

LOS ANGELES COUNTY
METROPOLITAN TRANSPORTATION AUTHORITY

Photo Enforcement Services

Monthly Update



October 2018



Prepared by: Conduent State and Local Solutions
Confidential

Executive Summary

Conduent is pleased to present the monthly summary report for the Los Angeles County Metropolitan Transportation Authority's Photo Enforcement Services. The report covers a detailed activity profile for all active intersections where the automated traffic enforcement systems are installed.

In October 2018, the photo enforcement project for MTA captured a total of 55,203 events. The project recorded 8,922 possible violations and 46,281 non-violations. The LA County Sheriff's Department issued 4,540 citations reflecting a 51% issuance rate and a controllable issuance rate of 89%.

The following controllable non-issued violations occurred for these reasons and are being addressed:

122 Data Entry / 129 Equipment Malfunction

Both of these events occur when a photo or video do not display; this issue is being addressed with a firmware update. These issues decrease in frequency after the updates occur.

122 Framing of Car/7 Framing of Driver / 15 Clarity of Plate

These events are caused by vehicle movement not allowing the image to be framed as needed for evidence; adjustments will continue to be made to avoid these issues.

70 Dark Interior

Adjustments continue to be made to the cameras to avoid this error and we continue to see this issue decrease.

85 Rejects Expired

In the News - Conduent Transit Senior Director Phil Silver

Conduent Shares Risk Mitigation Insights at APTA 2018

October 15, 2018 TRANSPORTATION

At September's American Public Transit Association (APTA) Annual Meeting in Nashville, Conduent Transit Senior Director Phil Silver shared crucial cybersecurity advice to help attendees minimize the impact of cyberattacks and other incidents.

Approximately 1,700 public transportation executives attended APTA's 2018 Annual Meeting, which included conference sessions on public transportation technology and mobility advances and associated safety and security concerns. Silver spoke at a roundtable session entitled "Anatomy of a Security Breach and the Vulnerabilities of Big Data" alongside other public transit leaders. This educational session focused on ways that transit sector organizations can mitigate cybersecurity risks.

According to Silver, smart technologies such as digital devices, apps and the Internet of Things (IoT), "have opened the door to potential vulnerabilities that simply didn't exist just a few short years ago."

News of transit sector cyberattacks underscore the challenges transportation organizations face. In one California city, for example, a hacker attacked the regional transit website -- erasing data, disrupting bus and light rail schedules, and hindering access to the website and apps. And in Lodz, Poland, a 14-year-old managed to turn a TV remote control device into a train controller, which led to four vehicle derailments and 12 people injured.

Here are three key takeaways Conduent's Silver shared at the APTA event:

- 1) Focus on IP device protection** – to address security concerns and optimize performance for wireless LANs and cloud services.
- 2) Evaluate public key infrastructure (PKI) credential management** – to incorporate strong authentication and digital signatures and improve security across servers, cloud services and devices on transportation sector networks.
- 3) Adopt well-vetted 'defense-in-depth' strategies** -- to harden all devices against potential compromises, improve network defenses and situational awareness, and better control backups and system updates.

By implementing the right protections, transportation organizations will minimize the impact of cyberattacks and other security compromises. "Transportation organizations will reduce costs, along with the time and complexity required to deploy new devices, and they will also streamline their ongoing audit and compliance processes," Silver explained.

With 50 years of transit sector expertise, Conduent is well-positioned to help. Conduent has developed and deployed innovative transportation solutions serving clients across all modes of transport, including tolling, public transit, public safety and parking. As a trusted partner, Conduent stands ready to help transportation organizations better protect their most valuable assets and information.

Definitions

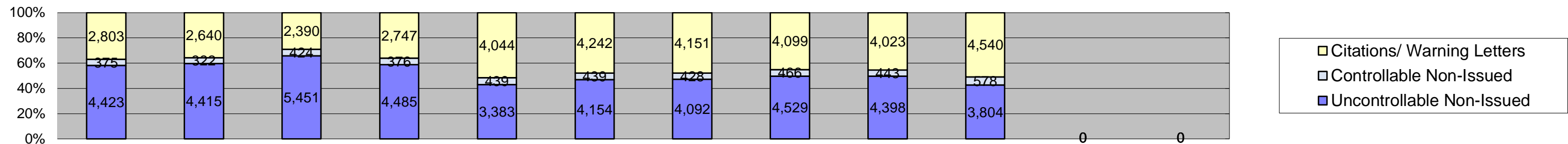
Event: Using a photo enforcement system, an “event” is the photo and video capture of license plate and face of motorists who violate traffic signals. Not all “Events” end up being a Violation. For example, if the auto breached the limit line of the leading edge of the crosswalk and does not follow-through with the move (the auto stops), the camera will take only 1 photo (an event), that will be dismissed as a non-violation. Camera Test Shots performed by Field Service Technicians are also considered an “event” since the camera and flash activated. An “Event” is made up by both violations and non-violations.

Violation: Following MTA Red Light Photo Enforcement Business Rules, a “violation” occurs when the entire vehicle is behind the stop bar (or in the absence of stop bar use the leading edge of the crosswalk) in the first photo and then in the second photo, the rear tire must be on or in front of the trailing crosswalk line or stop bar (in the absence of a crosswalk). If the business rules are not valid for an event, it will be categorized a non-violation.

Citation: A police “citation” is official documentation stating that an individual has been made aware of a violation by an officer of the law. The citation must contain: registered owner name and address, license plate of vehicle, date, time, and location of offense, date, time and location of court appearance, date of birth, Driver’s license number, and date of issue.



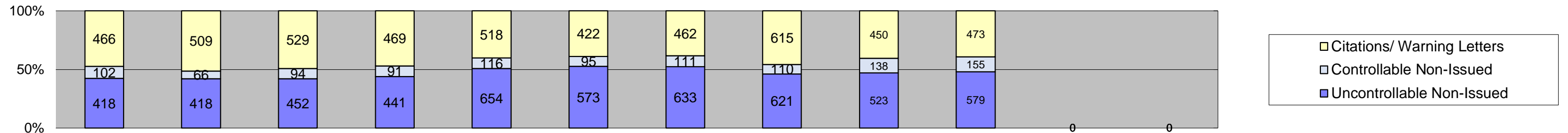
Los Angeles County MTA
Approach Summary Report
All Locations
2018



Events	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Year to Date Monthly Average	
													Quantity	%
Non-Violations	46,624	42,873	49,560	47,152	47,233	46,097	45,269	46,587	44,140	46,281	0	0	46,182	85%
Violations	7,601	7,377	8,265	7,576	7,866	8,835	8,671	9,094	8,864	8,922	0	0	8,307	15%
Total:	54,225	50,250	57,825	54,728	55,099	54,932	53,940	55,681	53,004	55,203	0	0	54,489	100%
Violations														
Uncontrollable Non-Issued	4,423	4,415	5,451	4,485	3,383	4,154	4,092	4,529	4,398	3,804	0	0	4,313	52%
Controllable Non-Issued	375	322	424	376	439	439	428	466	443	578	0	0	429	5%
Citations/ Warning Letters	2,803	2,640	2,390	2,747	4,044	4,242	4,151	4,099	4,023	4,540	0	0	3,568	43%
Total:	7,601	7,377	8,265	7,608	7,866	8,835	8,671	9,094	8,864	8,922	0	0	8,310	100%
Non-Violations														
Emergency Vehicle Non-Issuable	376	305	626	406	359	424	348	271	303	287	0	0	371	1%
Emergency Vehicle PD	2	6	8	6	9	17	13	14	4	1	0	0	8	0%
Intersection Control in Progress- PD	2	3	4	2	1	3	0	2	0	12	0	0	4	0%
Gate Down/ No Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Violation Occurred	35,477	32,603	37,621	36,186	35,824	34,739	34,037	35,292	32,423	21,335	0	0	33,554	74%
Rear Axle Activation	143	134	135	145	125	123	80	144	158	157	0	0	134	0%
Right Turn- No Violation	32	29	40	24	49	45	19	33	40	78	0	0	39	0%
Test Shot	10,579	9,781	11,099	10,365	10,852	10,740	10,760	10,823	10,215	10,254	0	0	10,547	23%
Train Activation	0	0	0	0	0	0	0	0	989	14,156	0	0	0	0%
Amber Time Low	1	1	0	0	1	0	0	0	1	3,043	0	0	609	1%
Vehicle Stopped- PD	9	10	25	17	10	4	11	7	7	0	0	0	11	0%
Total:	46,621	42,872	49,558	47,151	47,230	46,095	45,268	46,586	44,140	49,323	0	0	45,276	100%
Uncontrollable Non-Issued Violations														
Administrative Dismissal	0	0	2	0	1	0	0	2	0	1	0	0	2	0%
Address/CDL/DOB Match Fail	0	0	0	0	2	1	2	0	50	0	0	0	14	0%
Car Obstructed	76	68	60	90	148	88	92	154	153	150	0	0	108	2%
Conditions Beyond Control	34	58	99	82	0	0	0	0	0	0	0	0	68	1%
Driver Identity Unclear	253	249	145	106	102	111	125	130	127	165	0	0	151	3%
Driver Obstructed	150	149	156	190	162	193	170	193	183	187	0	0	173	4%
Exposed	0	0	0	0	0	0	1	0	1	0	0	0	1	0%
Emergency Vehicle Issue	8	6	8	7	8	14	12	20	38	33	0	0	15	0%
Glare on Plate	366	358	241	269	268	222	225	271	346	315	0	0	288	6%
Glare on Windshield	102	138	179	193	249	284	308	242	229	180	0	0	210	5%
Illegible Plate	43	37	56	39	39	40	63	66	37	66	0	0	49	1%
Interest of Justice- PD	6	8	1	1	1	0	0	1	0	0	0	0	3	0%
Image Quality- PD	41	36	30	45	57	54	50	46	11	8	0	0	38	1%
Issuance Criteria Not Met- PD	1,305	1,376	1,941	1,368	2	0	1	0	1	22	0	0	752	16%
No Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Plate	1,299	1,319	1,403	1,373	1,597	1,624	1,611	1,719	1,626	1,753	0	0	1,532	33%
No Speed Captured	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Obstruction In Photo- PD	307	379	316	301	262	304	250	244	237	201	0	0	280	6%
Out of State	153	130	169	139	167	177	181	225	195	181	0	0	172	4%
Plate Obstructed	114	101	113	93	119	100	80	102	115	111	0	0	105	2%
Short Yellow- PD	0	1	0	0	0	0	0	0	0	0	0	0	1	0%
Third Party Damage	0	1	0	3	0	0	0	0	0	0	0	0	2	0%
TSB Epired	2	1	1	0	0	1	6	76	238	310	0	0	79	2%
TSB No Hit	164	0	531	186	199	941	915	1,038	811	121	0	0	545	12%
Total:	4,423	4,415	5,451	4,485	3,383	4,154	4,092	4,529	4,398	3,804	0	0	4,589	100%
Controllable Non-Issued Violations														
Conduent Expire	38	0	0	0	1	0	0	3	1	0	0	0	11	2%
Clarity of Plate	0	0	0	1	11	15	12	4	1	15	0	0	8	2%
Clarity of Driver	0	2	1	1	11	8	1	1	0	2	0	0	3	1%
Dark Interior	57	39	53	64	76	76	49	67	56	70	0	0	61	12%
Data Box Related- PD	1	0	0	0	0	1	0	0	0	0	0	0	1	0%
Data Box Data Error- PD	1	1	0	0	2	1	0	0	0	0	0	0	1	0%
Data Entry Error	142	163	211	178	175	178	177	211	117	122	0	0	167	34%
Exposed	0	0	0	0	10	5	0	14	8	17	0	0	11	2%
Equipment Malfunction	15	17	38	6	15	10	42	48	108	129	0	0	43	9%
Framing- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Car	92	85	101	119	122	128	132	96	113	122	0	0	111	23%
Framing of Driver	8	2	1	0	2	2	7	12	17	7	0	0	6	1%
Operator Error	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Plate	3	3	4	0	1	2	3	10	3	9	0	0	4	1%
Reject Expired	0	0	0	0	0	0	0	0	19	85	0	0	52	11%
Speed Not Determined	18	10	15	7	13	13	5	0	0	0	0	0	12	2%
Total:	375	322	424	376	439	439	428	466	443	578	0	0	492	100%
Summary Metrics														
Daily Average Vehicle Passes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Issued Speed	19	19	19	19	19	19	19	19	19	19	0	0	19	19
Average Issued Red Seconds	60.5	58.0	62.9	76.7	81.1	58.2	72.4	66.0	48.4	42.7	0	0	62.7	62.7
Citation / Violation Issuance Rate	37%	36%	29%	36%	51%	48%	48%	45%	45%	51%	0%	0%	43%	43%
Controllable Issuance Rate	88%	89%	85%	88%	90%	91%	91%	90%	90%	89%	0%	0%	89%	89%



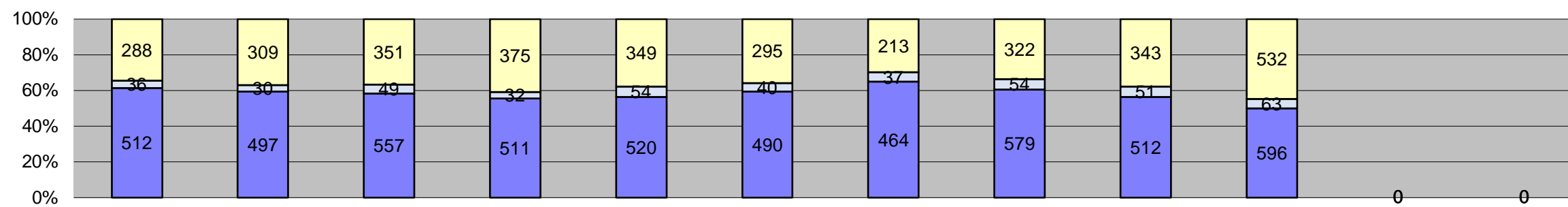
Los Angeles County MTA Blue Line
Approach Summary Report
All Locations
2018



Events	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Year to Date Average	
													Quantity	%
Non-Violations	7,084	5,916	7,244	6,107	6,426	6,168	6,821	6,461	6,441	6,813	0	0	6,548	85%
Violations	986	993	1,075	1,001	1,288	1,090	1,206	1,346	1,111	1,207	0	0	1,130	15%
Total:	8,070	6,909	8,319	7,108	7,714	7,258	8,027	7,807	7,552	8,020	0	0	7,678	100%
Violations														
Uncontrollable Non-Issued	418	418	452	441	654	573	633	621	523	579	0	0	531	47%
Controllable Non-Issued	102	66	94	91	116	95	111	110	138	155	0	0	108	10%
Citations/ Warning Letters	466	509	529	469	518	422	462	615	450	473	0	0	491	43%
Total:	986	993	1,075	1,001	1,288	1,090	1,206	1,346	1,111	1,207	0	0	1,130	100%
Non-Violations														
Emergency Vehicle Non-Issuable	20	22	19	24	21	28	24	32	13	25	0	0	23	0%
Emergency Vehicle PD	0	1	1	1	2	3	0	5	0	0	0	0	2	0%
Intersection Control in Progress- PD	0	0	0	0	1	2	0	2	0	0	0	0	2	0%
Gate Down/ No Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Violation Occurred	5,238	4,081	5,153	4,213	4,432	4,064	4,878	4,578	4,564	1,876	0	0	4,308	46%
Rear Axle Activation	0	1	1	0	0	1	0	0	0	2	0	0	1	0%
Right Turn- No Violation	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Test Shot	1,823	1,810	2,068	1,868	1,966	2,068	1,918	1,843	1,863	1,868	0	0	1,910	21%
Train Activation	0	0	0	0	0	0	0	0	0	3,042	0	0	0	0%
Amber Time Low	0	0	0	0	0	0	0	0	0	3,042	0	0	3,042	33%
Vehicle Stopped- PD	0	0	0	0	1	0	0	0	1	0	0	0	1	0%
Total:	7,081	5,915	7,242	6,106	6,423	6,166	6,820	6,460	6,441	9,855	0	0	9,288	100%
Uncontrollable Non-Issued Violations														
Administrative Dismissal	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Address/CDL/DOB/Match Fail	0	0	0	0	0	0	0	0	50	0	0	0	50	8%
Car Obstructed	26	28	24	28	27	25	25	41	51	44	0	0	32	5%
Conditions Beyond Control	0	0	9	0	0	0	0	0	0	0	0	0	9	1%
Driver Identity Unclear	60	53	26	31	55	27	38	61	14	40	0	0	41	6%
Driver Obstructed	31	27	34	36	43	40	34	26	43	38	0	0	35	5%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Emergency Vehicle Issue	0	0	0	0	0	0	0	6	5	8	0	0	6	1%
Glare on Plate	48	31	20	12	17	16	21	38	44	31	0	0	28	4%
Glare on Windshield	19	30	28	47	48	65	67	55	40	43	0	0	44	7%
Illegible Plate	11	10	14	6	9	12	11	19	12	26	0	0	13	2%
Interest of Justice- PD	1	0	0	1	0	0	0	1	0	0	0	0	1	0%
Image Quality- PD	3	2	3	11	13	9	7	20	2	5	0	0	8	1%
Issuance Criteria Not Met- PD	2	5	11	8	0	0	1	0	0	0	0	0	5	1%
No Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Plate	149	176	143	164	183	207	185	217	194	229	0	0	185	28%
No Speed Captured	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Obstruction In Photo- PD	23	25	14	22	19	14	19	22	12	15	0	0	19	3%
Out of State	17	8	16	15	16	15	17	22	17	24	0	0	17	3%
Plate Obstructed	28	23	16	17	25	24	27	27	33	17	0	0	24	4%
Short Yellow- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Third Party Damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
TSB Epired	0	0	0	0	0	0	0	0	0	55	0	0	55	8%
TSB No Hit	0	0	94	43	199	119	181	66	6	4	0	0	89	13%
Total:	418	418	452	441	654	573	633	621	523	579	0	0	659	100%
Controllable Non-Issued Violations														
Conduent Expire	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Clarity of Plate	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Clarity of Driver	0	0	0	0	0	0	1	0	0	0	0	0	1	1%
Dark Interior	16	4	6	21	14	19	19	17	8	5	0	0	13	9%
Data Box Related- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Data Box Data Error- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Data Entry Error	19	8	14	12	31	11	19	25	24	13	0	0	18	12%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Equipment Malfunction	4	8	7	1	2	0	1	3	28	7	0	0	7	5%
Framing- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Car	55	43	65	54	67	63	65	56	65	84	0	0	62	42%
Framing of Driver	6	2	0	0	1	1	3	9	13	4	0	0	5	3%
Operator Error	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Plate	0	0	0	0	0	0	1	0	0	2	0	0	2	1%
Reject Expired	0	0	0	0	0	0	0	0	0	40	0	0	40	27%
Speed Not Determined	2	1	2	3	1	1	2	0	0	0	0	0	2	1%
Total:	102	66	94	91	116	95	111	110	138	155	0	0	148	100%
Summary Metrics														
Daily Average Vehicle Passes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Issued Speed	17	17	17	16	16	17	17	17	18	18	#DIV/0!	#DIV/0!	17	
Average Issued Red Seconds	48.0	76.0	12.0	110.6	14.1	44.8	44.6	55.7	15.7	10.3	#DIV/0!	#DIV/0!	43.2	
Citation / Violation Issuance Rate	47%	51%	49%	47%	40%	39%	38%	46%	41%	39%	0%	0%	44%	
Controllable Issuance Rate	82%	89%	85%	84%	82%	82%	81%	85%	77%	75%	0%	0%	82%	



Los Angeles County MTA Expo Line
Approach Summary Report
All Locations
2018

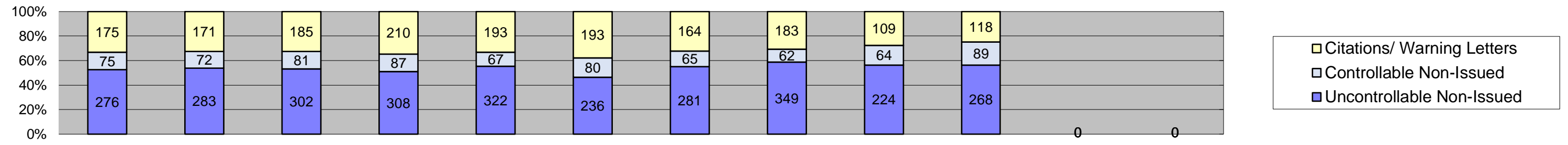


Citations/ Warning Letters
 Controllable Non-Issued
 Uncontrollable Non-Issued

Events	2018												Year to Date Monthly Average	
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Quantity	%
Non-Violations	12,735	12,518	13,860	12,902	13,947	12,865	11,429	11,263	10,303	11,093	0	0	12,292	93%
Violations	836	836	957	918	923	825	714	955	906	1,191	0	0	906	7%
Total:	13,571	13,354	14,817	13,820	14,870	13,690	12,143	12,218	11,209	12,284	0	0	13,198	100%
Violations														
Uncontrollable Non-Issued	512	497	557	511	520	490	464	579	512	596	0	0	524	58%
Controllable Non-Issued	36	30	49	32	54	40	37	54	51	63	0	0	45	5%
Citations/ Warning Letters	288	309	351	375	349	295	213	322	343	532	0	0	338	37%
Total:	836	836	957	918	923	825	714	955	906	1,191	0	0	906	63%
Non-Violations														
Emergency Vehicle Non-Issuable	20	19	304	21	22	29	22	20	29	15	0	0	50	0%
Emergency Vehicle PD	0	0	0	0	4	3	1	2	0	0	0	0	3	0%
Intersection Control in Progress-PD	0	1	0	2	0	1	0	0	0	1	0	0	1	0%
Gate Down/ No Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Violation Occurred	10,218	10,082	10,939	10,376	11,384	10,261	8,876	8,653	7,806	5,206	0	0	9,380	78%
Rear Axle Activation	108	90	89	104	64	77	79	141	158	147	0	0	106	1%
Right Turn- No Violation	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Test Shot	2,386	2,325	2,528	2,397	2,473	2,494	2,451	2,447	2,259	2,336	0	0	2,410	20%
Train Activation	0	0	0	0	0	0	0	0	51	3,388	0	0	0	0%
Amber Time Low	1	0	0	0	0	0	0	0	0	0	0	0	1	0%
Vehicle Stopped- PD	2	1	0	2	0	0	0	0	0	0	0	0	2	0%
Total:	12,735	12,518	13,860	12,902	13,947	12,865	11,429	11,263	10,303	11,093	0	0	11,952	100%
Uncontrollable Non-Issued Violations														
Administrative Dismissal	0	0	0	0	0	0	0	1	0	0	0	0	1	0%
Address/CDL/DOB Match Fail	0	0	0	0	1	0	0	0	0	0	0	0	1	0%
Car Obstructed	6	5	10	12	5	8	1	14	13	22	0	0	10	2%
Conditions Beyond Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Driver Identity Unclear	62	54	28	27	12	21	22	14	12	35	0	0	29	5%
Driver Obstructed	21	28	40	38	32	43	26	53	36	43	0	0	36	6%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Emergency Vehicle Issue	5	6	4	6	4	9	3	7	9	5	0	0	6	1%
Glare on Plate	146	158	133	173	174	127	115	139	149	136	0	0	145	26%
Glare on Windshield	35	20	27	40	23	65	74	71	32	40	0	0	43	8%
Illegible Plate	3	1	1	1	2	0	7	6	0	9	0	0	4	1%
Interest of Justice- PD	0	1	0	0	1	0	0	0	0	0	0	0	1	0%
Image Quality- PD	17	9	14	16	20	21	13	15	2	1	0	0	13	2%
Issuance Criteria Not Met- PD	0	0	0	0	0	0	0	0	0	14	0	0	14	3%
No Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Plate	144	149	198	155	181	150	165	200	207	235	0	0	178	32%
No Speed Captured	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Obstruction In Photo- PD	32	32	22	17	27	21	16	21	11	20	0	0	22	4%
Out of State	10	10	16	5	11	10	16	18	11	14	0	0	12	2%
Plate Obstructed	31	23	32	21	27	15	6	19	17	19	0	0	21	4%
Short Yellow- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Third Party Damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
TSB Expired	0	1	0	0	0	0	0	1	12	3	0	0	4	1%
TSB No Hit	0	0	32	0	0	0	0	0	1	0	0	0	17	3%
Total:	512	497	557	511	520	490	464	579	512	596	0	0	556	100%
Controllable Non-Issued Violations														
Conduent Expire	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Clarity of Plate	0	0	0	0	2	0	0	0	0	0	0	0	2	4%
Clarity of Driver	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Dark Interior	12	8	14	13	16	11	8	9	21	36	0	0	15	27%
Data Box Related- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Data Box Data Error- PD	0	0	0	0	2	1	0	0	0	0	0	0	2	3%
Data Entry Error	6	10	17	4	5	3	8	17	10	4	0	0	8	15%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Equipment Malfunction	5	0	3	0	2	4	1	5	2	8	0	0	4	7%
Framing- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Car	6	9	7	15	19	17	18	20	16	15	0	0	14	25%
Framing of Driver	0	0	0	0	0	0	0	3	0	0	0	0	3	5%
Operator Error	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Plate	1	0	0	0	0	0	0	0	0	0	0	0	1	2%
Reject Expired	0	0	0	0	0	0	0	0	2	0	0	0	2	4%
Speed Not Determined	6	3	8	0	8	4	2	0	0	0	0	0	5	9%
Total:	36	30	49	32	54	40	37	54	51	63	0	0	56	100%
Summary Metrics														
Daily Average Vehicle Passes	0	0	0	0	0	0	0	0	0	0	0	0	0	
Average Issued Speed	20	18	20	20	19	18	18	17	17	20			19	
Average Issued Red Seconds	38.4	42.5	44.8	62.9	72.2	47.2	75.9	26.4	31.6	33.9			47.6	
Citation / Violation Issuance Rate	34%	37%	37%	41%	38%	36%	30%	34%	38%	45%	0%	0%	37%	
Controllable Issuance Rate	89%	91%	88%	92%	87%	88%	85%	86%	87%	89%	0%	0%	88%	



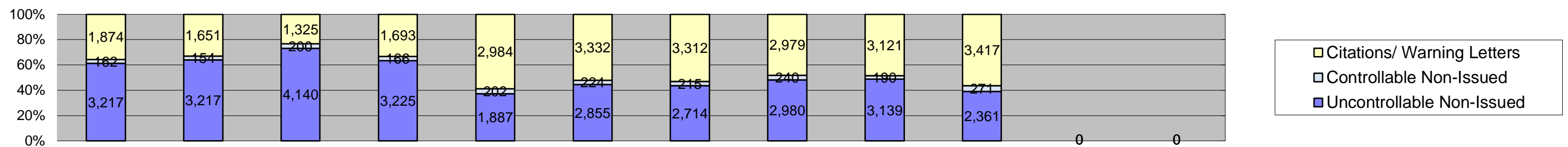
Los Angeles County MTA Gold Line
Approach Summary Report
All Locations
2018



Events	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Year to Date Monthly Average	
													Quantity	%
Non-Violations	17,689	16,415	19,128	18,685	17,774	17,874	17,787	19,080	17,756	18,049	0	0	18,024	97%
Violations	526	526	568	605	582	509	510	594	397	475	0	0	529	3%
Total:	18,215	16,941	19,696	19,290	18,356	18,383	18,297	19,674	18,153	18,524	0	0	18,553	100%
Violations														
Uncontrollable Non-Issued	276	283	302	308	322	236	281	349	224	268	0	0	285	54%
Controllable Non-Issued	75	72	81	87	67	80	65	62	64	89	0	0	74	14%
Citations/ Warning Letters	175	171	185	210	193	193	164	183	109	118	0	0	170	32%
Total:	526	526	568	605	582	509	510	594	397	475	0	0	529	100%
Non-Violations														
Emergency Vehicle Non-Issuable	111	100	82	155	126	171	132	84	70	54	0	0	109	1%
Emergency Vehicle PD	1	1	3	3	2	5	6	3	3	0	0	0	3	0%
Intersection Control in Progress- PD	0	1	0	0	0	0	0	0	0	0	0	0	1	0%
Gate Down/ No Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Violation Occurred	14,522	13,545	15,898	15,613	14,593	14,697	14,599	15,880	13,893	7,452	0	0	14,069	65%
Rear Axle Activation	1	0	1	0	2	0	0	1	0	1	0	0	1	0%
Right Turn- No Violation	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Test Shot	3,054	2,768	3,144	2,913	3,049	2,999	3,050	3,112	2,852	2,816	0	0	2,976	14%
Train Activation	0	0	0	0	0	0	0	0	938	7,726	0	0	4,332	20%
Amber Time Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Vehicle Stopped- PD	0	0	0	1	2	2	0	0	0	0	0	0	2	0%
Total:	17,689	16,415	19,128	18,685	17,774	17,874	17,787	19,080	17,756	18,049	0	0	21,492	100%
Uncontrollable Non-Issued Violations														
Administrative Dismissal	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Address/CDL/DOB Match Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Car Obstructed	10	12	2	7	76	14	11	4	7	9	0	0	15	5%
Conditions Beyond Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Driver Identity Unclear	30	32	24	17	13	8	15	5	6	15	0	0	17	5%
Driver Obstructed	25	29	19	29	17	25	40	26	20	18	0	0	25	7%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Emergency Vehicle Issue	0	0	0	0	0	1	0	3	16	17	0	0	9	3%
Glare on Plate	50	65	53	51	47	44	44	41	30	36	0	0	46	14%
Glare on Windshield	16	18	17	27	18	12	23	24	18	13	0	0	19	6%
Illegible Plate	29	23	34	30	24	27	45	35	17	26	0	0	29	9%
Interest of Justice- PD	0	2	0	0	0	0	0	0	0	0	0	0	2	1%
Image Quality- PD	3	0	2	1	3	1	3	4	1	0	0	0	2	1%
Issuance Criteria Not Met- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Plate	81	75	81	95	96	88	89	85	93	89	0	0	87	26%
No Speed Captured	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Obstruction In Photo- PD	17	11	12	16	18	10	2	19	5	5	0	0	12	3%
Out of State	5	6	11	11	7	5	6	15	7	6	0	0	8	2%
Plate Obstructed	10	10	10	9	3	1	3	7	4	7	0	0	6	2%
Short Yellow- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Third Party Damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
TSB Expired	0	0	0	0	0	0	0	0	0	25	0	0	25	7%
TSB No Hit	0	0	37	15	0	0	0	81	0	2	0	0	34	10%
Total:	276	283	302	308	322	236	281	349	224	268	0	0	335	100%
Controllable Non-Issued Violations														
Conduent Expire	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Clarity of Plate	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Clarity of Driver	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Dark Interior	16	15	19	15	26	25	6	24	13	21	0	0	18	18%
Data Box Related- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Data Box Data Error- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Data Entry Error	44	38	42	41	24	30	31	16	5	2	0	0	27	27%
Exposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Equipment Malfunction	2	1	3	2	1	3	6	11	4	7	0	0	4	4%
Framing- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Car	10	15	15	27	15	18	19	4	20	9	0	0	15	15%
Framing of Driver	1	0	0	0	0	1	3	0	4	3	0	0	2	2%
Operator Error	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Plate	0	1	1	0	0	0	0	7	1	2	0	0	2	2%
Reject Expired	0	0	0	0	0	0	0	0	17	45	0	0	31	30%
Speed Not Determined	2	2	1	2	1	3	0	0	0	0	0	0	2	2%
Total:	75	72	81	87	67	80	65	62	64	89	0	0	102	100%
Summary Metrics														
Daily Average Vehicle Passes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Issued Speed	17	17	18	17	18	17	18	18	17	17			17	
Average Issued Red Seconds	144.2	103.4	185.3	121.8	227.3	130.0	159.1	171.9	135.8	116.7			149.5	
Citation / Violation Issuance Rate	33%	33%	33%	35%	33%	38%	32%	31%	27%	25%	0%	0%	32%	
Controllable Issuance Rate	70%	70%	70%	71%	74%	71%	72%	75%	63%	57%	0%	0%	69%	



Los Angeles County MTA Orange Line
Approach Summary Report
All Locations
2018



Events	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Year to Date Monthly Average	
													Quantity	%
Non-Violations	9,116	8,024	9,328	9,458	9,086	9,190	9,232	9,783	9,640	10,326	0	0	9,318	62%
Violations	5,253	5,022	5,665	5,052	5,073	6,411	6,241	6,199	6,450	6,049	0	0	5,742	38%
Total:	14,369	13,046	14,993	14,510	14,159	15,601	15,473	15,982	16,090	16,375	0	0	15,060	100%
Violations														
Uncontrollable Non-Issued	3,217	3,217	4,140	3,225	1,887	2,855	2,714	2,980	3,139	2,361	0	0	2,974	52%
Controllable Non-Issued	162	154	200	166	202	224	215	240	190	271	0	0	202	4%
Citations/ Warning Letters	1,874	1,651	1,325	1,693	2,984	3,332	3,312	2,979	3,121	3,417	0	0	2,569	45%
Total:	5,253	5,022	5,665	5,084	5,073	6,411	6,241	6,199	6,450	6,049	0	0	5,745	100%
Non-Violations														
Emergency Vehicle Non-Issuable	225	164	221	206	190	196	170	135	191	193	0	0	189	2%
Emergency Vehicle PD	1	4	4	2	1	6	6	4	1	1	0	0	3	0%
Intersection Control in Progress-PD	2	1	4	0	0	0	0	0	0	11	0	0	5	0%
Gate Down/ No Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Violation Occurred	5,499	4,895	5,631	5,984	5,415	5,717	5,684	6,181	6,160	6,801	0	0	5,797	62%
Rear Axle Activation	34	43	44	41	59	45	1	2	0	7	0	0	31	0%
Right Turn- No Violation	3	29	40	24	49	45	19	33	40	78	0	0	39	0%
Test Shot	3,316	2,878	3,359	3,187	3,364	3,179	3,341	3,421	3,241	3,234	0	0	3,252	35%
Train Activation	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Amber Time Low	0	1	0	0	1	0	0	0	1	1	0	0	1	0%
Vehicle Stopped- PD	7	9	25	14	7	2	11	7	6	0	0	0	10	0%
Total:	9,116	8,024	9,328	9,458	9,086	9,190	9,232	9,783	9,640	10,326	0	0	9,326	100%
Uncontrollable Non-Issued Violations														
Administrative Dismissal	0	0	2	0	1	0	0	1	0	1	0	0	1	0%
Address/CDL/DOB Match Fail	0	0	0	0	1	1	2	0	0	0	0	0	1	0%
Car Obstructed	34	23	24	43	40	41	55	95	82	75	0	0	51	2%
Conditions Beyond Control	34	58	90	82	0	0	0	0	0	0	0	0	66	2%
Driver Identity Unclear	101	110	67	31	22	55	50	50	95	75	0	0	66	2%
Driver Obstructed	73	65	63	87	70	85	70	88	84	88	0	0	77	2%
Exposed	0	0	0	0	0	0	1	0	1	0	0	0	1	0%
Emergency Vehicle Issue	3	0	4	1	4	4	9	4	8	3	0	0	4	0%
Glare on Plate	122	104	35	33	30	35	45	53	123	112	0	0	69	2%
Glare on Windshield	32	70	107	79	160	142	144	92	139	84	0	0	105	3%
Illegible Plate	0	3	7	2	4	1	0	6	8	5	0	0	5	0%
Interest of Justice- PD	5	5	1	0	0	0	0	0	0	0	0	0	4	0%
Image Quality- PD	18	25	11	17	21	23	27	7	6	2	0	0	16	0%
Issuance Criteria Not Met- PD	1,303	1,371	1,930	1,360	2	0	0	0	1	8	0	0	854	25%
No Warning Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
No Plate	925	919	981	959	1,137	1,179	1,172	1,217	1,132	1,200	0	0	1,082	32%
No Speed Captured	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Obstruction In Photo- PD	235	311	268	246	198	259	213	182	209	161	0	0	228	7%
Out of State	121	106	126	108	133	147	142	170	160	137	0	0	135	4%
Plate Obstructed	45	45	55	46	64	60	44	49	61	68	0	0	54	2%
Short Yellow- PD	0	1	0	0	0	0	0	0	0	0	0	0	1	0%
Third Party Damage	0	1	0	3	0	0	0	0	0	0	0	0	2	0%
TSB Expired	2	0	1	0	0	1	6	75	226	227	0	0	77	2%
TSB No Hit	164	0	368	128	0	822	734	891	804	115	0	0	503	15%
Total:	3,217	3,217	4,140	3,225	1,887	2,855	2,714	2,980	3,139	2,361	0	0	3,402	100%
Controllable Non-Issued Violations														
Conduent Expire	38	0	0	0	1	0	0	3	1	0	0	0	11	5%
Clarity of Plate	0	0	0	1	9	15	12	4	1	15	0	0	8	4%
Clarity of Driver	0	2	1	1	11	8	0	1	0	2	0	0	4	2%
Dark Interior	13	12	14	15	20	21	16	17	14	8	0	0	15	7%
Data Box Related- PD	1	0	0	0	0	1	0	0	0	0	0	0	1	0%
Data Box Data Error- PD	1	1	0	0	0	0	0	0	0	0	0	0	1	0%
Data Entry Error	73	107	138	121	115	134	119	153	78	103	0	0	114	52%
Exposed	0	0	0	0	10	5	0	14	8	17	0	0	11	5%
Equipment Malfunction	4	8	25	3	10	3	34	29	74	107	0	0	30	13%
Framing- PD	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Car	21	18	14	23	21	30	30	16	12	14	0	0	20	9%
Framing of Driver	1	0	1	0	1	0	1	0	0	0	0	0	1	0%
Operator Error	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Framing of Plate	2	2	3	0	1	2	2	3	2	5	0	0	2	1%
Reject Expired	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Speed Not Determined	8	4	4	2	3	5	1	0	0	0	0	0	4	2%
Total:	162	154	200	166	202	224	215	240	190	271	0	0	221	100%
Summary Metrics														
Daily Average Vehicle Passes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Issued Speed	23	23	23	23	23	23	23	23	23	23	0	0	23	23
Average Issued Red Seconds	11.5	10.1	9.6	11.4	10.7	10.9	10.2	10.1	10.4	9.8	0	0	10.5	10.5
Citation / Violation Issuance Rate	36%	33%	23%	33%	59%	52%	53%	48%	48%	56%	0%	0%	44%	44%
Controllable Issuance Rate	92%	91%	87%	91%	94%	94%	94%	93%	94%	93%	0%	0%	92%	92%