



EVALUATION OF CONNECTICUT'S INSPECTION/MAINTENANCE PROGRAM

2024 ANNUAL REPORT

Prepared For

Connecticut Department of Energy and Environmental Protection
Connecticut Department of Motor Vehicles

Prepared By

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1. Introduction

1.1. Executive Summary

As required by the Clean Air Act Amendments of 1990, the Connecticut Department of Energy and Environmental Protection (DEEP) in partnership with the Connecticut Department of Motor Vehicles (DMV) conducts periodic evaluations of its enhanced Motor Vehicle Inspection and Maintenance (I/M) Program. This report is written and submitted in fulfillment of the requirement to provide annual I/M reports per 40 CFR 51.366 to the U.S. Environmental Protection Agency (EPA). This report addresses data collected from January 1, 2024 through December 31, 2024. As evidenced by the high compliance rate, limited fraud and low waiver rate, this report demonstrates that Connecticut's I/M program effectively achieves the expected air quality benefits. The reported I/M statistics in this report comply with EPA's 2020 guidance on reporting inspection results.

EPA provided a checklist, which identified the data elements to be included in this report. Required data and reports for 2023 and earlier years have been submitted to EPA. The 2024 data elements are compiled in the main body and Appendix A of this report and correspond to the indexing system used in EPA's checklist. The requirements of EPA's checklist that are not applicable due to the structure of Connecticut's I/M program are addressed at the end of each applicable section of this report.

1.2. Major Findings

This report focuses on the current effectiveness of Connecticut's I/M program. Key program highlights include:

- Connecticut's I/M program correctly fails non-complying vehicles and strictly enforces I/M requirements:
 - Approximately 8.2% of vehicles failed their initial emissions test and 7.3% of these vehicles also failed their first retest in 2024. These are similar to failure rates in centralized, test-only programs, which EPA considers a benchmark.
 - DMV and its contractor, Opus, perform extensive quality assurance checks on the program. Evaluation of these quality assurance data demonstrates that the program performs accurate inspections. These quality assurance measures are explained in section 4 of this report.
- Connecticut's anti-fraud efforts are models for other I/M programs. Connecticut audits all stations as part of an extensive anti-fraud program. For example, Connecticut conducted 3,226 video surveillance audits and 482 covert audits during 2024. Covert and video audits address On-Board Diagnostics (OBDII), Pre-Conditioned Two Speed Idle (PCTSI) and diesel opacity inspection performance. In addition, DMV and Opus run extensive trigger reports. Less than 0.02% of the inspections in Connecticut are suspect, which is far lower than the "suspect test" rate in most other states' I/M programs where suspect inspection rates can be 1% or higher.
- In 2015, Connecticut implemented a new registration system – Connecticut Integrated Vehicle and Licensing System (CIVLS). CIVLS automated checking for I/M compliance makes it impossible for motorists to renew their registration via US Mail, in person or on the DMV website without first complying with I/M requirements. The DMV also checks each registration request for compliance with I/M requirements. DMV provided data on registration renewal requests mailed to the Department – 98% of the registration requests were in compliance with I/M

requirements when mail renewals were processed. Ultimately, 100% of the vehicles renewed are in compliance with I/M requirements.

Connecticut's ongoing analysis of inspection and enforcement data continues to demonstrate the program effectively produces air pollutant reductions. DEEP and DMV will continue to evaluate opportunities to improve the program and increase cost effective air quality benefits.

2. Program Overview

2.1. Introduction

The I/M program is an important part of Connecticut's overall clean air strategy to ensure the state is positioned to attain and maintain the National Ambient Air Quality Standard (NAAQS) for Ozone (i.e., smog). Ozone is formed by photochemical reactions of precursor emission of volatile organic compounds (VOCs) and oxides of nitrogen (NOx). The mobile source sector is responsible for the majority of ozone precursor emissions in Connecticut and the I/M program, which dates back to 1983, has a long history of effectively reducing these emissions.

Connecticut's I/M program identifies vehicles that emit pollutants that exceed standards set by EPA and require such vehicles to be repaired in a timely manner to comply with emission standards. DMV oversees the I/M program operated by a private contractor; DEEP advises DMV on I/M standards and ensures that the program achieves the air quality benefits as outlined in Connecticut's State Implementation Plan (SIP) for Air Quality.

The emission reductions from the I/M program are an essential element of Connecticut's clean air strategy. On June 3, 2016, having determined that both the Greater Connecticut and the New York-Northern New Jersey-Long Island (NY-NJ-CT) nonattainment areas failed to attain the 2008 ozone standards by the July 20, 2015 attainment date, EPA reclassified those areas from marginal nonattainment to moderate nonattainment. This reclassification required the two areas to attain the 2008 standard by July 20, 2018. Neither area measured attainment as of that date and, as such, Connecticut was reclassified by EPA as serious nonattainment for 2008 standard as of September 2019. Thus, EPA changed the attainment date for the 2008 standard to July 21, 2021. Effective November 7, 2022, EPA further reclassified the NY-NJ-CT nonattainment area to severe nonattainment for the 2008 ozone standards with an attainment date of July 20, 2027. Additionally, on October 1, 2015, EPA strengthened the 2015 Ozone NAAQS to 70 parts per billion (ppb) from 75 ppb. Effective August 3, 2018, the Greater Connecticut nonattainment area was classified as marginal nonattainment (attainment date August 3, 2021) and the New York-Northern New Jersey-Long Island (NY-NJ-CT) nonattainment area was classified as moderate nonattainment (attainment date August 3, 2024). Effective November 7, 2022, EPA reclassified the Greater Connecticut nonattainment area from marginal to moderate for the 2015 Ozone NAAQS due to failing to attain standards, making both Connecticut areas classified as moderate. In 2024, Connecticut requested a voluntary reclassification of the nonattainment areas in the state from moderate to serious. EPA granted the request and effective July 25, 2024, the NY-NJ-CT area was reclassified as serious and effective July 29, 2024, the Greater Connecticut area was reclassified as well (attainment dates August 3, 2027). Continued failure to meet federal health-based ozone standards will require even greater emission reductions from new and in-use motor vehicles.

As part of the next ozone attainment demonstration, DEEP will need to evaluate additional measures to reduce emissions from the transportation sector as this sector accounts for about 67% of NOx emissions

in Connecticut. These strategies may include, but are not limited to: adopting the California aftermarket catalytic converter rule, promoting electric and alternative fueled vehicles by expanding the availability of electric vehicle charging stations and alternative fuel refueling stations, adopting programs that encourage the replacement of older diesel on and off road equipment with equipment that complies with the newest emission standards, and expanding the I/M program to include more medium and heavy duty trucks. Failing to effectively reduce transportation emissions to meet federal air quality standards in a timely manner may result in the need for additional control measures in the future. Therefore, the existing I/M program should be viewed against the backdrop of potential additional control programs necessary to achieve Connecticut’s short term and long-term air quality goals.

2.2. Emissions Tests Administered

Vehicles that are between 5 and 24 years old with a gross vehicle weight of 10,000 pounds or less are inspected in Connecticut by the following procedures on a biennial basis.

Gasoline Powered Vehicles (Including CNG, Propane and Hybrid Vehicles)

Below is a brief description of the criteria used to determine if a gasoline powered vehicle passes or fails inspection.

Pass/Fail Criteria

Pre-Conditioned Two-Speed Idle (PCTSI) Inspection (1997 to 2007 vehicles > 8500 pounds gross vehicle weight): Vehicles fail if they exceed Connecticut’s cut points or emissions standards. For the PCTSI test, HC and CO emissions are evaluated. Connecticut uses EPA’s recommended cut points for the PCTSI¹ tests.

OBDII Inspection: 1996 and newer MY light-duty vehicles (< 8500 pounds gross vehicle weight) and 2008 and newer medium-duty vehicles with a GVWR between 8,501 LBS to 10,000 lbs. are subject to an OBDII inspection. The emissions test system is plugged into the OBDII connector and information on the status of the vehicle’s OBDII system is downloaded. Vehicles fail the OBDII inspection if they have any of the following problems:

- Malfunction Indicator Lamp (MIL²) is commanded-on;
- MIL not working (Termed Key-On Engine-Off, KOEO, failure³);
- The number of readiness monitors that are not ready exceed EPA’s limit⁴:
 - 1996-2000 MY light-duty vehicles: Two monitors are allowed to be not ready.

¹ *Two speed idle test—EPA 81, 40 CFR 85.2214*

² MIL is a term used for the light on the instrument panel, which notifies the vehicle operator of an emission-related problem. The MIL is required to display the phrase “check engine” or “service engine soon” or the ISO engine symbol. The MIL is required to illuminate when a problem has been identified that could cause emissions to exceed a specific multiple of the standards the vehicle was certified to meet.

³ The Key-On Engine-Off (KOEO) determines if the MIL bulb is working. The bulb should illuminate when the vehicle is in the ON/RUN position but not started.

⁴ OBDII systems have up to 11 diagnostic monitors, which run periodic tests on specific systems and components to ensure that they are performing within their prescribed range. OBDII systems must indicate whether the onboard diagnostic system has monitored each component. Components that have been diagnosed are termed “ready”, meaning they were tested by the OBDII system.

- 2001 and later MY light-duty vehicles: One monitor is allowed to be not ready.
- OBDII Diagnostic Link Connector (DLC) damaged; or
- Vehicle could not communicate with the Connecticut inspection system.

Diesel Powered Vehicles

Diesel-powered vehicles with a GVWR of 10,000 lbs. or less are also tested in Connecticut’s I/M program. Vehicles equipped with OBDII systems receive OBDII tests. Otherwise, the vehicle receives a test designed to identify excessive exhaust smoke opacity. EPA regulations do not require the testing and reporting of diesel-powered vehicles.

Below is a brief description of the criteria used to determine if a vehicle passes or fails inspection.

Pass/Fail Criteria

Modified Snap Acceleration (MSA) Test (2007 and older medium-duty vehicles): With this test, the throttle is “snapped” (i.e., accelerator is quickly pressed and then released) and exhaust smoke opacity is measured. This test is performed with the vehicle being in “neutral”. The average of three snaps is calculated and compared to the standard recommended by the Society of Automotive Engineers (SAE).

OBDII Inspection: 1997 and newer model year diesel vehicles with a GVWR of 8,500 lbs. or less and 2007 and newer medium-duty vehicles with a GVWR between 8,501 LBS to 10,000 lbs. are subject to OBDII inspection. The emissions test system is plugged into the OBDII connector and information on the status of the vehicle’s OBDII system is downloaded. Diesel-powered vehicles will fail the OBDII inspection if they have any of the following problems:

- Malfunction Indicator Lamp (MIL) is commanded-on;
- MIL not working (Termed Key-On Engine-Off, KOEO, failure);
 - The number of readiness monitors that are not ready exceed EPA’s limit of one monitor.
- OBDII Diagnostic Link Connector (DLC) damaged; or
- Vehicle could not communicate with the Connecticut inspection system.

3. Test Data Report

3.1. Vehicles Tested

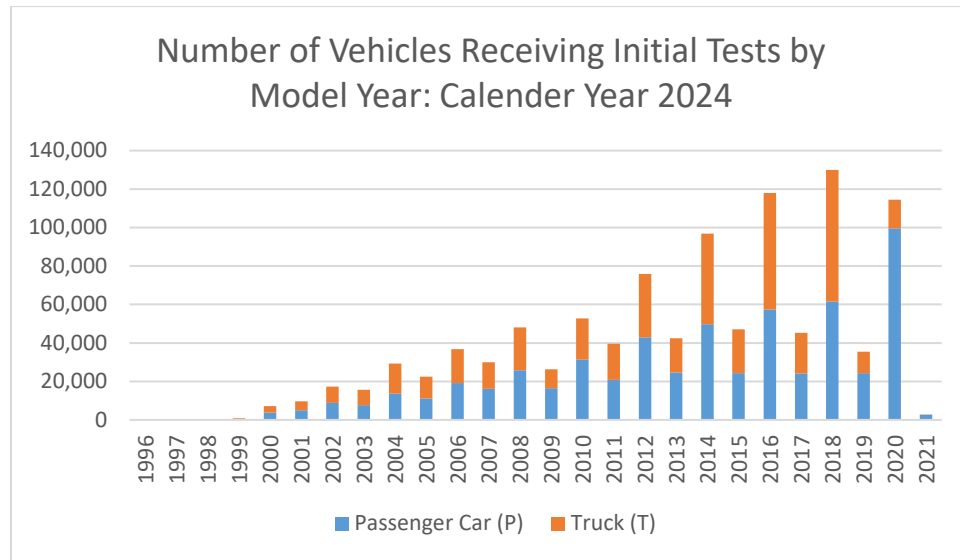
40 CFR 51.366 (a)(1): The number of vehicles tested by model year and vehicle type

Table 1 and Figure 1 present the number of passenger cars and trucks that were inspected at public and fleet stations. There are about 2.9 million registered vehicles in Connecticut, which are tested every two years, with a four-year exemption for new vehicles. In 2024, 1,044,326 vehicles were inspected; the total number of vehicles inspected **represents approximately 36% of the registered fleet**. In 2024, there were more vehicles tested with even model years than odd model years. Note: The 240 vehicles reported for vehicle years 1996 thru 1998 were all test attempts that were aborted due to vehicles not being subject to the I&M program.

TABLE 1 - (A)(1) NUMBER OF VEHICLES TESTED BY MODEL YEAR AND VEHICLE TYPE
 INCLUDES INITIAL TESTS AND RETESTS

Model Year	Passenger Car (P)	Truck (T)	Total
1996	9	3	12
1997	34	29	63
1998	98	67	165
1999	420	368	788
2000	3,790	3,433	7,223
2001	4,926	4,674	9,600
2002	8,835	8,536	17,371
2003	7,726	7,844	15,570
2004	13,612	15,672	29,284
2005	11,205	11,287	22,492
2006	19,172	17,662	36,834
2007	16,122	13,790	29,912
2008	25,856	22,183	48,039
2009	16,508	9,724	26,232
2010	31,533	21,160	52,693
2011	20,751	18,896	39,647
2012	42,969	32,945	75,914
2013	24,556	17,951	42,507
2014	49,673	47,190	96,863
2015	24,326	22,719	47,045
2016	57,470	60,530	118,000
2017	24,187	21,146	45,333
2018	61,517	68,462	129,979
2019	24,295	11,129	35,424
2020	99,474	14,985	114,459
2021	2,659	217	2,876
Grand Total	591,723	452,603	1,044,326

FIGURE 1 – NUMBER OF INITIAL TESTS BY VEHICLE TYPE AND MODEL YEAR (NETWORK TESTS)



3.2. Test Results

40 CFR 51.366 (a)(2): By model year and vehicle type, the number and percentage of vehicles:

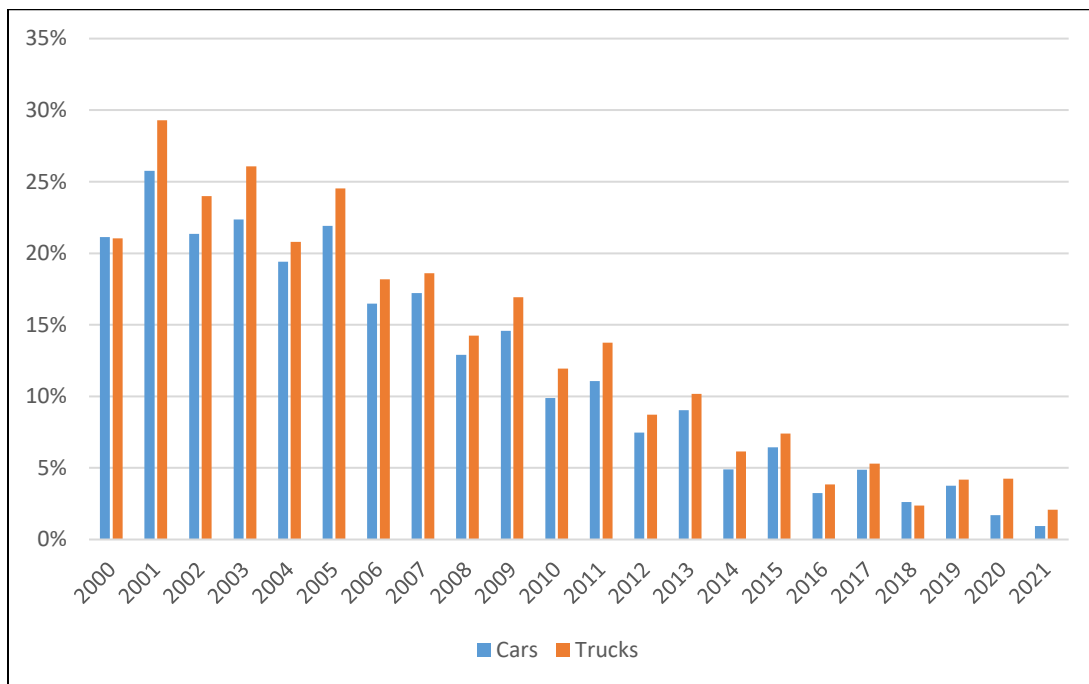
- (i) Failing initially, per test type;
- (ii) Failing the first retest per test type;
- (iii) Passing the first retest per test type
- (iv) Initially failed vehicles passing the second or subsequent retest per test type
- (v) Initially failed vehicles receiving a waiver
- (vi) Vehicles with no known final outcome (regardless of reason)

Table 2 presents the failure rate by test type and vehicle type. The failure rates in 2024 are very similar to the rates in 2023 and earlier years. As shown in Figure 2, due to more stringent pass/fail criteria for the OBD test, failure rates jumped in 2001. Appendix A presents details on failure rate trends by model year, test type, and vehicle type.

TABLE 2 - (A)(2)(i) INITIAL TEST FAIL RATE BY TEST TYPE AND MODEL YEAR

Test Type	Cars			Trucks		
	Pass	Fail	% Fail	Pass	Fail	% Fail
OBD Gasoline	518,635	41,781	7.46%	385,188	39,231	9.24%
OBD Diesel	1,364	323	19.15%	2,335	768	24.75%
OBD Hybrid	18,928	993	4.98%	3,971	233	5.54%
PCTSI	86	8	8.51%	6,711	471	6.56%
MSA	20	2	9.09%	1,262	187	12.91%
Grand Total	539,033	43,107	7.40%	399,467	40,890	9.29%

FIGURE 2 - OVERALL INITIAL TEST FAIL RATE BY VEHICLE TYPE AND MODEL YEAR



Failure rates for the first retest and second and later retests are shown in Tables 3 and 4.

TABLE 3 - (A)(2)(II,III) FIRST RETEST FAIL RATE BY TEST TYPE

Test Type	Cars			Trucks		
	Pass	Fail	% Fail	Pass	Fail	% Fail
OBD Gasoline	26,274	2,041	7%	25,423	2,007	7.32%
OBD Diesel	168	14	8%	416	29	6.52%
OBD Hybrid	678	52	7%	172	8	4.44%
PCTSI	2	0	0%	318	43	11.91%
MSA	0	0	0.00%	86	24	21.82%
Grand Total	27,122	2,107	7.21%	26,415	2,111	7.40%

TABLE 4 - (A)(2)(IV) SECOND AND LATER RETEST FAIL RATE BY TEST TYPE

Test Type	Cars			Trucks		
	Pass	Fail	% Fail	Pass	Fail	% Fail
OBD Gasoline	888	105	10.57%	1,001	101	9.17%
OBD Diesel	8	1	11.11%	15	3	16.67%
OBD Hybrid	27	4	12.90%	6	0	0.00%
PCTSI	0	0	0.00%	21	3	12.50%
MSA	0	0	0.00%	9	6	40.00%
Grand Total	923	110	10.65%	1,052	113	9.70%

The number and percent of vehicles receiving waivers are shown on Table 5. The overall waiver rate is very low; 0.13% of the failed vehicles receive waivers.

TABLE 5 - (A)(2)(V). WAIVERS ISSUED

Model Year	Passenger Car (P)	Truck (T)	Total # of Waivers	# of Failed Vehicles	% of Failed Vehicles Receiving Waivers
2000	0	0	0	1,419	0.00%
2001	3	2	5	2,247	0.22%
2002	5	2	7	3,532	0.20%
2003	4	1	5	3,300	0.15%
2004	2	5	7	5,400	0.13%
2005	2	5	7	4,683	0.15%
2006	8	5	13	5,903	0.22%
2007	6	4	10	4,981	0.20%
2008	2	3	5	6,329	0.08%
2009	2	1	3	3,880	0.08%
2010	5	6	11	5,478	0.20%
2011	2	9	11	4,753	0.23%
2012	2	4	6	5,989	0.10%
2013	6	3	9	3,967	0.23%
2014	1	1	2	5,365	0.04%
2015	0	2	2	3,243	0.06%
2016	1	1	2	4,218	0.05%
2017	2	1	3	2,280	0.13%
2018	1	0	1	3,269	0.03%
2019	0	0	0	1,392	0.00%
2020	0	0	0	2,342	0.00%
2021	0	0	0	27	0.00%
Total	54	55	109	83,997	0.13%

Table 6 presents the estimated percent of vehicles without a passing result. This table presents the total number of initial failing tests and passing retests. The number of passing retests include waivers. Overall, 33.9% of initially failing vehicles do not have a passing result or waiver. Per EPA guidance, these

results are through the first four months of 2025. DMV investigated the 28,377 vehicles that had no known final outcome (NKFO). Following is a breakdown of the results of DMV’s investigation:

- 1,606 vehicles have either never registered, received reciprocity tests, dealer sold the vehicle out of state or had VIN errors.
- 2,272 vehicles are no longer registered will need to be compliant before renewal.
- 18 CT registered vehicles were out of state and received time extensions.
- This totals to 3,896 vehicles.
- Therefore **24,481** vehicles with an emissions expiration due date in 2024 are still currently registered in CT and still non-compliant.

TABLE 6 - (A)(2)(VI) VEHICLES WITH NO FINAL PASS

Model Year	Cars			Light Trucks			ALL
	# Fail Initial Tests	# Pass Retests (Includes Waivers)	% of Initially Failed Vehicles with No Final Pass	# Fail Initial Tests	# Pass Retests (Includes Waivers)	% of Initially Failed Vehicles with No Final Pass	% of Initially Failed Vehicles with No Final Pass
2000	749	322	57.0%	670	319	52.4%	54.8%
2001	1,146	599	48.0%	1,101	625	43.4%	45.7%
2002	1,786	1,056	41.2%	1,746	1,092	37.6%	39.4%
2003	1,611	911	43.7%	1,689	971	42.6%	43.1%
2004	2,530	1,531	39.6%	2,870	1,819	36.8%	38.1%
2005	2,293	1,337	41.8%	2,390	1,400	41.6%	41.7%
2006	3,047	1,903	37.8%	2,856	1,833	36.0%	36.9%
2007	2,645	1,573	40.8%	2,336	1,374	41.4%	41.0%
2008	3,259	2,101	35.6%	3,070	1,996	35.1%	35.3%
2009	2,322	1,444	37.9%	1,558	993	36.3%	37.3%
2010	3,007	2,042	32.3%	2,471	1,618	34.8%	33.4%
2011	2,221	1,386	37.7%	2,532	1,679	34.0%	35.7%
2012	3,122	2,122	32.1%	2,867	2,019	29.7%	31.0%
2013	2,162	1,394	35.8%	1,805	1,243	31.3%	33.8%
2014	2,412	1,747	27.6%	2,953	2,218	24.9%	26.1%
2015	1,537	1,054	31.4%	1,706	1,226	28.3%	29.8%
2016	1,858	1,390	25.2%	2,360	1,869	20.8%	22.8%
2017	1,163	803	31.1%	1,117	852	23.8%	27.5%
2018	1,609	1,238	23.1%	1,660	1,419	14.5%	18.8%
2019	922	692	24.9%	470	373	20.6%	23.5%
2020	1,683	1,433	14.9%	659	581	11.8%	14.0%
2021	23	21	8.7%	4	3	25.0%	11.1%
All	43,107	28,099	34.9%	40,890	27,522	32.8%	33.9%

40 CFR 51.366 (a)(2): By model year and vehicle type, the number and percentage of vehicles:

(xi) Passing the on-board diagnostic check

(xii) Failing the on-board diagnostic check

Table 7 presents the percentage of vehicles that continue to fail the on-board diagnostic (OBD) test. Testing data shows 2.6% of passenger vehicles and 3.1% of light trucks continue to fail the OBD test through the first four months of 2025. These vehicles cannot be registered until they pass. Please reference Appendix A, (a) (2) (xi, xii) for specific data.

TABLE 7 - (A)(2)(XI, XII) PERCENT CONTINUING TO FAIL OBD TESTS ALL FUELS

Model Year	% Fail Cars	% Fail Light Trucks
2000	12.0%	12.0%
2001	12.3%	12.8%
2002	8.7%	9.0%
2003	9.8%	11.2%
2004	7.7%	7.7%
2005	9.1%	10.3%
2006	6.2%	6.5%
2007	7.0%	7.8%
2008	4.6%	5.0%
2009	5.5%	6.1%
2010	3.1%	4.2%
2011	4.1%	4.7%
2012	2.4%	2.6%
2013	3.2%	3.2%
2014	1.4%	1.6%
2015	2.0%	2.2%
2016	0.8%	0.8%
2017	1.5%	1.3%
2018	0.6%	0.4%
2019	1.0%	0.9%
2020	0.3%	0.6%
2021	0.1%	0.5%
ALL	2.6%	3.1%

40 CFR 51.366 (a)(2): By model year and vehicle type, the number and percentage of vehicles:
(xix) MIL is commanded on and no codes are stored
(xxi) MIL is commanded on and codes are stored
(xxii) MIL is not commanded on and codes are not stored
(xxiii) Readiness status indicates that the evaluation is not complete for any module supported by on-board diagnostic systems

MIL light illumination, or lack of readiness, results in an automatic failure of the I/M test. As such MIL "command on" and "not ready" status is reported. In 2024, 3.5% of the vehicles had MILs commanded on with DTCs and 0.004% had MILs commanded on with no codes stored. In 0.22% of the tests, the test system could not communicate with the OBD system. Specific data can be found in Appendix A, 40 CFR 51.366 (a) (2) (xix, xxi, xxii).

Overall, 5.12% of the vehicles had diagnostic monitors that were not ready on their initial test. Model year vehicles from 1996 to 2000 are allowed to have two monitors not ready; 2001 and newer models are allowed to have one monitor not ready. Due to the more stringent readiness requirement starting with 2001 model year vehicles (one monitor vs two allowed to be not ready), the percentage of vehicles that are not ready increases for that model year. Specific data can be found in Appendix A, (a) (2) (xxiii).

40 CFR 51.366 (a)(3): The initial test volume by model year and test station
(a)(4): The initial test failure rate by model year and test station

Appendix A, 40 CFR 51.366 (a)(3&4) contains a breakdown of initial test volume and fail rate by model year and test station.

3.3. Inapplicable Requirements

The following requirements from 40 CFR 51.366 (a) regarding test data reports are not applicable to Connecticut's I/M program:

- 40 CFR 51.366 (a)(2)(xiii-xv)
- 40 CFR 51.366 (a)(2)(xvi-xviii)
- 40 CFR 51.366 (a)(2)(xx)
- 40 CFR 51.366 (a)(5)

4. Quality Assurance Report

4.1. Inspection Stations

40 CFR 51.366 (b)(1): The number of inspection stations and lanes:

- (i) Operating throughout the year
- (ii) Operating for only part of the year

Table 8 presents the number of inspection stations that operated in 2024.

TABLE 8 - (B)(1) QUALITY ASSURANCE 2024 – NUMBER OF INSPECTION STATIONS

	Beginning of Year	Left Program	Added to Program	End of Year
No. of Inspection stations/lanes operating throughout 2024	228	14	5	219

4.2. Inspectors

40 CFR 51.366 (b)(5): The number of inspectors licensed or certified to conduct testing

Table 9 presents the number of certified test inspectors (CTIs) that were active in 2024.

TABLE 9 – (B)(5) QUALITY ASSURANCE – NUMBER OF CERTIFIED TEST INSPECTORS (CTIs) 2024

Total CTIs Testing	1,423
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4.3. Overt performance audits

40 CFR 51.366 (b)(2): The number of inspection stations and lanes operating throughout the year:

- (i) Receiving overt performance audits in the year
- (ii) Not receiving overt performance audits in the year

EPA requires that overt audits be performed twice per year per station. DMV meets these requirements through use of the Emission Test Monitoring Report (ETMR). Connecticut prepares ETMRs more frequently than required by EPA. Every three months, at least one ETMR is performed on each station. In addition, Opus also performs overt audits. Connecticut also checks more items than required by EPA, such as the operational status of test equipment and peripherals (e.g., cameras). Connecticut is continuing to evaluate the auditing process to build upon the program’s success. Table 10 summarizes the results of overt performance audits.

TABLE 10 - (B)(2) QUALITY ASSURANCE – OVERT AUDITS – 2024

Parameter	2024 Value
Receiving overt performance audits in 2024	256
Not Receiving overt performance audits in 2024	0
2024 Overt Audits - Emissions Test Monitoring Report (ETMR)	
Parameter	2024 Value
Total Overt Audits Performed	1,942
No. of Stations Audited	256
No. of Times Each Station Was Audited (range)	1 thru 11
No. of Stations That Had No Violations for the Entire Year	143
Total Number of Audits for which One or More Violations Were Reported	227
No. of stations at which violations were reported	130
No. of stations at which one (1) violation was reported	66
No. of stations at which two (2) violations were reported	64
Motor Vehicle Agents	2024 Value
No. of Agents That Performed Overt Audits During the Course of the Year	8
No. of Overt Audits per Agent (range)	1 thru 481
No. of Station Issues Reported per Agent (range)	1 to 73

4.4. Digital Checks / Trigger Audits / Camera / Video

Based on the results of trigger audits, Connecticut is a model for other states in how to enforce proper I/M test procedures. Connecticut actively looks for cases where inspectors may be performing improper inspections and passing vehicles that otherwise should fail. The following is a summary of how Connecticut ensures that stations perform proper inspections.

Trigger Audits

DMV and Opus run extensive trigger audits to ensure that inspection stations follow proper test procedures. DMV requires Opus to maintain quality assurance measures, which they meet by conducting additional audits. Specifically, Opus performs such audits and QA reviews on a daily, weekly, and monthly basis. Many of the reports are automated by the Opus vehicle inspection database (VID), and distributed, via email, to DMV and Opus QA staff. In addition, the reports are available on the program dashboard for review at any time, and they are available for any time frame.

Trigger audits look for anomalies in data recorded during inspection. Reporting the outcome of these audits help DMV to identify if stations are performing fraudulent or inaccurate inspections. Trigger audits focus on finding the following types of fraud:

- Clean Scanning: Performing an OBDII test on a fault-free vehicle instead of the vehicle that should be tested.

- Clean Piping: Performing a tailpipe test on a passing vehicle instead of the vehicle that should be tested.

These reports are generated frequently to identify stations performing improper inspections. Connecticut promptly investigates all significant cases of possible inspection fraud. Following is a list of some of the trigger reports:

- OBDII Testing Triggers:
 - PID/PCM Mismatch;
 - Monitor Mismatch;
 - All OBDII Monitors Unsupported;
 - A/C Monitor Ready or Not Ready;
 - OBDII Short Time Test, less than 30 minutes;
 - OBDII VIN Mismatch;
- Other Triggers:
 - VIN Entry Type;
 - Inspector ID Entry;
 - Offline Percentage;
 - RPM Bypass;
 - No Saturday/Holiday Testing; and
 - Missing Video/Test Image.

Opus' VID also generates the following automated alerts:

- Weather (temperature, humidity, pressure);
- EDBMS Offline;
- CDAS Offline;
- Test Center Not Testing; and
- Failed/Expired Calibrations Report.

Camera Audits

Opus uses a single, wide-angle camera to record each emissions test. If the camera malfunctions, an alert is sent to DMV and Opus through their internal system. In addition, the Opus VID will generate a non-compliance report for any emissions test transmitted with a missing test and video file. However, during normal operations at the test centers, cameras may become misaligned or obstructed. Using the program dashboard, Opus and DMV perform camera audits at each test center. Each camera is turned on to ensure it operates as it should, the viewing angle is verified with no obstructions, and a test video is recorded. If an issue is identified that requires an onsite visit at the test center, a service ticket is generated and dispatched to the Opus field service.

Fraudulent Test Rate

A key parameter that's recorded during an OBD test is the OBD VIN – the vehicle identification number (VIN) that's part of the OBD test record. The percentage of tests in Connecticut where the OBD VIN did

not match the DMV VIN for the vehicle under test was calculated to be 0.02%. This mismatch could be due to clean scanning (substituting a problem free vehicle for the vehicle under test), changing the vehicle's onboard computer, or a data entry error in the DMV VIN. Connecticut has historically had low VIN mismatch rates and no individual stations in Connecticut had high OBD VIN mismatch rates.

Not all vehicles provide OBD VINs as part of the test record, so mismatches between expected and recorded communication protocol were also analyzed. OBD systems can use one of seven protocols; tests where the recorded protocol mismatches expected protocol are considered suspect. Only 0.02% of the tests (39 tests⁵) are suspect in Connecticut. No stations had high protocol mismatch rates.

This analysis indicates that inspection fraud is not a serious problem in Connecticut.

4.5. Covert audit process overview

EPA requires that covert audits be performed at least once per year per station. The requirements and frequency for covert audits are detailed in 40 CFR 51.363(a)(4) and include remote visual observation of inspector performance, site visits using covert vehicles, and documentation of the audits. DMV performs video surveillance audits on a periodic and random basis. It's easier to perform video audits clandestinely, since the inspector usually does not know an audit is being performed. During 2024, DMV performed 482 covert audits and 3,229 video surveillance audits.

Warnings are routinely issued for false passes if DMV finds that the CTI did not intentionally or negligently falsely pass a vehicle. Suspensions are usually associated with violations found from trigger reports and data audits. Most false passes are for minor procedural errors, such as failing to perform the visual MIL check correctly. Unless the station repeats these errors, they are issued warnings rather than being suspended.

As stated in the Opus contract, and in the Opus Station Agreement, a CTI is suspended (pending an investigation) when it is determined that the false pass was the result of "Intentionally improperly passing a failing vehicle." Most errors identified by covert and video surveillance audits were determined to be unintentional and due to poor attention to detail. However, a second occurrence of an unintentional error, such as missing or incorrectly answering the MIL question, results in an automatic suspension.

4.6. Covert Audit Results

40 CFR 51.366 (b)(8): The total number of covert vehicles available for undercover audits over the year;
(b)(9): The number of covert auditors available for undercover audits.

40 CFR 51.366 (b)(2): The number of inspection stations and lanes operating throughout the year:
(iii) Receiving covert performance audits in the year;
(iv) Not receiving covert performance audits in the year;

40 CFR 51.366 (b)(3): The number of covert audits:
(i) Conducted with the vehicle set to fail per test type
(ii) Conducted with the vehicle set to fail any combination of two or more test types
(iii) Resulting in a false pass per test type
(iv) Resulting in a false pass for any combination of two or more test types

Table 11 summarizes the results of covert performance. Table 12 presents the results of video audits.

TABLE 11 - (B)(2)(III, IV) & (3,8,9) QUALITY ASSURANCE – COVERT AUDITS – 2024

Parameter	OBD and PCTSI	OBD Tests	Idle Tests	Opacity Tests
Number of Covert Audits (211 stations audited)	482	211	211	60
Stations Not Receiving Covert Audits**	21 Stations (Number of stations with no Covert OBD or Idle Test performed)	3 Stations (Number of stations with no Covert OBD test performed)	19 Stations (Number of stations with no Covert Idle test performed)	0 Stations
Total number of Covert vehicles available for undercover audits in 2024	3	1	1	1
Total number of Covert auditors available for undercover audits in 2024	3	3	3	3

* 69 of the recorded covert visits did not result in generating a Pass/Fail test result for the vehicle presented.

** 17 stations did not receive covert audits within the calendar year 2024. All 17 stations were covert-audited during the first two weeks of 2025. The time required to complete repairs caused the delay in covert audits.

TABLE 12 - 2024 VIDEO SURVEILLANCE RESULTS – OPUS AND DMV COMBINED

# of Video Audits	Passing audit	Failing Audit
3,269	2,014	1,255

4.7. Inspector and Station Disciplinary Actions

40 CFR 51.366 (b) (4): The number of inspectors and stations:
 (i) That were suspended, fired, or otherwise prohibited from testing as a result of covert audits
 (ii) That were suspended, fired, or otherwise prohibited from testing for other causes

40 CFR 51.366 (b) (2): The number of inspection stations and lanes operating throughout the year
 (v) That have been shut down as a result of overt performance audits

One station was permanently suspended. This enforcement action was due to refusal to inspect vehicles, not failure of overt or covert audits.

4.8. Hearings

40 CFR 51.366 (b) (6): The number of hearings:
 (i) Held to consider adverse actions against inspectors and stations
 (ii) Resulting in adverse actions against inspectors and stations

When necessary, Opus administers hearings to resolve disputes regarding actions against inspection stations. Opus continually updates the Compliance Action Plan which defines fines for specific infractions. In 2024, no hearings were held due to revision of the Compliance Action Plan. Monetary assessments are based on substantive evidence which Opus provides with the inspector’s and test center’s letters. This has helped to reduce the frivolous disputes. All rejected disputes are advised that they may seek external binding arbitration, at her or his expense.

4.9. Fines Collected

40 CFR 51.366 (b)(4)(iii): The number of inspectors and stations... that received fines;

40 CFR 51.366 (b)(7): The total amount collected in fines from inspectors and stations by type of violation

Table 13 presents a summary of compliance actions that were assessed against inspectors and stations in 2024. The 55 fines assessed in 2024 for a total of \$8,075 is considerably less than the 175 fines assessed for a total of \$29,625 in 2023.

TABLE 13 - (B)(4), (7) TABLE COMPLIANCE ACTION ASSESSED AGAINST TESTING INSPECTOR OR STATIONS IN 2024

Number of Fines	\$ Fined
55	\$8,075

4.10. Inapplicable Requirements

The following requirements from 40 CFR 51.366 (b) regarding data analysis and reporting are not applicable to Connecticut's I/M program:

- 40 CFR 51.366 (b)(3)(ii)
- 40 CFR 51.366 (b)(3)(iv)
- 40 CFR 51.366 (b)(4)(iii)
- 40 CFR 51.366 (b)(6)
- 40 CFR 51.366 (b)(7)

5. Quality Control Report

5.1. Equipment Audits

40 CFR 51.366 (c): The program shall submit to EPA by July of each year a report providing basic statistics on the quality control program for January through December of the previous year, including:

- (1) The number of emission testing sites and lanes in use in the program;
- (2) The number of equipment audits by station and lane;
- (3) The number and percentage of stations that have failed equipment audits; and
- (4) Number and percentage of stations and lanes shut down as a result of equipment audits.

Equipment Audits Performed by Connecticut DMV

EPA requires that equipment audits be performed twice per year per station. DMV meets these requirements through the QA Audits. In addition, Opus also performs equipment audits. Connecticut checks more equipment items than required by EPA. While an audit may require a station to discontinue tailpipe testing, it can continue OBDII testing. Therefore, no stations were totally shut down due to a failed gas equipment audit. Results are presented in Table 14. In 2023, 12% of the stations failed equipment (gas) audits, while in 2024 this percentage increased slightly to 15%.

TABLE 14 – (C)(1,2,3,4) RESULTS OF EQUIPMENT AUDITS*

Parameter	2024 Result
No. of Inspection stations/lanes operating throughout 2024	219
Total Equipment Audits**	462
Total Stations that Failed Equipment Audit ***	104
Percentage of stations that failed an equipment (gas) audit	47.5%
Number of stations totally shut down as a result of a failed equipment (gas) audit	0
Percentage of stations shut down as a result of failed equipment (gas) audit	0.00%

* Every time an analyzer gas bench is changed, it is audited and is counted as an initial audit

** Initial gas audits only, not reinspection of failed audits

*** Failures of initial gas audits only

Final Technical Guidance (EPA 420-B-04-011, July 2004) provides that high-volume stations are required to be audited monthly. High volume stations are those that perform 4,000 or more emissions tests per year. The Connecticut Vehicle Inspection Program, by Federal guidance, does not have any emissions testing stations that perform the number of emissions tests necessary to be classified as high volume.

Equipment Audits Performed by Opus

DMV’s contractor, Opus, performs comprehensive overt and equipment audits biennially, at each facility that participates in the inspection program. These unannounced audits include:

- The visual inspection and physical condition of the testing equipment;
- Equipment integrity checks using traceable/certified audit equipment; and
- Observation of the proficiency of at least one inspector.

The contractor’s auditor evaluates the physical condition, functionality, and inventory of all the required emissions components and any ancillary safety items (restraining straps, wheel chocks, dynamometer tie down hooks, etc.). The emissions analyzer must pass calibrations (leak check, gas bench, dynamometer, gas cap, OBDII, and opacity, if equipped).

In addition, there are several system components that are audited using National Institute of Standards and Technology (NIST) certified and traceable audit equipment:

- Gas Bench(s) Audit – NIST traceable audit gas
- Opacity Audit - Reference filters (20%, 35%, 50%, and 75%)
- OBDII System Audit – EASE OBDII Verification Tester

In accordance with the Quality Assurance and Quality Control Plan, the contractor’s auditor uses a pre-printed checklist to inventory and record the physical condition of the test equipment. All non-conforming items are addressed immediately; the auditor’s van is equipped to replace missing station inventory at the time of the audit. If an issue is identified that cannot be addressed by the auditor, he or she will create a service ticket for Opus field service.

6. Enforcement Report

6.1. Overview of I/M Enforcement in Connecticut

The Connecticut Integrated Vehicle and Licensing System (CIVLS), which has been in use since August 2015, checks for emissions compliance during every registration renewal transaction. This means that if the renewal is attempted by mail, website, or in person, the transaction cannot go forward unless the vehicle is in compliance with the emissions program. Compliance is confirmed during every renewal transaction via a real time data transfer from DMV CIVLS to the Opus Electronic Database system (EDBMS). Details of web, mail-in, and over the counter actions are presented below:

Mail in renewals: When mail-in renewal is denied because of an emissions compliance issue, the registration fees are put into an escrow account. The motorist is mailed a letter stating that the payment has been received, but the transaction cannot be processed until the vehicle is emissions compliant. Once the vehicle has an emissions test and is in compliance, the funds are automatically taken out of escrow and the registration is renewed.

Web renewals: If the vehicle is not in compliance when a renewal is attempted online, the transaction is stopped and the motorist receives a screen message stating the vehicle is not emissions compliant.

In-Person renewals: Renewals are not allowed if, during the automatic compliance check, the status of the vehicle is that it is “not in emissions compliance.” Registration renewal is rejected, and the customer is instructed to return after the vehicle is in compliance.

Before implementation of CIVLS the DMV examiner physically reviewed electronic records or paperwork provided by the motorist to confirm compliance.

6.2. Vehicles Subject to Inspection

40 CFR 51.366(d)(1)(i): An estimate of the number of vehicles subject to the inspection program, including the results of an analysis of the registration database

Based on an analysis by DMV on the registration database, 997,833 vehicles were subject to I/M tests in 2024. This number includes vehicles that may no longer be operating in Connecticut.

6.3. Overall Compliance with Testing Requirements

40 CFR 51.366 (d)(1)(ii): The percentage of motorist compliance based upon a comparison of the number of valid final tests with the number of subject vehicles

Percent of Vehicles Receiving Notifications That Were Tested

Table 15 presents the number of vehicles that received test notifications and the number of vehicles that were tested. Overall, 100% of the vehicles that received notifications were tested in 2024, compared to 96% in 2023. It is believed more vehicles were tested compared to the number of notification letters sent due to both out of state vehicles being tested as well as Connecticut’s shift to a three-year registration renewal cycle. No out of state vehicles tested in the state receive notifications and many motorists wait until registration renewal to get their vehicles inspected. Motorists waiting to get an emissions inspection will often be over a year late for the test and often these vehicles will receive an inspection in the next calendar year. This has caused more cars to test in a given calendar year without additional notifications being sent, resulting in a calculated 100% testing rate. A vehicle

must pass inspection (or receive a waiver) before it can be registered in the state. This parameter is different than the program compliance rate which is based on outcomes of vehicles that have been tested.

TABLE 15 - (D)(1)(ii) ESTIMATED NUMBER OF VEHICLES SUBJECT TO I/M THAT WERE TESTED

Parameter	2024 Value
# of Notification Letters	997,833
# of Vehicles Tested	1,044,326
% of Vehicles Tested	100%

Waivers Issued

Another aspect related to enforcement is the number of waivers issued. Program effectiveness is inversely proportional to the waiver rate. As Table 5 in Section 3 showed, only 0.13% of the vehicles that failed received waivers, indicating that the waiver program is not being abused. Connecticut’s I/M SIP committed to a waiver rate of 1% or less.

6.4. Registration File Audits and Compliance with Deadlines

40 CFR 51.366 (d)(2)(ii): The number of registration file audits, number of registrations reviewed, and compliance rates found in such audits.

Connecticut’s SIP commits the State to achieve a 96% compliance rate for the vehicles subject to I/M requirements. Registration audits indicate that over 99% of the vehicles being registered comply with I/M requirements.

Registration Audits

Connecticut audits each registration for I/M compliance. Table 16 presents the number of registration applications that were mailed to DMV that were denied for failure to meet the requirement of the I/M program. In 2024, 296,600 renewal applications were sent to DMV and 6,859 were denied due to I/M compliance status. The result is a 98% compliance rate for vehicles that are being registered. Ultimately, 100% of the vehicles registered comply with I/M requirements.

TABLE 16 - (D)(2)(ii) REGISTRATION AUDITS – 2024

2024	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Reg Checked	11,680	43,280	58,605	35,314	23,005	20,095	21,621	20,275	17,856	16,743	14,147	14,279	296,900
Reg Denied	383	550	655	822	635	618	766	510	508	434	469	509	6,859
% Compliance	96.72%	98.73%	98.88%	97.67%	97.24%	96.92%	96.46%	97.48%	97.16%	97.41%	96.68%	96.44%	97.69%

6.5. Motorist Time Extensions

40 CFR 51.366 (d)(1)(v): The number of time extensions and other exemptions granted to motorists

Table 17 presents the number of time extensions and late fee assessments in 2024. Table 18 presents a breakdown of tests relative to testing deadlines.

TABLE 17 - (D)(1)(V) TIME EXTENSIONS AND LATE FEES

Parameter	Annual Total
Time Extension and Other Exemptions	2,677
# of Late Fees Assessed	149,852
Late Fees (\$)	2,997,040

TABLE 18 - (D)(3)(I). # AND % OF SUBJECT VEHICLES THAT WERE TESTED BY THE INITIAL DEADLINE

Deadline	# of Vehicles	% of Vehicles
On Due date	155,637	15.61%
0-120 Days Early	501,015	50.24%
1-30 days late	84,762	8.50%
31-60 days late	49,222	4.94%
61-90 days late	18,737	1.88%
91-120 days late	10,596	1.06%
> 120 days late	177,241	17.77%

6.6. Station Compliance Documents

40 CFR 51.366 (d) (1) (iii): The total number of compliance documents issued to inspection stations
(iv) The number of missing compliance documents

The Compliance Action Plan (CAP) was updated and issued to all active inspection stations in 2024.

6.7. False Registrations

40 CFR 51.366 (d)(2) Registration denial based enforcement programs shall provide the following additional information:

(i): Registration denial based enforcement programs shall provide a report of the program's efforts and actions to prevent motorists from falsely registering vehicles out of the program area or falsely changing fuel type or weight class on the vehicle registration, and the results of special studies to investigate the frequency of such activity

(ii): The number of registration file audits, number of registrations reviewed, and compliance rates found in such audits

Preventing Circumvention of Connecticut's, I/M Requirement

EPA requires states to implement measures that prevent motorists from avoiding I/M requirements by falsely registering vehicles out of the program area, or falsely changing fuel type or weight class on the vehicle registration. EPA also requires states to report on results of special studies to investigate the

frequency of such activity. As shown below, it's very difficult for vehicle owners to circumvent Connecticut's I/M requirements.

- **Circumventing I/M Tests in Connecticut** – Circumventing I/M tests in Connecticut is nearly impossible. First, Connecticut implements the I/M program on a statewide basis. Second, Connecticut tests all fuel types, including hybrids, so motorists cannot avoid inspection by changing fuel type, unless the fuel type of the vehicle is inadvertently categorized as “electric”. It may also be possible to avoid inspection by registering the vehicle with a GVWR greater than 10,000 lbs. The majority of vehicles registered with an incorrect GVWR are those where the vehicle owner registers the vehicle at a lower weight to avoid the added registration expense and would not be emission eligible (>10,000 lbs.) with their corrected weight.
- **Detection and enforcement against motorists that falsely change vehicle classifications to circumvent program requirements** – Historically, 99% of the vehicles subject to emissions testing in Connecticut are in the Passenger, Commercial or Combination classifications. Incidents of motorists falsely modifying a vehicle's registration classification to an emissions exempt class are rare, most likely because of the added expense, documentation and inspection requirements.
- **Vehicles registered in Connecticut that are operated out-of-state** – DMV does not allow blanket extensions for vehicles registered in Connecticut that are operated out-of-state. Vehicles that are out-of-state at the time they are due for their emissions testing are allowed to apply for an extension. Applicants need to provide evidence that the vehicle is physically not present in Connecticut. This is done by means of a VIN verification form (CT form #AE-81) being completed by a law enforcement authority in the state where the vehicle is physically located. This completed VIN verification form along with a written request by the motorist is submitted to the DMV office for processing for the appropriate time extension. Additionally, DMV accepts passing emission test results from states that operate an I/M program using the same pass/fail criteria.

As noted above in Section 6.4, Connecticut reviews every registration application for evidence that the motorist complies with inspection requirements. In 2024, 296,600 renewal applications were sent to DMV and 6,859 were denied due to I/M compliance status. This means that 98% of the registration requests complied with I/M requirements when mail renewals were processed. These compliance rates are similar to those reported in previous year's reports.

6.8. Inapplicable Requirements

The following requirements from 40 CFR 51.366 (d) regarding enforcement reports are not applicable to Connecticut's I/M program:

- 40 CFR 51.366 (d)(1)(vi)
- 40 CFR 51.366 (d)(3)
- 40 CFR 51.366 (d)(4)

7. Program Changes in 2024-2025

40 CFR 51.366 (e): Programs shall submit to EPA by July of every other year, biennial reports addressing:

- (1)** Any changes made in program design, funding, personnel levels, procedures, regulations, and legal authority, with detailed discussion and evaluation of the impact on the program of all such changes; and
- (2)** Any weaknesses or problems identified in the program within the two-year reporting period, what steps have already been taken to correct those problems, the results of those steps, and any future efforts planned.

7.1. Program Improvements in 2024

In 2024, the following improvements were made to Connecticut's I/M program:

1. CTECH Training - Following the 2023 development of the new training program at technical high schools to incorporate emissions inspector training at their technical high schools for all seniors in the automotive technology programs, in 2024:
 - a. CTECH Training Pilot – Norwich Technical School was completed in 2023 where Opus provided intensive staff training to all automotive teachers and officially certified them as inspectors qualified to provide student instruction. The CDAS was installed at the school and a total of seven students received curriculum and hands-on training, with all seven students passing the certification exam and graduating as CTIs.
 - b. CTECH Training at all 18 high schools led to commencement of a Spring Semester 2025 Train the Trainer, CDAS units were provided. This valuable program gives graduating seniors a distinct advantage as they enter the job market and is beneficial to meeting the needs of the Connecticut Vehicle Inspection Program by providing a group of approximately 200 newly certified inspectors into the job market each spring.
 - c. CTECH CTI student graduate placement program launched.
 - d. CTI hands-on training classes expanded to weekly 120-minute sessions. Class has DMV participation with an agent present for each class as well as hands on training on CDAS to allow CTIs more interaction with the equipment.
2. Software Releases -
 - a. Software Iteration Released 23.02.05
 - b. Software Iteration Released 24.02.01
 - c. Software Iteration Released 24.03.01
3. Other Program Improvements -
 - a. Post Card – Motorist notification, wording improved, size enlarged and colored bright yellow
 - b. DOMO reporting/analysis app launched which provides enhanced ad-hoc reporting capabilities not previously available
 - c. Multiple improvements made to ctemissions.com public website
 - d. Anti-Fraud alerts launched and provide real time email notifications
 - e. Network Advisory Committee began – Quarterly Meetings
 - f. New motorist notification posters produced and provided to Network
 - g. RSD MHDD demo – ability to measure actual emissions in addition to smoke thickness
 - h. Decibel Pilot Project completed and report submitted to the state legislature

- i. Audit enforcement being automated

8. EPA Comments

The following addresses EPA's comments in an email dated December 12, 2024 on Connecticut's 2023 Annual I/M Program Evaluation Report.

- 1) Report page 5 (section 2.1, third paragraph): EPA recommends Connecticut revise the paragraph to clarify and reflect the latest nonattainment status for both the 2008, and the 2015, Ozone NAAQS. For example, the biennial report was submitted after EPA's rulemaking which reclassified the New York-Northern New Jersey-Long Island (NY-NJ-CT) nonattainment area, for the 2008 Ozone NAAQS, to severe nonattainment effective November 7, 2022.

Response: Connecticut has addressed the revised rulemakings and reclassifications as seen on page 5, section 2.1 in the third paragraph of this report and will continue to do so going forward.

- 2) EPA encourages states to improve I/M program performance by reducing the number of vehicles with no known final outcome. On page 12 of the annual report, Connecticut illustrates that about 32% of initially failed vehicles have no known final outcome, which exceeds the national average of approximately 18%.

EPA recommends that states with I/M programs consider developing a Vehicle Identification Number (VIN)-based database for vehicles that fail an I/M test and do not receive a final pass. This data may possibly already be collected and would just need to be filtered from the inspection database when the time comes. Furthermore, we suggest Connecticut explore sharing this data with other states. Potential reciprocity agreements that allow sharing data among states may further reduce the number of vehicles with no known outcome.

- a. **Response:** Connecticut DEEP and DMV have been working with the program contractor Opus Inc. to identify measures to reduce the instances of "no known final outcome." These include enhanced messaging for individuals who fail their initial test. The program provides reminders for retests, text messaging reminder options and improved email reminders. DMV also puts significant efforts into performing an extensive analysis of failure outcomes for the first four months of the following year following EPA's guidance, as seen with the data provided on page 12 in section 3.2 of this report. Together, these changes have improved efforts to educate drivers who fail their first test and find the reasons for NKFOs.

As for vehicles that may leave the state, Connecticut lacks the resources to identify vehicles that are registered out-of-state due to emissions non-compliance. Connecticut looks forward to EPA's leadership in developing partnerships with other jurisdictions to improve the program by addressing regional I/M non-compliance.

- 3) EPA commends Connecticut for the remote sensing evaluation and the program evaluation, included as section 7.3 and 7.4 of the biennial report, respectively; as well as the supplemental

2023 Remote Sensing Study, which illustrate how Connecticut is meeting the on-road testing requirements of 40 CFR 51.371 and the program evaluation requirements of 40 CFR 51.353(c).

- a. **Response:** Connecticut DMV, Opus and DEEP are greatly appreciative of the recognition of the efforts that all entities put into program operations and reporting. Connecticut aims to exceed program expectations in all matters to help attain air quality standards and to be seen as a successful example of an I/M program that others can look to and model after.

9. Conclusions

Following are the key conclusions from this annual review of Connecticut's I/M program:

- Connecticut's I/M program correctly fails non-complying vehicles and strictly enforces I/M requirements:
 - Approximately 8.2% of vehicles failed their initial emissions test and 7.3% of these vehicles also failed their first retest in 2024. The initial fail rate is similar to 2023. The retest fail rate is higher than 5.4% in 2023.
 - DMV and Opus perform extensive quality assurance checks on the program. Evaluation of these quality assurance data demonstrates that the program performs accurate inspections.
 - Connecticut's anti-fraud efforts are models for other I/M programs. Connecticut conducted audits at all stations as part of an extensive anti-fraud program. For example, Connecticut conducted 3,226 video surveillance audits and 482 covert audits during 2024. Covert audits addressed On-Board Diagnostics (OBDII), Pre-Conditioned Two Speed Idle (PCTSI) and diesel opacity inspection performance. In addition, DMV and Opus run extensive trigger reports.
- Opus meets EPA's requirements for program evaluation.