ATKINS

A14 Study: Output 3

Package Testing & Appraisal Report

Appendices

Department for Transport

November 2012

Plan Design Enable

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Appendix A. Sketch drawings of package components (not to scale)

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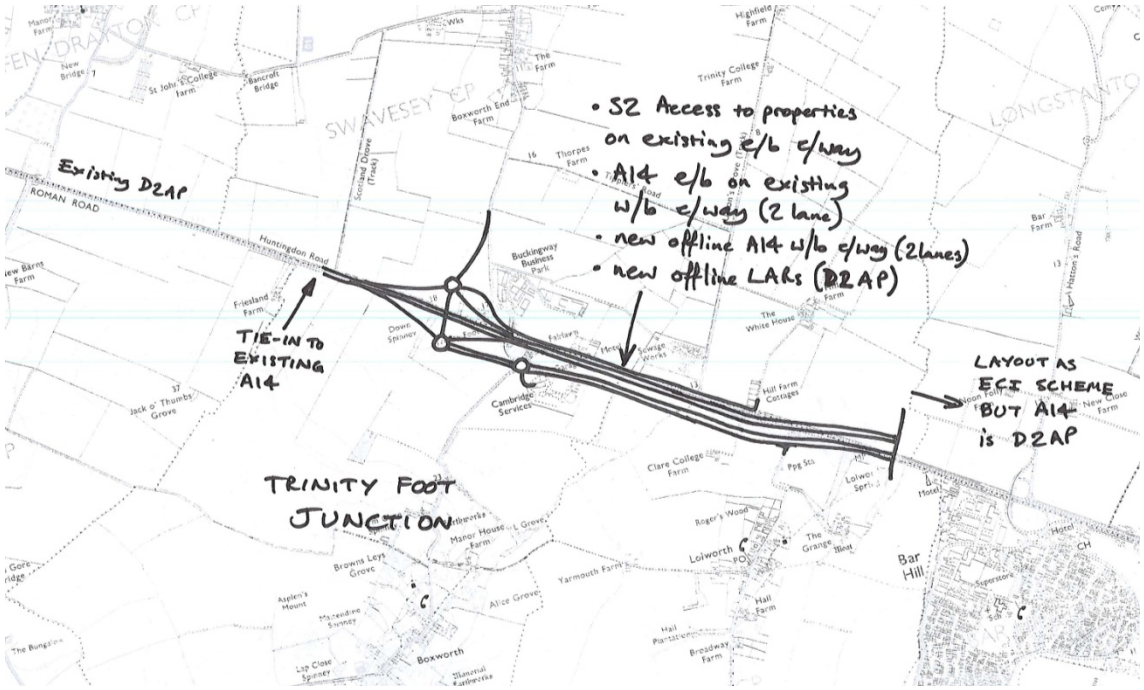
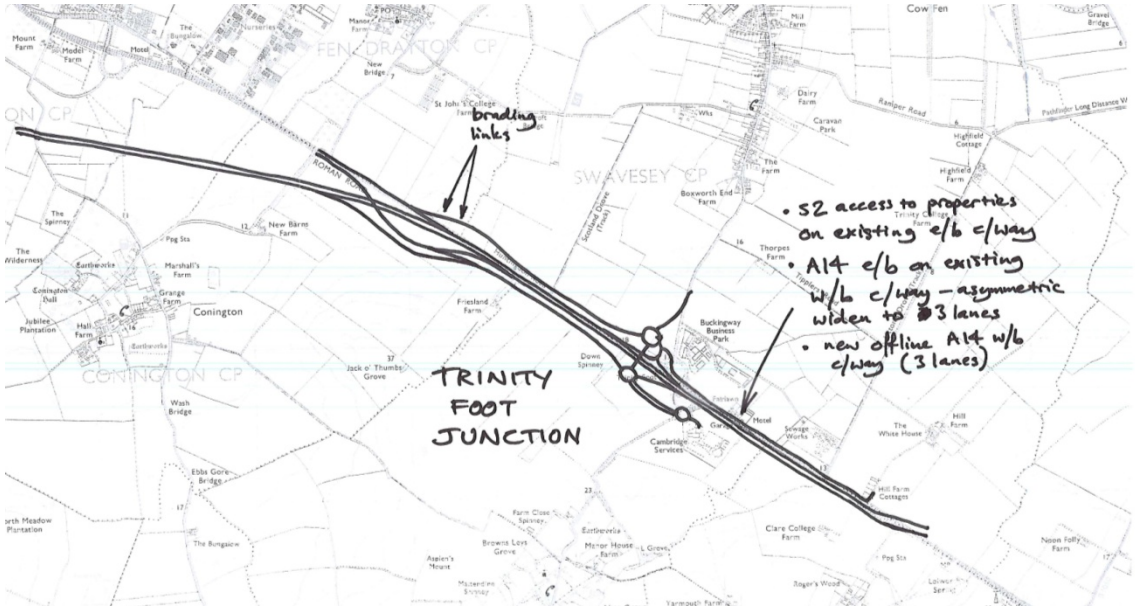
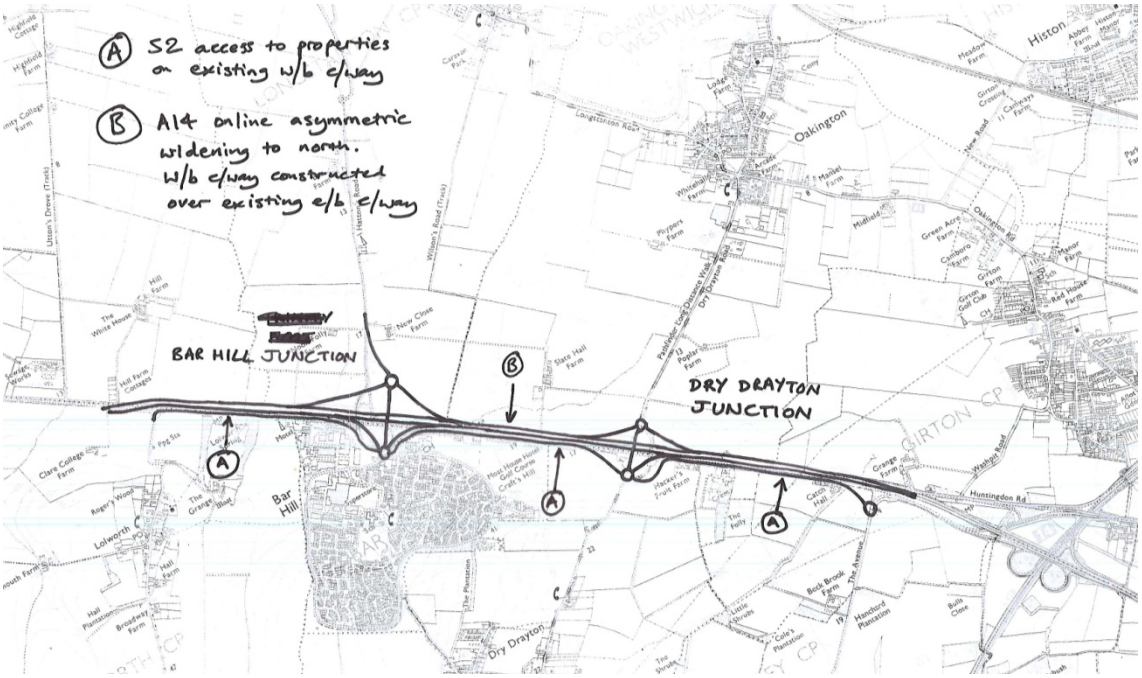
Sketch 1 – Trinity Foot Junction (for package variant HW2 (Option 1))



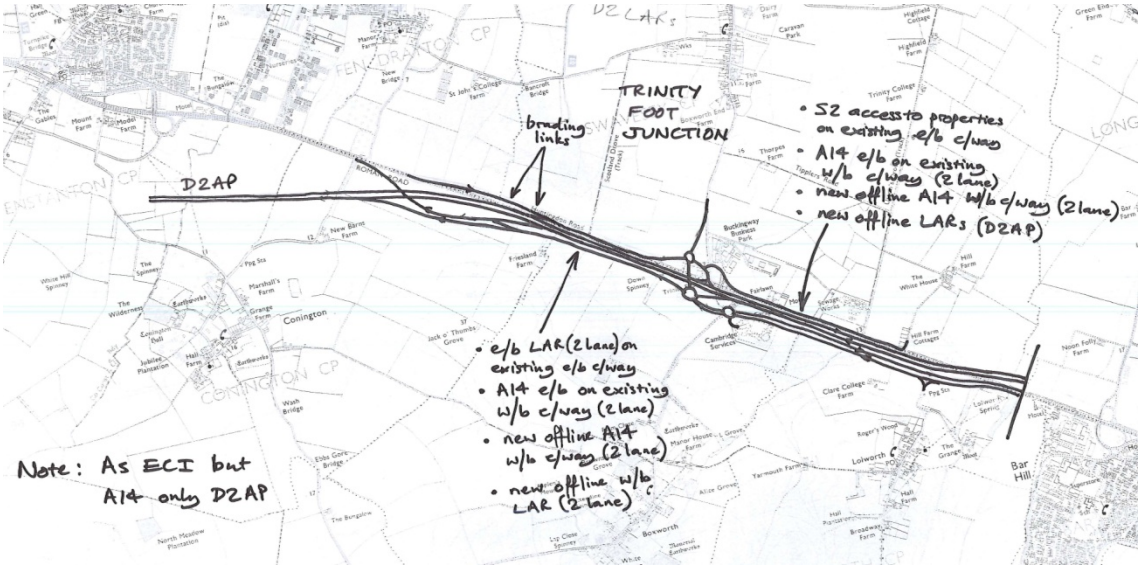
Sketch 2 – Trinity Foot Junction (for package variants HW3 (Option 2) and HW8 (Option 4))



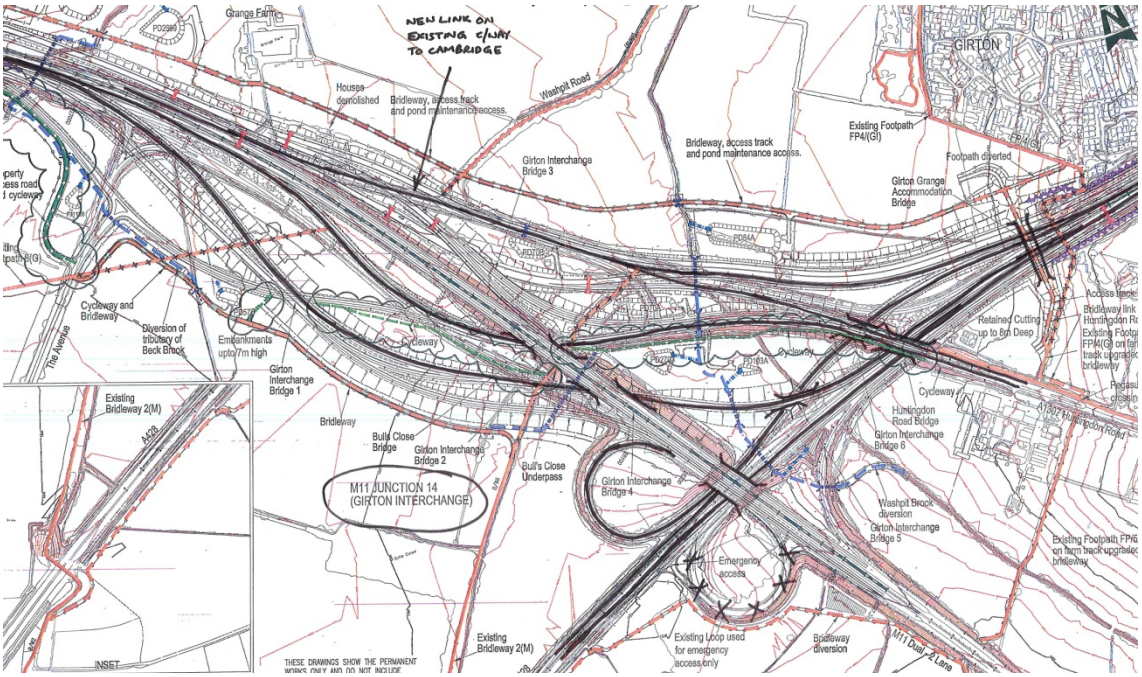
Sketch 3 - Bar Hill Junction and Dry Drayton Junction (package variants HW3 (Option 2), HW8 (Option 4))



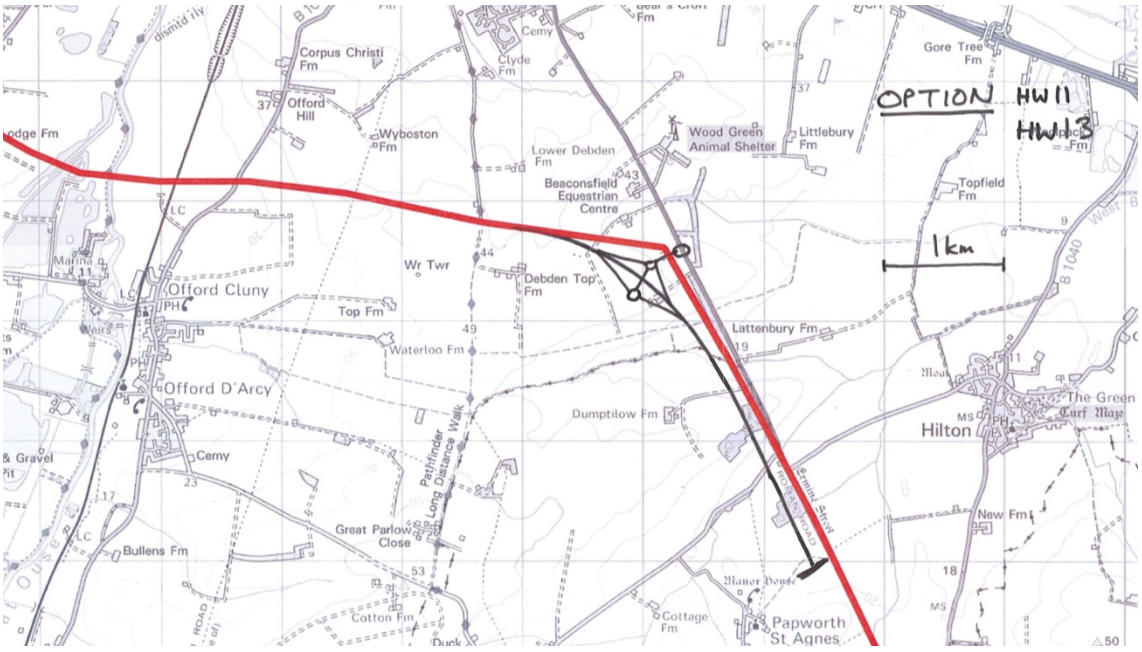
Sketch 4 - Trinity Foot Junction (package variant HW10 (Option 5))



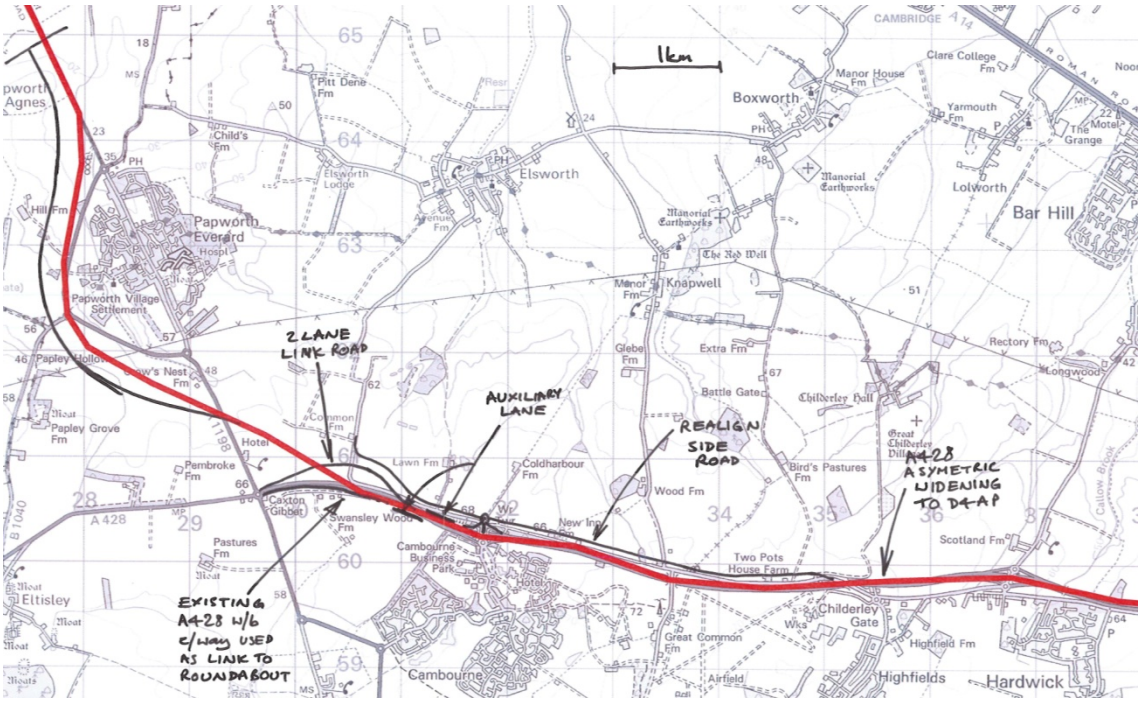
Sketch 5 – Girton Interchange (package variants HW3 (Option 2), HW5 (Option 3), HW8 (Option 4))



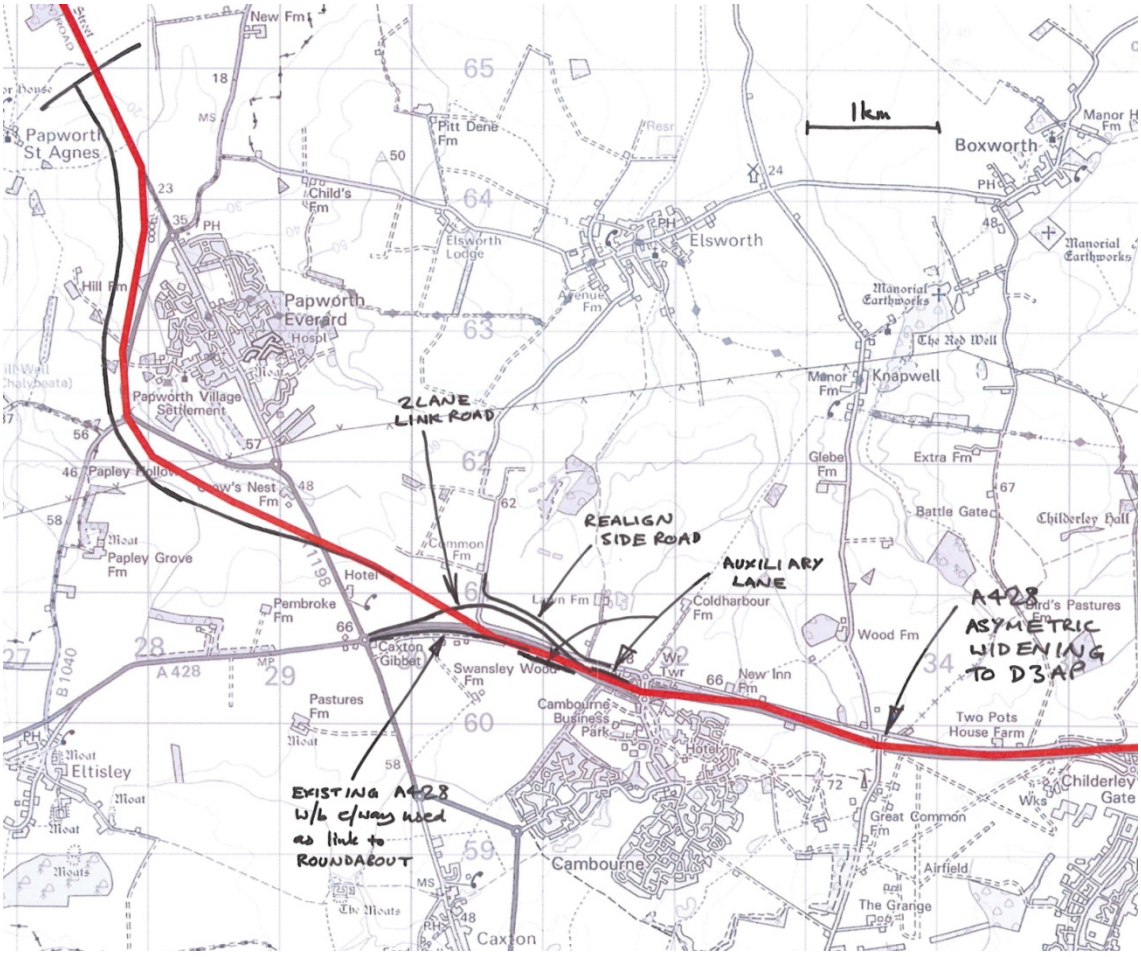
Sketch 6 – A1198 / Huntingdon Southern Bypass junction (package variant HW13 (Option 6))



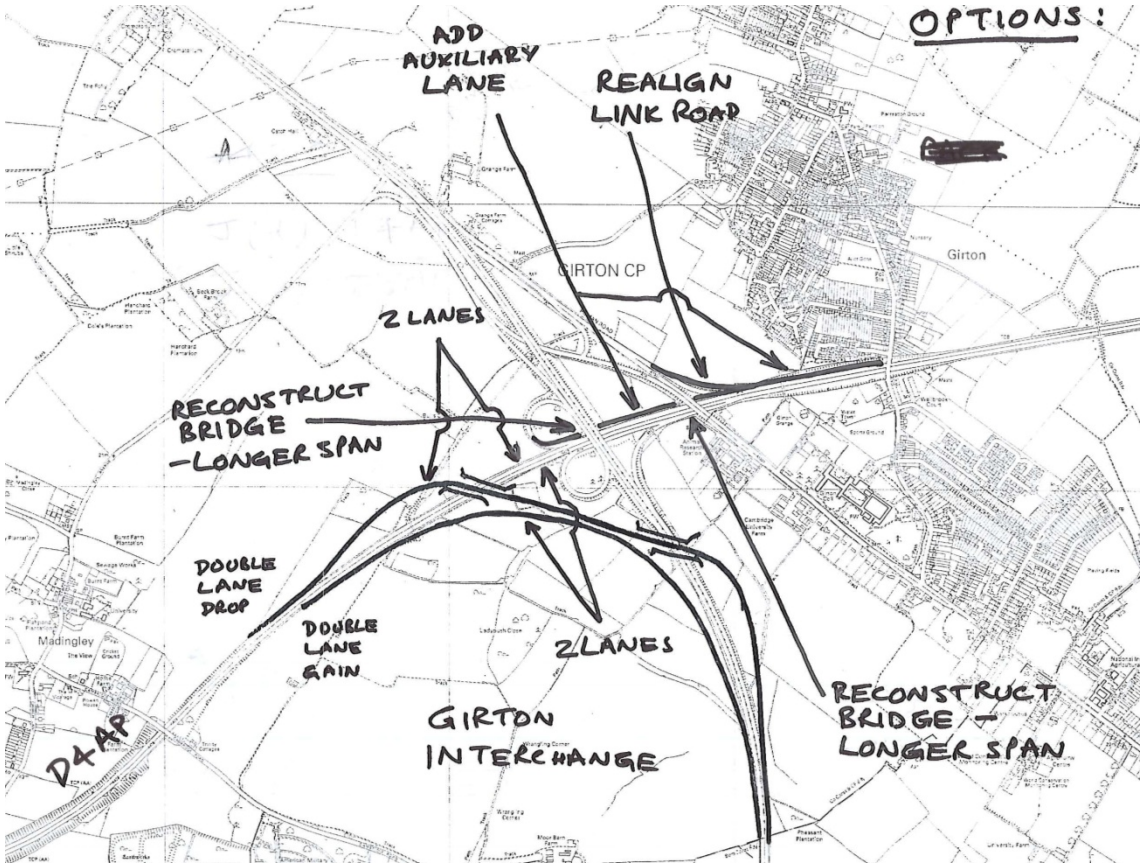
Sketch 7 – A428 enhancements (package variant HW13 (Option 6))



Sketch 8 – A428 / A1198 Junction Caxton Gibbet (package variant HW13 (Option 6))



Sketch 9 – Girton Interchange (package variant HW13 (Option 6))



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Appendix B. Results of first-round testing of the 16 highway package variants

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Highway package DS

Package DS provides local access roads between Trinity Foot and Girton plus full Girton enhancement and retains the Huntingdon Viaduct as is. It has two variants:

- without improvements to (HW1); and
- with improvements to Cambridge Northern Bypass (HW2).

The performance of the two variants are summarised below. The 'better' result is shown in bold for each measure.

Table 1. Performance of highway package DS variants HW1 and HW2

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-1% -2%	**-5%** **-6%**
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-1% -1%	**-3%** **-3%**
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-1% -1%	**-2%** **-2%**
Estimate housing development unlocked.		
Estimate employment development unlocked.		
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	Minimal difference between variants	
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+1%	**+8%**
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**-7%**	-6%
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**0%**	+2%

Overall, and perhaps unsurprisingly, the variant including improvements to the Cambridge Northern Bypass performs better than the variant without. However, for some measures, the differences are relatively minor.

Highway package GBCR (d)

Highway package GBCR (d) includes the D3AP Huntingdon Southern bypass with a tie in south east of Fenstanton, plus online widening from the HSB to Girton and scaled-back Girton enhancement. The Huntingdon Viaduct is either removed or de-trunked to 30mph S2AP.

- HW3 does not include the Cambridge Northern Bypass improvements and removes the Huntingdon Viaduct as per the ECI scheme;
- HW4 does not include the Cambridge Northern Bypass improvements but assumes the Huntingdon Viaduct is 30mph S2AP;
- HW5 includes the Cambridge Northern Bypass and removes the Huntingdon Viaduct as per the ECI scheme; and
- HW6 includes the Cambridge Northern Bypass and assumes the Huntingdon Viaduct is 30mph S2AP.

The performance of the derivatives of this option is summarised below.

Table 4 – Performance of highway package GBCR (d) variants HW3 to HW6

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-13% -17%	-10% -17%	**-16%** **-22%**	-13% -21%
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-8% -6%	-6% -4%	**-9%** **-7%**	-7% -5%
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-4% -4%	-2% -2%	**-5%** **-5%**	-4% -3%
Estimate housing development unlocked.				
Estimate employment development unlocked.				
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	There is little difference between the four variants although HW5 enables a larger proportion of the population to be within 30 minutes of Cambridge (53%) and Huntingdon (55%).			
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+20%	+14	**+29%**	+22%
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**-7%**	-6%	**-7%**	-5%
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**+1%**	**+1%**	+2%	+3%

Overall, test HW5, which includes the Cambridge Northern Bypass improvements and removes the Huntingdon Viaduct as per the ECI scheme performs best against most of the measures of success. Test HW6, which is as HW5 but downgrades, rather than removes the Huntingdon Viaduct, performs nearly as well against some measures, although notably not in terms of journeys time / speeds. The two tests without the Cambridge Northern Bypass Improvements (HW3 and HW4) perform worse than those with them (HW5 and HW6).

Highway package GBCR (r)

Highway package GBCR (r) includes the D2AP Huntingdon Southern bypass with a tie in south east of Fenstanton, plus online widening from the HSB to Girton and scaled-back Girton enhancement. The Huntingdon Viaduct is retained as is as the existing A14 alignment past Huntingdon is retained for strategic traffic. Two variants have been tested:

- HW7 does not include improvements to the Cambridge Northern Bypass; and
- HW8 which does include improvements to the Cambridge Northern Bypass.

The performance of the derivatives of this option is summarised below.

Table 5 – Performance of highway package GBCR (r) variants HW7 and HW8

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-11% -19%	**-14%** **-24%**
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-8% -7%	**-9%** **-8%**
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-4% -4%	**-5%** **-5%**
Estimate housing development unlocked.		
Estimate employment development unlocked.		
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	Minimal difference between variants	
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+16%	**+25%**
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**-3%**	-2%
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**0%**	+1%

Overall, as with package DS, the variant including improvements to the Cambridge Northern Bypass performs better than the variant without, particularly for those measures of journey time and speed in the core study area.

Highway package GDS (r)

Highway package GDS (r) is as package DS plus a D2AP Huntingdon Southern bypass with a tie in south east of Fenstanton and retains the Huntingdon Viaduct as is for strategic traffic to/from the A1(M). Two variants have been tested:

- HW9 does not include improvements to the Cambridge Northern Bypass; and
- HW10 which does include improvements to the Cambridge Northern Bypass.

The performance of the derivatives of this option is summarised below.

Table 6 – Performance of highway package GDS (r) variants HW9 and HW10

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-10% -19%	**-14%** **-24%**
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-7% -7%	**-9%** **-8%**
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-3% -3%	**-5%** **-5%**
Estimate housing development unlocked.		
Estimate employment development unlocked.		
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	Minimal difference between variants	
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+13%	**+21%**
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**-6%**	**-6%**
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**-1%**	+1%

Overall, as with previous tests, the variant including improvements to the Cambridge Northern Bypass (test HW10) performs better than the variant without (test HW9). However for this package, the difference between the additional benefits of the Cambridge Northern Bypass appear less marked than for other tests.

Highway package G(part)J (d)

Highway package G(part)J (d) includes the D3AP Huntingdon Southern bypass (western section) plus upgraded A428 / A1198 corridor. The Huntingdon Viaduct is either removed or downgraded to 30mph S2AP. Four variants have been tested:

- HW11 does not include the Cambridge Northern Bypass improvements and removes the Huntingdon Viaduct as per the ECI scheme;
- HW12 does not include the Cambridge Northern Bypass improvements but assumes the Huntingdon Viaduct is 30mph S2AP;
- HW13 includes the Cambridge Northern Bypass and removes the Huntingdon Viaduct as per the ECI scheme; and
- HW14 includes the Cambridge Northern Bypass and assumes the Huntingdon Viaduct is 30mph S2AP.

Table 7 – Performance of highway package G(part)J (d) variants HW11 to HW14

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-12% -13%	-9% -12%	**-16%** **-18%**	-12% -17%
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-6% -3%	-5% -1%	**-8%** **-4%**	-7% -2%
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-3% -3%	-2% -2%	**-5%** **-5%**	-3% -3%
Estimate housing development unlocked.				
Estimate employment development unlocked.				
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	There is little difference between the four variants, although HW13 enables a larger proportion of the population to be within 30 minutes of Cambridge (53%) and Huntingdon (55%).			
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+20%	+14%	**+31%**	+23%
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**+3%**	+5%	+4%	+6%
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**+4%**	+5%	+5%	+6%

As with all the other packages, the tests with the Cambridge Northern Bypass Improvements (HW13 and HW14) tend to perform better than those without them (HW11 and HW12). The better performance is particularly notable for those trips within the core study area. However test HW11 performs best in terms of accidents and air quality.

As with highway package GBCR, the test which includes the Cambridge Northern Bypass improvements and removes the Huntingdon Viaduct as per the ECI scheme (HW13) performs best against most of the measures of success. Test HW14, which is as HW13 but downgrades, rather than removes the Huntingdon Viaduct, performs nearly as well against some measures, although notably not in terms of journeys time / speeds.

Highway package G(part)J (r)

Highway package G(part)J (r) includes the D2AP Huntingdon Southern bypass (western section) plus upgraded A428 / A1198 corridor. The Huntingdon Viaduct as is for strategic traffic to/from the A1(M). Two variants have been tested:

- HW15 does not include improvements to the Cambridge Northern Bypass; and
- HW116 which does include improvements to the Cambridge Northern Bypass.

The performance of the derivatives of this option is summarised below.

Table 5 – Performance of highway package G(part)J (r) variants HW15 and HW16

Change in travel time for all employers business trips and HGV trips in the corridor. *(Morning peak shown)*	-9% -16%	**-12%** **-20%**
Change in travel time for employers business trips and HGV trips through the corridor. *(Morning peak shown)*	-6% -6%	**-7%** **-7%**
Change in travel time for employers business trips and commuting trips with an origin or destination in Cambridgeshire. *(Morning peak shown)*	-3% -3%	**-4%** **-4%**
Estimate housing development unlocked.		
Estimate employment development unlocked.		
Change in proportion of population within 30, 45 and 60 minutes commuting time of Cambridge, Huntingdon and Alconbury.	Minimal difference between variants	
Change in average speed for trips with an origin or destination within Cambridgeshire during the morning peak. *(data show average speed on links in core study area)*	+14%	**+22%**
Change in the number of accidents in the A14 corridor. *(data shows estimates change in accidents on A14 and A428)*	**+8%**	**+8%**
Change in air quality and noise impacts in the Huntingdon AQMA and elsewhere in the A14 corridor. (*Data shows change in fuel consumption)*	**0%**	+2%

Overall, as with previous tests, the variant including improvements to the Cambridge Northern Bypass (test HW16) performs better than the variant without (test HW1).

Summary model results

Test	Reducing Lost Productive Time Change in network travel time in A14 corridor by user class (compared to do minimum)						Supporting growth of the wider UK economy Change in travel time through A14 corridor by user class (compared to do minimum)						Supporting the economic growth of greater Cambridge Change in travel time by user class for journeys with an origin or destination in Cambridgeshire (compared to do minimum)					
	Employers Business			HGVs			Employers Business			HGVs			Employers Business			Commuting		
	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
Do Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HW1	-1%	-1%	-3%	-2%	-3%	-4%	-1%	-1%	-2%	-1%	-1%	-2%	-1%	-1%	-1%	-1%	-1%	-1%
HW2	-5%	-2%	-5%	-6%	-5%	-8%	-3%	-1%	-3%	-3%	-2%	-3%	-2%	-1%	-3%	-2%	-1%	-3%
HW3	-13%	-14%	-16%	-17%	-20%	-23%	-8%	-8%	-10%	-6%	-7%	-9%	-4%	-5%	-6%	-4%	-5%	-6%
HW4	-10%	-12%	-13%	-17%	-19%	-25%	-6%	-6%	-8%	-4%	-5%	-7%	-2%	-3%	-4%	-2%	-3%	-4%
HW5	-16%	-15%	-19%	-22%	-22%	-27%	-9%	-9%	-11%	-7%	-7%	-10%	-5%	-5%	-7%	-5%	-5%	-7%
HW6	-13%	-13%	-16%	-21%	-21%	-29%	-7%	-7%	-10%	-5%	-5%	-8%	-4%	-4%	-6%	-3%	-4%	-6%
HW7	-11%	-13%	-15%	-19%	-23%	-26%	-8%	-8%	-9%	-7%	-8%	-9%	-4%	-4%	-5%	-4%	-4%	-5%
HW8	-14%	-14%	-18%	-24%	-25%	-30%	-9%	-8%	-11%	-8%	-8%	-11%	-5%	-4%	-6%	-5%	-4%	-6%
HW9	-10%	-12%	-15%	-19%	-22%	-25%	-7%	-7%	-9%	-7%	-8%	-9%	-3%	-4%	-4%	-3%	-4%	-5%
HW10	-14%	-13%	-18%	-24%	-25%	-29%	-9%	-8%	-10%	-8%	-8%	-10%	-5%	-4%	-6%	-5%	-4%	-6%
HW11	-12%	-12%	-15%	-13%	-17%	-19%	-6%	-7%	-9%	-3%	-5%	-6%	-3%	-4%	-5%	-3%	-4%	-5%
HW12	-9%	-10%	-12%	-12%	-15%	-19%	-5%	-6%	-8%	-1%	-3%	-4%	-2%	-3%	-4%	-2%	-3%	-4%
HW13	-16%	-13%	-18%	-18%	-19%	-23%	-8%	-8%	-11%	-4%	-5%	-7%	-5%	-5%	-6%	-5%	-5%	-6%
HW14	-12%	-12%	-15%	-17%	-17%	-23%	-7%	-7%	-9%	-2%	-3%	-6%	-3%	-4%	-5%	-3%	-4%	-5%
HW15	-9%	-10%	-13%	-16%	-17%	-21%	-6%	-6%	-8%	-6%	-6%	-8%	-3%	-3%	-4%	-3%	-3%	-4%
HW16	-12%	-11%	-15%	-20%	-19%	-26%	-7%	-6%	-9%	-7%	-6%	-9%	-4%	-3%	-5%	-4%	-3%	-5%

Test	Reducing Lost Productive Time Change in network travel time in A14 corridor by user class (compared to do minimum)						Supporting growth of the wider UK economy Change in travel time through A14 corridor by user class (compared to do minimum)						Supporting the economic growth of greater Cambridge Change in travel time by user class for journeys with an origin or destination in Cambridgeshire (compared to do minimum)					
	Employers Business			HGVs			Employers Business			HGVs			Employers Business			Commuting		
	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
Do Min	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HW1	-1%	-1%	-3%	-2%	-3%	-4%	-1%	-1%	-2%	-1%	-1%	-2%	-1%	-1%	-1%	-1%	-1%	-1%
HW2	-5%	-2%	-5%	-6%	-5%	-8%	-3%	-1%	-3%	-3%	-2%	-3%	-2%	-1%	-3%	-2%	-1%	-3%
HW3	-13%	-14%	-16%	-17%	-20%	-23%	-8%	-8%	-10%	-6%	-7%	-9%	-4%	-5%	-6%	-4%	-5%	-6%
HW4	-10%	-12%	-13%	-17%	-19%	-25%	-6%	-6%	-8%	-4%	-5%	-7%	-2%	-3%	-4%	-2%	-3%	-4%
HW5	-16%	-15%	-19%	-22%	-22%	-27%	-9%	-9%	-11%	-7%	-7%	-10%	-5%	-5%	-7%	-5%	-5%	-7%
HW6	-13%	-13%	-16%	-21%	-21%	-29%	-7%	-7%	-10%	-5%	-5%	-8%	-4%	-4%	-6%	-3%	-4%	-6%
HW7	-11%	-13%	-15%	-19%	-23%	-26%	-8%	-8%	-9%	-7%	-8%	-9%	-4%	-4%	-5%	-4%	-4%	-5%
HW8	-14%	-14%	-18%	-24%	-25%	-30%	-9%	-8%	-11%	-8%	-8%	-11%	-5%	-4%	-6%	-5%	-4%	-6%
HW9	-10%	-12%	-15%	-19%	-22%	-25%	-7%	-7%	-9%	-7%	-8%	-9%	-3%	-4%	-4%	-3%	-4%	-5%
HW10	-14%	-13%	-18%	-24%	-25%	-29%	-9%	-8%	-10%	-8%	-8%	-10%	-5%	-4%	-6%	-5%	-4%	-6%
HW11	-12%	-12%	-15%	-13%	-17%	-19%	-6%	-7%	-9%	-3%	-5%	-6%	-3%	-4%	-5%	-3%	-4%	-5%
HW12	-9%	-10%	-12%	-12%	-15%	-19%	-5%	-6%	-8%	-1%	-3%	-4%	-2%	-3%	-4%	-2%	-3%	-4%
HW13	-16%	-13%	-18%	-18%	-19%	-23%	-8%	-8%	-11%	-4%	-5%	-7%	-5%	-5%	-6%	-5%	-5%	-6%
HW14	-12%	-12%	-15%	-17%	-17%	-23%	-7%	-7%	-9%	-2%	-3%	-6%	-3%	-4%	-5%	-3%	-4%	-5%
HW15	-9%	-10%	-13%	-16%	-17%	-21%	-6%	-6%	-8%	-6%	-6%	-8%	-3%	-3%	-4%	-3%	-3%	-4%
HW16	-12%	-11%	-15%	-20%	-19%	-26%	-7%	-6%	-9%	-7%	-6%	-9%	-4%	-3%	-5%	-4%	-3%	-5%

Test	Improving quality of life and welfare Average speed in the morning peak for links within the core study area AM Average Speeds in kph			Reducing the number of accidents on the A14 and in the core study area Estimate of change in accidents in A14 corridor Change in accidents on trunk roads (incl. downgraded A14) in corridor	Reducing air quality and noise impacts Estimate of change in air quality in A14 corridor Change in fuel consumption		
	Speed	Diff	% diff	Daily/annual	AM	IP	PM
Do Min	53.7	-	-	-	-	-	-
HW1	54.4	0.7	1%	-7%	0%	0%	-1%
HW2	58.0	4.3	8%	-6%	2%	1%	0%
HW3	64.5	10.8	20%	-7%	1%	2%	1%
HW4	61.1	7.4	14%	-6%	1%	1%	1%
HW5	69.3	15.6	29%	-7%	2%	3%	2%
HW6	65.4	11.7	22%	-5%	3%	2%	1%
HW7	62.3	8.6	16%	-3%	0%	0%	-1%
HW8	67.0	13.3	25%	-2%	1%	1%	0%
HW9	60.7	7.0	13%	-6%	-1%	-1%	-2%
HW10	65.2	11.5	21%	-6%	1%	0%	-1%
HW11	64.7	11	20%	+3%	4%	5%	5%
HW12	61.3	7.6	14%	+5%	5%	5%	5%
HW13	70.1	16.4	31%	+4%	5%	6%	6%
HW14	66.0	12.3	23%	+6%	6%	5%	6%
HW15	61.0	7.3	14%	+8%	0%	1%	-1%
HW16	65.6	11.9	22%	+8%	2%	1%	0%

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Appendix C. SATURN flow difference plots of the six shortlisted highway options (2031, morning peak hour)

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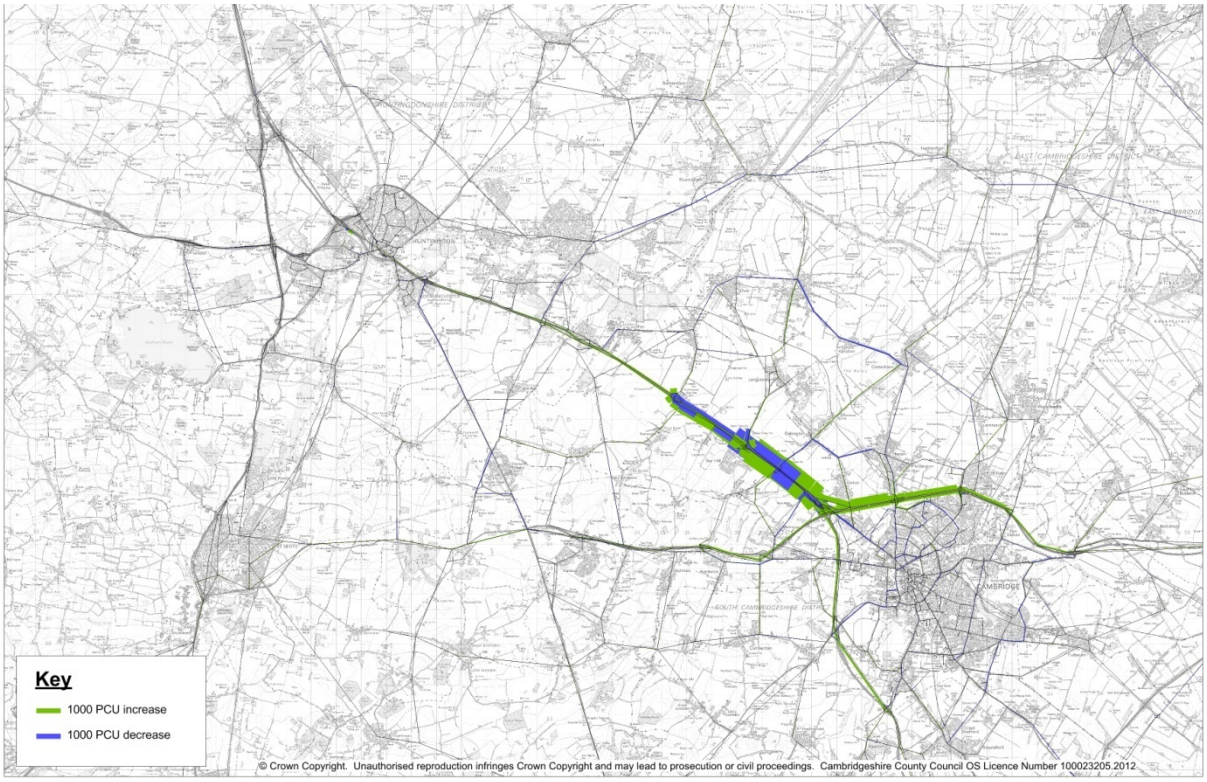
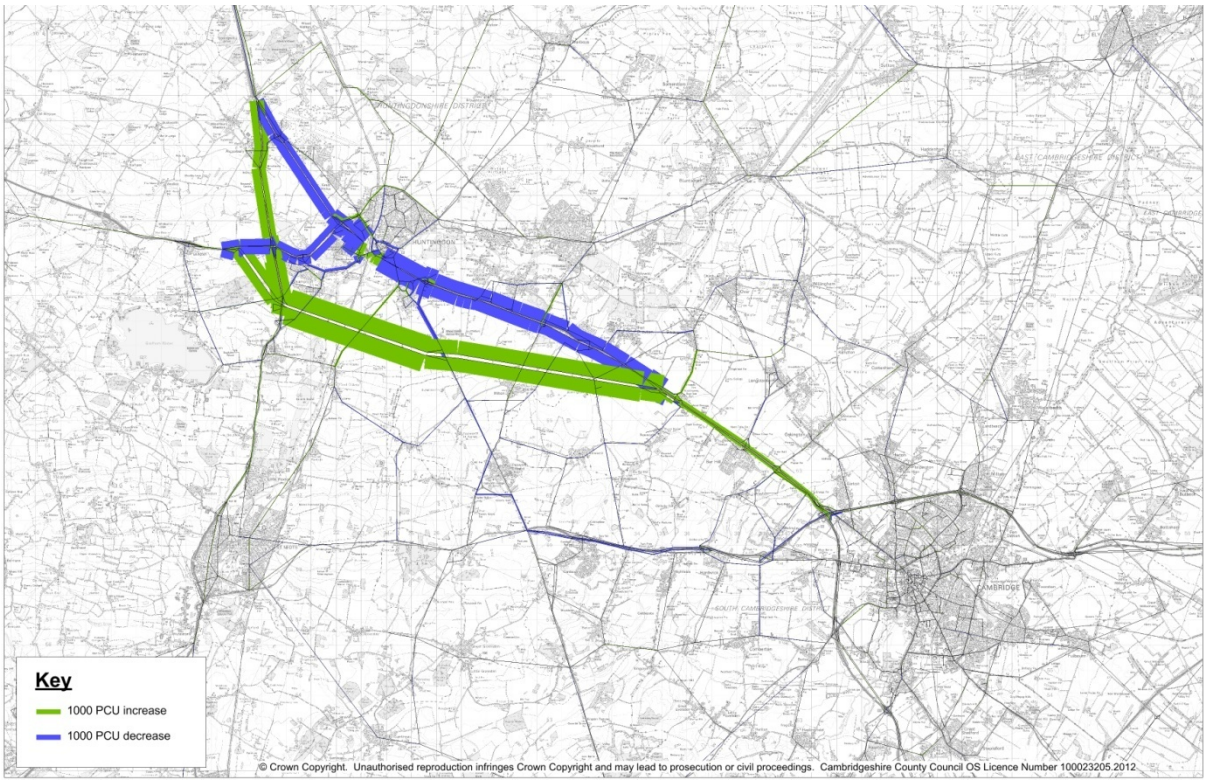
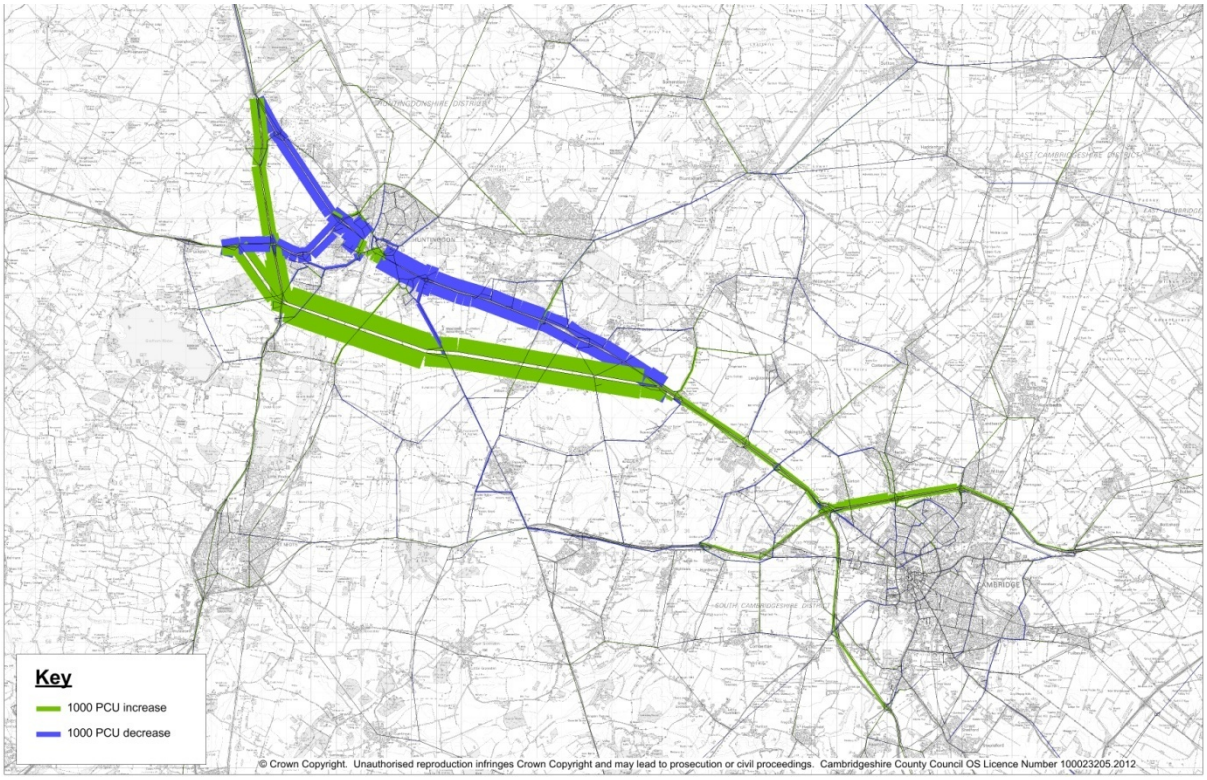
Option 1 (new Local Access Roads, Cambridge Northern Bypass enhancement and Huntingdon Viaduct retained)



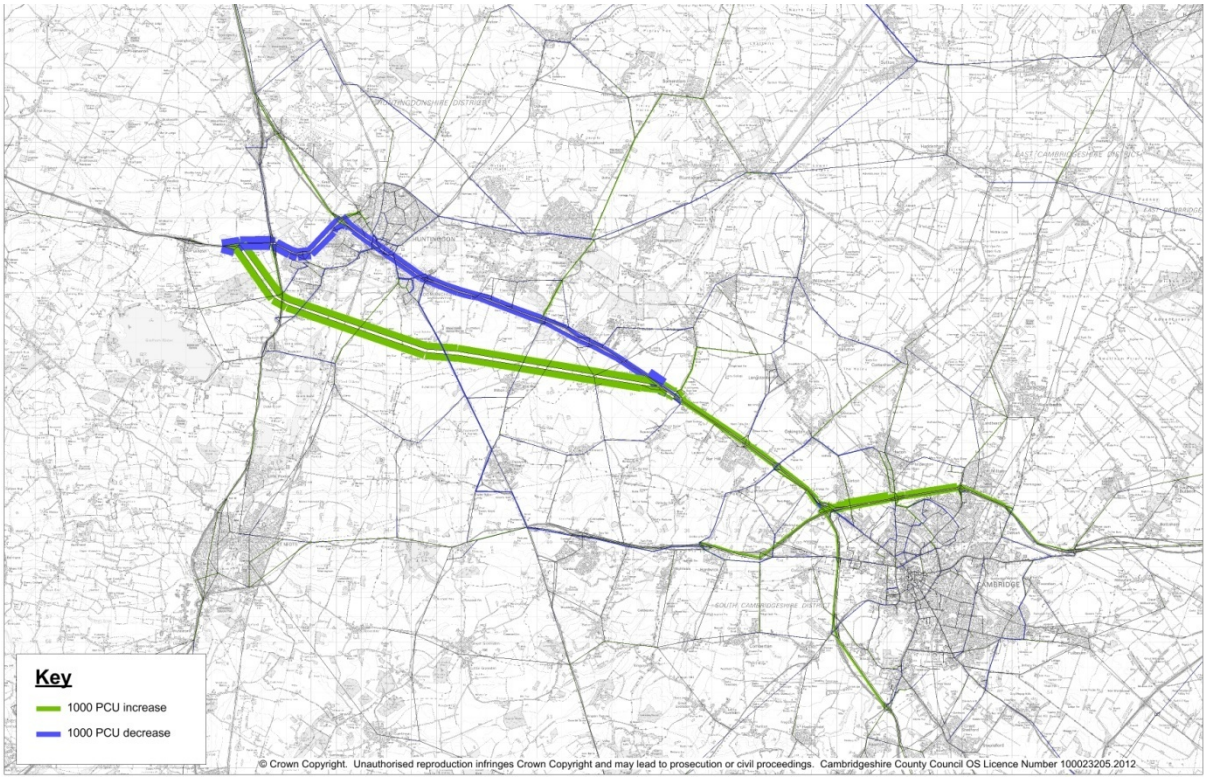
Option 2 (new D3AP Huntingdon Southern Bypass, online widening, no Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)



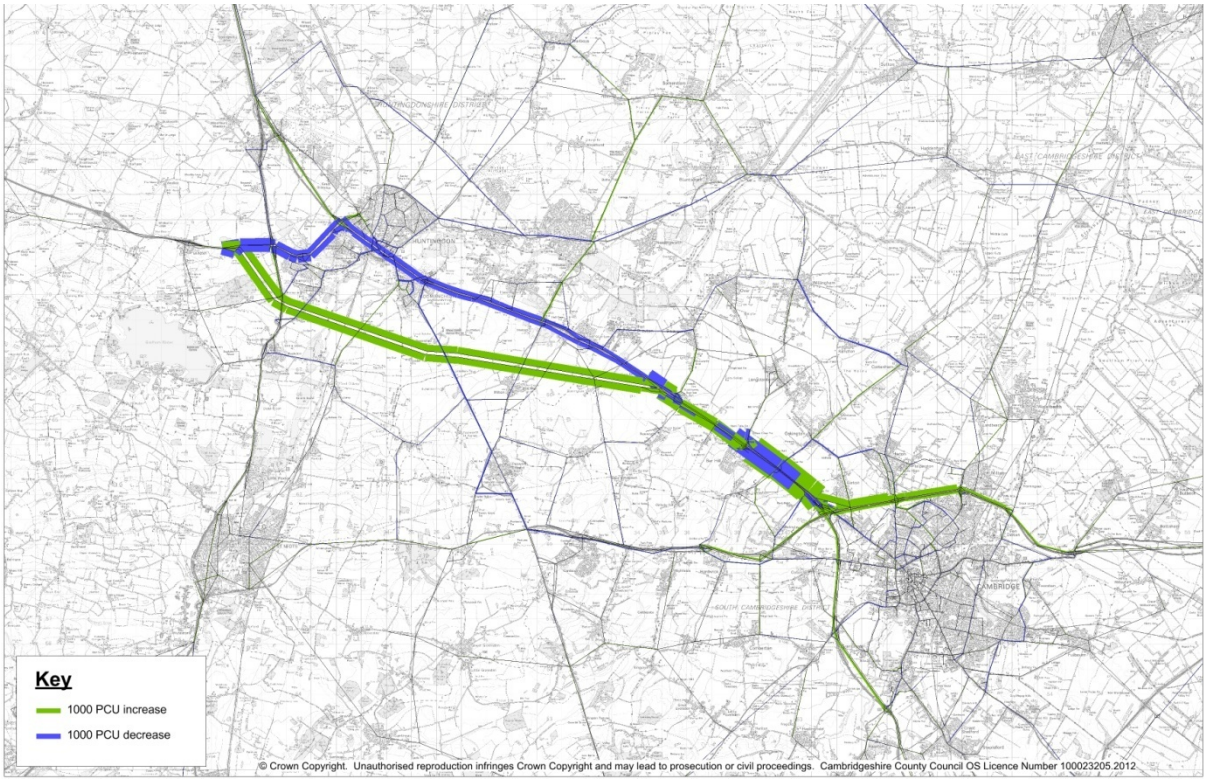
Option 3 (new D3AP Huntingdon Southern Bypass, online widening, with Cambridge Northern Bypass, Huntingdon Viaduct removed)



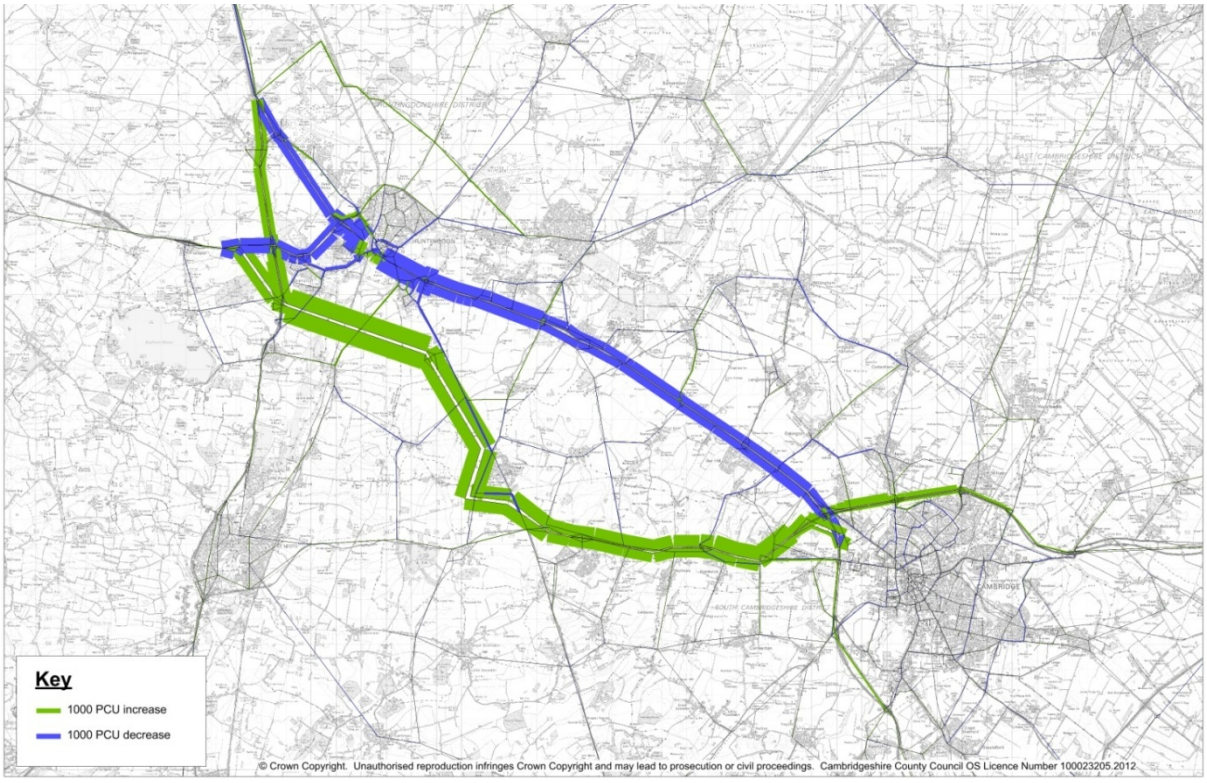
Option 4 (new D2AP Huntingdon Southern Bypass, online widening, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)



Option 5 (new D2AP Huntingdon Southern Bypass, new Local Access Roads, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)



Option 6 (new D3AP Huntingdon Southern Bypass, A428/A1198 enhancement, Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)



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Appendix D. Delay plots of the six shortlisted highway options (2031, morning peak hour)

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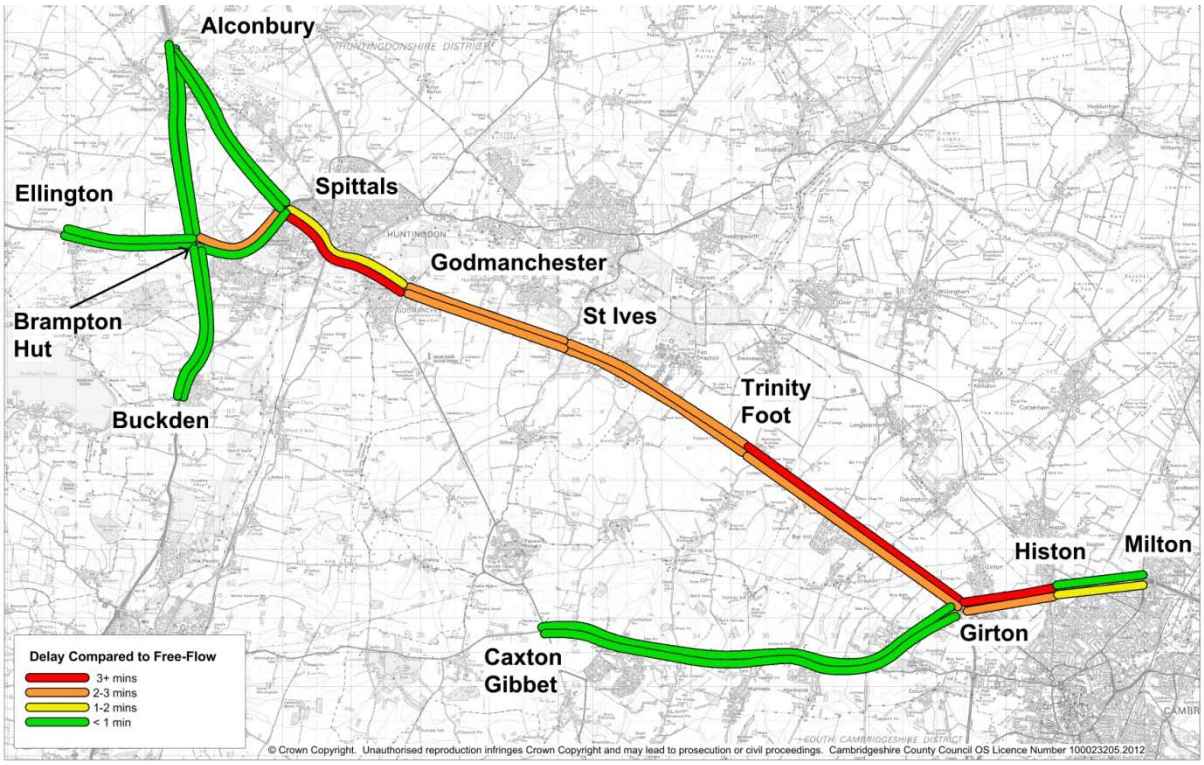
Segment modelled journey times – 2031 morning peak

EAST/SOUTHBOUND		Delay over free-flow time (mm:ss)						
Road	**Section (A14 junction)**	**DM**	**1**	**2**	**3**	**4**	**5**	**6**
A1/A1(M)	Alconbury (A1(M) diverge) - Brampton Hut (21)	00:42	00:42	03:26	03:27	00:45	00:45	02:57
A14 spur	Alconbury (A1(M) diverge) - Spittals (23)	00:43	00:43	00:07	00:07	00:46	00:46	00:09
A14	Ellington (20) - Brampton Hut (21)	00:32	00:33	00:19	00:19	00:24	00:25	00:20
HSB	Ellington (20) - Brampton (A1)			00:27	00:28	00:12	00:12	00:25
A14	Brampton Hut (21) - Spittals (23)	02:02	02:04	00:06	00:06	00:15	00:16	00:09
A1	Brampton Hut (31) - Buckden	00:59	00:58	00:53	00:53	00:58	00:59	00:49
HSB	Brampton (A1) - Trinity Foot (28)			00:26	00:28	00:12	00:28	
HSB	Brampton (A1) - Caxton Gibbet (A428)							00:12
A428	Caxton Gibbet (A1198) - Girton (31)	00:42	01:02	00:33	01:08	01:10	00:58	00:38
A14	Spittals (23) - Godmanchester (24)	01:56	02:00			00:47	00:47	
A14	Godmanchester (24) - St Ives (26)	02:21	02:43	00:06	00:06	00:56	00:57	00:11
A14	St Ives (26) - Trinity Foot (28)	02:56	03:30	00:23	00:26	01:33	01:24	00:26
A14 (main)	Trinity Foot (28) - Girton (31)	03:52	02:08	01:33	03:46	03:40	02:15	00:59
A14 (LAR)	Trinity Foot (28) - Girton (31)		00:32				00:57	
A14	Girton (31) - Histon (32)	07:41	01:06	08:02	00:47	00:48	01:11	01:22
A14	Histon (32) - Milton (33)	00:42	00:24	00:43	00:23	00:23	00:24	00:24

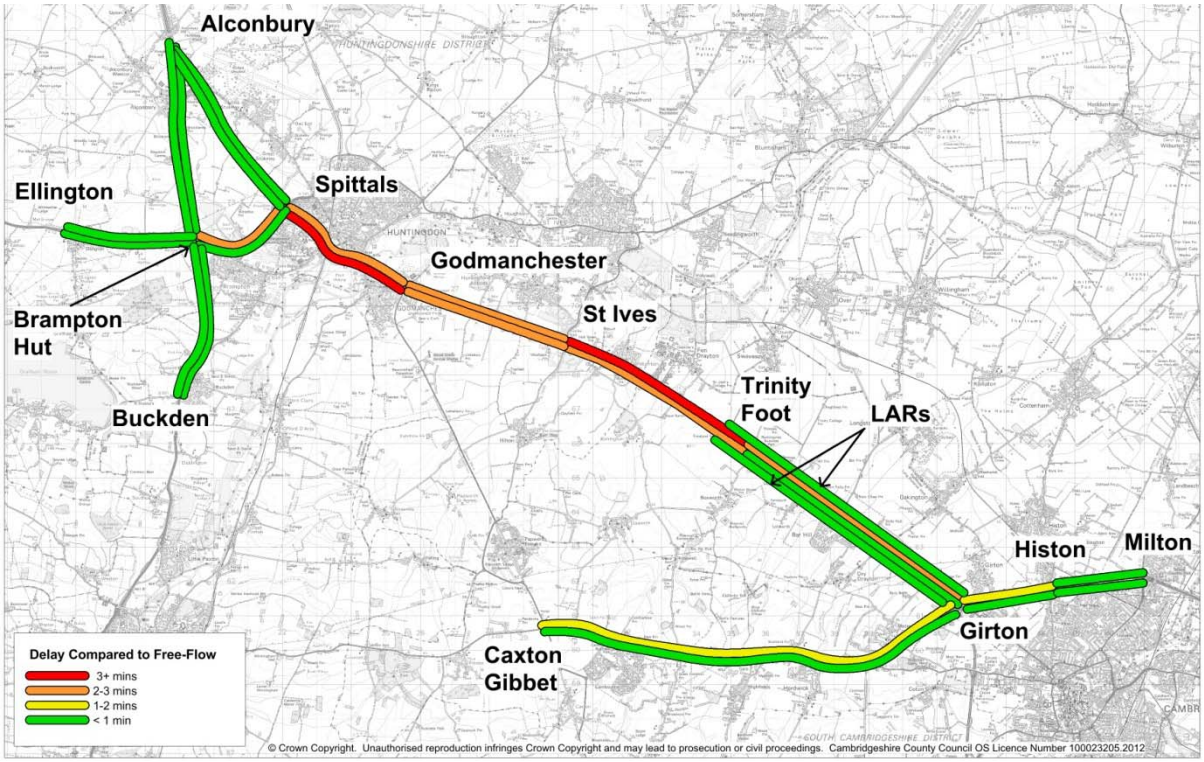
WEST/NORTHBOUND		Delay over free-flow time (mm:ss)						
Road	**Section (A14 junction)**	**DM**	**1**	**2**	**3**	**4**	**5**	**6**
A1/A1(M)	Brampton Hut (21) - Alconbury (A1(M) diverge)	00:07	00:07	00:17	00:17	00:07	00:07	00:12
A14 spur	Spittals (23) - Alconbury (A1(M) diverge)	00:13	00:13	00:01	00:01	00:20	00:20	00:01
A14	Brampton Hut (21) - Ellington (20)	00:17	00:17	00:17	00:17	00:21	00:21	00:17
HSB	Brampton (A1) - Ellington (20)			00:14	00:14	00:13	00:13	00:14
A14	Spittals (23) - Brampton Hut (21)	00:38	00:37	00:07	00:07	00:10	00:10	00:06
A1	Buckden - Brampton Hut (31)	00:22	00:22	00:47	00:47	00:25	00:25	00:39
HSB	Trinity Foot (28) - Brampton (A1)			00:24	00:24	00:06	00:06	
HSB	Caxton Gibbet (A428) - Brampton (A1)							00:24
A428	Girton (31) - Caxton Gibbet (A1198)	00:11	00:11	00:09	00:09	00:09	00:10	00:16
A14	Godmanchester (24) - Spittals (23)	03:43	03:20			01:07	01:06	
A14	St Ives (26) - Godmanchester (24)	02:19	02:59	00:09	00:10	00:51	00:50	00:26
A14	Trinity Foot (28) - St Ives (26)	02:37	02:41	00:06	00:06	00:38	00:37	00:24
A14 (main)	Girton (31) - Trinity Foot (28)	02:08	00:50	00:50	00:49	00:59	01:26	00:23
A14 (LAR)	Girton (31) - Trinity Foot (28)		00:26				00:29	
A14	Histon (32) - Girton (31)	02:21	00:15	01:10	00:19	00:19	00:16	00:52
A14	Milton (33) - Histon (32)	01:00	00:15	01:02	00:15	00:15	00:15	00:15

	< 1 minute delay
	1-2 minutes delay
	2-3 minutes delay
	> 3 minutes delay

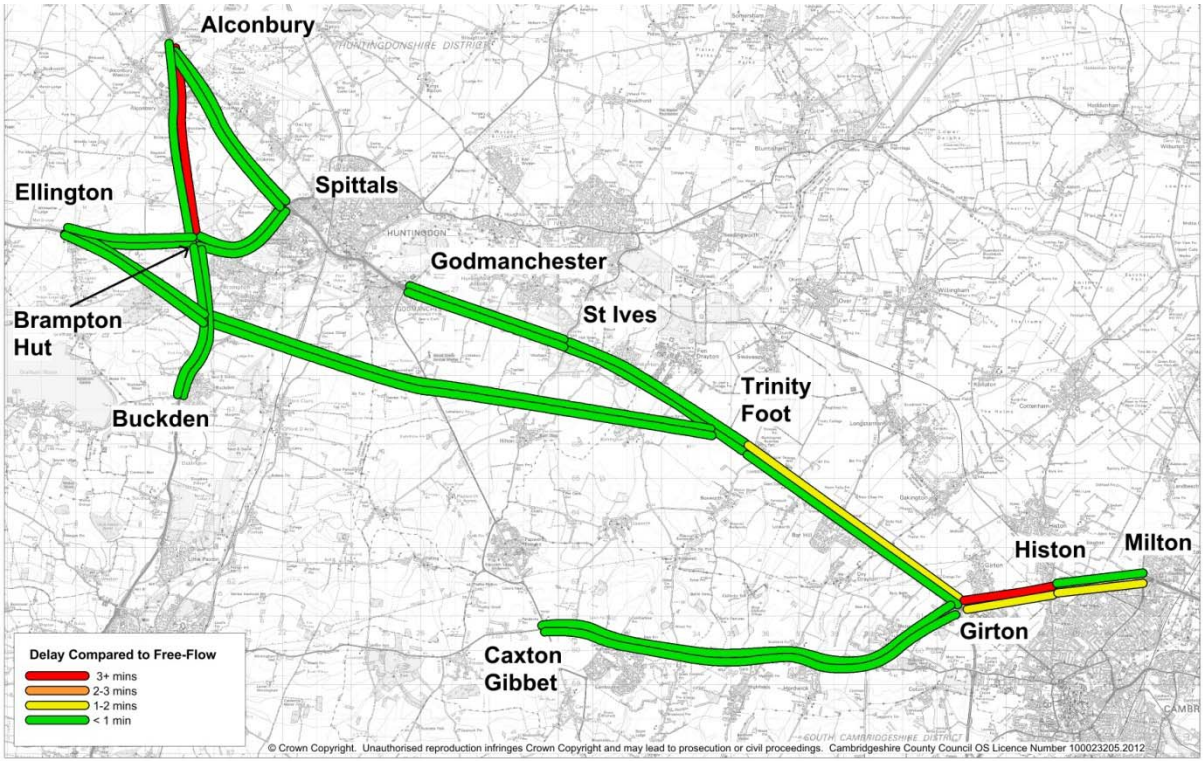
Do Minimum



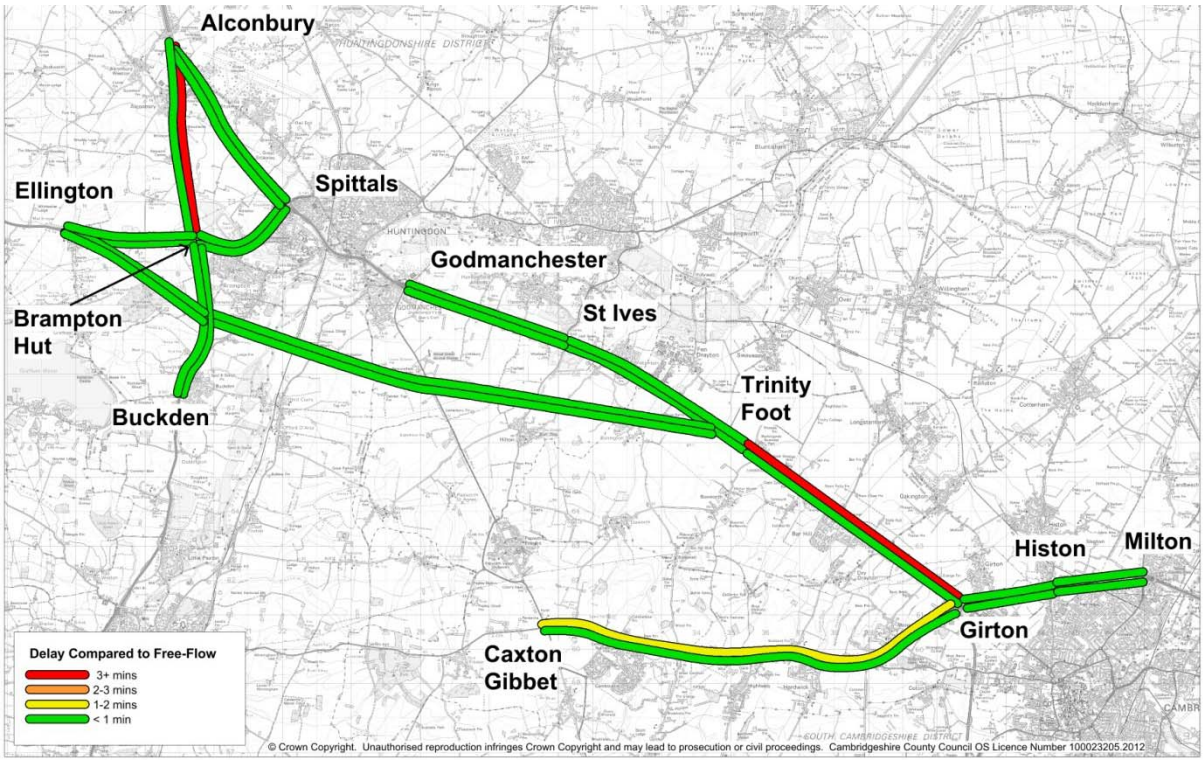
Option 1 (new Local Access Roads, Cambridge Northern Bypass enhancement and Huntingdon Viaduct retained)



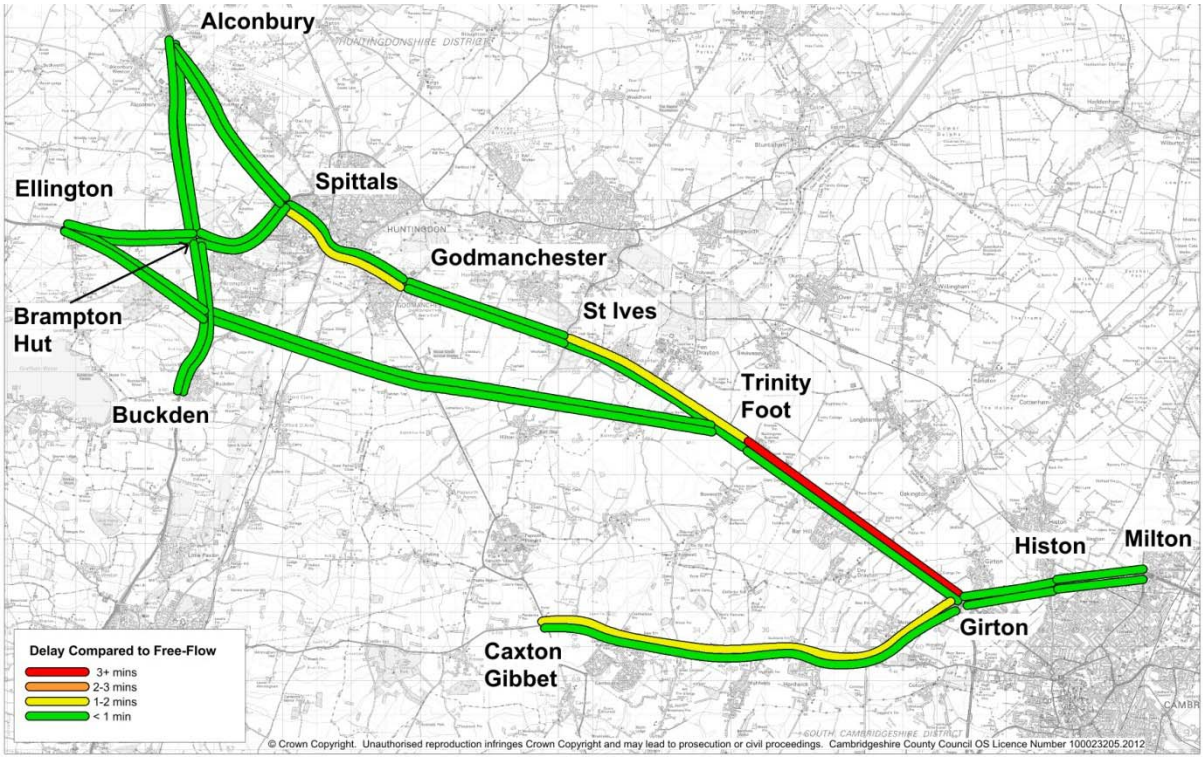
Option 2 (new D3AP Huntingdon Southern Bypass, online widening, no Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)



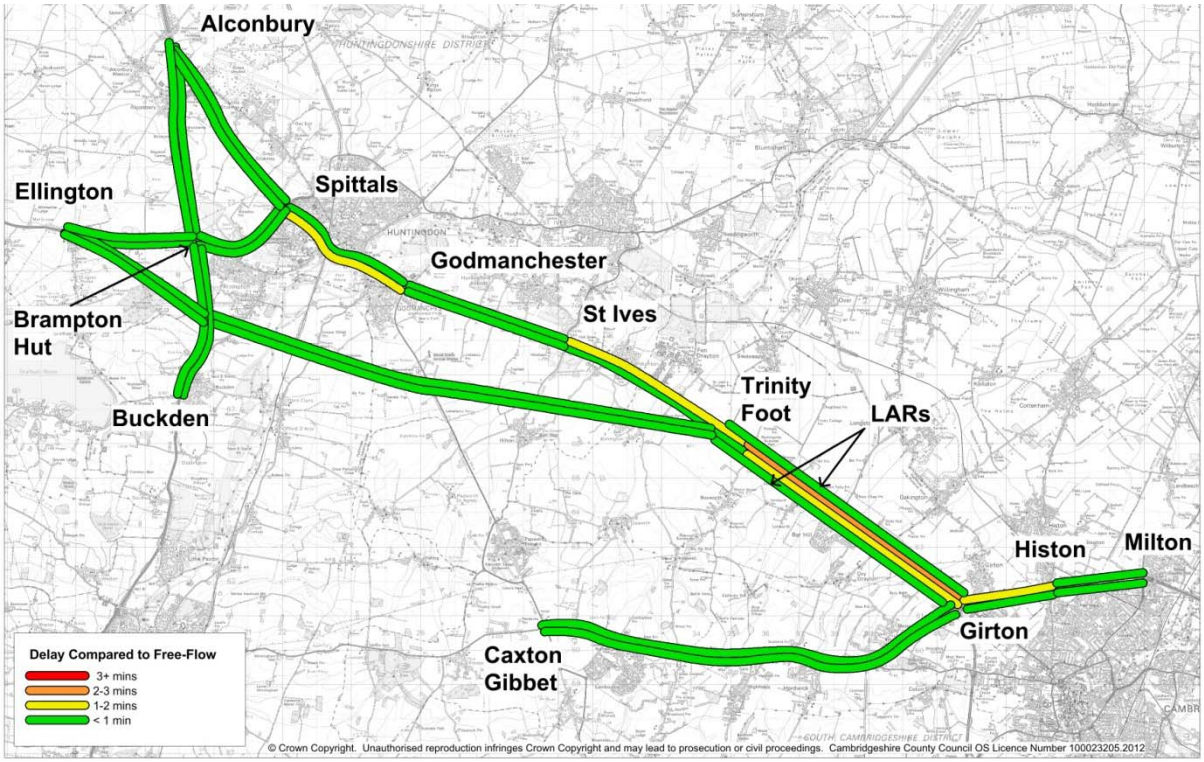
Option 3 (new D3AP Huntingdon Southern Bypass, online widening, with Cambridge Northern Bypass, Huntingdon Viaduct removed)



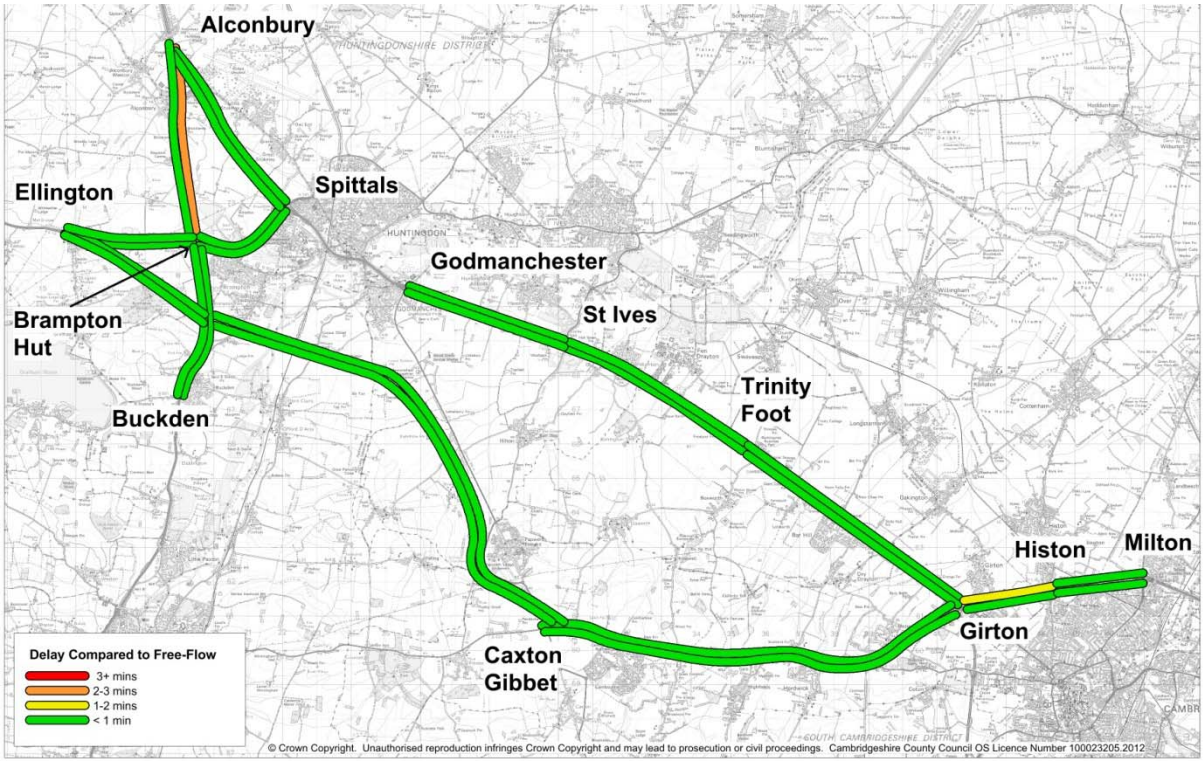
Option 4 (new D2AP Huntingdon Southern Bypass, online widening, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)



Option 5 (new D2AP Huntingdon Southern Bypass, new Local Access Roads, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)



Option 6 (new D3AP Huntingdon Southern Bypass, A428/A1198 enhancement, Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)



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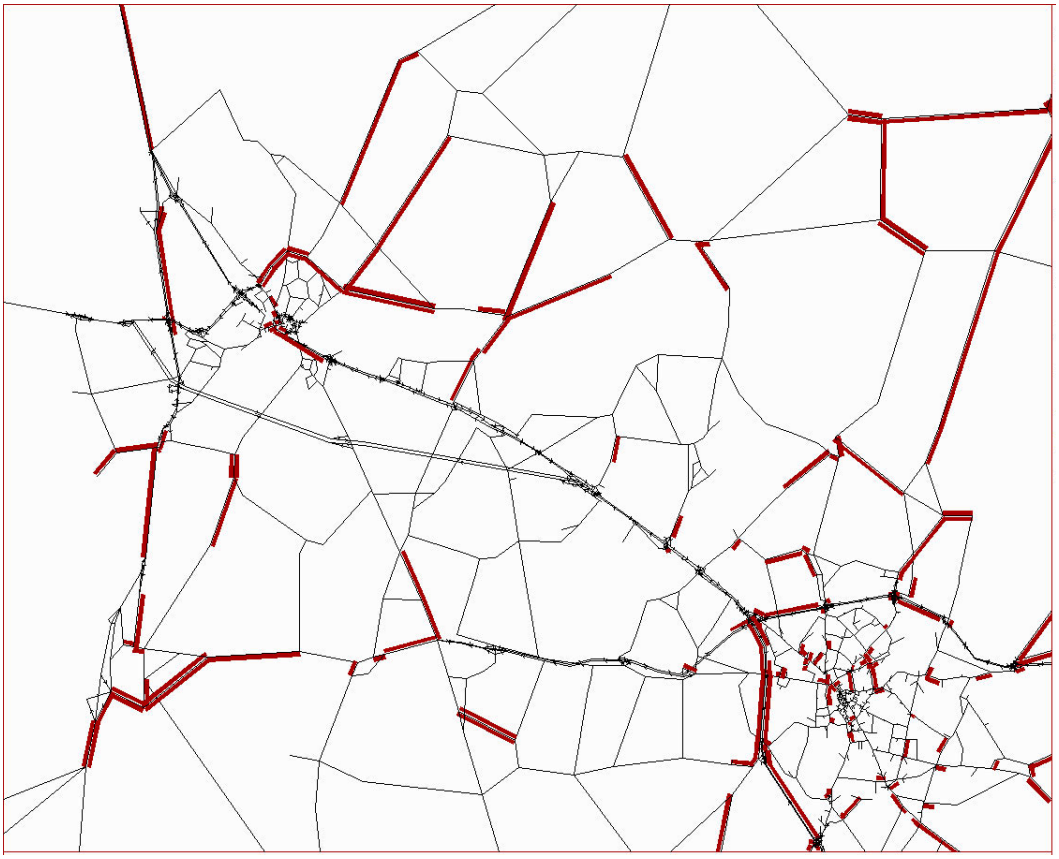
Appendix E. Network stress plots of the six shortlisted highway options (2031, morning peak hour)

Do Minimum

Option 1 (new Local Access Roads, Cambridge Northern Bypass enhancement and Huntingdon Viaduct retained)

Option 2 (new D3AP Huntingdon Southern Bypass, online widening, no Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)

Option 3 (new D3AP Huntingdon Southern Bypass, online widening, with Cambridge Northern Bypass, Huntingdon Viaduct removed)



Option 4 (new D2AP Huntingdon Southern Bypass, online widening, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)

Option 5 (new D2AP Huntingdon Southern Bypass, new Local Access Roads, Cambridge Northern Bypass enhancement, Huntingdon Viaduct retained)

Option 6 (new D3AP Huntingdon Southern Bypass, A428/A1198 enhancement, Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)

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Appendix F. Local environmental overview appraisal

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Purpose of this Appendix

This appendix provides an environmental overview appraisal of the shortlisted highway packages and selected variants and derivatives. The selection of the options to be appraised resulted from the 'Packaging Workshop' on the 2nd May 2012 which was attended by representatives of the Department for Transport, Cambridgeshire County Council, the Highways Agency and Atkins (Transport Planners).

Task 7 of the Atkins Draft Recommended methodology and programme for Output 3 (3A Report) report, Revision 5 (May 2012) describes the approach to 'appraising the six highway packages'. The task involves the production of an appraisal in the form of a standard Appraisal Summary Table (WebTAG Unit 2.7.2). In the Output 3A Report paragraph 2.28 it highlights:

"Many of the environmental and social criteria will be broadly similar for all options and we propose to modify results from Output 2 for those at this stage. Where these differ we propose to provide a high level assessment and scope out the work that would be required for a more detailed assessment."

This Environment appendix provides additional appraisal to assist in this process.

Comments on approach

The following environmental appraisal is presented in the form of the Appraisal Summary Table (AST) (WebTAG Unit 2.2.2) template however the appraisal has been undertaken as a 'high' level review and as such topic qualitative appraisals and scores/classifications are not supported by topic worksheets.

The appraisal has been undertaken as a desk-based exercise, making use of previous studies such as the A14 Ellington to Fen Ditton Improvement WebTAG Appraisal (August 2009) and Environmental Statement 2009. Individual topics have also used web-based sources of information.

In addition to the template entries assumptions, missing data and recommendations for further assessment have been identified under individual topics.

Appraisal

Landscape and Townscape

Data considered: desk based review of designations, physical features, landscape character areas ref: A14 Ellington to Fen Ditton Improvement WebTAG Appraisal (August 2009) and Environmental Statement 2009, Landscape chapter. For the A1198/A428 corridor (Option HW13) review of MAGIC data (www.magic.gov.uk).

Recommendations for further assessment

- Undertake a local landscape character assessment of the A428/A1198 corridor to allow direct comparison to other options.

Heritage of Historic Resources

Assumptions or missing data:

- No examination of current Historic Environment Record data.
- For the A1198/A428 stretch HER data has not been gathered and the information on MAGIC (www.magic.gov.uk) is limited to Scheduled Ancient Monuments and Registered Parks and Gardens.

It is recommended that detailed desk based research is carried out for the A1198/A428 stretch to further understand the effect regarding Heritage of Historic Resources. The area could well contain important undesignated archaeological remains.

Biodiversity

This high level assessment has been carried out using information included in the A14 Ellington to Fen Ditton Environmental Statement 2009. The ES provides a detailed assessment of all aspects of each option except

for the A428/A1198 upgrade which forms part of Option HW13. The ES was completed in 2009, and is based on ecological survey data carried out in the years preceding its publication. The validity of this data may be questioned if there is a significant lapse of time from the original surveys and any new assessments. Further verification surveys of ecological features may be required.

The high level assessment of the A428/A1198 for Option HW13 has been carried out using freely available information on designated sites and notable habitats, but the study has not included a request for data records of local sites, or notable habitats or species from local biodiversity record centres. For a more detailed assessment, an ecological data search, walkover surveys, and further surveys for protected species will be required to provide sufficient supporting information.

Water Environment

Data considered: floodplain, SPZ, main rivers (ecological quality), likely impermeable area increase of route and proximity of SSSI. Sources of information: Environment Agency website (www.environment-agency.gov.uk) and MAGIC website (www.magic.gov.uk).

Assumptions or missing data:

- No discharge/abstraction data from the EA.
- No information on cuttings or embankments that may impact upon groundwater.
- Assumed no assessment of impact to recreational use of waterways including navigation, walking and fishing.
- Assumed no impact of changes to Huntingdon viaduct.
- Detailed assessment of the Girton interchange not possible at this stage.
- No weighting has been applied at this stage to identify more severe impacts.
- No consideration is made of construction or integral mitigation.
- No detail of drainage design and location of outfalls.

Appraisal

The qualitative comment on ‘effects’ included in the appraisal template provides a broad over view for comparative purposes, it is not however to the full, standard WebTAG methodology. As such, the ‘score’ provided should be considered as an overall assessment classification.

Of the 6 options all cross flood zone 3 at main river. The GBCR and GDS options are likely to cross most floodplain (Ouse, Westbrook and Cottenham Lode) with the DS having a lesser floodplain impact than G(part)J(d) due to the smaller size of main river (and associated floodplain) crossed (River Ouse relative to Cottenham Lode).

With regard to water quality less additional water would be required to be discharged from the DS option, then the G(part)J(d) option, then the GDS and GBCR options. No options pass over SPZ and there are no SSSI, SAC, SPA or RAMSAR considered likely to be impacted by the scheme with regard to the water environment.

Options GBCR and G(part)J(d) would create the largest increase in impermeable area with option DS likely to provide the smallest increase. HW3 is slightly better than HW5 as there is a reduced amount of impermeable area for HW3 without the Cambridge Northern Bypass. HW5 is itself slightly better than HW8 as there is a reduced amount of impermeable area due to de-trunking a section of A14. Option HW2 could be considered as slight beneficial due to improvement made to treat water quality discharge from existing sections of road. Similar water quality improvements for all other options would be balanced to give a Neutral classification by increased slight adverse “new” discharges for offline sections of road.

Recommendations for further assessment

- Obtain more detailed alignment of route (see if there is any cutting that may impact groundwater, or any floodplains bridged which may discount impacts, also outline design of drainage).
- Estimates of traffic flows throughout route options.
- EA data request to obtain information on large abstractions and discharges.
- Local Authority data request for private abstractions.
- Review ability to discharge to ground (ground investigation information).

Physical Fitness

Data considered: A14 Ellington to Fen Ditton Improvement WebTAG Appraisal (August 2009).

Journey Ambience

Data considered: A14 Ellington to Fen Ditton Improvement WebTAG Appraisal (August 2009).

Highway Option 1 *(LARs Trinity Foot-Girton; full Girton interchange enhancement, Cambridge Northern Bypass enhancement, Huntingdon viaduct retained)*

Sub-objective	Qualitative impacts	Assessment
Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Trinity Foot the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Villages of Madingley Dry Drayton, Lolworth and Boxworth are situated to the south-west of the option within gently undulating open farmland. To the north-east the topography falls away from the existing A14 with settlements of Oakington and Swavesey within the fenland edge farmland character area. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. If lit the option would adversely affect the rural character.	Slight Adverse
Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.	Neutral
Heritage of Historic Resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near Clare College Farm, Hazlewell Farm, Grange Farm, west of the Girton Interchange, and the Histon junction. However, it is possible that other, hitherto unknown remains exist along other stretches of the option alignment. The demolition of the undesignated Pill Box to make way for the Girton Interchange will result in a Slight Adverse Effect.	Moderate Adverse
Biodiversity	There would be no impacts on statutory or non statutory designated sites. Impacts on protected or notable species are likely to be neutral or have positive effects although slight adverse impacts will remain for badgers, however unlike options including HSB no sett is lost.	Neutral
Water Environment	Will cross flood zone 3 at main river. 1 main river crossing (Cottenham Lode). 1 moderate ecological quality. No SPZ. No SSSI.	Slight Beneficial (potentially)

Highway Option 2 *(D3 Huntingdon Southern Bypass; online widening Trinity Foot-Girton; scaled-back Girton interchange enhancement; Huntingdon Viaduct removed)*

Sub-objective	Qualitative impacts	Assessment
Landscape	Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Villages of Madingley Dry Drayton, Lolworth, and Boxworth are situated to the south-west of the option within gently undulating open farmland. To the north-east the topography falls away from the existing A14 with settlements of Oakington, Swavesey and Fen Drayton within the fenland edge farmland character area. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. Settlements of Conington, Hilton, Offord Cluny, Buckden and Brampton are situated within these character areas. The HSB would have a large adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. If lit the option would adversely affect the rural character.	Large Adverse
Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would benefit character, access and human interaction i.e. although no physical changes in Godmanchester, there would be reductions to the flow of traffic within the town resulting in benefits.	Slight Beneficial
Heritage of Historic Resources	The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there would be no visual effect. The demolition of the undesignated Pill Box to make way for the Girton Interchange will result in a Slight Adverse effect. The removal of the Huntingdon Viaduct would result in a Moderate Beneficial effect on the setting of the undesignated Huntingdon Station, the LBII former Huntingdon County Hospital and the Scheduled Monument earthworks on Mill Common. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist west of Brampton, near the Graffham Road Bridge, Offord Road Bridge, the possible remains of the Roman Sandy to Godmanchester, and Ermine Street Roman Roads; at Oxholme Farm, at Marshall's Farm, near Clare College Farm, and Hazlewell Farm, Grange Farm, and west of the Girton Interchange. However, it is possible that other, hitherto unknown remains exist along this stretch of the option alignment.	Moderate Adverse
Biodiversity	There would be no impacts on statutory designated sites. Due to the HSB, there would be some loss of habitat at Buckden Gravel Pits County Wildlife Site (CWS) resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive.	Moderate Adverse
Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate quality. No SPZ. No SSSI. De-trunked A14 reduces impermeable area (relative to derivative "r") which is offset in increase of impermeable area for A1 to existing A14.	Neutral

Highway Option 3 *(D3 Huntingdon Southern Bypass; online widening Trinity Foot-Girton; scaled-back Girton interchange enhancement, Cambridge Northern Bypass enhancement, Huntingdon Viaduct removed)*

Sub-objective	Qualitative impacts	Assessment
Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Villages of Madingley Dry Drayton, Lolworth, and Boxworth are situated to the south-west of the option within gently undulating open farmland. To the north-east the topography falls away from the existing A14 with settlements of Oakington, Swavesey and Fen Drayton within the fenland edge farmland character area. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. Settlements of Conington, Hilton, Offord Cluny, Buckden and Brampton are situated within these character areas. The HSB would have a large adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.	Large Adverse
Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would benefit character, access and human interaction i.e. although no physical changes in Godmanchester, there would be reductions to the flow of traffic within the town resulting in benefits.	Slight Beneficial
Heritage of Historic Resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there would be no visual effect. The removal of the Huntingdon Viaduct would result in a Moderate Beneficial effect on the setting of the undesignated Huntingdon Station, the LBII former Huntingdon County Hospital and the Scheduled Monument earthworks on Mill Common. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near west of Brampton, near the Graffham Road Bridge, Offord Road Bridge, the possible remains of the Roman Sandy to Godmanchester, and Ermine Street Roman Roads; at Oxholme Farm at Marshall's Farm, the Histon junction, near Clare College Farm, and Hazlewell Farm, Grange Farm, and west of the Girton Interchange, . However, it is possible that other, hitherto unknown remains exist along other stretches of the	Moderate Adverse

	option alignment.	
Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.	Moderate Adverse
Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lodge). 3 moderate quality. No SPZ. No SSSI. De-trunked A14 reduces impermeable area (relative to option "r") which is offset in increase of impermeable area for A1 to existing A14.	Neutral

Highway Option 4 *(D2 Huntingdon Southern Bypass, online widening Trinity Foot-Girton; scaled-back Girton interchange enhancement, Cambridge Northern Bypass enhancement, Huntingdon viaduct retained)*

Sub-objective	Qualitative impacts	Assessment
Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Villages of Madingley Dry Drayton, Lolworth, and Boxworth are situated to the south-west of the option within gently undulating open farmland. To the north-east the topography falls away from the existing A14 with settlements of Oakington, Swavesey and Fen Drayton within the fenland edge farmland character area. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. Settlements of Conington, Hilton, Offord Cluny, Buckden and Brampton are situated within these character areas. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.	Large Adverse
Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.	Neutral
Heritage of Historic Resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there would be no visual effect. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near Clare College Farm, and Hazlewell Farm, Grange Farm, west of the Girton Interchange and the Histon junction. However, it is possible that other, hitherto unknown remains exist along other stretches of the option alignment.	Moderate Adverse
Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.	Moderate Adverse
Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate ecological quality. No SPZ. No SSSI.	Neutral

Highway Option 5 *(D2 Huntingdon Southern Bypass, LARs Trinity Foot-Girton; full Girton interchange enhancement, Cambridge Northern Bypass Enhancement, Huntingdon viaduct retained)*

Sub-objective	Qualitative impacts	Assessment
Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Villages of Madingley Dry Drayton, Lolworth, and Boxworth are situated to the south-west of the option within gently undulating open farmland. To the north-east the topography falls away from the existing A14 with settlements of Oakington, Swavesey and Fen Drayton within the fenland edge farmland character area. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. Settlements of Conington, Hilton, Offord Cluny, Buckden and Brampton are situated within these character areas. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.	Large Adverse
Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.	Neutral
Heritage of Historic Resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there would be no visual effect. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near Clare College Farm, and Hazlewell Farm, Grange Farm, west of the Girton Interchange and the Histon junction. However, it is possible that other, hitherto unknown remains exist along other stretches of the option alignment..	Moderate Adverse
Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.	Moderate Adverse
Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate ecological quality. No SPZ. No SSSI. Less impermeable areas to be mitigated (relative to GBCR).	Neutral

Highway Option 6 *(D3 Huntingdon Southern Bypass (western section); upgraded A428/A1198 corridor; Cambridge Northern Bypass enhancement; Huntingdon viaduct removed)*

Sub-objective	Qualitative impacts	Assessment
Landscape	CNB would generally have a Neutral effect on landscape character. The off-line HSB(part) passes through mostly open, large scale arable landscape with some woodlands and valley floodplains. Settlements of Offord Cluny, Buckden and Brampton are situated within these character areas. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. An equivalent local landscape character area assessment is not available for most of the A428/A1198 corridor. The topography continues to rise gently in a southerly direction with the A428 west of Hardwick on a local ridge. There are three Registered Parks and Gardens along this section - Madingly Hall (Grade II) lies close to the east end of the A428 at Madingly, the American Military Cemetery (Grade I) is situated to the south of the A428 near Madingley and is bounded by the Cambridge Road and the A1303 and; Childerley Hall (Grade II*) in Dry Drayton. If lit the option would adversely affect the rural character.	Large Adverse
Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would potentially benefit character, access and human interaction. Moderate Adverse effect on the western edge of Papworth Everard due to change in setting and tranquillity.	Overall Moderate Adverse
Heritage of Historic Resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse Effect. This stretch of the HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. At this stage it is not possible to assess the effect of the option on settlements and villages at some distance from the option alignment. The following highlights potential locations and effects i.e. on the Hilton Conservation Area, however there is the potential for an increase in noise level but the setting is unlikely to be affected. Likewise reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, could result in a Slight Beneficial effect. At Connington there could be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there is unlikely to be any visual effect. The removal of the Huntingdon Viaduct would result in a Moderate Beneficial effect on the setting of the undesignated Huntingdon Station, the LBII former Huntingdon County Hospital and the Scheduled Monument earthworks on Mill Common. There are two Scheduled Monument within the environs of the A1198 - Moated site at Pastures Farm just west of Caxton Gibbet, and moated site at Papworth Hall in Papworth Everard. Their settings may be affected by the option, resulting in a Moderate Adverse effect. The historic mansion and Grade II Registered Park and Garden at Madingly Hall lies close to the east end of the A428 at Madingly; Grade II* Registered Park and Garden at Childerley Hall in Dry Drayton. While the upgrading of this A road may already have resulted in adverse effects to such assets, the option may further affect the settings of these designated monuments resulting in Moderate Adverse effects. The route traverses a landscape which is known for the potential for undesignated buried	Moderate Adverse

	archaeological remains of medium importance, particularly relating to the Prehistoric and Roman periods. These remains have not been fully located and mapped. Topsoil removal and excavations for construction would result in their removal. With appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near west of Brampton, near the Graffham Road Bridge, Offord Road Bridge, the possible remains of the Roman Sandy to Godmanchester, and Ermine Street Roman Roads, the Girton Interchange, and the Histon junction. However, it is possible that other, hitherto unknown remains exist along other stretches of the option alignment.	
Biodiversity	There would be no impacts on statutory designated sites. Due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB. In relation to the A428/A1198 upgrade, the existing route is within 1km of three SSSIs which are also ancient woodlands. These are Papworth Wood (approx. 800m from alignment), Knapwell Wood (approx. 550m from alignment), and Madingley Wood (approx. 70m from alignment). The option is also within 2km of one SSSI ancient woodland (Elsworth Wood – approx. 1020. From alignment). The closest, Madingley Wood is 70m from the existing A428. There is one non-statutory designated site adjacent to the A1198. This a grassland site at the junction with Barnfield Lane north of Papworth St Agnes. Direct impacts on these sites can be avoided with careful design and direct impacts minimised through appropriate mitigation. Other than the grassland at Barnfield Lane, no important habitats were identified adjacent to the current route. Species data was not available for assessment of this section.	Moderate Adverse
Water Environment	Will cross flood zone 3 at main river. 1 main river crossings (Ouse larger than DS option). 1 moderate ecological quality. No SPZ. No SSSI.	Neutral

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Appendix G. SATURN flow difference plots of the tolling package tests (2031, morning peak hour)

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Figure G1. Change in flow due to tolling Ellington – Trinity Foot (Option A, £2/£4 toll), morning peak 2031 (compared to un-tolled Option 7)

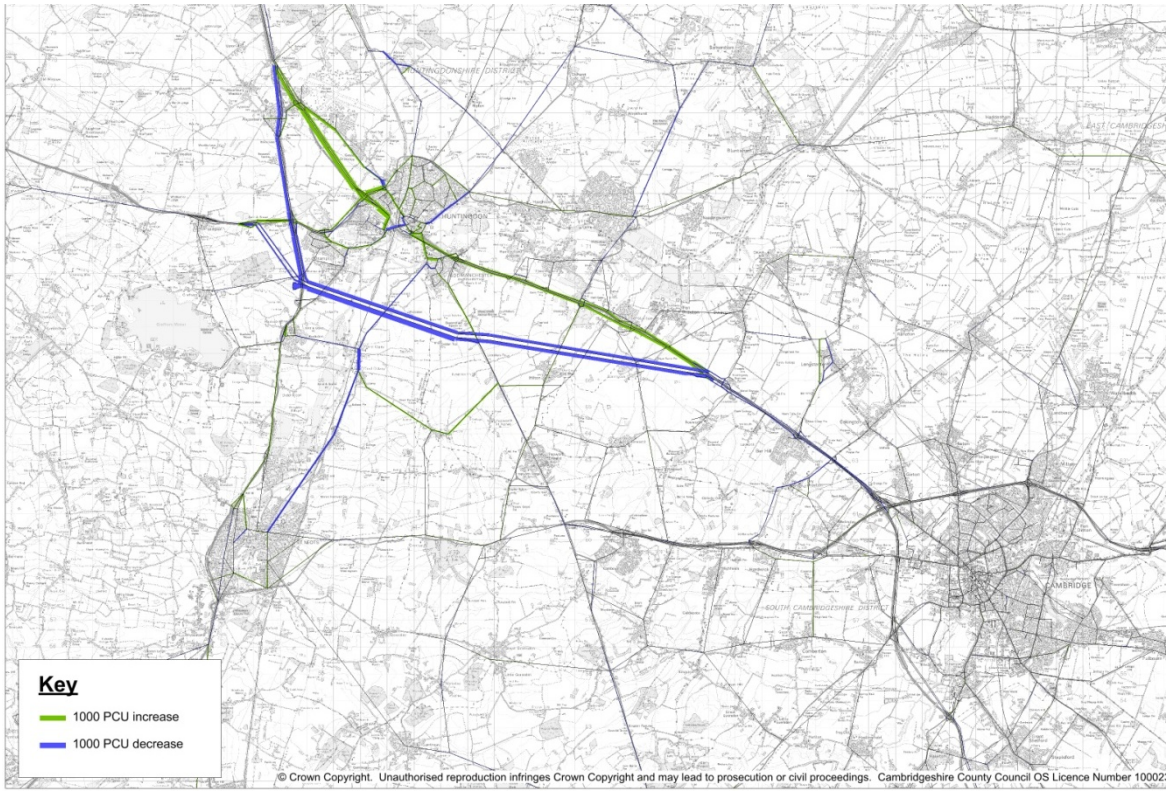


Figure G2. Change in flow due to tolling Ellington – Trinity Foot (Option A, £2/£4 toll), morning peak 2031 (compared do minimum)

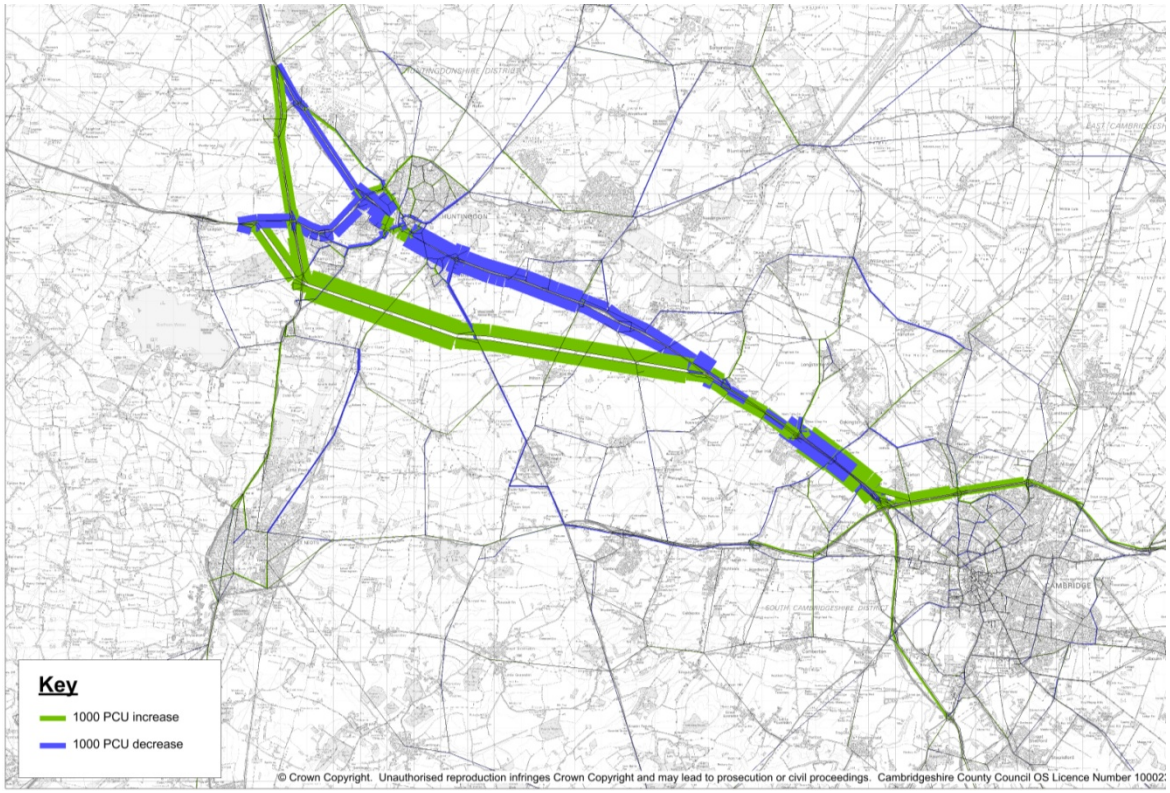


Figure G3. Change in flow due to tolling Ellington – Girton (Option B, £2/£4 toll), morning peak 2031 (compared to un-tolled Option 7)

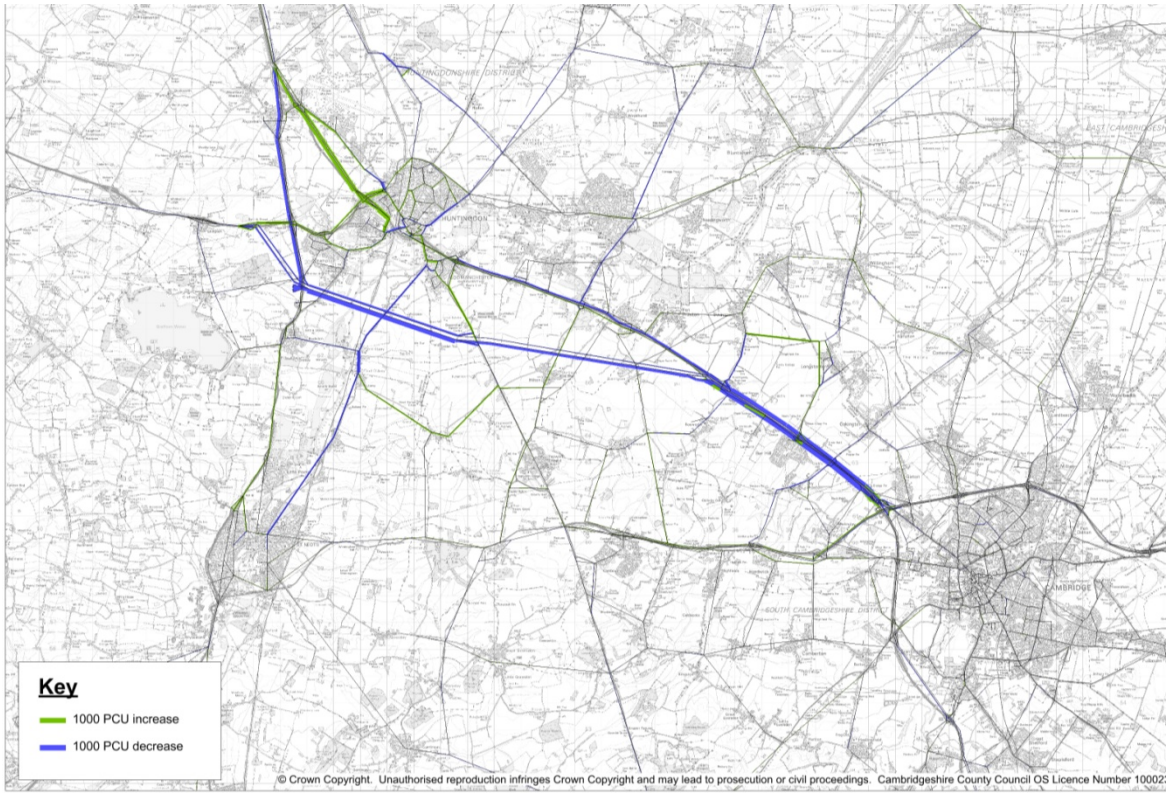


Figure G4. Change in flow due to tolling Ellington – Girton (Option B, £2/£4 toll), morning peak 2031 (compared to do minimum)

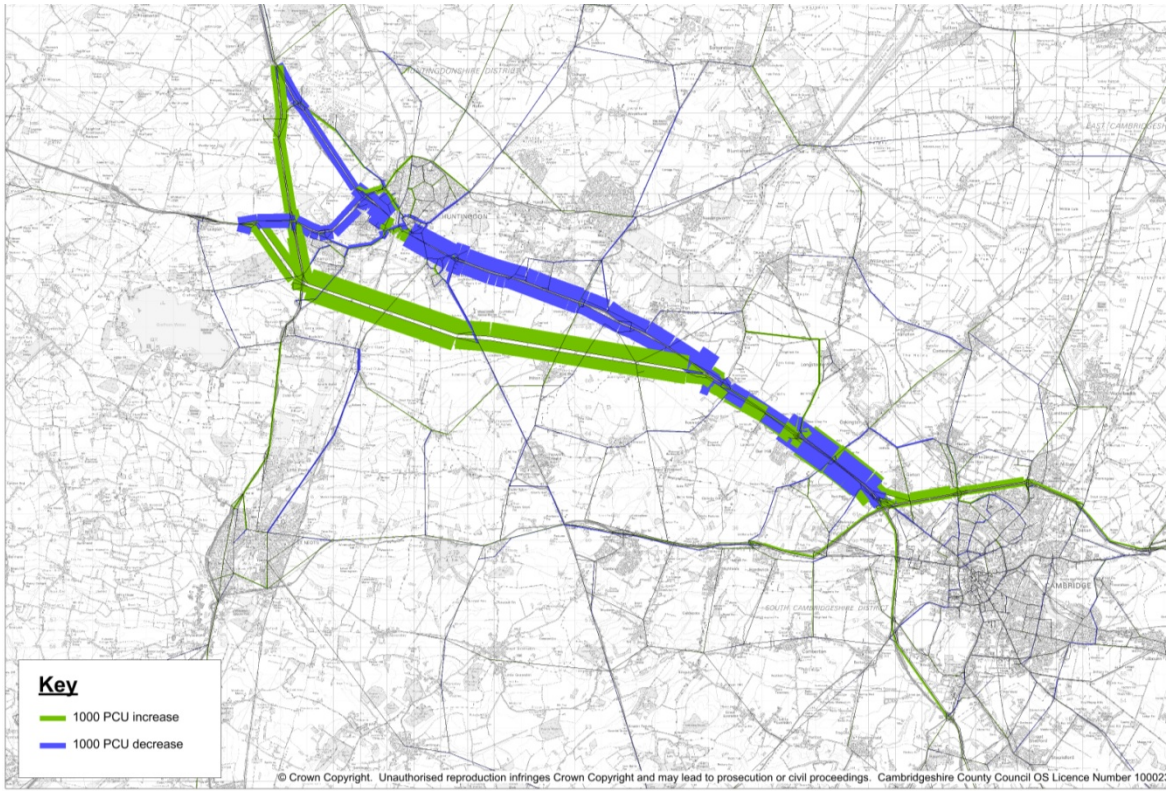


Figure G5. Change in flow due to tolling Ellington – Milton (Option C, £2/£4 toll), morning peak 2031 (compared to un-tolled Option 7)

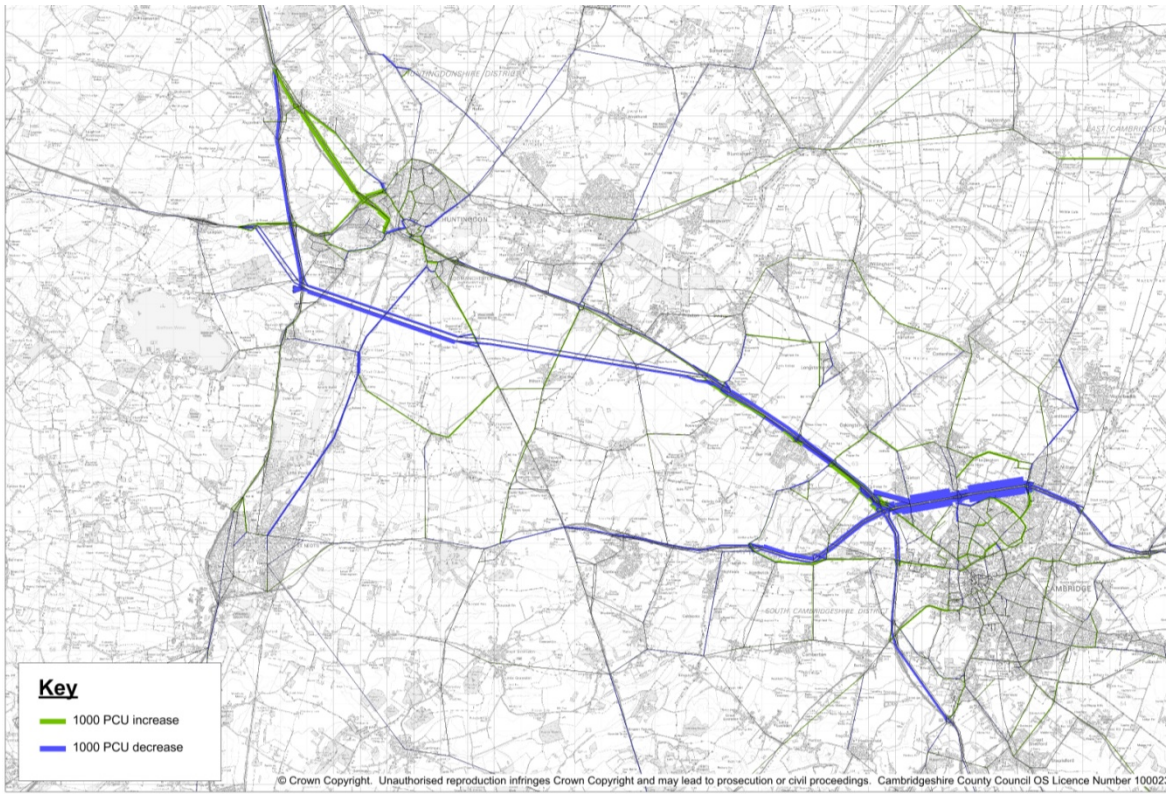


Figure G6. Change in flow due to tolling Ellington – Milton (Option C, £2/£4 toll), morning peak 2031 (compared to do minimum)

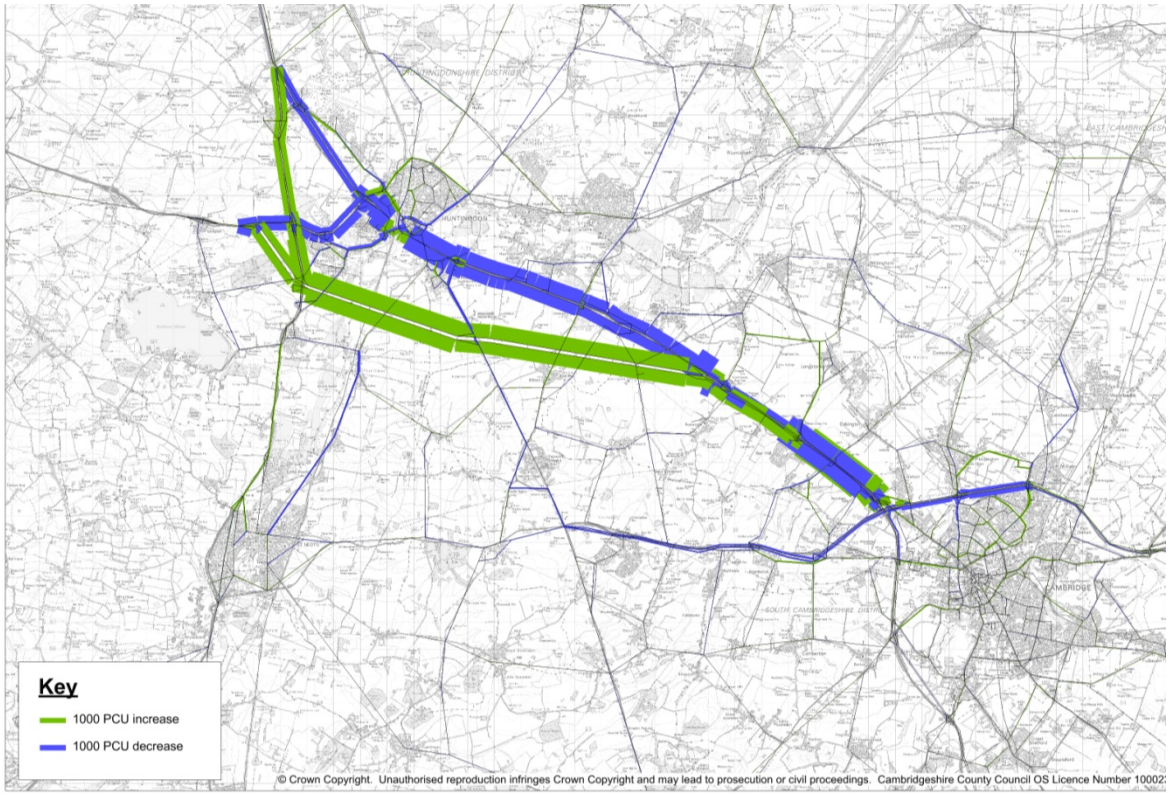


Figure G7. Change in flow due to tolling Ellington – Girton (Option B, £1/£2 toll), morning peak 2031 (compared to un-tolled Option 7)

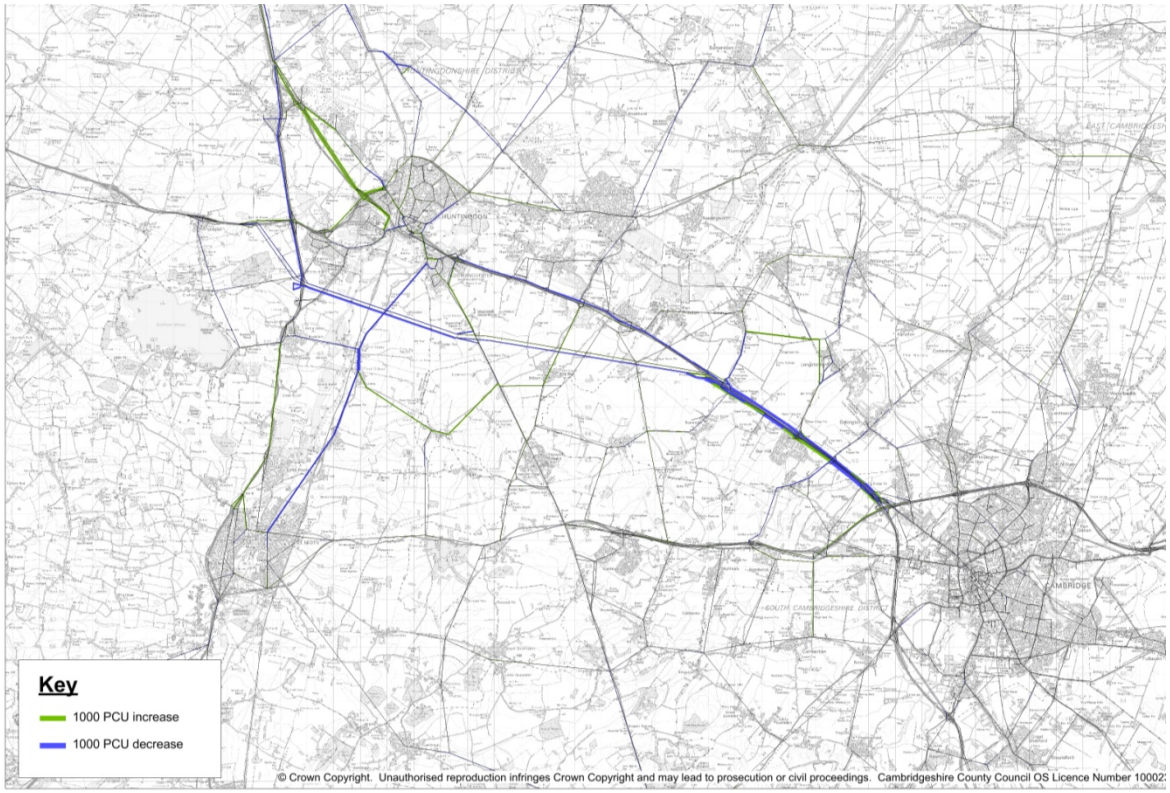


Figure G8. Change in flow due to tolling Ellington – Girton (Option B, £1/£2 toll), morning peak 2031 (compared to do-minimum)

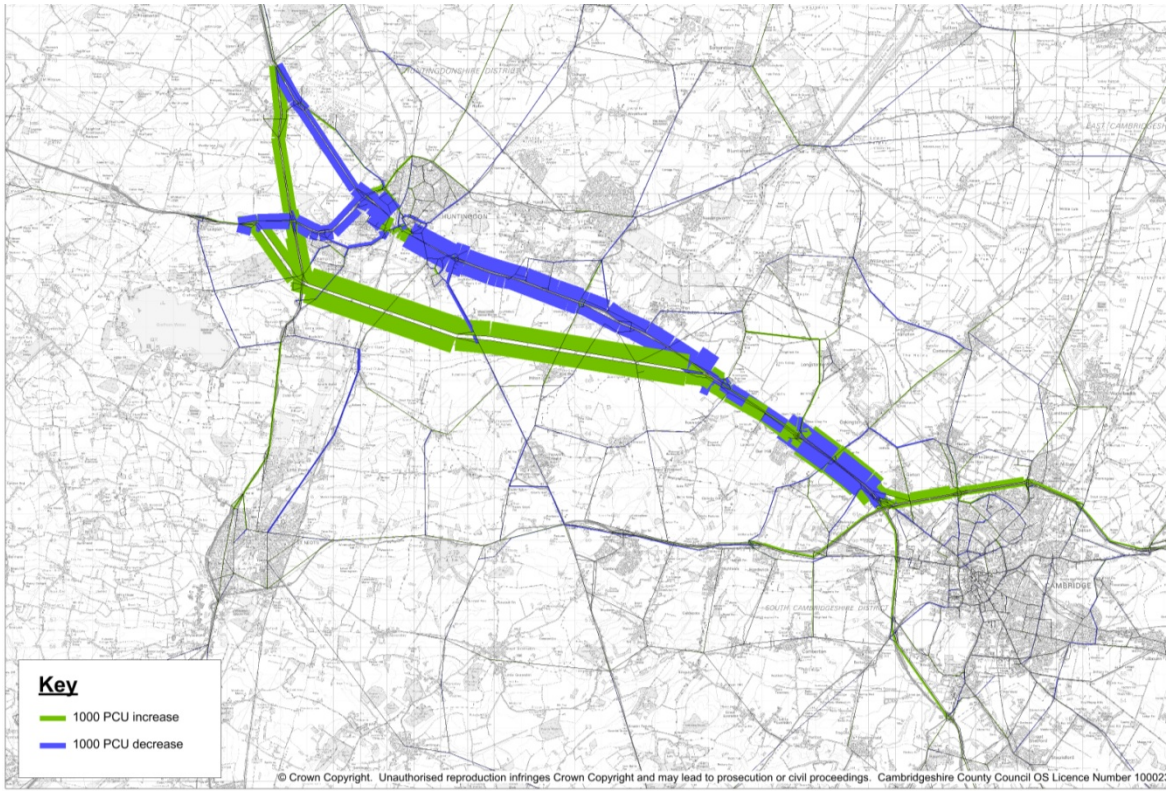


Figure G9. Change in flow due to tolling Ellington – Girton (Option B, £1/£1 toll), morning peak 2031 (compared to un-tolled Option 7) – CSRM Test

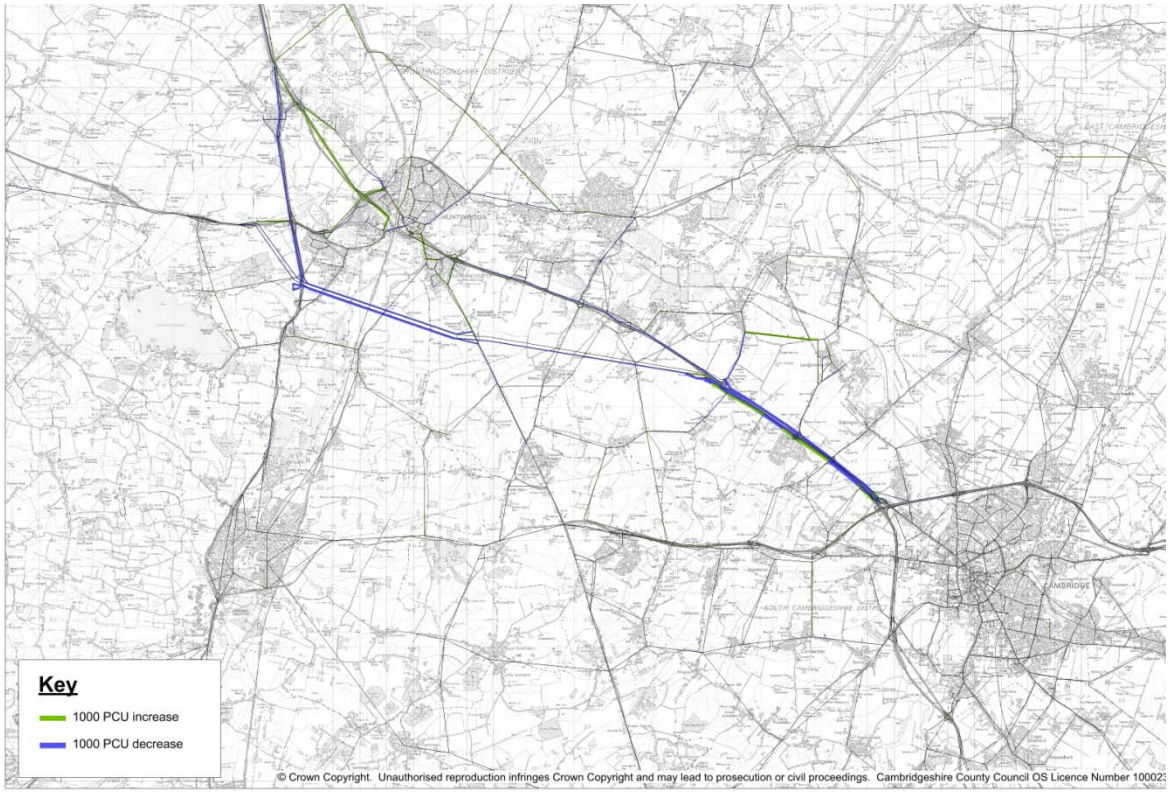
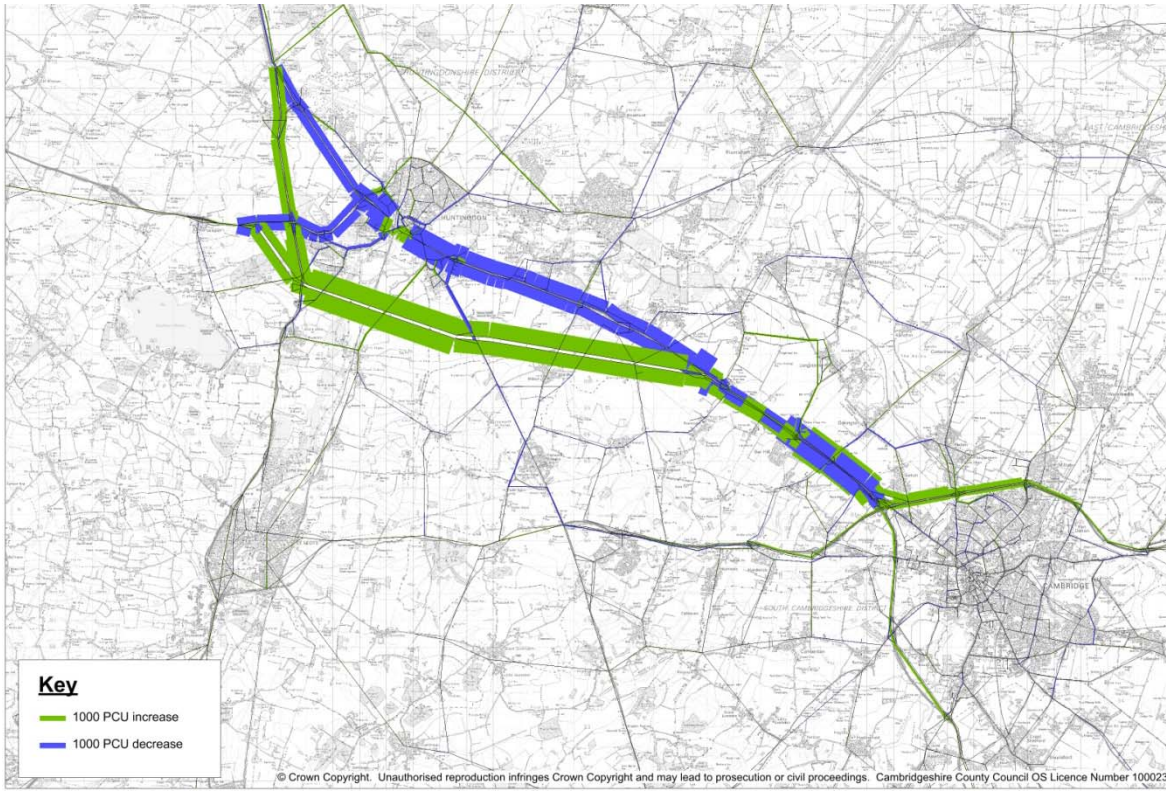


Figure G10. Change in flow due to tolling Ellington – Girton (Option B, £1/£2 toll), morning peak 2031 (compared to do minimum) – CSRM Test



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Appendix H. Appraisal Summary Tables

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Appraisal Summary		A14 Options Assessment	Date produced:	23/11/2012
Name of scheme:		A14 Option 1		
Description of scheme:		Local Access Roads between Trinity Foot and Girton plus full Girton enhancement with enhancement of Cambridge Northern Bypass and Huntingdon Viaduct retained as is for strategic traffic to/from the A1(M)		
Impacts		Summary of key impacts	Assessment	Monetary (£m)
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 270.76
	Reliability impact on Business users			
	Wider Impacts			
Environmental	Noise	Increases on the A14 between Fen Drayton and Milton affecting in particular the settlements of Bar Hill and Girton		
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 1% (20,000 tonnes) across the study area with no change PM10. In the A14 corridor this option is forecast to decrease NOX by 2% and PM10 by 4%. In the CNB corridor this option is forecast to increase NOX by 4% and PM10 by 2% as the widening of the CNB enable vehicles to travel at an increased average speed and emissions increase		
	Greenhouse gases	Across the broader study area there is not forecast to be any change in greenhouse gas emissions in 2031.		£ 3.12
	Landscape	CNB would generally have a Neutral effect on landscape character. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. If lit the option would adversely affect the rural character.		
	Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.		
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The option traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance, thus the effect would be Moderate and sometimes Slight Adverse. Complexes of remains are known to exist near Clare College Farm, Hazlewell Farm, Grange Farm, west of the Girton Interchange, and the Histon junction. However, it is possible that other, hitherto unknown remains exist along other stretches of the option alignment. The demolition of the undesignated Pill Box to make way for the Girton Interchange will result in a Slight Adverse Effect.		
	Biodiversity	There would be no impacts on statutory or non statutory designated sites. Impacts on protected or notable species are likely to be neutral or have positive effects although slight adverse impacts will remain for badgers, however unlike options including HSB no sett is lost.		
	Water Environment	Will cross flood zone 3 at main river. 1 main river crossing (Cottenham Lode). 1 moderate ecological quality. No SPZ. No SSSI.		
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 237.66
	Reliability impact on Commuting and Other users	Would likely to be positive as the schemes offer more resiliance		
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes, LAR and NMU routes would provide NMU journey opportunities.		
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes.		
	Accidents	This option is not forecast to reduce fatal accidents across the study area but is forecast to reduce all accidents by 1% as the limited additional capacity associated with this option has little affect beyond the immediate A14 corridor. Total accidents in the A14 corridor are forecast to reduce by		£ 17.68
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.		
	Access to services	The package scores positively as increased highway capacity tends to improve access for car		
	Affordability			
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.		
	Option values			
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 248.91
	Indirect Tax Revenues			-£ 5.82

Appraisal Summary		A14 Options Assessment		Date produced:	23/11/2012
Name of scheme:		A14 Option 2			
Description of scheme:		D3AP Huntingdon Southern bypass with a tie in south east of Fenstanton, plus online widening from the HSB to Girton and scaled-back Girton enhancement with no enhancement of Cambridge Northern Bypass but Huntingdon Viaduct removed and replaced with a local road network as per the former ECI scheme			
Impacts		Summary of key impacts	Assessment	Monetary (£m)	
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 477.82	
	Reliability impact on Business users				
	Wider Impacts				
Environmental	Noise	Increases in noise on the A14 between Fen Drayton and Milton. Reductions in noise between Brampton Hut and Spittals interchanges, in the vicinity of Brampton. Inevitable increases in noise levels along the alignment of the Huntingdon Southern Bypass, particularly in the proximity of junctions, affecting the villages of Conington, Hilton, the Offords , Buckden and southern parts of Brampton and around HUntingdon due to reouting caused by vuiaduct being removed.			
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 3% (140,000 tonnes) across the study area and PM10 by 2% (7,000 tonnes). In the A14 corridor this option is forecast to increase NOX by 8% and PM10 by 9% as more traffic passings through the corridor at a higher average speed. In the CNB corridor this option is forecast to decrease NOX by 2% and PM10 by 1%.			
	Greenhouse gases	Across the broader study area there is forecast to be a 3% increase in greenhouse gas emissions in 2031, equating to an increase of 14m tonnes.		-£ 14.43	
	Landscape	Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. The HSB would have a large adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. If lit the option would adversely affect the rural character.			
	Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would benefit character, access and human interaction i.e. although no physical changes in Godmanchester, there would be reductions to the flow of traffic within the town resulting in benefits.			
	Heritage of Historic resources	The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to increased noise levels, although there would be no visual effect. The demolition of the undesignated Pill Box to make way for the Girton Interchange will result in a Slight Adverse effect. The removal of the Huntingdon Viaduct would result in a Moderate Beneficial effect on the setting of the undesignated Huntingdon Station, the LBII former Huntingdon County Hospital and the Scheduled			
	Biodiversity	There would be no impacts on statutory designated sites. Due to the HSB, there would be some loss of habitat at Buckden Gravel Pits County Wildlife Site (CWS) resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or positive.			
	Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate quality. No SPZ. No SSSI. De-trunked A14 reduces impermeable area (relative to derivative "r") which is offset in increase of impermeable area for A1 to existing A14.			
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 328.84	
	Reliability impact on Commuting and Other users	Would likely to be positive as the schemes offer more resiliance			
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.			
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline section			
	Accidents	This option is forecast to result in a 3% decrease in fatal accidents and a 2% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to reduce by 1%.		£ 99.94	
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.			
	Access to services	The package scores positively as increased highway capacity tends to improve access for car			
	Affordability				
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.			
	Option values				
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 511.40	
	Indirect Tax Revenues			£ 29.67	

Appraisal Summary		A14 Options Assessment	Date produced:	23/11/2012
Name of scheme:		A14 Option 3		
Description of scheme:		D3AP Huntingdon Southern bypass with a tie in south east of Fenstanton, plus online widening from the HSB to Girton and scaled-back Girton enhancement with enhancement of Cambridge Northern Bypass but Huntingdon Viaduct removed and replaced with a local road network as per the former ECI scheme		
Impacts		Summary of key impacts	Assessment	Monetary (£m)
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 623.78
	Reliability impact on Business users			
	Wider Impacts			
Environmental	Noise	Increases in noise on the A14 between Fen Drayton and Milton. Reductions in noise between Brampton Hut and Spittals interchanges, in the vicinity of Brampton. Inevitable increases in noise levels along the alignment of the Huntingdon Southern Bypass, particularly in the proximity of junctions, affecting the villages of Conington, Hilton, the Offords , Buckden and southern parts of Brampton and around Huntingdon due to reouting caused by vuiaduct being removed.		
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 4% (150,000 tonnes) across the study area and PM10 by 2% (8,000 tonnes). In the A14 corridor this option is forecast to increase NOX by 10% and PM10 by 11% as more traffic passings through the A14 corridor at a higher average speed. In the CNB corridor this option is forecast to increase NOX by 2% and PM10 by 3% as more traffic passings through the CNB corridor at a higher average speed.		
	Greenhouse gases	Across the broader study area there is forecast to be a 3% increase in greenhouse gas emissions in 2031, equating to an increase of 16m tonnes.		-£ 15.57
	Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. The HSB would have a large adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.		
	Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would benefit character, access and human interaction i.e. although no physical changes in Godmanchester, there would be reductions to the flow of traffic within the town resulting in benefits.		
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse effect on 7 Listed Buildings and on the undesignated historic parkland of Conington Hall due to		
	Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.		
	Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lodge). 3 moderate quality. No SPZ. No SSSI. De-trunked A14 reduces impermeable area (relative to option "r") which is offset in increase of impermeable area for A1 to existing A14.		
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 444.28
	Reliability impact on Commuting and Other users	Would likely to be positive as the schemes offer more resiliance		
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.		
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline		
	Accidents	This option is forecast to result in a 3% decrease in fatal accidents and a 3% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to remain unchanged.		£ 110.58
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.		
	Access to services	The package scores positively as increased highway capacity tends to improve access for car		
	Affordability			
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.		
	Option values			
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 556.37
	Indirect Tax Revenues			£ 32.11

Appraisal Summary		A14 Options Assessment	Date produced:	23/11/2012
Name of scheme:		A14 Option 4		
Description of scheme:		D2AP Huntingdon Southern bypass with a tie in south east of Fenstanton, plus online widening from the HSB to Girton and scaled-back		
Impacts		Summary of key impacts	Assessment	Monetary (£m)
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 851.66
	Reliability impact on Business users			
	Wider Impacts			
Environmental	Noise	Reductions in noise between Brampton Hut and Spittals interchanges, in the vicinity of Brampton as a result of the HSB. Inevitable increases in noise levels along the alignment of the Huntingdon Southern Bypass, particularly in the proximity of junctions, affecting the villages of Conington, Hilton, the Offords , Buckden and southern parts of Brampton. Negligible impact on noise levels on existing A14 alignment between Trinity Foot and the A1(M) and Brampton Hut. Increases on the A14 between Fen Drayton and Milton.		
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 3% (110,000 tonnes) across the study area and PM10 by 2% (6,000 tonnes). In the A14 corridor this option is forecast to increase NOX by 12% and PM10 by 13% as more traffic passings through the A14 corridor at a higher average speed. In the CNB corridor this option is forecast to increase NOX by 2% and PM10 by 3% as more traffic passings through the CNB corridor at a higher average speed.		
	Greenhouse gases	Across the broader study area there is forecast to be a 2% increase in greenhouse gas emissions in 2031, equating to an increase of 11m tonnes.		£ 0.89
	Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.		
	Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.		
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse		
	Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.		
	Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate ecological quality. No SPZ. No SSSI.		
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 562.63
	Reliability impact on Commuting and	Would likely to be positive as the schemes offer more resiliance		
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.		
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline		
	Accidents	This option is forecast to result in a 2% decrease in fatal accidents and a 2% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to increase by 6%.		£ 97.09
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.		
	Access to services	The package scores positively as increased highway capacity tends to improve access for car		
	Affordability			
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.		
	Option values			
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 450.44
	Indirect Tax Revenues			-£ 0.22

Appraisal Summary		A14 Options Assessment	Date produced:	23/11/2012
Name of scheme:		A14 Option 5		
Description of scheme:		D2AP Huntingdon Southern bypass with a tie in south east of Fenstanton, local access roads between Trinity Foot and Girton plus full Girton enhancement with enhancement of Cambridge Northern Bypass and Huntingdon Viaduct retained as is for strategic traffic to/from the		
Impacts		**Summary of key impacts**	**Assessment**	**Monetary (£m)**
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 907.88
	Reliability impact on Business users			
	Wider Impacts			
Environmental	Noise	Reductions in noise between Brampton Hut and Spittals interchanges, in the vicinity of Brampton as a result of the HSB. Inevitable increases in noise levels along the alignment of the Huntingdon Southern Bypass, particularly in the proximity of junctions, affecting the villages of Conington, Hilton, the Offords , Buckden and southern parts of Brampton. Negligible impact on noise levels on existing A14 alignment between Trinity Foot and the A1(M) and Brampton Hut. Increases on the A14 between Fen Drayton and Milton.		
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 2% (82,000 tonnes) across the study area and PM10 by 1% (4,000 tonnes). In the A14 corridor this option is forecast to increase NOX by 4% and PM10 by 3% as more traffic passings through the A14 corridor at a higher average speed. In the CNB corridor this option is forecast to increase NOX by 4% and PM10 by 3% as more traffic passings through the CNB corridor at a higher average speed.		
	Greenhouse gases	Across the broader study area there is forecast to be a 2% increase in greenhouse gas emissions in 2031, equating to an increase of 8m tonnes.		£ 8.76
	Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.		
	Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.		
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse		
	Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.		
	Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate ecological quality. No SPZ. No SSSI. Less impermeable areas to be mitigated (relative to GBCR).		
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 632.39
	Reliability impact on Commuting and	Would likely to be positive as the schemes offer more resiliance		
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.		
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline		
	Accidents	This option is forecast to result in a 2% decrease in fatal accidents and a 2% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to reduce by 9%.		£ 88.15
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.		
	Access to services	The package scores positively as increased highway capacity tends to improve access for car		
	Affordability			
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.		
	Option values			
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 442.56
	Indirect Tax Revenues			-£ 16.05

Appraisal Summary		A14 Options Assessment	Date produced:	23/11/2012
Name of scheme:		A14 Option 6		
Description of scheme:		D2AP Huntingdon Southern bypass (western section) plus upgraded A428 / A1198 corridor with enhancement of Cambridge Northern Bypass but Huntingdon Viaduct removed and replaced with a local road network as per the former ECI scheme.		
Impacts		Summary of key impacts	Assessment	Monetary (£m)
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements		£ 454.92
	Reliability impact on Business users			
	Wider Impacts			
Environmental	Noise	Increases in noise on the A428 affecting the settlements of Great Cambourne, Highfields Caldecote, Hardwick and Coton. Increases on the remainder of the new/improved alignment to Ellington affecting settlements such as Papworth Everard, the Offords, Buckden and southern parts of Brampton. Reductions in noise on the existing A14 alignment between Brampton Hut and Spittals.		
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 5% (190,000 tonnes) across the study area and PM10 by 3% (11,000 tonnes). In the A14 corridor this option is forecast to increase PM10 by 3% but no change in NOX. In the CNB corridor this option is forecast to increase NOX by 4% and PM10 by 3% as more traffic passings through the CNB corridor at a higher average speed.		
	Greenhouse gases	Across the broader study area there is forecast to be a 4% increase in greenhouse gas emissions in 2031 reflecting the longer route element of this option. This equates to an increase of 20m tonnes.		-£ 35.22
	Landscape	CNB would generally have a Neutral effect on landscape character. The off-line HSB(part) passes through mostly open, large scale arable landscape with some woodlands and valley floodplains. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.		
	Townscape	Beneficial effects in Huntingdon due to the removal of the viaduct and truck road traffic, but adverse effects due to the partial loss of townscape spaces and addition of lighting (if lit). Traffic reductions through towns and villages would potentially benefit character, access and human interaction. Moderate Adverse effect on the western edge of Papworth Everard due to change in setting and		
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse Effect. This stretch of the HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. The route traverses a landscape which is known for the potential for undesignated buried archaeological remains of medium importance - with appropriate survey and mitigation works, the effect would be Moderate and sometimes Slight Adverse.		
	Biodiversity	There would be no impacts on statutory designated sites. Due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB. In relation to the A428/A1198 upgrade, the existing route is within 1km of three SSSIs which are also ancient woodlands. The option is also within 2km of one SSSI ancient woodland (Elsworth Wood – approx. 1020. From alignment). Direct impacts on these sites can be avoided with careful design and direct impacts minimised through appropriate mitigation.		
	Water Environment	Will cross flood zone 3 at main river. 1 main river crossings (Ouse larger than DS option). 1 moderate ecological quality. No SPZ. No SSSI.		
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements		£ 373.04
	Reliability impact on Commuting and	Would likely to be positive as the schemes offer more resiliance		
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.		
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline		
	Accidents	This option is forecast to result in a 3% decrease in fatal accidents and a 2% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 and A4129 and A428 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to reduce by 4%.		£ 104.27
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.		
	Access to services	The package scores positively as increased highway capacity tends to improve access for car		
	Affordability			
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.		
	Option values			
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct)		£ 584.12
	Indirect Tax Revenues			£ 71.14

Appraisal Summary		A14 Options Assessment		Date produced:	23/11/2012
Name of scheme:		A14 Option 7, £1/£2 toll			
Description of scheme:		D3AP Huntingdon Southern bypass with a tie in south east of Fenstanton, Local Access Roads between Trinity Foot and Girton plus full Girton enhancement with enhancement of Cambridge Northern Bypass but Huntingdon Viaduct removed and replaced with a local road network as per the former ECI scheme. £1 toll for light vehicles and £2 for heavy vehicles between Ellington and Girton travelling on mainline A14. Local Access Roads will not be tolled.			
Impacts		Summary of key impacts		Assessment	Monetary (£m)
Economy	Business users & transport providers	Business users and transport providers would benefit from the capacity enhancements			£ 379.62
	Reliability impact on Business users				
	Wider Impacts				
Environmental	Noise	Reductions in noise between Brampton Hut and Spittals interchanges, in the vicinity of Brampton as a result of the HSB. Inevitable increases in noise levels along the alignment of the Huntingdon Southern Bypass, particularly in the proximity of junctions, affecting the villages of Conington, Hilton, the Offords , Buckden and southern parts of Brampton. Negligible impact on noise levels on existing A14 alignment between Trinity Foot and the A1(M) and Brampton Hut. Increases on the A14 between Fen Drayton and Milton.			
	Air Quality	Overall in 2031, this option is forecast to increase NOX by 3% (130,000 tonnes) across the study area and PM10 by 2% (6,000 tonnes). In the A14 corridor this option is forecast to have no impact on NOX and decrease PM10 by 1%. In the CNB corridor this option is forecast to increase NOX by 4% and PM10 by 3% as more traffic passings through the CNB corridor at a higher average speed.			
	Greenhouse gases	Across the broader study area there is forecast to be a 3% increase in greenhouse gas emissions in 2031, equating to an increase of 12m tonnes.			-£ 7.31
	Landscape	CNB would generally have a Neutral effect on landscape character. Between Girton and Fenstanton the option passes through mostly open, large scale low-lying arable landscape with settlements along the existing A14 such as Girton and Bar Hill. Overall this section of the option alignment would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages. The off-line HSB passes through mostly open, large scale arable landscape with some woodlands, valley floodplains and fenland. The HSB would have Large Adverse effect on Ouse Valley landscape character which is deemed as being of high value. The HSB would have a large adverse effect on landscape pattern and tranquillity. The section along the A1 to Ellington would have a Slight Adverse effect on landscape pattern and tranquillity of nearby villages/settlements. If lit the option would adversely affect the rural character.			
	Townscape	Traffic reductions through towns and villages would benefit character, access and human interaction. However at this stage overall Neutral affect.			
	Heritage of Historic resources	CNB would have a Moderate Adverse effect on the noise level, visual setting and character on the Baits Bite Lock and Fen Ditton Conservation Areas and the Grade II* Listed Building of Biggen Abbey, and Slight Adverse effect on the Grade II LB Poplar Hall although the effects would be mitigated or cease in the long term following the completion of the construction works. The demolition of the undesignated historic Pill Box at the Girton Interchange would result in a Slight Adverse effect. The HSB would alter the visual character of unlisted historic buildings at Rectory Farm, Lodge Farm and Graffham Road Cottages Brampton resulting in a Slight Adverse effect. There would be a Slight Adverse effect on the historic landscape of undesignated water meadows north of Offord Cluny due to the severance of the meadows by the option. There would be a Moderate Adverse effect on the setting Offord Cluny Conservation Area due to visual intrusion and Slight Adverse effects on two Grade II listed buildings in Offord Cluny. There would be a Slight Adverse effect on the Hilton Conservation Area due to increase in noise level but the setting would not be affected. Reduction in traffic and noise levels with the Fenstanton Conservation Area and one Grade II* Listed Building within it, would result in a Slight Beneficial effect. At Connington there would be a Slight Adverse			
	Biodiversity	There would be no impacts on statutory designated sites. As with HW3, due to the HSB, there would be some loss of habitat at Buckden Gravel Pits CWS resulting in adverse impacts on important bird populations. There would also be adverse impacts on badgers due to loss of a badger sett and disruption to existing badger territories. Other impacts on protected or notable species are likely to be neutral or have positive effects. There are no additional significant impacts included in the AST for the CNB.			
	Water Environment	Will cross flood zone 3 at main river. 3 main river crossings (Ouse, West Brook and Cottenham Lode). 3 moderate ecological quality. No SPZ. No SSSI. Less impermeable areas to be mitigated (relative to GBCR).			
Social	Commuting and Other users	Commuters and other users would benefit from the capacity enhancements			£ 147.23
	Reliability impact on Commuting and	Would likely to be positive as the schemes offer more resiliance			
	Physical activity	Potential for new and improved linkages to rights of way network, new circular routes would provide NMU journey opportunities.			
	Journey quality	Driver frustration, stress and fear of accidents expected to reduce through the provision of high quality trunk and county routes. Improvement in travellers views particularly for the HSB offline			
	Accidents	This option is forecast to result in a 0.4% decrease in fatal accidents and a 1% decrease in total accidents across the whole study area. This decrease is a result of improved highway design on the A14 but is countered by some traffic re-routing around Huntingdon on roads with higher accident rates. Total accidents in the A14 corridor are forecast to reduce by 4%.			£ 28.11
	Security	Removal of at-grade junctions and crossings and reduction in congestion would reduce perception of risk and personal injury.			
	Access to services	The package scores positively as increased highway capacity tends to improve access for car			
	Affordability				
	Severance	Judged to have a neutral impact on severance as it would be possible to include measures to mitigate any potential issues.			
	Option values				
Public Accounts	Cost to Broad Transport Budget	Scenario 1 (no further costs associated with Huntingdon Viaduct. This cost assumes that all revenues will be passed to the Broad Transport Budget but includes a cost for revenue collection			£ 255.60
	Indirect Tax Revenues				-£ 10.58

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