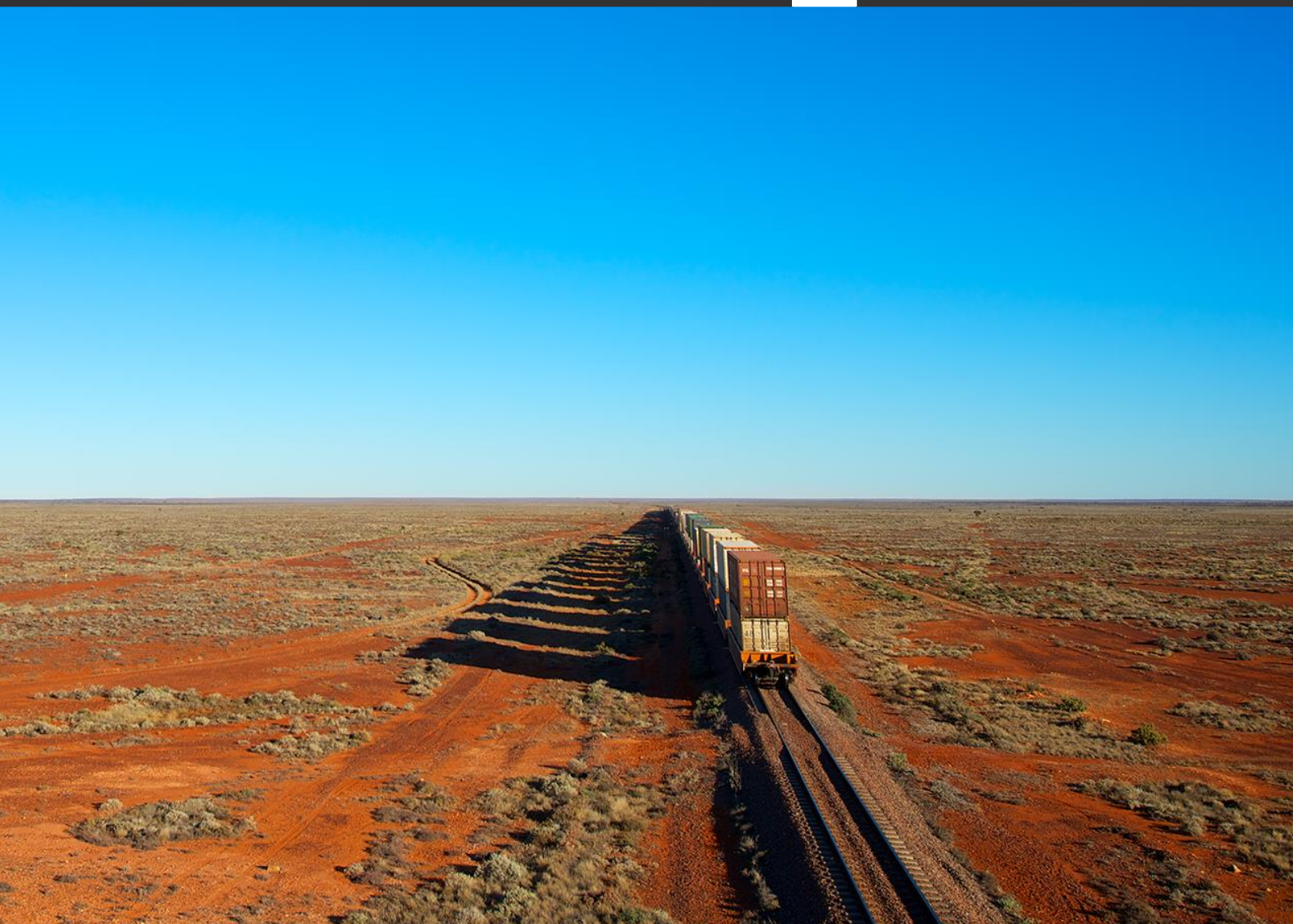
Victorian Interstate Infrastructure Lease KPI Report

2nd Quarter 2022/2023 (Oct-Dec)

ARTC



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Executive Summary

In accordance with the Victorian Interstate Infrastructure Lease, this document presents the KPI Report under the lease covering the period October 2022 to December 2022.

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

2058 sleepers (Timber – 4; Steel – 0; Concrete – 2054; Composite - 0) were installed during the reporting period.

Timber Deck Bridges

A total of 26 bridges has timber decking that has been in service for 20 years or more.

Monthly Signal Failure Analysis

The Department of Economic Development, Jobs, Transport and Resources (DEDJTR) have been granted access to ARTC's SIMS database and review the signal failure trends as required.

Broken Rails

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

New Permanent Speed Restrictions

There has been changes to the permanent speed restrictions during the reporting period on the Somerton to Laverton to Melbourne section, changes are included in the report.

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 Oct 22 to Dec 22
Top	11.5	18.4	5.3
Twist	7.3	11.7	3.8
Line	7.9	12.6	4.6
Gauge	10.5	16.8	2.8

Measure	KPI Target (Aspirational) Melbourne - Wolseley	KPI Benchmark (Lease Target) Melbourne – Wolseley	KPI Result Oct 22 to Dec 22
Top	11.2	17.9	8.8
Twist	6.9	11.0	4.8
Line	7.6	12.2	5.8
Gauge	6.5	10.4	3.3

TQI data provided is from the latest recorded run.

Figure 1: Melbourne-Albury Track Quality Index

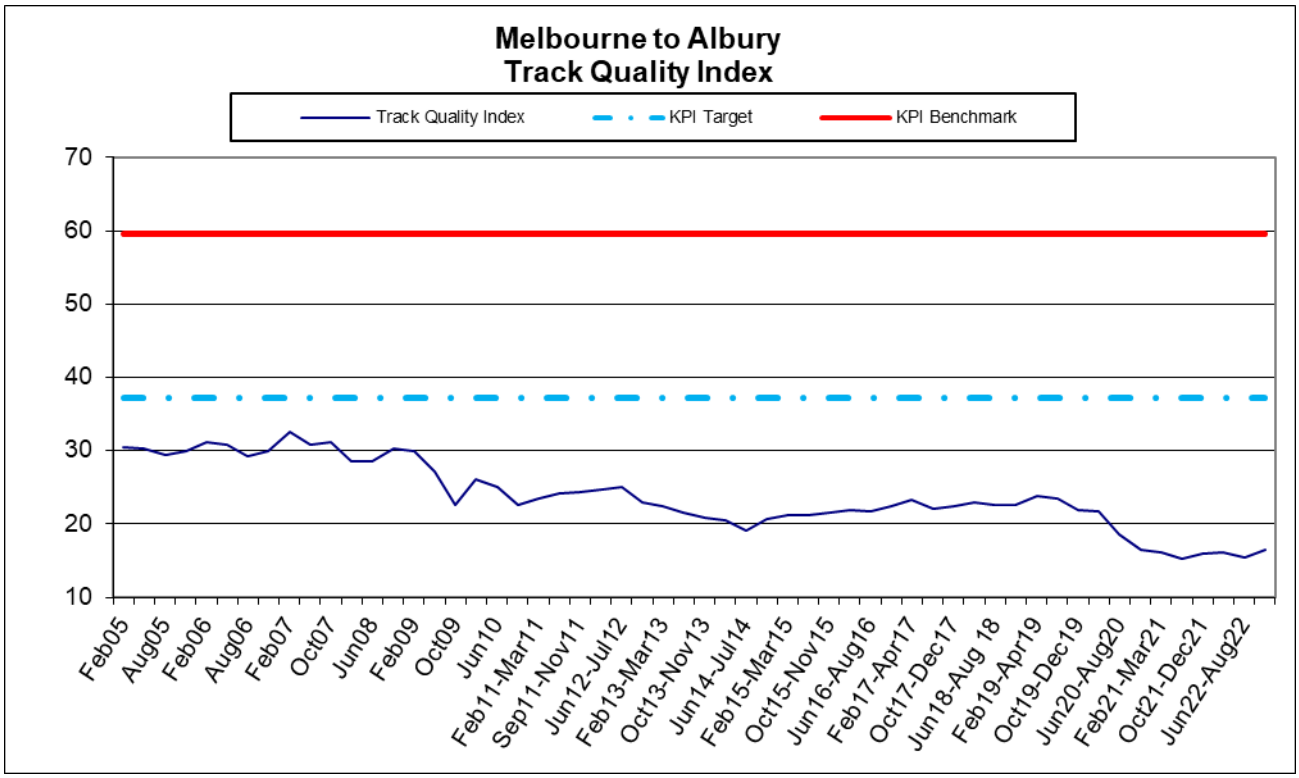
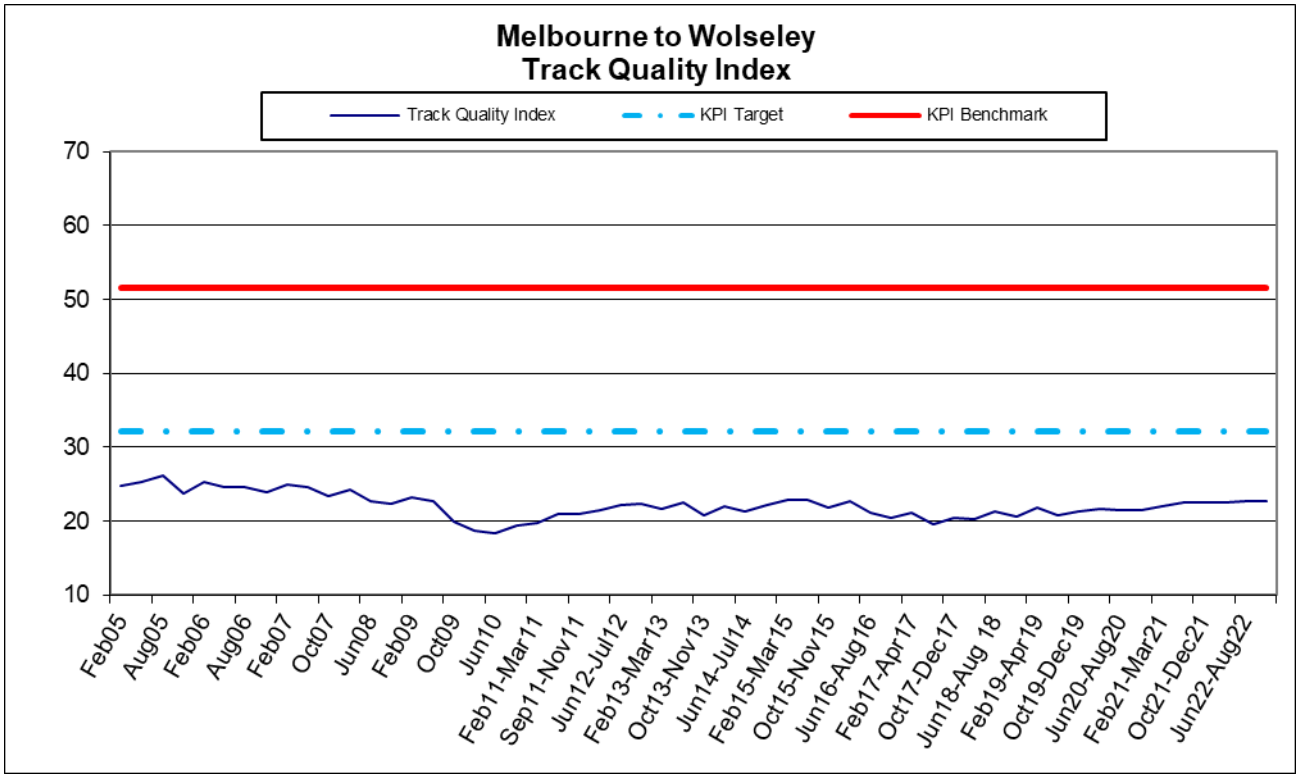


Figure 2: Melbourne-Wolseley Track Quality Index



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)** **Oct 22 to Dec 22**	**KPI Result (XPT 130 km/h)** **Oct 22 to Dec 22**	**Result (Super Freighter 115 km/h)** **Oct 22 to Dec 22**
Melbourne – Albury	20	30	3.0	2.2	7.8
Melbourne – Wolseley	40	80	23.5	N/A	47.4

The KPI Target and Benchmark above, do not apply to Super Freighters and 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

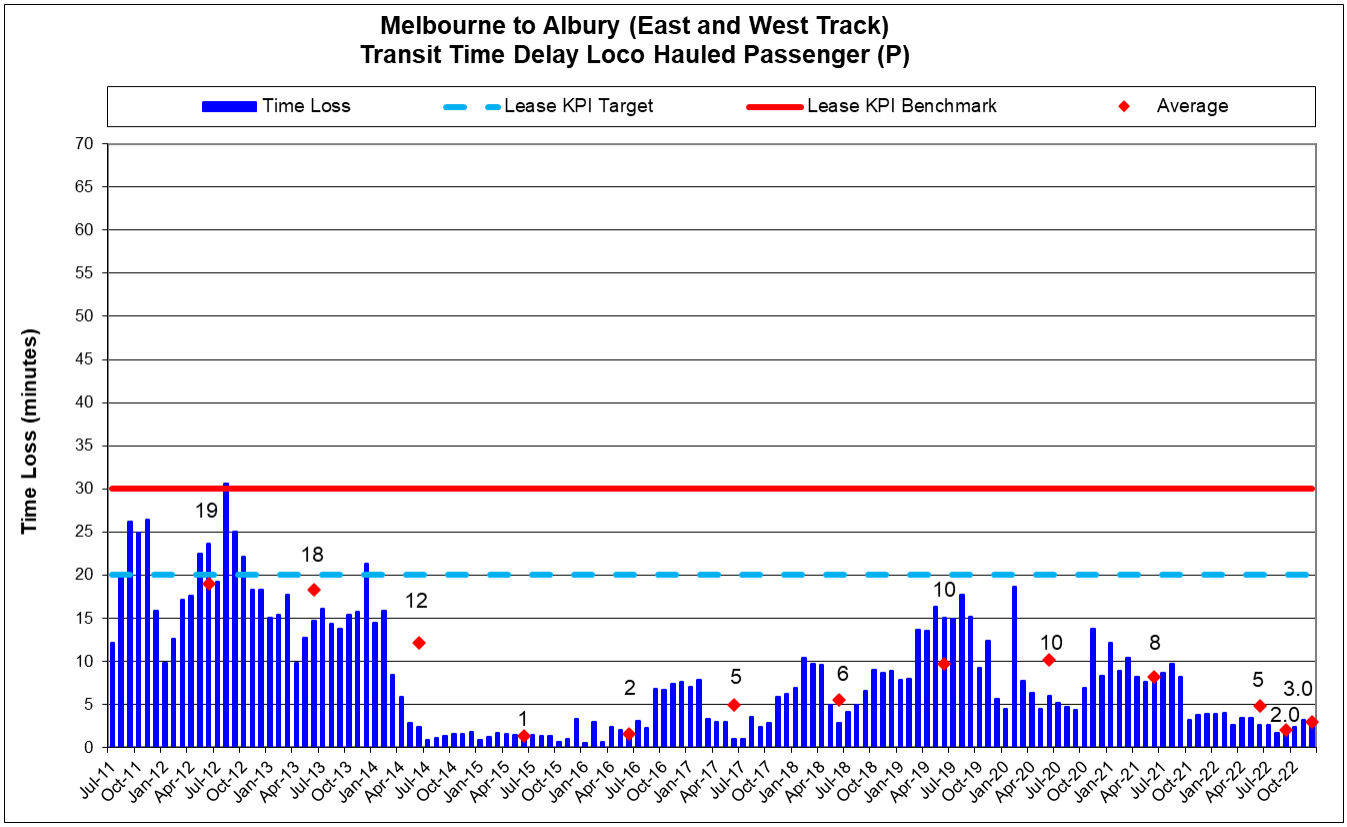


Figure 4: Melbourne to Albury Transit Time Delay for XPT trains

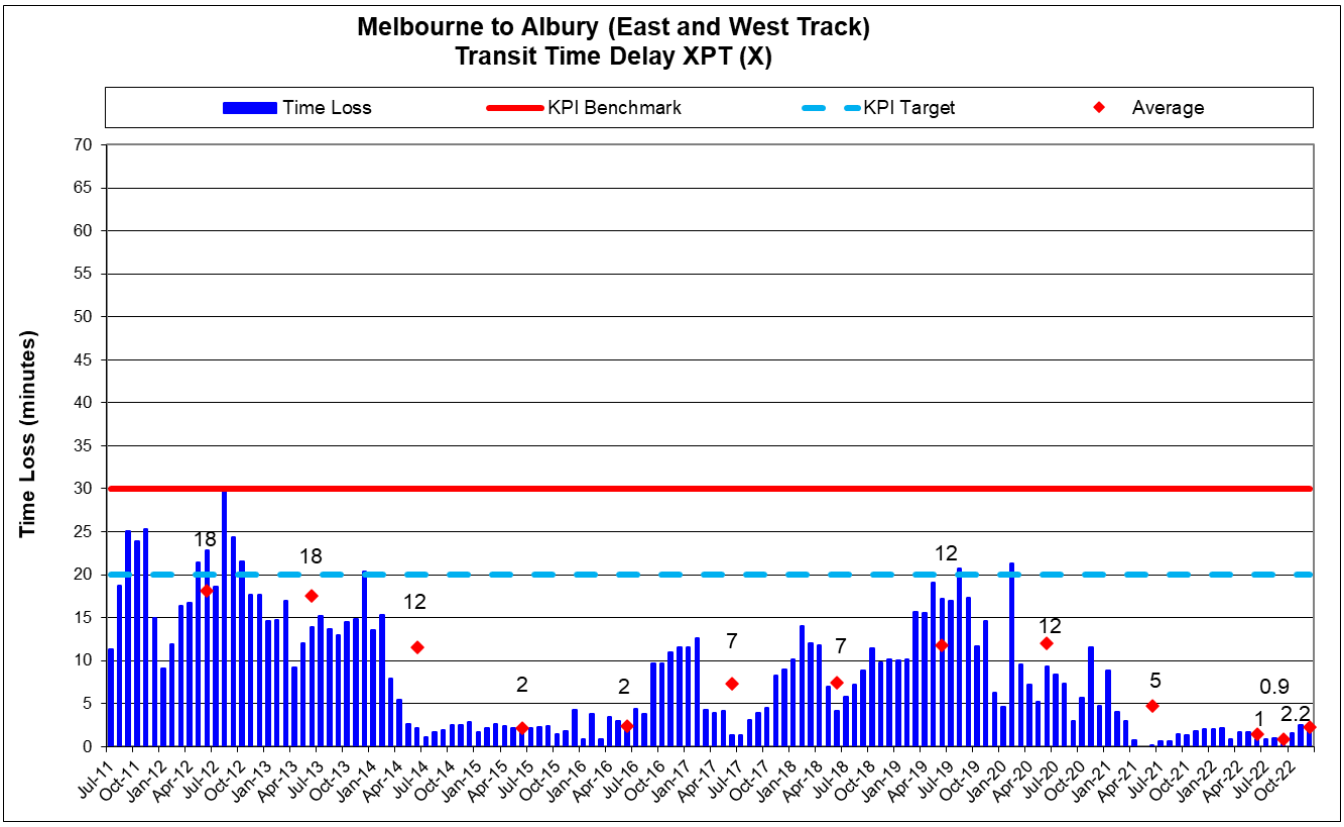


Figure 5: Melbourne to Albury Transit Time Delay (via East Track) for Loco Hauled Passenger trains

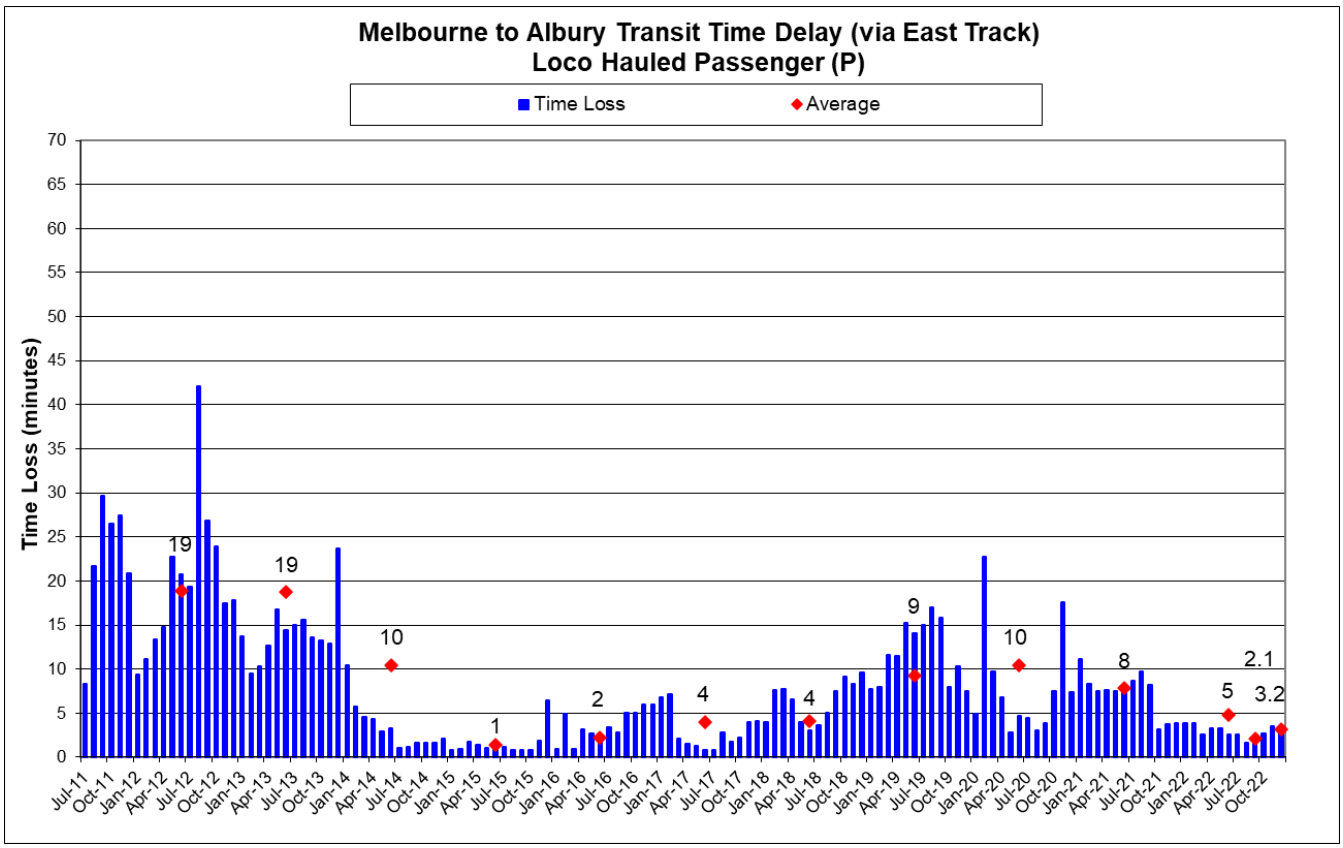


Figure 6: Melbourne to Albury Transit Time Delay (via East Track) for XPT trains

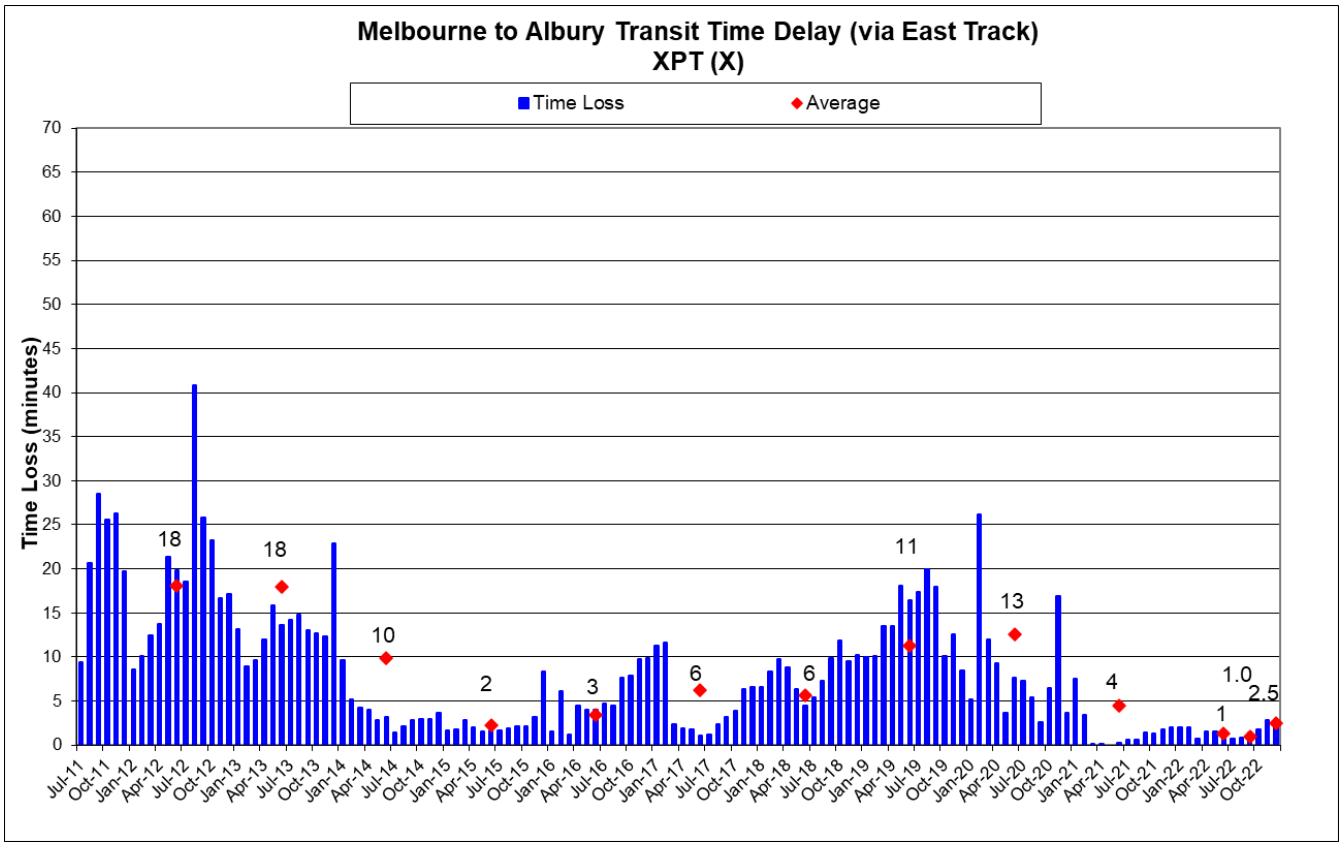


Figure 7: Melbourne to Albury Transit Time Delay (via West Track) for Loco Hauled Passenger trains

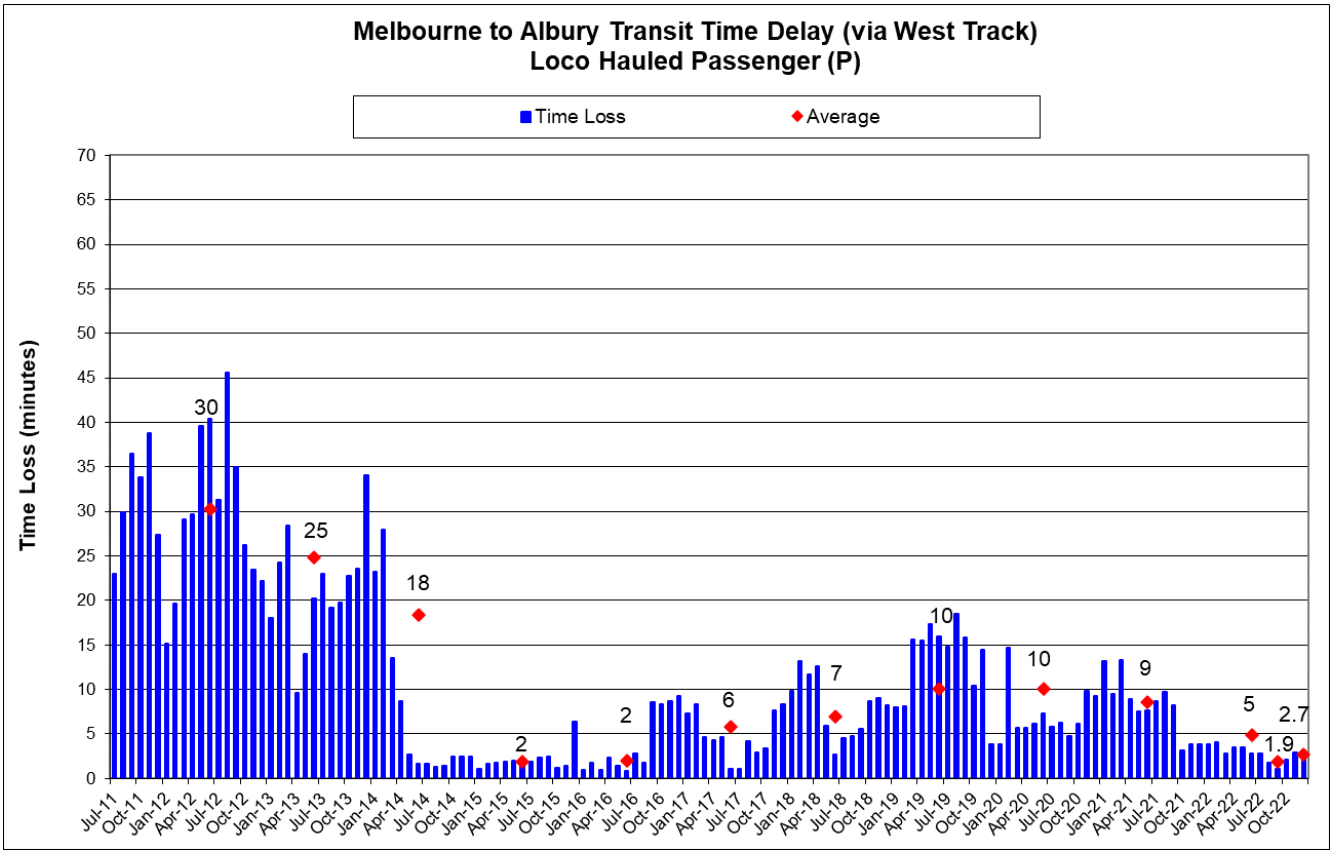


Figure 8: Melbourne to Albury Transit Time Delay (via West Track) for XPT trains

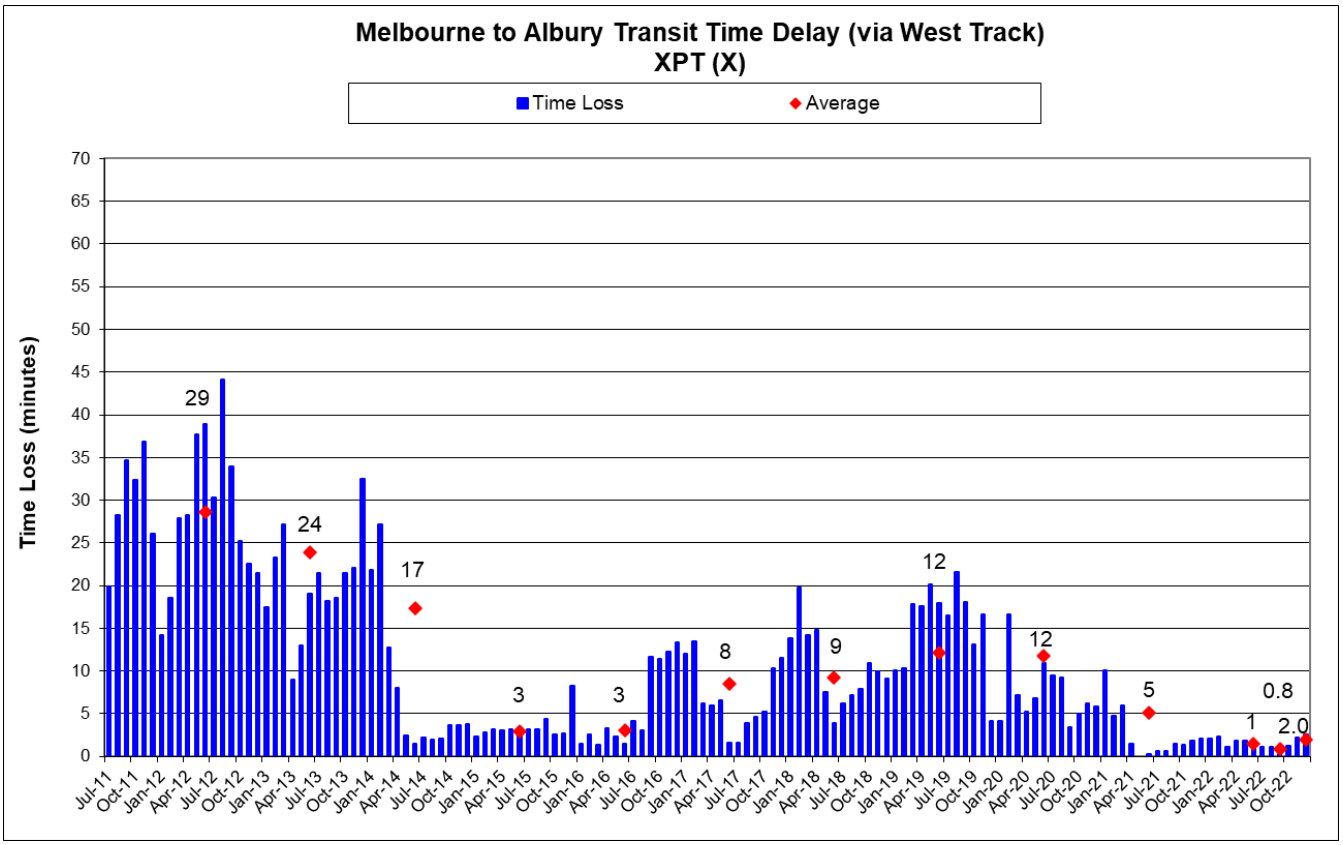
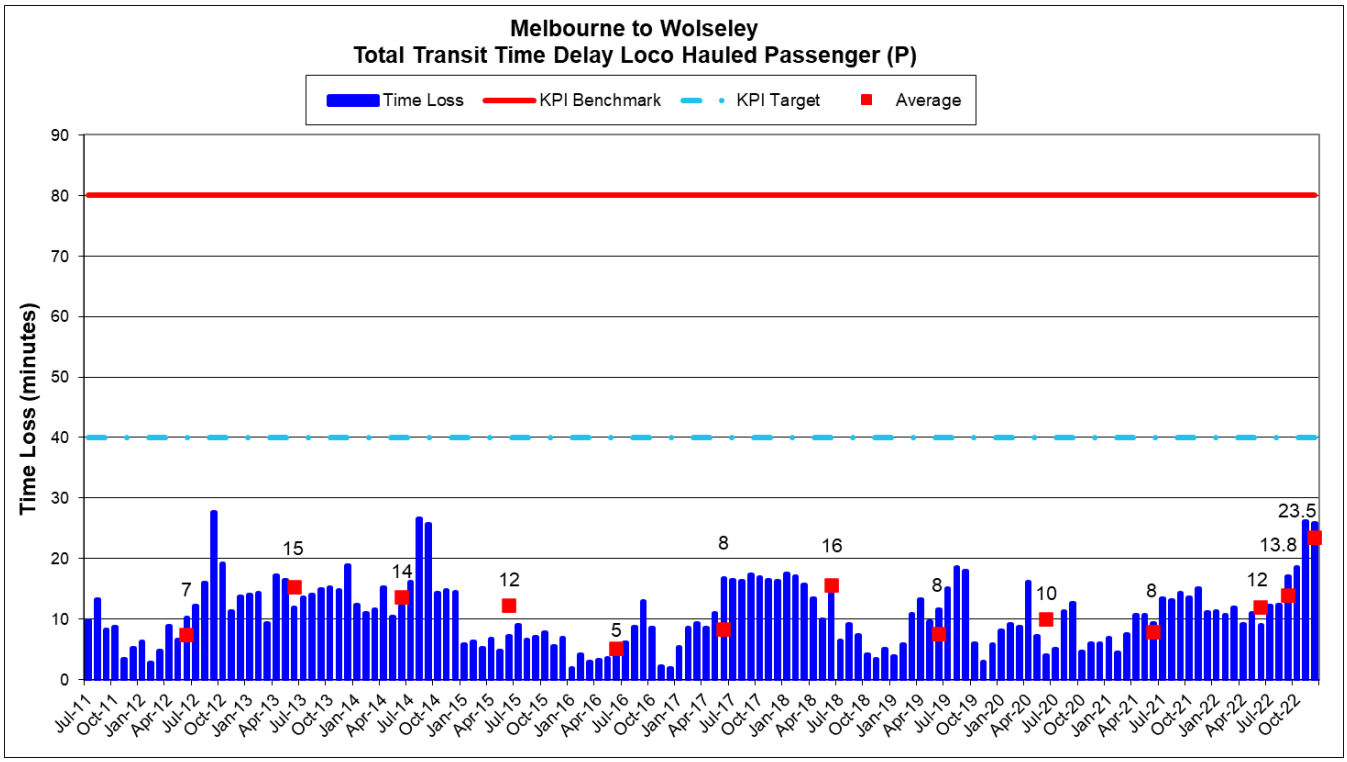


Figure 9: Melbourne to Wolseley Transit Time Delay for Loco Hauled Passenger trains



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.

Measure	KPI Target (Aspirational) Melbourne - Albury	KPI Result 22/23 total found	KPI Result Oct 22 to Dec 22
Number of Transverse Rail Defects (Number in place at the time of measurement / year	400	1	0

Measure	KPI Target (Aspirational) Melbourne - Wolseley	KPI Result 22/23 total found	KPI Result Oct 22 to Dec 22
Number of Transverse Rail Defects (Number in place at the time of measurement / year	380	0	0

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 Oct 22 to Dec 22
Number of Bridges with Temporary Speed Restrictions	30	2

Measure	KPI Target (Aspirational) Melbourne - Wolseley	KPI Result Oct 22 to Dec 22
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 Oct 22 to Dec 22
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 Oct 22 to Dec 22
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	22.7	22.5	31.3%	29.9%
Maroona to Vite Vite	18.0	18.7	10.6%	14.1%
Vite Vite to Gheringhap	22.6	22.8	27.9%	29.0%
Gheringhap to Nth Geelong	27.7	25.6	56.0%	49.6%
Nth Geelong to Newport	23.8	24.2	34.2%	34.7%
Newport to Tottenham	43.2	42.5	61.6%	78.1%
Tottenham to Dynon	40.6	39.9	75.6%	77.9%
Tottenham to South Dynon	*These two lines have been combined due to track rationalisation and are now described as Tottenham to Dynon*			
Dynon to West Footscray				
Tottenham to Patullos Lane	18.0	19.0	14.9%	18.3%
Patullos Lane to Broadford	15.7	16.7	6.1%	8.6%
Broadford to Albury	13.9	14.6	2.6%	3.1%
Albury To Seymour (West Line)	15.1	16.4	2.5%	4.1%

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. 2058 sleepers (Timber – 4; Steel – 0; Concrete – 2054; 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 (West Track)
Timber									4			
Steel												
Concrete				2000						54		
Other												
Concrete 09/10												

The total quantity and percentage of the population of sleepers, by type, on the track sections as at 31 December 2022 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 (West Track)
Timber total quantity	-	-	-	5444	-	1357	-	514	32014	-	-	2180
Timber total percentage	0%	0%	0%	30%	0%	12%	0%	13%	77%	0%	0%	0.5%
Steel total quantity	-	-	-	-	-	-	-	-	-	-	-	-
Steel total percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Concrete total quantity	396216	94207	175000	12889	97167	9875	9141	3454	9664	82500	680212	288702
Concrete total percentage	100%	100%	100%	70%	100%	88%	92%	87%	23%	100%	100%	99.5%
Other total quantity	-	-	-	-	-	31	804	-	-	-	-	-
Other total percentage	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%

2.3. Timber Deck Bridges

A total of 26 bridges has timber decking that have been in service for 20 years or more. The data includes bridges on the west track.

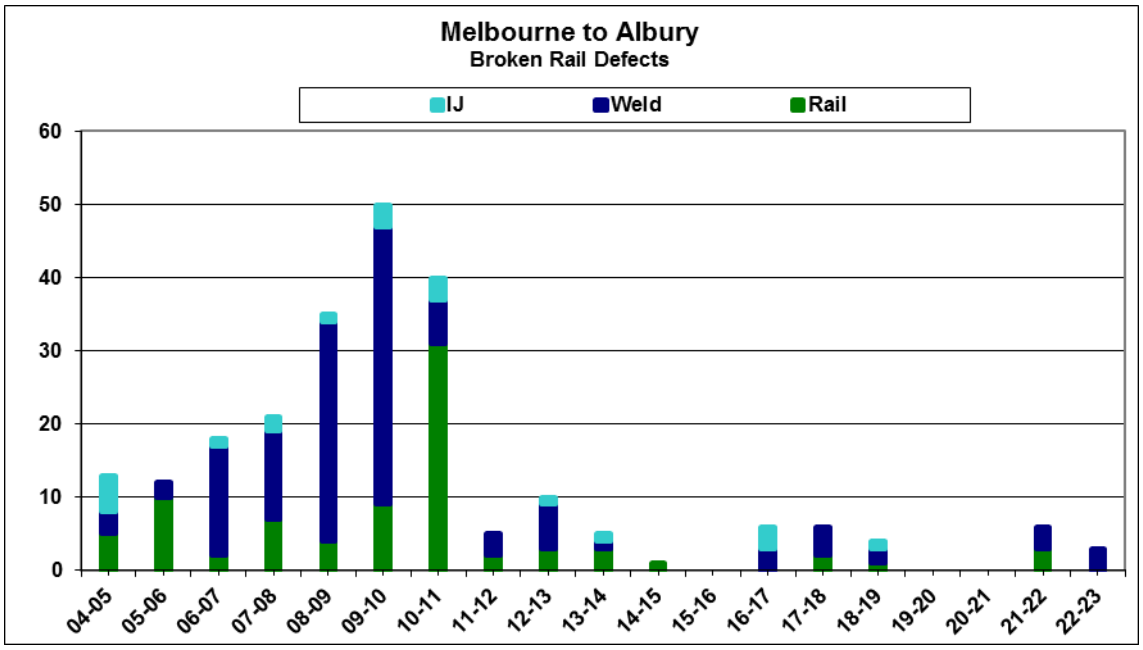
Corridor	Number of bridges with timber decking that is more than 20 years old	Number of bridges > 20 years old as a % of the total number of bridges with timber decking
Melbourne / Albury	17	77%
Melbourne / Wolseley	9	100%

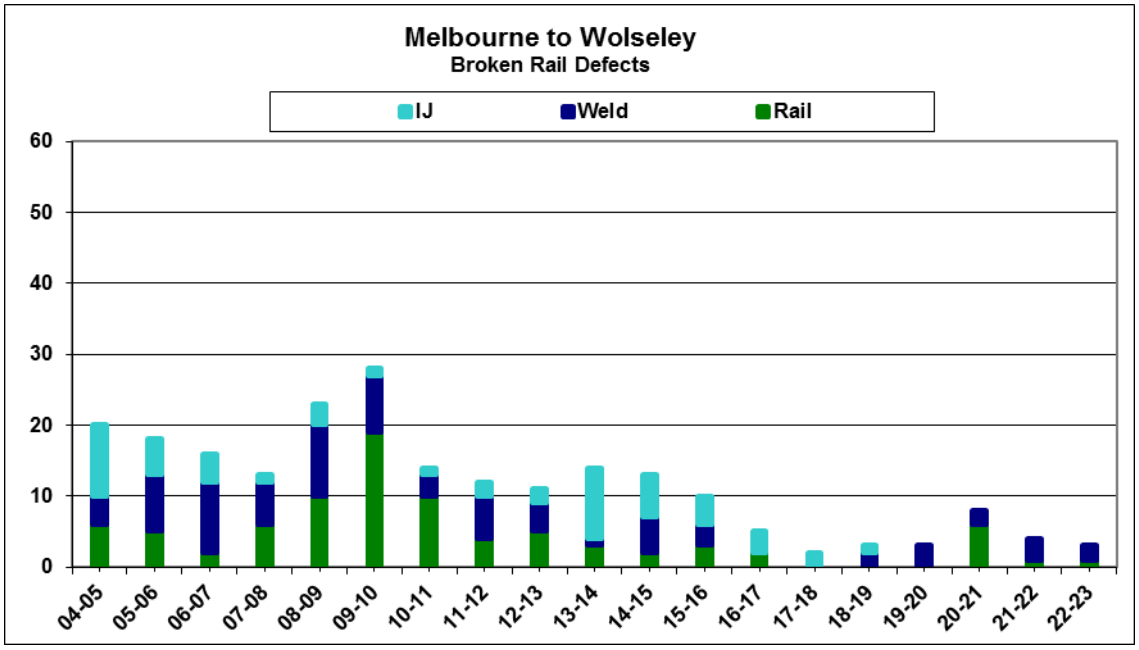
2.4. Monthly Signal Failure Analysis

The Department of Economic Development, Jobs, Transport and Resources (DEDJTR) 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

The following changes to the permanent speed restrictions have been made during the reporting period. Permanent speed changes on the Somerton to Laverton to Melbourne section are highlighted.

MELBOURNE – SOMERTON					
LINE SEGMENT	**EXCEPTION TO MAXIMUM SPEEDS LOCATION**	**RESTRICTED SPEED**			
SOUTHERN CROSS	0.000 KM – 2.056KM	REFER TO ADJACENT TRACK OWNER			
	NOTE: 2.000 KM BECOMES 2.056 KM)				
		WEST BOUND DOWN		**EAST BOUND UP**	
		FREIGHT	**PASSENGER**	**FREIGHT**	**PASSENGER**
ARTC BOUNDARY	2.056 KM - 3.500 KM **MAIN LINE**	40	40	40	40
	3.500 KM – 3.950 KM **MAIN LINE**	40	40	40	40
APPLETON DOCK PRECINCT (PORT OF MELBOURNE)	0.000 KM - 3.950 KM **MAIN & LOCAL LINE**	15	15	15	15
SOUTH DYNON JUNC	3.950 KM – 4.247KM **MAIN & LOCAL LINE**	15	35		
SOUTH DYNON JUNC	3.950 KM – 4.670KM **MAIN LINE**			15	30
	LOCAL LINE			25	30
SIMS STREET	4.247KM – 4.670KM **MAIN & LOCAL LINE**	30	30		
SIMS STREET	4.670KM – 5.290KM **MAIN LINE**			15	65
	LOCAL LINE			30	65
	5.290KM – 6.900KM **MAIN & LOCAL LINE**			65	65
	4.670KM – 6.900KM **MAIN & LOCAL LINE**	65	65		

WEST FOOTSCRAY	NOTE: ABOVE SPEEDS APPLY FOR BOTH STANDARD AND BROAD MOVEMENTS ON DUAL GAUGE TRACK.				
JUNCTION	6.900 KM	8.600 KM			65
	8.600 KM	10.120 KM			80
TOTTENHAM JUNCTION	10.120 KM*	13.980 KM			95
	13.980 KM	14.500 KM			65
MCINTYRE LOOP	14.500 KM	17.200 KM			115
#ON LOOP EXIT BOTH ENDS	16.000 KM				30
		EAST BOUND DOWN		**WEST BOUND UP**	
		FREIGHT	**PASSENGER**	**FREIGHT**	**PASSENGER**
ALBION INFRASTRUCTURE BOUNDARY TO TULLAMARINE LOOP	13.848 KM - 18.951 KM **BG**	20* (not posted)	N/A – refer I3	20* (not posted)	N/A – refer I3
TULLAMARINE LOOP NO. 2 ROAD	18.951 KM – 25.635 KM **DG**	80* (not posted)	80* (not posted)	80* (not posted)	80* (not posted)
TULLAMARINE LOOP TO JACANA INFRASTRUCTURE BOUNDARY	25.635 KM – 26.200 KM **BG**	20* (not posted)	N/A – refer I3	20* (not posted)	N/A – refer I3
TULLAMARINE					
	24.380 KM	25.000 KM			95
	25.000 KM	26.200 KM			115
	26.200 KM	17.000 KM			80
	NOTE: 27 KM BECOMES 16 KM				
	17.000 KM	17.560 KM			115
SOMERTON LOOP#	19.380 KM				125 PASSENGER ONLY
	21.270 KM				130 PASSENGER ONLY
	25.660 KM				125 PASSENGER ONLY
	26.020 KM				130 PASSENGER ONLY
	* ON CURVES BETWEEN				

2.7. Track Recording Car Geometry Faults

Track recording car geometry fault data provided since Q1 2011.

Track Recording Car Geometry Fault History																					
Melbourne / Albury																					
Faults		**2011/2012**				**2012/2013**				**2013/2014**				**2014/2015**				**2015/2016**			
COP (Current)	**ACOP** (Pre 06/12)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
E1	E	95	77	28	8	78	27	24	13	55	15	23	38	53	37	22	10	4	8	6	10
E2	U1	102	70	58	13	98	45	36	23	46	48	23	24	31	44	25	18	20	44	17	19
P1	U2	126	103	136	63	149	80	63	66	58	70	52	28	35	60	66	47	29	93	42	48
P2	P1	431	386	280	218	506	307	174	115	178	231	171	110	87	269	185	132	94	213	52	162
N	P2	69	99	100																	
Melbourne / Wolseley																					
E1	E	35	35	16	25	25	23	7	18	18	23	10	61	0	13	4	19	0	6	7	4
E2	U1	28	28	11	28	28	42	11	37	37	39	15	35	0	13	12	29	1	15	15	19
P1	U2	72	72	41	78	78	65	39	86	86	92	40	70	3	35	34	45	0	34	45	45
P2	P1	197	197	172	224	224	246	116	238	238	199	180	193	2	135	160	197	0	162	199	156
N	P2	74	74	68																	

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.

Track Recording Car Geometry Fault History																					
Melbourne / Albury																					
Faults		**2016/2017**				**2017/2018**				**2018/2019**				**2019/2020**				**2020/2021**			
COP (Current)	**ACOP** (Pre 06/12)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
E1	E	8	27	9	391(2)*	50	44	17	32	20	45	1	36	114	21	27	38	9	10	33	0
E2	U1	18	44	18	189(0)*	63	40	11	38	27	63	8	35	61	26	39	52	9	12	15	1
P1	U2	24	73	49	306(9)*	105	95	42	75	34	124	46	85	60	58	77	67	20	37	32	2
P2	P1	89	254	171	475(28)*	261	271	85	214	85	272	151	305	187	160	200	177	46	48	45	9
N	P2																				
Melbourne / Wolseley																					
E1	E	1	25	7	2	45	23	6	24	1	9	2	3	0	6	23	14	0	22	12	18
E2	U1	1	28	15	5	17	20	10	22	1	12	4	6	0	5	16	25	0	29	18	28
P1	U2	2	52	25	16	38	59	30	61	5	38	24	33	0	37	66	36	0	55	43	46
P2	P1	4	142	124	66	65	131	90	145	1	95	83	81	0	97	162	74	0	145	149	213
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.

Note: 2016/2017 Quarter 4 Geometry data was impacted by sunlight which contributed to the high fault count. Data shown in () exclude geometry fault from the affected area.

*In Q1 2020/2021, only the West Track of Melbourne/Albury had a track recording run and there was no recording run on Melbourne/Wolseley.

Track Recording Car Geometry Fault History									
Melbourne / Albury									
Faults		**2021/2022**				**2022/2023**			
COP (Current)	**ACOP** (Pre 06/12)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
E1	E	2	10	0	0	2	1		
E2	U1	3	7	4	4	0	3		
P1	U2	7	17	11	12	11	11		
P2	P1	13	21	20	29	23	41		
N	P2								
Melbourne / Wolseley									
E1	E	0	17	10	18	0	39		
E2	U1	0	27	17	37	0	69		
P1	U2	0	57	74	120	2	118		
P2	P1	0	183	244	283	1	290		
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.

*In Q1 2021/2022, only the West Track of Melbourne/Albury had a track recording run and there was no recording run on Melbourne/Wolseley.