Rother Valley Railway A21 Robertsbridge

Traffic Delays Economic Costs

March 2014

Rother Valley Railway Ltd

Rother Valley Railway LIMITED

Mott MacDonald

Rother Valley Railway A21 Robertsbridge

Traffic Delays Economic Costs

March 2014

Rother Valley Railway Ltd

Robertsbridge Junction (RVR) Station,
Station Road,
Robertsbridge,
Sussex
TN32 5DG

Mott MacDonald, Stoneham Place, Stoneham Lane, Southampton, SO50 9NW, United Kingdom
T +44 (0)23 8062 8800 **F** +44 (0)23 8062 8801 **W** www.mottmac.com

Mott MacDonald

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description	Standard
A	07 March 2014	A J Poole	M D Lewis	M D Lewis	First Issue	
B	11 March 2014	A J Poole	M D Lewis	M D Lewis	Second Issue	

Contents

1 Introduction

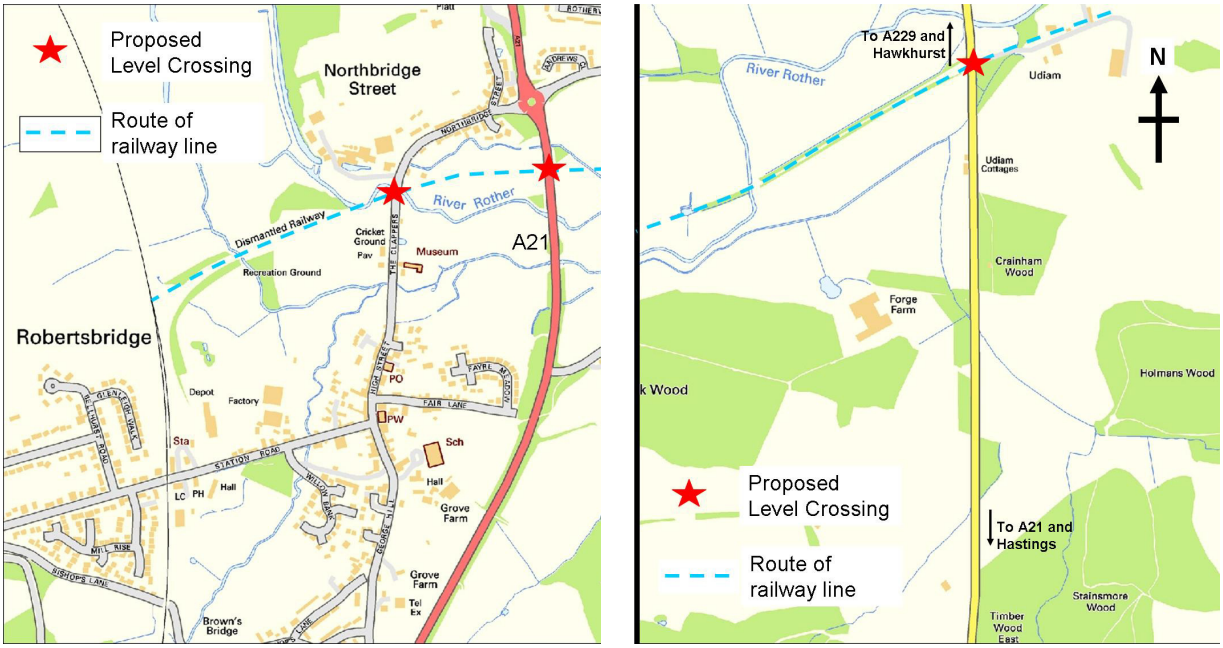
1.1 Background

The Kent and East Sussex Railway (KESR), originally opened in 1900, is the world's first light railway and is currently a major tourist attraction in this region. The railway runs between Tenterden in Kent and Bodiam in East Sussex and the Rother Valley Railway (RVR) Heritage Trust, a registered charity, is currently reconstructing the railway line in East Sussex that historically linked Bodiam to Robertsbridge as an extension to the KESR.

Three level crossings are being considered on this route; their locations are shown on **Figure 1.1**. The crossings are:

- Crossing 1 – on Northbridge Street an unclassified road west of the A21, approximately 300 m south west of the roundabout at the junction of A21(T), Church Lane and Northbridge Street;
- Crossing 2 – on the A21(T) Robertsbridge bypass approximately 140m south of the roundabout; and,
- Crossing 3 – on the B2244 Junction Road, approximately 6 km south of Hawkhurst.

Figure 1.1: Level Crossing locations



Source: Mott MacDonald report - Traffic Impact Study, 288755/ITD/ITW/001/E

1.2 Objectives

The objectives of this report are to: -

- Formally report the economic costs resulting from the potential traffic delays created by a 51 second and 112 second closure time of the level crossings being considered on the: -
  - A21 Robertsbridge bypass; and
  - B2244 Junction Road.
- Compare 2013 traffic flow data on the A21 with 2010 data to see if traffic flows have altered and if this impacts upon the findings of queue length studies undertaken in 2011 and 2012.

1.3 Report structure

The remainder of this report is structured as follows: -

Section 2 provides the economic cost of delays on the A21 Robertsbridge bypass based on a 51 and 112 second closure time for the proposed railway level crossing.

Section 3 provides the economic cost of delay on the B2244 Junction Road, again based on a 51 second and 112 second closure time.

Section 4 compares the growth of 2013 traffic flow data on the A21, with 2010 data.

2 A21 Traffic Delays Economic Costs

Table 2.1 provides a summary of the economic cost of delay resulting from the proposed RVR level crossing at Robertsbridge operating once per hour per direction per day (8 closures) between the hours of 10:00 and 18:00. The results are based on a 51 second closure time and a 112 second closure time.

For the purposes of this report traffic flow data was downloaded from the Highways Agency Journey Time Data Base for March, April, May, June, September and October 2012, to correspond with the same months of the year relied upon in previous reports completed by Mott MacDonald in October 2011[1] and August 2013[2]. The economic data covers weekdays and weekends over the period, but excludes Bank Holidays.

The total economic cost of traffic delay over the 6 month operational season assessed is £1,910.65 for a 51 second closure and £9,214.63 for a 112 second closure (2015 values, 2010 "market prices").

Table 2.1: Summary of economic costs due to traffic delays on the A21 at proposed RVR level crossing

		51 second closure time			112 second closure time		
		Weekdays PM Peak	Weekdays Off Peak	Weekends	Weekdays PM Peak	Weekdays Off Peak	Weekends
		17:00-18:00	10:00-17:00	10:00-18:00	17:00-18:00	10:00-17:00	10:00-18:00
Southbound	Average hourly traffic flow (veh/hr)	862	513	569	862	513	569
	Average Maximum Queue at railway level crossing during period (veh)	12	7	8	27	16	18
	Total delay to traffic over 6 month period (veh.hrs)	9.9	41.1	24.2	47.5	198.0	116.7
Northbound	Average hourly traffic flow (veh/hr)	491	461	549	491	461	549
	Average Maximum Queue at railway level crossing during period (veh)	7	7	8	15	14	17
	Total delay to traffic over 6 month period (veh.hrs)	5.6	36.9	23.4	27.1	178.2	112.7
	Value of Time (£ per hr per veh, 2015 values, 2010 market prices[3])	£14.21	£14.21	£12.24	£14.21	£14.21	£12.24
	Economic cost of delays (£) over operational season	£219.85	£1,108.59	£582.22	£1,060.27	£5,346.46	£2,807.90
	Total economic cost of delays (£) over operational season per closure time			**£1,910.65**			**£9,214.63**

[1] Mott MacDonald report - Traffic Impact Assessment, 288755/ITD/ITW/001/E

[2] Mott MacDonald report - Highways & Traffic Assessment Report - A21 Assessment of Delays, 313090/ITD/ITQ/011/B

[3] The Value of Time, 2010 price was obtained from webtag 3.5.6d section 2.5.8 - October 2013. This has been factored to 2015 (proposed year of opening) by applying forecast growth factors shown in Table 3b of webtag 3.5.6d - October 2013.

3 B2244 Traffic Delays Economic Costs

The RVR extension is proposed to cross the B2244 (Junction Road) east of Robertsbridge and approximately 6 km south of Hawkhurst. A similar economic cost evaluation to that described in **Section 2** has therefore been carried out for the B2244.

Traffic flow data was obtained from East Sussex County Council from an Automatic Traffic Count site (Site Reference: 00000021, B2244 Junction Road Cripps Corner) for the same months as those assessed for the A21 evaluation in **Section 2**.

Table 3.1 provides a summary of the economic cost of delay resulting from the proposed RVR level crossing on the B2244 operating once per hour per direction per day (16 closures) between the hours of 10:00 and 18:00. The results are based on a 51 second closure time and a 112 second closure time.

The total economic cost of traffic delay over the 6 month operational season assessed is £473.10 for a 51 second closure and £2,281.67 for a 112 second closure (2015 values, 2010 "market prices").

Table 3.1: Summary of economic costs due to traffic delays on the B2244 at proposed RVR level crossing

		51 second closure time			112 second closure time		
		Weekdays PM Peak	Weekdays Off Peak	Weekends	Weekdays PM Peak	Weekdays Off Peak	Weekends
		17:00-18:00	10:00-17:00	10:00-18:00	17:00-18:00	10:00-17:00	10:00-18:00
Southbound	Average hourly traffic flow (veh/hr)	254	140	144	254	140	144
	Average Maximum Queue at railway level crossing during period (veh)	4	2	2	8	4	4
	Total delay to traffic over 6 month period (veh.hrs)	2.9	11.2	6.1	14.0	54.1	29.5
Northbound	Average hourly traffic flow (veh/hr)	139	104	109	139	104	109
	Average Maximum Queue at railway level crossing during period (veh)	2	1	2	4	3	3
	Total delay to traffic over 6 month period (veh.hrs)	1.6	8.3	4.6	7.7	40.1	22.4
	Value of Time (£ per hr per veh, 2015 values, 2010 market prices [4])	£14.21	£14.21	£12.24	£14.21	£14.21	£12.24
	Economic cost of delays (£) over operational season	£63.90	£277.51	£131.69	£308.18	£1338.36	£360.81
	Total economic cost of delays (£) over operational season per closure time			**£473.10**			**£2,281.67**

[4] The Value of Time, 2010 price was from webtag 3.5.6d section 2.5.8 - October 2013. This has been factored to 2015 (proposed year of opening) by applying forecast growth factors shown in Table 3b of webtag 3.5.6d - October 2013.

4 A21 Traffic Flow Comparison

The Highways Agency has requested RVR to obtain and review traffic flow information on the A21 and compare with the reports produced by Mott MacDonald in 2011 and 2012.

The Mott MacDonald reports previously prepared are titled: -

- Traffic Impact Study, October 2011
- Traffic Impact Study – Supplementary Technical Note, January 2012

The purpose of this task is to review 2013 data and to see what, if any, impact this would have on the forecasted delays previously reported.

Hourly traffic flow data for the whole of 2010 at the following sites was downloaded from the Highways Agency Traffic Information Database (TRADS) to be used in the production of the 2011 and 2012 reports: -

- Site no T/04/215 – southbound on the A21 Robertsbridge Bypass southern section (Grid reference E574125, N124015)
- Site no T/04/216 – northbound on the A21 Robertsbridge Bypass southern section (Grid reference E574128, N123929)

The Traffic Assessment carried out for the 2011 and 2012 reports, used a spreadsheet model to predict queue lengths on the A21 at the RVR crossing. The 2010 data was factored to 2016 and 2021 using growth factors derived from the TEMPRO database for growth in East Sussex on the trunk road network. The growth factors obtained for 2010 to 2016 are shown in **Table 4.1**.

Table 4.1: Traffic growth factors: 2010 to 2016

Road Name	Road Type	Average Weekday	Average Saturday	Average Sunday	May Bank holiday	August Bank Holiday
A21 Robertsbridge bypass	Rural Trunk	1.054	1.055	1.054	1.054	1.054

Source: Mott MacDonald report 288755/ITD/ITW/001/E

To enable a comparison of the latest available traffic flow data to be made with the 2010 data, 2013 (whole year) data has been downloaded from TRADS for the same sites. Unfortunately there are a number of large gaps in the 2013 data. For instance, there was no data at all recorded for traffic flows in January at either site.

In total, approximately 60% of days in 2013 had a complete day of traffic flow data. Therefore, in order to make a comparative assessment, 2010 data has been amended so that both years have a corresponding dataset.

Table 4.2 presents the TRADS 24 hour average traffic flow data for 2010 and 2013 by day of the week. Also provided is an overall average flow across all days.

Table 4.2: A21 daily (24hr) average traffic flow data (2010 compared to 2013)

Site	Site Description	Year	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average
215	A21 southbound	2010	7583	7589	7877	8137	9106	7501	6609	7760
215	A21 southbound	2013	7493	7302	7525	7917	8727	7350	6561	7542
Growth Factor (2010 to 2013)			**0.988**	**0.962**	**0.955**	**0.973**	**0.958**	**0.980**	**0.993**	**0.972**
216	A21 northbound	2010	7848	7599	7805	7985	8175	6953	7505	7692
216	A21 northbound	2013	7750	7340	7524	7861	8021	6888	7433	7541
Growth Factor (2010 to 2013)			**0.988**	**0.966**	**0.964**	**0.984**	**0.981**	**0.991**	**0.990**	**0.980**

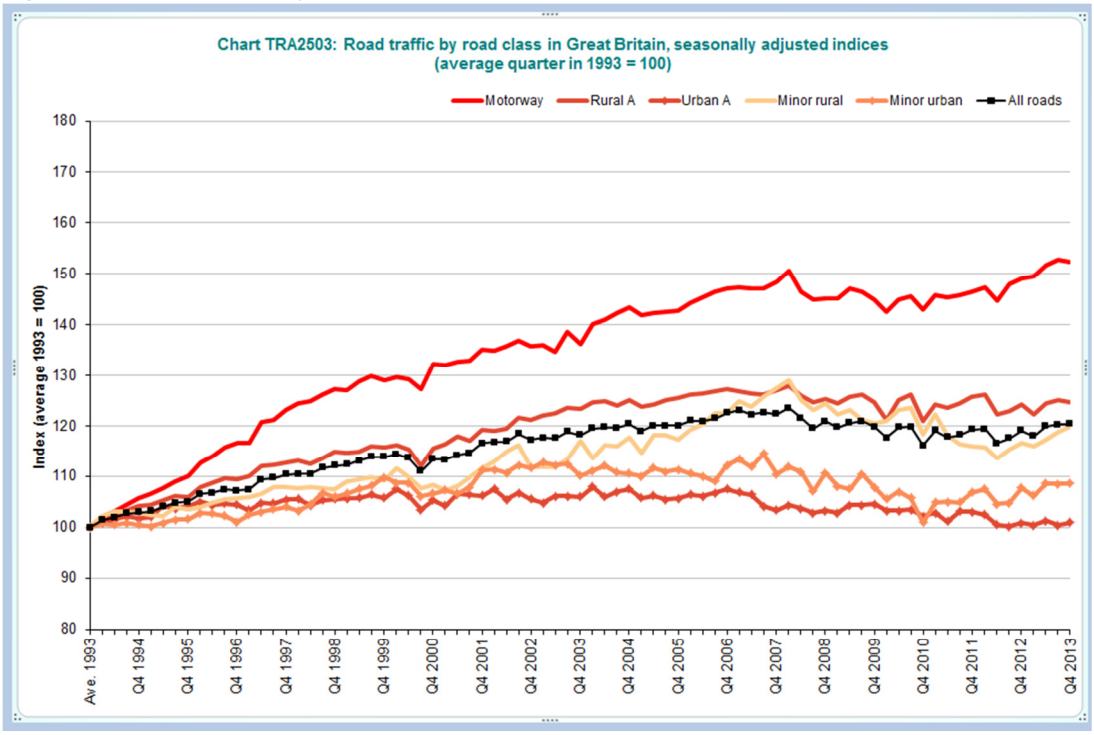
Source: TRADS

The comparison of traffic data between 2010 and 2013 has shown an average growth factor, across all days, of 0.972 in the southbound direction and 0.980 in the northbound direction. This indicates that there has been a decrease in the daily average traffic flows on the A21. The growth factors applied from TEMPRO from 2010 to 2016 predicted a 5% increase in traffic flows along the A21 (as shown in **Table 4.1**).

This trend in traffic flows for the A21 at this location indicates that the forecast queues predicted at the proposed railway level crossing, by the queue model reported within the 2011 and 2012 studies, may be overestimated.

Figure 4.1 overleaf presents a graph from the latest statistics tables on road traffic, produced by the Department for Transport. It shows how the road traffic profile has flattened in recent years which we believe is due to lower than expected economic growth, particularly in the period 2010-2012. The graph demonstrates how traffic flow on rural A roads, such as the A21, has been fairly static since 2008 which is consistent with the results provided in **Table 4.2**.

Figure 4.1: Road Traffic by road class in Great Britain



Source: https://www.gov.uk/government/statistical-data-sets/tra25-quarterly-estimates