

# April 2018

## Monthly Operations Report



## Table of Contents

1.0	Volumes and Lane Usage .....	3
2.0	Revenues.....	5
3.0	Operational Incidents, Issues, and Closures .....	5
4.0	Mean Time Between Failure (MTBF) and Mean Time to repair (MTTR) .....	7
5.0	Hybrid Utilization .....	8

## TABLES

Table 1 – Monthly Traffic Summaries .....	4
Table 2 – Managed Lanes Closures to Date.....	7
Table 3 – ETCS Issues per CA Schedule 6 Appendix 6-2.....	7
Table 4 - Status of Noncompliance Categories.....	7
Table 5 – Mean Time Between Failure & Mean Time To Repair .....	8
Table 6 – Hybrid Utilization.....	8

## FIGURES

Figure 1 – Monthly Traffic Distribution .....	4
Figure 2 – Daily Traffic Counts .....	5

# INTRODUCTION

Pursuant to Schedule 6, Section 1.8.2(a) of the Concession Agreement, Plenary Roads Denver (“PRD”) is required to submit a monthly report covering all essential statistics related to the Managed Lanes. The following data covers the month of April 2018. Operationally, April was a positive month. Several routine maintenance tasks were completed, there were minimal incidents to maintained elements, and traffic volumes were consistent with expectations.

## 1.0 VOLUMES AND LANE USAGE

Over the last several months as more commuters use the transponders for either ExpressToll™ (AVI) or HOV travel, License Plate (LPT) transactions have consistently decreased as a percentage of total traffic volume. The total monthly gantry traffic volume for April 2018 in the I-25 Central and US 36 Managed Lanes was 299,279 and 1,257,237, respectively.

The table below provides the monthly summary for each Managed Lanes roadway, along with a detailed breakdown of weekday volumes. For reference, the AM Peak Period is considered to be weekdays from 6:45 am – 8:45 am. The PM Peak Period is considered to be, weekdays, from 4:15pm – 5:45pm. It should be noted, that the I-25 Managed Lane traffic reflects traffic counts from a single gantry and US 36 Managed Lane counts reflect fourteen gantries, seven gantries in each direction. Therefore, US 36 data will indicate far greater traffic counts that are not comparative to those of I-25.

The following charts depict the distribution of traffic by type (Figure 1) and the daily traffic counts (Figure 2) and for the month.

Traffic Summary (US 36)						
	AVI	LPT	HOV	Non-Rev & Hybrid	Total	Hybrid
Total Monthly Traffic	737,061	280,480	197,975	41,721	1,257,237	5,584
Maximum Weekday Traffic	36,919	13,869	8,595	2,101	59,337	293
Average Weekday Traffic	32,341	11,673	6,696	1,860	52,570	244
Average Hourly AM Peak Traffic	5,124	1,588	829	242	7,783	N/A
Average Hourly PM Peak Traffic	5,198	1,714	965	235	8,112	N/A

Traffic Summary (I-25C)						
	AVI	LPT	HOV	Non-Rev & Hybrid	Total	Hybrid
Total Monthly Traffic	120,952	117,712	48,695	11,920	299,279	1,387
Maximum Weekday Traffic	6,471	13,701	2,283	625	14,093	82
Average Weekday Traffic	5,373	5,054	1,907	536	12,334	63
Average Hourly AM Peak Traffic	868	728	305	83	1,901	N/A
Average Hourly PM Peak Traffic	740	614	245	79	1,599	N/A

Table 1 – Monthly Traffic Summaries

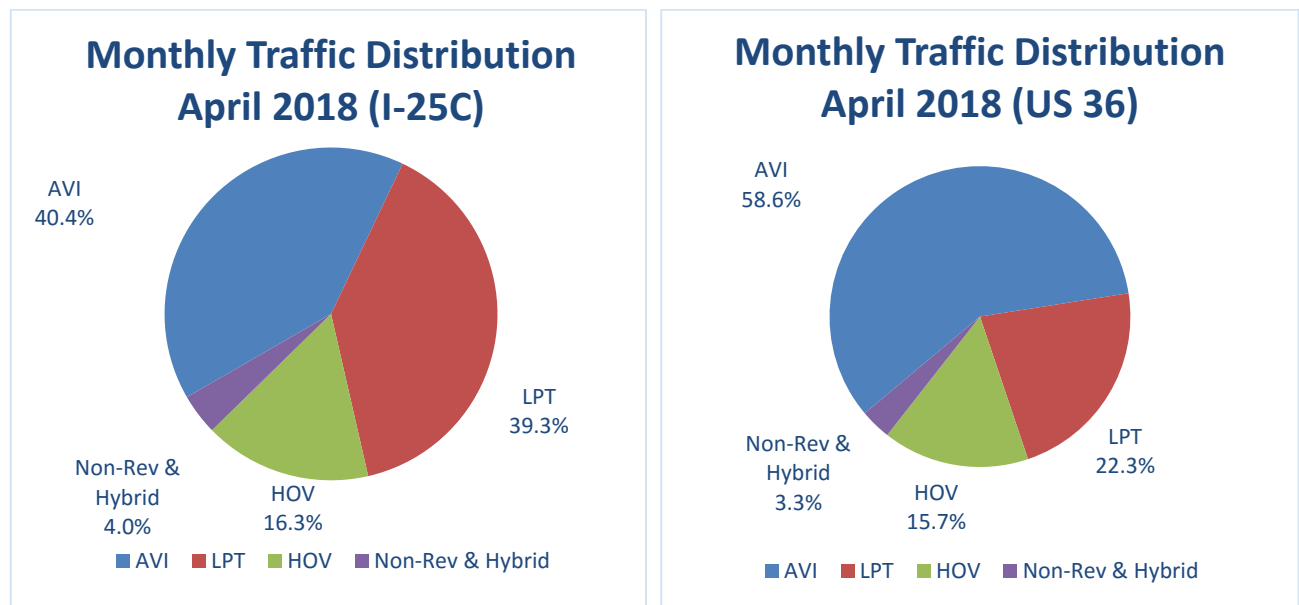
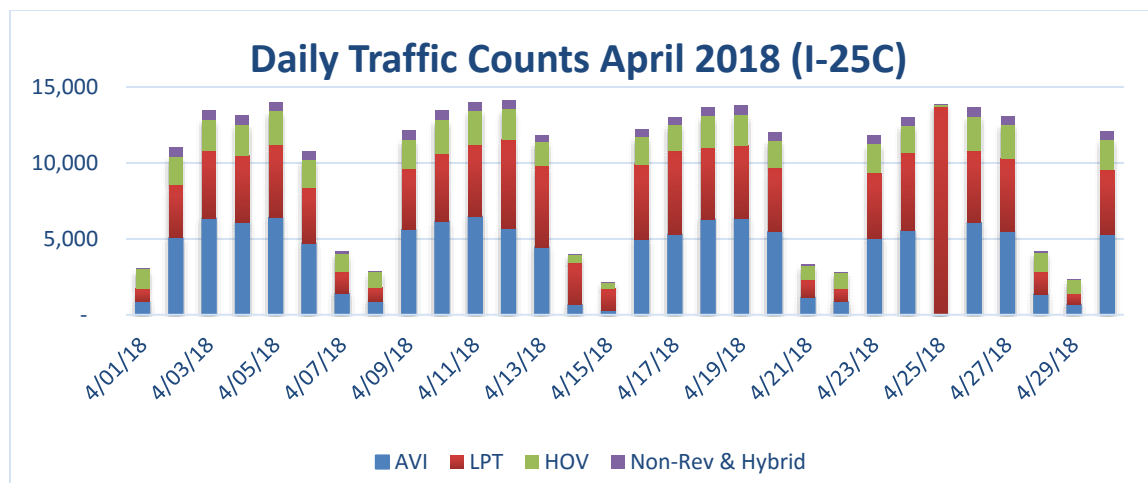


Figure 1 – Monthly Traffic Distribution



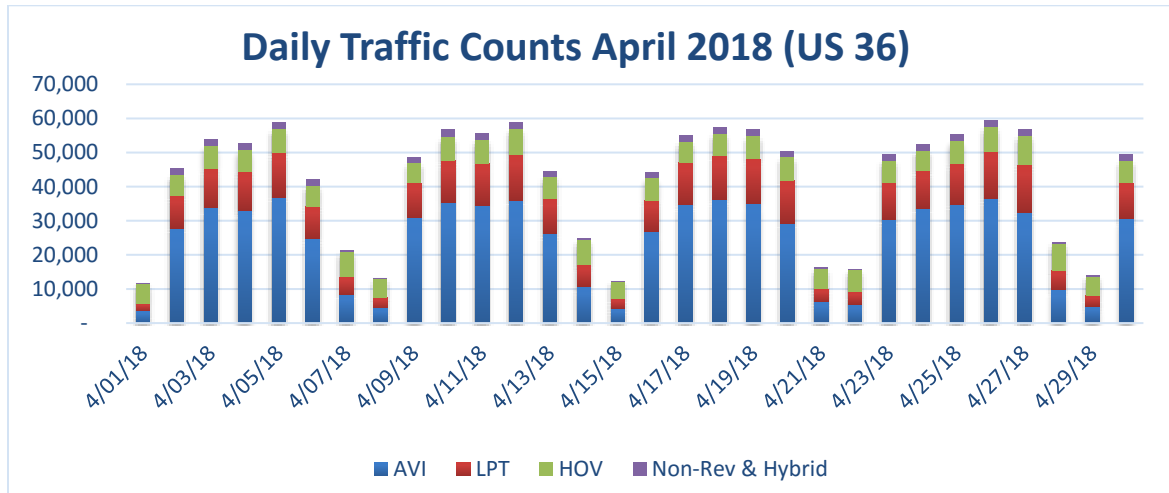


Figure 2 – Daily Traffic Counts

## 2.0 REVENUES

During the month of April 2018, PRD collected \$769,123 and \$660,861 from users of the I-25 Central and US36 Managed Lanes, respectively. For purposes of this report, revenues are recognized at the time of collection, which is typically sometime after they have been incurred for those customers who are billed based on their license plate. For example, if a single-occupant vehicle uses the lanes in October but pays in January, the associated revenue is attributed to January.

## 3.0 OPERATIONAL INCIDENTS, ISSUES, AND CLOSURES

The project had numerous routine debris removals, lighting incidents, guardrail incidents, sign incidents, and graffiti control during the month. The routine lighting, guardrail, roadway markings and sign incidents are all planned for repair within the allowable response period and several previously identified lighting incidents were repaired. All incidents were responded to and rectified within the allowable timeframes.

Date	Start	Stop	Duration
July 7, 2017	16:45	17:00	0:15
August 2, 2017	07:34	08:22	0:48
August 3, 2017	16:23	17:05	0:42
August 4, 2017	07:23	07:45	0:22
August 9, 2017	08:45	09:43	0:58
August 11, 2017	07:12	07:45	0:33
August 30, 2017	18:00	19:00	1:00

September 6, 2017	16:13	17:04	0:51
September 8, 2017	08:25	09:15	0:50
September 11, 2017	11:00	12:23	1:23
September 15, 2017	18:19	19:24	1:05
September 29, 2017	15:44	16:40	0:56
October 4, 2017	07:34	08:06	0:32
October 12, 2017	15:19	15:42	0:22
October 20, 2017	14:15	15:06	0:51
October 23, 2017	18:03	18:46	0:43
November 23, 2017	14:47	15:44	0:57
November 29, 2017	16:10	16:37	0:27
December 8, 2017	17:08	18:31	1:23
December 12, 2017	17:33	17:55	0:22
December 14, 2017	08:52	10:15	1:23
December 19, 2017	17:49	19:19	1:30
January 5, 2018	17:23	17:49	0:23
January 17, 2018	10:00	11:12	1:12
January 18, 2018	17:23	18:32	1:09
January 24, 2018	07:26	08:21	0:55
January 29, 2018	11:35	13:33	1:58
January 29, 2018	16:50	17:36	0:46
February 2, 2018	05:00	06:13	1:13
February 8, 2018	07:02	07:28	0:26
February 13, 2018	08:17	09:00	0:43
February 13, 2018	10:33	11:12	0:39
February 15, 2018	08:43	09:35	0:52
February 20, 2018	08:44	09:16	0:32
February 20, 2018	11:45	12:22	0:37
February 20, 2018	17:52	18:28	0:36
March 7, 2018	07:22	07:42	0:20
March 7, 2018	16:49	17:26	0:37
March 12, 2018	07:36	08:23	0:47
March 14, 2018	16:58	17:45	0:47
March 22, 2018	17:05	17:50	0:45

March 27, 2018	16:55	17:42	0:47
March 29, 2018	08:47	10:15	1:28
April 9, 2018	11:00	11:40	0:40
April 19, 2018	18:07	18:50	0:43
April 26, 2018	08:58	09:44	0:46
April 26, 2018	16:08	16:44	0:36
Total			<b>38 hours 30 minutes</b>
Remaining Closure Hours Available (Ref: CA 29.7)			0 hours 0 minutes

Table 2 – Managed Lanes Closures to Date

The table below provides a listing of ETCS items recorded this month, consistent with Appendix 6-2 of Schedule 6.

Element ID	Cat	Element	Performance Item	PRD Notified	Contractual Cure Period	Cure Achieved
None						

Table 3 – ETCS Issues per CA Schedule 6 Appendix 6-2

The table below provides a status of all Noncompliance categories in accordance with paragraph 1.2 of Schedule 10.

Non-compliance Location	Nature	Cause	Cure Date	Uncured Non-compliance Point	Unexpired Non-compliance Point	365 Day Expiration Date	1095 Day Expiration Date
Promenade West Toll Point	Incorrect toll schedule	Incorrect Toll Schedule was applied during a software update on 3/7/16	3/16/16 (Period II) Customer Accounts Corrected	0	3	3/16/17	3/16/19

Table 4 – Status of Noncompliance Categories

#### 4.0 MEAN TIME BETWEEN FAILURE (MTBF) AND MEAN TIME TO REPAIR (MTTR)

Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) data is provided in the table below. Only Maintained Elements that were repaired during the reporting period and had a failure

type breakdown are listed in the table. We consider a breakdown to be a failure when the element cannot be used for its intended purpose until repaired.

Maintained Element	Mean Time Between Failure (MTBF) (Hours)	Mean Time To Repair (MTTR) (Hours)
None	N/A	N/A

Table 5 – Mean Time Between Failure & Mean Time To Repair

## 5.0 HYBRID UTILIZATION

Total Hybrid Trips	
I-25 Central	1,387
US 36	5,584

Table 6 – Hybrid Utilization

Fuel-efficient “Hybrid” vehicles are permitted to access the Express Lanes free of charge, regardless of occupant numbers, provided that they have obtained a permit from CDOT, obtained a Hybrid transponder from E-470, and display an E-470 Hybrid decal on the vehicle’s windshield.



OPERATIONS AND  
MAINTENANCE  
MONTHLY REPORT  
APRIL 2018

US 36 and I-25 Express  
Lanes Project

Prepared for:

Plenary Roads Denver, LLC  
1700 Lincoln Street, Suite 3000  
Denver, CO 80203

Attention: Mr. Christian Guevara, PE




Prepared By:

Ferrovial Services  
10525 West 120<sup>th</sup> Avenue  
Broomfield, CO 80021  
United States of America

Justin Doles, PE  
Project Manager

## OPERATIONS AND MAINTENANCE – MONTHLY REPORT APRIL 2018 US 36 and I-25 Express Lanes Project

Revision	Date	Approved
Rev. 0	05/08/2018	

This report titled *Operations and Maintenance Monthly Report, April 2018* has been prepared by Ferrovial Services for the exclusive use of Plenary Roads Denver, LLC (PRD). No other party is an intended beneficiary of this report or the information, opinions, and conclusions contained herein. Any use by any party other than PRD of any of the information, opinions, or conclusions is the sole responsibility of said party. The use of this report shall be at the sole risk of the user regardless of any fault or negligence of PRD or Ferrovial Services.

The information and analyses contained herein have been completed to a level of detail commensurate with the objectives of the assignment and in light of the information made available to Ferrovial Services at the time of preparation. This report and its supporting documentation have been reviewed and/or checked for conformance with industry-accepted norms. To the best of the information and belief of Ferrovial Services, the information presented in this report is accurate to within the limitations specified herein.

This report is Ferrovial Services pdf file: OM Monthly Report April 2018.pdf. Any reproductions or modifications of this report are uncontrolled and may not be the most recent revision.

The O&M Monthly Report contains all relevant information for the month of April 2018. Ferrovial Services continues ongoing and preventive maintenance activities for the I-25 and US36 Managed Lanes Project.

### Ferrovial Services Commitment to Safety

Ferrovial Services conducted weekly toolbox talk meetings during the month. The purpose of the tool box talks is to cover important safety items that relate to the project such as near misses, “better ways” as to how safety is conducted for the Project, and discussion on safety procedures for maintenance activities. In addition to the toolbox talks, Ferrovial Services conducts a weekly progress meeting. This is a forum for feedback from staff on Operations, Incident Response, and Maintenance activities.

Toolbox Talks this month included:

- Boost Your Energy I
- Boost Your Energy II
- Hand Injury Prevention
- JHA Development
- S.T.A.R.T. Form

### A. Summary of the Planned Maintenance Activities for the Upcoming Month – May 2018

Ferrovial Services has identified the upcoming planned maintenance activities as described in Table 1.7.1.3 of The Maintenance Management Plan. These activities include preventative and routine maintenance in order to successfully operate and maintain the Project. A listing of the planned maintenance activities for the month of May 2018 is included below.

**FIG. A-1 Planned Maintenance Activities for May 2018**

*X – Indicates the day the task is planned.*

Performance Standard Identification Number (Table 6.1)	Work Activity-Description	Frequency	May-18																														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
			T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T
ML-1	MAINTENANCE PATROL	Daily	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X
ML-1	FLEXIBLE PAVEMENT OBSERVATION / REPAIR	F-52			X						X								X						X					X			
ML-1	RIGID PAVEMENT OBSERVATION / REPAIR	F-52			X						X								X						X					X			
ML-1	SHOULDER OBSERVATION / REPAIR	F-12									X	X	X				X	X	X														
ML-4	DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12		X							X							X						X							X		
ML-2	DRAINAGE STRUCTURE (INLET) INSPECTION	F-1																					X										
ML-2	DRAINAGE (INLET) OBSERVE/ CLEAN / REPAIR	F-12								X													X										
ML-2	DRAINAGE (PIPE/CULVERT) OBSERVE / CLEAN / RPR	F-12								X													X										
ML-5.1	GUARDRAIL, SAFETY BARRIER				X				X	X																							
ML-6	SIGN CLEANING	F-1														X																	
ML-6	SIGN OBSERVATION / REPAIR	F-52							X							X							X							X			
ML-8	STREET LIGHTING OBSERVATION /REPAIR	F-52			X																												
ML-8	ELECTRICAL SUPPLY INSPECTION / REPAIR	F-12			X																												
ML-8	ACCESS PANEL OBSERVATION / REPAIR	F-12			X																												
ML-10	HERBICIDE & WEED CONTROL MAINTENANCE	F-52										X							X								X						
ML-12	GRAFFITI OBSERVATION / REMOVAL	F-52							X							X						X								X			
ML-14	MECHANICAL ROAD SWEEPING	F-12														X	X	X	X														
ML-14	LITTER OBSERVATION / REMOVAL	Daily	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X
ML-15	NODE BUILDING 2 MAINTENANCE	F-1																		X													
ML-15	SAND STORAGE DOME MAINTENANCE	F-1																		X													
ML-15	LIQUID STORAGE FACILITY MAINTENANCE	F-1																		X													
	REVERSIBLE LANE OPERATIONS	Daily	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X
	GATE MAINTENANCE & REPAIR								X							X						X								X			

---

Frequency of Activity:

Daily – Daily Activity

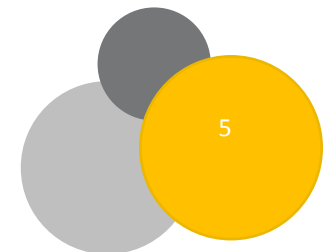
F-4 – Quarterly Activity

F-52 – Weekly Activity

F-2 – Semi-Annual Activity

F-12 – Monthly Activity

F-1 – Annual Activity



## B. Summary of Performed and Completed Maintenance Activities

*Fig. B-1 Performed and Complete Maintenance Activities for April 2018*

*X Indicates the day of the month that the task was completed.*

Performance Standard Identification Number (Table 6.1)	Work Activity- Description	Frequency	Apr-18																														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
			S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	
ML-1	MAINTENANCE PATROL	Daily		X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X			X	
ML-1	FLEXIBLE PAVEMENT OBSERVATION / REPAIR	F-52					X						X					X	X	X	X							X					
ML-1	RIGID PAVEMENT OBSERVATION / REPAIR	F-52					X						X							X								X					
ML-4	DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12		X						X								X							X							X	
ML-2	DRAINAGE (INLET) OBSERVE/ CLEAN / REPAIR	F-12				X						X								X							X						
ML-5.1	GUARDRAIL, SAFETY BARRIER					X	X																										
ML 5.2	IMPACT ATTENUATORS																	X															
ML-6	SIGN CLEANING	F-1											X	X																			
ML-6	SIGN OBSERVATION / REPAIR	F-52			X							X							X								X						
ML-8	STREET LIGHTING OBSERVATION /REPAIR	F-52		X																													
ML-8	ELECTRICAL SUPPLY INSPECTION / REPAIR	F-12		X						X								X							X							X	
ML-8	ACCESS PANEL OBSERVATION / REPAIR	F-12		X						X								X							X							X	
ML-10	HERBICIDE & WEED CONTROL MAINTENANCE	F-52				X						X								X							X						
ML-12	GRAFFITI OBSERVATION / REMOVAL	F-52					X							X							X								X				
ML-14	MECHANICAL ROAD SWEEPING	F-12																X	X	X	X												
ML-15	NODE BUILDING 2 MAINTENANCE	F-1					X							X							X								X				
ML-15	SAND STORAGE DOME MAINTENANCE	F-1					X							X							X								X				
	GATE MAINTENANCE & REPAIR			X						X								X							X								

*Fig. B-2 Work Accomplished This Month*

Activity	Actual Work
152 Asphalt Pavement Surface Rpr (YD2)	1.5
153 Concrete Pavemnt Surface Rpr (YD2)	7.3
162 Surface Shoulder Rprs (MI)	0.25
202 Clean Drains (EA)	30
218 Debris in Roadway (HR)	7
218 Litter Barrel Trash Cleanup (YD3)	46.3
220 Sweeping (Mech) (MI)	108
221 Sweeping Disposal (TON)	14
222 Sweeping - Hand (HR)	18
301 Misc Sign Maint (EA)	46
304 Del Post Maint (EA)	27
306 Metal Guardrail Maint (LF)	31
314 Reversible Lane Ops (HR)	316
329 Courtesy Assistance (HR)	346.5
402 Snow Plowing & Materials (MI)	440
540 Graffiti Removal (SF)	12

### C. Summary of Planned Maintenance that was Not Completed for the Month

Ferrovial Services completed all scheduled maintenance activities for the period of April, 2018. Frequencies and/or actual date of the month of some activities may have been adjusted based on actual conditions.

### D. Summary of the Maintenance Activities and Results Performed for the Month Beyond Planned Maintenance

A summary of unplanned maintenance activities provided below:

Snow and Ice Control:

Precipitation Event Start		Equipment Deployed		Precipitation Event End		Service Level "A" Achieved in ML		Service Level "B" Achieved in GP	
4/6/2018	18:14	4/6/2018	10:00	4/7/2018	08:13	4/6/2018	23:05	4/6/2018	23:05
4/20/2018	23:30	4/20/2018	23:00	4/21/2018	08:13	4/20/2018	23:44	4/20/2018	23:44

Courtesy Patrol: None

Hazardous Materials Incidents: None

## E. Operating Contractor's Incident Response Logs Related to Maintenance Activities

This section provides a summary of Ferrovial Services performance related to the Performance and Measurement Criteria listed in Appendix 6-1.1 of the Operating Contract.

The table below provides a listing of items recorded this month:

Element Category	Description	Location	BRS Notified	Response to Defects		
				Category 1		Category 2
				Hazard Mitigation	Permanent Remedy	Permanent Repair
GP5.1	Guardrail (Impact Damage)	US36 MP 47.20 EB	12/20/2017 11:05:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
ML5.1	Guardrail (Impact Damage)	US36 MP 57.12	1/1/2018 20:34:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP5.1	Guardrail (Impact Damage)	US36 MP 55.04 EB	1/16/2018 23:32:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP5.1	Guardrail (Impact Damage)	US36 MP 49.40 WB	3/2/2018 07:30:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP1.1	Debris (Cleared Trash Can from Lanes)	US36 MP 53.21 EB	4/4/2018 10:20:00	Reqd: 1 Hours Respnd: 4/4/2018 10:34 Actual: 0.23 Hours	N/A	N/A
GP1.1	Debris (Debris Reported, Nothing Found)	US36 MP 48.50 EB	4/5/2018 14:37:00	Reqd: 1 Hours Respnd: 4/5/2018 15:02 Actual: 0.41 Hours	N/A	N/A
ML5.1	Guardrail (Impact Damage)	US36 MP 57.00	4/6/2018 14:48:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP-6.1	Traffic Signs (Impact Damage)	US36 MP 48.60 WB	4/8/2018 14:45:00	N/A	N/A	Reqd: 6 Months Respnd: 4/8/2018 15:10 Actual: 0.00 Months
GP1.1	Debris (Cleared Tire from Lanes)	US36 MP 55.10 EB	4/14/2018 08:45:00	Reqd: 1 Hours Respnd: 4/14/2018 09:30 Actual: 0.75 Hours	N/A	N/A
GP1.1	Debris (Cleared Tire from Lanes)	US36 MP 52.20 EB	4/16/2018 06:53:00	Reqd: 1 Hours Respnd: 4/16/2018 07:52 Actual: 0.98 Hours	N/A	N/A
GP5.1	Guardrail (Impact Damage)	I25 MP 217.22 NB	4/16/2018 15:29:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP1.1	Debris (Cleared Ladder from Lanes)	US36 MP 52.20 EB	4/17/2018 07:56:00	Reqd: 1 Hours Respnd: 4/17/2018 08:35 Actual: 0.65 Hours	N/A	N/A
ML13.1	Incident Response (Responded to CSP Request)	I25 MP 217.11	4/19/2018 14:30:00	Reqd: 1 Hours Respnd: 4/19/2018 14:48 Actual: 0.30 Hours	N/A	N/A
GP-6.1	Traffic Signs (Reset VMS)	I25 MP 212.0 NB	4/25/2018 15:06:00	Reqd: 24 Hours Respnd: 4/25/2018 15:43 Actual: 0.61 Hours	N/A	N/A
ML1.1	Debris (Cleared Roof Rack from Lanes)	US36 MP 45.00 WB	4/27/2018 12:12:00	Reqd: 1 Hours Respnd: 4/27/2018 12:28 Actual: 0.27 Hours	N/A	N/A
ML1.1	Debris (Debris Reported, Nothing Found)	US36 MP 43.30 WB	4/27/2018 12:10:00	Reqd: 1 Hours Respnd: 4/27/2018 12:58 Actual: 0.79 Hours	N/A	N/A
GP1.1	Debris (Cleared Ladder from Lanes)	US36 MP 43.5 WB	4/28/2018 11:00:00	Reqd: 1 Hours Respnd: 4/28/2018 11:31 Actual: 0.51 Hours	N/A	N/A
GP1.1	Debris (Cleared Tree Limbs from Lanes)	US36 MP 55.99 EB	4/28/2018 08:04:00	Reqd: 1 Hours Respnd: 4/28/2018 08:35 Actual: 0.51 Hours	N/A	N/A
GP1.1	Debris (Cleared Debris from Lanes)	US36 MP 50.70 WB	4/29/2018 08:10:00	Reqd: 1 Hours Respnd: 4/29/2018 08:35 Actual: 0.41 Hours	N/A	N/A

All items were completed within the required response time. Items that are *In Progress* are still within the allowed response time.

## F. Detailed Results of All Inspections, Assessments, and Testing Activities



---

During this reporting period there were no special inspections, assessments, or testing results outside normal operating condition.

### G. Monthly Toll System Performance Reports

Toll system operated within proposed parameters per Ferrovial Services observations.

### H. Preventative Maintenance Plan and Progress

Preventative Maintenance work is contingent on Initial Works Package implementation.

### I, J. Mean Time between Failure (MTBF), Mean Time To Repair (MTTR)

No Maintained Elements experienced a failure type breakdown this month. Ferrovial Services considers a breakdown to be a failure when the element cannot be used for its intended purpose until repaired.