U.S. Environmental Protection Agency Report

2024 Test Year

Oregon Department of Environmental Quality

Vehicle Inspection Program

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Executive Summary

As required by the Clean Air Act, Oregon provides the U.S. Environmental Protection Agency with an annual data set regarding vehicles tested in the state's Vehicle Inspection Program. The VIP information includes test data, quality assurance, quality control, enforcement actions taken, and relevant program updates. This data is provided as part of Oregon's State Implementation Plan for managing compliance with Clean Air Act standards. VIP is an important part of Oregon's SIP and was established to address excess ground-level ozone and carbon monoxide. Every year, VIP prevents the release of an estimated 30 million pounds of air pollution within its testing boundaries.

State of Oregon Department of Environmental Quality

In Oregon, regulated automobiles are required by statute to undergo emissions testing and obtain a certificate of compliance to register with the Oregon Department of Motor Vehicles. In 2024, 586,451 vehicles were tested at various sites inside the VIP testing boundaries. Approximately 96% of these passed and were issued a certificate of compliance.

The majority of vehicles at VIP sites are tested by analyzing data extracted from the vehicle's On-Board Diagnostics capabilities. In 2024, 97% of tested vehicles were newer than model-year 1996; the year when OBD was introduced by auto manufacturers. The number of vehicles passing the test and receiving a certificate of compliance was 506,240. This total represents about 90% of all passing tests across the program for the year. As manufacturers continue to use OBD data to inform and improve newer model years, VIP expects to see more consistent results.

About three-to-four vehicles out of every 100 failed their first test in 2024, which is consistent with previous years. A primary VIP objective is to incentivize regular vehicle maintenance; a low failure rate is a strong indicator of the success of a cleaner fleet across Oregon.

A roadside emissions study* conducted by VIP in 2022 showed that cars and trucks subject to testing in Oregon pollute, in aggregate, **44% less carbon monoxide and 45% less oxides of Nitrogen**, than vehicles that are not tested.

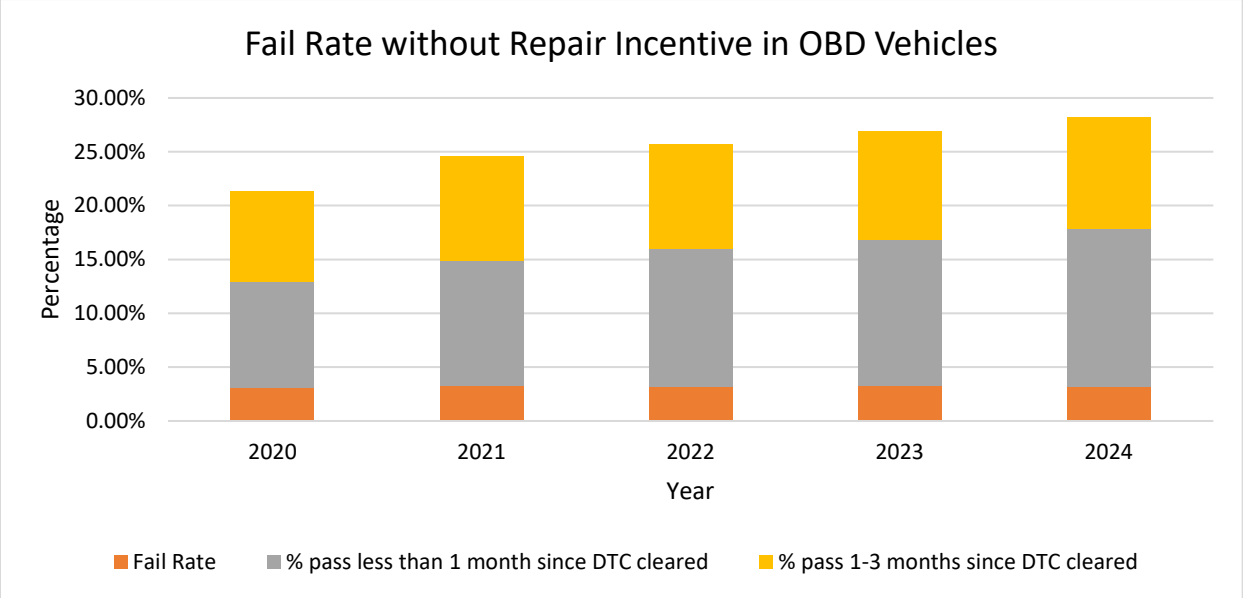
Vehicle manufacturers are building cleaner, more fuel-efficient vehicles to meet regulatory requirements. However, for the benefits of these standards to reach their full potential, ongoing maintenance of engines and emissions control systems is required. VIP inspections incentivize motorists to obtain needed repairs, ensuring cleaner air for all those living in Oregon.

An analysis of DEQ testing data demonstrates that 25% of vehicles receive repairs during the three months before testing. Without these repairs, these vehicles would have failed the emissions test. This trend holds even for newer model-year vehicles tested by VIP. For five-to-six-year-old model-year vehicles, 24.7% received repairs during the three months before testing. This repair rate in newer model years reinforces the fact that new automobiles, which are manufactured to be more fuel-efficient with lower emissions, only retain those benefits with proper maintenance.

Chart 1 compares the total OBD failure rate next to the percentage of vehicles that have had Diagnostic Trouble Codes cleared before testing. Typically, DTCs are cleared immediately following a repair.

Chart 1

Percentage of Vehicles that Would Fail Without VIP Repair Incentive



*Opus Inspection (2023). *Oregon Remote Sensing Emissions Study* [Unpublished]. Vehicle Inspection Program, Oregon Department of Environmental Quality

The average vehicle in Oregon is driven about 800 miles per month. This mileage allows us to estimate how recently repairs were performed based on the number of miles driven since a DTC was cleared. For example, if a vehicle has been driven 800 miles or less since the DTC was cleared, we can reasonably estimate that the repair occurred within the past 30 days. While failure rates have declined over the past decade, OBD data from tested vehicles show more repairs occurring closer to the testing date. In 2024, 14.69% of passing vehicles had repairs performed within 30 days before testing, and an additional 10.35% had repairs performed between 31 and 90 days before testing. Without these repairs, 2024 emissions testing failure rates would have increased to over 28%. These statistics suggest that as vehicle owners receive their registration renewal notifications and prepare for emissions testing, they are motivated to perform necessary maintenance, correcting existing DTC issues.

These repairs support the fact that today's automobiles are manufactured to run cleaner. However, emissions testing is still necessary to ensure regular maintenance and properly functioning emissions control systems. Without these incentives, the failure rate would exceed 20%, resulting in increased pollution and worse public health outcomes.

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Acronyms Used in This Report

Acronym	Acronym Spelled Out	Additional Information
DEQ	Department of Environmental Quality	Oregon's environmental agency responsible for maintaining Oregon's air, land, and water quality.
DMV	Department of Motor Vehicles	Oregon's department for handling driver and motor vehicle services such as license, registration, and vehicle titling.
DTC	Diagnostic Trouble Code	OBD codes which define a vehicle system or component fault.
eVIN	Electronic Vehicle Identification Number	The vehicle identification number retrieved from the on-board diagnostics system of the vehicle being tested.
ECM	Engine Control Module	An internal computer on the vehicle that receives data from and exercises control over the engine.
EPA	Environmental Protection Agency	The United States federal agency tasked with environmental protections.
GVWR	Gross Vehicle Weight Rating	The maximum allowable weight a vehicle can safely carry. Used for vehicle designation.
I/M	Inspection Maintenance	A test and repair strategy whereby polluting vehicles are identified and repaired to maintain good air quality.
MIL	Malfunction Indicator Lamp	A lamp located on a vehicle's dashboard to alert the driver of an OBD fault.
NAAQS	National Ambient Air Quality Standards	Limits set by the EPA on the concentration of key outdoor air pollutants, providing a target level of safe air for communities.
OBD	Onboard Diagnostic Test	A computerized test Implemented on vehicles model-year 1996 and newer whereby the vehicle's on-board computer transfers emission system/component status to an off-board computer.
VIP	Vehicle Inspection Program	Oregon's air quality subprogram with the sole responsibility of testing vehicle emission control systems.
VLT	Vehicle Lookup Table	A data table containing vehicle information which resides on the VID.

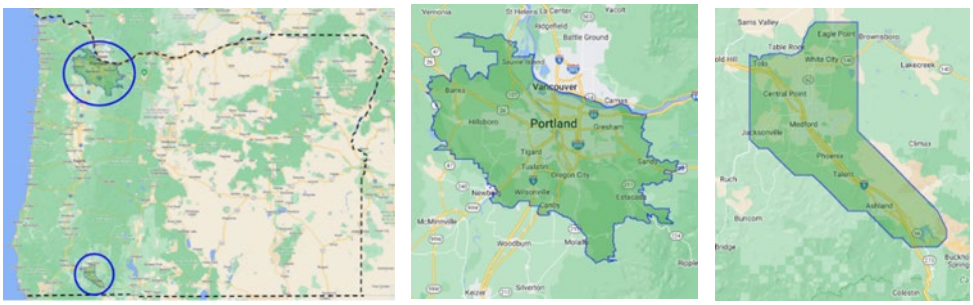
Program Overview

The Clean Air Act requires state air pollution control agencies to adopt strategies to minimize and maintain air pollution concentrations below the National Ambient Air Quality Standards. NAAQS limits the concentrations of criteria air pollutants like carbon monoxide and oxides of nitrogen, which contribute to ground-level ozone. These strategies must be approved by the EPA. The resulting body of regulations is known as the "State Implementation Plan". "VIP" is a Vehicle Emissions Inspection and Maintenance program and is a significant pollution control strategy included in Oregon's EPA-approved SIP for the Portland Air Quality Maintenance Area and the Medford-Ashland Air Quality Maintenance Area. I/M programs ensure that vehicles have properly maintained air pollution controls by identifying vehicles with high emissions and incentivizing vehicle owners to make repairs.

As a key tool of Oregon's SIP, VIP helps the state maintain compliance with NAAQS. Oregon's population is expected to increase over the next several years and people are driving more miles annually. Both are likely to increase vehicle emissions. Expected hotter summer temperatures will likely cause ozone concentrations to approach or exceed the current standard. Continued emissions testing is necessary to mitigate these impacts and maintain attainment with the current NAAQS. Modeling as recent as 2023 indicated that eliminating vehicle emissions testing would result in NAAQS exceedances in both airsheds within the testing boundary.

DEQ opened VIP in the Portland metro area in 1975 and then the Medford metro area in 1986. VIP is a fee-funded program, which means it is primarily supported through fees from the cost of "Certificates of Compliance" issued at Clean Air Stations. The current costs for Certificates of Compliance are $25 in the Portland Vehicle Inspection Area and $20 in the Medford-Ashland Air Quality Maintenance Area.

VIP Boundary Areas



Definitions for the Inspection Boundaries can be found in OAR Chapter 340 Division 204 and in ORS 468A.390.

Test Data

This section includes three subsections: total vehicle test volume, specific testing data, and station test data. The charts are linked to additional tables and charts located in the appendix.

Total Vehicle Test Volume

In Table 1, vehicle type is a designation based on weight class, although the passenger vehicle category is more specific. A passenger vehicle is under 6,500 GVWR, which is EPA's definition of a light-duty vehicle, and within the following body types: sedan, sports car, hatchback, wagon, coupe, and convertible. Light-duty vehicles are under 6,500 GVWR and include light-duty trucks, SUVs, minivans, etc. Medium-duty vehicles are all body types between 6,500 and 8,500 GVWR. Heavy-duty vehicles are all body types 8,500 GVWR and over. In the heavy-duty category, diesels are issued a testing exemption.

Vehicles are required to be tested every other year. As a result, odd testing years typically have a higher volume than even years. This is reflected in Table 1 below. Additionally, the 2020 test year should be regarded as an outlier because of COVID-19-related station closures. These closures also caused an increase in the volume of vehicles tested in 2021.

Table 1

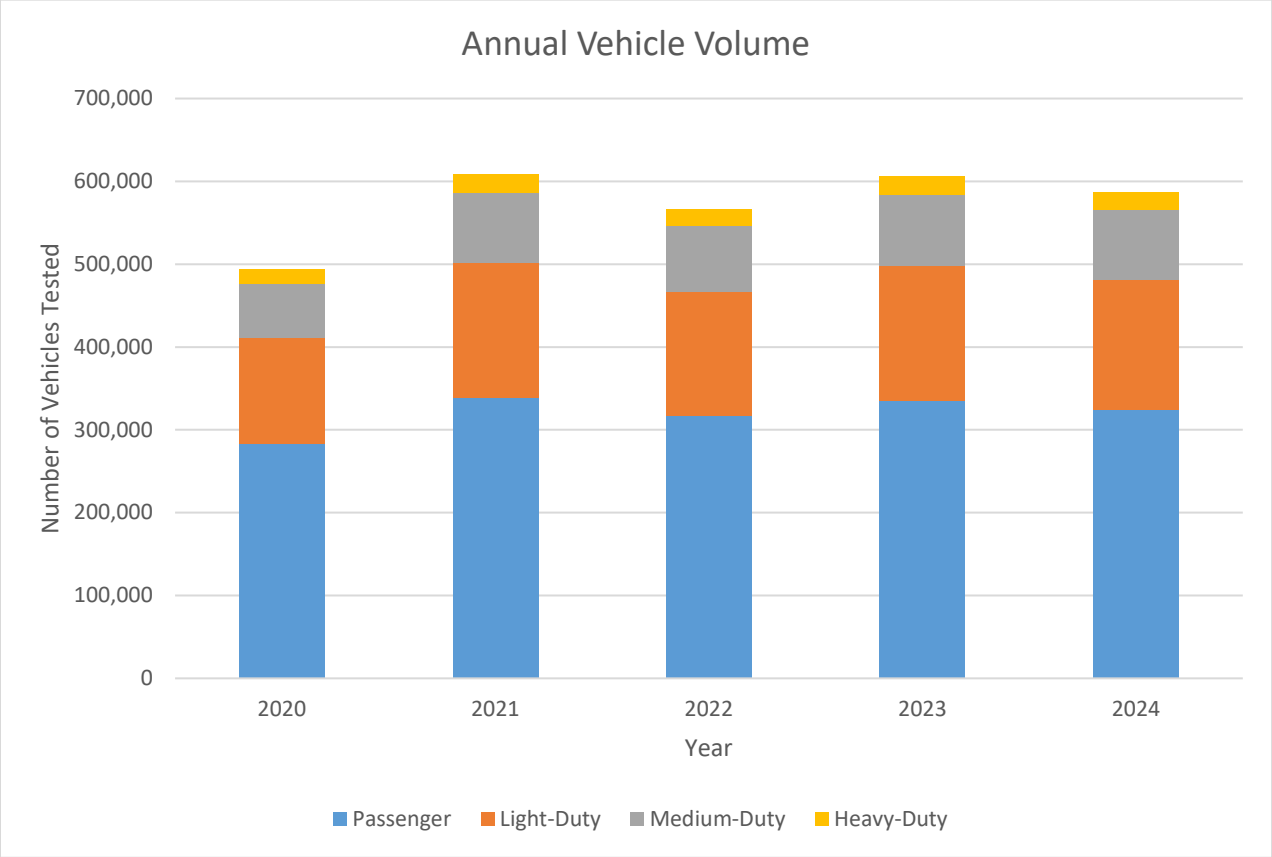
The number of vehicles tested, by test year and vehicle type

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	283,518	127,139	66,032	17,619	494,308
2021	339,143	162,504	84,972	22,181	608,800
2022	316,703	150,750	78,823	20,485	566,761
2023	334,857	163,144	86,601	21,961	606,563
2024	**323,895**	**157,501**	**83,885**	**21,170**	**586,451**

This information is shown below as a comparison of the last 5 test years. The 2024 test year is bold to highlight it as the focus of this report. See the appendix for more specific 2024 data by model-year and vehicle type. Link to corresponding appendix data

Chart 2

The number of vehicles tested, by test year and vehicle type



Note that passenger and light-duty vehicles make up the majority of tested vehicles.

Specific Testing Data

This section contains tables and charts covering failure rate, OBD testing percentages, and malfunction indicator lamp (MIL) data.

VIP performs two-speed idle testing and OBD testing. The two-speed idle test, also called the idle or basic test, is performed using a gas analyzer probe placed inside the vehicle tailpipe. The probe monitors the percentage of carbon monoxide (CO) coming out of the tailpipe and the amount of unburned fuel, known as hydrocarbons (HC), emitted from the tailpipe. CO and HC levels must be below a certain standard to pass the test.

The OBD test uses the vehicle's engine control module (ECM), which is easiest to think of as the car's internal computer, to monitor the functionality of a vehicle's emissions control system. Modern vehicles have several components that serve to reduce tailpipe emissions. The OBD system runs an internal check for malfunctions on these parts to protect vehicle functionality.

There are a few helpful terms for the information in this section. The first is called the Malfunction Indicator Lamp, or MIL, which is sometimes called the check engine light. The MIL is triggered by one of thousands of errors within the vehicle that can negatively affect emissions. These errors are signaled by a Diagnostic Trouble Code. DTCs are error codes stored in the vehicle's computer to aid the owner or mechanic with vehicle problems. If the MIL is on during the OBD test, this indicates a DTC is present in the ECM, and the vehicle will fail the test.

In addition to the MIL and DTCs, the OBD test also checks monitor readiness. Several emissions systems are being tested (monitored) by sensors within the vehicle simultaneously. If one of these internal tests are failed, a DTC can be sent to the ECM, and then to the dashboard through the MIL. These tests depend on several things including engine temperature, miles traveled, and vehicle speed, which means the vehicle is not always ready to be tested. The monitor readiness system ensures a drive cycle has been completed so a valid internal test can determine errors.

Initial Test Fail Rate

The initial test fail rate is the percentage of vehicles that failed their first test. Motorists can bring their vehicle in for a test as much as necessary before receiving a pass and a certificate. Oregon's program is funded through the fee associated with a passing certificate, which means all tests prior to a passing test are free. Initial test fail rate information for the past five test years is found in Tables 2 and 3 below. There have been no significant changes in the number or percentage of failures in the last five years besides 2020, which has lower testing volume due to COVID-related station closures. A low fail rate is an important indicator of program success because it means that motorists are maintaining their vehicles. One objective of the emissions test is to incentivize maintenance rather than fail vehicles.

Table 2

The number of vehicles that failed the initial test, by test year, test type, and vehicle type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	1,256	1,586	820	828	7,031	3,926	2,211	92	17,750
2021	1,214	1,792	921	890	9,110	5,143	3,129	165	22,364
2022	936	1,325	686	753	8,454	4,542	2,902	204	19,802
2023	980	1,340	638	726	9,071	5,011	3,194	289	21,249
2024	**807**	**1,149**	**595**	**642**	**8,710**	**4,739**	**2,924**	**313**	**19,879**

Link to corresponding appendix data

Table 3

The percentage of tested vehicles that failed the initial test, by test year, test type, and vehicle type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	15.41%	19.30%	28.37%	6.16%	2.74%	3.55%	3.80%	2.80%	3.85%
2021	13.44%	18.29%	26.98%	5.66%	2.94%	3.57%	4.12%	3.03%	3.90%
2022	13.28%	17.30%	25.64%	5.69%	2.91%	3.36%	4.09%	3.25%	3.71%
2023	14.94%	18.03%	24.20%	5.64%	2.94%	3.40%	4.09%	3.63%	3.72%
2024	**14.58%**	**17.85%**	**26.26%**	**5.66%**	**2.93%**	**3.32%**	**3.87%**	**3.60%**	**3.61%**

Link to corresponding appendix data

The inner ring of Chart 3 is the percentage of failures by test type for 2024 only. The outer ring is the percentage of failures by both test type and vehicle type, also for 2024 only. As an example of how the chart works, hover over the blue, light-duty section. This will reveal the value of 1,149. What this means is that out of all the initial test failures in 2024, 1,149 out of 19,879 total were light-duty vehicles tested with the two-speed idle method. This value is also in Table 2 under Idle and Light-Duty for 2024. The chart shows that failures in VIP mostly happen with OBD vehicles (more orange sections), which is a result of there being a much higher OBD-tested volume compared to those receiving idle testing. As shown on the next page in Chart 4, vehicles that are tested with the two-speed idle method are much more likely to fail than OBD vehicles, mostly because of the combination of age and miles traveled.

Chart 3

The number of vehicles that failed the initial test in 2024, by test type and vehicle type

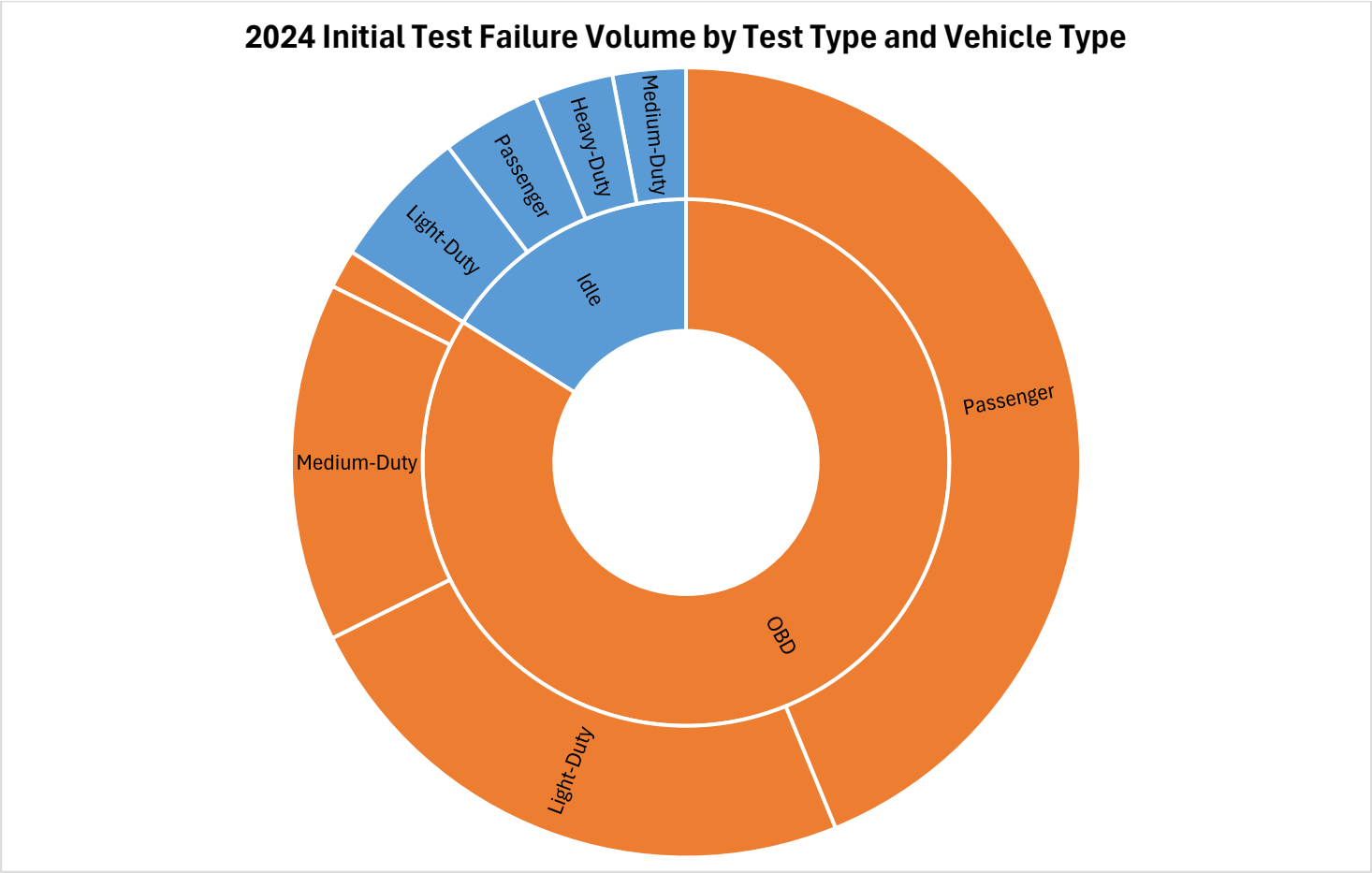
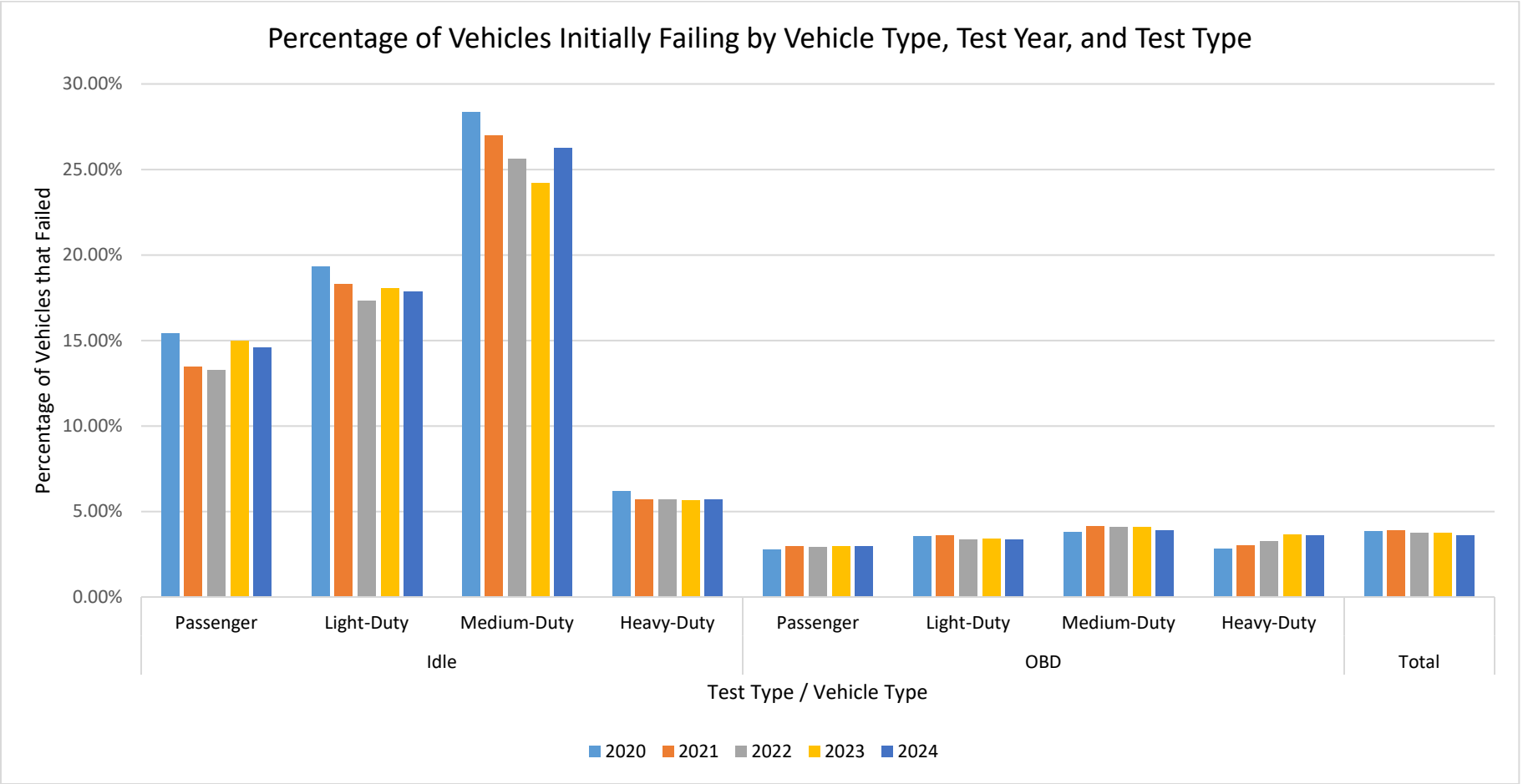


Chart 4 shows the percentage of vehicles, by vehicle type, test year, and test type, that failed the initial test. To understand the chart, hover over the blue column representing 2024, in the medium-duty group, within the idle testing section. The chart should reveal the value of 26.26%. This means that in 2024, over 25% of vehicles in that group failed their initial test. Not all medium-duty vehicles fail at this high of a rate, for example, over the same period, less than 4% of OBD-tested medium-duty vehicles failed the initial test. OBD testing is much more common for Oregon's testable fleet, which is why the columns in the Total category look more like the OBD section than the Idle section.

Chart 4

The percentage of tested vehicles that failed the initial test, by test type and vehicle type



First Retest Fail Rate

Tables 4 and 5 show the number and percentage of vehicles that failed their first two tests. Results show that only 13% of vehicles that failed their initial test also failed the next test, indicating that the other 87% either passed, were unready, or never had a result for some other reason (this report covers those cases in more depth in a few sections). Note that this rate is a comparison of the number of vehicles that failed their first two tests versus total initially failed vehicles, not versus total tested vehicles.

Table 4

The number of initially failed vehicles that failed the first retest, by test year, test type, and vehicle type

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	382	533	304	266	558	400	189	3	2,635
2021	378	594	320	270	812	493	254	6	3,127
2022	295	421	263	221	723	440	218	15	2,596
2023	302	440	243	254	824	440	285	24	2,812
2024	**227**	**415**	**245**	**199**	**760**	**484**	**264**	**21**	**2,615**

Link to corresponding appendix data

Table 5

The percentage of initially failed vehicles that failed the first retest, by test year, test type, and vehicle type

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	30.41%	33.61%	37.07%	32.13%	7.94%	10.19%	8.55%	3.26%	14.85%
2021	31.14%	33.15%	34.74%	30.34%	8.91%	9.59%	8.12%	3.64%	13.98%
2022	31.52%	31.77%	38.34%	29.35%	8.55%	9.69%	7.51%	7.35%	13.11%
2023	30.82%	32.84%	38.09%	34.99%	9.08%	8.78%	8.92%	8.30%	13.23%
2024	**28.13%**	**36.12%**	**41.18%**	**31.00%**	**8.73%**	**10.22%**	**9.03%**	**6.71%**	**13.16%**

Link to corresponding appendix data

The makeup of vehicles that failed the first retest is different than the initially failed vehicles shown in Chart 3. The proportion of two-speed idle tested vehicles is higher in Chart 5, meaning that nearly half of the vehicles that failed their first two tests were idle tested. This suggests, again, that vehicles that are tested with the two-speed idle method, usually older vehicles, are more likely to need repairs and higher levels of maintenance.

Chart 5

The number of initially failed vehicles that failed the first retest, by test year, test type, and vehicle type

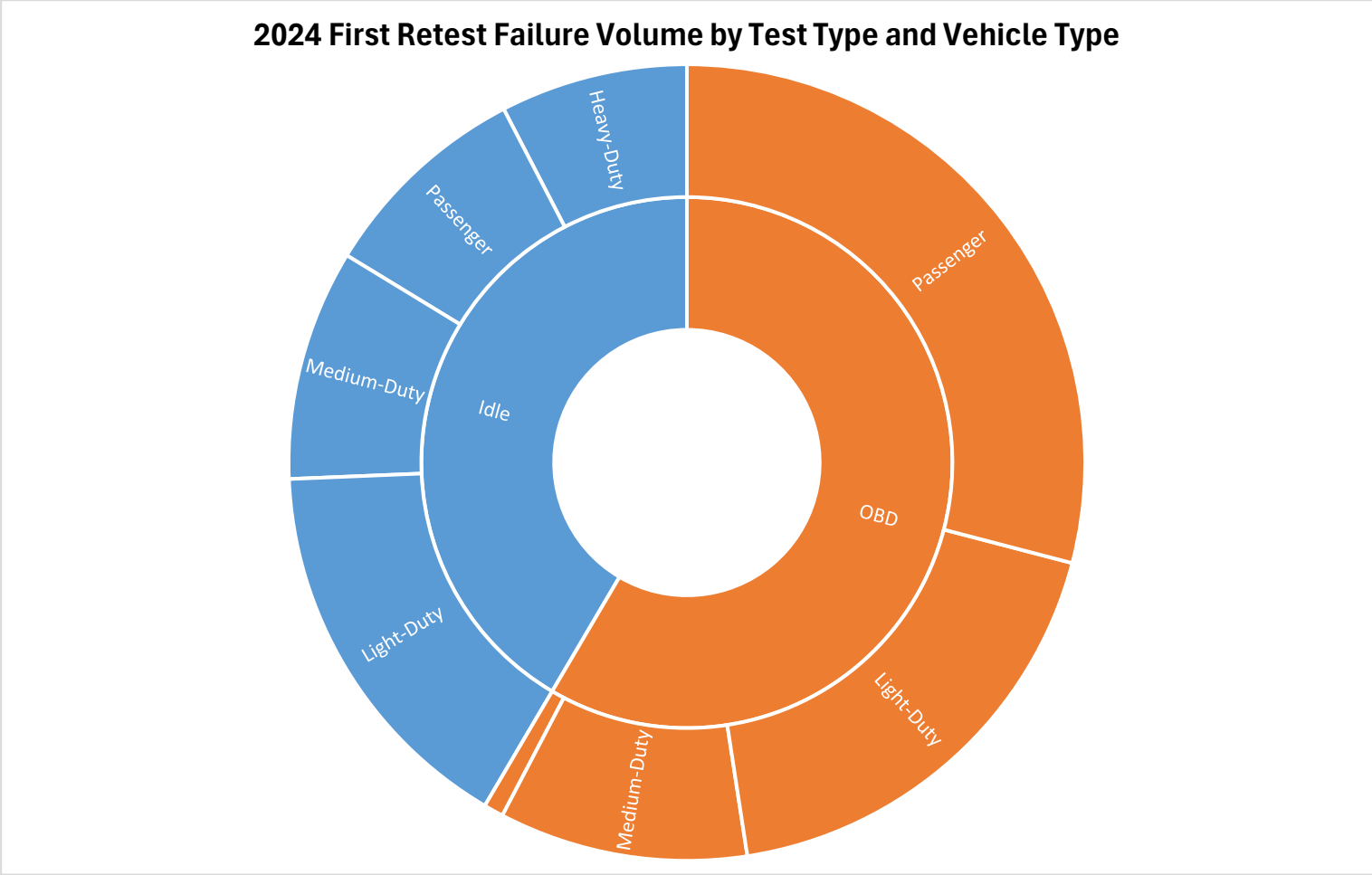
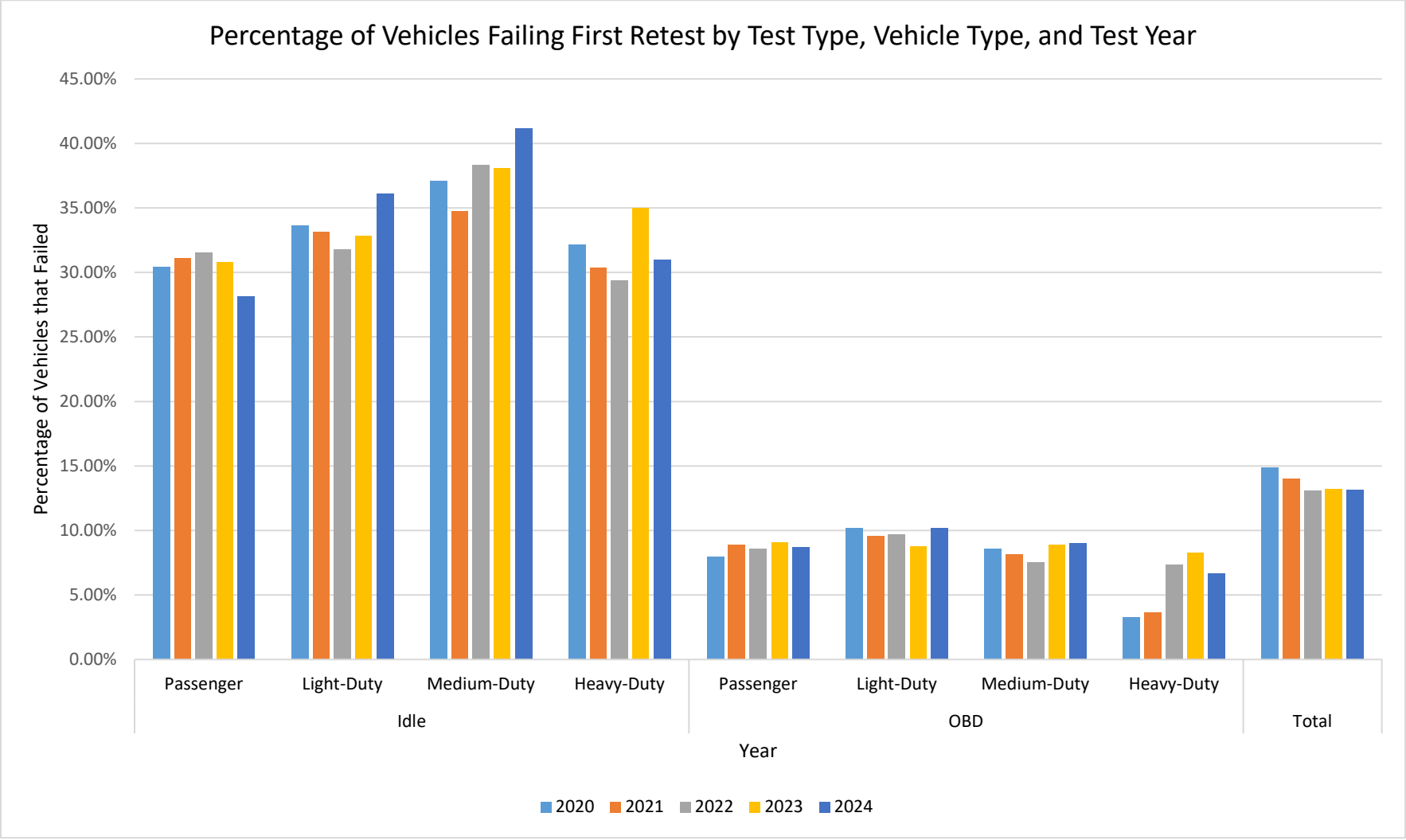


Chart 6 shows the percentage of vehicles in each test type and vehicle type category that failed the initial test and the first retest. Because two-speed idle tested vehicles make up about half of the total, the Total category is more representative of a middle point between idle testing and OBD testing.

Chart 6

The percentage of initially failed vehicles that failed the first retest, by test year, test type, and vehicle type



Retest Pass Rate

Tables 6 and 7 show the number and percentage of vehicles that failed initial testing but then passed the next test. The results show that in 2024, over 57% of vehicles that failed their initial test received a certificate of compliance during a subsequent test, indicating that the prior test prompted vehicle owners to seek repairs for their vehicles. This fits with the objective of the vehicle inspection program, which is not to fail vehicles but to encourage regular maintenance. Note that this rate is a comparison of the number of vehicles that passed a subsequent test versus the total number of vehicles that failed initially, not the total number of vehicles tested.

Table 6

The number of initially failed vehicles that passed a retest, by test year, test type, and vehicle type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	743	974	504	549	4,094	2,301	1,300	53	10,518
2021	752	1,043	548	560	5,272	3,070	1,841	111	13,197
2022	556	753	402	482	4,815	2,692	1,719	137	11,556
2023	581	785	382	459	5,290	2,973	1,861	195	12,526
2024	**469**	**654**	**353**	**389**	**4,925**	**2,800**	**1695**	**203**	**11,488**

Link to corresponding appendix data

Table 7

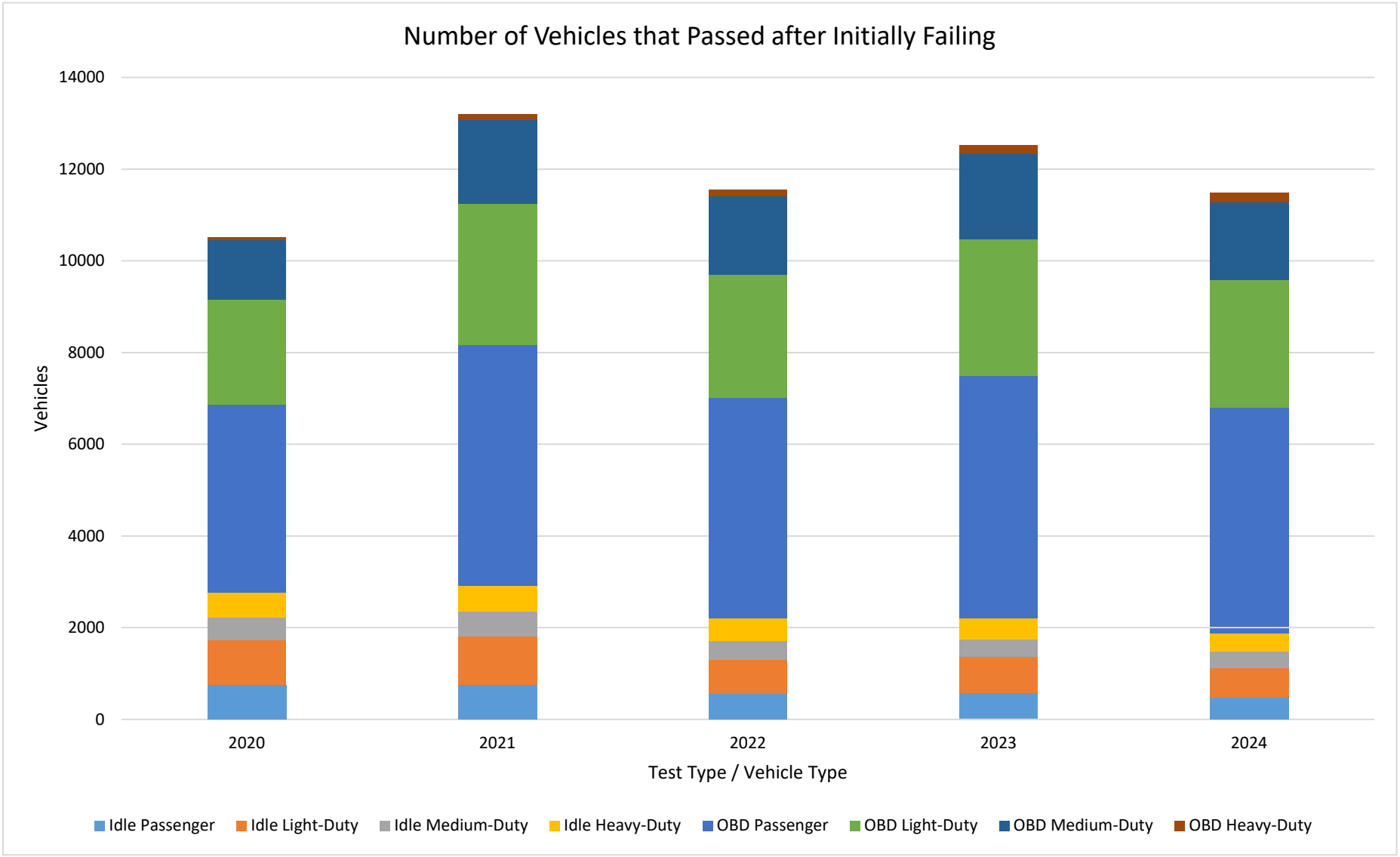
The percentage of initially failed vehicles that passed a retest, by test year, test type, and vehicle type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	59.16%	61.41%	61.46%	66.30%	58.23%	58.61%	58.80%	57.61%	59.26%
2021	61.94%	58.20%	59.50%	62.92%	57.87%	59.69%	58.84%	67.27%	59.01%
2022	59.40%	56.83%	58.60%	64.01%	56.97%	59.27%	59.24%	67.16%	58.36%
2023	59.29%	58.58%	59.87%	63.22%	58.32%	59.33%	58.27%	67.47%	58.95%
2024	**58.12%**	**56.92%**	**59.33%**	**60.59%**	**56.54%**	**59.08%**	**57.97%**	**64.86%**	**57.79%**

Link to corresponding appendix data

Chart 7

The number of initially failed vehicles that passed a retest, by test year, test type, and vehicle type



Note that the distribution of vehicles that passed after the initial failure is reflective of the total vehicle volume composition. Namely, more OBD-tested vehicles and fewer two-speed idle-tested vehicles.

Vehicles with No Known Final Outcome after Initial Fail

Tables 8 and 9 show the number and percentage of vehicles that failed initially and then never passed a subsequent test. This report only covers 2024, so if, for example, a vehicle failed a test in late December 2024 and then passed in January 2025, this report would not capture that vehicle. Besides this potential data loss, there are other possibilities for why such a high percentage of initially failed vehicles do not end up passing. The vehicle could have moved out of the area, been retired, or been sold outside the testing area. In each of these cases, the vehicle would no longer be required to pass a test and therefore would not need to come back to one of DEQ's locations. Note that this data set is from the number of initially failed vehicles, not the number of total vehicles.

Table 8

The number of initially failed vehicles that never passed during the calendar year, by test year, test type, and vehicle type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	513	612	316	279	2,937	1,625	911	39	7,232
2021	462	749	373	330	3,838	2,073	1,288	54	9,167
2022	380	572	284	271	3,639	1,850	1,183	67	8,246
2023	399	555	256	267	3,781	2,038	1,333	94	8,723
2024	**343**	**495**	**244**	**262**	**3,771**	**1,938**	**1,227**	**110**	**8,390**

Link to corresponding appendix data

Table 9

The percentage of initially failed vehicles that never passed during the calendar year, by test year, test type, and vehicle type

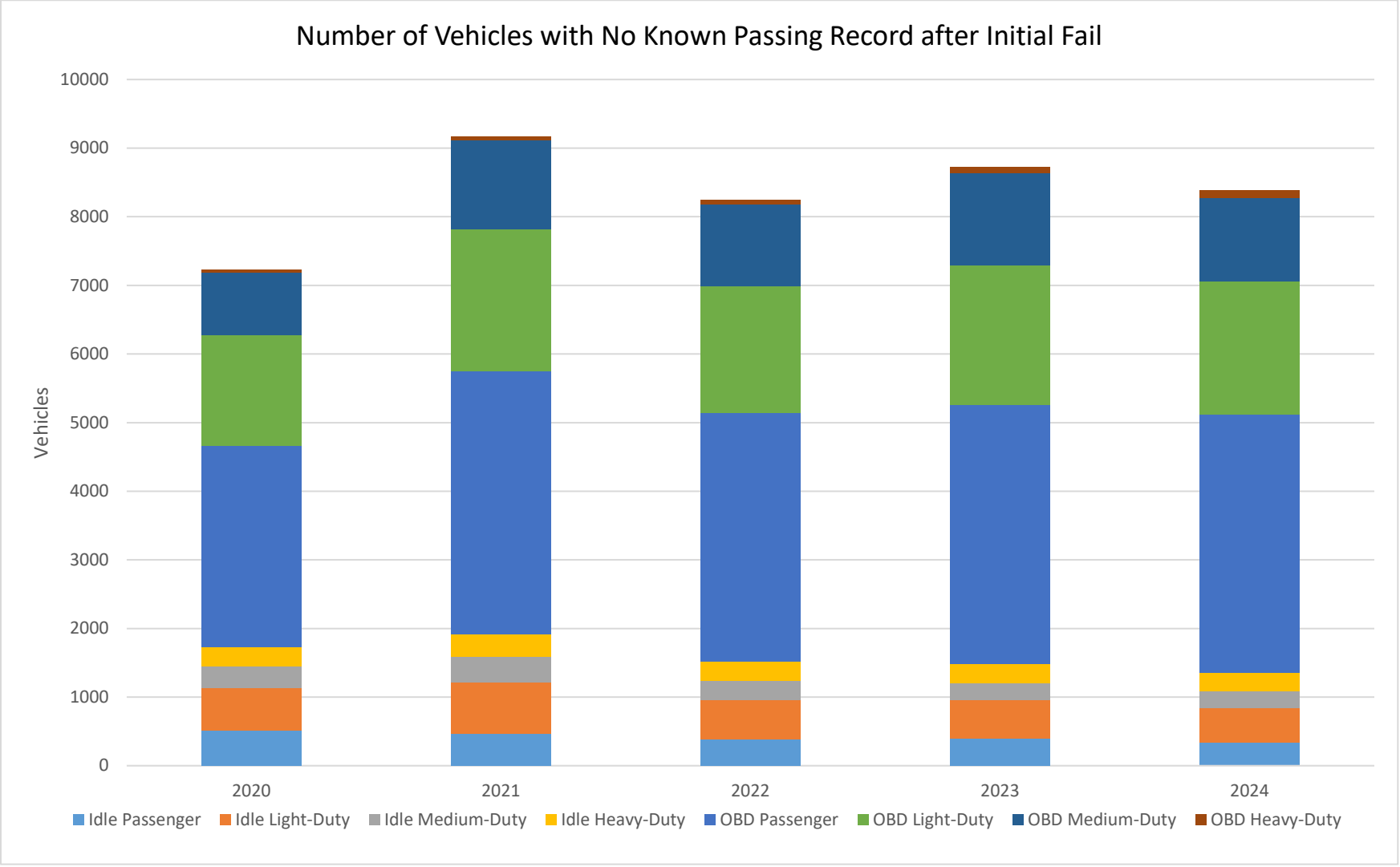
	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
2020	40.84%	38.59%	38.54%	33.70%	41.77%	41.39%	41.20%	42.39%	40.74%
2021	38.06%	41.80%	40.50%	37.08%	42.13%	40.31%	41.16%	32.73%	40.99%
2022	40.60%	43.17%	41.40%	35.99%	43.03%	40.73%	40.76%	32.84%	41.64%
2023	40.71%	41.42%	40.13%	36.78%	41.68%	40.67%	41.73%	32.53%	41.05%
2024	**41.88%**	**43.08%**	**40.67%**	**39.88%**	**43.45%**	**40.90%**	**41.99%**	**35.14%**	**42.21%**

Link to corresponding appendix data

The data below looks similar to the data shown in Chart 7, which is the number of vehicles passing a retest. The lack of difference might suggest that vehicle type or test type has little to do with vehicles having no known result. This idea aligns with the potential reasons for a vehicle not passing after initially failing. For example, selling the vehicle to an out-of-testing-region party would not be exclusive to certain vehicle years or models.

Chart 8

The number of initially failed vehicles that never passed during the calendar year, by test year, test type, and vehicle type



Notes on Waivers

Within Oregon's VIP boundary, registration of a vehicle through the Department of Motor Vehicles (DMV) requires a passing vehicle emissions test. Once registered, vehicles must be renewed every two years. A significant exception to the bi-annual certification requirement is that a new model-year vehicle does not need to be tested for the first time until four years have passed since its release. This is due to the manner in which new model-year vehicles are registered with the Department of Motor Vehicles.

ORS 803.415(10)(a) allows a four-year registration period for new vehicles that are issued new registration plates. This registration period functionally exempts the newest model-year vehicles from certification because it removes the mechanism requiring certification (registration renewal). Further, ORS 815.300(3) states, "Any new motor vehicle or new motor vehicle engine when the registration results from the initial retail sale thereof" is exempt from the requirement to have its emissions system certified as compliant.

In 2024, DEQ conducted a rulemaking process adopting the 4-year exemption allowed by ORS 815.300 into rule in order to provide clarity and transparency for the general public. The draft rules were adopted by the Environmental Quality Commission in January 2025.

There are several vehicle types and situations where other exemptions can be issued. See Table 10 for a complete list of exemptions issued by Oregon.

Table 10

Exemptions issued by VIP

Exemption Type	Description
Newer Model-year	Vehicle is under 4 years old
Portland Older Model-year	Vehicle is older than 1975 model year
Medford Older Model-year	Vehicle is over 20 years old
Outside VIP Boundary	Vehicle is legally registered outside of the VIP boundary
Heavy-Duty Diesel	Vehicle is diesel powered and has a GVWR of 8,500 lbs. or more
Zero Emission	The vehicle is fully electric

For vehicles that are not exempt, Oregon offers only one waiver type for the vehicle emissions test requirement. This waiver (referred to as Form 9401) is available for motorists who are temporarily operating their vehicle in a state without an emissions testing program. See Table 11 for the number of Form 9401s issued in 2024.

Table 11

The number of waivers issued in 2024

Month	9401 Issued
January	52
February	65
March	54
April	54
May	49
June	53
July	48
August	54
September	54
October	44
November	36
December	41
Total	**604**

If the motorist is operating their vehicle in a state with an emissions testing program, Oregon requires the motorist to pass the test requirements of that state and provide proof of compliance.

No waiver is given for motorists based on repair cost. Financial assistance for vehicle repair can be provided to motorists who qualify through Oregon's Clean Air Partners (CAPs) program. CAPs is available to low-income residents in the Portland area for repairs needed to pass their emissions test and obtain a Certificate of Compliance. This program is funded through customer donations. In 2024, over $13,000 was donated to the CAPSs fund by motorist donations through the United Way, and those donations were used to help 50 applicants of the CAPs program.

There are eligibility requirements for the CAPSs program, including:

- The vehicles must be equipped with OBD II and be model-year 1996 or newer.
- The vehicles must have failed the OBD test near the time of registration renewal.
- The vehicle must be titled in Oregon.
- The registered owner qualifies as low-income.

On-Board Diagnostic (OBD) Check Pass Rate

Auto manufacturers were not required to include OBD II capabilities in their vehicles until 1996. Beginning that year, all gasoline vehicles under 8,500 GVWR were required to have an OBD II system. In 1997, this requirement was added to diesel vehicles. These policy changes are reflected in the tables below, which only include model years 1996-2020. Oregon is working closely with its contractor, Opus, to ensure we are prepared for the phased-in use of the new OBD standard (OBDonUDS). This standard is not plug-and-play compatible with the current standard. As a result, all of Oregon's OBD equipment, including DEQ Too™, will need to be upgraded to ensure new vehicle protocols are compatible. The first vehicles to be updated with this new standard are model-year 2025. VIP will not begin to see these vehicles until 2029 due to the four-year testing exemption for new vehicles.

Heavy-duty gasoline vehicles (over 8,500 GVWR) were not required to be OBD II compliant until 2013. This helps explain why the heavy-duty volume in Table 12 is much lower than the other vehicle types. Heavy-duty diesel vehicles (over 8,500 GVWR) are exempt from testing.

Table 12

By test year and vehicle type, the number of vehicles that passed the OBD check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	249,545	106,773	55,906	3,189	415,413
2021	301,174	139,087	72,875	5,288	518,424
2022	282,161	130,577	68,004	6,080	486,822
2023	299,147	142,350	74,895	7,676	524,068
2024	**288,189**	**137,291**	**72,402**	**8,358**	**506,240**

Link to corresponding appendix data

Table 13

By test year and vehicle type, the percentage of vehicles that passed the OBD check

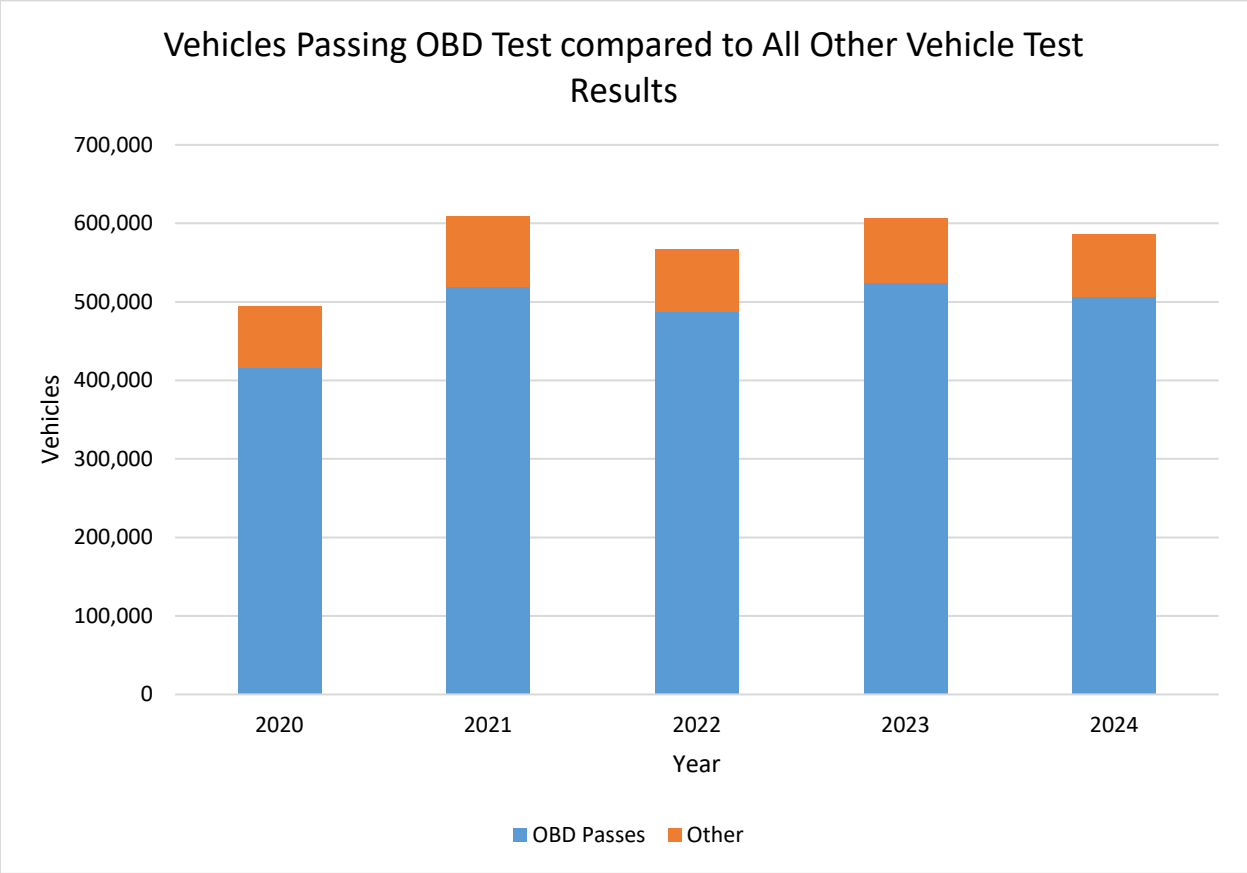
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	97.26%	96.45%	96.20%	97.20%	96.91%
2021	97.06%	96.43%	95.88%	96.97%	96.73%
2022	97.09%	96.64%	95.91%	96.75%	96.80%
2023	97.06%	96.60%	95.91%	96.37%	96.76%
2024	**97.07%**	**96.66%**	**96.12%**	**96.39%**	**96.81%**

Link to corresponding appendix data

Chart 9 shows the data in Table 12 combined with the data in Table 1. The idea is to show that the most common of all testing results is an OBD-compliant vehicle passing.

Chart 9

The number of vehicles that passed initial OBD testing vs. the total annual vehicles tested



OBD Check Fail Rate

The OBD test fail rate is shown in Tables 14 and 15 below. The fail rate for OBD-tested vehicles in 2024 was 3.19%. OBD testing typically results in fewer failures than a basic test, but that is not because the method has less stringent requirements. The OBD test is more comprehensive and can more accurately assess the vehicle's emissions system and identify potential emissions issues, allowing for repairs before the vehicle begins to excessively pollute. OBD systems also go beyond identifying tailpipe pollutants. For example, the OBD system monitors components that prevent harmful vapors from escaping the fuel tank and fuel lines. The result is that OBD testing is a more accurate test that has greater positive benefits for the environment by reducing air pollution from vehicles before it becomes excessive. Over 95% of all VIP testing is performed on OBD-compliant vehicles.

Table 14

By test year and vehicle type, the number of vehicles that failed the on-board diagnostic check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	7,031	3,926	2,211	92	13,260
2021	9,110	5,143	3,129	165	17,547
2022	8,455	4,542	2,902	204	16,103
2023	9,071	5,011	3,194	289	17,565
2024	**8,709**	**4,738**	**2,922**	**313**	**16,682**

Link to corresponding appendix data

Table 15

By test year and vehicle type, the percentage of vehicles that failed the on-board diagnostic check

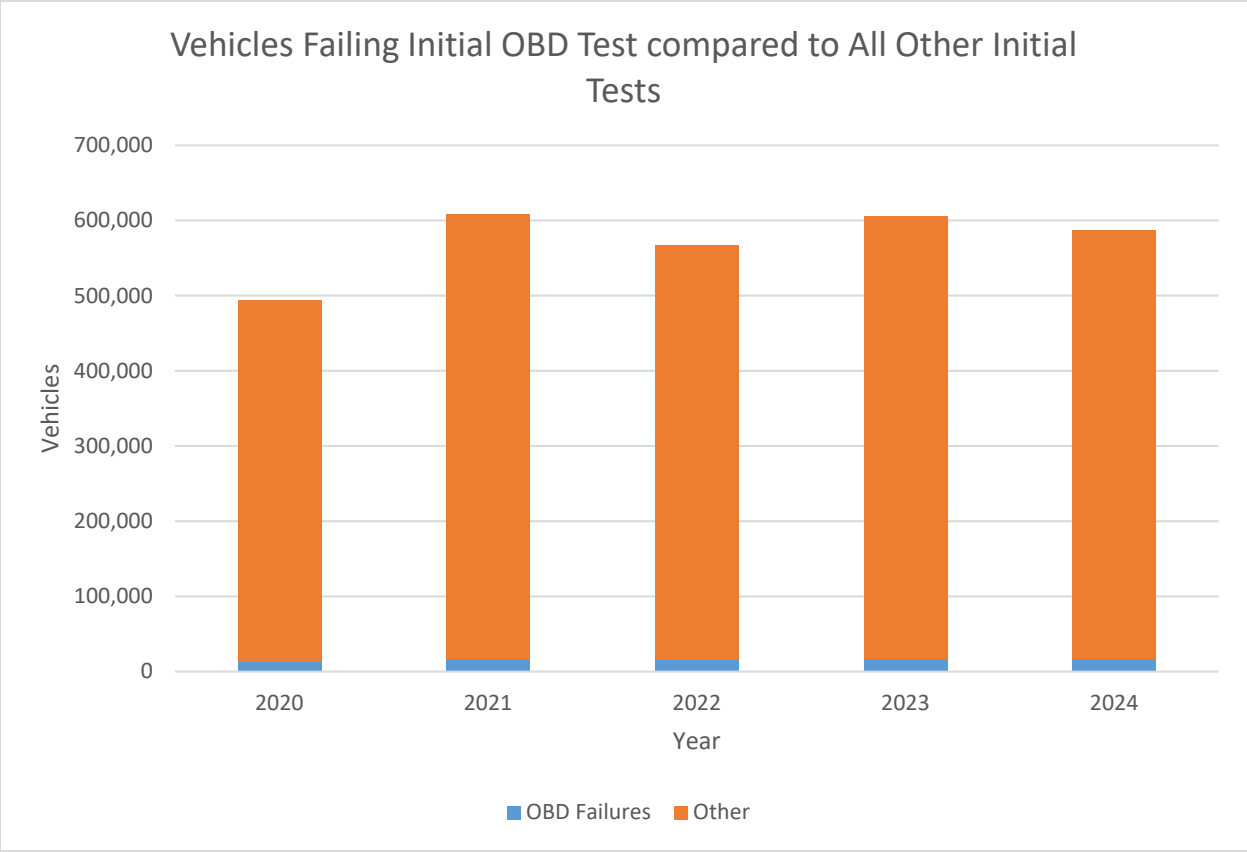
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	2.74%	3.55%	3.80%	2.80%	3.09%
2021	2.94%	3.57%	4.12%	3.03%	3.27%
2022	2.91%	3.36%	4.09%	3.25%	3.20%
2023	2.94%	3.40%	4.09%	3.63%	3.24%
2024	**2.93%**	**3.34%**	**3.88%**	**3.61%**	**3.19%**

Link to corresponding appendix data

Chart 10 contains contrasting data to Chart 9 in the previous section. Here, the data from Tables 1 and 14 are combined to show that the number of vehicles that fail the OBD test is a very small segment of the total testing volume annually.

Chart 10

The number of vehicles that passed initial OBD testing vs. the total annual vehicles tested



Vehicles with MIL On and no DTCs Stored

A situation where the MIL is illuminated, but no DTCs are stored, is an anomaly. This is because the presence of a DTC in the vehicle's ECM is the trigger for the MIL turning on. The data in Tables 16 and 17 indicate vehicles with a MIL error and not necessarily with emissions components. These situations are very rare; only .005% of OBD tested vehicles exhibited this condition. Unfortunately, this error would cause a vehicle to fail the OBD test, potentially requiring more maintenance costs for the owner. The good news is that most of these cases (just under 77%) in 2024 were in model-year vehicles 2007 and older. This suggests that vehicle diagnostics systems are producing fewer errors as technology continues to improve.

Table 16

By test year and vehicle type, the number of vehicles with the MIL commanded on and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	31	16	3	0	50
2021	32	8	4	0	44
2022	23	4	4	0	31
2023	36	6	2	0	44
2024	**17**	**5**	**4**	**0**	**26**

Link to corresponding appendix data

Table 17

By test year and vehicle type, the percentage of vehicles with the MIL commanded on and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	0.01%	0.01%	0.00%	0.00%	0.01%
2021	0.01%	0.01%	0.00%	0.00%	0.01%
2022	0.01%	0.00%	0.01%	0.00%	0.01%
2023	0.01%	0.00%	0.00%	0.00%	0.01%
2024	**0.01%**	**0.00%**	**0.01%**	**0.00%**	**0.01%**

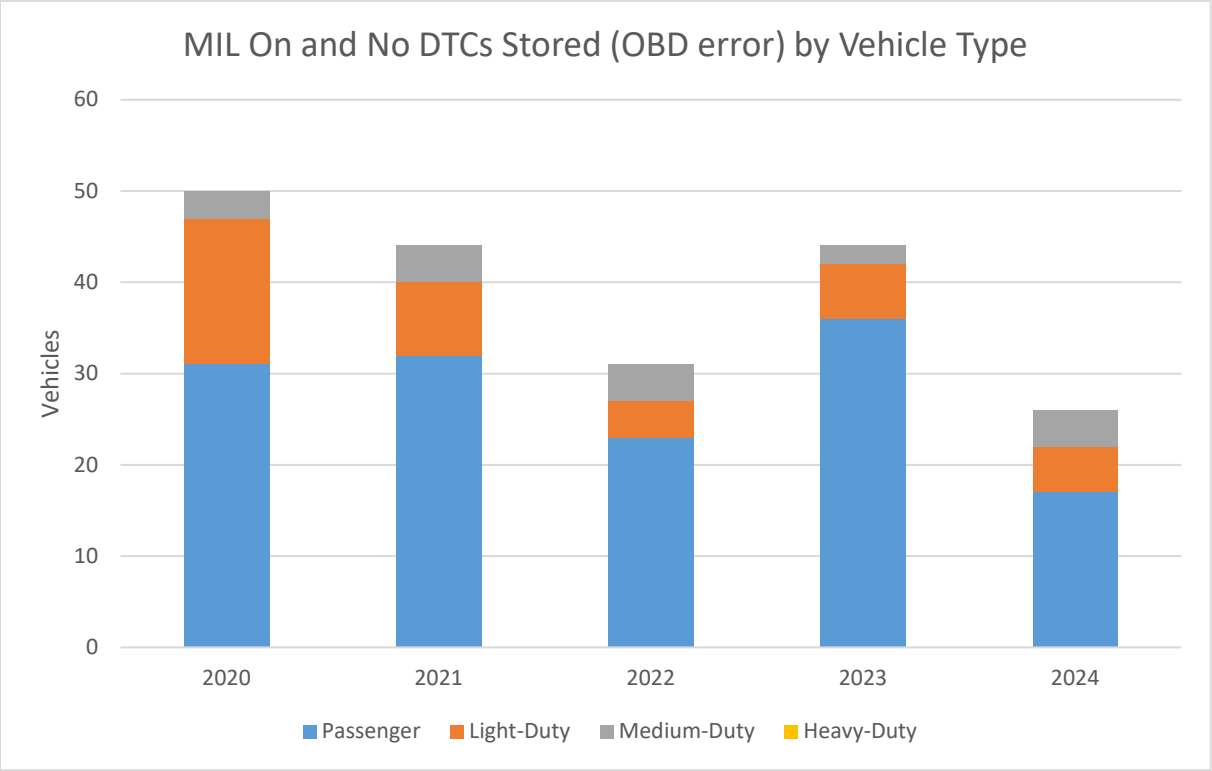
Link to corresponding appendix data

VIP expects the number of vehicles reporting this way to continue to trend downwards. Note that this data is not an issue with the test that VIP performs, but rather an internal issue in vehicles. Heavy-duty vehicles have likely had no cases of this OBD error in the last 5 years because the issue is so rare (only .01% of tests result this way) and heavy-duty vehicles are a

relatively small percentage of testing volume. Making it even less likely for one of these cases to appear.

Chart 11

The number of vehicles by vehicle type and test year that reported MIL On but no DTCs were stored



Vehicles with MIL Off and DTCs Stored

Oregon's I/M program gathers information on three types of DTCs during a test: active DTCs, pending DTCs, and historical DTCs. Active DTCs are the errors in a vehicle that are currently affecting performance and will trigger the MIL to turn on. Pending DTCs are codes that still require further testing before becoming active (signaling a potential future issue). Finally, Historical DTCs are codes that were once active but have been fixed, and that error is no longer found. Pending and historical DTCs do not illuminate the MIL but are still stored in the vehicle ECM. The vehicles counted in Tables 18 and 19 have pending or historical DTCs, but no active DTCs.

Table 18

By test year and vehicle type, the number of vehicles with the MIL commanded off and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	12,939	7,002	3,412	127	23,480
2021	15,811	8,510	4,704	201	29,226
2022	14,755	7,565	4,379	295	26,994
2023	26,102	8,571	5,002	416	40,091
2024	**25,127**	**7,830**	**4,831**	**393**	**38,181**

Link to corresponding appendix data

Table 19

By test year and vehicle type, the percentage of vehicles with the MIL commanded off and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	4.71%	5.92%	5.46%	3.48%	5.12%
2021	4.80%	5.61%	5.82%	3.36%	5.15%
2022	4.77%	5.30%	5.76%	4.24%	5.04%
2023	7.97%	5.53%	6.00%	4.79%	6.98%
2024	**8.47%**	**5.52%**	**6.42%**	**4.54%**	**7.30%**

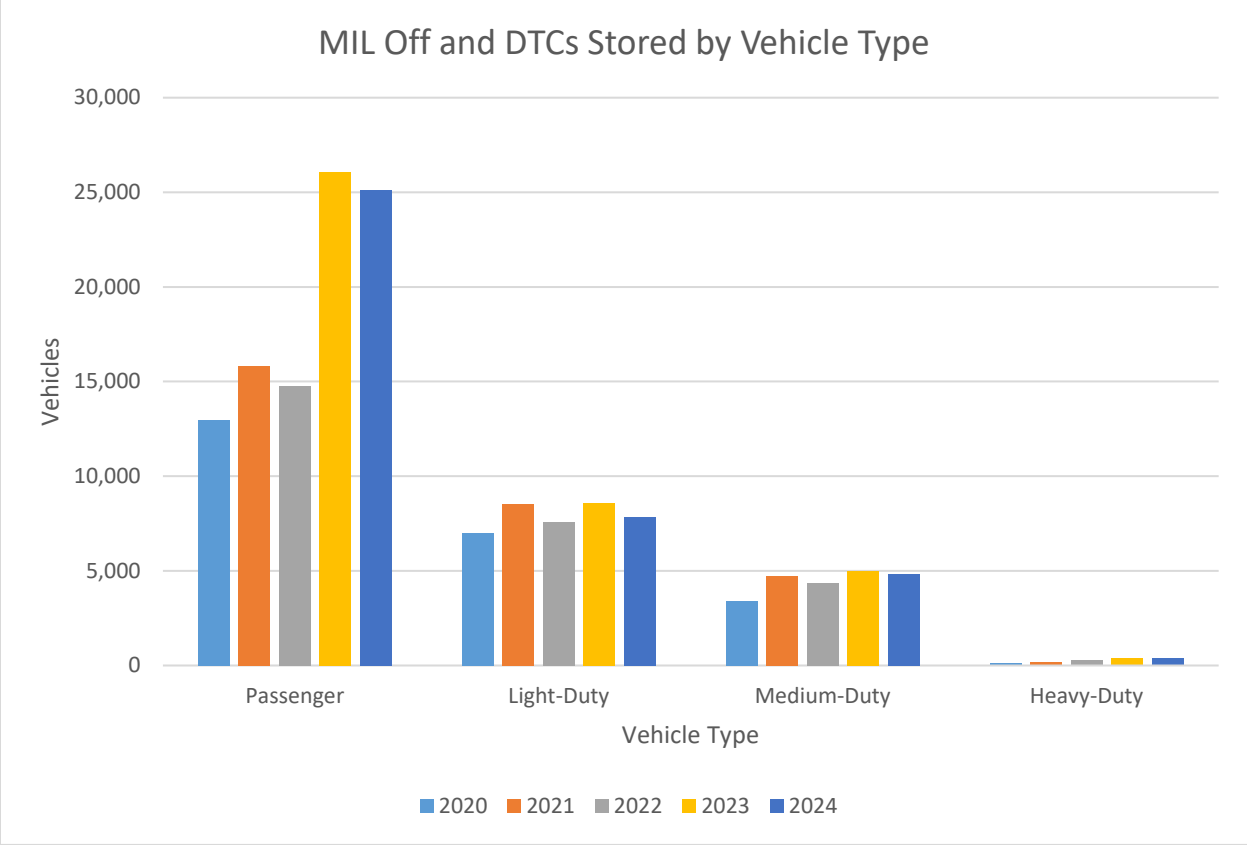
Link to corresponding appendix data

Both Tables 18 and 19 show an increase in the number of vehicles with the MIL commanded on and codes stored from 2022-2023; the reason for this is not yet known. Yet, as Chart 12 shows below, the increase is almost exclusive to passenger vehicles. Some ideas for the increase could

be because of DEQ's data collection methods changing, rather than a widespread change in how vehicles are being manufactured. This will be investigated further in the coming months.

Chart 12

By model-year and vehicle type, the number of vehicles with the MIL commanded off and codes stored



Vehicles with MIL On and DTCs Stored

These vehicles are performing as expected in response to an error code found in the ECM. If an active DTC is present, the vehicle will turn on the MIL.

Table 20

By model-year and vehicle type, the number of vehicles with the MIL commanded on and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	6,612	3,677	2,053	72	12,414
2021	8,511	4,785	2,953	141	16,390
2022	7,951	4,360	2,720	178	15,209
2023	8,511	4,806	3,069	244	16,630
2024	**8,227**	**4,492**	**2,787**	**255**	**15,761**

Link to corresponding appendix data

Table 21

By model-year and vehicle type, the percentage of vehicles with the MIL commanded on and codes stored

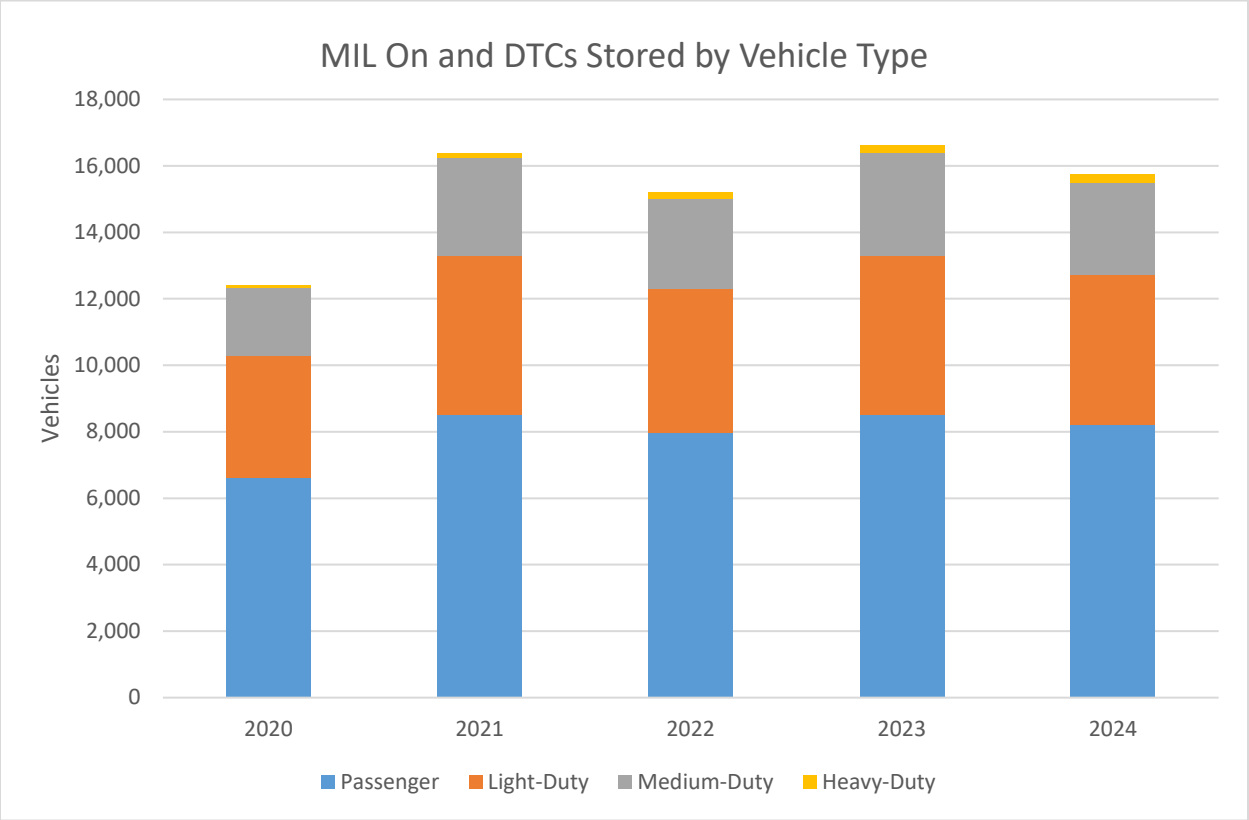
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	2.41%	3.11%	3.28%	1.97%	2.70%
2021	2.59%	3.15%	3.65%	2.36%	2.89%
2022	2.57%	3.05%	3.58%	2.56%	2.84%
2023	2.60%	3.10%	3.68%	2.81%	2.89%
2024	**2.77%**	**3.16%**	**3.70%**	**2.95%**	**3.02%**

Link to corresponding appendix data

As Table 21 shows, the number of vehicles with the MIL on and DTCs stored makes up a small percentage of the total volume. It's worth noting that because the ECM is reporting this way, the vehicle will fail the OBD test and most likely need to be repaired. With that said, the percentage of vehicles failing should be similar to the percentage shown in Table 3, which is the percentage of vehicles that failed initially over all test types. In 2024, the overall initial fail rate was 3.19%, which is higher than the 2024 OBD fail rate because that one includes two-speed idle tested vehicles. Chart 13 on the next page shows Table 21 in visual form. Note that there is no particular vehicle type that stands out for these cases, probably meaning that certain vehicle types are not more prone to needing repairs than others.

Chart 13

By model-year and vehicle type, the number of vehicles with the MIL commanded on and codes stored



Vehicles with MIL Off and no DTCs Stored

These vehicles have no error codes stored and therefore the MIL is turned off.

Table 22

By model-year and vehicle type, the number of vehicles with the MIL commanded off and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	255,037	107,487	57,055	3,448	423,027
2021	304,732	138,507	73,165	5,635	522,039
2022	286,078	130,519	68,424	6,366	491,387
2023	292,890	141,633	75,285	8,025	517,833
2024	**263,445**	**129,618**	**67,654**	**8,009**	**468,726**

Link to corresponding appendix data

Table 23

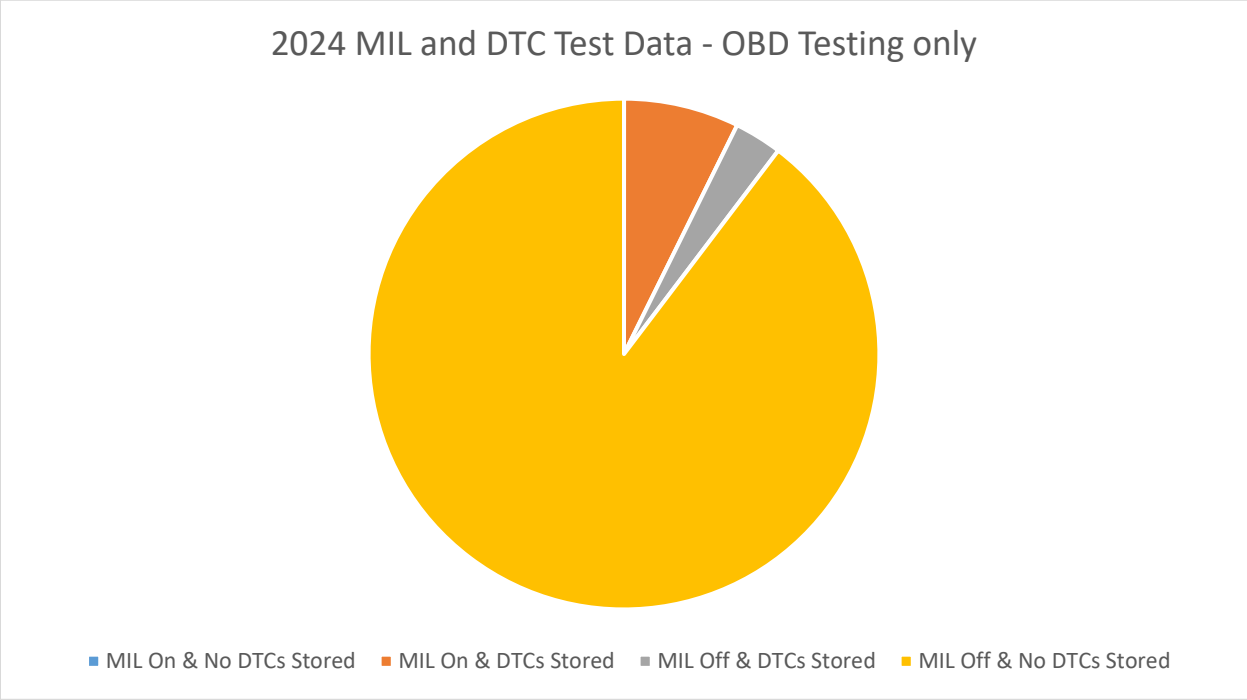
By model-year and vehicle type, the percentage of vehicles with the MIL commanded off and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	92.87%	90.95%	91.25%	94.54%	92.17%
2021	92.60%	91.24%	90.52%	94.28%	91.96%
2022	92.48%	91.42%	89.96%	91.45%	91.83%
2023	89.42%	91.37%	90.32%	92.40%	90.12%
2024	**88.76%**	**91.32%**	**89.87%**	**92.51%**	**89.68%**

Link to corresponding appendix data

Chart 14 on the next page is a combination of 2024 data from Tables 16, 18, 20, and 22. These represent 100% of OBD testing because all OBD-tested vehicles register a MIL status and DTC status. The overwhelming majority of OBD tested vehicles report the MIL off and no stored DTCs. Additionally, the section of the pie shown in orange, which is MIL off and stored DTCs, is another case of a passing result for vehicles. This means that, according to the chart, 97% of the OBD tests result in a pass. This aligns well with the data in Table 13.

Chart 14



Note that the MIL On with no DTCs stored category is a small enough percentage that the sliver is very difficult to make out on the chart.

Vehicles with an Unready Monitor

An unready monitor is an indicator that one of the vehicle's system checks is not yet complete. Using the catalytic converter monitor as an example, an unready monitor signals that the vehicle needs more driving time in order for the catalytic converter to heat up, and therefore complete functionality testing. In this case, any DTC associated with the catalytic converter will not be pushed to the ECM until the monitor is ready. Monitors are turned to an unready state when codes are cleared from the system or when the battery is disconnected from the vehicle. Testing monitor readiness ensures that the vehicle has been driven enough, and in such a way that all of the emissions systems have been fully tested. For gasoline vehicles, Oregon allows 2 unready monitors for 1996-2000 vehicles, and only 1 unready monitor for 2001 and newer model years. Diesel vehicles are not allowed any unready monitors for model years 1997-2008. 2009 and newer are allowed one unready monitor. If a vehicle has too many unready monitors, it receives an unready result, which means that it will need to be tested again to receive a passing certificate. The vehicles represented in the data below have one or more unready monitors, which means that many of those vehicles, depending on model year, still passed the OBD test.

Table 24

By model-year and vehicle type, the number of vehicles with an unready monitor

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	29,531	14,256	9,232	365	53,384
2021	37,491	18,151	12,046	670	68,358
2022	37,010	17,875	11,538	838	67,261
2023	39,010	18,883	12,747	1,074	71,714
2024	**39,343**	**18,619**	**12,604**	**1,165**	**71,731**

Link to corresponding appendix data

Table 25

By model-year and vehicle type, the percentage of vehicles with an unready monitor

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
2020	10.76%	12.06%	14.76%	10.03%	11.63%
2021	11.40%	11.95%	14.90%	11.22%	12.04%
2022	11.99%	12.55%	15.26%	12.26%	12.61%
2023	11.92%	12.18%	15.29%	12.39%	12.49%
2024	**12.43%**	**12.43%**	**15.60%**	**12.39%**	**12.89%**

Link to corresponding appendix data

Chart 15 shows the data in Table 24 stacked with the number of OBD tested vehicles that had zero unready monitors organized by model year. Chart 16 on the next page shows the percentage of vehicles with an unready monitor by model year. Both graphs show that as a vehicle ages, it is more likely to have monitors set to unready. Especially in 1996-2004 model-year vehicles, the OBD monitoring system was prone to errors in certain models. The model-wide problems that were in these early OBD implementation years are now starting to disappear in modern model years, which may contribute to the downward slope of the line in Chart 16. Chart 16 is also shown in the appendix

Chart 15

By model year, the number of vehicles with an unready monitor stacked with the number of vehicles with no unready monitors

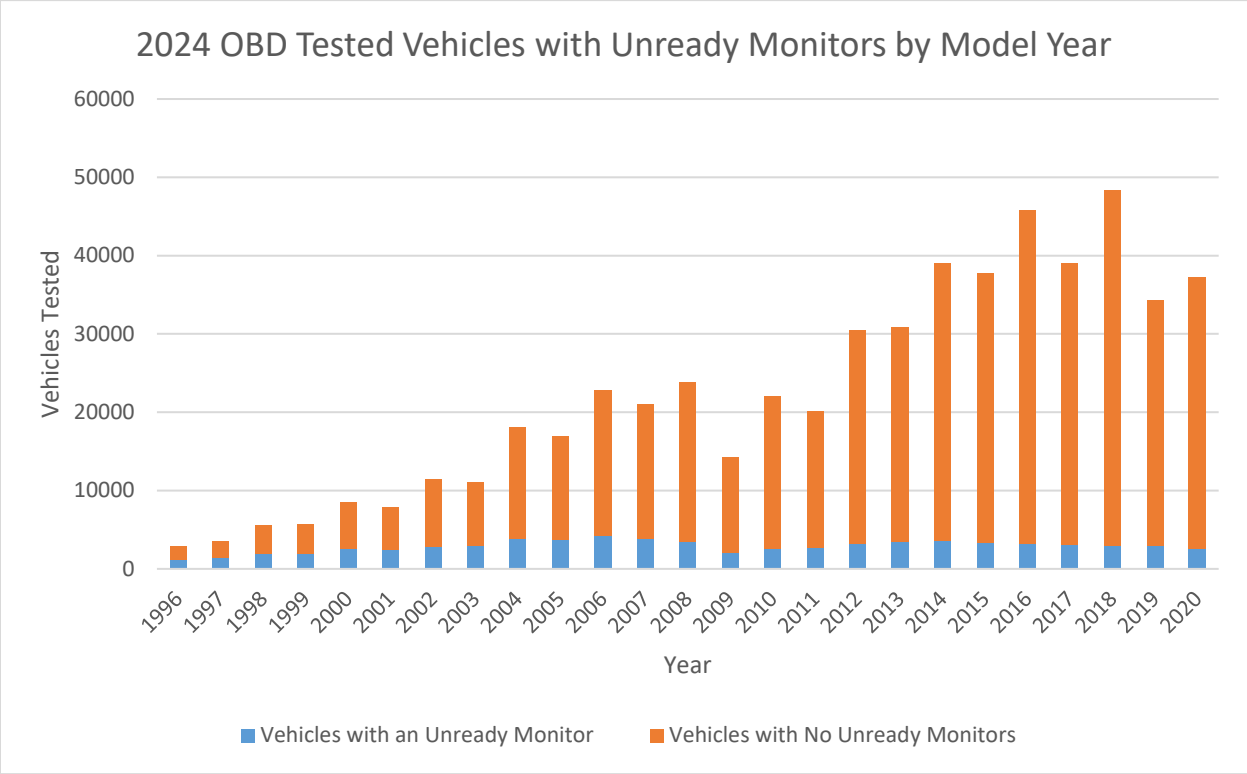
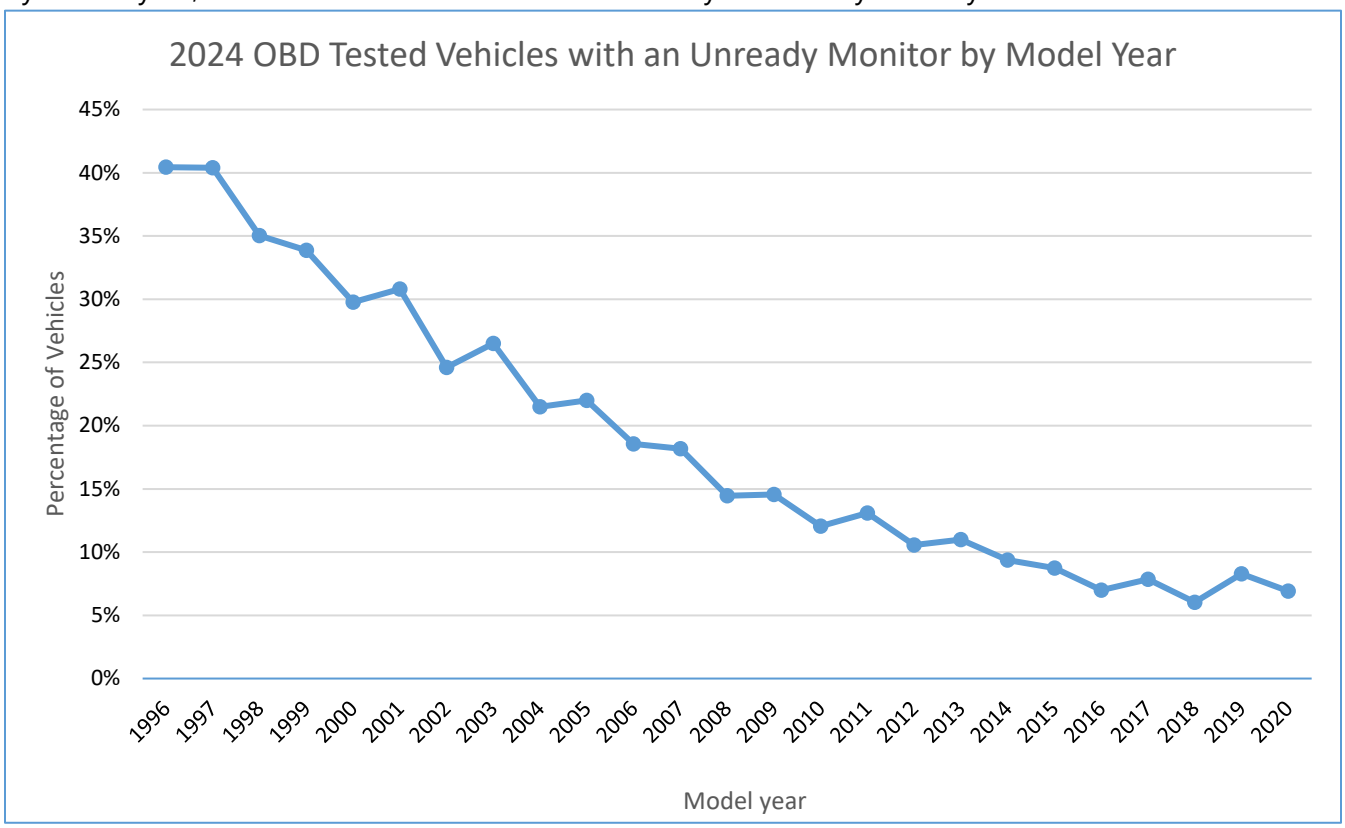


Chart 16

By model-year, the number of vehicles with an unready monitor by model year



Explanation of DTC Data

When the OBD test is performed on a vehicle, the ECM sends many forms of vehicle data to VIP to determine the test readiness and the result. One of the pieces of data that is sent is called Mode $01 PID $31, which allows VIP to determine the number of miles driven in that vehicle since the ECM was cleared of all trouble codes (DTCs). Think of it like an internal trip meter on your vehicle. Typically, the trouble codes are cleared any time a vehicle receives maintenance from an auto shop or mechanic, so VIP uses this data as a measure of miles driven between repair work and testing. In 2024, about 25% of the vehicles that were able to report this data (remember, only OBD compliant vehicles can send Mode $01 PID $31 to VIP) had driven less than 2000 miles. According to ODOT, Oregon vehicles average about 800 miles on the road per month. In this case, the average vehicle would log about 2,400 miles every three months. Using this logic, VIP has found that about 25% of these vehicles are repaired less than 3 months before testing. This is all vehicles, not just the vehicles that have known issues or previous DTCs. VIP believes that this data suggests the testing program is an important incentive to Oregon vehicle owners to maintain vehicles properly and seek repairs within their registration window.

Chart 17

Strong Evidence of Pre-Inspection Repair Incentive

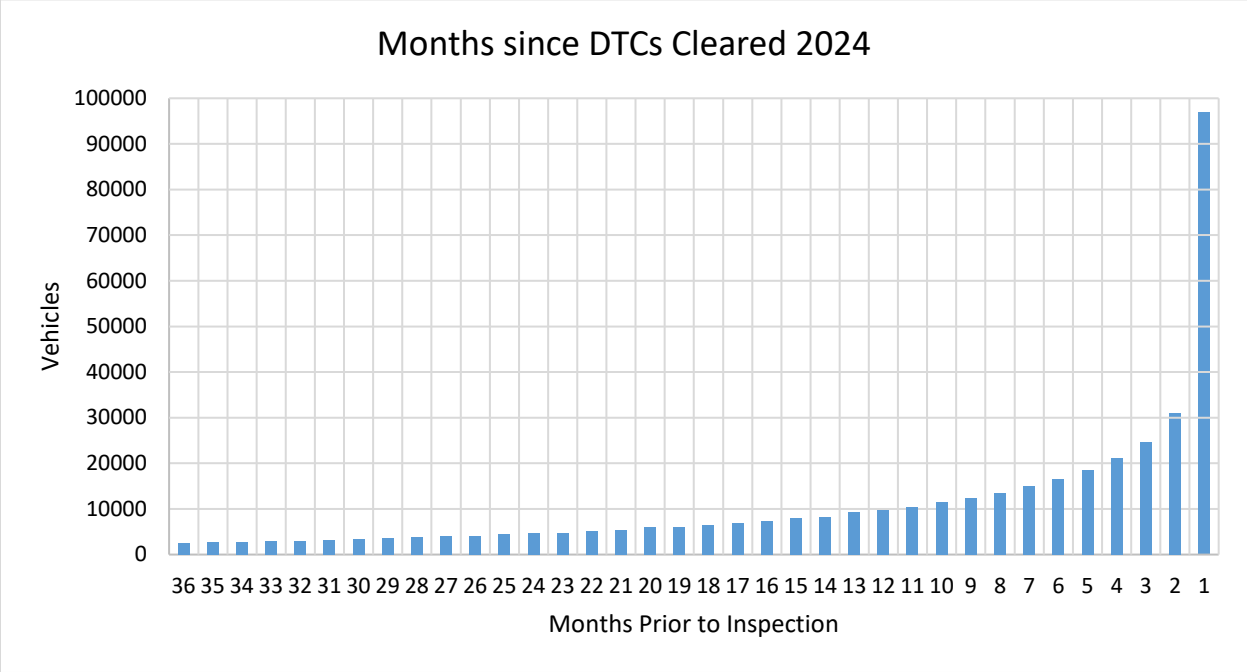


Chart 17 shows that there is a significant rise in vehicles having DTCs cleared in the 3 months prior to testing, and especially in the 1 month before testing.

Station Testing Data

The following section shows test volume and fail rates sorted by station. There is a wide range of testing capabilities between stations. The DEQ Too™ testing option tests about 12% of vehicles program-wide. The dealership program sees the most use; this trend is explained further in the next section.

Total Testing Volume by Station

Table 26

The initial test volume by model year and test station

Year	Clackamas	Gresham	Medford	Northeast	Scappoose	Sherwood	Sunset	Mobile	DEQ Too Portland	DEQ Too Medford	Total
2020	89,128	65,978	40,769	63,273	3,755	66,899	96,276	2,906	58,842	6,482	494,308
2021	109,592	86,746	49,935	83,890	4,490	85,687	123,884	4,200	54,508	5,868	608,800
2022	102,204	79,656	45,350	75,380	3,903	78,735	115,782	3,516	55,969	6,266	566,761
2023	107,938	87,449	48,777	79,525	4,186	83,799	125,776	2,551	61,411	5,151	606,563
2024	**103,733**	**84,661**	**46,059**	**75,891**	**4,068**	**80,263**	**118,701**	**1,832**	**65,492**	**5,751**	**586,451**

Link to corresponding appendix data

Chart 18 on the next page shows Table 26 in a bar graph. The graph shows station volume and trends at each station over the last five years. Sunset station in Hillsboro has traditionally handled the largest volume of vehicles, which it continued to do in 2024. Scappoose and the Mobile station, which only operate for select days of the week, handle the least number of vehicles.

Chart 19 shows the same data by percentages. The six full-time state-operated stations, Clackamas, Gresham, Medford, Northeast, Sherwood, and Sunset, tested about 87% of vehicles in 2024. VIP hopes to continue to provide more options and availability for testing through DEQ Too™ and other innovative ideas in the future.

Chart 18

The initial test volume by model-year and test station

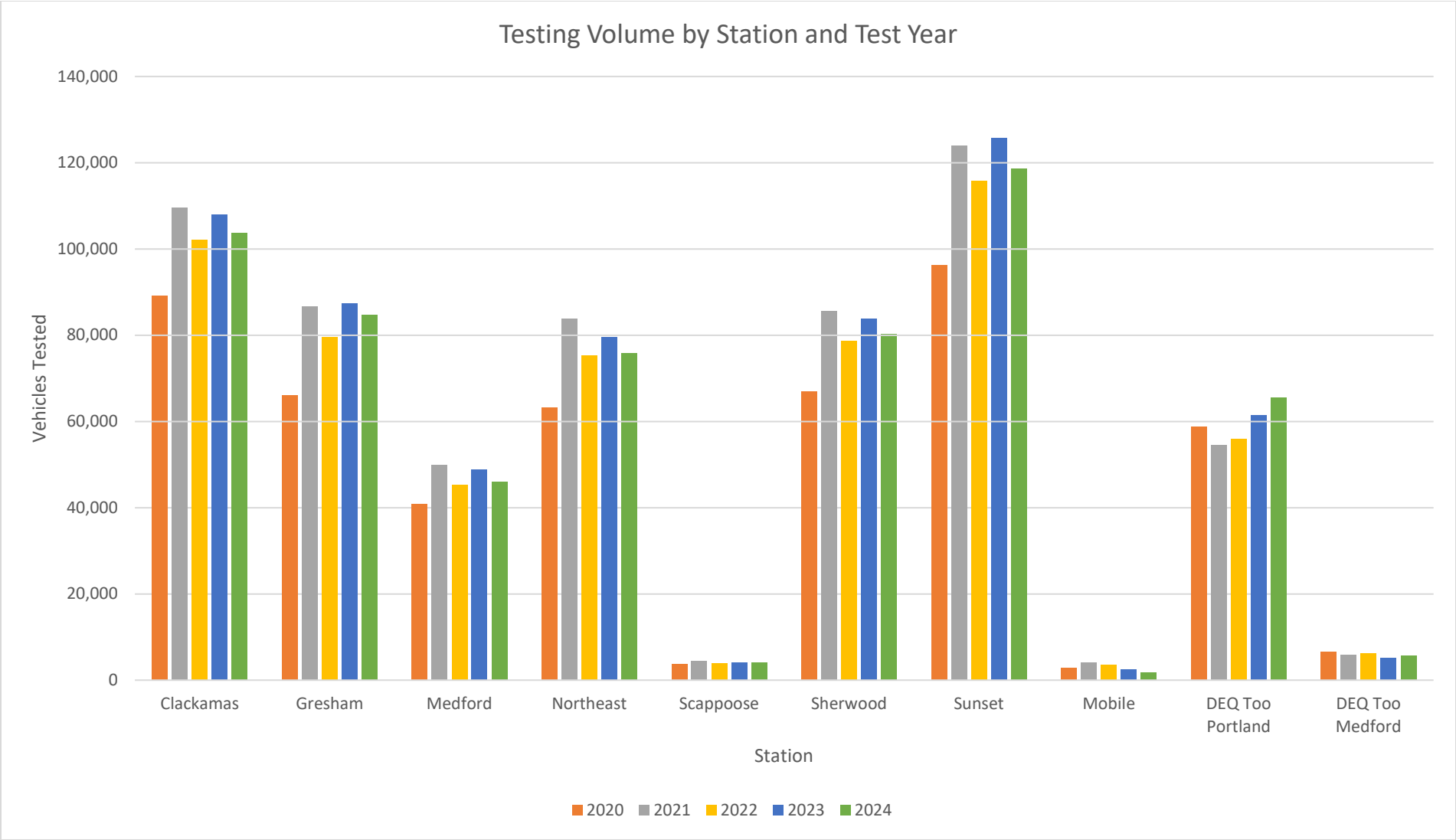
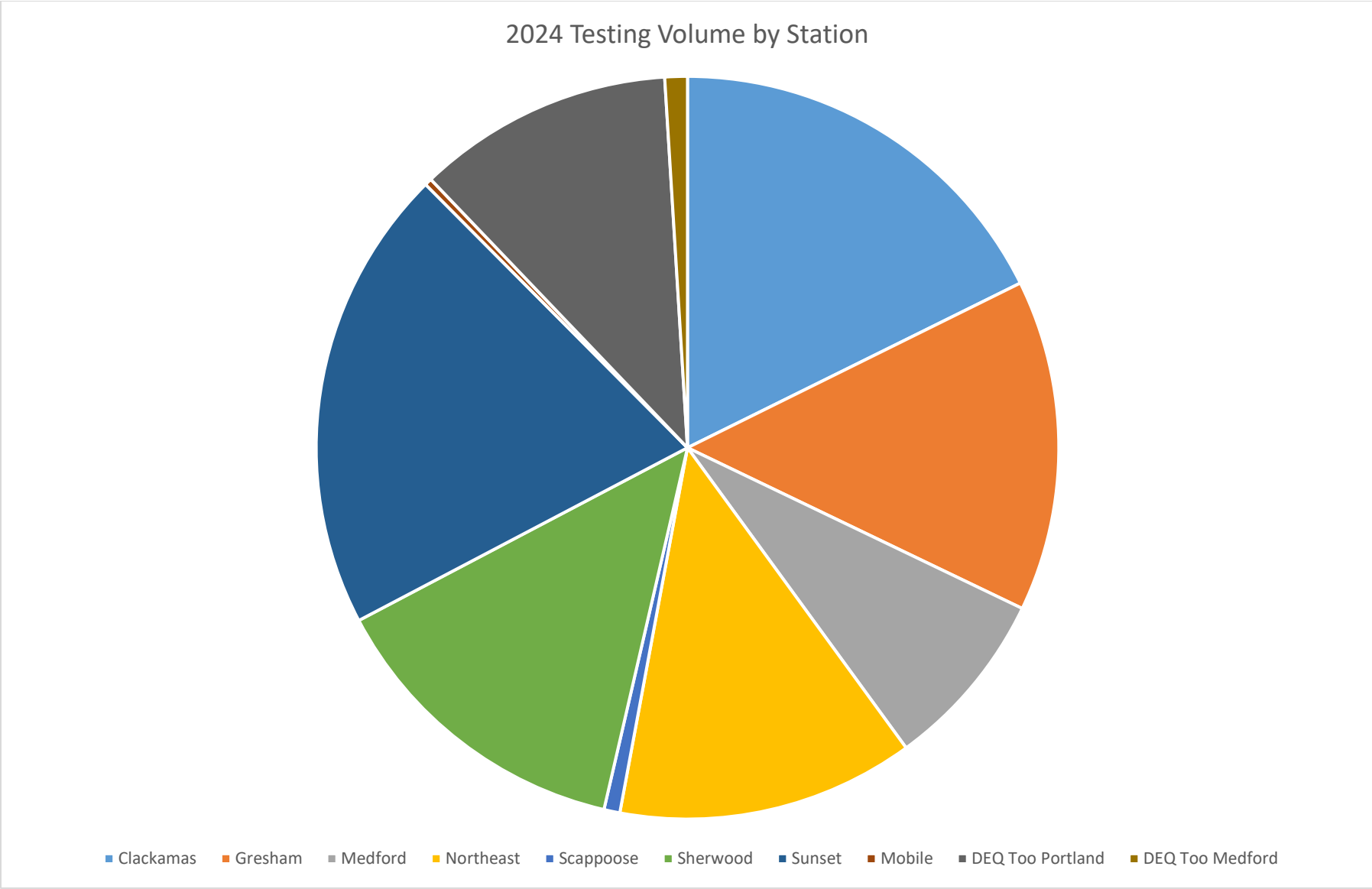


Chart 19

The initial test volume by model year and test station



Fail Rate by Station

Table 27 shows a much lower fail rate for DEQ Too™ locations compared to CAS locations. This is due to the fact that DEQ Too™ is only capable of testing OBD II-compliant vehicles. Furthermore, an E-VIN is required for a DEQ Too™ test, which means that only 2005 and newer vehicles are eligible for the DEQ Too™ test method. In general, newer vehicles and OBD II compliant vehicles have a lower fail rate than the program average.

Table 27

The initial test fail rate by model year and test station

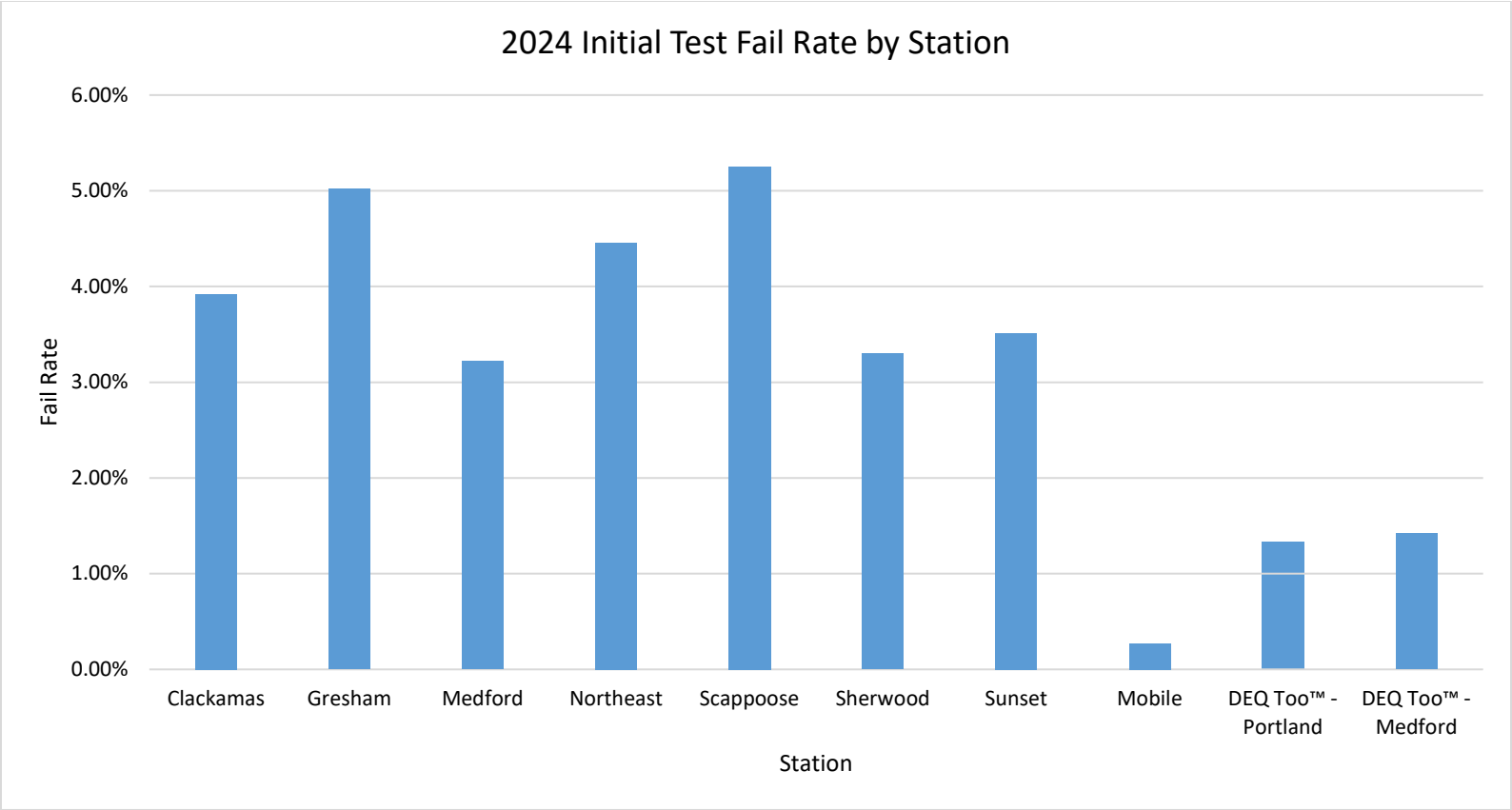
Year	Clackamas	Gresham	Medford	Northeast	Scappoose	Sherwood	Sunset	Mobile	DEQ Too™ Portland	DEQ Too™ Medford	Total
2020	4.35%	5.35%	3.46%	4.64%	5.56%	3.66%	3.97%	0.14%	1.23%	1.20%	3.85%
2021	4.06%	5.11%	3.75%	4.58%	4.80%	3.65%	3.96%	0.17%	1.45%	1.04%	3.90%
2022	3.95%	4.99%	3.63%	4.41%	4.92%	3.45%	3.68%	1.52%	1.34%	0.84%	3.71%
2023	3.94%	4.84%	3.59%	4.49%	5.34%	3.44%	3.73%	0.53%	1.38%	1.17%	3.72%
2024	**3.92%**	**5.02%**	**3.22%**	**4.46%**	**5.25%**	**3.30%**	**3.51%**	**0.27%**	**1.33%**	**1.42%**	**3.61%**

Link to corresponding appendix data

As shown in Chart 20 on the following page, different stations have different rates of failure. Gresham and Scappoose fail rates are over 40% higher than average. The reason for this could potentially be the demographic of the population being served by these stations.

Chart 20

The initial test fail rate by model-year and test station



Quality Assurance and Control

This section of the report contains testing location information and a brief explanation of auditing for the IM program.

Inspection Stations and Testing Locations

Table 28

Oregon's testing locations including number of units

Station	Units
Clackamas	10
Gresham	8
Medford	4
Mobile	1
Northeast	8
Scappoose	1
Sherwood	7
Sunset	10
DEQ Too™ - Medford	25
DEQ Too™ - Portland	306
Total Units	**380**

Oregon has 7 state-operated stations: Clackamas, Gresham, Medford, Northeast, Scappoose, Sherwood, and Sunset. Testing at these sites involves driving into a drive-thru-style lane and stopping at a testing unit. Some lanes have only a single unit, others have two units per lane. Each testing unit is staffed by a DEQ vehicle inspector, who is trained to test vehicles and required to complete additional training and evaluation periodically.

The mobile station is an option for auto dealerships and involves a van equipped with testing equipment. This van drives to car lots where it can perform OBD testing on the vehicle inventory. This option was popular before the DEQ Too™ testing option was introduced and has since declined in testing volume. The mobile station is staffed by a DEQ vehicle inspector.

DEQ Too™ testing locations come in three different forms: hosts, dealerships, and fleets. All three location types have a wireless DEQ Too™ approved device onsite, which is used by the business's staff to run an OBD test on vehicles. DEQ then receives the OBD data remotely from the device provider and determines if the vehicle passed or failed the test; this process is

sometimes referred to as telematics. These devices are purchased or leased by the business from device providers directly, so VIP is not involved with offering or endorsing devices.

Hosts are private businesses, for example, an auto repair shop, that offer DEQ Too™ tests in addition to other automotive services. The idea behind this method is to provide more testing options and locations for the public. There are 142 host locations currently registered in Oregon. Dealerships are private businesses that test used vehicles prior to a sale. These make up the highest volume of DEQ Too™ testing. There are 178 dealership locations currently registered. Fleet testing is performed by private businesses on their vehicles when registration needs to be renewed. There are 11 companies using this method in Oregon. Business staff using remote telematic devices are not trained by DEQ.

All locations operate year-round.

Auditing

Given that Oregon primarily operates a state-run centralized program, overt and covert audits beyond those that are automated within the software are not routinely conducted at our stations. The software conducts a calibration followed by a single gas audit every ten hours for the basic testing system. The OBD system is checked before station opening as well. This check covers CAN, ISO9141, PWM, and VPW, which are the major communication protocols used by modern ECMs. The software automatically shuts down lanes that fail these daily audits. Maintenance personnel conduct additional periodic audits as a part of their preventive maintenance procedures. Staff are also able to lock out a lane from testing if their on-site audit shows the lane is not accurate. In addition, Oregon monitors test lanes with digital surveillance cameras to ensure the highest level of test integrity.

DEQ Too™ facilities with telematic units enroll under specific terms and conditions, and DEQ can block an entire facility or an individual telematic device from posting data to the DEQ Too™ server if these terms are breached. Starting in 2025, a new rulemaking allows for DEQ to audit participating locations, but for the 2024 test year, DEQ Too™ facilities are not audited overtly or covertly. All test data can be reviewed for fraud. Any vehicle found to have fraudulent information is given a Non-OEM OBD Data Failure, a message about the Federal Clean Air Act Prohibitions, and the record is flagged for later follow-up.

DEQ utilizes continuous monitoring in its centralized program by software measures, station managers, and video cameras in every testing lane. DEQ utilizes programmatic monitoring of OBD data for its DEQ Too™ program. This monitoring is both active denial and reactive, with follow-up analysis of data. While DEQ can prohibit DEQ Too™ testing from any facility to a single device level, no such action was necessary in 2024.

Licensed Inspectors

The Department of Environmental Quality has 141 Fleet Certified Inspectors who must have 8 hours of training per year to maintain their certification through DEQ's program. As of December 31, 2024, the Department of Environmental Quality employed 69 Vehicle Emission Inspectors who are certified to conduct a vehicle emission test at an Oregon Clean Air Station.

While the program continued to address needed personnel issues and to fill vacancies, it was not necessary to suspend, fire, or otherwise prohibit testing by any inspectors for any vehicle testing matters.

Enforcement

This section covers registration data, compliance, and enforcement methods. VIP relies on its partnership with the Oregon Department of Motor Vehicles (DMV) to enforce testing. Vehicles registered in an inspection area are required to test and pass to receive an emissions certificate to complete their registration renewal.

Registration Data Comparison

Oregon used 2024 DMV data to conduct this analysis. DMV's data set shows over 1.22 million vehicles were registered within Oregon's IM boundary and meet the criteria for testing. Given that Oregon operates a biennial test program, approximately 609,000 of these vehicles would theoretically be tested in 2024.

As shown in previous sections, there were 586,451 initial tests conducted in 2024. This represents 96% of the 609,000 vehicles expected to be tested. This analysis is a coarse estimate given the complexities involved with determining the exact number of vehicles that should be tested. The target value of 609,000 vehicles is based on the total number of vehicles registered within testable ZIP codes that meet Oregon's test criteria. However, Oregon's IM boundary is more complicated than a simple ZIP code-bound area. Some ZIP codes are split by the I/M boundary. The total number of vehicles issued a passing certificate in 2024 was 563,649. As mentioned in the previous section on vehicles that never completed a passing test, several reasons can explain the over 25,000 vehicle gap between tested vehicles and certificates issued to motorists. These include not currently being able to track vehicles from one calendar year to another, vehicles being sold or moved after a failed test, etc. For this data set, some additional possibilities exist for the data gap. One is that Oregon has an electronic data sharing system that pushes certificates to DMV so motorists can renew online with DMV. Those customers who purchase their tags at DEQ have a record of that tag number electronically pushed to DMV. On

rare occasions, this transfer does not happen due to a software issue. VIP and their contractor, Opus, are trying to isolate and correct this issue. Opus has added debugging code to try to pinpoint the issue. The current workaround is for stations to report these issues as they occur in the lane so the technical center staff or Opus can correct the transaction before it becomes a burden for the customer. An additional explanation is that VIP allows voluntary testing for vehicles that already have valid registration or are exempt from testing. So in this case, a vehicle would be tested, receive a passing grade, but not a valid certificate of compliance. VIP is continuing to make improvements to data tracking methods.

Compliance Documents

After passing a test, motorists receive a vehicle emissions certificate, an official compliance document that is accepted by DMV and allows a vehicle to be registered in Oregon. These documents are distributed to the centralized stations as needed and provided to vehicle owners upon passing the test. DEQ Too™ users receive a digital version of this document. Digital compliance documents are not represented in the table below.

Table 29

The total number of compliance documents issued to inspection stations

Month	Clackamas	Gresham	Medford	Northeast	Scappoose	Sherwood	Sunset	Mobile	Tech Center	Total
January	10,000	9,000	0	0	7,000	0	9,000	9,000	0	44,000
February	9,000	7,000	0	0	2,000	0	3,000	15,000	100	36,100
March	8,000	7,000	4,000	0	8,900	-900	6,000	3,000	0	36,000
April	13,000	15,000	0	0	9,000	0	10,000	24,000	0	71,000
May	9,000	0	0	0	4,000	2,000	0	0	0	15,000
June	9,000	6,000	4,000	0	7,000	0	6,000	12,000	0	44,000
July	7,000	10,000	0	0	4,900	100	9,000	8,000	0	39,000
August	12,000	6,000	16,000	0	12,000	0	5,000	11,000	0	62,000
September	8,000	8,000	0	0	9,000	0	10,000	11,000	0	46,000
October	7,769	7,877	12,931	0	318	7	4,308	8,826	0	42,036
November	12,000	11,000	9,000	0	6,000	1,000	6,000	11,000	0	56,000
December	15,900	8,704	7,000	0	14,000	0	17,000	21,000	102	83,706
Totals	**120,669**	**95,581**	**52,931**	**0**	**84,118**	**2,207**	**85,308**	**133,826**	**202**	**574,842**

All compliance documents are accounted for at the end of each till session. If there is any discrepancy or missing documents, they are dealt with at that time. In the event a compliance document goes missing, all vehicle information is reported, and DEQ makes every effort to find the address and phone number of the customer to recover the missing document. There were no missing document situations during 2024.

Enforcement Methods

Vehicle emissions testing is enforced in Oregon via vehicle registration. If a vehicle is registered within one of Oregon's testing boundaries and does not obtain an emissions compliance certificate, it will be ineligible to renew its registration per ORS 803.350(4). This requirement means that all vehicles subject to testing must be certified once every two years. Failure to obtain a certificate of emissions compliance and the resulting failure to register will result in a Class D traffic violation per ORS 803.300.

Appendix

Table 1A

The number of vehicles tested, by model year and vehicle type

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	21	18	19	3	61
1976	51	30	59	6	146
1977	43	34	50	19	146
1978	89	63	87	20	259
1979	59	56	34	16	165
1980	52	48	11	10	121
1981	58	65	13	16	152
1982	77	81	15	15	188
1983	99	68	17	15	199
1984	133	165	35	36	369
1985	159	182	31	57	429
1986	215	296	34	56	601
1987	197	283	34	41	555
1988	280	279	113	72	744
1989	295	377	123	133	928
1990	500	487	165	147	1,299
1991	486	501	120	91	1,198
1992	590	652	213	177	1,632
1993	529	720	213	131	1,593
1994	738	1,189	492	225	2,644
1995	892	1,028	449	235	2,604
1996	1,235	1,424	450	334	3,443
1997	1,469	1,698	547	376	4,090
1998	2,465	2,601	696	345	6,107
1999	2,483	2,248	1,097	542	6,370
2000	3,787	3,181	1,613	659	9,240
2001	3,828	2,547	1,495	551	8,421
2002	5,200	4,057	2,207	640	12,104
2003	5,519	3,653	2,023	617	11,812
2004	7,845	6,708	3,593	944	19,090

2005	9,168	5,134	2,620	681	17,603
2006	11,946	7,245	3,746	1,079	24,016
2007	11,817	6,100	3,157	700	21,774
2008	13,277	7,299	3,234	752	24,562
2009	9,989	3,112	1,185	316	14,602
2010	13,724	5,790	2,583	365	22,462
2011	11,835	5,101	3,166	543	20,645
2012	19,861	6,650	3,974	665	31,150
2013	20,229	6,164	3,884	596	30,873
2014	24,037	8,344	5,840	856	39,077
2015	23,915	7,986	4,864	1,069	37,834
2016	27,295	10,813	6,334	1,456	45,898
2017	23,244	9,421	5,136	1,354	39,155
2018	25,673	14,014	7,258	1,455	48,400
2019	19,218	8,621	5,118	1,359	34,316
2020	19,273	10,968	5,738	1,395	37,374
Total	**323,895**	**157,501**	**83,885**	**21,170**	**586,451**

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Chart 1A

The number of vehicles tested, by model year

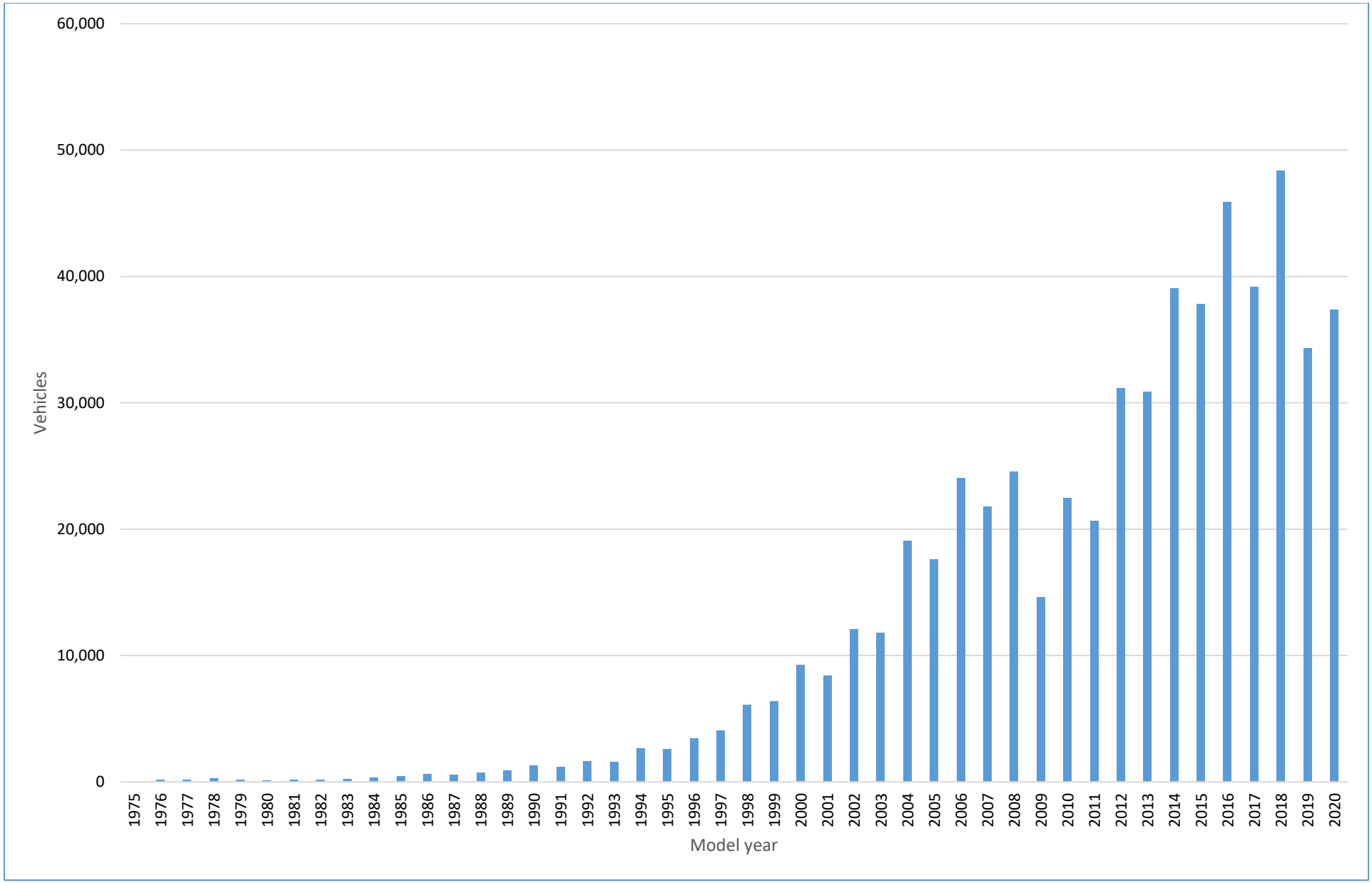

Table 2A

By model year, vehicle type, and test type, the number of vehicles that failed initially

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	11	4	10						25
1976	21	17	25	1					64
1977	21	20	23	6					70
1978	34	31	50	6					121
1979	27	31	15	7					80
1980	11	16	3	5					35
1981	14	22	6	6					48
1982	15	26	7	5					53
1983	18	23	7	5					53
1984	18	53	15	11					97
1985	30	57	7	21					115
1986	33	76	16	19					144
1987	30	73	9	14					126
1988	41	52	26	20					139
1989	37	81	35	33					186
1990	56	85	35	26					202
1991	65	77	30	14					186
1992	74	89	39	26					228
1993	69	88	48	24					229
1994	62	122	93	29					306
1995	100	101	94	32					327
1996	6	1		32	96	129	35		299
1997	5	3	1	37	127	155	53		381
1998	5	1		37	182	163	51		439
1999	4			44	177	142	86		453
2000				34	297	190	99		620
2001				32	313	184	95		624
2002				22	404	305	152		883
2003				20	377	261	149		807
2004			1	16	480	392	224		1,113
2005				16	577	338	170		1,101
2006				15	651	369	216		1,251

2007				6	591	295	187		1,079
2008				6	572	237	167		982
2009				3	387	137	80		607
2010				2	365	167	75		609
2011				4	348	133	138		623
2012				5	475	162	124		766
2013					434	114	141	28	717
2014					417	157	164	33	771
2015					348	129	130	53	660
2016					345	163	145	49	702
2017					276	122	92	50	540
2018					212	134	70	27	443
2019					148	65	52	47	312
2020				1	111	96	29	26	263
Total	**807**	**1,149**	**595**	**642**	**8,710**	**4,739**	**2,924**	**313**	**19,879**

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Chart 2A

The number of vehicles that failed initially, by model year

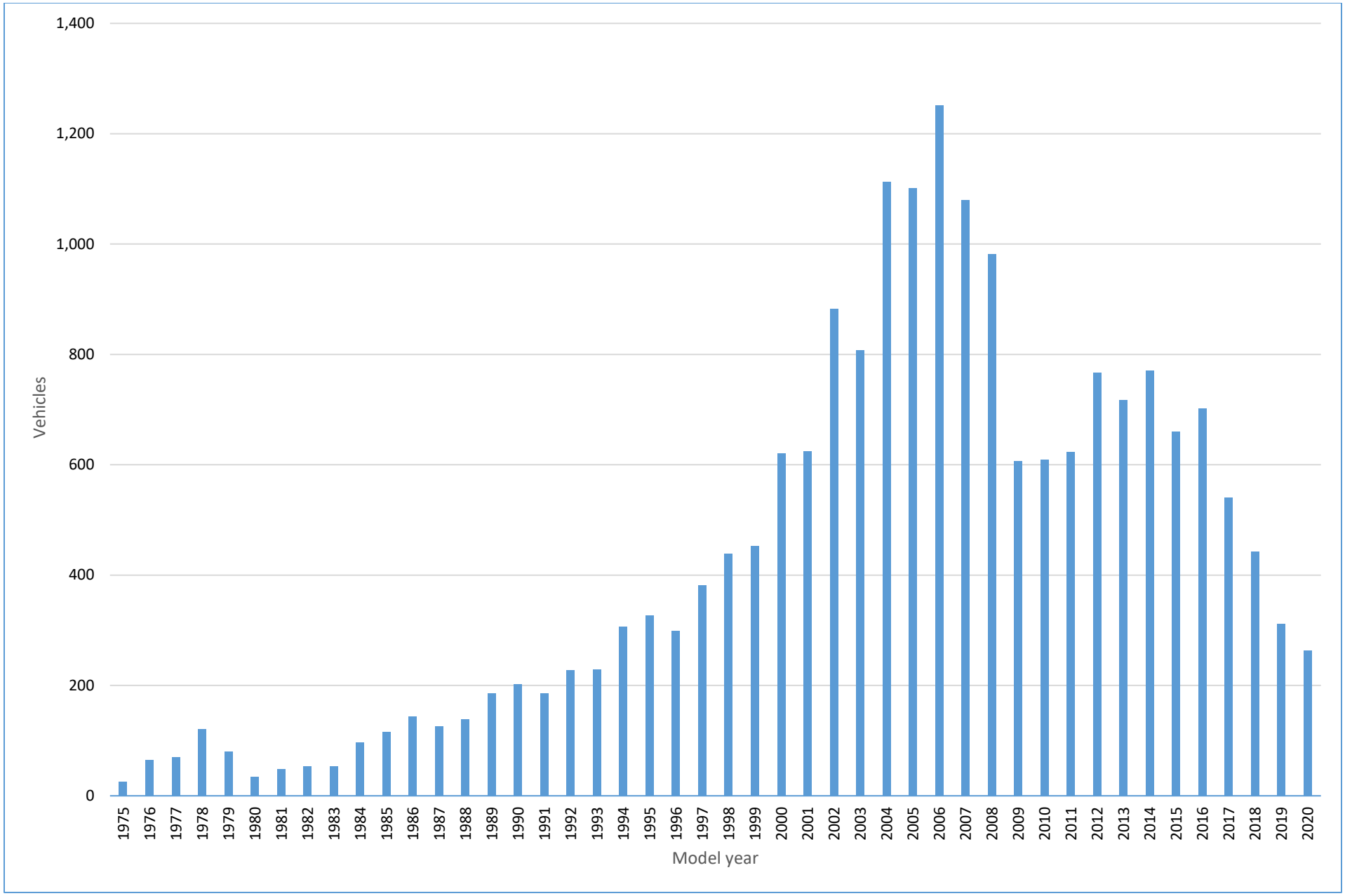

Table 3A

By model year, vehicle type, and test type, the percentage of vehicles that failed initially

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
1975	55.00%	26.67%	52.63%	0.00%					44.64%
1976	42.86%	62.96%	43.10%	16.67%					45.71%
1977	51.22%	60.61%	47.92%	31.58%					49.65%
1978	39.53%	51.67%	59.52%	33.33%					48.79%
1979	47.37%	58.49%	44.12%	46.67%					50.31%
1980	22.00%	35.56%	27.27%	50.00%					30.17%
1981	25.93%	35.48%	46.15%	37.50%					33.10%
1982	20.00%	33.77%	50.00%	35.71%					29.44%
1983	18.95%	35.38%	41.18%	38.46%					27.89%
1984	13.74%	33.76%	45.45%	33.33%					27.40%
1985	19.87%	33.53%	25.00%	38.18%					28.47%
1986	15.79%	27.34%	51.61%	36.54%					25.26%
1987	15.79%	27.97%	27.27%	35.90%					24.09%
1988	15.41%	19.77%	24.53%	28.57%					19.72%
1989	13.50%	22.44%	28.93%	26.40%					21.11%
1990	11.67%	18.40%	22.29%	18.31%					16.28%
1991	13.95%	16.11%	26.09%	15.91%					16.22%
1992	13.21%	14.19%	19.50%	14.77%					14.59%
1993	13.40%	12.63%	23.08%	18.75%					14.79%
1994	8.71%	10.67%	19.46%	13.24%					11.99%
1995	11.55%	10.21%	21.46%	13.85%					12.96%
1996	11.32%	1.82%	0.00%	9.73%	8.82%	10.20%	8.68%		9.35%
1997	13.16%	7.89%	25.00%	10.05%	9.87%	10.15%	10.77%		10.15%
1998	6.41%	5.88%	0.00%	11.08%	8.25%	6.82%	8.23%		7.77%
1999	23.53%	0.00%	0.00%	8.35%	7.74%	6.71%	8.89%		7.65%
2000				5.27%	8.44%	6.43%	6.68%		7.21%
2001				6.07%	9.47%	8.46%	7.57%		8.59%
2002				3.52%	8.76%	8.49%	7.83%		8.20%
2003				3.37%	7.71%	8.06%	8.56%		7.71%
2004			100.00%	1.74%	6.77%	6.35%	7.03%		6.41%
2005				2.43%	6.99%	7.35%	7.43%		6.97%
2006	0.00%			1.43%	5.96%	5.57%	6.37%		5.69%

2007				0.88%	5.48%	5.19%	6.68%		5.41%
2008				0.81%	4.64%	3.46%	5.69%		4.30%
2009				0.98%	4.17%	4.76%	7.59%		4.49%
2010				0.57%	2.84%	3.07%	3.17%		2.90%
2011				0.76%	3.18%	2.77%	4.83%		3.26%
2012				0.78%	2.55%	2.55%	3.40%		2.61%
2013				0.00%	2.29%	1.94%	3.90%	5.49%	2.48%
2014					1.83%	1.95%	3.01%	4.49%	2.08%
2015				0.00%	1.54%	1.69%	2.84%	5.53%	1.85%
2016				0.00%	1.33%	1.55%	2.39%	3.73%	1.60%
2017				0.00%	1.25%	1.34%	1.88%	3.99%	1.45%
2018				0.00%	0.87%	0.98%	0.99%	2.00%	0.95%
2019				0.00%	0.81%	0.77%	1.05%	3.72%	0.95%
2020				9.09%	0.61%	0.90%	0.52%	2.00%	0.73%
Total	**14.58%**	**17.85%**	**26.26%**	**5.66%**	**2.93%**	**3.32%**	**3.87%**	**3.60%**	**3.61%**

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Chart 3A

The percentage of vehicles that failed initially, by model year

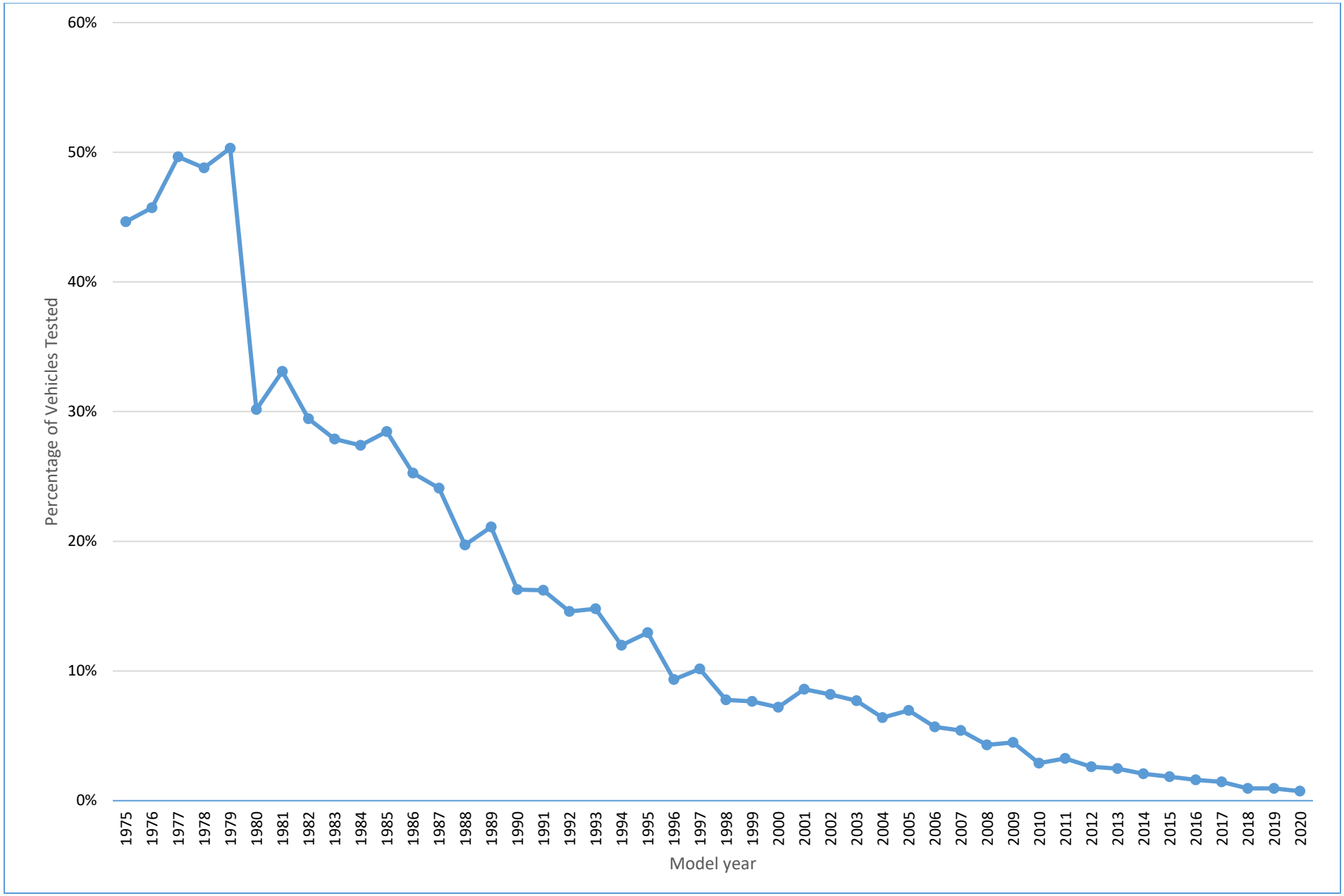

Table 4A

By model year, vehicle type, and test type, the number of vehicles that failed the first retest

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	3		9						12
1976	4	6	9	1					20
1977	4	5	17	1					27
1978	12	10	25	2					49
1979	9	12	7	4					32
1980	6	6	1	3					16
1981	5	11	4	2					22
1982	6	11	3	3					23
1983	9	12	2	3					26
1984	4	30	5	4					43
1985	10	23	4	10					47
1986	9	29	8	7					53
1987	8	30	5	4					47
1988	7	18	8	8					41
1989	7	28	15	8					58
1990	22	26	9	9					66
1991	14	26	9	5					54
1992	25	29	11	9					74
1993	17	31	21	6					75
1994	17	38	37	6					98
1995	21	32	35	13					101
1996	4			12	14	19	7		56
1997	1	1	1	12	19	26	10		70
1998	2	1		12	24	27	16		82
1999	1			9	26	25	6		67
2000				5	57	37	10		109
2001				12	33	28	8		81
2002				6	41	37	14		98
2003				5	40	21	10		76
2004				4	45	34	25		108
2005				6	51	41	14		112
2006				4	64	34	15		117

2007					50	21	26		97
2008				1	49	17	19		86
2009					31	10	8		49
2010				1	27	11	6		45
2011				1	27	14	12		54
2012				1	23	6	10		40
2013					27	8	7		42
2014					31	12	10		53
2015					22	5	9	2	38
2016					22	10	8	4	44
2017					14	8	4	3	29
2018					10	14	7	1	32
2019					6	2	1	4	13
2020					7	17	2	7	33
Total	**227**	**415**	**245**	**199**	**760**	**484**	**264**	**21**	**2,615**

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Chart 4A

The number of vehicles that failed the first retest, by model year

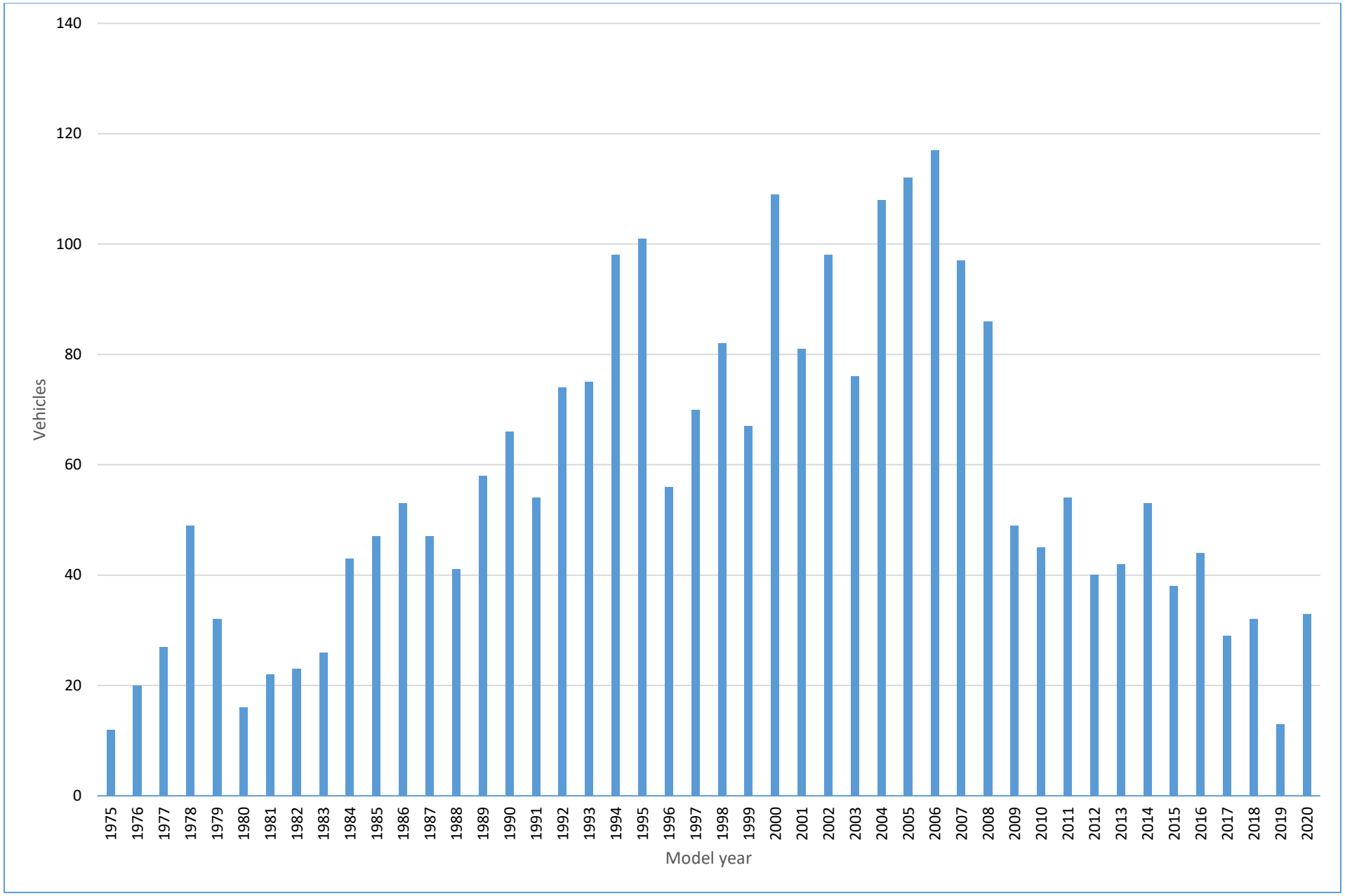

Table 5A

By model year, vehicle type, and test type, the percentage of initially failed vehicles that failed the first retest

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
1975	27.27%	0.00%	90.00%						48.00%
1976	19.05%	35.29%	36.00%	100.00%					31.25%
1977	19.05%	25.00%	73.91%	16.67%					38.57%
1978	35.29%	32.26%	50.00%	33.33%					40.50%
1979	33.33%	38.71%	46.67%	57.14%					40.00%
1980	54.55%	37.50%	33.33%	60.00%					45.71%
1981	35.71%	50.00%	66.67%	33.33%					45.83%
1982	40.00%	42.31%	42.86%	60.00%					43.40%
1983	50.00%	52.17%	28.57%	60.00%					49.06%
1984	22.22%	56.60%	33.33%	36.36%					44.33%
1985	33.33%	40.35%	57.14%	47.62%					40.87%
1986	27.27%	38.16%	50.00%	36.84%					36.81%
1987	26.67%	41.10%	55.56%	28.57%					37.30%
1988	17.07%	34.62%	30.77%	40.00%					29.50%
1989	18.92%	34.57%	42.86%	24.24%					31.18%
1990	39.29%	30.59%	25.71%	34.62%					32.67%
1991	21.54%	33.77%	30.00%	35.71%					29.03%
1992	33.78%	32.58%	28.21%	34.62%					32.46%
1993	24.64%	35.23%	43.75%	25.00%					32.75%
1994	27.42%	31.15%	39.78%	20.69%					32.03%
1995	21.00%	31.68%	37.23%	40.63%					30.89%
1996	66.67%	0.00%		37.50%	14.58%	14.73%	20.00%		18.73%
1997	20.00%	33.33%	100.00%	32.43%	14.96%	16.77%	18.87%		18.37%
1998	40.00%	100.00%		32.43%	13.19%	16.56%	31.37%		18.68%
1999	25.00%			20.45%	14.69%	17.61%	6.98%		14.79%
2000				14.71%	19.19%	19.47%	10.10%		17.58%
2001				37.50%	10.54%	15.22%	8.42%		12.98%
2002				27.27%	10.15%	12.13%	9.21%		11.10%
2003				25.00%	10.61%	8.05%	6.71%		9.42%
2004			0.00%	25.00%	9.38%	8.67%	11.16%		9.70%
2005				37.50%	8.84%	12.13%	8.24%		10.17%
2006				26.67%	9.83%	9.21%	6.94%		9.35%

2007				0.00%	8.46%	7.12%	13.90%		8.99%
2008				16.67%	8.57%	7.17%	11.38%		8.76%
2009				0.00%	8.01%	7.30%	10.00%		8.07%
2010				50.00%	7.40%	6.59%	8.00%		7.39%
2011				25.00%	7.76%	10.53%	8.70%		8.67%
2012				20.00%	4.84%	3.70%	8.06%		5.22%
2013					6.22%	7.02%	4.96%	0.00%	5.86%
2014					7.43%	7.64%	6.10%	0.00%	6.87%
2015					6.32%	3.88%	6.92%	3.77%	5.76%
2016					6.38%	6.13%	5.56%	8.16%	6.28%
2017					5.07%	6.56%	4.40%	6.00%	5.38%
2018					4.72%	10.45%	10.00%	3.70%	7.22%
2019					4.08%	3.08%	1.92%	8.51%	4.18%
2020				0.00%	6.31%	17.89%	6.90%	26.92%	12.60%
Total	**28.13%**	**36.12%**	**41.18%**	**31.00%**	**8.73%**	**10.22%**	**9.03%**	**6.71%**	**13.16%**

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Chart 5A

The percentage of initially failed vehicles that failed the first retest, by model year

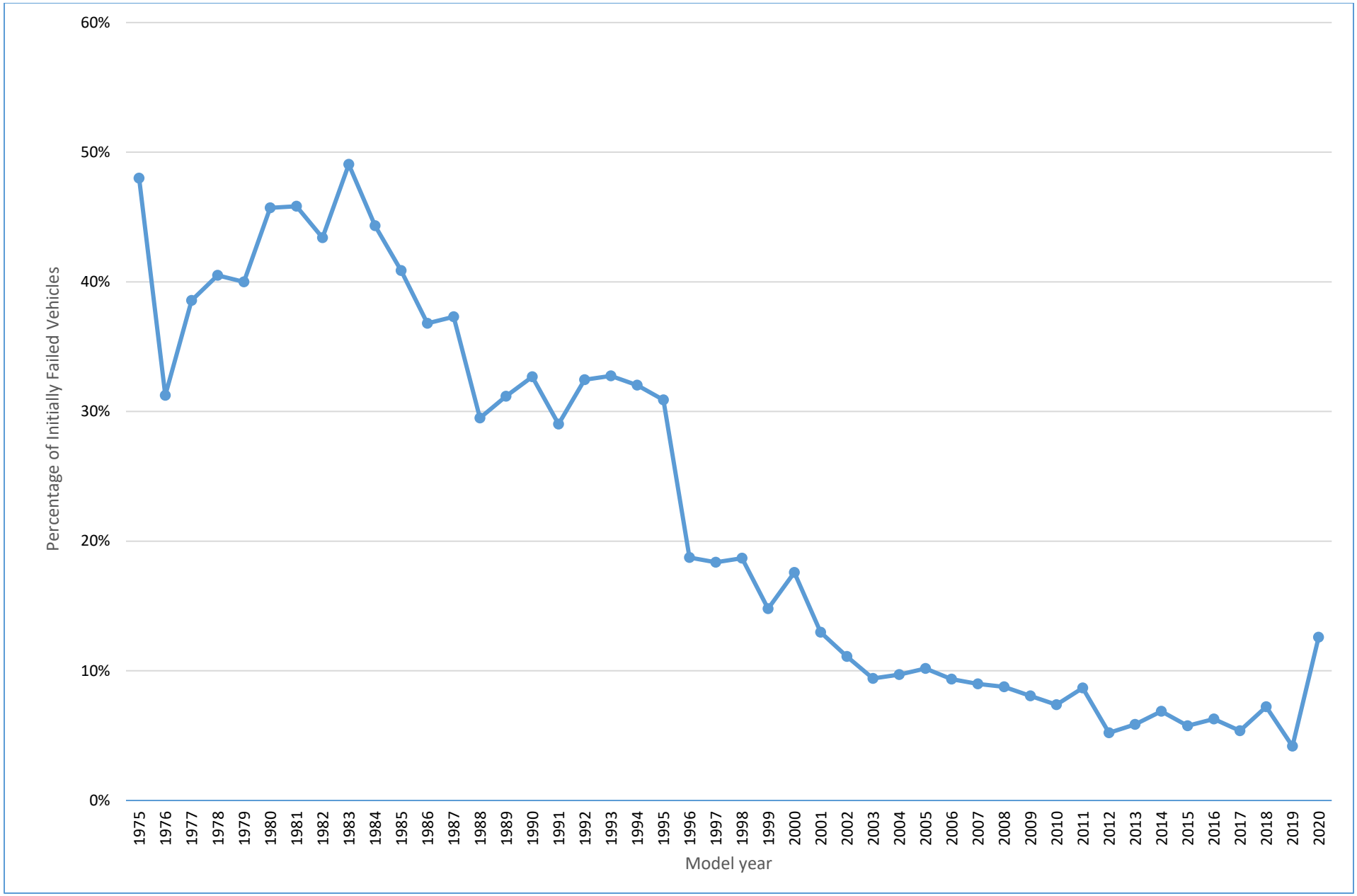

Table 6A

By model year, vehicle type, and test type, the number of vehicles that passed the first retest

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	5	1							6
1976	5	2	7	1					15
1977	9	4	5	2					20
1978	6	8	16	1					31
1979	8	9	3						20
1980	3	1		1					5
1981	5	5	1	1					12
1982	4	5	3						12
1983	6	6	2						14
1984	7	11	4	2					24
1985	10	16		7					33
1986	12	25	6	1					44
1987	12	22	3	8					45
1988	21	22	7	10					60
1989	12	27	14	9					62
1990	19	37	12	9					77
1991	31	29	9	5					74
1992	27	32	14	7					80
1993	25	30	15	6					76
1994	28	55	40	18					141
1995	42	43	36	15					136
1996	6	1		14	32	57	10		120
1997	3		1	15	36	56	13		124
1998	6		1	10	46	49	18		130
1999	2			18	51	55	33		159
2000				16	83	66	36		201
2001				15	85	52	30		182
2002				10	129	108	54		301
2003				10	113	89	39	1	252
2004				8	184	169	64		425
2005				5	208	105	62		380
2006				4	244	143	74		465

2007				5	208	109	39		361
2008				5	204	92	43		344
2009				1	158	56	24		239
2010				1	126	71	17		215
2011				3	119	51	46		219
2012				3	186	79	44		312
2013				2	178	41	54	7	282
2014					170	70	87	16	343
2015				1	153	47	52	20	273
2016					164	88	80	26	358
2017					108	61	41	20	230
2018					99	63	29	11	202
2019					61	33	26	21	141
2020				2	65	45	21	12	145
Total	**314**	**391**	**199**	**251**	**3,210**	**1,855**	**1,036**	**134**	**7,390**

Link back to main body of the report

Note that tables 6A and 6B are combined in table 6 in the main body of the report

Table 6B

By model year and vehicle type, the number of vehicles that passed the second or subsequent retest, per test type

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
1975			4						4
1976	5	4	5						14
1977	3	3	10						16
1978	10	5	18	1					34
1979	6	6	4	1					17
1980	1	7	1	1					10
1981	4	3	4	1					12
1982	2	7		1					10
1983	6	4	1	4					15
1984	4	20	2	4					30
1985	8	16	3	6					33
1986	7	26	4	8					45
1987	6	20	2	4					32

1988	4	14	2	4					24
1989	4	14	8	7					33
1990	16	17	6	3					42
1991	7	17	7	3					34
1992	17	17	8	4					46
1993	11	14	11	5					41
1994	11	22	28	6					67
1995	17	25	25	5					72
1996	2			6	19	13	6		46
1997	2	1	1	8	18	21	9		60
1998	2	1		7	33	28	11		82
1999				7	39	22	13		81
2000				3	53	40	16		112
2001				8	69	41	17		135
2002				5	86	67	29		187
2003				6	80	45	38		169
2004				4	77	82	56		219
2005				4	123	75	37		239
2006				4	111	87	55		257
2007					115	61	45		221
2008				1	116	42	45		204
2009					68	25	20		113
2010				1	68	32	18		119
2011				1	71	24	28		124
2012					94	39	36		169
2013					81	20	35	5	141
2014					91	32	25	7	155
2015					61	32	30	12	135
2016					64	32	26	8	130
2017				1	77	12	22	11	123
2018					53	27	21	7	108
2019					28	15	15	10	68
2020				1	20	31	6	9	67
Total	**155**	**263**	**154**	**135**	**1,715**	**945**	**659**	**69**	**4,095**

[Link to the main body of the report]

Chart 6A

The number of vehicles that passed the first retest, by model year

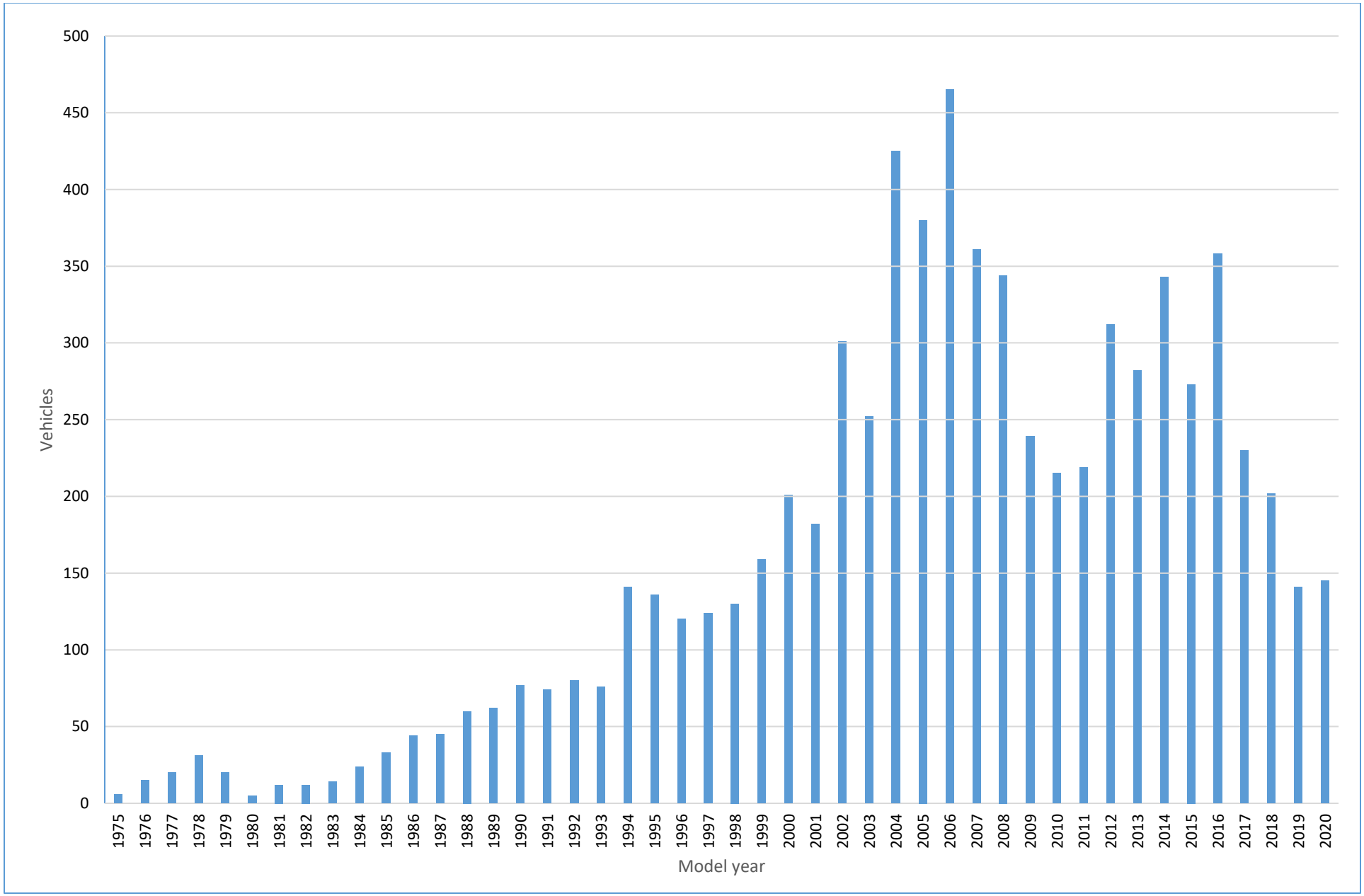

Chart 6B

The number of initially failed vehicles that passed the second or subsequent retest, by model year

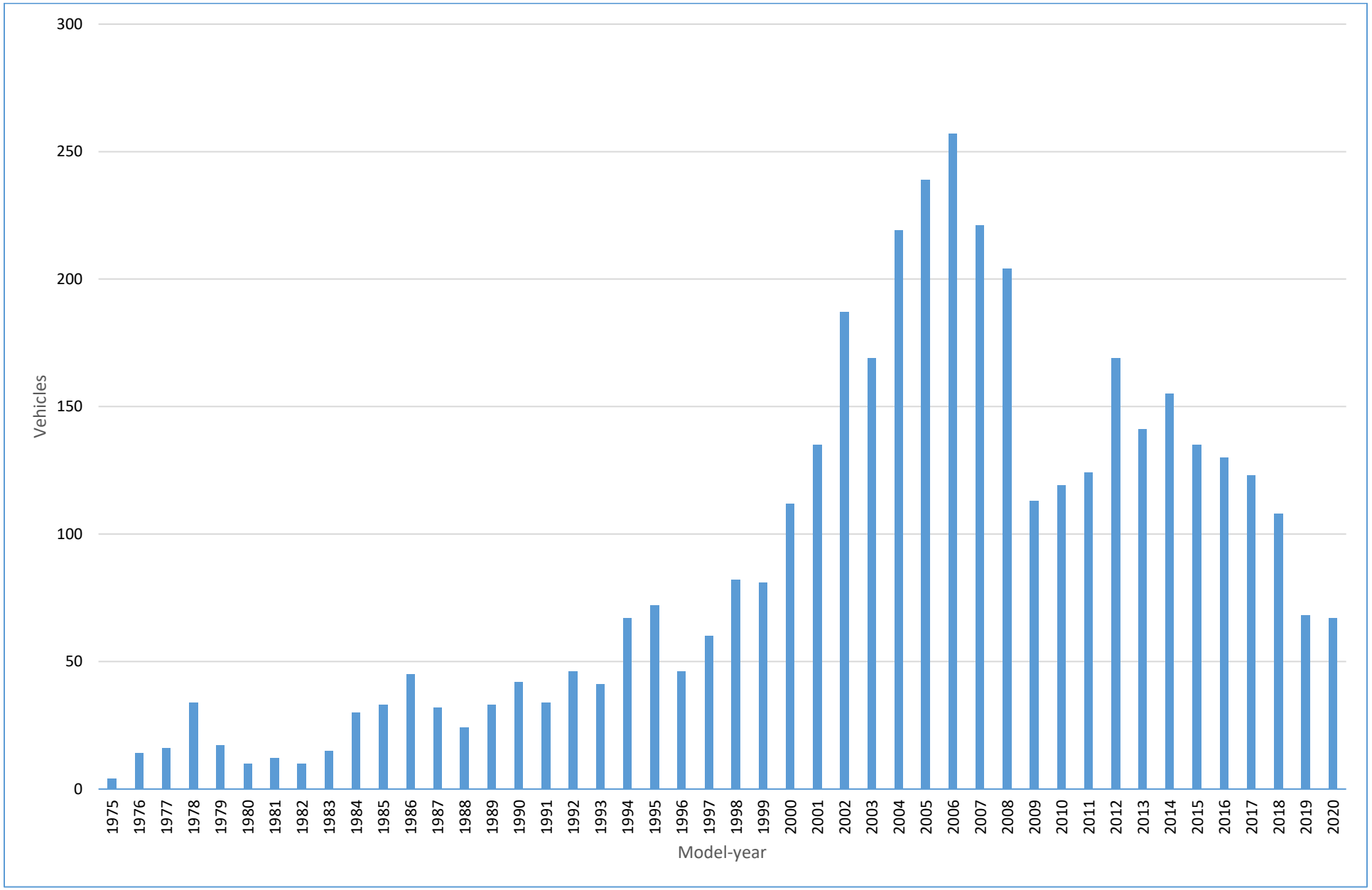

Table 7A

By model year, vehicle type, and test type, the percentage of vehicles that passed the first retest

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
1975	45.45%	25.00%	0.00%						24.00%
1976	23.81%	11.76%	28.00%	100.00%					23.44%
1977	42.86%	20.00%	21.74%	33.33%					28.57%
1978	17.65%	25.81%	32.00%	16.67%					25.62%
1979	29.63%	29.03%	20.00%	0.00%					25.00%
1980	27.27%	6.25%	0.00%	20.00%					14.29%
1981	35.71%	22.73%	16.67%	16.67%					25.00%
1982	26.67%	19.23%	42.86%	0.00%					22.64%
1983	33.33%	26.09%	28.57%	0.00%					26.42%
1984	38.89%	20.75%	26.67%	18.18%					24.74%
1985	33.33%	28.07%	0.00%	33.33%					28.70%
1986	36.36%	32.89%	37.50%	5.26%					30.56%
1987	40.00%	30.14%	33.33%	57.14%					35.71%
1988	51.22%	42.31%	26.92%	50.00%					43.17%
1989	32.43%	33.33%	40.00%	27.27%					33.33%
1990	33.93%	43.53%	34.29%	34.62%					38.12%
1991	47.69%	37.66%	30.00%	35.71%					39.78%
1992	36.49%	35.96%	35.90%	26.92%					35.09%
1993	36.23%	34.09%	31.25%	25.00%					33.19%
1994	45.16%	45.08%	43.01%	62.07%					46.08%
1995	42.00%	42.57%	38.30%	46.88%					41.59%
1996	100.00%	100.00%		43.75%	33.33%	44.19%	28.57%		40.13%
1997	60.00%	0.00%	100.00%	40.54%	28.35%	36.13%	24.53%		32.55%
1998	120.00%	0.00%		27.03%	25.27%	30.06%	35.29%		29.61%
1999	50.00%			40.91%	28.81%	38.73%	38.37%		35.10%
2000				47.06%	27.95%	34.74%	36.36%		32.42%
2001				46.88%	27.16%	28.26%	31.58%		29.17%
2002				45.45%	31.93%	35.41%	35.53%		34.09%
2003				50.00%	29.97%	34.10%	26.17%		31.23%
2004			0.00%	50.00%	38.33%	43.11%	28.57%		38.19%
2005				31.25%	36.05%	31.07%	36.47%		34.51%
2006				26.67%	37.48%	38.75%	34.26%		37.17%

2007				83.33%	35.19%	36.95%	20.86%		33.46%
2008				83.33%	35.66%	38.82%	25.75%		35.03%
2009				33.33%	40.83%	40.88%	30.00%		39.37%
2010				50.00%	34.52%	42.51%	22.67%		35.30%
2011				75.00%	34.20%	38.35%	33.33%		35.15%
2012				60.00%	39.16%	48.77%	35.48%		40.73%
2013					41.01%	35.96%	38.30%	25.00%	39.33%
2014					40.77%	44.59%	53.05%	48.48%	44.49%
2015					43.97%	36.43%	40.00%	37.74%	41.36%
2016					47.54%	53.99%	55.56%	53.06%	51.07%
2017					39.13%	50.00%	45.05%	40.00%	42.67%
2018					46.70%	47.01%	41.43%	40.74%	45.60%
2019					41.50%	50.77%	50.00%	44.68%	45.34%
2020				200.00%	58.56%	47.37%	72.41%	46.15%	55.34%
Total	**38.91%**	**34.03%**	**33.45%**	**39.10%**	**36.86%**	**39.15%**	**35.46%**	**42.81%**	**37.18%**

Link to the main body of the report

Note in Table 7 that some of the percentages are above 100%. This is a result of some vehicles being initially issued an OBD test, but on the next test were allowed to go through an idle test, which was passed. Note that Tables 7A and 7B are combined in the main body of the report.

Table 7B

By model year, vehicle type, and test type, the percentage of vehicles that passed the second or subsequent retest

	Idle				OBD				
Year	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Passenger**	**Light-Duty**	**Medium-Duty**	**Heavy-Duty**	**Total**
1975	0.00%	0.00%	40.00%						16.00%
1976	23.81%	23.53%	20.00%	0.00%					21.88%
1977	14.29%	15.00%	43.48%	0.00%					22.86%
1978	29.41%	16.13%	36.00%	16.67%					28.10%
1979	22.22%	19.35%	26.67%	14.29%					21.25%
1980	9.09%	43.75%	33.33%	20.00%					28.57%
1981	28.57%	13.64%	66.67%	16.67%					25.00%
1982	13.33%	26.92%	0.00%	20.00%					18.87%
1983	33.33%	17.39%	14.29%	80.00%					28.30%
1984	22.22%	37.74%	13.33%	36.36%					30.93%
1985	26.67%	28.07%	42.86%	28.57%					28.70%
1986	21.21%	34.21%	25.00%	42.11%					31.25%

1987	20.00%	27.40%	22.22%	28.57%					25.40%
1988	9.76%	26.92%	7.69%	20.00%					17.27%
1989	10.81%	17.28%	22.86%	21.21%					17.74%
1990	28.57%	20.00%	17.14%	11.54%					20.79%
1991	10.77%	22.08%	23.33%	21.43%					18.28%
1992	22.97%	19.10%	20.51%	15.38%					20.18%
1993	15.94%	15.91%	22.92%	20.83%					17.90%
1994	17.74%	18.03%	30.11%	20.69%					21.90%
1995	17.00%	24.75%	26.60%	15.63%					22.02%
1996	33.33%	0.00%		18.75%	19.79%	10.08%	17.14%		15.38%
1997	40.00%	33.33%	100.00%	21.62%	14.17%	13.55%	16.98%		15.75%
1998	40.00%	100.00%		18.92%	18.13%	17.18%	21.57%		18.68%
1999	0.00%			15.91%	22.03%	15.49%	15.12%		17.88%
2000				8.82%	17.85%	21.05%	16.16%		18.06%
2001				25.00%	22.04%	22.28%	17.89%		21.63%
2002				22.73%	21.29%	21.97%	19.08%		21.18%
2003				30.00%	21.22%	17.24%	25.50%		20.94%
2004			0.00%	25.00%	16.04%	20.92%	25.00%		19.68%
2005				25.00%	21.32%	22.19%	21.76%		21.71%
2006				26.67%	17.05%	23.58%	25.46%		20.54%
2007				0.00%	19.46%	20.68%	24.06%		20.48%
2008				16.67%	20.28%	17.72%	26.95%		20.77%
2009				0.00%	17.57%	18.25%	25.00%		18.62%
2010				50.00%	18.63%	19.16%	24.00%		19.54%
2011				25.00%	20.40%	18.05%	20.29%		19.90%
2012				0.00%	19.79%	24.07%	29.03%		22.06%
2013					18.66%	17.54%	24.82%	17.86%	19.67%
2014					21.82%	20.38%	15.24%	21.21%	20.10%
2015					17.53%	24.81%	23.08%	22.64%	20.45%
2016					18.55%	19.63%	18.06%	16.33%	18.54%
2017					27.90%	9.84%	24.18%	22.00%	22.82%
2018					25.00%	20.15%	30.00%	25.93%	24.38%
2019					19.05%	23.08%	28.85%	21.28%	21.86%
2020				100.00%	18.02%	32.63%	20.69%	34.62%	25.57%
Total	**19.21%**	**22.89%**	**25.88%**	**21.03%**	**19.69%**	**19.95%**	**22.55%**	**22.04%**	**20.60%**

Link to the main body of the report

Chart 7A

The percentage of vehicles that passed the first retest, by model year

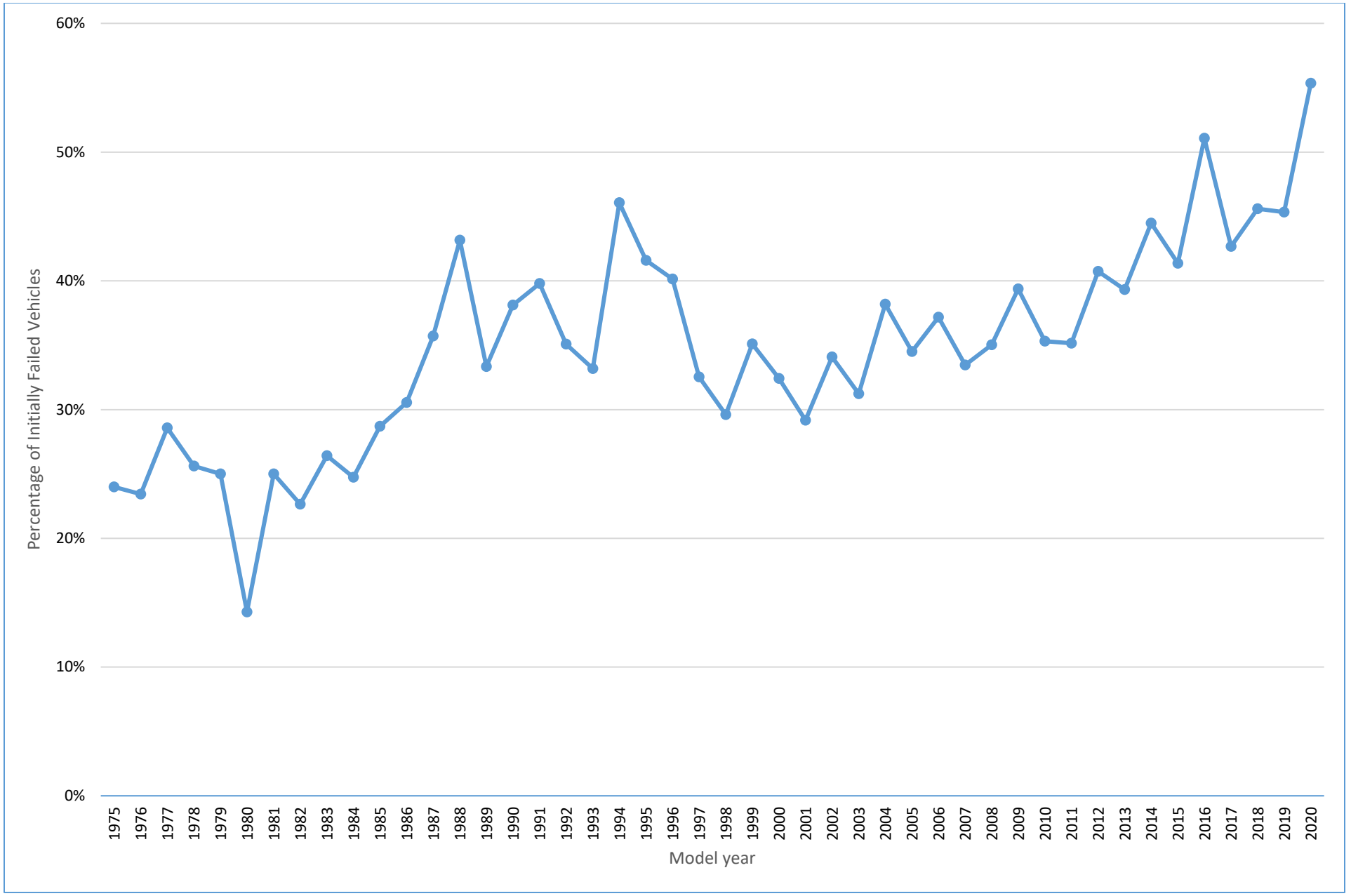

Chart 7B

The percentage of initially failed vehicles that passed the second or subsequent retest, by model year

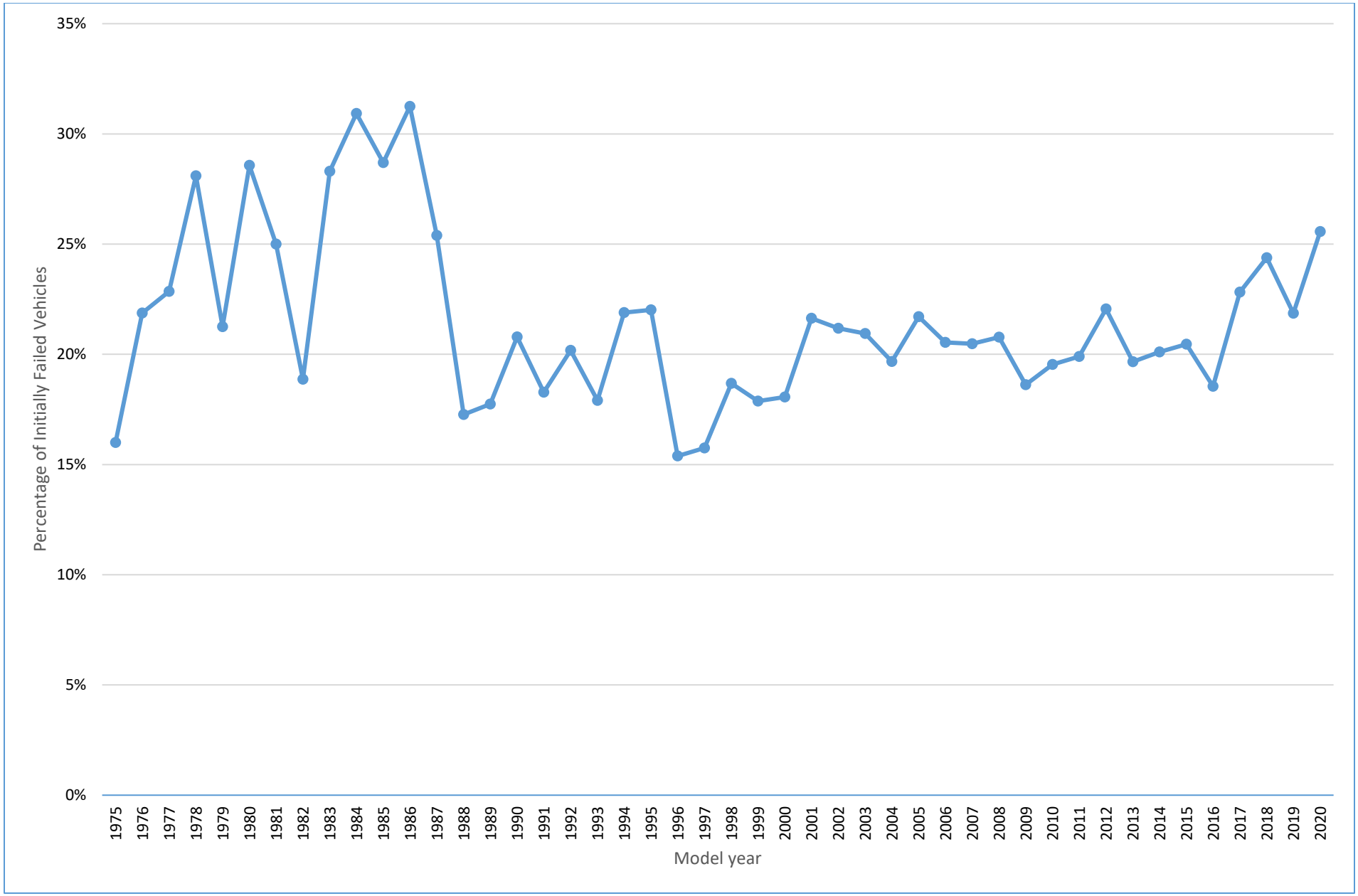

Table 8A

By model year, vehicle type, and test type, the number of initially failed vehicles with no known final outcome (regardless of reason)

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	6	3	6						15
1976	11	11	13	0					35
1977	9	13	8	4					34
1978	18	18	16	4					56
1979	13	16	8	6					43
1980	7	8	2	3					20
1981	5	14	1	4					24
1982	9	14	4	4					31
1983	6	13	4	1					24
1984	7	22	9	5					43
1985	12	25	4	8					49
1986	14	25	6	10					55
1987	12	31	4	2					49
1988	16	16	17	6					55
1989	21	40	13	17					91
1990	21	31	17	14					83
1991	27	31	14	6					78
1992	30	40	17	15					102
1993	33	44	22	13					112
1994	23	45	25	5					98
1995	41	33	33	12					119
1996	0	0		12	45	59	19		133
1997	0	2	0	14	73	78	31		197
1998	0	0		20	103	86	22		227
1999	2			19	87	65	40		213
2000				15	161	84	47		307
2001				9	159	91	48		307
2002				7	189	130	69		395
2003				4	184	127	72		386
2004			1	4	219	141	104		469
2005				7	246	158	71		482
2006				7	296	139	87		529

2007				1	268	125	103		497
2008				0	252	103	79		434
2009				2	161	56	36		255
2010				0	171	64	40		275
2011				0	158	58	64		280
2012				2	195	44	44		285
2013					175	53	52	16	294
2014					156	55	52	10	273
2015					134	50	48	21	252
2016					117	43	38	15	213
2017					78	49	28	19	186
2018					60	44	20	9	133
2019					58	17	11	16	102
2020				0	26	19	2	5	50
Total	**343**	**495**	**244**	**262**	**3,771**	**1,938**	**1,227**	**110**	**8,390**

Link to the main body of the report

Chart 8A

The number of initially failed vehicles with no known final outcome, by model year

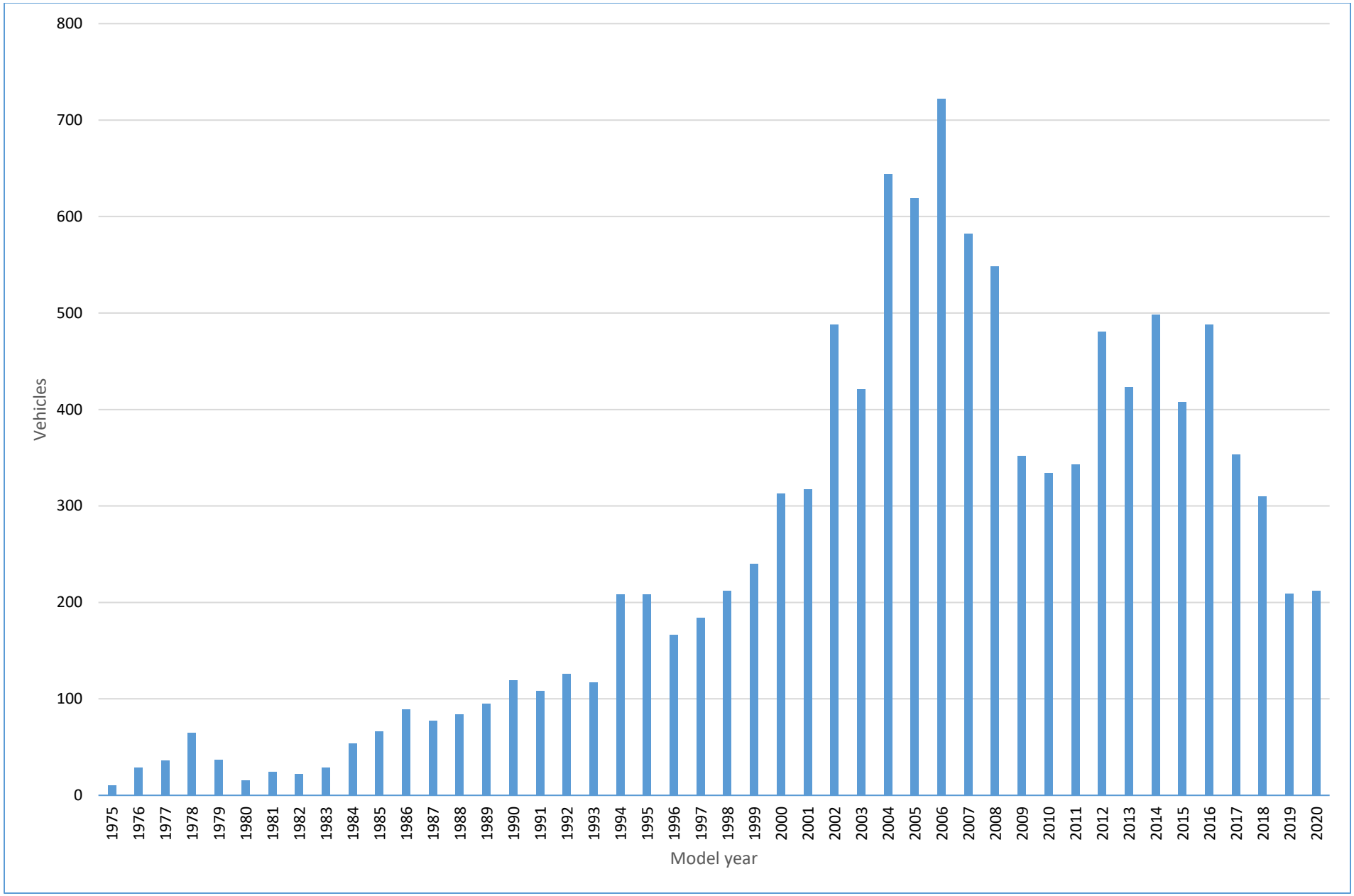

Table 9A

By model year, vehicle type, and test type, the percentage of initially failed vehicles with no known final outcome (regardless of reason)

	Idle				OBD				
Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1975	54.55%	75.00%	60.00%						60.00%
1976	52.38%	64.71%	52.00%	0.00%					54.69%
1977	42.86%	65.00%	34.78%	66.67%					48.57%
1978	52.94%	58.06%	32.00%	66.67%					46.28%
1979	48.15%	51.61%	53.33%	85.71%					53.75%
1980	63.64%	50.00%	66.67%	60.00%					57.14%
1981	35.71%	63.64%	16.67%	66.67%					50.00%
1982	60.00%	53.85%	57.14%	80.00%					58.49%
1983	33.33%	56.52%	57.14%	20.00%					45.28%
1984	38.89%	41.51%	60.00%	45.45%					44.33%
1985	40.00%	43.86%	57.14%	38.10%					42.61%
1986	42.42%	32.89%	37.50%	52.63%					38.19%
1987	40.00%	42.47%	44.44%	14.29%					38.89%
1988	39.02%	30.77%	65.38%	30.00%					39.57%
1989	56.76%	49.38%	37.14%	51.52%					48.92%
1990	37.50%	36.47%	48.57%	53.85%					41.09%
1991	41.54%	40.26%	46.67%	42.86%					41.94%
1992	40.54%	44.94%	43.59%	57.69%					44.74%
1993	47.83%	50.00%	45.83%	54.17%					48.91%
1994	37.10%	36.89%	26.88%	17.24%					32.03%
1995	41.00%	32.67%	35.11%	37.50%					36.39%
1996	0.00%	0.00%		37.50%	46.88%	45.74%	54.29%		44.48%
1997	0.00%	66.67%	0.00%	37.84%	57.48%	50.32%	58.49%		51.71%
1998	0.00%	0.00%		54.05%	56.59%	52.76%	43.14%		51.71%
1999	50.00%			43.18%	49.15%	45.77%	46.51%		47.02%
2000				44.12%	54.21%	44.21%	47.47%		49.52%
2001				28.13%	50.80%	49.46%	50.53%		49.20%
2002				31.82%	46.78%	42.62%	45.39%		44.73%
2003				20.00%	48.81%	48.66%	48.32%		47.83%
2004			100.00%	25.00%	45.63%	35.97%	46.43%		42.14%
2005				43.75%	42.63%	46.75%	41.76%		43.78%
2006				46.67%	45.47%	37.67%	40.28%		42.29%

2007				16.67%	45.35%	42.37%	55.08%		46.06%
2008				0.00%	44.06%	43.46%	47.31%		44.20%
2009				66.67%	41.60%	40.88%	45.00%		42.01%
2010				0.00%	46.85%	38.32%	53.33%		45.16%
2011				0.00%	45.40%	43.61%	46.38%		44.94%
2012				40.00%	41.05%	27.16%	35.48%		37.21%
2013					40.32%	46.49%	36.88%	57.14%	41.00%
2014					37.41%	35.03%	31.71%	30.30%	35.41%
2015					38.51%	38.76%	36.92%	39.62%	38.18%
2016					33.91%	26.38%	26.39%	30.61%	30.39%
2017					32.97%	40.16%	30.77%	38.00%	34.51%
2018					28.30%	32.84%	28.57%	33.33%	30.02%
2019					39.46%	26.15%	21.15%	34.04%	32.80%
2020				0.00%	23.42%	20.00%	6.90%	19.23%	19.08%
Total	**41.88%**	**43.08%**	**40.67%**	**39.88%**	**43.45%**	**40.90%**	**41.99%**	**35.14%**	**42.21%**

Link to the main body of the report

Chart 9A

The percentage of initially failed vehicles with no known final outcome, by model year

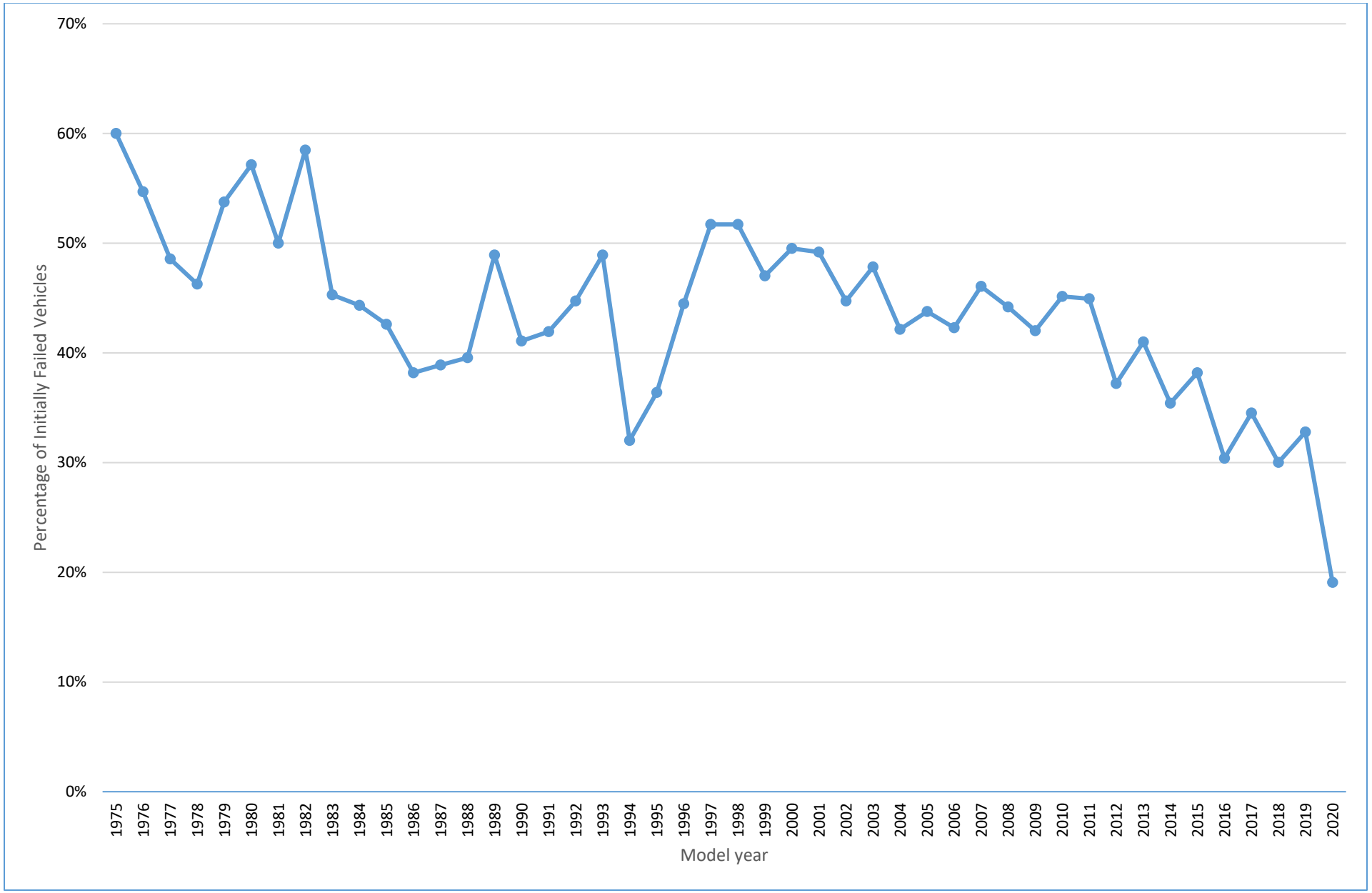

Table 12A

By model year and vehicle type, the number of vehicles that passed the on-board diagnostic check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	992	1,136	368		2,496
1997	1,159	1,372	439		2,970
1998	2,024	2,225	569		4,818
1999	2,109	1,973	881		4,963
2000	3,220	2,764	1,383		7,367
2001	2,991	1,990	1,160		6,141
2002	4,210	3,288	1,789		9,287
2003	4,515	2,975	1,592		9,082
2004	6,609	5,785	2,961		15,355
2005	7,678	4,254	2,116		14,048
2006	10,275	6,256	3,175		19,706
2007	10,197	5,387	2,613		18,197
2008	11,737	6,601	2,765		21,103
2009	8,888	2,738	974		12,600
2010	12,487	5,258	2,291		20,036
2011	10,600	4,657	2,719		17,976
2012	18,166	6,184	3,521		27,871
2013	18,455	5,758	3,462	482	28,157
2014	22,311	7,889	5,271	702	36,173
2015	22,169	7,487	4,427	905	34,988
2016	25,588	10,273	5,910	1,261	43,032
2017	21,684	8,914	4,764	1,201	36,563
2018	24,156	13,426	6,922	1,325	45,829
2019	17,894	8,236	4,864	1,212	32,206
2020	18,075	10,465	5,466	1,270	35,276
Total	**288,189**	**137,291**	**72,402**	**8,358**	**506,240**

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Chart 12A

The number of vehicles that passed the on-board diagnostic check, by model year

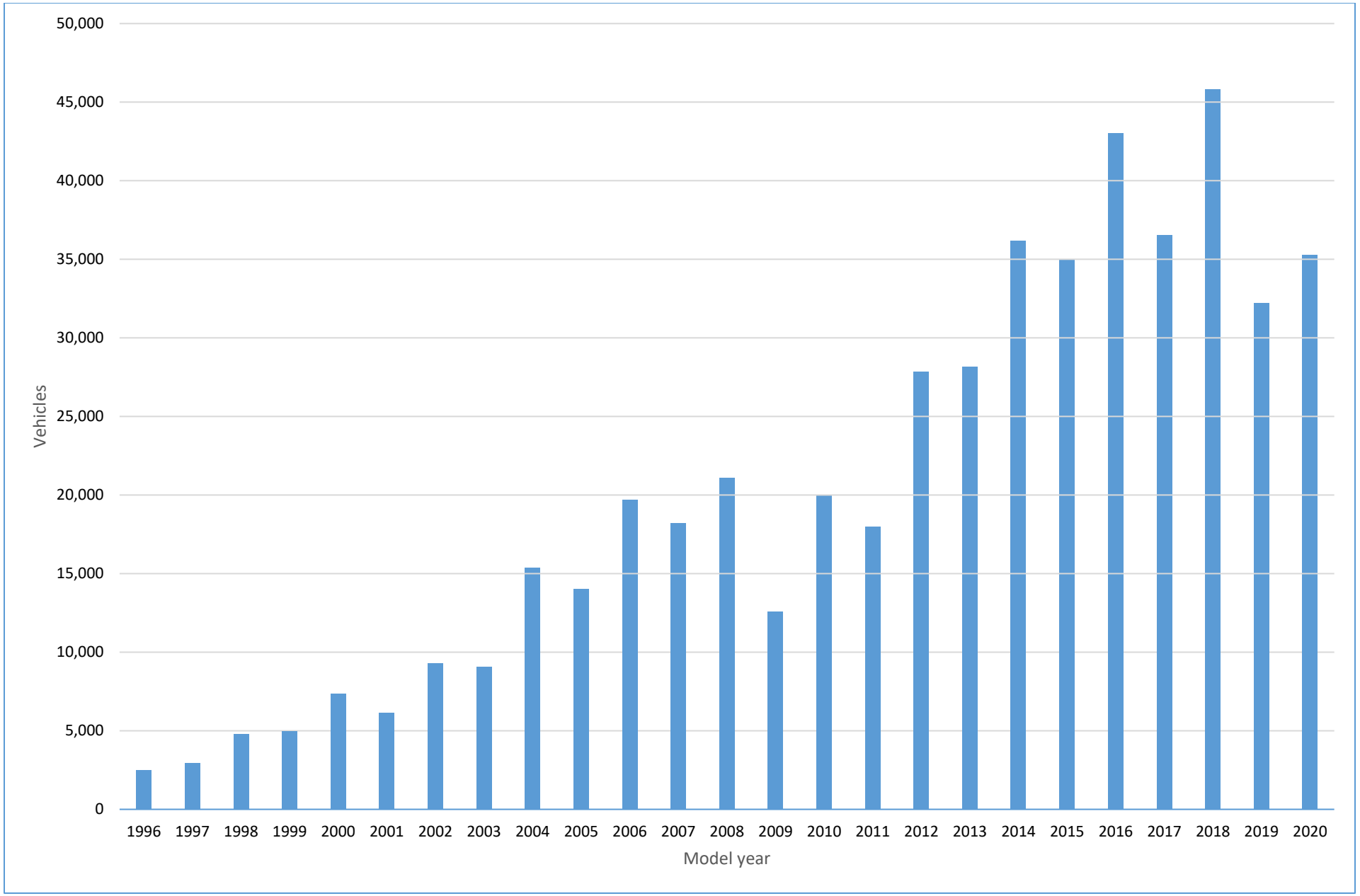

Table 13A

By model year and vehicle type, the percentage of vehicles that passed the on-board diagnostic check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	91.18%	89.80%	91.32%		90.57%
1997	90.12%	89.85%	89.23%		89.86%
1998	91.75%	93.17%	91.77%		92.41%
1999	92.26%	93.29%	91.11%		92.46%
2000	91.56%	93.57%	93.32%		92.63%
2001	90.53%	91.54%	92.43%		91.21%
2002	91.24%	91.51%	92.17%		91.52%
2003	92.29%	91.93%	91.44%		92.03%
2004	93.23%	93.65%	92.97%		93.34%
2005	93.01%	92.64%	92.56%		92.83%
2006	94.04%	94.43%	93.63%		94.10%
2007	94.52%	94.81%	93.32%		94.43%
2008	95.35%	96.53%	94.30%		95.58%
2009	95.83%	95.23%	92.41%		95.43%
2010	97.16%	96.92%	96.83%		97.06%
2011	96.82%	97.22%	95.17%		96.67%
2012	97.45%	97.45%	96.60%		97.34%
2013	97.70%	98.06%	96.09%	94.51%	97.52%
2014	98.17%	98.05%	96.98%	95.51%	97.91%
2015	98.45%	98.31%	97.15%	94.47%	98.15%
2016	98.67%	98.44%	97.62%	96.26%	98.40%
2017	98.74%	98.65%	98.13%	96.00%	98.55%
2018	99.13%	99.01%	99.00%	98.00%	99.04%
2019	99.19%	99.22%	98.94%	96.27%	99.04%
2020	99.39%	99.10%	99.47%	97.99%	99.27%
Total	**97.07%**	**96.66%**	**96.12%**	**96.39%**	**96.81%**

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Chart 13A

The percentage of vehicles that passed the on-board diagnostic check, by model year

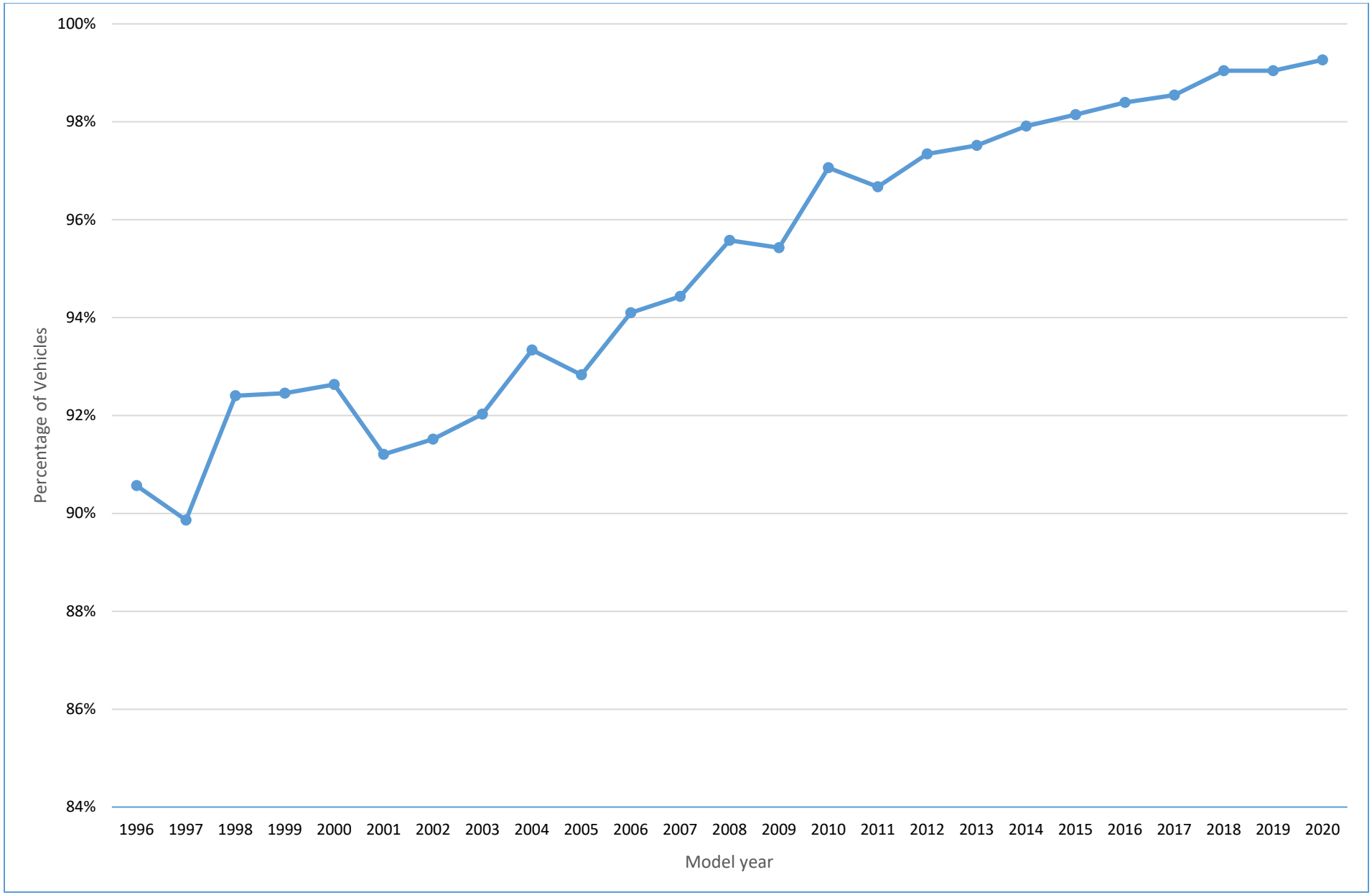

Table 14A

By model year and vehicle type, the number of vehicles that failed the on-board diagnostic check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	96	129	35		260
1997	127	155	53		335
1998	182	163	51		396
1999	177	142	86		405
2000	297	190	99		586
2001	313	184	95		592
2002	404	305	152		861
2003	377	261	149		787
2004	480	392	224		1,096
2005	577	338	170		1,085
2006	651	369	216		1,236
2007	591	295	187		1,073
2008	572	237	167		976
2009	387	137	80		604
2010	365	167	75		607
2011	348	133	138		619
2012	475	162	124		761
2013	434	114	141	28	717
2014	417	157	164	33	771
2015	348	129	130	53	660
2016	345	163	144	49	701
2017	276	122	91	50	539
2018	212	134	70	27	443
2019	147	65	52	47	311
2020	111	95	29	26	261
Total	**8,709**	**4,738**	**2,922**	**313**	**16,682**

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Chart 14A

The number of vehicles that failed the on-board diagnostic check, by model year

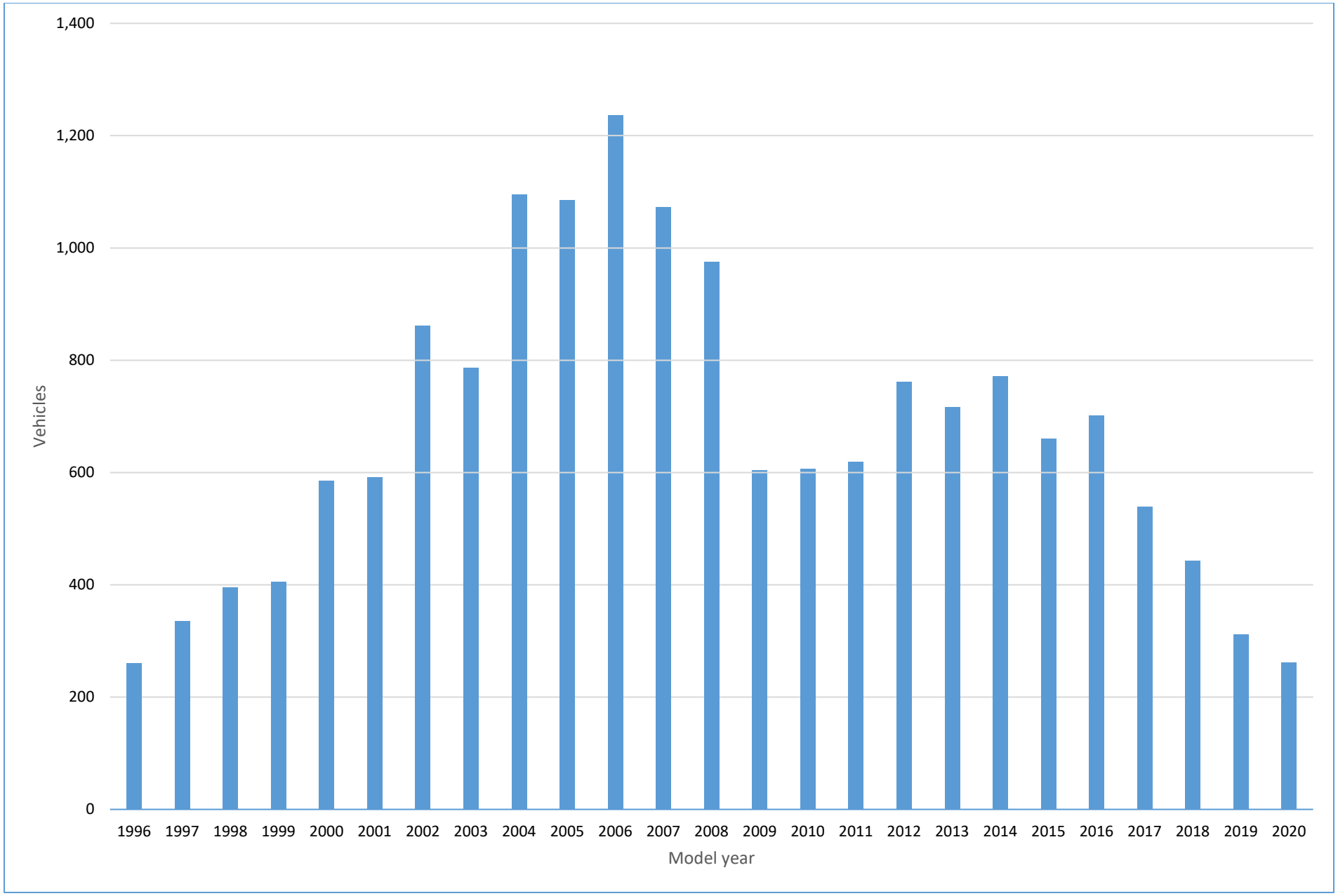

Table 15A

By model year and vehicle type, the percentage of vehicles that failed the on-board diagnostic check

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	8.82%	10.20%	8.68%		9.43%
1997	9.88%	10.15%	10.77%		10.14%
1998	8.25%	6.83%	8.23%		7.59%
1999	7.74%	6.71%	8.89%		7.54%
2000	8.44%	6.43%	6.68%		7.37%
2001	9.47%	8.46%	7.57%		8.79%
2002	8.76%	8.49%	7.83%		8.48%
2003	7.71%	8.07%	8.56%		7.97%
2004	6.77%	6.35%	7.03%		6.66%
2005	6.99%	7.36%	7.44%		7.17%
2006	5.96%	5.57%	6.37%		5.90%
2007	5.48%	5.19%	6.68%		5.57%
2008	4.65%	3.47%	5.70%		4.42%
2009	4.17%	4.77%	7.59%		4.57%
2010	2.84%	3.08%	3.17%		2.94%
2011	3.18%	2.78%	4.83%		3.33%
2012	2.55%	2.55%	3.40%		2.66%
2013	2.30%	1.94%	3.91%	5.49%	2.48%
2014	1.83%	1.95%	3.02%	4.49%	2.09%
2015	1.55%	1.69%	2.85%	5.53%	1.85%
2016	1.33%	1.56%	2.38%	3.74%	1.60%
2017	1.26%	1.35%	1.87%	4.00%	1.45%
2018	0.87%	0.99%	1.00%	2.00%	0.96%
2019	0.81%	0.78%	1.06%	3.73%	0.96%
2020	0.61%	0.90%	0.53%	2.01%	0.73%
Total	**2.93%**	**3.34%**	**3.88%**	**3.61%**	**3.19%**

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Chart 15A

The percentage of vehicles that failed the on-board diagnostic check, by model year

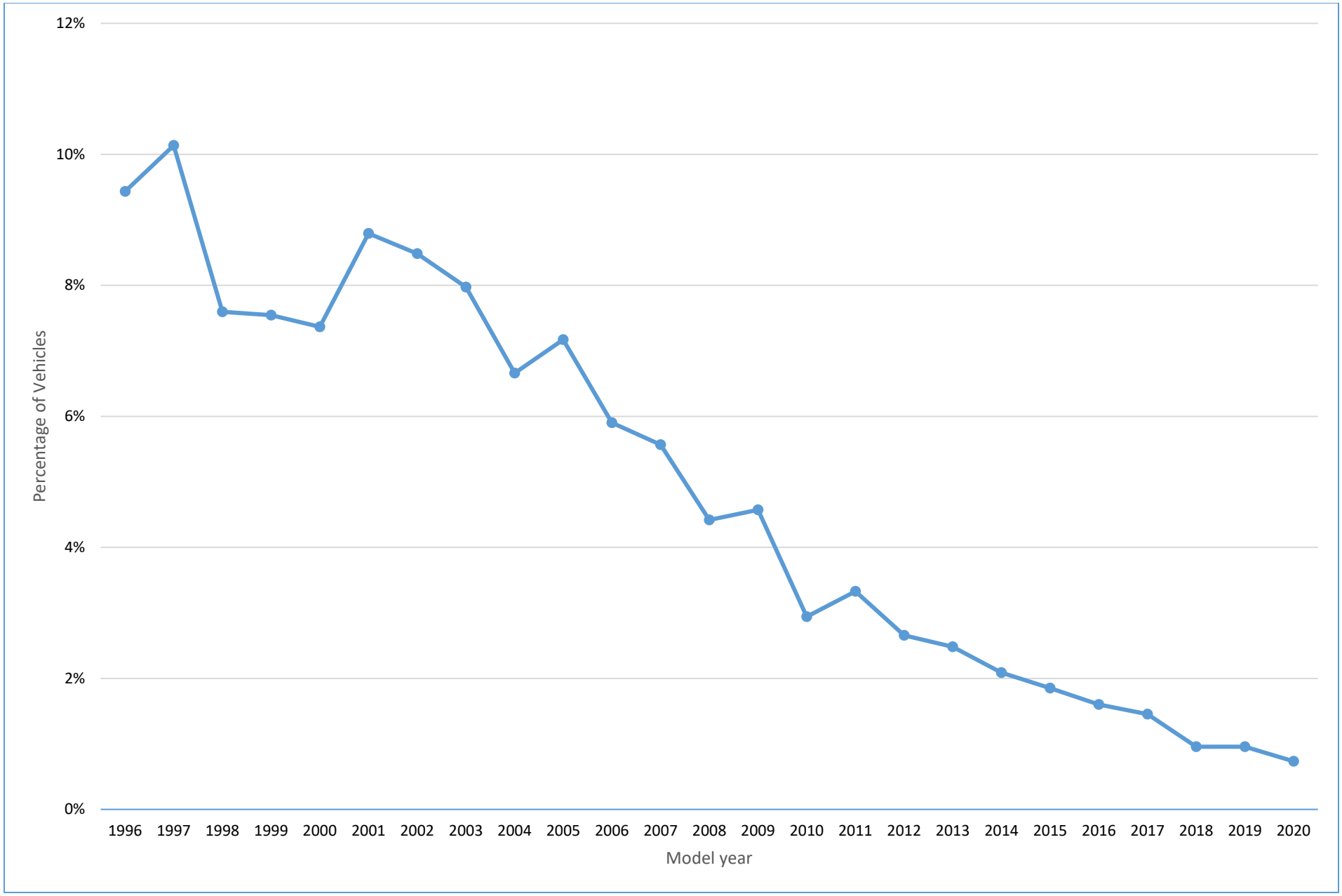

Table 16A

By model year and vehicle type, the number of vehicles with the MIL commanded on and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996					0
1997					0
1998	2				2
1999	1				1
2000	1	1			2
2001	1				1
2002		1			1
2003	1		2		3
2004		1	2		3
2005	2				2
2006	3				3
2007		2			2
2008	1				1
2009					0
2010	1				1
2011	1				1
2012	1				1
2013					0
2014					0
2015					0
2016					0
2017	1				1
2018					0
2019					0
2020	1				1
Total	**17**	**5**	**4**	**0**	**26**

Link to main body of the report

Table 17A

By model year and vehicle type, the percentage of vehicles with the MIL commanded on and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	0.00%	0.00%	0.00%	0.00%	0.00%
1997	0.00%	0.00%	0.00%	0.00%	0.00%
1998	0.09%	0.00%	0.00%	0.00%	0.04%
1999	0.04%	0.00%	0.00%	0.00%	0.02%
2000	0.03%	0.03%	0.00%	0.00%	0.03%
2001	0.03%	0.00%	0.00%	0.00%	0.01%
2002	0.00%	0.03%	0.00%	0.00%	0.01%
2003	0.02%	0.00%	0.12%	0.00%	0.03%
2004	0.00%	0.02%	0.06%	0.00%	0.02%
2005	0.02%	0.00%	0.00%	0.00%	0.01%
2006	0.03%	0.00%	0.00%	0.00%	0.01%
2007	0.00%	0.04%	0.00%	0.00%	0.01%
2008	0.01%	0.00%	0.00%	0.00%	0.00%
2009	0.00%	0.00%	0.00%	0.00%	0.00%
2010	0.01%	0.00%	0.00%	0.00%	0.00%
2011	0.01%	0.00%	0.00%	0.00%	0.01%
2012	0.01%	0.00%	0.00%	0.00%	0.00%
2013	0.00%	0.00%	0.00%	0.00%	0.00%
2014	0.00%	0.00%	0.00%	0.00%	0.00%
2015	0.00%	0.00%	0.00%	0.00%	0.00%
2016	0.00%	0.00%	0.00%	0.00%	0.00%
2017	0.00%	0.00%	0.00%	0.00%	0.00%
2018	0.00%	0.00%	0.00%	0.00%	0.00%
2019	0.00%	0.00%	0.00%	0.00%	0.00%
2020	0.01%	0.00%	0.00%	0.00%	0.00%
Total	**0.006%**	**0.004%**	**0.005%**	**0.000%**	**0.005%**

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Table 18A

By model year and vehicle type, the number of vehicles with the MIL commanded off and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	45	72	45		162
1997	99	139	39		277
1998	186	195	56		437
1999	189	128	72		389
2000	321	265	103		689
2001	338	187	93		618
2002	475	429	135		1,039
2003	525	333	135		993
2004	737	674	232		1,643
2005	926	479	195		1,600
2006	1,239	662	300		2,201
2007	1,154	497	299		1,950
2008	1,262	487	280		2,029
2009	774	219	107		1,100
2010	1,045	337	151		1,533
2011	1,004	260	252		1,516
2012	1,564	290	280		2,134
2013	1,643	256	297	22	2,218
2014	1,715	354	362	36	2,467
2015	1,728	293	242	55	2,318
2016	1,849	333	282	75	2,539
2017	1,702	292	201	50	2,245
2018	1,638	312	218	61	2,229
2019	1,501	189	204	44	1,938
2020	1,468	148	251	50	1,917
Total	**25,127**	**7,830**	**4,831**	**393**	**38,181**

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Table 19A

By model year and vehicle type, the percentage of vehicles with the MIL commanded off and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	4.16%	5.70%	11.19%		5.89%
1997	7.70%	9.11%	7.94%		8.39%
1998	8.45%	8.17%	9.11%		8.40%
1999	8.27%	6.06%	7.45%		7.25%
2000	9.17%	8.98%	6.96%		8.69%
2001	10.24%	8.60%	7.42%		9.19%
2002	10.30%	11.94%	6.97%		10.24%
2003	10.74%	10.30%	7.78%		10.07%
2004	10.40%	10.92%	7.29%		9.99%
2005	11.22%	10.44%	8.55%		10.58%
2006	11.35%	9.99%	8.86%		10.52%
2007	10.71%	8.75%	10.69%		10.13%
2008	10.26%	7.12%	9.55%		9.19%
2009	8.35%	7.62%	10.17%		8.34%
2010	8.13%	6.21%	6.38%		7.43%
2011	9.17%	5.43%	8.82%		8.15%
2012	8.39%	4.57%	7.68%		7.45%
2013	8.70%	4.36%	8.24%	4.31%	7.68%
2014	7.55%	4.40%	6.66%	4.91%	6.68%
2015	7.67%	3.85%	5.31%	5.74%	6.50%
2016	7.13%	3.19%	4.66%	5.73%	5.81%
2017	7.75%	3.23%	4.14%	4.00%	6.05%
2018	6.72%	2.30%	3.12%	4.51%	4.82%
2019	8.32%	2.28%	4.15%	3.50%	5.96%
2020	8.07%	1.41%	4.57%	3.88%	5.40%
Total	**8.47%**	**5.52%**	**6.42%**	**4.54%**	**7.30%**

Link to main body of the report

Table 20A

By model year and vehicle type, the number of vehicles with the MIL commanded on and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	88	125	33		246
1997	122	152	48		322
1998	176	160	46		382
1999	170	136	85		391
2000	275	178	93		546
2001	297	176	92		565
2002	391	301	147		839
2003	361	252	138		751
2004	466	384	213		1,063
2005	544	318	161		1,023
2006	625	364	206		1,195
2007	564	282	181		1,027
2008	543	231	164		938
2009	369	135	76		580
2010	347	166	71		584
2011	325	126	133		584
2012	457	156	117		730
2013	398	112	137	23	670
2014	393	146	156	30	725
2015	328	129	123	47	627
2016	324	161	140	46	671
2017	252	117	86	46	501
2018	188	88	65	23	364
2019	132	59	51	28	270
2020	92	38	25	12	167
Total	**8,227**	**4,492**	**2,787**	**255**	**15,761**

Link to main body of the report

Table 21A

By model year and vehicle type, the percentage of vehicles with the MIL commanded on and codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	8.13%	9.89%	8.21%		8.95%
1997	9.49%	9.96%	9.78%		9.75%
1998	7.99%	6.70%	7.48%		7.34%
1999	7.44%	6.44%	8.79%		7.29%
2000	7.85%	6.03%	6.28%		6.88%
2001	9.00%	8.10%	7.34%		8.40%
2002	8.48%	8.38%	7.59%		8.27%
2003	7.39%	7.79%	7.95%		7.62%
2004	6.58%	6.22%	6.69%		6.47%
2005	6.59%	6.93%	7.06%		6.76%
2006	5.72%	5.50%	6.08%		5.71%
2007	5.23%	4.96%	6.47%		5.33%
2008	4.41%	3.38%	5.60%		4.25%
2009	3.98%	4.70%	7.22%		4.39%
2010	2.70%	3.06%	3.00%		2.83%
2011	2.97%	2.63%	4.66%		3.14%
2012	2.45%	2.46%	3.21%		2.55%
2013	2.11%	1.91%	3.80%	4.51%	2.32%
2014	1.73%	1.82%	2.87%	4.09%	1.96%
2015	1.46%	1.69%	2.70%	4.91%	1.76%
2016	1.25%	1.54%	2.31%	3.51%	1.53%
2017	1.15%	1.30%	1.77%	3.68%	1.35%
2018	0.77%	0.65%	0.93%	1.70%	0.79%
2019	0.73%	0.71%	1.04%	2.23%	0.83%
2020	0.51%	0.36%	0.46%	0.93%	0.47%
Total	**2.77%**	**3.16%**	**3.70%**	**2.95%**	**3.02%**

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Table 22A

By model year and vehicle type, the number of vehicles with the MIL commanded off and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	950	1,067	324		2,341
1997	1,064	1,235	404		2,703
1998	1,838	2,032	513		4,383
1999	1,924	1,848	810		4,582
2000	2,904	2,507	1,284		6,695
2001	2,664	1,811	1,068		5,543
2002	3,746	2,861	1,656		8,263
2003	4,001	2,648	1,461		8,110
2004	5,883	5,115	2,735		13,733
2005	6,781	3,793	1,924		12,498
2006	9,054	5,598	2,880		17,532
2007	9,060	4,900	2,318		16,278
2008	10,500	6,120	2,487		19,107
2009	8,128	2,520	869		11,517
2010	11,457	4,922	2,144		18,523
2011	9,618	4,403	2,472		16,493
2012	16,618	5,900	3,247		25,765
2013	16,846	5,504	3,169	465	25,984
2014	20,619	7,543	4,917	667	33,746
2015	20,461	7,194	4,190	856	32,701
2016	23,757	9,940	5,631	1,188	40,516
2017	20,002	8,624	4,566	1,154	34,346
2018	22,540	13,160	6,707	1,268	43,675
2019	16,407	8,050	4,661	1,184	30,302
2020	16,623	10,323	5,217	1,227	33,390
Total	**263,445**	**129,618**	**67,654**	**8,009**	**468,726**

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Table 23A

By model year and vehicle type, the percentage of vehicles with the MIL commanded off and no codes stored

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	87.72%	84.41%	80.60%		85.16%
1997	82.80%	80.93%	82.28%		81.86%
1998	83.47%	85.13%	83.41%		84.22%
1999	84.24%	87.50%	83.76%		85.44%
2000	82.95%	84.95%	86.76%		84.40%
2001	80.73%	83.30%	85.24%		82.40%
2002	81.22%	79.65%	85.45%		81.47%
2003	81.85%	81.91%	84.16%		82.28%
2004	83.02%	82.85%	85.95%		83.52%
2005	82.16%	82.64%	84.39%		82.64%
2006	82.90%	84.51%	85.06%		83.76%
2007	84.06%	86.25%	82.84%		84.53%
2008	85.32%	89.50%	84.85%		86.55%
2009	87.67%	87.68%	82.60%		87.27%
2010	89.16%	90.73%	90.62%		89.74%
2011	87.85%	91.94%	86.52%		88.70%
2012	89.15%	92.97%	89.11%		89.99%
2013	89.19%	93.73%	87.95%	91.18%	90.00%
2014	90.72%	93.78%	90.47%	91.00%	91.36%
2015	90.87%	94.46%	91.99%	89.35%	91.74%
2016	91.62%	95.27%	93.03%	90.76%	92.66%
2017	91.10%	95.47%	94.09%	92.32%	92.59%
2018	92.51%	97.05%	95.95%	93.79%	94.40%
2019	90.95%	97.01%	94.81%	94.27%	93.21%
2020	91.42%	98.23%	94.98%	95.19%	94.12%
Total	**88.76%**	**91.32%**	**89.87%**	**92.51%**	**89.68%**

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Table 24A

By model year and vehicle type, the number of vehicles with an unready monitor

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	452	583	160		1,195
1997	549	676	230	1	1,456
1998	704	997	271	1	1,973
1999	694	819	436	1	1,950
2000	1,074	931	534		2,539
2001	1,102	793	515		2,410
2002	1,221	1,019	568		2,808
2003	1,272	915	757	1	2,945
2004	1,612	1,260	1,006	2	3,880
2005	1,811	1,224	673		3,708
2006	2,054	1,383	804	1	4,242
2007	2,061	899	860		3,820
2008	1,941	865	628		3,434
2009	1,363	446	266	1	2,076
2010	1,627	611	419		2,657
2011	1,547	543	535	2	2,627
2012	2,139	547	525	1	3,212
2013	2,262	510	493	112	3,377
2014	2,237	595	647	176	3,655
2015	2,172	499	454	159	3,284
2016	2,101	501	393	191	3,186
2017	2,116	401	366	164	3,047
2018	1,973	469	302	154	2,898
2019	1,736	564	389	114	2,803
2020	1,523	569	373	84	2,549
Total	**39,343**	**18,619**	**12,604**	**1,165**	**71,731**

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Chart 24A

The number where readiness status indicated that the evaluation was not complete, by model year

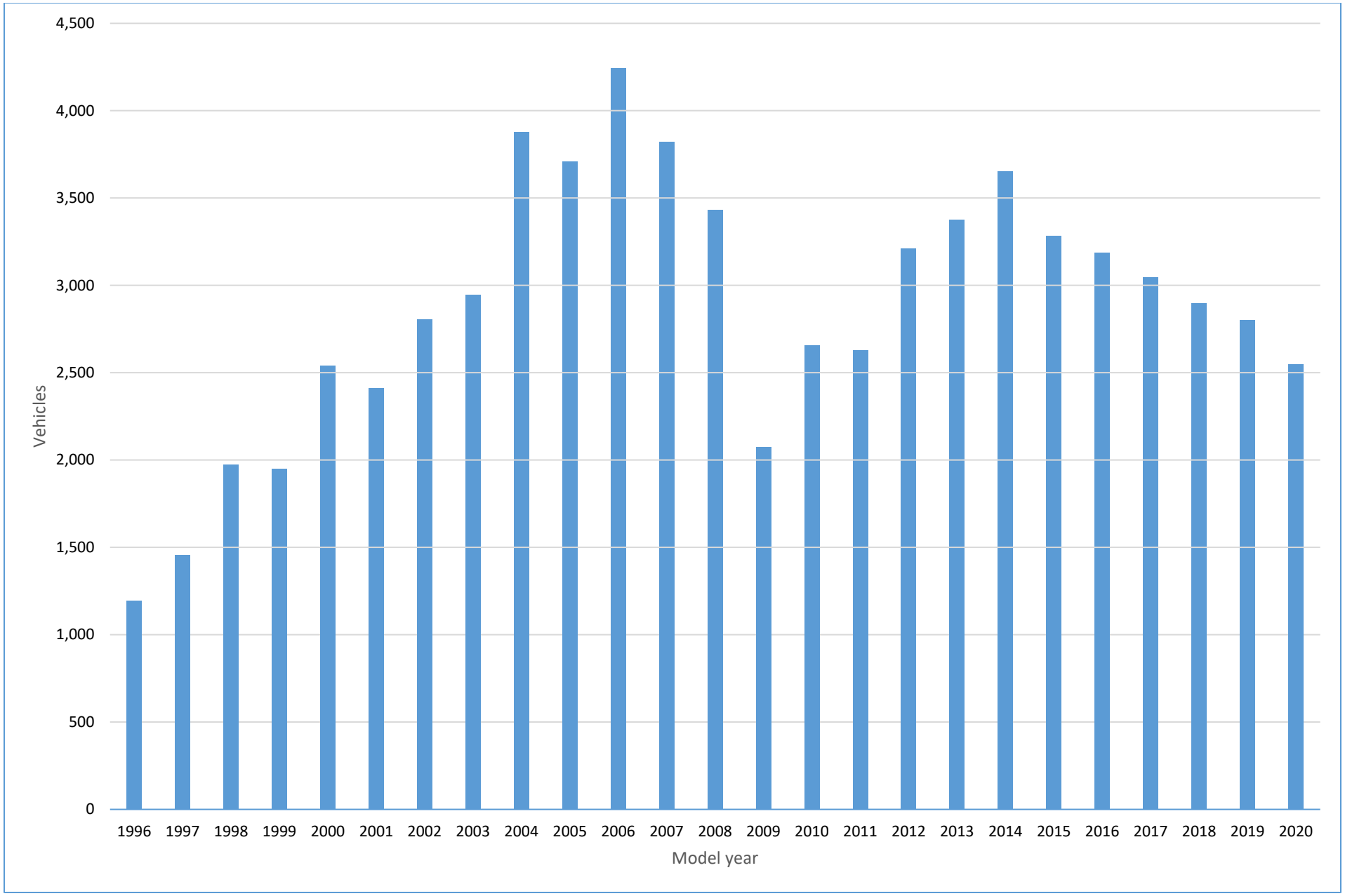

Table 25A

By model year and vehicle type, the percentage of vehicles with an unready monitor

Year	Passenger	Light-Duty	Medium-Duty	Heavy-Duty	Total
1996	38.60%	42.96%	37.47%		40.44%
1997	38.83%	40.82%	43.15%	100.00%	40.40%
1998	29.63%	38.67%	40.15%	50.00%	35.04%
1999	28.18%	36.69%	41.17%	50.00%	33.88%
2000	28.47%	29.41%	33.58%	0.00%	29.77%
2001	28.91%	31.28%	34.94%	0.00%	30.81%
2002	23.52%	25.23%	26.10%	0.00%	24.61%
2003	23.11%	25.19%	38.27%	50.00%	26.49%
2004	20.61%	18.84%	28.43%	100.00%	21.49%
2005	19.82%	23.89%	26.04%	0.00%	22.01%
2006	17.25%	19.12%	21.59%	16.67%	18.55%
2007	17.49%	14.78%	27.41%	0.00%	18.18%
2008	14.65%	11.86%	19.53%	0.00%	14.45%
2009	13.67%	14.37%	22.49%	100.00%	14.56%
2010	11.87%	10.58%	16.25%	0.00%	12.05%
2011	13.11%	10.67%	16.94%	33.33%	13.10%
2012	10.79%	8.24%	13.25%	20.00%	10.56%
2013	11.22%	8.29%	12.75%	19.28%	10.98%
2014	9.33%	7.15%	11.11%	20.73%	9.38%
2015	9.13%	6.29%	9.38%	15.04%	8.73%
2016	7.74%	4.66%	6.23%	13.50%	6.98%
2017	9.16%	4.30%	7.19%	12.25%	7.84%
2018	7.74%	3.38%	4.20%	10.74%	6.04%
2019	9.13%	6.64%	7.70%	8.60%	8.27%
2020	8.00%	5.29%	6.60%	6.19%	6.92%
Total	**12.43%**	**12.43%**	**15.60%**	**12.39%**	**12.89%**

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Chart 25A

The percentage where readiness status indicated that the evaluation was not complete, by model year

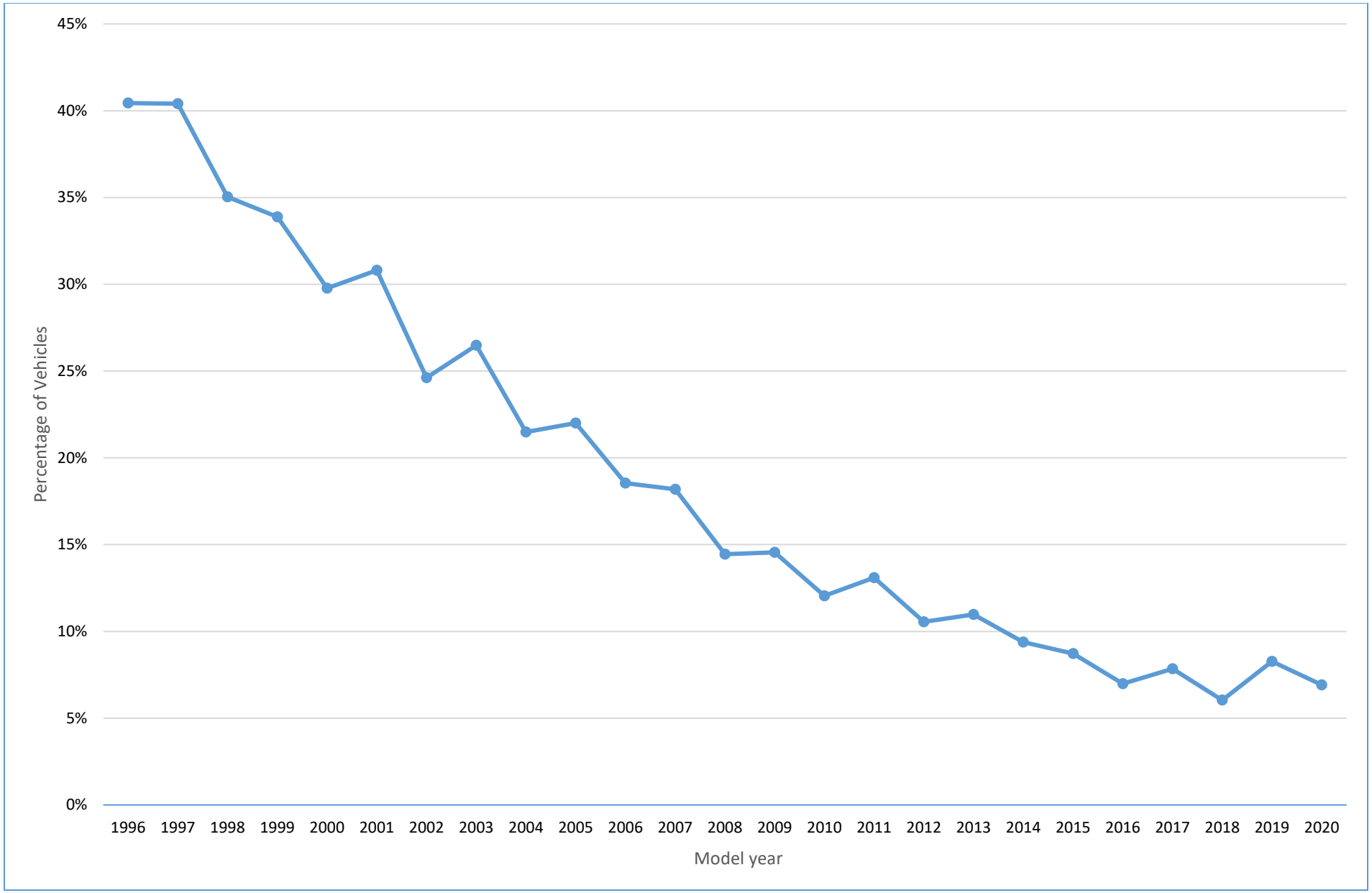

Table 26A

The initial test volume by model year and test station

	Clackamas	Gresham	Medford	Northeast	Scappoose	Sherwood	Sunset	Mobile	DEQToo Portland	DEQToo Medford	Total
1975	15	10		13		10	13				61
1976	39	25		23	4	16	39				146
1977	34	27		32	8	22	23				146
1978	79	49	1	47	4	32	47				259
1979	42	38		26	2	29	28				165
1980	39	19		20	2	17	24				121
1981	43	24		39		14	32				152
1982	52	36	1	50	1	13	35				188
1983	44	36		42		26	51				199
1984	80	66		87	6	56	74				369
1985	112	77		109	10	54	67				429
1986	154	102		111	11	97	126				601
1987	135	85		114	7	91	123				555
1988	199	113	1	151	9	114	157				744
1989	255	155	2	174	19	110	213				928
1990	330	253	1	226	23	185	281				1,299
1991	305	236	2	235	16	163	241				1,198
1992	404	328	2	296	33	220	349				1,632
1993	441	309		270	17	215	341				1,593
1994	687	554	2	422	40	375	563		1		2,644
1995	675	508	3	434	34	346	604				2,604
1996	845	682	6	574	50	491	795				3,443
1997	999	797	6	666	51	575	995	1			4,090
1998	1,459	1,224	12	935	69	911	1,496	1			6,107
1999	1,522	1,241	14	971	83	998	1,541				6,370
2000	2,211	1,888	12	1,372	104	1,428	2,222	1	2		9,240
2001	1,985	1,733	36	1,305	85	1,286	1,964	2	21	4	8,421
2002	2,810	2,445	66	1,877	116	1,827	2,931	1	30	1	12,104
2003	2,745	2,281	219	1,900	108	1,694	2,807	1	47	10	11,812
2004	3,871	3,270	2,331	2,574	174	2,592	4,139	4	123	12	19,090
2005	3,387	2,994	2,054	2,371	130	2,150	3,528	12	929	48	17,603
2006	4,573	3,991	2,650	3,194	191	3,020	4,880	5	1,429	83	24,016

2007	4,041	3,749	2,346	2,986	148	2,600	4,280	11	1,515	98	21,774
2008	4,466	3,835	2,405	3,364	146	3,330	5,168	13	1,736	99	24,562
2009	2,581	2,377	1,456	2,134	87	1,771	2,935	4	1,180	77	14,602
2010	3,977	3,454	2,030	3,174	131	3,039	4,575	15	1,943	124	22,462
2011	3,570	3,144	1,961	2,758	124	2,677	4,150	24	2,081	156	20,645
2012	5,377	4,441	2,735	4,128	209	4,244	6,531	28	3,224	233	31,150
2013	5,122	4,165	2,807	4,201	189	4,009	5,982	58	4,057	283	30,873
2014	6,576	5,255	3,524	4,793	256	5,408	7,888	68	4,893	416	39,077
2015	5,940	4,837	3,218	4,720	225	5,135	7,271	122	5,818	548	37,834
2016	7,450	5,692	3,848	5,448	275	6,603	9,088	182	6,756	556	45,898
2017	6,001	4,624	3,193	4,702	227	5,294	7,489	215	6,674	736	39,155
2018	7,647	5,610	3,811	5,412	246	7,260	9,686	298	7,698	732	48,400
2019	4,918	3,780	2,534	3,682	199	4,539	6,037	326	7,543	758	34,316
2020	5,496	4,102	2,770	3,729	199	5,177	6,892	440	7,792	777	37,374
Total	**103,733**	**84,661**	**46,059**	**75,891**	**4,068**	**80,263**	**118,701**	**1,832**	**65,492**	**5,751**	**586,451**

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Table 27A

The initial test fail rate by model year and test station

	Clackamas	Gresham	Medford	Northeast	Scappoose	Sherwood	Sunset	Mobile	DEQToo Portland	DEQToo Medford	Total
1975	53.85%	40.00%		54.55%		11.11%	53.85%				44.64%
1976	38.46%	50.00%		45.00%	75.00%	37.50%	51.35%				45.71%
1977	44.12%	48.15%		46.88%	62.50%	68.18%	38.89%				49.65%
1978	43.42%	51.06%		60.00%	50.00%	45.16%	46.67%				48.79%
1979	55.00%	48.65%		57.69%	0.00%	39.29%	53.85%				50.31%
1980	28.95%	17.65%		31.58%	50.00%	35.29%	34.78%				30.17%
1981	36.59%	30.43%		18.92%		21.43%	53.33%				33.10%
1982	29.41%	33.33%	0.00%	20.83%	100.00%	36.36%	34.38%				29.44%
1983	23.81%	32.35%		26.83%		16.67%	34.69%				27.89%
1984	27.03%	43.08%		20.24%	0.00%	24.07%	26.39%				27.40%
1985	31.68%	21.92%		26.67%	20.00%	42.00%	24.62%				28.47%
1986	23.29%	27.00%		29.36%	40.00%	15.22%	29.20%				25.26%
1987	30.16%	25.61%		19.05%	50.00%	17.98%	24.35%				24.09%
1988	19.25%	20.00%	100.00%	24.46%	33.33%	10.00%	21.48%				19.72%
1989	23.14%	21.85%		23.17%	26.32%	11.54%	20.90%				21.11%
1990	17.72%	14.17%		19.91%	21.74%	13.26%	15.09%				16.28%
1991	16.26%	10.36%	0.00%	15.42%	31.25%	12.58%	24.03%				16.22%
1992	15.11%	13.23%	0.00%	16.07%	18.75%	10.43%	16.31%				14.59%
1993	13.66%	12.37%		16.41%	25.00%	11.54%	18.73%				14.79%
1994	10.71%	13.81%	0.00%	8.17%	8.11%	11.57%	15.19%				11.99%
1995	12.21%	11.42%	0.00%	12.86%	9.09%	11.54%	16.24%				12.96%
1996	8.38%	9.34%	40.00%	9.76%	10.87%	8.19%	10.50%				9.35%
1997	10.18%	13.72%	25.00%	9.06%	8.51%	7.91%	9.34%	0.00%			10.15%
1998	6.39%	7.88%	0.00%	11.05%	4.62%	8.49%	6.74%	0.00%			7.77%
1999	6.72%	9.43%	11.11%	8.61%	4.29%	6.44%	7.52%				7.65%
2000	7.31%	8.41%	0.00%	7.22%	7.53%	5.82%	7.00%	0.00%	0.00%		7.21%
2001	7.90%	9.71%	12.50%	9.54%	8.22%	7.91%	8.20%	0.00%	5.88%	0.00%	8.59%
2002	7.35%	10.17%	35.14%	9.08%	7.37%	8.36%	6.45%	0.00%	4.55%	0.00%	8.20%
2003	6.93%	8.72%	7.97%	9.17%	7.29%	6.44%	7.31%	0.00%	17.95%	11.11%	7.71%
2004	5.39%	7.97%	7.59%	7.08%	6.92%	6.14%	5.34%	0.00%	2.86%	11.11%	6.41%
2005	6.44%	8.58%	6.82%	8.35%	6.90%	6.40%	6.27%	0.00%	5.09%	0.00%	6.97%
2006	4.73%	7.21%	6.86%	6.39%	9.66%	5.34%	5.14%	0.00%	2.86%	5.41%	5.69%

2007	5.27%	7.02%	5.55%	6.22%	8.76%	4.53%	4.67%	0.00%	3.35%	3.53%	5.41%
2008	3.74%	5.81%	4.51%	5.09%	2.96%	3.79%	4.07%	0.00%	2.67%	1.10%	4.30%
2009	4.33%	5.78%	4.85%	4.37%	9.64%	4.90%	3.81%	0.00%	2.84%	2.90%	4.49%
2010	2.45%	4.58%	3.70%	2.27%	6.45%	2.70%	2.65%	0.00%	1.59%	5.22%	2.90%
2011	3.32%	4.29%	3.32%	3.15%	2.56%	3.33%	3.30%	0.00%	1.47%	3.68%	3.26%
2012	2.80%	2.98%	2.76%	3.32%	2.55%	2.07%	2.27%	0.00%	2.24%	2.44%	2.61%
2013	2.55%	3.49%	2.95%	3.14%	1.66%	1.94%	2.27%	0.00%	1.31%	1.23%	2.48%
2014	1.96%	2.75%	2.28%	2.80%	3.33%	1.88%	1.73%	0.00%	1.51%	1.36%	2.08%
2015	1.88%	2.41%	1.93%	2.30%	1.83%	1.86%	1.54%	0.00%	1.33%	1.61%	1.85%
2016	1.75%	2.02%	2.24%	1.66%	1.93%	1.55%	1.37%	0.68%	1.04%	1.01%	1.60%
2017	1.56%	1.89%	1.27%	1.71%	1.82%	1.70%	1.23%	0.57%	0.95%	1.83%	1.45%
2018	1.09%	1.24%	1.05%	1.03%	0.84%	0.97%	0.72%	0.00%	0.84%	0.61%	0.95%
2019	0.80%	1.18%	1.26%	1.04%	0.00%	1.02%	1.00%	0.38%	0.80%	0.43%	0.95%
2020	0.71%	0.80%	0.70%	0.91%	0.52%	0.77%	0.80%	0.28%	0.57%	0.71%	0.73%
Total	**3.92%**	**5.02%**	**3.22%**	**4.46%**	**5.25%**	**3.30%**	**3.51%**	**0.27%**	**1.33%**	**1.42%**	**3.61%**

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