BERKSHIRE LOCAL TRANSPORT BODY (BLTB)

REPORT TO: BLTB **DATE:** 19 July 2018

CONTACT OFFICER: Joe Carter, Director of Regeneration, Slough Borough Council, lead officer to BLTB

PART I

Item 12: 2.17 Slough A355 Route – One Year Impact Report

Purpose of Report

1. At your meeting in March 2017, you approved guidance for the preparation of one- and five-year-on impact reports for BLTB funded local transport schemes

2. This report introduces the impact report for scheme 2.17 Slough A355 Route.

Recommendation

3. You are recommended to note the reports from the scheme promoter and the independent assessor.

Other Implications

Financial

4. There are no direct financial implications of this report.

Risk Management

5. The government requires all LEPs to have Assurance Frameworks which set out governance arrangements and financial procedures. One of the specific requirements for transport schemes is to require scheme promoters to submit impact reports one and five years post implementation.

Human Rights Act and Other Legal Implications

6. Slough Borough Council will provide legal support for the BLTB should any questions arise on the application of the Assurance Framework.

Supporting Information

7. Slough Council received £4.4m towards the £5.8m cost of this scheme. Therefore, it has been treated as a “small” scheme being very close to the £5m threshold.

8. The one-year on impact report is attached at Appendix 1; and the independent assessor’s report is attached at Appendix 2.

Conclusion

9. There is no further action required

Background Papers

None

www.slough.gov.uk
Slough Borough Council

Growing a place of opportunity and ambition

Slough: A355 Route Improvements

Berkshire Local Transport Body (BLTB)

One-Year-On Impact report

Slough Borough Council

June 2018

GROWTH DEALS

Thames Valley Berkshire
LOCAL ENTERPRISE PARTNERSHIP

Local Growth Fund

1. Introduction

1.1. *Background*

Slough Trading Estate and Slough Town Centre are two key employment locations within Thames Valley Berkshire. Traffic congestion already has adverse impact on business efficiency and inward investment and, as such, threatens the future economic vitality of Slough. The main aims of The A355 Route Enhancement scheme were to improve the efficiency of Slough's businesses by reducing journey times and providing network reliability, and to improve road safety. The aim was also to support retention and growth of employment in Slough by protecting and enhancing the connectivity advantages which make Slough a good place to do business and a focus for future inward investment. A third main aim was to improve air quality by reducing stop/start traffic and therefore to help tackle the AQMA zone.

1.2. *Funding*

Slough Borough Council received £4,400,000 form the Local Growth Fund towards the improvements and redesign of the A355 / Tuns Lane and Copthorne roundabout. Additional funding was provided by Slough Borough Council via S106 agreements and capital funds, making an overall total of £5,800,000 for the delivery of the scheme. This report evaluates the success of the project, taking into account improvements to the road network, road safety, and the opportunities for economic growth.

1.3. *Objectives*

As stated in the business cases, the following objectives and desired outcomes applied to the project

Objective	Desired Outcome
1. Improve access to employment centres, Slough Town Centre and Cippenham thereby supporting economic and population growth in Slough	Support employment and housing development planned for Slough Reduce unemployment in Slough
2. Alleviate the severe congestion on the A355 by allowing better flow of traffic	Improve car journey times Improve reliability Increase affordability
3. Minimise the impact of noise and air pollution and greenhouse gases on the A355 corridor	Reduce (or keep to neutral) carbon dioxide emissions Reduce (or keep to neutral) noise levels
4. Improve operation of the A355 Tuns Lane	Reduce differences in queuing and delay over all arms

1.4. *Description of the scheme*

The scheme addressed the strategic north-south A355 route that links the M4, Slough Trading Estate and the M40 and to enhance access to Slough town centre. The works comprised the substantial modification of the former A355 Copthorne Roundabout with the introduction of a "hamburger" style layout and the installation of full traffic signal control layout which now enables north bound and south bound vehicular traffic to pass through the centre of the junction instead of

having to undertake the previous circulatory movements. Right turn manoeuvres are accommodated by undertaking circulatory movements as per the former layout.

Significant widening of the carriageway has been undertaken between the M4 Junction 6 motorway interchange at the southern limit and the Copthorne roundabout to the north of this stretch of the A355. This has been achieved by utilising the existing central reserve and verge areas along the length of the carriageway. To the immediate north of the Copthorne Roundabout, the staggered Toucan Crossing facility has been realigned. Bridge strengthening has also been carried out on the A355 'overbridge' passing over High Street Chalvey.

1.5. *Location*

The A355 / Tuns Lane is one of the main strategic routes in the borough, linking the M4 from the borough boundary at junction 6 roundabout, travelling in a northbound direction via the

Copthorne junction to the A4 at the Three Tuns junction, and onward (where it becomes Farnham Road) towards the north of borough and beyond.

1.6. *Historic Problems*

1.6.1. Congestion

This route is subject to heavy traffic flow, as it carries a large amount of commuters as well as local traffic accessing businesses, schools, shops and other destinations. Tens of thousands of commuters enter and exit Slough on a daily basis, Monday to Friday. As a result, congestion arises and journey times can be unpredictable.

1.6.2. Road Safety

Previously, road speeds varied along this stretch, from 70mph coming off the M4 slip road to 30mph on the stretch of the A355 above the Copthorne roundabout. Signalised crossings were in place, but these were considered to be erratic and part of the overall problem. In addition, there was an unmarked crossing immediately north of the J6 roundabout. All of these features represented road safety hazards.

1.6.3. Maintenance

Due to the high volume of usage and the high-speed limit, highways maintenance, including street lighting repairs, have previously been expensive and difficult to arrange and carry out safely.

2. Funding

2.1. *Funding details*

The majority of the funding for this scheme came from the LEP Local Growth Deal.

Additional funding was provided by the Council from S106 contributions and capital funds.

The full figures are shown in the tables below:

Source of funding	Total
Amount from LEP Local Growth Deal	£4,400,000
Section 106 agreements	£700,000
Council Capital Programme	£700,000
Total Scheme Cost	**£5,800,000**

3. Scheme details

3.1. *Design elements*

The scheme included:

- Redesigning the Copthorne roundabout, replacing the old roundabout with a new 'hamburger' style arrangement with full signalisation.
- Replacing the old pedestrian crossing to the north of the roundabout with a new, puffin crossing
- Junction improvement – new islands providing better crossing facilities around the Copthorne roundabout
- Widening the carriageway between the Copthorne roundabout and the M4 J6 roundabout, providing room for three lanes southbound
- A new, reduced width central reservation
- Full resurfacing with new lane markings
- Bridge strengthening – A355 overbridge above High Street Chalvey
- Drainage improvement
- Replacing the street lighting
- Experimental 30mph speed limit making this consistent between the M4 J6 roundabout and the A4

3.2. *Supporting measures*

3.2.1. Traffic Management

Given the high volume, strategic nature of the route, extensive traffic management plans were devised. This included a contra-flow system to allow uninterrupted working on both sides of the A355 in turn, with the direction switched on completion of the first side.

3.2.2. Communications

The project was supported by an extensive communications programme to keep residents and motorists advised of upcoming works and disruptions. This was particularly important at times when closures were in place, for road surfacing, and when diversions were in operation.

The communications took the form of public consultations, letter drops, press releases, the SBC website, and information sharing with neighbouring authorities the Royal Borough of Windsor and Maidenhead and Highways England.

As would be expected with a project of this scope, a number of complaints were received from residents and motorists. These were responded to promptly by either the contractors or the Council (Transport and Communications teams), as appropriate. Overall, however, there was widespread patience and acceptance of the disruption in expectation of the network and wider benefits that would arise from the new road layout.

3.2.3. Member support

Slough Council members, notably including the Commission of Transport and Highway, were kept fully informed of the progress of the project. Considerable support for this project was received from the Commissioner, who regularly stated his backing in the local press, where he advised the public on the long-term benefits that would follow the temporary disruption.

3.3. Key dates

Construction started on site in December 2015. The work was completed in February 2017.

4. Progress and Monitoring

4.1. SBC / Balfour Beatty partnership

Regular contract monitoring and scheme progress reports were provided by Balfour Beatty and discussed with the Head of Transport at the Council.

Quarterly 'Customer Experience' meetings were held with Balfour Beatty and the project team, including representation from SBC Transport. This forum provided an opportunity to discuss any problems relating to construction, finance or any other aspects of performance and progress in a relaxed setting and with a Balfour Beatty representative not directly involved in the project.

SBC engineers regularly attended the works site along with fellow project team members in order to monitor progress and to check adherence to technical plans and specifications.

4.2. Health and Safety

As set out in the monthly reports received by SBC, an excellent health and safety record was maintained for the duration of the project. Balfour Beatty strive to maintain zero harm, and this was backed up by minimal incidents and quick responses, with thorough investigation into any problems that arose, and a culture of transparency. There were no serious incidents on site during the project.

4.3. Network Management

Monthly meetings were held with the project manager, main contractor (Balfour Beatty) and their traffic management subcontractors, TSCO (project Traffic Safety and Control Officer),

Highways England and their managing agents (Kier and ConnectPlus25), RBWM and

Thames Valley Police to discuss road safety matters throughout the duration of the project. The A355 leads off from the M4 slip roads at junction 6, hence particular attention was paid to the potential for tailbacks to and from the motorway.

A series of diversions were deployed within Slough and across the boundary with the Royal

Borough of Windsor and Maidenhead. The Council worked closely with RBWM and Highways England to avoid clashes of works across the network.

Extensive signage was displayed throughout the project, with advance warning signs on the

M4 approaches to junction 6 as well as across the borough. Messages were displayed on Variable Message (VMS) signs, both the static signs in Slough and temporary, portable VMS on the motorway verges.

4.4. *Any significant problems*

In terms of managing the contract, the dispute mechanisms and procedure were adhered to, but at times this was problematic, with a long series of compensation events being raised by the contractor, resulting in lengthy technical investigations and negotiation.

The compensations events were due largely to highways structure issues, including the presence of utility services at unexpected locations, with re-designs and diversions necessary in some cases. All problems were ultimately resolved to mutual satisfaction, but at times this was a lengthy process.

Prior to the commencement of the construction work on site, there were considerable discussions about the potential for significant traffic problems including implications for the M4 motorway. On the local road network, particularly on the northbound approach to the M4 J6 roundabout from Windsor, there were regular delays. However, thanks to the extensive planning and the skills and judgement of the project team (contractor, subcontractor and Council), there were very few major problems, and no significant safety issues.

5. Review and evaluation of the outcomes:

5.1. *Overall outcome:*

The scheme was completely satisfactorily, to a high technical standard, close to budget, and broadly on schedule.

5.2. *Photographs of the new roundabout and carriageway layout*

The photographs below show the Copthorne roundabout and the A355/Tuns Lane shortly after completion of the construction project.

The Copthorne Roundabout / A355 – Tuns Lane

Figure 1 A355 southbound approaching Copthorne roundabout

Figure 2 Copthorne roundabout / A355 looking west towards Cippenham Lane

Figure 3A355 / Copthorne roundabout looking east towards Church Street, Chalvey

Figure 4 A355 Another view of the A355/Copthorne roundabout, looking south/east

5.3. *Traffic network: evaluation of impacts*

The new road infrastructure delivered has already brought considerable improvements to traffic flow, reducing congestion and making journey times more reliable. Any previous concerns that streamlining the roundabout would only relocate congestion to the A4 junction with the A355 have not been realised. There is now much better control of traffic flow on this link, both north and south bound. A particular improvement has been observed in the southbound traffic approaching the roundabout. There have been no complaints of excessive traffic on Cippenham Lane, the approach that has been de-prioritised.

A key objective, which has been achieved, was to push more traffic in the PM peak period through the Three Tuns junction (eastbound approach), and hence to reduce congestion on the A355 southbound exit.

During evening peak hours, there has been some increase in the queuing of motorists seeking to join the M4 in both and east and westbound directions. Some of this volume could previously have been masked by congestion on the A355 coming down from the A4. It is more likely the case, though, that the traffic queuing to join the M4 is subject to the recently increased activation of ramp metering during this period of the day.

5.3.1. Traffic flow / journey times

When modelling the scheme, the expected outcome was an improvement in traffic flow, with particular improvements expected in the southbound direction on the A355 during evening peak hours. Southbound movements approaching the Copthorne roundabout were prioritised in this scheme, as they were adjudged through extensive observation and technical data analysis to be the most problematic part of the micro-network (comprising the A4, A355, Cippenham Lane and Church Street). Priority was also given to addressing congestion problems at peak times, AM and PM

The expectation was that journey times for the northbound approach and on all approaches during off-peak travel times would not necessarily improve and might in some cases even increase. However, the overall, net effect was anticipated to be a reduction in congestion, on the roads in question and on the surrounding network, and more reliable journey times.

Traffic flow data has been collected before and after the modification to the road and roundabout layouts. The most useful measure by which to judge the impacts appears to be average journey time on weekdays, measuring the time taken to travel from the ATC detector on the A4 / Three Tuns junction to (JS121) to the detector near the M4 J6 roundabout on the A355 (JS119) in a southbound direction, and in reverse, from JS119 to JS121 in a northbound direction.

The counts were taken from October 2015 to December 2015 (pre-start of scheme in February 2016) and from October 2017 to December 2017 (post scheme completion in February 2017).

The findings are as follows:

5.3.1.1. Southbound: see tables 1 and 2

The data shows average reductions in weekday journey time by approximately 60 seconds. Fridays are an exception and are subject to ongoing scrutiny. Average journey times have increased at weekends and again this is subject to review.

5.3.1.2. Northbound: see tables 3 and 4

The data shows average increases in weekday journey time by approximately 40 seconds. This increase is disappointing to a certain extent; however, it is considered acceptable given the overall benefit arising from the improvements to southbound traffic flow.

5.3.1.3. Comment

As anticipated, the data provided in the tables in this report shows that the majority of the benefit in terms of reduction in journey times applies to southbound traffic movements at peak times. Other movements, notably northbound and off-peak, have shown increases in journey times. This is not considered completely satisfactory, then, and measures are in place now to consider additional ways of improving the signal timings to provide benefits to motorists approaching from all directions and at all times during the day, without losing the southbound gains specifically and the overall gains.

It should be noted that increases in journey times in some cases is, to some extent, a result of the lower speed limit, now 30mph, and the signalisation of the roundabout. A lower journey time can be considered a positive outcome in terms of road safety. It also indicates increased capacity of the A355 and the Copthorne junction, which relates to increased economic growth across the borough.

In terms of observation and public opinion, it has been noted that the A355 and Copthorne roundabout is performing significantly better at peak times in particular. The Council has received very few complaints about traffic flow since the completion of the project.

Overall, in terms of net effect, these results are considered to be a substantial improvement, improving traffic flow on both the A355 and the connecting A4 / Bath Road and Three Tuns junction, as well as the side roads Cippenham Lane and Church Street, Chalvey.

5.3.1.4. Ongoing monitoring

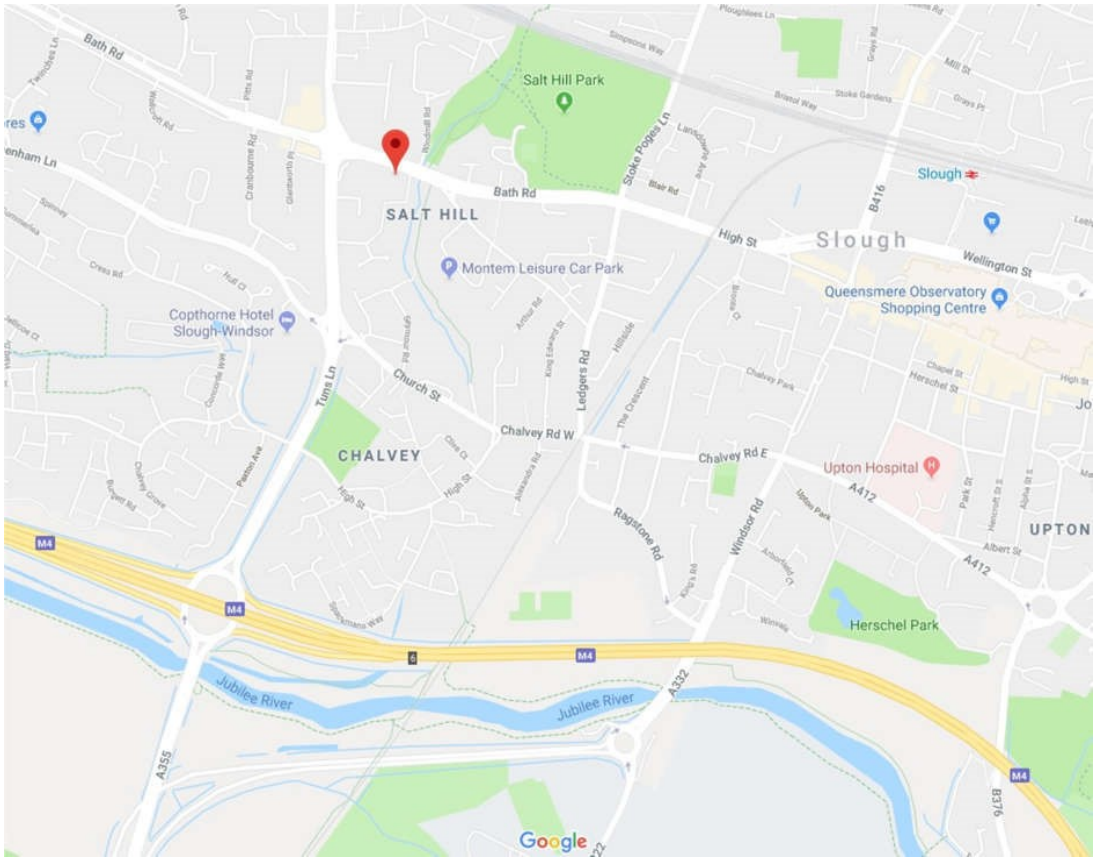
The signal timings at the Copthorne roundabout and the Three Tuns junction will continue to be monitored and potentially adjusted in order to seek further improvements to the network traffic flow, with particular attention due to the northbound traffic movements. It is anticipated that further improvements can be made here without jeopardising the southbound flow and the overall state of the local network.

In addition, subsequent work has been carried out on the signals at the Three Tuns junction as part of the SMaRT scheme (also funded by the Local Growth Fund). This has subsequently further improved the connectivity and traffic flow through this series of junctions.

Traffic count data monitoring will continue to be performed on both the Copthorne roundabout and A355, and the A4 approaches to the Three Tuns junction, to further analyse the impact of recently completed schemes on the network, including the SMaRT phase 1 and Copthorne roundabout / A355 projects.

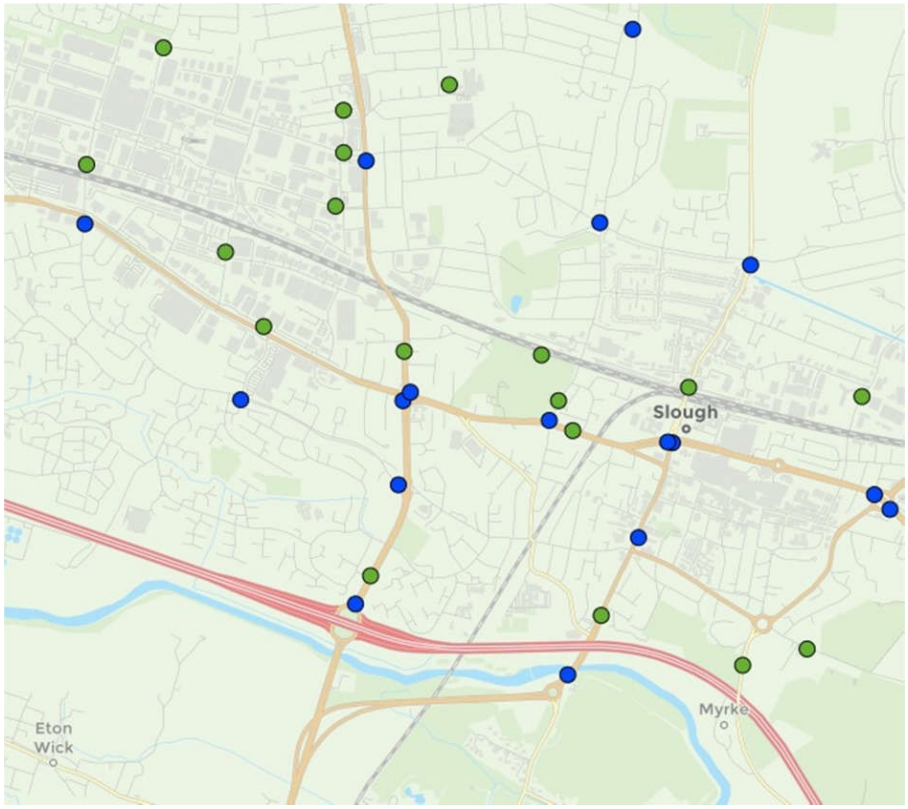
In terms of traffic counts and measuring capacity improvements on this part of the network, data is regularly collected. However there appears to be an error in the figures collected before the construction was commenced. Hence, no data tables are presented for this purpose in this report. This issue is being addressed, and data comparisons for this purpose will be monitored and provided in future impact reports.

Slough (M4 / A355 / A4 / Town Centre)



Map 1 of Slough showing the A355 / Tuns Lane (to the left of the area shown), the Copthorne roundabout (mid-way between the M4 junction 6 roundabout and the A4)

Automated Traffic Count locations (ATCs)



Map 2 of Slough – the blue circles indicate the ATC (traffic count) detector sites. The green circles are cycle count detector sites.

5.4. *Traffic Flow tables – Journey Time*

Table 1 PRE-SCHEME – focus on PM peak, exiting Slough

(JS121) Three Tuns junction (A4/A355) to the M4 J6 roundabout (JS119) in a **southbound** direction

SLOUGH_JT : JS121 to JS119 : Average Journey Time Profile By Weekday

00:00:00, Thu, 01 Oct 2015 to 00:00:00, Fri, 01 Jan 2016 Length: 0.6 miles

	<	Average profile for					>
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	00:01:20	00:01:15	00:01:16	00:01:18	00:01:18	00:01:17	00:01:17
01:00	00:01:19	00:01:23	00:01:17	00:01:17	00:01:16	00:01:18	00:01:16
02:00	00:01:18	00:01:22	00:01:21	00:01:16	00:01:21	00:01:19	00:01:18
03:00	00:01:17	00:01:20	00:01:16	00:01:23	00:01:20	00:01:17	00:01:15
04:00	00:01:19	00:01:16	00:01:18	00:01:14	00:01:17	00:01:16	00:01:15
05:00	00:01:18	00:01:21	00:01:20	00:01:20	00:01:20	00:01:18	00:01:16
06:00	00:01:28	00:01:30	00:01:30	00:01:29	00:01:29	00:01:18	00:01:15
07:00	00:01:40	00:01:39	00:01:40	00:01:38	00:01:39	00:01:17	00:01:13

08:00	00:01:41	00:01:42	00:01:42	00:01:42	00:01:47	00:01:23	00:01:14
09:00	00:01:33	00:01:35	00:01:34	00:01:34	00:01:31	00:01:23	00:01:19
10:00	00:01:35	00:01:30	00:01:31	00:01:29	00:01:29	00:01:29	00:01:21
11:00	00:01:36	00:01:31	00:01:32	00:01:32	00:01:30	00:01:30	00:01:25
12:00	00:01:37	00:01:35	00:01:36	00:01:36	00:01:46	00:01:39	00:01:33
13:00	00:01:39	00:01:37	00:01:39	00:01:36	00:01:40	00:02:00	00:01:30
14:00	00:01:39	00:01:43	00:01:46	00:01:44	00:01:47	00:01:33	00:01:27
15:00	00:02:10	00:02:25	00:02:18	00:02:33	00:02:24	00:01:32	00:01:27
16:00	00:02:41	00:02:41	00:02:41	00:02:44	00:02:33	00:01:36	00:01:27
17:00	**00:02:54**	**00:02:49**	**00:02:49**	**00:02:55**	**00:02:21**	**00:01:32**	**00:01:26**
18:00	**00:02:51**	**00:02:58**	**00:02:48**	**00:02:36**	**00:01:43**	**00:01:33**	**00:01:23**
19:00	00:01:30	00:01:46	00:01:39	00:01:42	00:01:30	00:01:26	00:01:17
20:00	00:01:19	00:01:23	00:01:23	00:01:24	00:01:21	00:01:18	00:01:20
21:00	00:01:17	00:01:17	00:01:19	00:01:19	00:01:18	00:01:20	00:01:16
22:00	00:01:18	00:01:15	00:01:17	00:01:16	00:01:18	00:01:18	00:01:17
23:00	00:01:16	00:01:17	00:01:22	00:01:15	00:01:16	00:01:16	00:01:16

Table 2 POST-SCHEME – focus on PM peak, exiting Slough

(JS121) Three Tuns junction (A4/A355) to the M4 J6 roundabout (JS119) in a **southbound** direction

SLOUGH_JT : JS121 to JS119 : Average Journey Time Profile By Weekday

00:00:00, Sun, 01 Oct 2017 to 00:00:00, Mon, 01 Jan 2018 Length: 0.6 miles

	<	Average profile for					>
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	00:01:30	00:01:31	00:01:32	00:01:29	00:01:30	00:01:33	00:01:35
01:00	00:01:31	00:01:38	00:01:30	00:01:31	00:01:28	00:01:31	00:01:31
02:00	00:01:28	00:01:29	00:01:36	00:01:33	00:01:31	00:01:31	00:01:36
03:00	00:01:30	00:01:31	00:01:32	00:01:34	00:01:30	00:01:33	00:01:33
04:00	00:01:30	00:01:34	00:01:33	00:01:36	00:01:36	00:01:36	00:01:34
05:00	00:01:34	00:01:39	00:01:39	00:01:38	00:01:39	00:01:34	00:01:31
06:00	00:01:43	00:01:46	00:01:45	00:01:48	00:01:46	00:01:35	00:01:28
07:00	00:01:49	00:01:52	00:01:53	00:01:49	00:01:46	00:01:34	00:01:33
08:00	00:01:48	00:01:52	00:01:49	00:01:50	00:01:49	00:01:36	00:01:35
09:00	00:01:53	00:01:51	00:01:50	00:01:52	00:01:47	00:01:43	00:01:38

10:00	00:01:49	00:01:47	00:01:48	00:01:46	00:01:47	00:01:43	00:01:37
11:00	00:01:51	00:01:50	00:01:49	00:01:48	00:01:49	00:01:46	00:01:42
12:00	00:01:49	00:01:50	00:01:48	00:01:49	00:01:51	00:01:47	00:01:43
13:00	00:01:48	00:01:48	00:01:46	00:01:46	00:01:46	00:01:46	00:01:46
14:00	00:01:47	00:01:49	00:01:48	00:01:48	00:01:47	00:01:43	00:01:42
15:00	00:01:46	00:01:47	00:01:48	00:01:45	00:01:46	00:01:44	00:01:44
16:00	00:01:46	00:01:50	00:01:47	00:01:49	00:01:47	00:01:47	00:01:47
17:00	**00:01:54**	**00:01:51**	**00:01:49**	**00:01:48**	**00:01:43**	**00:01:44**	**00:01:42**
18:00	**00:01:51**	**00:01:45**	**00:01:45**	**00:01:46**	**00:01:42**	**00:01:42**	**00:01:37**
19:00	00:01:40	00:01:39	00:01:44	00:01:43	00:01:41	00:01:38	00:01:34
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21:00	00:01:36	00:01:39	00:01:38	00:01:35	00:01:41	00:01:35	00:01:34
22:00	00:01:37	00:01:36	00:01:38	00:01:37	00:01:35	00:01:38	00:01:34
23:00	00:01:34	00:01:34	00:01:35	00:01:35	00:01:35	00:01:31	00:01:28

Table 3 PRE-SCHEME – focus on AM peak, entering Slough

(JS119) M4 J6 roundabout to the Three Tuns junction (A4/A355) (JS121) in a **northbound** direction

SLOUGH_JT : JS119 to JS121 : Average Journey Time Profile By Weekday

00:00:00, Thu, 01 Oct 2015 to 00:00:00, Fri, 01 Jan 2016 Length: 0.6 miles

	<	Average profile for					>
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	00:01:21	00:01:19	00:01:20	00:01:20	00:01:21	00:01:22	00:01:21
01:00	00:01:24	00:01:23	00:01:19	00:01:20	00:01:22	00:01:21	00:01:21
02:00	00:01:20	00:01:18	00:01:20	00:01:21	00:01:18	00:01:19	00:01:19
03:00	00:01:18	00:01:18	00:01:16	00:01:16	00:01:17	00:01:18	00:01:19
04:00	00:01:22	00:01:21	00:01:19	00:01:17	00:01:18	00:01:17	00:01:18
05:00	00:01:19	00:01:18	00:01:20	00:01:19	00:01:19	00:01:20	00:01:21
06:00	00:01:25	00:01:26	00:01:27	00:01:28	00:01:28	00:01:19	00:01:17
07:00	**00:01:54**	**00:02:09**	**00:02:07**	**00:01:59**	**00:02:07**	**00:01:22**	**00:01:19**
08:00	**00:02:47**	**00:02:56**	**00:03:06**	**00:02:46**	**00:03:08**	**00:01:24**	**00:01:21**
09:00	**00:02:14**	**00:02:16**	**00:02:11**	**00:02:03**	**00:01:47**	**00:01:31**	**00:01:25**
10:00	00:01:41	00:01:43	00:01:42	00:01:43	00:01:37	00:01:34	00:01:32
11:00	00:01:43	00:01:43	00:01:46	00:01:40	00:01:44	00:01:40	00:01:40

12:00	00:01:46	00:01:45	00:01:45	00:01:44	00:01:47	00:01:50	00:01:45
13:00	00:01:45	00:01:46	00:01:46	00:01:51	00:01:48	00:01:53	00:01:50
14:00	00:01:49	00:01:52	00:01:55	00:01:53	00:01:58	00:01:47	00:01:43
15:00	00:01:53	00:01:54	00:02:13	00:02:02	00:02:04	00:01:47	00:01:38
16:00	00:02:02	00:02:08	00:02:02	00:02:07	00:02:05	00:01:46	00:01:40
17:00	00:02:12	00:02:14	00:02:15	00:02:17	00:02:07	00:01:45	00:01:38
18:00	00:02:02	00:02:21	00:02:06	00:02:03	00:01:57	00:01:49	00:01:35
19:00	00:01:38	00:01:52	00:01:45	00:01:53	00:01:45	00:01:34	00:01:31
20:00	00:01:30	00:01:33	00:01:32	00:01:33	00:01:36	00:01:31	00:01:27
21:00	00:01:28	00:01:28	00:01:28	00:01:28	00:01:29	00:01:27	00:01:25
22:00	00:01:25	00:01:23	00:01:26	00:01:25	00:01:25	00:01:25	00:01:21
23:00	00:01:23	00:01:23	00:01:20	00:01:23	00:01:24	00:01:22	00:01:21

Table 4 POST-SCHEME – focus on AM peak, entering Slough

(JS119) M4 J6 roundabout to the Three Tuns junction (A4/A355) (JS121) in a **northbound** direction

SLOUGH_JT : JS119 to JS121 : Average Journey Time Profile By Weekday

00:00:00, Sun, 01 Oct 2017 to 00:00:00, Mon, 01 Jan 2018 Length: 0.6 miles

	<	Average profile for					>
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	00:01:33	00:01:31	00:01:30	00:01:28	00:01:31	00:01:35	00:01:36
01:00	00:01:35	00:01:29	00:01:28	00:01:29	00:01:29	00:01:32	00:01:33
02:00	00:01:35	00:01:33	00:01:31	00:01:26	00:01:28	00:01:31	00:01:33
03:00	00:01:29	00:01:27	00:01:26	00:01:27	00:01:29	00:01:30	00:01:34
04:00	00:01:31	00:01:28	00:01:26	00:01:27	00:01:28	00:01:28	00:01:31
05:00	00:01:32	00:01:34	00:01:31	00:01:35	00:01:32	00:01:29	00:01:29
06:00	00:01:53	00:01:56	00:01:56	00:01:54	00:01:50	00:01:34	00:01:31
07:00	**00:02:58**	**00:03:14**	**00:03:19**	**00:03:07**	**00:02:59**	**00:01:39**	**00:01:32**
08:00	**00:03:30**	**00:03:48**	**00:03:35**	**00:03:34**	**00:03:36**	**00:01:47**	**00:01:41**
09:00	**00:02:36**	**00:02:48**	**00:02:41**	**00:02:49**	**00:02:23**	**00:01:58**	**00:01:55**
10:00	00:02:19	00:02:20	00:02:27	00:02:35	00:02:21	00:02:06	00:02:10
11:00	00:02:30	00:02:29	00:02:30	00:02:40	00:02:33	00:02:14	00:02:17
12:00	00:02:37	00:02:32	00:02:27	00:02:45	00:02:37	00:02:29	00:02:17
13:00	00:02:30	00:02:30	00:02:28	00:02:43	00:02:47	00:03:00	00:02:20

14:00	00:02:41	00:02:27	00:02:50	00:03:14	00:03:08	00:02:40	00:02:16
15:00	00:02:25	00:02:28	00:02:50	00:03:03	00:02:59	00:02:17	00:02:11
16:00	00:02:39	00:02:32	00:02:42	00:02:46	00:03:03	00:02:15	00:02:08
17:00	00:03:06	00:03:00	00:03:03	00:03:24	00:03:13	00:02:19	00:02:05
18:00	00:02:52	00:03:28	00:03:29	00:03:46	00:02:52	00:02:13	00:02:02
19:00	00:02:08	00:02:11	00:02:16	00:02:30	00:02:20	00:02:00	00:01:54
20:00	00:01:49	00:01:54	00:01:54	00:01:55	00:01:57	00:01:53	00:01:46
21:00	00:01:46	00:01:46	00:01:48	00:01:50	00:01:47	00:01:47	00:01:44
22:00	00:01:39	00:01:39	00:01:39	00:01:40	00:01:41	00:01:41	00:01:38
23:00	00:01:35	00:01:37	00:01:35	00:01:34	00:01:39	00:01:38	00:01:33

5.5. *Road Safety*

A significant road safety feature of the project was the lowering of the speed limit on the A355 between the M4 J6 roundabout to the Copthorne roundabout to 30mph. This makes the speed limit consistent between the M4 and the A4. The limit is endorsed by an experimental traffic order, which will be reviewed before it expires. From the speed related data and the traffic observations derived to date, the expectations are that the traffic order will be made permanent in due course.

There have been no major road safety incidents in this route since. Ongoing monitoring of road safety incident data will be performed as part of our statutory duty. The data will be presented in the long-term impact review.

5.5.1. Road Safety Audits

Road Safety audits were carried out at each stage of the project. Stage 3 was conducted in May 2017 by Acorn Projects Ltd with SBC and Thames Valley Police observers in attendance.

- Notes: no departures from standard reported by the Design Organisation.
- All issues raised at stage 2 (design) have been resolved.
- The issues raised at RSA3 comprised mainly vegetation clearance requirements, some additional signage and recommendation to review the exact location / proximity of some of the signal heads to each other. All issues have subsequently been addressed.

Hence, the site is considered to be compliant with road safety guidelines.

6. Review and evaluation of growth related outcomes

6.1. *Growth Forecast*

In terms of growth, the aim of the project was to contribute to the overall delivery of the 150,000m^2 of office and ancillary space proposed in the Slough Trading Estate master plan and over 60,000m^2 of office space, 2,300 dwellings and other development to be delivered in the town centre as part of the 'Heart of Slough' project.

More specifically, as declared in the regular pro-formas to the LEP / Berkshire Local Transport Forum, the following predicted outcomes apply to this scheme:

Predicted Outcomes	
Planned Jobs connected to the intervention	1,260
Commercial floorspace constructed (square metres)	48,000
Housing unit	600
Housing units	600
Number of new homes with new or improved fibre optic provision	600
Transport Outputs	
Total length of resurfaced roads	550m
Total length of newly built roads	500m of additional traffic lane

6.2. *Growth Evaluation*

The Business case sets out a stringent evaluation process, with reference to short/medium benefits and long-term benefits. The short/medium term gains are largely being delivered by the traffic network improvements, as covered in section 5. Long term gains will come in the form of jobs, new floorspace for businesses, and new housing. E.g. the building of new houses is indicated to commence from 2015/16 to 2021, subject to planning applications and development timetables.

In terms of overall growth across the borough, in the Heart of Slough and on the Trading Estate, as well as the immediate area surrounding the stretch of highway that has been enhanced, extensive residential and commercial development opportunities are expected to be forthcoming following the completion of the scheme. The project outcomes are subject to continuous review. It is therefore not possible to establish at this stage the number of houses built, property developed or occupied, or jobs created. Ongoing monitoring will be necessary, along with an agree formula, in order to establish these outcomes. Evidence of these will be provided in the Five-Year Impact study.

6.3. *Evaluation of overall objectives*

6.3.1. With reference to the main objectives (see section 1.3), access to employment centre and the town centre have been enhanced by the new junction which forms part of an improved and more resilient network.

6.3.2. Although still under review, with further signals timings changes, congestion has been reduced to a certain degree, and further improvements are anticipated. See section 5 for a full review of network findings.

6.3.3. A reduction and noise and air pollution goes hand in hand with reduced congestion. However, monitoring is required on a continual basis to contribute to the evidence of positive impact in this area. A detailed review will be made available in the five-year impact report with interim findings wherever possible.

6.3.4. As above (see section 5 for full details), the operation of the A355 Tuns Lane has been significantly improved. However, further changes may be necessary to signal timings, along with related improvements to adjoining roads (including the A4) and working in partnership with Highways England to achieve the greatest all round benefits to travellers on all approaches and exits.

7. Links to wider Growth Fund projects and Network activity

The A355/Tuns Lane is tangential to the A4, which it intersects at the Three Tuns junction. This location has itself been subject to a major network infrastructure project facilitated by the Growth Fund. The Slough Mass Rapid Transit (SMaRT) scheme, phase 1, was completed in early 2018. Although SMaRT bus services are not yet in operation, the respective major roads projects have complemented each other and present network wide improvements. SMaRT phase 1 runs from the trading estate in the west of the borough to Langley in the East. Phase 2, which would extend the route as far as Heathrow, is currently being planned, with a bid for funding submitted.

Additionally, the A332/Windsor Road project, again made possible with growth fund contributions, is approaching completion. The A332 is also tangential to the A4 and provides another main entrance to / exit from the borough. Similar to the A355 / Tuns Lane / Copthorne roundabout project, the work here involves substantial road widening with associated junction improvements, again designed to improve traffic flow, junction control and road safety.

The combination of these three major schemes provides considerable additional network performance, with improved traffic flow, reduced congestion, and overall resilience.

8. Lessons Learnt

The main lessons learnt relate to construction and project matters rather than growth or funding aspects.

The eventual completion date of the scheme was approximately two three months later than the expected completion. This was due to the discovery of utility services in unexpected locations, despite carefully checking the plans well in advance and carrying out trial holes before the main excavations. This is a common problem in works for road purposes, and there is a limit to how much preparatory exploration can be carried out before the main works. However, recommendations would be:

- Greater preparation of the contract, further in advance of the construction phase, specifically regarding compensation events, to avoid lengthy disputes, analysis and negotiation during construction.
- More time should be factored in to the overall programme for contingencies, for example discovering unexpected services (requiring diversions) and materials (hard concrete requiring additional excavation time).
- One growth related aspect is the need to fully understand how the success of a scheme will be measured, and to set a realistic timeframe for evaluation. Assessing the amount of development, jobs created, housed built and so forth is not straightforward when it comes to the impact of an enhanced road junction and improved traffic flow that forms an existing, high profile thoroughfare in the borough. It can be challenging to establish a direct

causal relationship between a highways project of this nature and development across the borough.

9. Costs and financial control

There was a relatively minor overspend on the construction, of approximately £150k due to compensation events arising out of additional utility service related work and additional bridge strengthening. This additional cost was covered by the Council from capital funds.

10. Final comments and conclusions

Slough Borough Council would like to express its appreciation to the Local Enterprise Partnership for the Growth Fund financial contribution and various other forms of LEP / Berkshire Local Transport Body support enabling the delivery of this project. The Council is also grateful for the patience and understanding of motorists and residents during the work. Despite considerable temporary disruption to commuting and other network activity, the resulting road layout of the A355 / Tuns Lane and the signalisation of the Copthorne junction have proved highly successful, and this represents a genuine, long-term improvement to the network. The predicted growth benefits are still being reviewed, to date, and the expectations are that these benefits will be realised over the next three to five years.

Independent Assessment

Independent Assessment Summary

Slough: A355 Route Improvements

One Year Impact Report

A Final Report by Regeneris Consulting

10 July 2018

1

Overview

i. This technical note provides an independent assessment of the One-year Impact Report submitted by Slough Borough Council (SBC) in relation to the A355 Route Improvement scheme.

ii. The A355 scheme received funding through the Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) Local Growth Fund deal. As part of the on-going assurance process, TVB LEP requires all funded schemes to produce one-year and five-year postimplementation impact reports to demonstrate how each scheme has performed against expectations.

Process

iii. The one and five-year impact reports are expected to assess the following elements of the scheme:

- a. did it get built?
- b. was it to plan?
- c. was it on time?
- d. was it to budget?
- e. is it working ok?
- f. what impact has it had?
- g. any learning points?

iv. Regeneris have applied these criteria but also sought to use the process as positive influence to identify specific ways in which project scheme design or delivery could be enhanced to enhance future value of this scheme or other future LEP funded schemes.

Scheme Summary

v. The Council received £4,400,000 from the TVB LEP Local Growth Fund as part of an overall estimated scheme cost of £5,800,000.

vi. The scheme addressed the strategic north-south A355 route that links the M4, Slough Trading Estate and the M40 and to enhance access to Slough town centre. The works comprised the substantial modification of the former A355 Copthorne Roundabout with the introduction of a "hamburger" style layout and the installation of full traffic signal control layout. Significant widening of the A355 carriageway has also been undertaken, with other associated works.

vii. An experimental 30mph speed limit has also been introduced making this consistent between the M4 J6 roundabout and the A4.

viii. The primary objectives of the scheme were to: support access to employment centres in Sough and Cippenham; alleviate congestion on the A355; minimise noise, air pollution, and greenhouse gases; and improve the operation of the A355 Tuns Lane

Review Findings

General Observations

ix. The scheme was delivered as planned, close to budget, and broadly to schedule.

x. Comparative data on traffic flows has not been presented within the one-year impact report. This is because some of the baseline data is considered to be unreliable.

xi. Comparative journey time data is presented within the one-year impact report. This data presents a mix set of outcomes from the scheme. There are substantial journey time reductions in the southbound PM peak of around 1 minute. Conversely, the northbound journey time data suggests significant increases, of up to 45 seconds. Both northbound and southbound journey times also increase in the AM peak, although only marginally for southbound trips. xii. Generally, journey times across the day, outside of the peak period, have increased as a result of the scheme.

xiii. Some of the increases in journey times is considered to reflect the imposition of the 30mph speed limit and the signalisation of the Copthorne Roundabout.

xiv. No major road safety incidents have been reported since the opening of the route. Full accident data is not yet available to compare with the pre-scheme levels.

xv. The outcomes in terms of wider growth across the area are currently subject to ongoing review.

Conclusions

xvi. The LRIE one-year impact report provides a useful overview of the scheme delivered and presents impacts in terms of changes in journey times across the corridor. The absence of traffic flow data makes it challenging to fully understand the impacts of the scheme to date. There is also no information available yet regarding the potential impact upon wider employment or housing growth.

xvii. The outcomes of the scheme against the objectives appear uncertain at this stage. Whilst some substantial journey times savings have been achieved for southbound trips during the PM peak,

the majority of other journey times along the corridor appear to have increased, in some cases substantially. During off-peak periods, this impact is, perhaps, not unexpected, as the introduction of 30mph speed limits and traffic signals will slow free-flow traffic. Without traffic count data, it is difficult to interpret what is happening during the peak periods in the northbound direction.

xviii. The key points for consideration, both to enhance the future outcomes of the project and facilitate wider learning, include:

- Understanding changes in traffic flow data that have resulted from the scheme to determine if this provides an explanation for some of the increases in journey times.
- Comparing, and reflecting upon, the observed journey time and flow outcomes against the predicted future year modelling outputs. Where discrepancies exist, seek to understand why these have occurred.
- Investigation of wider evidence to determine how the scheme has, or will, support future employment and housing growth
- Ensure that the impact of measures upon off-peak travel is adequately reflected within future business cases.