



# **Office of the** Road Safety Camera Commissioner

## **Road Safety Camera Program - Downtime review** **Preliminary analysis report**

Version date: 27 April 2020 (Amended version)

We acknowledge Aboriginal Traditional Owners of Country throughout Victoria and pay respect to their cultures and Elders past, present and emerging.

[SEC=OFFICIAL : SENSITIVE]

# 1 PROBLEM IDENTIFICATION

To understand the impact of downtime on the effectiveness of Victoria's road safety camera system.

## 1.1 CONTENTS OF REPORT

This report contains:

- Definitions of terms, including deactivation categories
- Description of data used and the survey period
- Fixed road safety camera downtime by site
  - Downtime longitudinal graphs by deactivation duration and category
  - Downtime pie graphs deactivation duration and category
  - Graphs differentiated by intersection and highway sites
  - Identification of sites with the longest deactivation durations within data survey period
- Fixed road safety camera downtime by lane functions
  - Downtime longitudinal graphs by deactivation duration and category
  - Downtime pie graphs deactivation duration and category
  - Graphs differentiated by red-light and speed lanes
- Infringements in relation to downtime
- Appendices

## 2 DEFINITIONS

The following terms and definitions are used throughout this report.

TERM	DEFINITION
Operational day (fixed)	A 24-hour period, starting from 00:00:00 to 23:59:59.
Uptime (fixed)	Uptime is any day or part of a day in which a camera is 'activated' (enforcing).
Uptime (mobile)	Mobile cameras are deployed in rostered sessions. Mobile camera 'Uptime' is measured in hours worked.
Downtime (fixed)	When a fixed camera is "deactivated" (not enforcing).
Downtime (mobile)	How much of a rostered mobile camera session could not be completed for any reason, i.e. safety related, site environment, changes in speed limit, road works, etc.
Partial deactivation (fixed only)	Fixed cameras can deactivate: <ul style="list-style-type: none"> <li>• Single lane for one function</li> <li>• Single lane for multiple functions</li> <li>• All lanes for one function</li> </ul>
Camera site	One or more cameras monitoring one direction of traffic at a location
Short term deactivation	Any deactivation of a camera or a component lane/function that lasts less than four weeks (28 days or less)
Medium term deactivation	Any deactivation of a camera or a component lane/function that lasts between 29 to 89 days inclusive
Long term deactivation	Any deactivation of a camera or a component lane/function that lasts 90 days or more

## 2.1 DATA USED IN THIS REVIEW

This review utilised the following data:

- Camera downtime data from SiteTrak,
- Infringement data provided by the Department of Justice and Community Safety (DJCS), and
- Mobile camera hours worked provided in regular monthly reports.

The survey period is 1 July 2017 to 31 December 2019, covering FY2017-18, FY2018-19 and the first half of FY2019-20.

## 2.2 DEACTIVATION CATEGORIES

SiteTrak data provides detailed information about the reasons for activations and deactivations. There is a variety of deactivation reasons, therefore those reasons have been classified into six general categories:

- Certification – downtime initiated by legislatively required testing.
- Policy – downtime initiated by DJCS policy.
- Road Works – downtime initiated by roadworks at or near the camera location.
- Technical issue – downtime initiated by a technical issue experienced by the camera system or an external system associated with the camera.
- Environment – downtime associated with environmental issues like vandalism or vehicle impacts.
- Upgrades – downtime associated with software and/or hardware upgrades to camera systems.

The full list of SiteTrak deactivation categorisations is included in Appendix B.

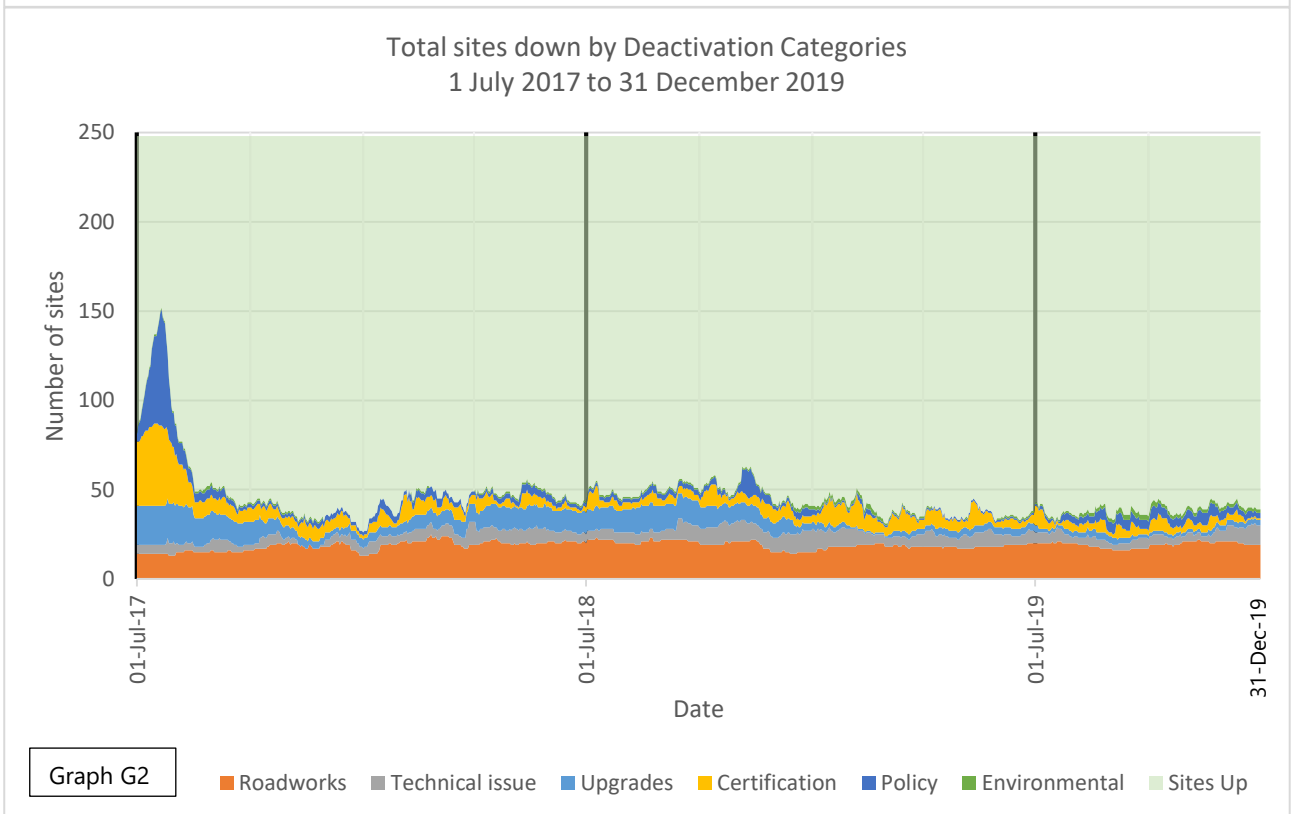
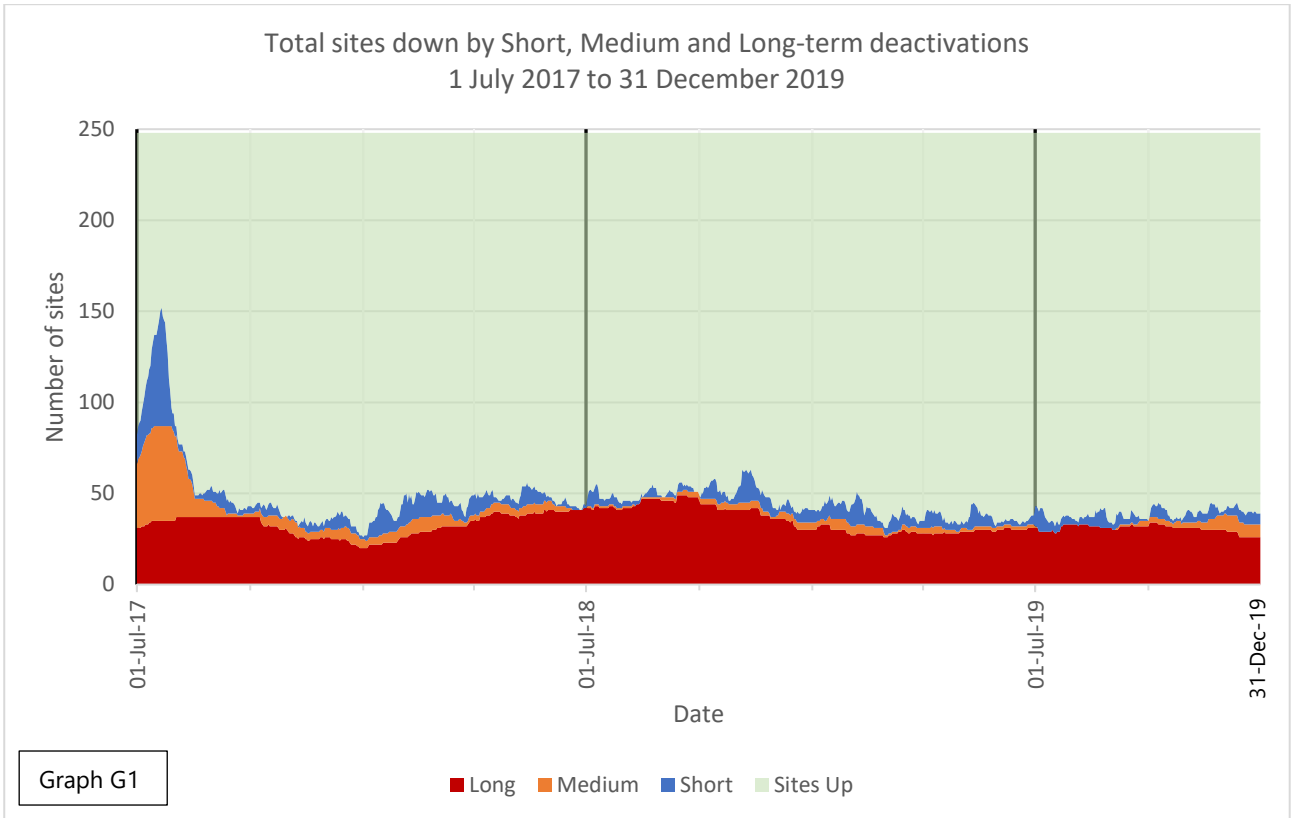
## 2.3 SITES AND LANES

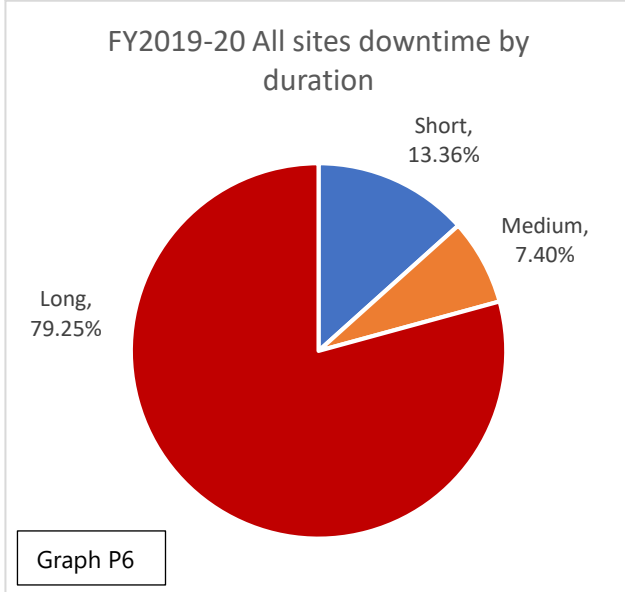
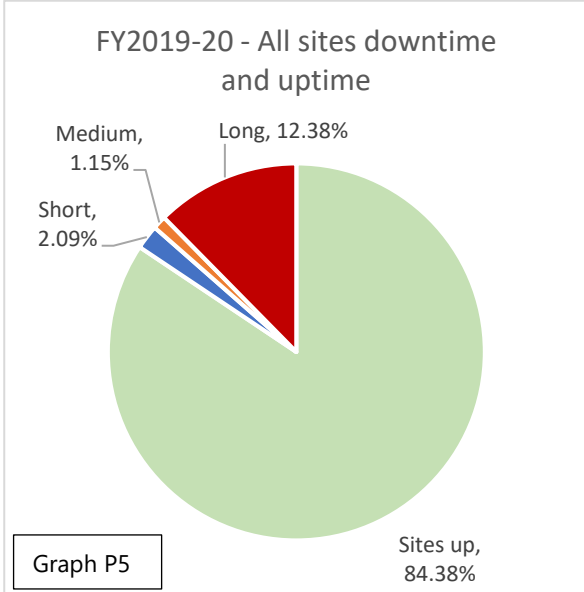
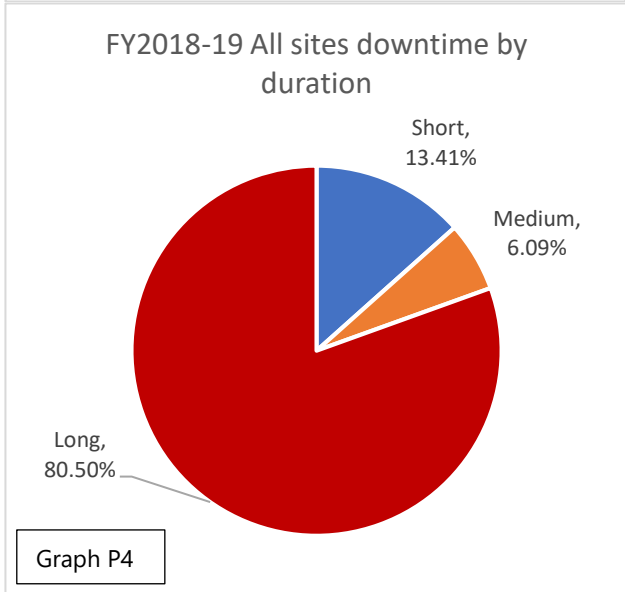
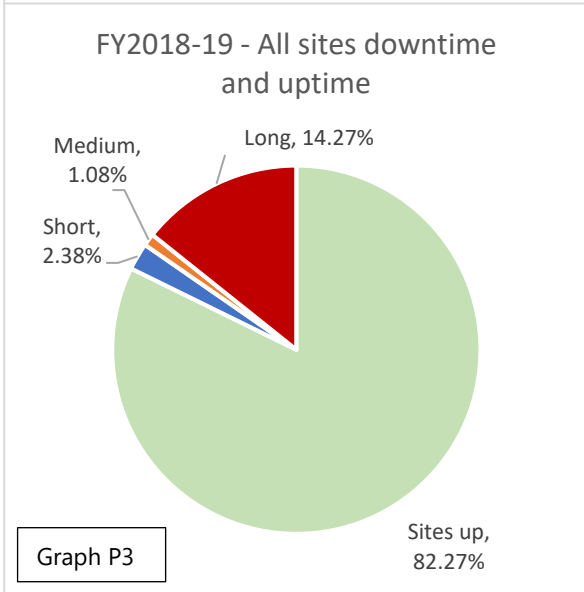
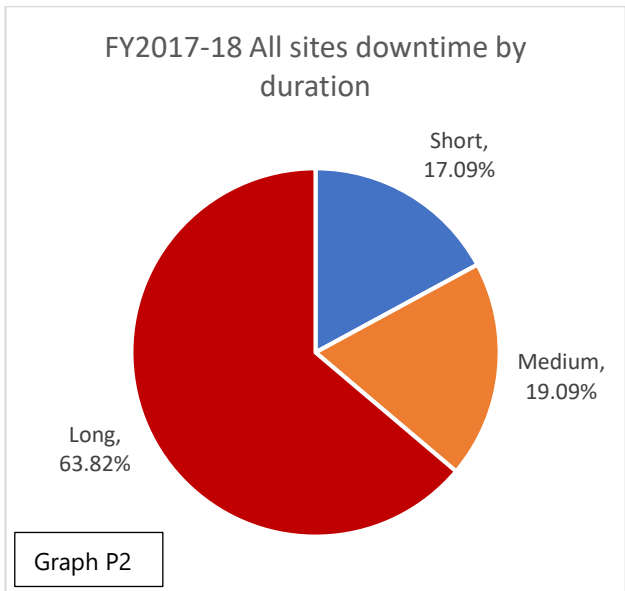
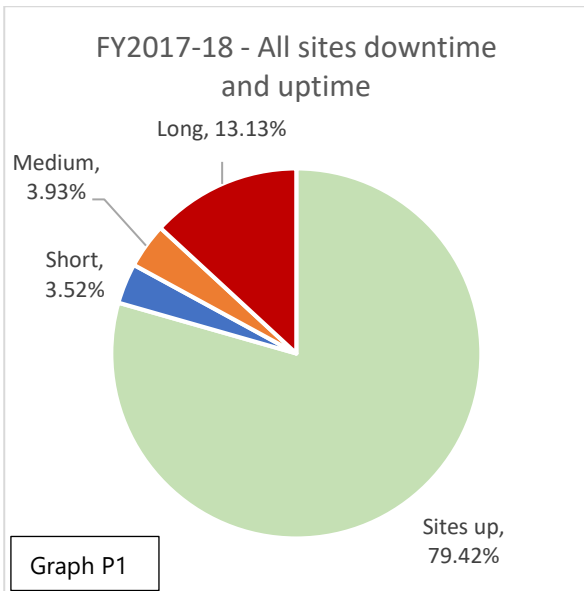
Camera sites can have various configurations of lanes. Downtime data has been analysed by:

- Sites – cameras monitoring one direction monitoring speed and/or red-light compliance at a location
- Lanes – total number of lanes monitoring speed or red-light compliance.

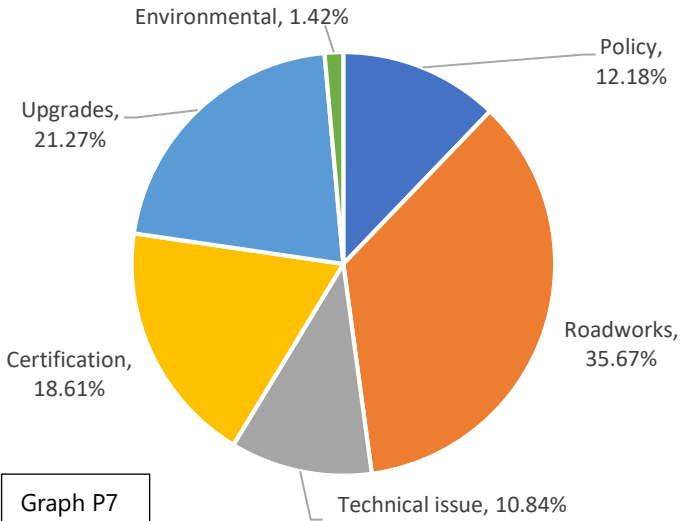
### 3 FIXED ROAD SAFETY CAMERA DOWNTIME BY SITE

There are 200 fixed intersection camera sites and 48 fixed highway sites. For the purposes of this review a site was considered down if all its functions were deactivated. The below graphs depict the number of camera sites down per day. Long-term deactivations account for the majority of downtime. FY2017-18 downtime is skewed by WannaCry, when tested and certification was delayed, leading to cameras becoming deactivated.



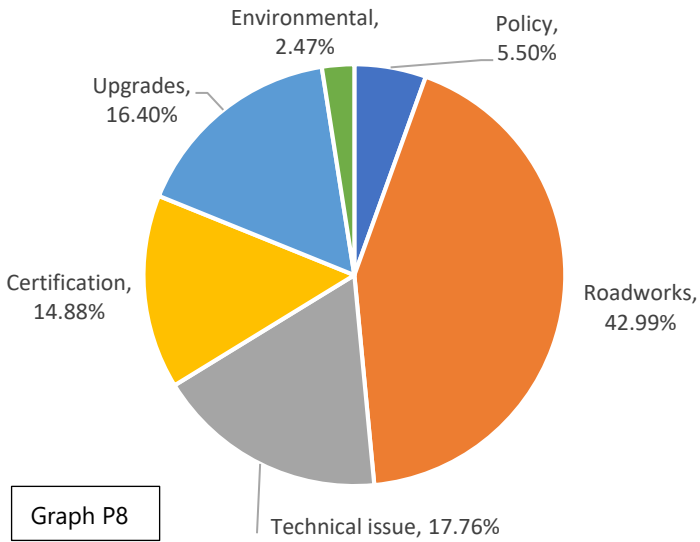


FY2017-18 All sites downtime by category



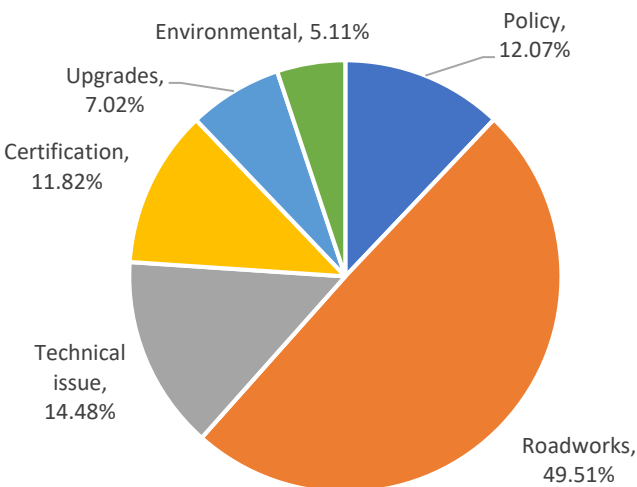
Graph P7

FY2018-19 All sites downtime by category



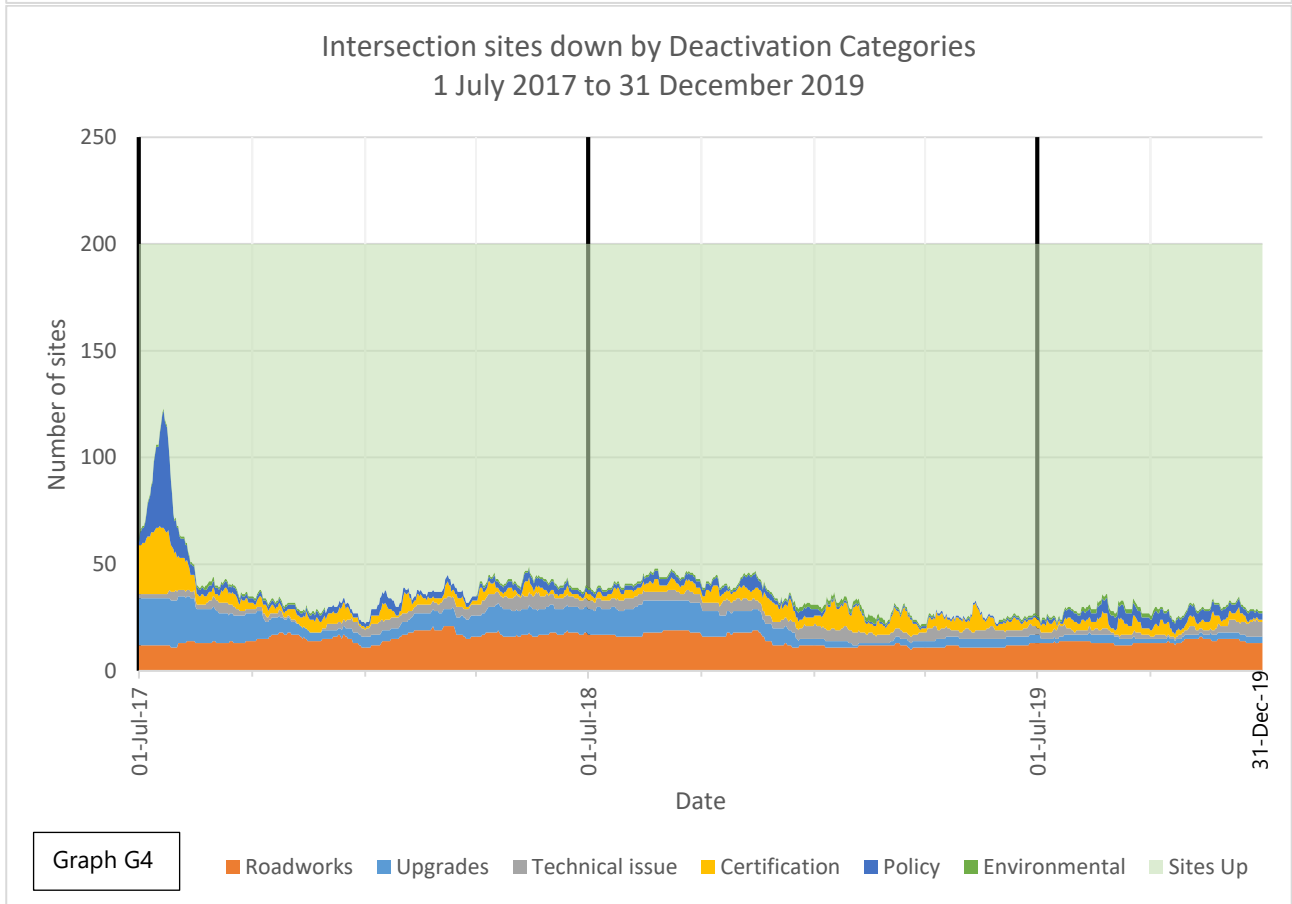
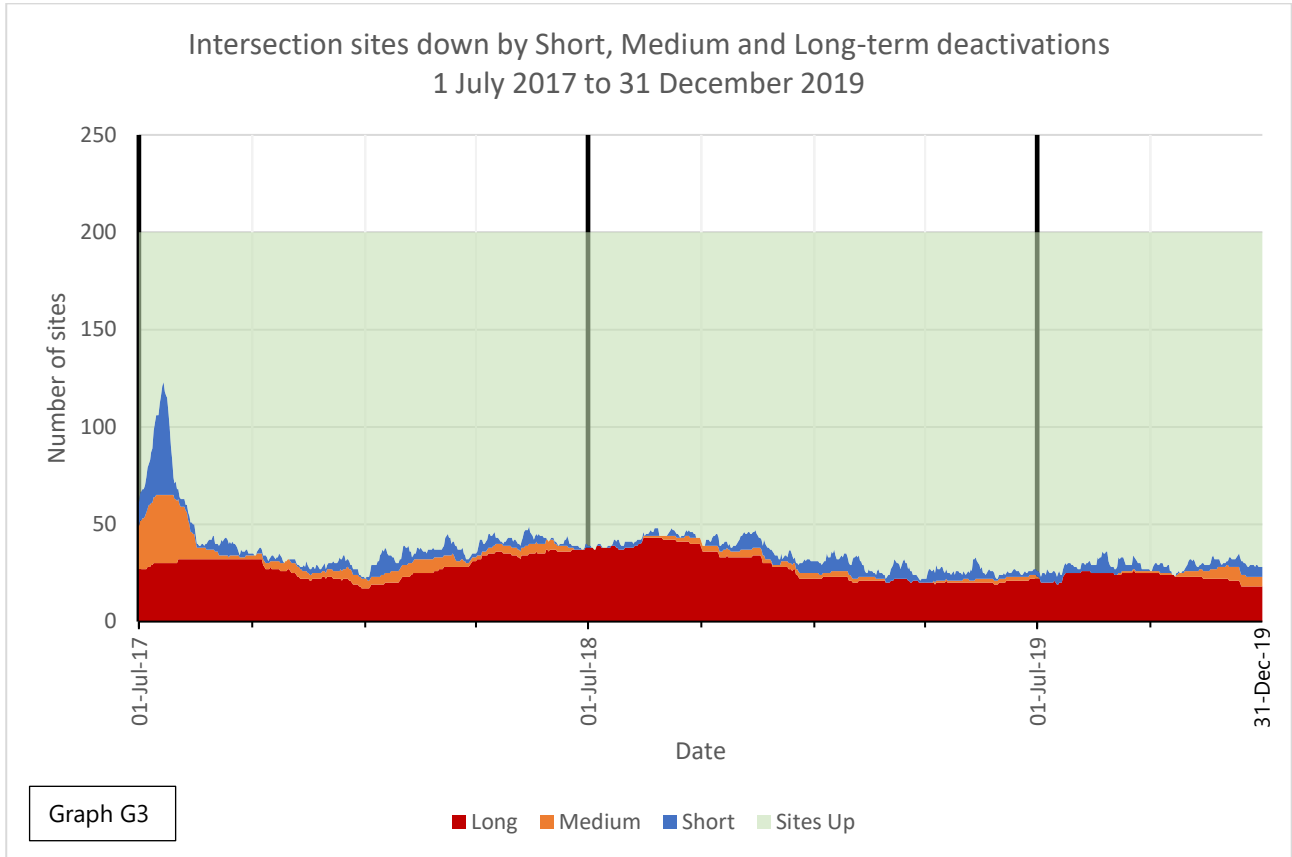
Graph P8

FY2019-20 All sites downtime by category

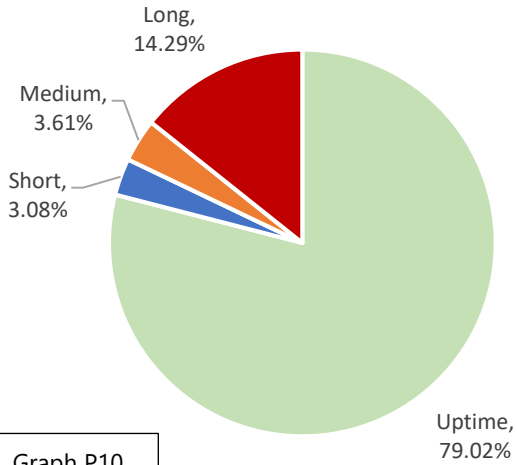


Graph P9

### 3.1 INTERSECTION SITES DOWN

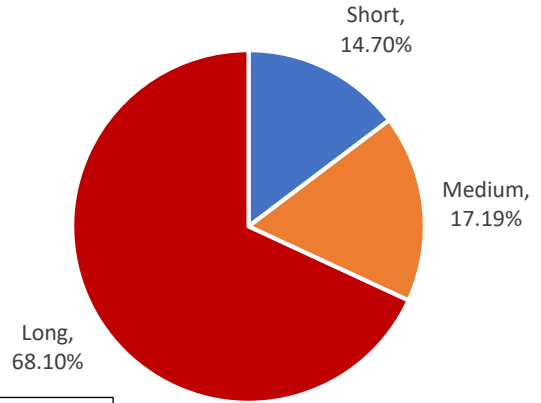


FY2017-18 Intersection site downtime



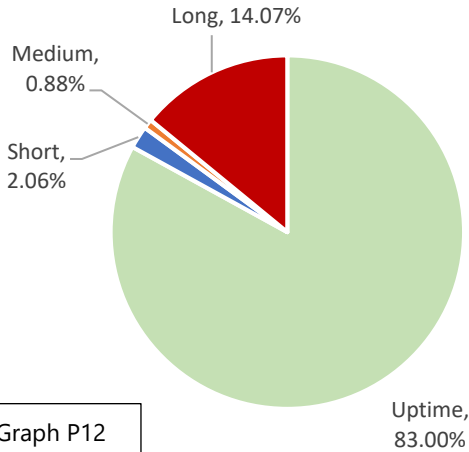
Graph P10

FY2017-18 Intersection site downtime by duration



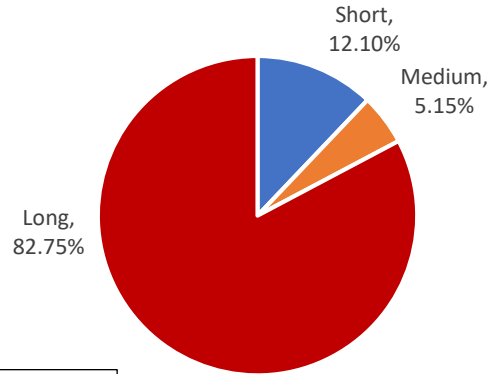
Graph P11

FY2018-19 Intersection site downtime



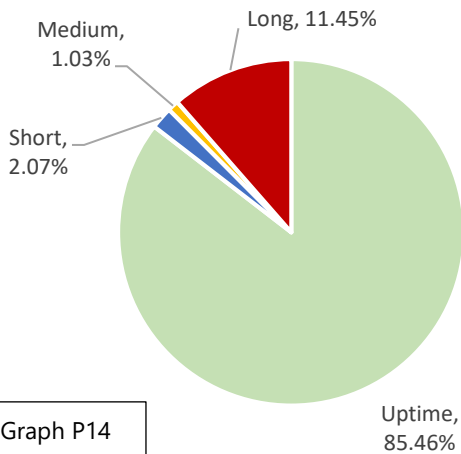
Graph P12

FY2018-19 Intersection site downtime by duration



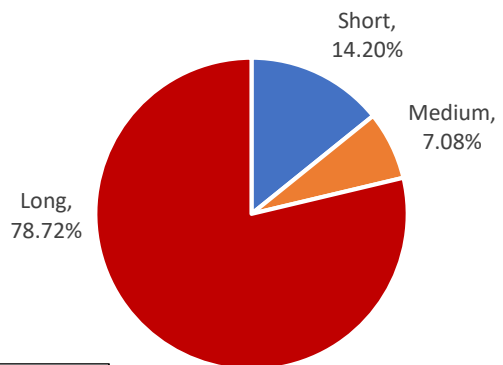
Graph P13

FY2019-20 Intersection site downtime



Graph P14

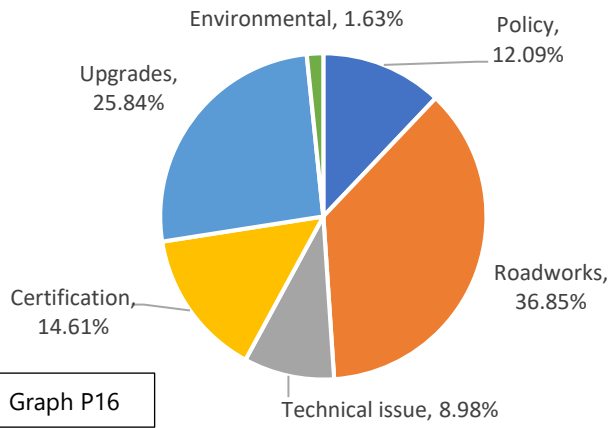
FY2019-20 Intersection site downtime by duration



Graph P15

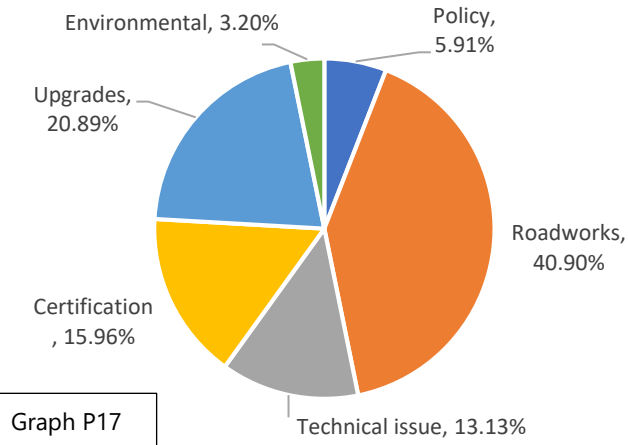


FY2017-18 Intersection site downtime by category



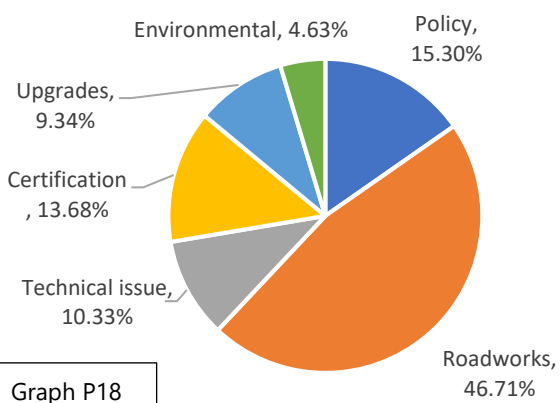
Graph P16

FY2018-19 Intersection site downtime by category



Graph P17

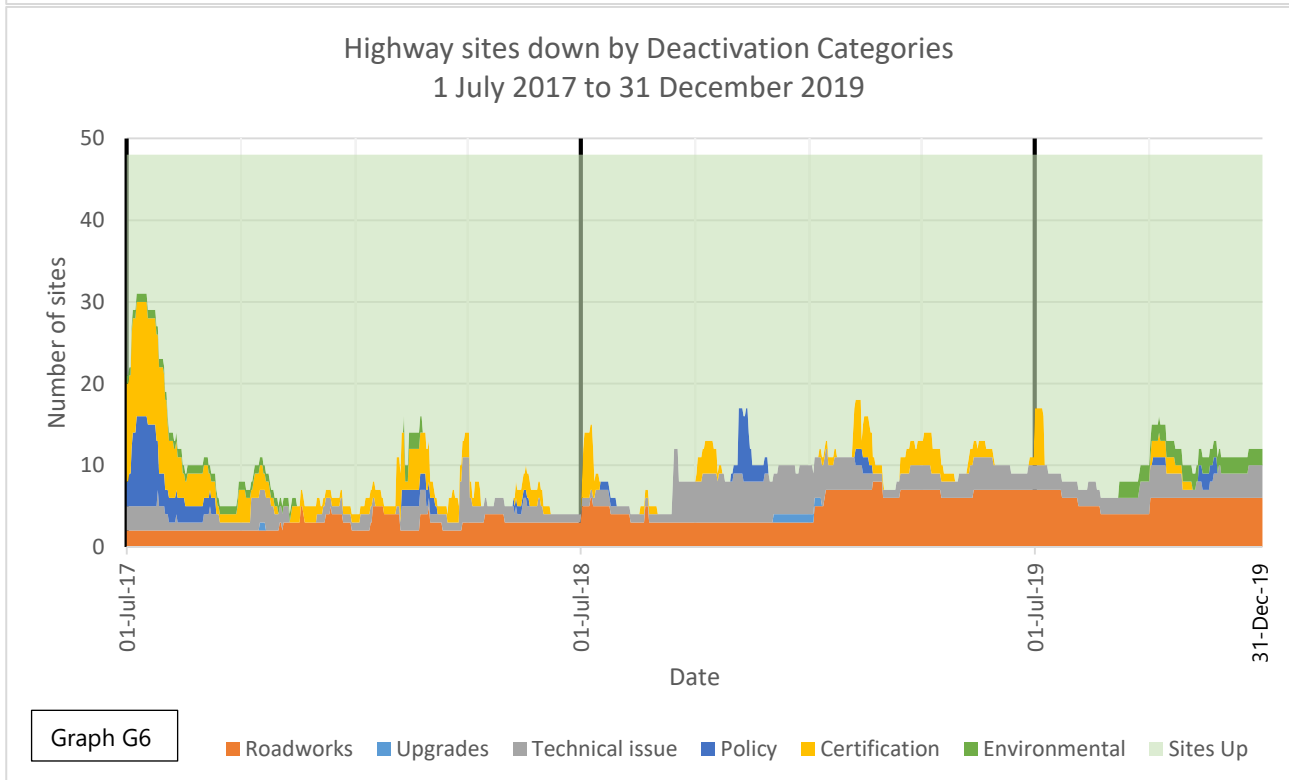
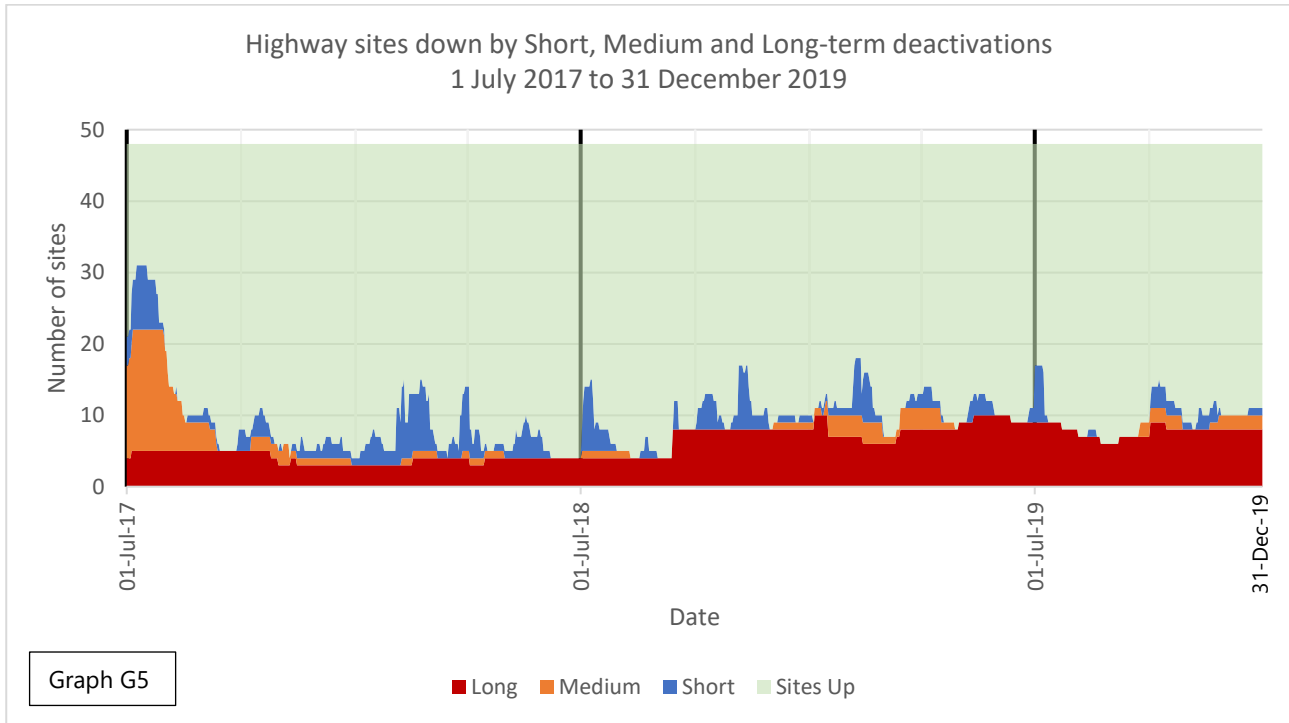
FY2019-20 Intersection site downtime by category

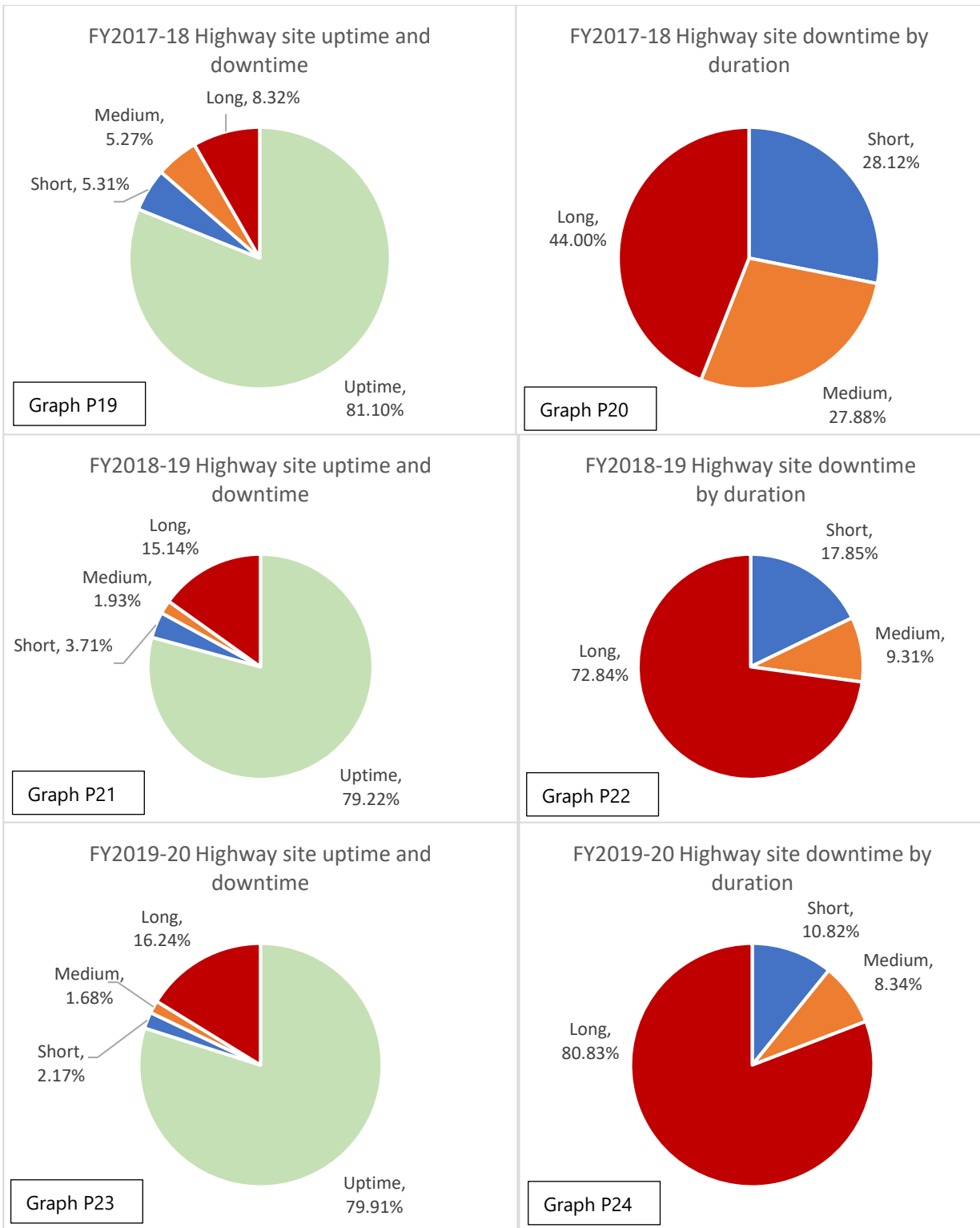


Graph P18

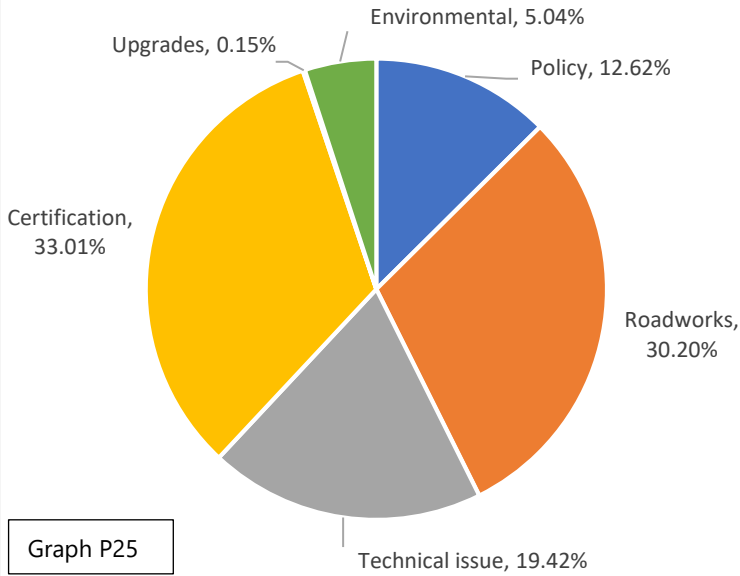
TABLE T1							
INTERSECTION SITE DEACTIVATION CATEGORIES (SITE DAYS)							
FINANCIAL YEAR	POLICY	ROAD WORKS	TECHNICAL ISSUE	CERTIFICATION	UPGRADES	ENVIRONMENTAL	TOTAL
FY17-18	1,851	5,644	1,376	2,237	3,957	250	15,315
FY18-19	733	5,076	1,630	1,981	2,593	397	12,410
FY19-20	819	2,500	553	732	500	248	5,352
<b>TOTAL</b>	<b>3,403</b>	<b>13,220</b>	<b>3,559</b>	<b>4,950</b>	<b>7,050</b>	<b>895</b>	<b>33,077</b>

### 3.2 HIGHWAY SITES DOWNTIME

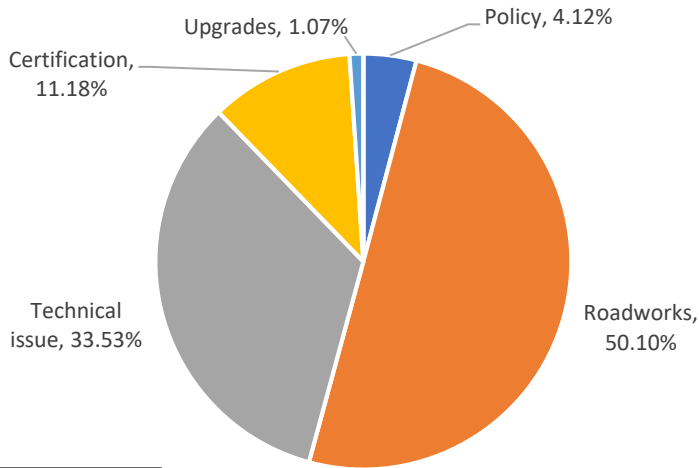




FY2017-18 Highway site downtime by category



FY2018-19 Highway site downtime by category



FY2019-20 Highway site downtime by category

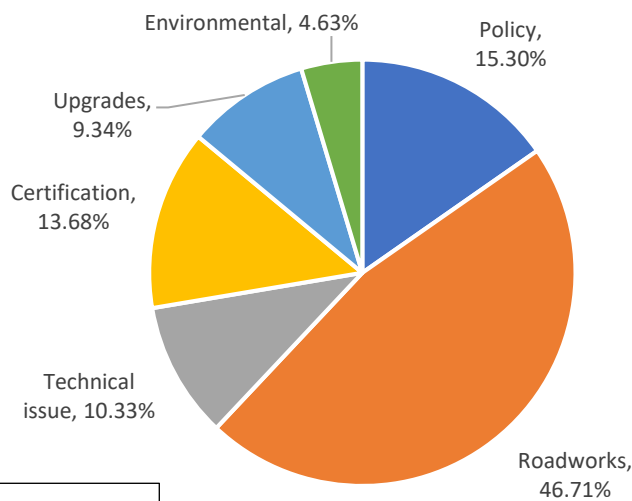


TABLE T2							
HIGHWAY SITE DEACTIVATION CATEGORIES (SITE DAYS)							
FINANCIAL YEAR	POLICY	ROAD WORKS	TECHNICAL ISSUE	CERTIFICATION	UPGRADES	ENVIRONMENTAL	TOTAL
FY17-18	418	1,000	643	1,093	5	167	3,326
FY18-19	150	1,824	1,221	407	39	0	3,641
FY19-20	41	1,028	479	110	0	116	1,774
<b>TOTAL</b>	<b>609</b>	<b>3,852</b>	<b>2,343</b>	<b>1,610</b>	<b>44</b>	<b>283</b>	<b>8,741</b>

## 4 IDENTIFYING SITES WITH THE LONGEST DEACTIVATION DURATIONS

- Sites deactivated **before** the start of the survey period are indicated by "Before 1 July 2017"
- Sites that remained deactivated **past** the end of the data period are indicated by "Ongoing"
- The survey period consisted of 914 available days.

### 4.1 ALL SITES BY DURATION

TABLE T3					
SITE LOCATION	TYPE	DEACTIVATION REASON	START DATE	END DATE	DAYS DOWN IN SURVEY PERIOD
Terminal Dr and Centre Rd, Tullamarine	Intersection	Roadworks	Before 1 July 2017	Ongoing	914
William St and Flinders St, Melbourne	Intersection	Roadworks	Before 1 July 2017	Ongoing	914
Olympic Blvd and Batman Ave, Melbourne	Intersection	Roadworks	Before 1 July 2017	Ongoing	914
Centre Rd and Huntingdale Rd, Oakleigh South	Intersection	Roadworks	Before 1 July 2017	Ongoing	914
Western Ring Rd, Keilor Park Dr Bridge, Keilor East	Highway	Roadworks	Before 1 July 2017	Ongoing	914
Western Ring Rd, Fullarton Rd Bridge, Keilor Park	Highway	Roadworks	Before 1 July 2017	5 August 2019	765
Hoddle St and Johnston St, Collingwood	Intersection	Roadworks	14 December 2017	Ongoing	748
Lightwood Rd and Corrigan Rd, Noble Park	Intersection	Roadworks	Before 1 July 2017	16 July 2019	745
Westgate Fwy, Grieve Pde Bridge, Brooklyn	Highway	Roadworks	16 February 2018	Ongoing	684
Westgate Fwy, approx 405m east of Millers Rd, Altona North	Highway	Roadworks	15 April 2018	Ongoing	626

## 4.2 HIGHWAY SITES BY DURATION

<b>TABLE T4</b>				
<b>SITE LOCATION</b>	<b>DEACTIVATION REASON</b>	<b>START DATE</b>	<b>END DATE</b>	<b>DAYS DOWN IN SURVEY PERIOD</b>
Western Ring Rd, Keilor Park Dr Bridge, Keilor East	Roadworks	Before 1 July 2017	Ongoing	914
Western Ring Rd, Fullarton Rd Bridge, Keilor Park	Roadworks	Before 1 July 2017	5 August 2019	765
Westgate Fwy, Grieve Pde Bridge, Brooklyn	Technical issue	16 February 2018	Ongoing	684
Westgate Fwy, approx 405m east of Millers Rd, Altona North	Roadworks	15 April 2018	Ongoing	626
Princes Fwy, Forsyth Rd Bridge, Geelong bound	Roadworks	5 January 2019	Ongoing	361
Princes Fwy, Forsyth Rd Bridge, Melbourne bound	Roadworks	5 January 2019	Ongoing	361
Princes Fwy, Avalon Rd Bridge, Geelong bound	Technical issue	1 May 2019	15 October 2019	167
Hume Fwy, O'Herns Rd Bridge, southbound	Technical issue	13 September 2018	13 February 2019	153
EastLink, Mullum Mullum Tunnel	Certification	10 November 2017	3 April 2018	144
Peninsula Link, Loders Rd Bridge, Moorooduc	Environmental	Before 1 July 2017	15 November 2017	137

### 4.3 INTERSECTION SITES BY DURATION

<b>TABLE T5</b>				
<b>SITE LOCATION</b>	<b>DEACTIVATION REASON</b>	<b>START DATE</b>	<b>END DATE</b>	<b>DAYS DOWN IN SURVEY PERIOD</b>
Terminal Dr and Centre Rd, Tullamarine	Roadworks	Before 1 July 2017	Ongoing	914
William St and Flinders St, Melbourne	Roadworks	Before 1 July 2017	Ongoing	914
Olympic Blvd and Batman Ave, Melbourne	Roadworks	Before 1 July 2017	Ongoing	914
Centre Rd and Huntingdale Rd, Oakleigh South	Roadworks	Before 1 July 2017	Ongoing	914
Hoddle St and Johnston St, Collingwood	Roadworks	14 December 2017	Ongoing	748
Lightwood Rd and Corrigan Rd, Noble Park	Roadworks	Before 1 July 2017	16 July 2019	745
Wyndham St and High St, Shepparton	Roadworks	Before 1 July 2017	18 March 2019	625
Blackburn Rd and Burwood Hwy, Burwood East	Certification	29 March 2018	13 December 2019	624
Maribyrnong Rd and Mt Alexander Rd, Moonee Ponds	Policy	15 August 2018	Ongoing	504
Kings Way and Park St, South Melbourne	Policy	8 July 2017	15 October 2018	464

#### 4.4 DEACTIVATED SITES BY CATEGORY AND DURATION

**TABLE T6**

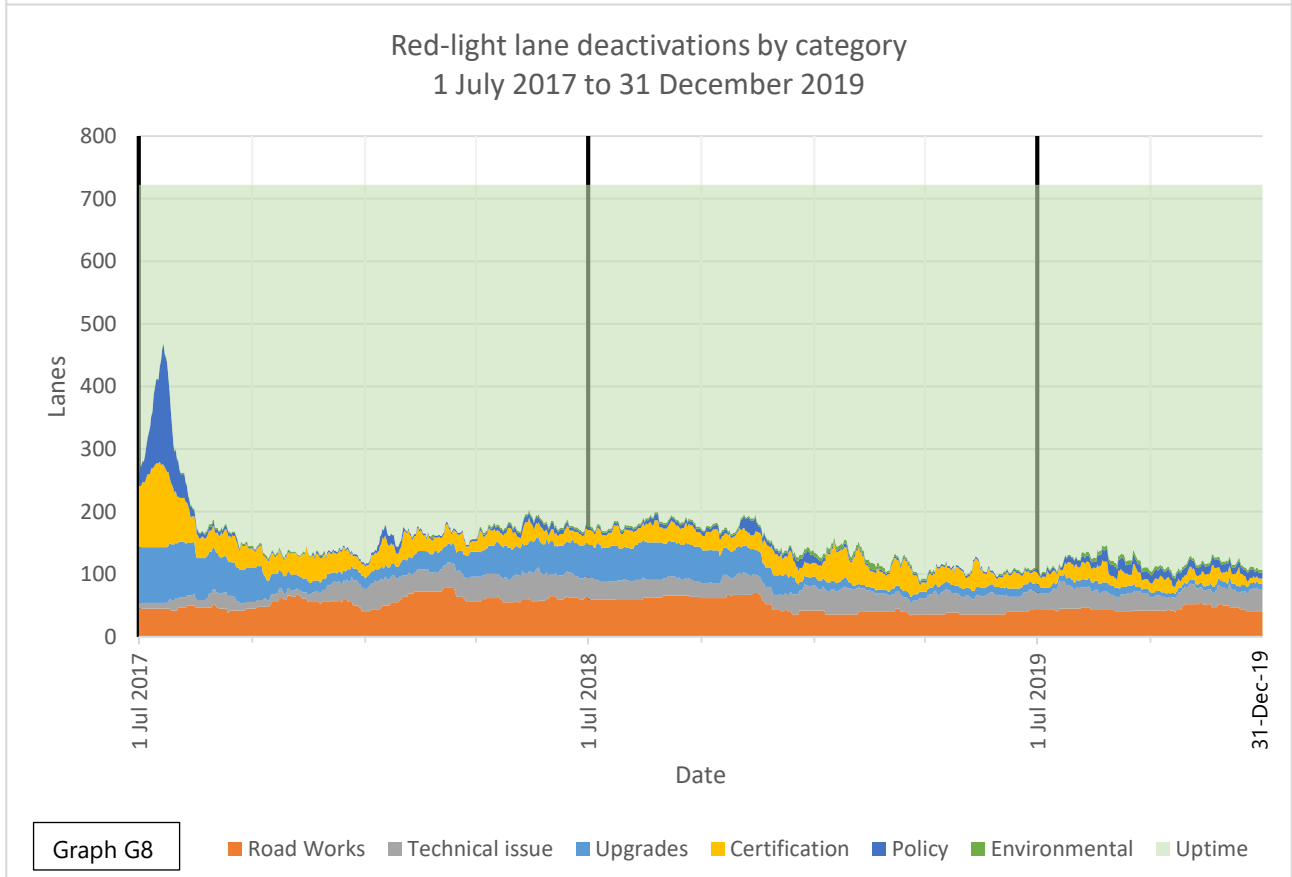
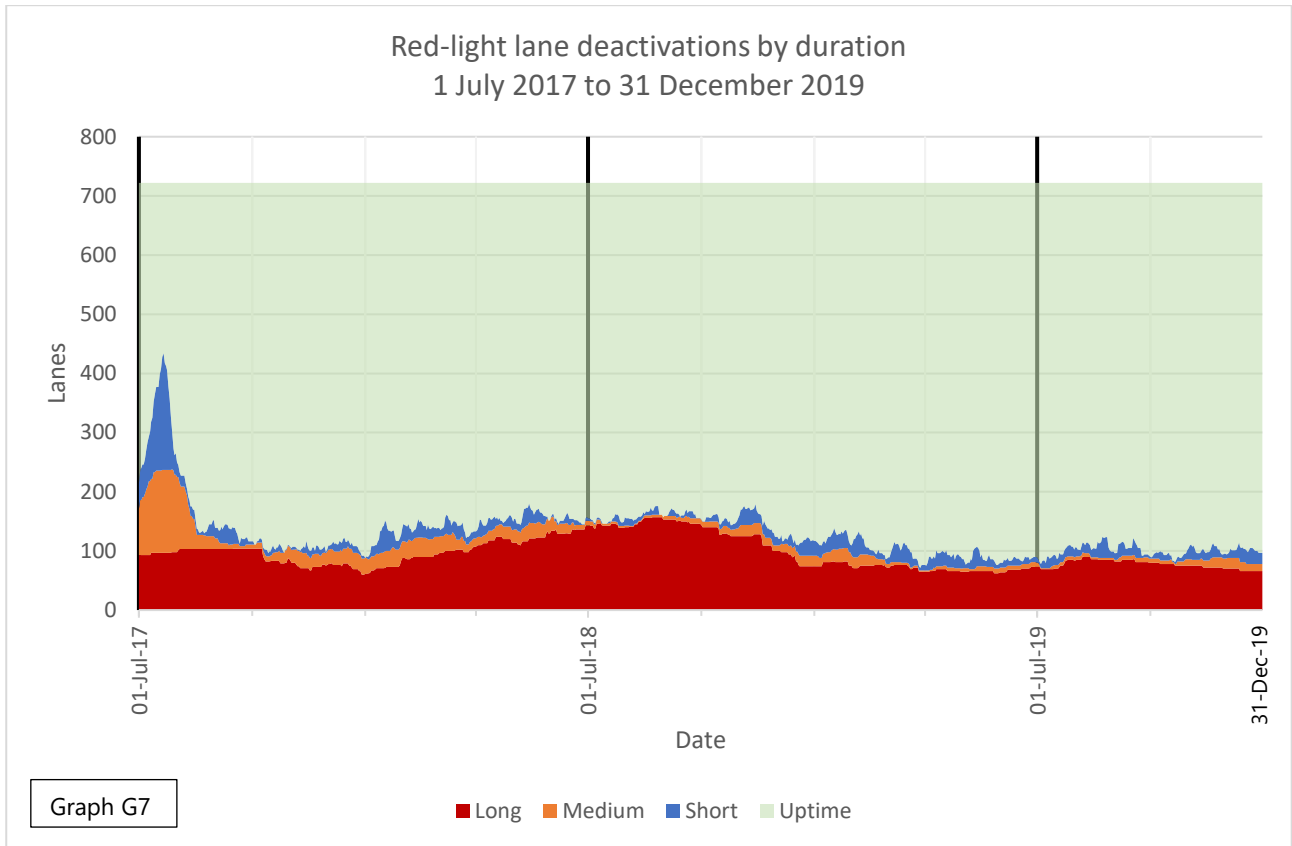
SITE LOCATION	START DATE	END DATE	DAYS DOWN IN SURVEY PERIOD
<b>CERTIFICATION</b>			
Blackburn Rd and Burwood Hwy, Burwood East	29 March 2018	13 December 2019	624
Sydney Rd and Mahoneys Rd, Campbellfield	29 June 2018	27 March 2019	271
Ballarat Rd and Churchill Ave, Maidstone	Before 1 July 2017	21 December 2017	173
<b>ENVIRONMENTAL</b>			
Punt Rd and High St, Prahran	2 April 2018	28 February 2019	332
Gilbert Rd and Bell St, Preston	Before 1 July 2017	30 November 2017	152
Moorabool St and Fyans St, South Geelong	6 August 2019	1 January 2020	148
<b>POLICY</b>			
Maribyrnong Rd and Mt Alexander Rd, Moonee Ponds	15-Aug-18	Ongoing	504
Kings Way and Park St, South Melbourne	8 July 2017	15 October 2018	464
Hoddle St and Victoria St, Abbotsford	19 November 2017	6 June 2018	199
<b>ROADWORKS</b>			
Terminal Rd and Centre Rd, Tullamarine	Before 1 July 2017	Ongoing	914
William St and Flinders St, Melbourne	Before 1 July 2017	Ongoing	914
Olympic Blvd and Batman Ave, Melbourne	Before 1 July 2017	Ongoing	914
Western Ring Rd, Keilor Park Dr Bridge, Keilor East	Before 1 July 2017	Ongoing	914
Western Ring Rd, Fullarton Rd Bridge, Keilor Park	Before 1 July 2017	5 August 2019	765
<b>TECHNICAL ISSUE</b>			
Sussex St and O'Hea St, Pascoe Vale South	6 April 2018	19 April 2019	378
City Rd and Montague St, South Melbourne	20 May 2018	27 May 2019	372
Dandenong Rd and Orrong Rd, Caulfield North	8 January 2019	Ongoing	358
<b>UPGADES</b>			
St Kilda Rd and Union St, Melbourne	18 June 2018	19 September 2019	458
Nicholson St and Victoria Pde, East Melbourne	Before 1 July 2017	2 October 2018	458
Nicholson St and Albert St, East Melbourne	Before 1 July 2017	1 October 2018	457



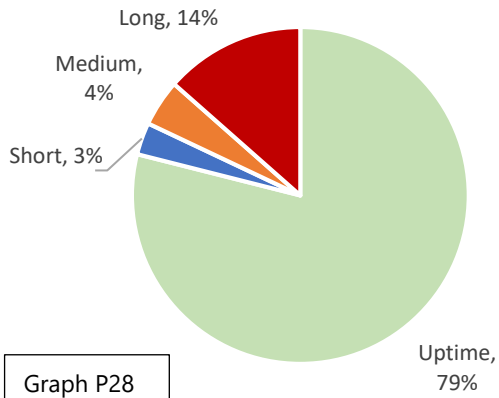
## 5 ROAD SAFETY CAMERA DOWNTIME BY LANE

The following graphs depict lane downtime by speed and red-light functions.

### 5.1 RED-LIGHT LANE DEACTIVATIONS

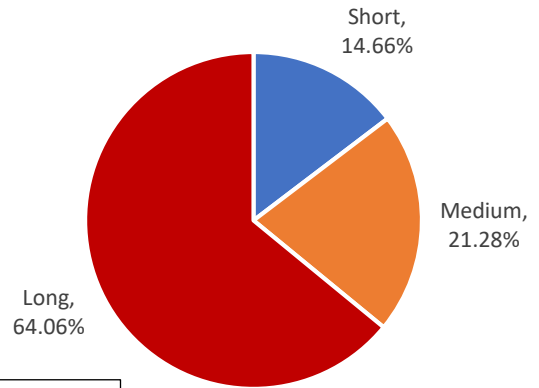


Red-light lane uptime and downtime  
FY2017-18



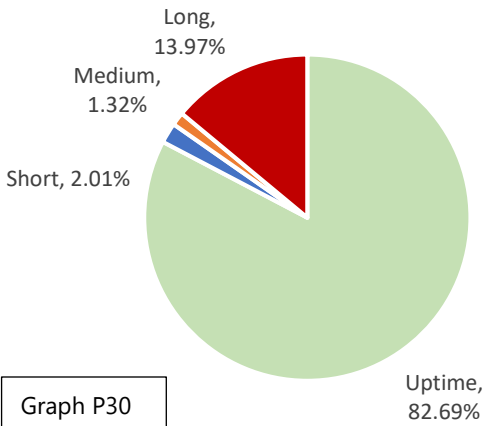
Graph P28

Red-light lane downtime by duration  
FY2017-18



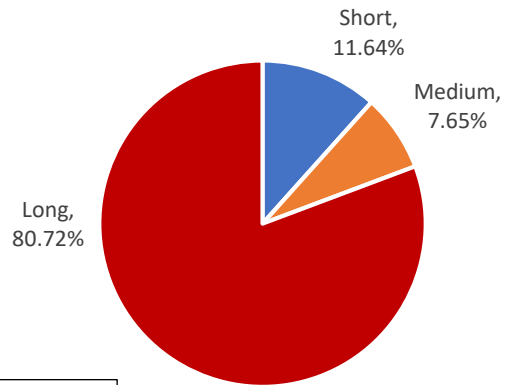
Graph P29

Red-light lane uptime and downtime  
FY2018-19



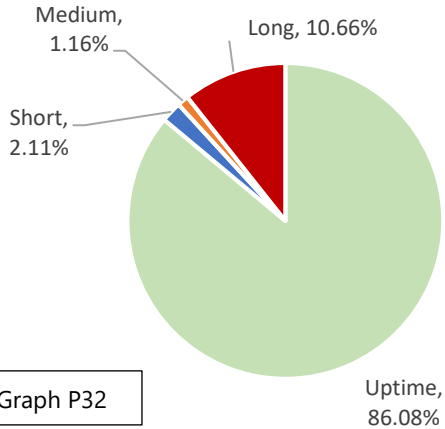
Graph P30

Red-light lane downtime by duration  
FY2018-19



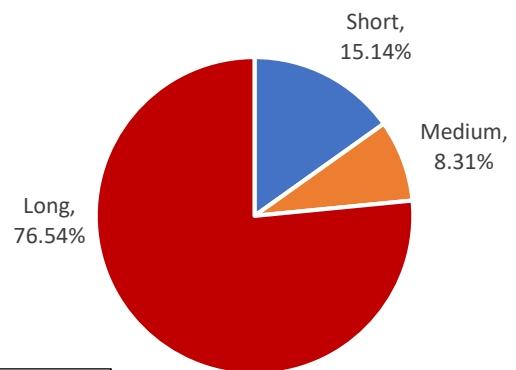
Graph P31

Red-light lane uptime and downtime  
FY2019-20



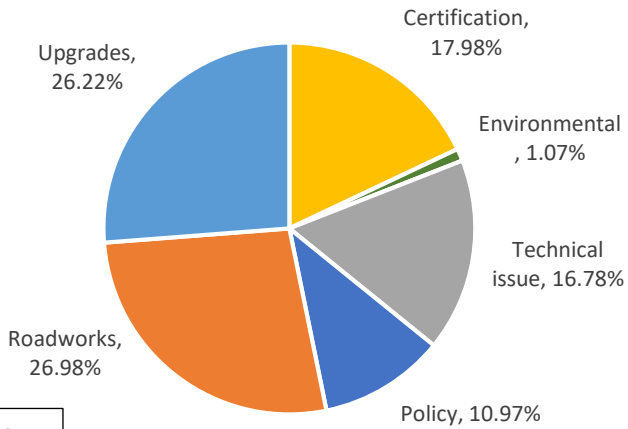
Graph P32

Red-light lane downtime by duration  
FY2019-20



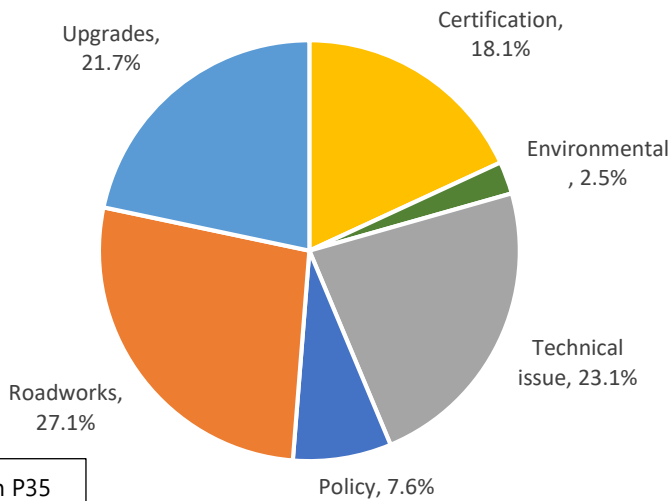
Graph P33

Red-light lane deactivations by category  
FY2017-18



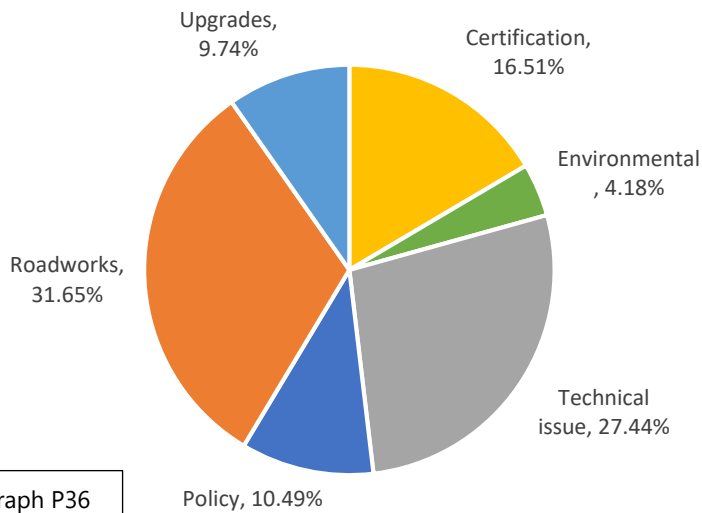
Graph P34

Red-light lane deactivations by category  
FY2018-19



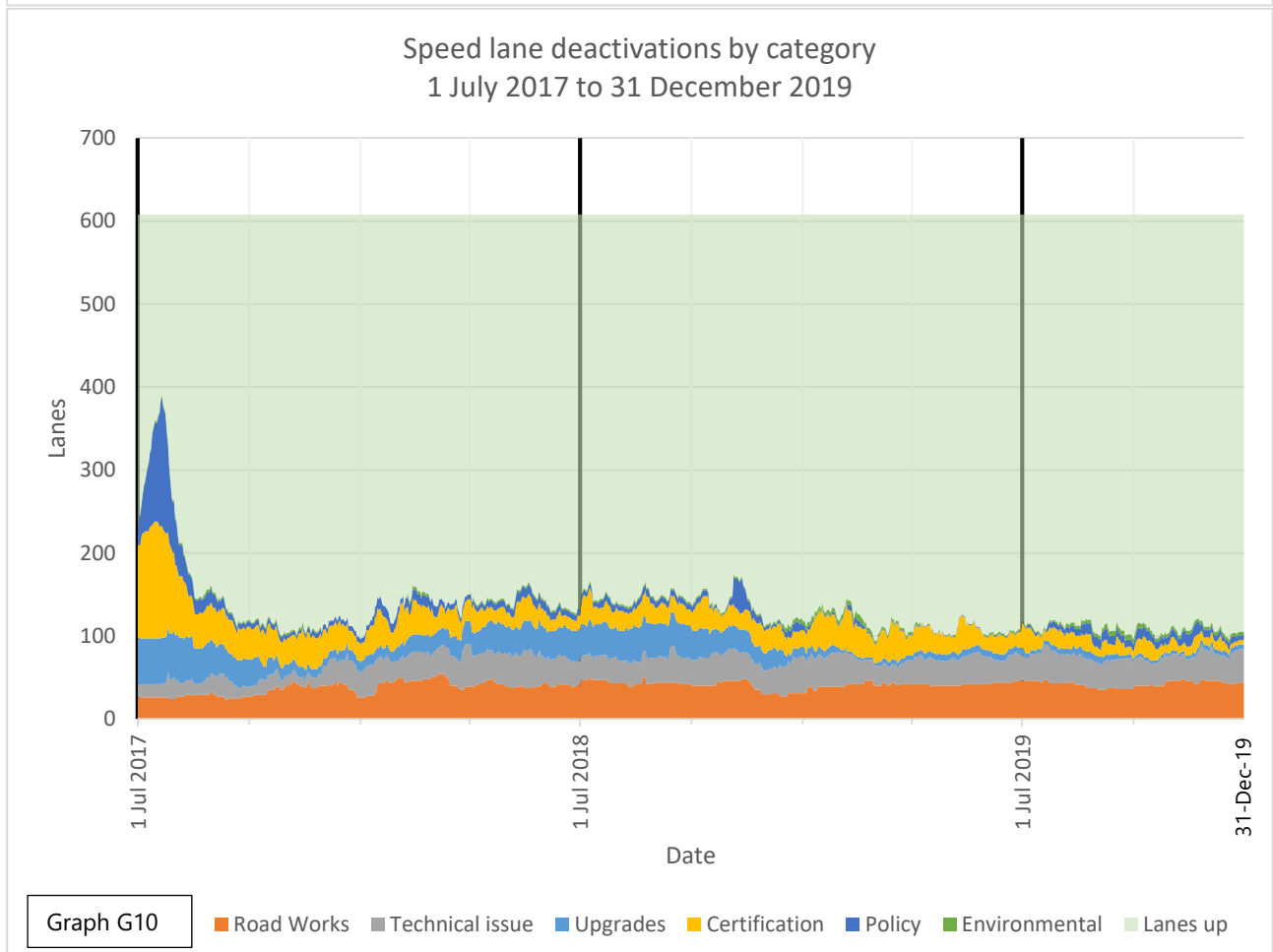
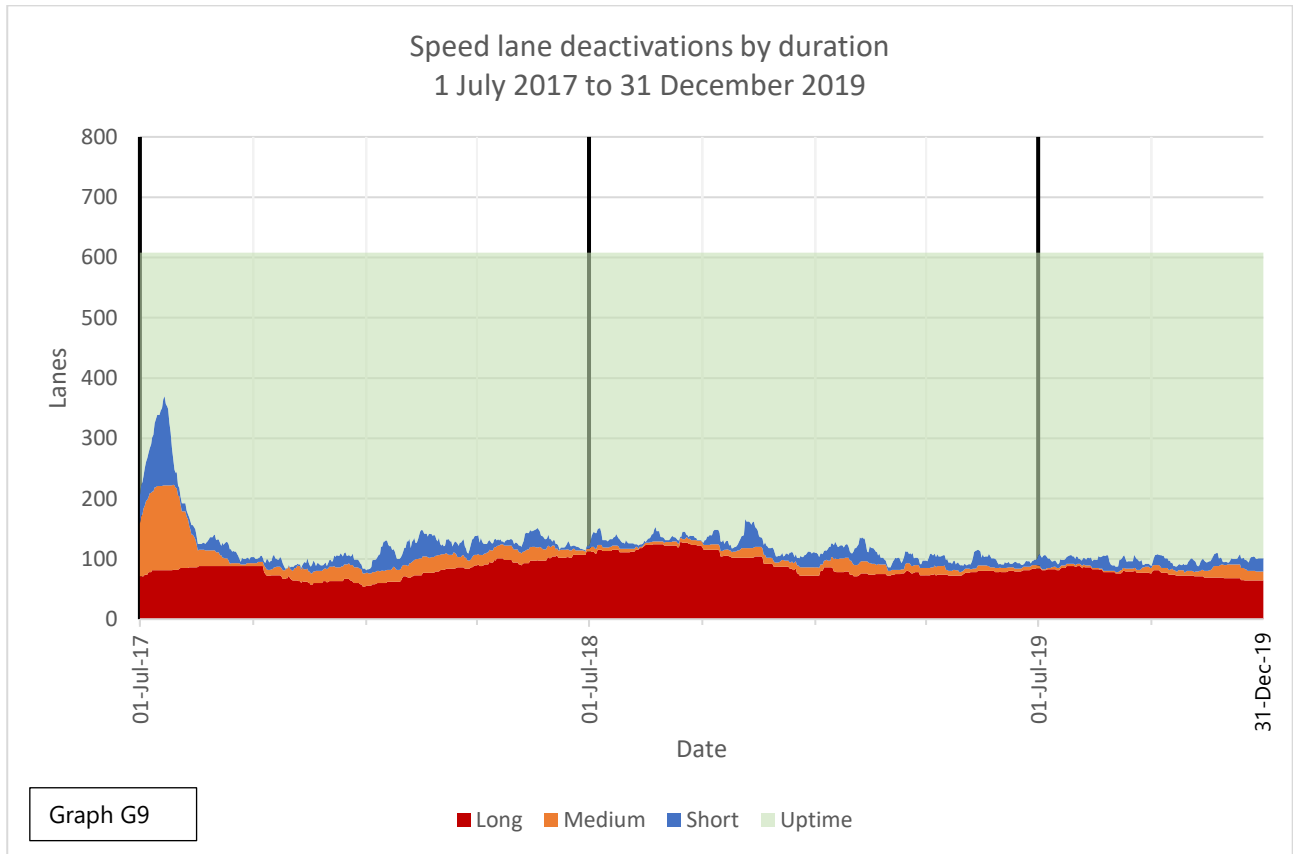
Graph P35

Red-light lane deactivations by category  
FY2019-20

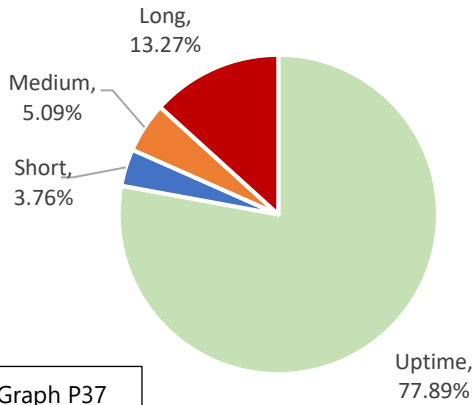


Graph P36

## 5.2 SPEED LANE DEACTIVATIONS

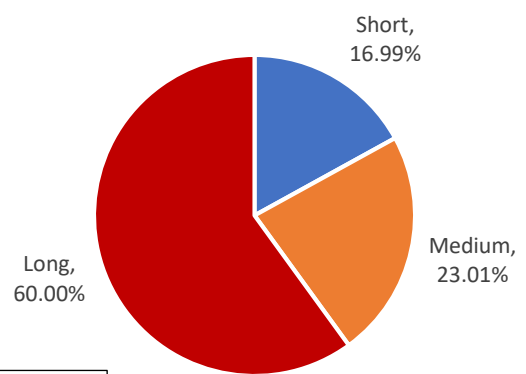


Speed lane uptime and downtime  
FY2017-18



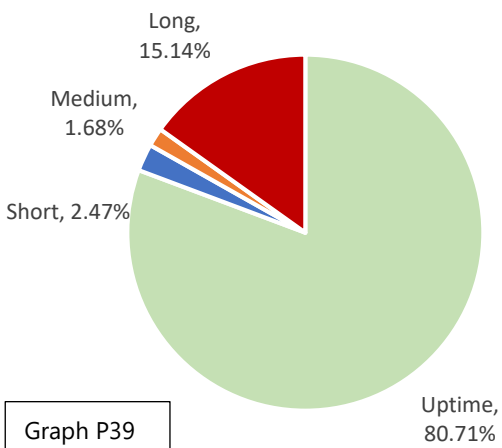
Graph P37

Speed lane downtime by duration  
FY2017-18



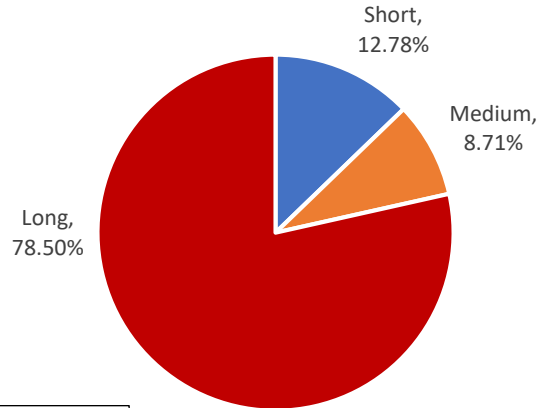
Graph P38

Speed lane uptime and downtime  
FY2018-19



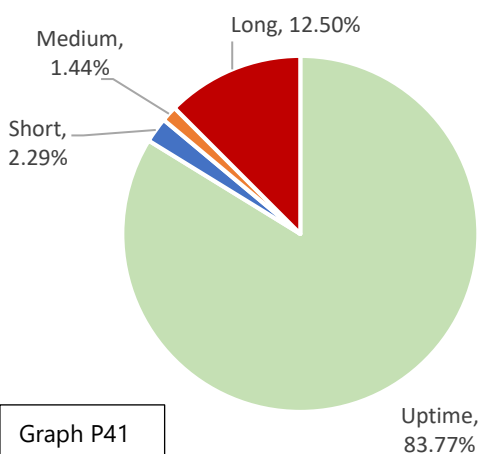
Graph P39

Speed lane downtime by duration  
FY2018-19



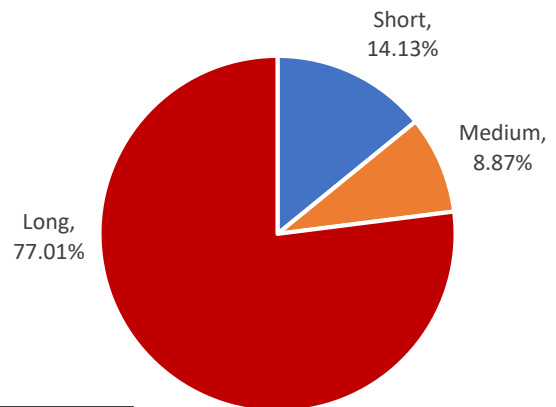
Graph P40

Speed lane uptime and downtime  
FY2019-20



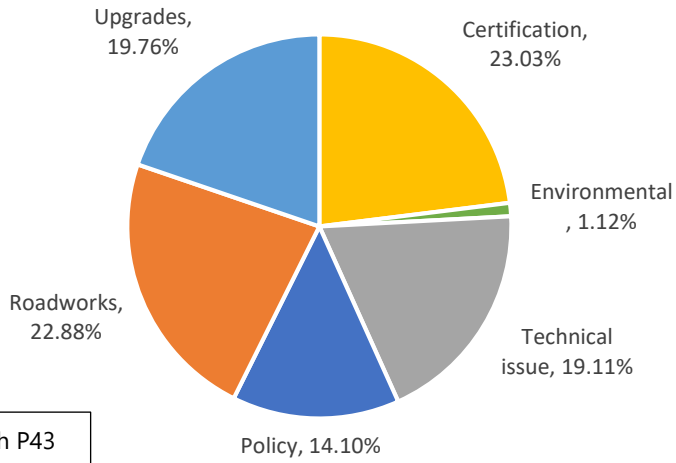
Graph P41

Speed lane downtime by duration  
FY2019-20



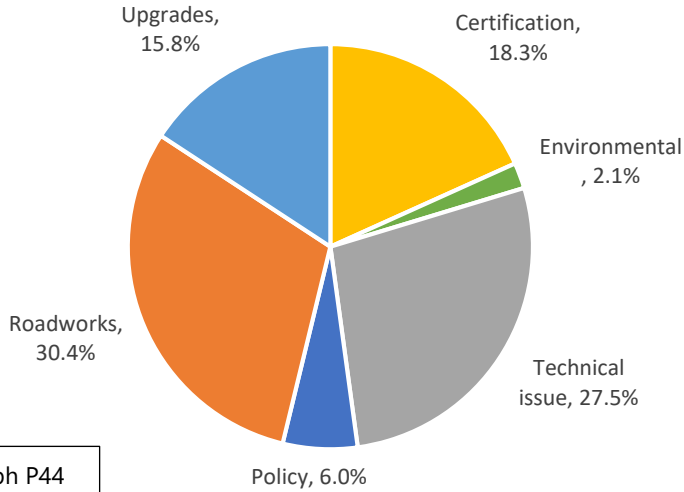
Graph P42

Speed lane deactivations by category  
FY2017-18



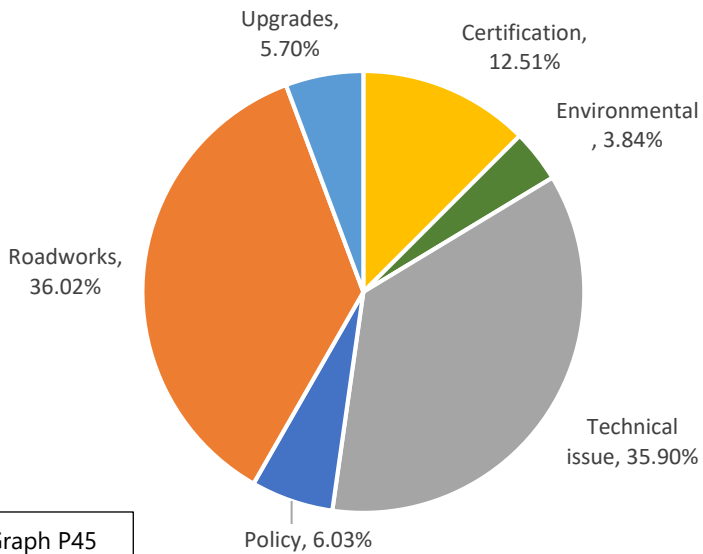
Graph P43

Speed lane deactivations by category  
FY2018-19



Graph P44

Speed lane deactivations by category  
FY2019-20



Graph P45

### 5.3 NUMBER OF LANE DEACTIVATIONS BY CATEGORY

The number of lane deactivations by category was examined as shown in Tables T7 (red-light) and T8 (speed).

<b>TABLE T7</b>							
<b>RED-LIGHT LANE DEACTIVATIONS</b>							
<b>FINANCIAL YEAR</b>	<b>CERTIFICATION</b>	<b>POLICY</b>	<b>ROAD-WORKS</b>	<b>TECHNICAL ISSUES</b>	<b>UPGRADES</b>	<b>OTHER</b>	<b>TOTAL</b>
<b>FY17-18</b>	628	241	193	220	154	7	<b>1,443</b>
<b>FY18-19</b>	566	48	47	202	27	11	<b>901</b>
<b>FY19-20<sup>1</sup></b>	234	37	34	118	9	4	<b>436</b>
<b>TOTAL</b>	<b>1,428</b>	<b>326</b>	<b>274</b>	<b>540</b>	<b>190</b>	<b>22</b>	<b>2,780</b>

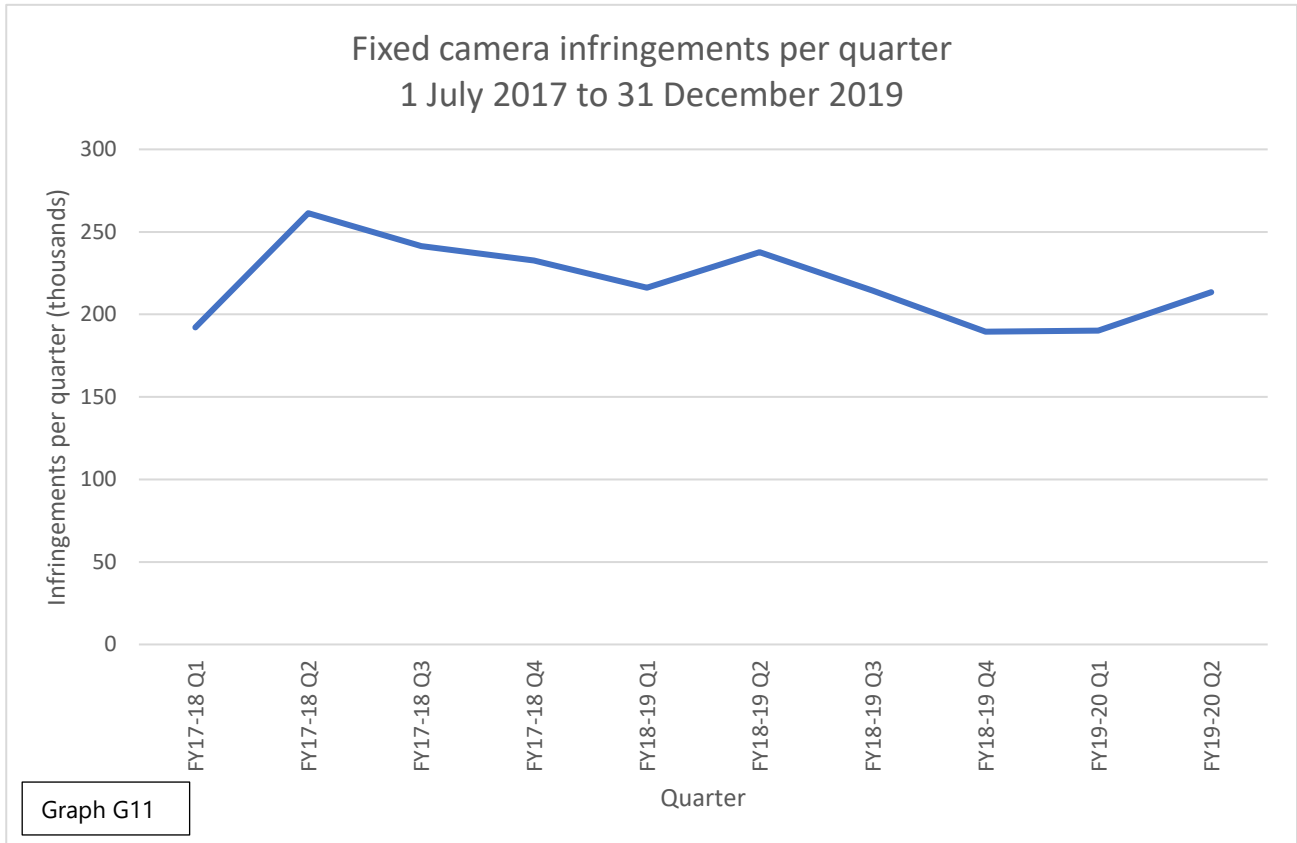
<b>TABLE T8</b>							
<b>SPEED LANE DEACTIVATIONS</b>							
<b>FINANCIAL YEAR</b>	<b>CERTIFICATION</b>	<b>POLICY</b>	<b>ROAD-WORKS</b>	<b>TECHNICAL ISSUES</b>	<b>UPGRADES</b>	<b>OTHER</b>	<b>TOTAL</b>
<b>FY17-18</b>	547	200	167	273	103	19	<b>1,309</b>
<b>FY18-19</b>	466	68	81	219	21	10	<b>865</b>
<b>FY19-20</b>	180	36	29	123	6	4	<b>378</b>
<b>TOTAL</b>	<b>1,193</b>	<b>304</b>	<b>277</b>	<b>615</b>	<b>130</b>	<b>33</b>	<b>2,552</b>

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<sup>1</sup> SiteTrak data for the first half of FY2019-20 was examined to provide an indicator of deactivations for that financial year.

## 6 INFRINGEMENTS IN RELATION TO DOWNTIME

- 90,078 (6.83%) fewer infringements issued in FY2018-19 compared to FY2017-18.
- Continued downward trend for infringements issued from fixed intersection, highway and mobile cameras.
- Highway cameras contributing largest proportion of decline.



**TABLE T9**

FINANCIAL YEAR	HIGHWAYS		INTERSECTIONS		MOBILE		TOTAL	
	TOTAL	CHANGE	TOTAL	CHANGE	TOTAL	CHANGE	TOTAL	CHANGE
FY2017-18	421,702		511,635		384,929		1,318,266	
FY2018-19	378,192	-43,510	484,026	-27,609	365,970	-18,959	1,228,188	-90,078
<i>FY2018-19 – Q1 and Q2</i>	<i>206,939</i>		<i>247,023</i>		<i>181,488</i>		<i>635,450</i>	
<i>FY2019-20 – Q1 and Q2<sup>2</sup></i>	<i>162,545</i>	<i>-44,394</i>	<i>241,018</i>	<i>-6,005</i>	<i>173,188</i>	<i>-8,300</i>	<i>576,751</i>	<i>-58,699</i>

<sup>2</sup> Comparison of FY2019-20 infringements used data from July to December 2018 and July to December 2019.



## 6.1 ESTIMATES OF DOWNTIME RELATED INFRINGEMENT REDUCTION

Table T10 demonstrates estimates of downtime related infringement reductions for fixed cameras. The first quarter of FY2017-18 was significantly affected by downtime related to the WannaCry virus.

TABLE T10										
GROUP	Estimated downtime related infringement reductions to by quarter <sup>3</sup>									
	FY2017-18				FY2018-19				FY2019-20	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Intersections (red-light)	19,242	10,595	12,211	14,176	13,721	11,146	8,333	7,652	9,676	9,293
Intersections (speed)	51,216	30,780	31,078	24,023	27,464	23,841	23,057	20,472	21,287	11,060
Highways	39,672	19,674	26,231	24,418	25,046	25,795	39,099	42,415	36,895	37,341
<b>TOTAL</b>	110,130	61,049	69,520	62,617	66,231	60,782	70,489	70,539	67,858	57,694

## 6.2 WESTERN RING ROAD INFRINGEMENTS

The camera monitoring southbound traffic approaching Boundary Road in Laverton did not operate for 130 days due to roadworks in FY2018-19. This camera detected an average of approximately 51 infringements per active day, and the estimated loss of infringements during this deactivation period is approximately 6,500.

## 6.3 GEELONG ROAD INFRINGEMENTS

Four of eight Geelong Road camera sites were deactivated because of the following long-term roadworks:

- Westgate Tunnel Project since February 2018
  - Westgate Freeway, near Millers Road in Altona North,
  - Westgate Freeway, Grieve Parade Bridge in Brooklyn,
- Forsyth Road Bridge Widening project since January 2019
  - Princes Freeway, Forsyth Road Bridge in Hoppers Crossing, and
  - Princes Freeway, Forsyth Road Bridge in Point Cook.

This has contributed to 38,499 fewer infringements in FY2018-19 compared to FY2017-18. The cameras near Millers Road in Altona North and Grieve Parade Bridge in Brooklyn were decommissioned in July 2017 due to the Westgate Tunnel project. The two cameras on the Forsyth Road Bridge have been deactivated in January 2019 due to bridge widening works.

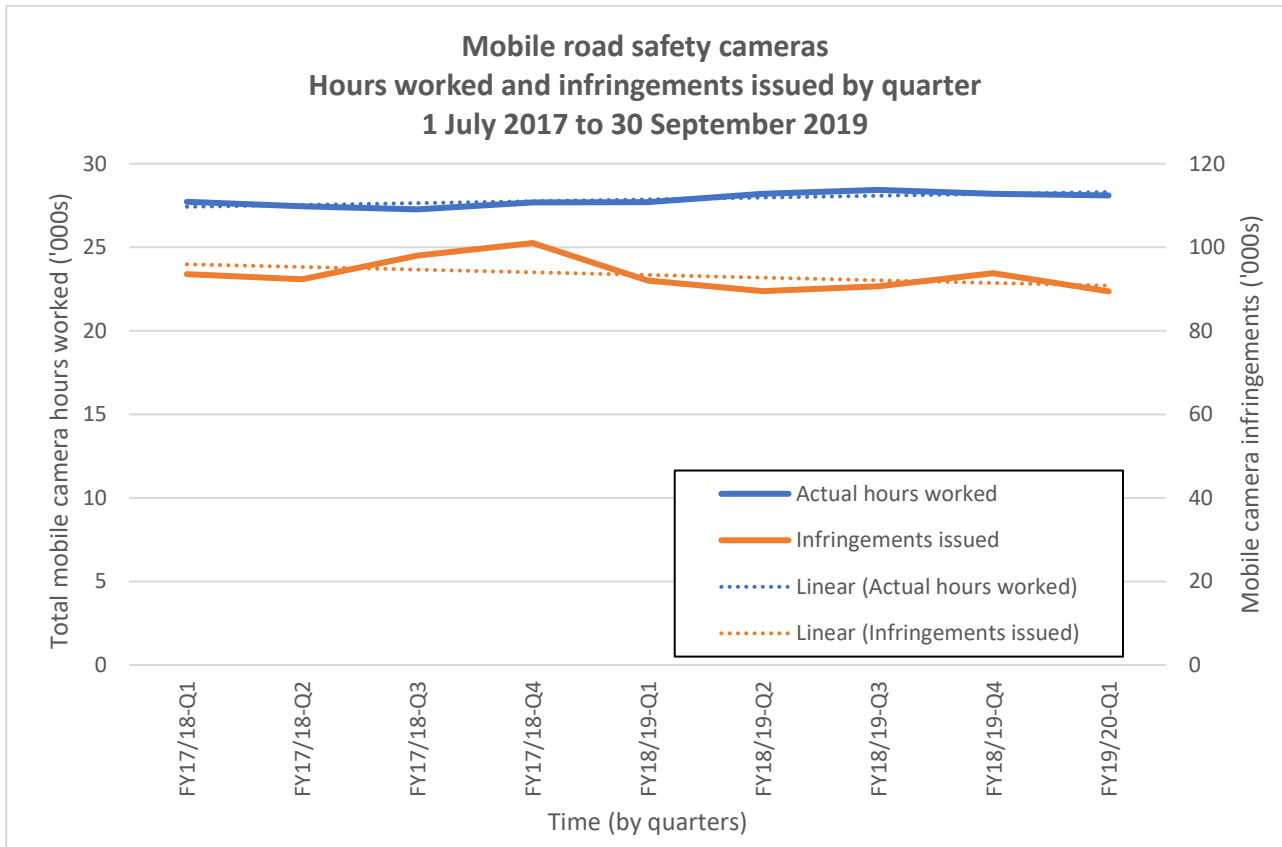
<sup>3</sup> Daily averages on a quarter-on-quarter basis were utilised to calculate estimated downtime related infringement reductions.

## 6.4 MOBILE ROAD SAFETY CAMERA OPERATIONS

The analysis in this report has focused on fixed cameras, however during the survey period there was also an identified reduction in mobile camera infringements from FY2017-18 to FY2018-19.

Mobile camera uptime is the number of hours worked during rostered sessions, whilst downtime is the total of sessions that could not be completed – in whole or in part – for any reason.

The graph below shows mobile camera hours worked compared to infringements during the survey period on a quarterly basis.



There is no evidence that mobile cameras have experienced an increase in 'downtime' and the reduction in infringements is likely caused by other factors such as:

- Changes in driver behaviour,
- Familiarity with mobile camera sites,
- Frequency of deployments at certain locations, and
- Limitations in technology in operation.

**APPENDIX A – ESTIMATED REDUCTION IN INFRINGEMENTS DUE TO DOWNTIME BY GROUP**

<b>TABLE T11</b>												
<b>GROUP</b>	<b>SITES</b>	<b>LANES</b>	<b>FY2017-18</b>				<b>FY2018-19</b>				<b>FY2019-20</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>
A	49	131	2,840	1,491	1,825	1,630	1,450	2,200	2,526	2,061	2,151	2,005
B	14	39	1,141	125	829	1,295	1,599	879	36	126	32	125
C	30	83	4,819	2,436	3,072	3,171	2,254	1,506	1,011	812	882	974
D	70	215	5,521	3,992	3,814	4,934	5,197	3,550	2,536	2,258	4,201	3,528
F	80	238	4,798	2,541	2,672	3,146	3,222	2,974	2,220	2,394	2,411	2,622
P	2	4	123	10	0	0	0	37	4	0	0	39
<i>Red light</i>			<i>19,242</i>	<i>10,595</i>	<i>12,211</i>	<i>14,176</i>	<i>13,721</i>	<i>11,146</i>	<i>8,333</i>	<i>7,652</i>	<i>9,676</i>	<i>9,293</i>
A	46	95	5,843	3,479	3,581	3,849	4,044	5,516	4,952	3,928	1,774	1,466
B	11	25	591	112	277	453	705	408	25	122	28	69
C	35	74	8,775	3,857	5,745	4,299	4,635	2,949	3,456	3,204	2,634	1,968
D	61	134	20,210	19,669	14,043	10,876	11,385	9,725	9,503	9,055	10,061	2,955
F	6	18	14,546	3,564	7,432	4,546	6,695	4,883	5,064	4,163	6,790	4,332
P	2	4	1251	99	0	0	0	360	57	0	0	270
<i>Intersection speed</i>			<i>51,216</i>	<i>30,780</i>	<i>31,078</i>	<i>24,023</i>	<i>27,464</i>	<i>23,841</i>	<i>23,057</i>	<i>20,472</i>	<i>21,287</i>	<i>11,060</i>
EastLink	6	18	630	1,964	6,105	671	481	750	1,797	68	0	797
Geelong Rd	8	28	23,378	8,510	12,403	14,164	17,155	13,915	27,015	28,050	30,079	27,735
Hume Fwy	10	20	3,881	636	321	413	1,210	4,007	1,202	231	350	2,056
Monash Fwy	2	8	1,600	305	0	574	350	125	974	2,408	1,324	0
Peninsula Link	6	12	5,067	2,451	721	116	233	951	1,097	237	613	2,422
Western Ring Rd	8	31	4,749	5,808	6,518	8,378	5,617	6,005	6,776	10,478	4,529	4,331
Level crossing	2	2	367	0	163	102	0	42	238	943	0	0
<i>Highways</i>			<i>39,672</i>	<i>19,674</i>	<i>26,231</i>	<i>24,418</i>	<i>25,046</i>	<i>25,795</i>	<i>39,099</i>	<i>42,415</i>	<i>36,895</i>	<i>37,341</i>
<b>TOTAL</b>			<b>110,130</b>	<b>61,049</b>	<b>69,520</b>	<b>62,617</b>	<b>66,231</b>	<b>60,782</b>	<b>70,489</b>	<b>70,539</b>	<b>67,858</b>	<b>57,694</b>

## 1. APPENDIX B – DETAILED ACTIVATION/DEACTIVATION CATEGORIES

TABLE T12	
CATEGORY	SITETRAK REASON
Certification	Certification
	DRCS-P Rmvd for Certification
	Passed SAT, SMD Certification Due
	SMD Hotswapped for Recert Unit
	SMD Removed for Certification
	TIRTL Hotswap Complete
	TIRTL overdue for recert
	TR due for certification
	TR Performance Issue
	TR performance restored
	Compliant test results
Environmental	Site Rebuilt
	Damage to site
	Site Repaired after Vandalism
	Site Vandalised
Policy	Lane Status Correction
	New speed limit enforced
	Policy
	Sensor Test Not Performed
	Speed Tests Not Performed
	TCO direction
	Tests Overdue
Roadworks	Public Event
	Public Event Completed
	Civil Works
	Civil Works Completed
	Lane markers removed
	Road Work Completed
	Road Works
	Roadworks Not Affecting Cpblty
	Sensors damaged by Road works
	SISV Markers Removed-Roadworks
	Site layout or traffic issues
	Site lyout-tfc issues resolved
	Site Works Completed
	Traffic Light Cntrlr Repaired
	Traffic Light Fault or Upgrade
	Traffic Signal-Controller Issu
Trffc Lghts Rpaired or Upgraded	
Vic Roads Road Resurfacing	
Technical issue	Alarms Triggered

Cam Config Incrrect Aft Maint
Camera Configuration Restored
Camera Hub inst aft chk-repair
Camera Replaced
CCU Failure
CCU Removed for check-repair
CCU Repaired-Reinstalled
CCU Replaced
Comms Restored
Config Change Implemented
Configuration Change
Daylight Savings Change Issue
Door Open Alarm Resolved
Faulty Camera
Faulty Camera Hub
Faulty DRCS-P
Faulty SDCM
Flash Fault Rectified
Hardware failure
Hardware reinstalled
Hardware removed
Image quality inadequate
Image quality issue rectified
Investigate Reprtd Flash Fault
MPU Failure
No Comms to Site
No Comms to TIRTL
No Power to Site
Not Capturing Any Incident
Phase Connection Restored
Phase Issue
Power Restored
SDCM Replaced
Sensor failure - Non Compliant
Sensor Faulty
Sensor Operation Restored
Sensor Replacement
Site Under Investigation
Software failure
Spd Accuracy -Non Compliant
Spd Reliability -Non Compliant
System restored aft pwr outage
Technical Issue
Third Party Infrastructure
TIRTL damaged (spd only)

	TIRTL faulty (spd only)
	TIRTL functional
	Top Hat Replacement
	VSLs Faulty
	VSLs Reinstated
	VSVM Reinstated
Upgrades	Site Upgrade
	Site Upgrade Completed
	Software Upgrade
	Software Upgrade Implemented