

Victorian Interstate Infrastructure Lease KPI Report  
3rd Quarter 2016/2017 (Jan-Mar)

ARTC



### TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>A. PERFORMANCE AGAINST KPI BENCHMARKS.....</b>	<b>3</b>
<b>B. PERFORMANCE AGAINST KPI TARGETS.....</b>	<b>3</b>
<b>C. ADDITIONAL SUPPORTING MEASURES .....</b>	<b>4</b>
<b>1. PERFORMANCE AGAINST KPI'S.....</b>	<b>5</b>
1.1. Track Geometry Targets .....	5
1.2. Total Transit Time Delay Targets .....	7
1.3. Transverse Rail Defect Target.....	11
1.4. Bridge Target .....	12
1.5. Track Capability .....	12
<b>2. ADDITIONAL SUPPORTING MEASURES .....</b>	<b>13</b>
2.1. Average Track Quality Index (TQI).....	13
2.2. Sleepers Replaced.....	14
2.3. Timber Deck Bridges .....	15
2.4. Monthly Signal Failure Analysis .....	15
2.5. Broken Rails.....	15
2.6. New Permanent Speed Restrictions .....	17
2.7. Track Recording Car Geometry Faults .....	24

## **Executive Summary**

In accordance with the Victorian Interstate Infrastructure Lease, this document presents the KPI Report under the lease covering the period October 2016 to December 2016.

### **A. Performance against KPI Benchmarks**

All lease KPI Benchmarks have been met during the reporting period.

Note: KPI Benchmarks are the Lease Targets and the KPI Targets are the Aspirational Goals.

### **B. Performance against KPI Targets**

#### **Track Geometry Targets**

The track geometry quality KPI Targets for top, twist, line and gauge were met for all of the 8 targets during the reporting period, for both KPI Regions.

#### **Total Transit Time Delay Targets**

The KPI Target was met for both loco-hauled passenger and XPT trains during the reporting period, for both KPI Regions.

#### **Transverse Defect Target**

The KPI Target for the number of reported transverse defects was met for the reporting period, for both KPI Regions.

#### **Bridge Target**

The KPI Target for the number of bridges with speed or capability restrictions was met for the reporting period, for both KPI Regions.

#### **Track Capability**

The Maximum Axle Load for XPT between Melbourne and Albury is at 19 TAL, slightly under the KPI Target of 20 TAL. The KPI Targets for maximum speed and axle load capacity were met during the reporting period, for Melbourne Wolseley.

## **C. Additional Supporting Measures**

### **Average Track Quality Index (TQI) on KPI Network**

TQI data from the latest recorded run has been provided for each track section.

### **Sleepers Replaced on KPI Network**

90 sleepers (Timber –90; Steel – 0; Concrete – 0; Composite - 0) were installed during the reporting period. Details have been provided for each track section.

### **Timber Deck Bridges**

A total of 47 bridges have timber decking that has been in service for 20 years or more.

### **Monthly Signal Failure Analysis**

The Victorian Department of Transport have been granted access to ARTC's SIMS database and review the signal failure trends as required.

### **Broken Rails**

The total numbers of broken rails as at the end of the reporting period have been shown for each KPI Region.

### **New Permanent Speed Restrictions**

Changes to permanent speed restrictions for the section Laverton to Wolseley is provided

### **Track Recording Car Geometry Fault data**

Track recording car geometry fault data provided since Q1 2011/12.

## 1. Performance against KPI's

### 1.1. Track Geometry Targets

Track geometry quality KPI Results for top, twist, line and gauge are provided below for each KPI Region.

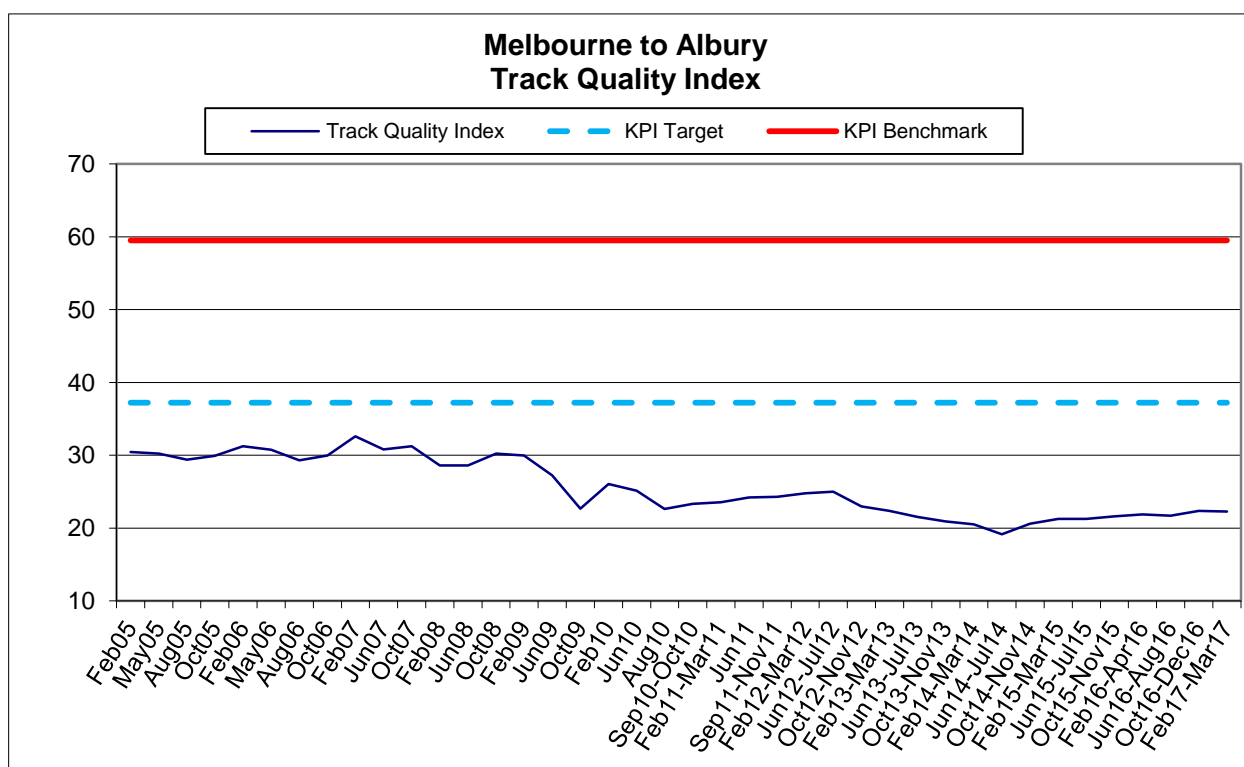
The KPI Targets for track geometry quality have all been met.

Measure	KPI Target (Aspirational) Melbourne - Albury	KPI Benchmark (Lease Target) Melbourne - Albury	KPI Result Jan 17 to Mar 17
Top	11.5	18.4	9.5
Twist	7.3	11.7	5.7
Line	7.9	12.6	5.2
Gauge	10.5	16.8	2.9

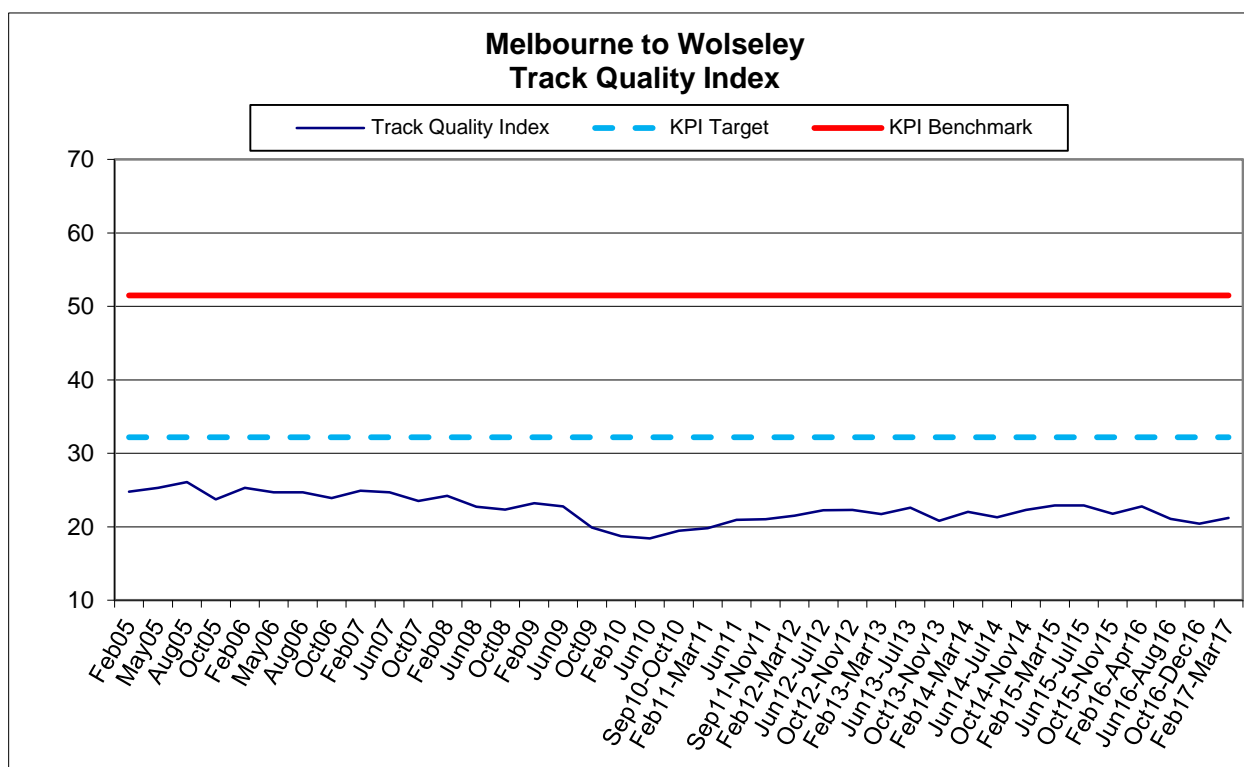
Measure	KPI Target (Aspirational) Melbourne - Wolseley	KPI Benchmark (Lease Target) Melbourne – Wolseley	KPI Result Jan 17 to Mar 17
Top	11.2	17.9	8.0
Twist	6.9	11.0	5.0
Line	7.6	12.2	5.0
Gauge	6.5	10.4	3.2

TQI data provided is from the latest recorded run.

**Figure 1: Melbourne-Albury Track Quality Index**



**Figure 2: Melbourne-Wolseley Track Quality Index**



## 1.2. Total Transit Time Delay Targets

KPI Results for time loss resulting from temporary speed restrictions are provided below for each KPI Region.

The KPI Target was met for both loco-hauled passenger and XPT trains between Melbourne and Wolseley and between Melbourne and Albury.

Measure Transit Time Delay (mins/trip)	KPI Target (Aspirational)	KPI Benchmark (Lease Target)	KPI Result (Loco-hauled Passenger 115 km/h) Jan 17 to Mar 17	KPI Result (XPT 130 km/h) Jan 17 to Mar 17	Result (Super Freighter 115 km/h) Jan 17 to Mar 17
Melbourne – Albury	20	30	6.1	9.5	10.5
Melbourne – Wolseley	40	80	7.7	N/A	17.1

The KPI Target and Benchmark above, do not apply to Super Freighters and that the result for Super Freighters is added for information purposes only.

Figures 3-9 show the longer term trends for time loss due to temporary speed restrictions in each KPI Region.

**Figure 3: Melbourne to Albury Transit Time Delay for Loco Hauled Passenger trains**

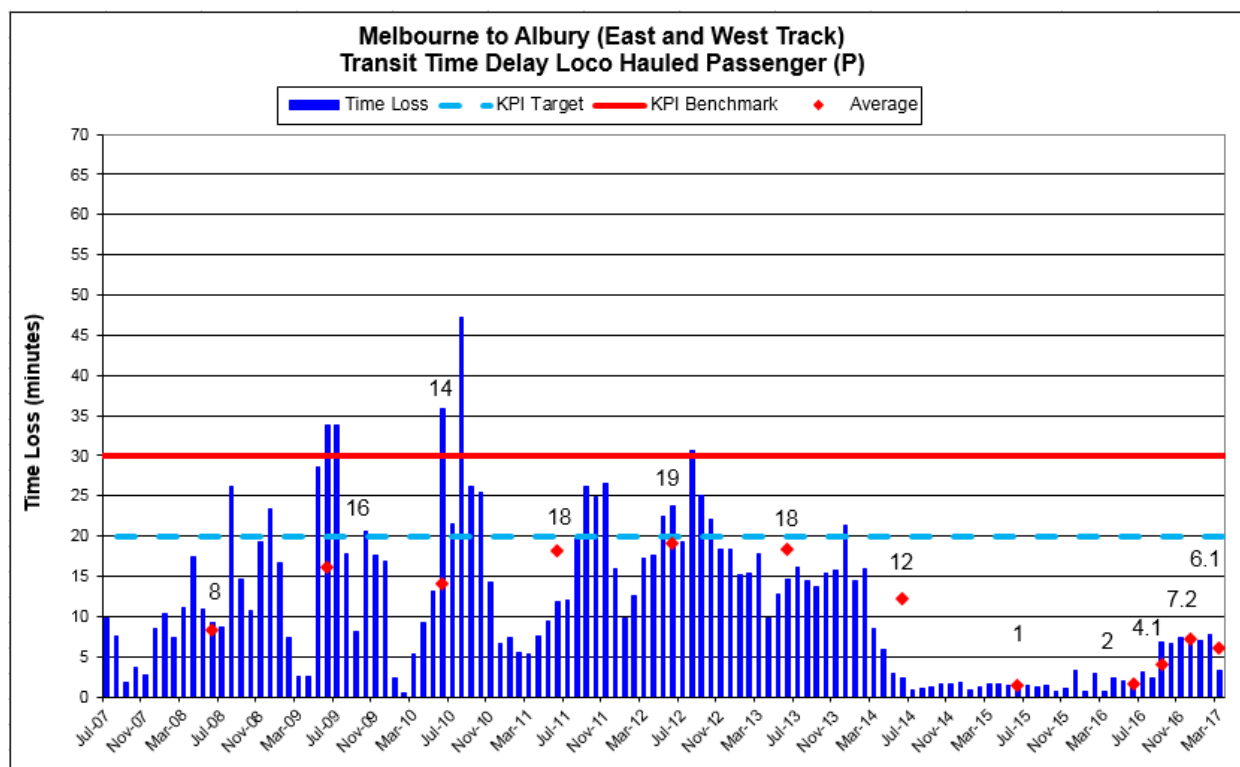


Figure 4: Melbourne to Albury Transit Time Delay for XPT trains

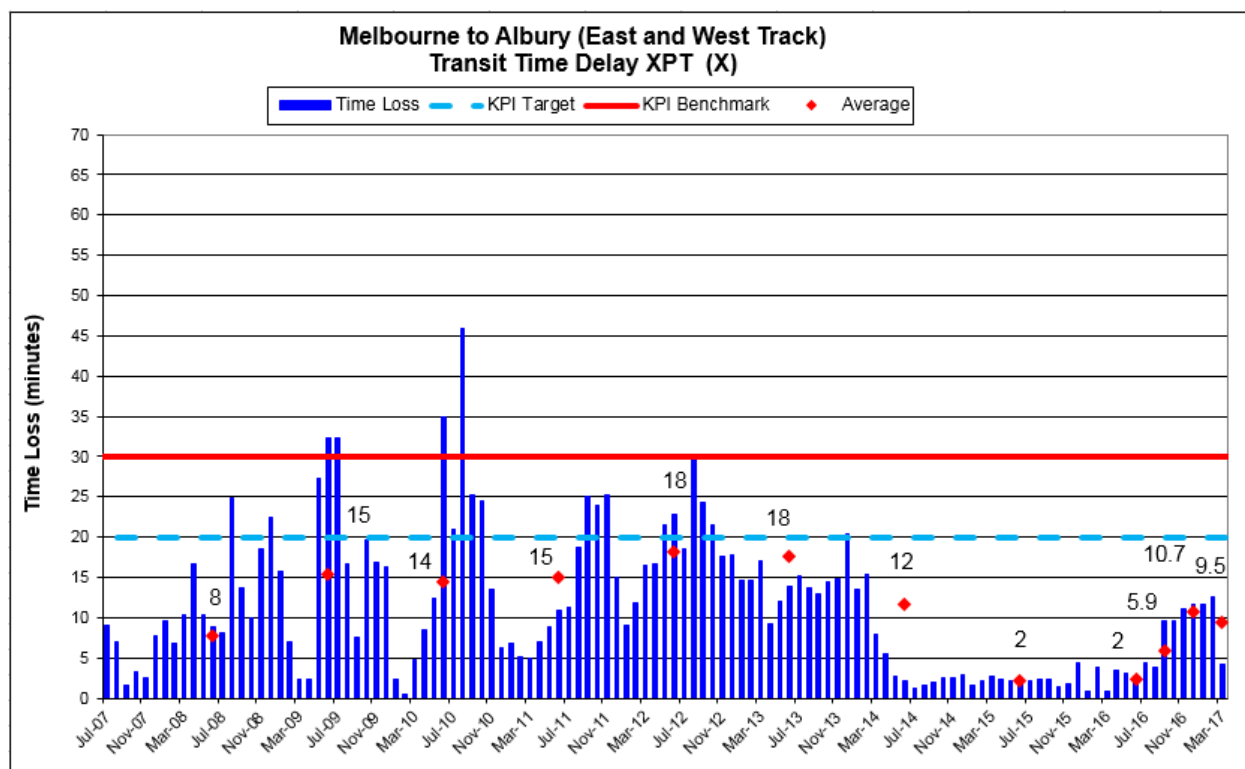
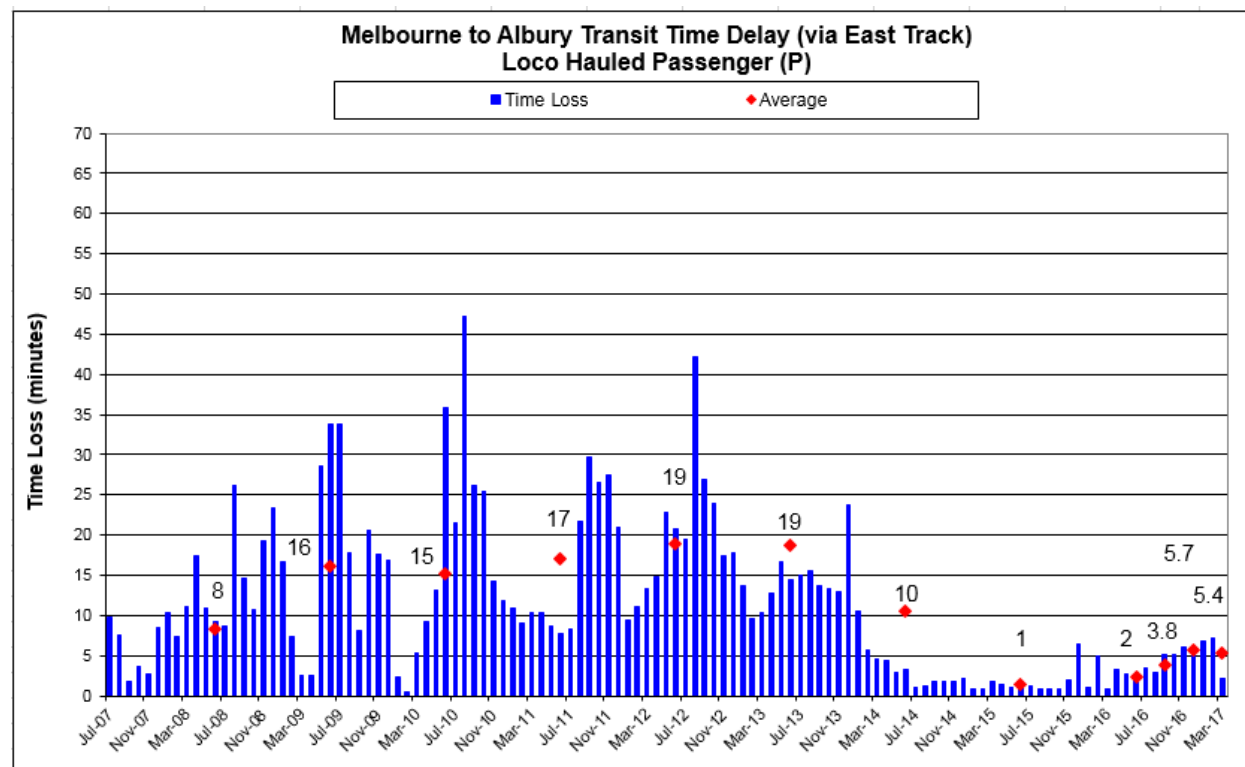
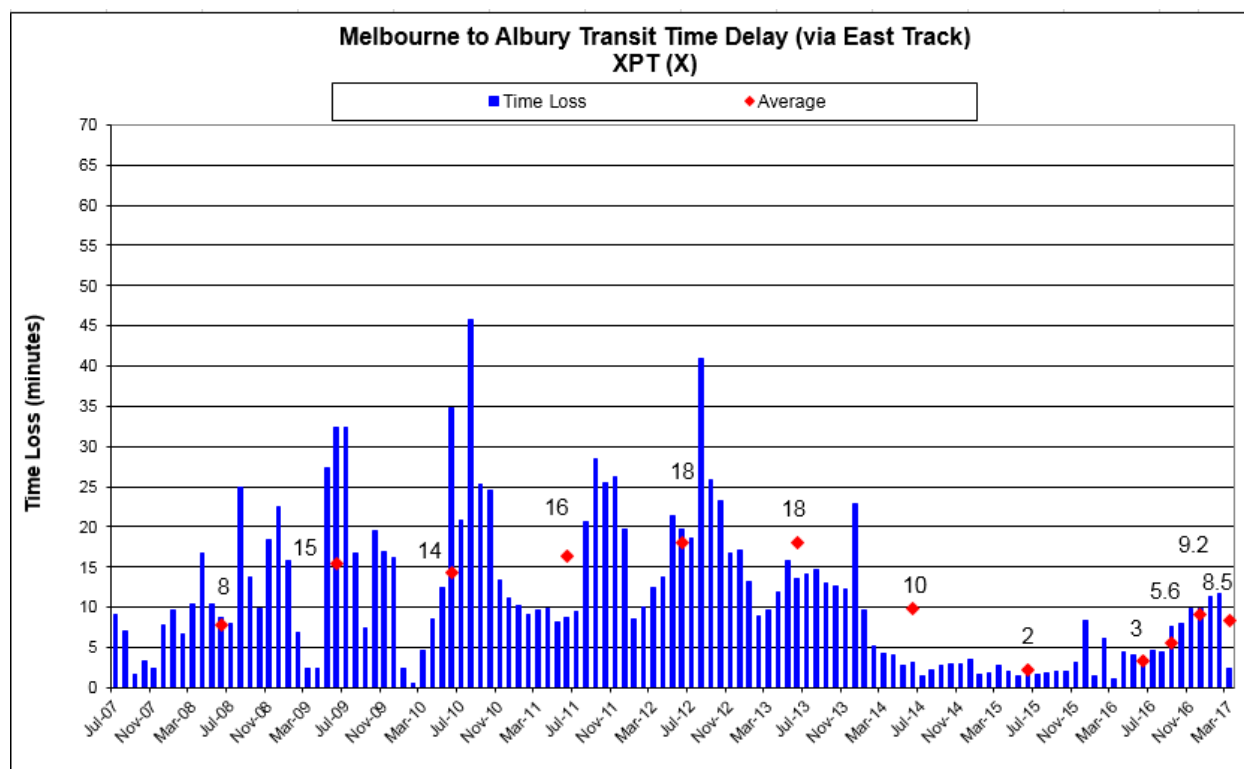


Figure 5: Melbourne to Albury Transit Time Delay (via East Track) for Loco Hauled Passenger trains





**Figure 6: Melbourne to Albury Transit Time Delay (via East Track) for XPT trains**



**Figure 7: Melbourne to Albury Transit Time Delay (via West Track) for Loco Hauled Passenger trains**

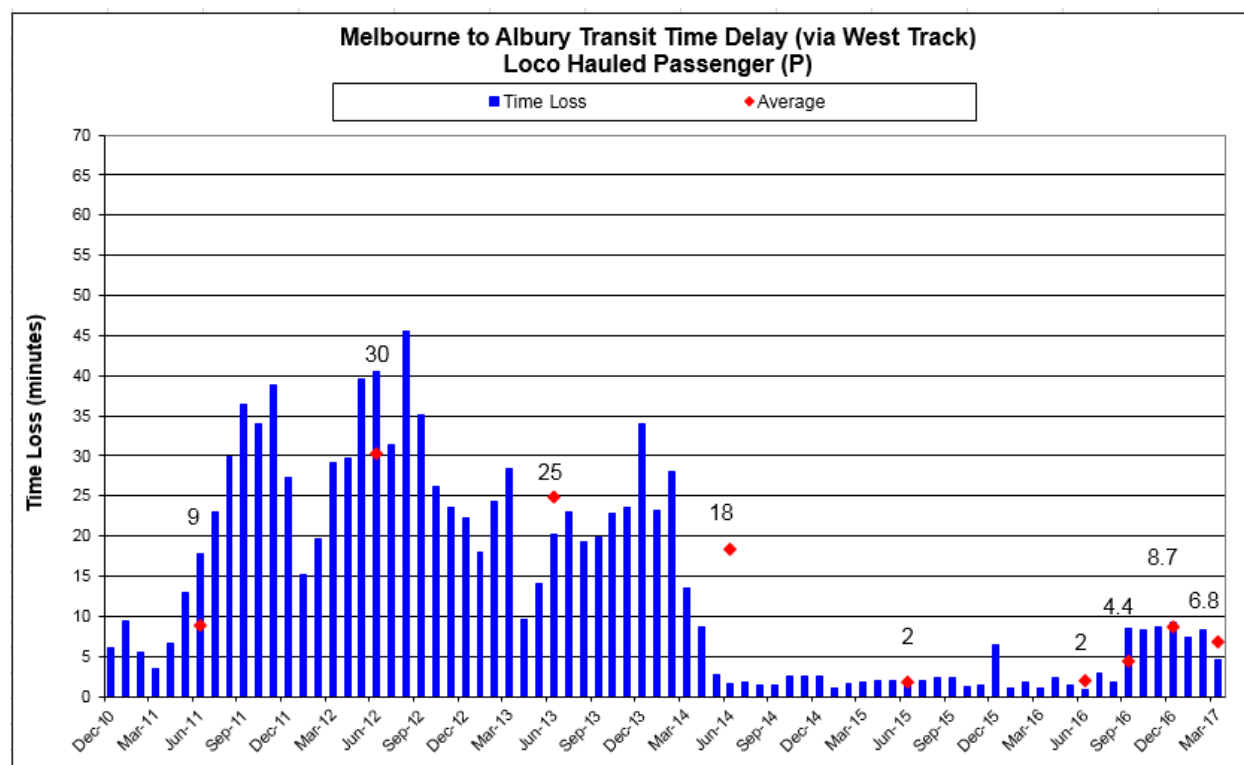


Figure 8: Melbourne to Albury Transit Time Delay (via West Track) for XPT trains

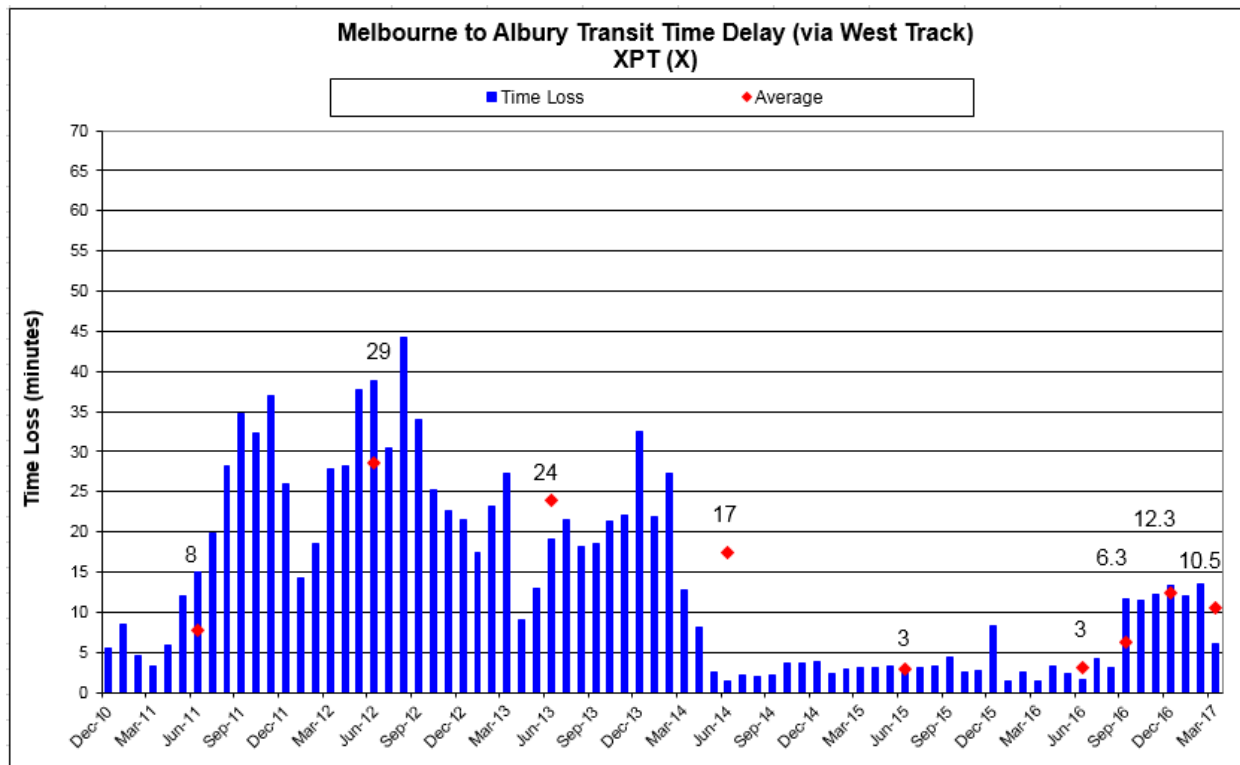
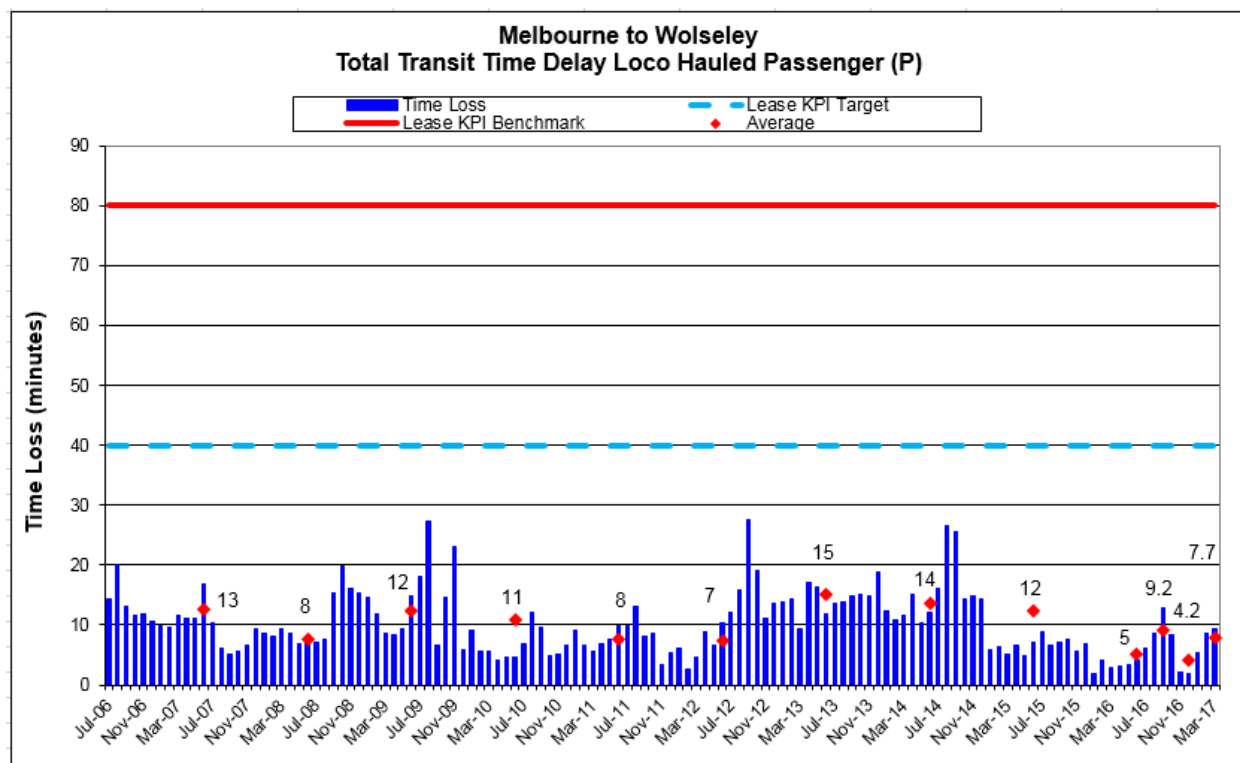


Figure 9: Melbourne to Wolsley Transit Time Delay for Loco Hauled Passenger trains



### 1.3. Transverse Rail Defect Target

KPI Results for the occurrence of transverse rail defects in each KPI Region are provided below.

The KPI Targets have been met in both KPI Regions.

<b>Measure</b>	<b>KPI Target (Aspirational) Melbourne - Albury</b>	<b>KPI Result 16/17 total found</b>	<b>KPI Result Jan 17 to Mar 17</b>
Number of Transverse Rail Defects (Number in place at the time of measurement / year	400	0	0

<b>Measure</b>	<b>KPI Target (Aspirational) Melbourne - Wolseley</b>	<b>KPI Result 16/17 total found</b>	<b>KPI Result Jan 17 to Mar 17</b>
Number of Transverse Rail Defects (Number in place at the time of measurement / year	380	0	0

Ultrasonic testing for remaining of Victoria will continue in May 2017.

#### 1.4. Bridge Target

KPI Results for the extent of speed or capability restricted bridges are provided below.

The KPI Target for the number of bridges with speed restrictions has been met for both KPI Regions.

Measure	KPI Target (Aspirational) Melbourne - Albury	KPI Result Jan 17 to Mar 17
Number of Bridges with Temporary Speed Restrictions	30	0

Measure	KPI Target (Aspirational) Melbourne - Wolseley	KPI Result Jan 17 to Mar 17
Number of Bridges with Temporary Speed Restrictions	25	0

#### 1.5. Track Capability

KPI Results for the maximum speed and axle load capacity of each KPI Region are provided below.

The Maximum Axle Load for XPT between Melbourne and Albury is at 19 TAL, slightly under the KPI Target of 20 TAL. KPI targets for each KPI Region have been met during the reporting period; however It appears that the original KPI target for Loco hauled passenger (V/Line) Melbourne to Albury was incorrectly stated at 130km/h. The N class loco has always had a max speed of 115km/h between Melbourne and Albury.

Measure	KPI Target Melbourne - Albury	KPI Result Jan 17 to Mar 17
Loco hauled passenger (V/Line)	115 km/h (N Class or lighter)	115 km/h (N Class or lighter)
XPT (Countrylink)	130 km/h @ 20 TAL	130 km/h @ 19 TAL
VLocity DMU (V/Line)	130 km/h	130 km/h

Measure	KPI Target Melbourne - Wolseley	KPI Result Jan 17 to Mar 17
Loco hauled passenger (V/Line)	115 km/h (N Class or lighter)	115 km/h (N Class or lighter)
XPT (Countrylink)	N/A	N/A
VLocity DMU (V/Line)	115 km/h	115 km/h

## 2. Additional Supporting Measures

### 2.1. Average Track Quality Index (TQI)

The average TQI and percentage of track with a TQI greater than 25 are provided below.

Line	Average TQI previous quarter	Average TQI current quarter	% of track with TQI greater than 25 previous quarter	% of track with TQI greater than 25
Serviceton to Maroona	20.1	20.6	19.3%	20.3%
Maroona to Vite Vite	18.6	19.5	12.2%	13.5%
Vite Vite to Gheringhap	19.4	20.6	16.8%	18.7%
Gheringhap to Nth Geelong	25.8	24.2	45.7%	36.8%
Nth Geelong to Newport	22.0	23.5	22.1%	31.1%
Newport to Tottenham	44.1	41.5	79.4%	76.5%
Tottenham to Dynon	51.3	51.3	90.3%	90.3%
<i>Tottenham to South Dynon</i>	<i>These two lines have been combined due to track rationalisation and are now described as Tottenham to Dynon</i>			
<i>Dynon to West Footscray</i>				
Tottenham to Patullos Lane	24.4	24.1	40.4%	40.3%
Patullos Lane to Broadford	22.1	24.4	32.5%	45.4%
Broadford to Albury	20.1	21.6	21.7%	29.3%
Albury To Seymour (West Line)	22.7	22.7	30.7%	30.7%

TQI data provided is from the latest recorded run.

## 2.2. Sleepers Replaced

Sleepers installed on the track sections identified in the lease are provided below. 90 sleepers (Timber – 90; Steel – 0; Concrete – 0; Composite - 0) were installed during the reporting period.

	Serviceton to Maroona	Maroona to Vite Vite	Vite Vite to Gheringhap	Gheringhap to North Geelong	North Geelong to Newport	Newport to Tottenham	Tottenham to South Dynon	Dynon to West Footscray	Tottenham to Patullos Lane	Patullos Lane to Broadford	Broadford to Albury	Broadford to Albury (old broad)
Timber					34			6	50			
Steel												
Concrete												
Other												
Concrete 09/10												

The total quantity and percentage of the population of sleepers, by type, on the track sections as at 31 March 2017 are provided below.

	Serviceton to Maroona	Maroona to Vite Vite	Vite Vite to Gheringhap	Gheringhap to North Geelong	North Geelong to Newport	Newport to Tottenham	Tottenham to South Dynon	Dynon to West Footscray	Tottenham to Patullos Lane	Patullos Lane to Broadford	Broadford to Albury *	Broadford to Albury * (old broad)
Timber total quantity	-	-	-	7344	-	1377	5531	2229	32890	-	-	-
Timber total percentage	0%	0%	0%	40%	0%	12%	56%	56%	79%	0%	0%	0%
Steel total quantity	-	-	-	-	-	-	-	-	-	-	-	-
Steel total percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Concrete total quantity	396216	94207	175000	10989	97167	9636	4407	1739	8788	82500	680212	288702
Concrete total percentage	100%	100%	100%	60%	100%	86%	44%	44%	21%	100%	100%	100%
Other total quantity	-	-	-	-	-	250	-	-	-	-	-	-
Other total percentage	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%

\*Sleeper population Broadford to Albury has been 100% concrete for a number of years and has been adjusted to reflect this.

### 2.3. Timber Deck Bridges

A total of 47 bridges have timber decking that has been in service for 20 years or more. The data includes bridges on the west track.

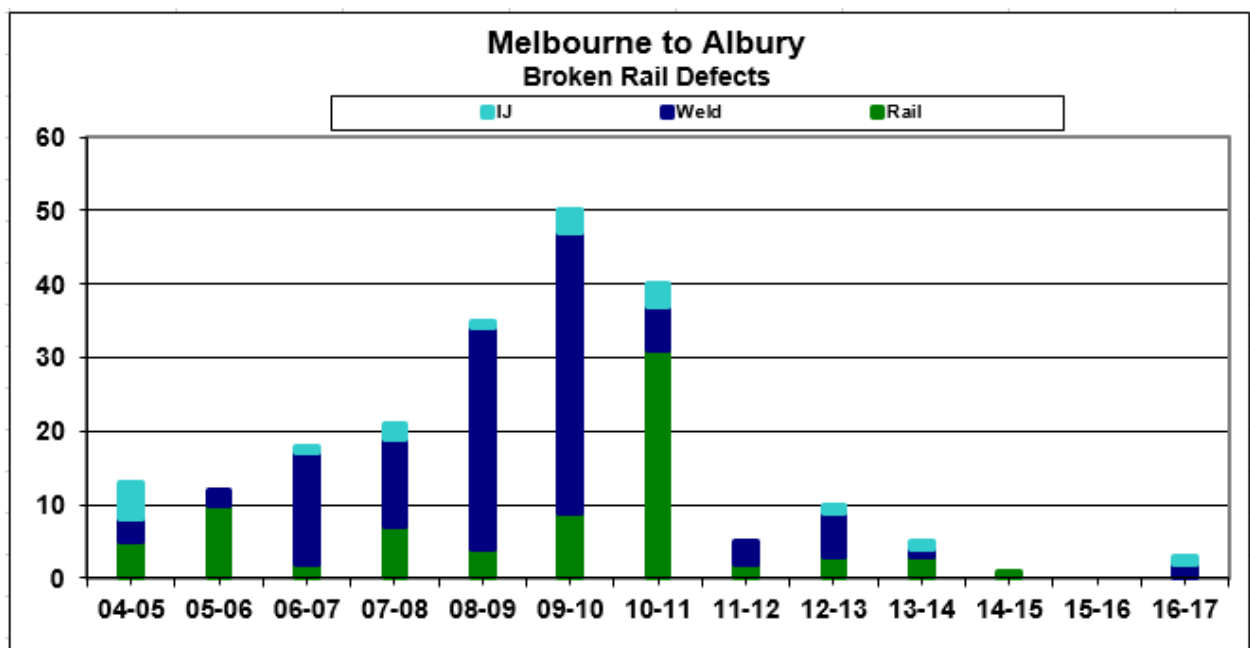
Corridor	Number of bridges with timber decking that is more than 20 years old	Number of bridges > 20 years old as a % of the total number of bridges with timber decking
Melbourne / Albury	41	100%
Melbourne / Wolsley	6	46%

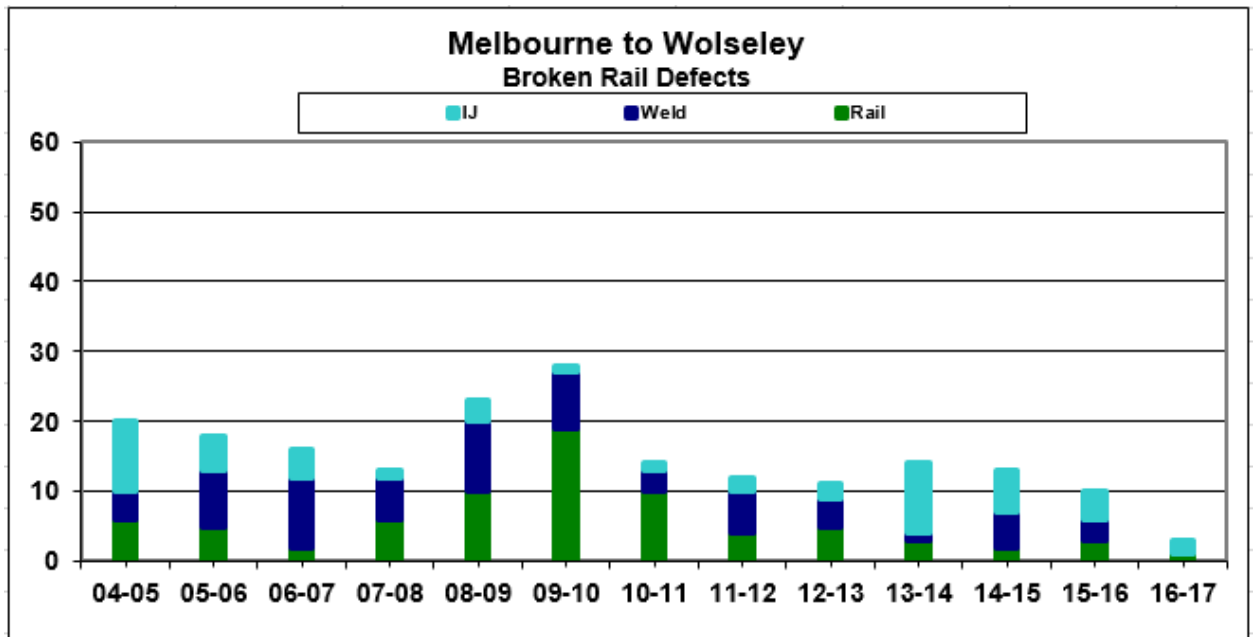
### 2.4. Monthly Signal Failure Analysis

The Victorian Department of Transport have been granted access to ARTC's SIMS database and review the signal failure trends as required.

### 2.5. Broken Rails

The broken rail data provided below includes details of broken rails, broken welds and broken insulated rail joints for each KPI Region.







## 2.6. New Permanent Speed Restrictions

Changes to permanent speed restrictions for the section Seymour to Albury East Track is shown below

SEYMOUR – ALBURY (EAST TRACK) [ORIGINAL SG TRACK RERAILED]					
LOCATION	KILOMETRAGE	DOWN		UP	
		(AWAY FROM MELBOURNE)		(TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
MELBOURNE	99.200	100	-	-	-
	100.170	115	-	100	-
SEYMOUR	101.000				
GRAVELSIDE SIDING**	106.307	-	120	-	130 (not posted)
	106.357				120
	106.407	-	130 (not posted)	-	120
					-
	108.995	-	115	-	130 (not posted)
	109.910	-	130	-	115
	117.840	-	125	-	130 (not posted)
	118.425	-	130 (not posted)	-	125
STRETTON VALE ROAD**	122.028	-	120	-	130 (not posted)
	122.078				
	122.128	-	130 (not posted)	-	120
OXENBURY CROSSING**	135.278	-	120	-	130 (not posted)
	135.328				
	135.378	-	130 (not posted)	-	120
	136.125	-	125	-	130 (not posted)
	136.465	-	130 (not posted)	-	125
LONGWOOD	137.000	-	-	-	-
	138.770	-	125 (not posted)	-	130 (not posted)
	139.385	-	130 (not posted)	-	125
TREFALLS ROAD**	139.400	-	120 (not posted)	-	130 (not posted)
	139.435				
	139.485	-	130 (not posted)	-	120 (not posted)
KELSELS CROSSING**	146.305	-	120	-	130 (not posted)
	146.355				
	146.405	-	130 (not posted)	-	120
SANITARY DEPOT CROSSING**	148.994	-	120	-	130 (not posted)
	149.044				
	149.094	-	130 (not posted)	-	120

SEYMOUR – ALBURY (EAST TRACK) [ORIGINAL SG TRACK RERAILED]					
LOCATION	KILOMETRAGE	DOWN		UP	
		(AWAY FROM MELBOURNE)		(TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
WADERSONS CROSSING**	160.475	-	120	-	130 ( <i>not posted</i> )
	160.525				
	160.575	-	130 ( <i>not posted</i> )	-	120
MAHERS CROSSING**	163.747	-	120	-	130 ( <i>not posted</i> )
	163.797				
	163.847	-	130 ( <i>not posted</i> )	-	120
VIOLET TOWN	170.000				
CURRY'S CROSSING**	186.567	-	120	-	130 ( <i>not posted</i> )
	186.617				
	186.667	-	130 ( <i>not posted</i> )	-	120
	195.520	-	115	-	130 ( <i>not posted</i> )
BENALLA	196.000				
	196.840	-	130 ( <i>not posted</i> )	-	115( <i>not posted</i> )
			-		-

Changes to permanent speed restrictions for the section Seymour to Albury West Track is shown below

SEYMOUR – ALBURY (WEST TRACK) [ORIGINAL SG TRACK RERAILED]					
LOCATION	KILOMETRAGE	DOWN (AWAY FROM MELBOURNE)		UP (TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
MELBOURNE					
	99.200	100	-	-	-
	99.930	100			
	100.170	115/100	-	100	-
SEYMOUR	101.000				
GRAVELSIDE SIDING**	106.307	-	120	-	130 (not posted)
	106.357				
	106.407	-	130/120	-	120
					-
	108.995	-	115(not posted)	-	130(not posted)
	109.910	-	130(not posted)	-	115(not posted)
	117.840	-	125(not posted)	-	130(not posted)
	118.425	-	130(not posted)	-	125(not posted)
STRETTON VALE ROAD**	122.028	-	120	-	130/120
	122.078				
	122.128	-	130/120	-	120(not posted)
OXENBURY CROSSING**	135.278	-	120	-	130(not posted)
	135.328				
	135.378	-	130(not posted)	-	120
	136.125	-	125(not posted)	-	130(not posted)
	136.465	-	130(not posted)	-	125(not posted)
LONGWOOD	137.000	-	-	-	-
	138.770	-	125(not posted)	-	130(not posted)
	139.385	-	130(not posted)	-	125(not posted)
TREFALLS ROAD**	139.400	-	120(not posted)	-	130(not posted)
	139.435				
	139.485	-	130(not posted)	-	120(not posted)
	142.130				120 Expt
	142.860		120 Expt		
	142.970				120 Expt
KELSELLS CROSSING**	146.305	-	120	-	130(not posted)

SEYMOUR – ALBURY (WEST TRACK) [ORIGINAL SG TRACK RERAILED]					
LOCATION	KILOMETRAGE	DOWN (AWAY FROM MELBOURNE)		UP (TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
	146.355				
	146.405	-	130/120	-	120(not posted)
SANITARY DEPOT CROSSING**	148.994	-	120	-	130(not posted)
	149.044		120 Expt		
	149.094	-	130/120	-	120(not posted)
	160.475	-	120	-	130/120 Expt
WADERSONS CROSSING**	160.525				
	160.575	-	130/120 Expt	-	120
	163.747	-	120	-	130/120 Expt
MAHERS CROSSING**	163.797				
	163.847	-	130/120 Expt	-	120
VIOLET TOWN	170.000				
CURRY'S CROSSING**	186.567	-	120	-	130/120 Expt
	186.617				
	186.667	-	130	-	120
	195.520	-	115	-	130/120 Expt

Changes to permanent speed restrictions for the section Seymour to Somerton is shown below

SEYMOUR – SOMERTON					
LOCATION	KILOMETRAGE	DOWN		UP	
		(AWAY FROM MELBOURNE)		(TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
SEYMOUR	101.000				
	100.170			100	100
	99.200	100	100		
SEYMOUR GRADE	99.050				
	99.120			80	
	98.860			80	
	98.550			80	
	98.300			80	
	97.580				80
	99.000			80(not posted)	80(not posted)
	97.550	80(not posted)	80(not posted)		
SEYMOUR FLAT	97.000				
	90.239	X80*(SI)	X80*(SI)		
	90.039			X80*(SI)	X80*(SI)
TALLAROOK	83.207			X80*(SI)	X80*(SI)
	83.007	X80*(SI)	X80*(SI)		
	80.110		130/120		120(not posted)
KENNY LANE	80.060				
	80.010		120		130
	78.580	115(not posted)	130(not posted)	105	105(not posted)
	77.490			105	
	76.010			105	
	76.990	105			
	75.990	105			
	75.260	105	105	115	130
BROADFORD NO LOOP	74.000			115	
	74.440				

SEYMOUR – SOMERTON					
LOCATION	KILOMETRAGE	DOWN		UP	
		(AWAY FROM MELBOURNE)		(TOWARDS MELBOURNE)	
		NORMAL	PASSENGER	NORMAL	PASSENGER
	73.560			115	
	71.730		115		
	70.344			X80*(SI)	X80*(SI)
	70.144	X80*(SI)	X80*(SI)		
KILMORE ON PASSING LANE					
	64.210		130(not posted)	120	115(not posted)
KILMORE EAST GRADE	64.000				
	63.580		115(not posted)		130(not posted)
	63.360		130(not posted)		115(not posted)
	63.351			X80*(SI)	X80*(SI)
KILMORE ON PASSING LANE	63.151	X80*(SI)	X80*(SI)		
	62.119			115	
	61.210		115		130
	60.010		130 (not posted)		115(not posted)
	59.930			115	
	59.280		115		115
	57.200		115 (not posted)		130 (not posted)
	55.430		130 (not posted)		115 (not posted)
WANDONG	55.291				
	54.190		115		115
	53.520		115		130 (not posted)
HEATHCOTE JUNCTION	53.450				
	52.000		130		115
	51.210		115		130
WALLAN CROSSING LOOP	48.000				
BEVERIDGE	41.730				

SEYMOUR – SOMERTON				
LOCATION	KILOMETRAGE	DOWN (AWAY FROM MELBOURNE)		UP (TOWARDS MELBOURNE)
		NORMAL	PASSENGER	NORMAL PASSENGER
	40.693			X80*(SI) X80*(SI)
DONNYBROOK ON PASSING LANE	40.493	X60*(SI)	X60*(SI)	60
	35.310		130(not posted)	125
	34.800		125	125
DONNYBROOK ON PASSING LANE	33.730			X60(SI)* X60*(SI)
	33.530	X60*(SI)	X60*(SI)	130(not posted)

## 2.7. Track Recording Car Geometry Faults

Track recording car geometry fault data provided since Q1 2011.

[illegible]



<b>Track Recording Car Geometry Fault History</b>																					
<b>Melbourne / Albury</b>																					
<b>Faults</b>		<b>2016/2017</b>				<b>2017/2018</b>				<b>2018/2019</b>				<b>2019/2020</b>				<b>2020/2021</b>			
<b>COP (Current)</b>	<b>ACOP (Pre 06/12)</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>
E1	E	8	27	9																	
E2	U1	18	44	18																	
P1	U2	24	73	49																	
P2	P1	89	254	171																	
N	P2																				
<b>Melbourne / Wolseley</b>																					
E1	E	1	25	7																	
E2	U1	1	28	15																	
P1	U2	2	52	25																	
P2	P1	4	142	124																	
N	P2																				

Note: The above numbers are the initial raw data from the recording car and may include spurious faults. All reported faults are inspected and actioned by ARTC field staff in accordance with ARTC standards.