



## Princes Risborough

Buckinghamshire County Council/ Wycombe District Council

### Princes Risborough Town Centre Strategy Modelling

002 | B

19 January 2016

Princes Risborough

#### Document history and status

Revision	Date	Description	By	Review	Approved
A	13/1/2016	DRAFT	SM	RS	RS
B	19/1/2016		SM	RS	RS

#### Distribution of copies

Revision	Issue approved	Date issued	Issued to	Comments
A	RS	15/1/2016	WDC	Draft for discussion
0	RS	19/1/2016	BCC/WDC	Final

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Project no: B12798D8  
Document title: Princes Risborough Town Centre Strategy Modelling  
Document No.: 002  
Revision: B  
Date: 19 January 2016  
Client name: Buckinghamshire County Council/ Wycombe District Council  
Client no: Princes Risborough  
Project manager: Stephen Moody  
Author: Stephen Moody  
File name: M:\Transport Modelling\B12798D8 Princes Risborough\Technical Work\Reports\Town Centre Changes Study\Princes Risborough Town Centre Transport Strategy Modelling\_FINAL.docx

Jacobs U.K. Limited

1180 Eskdale Road  
Winnersh, Wokingham  
Reading RG41 5TU  
United Kingdom  
T +44 (0)118 946 7000  
F +44 (0)118 946 7001  
[www.jacobs.com](http://www.jacobs.com)

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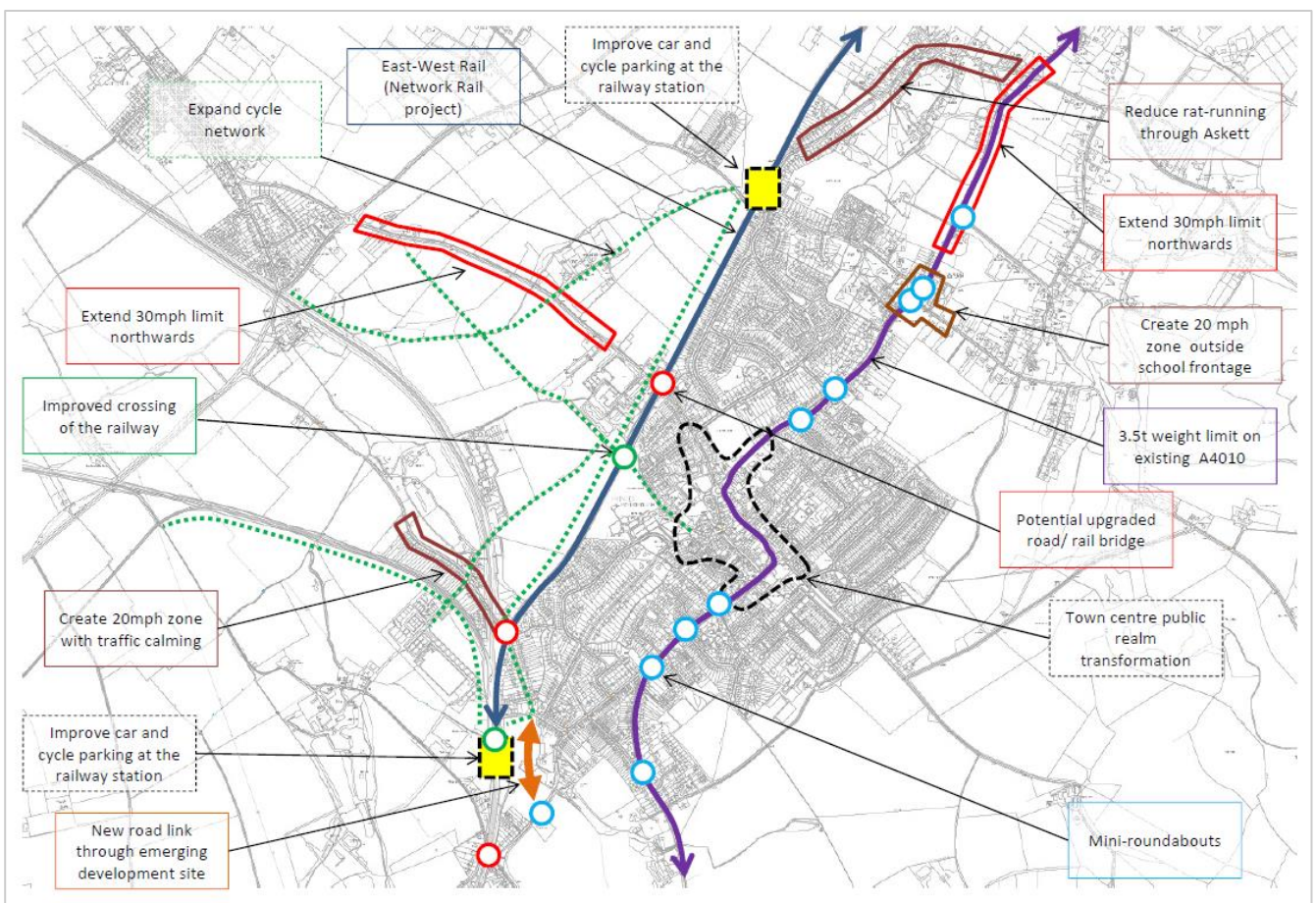
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## 1. Introduction

Jacobs is the framework consultant to the Transport for Buckinghamshire Alliance (TfB) between Ringway Jacobs and Buckinghamshire County Council (BCC). Under the terms of this contract, Jacobs is commissioned to undertake transport planning, modelling and assessment studies on behalf of the County Council, working in partnership with the District Councils.

Jacobs has been commissioned by BCC and Wycombe District Council (WDC) to produce a Stage 1 Option Assessment Report (OAR). This note is an appendix to the OAR and summarises the findings from the modelling undertaken of the potential town centre transport strategy (shown in Figure 1), including changes suggested by the steering group. The purpose of the study is to determine whether the potential changes to the town centre and surrounds would impact on the transport findings outlined in the OAR.



**Figure 1 : Indicative town centre transport strategy**

The modelling uses the BCC Countywide 2036 do something models developed for the OAR as the basis for creation of the with town centre changes models. The scale of development modelled and road options are consistent with the OAR Scenario C (with the emerging local plan development and western relief road) models for options 11b, 12, 15b and 17.

This note summarises the operation of the road network in terms of traffic volumes in the town centre, delay at junctions on the A4010, and north-south journey times on the A4010 and new western relief road for each of the four options.

## 2. Modelling Outputs

The modelling outputs have been reviewed and are considered in turn in the following subsections.

### 2.1 North-South Journey Times

The north-south journey times along the A4010 and Shootacre Lane will increase as a result of the town centre transport strategy. This is attributable to the reduced capacity for the primary A4010 route, introduction of mini-roundabout junctions, and lower posted speed limits on the A4010. The introduction of the transport strategy would encourage traffic to reassign away from the A4010 to other routes, including the new western relief road alignment. The impact of the transport strategy on journey times on the existing A4010 and new western relief road are shown in Table 1.

The scheme offers some improvements along the new western relief road alignment in the PM peak in option 17 followed by options 11b and 12, compared with 2013 base year journey times. Overall, the results are broadly consistent with the findings reported in the OAR, where options 11b and 17 show the greatest benefit, followed by option 12.

Comparison of the results with and without the town centre changes shows that journey times on the existing A4010 increase by approximately up to two minutes. The journey times on the new western relief road also increase by up to a minute, which is attributable to the additional traffic reassigning away from the A4010 onto the new western relief road.

Scenario/ Option	Direction	A4010		New Road Alignment Option	
		AM	PM	AM	PM
2013 base	Southbound	11m 07s	10m 08s		
	Northbound	10m 09s	11m 41s		
C/11b	Southbound	12m 10s	11m 12s	11m 31s	10m 11s
	Northbound	12m 03s	12m 38s	10m 34s	11m 5s
C/12	Southbound	13m 05s	11m 33s	11m 29s	10m 29s
	Northbound	12m 37s	13m 07s	10m 30s	11m 8s
C/15b	Southbound	13m 04s	11m 38s	12m 53s	11m 27s
	Northbound	12m 29s	12m 58s	12m 18s	12m 48s
17	Southbound	12m 39s	11m 23s	11m 25s	10m 01s
	Northbound	12m 04s	12m 40s	10m 17s	10m 49s

Table 1 : North-South Journey Times on the A4010 and New Road (Options 11b, 12, 15b and 17)

### 2.2 2036 Traffic Volumes

The focus of the transport strategy is on improving traffic conditions in the town centre, by encouraging through traffic to use alternative routes. The strategy facilitates a reduction in traffic on New Road in the town centre, and the hierarchy of the options is consistent with the findings reported in the OAR. Broadly, the two-way traffic reduction due to the town centre changes (comparing Scenario C models) is between 300 and 600 cars in a peak hour. Comparison against the 2013 base shows a greater reduction of between 500 and 850 two-way vehicle movements on New Road in the town centre. Option 17 performs best in terms of traffic reduction on New Road in the town centre, though all option bring traffic levels below the baseline.

Review of the models (with and without town centre changes) shows that the traffic volumes on the approaches to Princes Risborough: north of Grove Lane (A4010), east of Peters Lane, south of Shootacre Lane (A4010), B4009 Lower Icknield Way (west of Summerleys Road), and A4129 north of Longwick, are broadly consistent. Interrogation shows that the reduction on New Road and the A4010 is due to local traffic reassignment for both north-south (to the B4009 and new western relief road) and east-west journeys (onto Mill Lane).

It is observed that the transport strategy reduces the traffic travelling through Askett. This is still an increase above the 2013 base situation, which suggests further interventions may be required. The option hierarchy is consistent with the OAR, with options 11b and 15b performing best (in terms of traffic through Askett), and option 12 performing worst.

Tables 2 and 3 set out the changes in traffic volumes for a number of key roads identified during the stakeholder engagement process as being sensitive to further increases in traffic volume. The traffic volumes using Poppy Road change as a result of the town centre strategy. Option 11b remains the best of the four options for Poppy Road, bringing traffic volumes close to the baseline. There is also some improvement with option 17.

Road/Direction		2013		2036							
		Base		C-11B		C-12		C-15B		C-17	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Poppy Road	Southbound	116	146	109	86	428	363	164	238	164	113
	Northbound	107	113	88	127	110	185	79	106	71	111
New Road	Southbound	734	720	312	393	349	403	396	428	296	391
	Northbound	814	1001	600	532	604	519	663	599	531	498
Askett (C63)	Southbound	196	194	375	307	392	365	390	280	386	312
	Northbound	138	179	158	299	261	320	152	303	170	293

Table 2 : 2013 and 2036 Traffic Volumes on New Road, Poppy Road, and through Askett

Road/ Direction		C-11B		C-12		C-15B		C-17	
		AM	PM	AM	PM	AM	PM	AM	PM
Poppy Road	Southbound	-6%	-41%	269%	149%	41%	63%	41%	-23%
	Northbound	-18%	12%	3%	64%	-26%	-6%	-34%	-2%
New Road	Southbound	-57%	-45%	-52%	-44%	-46%	-41%	-60%	-46%
	Northbound	-26%	-47%	-26%	-48%	-19%	-40%	-35%	-50%
Askett (C63)	Southbound	91%	58%	100%	88%	99%	44%	97%	61%
	Northbound	14%	67%	89%	79%	10%	69%	23%	64%
<b>Reduction</b>		<b>Increase</b>							
-1% to -10%		1% to 10%							
-11% to -25%		11% to 25%							
-26% to -50%		26% to 50%							
-51% to -100%		51% to 100%							
>-100%		>100%							

Table 3 : Percentage Change in Traffic Volumes 2036 vs 2013

## 2.3 Junction delay

Traffic congestion can be considered to be a measure of delay at junctions and on links. The delay at junctions has been determined from the BCC Countywide Model, and a summary of the delay at junctions in the A4010 corridor, between the Grove Lane/ A4010 and Shootacre/ A4010 junctions, is shown in Table 4.

Overall the town centre strategy reduces the maximum delay experienced on a single arm at junctions in the A4010 corridor, which is logical given the reduction in traffic using the A4010. However, it is noted that the delay on the A4010 will increase as currently the flow is not impeded by the existing T-junctions. The delay at the junctions shows that options 11b, 15b, and 17 perform best followed by option 12. This is broadly consistent with the findings outlined in the OAR.

Junction	2013		2036								
	Base		C-11B		C-12		C-15B		C-17		
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
Shootacre Lane/ A4010											
Woodway/ A4010											
Upper Icknield Way (S)/ A4010											
Upper Icknield Way (N)/ A4010											
Poppy Road/ A4010											
Jasmine Crescent/ A4010											
New Road/ Bell Street/ New Road A4010											
A4010/ Duke Street/ Longwick Road											
The Avenue/ A4010											
Peters Lane/ A4010											
Mill Lane/ A4010											
Cadsden Road/ A4010											
Church Lane/ A4010											
Grove Lane/ A4010											
<b>TOTAL</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	
<b>Combined TOTAL</b>	<b>13</b>		<b>2</b>		<b>4</b>		<b>2</b>		<b>2</b>		
<b>Junction Delay</b>											
<30 seconds	0		1 minute to 2 minutes				2				
30 seconds to 1 minute	1		> 2 minutes				3				

Table 4 : Junction Delay at Princes Risborough in the A4010 corridor 2013 and 2036

### 3. Summary

The findings from this modelling study are:

- **North-South Journey Times:**
  - The north-south journey times along the A4010 and Shootacre Lane will increase as a result of the town centre transport strategy.
  - The introduction of the transport strategy will encourage traffic to reassign away from the A4010 to other routes, including the new road alignment.
  - Overall, the results are broadly consistent with the findings reported in the OAR, where options 11b and 17 show the greatest benefit, followed by option 12.
- **2036 Traffic Volumes:**
  - The strategy facilitates a reduction in traffic on New Road in the town centre, and the hierarchy of the options is consistent with the findings reported in the OAR. Option 17 performs best in terms of traffic reduction on New Road in the town centre, though all options bring traffic levels below the baseline.
  - There is local traffic reassignment.
  - Options 11b and 15b perform best (in terms of traffic through Askett), and option 12 performs worst. The transport strategy reduces traffic volumes through Askett, however there is still an increase above the 2013 base situation, suggesting further interventions may be required.
  - Option 11b remains the best of the four options for Poppy Road, bringing traffic volumes close to the baseline. There is an improvement shown in the model results for option 17.
- **Junction Delay:**
  - Overall the town centre strategy reduces delay at junctions in the A4010 corridor, which is logical given the reduction in traffic using the A4010.
  - The delay at the junctions shows that options 11b, 15b, and 17 perform best followed by option 12. This is broadly consistent with the findings outlined in the OAR.