# December 2018 Monthly Operations Report











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# 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 December 2018. Operationally, December 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 December 2018 in the I-25 Central and US 36 Managed Lanes was 247,303 and 1,217,535, 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.

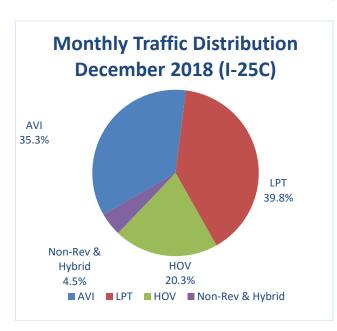
	Traffic	Summary (	(US 36)			
	AVI	LPT	HOV	Non-Rev & Hybrid	Total	Hybrid
Total Monthly Traffic	692,470	275,349	211,490	38,226	1,217,535	3,531
Maximum Weekday Traffic	44,050	16,629	9,197	2,100	71,491	236
Average Weekday Traffic	30,054	11,431	7,284	1,675	50,444	152
Average Hourly AM Peak Traffic	4,137	1,315	720	203	6,375	N/A
Average Hourly PM Peak Traffic	4,888	1,696	1,054	205	7,843	N/A





	Traff	ic Summary	(I-25C)			
	AVI	LPT	HOV	Non-Rev & Hybrid	Total	Hybrid
Total Monthly Traffic	87,334	98,497	50,264	11,208	247,303	951
Maximum Weekday Traffic	5,356	5,576	2,359	570	13,766	66
Average Weekday Traffic	3,829	4,212	1,924	489	9,965	42
Average Hourly AM Peak Traffic	535	541	265	70	1,341	N/A
Average Hourly PM Peak Traffic	486	508	236	68	1,230	N/A

Table 1 - Monthly Traffic Summaries



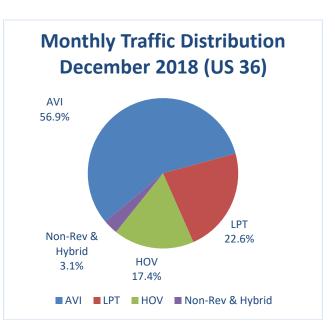
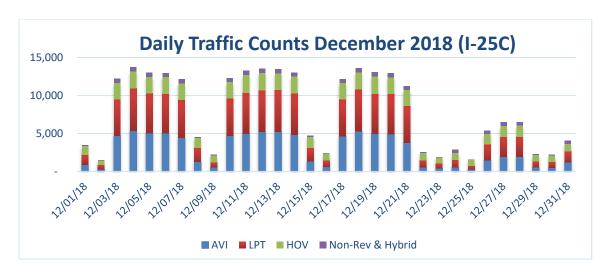


Figure 1 – Monthly Traffic Distribution







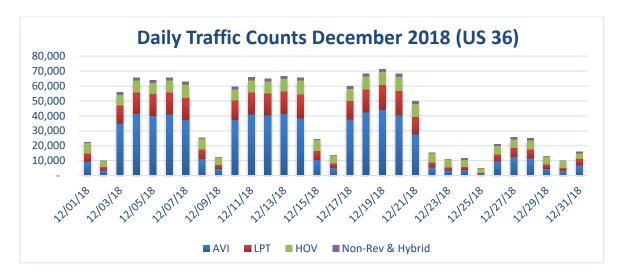


Figure 2 - Daily Traffic Counts

### 2.0 REVENUES

During the month of December 2018, PRD collected \$622,792 and \$700,672 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 3, 2018	15:42	16:20	0:38
July 6, 2018	11:08	12:55	1:47
July 16, 2018	10:09	10:52	0:43
July 20, 2018	15:40	16:32	0:52
July 24, 2018	15:15	16:04	0:49
August 9, 2018	09:25	11:04	1:39
August 10, 2018	16:39	18:11	1:33





August 16, 2018	09:20	10:07	0:47
August 20, 2018	06;45	07:17	0:32
August 21, 2018	17:30	17:56	0:26
August 30, 2018	09:16	10:37	1:21
September 4, 2018	17:15	17:52	0:37
September 9, 2018	02:39	03:10	0:31
September 19, 2018	06:35	07:09	0:34
September 19, 2018	17:23	18:40	1:17
September 20, 2018	10:31	12:18	1:47
September 26, 2018	15:45	16:21	0:36
October 10, 2018	08:26	08:52	0:26
October 17, 2018	06:50	07:39	0:49
October 17, 2018	07:58	08:29	0:31
October 26, 2018	07:03	07:41	0:38
October 31, 2018	08:48	09:40	0:52
November 7, 2018	18:13	18:51	0:38
November 8, 2018	07:50	08:29	0:39
November 30, 2018	17:32	17:58	0:26
December 4, 2018	08:07	08:52	0:45
December 10, 2018	07:35	08:35	1:00
December 19, 2018	09:55	10:28	0:33
December 19,2018	18:45	19:37	0:52
December 31, 2018	14:55	15:25	0:30
Total			25 hours 11 minutes
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	951									
US 36	3,531									

**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 DECEMBER 2018

US 36 and I-25 Express
Lanes Project



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

Attention: Mr. Christian Guevara, PE



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

Revision	Date	Approved
Rev. 0	01/08/2019	Int. De

This report titled *Operations and Maintenance Monthly Report, December 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.

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The O&M Monthly Report contains all relevant information for the month of December 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:

- Smith Driving Review
- Driving Safety at Intersections
- Radio Use
- JHA Review
- Winter Driving

# A. Summary of the Planned Maintenance Activities for the Upcoming Month – January 2019

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 January 2019 is included below.





# FIG. A-1 Planned Maintenance Activities for January 2019 X – INDICATES THE DAY THE TASK IS PLANNED.

X - INDICATES II	IL DAT II		ASN	. 13	FLAI	NINL	υ.																									
Work Activity- Description	Frequency															J	an-1	9														
		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
MAINTENANCE PATROL	Daily	Т	w	T X	F X	S	S	M	T X	w x	T X	F X	S	S	M X	T X	w x	T X	F X	S	S	M X	T X	W x	T X	F X	S	S	M	T X	w x	T X
FLEXIBLE PAVEMENT				^	^				^						^	^		^	^				^		^							
OBSERVATION / REPAIR	F-52		x							х							х							Х							х	
RIGID PAVEMENT OBSERVATION / REPAIR	F-52		x							х							х							х							х	
DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12		х																										х			
DRAINAGE STRUCTURE (INLET) INSPECTION	F-1							х																								
DRAINAGE (INLET) OBSERVE/ CLEAN / REPAIR	F-12											х																				
DRAINAGE (PIPE/CULVERT) OBSERVE / CLEAN / RPR	F-12											х																				
GUARDRAIL, SAFETY BARRIER				х																												
IMPACT ATTENUATORS				х																												
SIGN CLEANING	F-1							х	х																							
SIGN OBSERVATION / REPAIR	F-52		х					х							х							х							х			
STREET LIGHTING OBSERVATION / REPAIR	F-52		х						х								х							х							х	
ELECTRICAL SUPPLY INSPECTION / REPAIR	F-12										х																					
HERBICIDE & WEED CONTROL MAINTENANCE	F-52				х							х							х							x						х
MECHANICAL ROAD SWEEPING	F-12														х	x	х	x														
LITTER OBSERVATION / REMOVAL	Daily		х	x	х			х	х	x	х	х			x	x	х	x	x			x	x	х	х	х			х	х	х	х
NODE BUILDING 2 MAINTENANCE	F-1				х							х							x							x						х
SAND STORAGE DOME MAINTENANCE	F-1				х							х							х							х						х
LIQUID STORAGE FACILITY MAINTENANCE	F-1											х																				
REVERSIBLE LANE OPERATIONS	Daily		х	х	х			х	х	x	х	х			х	х	х	х	х			х	х	х	х	х			х	х	х	х
GATE MAINTENANCE & REPAIR			х					х							х							x							х			

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 December 2018

X Indicates the d	lav of the	mor	ith t	hat t	the t	task	was	cor	nple	ted.																						
Work Activity- Description	Frequency															D	ec-1	8														
		1 S	2 S	3 M	4 T	5 W	6 T	7 F	8 S	9 S	10 M	11 T	12 W	13 T	14 F	15 S	16 S	17 M	18 T	19 W	20 T	21 F	22 S	23 S	24 M	25 T	26 W	27 T	28 F	29 S	30 S	31 M
MAINTENANCE PATROL	Daily			х	х	х	х	х			х	х	х	х	х			x	х	х	х	х					х	х	x			х
FLEXIBLE PAVEMENT OBSERVATION / REPAIR	F-52			х							x							x									x					х
RIGID PAVEMENT OBSERVATION / REPAIR	F-52			х							x							x									х					х
DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12																											x				
DRAINAGE STRUCTURE (INLET) INSPECTION	F-1							x																								
DRAINAGE (INLET) OBSERVE/ CLEAN / REPAIR	F-12							x																								
DRAINAGE (PIPE/CULVERT) OBSERVE / CLEAN / RPR	F-12							x																								
GUARDRAIL, SAFETY BARRIER				х														x														
IMPACT ATTENUATORS																		X														
SIGN CLEANING	F-1																										x	x				
SIGN OBSERVATION / REPAIR	F-52			x							x							X														x
STREET LIGHTING OBSERVATION / REPAIR	F-52				x																											
ELECTRICAL SUPPLY INSPECTION / REPAIR	F-12				x																											
ACCESS PANEL OBSERVATION / REPAIR	F-12				x																											
HERBICIDE & WEED CONTROL MAINTENANCE	F-52							X							x							X							X			
MECHANICAL ROAD SWEEPING	F-12																	x	x	X												
LITTER OBSERVATION / REMOVAL	Daily			x	x	x	x	x			x	x	x	x	x			X	x	x	X	X					x	x	X			х
NODE BUILDING 2 MAINTENANCE	F-1														x														x			
SAND STORAGE DOME MAINTENANCE	F-1																	X														
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			×





Fig. B-2 Work Accomplished This Month

Activity	Actual Work
152 Asphalt Pavement Surface Rpr (YD2)	2
153 Concrete Pavemnt Surface Rpr (YD2)	6
162 Surface Shldr Rprs (SY)	1.4
218 Debris in Roadway (HR)	15
218 Litter Barrel Trash Cleanup (YD3)	154.5
220 Sweeping (Mech) (MI)	120
222 Sweeping - Hand (HR)	23.5
254 Veg Cntrl Hnd/Chem (HR)	2
301 Misc Sign Maint (EA)	6
304 Del Post Maint (EA)	231
306 Metal Guardrail Maint (LF)	52
311 Lighting Repairs & Maint (EA)	1
314 Reversible Lane Ops (HR)	280
316 Attenuator Maint (EA)	1
329 Courtesy Assistance (HR)	390
364 Bridge Joint Mnt Cln/Rpr (LF)	3,840
540 Graffiti Removal (SF)	81

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

Ferrovial Services completed all scheduled maintenance activities for the period of December, 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	n Event Start	Equipment Deployed		Precipitation Event End		Service Level "A" Achieved in ML		Service Level "B" Achieved in GP	
12/2/2018	20:25	12/2/2018	18:40	12/3/2018	09:51	12/3/2018	01:15	12/3/2018	01:15
12/26/2018	17:10	12/26/2018	16:45	12/27/2018	09:10	12/27/2018	03:10	12/27/2018	03:10

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				Response to Defects				
Category	Description	Location	BRS Notified	Categ	Category 2			
				Hazard Mitigation	Permanent Remedy	Permanent Repair		
GP14.2	Litter (Cleared ROW of Litter)	US36 MP 34.7-57.1	11/13/2018 13:30:00	N/A	N/A	Reqd: 28 Days Respd: 12/5/2018 15:00 Actual: 22.06 Days		
GP1.1	Debris (Cleared Metal from Lanes)	US36 MP 53.8 WB	12/3/2018 14:02:00	Reqd: 1 Hours Respd: 12/3/2018 14:18 Actual: 0.26 Hours	N/A	N/A		
GP1.1	Debris (Cleared Tire from Lanes)	US36 MP 44.91 EB	12/7/2018 08:43:00	Reqd: 1 Hours Respd: 12/7/2018 09:21 Actual: 0.63 Hours	N/A	N/A		
GP1.1	Debris (Debris Reported, Nothing Found)	US36 MP 54.55 WB	12/8/2018 16:35:00	Reqd: 1 Hours Respd: 12/8/2018 17:30 Actual: 0.91 Hours	N/A	N/A		
GP1.1	Debris (Cleared Ladder from Lanes)	US36 MP 53.0 EB	12/8/2018 17:45:00	Reqd: 1 Hours Respd: 12/8/2018 18:10 Actual: 0.41 Hours	N/A	N/A		
GP1.1	Debris (Cleared Debris from Lanes)	US36 MP 55.4 WB	12/9/2018 20:30:00	Reqd: 1 Hours Respd: 12/9/2018 21:20 Actual: 0.83 Hours	N/A	N/A		
GP1.1	Debris (Debris Reported, Nothing Found)	US36 MP 42.10 WB	12/11/2018 11:06:35	Reqd: 1 Hours Respd: 12/11/2018 12:04 Actual: 0.96 Hours	N/A	N/A		
GP1.1	Debris (Cleared Wood from Lanes)	US36 MP 39.5 WB	12/11/2018 12:37:00	Reqd: 1 Hours Respd: 12/11/2018 13:13 Actual: 0.60 Hours	N/A	N/A		
GP1.1	Debris (Cleared Rake from Lanes)	US36 MP 54.73 WB	12/12/2018 17:36:00	Reqd: 1 Hours Respd: 12/12/2018 18:12 Actual: 0.60 Hours	N/A	N/A		
GP1.1	Debris (Cleared Insulation from Lanes)	US36 MP 48.00 WB	12/13/2018 12:10:00	Reqd: 1 Hours Respd: 12/13/2018 12:32 Actual: 0.37 Hours	N/A	N/A		
GP5.1	Guardrail (Impact Damage)	US36 MP 37.8 WB	12/14/2018 18:30:00	N/A	N/A	Reqd: 6 Months Respd: Actual: In Progress		
GP1.1	Debris (Cleared Ladder from Lanes)	US36 MP 52.2 WB	12/14/2018 12:46:00	Reqd: 1 Hours Respd: 12/14/2018 13:02 Actual: 0.26 Hours	N/A	N/A		
GP1.1	Debris (Cleared Ladder from Lanes)	US36 MP 52.2 WB	12/14/2018 14:02:27	Reqd: 1 Hours Respd: 12/14/2018 14:37 Actual: 0.57 Hours	N/A	N/A		
GP1.1	Debris (Cleared Paint Buckets from Lanes)	US36 MP 57.13 WB	12/15/2018 14:06:00	Reqd: 1 Hours Respd: 12/15/2018 14:31 Actual: 0.41 Hours	N/A	N/A		
GP1.1	Debris (Cleared Mattress from Lanes)	US36 MP 53.1 WB	12/16/2018 18:44:00	Reqd: 1 Hours Respd: 12/16/2018 19:16 Actual: 0.53 Hours	N/A	N/A		
GP5.1	Guardrail (Impact Damage)	US36 MP 50.81 WB	12/17/2018 10:52:08	N/A	N/A	Reqd: 6 Months Respd: Actual: In Progress		
GP14.2	Litter (Cleared ROW of Litter)	US36 MP 34.7-57.1	12/17/2018 15:35:00	N/A	N/A	Reqd: 28 Days Respd: Actual: In Progress		
GP5.2	Attenuator (Impact Damage)	US36 MP 55.04 WB	12/20/2018 12:30:00	N/A	N/A	Reqd: 6 Months Respd: 12/20/2018 13:00 Actual: 0.00 Months		
GP1.1	Debris (Cleared Mattress from Lanes)	US36 MP 52.2 EB	12/26/2018 13:52:00	Reqd: 1 Hours Respd: 12/26/2018 14:09 Actual: 0.28 Hours	N/A	N/A		





Element	Description		BRS Notified	Response to Defects			
Category		Location		Categ	Category 2		
Category				Hazard Mitigation	Permanent Remedy	Permanent Repair	
GP1.1	Debris (Cleared Concrete Forms from Lanes)	US36 MP 55.9 EB	12/26/2018 10:45:00	Reqd: 1 Hours Respd: 12/26/2018 11:08 Actual: 0.38 Hours	N/A	N/A	
GP1.1	Debris (Cleared Deer from Lanes)	US36 MP 41.8 WB	12/26/2018 08:04:00	Reqd: 1 Hours Respd: 12/26/2018 09:00 Actual: 0.93 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.