing the proposed scheme to modern highway standards, introducing better lane control, and providing adequate capacity for predicted traffic levels. Traffic growth in the area of the Huntingdon Viaduct without the proposed scheme is projected to be 78,600 vehicles per day in 2020, which is significantly above the design standard of 66,000 vehicles a day used when the road was built. This is projected to increase by 15% between 2020 and 2035 to 90,500 vehicles a day, exacerbating existing congestion problems. Removal of the viaduct would result in significant re-routing of traffic onto a new, high-quality route designed to modern standards.

127. The benefits associated with the removal of the viaduct are widely recognised in adopted local planning policy, including the Huntingdonshire District Council Core Strategy Development Plan Document (DPD) and the Huntingdon West Area Action Plan (refer to the response to written question 2.12.17).

128. As described in Chapter 4 of *The Case for the Scheme* (Applicant reference 7.1, PINS reference APP-755), several options were considered and assessed during the scheme development process. This process was guided by an examination of the identified issues and objectives, and ultimately led to the scheme, as set out in the Development Consent Order application, being identified as the preferred solution.

129. As a result of the decision not to toll the scheme, Highways England re-evaluated the business case for the proposed scheme alongside the alternatives previously considered. These alternatives included Option 5a, which provided a dual two-lane Huntingdon Southern Bypass and retained the existing Huntingdon Viaduct, and Option 7b (the proposed scheme), which provided a dual three-lane Huntingdon Southern Bypass and included de-trunking of the existing A14 and removal of the existing Huntingdon Viaduct.

130. While none of the options evaluated were directly equivalent to a scenario in which the Huntingdon Viaduct is retained as part of the proposed scheme, Option 5a is considered to provide a good analogue because, regardless of the number of lanes provided on the Huntingdon Southern Bypass, the existing A14 through Huntingdon would remain the shortest route to the A1(M) and the north. A significant proportion of people would therefore continue to use the existing A14, rather than the Huntingdon Southern Bypass.

131. The results of the above evaluation concluded that, while Option 5a would offer higher value for money than the proposed scheme (Option 7b), it would only offer short term relief of congestion and would require a further scheme to provide additional capacity within 10 to 15 years. It is
likely that this would include additional lanes on the Huntingdon Southern Bypass (additional widening to the Huntingdon Viaduct from two to three lanes in both directions would not be possible without demolition of the existing structure), a junction between the bypass and the A1 and speed restrictions on the A14 through Huntingdon.

132. Consequently, the proposed scheme, which includes removal of the Huntingdon Viaduct, provides a long-term solution to the problems of congestion on the A14 between Cambridge and Huntingdon. It is the only solution which meets all the strategic business case objectives. It is also the scheme which would have the widest public and local authority support (both Huntingdonshire District Council and Cambridgeshire County Council have stated that they would not support any scheme which retained the Huntingdon Viaduct).
**Question 2.12.19**

‘It is expected that a significant proportion of people would continue to use the existing A14’ if the existing viaduct was retained in the context of the availability of the re-routed A14 as now proposed. Has any modelling work been carried out to support this expectation? If so, please provide details; if not, why not? (REP5-029, page 22)

**Response**

133. Modelling associated with the routing of traffic in response to the existing Huntingdon Viaduct has been undertaken during the ‘Options’ stage of the scheme, notably as part of work carried out after 4 December 2013 when it was confirmed that the scheme would not be tolled (refer to the *Case for the Scheme*, para. 4.7.1, Applicant reference 7.1, PINS reference APP-755).

134. As a result of the decision not to toll the scheme, Highways England re-evaluated the business case for the proposed scheme alongside the alternatives previously considered. These alternatives included Option 5a, which provided a dual two-lane Huntingdon Southern Bypass and retained the existing Huntingdon Viaduct, and Option 7b (the proposed scheme), which provided a dual three-lane Huntingdon Southern Bypass and included de-trunking of the existing A14 and removal of the existing Huntingdon Viaduct.

135. While none of the options evaluated were directly equivalent to a scenario in which the A14 Huntingdon viaduct is retained as part of the proposed scheme, Option 5a is considered to provide a good analogue because, regardless of the number of lanes provided on the Huntingdon Southern Bypass, the existing A14 through Huntingdon would remain the shortest route to the A1(M) and the north (refer to the response to written question 2.5.4). A significant proportion of people would therefore continue to use the existing A14, rather than the Huntingdon Southern Bypass. On this basis, no further modelling work has been undertaken to model a scenario in which the Huntingdon Viaduct is retained as part of the proposed scheme.

136. The results of the Option 5a assessment provide evidence to support the expectation that a significant proportion of people would continue to use the existing road if the viaduct were retained as part of the scheme. Table 5 shows the forecast traffic volumes extracted from the Option 5a assessment carried out in early 2014. These forecasts show traffic volumes on the existing A14 to be approximately twice as high as those on the Huntingdon Southern Bypass.
<table>
<thead>
<tr>
<th>Scenario</th>
<th>Direction</th>
<th>Existing A14</th>
<th>HSB</th>
<th>Difference %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 AM</td>
<td>EB</td>
<td>2558</td>
<td>1175</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>2952</td>
<td>1301</td>
<td>56%</td>
</tr>
<tr>
<td>2016 PM</td>
<td>EB</td>
<td>2938</td>
<td>1360</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>2849</td>
<td>1210</td>
<td>58%</td>
</tr>
<tr>
<td>2031 AM</td>
<td>EB</td>
<td>3245</td>
<td>1485</td>
<td>54%</td>
</tr>
<tr>
<td></td>
<td>WB</td>
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<td>57%</td>
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<tr>
<td>2031 PM</td>
<td>EB</td>
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<td>1788</td>
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</tr>
<tr>
<td></td>
<td>WB</td>
<td>3505</td>
<td>1457</td>
<td>58%</td>
</tr>
</tbody>
</table>

137. Figure 1 shows a select link analysis (extracted from the CHARM1 traffic model) on westbound traffic on the section of the A14 between Spittals and Godmanchester junctions including the Huntingdon Viaduct in the morning peak hour in 2031.

Figure 12: CHARM1 Option 5a 2031 AM Peak Existing A14 W/B Flows

138. The pattern is similar for other time periods and for eastbound traffic. There would be a mixture of trip lengths on this section: there would be no separation of local and strategic trips. Some of the trips would be short-distance trips joining the A14 at Spittals or Godmanchester. However, many of the trips using the existing A14 would be of a long distance nature. The existing A14 would be the shortest route to and from the A1(M) to the north, hence, it would be reasonable to expect that it would
be the preferred route for this movement. It would be traffic with an origin or destination on the A14 west of the A1 which would be expected to be the predominant movement that transfers to the HSB, as demonstrated in Figure 2, which has been extracted from the CHARM1 traffic model. Most of the trips on the HSB would be long-distance trips.

Figure 13: CHARM1 Option 5a 2031 AM Peak HSB W/B Flows