**Biennial Report: 2018-2019**

**Massachusetts Enhanced Emissions and Safety Test**

**Inspection and Maintenance Program**

BIENNIAL REPORT

MASSACHUSETTS ENHANCED EMISSIONS AND SAFETY TEST

INSPECTION AND MAINTENANCE PROGRAM

2018-2019

# Introduction

The Massachusetts Department of Environmental Protection (MassDEP) has prepared this report for the U.S. Environmental Protection Agency (EPA) in compliance with the requirements of 40 CFR 51.366 (e). The information in this report covers the reporting period of calendar years 2018 and 2019, and supplements the program information that is contained in the 2018 and 2019 Annual Reports (these reports are available on the Mass Vehicle Check Program web site: [*https://www.mavehiclecheck.com/motorists-resources*](https://www.mavehiclecheck.com/motorists-resources)).

In June 2020 EPA released “Guidance on Biennial Performance Evaluation Requirements for Enhanced Vehicle Inspection and Maintenance (I/M) Program” which clarifies and updates options for performing biennial performance evaluations. Due to the timing of its release, MassDEP was not prepared to implement any of the changes or recommendations in the new guidance for the 2018/2019 biennial report but will do so for the 2020/2021 biennial report.

The Massachusetts Inspection and Maintenance (I&M) Program is an important tool for improving air quality in the Commonwealth. The program also ensures that Massachusetts cars are safe to drive. The program was established in M.G.L. c. 111, §§142J and 142M, c.21A, §§2(28) and 16, and c. 90, §§7A, 7V, 7W, 7X, 7Y, 7Z, 20 and 31. Implementing regulations were initially adopted in January 1999 by MassDEP at 310 CMR 60.02, and the Massachusetts Department of Transportation’s Registry of Motor Vehicles Division (RMV) at 540 CMR 4.00-4.09.

The Massachusetts I&M Program is designed to balance three goals:

* *Pollution reductions -* Vehicles with high emission levels (or in unsafe operating condition) must be identified and repaired using test equipment appropriate for today’s high-tech vehicles.
* *Motorist convenience* – The test must be as convenient as possible for Massachusetts motorists.
* *Fitting in with the automotive service industry* – Attractive business opportunities must be provided to the program’s private sector partners: the inspection stations and repair shops that test and fix vehicles.

MassDEP and RMV (the Agencies) jointly administer the Massachusetts Vehicle Check Program. In January 2008, the Agencies contracted with Parsons Environmental & Infrastructure Group Inc. (Parsons or Contractor) to manage and implement the I&M Program. This contract ended September 30, 2017. In November 2016, the Agencies contracted with Applus Technologies (Applus or Contractor) to manage and implement the program starting on October 1, 2017. Contractor responsibilities include developing and managing the Inspection Station network; developing and implementing inspection protocols; and acquiring, providing, and maintaining inspection station workstations and data systems. The Contractor also trains inspectors and repairers and provides communications to the public, inspectors, and repairers. Emissions and safety inspections are performed through a decentralized network of public inspection stations. Inspection stations and individual inspectors are licensed by RMV. This network is supplemented by stations that are specially licensed to conduct inspections for vehicle fleets.

Since October 1, 2008, the program has employed only on-board diagnostic (OBD) testing for all vehicles required to receive an emissions test, with the exception of diesel vehicles with a Gross Vehicle Weight Rating (GVWR) greater than or equal to 10,000 pounds that are not equipped with OBD. These diesel vehicles receive an opacity test based on the SAE J-1667 Snap Acceleration Smoke Test Procedure.

To help motorists whose vehicles need emissions repairs, the program includes a network of registered repair technicians who are specially trained to diagnose emissions problems and repair modern vehicles effectively. The Program provides waivers of emission standards if some repairs are completed by a registered repairer, the repair expenditures exceed program requirements, and certain other conditions are met.

For vehicles that failed the emissions test and require replacement of a major (and expensive) component(s) to pass, a one-time economic hardship exemption is available that gives the vehicle owner one year to finance repairs or replace the vehicle.

Table 1 provides statistics describing the Massachusetts Inspection and Maintenance Program “at a glance” in 2018 and 2019.

**Table 1: Summary Statistics: Massachusetts Inspection and Maintenance Program**

**2018 and 2019**

|  | **PROGRAM COMPONENT** | **2018**  **TOTAL** | **2019**  **TOTAL** |
| --- | --- | --- | --- |
| **Vehicles** | Number of vehicles in the Massachusetts fleet | 5.08 million | 5.12 million |
| **and**  **Inspections** | Number of unique vehicles tested for safety or for safety and emissions | 4,798,387 | 4,840,149 |
|  | Number of unique vehicles receiving an initial emissions test | 3,830,940 | 3,744,574 |
|  | Types of emissions tests:  OBD | 97.5% | 97.7% |
|  | Opacity | 2.5% | 2.3% |
|  | Number that failed initial OBD emissions tests | 176,049 | 164,899 |
|  |  | (4.8%) | (4.5%) |
|  | Diesel vehicles:   * Number that received initial OBD emissions tests | 33,689 | 35,757 |
|  | * Number that failed initial OBD emissions test | 4,675 | 4,801 |
|  |  | (13.9%) | (13.4%) |
|  | * Number that received initial opacity tests | 96,898 | 87,162 |
|  | * Number that failed initial opacity emissions test | 2,578 | 1,653 |
|  | Number of Waivers issued | 2 | 2 |
|  | Number of Economic Hardship Extensions issued | 21 | 42 |
|  | No Known Outcome  Number of non-diesel vehicles that failed an initial OBD test and did not pass a subsequent retest or obtain a waiver or extension[[1]](#footnote-1) | 19,978 | 21,998 |
|  | Percent of non-diesel vehicles receiving an initial OBD test with no known outcome | 0.5% | 0.6% |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PROGRAM COMPONENT** | **2018**  **TOTAL** | **2019**  **TOTAL** |
| **Stations**  **and**  **Inspectors** | Inspection Stations   * Number of stations inspecting vehicles throughout the period | 1,575 | 1,591 |
|  | * Number of RMV site audits of inspection stations (most stations were audited multiple times) | 7,324 | 6,983 |
|  | * Number of adverse RMV enforcement actions (license revoked, license suspended, warning) | 158 | 301 |
|  | Inspectors   * Number of licensed inspectors that performed at least one test during the period | 6,683 | 6,913 |
|  | * Number of adverse RMV enforcement actions (license revoked, license suspended, warning) | 139 | 296 |
|  | Totals penalties assessed against stations and inspectors | $0 | $20,000 |
|  | Amount of penalties stayed (Penalties stayed as long as stations and inspectors comply with all program requirements during the period covered by the settlement) | $0 | $0 |
|  | Number of covert vehicle audits | 908 | 910 |
|  | Number of covert vehicles audits that falsely passed OBD | 0 | 0 |

# Program Changes Implemented in 2018-2019

As required by EPA’s regulations*[[2]](#footnote-2)* defining biennial reporting requirements, the following summarizes the 2018 and 2019 changes made in program design, funding, personnel levels, procedures, regulations, and legal authority. 2018 and 2019 were the tenth and eleventh full years under the current program design. The new program beginning October 1, 2017 includes several new features to aid with program oversight described in the “procedures” section below.

Program Design: No changes to program design were made in 2018 and 2019.

Funding: The program funding structure was unchanged for 2018 and 2019. The inspection fee remained $35, with the inspection stations retaining $23.50 of the fee and the remaining $11.50 deposited into the Commonwealth’s Inspection and Maintenance Trust Account.

Effective October 1, 2017, the Contractor’s per-inspection fee became $1.343 for the first 4.4 million “paid” inspections, and $0.43 for each additional “paid” inspection thereafter. On October 1, 2019, the Contractor’s per-inspection fee became $1.366 for the first 4.4 million “paid” inspections, while the additional fee remained unchanged. The Trust Account funds remaining after payments to the Contractor were available to MassDEP and RMV for program oversight and management. MassDEP was provided with funds from the Trust Account through an Inter-Agency Service Agreement with RMV, updated annually.

Funding levels from the Inspection and Maintenance Trust for the program continued to be adequate to fund program costs. In FY 2019, Applus was paid $6.4 million, RMV’s expenditures were $4.1 million, and MassDEP’s expenditures were $1.9 million. MassDEP expenditures were consistent with expenditures reported in the 2016-2017 biennial report.

Personnel Levels: Staffing levels for the Massachusetts Inspection and Maintenance Program have been generally stable since the program’s inception. In FY2019, RMV assigned 35 staff (full time equivalents) to the Program, and MassDEP had 8 staff assigned during the fiscal year. MassDEP staffing was consistent with staffing levels reported in the 2016-2017 biennial report.

Procedures: While the basic OBD and opacity inspection procedures were largely unchanged during 2018 and 2019, there were some program-related changes associated with inspections conducted under the new contract that started October 1, 2017.

*Cameras*: The use of cameras for monitoring inspection quality is now required. Starting on October 1, 2017 at the start of each inspection, a digital image of the inspector is captured to verify inspector identity. Also, the following four images of the vehicle are required: 1) front of the vehicle, 2) rear of the vehicle, 3) vehicle identification number (VIN) tag, and 4) odometer reading. These images help verify the vehicle being inspected and its mileage.

Starting in February 2018 the three cameras installed in each inspection bay are required to capture still images at various times during the inspection and to record a video of the entire inspection. All images and video are automatically uploaded to the Vehicle Inspection Database and become part of the inspection record.

*Test Interruptions:* Starting in March 2018 the program implemented a test interruption procedure in the software that automatically stops an inspection when certain anomalies are found, including:

* the vehicle is a kit car and may require a special inspection at a MAC to check for EPA kit car compliance.
* the inspector does not sign on the signature pad following a commercial safety inspection.
* the inspector changes VIN-decoded vehicle information, such as GVWR, that changes the type of safety test received (i.e., commercial vs. non-commercial).
* the inspector changes VIN-decoded vehicle information, such as fuel type or GVWR, that changes the type of emissions test received (i.e., OBD vs. opacity) or makes the vehicle exempt from emissions testing.

During normal business hours when the interrupt occurs the inspector must communicate with a program representative to determine if the action or change is valid in order to proceed. If it is not valid, the inspection is aborted and the inspector must begin the inspection again. After hours the inspection is allowed to complete but is flagged for investigation by Agency personnel.

*Diesel OBD Readiness Exemptions*: In 2015 inspection procedures were changed in response to readiness issues related to diesel-powered vehicles with advanced emissions controls. These changes are related to the issues that lead to the development of EPA’s “Best Practices for Addressing OBD Readiness in IM Testing of Diesel Vehicles Under 14,000 lbs. Gross Vehicle Weight Rating.” Because the IM Program does not have software that would allow the implementation of the recommended best practices, MassDEP continues to exclude the following difficult-to-set readiness monitors from readiness determinations for these vehicles:

|  |  |  |  |
| --- | --- | --- | --- |
| Model Years | Make/Model | Until  mid-April 2015 | After  Mid-April 2015 |
| 2010-2014 | All Audi/VW Diesels | NOx After-treatment | None |
| 2010-2012 | Sprinter 2500/3500 | None | NMHC Cat |
| 2013-2019 | Sprinter 2500/3500 | None | Exh. Gas Sensor |
| 2010-2012 | Dodge/Ram Cummins | NOx After-treatment | NOx After-treatment |
| 2013-2019 | Dodge/Ram Cummins | NOx After-treatment | PM Filter |
| 2014-2019 | Fiat 3L V6 Diesels\* | None | NMHC Cat |
|  | \* used in Ram 1500 pickups and Jeep Grand Cherokees | |  |

Note: These exclusions were briefly suspended during the new program roll out on October 1, 2017 because the software functionality was not fully developed to allow exclusions. During that period, those vehicles that experienced readiness issues were provided relief manually on a case-by-case basis. The automatic exclusions were reinstated in early 2018.

Program Authority (Legislation and Regulations): No changes to program legislation or regulations were made in 2018 and 2019.

# Program Issues Identified and Corrected

During 2018 and 2019, MassDEP and RMV worked with the Contractor to address program issues.

* *Database and Workstation Software Revisions:* During 2018 and 2019, the Agencies worked with Applus to implement the following revisions to database and workstation software:
  + improve/upgrade sticker tracking functions;
  + turn on inspection bay cameras to capture still images and video during the inspection to be uploaded to the VID after the inspection is completed.
  + turn on Test Interruption to perform real-time program quality assurance.
  + fix various software bugs and deficiencies identified during the October 1, 2017 roll out.
* *RMV’s Automated License and Registration System (ALARS) replacement:* In 2013, RMV began planning the replacement of the aging ALARS system with a new system called ATLAS. Due to the large scope of the project, the implementation was split into multiple phases. The first phase, R1, focused on drivers’ and inspectors’ licenses and was completed in March 2018. The second phase, R2, focused on vehicle titles and registrations and was completed in November 2019.

*Registration Enforcement:* Massachusetts did not start a state-wide registration enforcement program in 2018 and 2019. Currently, responsibility for enforcement against motorists who fail to get their vehicles inspected or fail to pass their inspection is shared by RMV and local and state police. Since the program’s inception, RMV’s enforcement efforts have focused primarily on ensuring that inspectors and inspection stations properly administer the test, while local and state police have issued citations to motorists found to be driving vehicles without proper inspection stickers.

While state and local police continue to issue tickets for vehicles they find on the road without proper inspection stickers, RMV’s registration enforcement program had not been implemented by the end of 2019.

RMV recognizes the need to have a registration enforcement program to enhance its efforts to ensure that motorists comply with the requirements of the Massachusetts I&M Program. With the transition from ALARS to ATLAS completed, in 2020 the ATLAS team focused efforts on functions necessary for implementing registration enforcement. However, due to the COVID-19 pandemic, this effort has been temporarily suspended. RMV hopes to restart these efforts by the end of 2020.

RMV continues to be committed to the registration enforcement requirement and is anxious to see it implemented. At the same time, RMV observes that Massachusetts enjoys a compliance rate of approximately 89% in database surveys and 95% in actual parking lot surveys, which is similar to the rates found in many other states.

Reports Referenced

* Annual Reports to the U.S. Environmental Protection Agency describing the implementation of the Massachusetts Enhanced Emissions and Safety Test Program for 2009 through 2018 can be found at the program’s web site:

[*https://www.mavehiclecheck.com/motorists-resources*](https://www.mavehiclecheck.com/motorists-resources)

* Biennial Reports to the U.S. Environmental Protection Agency describing the program in 2008-09, 2010-11, 2012-13, 2014-15, and 2016-17 can also be found at the same web site.

1. The methodology used to calculate No Known Outcome was changed for 2019 due to new guidance from EPA. [↑](#footnote-ref-1)
2. 40 CFR § 51.366 (e) [↑](#footnote-ref-2)