

September 2017

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 September 2017. Operationally, September 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 September 2017 in the I-25 Central and US 36 Managed Lanes was 282,674 and 1,249,552, 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	687,603	317,697	202,248	42,004	1,249,552	5,922
Maximum Weekday Traffic	32,716	17,056	10,088	2,123	58,149	334
Average Weekday Traffic	30,238	12,906	6,600	1,934	51,678	264
Average Hourly AM Peak Traffic	4,510	1,624	737	248	7,119	N/A
Average Hourly PM Peak Traffic	4,970	2,035	888	243	8,136	N/A

Traffic Summary (I-25C)						
	AVI	LPT	HOV	Non-Rev & Hybrid	Total	Hybrid
Total Monthly Traffic	144,531	77,180	47,534	13,429	282,674	1,819
Maximum Weekday Traffic	7,417	4,061	2,028	643	13,970	97
Average Weekday Traffic	6,630	3,393	1,885	622	11,908	86
Average Hourly AM Peak Traffic	1,003	507	289	88	1,799	N/A
Average Hourly PM Peak Traffic	764	385	227	84	1,376	N/A

Table 1 – Monthly Traffic Summaries

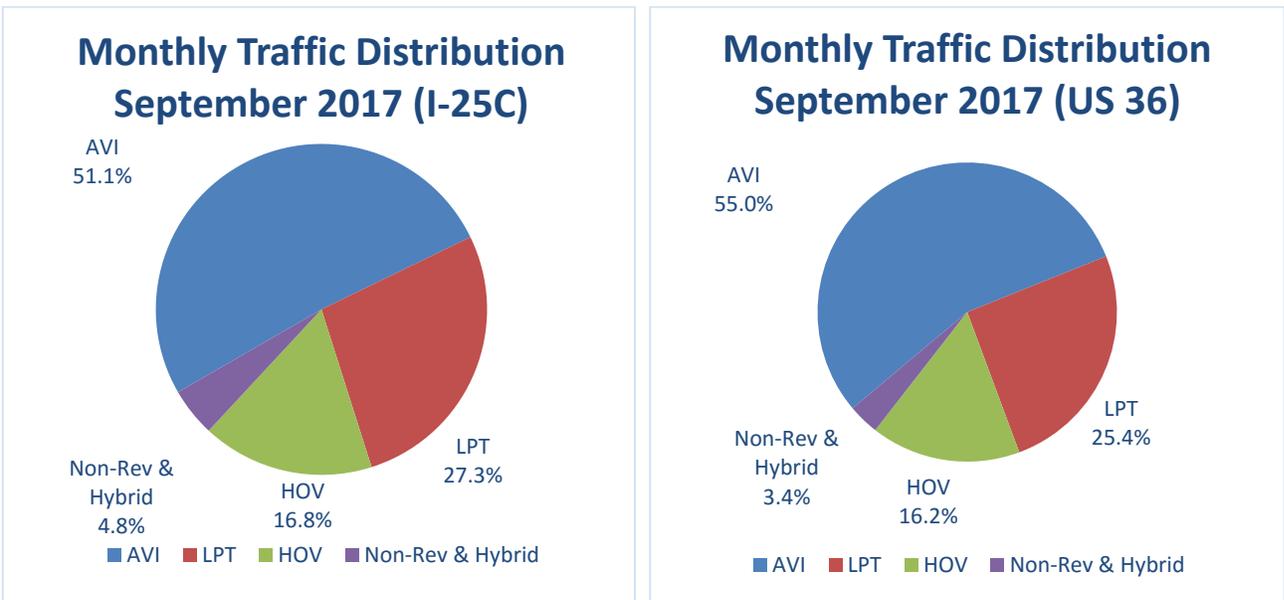
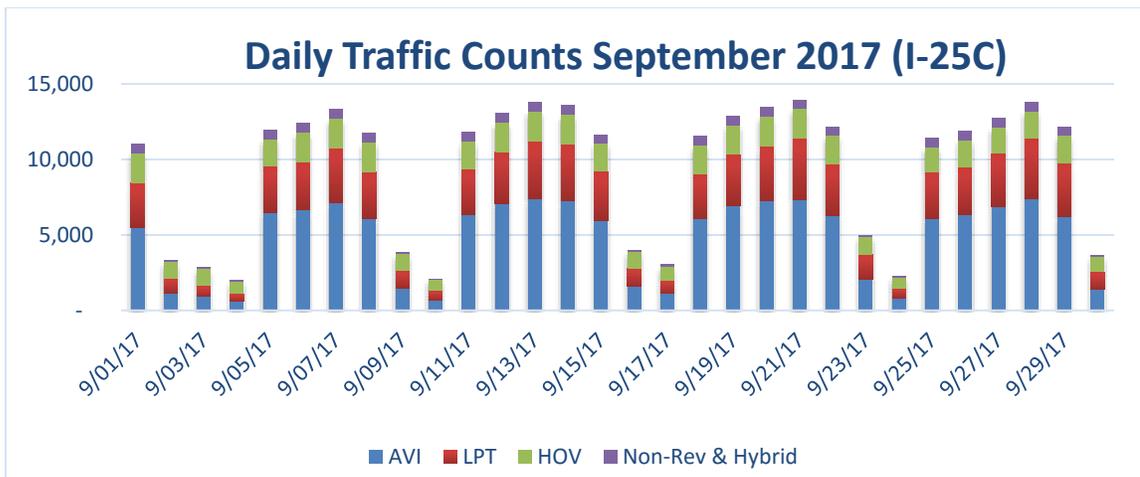


Figure 1 – Monthly Traffic Distribution



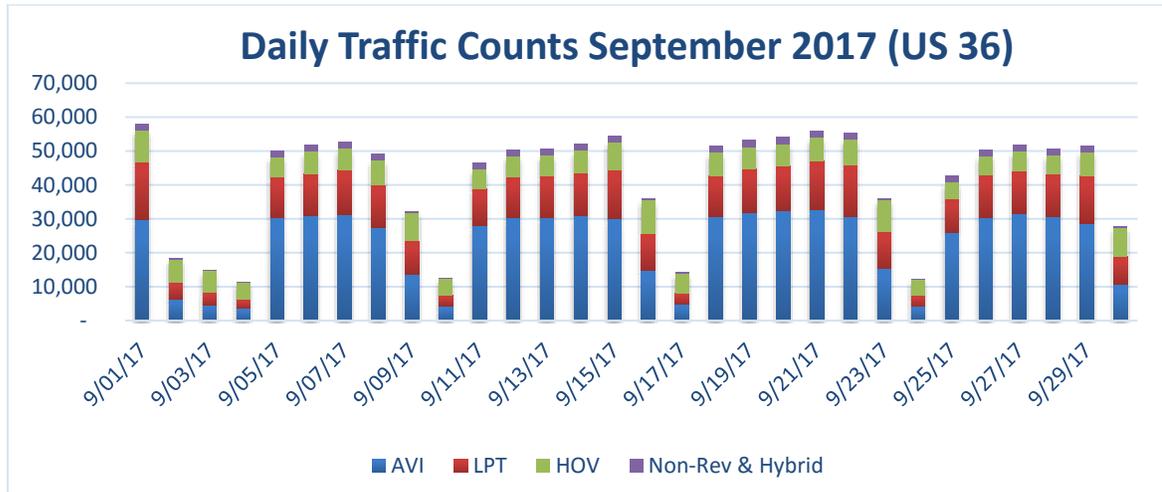


Figure 2 – Daily Traffic Counts

2.0 REVENUES

During the month of September 2017, PRD collected \$680,935 and \$622,745 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
Total			9 hours 43 minutes
Remaining Closure Hours Available (Ref: CA 29.7)			2 hours 17 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
6	B	Tolling Equipment	ETCS	9/26/2017	7 days	2.9 days
18	A	Customer Service	ETCS	9/26/2017	3 days	0.95 days

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	1,819
US 36	5,922

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
SEPTEMBER 2017

US 36 and I-25 Express
Lanes Project

Prepared for:

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

Attention: Mr. Simon Stachnik

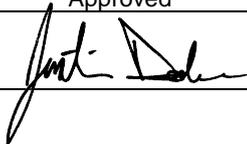


Prepared By:

Broadspectrum
7100-B Pennsylvania Street
Thornton, CO 80229
United States of America

Justin Doles, PE
Project Manager

OPERATIONS AND MAINTENANCE – MONTHLY REPORT
SEPTEMBER 2017
US 36 and I-25 Express Lanes Project

Revision	Date	Approved
Rev. 0	10/08/2017	

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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 Broadspectrum 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 Broadspectrum, 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 September 2017. Broadspectrum continues ongoing and preventive maintenance activities for the I-25 and US36 Managed Lanes Project.

Broadspectrum's Commitment to Safety

Broadspectrum 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, Broadspectrum 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:

- Pressurized Hose Safety
- Trailer Hitch Safety
- Injury Reporting Procedure
- Generator Safety
- PPE Review

A. Summary of the Planned Maintenance Activities for the Upcoming Month – October 2017

Broadspectrum 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 October 2017 is included below.

Fig. A-1 Planned Maintenance Activities for October 2017

X – Indicates the day the task is planned.

Performance Standard Identification Number (Table 6.1)	Work Activity-Description	Frequency	Oct-17																														
			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
			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	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
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-10	CRACK SEALING	F-1									X	X	X												X	X	X						
ML-4	DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12				X																				X							
ML-2	DRAINAGE (INLET) OBSERVE/ CLEAN / REPAIR	F-12										X																					
ML-2	DRAINAGE (PIPE/CULVERT) OBSERVE / CLEAN / RPR	F-12			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						X							X						X			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							X							X		
ML-12	GRAFFITI OBSERVATION / REMOVAL	F-52			X						X							X							X							X	
ML-14	MECHANICAL ROAD SWEEPING	F-12															X	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	
	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	

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 September 2017,

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

Performance Standard Identification Number (Table 6.1)	Work Activity-Description	Frequency	Sep-17																													
			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
			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	F	S
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	
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					X					
ML-4	DELINEATORS & MARKERS OBSERVE / CLEAN / REPAIR	F-12						X				X							X	X	X										X	
ML-2	DRAINAGE (INLET) OBSERVE / CLEAN / REPAIR	F-12					X																									
ML-2	DRAINAGE (PIPE/CULVERT) OBSERVE / CLEAN / RPR	F-12						X																								
ML-6	SIGN OBSERVATION / REPAIR	F-52					X					X	X		X				X							X	X					
ML-8	STREET LIGHTING OBSERVATION /REPAIR	F-52						X				X								X						X	X	X	X			
ML-8	ELECTRICAL SUPPLY INSPECTION / REPAIR	F-12																														
ML-8	ACCESS PANEL OBSERVATION / REPAIR	F-12															X															
ML-10	HERBICIDE & WEED CONTROL MAINTENANCE	F-52					X	X						X	X	X			X		X	X	X			X		X				
ML-12	GRAFFITI OBSERVATION / REMOVAL	F-52						X	X					X								X				X			X			
ML-14	MECHANICAL ROAD SWEEPING	F-12																								X	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	
	REVERSIBLE LANE OPERATIONS	Daily	X				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 Flexible Pavement Surface Rpr (YD2)	3
153 Concrete Pavement Surface Rpr (YD2)	13
216 Fence Maint (LF)	40
218 Debris in Roadway (HR)	10
218 Litter Barrel Trash Cleanup (YD3)	40
220 Sweeping (Mech) (MI)	108
222 Sweeping - Hand (HR)	25
253 Vegetation Machine Mowing (ACR)	10
254 Veg Cntrl: Hand/Chem Weeding (HR)	26.5
301 Misc Sign Maint (EA)	4
304 Del Post Maint (EA)	22
307 Directional Gate Maint (EA)	8
312 Lighting Repairs/Maint (EA)	13
314 Reversible Lane Ops (HR)	196
329 Courtesy Assistance (HR)	330
364 Bridge Joint Maint Cln/Rpr (LF)	375
402 Snow Plow Material (HR)	70
540 Graffiti Removal (SF)	75

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

Broadspectrum completed all scheduled maintenance activities for the period of September, 2017. 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: None

Courtesy Patrol: None

Hazardous Materials Incidents: None

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

This section provides a summary of Broadspectrum's 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
ML 8.1	Lighting (North Bulb Out)	040-I25-LHT-0100, MP 215.0	4/5/2017 22:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/27/2017 14:30 Actual: 5.82 Months
ML 8.1	Lighting (All Bulbs Out)	040-I25-LHT-0050, MP 214.7	4/5/2017 22:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/27/2017 14:30 Actual: 5.82 Months
ML 8.1	Lighting (West Bulb Out)	040-U36-LHT-0250, MP 56.8	4/5/2017 22:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/28/2017 13:00 Actual: 5.85 Months
GP 4.1	Pavement Striping (Paint Worn Pavement Markings)	US36 MP 39.0-57.1	5/17/2017 11:00:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
GP 4.1	Pavement Striping (Paint Worn Pavement Markings)	I-25 MP212.1-217.2	5/17/2017 11:00:00	N/A	N/A	Reqd: 6 Months Respnd: -- Actual: In Progress
ML 8.1	Lighting (West Bulb Out)	040-U36-LHT-0240, MP 56.81	6/5/2017 12:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/28/2017 13:00 Actual: 3.83 Months
ML 8.1	Lighting (North Bulb Out)	040-U36-LHT-0010, MP 55.40	6/5/2017 12:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/28/2017 13:00 Actual: 3.83 Months
ML 8.1	Lighting (All Bulbs Out)	040-I25-LHT-0080, MP 214.9	6/5/2017 12:00:00	N/A	N/A	Reqd: 6 Months Respnd: 9/27/2017 14:30 Actual: 3.80 Months
GP 10.1	Vegetation Control (Mowing)	US36 MP 54.80-57.30	8/31/2017 08:00:00	N/A	N/A	Reqd: 28 Days Respnd: 9/26/2017 14:00 Actual: 26.25 Days
GP 1.1	Debris (Cleared Couch from lanes)	US36 MP 53.00 EB	9/2/2017 11:10:00	Reqd: 1 Hours Respnd: 9/2/2017 11:50 Actual: 0.66 Hours	N/A	N/A
GP 12.1	Graffiti (Removed Graffiti from Ramp Barrier)	US36 MP 55.00 WB	9/6/2017 18:00:00	N/A	Reqd: 10 Days Respnd: 9/6/2017 20:00 Actual: 0.08 Days	N/A
GP 1.1	Debris (Cleared Bed from lanes)	US36 MP 57.20 WB	9/9/2017 09:30:00	Reqd: 1 Hours Respnd: 9/9/2017 10:00 Actual: 0.49 Hours	N/A	N/A
GP 1.1	Debris (Cleared Mile Post from lanes)	US36 MP 41.00 WB	9/10/2017 13:30:00	Reqd: 1 Hours Respnd: 9/10/2017 14:00 Actual: 0.50 Hours	N/A	N/A
GP 1.1	Debris (Cleared Animal Carcass from lanes)	US36 MP 50.20 WB	9/13/2017 08:04:00	Reqd: 1 Hours Respnd: 9/13/2017 08:49 Actual: 0.75 Hours	N/A	N/A
GP 1.1	Debris (Cleared Tire from lanes)	US36 MP 56.20 WB	9/13/2017 17:40:00	Reqd: 1 Hours Respnd: 9/13/2017 18:15 Actual: 0.58 Hours	N/A	N/A
GP 1.1	Debris (Cleared Tire from lanes)	US36 MP 46.10 WB	9/14/2017 15:52:00	Reqd: 1 Hours Respnd: 9/14/2017 16:35 Actual: 0.71 Hours	N/A	N/A
GP 1.1	Debris (Reported Debris, Nothing Found)	US36 MP 53.90 WB	9/14/2017 15:52:00	Reqd: 1 Hours Respnd: 9/14/2017 16:35 Actual: 0.71 Hours	N/A	N/A
GP 1.1	Debris (Cleared Trash Can from lanes)	US36 MP 53.00 EB	9/14/2017 15:18:00	Reqd: 1 Hours Respnd: 9/14/2017 15:35 Actual: 0.28 Hours	N/A	N/A

Element Category	Description	Location	BRS Notified	Response to Defects		
				Category 1		Category 2
				Hazard Mitigation	Permanent Remedy	Permanent Repair
GP 1.1	Debris (Cleared Trash Can from lanes)	US36 MP 55.10 WB	9/15/2017 07:58:00	Reqd: 1 Hours Resp: 9/15/2017 08:48 Actual: .83 Hours	N/A	N/A
GP 1.1	Debris (Cleared Animal Carcass from lanes)	US36 MP 53.90 WB	9/15/2017 08:08:00	Reqd: 1 Hours Resp: 9/15/2017 08:59 Actual: 0.84 Hours	N/A	N/A
GP 1.1	Debris (Reported Debris, Nothing Found)	US36 MP 50.40	9/15/2017 10:04:00	Reqd: 1 Hours Resp: 9/15/2017 10:49 Actual: 0.75 Hours	N/A	N/A
GP 5.2	Attenuator (Impact Damage)	US36 MP 54.64 EB	9/18/2017 23:50:00	N/A	N/A	Reqd: 6 Months Resp: -- Actual: In Progress
GP 1.1	Debris (Cleared Plastic from lanes)	US36 MP 54.73 EB	9/20/2017 19:23:00	Reqd: 1 Hours Resp: 9/20/2017 19:38 Actual: 0.25 Hours	N/A	N/A
GP 1.1	Debris (Cleared Animal Carcass from lanes)	US36 MP 52.40 EB	9/20/2017 09:00:00	Reqd: 1 Hours Resp: 9/20/2017 09:49 Actual: 0.81 Hours	N/A	N/A
GP 1.1	Debris (Cleared Tire from lanes)	US36 MP 44.80 EB	9/21/2017 16:10:00	Reqd: 1 Hours Resp: 9/21/2017 16:44 Actual: 0.56 Hours	N/A	N/A
GP 1.1	Debris (Cleared Tire from lanes)	US36 MP 49.00	9/21/2017 13:52:00	Reqd: 1 Hours Resp: 9/21/2017 14:15 Actual: 0.38 Hours	N/A	N/A
GP 1.1	Debris (Cleared Tire from lanes)	US36 MP 47.70 EB	9/21/2017 18:17:00	Reqd: 1 Hours Resp: 9/21/2017 18:37 Actual: 0.33 Hours	N/A	N/A
GP 12.1	Graffiti (Removed Graffiti from Ramp Barrier)	US36 MP 55.90 WB	9/25/2017 12:30:00	N/A	Reqd: 10 Days Resp: 9/25/2017 13:30 Actual: 0.04 Days	N/A
GP 1.1	Debris (Cleared Concrete Debris from lanes)	I-25 MP 214.70	9/28/2017 12:23:00	Reqd: 1 Hours Resp: 9/28/2017 13:00 Actual: 0.61 Hours	N/A	N/A
GP 1.1	Debris (Cleared Log from lanes)	US36 MP 55.40 WB	9/28/2017 13:56:00	Reqd: 1 Hours Resp: 9/28/2017 14:15 Actual: 0.31 Hours	N/A	N/A
GP 1.1	Debris (Cleared Ladder from lanes)	US36 MP 46.50 EB	9/29/2017 07:30:00	Reqd: 1 Hours Resp: 9/29/2017 08:06 Actual: 0.60 Hours	N/A	N/A
GP 1.1	Debris (Reported Debris, Nothing Found)	US36 MP 40.45 WB	9/29/2017 09:21:00	Reqd: 1 Hours Resp: 9/29/2017 09:44 Actual: 0.38 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 Broadspectrum's 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. Broadspectrum considers a breakdown to be a failure when the element cannot be used for its intended purpose until repaired.