Rhode Island
Motor Vehicle Inspection &
Maintenance Program
"Data Analysis and Reporting"

Annual Report Year 2020

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Department of
Environmental
Management

OFFICE OF AIR RESOURCES

Submitted to:

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ENVIRONMENTAL PROTECTION AGENCY

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Appendices

1. Executive Summary

The Rhode Island Motor Vehicle Inspection/Maintenance (I/M) Program was implemented in January of 2000. An annual report to the EPA is required under 40 CFR Part 51 § 51.366 "Data Analysis and Reporting". This report has been developed to comply with that requirement for the period from January 1, 2020 to December 31, 2020.

The report includes details of the I/M Program activities, including inspection data; description of the enforcement methods employed; outline of quality control and quality assurance program mechanisms used, along with a description of significant events.

The Rhode Island I/M program requires a biennial inspection of subject vehicles in a test-and-repair system. The number of Authorized Inspection Repair Stations (AIRS) has remained steady during the duration of the program. However, at the end of December 2020, 330 stations were active in the network, throughout the state, including those at the Division of Motor Vehicles (DMV) and the facility run by Opus Inspection, the Program Manager. Vehicles are tested using two methods: on-board diagnostic (OBD) testing and OBD diesel.

DMV and the Department of Environmental Management (DEM) are jointly responsible for the administration of the Rhode Island I/M Program. DMV is responsible for the operation of the program and DEM is responsible for the environmental aspects, including the requirement to submit this report. The majority of vehicles tested during 2020 were tested using OBD. Approximately 99% of the fleet was subjected to OBD testing, whereas 1% of the fleet was subjected to a Visual Emission Component Test.

2. Significant Events

Opus Inspection, Continued Program Manager of RI's Emission & Testing Program

In November 2017, Opus (Program Manager) Inspection was awarded the contract to serve as the Program Manager of Rhode Island's Emission & Testing Program beginning January 1, 2018 through December 31, 2025.

On-Board Diagnostic (OBD) and Visual Emission Component Only

During March 2017, the new software was completed by Opus to perform only On-Board Diagnostic (OBD) testing on vehicles. In addition to the OBD, DMV added a Visual Emission Component Check for the vehicles that are 1996 or older that are still required to be tested.

The Covid-19 Pandemic

In March of 2020, the country started shutting down due to the spread of the Covid-19 virus. Starting on March 15th, the Program Manager, DMV, and DEM worked together to temporarily instill new measures to keep both employees and the public safe. This included postponing in-person audits, temporarily postponing recertification of inspectors, and allowing the public extended periods of time to obtain new inspections and stickers. These measures impacted our program in several ways, such as not meeting the target number of audits or being unable to conduct enforcement actions in a timely manner.

Increasing the Number of Authorized Inspection Repair Stations (AIRS) to 330

It was decided at the beginning of the new contract that DMV would increase the number of inspection stations. Growing from 291 (2017) to up to 330 (2020). This number does not include the six fleet stations. The stations were added to increase the availability of testing facilities throughout the state, but also to respond to the increase in inspections done due to the computer software upgrade that occurred in 2017.

Increased Visual/Video Observation Enforcement

During 2018, the program implemented increased Video Enforcement, thus observing the inspector performance and to make sure that inspections are being conducted in the bay. Opus Inspection conducts this enforcement and continues to check inspection videos. Roughly 25 videos were checked a month at random, prior to the pandemic. Since both covert and overt audits were postponed for the safety and health of the inspectors, the program manager decided to increase visual audits to five stations per day, five inspections per station on all cameras. This increase also allowed Opus to help stations troubleshoot any technical difficulties with the cameras and provide needed visual compliance. These increased visual audits began after March 15th, 2020.

Heavy Duty Inspection Program in Development

As part of the RFP put out in 2017, the State required the creation of a Heavy-Duty Inspection Program. This program is still under development. This is due to the time and staff needed to improve the light-duty program, as well as delays from the Covid-19 pandemic. The anticipated rollout date for the heavy-duty program is between 2022-2023. This includes finalization of the HD I&M Regulations, software development, equipment roll-out to the stations, training of inspectors, and public outreach. http://webserver.rilin.state.ri.us/Statutes/TITLE31/31-47.2/INDEX.HTM

Bio-metric Log-on
Effective February 1st, 2019, inspectors will no longer be able to log on using a pin code and will be required to use the biometrics to log onto the analyzer to perform a vehicle inspection. This has also created a new type of digital auditing using fingerprints instead of passcodes mentioned in section 7, Quality Assurance. However, due to the pandemic, biometric login was temporarily not required to allow for less points of contact for the virus to spread. This was effective as of March 15th, 2020. The pin code method was allowed to be used until the spring of 2021.

3. Annual Test Data Report

This section reports vehicle inspection data for January 1, 2020 to December 31, 2020. Vehicles subject to the inspection requirement include all light-duty vehicles, 25 years old and newer, up to 8,500 pounds GVWR. Vehicles over 25 years of age are required to undergo inspection but the results relating to emissions are advisory and compliance with the standards is voluntary. New vehicles, less than two years old that have not exceeded 24,000 miles, are exempt from testing.

The data for this report was submitted by the Program Manager for all the inspection tests performed during 2020. The data was then filtered using a process to eliminate inspection results related to the State's safety inspection program which is performed concurrently with the emissions program (see Appendix "A" for Opus Inspection Reporting Services/RI EPA Reports Data).

Initial Test Results

The following table provides a breakdown of initial inspections by test type.

Table 1: Initial Test Results

Tests	Total	Pass	Fail	% Fail
Initial OBD Tests	332455	317081	15374	4.62%
Initial OBD Diesel	1266	1251	15	1.18%
Visual Comp Check	4496	4481	15	0.33%
Total Initial Tests	338217	322813	15404	4.55%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

During 2020, 330 AIRS that participated in the I/M Program. There were 338,217 initial tests conducted in 2020. The number of initial test failures was 15,404. This result is an overall initial failure rate of 4.55%.

Retest Test Results

Table II: First Retest Results by Test Type

	Total	Pass	Fail	% Fail
OBD First Retests	12464	11377	1087	8.72%
OBD Diesel First Retests	7	7	0	0.00%
Visual Comp Check Retests	17	16	1	5.88%
Total First Retests	12488	11400	1088	8.71%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

Table III: Subsequent Retest Results by Test Type

	Total	Pass	Fail	% Fail
OBD Subsequent Retests	950	776	174	18.32%
OBD Diesel Subsequent Retests	1	1	0	0.00%
Visual Comp Check Subsequent Retests	0	0	0	0.00%
Total Subsequent Retests	951	777	174	18.30%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test value by AIRS, model year and vehicle type)

The overall failure rate for Initial, First Retest, and Subsequent Retest is lower this year than it was last year. This is most likely due a lower volume of inspections as well as increased compliance from previous years.

Transient Tests

Table IV: Initial Transient Failure Rate

Program Year	Initial Transient Tests	Initial Transient Failures	% Fail
2002	274,456	30,062	10.95%
2003	184,187	24,279	13.18%
2004	116,944	15,924	13.62%
2005	104,041	15,877	15.26%
2006	80,053	10,423	13.02%
2007	63,501	7,451	11.73%

2008	47,941	5,543	11.56%
2009	36,561	3,369	9.21%
2010	29,402	2,696	9.17%
2011	20,543	1,426	6.94%
2012	20,988	1,499	7.14%
2013	12,830	895	6.98%
2014	9,866	724	7.34%
2015	6,222	643	10.33%
2016	3,850	396	10.29%
2017	48	2	4.17%
2018	0	0	0.00%
2019	0	0	0.00%

Beginning in 2002 the anticipated failure rate was projected to be 15-18%. The failure rate has been lower than anticipated since 2002, except during 2005. The program has phased out Transient testing.

Table V: First Retest Failure Rates of Transient Tests

Program Year	1st Retest Vehicles	Fail	% Fail
2002	26,234	5,814	22%
2003	24,207	4,431	18%
2004	16,628	2,668	16%
2005	17,397	2,736	16%
2006	12,038	1,830	15%
2007	8,804	1,295	15%
2008	5,026	760	15%
2009	3,026	630	21%
2010	2,320	522	23%
2011	1,217	243	20%
2012	1,172	246	21%
2013	775	150	19%
2014	629	129	21%
2015	514	159	31%
2016	312	86	28%
2017	2	0	0%
2018	0	0	0%
2019	0	0	0%

The above table indicates that the failure rate continued to decline through 2004. During 2005-2008 rates remained fairly constant. From 2019-2016, the failure rate remained high; probably due to the fact these vehicles are the oldest vehicles on the road, making them more difficult to repair.

<u>On-Board Diagnostics Testing</u>

An on-board diagnostic system test is an inquiry of the vehicle's on-board computer. An OBD test is considered a failure when:

- Current Diagnostic Trouble Codes are indicated and the Malfunction Indicator Light (MIL) is commanded or,

- MY 2001 and newer vehicles, more than one monitor in a vehicle's on-board computer is not set as ready; or,

- MY 1996-2000 vehicles, more than two monitors in a vehicle's on-board computer are not set as ready.

Before the transient testing was phased out beginning January 2017 thru March 2017, if any OBD vehicle was not communicating with the RI analyzer, the vehicle would undergo the appropriate exhaust emission test. Beginning in April 2017, if the vehicle's On-Board Diagnostic testing (OBD) does not communicate with the RI analyzer the DMV presented the owner of the vehicle a diagnostic waiver in lieu of a tailpipe test.

The following table provides a breakdown of the initial OBD tests.

Table VI: OBD Initial Test Results

Tests	OBD Total Tests	OBD Pass	OBD Fail	OBD Fail %	MIL Pass	MIL Fail	MIL Fail %	Monitor Ready Pass	Monitor Ready Fail	Monitor Ready Fail %
Passenger Vehicles	259978	248655	11323	4.36%	256758	3058	1.18%	251243	8573	3.30%
Trucks	72477	68426	4051	5.59%	71298	1124	1.55%	69361	3061	4.22%
Total	332455	317081	15374	4.62%	328056	4182	1.26%	320604	11634	3.50%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

Table VII: OBD First Retest Test Results

Tests	OBD Total Tests	OBD Pass	OBD Fail	OBD Fail %	MIL Pass	MIL Fail	MIL Fail %	Monitor Ready Pass	Monitor Ready Fail	Monitor Ready Fail %
Passenger Vehicles	9166	8333	833	9.09%	9001	157	1.71%	8458	700	7.64%
Trucks	3298	3044	254	7.70%	3251	42	1.27%	3080	213	6.46%
Total	12464	11377	1087	8.72%	12252	199	1.60%	11538	913	7.33%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

Table VIII: OBD Subsequent Retest Test Results

Tests	OBD Total Tests	OBD Pass	OBD Fail	OBD Fail %	MIL Pass	MIL Fail	MIL Fail %	Monitor Ready Pass	Monitor Ready Fail	Monitor Ready Fail %
Passenger Vehicles	747	595	152	20.35%	714	33	4.42%	622	125	16.73%
Trucks	203	181	22	10.84%	196	6	2.96%	183	19	9.36%
Total	950	776	174	18.32%	910	39	4.11%	805	144	15.16%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

The following table provides a comparison of the (Non-Diesel) OBD Tests.

Table IX: OBD (Non-Diesel) Comparison Chart

Tests	Total Tests	OBD Pass	OBD Fail	OBD Fail %	MIL Pass	MIL Fail	MIL Fail %	Monitor Ready Pass	Monitor Ready Fail	Monitor Ready Fail %
Initial Test										
Passenger	259978	248655	11323	4.36%	256758	3058	1.18%	251243	8573	3.30%
Truck	72477	68426	4051	5.59%	71298	1124	1.55%	69361	3061	4.22%
Total	332455	317081	15374	4.62%	328056	4182	1.26%	320604	11634	3.50%
First Retest										
Passenger	9166	8333	833	9.09%	9001	157	1.71%	8458	700	7.64%
Truck	3298	3044	254	7.70%	3251	42	1.27%	3080	213	6.46%
Total	12464	11377	1087	8.72%	12252	199	1.60%	11538	913	7.33%
Subsequent Test										
Passenger	747	595	152	20.35%	714	33	4.42%	622	125	16.73%
Truck	203	181	22	10.84%	196	6	2.96%	183	19	9.36%
Total	950	776	174	18.32%	910	39	4.11%	805	144	15.16%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

A total of 332,455 OBD non-diesel vehicle tests were initially conducted using OBD in 2020. This represents 98.29% of all initial vehicle tests. The overall failure rate was 4.62%. The OBD MIL produced a 1.26% failure rate and monitor readiness accounted for a 3.50% failure rate.

As the above chart indicates there were 12,464 OBD non-diesel vehicle re-tests with an overall failure rate of 8.72%. There were 950 OBD non-diesel vehicle subsequent tests, of which 174 were still failures, an overall failure rate of 18.32%.

Diesel OBD Testing

The following tables provide a breakdown of initial diesel OBD tests on passenger vehicles and trucks.

Table X: Diesel OBD Initial Test Results

Tests	OBD Diesel Total Tests	OBD Diesel Pass	OBD Diesel Fail	OBD Diesel Fail %	OBD Diesel MIL Pass	OBD Diesel MIL Fail	OBD Diesel MIL Fail %	OBD Diesel Monitor Ready Pass	OBD Diesel Monitor Ready Fail	OBD Diesel Monitor Ready Fail %
Passenger Vehicles	1035	1022	13	1.26%	1023	11	1.06%	1034	0	0.00%
Trucks	231	229	2	0.87%	229	1	0.43%	230	0	0.00%
Total	1266	1251	15	1.18%	1252	12	0.95%	1264	0	0.00%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

Table XI: Diesel OBD First Retest Test Results

Tests	OBD Diesel Total Tests	OBD Diesel Pass	OBD Diesel Fail	OBD Diesel Fail %	OBD Diesel MIL Pass	OBD Diesel MIL Fail	OBD Diesel MIL Fail %	OBD Diesel Monitor Ready Pass	OBD Diesel Monitor Ready Fail	OBD Diesel Monitor Ready Fail %
Passenger Vehicles	6	6	0	0.00%	6	0	0.00%	6	0	0.00%
Trucks	1	1	0	0.00%	1	0	0.00%	1	0	0.00%
Total	7	7	0	0.00%	7	0	0.00%	7	0	0.00%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

Table XII: Diesel OBD Subsequent Retest Test Results

Tests	OBD Diesel Total Tests	OBD Diesel Pass	OBD Diesel Fail	OBD Diesel Fail %	OBD Diesel MIL Pass	OBD Diesel MIL Fail	OBD Diesel MIL Fail %	OBD Diesel Monitor Ready Pass	OBD Diesel Monitor Ready Fail	OBD Diesel Monitor Ready Fail %
Passenger Vehicles	1	1	0	0.00%	1	0	0.00%	1	0	0.00%
Trucks	0	0	0	0.00%	0	0	0.00%	0	0	0.00%
Total	1	1	0	0.00%	1	0	0.00%	1	0	0.00%

(see Appendix "B" for detailed test volume by test type, model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

OBD MIL Codes

Table XIII: OBD MIL Codes

OBD Tests	MIL Commanded On **No** Codes Stored (Fail)	MIL Not Commanded On Codes Stored (Fail)	MIL Commanded On Codes Stored (Fail)	MIL Not Commanded On **No** Codes Stored (Pass)
Passenger Vehicles	0	12020	3058	244404
Trucks	0	15874	4182	311713
Total	0	27894	7240	556117

(see Appendix "D" for detailed initial results for OBD MIL codes by model year and vehicle type and Appendix "C" for detailed initial test volume by AIRS, model year and vehicle type)

As the above table indicates there were no OBD vehicles tested that exhibited the "MIL Commanded On" that did not have a code stored. All these vehicles tested had codes stored when the Malfunction Indicator Lamp (MIL) was commanded on. There were 27,894 vehicles tested with the "MIL not Commanded On" and codes were stored. There were 7,240 vehicles tested with the "MIL Commanded On" and the codes were stored. There were 556,117 vehicles tested with the "MIL not Commanded On", and no codes were stored, which resulted in the vehicle passing the test.

Gas Cap Test

The gas cap test is conducted on all non-OBD vehicles (Model Year 1995 and older). The following table indicates the results of the gas cap results.

Table XIV: Initial Fuel Cap Results

Fuel Cap Tests	Total	Pass	Fail	% Fail
Passenger Vehicles	3406	3405	1	0%
Trucks	1204	1204	0	0%
Total Initial Tests	4610	4609	1	0%

(see Appendix "E" for detailed fuel cap results by model year and vehicle type and Appendix "C" for detailed initial test volume by model year and AIRS)

OBD Vehicles with No Know Final Outcome

Table XV: OBD Vehicles with No Known Final Outcome

OBD Initial Fail Test Results	Passenger Vehicles	Truck Vehicles	Total OBD Initial Failures
OBD Initial Fail Tests	11,323	4,051	15,374
OBD Diesel Initial Fail Test	13	2	15
OBD Total Initial Fail Tests			**15,389**
OBD First Retest Pass Results			Total OBD Retest Pass Results
OBD First Pass Retests	8,333	3,044	11,377
Diesel OBD First Pass Retests	6	1	7
Total OBD First Retest Pass			**11,384**
OBD Subsequent Pass Results			Total OBD Subsequent Pass Results
OBD Subsequent Pass Retests	595	181	776
OBD Diesel Subsequent Pass Retests	1	0	1
Total Subsequent Retest			**777**
OBD **Initial Fail Test Results**	**Vehicles**		
Totals			
OBD Total Initial Failures	15,389		
OBD First Retest Pass	-11,384		
OBD Subsequent Retest Pass	-777		
Vehicle Tested within Three Months of Year-End	-936		
OBD Waivers Issued during 2020	-212		
Total OBD Vehicles with No Known Final Outcome	**2,080**		
Percentage of Total OBD Vehicles with No Known Final Outcome	**13.52%**		

As the above table indicates, there were a total of 15,389 initial OBD vehicle test failures during 2020. There were 11,384 OBD vehicle tests where the vehicle passed the first retest, a total of

777 OBD vehicle tests that passed the subsequent test, a total of 936 vehicles tested within three months of year-end, and the DMV issued 212 OBD waivers.

During 2020, there were a total of 2,080 OBD vehicles with no known final outcome, which results in 13.52% of OBD vehicles with no known final outcome. (see Appendix "F" for OBD vehicles with no known final outcome)

These 2,080 vehicles may represent vehicles:
- Inspected during 2020, failed and still have not returned for an inspection before April 1, 2021
- have been moved out of Rhode Island, or
- have been scrapped, or are illegally operating with expired inspections

4. Waivers

In Rhode Island, four primary different types of waivers are available if a vehicle fails the emissions test and a retest. The waiver types are:

- A diagnostic waiver applies to vehicle owners whose vehicles have all emission control devices in place and operating and no additional repairs are reasonably possible, or because they are unable to get their vehicle repaired because the necessary emission parts are no longer available or no longer manufactured.
- A repair cost limit waiver is available for vehicle owners if the vehicle failed the emission test, the owner has spent a minimum of $700 on emission-related parts and/or labor (labor must be performed by a CIRT to qualify), and the vehicle still does not pass.
- A repair time delay waiver is available for vehicle owners who can prove financial hardship.
- A "Block Island" waiver was added in 2018 because the program phased-out dynamometer testing. Due to the size of Block Island, and the speed requirements of a monitor reset, any car located there cannot have its monitors reset and no longer can have the transient test to use instead. Therefore, these vehicles are issued a waiver if the vehicle failed due exclusively to monitors being "Not Ready", the MIL is functional but not illuminated and there are no DTCs present.

During 2020, there were a total of 212 waivers issued: 59 repair cost waivers, 50 repair time-delay waivers, 81 diagnostic waivers, and 22 "Block Island" waivers were issued. The overall 2020 waiver rate is 1.38%. (see Appendix "G" for Waivers)

Table XVI: Waivers - Year by Year Comparison

Year	Number of Failed Vehicles	Waivers Granted	Waiver Rate
2001	21,223	440	2.07%
2002	31,473	219	0.70%
2003	32,152	221	0.69%
2005	28,585	151	0.53%
2006	21,923	96	0.44%
2007	18,174	70	0.39%
2008	17,814	53	0.30%
2009	27,241	149	0.55%
2010	24,458	125	0.51%
2011	21,009	137	0.65%
2012	20,000	91	0.46%
2013	18,806	83	0.44%
2014	19,545	78	0.40%
2015	19,765	108	0.55%
2016	18,896	95	0.50%
2017	17,258	233	1.35%
2018	18,399	401	2.18%
2019	20,439	412	2.02%
2020	15,389	212	1.38%

Since 2001 the waiver rate has remained below 3%, potentially due to the continued training seminars and OBD training, resulting in improved repair effectiveness. Additionally, DMV continues to follow the strict guidelines defined in Rhode Island Motor Vehicle Safety and Emissions Control Regulation No.1, section 1.11.1 Waiver Requirements and Conditions.

In 2018 and 2019, the increase in the total number of waivers granted was due to (1) the addition of the "Block Island" waivers, and (2) DMV increased compliance enforcement.

Table XVII: Yearly Comparison HC, CO, and NO$_x$ Average Emissions Reductions after Repairs

Year	Average HC Reductions	Average CO Reductions	Average NO$_x$ Reductions
2000	68.50%	81.10%	38.50%
2001	70.42%	82.03%	49.32%
2002	70.11%	81.56%	62.59%
2003	72.50%	82.84%	63.20%
2004	72.24%	82.87%	62.04%
2005	72.40%	82.34%	61.19%
2006	72.69%	82.36%	63.13%
2007	75.27%	80.76%	64.83%
2008	73.66%	83.71%	66.34%
2009	90.63%	84.69%	90.41%
2010	88.13%	89.93%	85.87%
2011	79.21%	85.41%	61.97%
2012	88.39%	88.60%	62.54%
2013	87.43%	90.46%	69.90%
2014	82.92%	83.88%	71.23%
2015	76.53%	86.59%	62.11%
2016	74.73%	83.73%	65.22%
2017	0.00%	0.00%	0.00%
2018	0.00%	0.00%	0.00%
2019	0.00%	0.00%	0.00%
2020	0.00%	0.00%	0.00%

The data in Table XVII indicates that the average emissions reductions after repairs for HC and CO have continued to remain high since the I/M Program was implemented during 2000 and the NO$_x$ reduction has continued to remain high from 2002. The emission reductions are the results of the repairs on the vehicles that have failed. The lower reductions in 2000 and 2001 for NOx indicate that the repair industry was not familiar with repairs for high emissions for the first two years of the I/M Program. The average emissions for transient initial pass/fail tests were discontinued as of 2/28/2017.

6. Training

Rhode Island has two levels of technician training in the I/M Program. The first level is the Certified Inspection Technician (CIT). The second level is the Certified Inspection Repair Technician (CIRT).

There are two steps a technician must complete to become a CIT. The first step is to complete the training provided by DMV for the safety inspection portion of the I/M Program. The second step required is a four-hour course provided by the Program

Manager, training the CIT for the emissions inspection portion of the I/M Program. The CIT is required to pass an exam before being certified. CITs are certified only to perform vehicle safety and emission inspections.

The CITs certification is valid for two years. During 2020, the Program Manager arranged re-certification training from January thru December, for any technician whose re-certification was expected to retire. The program had some difficulties during the pandemic, with no re-certification training happening in March or April. With a reduced room capacity and social distancing measures in place, the re-certifications continued at a slower pace for the rest of the year.

CIRTs perform both inspections and repairs for motor vehicle safety and emissions issues. Only CIRTs can perform repairs whose costs qualify for the repair cost waiver. CIRTs are required to first obtain their CIT certification, then pass the RI CIRT written exam or possess an Automotive Service Excellence (ASE) Level 1 Advanced Engine Performance license. If a CIRT does not have their ASE L1 license, they have two years to obtain it to continue certification.

At the end of December 2020, there were a total of 1,449 active technicians in the network, including CITs and CIRTs.

7. Quality Assurance

Inspection Network Participation

At the end of December 2020, 329 inspection stations representing 330 lanes were in the inspection network throughout the state. The station at Inskip Automall added a second lane to their station in 2019. The number of AIRS remained steady around 290 until 2018. Due to program updates, it was decided that more stations should be added. The decision was also made to have both public and fleet stations; anyone can visit a public station, while fleet stations are meant to be convenient for certain fleets, one example being the Providence Police Department. 330 stations are public stations, while 6 are fleet stations. We will be capping the program at 330 and are still adding public stations from our waitlist. The continued level of participation is an indicator of the good health of the program.

Audit Types

Every I/M program is required to have an on-going quality assurance program designed to discover, correct, and prevent improper testing, fraud, waste, and abuse of the system. In addition, the quality assurance program should help the State assess whether or not inspection procedures are being properly implemented and are adequate to address the emissions problems. Rhode Island's quality assurance program primarily focuses on audits of the inspectors and inspection process. Overt, covert and computer

auditing are employed in the Rhode Island Emissions & Safety Inspection Program. Auditing is conducted by DMV and the Program Manager.

The Program Manager performs: overt visual audits, covert visual audits, covert vehicle audits, OBD readiness monitor mismatches, and all OBD parameters. The results of these audits and any irregularities discovered are noted and reported to DMV and DEM via e-mail notifications.
(see Appendix "I" for Audit Types)

Overt Visual Audits

During overt visual audits, conducted by the DMV and Program Manager, the auditor's presence is known by the inspector and facility management/owners. The audit consists of checking the reliability of the testing equipment, observation of an inspection, the legibility of the stickers and missing and or voided stickers. The voided stickers are picked up and stored in a secure location with the Program Manager. If stickers are missing, the AIRS are required to fill out a police report and submit it to DMV. DMV personnel will follow up on the report.

Remote Visual Audits

Due to the pandemic, in person audits were not possible for the health and safety of all involved parties. After March 15th, audits were performed with a remote review of the five (5) most recent tests at inspections stations to ensure proper operation of the streaming camera used to record inspections, the camera which collects an image of the Inspector performing the inspection, and verification of the required images taken by the Inspector with the handheld camera. This process also resulted in allowing for troubleshooting of technical issues and alerted the program to any stations that needed repairs to cameras or to resolve network issues.

Covert Vehicle Audits

The DMV and the Program Manager rigged the covert vehicle to fail emissions and safety inspections. The emissions failures were set to fail an on-board diagnostics (OBD) emissions test by covering the Malfunction Illumination Light (MIL) bulb with tape, and by cutting a wire to the Air/Fuel ratio sensor creating a Diagnostic Trouble Code (DTC).

The safety failures were set to fail by disabling the right front headlight, disabling the right rear taillight, and causing the ABS light to be on.

A baseline inspection was conducted by the DMV prior to the covert vehicle audit and compared to the results of the station inspection and a post-inspection confirmation audit.

<u>Covert OBD Digital Auditing</u>

The OBD covert digital auditing consists of an analysis of inspection data to uncover any irregularities and unusual testing patterns, including OBD VIN mismatches, OBD readiness monitor mismatches, and all OBD parameters. These inspection tests are scanned daily for any inconsistencies in the data. If any inconsistencies are found, a trigger is set resulting in an e-mail notification to the DEM and DMV for enforcement consideration.

<u>Digital Biometric Authentication Finger Print Reader Audits</u>

The digital authentication fingerprint reader audits consist of the program manager checking to see if the inspectors are logging on to the analyzer at their work stations using the digital biometric authentication fingerprint reader instead of logging on with their passwords.

<u>Audit Activity</u>

<u>Overt Station Audits</u>

The DMV and the Program Manager conducts overt visual audits to assure adherence to program procedures and regulations. The audit is a visual performance audit that consists of an observation of test procedures, observation of an inspection, inspection of the workplace, a check of AIRS signage and certificate posting, and an examination of testing records**.**

During 2020, the Program Manager was scheduled to complete 1,324 overt station audits. A total of approximately 370 overt audits were conducted by DMV and the Program Manager during 2020. The Program Manager completed (27%) of the overt visual audits. This is due to the pandemic, as the program temporarily stopped conducting overt audits in March and for the remainder for 2020.

<u>High-Resolution Wide-Angle Video Cameras (Replaced Covert Visual Audits)</u>

During 2020, there were videos recorded of each inspection on the local machines at all 330 AIRS. The Program Manager and DMV requested to review 336 video audits at stations during 2020, to see if there was fraudulent testing being performed. A total of 370 station audits were performed, combining the video audits with the overt audits performed before March 15th.

<u>Covert Vehicle Audits</u>

The Program Manager's yearly objective was to complete fifty (50) covert vehicle audits during 2020. During 2020 they completed zero (0) covert vehicle audits, which was 0% of the yearly objective. No covert audits were conducted the first two (2) months of

2020 and due to the pandemic, the program did not conduct any covert audits for the remainder of 2020.

<u>OBD Digital Auditing</u>

During 2020, the Program Manager performed automated digital audits by scanning the VID (Vehicle Information Database) for any mismatches for OBD VIN (Vehicle Identification Number), OBD readiness monitor mismatches and all OBD parameters, along with one (1) data analysis audits at the request of DMV. These inspection tests are scanned daily for any inconsistencies in the data. If any inconsistencies are found, a trigger is set resulting in an e-mail notification to the DEM and DMV for enforcement consideration.

The enforcement of the I/M Program continues to increase as a result of this OBD Digital Auditing.

<u>Digital Biometric Authentication Finger Print Reader Audits</u>

During 2020, the Program Manager reviewed the data from the inspectors to make sure they were logging on to the analyzer at their workstation using the digital biometric authentication fingerprint reader instead of logging on with their passwords. This new requirement replaces the use of a password with a fingerprint. During 2020 the inspector compliance rate with the fingerprint readers was 69.7%. Due to the pandemic, mandatory use of fingerprint readers to log-in to the inspection unit was removed effective March 15th, 2020.

<u>Audit Results</u>

Formal counseling was performed in early 2020 due to violations from late 2019. No formal counseling took place during the rest of 2020 due to the pandemic and the restrictions in place.

The DMV explained the rules and regulations pertaining to the violations and were reviewed by the technician and the responsible agent for the AIRS.

It was agreed that corrective action would be taken, and any future violations of this nature will be cause for administrative action against the AIRS and the CIT. The results were documented and put into their file.

The following table indicates the results of the Covert Vehicle Audits for 2020.

Table XVIII: 2020 Covert Vehicle Enforcement Statistics

2020	Covert Vehicle Audits	Total Hearings AIRS	Official Warning Letter Issued to CITS	Official Warning Letter Issued to AIRS	Proper Inspection Letter Issued to CITS	Proper Inspection Letter Issued to AIRS	DMV Formal Counseling
2020	0						1
Total	0						1

The schedule of penalties calls for a first violation penalty of a minimum of ten-day suspension, a second violation requires a minimum of thirty days; the third and subsequent violations are subject to a suspension of authorization to inspect motor vehicles for a minimum of six months for each separate violation. In addition to the suspension penalties, the Administrator may, at his discretion, impose a fine of up to $1,000.00 Reinstatement may be requested by the station owner at the end of a suspension period. The reinstatement shall be at the discretion of the hearing board or the Administrator. (see Appendix "J", DMV Safety and Emissions Control Regulation No. 1, section 1.16)

8. Enforcement

Documentation of Formal Counseling Program

The Documentation of Formal Counseling Program consists of the DMV Safety and Emission Control Office officially notifying the responsible AIRS and Inspector of discrepancies identified during reviews of trigger reports generated through data analysis indicating possible fraudulent emissions inspections. Along with the notification, corrected documentation based on DMV inspection of the subject vehicle(s) is provided. The DMV then schedules a date with the responsible parties to meet with the Chief and DMV officers at the DMV office, where the AIRS and inspector have an opportunity to explain to the DMV officers why an improper vehicle inspection was performed. The Chief then explains to the responsible parties the rules and regulations pertaining to the violation, so inspection procedures can be corrected in the future.

The results are documented and signed by all parties and put into their file for the future. Any future violations will be cause for progressive administrative action against the AIRS and the CIT.

The following are the results of the Documentation of Formal Counseling Program by the DMV.

Table XIX: Documentation of Formal Counseling Program

2020 Documentation of Formal Counseling	AIRS	CIT	Violation	Documentation of Formal Counseling Results
February 20, 2020	Correa Auto Repair	Victor Correa	Approving vehicles equipped with sun screening in excess of legal limits, Vehicles approved with altered lighting (tail lamps blacked out), Improper data entry	DMV reviewed the rules and regulations pertaining to violation. Any future violations of this nature will be cause for progressive administrative action.

During 2020, there was one CIT and one AIRS called into the DMV for formal counseling. The counseling from the 2019 Covert Audits is not included because those audits were done at the end of the year and all the counseling was done in 2020.

The DMV explained the rules and regulations pertaining to the violations and were reviewed by the technician and the responsible agent for the AIRS.

It was agreed that corrective action would be taken, and any future violations of this nature will be cause for administrative action against the AIRS and the technician. The results were documented and put into their file.

Vehicles Subject to Inspection

As of December 2020, approximately 775,442 light-duty vehicles were registered with DMV. The actual number of vehicles requiring inspection during 2020 can be estimated from the total number of vehicles registered minus the following: vehicles 25 years old and older, and vehicles two years old or newer. Reviewing the registration data as of December 2020, and assuming a 50-50 biennial split, as many as roughly 387,721 vehicles may have been required to be inspected during 2020. Based on data from the Program Manager, (MY 1996-2020) there were 351,656 vehicles inspected. This leaves a balance of approximately 36,065 (9.3%) vehicles possibly not in compliance. Due to the pandemic, inspections were delayed by many months and the program anticipates that more vehicle registrations expired or were cancelled than usual.

Table XX: Vehicles Subject to Inspection

Vehicles Subject to Inspection	2015	2016	2017	2018	2019	2020
Non-Exempt Vehicles Registered with DMV	671,497	668,724	702,916	706,000	795,228	775,442
As many vehicles as:	335,749	334,362	351,458	353,000	397,614	387,721
Vehicles Inspected (MY 1996-2019)	326,273	329,279	337,532	342,895	391,200	351,656
Vehicles possibly not in compliance	9,476	5,083	13,926	10,105	6,414	36,065
Total Percentage	2.8%	1.5%	3.9%	2.9%	1.6%	9.3%

As mentioned in the above paragraph these totals are estimated based on the data provided to DEM from DMV. Due to the limitations of DMV's existing data management system, it is not possible to know how many vehicles were registered. (see Appendix "K" Vehicles Subject to Inspection).

Preventing False Registration by Motorist

The I/M program in Rhode Island covers the entire state, so it is not possible for a vehicle owner to falsely register any vehicle out of the program area. Inspectors are instructed to verify that the fuel type and the gross vehicle weight (GVWR) indicated on the vehicle's registration form are accurate. The inspector will check the information on the label on the inside of the door to see if the correct information can be obtained.

Motorist Enforcement Measures

Sticker Based Enforcement

The inspection sticker has continued throughout the years to be the primary inspection enforcement tool. This highly visible means of recognition allows
police agencies to quickly determine a vehicle's compliance status. DMV continues to provide information to the municipal police and the State Police regarding the features of the inspection stickers. Any law enforcement officer or an agent of DMV may demand to inspect any compliance device (sticker) or compliance document (inspection report or waiver) issued through the Rhode Island I/M Program. (see Appendix "J", DMV Safety and Emissions Control Regulation No. 1, section 1.9.5)

The following tables indicate the results of the stickers during 2020.

Table XXI: 2020 Sticker Reconciliation Summary

Printed Stickers	
Stickers Received for 2020 Program	441,300
Stickers Distributed to AIRS	387,900
Balance	53,400
Stickers not Distributed (Destroyed)	53,400
Balance	0
Distributed Stickers to AIRS	
Stickers Distributed to AIRS	387,900
Stickers Placed on Vehicles	329,986
Voided Stickers	56,649
Balance	1,265
Unused Stickers Returned to Opus**	1,376
Balance**	111
Stickers Stolen or Lost** (Police Report Filed)	34 (DMV)
Sticker Balance** (Un-reconciled)	77*

*77 un-reconciled stickers equals a percentage of 0.01% of all stickers issued

**Due to the impact of COVID-19, a small number of 2020 stickers remain uncollected from inspection stations for review/reconciliation. Results noted above with two asterisks are actual based on stickers returned/collected/reconciled as of the date of this report.

The above table indicates that during 2020 the Program Manager received 441,300 stickers for the I/M Program. There were 387,900 stickers distributed to the AIRS. The remaining balance was 53,400 stickers which were destroyed, leaving a final balance of 0.

There were 387,900 stickers distributed to the AIRS, out of which 329,986 were placed on vehicles. There were 56,649 voided stickers and 1,376 stickers returned to the Program Manager. This leaves a balance of 111 stickers that were lost or stolen, resulting in 34 mandatory police reports being filed by the DMV. (see Appendix "L" Sticker Summary)

Duplicate Stickers Issuances

Due to color fading issues with certain stickers, the Program Manager and DMV have allowed duplicate stickers to be printed when deemed necessary. This was implemented in late 2019 and is also used in sticker based enforcement. There are only 15 instances of duplicate stickers being printed for 2020. This report will be attached to Appendix "L" Sticker Summary and is produced by the DMV.

State Police and Municipal Police Enforcement

The State Police and municipal police continue to enforce motorists' compliance by pulling vehicles over if an inspection sticker is not valid. During 2020 approximately 1,010 "five-day notice and demand tags" were issued by the State Police, municipal police, and DMV. The notice and demand tags require an inspection to be completed within five days.

Approximately, 83.5% or 843 vehicle owners complied with the "five-day notice and demand tags". There were 167 or 16.5% of vehicle owners who failed to reply to the "five-day notice and demand tags". The DMV issued 317 suspension orders due to non-compliance. (see Appendix "M" Notice and Demand form)

Registration Denial

During July 2017, the DMV launched their new computer system after a decade of missed deadlines and delays.

Previously the DMV received data from the Program Manager when vehicles were inspected. Based on DMV records from previous inspections, a notice of action (notice) was mailed out to vehicle owners who have failed to obtain a vehicle inspection when due.

Since the new computer system was implemented during July 2017, the DMV has been able to automate part of this process. Letters are now sent automatically when the computer system notices a vehicle has passed when it is due to be inspected. The notice indicates the vehicle owner has 30 days to obtain an inspection before the vehicle's registration is suspended. At the end of 30 days, if the vehicle has not passed an inspection based on the daily data submission from the Program Manager, the registration is suspended in the DMV registration database. (see Appendix "N" Registration Denial/ Notice of Action Form)

In 2020, there were 49,820 failure to obtain inspection notices sent out. As of the date of this report (July 2021), there are 3,929 of these vehicles still not in compliance with these notices.

Enforcement Against AIRS, Program Manager and DMV Personnel

Program Manager

There were no enforcement actions taken against the Program Manager during 2020.

Inspection Stations and Inspectors

Authorized Inspection and Repair Station (AIRS)

During 2020, the DMV conducted zero hearings.

Due to pandemic, the ability to conduct hearings was impacted, so adjudication of cases and violations from 2020 will happen in 2021.

The DMV explained the rules and regulations pertaining to the violations and were reviewed by the technician and the responsible agent for the AIRS.

It was agreed that corrective action would be taken, and any future violations of this nature will be cause for administrative action against the AIRS and the technician. The results were documented and put into their file.

Inspectors

During 2020, the DMV conducted zero hearings.

Due to pandemic, the ability to conduct hearings was impacted, so adjudication of cases and violations from 2020 will happen in 2021.

The DMV explained the rules and regulations pertaining to the violations and were reviewed by the technician and the responsible agent for the AIRS.

It was agreed that corrective action would be taken, and any future violations of this nature will be cause for administrative action against the AIRS and the technician. The results were documented and out into their files.

DMV Auditors and Other Personnel

DMV auditors must adhere to specific procedures and follow a checklist when conducting an audit. The work of DMV auditors is scrutinized by their immediate supervisor daily.

9. Public Outreach

The "RI Emissions Safety Testing" newsletter is distributed to the AIRS throughout the state. Two newsletters were distributed in 2020, the newsletter was a low priority due to the pandemic and focus on health and safety.

The newsletters can be an excellent source of information for technicians from DMV, DEM, and EPA. The newsletters distributed covered a variety of topics including: any changes implemented within the I/M program, reminders of inspection regulatory

procedures for both safety and emissions, articles from the technician's bench, enforcement news, etc.

The network computer system and station computer displays, continue to be used to provide program updates for CIRT exam sessions, training seminars, and technical bulletins to the AIRS. The program's website at www.riinspection.org was used during this reporting year to outreach to the general public.