JOINT STATE GOVERNMENT COMMISSION

General Assembly of the Commonwealth of Pennsylvania

MOTOR VEHICLE EMISSIONS TESTING: PENNSYLVANIA'S PROGRAM

The Advisory Committee Report

October 2018

Serving the General Assembly of the Commonwealth of Pennsylvania Since 1937

REPORT

Motor Vehicle Emissions Testing: Pennsylvania's Program

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The Joint State Government Commission was created in 1937 as the primary and central non-partisan, bicameral research and policy development agency for the General Assembly of Pennsylvania.[1]

A fourteen-member Executive Committee comprised of the leadership of both the House of Representatives and the Senate oversees the Commission. The seven Executive Committee members from the House of Representatives are the Speaker, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. The seven Executive Committee members from the Senate are the President Pro Tempore, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. By statute, the Executive Committee selects a chairman of the Commission from among the members of the General Assembly. Historically, the Executive Committee has also selected a Vice-Chair or Treasurer, or both, for the Commission.

The studies conducted by the Commission are authorized by statute or by a simple or joint resolution. In general, the Commission has the power to conduct investigations, study issues, and gather information as directed by the General Assembly. The Commission provides in-depth research on a variety of topics, crafts recommendations to improve public policy and statutory law, and works closely with legislators and their staff.

A Commission study may involve the appointment of a legislative task force, composed of a specified number of legislators from the House of Representatives or the Senate, or both, as set forth in the enabling statute or resolution. In addition to following the progress of a particular study, the principal role of a task force is to determine whether to authorize the publication of any report resulting from the study and the introduction of any proposed legislation contained in the report. However, task force authorization does not necessarily reflect endorsement of all the findings and recommendations contained in a report.

Some studies involve an appointed advisory committee of professionals or interested parties from across the Commonwealth with expertise in a particular topic; others are managed exclusively by Commission staff with the informal involvement of representatives of those entities that can provide insight and information regarding the particular topic. When a study involves an advisory committee, the Commission seeks consensus among the members.[2] Although an advisory committee member may represent a particular department, agency, association, or group, such representation does not necessarily reflect the endorsement of the department, agency, association, or group of all the findings and recommendations contained in a study report.

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[1] Act of July 1, 1937 (P.L.2460, No.459); 46 P.S. §§ 65 – 69.

[2] Consensus does not necessarily reflect unanimity among the advisory committee members on each individual policy or legislative recommendation. At a minimum, it reflects the views of a substantial majority of the advisory committee, gained after lengthy review and discussion.

Over the years, nearly one thousand individuals from across the Commonwealth have served as members of the Commission's numerous advisory committees or have assisted the Commission with its studies. Members of advisory committees bring a wide range of knowledge and experience to deliberations involving a particular study. Individuals from countless backgrounds have contributed to the work of the Commission, such as attorneys, judges, professors and other educators, state and local officials, physicians and other health care professionals, business and community leaders, service providers, administrators and other professionals, law enforcement personnel, and concerned citizens. In addition, members of advisory committees donate their time to serve the public good; they are not compensated for their service as members. Consequently, the Commonwealth of Pennsylvania receives the financial benefit of such volunteerism, along with their shared expertise in developing statutory language and public policy recommendations to improve the law in Pennsylvania.

The Commission periodically reports its findings and recommendations, along with any proposed legislation, to the General Assembly. Certain studies have specific timelines for the publication of a report, as in the case of a discrete or timely topic; other studies, given their complex or considerable nature, are ongoing and involve the publication of periodic reports. Completion of a study, or a particular aspect of an ongoing study, generally results in the publication of a report setting forth background material, policy recommendations, and proposed legislation. However, the release of a report by the Commission does not necessarily reflect the endorsement by the members of the Executive Committee, or the Chair or Vice-Chair of the Commission, of all the findings, recommendations, or conclusions contained in the report. A report containing proposed legislation may also contain official comments, which may be used in determining the intent of the General Assembly.[3]

Since its inception, the Commission has published more than 350 reports on a sweeping range of topics, including administrative law and procedure; agriculture; athletics and sports; banks and banking; commerce and trade; the commercial code; crimes and offenses; decedents, estates, and fiduciaries; detectives and private police; domestic relations; education; elections; eminent domain; environmental resources; escheats; fish; forests, waters, and state parks; game; health and safety; historical sites and museums; insolvency and assignments; insurance; the judiciary and judicial procedure; labor; law and justice; the legislature; liquor; mechanics' liens; mental health; military affairs; mines and mining; municipalities; prisons and parole; procurement; state-licensed professions and occupations; public utilities; public welfare; real and personal property; state government; taxation and fiscal affairs; transportation; vehicles; and workers' compensation.

Following the completion of a report, subsequent action on the part of the Commission may be required, and, as necessary, the Commission will draft legislation and statutory amendments, update research, track legislation through the legislative process, attend hearings, and answer questions from legislators, legislative staff, interest groups, and constituents.

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[3] 1 Pa.C.S. § 1939 ("The comments or report of the commission . . . which drafted a statute may be consulted in the construction or application of the original provisions of the statute if such comments or report were published or otherwise generally available prior to the consideration of the statute by the General Assembly").

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October 2018

To the Members of the General Assembly of Pennsylvania:

The Joint State Government Commission is pleased to announce the release of the advisory committee report, *Motor Vehicle Emissions Testing: Pennsylvania's Program*, pursuant to Senate Resolution 168 of 2017.

This report includes a detailed explanation of laws and regulations of auto emissions testing, including the federal Clean Air Act and the mandated State Implementation Plan. The advisory committee concluded that authority to remove Pennsylvania counties from requirements rests solely with the federal government. Further, the members' consensus was that removal of any county from air quality regulations would result in adverse public health and environmental consequences. Therefore, the report does not address these topics in detail.

The full report, along with a one-page summary, is enclosed and is also available on our website at http:/jsg.legis.state.pa.us.

Respectfully submitted,

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ADVISORY COMMITTEE STATEMENT

Senate Resolution 168 of 2017 (Printer's No. 1260) (SR168) was adopted October 24, 2017, directing the Joint State Government Commission appoint an advisory committee and to conduct "a through and comprehensive analysis of issues relating to the potential impact to the Commonwealth of removing each participating county of the third, fourth and fifth class, individually and collectively, from the [motor vehicle] emissions testing program;" and the impact on environmental credits and related financial aspects of the program. This report is due one year from the adoption of the resolution, or October 24, 2018.

The Commission appointed an advisory committee which included representatives of the Department of Transportation, the Department of Environmental Protection and others who possess knowledge of the vehicle emission inspection program and the federally-mandated State Implementation Plan (SIP) that implements the Federal Clean Air Act (CAA) in Pennsylvania. These persons included representatives of consumers, environmental advocates and inspection stations. The Advisory Committee met in Harrisburg on January 18, 2018. The overwhelming consensus of the advisory committee was that revisions to the SIP suggested by SR168 that would remove certain counties from the vehicle emissions testing program are not authorized under the CAA. The driving factor in this conclusion is the fact that Congress included Pennsylvania in the Northeast Ozone Transport Region (OTR) under the CAA[4], and the CAA imposes expanded geographical coverage for vehicle inspection and maintenance programs in OTR states. Additionally, a majority of the advisory committee was also of the opinion that removing any counties from the SIP was inadvisable for adverse public health and environmental reasons.

SR168 further directed that the final report for this study "include recommendations to make up for the loss of environmental credits associated with the approved SIP, the cost in actual dollars, historically and projected, to each of the respective departments, and any other potential financial aspects to the Commonwealth." Because the Advisory Committee has determined that no counties should be removed, there is no environmental or other financial impact to be considered. Given that there are 20 counties in the group under consideration in this report, and that the resolution discussed removing these counties both individually and collectively, an attempt to calculate the potential impact of the thousands possible combinations of those counties was unrealistic.

[4] 42 U.S.C. § 7511a.

INTRODUCTION

The remainder of this report includes research performed by Commission staff to detail how the federal law dictates much of Pennsylvania's action in the area of motor vehicle emissions, the history of Pennsylvania's State Implementation Plan (SIP), and the workings of Pennsylvania's enhanced emissions inspection and maintenance program (I/M Program). Additional attention is paid to data and information relating to the specific participating counties in third, fourth and fifth class counties that may be helpful to those evaluating the performance of the I/M Program in those counties.

In conducting research for this report, Commission staff consulted advisory committee members and the Ozone Transport Commission (OTC) to discuss the Commonwealth's I/M Program obligations under the CAA.

The federal government became involved in regulating motor vehicle emissions through 1965 amendments to the 1955 CAA that set national standards for motor vehicle emissions.[5] Significant CAA amendments in 1970 established the Environmental Protection Agency (EPA) and invested the federal government with broad pollution control powers.[6] The 1970 amendments created the national ambient air quality standards (NAAQS) and set deadlines for states to bring their air pollution levels in line with those standards through the submission of state implementation plans. Among other things, new source performance standards, limiting air pollution from new sources and the national emission standards for hazardous air pollutants, were also introduced.[7] Federal and state regulations address controlling pollution from motor vehicle emissions via two methods. The first, and more significant for this study, is to require the testing of existing vehicles manufactured since 1975. The second approach is to require vehicle manufacturers to build "cleaner" new vehicles.

National Ambient Air Quality Standards

The EPA sets health and welfare-based air quality standards for ambient air through the NAAQS, which pertain to six "criteria" pollutants.[8] The criteria air pollutants are lead, sulfur dioxide, ground-level ozone (not itself a pollutant but a result of emissions of volatile organic compounds and oxides of nitrogen), carbon monoxide, nitrogen dioxide, and particulate matter.[9] There are two types of NAAQS – primary and secondary. The primary NAAQS are those which are "based on such criteria . . . requisite to protect the public health."[10] The secondary NAAQS are those which are related to protecting the "public welfare."[11] The EPA has set primary and secondary standards for five of the six criteria air pollutants and a primary standard for carbon monoxide.[12] These standards establish concentrations in ambient air that must be attained within certain time frames and maintained thereafter. The NAAQS are air quality goals that all areas of the country must meet. After EPA sets or revises a NAAQS, it designates areas within each state as

[5] Motor Vehicle Air Pollution Control Act aka National Emissions Standards Act, Pub.L. 89–272, 79 Stat. 992 (1965).
[6] Clean Air Act Amendments of 1970, Pub.L. 91-604, 84 Stat. 1676 (December 31, 1970).
[7] *Ibid.*
[8] United States Environmental Protection Agency. "Criteria Air Pollutants." https://www.epa.gov/criteria-air-pollutants; 42 U.S.C. § 7409.
[9] 40 C.F.R. Part 50.
[10] 42 U.S.C. § 7409(b)(1).
[11] 42 U.S.C. § 7409(b)(2). The CAA defines the term welfare in 42 U.S.C. § 7602(h).
[12] U.S. EPA NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table.

attainment, nonattainment or unclassified.[13] EPA designates nonattainment areas (those areas not meeting the NAAQS) to encompass geographic areas that share similar commuting, topographical, economic, or pollution characteristics, including nearby areas contributing to the nonattainment.[14] The Commonwealth has adopted by regulation the federal NAAQS.[15]

State Implementation Plan

In order to allow states more flexibility in how they comply with the NAAQS, the CAA requires each state to develop and submit a State Implementation Plan (SIP) to demonstrate how it will comply with the CAA and the act's implementing regulations.[16] The SIP must be approved by the EPA.[17] A SIP typically includes a narrative, maintenance plans, emissions inventories, monitoring networks, an explanation of state statutory authority, and other documents and materials.[18] If an area is designated non-attainment for one of the criteria air pollutants, the state must work to achieve attainment as expeditiously as possible.[19] Different attainment deadlines apply for different criteria pollutants.[20] Attainment deadlines for ozone nonattainment areas vary based on the severity of the nonattainment.[21] For instance, a state must bring a "marginal" nonattainment area into attainment in three years, but a more polluted "moderate" area into attainment within six years. For all non-attainment areas, the SIP must "provide for the implementation of all reasonably available control measures," provide for reasonable further progress toward attainment status, include an inventory of actual emissions from all sources of the relevant pollutant or pollutants, require permits for the construction and operation of major new and modified stationary sources, and include other enforceable emission limitations.[22] The CAA specifies additional requirements for ozone nonattainment areas, including requirements for enhanced I/M programs.[23]

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[13] 42 U.S.C. § 7407.
[14] US EPA, Office of Air and Radiation, Memo from Janet McCabe to Regional Administrators 1-10 "Area Designations for the 2015 Ozone National Ambient Air Quality Standards," Feb. 26, 2016, available at: https://www.epa.gov/sites/production/files/2016-02/documents/ozone-designations-guidance-2015.pdf.
[15] 25 Pa. Code § 131.2.
[16] 42 U.S.C. § 7407.
[17] 42 U.S.C. § 7410.
[18] United States Environmental Protection Agency, "Basic Information About Air Quality SIPs." https://www.epa.gov/sips/basic-information-air-quality-sips.
[19] 42 U.S.C. § 7502(a).
[20] Attainment deadlines for carbon monoxide, particulate matter, sulfur dioxide, nitrogen dioxide and lead nonattainment areas are found in 42 U.S.C. §§ 7512, 7513, 7514a.
[21] 42 U.S.C. § 7511(a)(1), as modified by EPA regulation for each successive ozone NAAQS revision. See, for instance, 40 C.F.R. § 51.1103 relating to attainment deadlines for the 2008 ozone NAAQS.
[22] 42 U.S.C. § 7502(c).
[23] 42 U.S.C. § 7511a.

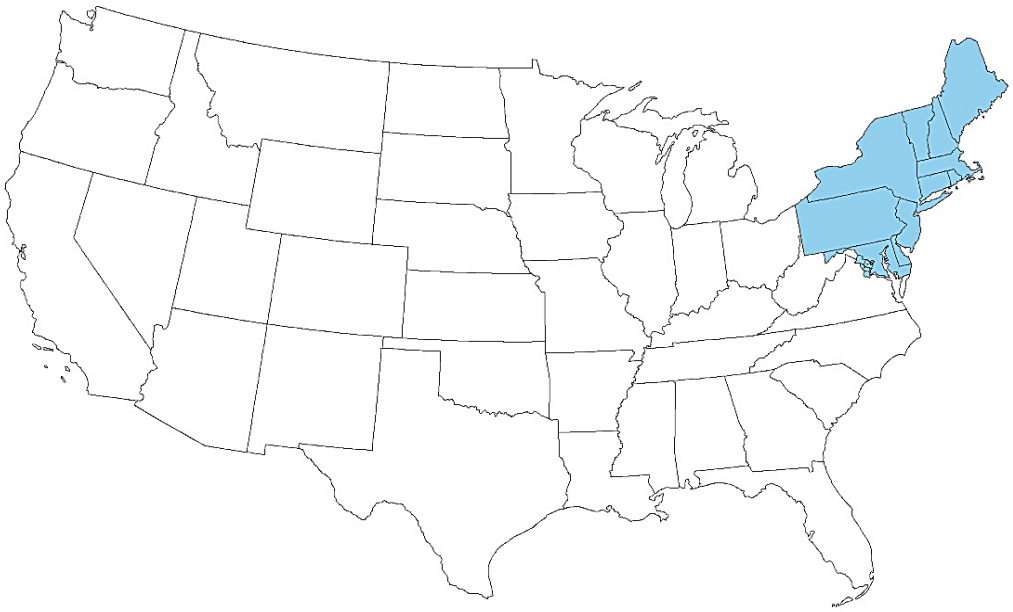
Once approved by the EPA, the SIP becomes codified in the Code of Federal Regulations.[24] SIPs may be updated and augmented with what is known as a SIP revision. Among other things, these revisions reflect changes in regulatory requirements for entities which emit any of the NAAQS criteria air pollutants or criteria pollutant precursors. State regulations and other revisions incorporated into the Commonwealth's SIP are federally enforceable.

Ozone Transport Region

While most of the country is subject to the same general federal air pollution oversight under the NAAQS, Pennsylvania, ten other states, a portion of an eleventh state, and the District of Columbia have been designated as an OTR under the CAA.[25] While the CAA authorizes the creation of other OTRs, the Northeast OTR is the only transport region created thus far.[26] Essentially, Congress declared that this region, because of its historically high ozone and ozone precursor pollution, has been officially designated as an ozone nonattainment area. Additional ozone reduction measures pertain to states in the OTR.[27] An Ozone Transport Commission (OTC) was established in 1991, and is composed of the Governor of each included state, the Administrator of the EPA, the Regional Administrator for each Regional Office for each EPA Region affected by the OTR and an air pollution control official representing each state in the region, appointed by that state's Governor.[28] The OTC provides an opportunity for the member states to harmonize regional efforts to manage air pollution in downwind states that is caused by activities in upwind states. Model rules are developed by the OTC for use in developing individual state regulatory provisions.

[24] Pennsylvania's SIP and its revisions since July 2012 are found at 40 CFR §52.2020.
[25] 42 U.S.C. § 7511c(a). These states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and a portion of Virginia. Ozone Transport Commission, https://otcair.org/about.asp.
[26] 42 U.S.C. §§ 7506a(a) and 7511c(a).
[27] 42 U.S.C. § 7511a.
[28] 42 U.S.C. § 7506a(b).

U.S. Environmental Protection Agency
Designated Ozone Transport Regions
2018



Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
Vermont
Virginia (certain counties)
Washington, D.C.

States are mandatory members of the OTR under the CAA. However, the administrator of the EPA, on his own volition or upon petition from the Governor of any State, or upon the recommendation of an OTC, may add any State or portion of a State to any ozone transport region if the Administrator "has reason to believe that interstate transport of air pollutants from such State significantly contributes to a violation of the standard in the transport region."[29]

Conversely, the EPA administrator on his own volition or upon petition from the Governor of any State, or upon the recommendation of an OTC may remove any State or portion of a State from the region if the Administrator "has reason to believe that the control of emissions in that State or portion of the State . . . will not significantly contribute to the attainment of the standard in any area of the region."[30]

Efforts to Remove Areas from the OTR

The State of Maine filed a petition to the EPA on August 27, 2018,[31] requesting removal of certain areas of the state from the OTR. The State of Maine's petition to have portions of the state removed from the OTR relies heavily on the claim that the removal will not significantly contribute to non-attainment of the standard in any area in the region. In an online summary of its petition, Maine wrote:

> Maine has been and continues to be in attainment with ozone National Ambient Air Quality Standards in those areas petitioned for removal, and emissions from Maine sources have negligible impact on the ozone attainment status of any part of the OTR. The information presented in this petition justifies the exclusion of a portion of the State of Maine from the OTR.
>
> The proposed action would enable Maine DEP to limit areas of the state where new OTR emission controls might be required in the future, and to enable Maine facilities to do capital improvement projects without needing to purchase emission offsets. Such projects would still be required to use the best available control technology to limit emissions to the greatest extent practicable. Maine DEP will not rescind any existing emission control requirements that have been adopted because the state is in the OTR.[32]

[29] 42 U.S.C. § 7506(a)(1).
[30] 42 U.S.C. § 7506a(a)(2).
[31] State of Maine. Department of Environmental Protection. "State of Maine Clean Air Act § 176A(a)(2) Petition: Maine's Ozone Success Story." August 27, 2018. https://www.maine.gov/dep/ftp/otr-petition/FINAL%20OTR%20Petition.pdf.
[32] State of Maine. Department of Environmental Protection. "Opportunity for Comment: Clear Air Act (CAA) Section 176A(a)(2) Ozone Transport Region Petition." https://www.maine.gov/tools/whatsnew/index.php?topic=dep-comment&id=801214&v=govdel. Viewed August 21, 2018.

A 1995 petition by Pennsylvania, mandated by the Pennsylvania General Assembly to remove 37 counties from the OTR failed.[33] See *Enhanced Inspection/Maintenance Program, infra.*

Efforts to Expand the OTR

On December 9, 2013, Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont submitted a petition to the EPA, requesting that the EPA add eight additional states[34] and the areas of Virginia not already included in the OTR. Pennsylvania joined in the petition on December 10, 2013. The petition argued that these neighbors of the OTR states significantly contribute to downwind transport of ozone pollution in the OTR states.

The EPA published its denial of the petition in the *Federal Register* on November 3, 2017.[35] The principal justification for the denial was that implementation of other provisions of the CAA in the states in question, together with efforts of the individual states to address ozone production and transport were sufficient to address emission reductions needed to reduce regional ozone pollution. The EPA also noted that emissions have fallen nationwide and in the OTR by more than 30 percent since 1980 and are projected to continue to fall during the period 2017-2025.[36] The OTR states subsequently sued the EPA on December 22, 2017 in the U.S. Court of Appeals for the District of Columbia Circuit, arguing that the denial of their petition was unlawful.[37] A preliminary brief for the petitioners was filed on May 15, 2018,[38] preliminary briefs of other parties and amici have been filed, as has the petitioners' reply brief, but oral argument is not on the court schedule for the period June 1, 2018 to November 25, 2018.[39]

[33] 75 Pa.C.S. § 4706(h).
[34] Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee and West Virginia.
[35] 82 FR 51, 238 (November 3, 2017).
[36] Environmental Protection Agency, Notice. "Response to December 9, 2013, Clean Air Act Section 176A Petition From Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island and Vermont. https://www.gpo.gov/fdsys/pkg/FR-2011-11-03/pdf/2017-23983.pdf.
[37] *State of New York, State of Connecticut, State of Delaware, State of Maryland, Commonwealth of Massachusetts, Commonwealth of Pennsylvania, State of Rhode Island and State of Vermont v. United States Environmental Protection Agency and E. Scott Pruitt,* Case No. 17-1273
https://www.epa.gov/sites/production/files/2017-12/documents/dc_cir_petition_to_review_denial_of_petition_to_expand_otr.pdf.
[38] State of Connecticut. Department of Energy and Environmental Protection.
https://www.ct.gov/deep/lib/deep/air/176a/May2018OpeningBrief.pdf
[39] United States Court of Appeals for the District of Columbia Circuit, Oral Argument Calendar, as updated September 26, 2018.
https://www.cadc.uscourts.gov/internet/sixtyday.nsf/fullcalendar?OpenView&count=1000.

Enhanced Inspection/Maintenance Program

Under the 1990 amendments to the Clean Air Act, OTR participating states must implement, and submit or revise an SIP to account for, an "enhanced vehicle inspection and maintenance program" in certain areas. The CAA implementing regulations define those areas consistently within the CAA definition as "any metropolitan statistical area (MSA) or portion of an MSA, within the State or area with a 1990 population of 100,000 or more as defined by the Office of Management and Budget (OMB) regardless of the area's nonattainment classification."[40] An exception is provided for "largely rural counties having a population density of less than 200 persons per square mile based on the 1990 Census and counties with less than 1% of the population in the MSA . . . provided that at least 50% of the MSA population is included in the program."[41]

An MSA consists of one or more counties that contain a city of 50,000 or more inhabitants, or contain a Census Bureau-defined urbanized area (UA) and have a total population of at least 100,000 (75,000 in New England). Counties containing the principal concentration of population—the largest city and surrounding densely settled area—are components of the MSA. Additional counties qualify to be included by meeting a specified level of commuting to the counties containing the population concentration and by meeting certain other requirements of metropolitan character, such as a specified minimum population density or percentage of the population that is urban.[42]

Of Pennsylvania's 67 counties, 35 were found in the 15 metropolitan statistical areas that included portions of Pennsylvania in 1990. All 35 of these counties were potentially subject to the Enhanced Inspection/Maintenance (I/M) Program.

[40] 40 C.F.R. § 51.350(a)(1), implementing 42 U.S.C. § 7511c(b)(1)(A).
[41] 40 C.F.R. §51.350(b)(1).
[42] U.S. Department of Commerce, U.S. Census Bureau. "Geographic Areas Reference Manual" (GARM), Chapter 13, Metropolitan Areas. November 1994.
https://www2.census.gov/geo/pdfs/reference/GARM/Ch13GARM.pdf.

Table 1
Pennsylvania Metropolitan Statistical Areas
1990
Component Counties

MSA	Component Counties in Pennsylvania	April 1, 1990 Population
Allentown-Bethlehem-Easton, PA-NJ	Carbon County Lehigh County Northampton County	686,688
Altoona	Blair County	130,542
Erie	Erie County	275,572
Harrisburg-Lebanon-Carlisle	Cumberland County Dauphin County Lebanon County Perry County	474,242
Johnstown	Cambria County Somerset County	163,029
Lancaster	Lancaster County	422,822
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA	Newburgh NY-PA Primary MSA: Pike County	16,846,046
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD	Philadelphia PA-NJ Primary MSA: Bucks County Chester County Delaware County Montgomery County Philadelphia County	5,435,468
Pittsburgh	Allegheny County Beaver County Butler County Fayette County Washington County Westmoreland County	2,468,289
Reading	Berks County	336,523
Scranton-Wilkes-Barre-Hazleton	Columbia County Lackawanna County Luzerne County Monroe County Wyoming County	575,264
Sharon	Mercer County	121,003
State College	Centre County	123,786
Williamsport	Lycoming County	118,710
York	Adams County York County	339,574

Source: Compiled by JSGC staff from U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, "1990 Census of Population and Housing, Population and Housing Unit Counts, United States." Table 48. Population and Housing Units, 1970 to 1990; Land Area and Density for Metropolitan Area: 1990. pp. 603-650. 1990 CPH-2-1.

* Counties in red are exempt from the I/M program because of low total population or low population density.

Eight relatively small counties with populations under 100,000 were considered part of 1990 MSAs – Adams, Carbon, Columbia, Monroe, Perry, Pike, Somerset and Wyoming - but were exempt from the I/M Program because of their low populations.

Additionally, two counties, Butler and Fayette, had populations over 100,000 and were part of the Pittsburgh 1990 MSA. However, they were exempt from being included under the I/M Program provision regarding largely rural counties.[43] Butler's population was 152,031, but its population density was only 192.8 persons per square mile. Similarly, Fayette's population was 145,351, but its population density was only 184.0 persons per square mile.

With the exemption of these ten counties, 25 Pennsylvania counties became subject to the Enhanced I/M Program. In 1995 the General Assembly enacted amendments to the Vehicle Code (Title 75 of the Pennsylvania Consolidated Statutes) directing the Governor to

> take the steps necessary to obtain Environmental Protection Agency approval to remove all areas of the Commonwealth from the Northeast Ozone Transport Commission region that are now classified or in the future will be classified as in attainment of the Federal ozone pollution standard or which are unclassified for the purpose of imposing an enhanced vehicle emission system inspection program and other air pollution control measures. The Governor shall initiate the actions necessary under this section no later than 60 days after the effective date of this section.[44]

Under this authority, Pennsylvania unsuccessfully petitioned the EPA to remove 37 counties from the OTR.[45] The 1994 General Assembly amendments also authorized the establishment of the Enhanced I/M program,[46] which was scheduled to be phased in, beginning within 12 months after the EPA approved the Commonwealth's I/M SIP. In 1996, the Pennsylvania Department of Transportation (PennDOT) issued Proposed Rules to implement the program. The proposal would immediately implement the program in the five county Philadelphia area, which consists of Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties. Implementation would begin in the four county Pittsburgh area, which consists of Allegheny, Beaver, Washington, and Westmoreland Counties, in 1997. Lehigh and Northampton Counties were expected to be ready to

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[43] 40 C.F.R. §51.350(b)(1).

[44] 75 Pa.C.S. § 4706(h). Subsection (h) was added by the act of November 16, 1994 (P.L.614, No.95), effective immediately.

[45] Commonwealth of Pennsylvania. Department of Environmental Protection. "A Short History of Ozone Transport Issues."
http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Pollutants/transport/A_Short_History_of_Ozone_Transport_Issues.pdf. Website visited September 4, 2018.

[46] 75 Pa.C.S. § 4706(g). Subsection (g) was added by the act of November 16, 1994 (P.L. 614, No. 95), effective immediately.

implement the enhanced program in 1999. The remaining 14 counties identified in the MSAs were also expected to have an emissions program in 1999.[47]

PennDOT finalized the proposed rules and on July 25, 1997 issued a notice in the Pennsylvania Bulletin of its establishment and implementation of a decentralized, enhanced vehicle inspection program in order to comply with the CAA. The notice stated that the counties of Allegheny, Beaver, Bucks, Chester, Delaware, Montgomery, Philadelphia, Washington, and Westmoreland would commence the Enhanced I/M Program on October 1, 1997. The counties of Berks, Blair, Cambria, Centre, Cumberland, Dauphin, Erie, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mercer, Northampton, and York were to begin their programs no later than November 15, 1999.[48]

For technological and logistic reasons, the Commonwealth was not able to implement the program as initially planned. PennDOT and DEP convened a "Vehicle Emissions Inspection and Maintenance Program Policy Review Group" to evaluate the impact of on-board diagnostic technology and other factors on the Commonwealth's plans to implement an enhanced vehicle I/M Program.

The Policy Review Group began meeting on April 24, 2001 and issued its report on October 11, 2001. The report noted that DEP had petitioned the EPA to remove the counties of Blair, Cambria, Centre, Erie, Lackawanna, Luzerne, Lycoming, and Mercer Counties from the OTR. The report stateD that the EPA referred the matter to the OTC, which was reluctant to act. The report further noted that the EPA and DEP had been in discussions to exempt those eight counties from the Enhanced I/M program, rather than remove them for the OTR entirely. The Policy Review Group recommended that the Commonwealth request an EPA waiver for those counties.[49] More or less concurrently during the Policy Review Groups deliberations, litigation was initiated to force DEP and PennDOT to implement the Enhanced I/M Program as originally proposed in 1996.

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[47] Commonwealth of Pennsylvania. Department of Transportation. Proposed Rulemaking. "Enhanced Emission Inspection." 26 Pa. Bulletin 1221. Vol. 26, No.11. March 16, 1996.

[48] Pennsylvania Department of Transportation. Notice. "Certification of the Decentralized, Enhanced I/M Program for Designated Areas to Comply with Federal Law." 27 Pa. Bulletin 3720. Vol. 27, No.30. July 26, 1997.

[49] Commonwealth of Pennsylvania. Department of Environmental Protection. Department of Transportation. Vehicle Emissions Inspection and Maintenance Program Policy Review Group. "Final Report." October 26, 2001. http://www.drivecleanpa.state.pa.us/prg/prg_final_report.pdf. pp.11-12.

Lawsuits and Settlement

On January 12, 2001, the Clean Air Council[50] filed a citizen's suit under the CAA against the Pennsylvania Secretaries of Transportation and Environmental Protection for failure to implement specific pass/fail emissions standards in the five-county Philadelphia area, seeking to compel performance by the departments.[51] In a memorandum opinion issued on October 18, 2002 (CAC I), the district court ordered that an evidentiary hearing be held to determine a schedule under which the DEP and PennDOT would fully implement exhaust emissions standards in the Philadelphia area.[52]

On February 15, 2002, Citizens for Pennsylvania's Future[53] filed a lawsuit to compel full implementation of the Enhanced I/M Program in the sixteen counties not included in the Philadelphia five-county area or the Pittsburgh four-county area. On March 19, 2002, the Clean Air Council filed a parallel action (CAC II). The district court consolidated the two cases and in a memorandum opinion issued on December 18, 2002, adopted the reasoning of the court in CAC I and directed the parties to confer on an appropriate remedy and file a joint proposed order or separate memoranda no later than February 28, 2003.[54]

When the settlement agreements were filed with the court, they detailed the I/M Programs that would operate in the 16 counties not included in the Philadelphia and Pittsburgh regions, as well as the visual inspection component added to the vehicle safety inspection in 42 counties. Those counties were identified as:

- the "Southcentral/Lehigh Valley Counties" – Berks, Cumberland, Dauphin, Lancaster, Lebanon, Lehigh, Northampton, York

- the "Outer 8 Counties" – Blair, Cambria, Centre, Erie, Lackawanna, Luzerne, Lycoming, and Mercer

- the "42 Counties" – Adams, Armstrong, Bedford, Bradford, Butler, Cameron, Carbon, Clarion, Clearfield, Clinton, Columbia, Crawford, Elk, Fayette, Forest, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Juniata, Lawrence, McKean, Mifflin, Monroe, Montour, Northumberland, Perry, Pike, Potter, Schuylkill, Snyder, Somerset, Sullivan, Susquehanna, Tioga, Union, Venango, Warren, Wayne, and Wyoming

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[50] The Clean Air Council is a conservation organization located primarily in the southeastern part of Pennsylvania, and was established in 1967. https://cleanair.org/history/.
[51] *Clean Air Council v. Mallory,* 226 F.Supp.2d 705 (E.D. Pa.) October 18, 2002.
[52] *Ibid.*
[53] Citizens for Pennsylvania's Future (PennFuture) is a statewide environmental advocacy organization established in 1998. https://www.pennfuture.org/about-us.
[54] *Citizens for Pennsylvania's Future v. Mallory,* 2002 WL 31845880 (E.D. Pa.) December 18, 2002.

For the "Southcentral/Lehigh Valley Counties" and the "Outer 8 Counties", the level of testing required was determined by the group a county was assigned to and the model year of the vehicle to be inspected.

Table 2
Emission Testing Requirements
Under the Settlement Agreements
2002

Region	Model Years	
	1975-1995	**1996 and Newer**
Southcentral/Lehigh Valley Counties (currently identified as the *South Central Region*)	Gas Cap Test; Anti-Tampering/ Visual Inspection	OBD-I/M Check; Gas Cap Test
Outer 8 Counties (currently identified as the *Northern Region*)	Gas Cap Test; Anti-Tampering/ Visual Inspection	Gas Cap Test; Anti-Tampering/ Visual Inspection
42 Counties	Anti-Tampering/ Visual Inspection	Anti-Tampering/ Visual Inspection

Source: The Settlement Agreements, at footnote 46.

The program for the "Southcentral/Lehigh Valley Counties", now known as the South Central Region, was required to be fully operational by February 28, 2004. The program for the "Outer 8 Counties", now known as the Northern Region, had until March 31, 2004 to be fully operational. The 42 Counties were required to incorporate anti-tampering/visual inspections as an element of a vehicle operator's regular vehicle safety inspection by December 1, 2003. The settlements called for submission to the EPA of a revision to the Pennsylvania SIP that incorporated these changes to the I/M and vehicle safety programs by November 30, 2003.

The settlements reserved the right to DEP and PennDOT to submit proposed amendments to the SIP to conform to subsequent changes in the federal requirements for these programs. Similarly, the agreements reserved the right to the plaintiffs (Clean Air Council and Citizens for Pennsylvania's Future) to sue to force state compliance with subsequent changes in federal requirements for the programs.[55] In September 2003 PennDOT issued a notice certifying the establishment and implementation of the Enhanced

[55] "Settlement Agreement Between Defendants and Plaintiff Clean Air Council," *Clean Air Council v. Biehler* (E.D. Pa.) Civil Action No. 03-CV-1394. Undated. "Settlement Agreement Between Defendants and Plaintiff Citizens for Pennsylvania's Future," *Citizens for Pennsylvania's Future v. Biehler* (E.D. Pa.) Civil Action No. 02-CV-0798. Undated. "The Settlement Agreements."

I/M programs in the South Central and Northern Regions with a phase-in beginning December 1, 2003.[56] Pennsylvania submitted two SIP revisions to the EPA. The SIP revision submitted in December 2003[57] implemented the settlement agreement provisions, while the January 2004 revision added OBD testing in the Philadelphia and Pittsburgh Regions.[58] These SIP revisions are incorporated into Pennsylvania's regulations at 67 Pa. Code Chapter 177, Emission Inspection Program.[59]

A couple of aspects of the settlement agreements differ from specific requirements of the Clean Air Act. These differences, however, were approved by the EPA in its 2005 approval of Pennsylvania's December 2003 and January 2004 SIP revisions.[60] Specifically, federal regulations require Enhanced I/M programs for testing of 1968 and later model years.[61] The settlements and Pennsylvania's EPA-approved SIP identify "subject vehicles" as gasoline-powered motor vehicles with a model year of 1975 or newer, as set forth in the Commonwealth regulations.

Additionally, the Clean Air Act requires states to "provide for inspection of onboard diagnostics systems . . . and for the maintenance or repair of malfunctions or system deterioration identified by or affecting such diagnostics systems."[62] In 1996, the EPA issued a final rule to establish requirements for the inspection of on-board diagnostic (OBD) systems as part of I/M programs. "Today's action establishes the test procedures and requirements for the on-board diagnostic (OBD) computer test portion of the I/M test. OBD testing of all 1996 and newer model year vehicles will be required in all I/M programs (basic and enhanced) beginning January 1, 1998 except that areas in the Northeast Ozone Transport Region (OTR) eligible to implement an OTR low enhanced I/M program must begin OBD testing by January 1, 1999."[63]

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[56] Commonwealth of Pennsylvania, Department of Transportation. Notice. "Certification of the I/M Program for Designated Areas." 33 Pa. Bulletin 4864, Vol. 33, No.39. September 27, 2003.

[57]Commonwealth of Pennsylvania, Department of Environmental Protection. "Proposed State Implementation Plan Revision, Vehicle Emissions Inspection/Maintenance Program, Program Changes." November 2003.
http://files.dep.state.pa.us/air/AirQuality/AQPortalFiles/Regulations%20and%20Clean%20Air%20Plans/plans/plans/im/im_sip_final.pdf.

[58] Commonwealth of Pennsylvania. Department of Transportation. "Final State Implementation Plan Revision, Vehicle Emissions Inspection/Maintenance Program, Program Changes for Philadelphia and Pittsburgh Regions." January 2004.
http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Regulations%20and%20Clean%20Air%20Plans/plans/plans/im/obd_sip_final.pdf.

[59] Pennsylvania Department of Transportation. "Chapter 177. Emission Inspection Program." PUB-763 (10-17).

[60] U.S. Environmental Protection Agency. "Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Revision to the Motor Vehicle Enhances I/M Program-Philadelphia, Pittsburgh, South Central, and Northern Regions and Safety Inspection Program Enhancements for Non-I/M Regions." https://www.gpo.gov/fdsys/pkg/FR-2005-10-6/pdf/05-20003.pdf. October 6, 2005.

[61] 40 C.F.R. § 51.351(f)(4) and (g)(4).

[62] 42 U.S.C. §7521(m)(3).

[63] U.S. Environmental Protection Agency, 40 CFR Parts 51 and 85. "I/M Program Requirement-On-Board Diagnostic Checks." Federal Register, Vol. 61, No. 152, 40940 (Tuesday, August 6, 1996).

> With regard to providing flexibility to the states to dual test OBD-equipped vehicles, EPA hereby clarifies states are free to utilize both the OBD–I/M and traditional I/M tests on OBD-equipped vehicles. The purpose of this action is to provide states more—not less— flexibility with regard to how they comply with the CAA's requirement to perform OBD–I/M inspections on OBD equipped vehicles as part of their I/M programs. Prior to today's action, the requirement was to perform both OBD– I/M and traditional I/M tests on MY 1996 and newer, OBD-equipped vehicles, beginning no later than January 1, 2001. Today's action merely allows states that wish to do so to suspend the traditional I/M test on the segment of their fleets that are OBD equipped in conjunction with the startup of OBD–I/M checks on those same vehicles. States are not obligated by today's action to switch to OBD-only testing on the OBD-equipped portion of their subject vehicle fleet; states that choose to do so may continue to perform whatever I/M inspection they want on OBD-equipped vehicles— provided they also comply with the minimum, CAA requirement to perform the OBD–I/M check on these same vehicles as well.[64]

These standards became effective in 2001, before the settlement agreements were reached. Additionally, the EPA's final approval of the SIP recognized that the OBD requirement was not a part of the Enhanced I/M Program in the Northern Region counties.[65]

Federal Review of Effectiveness of Program

A project notification was released on May 5, 2017, explaining that the Office of Inspector General for the U.S. Environmental Protection Agency was beginning preliminary research to "determine whether EPA oversight has ensured that vehicle inspection and maintenance programs are effective and efficient in reducing vehicle emissions in enhanced inspection and maintenance areas."[66] It is anticipated that this report will be released in October 2018, but as of the release of this report, it has not been.

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[64] U.S. Environmental Protection Agency. "Rules and Regulations." Federal Register, Vol. 66, 18156, 18161 (Thursday, April 5, 2001).

[65] *Supra* note 51.

[66] U.S. Environmental Protection Agency. Memorandum. "Project Notification: Effectiveness of EPA's Oversight of State Vehicle Inspection and Maintenance Programs in Achieving Emission Reductions. Project No. OPE-FY17-0018 https://www.epa.gov/sites/production/files/2017-05/documents/_epaoig_notificationmemo_05-05-17_emissions.pdf.

Inspection/Maintenance Regions

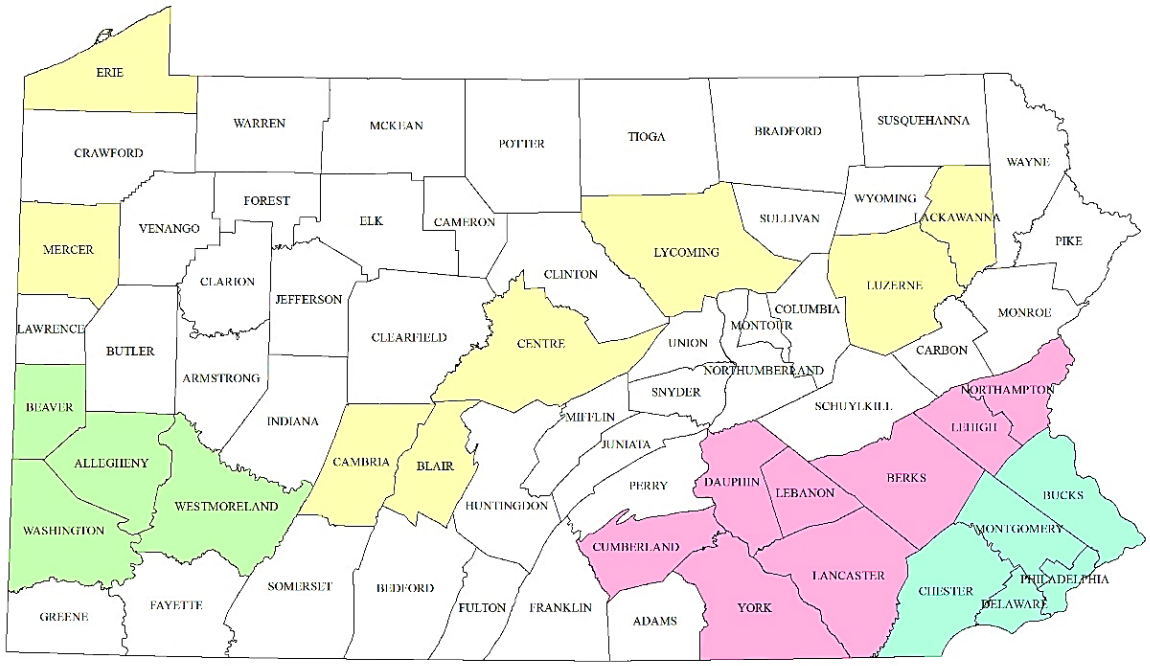
Pennsylvania's vehicle I/M Program applies to 25 of the Commonwealth's 67 counties. The 25 counties are divided into four regions. See Table 3.

Table 3
Counties in the Enhanced Emissions I/M Program
By Region and County Class

Region	County	Class
Philadelphia	Bucks	Second A
	Chester	Third
	Delaware	Second A
	Montgomery	Second A
	Philadelphia	First
Pittsburgh	Allegheny	Second
	Beaver	Fourth
	Washington	Fourth
	Westmoreland	Third
Northern	Blair	Fifth
	Cambria	Fourth
	Centre	Fourth
	Erie	Third
	Lackawanna	Third
	Luzerne	Third
	Lycoming	Fifth
	Mercer	Fifth
South Central	Berks	Third
	Cumberland	Third
	Dauphin	Third
	Lancaster	Third
	Lebanon	Fifth
	Lehigh	Third
	Northampton	Third
	York	Third

Source: Compiled by JSGC staff.

Pennsylvania Department of Transportation
Counties in the Enhanced Emissions I/M Program
2018



South Central Region
Northern Region
Pittsburgh Region
Philadelphia Region

In the remaining 42 counties, Pennsylvania requires a visual check[67] to look for tampering with the vehicle's emissions system as part of the vehicle's safety inspection. The 42 counties consists of 24 sixth class counties, four seventh class counties, eight eighth class counties, the fifth class counties of Lawrence and Northumberland, and the fourth class counties of Butler, Fayette, Franklin and Schuylkill. They are the unshaded counties on the above map.

Twenty counties in the I/M Program are third, fourth and fifth class counties, and are the subjects of this report. Of those 20, 16 counties were the subject of the lawsuits and settlements agreements discussed in the previous chapter and the provisions governing their emission testing programs are part of the SIP revisions EPA approved in 2005. These 16 counties are the constituent parts of the South Central Region (Berks, Cumberland, Dauphin, Lancaster, Lebanon, Lehigh, Northampton and York counties) and Northern Region (Blair, Cambria, Centre, Erie, Lackawanna, Luzerne, Lycoming and Mercer counties).

Testing Requirements

Testing is required on all subject vehicles registered in the counties covered by the I/M Program. Subject vehicles are defined by model year and type of vehicle. "Gasoline-powered motor vehicles with a model year of 1975 and newer with a gross vehicle weight rating (GVWR) of 9,000 pounds or less" are subject to vehicle inspections. Exceptions are made for new (current model year) vehicles, vehicles driven less than 5,000 miles per year, and antique, classic, and collectible motor vehicles, motorcycles, farm equipment and various other specialty vehicles.[68] The type of testing required is determined by the region the vehicle is registered in and the model year of the vehicle. The Pittsburgh and Philadelphia Regions have automatic yearly changes to their emissions program requirements, as mandated by regulation.

[67] 67 Pa Code § 175.80(d).
[68] 67 Pa. Code § 177.51(e), § 177.101.

Table 4
I/M Program
Types of Test Required
By Region, by Model Year
For the Testing Year 2018

Region	Model Years			
	1975-1992	**1993-1995**	**1993-1995 4x4***	**1996 and Newer**
Philadelphia	Gas Cap Test; Visual Inspection	ASM-1 (ASM5015); Evaporative System Function Test; Visual Inspection	Two-Speed Idle Test; Visual Inspection; Pressure Purge and Gas Cap Test**	OBD-I/M Check; Gas Cap Test
Pittsburgh	Gas Cap Test; Visual Inspection	Two-Speed Idle Test; Gas Cap Test; Visual Inspection	Two-Speed Idle Test; Gas Cap Test; Visual Inspection	OBD-I/M Check; Gas Cap Test
South Central	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection	OBD-I/M Check; Gas Cap Test
Northern	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection

*The Philadelphia Region has separate testing requirements for 1993-1995 full time all-wheel drive vehicles.
**The Evaporative System Function Test and the Pressure Purge and Gas Cap Test are the same test.
Source: Compiled by JSGC Staff from 67 Pa. Code Chapter 177.

By the year 2021, model year vehicles 1975-1995 will only require a gas cap test and a visual inspection, and 1996 and newer model year vehicles will only require an OBD-I/M check and a gas cap test (with the exception of Northern Region counties, which are not required to use the OBD-I/M check).

Table 5
I/M Program
Types of Test Required
By Region, by Model Year
For the Testing Year 2021

Region	Model Years		
	1975-1995	**1996 and Newer 8500 GVWR and Under**	**1996 and Newer 8501 to 9000 GVWR**
Philadelphia	Gas Cap Test; Visual Inspection	OBD-I/M Check; Gas Cap Test	Two Speed Idle Test; Gas Cap Test: Visual Inspection
Pittsburgh	Gas Cap Test; Visual Inspection	OBD-I/M Check; Gas Cap Test	Two Speed Idle Test; Gas Cap Test: Visual Inspection
South Central	Gas Cap Test; Visual Inspection	OBD-I/M Check; Gas Cap Test	--
Northern	Gas Cap Test; Visual Inspection	Gas Cap Test; Visual Inspection	--

Source: Compiled by JSGC Staff from 67 Pa. Code Chapter 177.

Equipment Requirements

Federal regulations state that "Computerized emission test systems are required for performing an official emissions test of subject vehicles."[69] This requirement is also incorporated into Pennsylvania regulations.[70] Pennsylvania's regulations and the SIP anticipate that inspection stations will have different equipment needs based on the type of testing required for subject vehicles in their I/M Region.

[69] 40 C.F.R. § 51.358.
[70] 67 Pa. Code § 177.202(a).

Equipment required shall include the following:
* * *
(3) Exhaust emission analyzer approved by the Bureau [of Motor Vehicles of the Department of Transportation] . . . , where applicable.
(4) Approved dynamometer, where applicable.
(5) Where applicable, OBD-I/M equipment . . . , approved by the Bureau
(6) Where applicable, equipment for performing the gas cap test and visual inspection.[71]
* * *

Similarly, the contents of emission inspection reports also reflect this expectation of differing types of testing equipment.

The report . . . shall include:
* * *
(4) The type of tests performed.
(5) The applicable test standards.
(6) The I/M emission test results, if applicable . . .
(7) The OBD-I/M check results, if applicable
(8) The results of the gas cap test.
(9) The results of the visual inspection, if applicable.[72]
* * *

Additionally, PennDOT released notices in June 2003 announcing the availability of final technical specifications for "stand alone" visual testing equipment and onboard diagnostic testing equipment.[73]

Until recently, service stations, garages, and other emissions testing facilities were able to use computerized testing equipment tailored to the requirements of the I/M Region. In 2016, PennDOT issued a notice to provide updated emissions equipment specifications to be used for OBD testing, informing facilities that upgraded equipment will be needed.[74] This notice was issued under the authority of the Pennsylvania Vehicle Code, which provides:

[71] 67 Pa. Code § 177.406.
[72] 67 Pa. Code § 177.252.
[73] Pennsylvania Department of Transportation. Notices. "Specifications for Visual-Inspection/Maintenance Check Equipment" and "Specifications for Onboard Diagnostics-Inspection/Maintenance Equipment." 33 Pa. Bulletin 2948, Vol. 33, No.25. June 21, 2003.
[74] Pennsylvania Department of Transportation. Notices. "Specifications of Onboard Diagnostics; Inspection and Maintenance Equipment." 46 Pa. Bulletin 729. Vol. 46, No.6. February 6, 2016.

> Upon certification by the secretary [of The Department of Transportation] of the need to comply with Federal law, the department shall promulgate such regulations as may be necessary to implement the emission inspection program but it shall not promulgate a regulation that would require safety inspection stations to also perform emission control inspections. *Regulations promulgated by the department relating to the enhanced emission inspection program shall not be subject to the proposed rulemaking provisions of the* act of July 31, 1968 (P.L.769, No.240), referred to as the *Commonwealth Documents Law, or* the act of June 25, 1982 (P.L.633, No.181), known as *the Regulatory Review Act*. (emphasis added).[75]

This authority is reiterated by regulation:

> If the EPA develops or approves other test procedures, including test procedures prescribed in this section [Test Procedures], the Department [of Transportation] may adopt these subsequently approved test procedures consistent with section 4706(e) of the Vehicle Code (relating to prohibition on expenditures for emission inspection program).[76]

The 2016 specifications call for testing devices that are capable of performing visual and OBD testing. As of October 3, 2018, PennDOT had not specified a date by which all stations must meet the new equipment requirement. Three manufacturers' equipment has been certified and approved for sale as of October 23, 2018.[77] While concerns have been expressed by service station owners in the Northern Region that this change will require them to purchase equipment for tests they do not perform, PennDOT has confirmed that all three participating manufacturers offer the option of visual-only configurations so that the eight counties in the Northern Region can still obtain new equipment to only perform tests that are required in their region. They are not required to purchase equipment for tests they do not perform.[78] As Table 6 below indicates, over 1,000 inspection stations in the Northern Region, more than 81 per cent of the total in the region, only offer visual and gas cap testing.

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[75] 75 Pa.C.S. § 4706(e). Subsection (e) added by the act of December 16, 1992 (P.L.1250, No.166).

[76] 67 Pa. Code § 177.203(e).

[77] Pennsylvania Department of Transportation, Drive Clean PA! "Pennsylvania Emissions Inspection Program, OBD and Visual Emissions Equipment Specification Changes." Website visited October 23, 2018. https://www.padrivecleanportal.com/wps/portal/!ut/p/a1/hY7BDoIwEES_hQPXdqMg6A0lEQychV5MwRVqSsFS4PdF41FxTzuTtzNLGc0oU3wUFTeiVVy-NNtcDscgcrwEABx_BXG4j0JvmwKk7gzkMwA_JoB_92fKFpHY-wALFSfKKtkW73fzQBVrv6JM4w01ajLo2a6N6XY22DBNE7lqMWIpkauOk95wg2Reht6GHvUoSrQBH4PoGlSG1Kb5llq3vaHZUhrtmgzurhyTwLKeS9bYow!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/pw/Z7_52IG13K0JOVIE0A2AD19K830O3/res/id=getDocumentContent/c=cacheLevelPage/=/?documentName=01_OBD%20and%20Visual%20Emissions%20Equipment%20Specifications%20Changes.pdf.
Email notification of certification of all three manufacturers received via email from PennDOT Bureau of Motor Vehicles, October 23, 2018.

[78] Visual only option confirmed via email from PennDOT Bureau of Motor Vehicles, October 2, 2018.

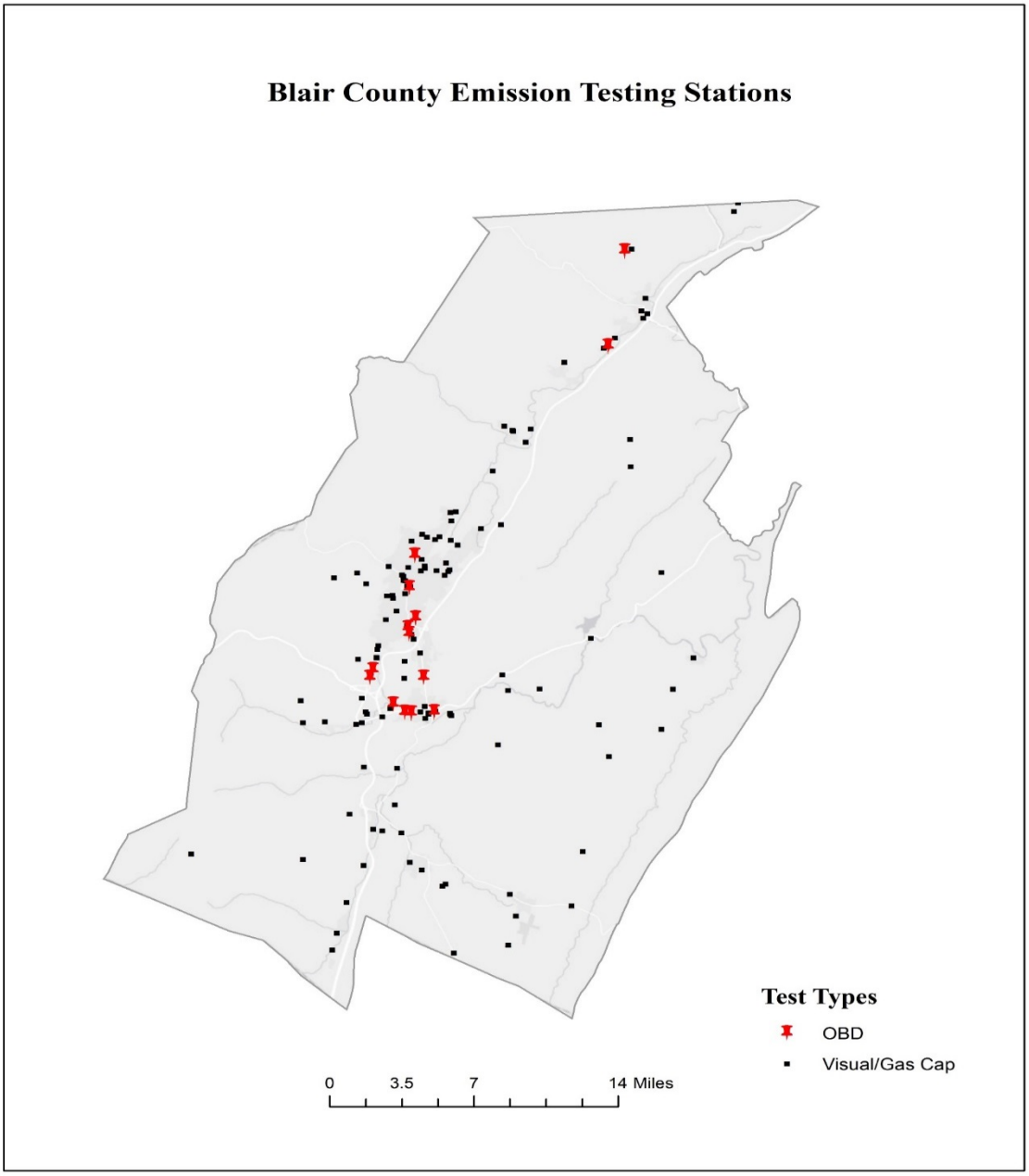
Table 6
Emissions Inspections Stations - Northern I/M Region
Number of Stations and Tests Offered
August 1, 2018

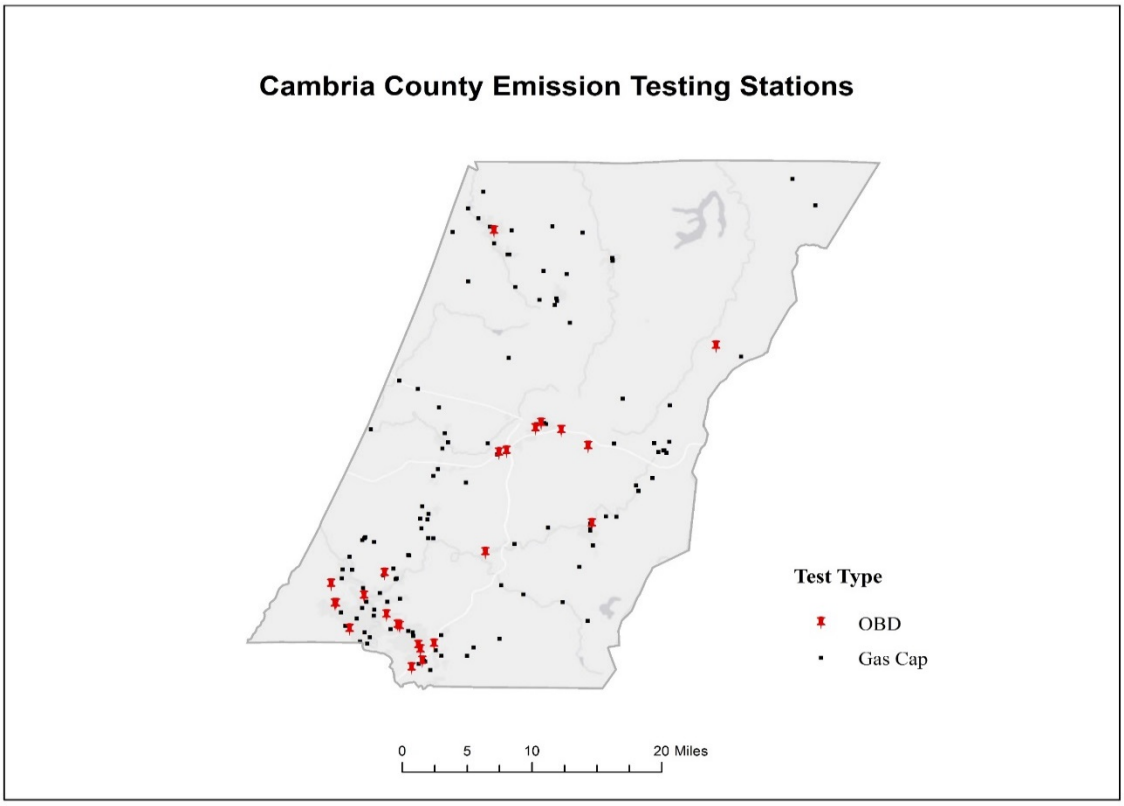
County	Total Number of Stations	Number of Stations Offering OBD and Gas Cap Testing	Number of Stations Offering Gas Cap Testing and Visual
Blair	139	14	125
Cambria	148	24	124
Centre	110	42	68
Erie	233	43	190
Lackawanna	206	26	180
Luzerne	273	46	227
Lycoming	129	48	81
Mercer	112	10	102
TOTALS	1,350	253	1,099

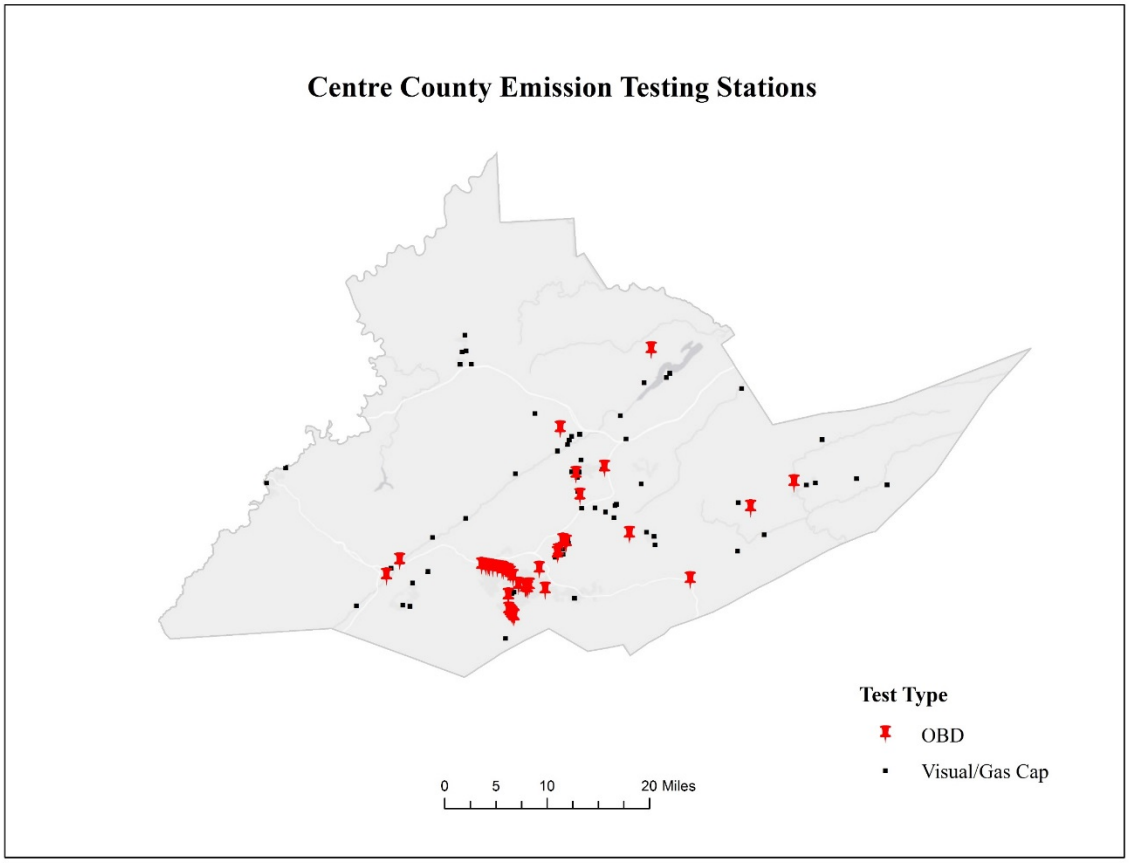
Source: Drive Clean PA! Northern Region Inspection Stations.
http://www.drivecleanpa.state.pa.us/stations/stations_nr.htm.

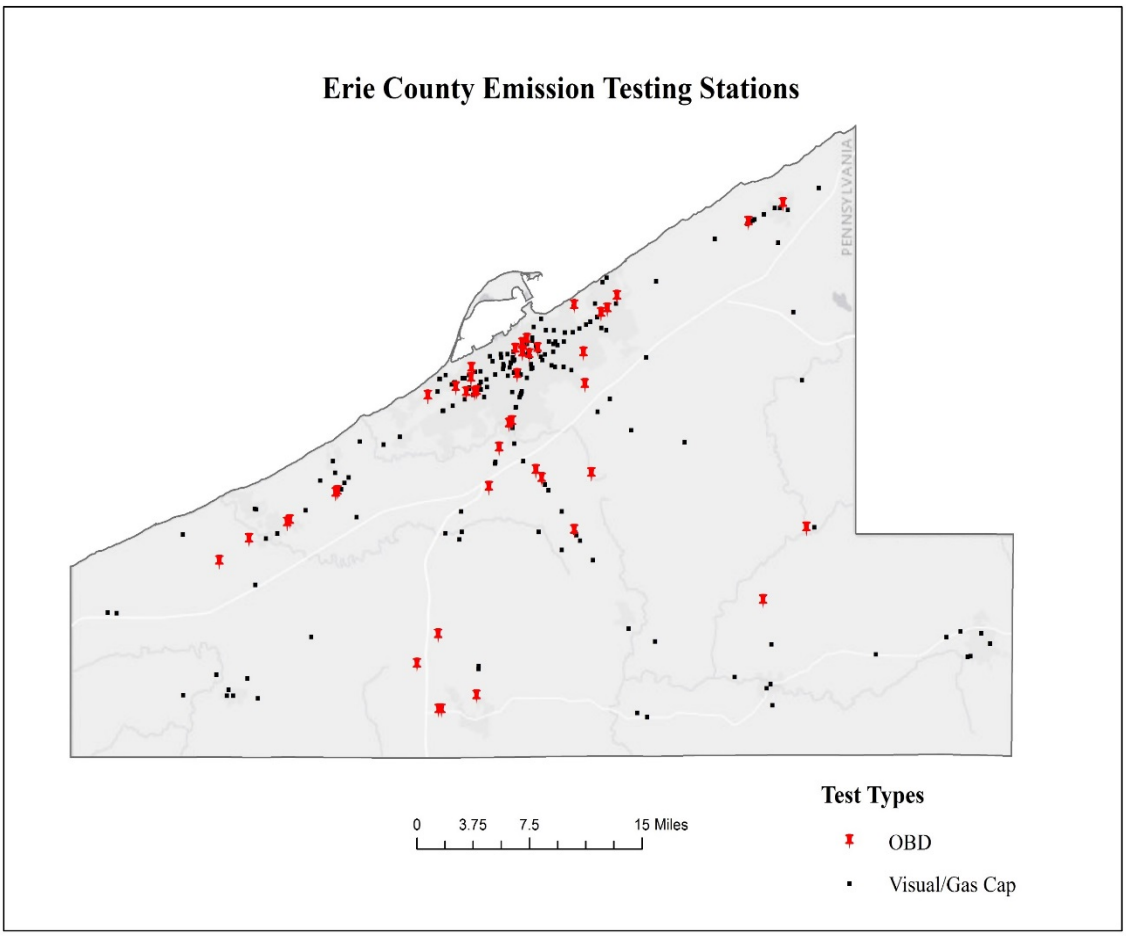
The following maps show geographic distribution of emissions inspections stations in the Northern Region. As shown in Table 6, above, the number of visual and gas cap only stations greatly outnumbers the stations that also provide OBD testing, and the OBD inspections stations tend be to in more concentrated areas. Data for the eight following maps was compiled by JSGC staff from PennDOT's Drive Clean PA! website as of August 1, 2018. Charts for each county within each region that list location and contact information, as well as types of tests performed, are found on the website.[79]

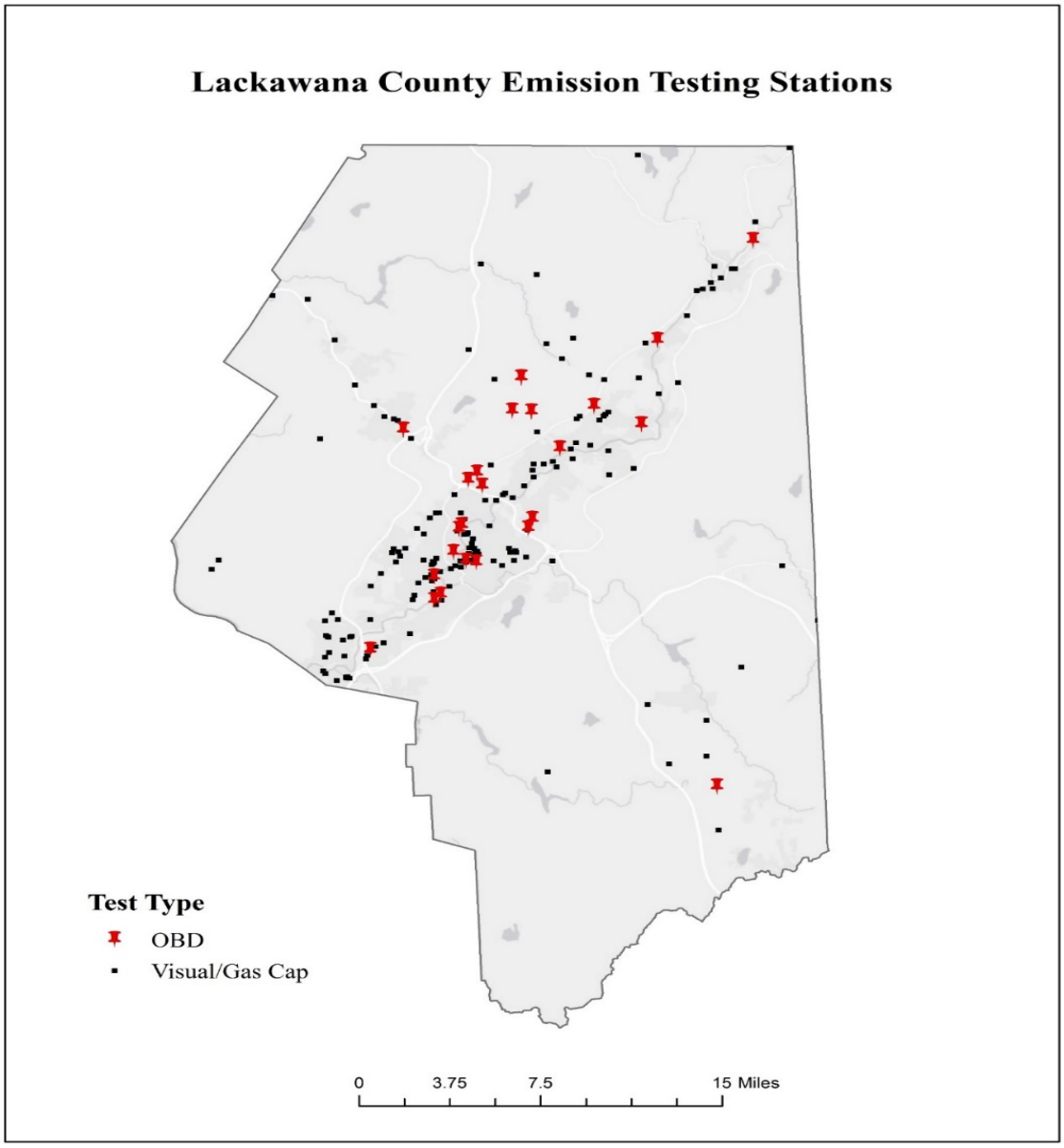
[79] Pennsylvania Department of Transportation. Drive Clean PA!
http://www.drivecleanpa.state.pa.us/stations/stations_nr.htm.


Blair County Emission Testing Stations
Test Types
OBD
Visual/Gas Cap
0
3.5
7
14 Miles

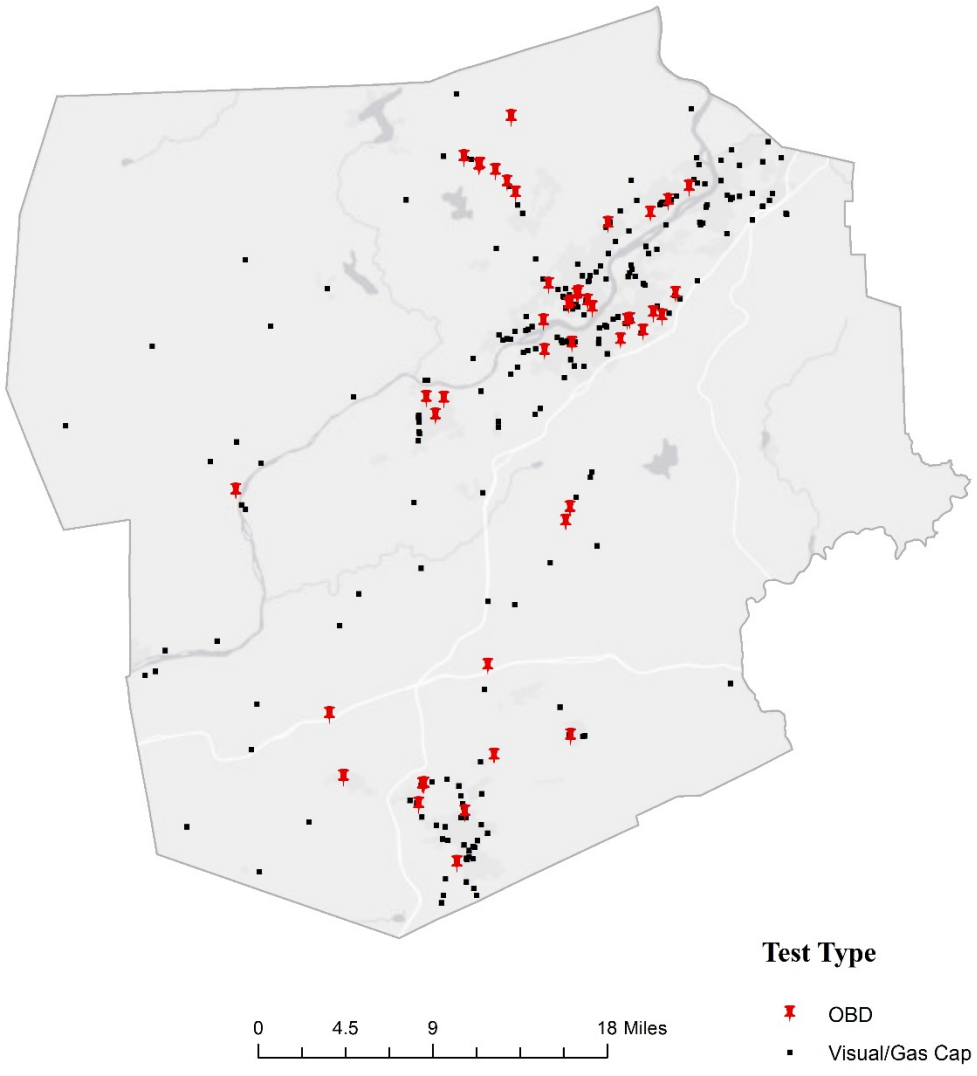

Cambria County Emission Testing Stations
Test Type
OBD
Gas Cap
0
5
10
20 Miles

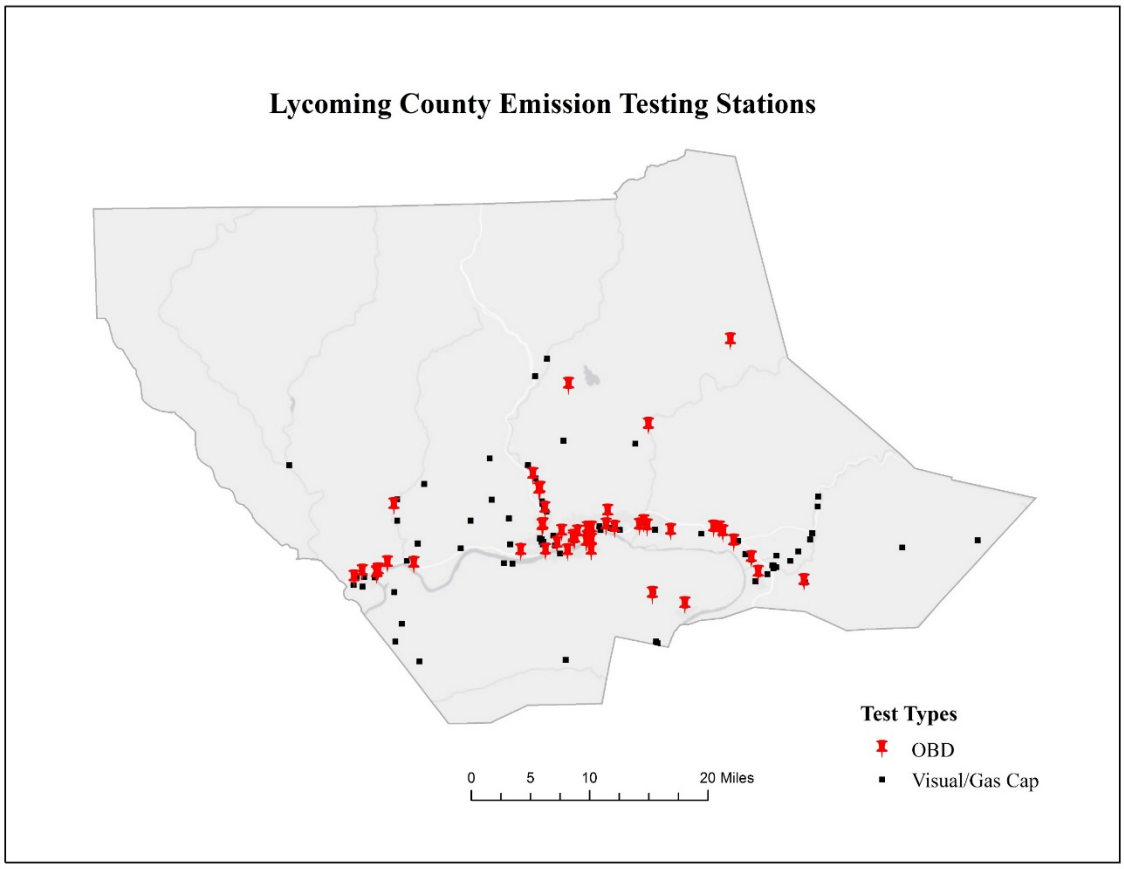

Centre County Emission Testing Stations
Test Type
OBD
Visual/Gas Cap
0
5
10
20 Miles

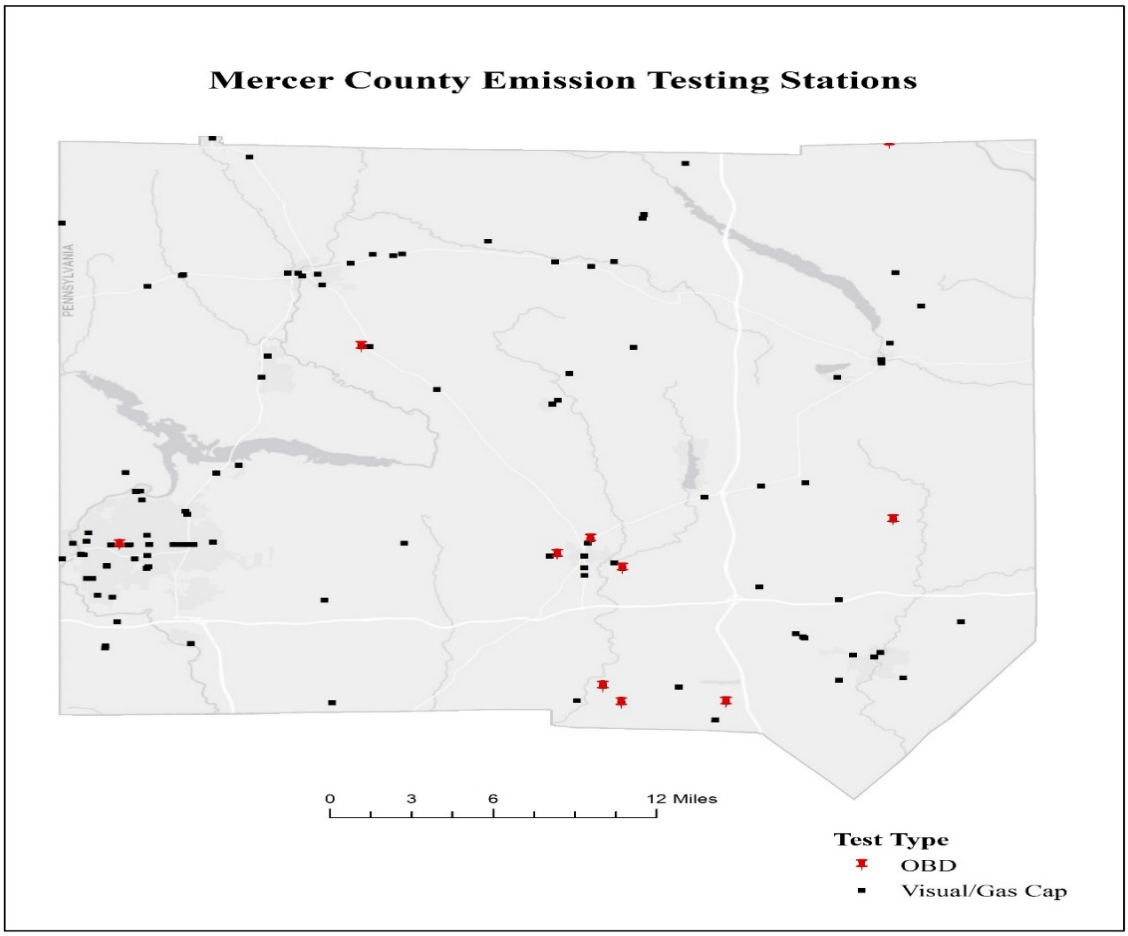

Erie County Emission Testing Stations
PENNSYLVANIA
0
3.75
7.5
15 Miles
Test Types
OBD
Visual/Gas Cap


Lackawana County Emission Testing Stations
Test Type
OBD
Visual/Gas Cap
0
3.75
7.5
15 Miles

Luzerne County Emission Testing Stations




Lycoming County Emission Testing Stations
Test Types
OBD
Visual/Gas Cap
0
5
10
20 Miles


Mercer County Emission Testing Stations
PENNSYLVANIA
0
3
6
12 Miles
Test Type
OBD
Visual/Gas Cap

Certified Inspection Stations

In order to perform emissions inspections, a service station must be certified by PennDOT and it must employ certified emissions inspectors. Each place of business must file an application that includes a $10,000 bond or proof of insurance, renewable annually, that provides for compensation to the vehicle owner for damage the vehicle may sustain while in the possession of the service station.

There are three types of stations [80] General emissions inspections stations are the stations used by the general public for inspection of their personal or business vehicles. In adopting the Enhanced I/M Program in 1996, PennDOT announced its intentions with regard to test fees for emissions testing:

> The Department is proposing that there be no cap on the test fee that test-and-repair stations can charge for the enhanced emissions test. While a cap on the test fee serves the purpose of ensuring that the fee is affordable to motorists, the Department believes that a cap artificially lowers the fee and may unintentionally encourage emissions facilities to fail vehicles that should pass just so that the station can recover the costs of performing the test. . . . the fee would not be set by the State but rather would be market-driven, and motorists would be able to select their preferred facility using criteria that are important to that particular motorist, such as location, price, and/or service. The Department expects market competition to keep the emissions test fee low.[81]

On April 24, 2004, after media reports of price fixing for the emissions test between general emissions inspection stations (garages), the Pennsylvania House of Representatives passed House Resolution 577 directing the Attorney General to "investigate the possibility of collusion among the garage owners in the establishment of their emissions testing fees and whether there may be any violation of the Unfair Trade Practices and Consumer Protection Law or any other statutes." The Office of the Attorney General was given 90 days to report its findings to the legislature.[82]

The Attorney General discovered several factors related to the higher-than-anticipated costs of emissions testing. First, the emissions testing process took longer than had been anticipated by the PennDOT. Second, the equipment used for testing was more expensive than had been predicted and PennDOT assumed the cost would be amortized over a period of three years. However, garages wanted to amortize the cost of the

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[80] "Commonwealth" stations, more aptly described as "government" stations, are owned and operated by either the federal government, the Commonwealth or a political subdivision. "Fleet" stations are owned and operated by businesses that own or lease at least 15 subject vehicles. "General" stations are those used by the general public.

[81] Commonwealth of Pennsylvania, Department of Transportation. Proposed Rulemaking. "Enhanced Emission Inspection." 26 Pa. Bulletin 1221, 1224. Vol. 26, No.11 (March 23, 1996).

[82] House Resolution 577, Printer's No. 3472, adopted April 24, 2004.

equipment within one fiscal year because the large up-front purchase price of the equipment constituted a large cash outflow for these businesses, money that had to be recouped to fund payroll and other expenses. Additionally, the regulations placed particular burdens on smaller garages that performed only three to five emissions tests per day. Further, PennDOT failed to account for an allocation of other overhead expenses (such as rent or mortgage on the garage property) to the emissions testing, which would be ordinarily allocated to all services offered by the garage.[83]

The Attorney General concluded that, while isolated incidents of collusion or price-fixing could not be ruled out, on the whole there was no evidence sufficient to support a claim of federal antitrust violations against any of the garages researched by the office.[84] Although some garages contacted other garages to compare pricing, such surveying is not actionable under the federal antitrust laws; in any case, the information about prices charged by various garages was made available to the public on the state's own Drive Clean PA website.[85] In other words, the disagreeable pricing (from the consumer's standpoint) of the emissions tests was due to business and economic factors.

In 2018, fees remain market driven. Test fees cover the cost of labor for the inspection, but not the cost of parts, repairs or adjustments. All prices include a program management fee of $1.65, which is collected by the station and remitted to PennDOT's contracted emissions program manager.[86] Table 7, below, identifies the number of certified emissions inspections stations in the third, fourth and fifth class counties in the I/M program, and the average cost per test per county.

[83] "Report of the Office of Attorney General in Response to House Resolution No. 577 – Pricing Factors for Auto Emissions Testing in Pennsylvania." June 22, 2004, pp. 5-6.
http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Automobiles/cars/docs/Auto_Emissions.pdf.
[84] *Ibid*. at p. 7.
[85] *Ibid*.
[86] 67 Pa. Code § 177.404; and Pennsylvania Department of Transportation. Vehicle Inspection Division Bulletin. "Change in Emission Inspection Program Regulations," EB16-03. May 2016.
http://www.drivecleanpa.state.pa.us/service/Bulletin_special_eb16-03.pdf.

Table 7
I/M Program
Third, Fourth and Fifth Class Counties
Number of Certified Emissions Inspection Stations and Average Emissions Testing Cost and County

Region	County	Certified Emissions Inspection Stations	Average Test Cost
Philadelphia	Chester	343	$47.26
Pittsburgh	Beaver	125	39.43
	Washington	159	38.91
	Westmoreland	299	37.60
Northern	Blair	139	28.16
	Cambria	148	29.61
	Centre	110	33.11
	Erie	233	31.00
	Lackawanna	206	32.68
	Luzerne	273	29.84
	Lycoming	129	32.38
	Mercer	112	31.10
South Central	Berks	344	35.95
	Cumberland	185	37.69
	Dauphin	215	36.83
	Lancaster	470	36.54
	Lebanon	139	39.57
	Lehigh	288	37.60
	Northampton	209	38.55
	York	386	32.65

Source: Information regarding average cost per test compiled by PennDOT Bureau of Motor Vehicles as of July 15, 2018. Information regarding number of certified inspection stations compiled by JSGC staff from Drive Clean PA! as of August 1, 2018. http://www.drivecleanpa.state.pa.us/info_service.htm.

Certified Emission Inspectors

Each general emissions inspection station is required to have a certified emissions inspector present during normal business hours.[87] An inspector applicant must:

- be at least 18 years of age;
- have a valid driver's license;
- attend a PennDOT approved certification course;
- successfully complete the prescribed tests; and
- take recertification courses and test every two years.

A separate certification is available for inspectors restricted to the Northern Region, because subject vehicles in that region are subject only to gas cap and visual check emissions inspections. As of September 22, 2016, students in the Northern Region were required to download the training materials from the program's administrators and an approved school would proctor paper-based exams for all visual emissions inspector certifications and recertification.[88] In 2018, PennDOT announced enhancements to the initial certification and recertification program for emissions inspectors. Effective August 1, 2018, all emissions recertification training and exams are required to be performed online. Initial emissions certification will require students to obtain materials and register in PennDOT's new training portal. Initial certification will continue to be instructor-led; however, in September 2018, PennDOT replaced the paper-based exam with an online proctored exam.[89]

[87] 67 Pa. Code § 177.424(c).

[88] Pennsylvania Department of Transportation. Vehicle Inspection Division Bulletin. "Changes to Emissions Inspector Certification and Recertification Program; New Students and Existing Inspectors; Emissions Certification Schools and Instructors." EB16-04. September 2016.

[89] Pennsylvania Department of Transportation. Vehicle Inspection Division Bulletin. "Emissions Certification and Recertification Program Changes." EB18-01. March 2018. Email from PennDOT Bureau of Motor Vehicles, October 9, 2018.

Table 8
Emissions Testing Schools and Testing Facilities
By Region and County in the I/M Program
2018

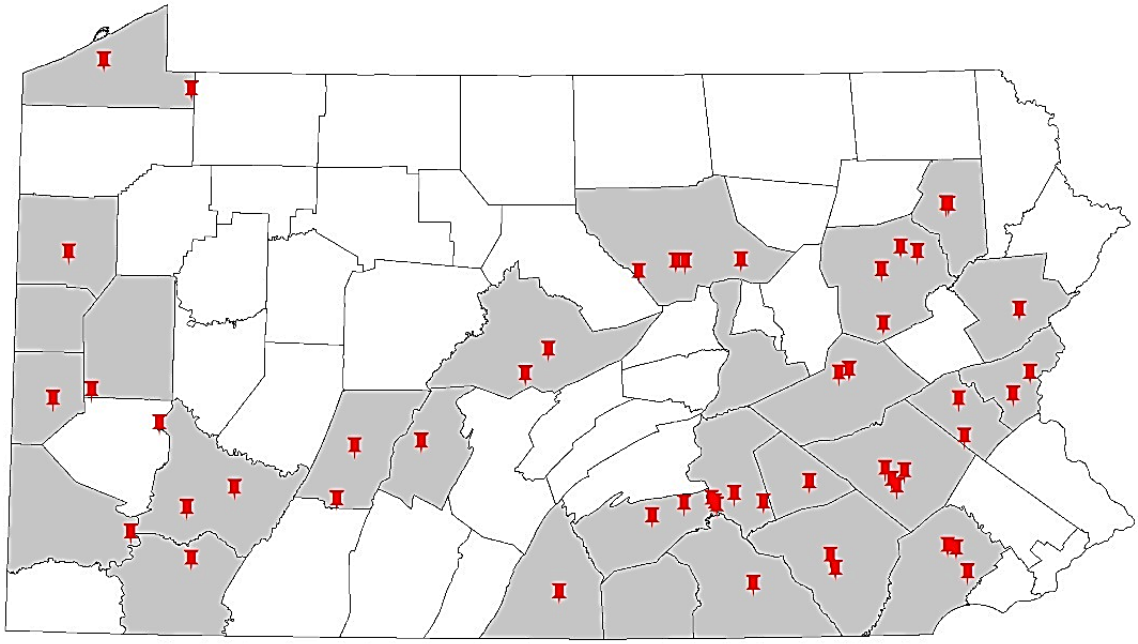
Region	County	Schools and Testing Facilities[1]
Philadelphia	Chester	3
Pittsburgh	Beaver	1
	Washington	3
	Westmoreland	4
Northern	Blair	1
	Cambria	2
	Centre	2
	Erie	2
	Lackawanna	2
	Luzerne	4
	Lycoming	3
	Mercer	1
South Central	Berks	5
	Cumberland	3
	Dauphin	4
	Lancaster	5
	Lebanon	2
	Lehigh	1
	Northampton	2
	York	3

Source: PennDOT Driver and Vehicle Services. School and Instructors Program. "Active Emissions Schools by County for the Web." May 29, 2018. http://www.dot.state.pa.us/public/dvspubsforms/BMV/BMV%20Publications/EmissionSchools.pdf.

[1] Testing schools and facilities include vocational-technical high schools, career and technology centers, community colleges, technical institutes and colleges, and other for-profit training centers.

The following map indicates the location of the emissions training facilities in Pennsylvania's third, fourth, and fifth class counties. The map shows a concentration of emissions schools in the Philadelphia and South Central Regions and the relative dearth of schools in the Allegheny and Northern Regions.

Approved Emissions Schools in PA's 3rd, 4th and 5th Class Counties



Source: Data from Drive Clean PA! website list as of May 29, 2018.

SUBJECT COUNTIES

SR168 directed the Commission to examine the third, fourth and fifth class counties that are part of the enhanced emissions inspection/maintenance program in Pennsylvania. Accordingly, information about the I/M program in the following counties is included in this chapter: Beaver, Berks, Blair, Cambria, Centre, Chester, Cumberland, Dauphin, Erie, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Mercer, Northampton, Washington, Westmoreland, and York.

Inclusion in the enhanced emissions/inspection program for areas in the OTR is based on one criterion, although an area in the OTR that is not covered by this criterion but is designated by EPA as an ozone nonattainment area is also likely required to have an I/M program.[90] The OTR criterion is that if the population of an MSA or part of an MSA exceeded 100,000 people in the U.S. Census of 1990. All other factors are largely irrelevant. However, there are aspects of the counties included in the I/M Program, that, while not justification for removal from the I/M Program and/or the OTR, are noteworthy nonetheless. The State of Maine's petition for removal of a portion of the state from the OTR relies on the history of those areas in maintaining a consistent attainment status, despite their qualification by virtue of their MSA population levels for inclusion in the OTR.

Nonattainment Status

As explained earlier in this report, the CAA identifies six principal pollutants that act as ambient air quality indicators. These are called "criteria pollutants." Acceptable concentrations of these criteria pollutants are set forth in the NAAQS. EPA designates areas where these pollutants consistently stay below these standards as "attainment." EPA designates areas where air pollution levels exceed these standards as "nonattainment." If an area was in nonattainment, but now attains the standard, has been re-designated by EPA as being in attainment of the standard, and has an EPA approved plan to maintain the standard, it is designated a "maintenance" area. EPA is required to review a NAAQS periodically and can change them (in other words strengthen or weaken the concentration level) based on human health evaluations. A nonattainment area can have an EPA Clean Data Determination (CDD) when it has attained a NAAQS but is still considered to be a nonattainment area until it has the EPA re-designation and an approved maintenance plan. A nonattainment area can have a CDD for a revised NAAQS even before it has an approval maintenance plan for a prior NAAQS.

[90] 42 U.S.C § 7511c(1)(a), § 7511a.

As Table 9 indicates, most of the 20 counties examined in this report are in attainment or maintenance status for most criteria pollutants. The Philadelphia Region is in nonattainment status for the 2015 ozone standard and parts of the region have a CDD for the 2012 particulate matter standard. The Pittsburgh Region is in attainment for the 2015 ozone standard, Allegheny is in nonattainment for the 2012 particulate matter standard and parts of Beaver County are also in nonattainment for sulfur dioxide and lead. Parts of Berks County are in nonattainment for lead, and Lebanon County has a CDD for particulate matter. No counties in the Northern Region are in nonattainment status for any criteria pollutant.

The EPA finalized designations for the 2015 ozone standard in 2018 at 70 parts per billion (ppb[91]). This is lower than the 2008 ozone standards of 75 ppb. Under the 2018 standards, all of the counties included in this study are in attainment except Chester County. Under the high 2008 ozone standard, Beaver, Berks, Lancaster, Lehigh, Northampton, Washington, and Westmoreland Counties were considered nonattainment. The EPA has not re-designated them as in attainment of the 2008 standard and the 2008 standard has not yet been revoked by the EPA.

[91] Parts per billion (ppb) is the number of units of mass of a contaminant per 1000 million units of total mass. https://www.greenfacts.org/glossary/pqrs/parts-per-billion.htm.

Table 9
Nonattainment Status By County and Criteria Pollutants
August 31, 2018

County	Ozone (2015)	Carbon Monoxide	Particulate Matter	Sulfur Dioxide	Lead (2008)	Nitrogen Dioxide
Philadelphia Region						
Chester	Nonattainment		*Maintenance 2015*			
Pittsburgh Region						
Beaver			*Maintenance 2015*	Nonattainment (parts of county)	Nonattainment (parts of county)	
Washington			*Maintenance 2015*			
Westmoreland			*Maintenance 2015*			
Northern Region						
Blair						
Cambria			*Maintenance 2015*			
Centre						
Erie						
Lackawanna						
Luzerne						
Lycoming						
Mercer						
South Central Region						
Berks			*Maintenance 2015*		Nonattainment (parts of county)	
Cumberland			*Maintenance 2014*			
Dauphin			*Maintenance 2014*			
Lancaster			*Maintenance 2015*			
Lebanon			Nonattainment			
Lehigh			*Maintenance 2015*			
Northampton			*Maintenance 2015*			
York			*Maintenance 2014*			

Source: U. S. Environmental Protection Agency. Green Book. "Current Nonattainment Counties for All Criteria Pollutants." August 31, 2018. https://www3.epa.gov/airquality/greenbook/ancl.html.
Blank areas represent unclassifiable/attainment status for those criteria pollutants.

Population Decreases

Of the 20 counties included in this report, eight of them have experienced a consistent decline in population since 1990. Fewer residents means fewer motor vehicles creating emissions. The populations of these counties remain, however, above the CAA's 100,000 population threshold for inclusion in the I/M program.

Table 10
Population of 3rd, 4th, and 5th Class Counties
in the Ozone Transport Region
1990-2017

Region	County	Population 1990	Population 2000	Population 2010	July 1, 2017 Est.
Philadelphia	Chester	376,396	433,501	498,886	519,293
Pittsburgh	Beaver	186,093	181,412	170,539	166,140
	Washington	204,584	202,897	207,820	207,298
	Westmoreland	370,321	369,993	365,169	352,627
Region Total		**760,998**	**754,302**	**743,528**	**726,065**
Northern	Blair	130,542	129,144	127,089	123,457
	Cambria	163,029	152,598	143,679	133,054
	Centre	123,786	135,758	153,990	162,660
	Erie	275,572	280,843	280,566	274,541
	Lackawanna	219,039	213,295	214,437	210,761
	Luzerne	328,149	319,250	320,918	317,343
	Lycoming	118,710	120,044	116,111	113,841
	Mercer	121,003	120,293	116,638	111,750
Region Total		**1,260,791**	**1,471,225**	**1,473,428**	**1,447,607**
South Central	Berks	336,523	373,638	411,442	417,854
	Cumberland	195,257	213,674	235,406	250,066
	Dauphin	237,813	251,798	268,100	275,710
	Lancaster	422,822	470,658	519,445	542,903
	Lebanon	113,744	120,327	133,568	139,754
	Lehigh	291,130	312,090	349,497	366,494
	Northampton	247,105	267,066	297,735	303,405
	York	339,574	381,751	434,972	446,078
Region Total		**2,183,968**	**2,391,002**	**2,650,165**	**2,742,264**

Source: 1990 data compiled by JSGC staff from U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, "1990 Census of Population and Housing, Population and Housing Unit Counts, United States." Table 48. Population and Housing Units, 1970 to 1990; Land Area and density for Metropolitan Area: 1990. pp. 603-650. 1990 CPH-2-1. 2000 data compiled by JSGC staff from U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, "American Factfinder". Profile of General Demographic Statistics: 2000, DP-1.
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk 2010 and 2017 data compiled by JSGC staff from U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census "Quickfacts."
https://www.census.gov/quickfacts/fact/map/pa,US/POP010210#viewtop and
https://www.census.gov/quickfacts/fact/map/pa,US/PST045217.

Number of Subject Vehicles

In addition to the likely decrease in the number of motor vehicles registered in the counties with declining populations, the type of vehicles that are subject motor vehicles is changing. Newer model vehicles are subject to increasingly more stringent emissions standards in their manufacture, and are replacing older, less efficient models by means of attrition. Newer model vehicles still produce emissions, and require monitoring and oversight. In the 20 counties reviewed for this study, the number of pre-1995 model year vehicles is extremely small, averaging around four percent of the total subject vehicles in the group as shown in Table 11.

Table 11
Number of Subject Vehicles by Select County
Percentage of Subject Vehicles with Model Years 1975-1995
As of July 15, 2018

Region	County	Total Vehicles	1975-1995 Model Year Vehicles	Percentage of 1975-1995 Model Year Vehicles
Philadelphia	Chester	375,724	11,007	2.9%
Pittsburgh	Beaver	125,960	5,029	4.0
	Washington	162,904	6,060	3.7
	Westmoreland	268,173	10,668	4.0
Region Total		**557,037**	**21,757**	**4.0**
Northern	Blair	93,269	4,713	5.0
	Cambria	103,948	4,486	4.3
	Centre	93,372	3,744	4.0
	Erie	173,635	5,470	3.2
	Lackawanna	142,029	4,800	3.8
	Luzerne	229,480	10,050	4.4
	Lycoming	90,107	4,792	5.3
	Mercer	77,478	3,310	4.3
Region Total		**1,003,318**	**41,365**	**4.1**
South Central	Berks	311,072	16,621	5.3
	Cumberland	191,111	8,117	4.2
	Dauphin	224,450	12,045	5.4
	Lancaster	392,455	18,529	4.7
	Lebanon	108,045	6,131	5.7
	Lehigh	263,656	11,085	4.2
	Northampton	236,746	10,902	4.6
	York	360,096	18,577	5.2
Region Total		**2,087,631**	**102,007**	**4.9**
TOTAL		**4,024,010**	**176,136**	**4.4**

Source: Compiled by JSGC staff from data provided by PennDOT via email dated September 28, 2018.

The percentage of 1975-1995 model year subject vehicles is relevant, because under Pennsylvania's I/M Program regulations, once 1975-1995 model year vehicles fall below a certain percentage of total subject vehicles, they may be moved to a biennial emissions inspection schedule or removed from the I/M Program entirely. Doing this would likely require Pennsylvania to develop and submit to EPA for approval a SIP revision demonstrating that Pennsylvania's I/M Regions continue to meet the federal I/M performance standards and, if air quality is made worse by exclusion of subject vehicles, that air quality is not interfered with. The latter demonstration could require finding corresponding offsetting emission reductions from other sectors.

Under Pennsylvania's I/M Program regulations, the percentage of subject pre-model year 1996 vehicles must constitute less than 40 percent of the total registered subject vehicles to move to the biennial inspection of the vehicle, while they must constitute less than 20 percent of the total registered subject vehicles for the vehicles to be removed from the I/M Program. Under these criteria, all 1975-1995 model year subject vehicles registered in all 20 counties in this study are eligible for removal from the program. However, additional criteria must be met. Emissions in the county or region must also be at or below levels that are in compliance with the SIP and federal law.

> (1) When the Secretary [of the Department of Transportation] certifies, by publication of a notice in the *Pennsylvania Bulletin*, that the number of subject pre-MY 1996 vehicles constitutes less than 40% of the total subject vehicles registered in an I/M county or region, subject pre-MY 1996 vehicles in that I/M county or region shall be inspected biennially in coordination with an annual safety inspection, provided that emissions in that I/M county or region are at or below levels which are in compliance with the State Implementation Plan, conformity requirements under the Clean Air Act, and the I/M performance standard.
>
> (2) At such time as the Secretary certifies, by publication of a notice in the *Pennsylvania Bulletin*, that the number of subject pre-MY 1996 vehicles constitutes less than 20% of the total subject vehicles registered in an I/M county or region, pre-MY 1996 vehicles shall no longer be subject to the I/M program, provided that emissions in that I/M county or region are at or below levels which are in compliance with the State Implementation Plan, conformity requirements under the Clean Air Act, and the I/M performance standard.[92]

[92] 67 Pa. Code § 177.51(c).

Testing Failure Rates

Overall reported emissions testing failure rates are low. Of those motor vehicles that fail official testing, many pass upon retesting, after the gas gap is tightened or replaced. Table 12 below details the official failure rates for the years 2009-2017. [93] The first column includes all failures, including gas caps that were ultimately replaced. The second column excludes those replaced gas caps. If all initial failures are counted, the overall failure rate for the 7 years presented is less the 5%, and decreased every year. Excluding those vehicles who passed on re-examination after failing the initial emission test, the rate is even lower, under 2.5%, and also fell each year.

Table 12
Statewide Emission Inspection Failure Rates
2009-2017

Year	Rate Including Gas Caps that Failed But Were Replaced	Rate Excluding Gas Caps that Failed But Were Replaced, resulting in the Vehicle Passing the Test
2009	4.27%	2.40%
2010	4.22	2.43
2011	4.12	2.42
2012	4.00	2.38
2013	3.89	2.35
2014	3.79	2.31
2015	3.67	2.24
2016	3.47	2.15
2017	3.27	2.02

Source: Data supplied by PennDOT via email dated September 28, 2018.

These failure rates, while informative, are subject to several caveats. Anecdotally, service stations have reported that problems with vehicles that could lead to a test failure are corrected during service appointments that occur in the weeks or months before testing deadlines. Other concerns noted include that while overall failure rates are low, the vehicles that fail can emit disproportionately excessive levels of NOx and other pollutants, which in turn creates additional ozone formation and other air pollution problems.

[93] This data was provided by PennnDOT.

Failure rates are further broken out by county in the Northern Region in Table 13, below.

Table 13
Northern Region
Failure Rates by County
2014-2017

County	2014	2015	2016	2017	4-year Average
Blair	1.41%	1.38%	1.21%	1.17%	1.29%
Cambria	2.25	2.12	2.17	2.03	2.14
Centre	2.37	2.28	2.12	1.86	2.16
Erie	2.44	2.68	2.41	2.29	2.45
Lackawanna	2.44	2.40	2.28	2.22	2.33
Luzerne	2.49	2.47	2.24	2.24	2.26
Lycoming	3.21	2.90	2.83	2.75	2.92
Mercer	3.37	3.07	2.86	2.64	2.99

Source: Compiled by JSGC staff from information supplied by PennDOT September 13, 2018.

More detailed tables by county and model year for the years 2014 to 2017 are included in Appendix A.

APPENDIX A:
FAILURE RATES IN NORTHERN REGION COUNTIES

The following tables were provided by PennDOT and show failure rates in each Northern Region county for the years 2014, 2015, 2016, and 2017. On those tables, it should be noted that the total number of failures plus the total number of passing vehicles will always be higher than the number tested. This is because the number of failures includes instances when a gas gap failed during the test but was replaced during the test and ended in a passing result. These are recognized and added in as failures to more accurately represent program effectiveness.

2017
Blair County Test Data

2017 Blair MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	9	9	0	0.00%
1976	10	10	0	0.00%
1977	17	17	0	0.00%
1978	19	19	1	5.26%
1979	29	28	1	3.45%
1980	11	11	0	0.00%
1981	6	6	0	0.00%
1982	17	17	0	0.00%
1983	18	17	1	5.56%
1984	31	31	1	3.23%
1985	35	35	0	0.00%
1986	48	48	1	2.08%
1987	67	67	3	4.48%
1988	81	81	2	2.47%
1989	106	105	4	3.77%
1990	123	123	2	1.63%
1991	133	133	2	1.50%
1992	166	166	2	1.20%
1993	257	256	6	2.33%
1994	374	374	4	1.07%
1995	519	519	2	0.39%
1996	602	600	5	0.83%
1997	916	913	21	2.29%
1998	1,088	1,083	11	1.01%
1999	1,482	1,479	18	1.21%
2000	2,030	2,024	27	1.33%
2001	2,298	2,290	31	1.35%
2002	2,828	2,819	35	1.24%
2003	3,228	3,214	53	1.64%
2004	3,928	3,806	161	4.10%
2005	4,257	4,242	54	1.27%
2006	4,124	4,115	38	0.92%
2007	4,351	4,341	41	0.94%
2008	4,696	4,647	83	1.77%
2009	2,961	2,955	22	0.74%
2010	3,819	3,800	52	1.36%
2011	4,552	4,506	74	1.63%
2012	5,061	5,052	42	0.83%
2013	5,509	5,493	55	1.00%
2014	8,310	8,285	53	0.64%
2015	8,786	8,764	76	0.87%
2016	9,326	9,301	61	0.65%
2017	5,610	5,601	30	0.53%
	91,838	91,402	1,075	1.17%

2016
Blair County Test Data

2016 Blair MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	4	0	0.00%
1976	8	8	0	0.00%
1977	9	9	0	0.00%
1978	20	19	1	5.00%
1979	23	23	1	4.35%
1980	4	4	0	0.00%
1981	8	8	0	0.00%
1982	13	13	0	0.00%
1983	22	22	2	9.09%
1984	35	35	1	2.86%
1985	39	39	0	0.00%
1986	52	52	2	3.85%
1987	69	69	2	2.90%
1988	104	103	5	4.81%
1989	139	137	3	2.16%
1990	138	138	1	0.72%
1991	146	146	1	0.68%
1992	193	193	4	2.07%
1993	317	317	0	0.00%
1994	449	449	1	0.22%
1995	669	664	14	2.09%
1996	741	740	7	0.94%
1997	1,127	1,121	16	1.42%
1998	1,361	1,357	16	1.18%
1999	1,787	1,785	21	1.18%
2000	2,497	2,491	33	1.32%
2001	2,676	2,668	37	1.38%
2002	3,450	3,343	161	4.67%
2003	3,686	3,646	85	2.31%
2004	4,235	4,220	49	1.16%
2005	4,723	4,718	46	0.97%
2006	4,498	4,362	180	4.00%
2007	4,761	4,748	46	0.97%
2008	4,874	4,867	37	0.76%
2009	3,140	3,133	25	0.80%
2010	4,087	4,076	35	0.86%
2011	4,735	4,720	43	0.91%
2012	5,501	5,484	47	0.85%
2013	6,527	6,506	55	0.84%
2014	7,882	7,855	63	0.80%
2015	9,778	9,766	35	0.36%
2016	6,077	6,066	21	0.35%
2017	68	68	0	0.00%
	90,672	90,192	1,096	1.21%

2015
Blair County Test Data

2015 Blair MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	6	6	0	0.00%
1976	9	9	0	0.00%
1977	12	12	0	0.00%
1978	19	19	2	10.53%
1979	23	23	0	0.00%
1980	7	7	0	0.00%
1981	18	18	0	0.00%
1982	13	13	0	0.00%
1983	27	27	0	0.00%
1984	36	35	3	8.33%
1985	54	53	2	3.70%
1986	66	63	5	7.58%
1987	82	82	1	1.22%
1988	137	137	1	0.73%
1989	146	146	3	2.05%
1990	179	178	5	2.79%
1991	189	189	1	0.53%
1992	277	277	5	1.81%
1993	368	368	3	0.82%
1994	562	560	5	0.89%
1995	793	791	10	1.26%
1996	926	925	11	1.19%
1997	1,358	1,352	27	1.99%
1998	1,618	1,616	22	1.36%
1999	2,147	2,140	32	1.49%
2000	2,928	2,922	31	1.06%
2001	3,133	3,080	101	3.22%
2002	3,876	3,866	48	1.24%
2003	4,249	4,141	155	3.65%
2004	4,687	4,601	139	2.97%
2005	5,110	5,058	105	2.05%
2006	4,682	4,673	47	1.00%
2007	5,135	5,077	117	2.28%
2008	5,222	5,210	45	0.86%
2009	3,317	3,309	35	1.06%
2010	4,384	4,369	39	0.89%
2011	5,115	5,103	43	0.84%
2012	6,465	6,445	61	0.94%
2013	6,839	6,814	56	0.82%
2014	9,080	9,058	54	0.59%
2015	5,608	5,601	26	0.46%
2016	50	50	0	0.00%
	88,952	**88,423**	**1,240**	**1.39%**

2014
Blair County Test Data

2014 Blair MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	7	7	0	0.00%
1976	6	6	0	0.00%
1977	12	12	0	0.00%
1978	21	21	0	0.00%
1979	25	25	0	0.00%
1980	8	8	0	0.00%
1981	8	8	0	0.00%
1982	18	18	1	5.56%
1983	26	26	1	3.85%
1984	24	24	0	0.00%
1985	53	53	0	0.00%
1986	58	58	0	0.00%
1987	92	92	1	1.09%
1988	144	144	3	2.08%
1989	173	171	3	1.73%
1990	203	203	3	1.48%
1991	213	212	3	1.41%
1992	294	294	7	2.38%
1993	454	452	7	1.54%
1994	746	704	54	7.24%
1995	958	954	15	1.57%
1996	1,145	1,141	16	1.40%
1997	1,640	1,633	23	1.40%
1998	1,927	1,925	14	0.73%
1999	2,524	2,516	38	1.51%
2000	3,389	3,382	36	1.06%
2001	3,595	3,504	128	3.56%
2002	4,323	4,260	103	2.38%
2003	4,480	4,466	70	1.56%
2004	4,955	4,835	172	3.47%
2005	5,374	5,354	73	1.36%
2006	5,038	5,024	64	1.27%
2007	5,240	5,229	62	1.18%
2008	5,508	5,493	60	1.09%
2009	3,564	3,551	37	1.04%
2010	4,698	4,686	32	0.68%
2011	6,314	6,292	51	0.81%
2012	7,081	7,049	63	0.89%
2013	7,744	7,713	65	0.84%
2014	5,896	5,879	37	0.63%
2015	84	84	0	0.00%
	88,062	**87,508**	**1,242**	**1.41%**

2017
Cambria County Test Data

2017 Cambria MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	6	6	0	0.00%
1976	10	10	0	0.00%
1977	21	21	0	0.00%
1978	23	23	0	0.00%
1979	35	34	2	5.71%
1980	9	9	0	0.00%
1981	11	11	1	9.09%
1982	16	16	1	6.25%
1983	12	12	0	0.00%
1984	35	35	0	0.00%
1985	36	35	1	2.78%
1986	51	51	0	0.00%
1987	61	60	6	9.84%
1988	85	85	3	3.53%
1989	97	96	2	2.06%
1990	121	121	1	0.83%
1991	156	156	4	2.56%
1992	185	185	1	0.54%
1993	217	217	4	1.84%
1994	358	357	10	2.79%
1995	477	475	10	2.10%
1996	569	566	12	2.11%
1997	861	854	26	3.02%
1998	1,038	1,032	27	2.60%
1999	1,365	1,359	38	2.78%
2000	1,857	1,844	64	3.45%
2001	2,105	2,095	60	2.85%
2002	2,750	2,742	62	2.25%
2003	3,287	3,218	145	4.41%
2004	4,073	3,996	157	3.85%
2005	4,569	4,546	91	1.99%
2006	4,482	4,472	81	1.81%
2007	4,921	4,904	102	2.07%
2008	5,357	5,219	203	3.79%
2009	3,538	3,528	57	1.61%
2010	4,305	4,295	53	1.23%
2011	5,418	5,285	183	3.38%
2012	5,887	5,859	88	1.49%
2013	6,243	6,217	78	1.25%
2014	7,493	7,477	68	0.91%
2015	7,513	7,495	71	0.95%
2016	6,510	6,488	62	0.95%
2017	2,113	2,105	15	0.71%
	88,276	87,611	1,789	2.03%

2016

Cambria County Test Data

2016 Cambria MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	8	8	1	12.50%
1976	13	13	0	0.00%
1977	21	21	0	0.00%
1978	19	19	1	5.26%
1979	37	37	0	0.00%
1980	7	7	0	0.00%
1981	12	11	1	8.33%
1982	18	18	0	0.00%
1983	20	20	0	0.00%
1984	33	33	1	3.03%
1985	47	47	0	0.00%
1986	51	50	4	7.84%
1987	73	73	4	5.48%
1988	91	91	4	4.40%
1989	98	97	5	5.10%
1990	148	147	7	4.73%
1991	186	185	5	2.69%
1992	214	213	5	2.34%
1993	279	278	4	1.43%
1994	451	448	9	2.00%
1995	588	587	15	2.55%
1996	667	667	19	2.85%
1997	1,045	1,040	37	3.54%
1998	1,279	1,273	36	2.81%
1999	1,725	1,720	37	2.14%
2000	2,352	2,337	75	3.19%
2001	2,526	2,513	76	3.01%
2002	3,464	3,332	207	5.98%
2003	3,916	3,849	161	4.11%
2004	4,566	4,551	101	2.21%
2005	5,143	5,122	126	2.45%
2006	5,066	4,936	239	4.72%
2007	5,396	5,384	92	1.70%
2008	5,683	5,669	89	1.57%
2009	3,759	3,747	67	1.78%
2010	4,677	4,655	88	1.88%
2011	5,750	5,727	90	1.57%
2012	6,382	6,358	84	1.32%
2013	6,855	6,842	64	0.93%
2014	7,313	7,290	95	1.30%
2015	6,957	6,933	77	1.11%
2016	2,301	2,298	11	0.48%
2017	33	33	0	0.00%
	89,269	**88,679**	**1,937**	**2.17%**

2015
Cambria County Test Data

2015 Cambria MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	9	9	0	0.00%
1976	14	14	0	0.00%
1977	21	21	0	0.00%
1978	25	25	0	0.00%
1979	39	39	1	2.56%
1980	10	10	0	0.00%
1981	10	10	1	10.00%
1982	15	15	0	0.00%
1983	20	20	0	0.00%
1984	44	44	1	2.27%
1985	56	56	0	0.00%
1986	56	56	0	0.00%
1987	91	91	3	3.30%
1988	119	118	3	2.52%
1989	148	148	3	2.03%
1990	162	162	5	3.09%
1991	193	193	3	1.55%
1992	248	247	5	2.02%
1993	317	315	8	2.52%
1994	503	499	22	4.37%
1995	722	719	22	3.05%
1996	852	849	25	2.93%
1997	1,241	1,235	35	2.82%
1998	1,572	1,564	45	2.86%
1999	2,121	2,115	61	2.88%
2000	2,808	2,788	86	3.06%
2001	2,989	2,974	78	2.61%
2002	3,845	3,834	99	2.57%
2003	4,506	4,407	198	4.39%
2004	5,012	4,981	134	2.67%
2005	5,608	5,558	137	2.44%
2006	5,507	5,484	118	2.14%
2007	5,954	5,887	145	2.44%
2008	6,273	6,257	106	1.69%
2009	4,050	4,039	64	1.58%
2010	4,998	4,973	103	2.06%
2011	6,229	6,204	90	1.44%
2012	6,869	6,843	91	1.32%
2013	6,841	6,815	101	1.48%
2014	6,654	6,611	83	1.25%
2015	2,179	2,176	14	0.64%
2016	32	32	0	0.00%
	88,962	**88,437**	**1,890**	**2.12%**

2014
Cambria County Test Data

2014 Cambria MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	7	7	0	0.00%
1976	8	8	0	0.00%
1977	26	26	0	0.00%
1978	31	30	2	6.45%
1979	39	39	1	2.56%
1980	9	9	0	0.00%
1981	15	15	0	0.00%
1982	17	17	0	0.00%
1983	28	28	0	0.00%
1984	51	50	3	5.88%
1985	60	60	1	1.67%
1986	75	75	2	2.67%
1987	98	96	7	7.14%
1988	137	136	2	1.46%
1989	180	180	4	2.22%
1990	202	202	5	2.48%
1991	242	242	8	3.31%
1992	308	308	5	1.62%
1993	390	390	5	1.28%
1994	728	667	84	11.54%
1995	921	918	22	2.39%
1996	1,060	1,054	22	2.08%
1997	1,551	1,549	27	1.74%
1998	1,889	1,879	53	2.81%
1999	2,569	2,555	82	3.19%
2000	3,410	3,389	94	2.76%
2001	3,629	3,513	181	4.99%
2002	4,485	4,390	178	3.97%
2003	4,760	4,741	108	2.27%
2004	5,660	5,521	245	4.33%
2005	6,092	6,071	140	2.30%
2006	5,776	5,759	105	1.82%
2007	6,369	6,348	124	1.95%
2008	6,653	6,640	115	1.73%
2009	4,353	4,341	71	1.63%
2010	5,276	5,258	67	1.27%
2011	6,548	6,524	82	1.25%
2012	6,758	6,735	72	1.07%
2013	6,307	6,284	67	1.06%
2014	2,325	2,317	24	1.03%
2015	24	24	0	0.00%
	89,066	**88,395**	**2,008**	**2.25%**

2017
Centre County Test Data

2017 Centre MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	3	3	0	0.00%
1976	3	3	0	0.00%
1977	7	7	0	0.00%
1978	8	8	0	0.00%
1979	7	7	0	0.00%
1980	11	11	0	0.00%
1981	10	10	0	0.00%
1982	10	10	0	0.00%
1983	16	16	3	18.75%
1984	15	15	0	0.00%
1985	33	33	4	12.12%
1986	38	38	1	2.63%
1987	55	53	3	5.45%
1988	57	57	2	3.51%
1989	92	92	1	1.09%
1990	115	115	3	2.61%
1991	141	141	0	0.00%
1992	159	159	6	3.77%
1993	223	222	8	3.59%
1994	299	297	13	4.35%
1995	397	395	16	4.03%
1996	504	503	20	3.97%
1997	818	813	20	2.44%
1998	919	912	28	3.05%
1999	1,273	1,265	34	2.67%
2000	1,603	1,598	44	2.74%
2001	1,876	1,864	48	2.56%
2002	2,461	2,451	61	2.48%
2003	2,895	2,874	82	2.83%
2004	3,750	3,586	239	6.37%
2005	3,946	3,929	80	2.03%
2006	4,235	4,219	86	2.03%
2007	4,592	4,579	46	1.00%
2008	4,822	4,786	106	2.20%
2009	3,535	3,524	60	1.70%
2010	4,580	4,563	46	1.00%
2011	5,285	5,270	44	0.83%
2012	5,816	5,796	77	1.32%
2013	6,284	6,260	76	1.21%
2014	6,810	6,799	69	1.01%
2015	6,392	6,363	82	1.28%
2016	5,959	5,931	93	1.56%
2017	2,033	2,025	25	1.23%
	82,087	81,602	1,526	1.86%

2016
Centre County Test Data

2016 Centre MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	7	7	2	28.57%
1976	4	4	1	25.00%
1977	3	3	0	0.00%
1978	14	14	0	0.00%
1979	10	10	0	0.00%
1980	6	6	0	0.00%
1981	9	9	0	0.00%
1982	11	11	1	9.09%
1983	13	13	0	0.00%
1984	18	18	0	0.00%
1985	34	34	3	8.82%
1986	61	59	4	6.56%
1987	65	64	3	4.62%
1988	92	90	2	2.17%
1989	107	107	3	2.80%
1990	135	132	7	5.19%
1991	166	165	8	4.82%
1992	187	185	9	4.81%
1993	269	269	6	2.23%
1994	412	412	7	1.70%
1995	493	491	9	1.83%
1996	649	645	21	3.24%
1997	1,030	1,023	26	2.52%
1998	1,164	1,159	33	2.84%
1999	1,544	1,539	53	3.43%
2000	2,054	2,043	50	2.43%
2001	2,266	2,256	64	2.82%
2002	3,040	2,935	180	5.92%
2003	3,501	3,474	113	3.23%
2004	4,165	4,146	112	2.69%
2005	4,551	4,529	101	2.22%
2006	4,886	4,725	253	5.18%
2007	5,053	5,043	75	1.48%
2008	5,210	5,193	78	1.50%
2009	3,863	3,853	43	1.11%
2010	4,799	4,775	69	1.44%
2011	5,509	5,485	75	1.36%
2012	5,955	5,933	73	1.23%
2013	6,367	6,338	63	0.99%
2014	6,383	6,363	81	1.27%
2015	5,830	5,799	77	1.32%
2016	2,184	2,171	41	1.88%
2017	62	61	2	3.23%
	82,181	**81,591**	**1,748**	**2.13%**

2015
Centre County Test Data

2015 Centre MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	4	0	0.00%
1976	6	6	1	16.67%
1977	8	8	1	12.50%
1978	10	10	0	0.00%
1979	12	12	0	0.00%
1980	11	11	0	0.00%
1981	12	11	6	50.00%
1982	11	10	2	18.18%
1983	18	18	1	5.56%
1984	21	21	0	0.00%
1985	37	37	3	8.11%
1986	58	56	4	6.90%
1987	75	75	5	6.67%
1988	109	109	3	2.75%
1989	124	123	5	4.03%
1990	160	157	7	4.38%
1991	205	205	5	2.44%
1992	239	238	12	5.02%
1993	311	311	5	1.61%
1994	489	487	15	3.07%
1995	651	648	19	2.92%
1996	777	775	16	2.06%
1997	1,222	1,216	29	2.37%
1998	1,457	1,447	55	3.77%
1999	1,854	1,843	55	2.97%
2000	2,436	2,424	71	2.91%
2001	2,761	2,675	162	5.87%
2002	3,385	3,374	72	2.13%
2003	4,028	3,948	148	3.67%
2004	4,695	4,587	209	4.45%
2005	5,062	4,984	180	3.56%
2006	5,087	5,068	105	2.06%
2007	5,329	5,310	92	1.73%
2008	5,553	5,532	105	1.89%
2009	4,014	4,004	48	1.20%
2010	4,981	4,948	93	1.87%
2011	5,740	5,723	69	1.20%
2012	6,240	6,217	75	1.20%
2013	6,224	6,194	87	1.40%
2014	5,781	5,756	71	1.23%
2015	2,072	2,068	23	1.11%
2016	70	70	0	0.00%
	81,339	**80,720**	**1,859**	**2.29%**

2014
Centre County Test Data

2014 Centre MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	8	8	0	0.00%
1976	7	7	0	0.00%
1977	15	15	0	0.00%
1978	10	10	0	0.00%
1979	20	20	0	0.00%
1980	14	14	1	7.14%
1981	15	14	3	20.00%
1982	18	18	0	0.00%
1983	17	16	2	11.76%
1984	28	28	2	7.14%
1985	43	43	2	4.65%
1986	72	71	8	11.11%
1987	87	85	15	17.24%
1988	141	141	3	2.13%
1989	167	166	2	1.20%
1990	199	198	7	3.52%
1991	251	249	13	5.18%
1992	293	293	10	3.41%
1993	414	413	10	2.42%
1994	650	621	49	7.54%
1995	848	842	34	4.01%
1996	1,012	1,005	30	2.96%
1997	1,534	1,530	43	2.80%
1998	1,761	1,745	57	3.24%
1999	2,296	2,286	68	2.96%
2000	2,912	2,906	86	2.95%
2001	3,254	3,180	142	4.36%
2002	3,991	3,917	158	3.96%
2003	4,437	4,410	120	2.70%
2004	5,154	5,044	226	4.38%
2005	5,448	5,411	141	2.59%
2006	5,413	5,391	104	1.92%
2007	5,626	5,607	95	1.69%
2008	5,713	5,696	81	1.42%
2009	4,229	4,199	72	1.70%
2010	5,081	5,047	83	1.63%
2011	5,807	5,778	70	1.21%
2012	6,072	6,045	71	1.17%
2013	5,731	5,694	97	1.69%
2014	2,263	2,250	20	0.88%
2015	111	110	1	0.90%
	81,162	**80,523**	**1,926**	**2.37%**

2017
Erie County Test Data

2017 Erie MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	2	2	0	0.00%
1976	3	3	1	33.33%
1977	6	6	0	0.00%
1978	17	16	2	11.76%
1979	16	16	0	0.00%
1980	8	8	0	0.00%
1981	8	8	0	0.00%
1982	6	6	1	16.67%
1983	9	8	1	11.11%
1984	22	22	0	0.00%
1985	30	29	2	6.67%
1986	55	54	3	5.45%
1987	62	61	3	4.84%
1988	76	76	4	5.26%
1989	94	94	6	6.38%
1990	109	108	4	3.67%
1991	132	131	7	5.30%
1992	163	162	3	1.84%
1993	240	239	6	2.50%
1994	486	358	138	28.40%
1995	436	433	17	3.90%
1996	568	564	17	2.99%
1997	936	934	26	2.78%
1998	1,190	1,185	38	3.19%
1999	1,653	1,648	47	2.84%
2000	2,313	2,256	119	5.14%
2001	2,893	2,881	102	3.53%
2002	3,946	3,928	126	3.19%
2003	5,607	5,358	393	7.01%
2004	6,796	6,581	394	5.80%
2005	7,842	7,807	205	2.61%
2006	7,659	7,628	153	2.00%
2007	8,875	8,854	150	1.69%
2008	9,784	9,756	164	1.68%
2009	7,241	7,219	104	1.44%
2010	8,704	8,682	137	1.57%
2011	10,164	9,940	363	3.57%
2012	11,140	11,107	158	1.42%
2013	10,983	10,939	149	1.36%
2014	12,028	11,993	151	1.26%
2015	13,462	13,426	141	1.05%
2016	12,012	11,983	104	0.87%
2017	3,899	3,887	32	0.82%
	151,675	150,396	3,471	2.29%

2016
Erie County Test Data

2016 Erie MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	2	2	0	0.00%
1976	10	10	2	20.00%
1977	12	12	2	16.67%
1978	17	17	1	5.88%
1979	18	18	1	5.56%
1980	17	17	1	5.88%
1981	15	15	1	6.67%
1982	6	6	0	0.00%
1983	22	22	1	4.55%
1984	32	32	3	9.38%
1985	38	38	0	0.00%
1986	53	53	2	3.77%
1987	65	65	3	4.62%
1988	95	93	9	9.47%
1989	130	128	7	5.38%
1990	118	118	5	4.24%
1991	166	166	7	4.22%
1992	193	191	8	4.15%
1993	322	320	14	4.35%
1994	568	417	166	29.23%
1995	602	592	33	5.48%
1996	757	752	31	4.10%
1997	1,126	1,126	26	2.31%
1998	1,546	1,542	39	2.52%
1999	2,181	2,169	67	3.07%
2000	2,988	2,968	120	4.02%
2001	3,640	3,612	117	3.21%
2002	5,399	4,981	581	10.76%
2003	6,805	6,659	300	4.41%
2004	7,951	7,895	252	3.17%
2005	9,224	9,182	227	2.46%
2006	8,704	8,667	191	2.19%
2007	9,911	9,828	251	2.53%
2008	10,805	10,774	188	1.74%
2009	7,753	7,730	120	1.55%
2010	9,212	9,180	140	1.52%
2011	10,660	10,619	171	1.60%
2012	11,725	11,673	188	1.60%
2013	12,063	12,014	142	1.18%
2014	12,952	12,923	119	0.92%
2015	13,104	13,068	145	1.11%
2016	4,013	3,997	49	1.22%
2017	58	58	1	1.72%
	155,078	**153,749**	**3,731**	**2.41%**

2015
Erie County Test Data

2015 Erie MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	10	10	0	0.00%
1976	7	7	1	14.29%
1977	11	11	0	0.00%
1978	16	16	0	0.00%
1979	18	18	0	0.00%
1980	8	8	0	0.00%
1981	15	14	1	6.67%
1982	12	12	0	0.00%
1983	18	18	1	5.56%
1984	41	40	3	7.32%
1985	43	43	1	2.33%
1986	72	71	6	8.33%
1987	63	62	2	3.17%
1988	107	107	5	4.67%
1989	162	162	4	2.47%
1990	135	135	3	2.22%
1991	200	200	6	3.00%
1992	251	249	6	2.39%
1993	353	351	14	3.97%
1994	559	552	25	4.47%
1995	782	778	33	4.22%
1996	1,079	965	149	13.81%
1997	1,549	1,533	69	4.45%
1998	2,002	1,985	69	3.45%
1999	2,754	2,742	84	3.05%
2000	3,931	3,907	140	3.56%
2001	4,757	4,604	278	5.84%
2002	6,397	6,186	367	5.74%
2003	8,064	7,934	341	4.23%
2004	9,289	9,112	396	4.26%
2005	10,641	10,543	317	2.98%
2006	9,562	9,531	229	2.39%
2007	10,509	10,476	213	2.03%
2008	11,475	11,432	246	2.14%
2009	8,082	8,048	147	1.82%
2010	9,553	9,500	178	1.86%
2011	10,951	10,888	204	1.86%
2012	12,352	12,290	183	1.48%
2013	12,708	12,652	181	1.42%
2014	12,393	12,336	199	1.61%
2015	4,135	4,118	54	1.31%
2016	63	62	1	1.59%
	155,129	**153,708**	**4,156**	**2.68%**

2014
Erie County Test Data

2014 Erie MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	4	0	0.00%
1976	14	13	2	14.29%
1977	18	18	1	5.56%
1978	24	24	2	8.33%
1979	25	25	1	4.00%
1980	10	10	0	0.00%
1981	12	12	0	0.00%
1982	17	17	0	0.00%
1983	21	20	1	4.76%
1984	50	50	1	2.00%
1985	64	60	6	9.38%
1986	77	76	2	2.60%
1987	96	95	3	3.13%
1988	136	135	7	5.15%
1989	194	194	4	2.06%
1990	189	188	7	3.70%
1991	235	234	9	3.83%
1992	316	314	11	3.48%
1993	474	470	14	2.95%
1994	713	711	21	2.95%
1995	998	988	33	3.31%
1996	1,351	1,265	114	8.44%
1997	2,070	2,060	69	3.33%
1998	2,735	2,718	71	2.60%
1999	3,808	3,640	269	7.06%
2000	4,994	4,974	138	2.76%
2001	6,194	5,734	620	10.01%
2002	7,803	7,588	367	4.70%
2003	9,419	9,383	232	2.46%
2004	10,450	10,409	225	2.15%
2005	11,552	11,513	255	2.21%
2006	10,113	10,089	171	1.69%
2007	11,040	11,008	185	1.68%
2008	11,731	11,695	189	1.61%
2009	8,285	8,256	120	1.45%
2010	9,741	9,711	118	1.21%
2011	11,386	11,342	176	1.55%
2012	12,964	12,919	144	1.11%
2013	11,827	11,780	137	1.16%
2014	3,981	3,965	65	1.63%
2015	64	64	0	0.00%
	155,195	**153,771**	**3,790**	**2.44%**

2017
Lackawanna County Test Data

2017 Lackawanna MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	1	1	0	0.00%
1976	2	2	0	0.00%
1977	4	4	1	25.00%
1978	10	10	0	0.00%
1979	13	13	2	15.38%
1980	5	5	0	0.00%
1981	7	7	1	14.29%
1982	10	10	0	0.00%
1983	5	5	0	0.00%
1984	25	25	0	0.00%
1985	18	18	0	0.00%
1986	33	33	1	3.03%
1987	42	42	0	0.00%
1988	61	61	1	1.64%
1989	77	77	4	5.19%
1990	80	80	2	2.50%
1991	107	106	5	4.67%
1992	119	118	3	2.52%
1993	208	207	8	3.85%
1994	340	316	31	9.12%
1995	481	476	24	4.99%
1996	527	522	18	3.42%
1997	886	881	32	3.61%
1998	1,228	1,221	35	2.85%
1999	1,552	1,540	47	3.03%
2000	2,272	2,257	68	2.99%
2001	2,632	2,615	88	3.34%
2002	3,470	3,454	96	2.77%
2003	4,351	4,289	161	3.70%
2004	5,368	5,311	170	3.17%
2005	5,971	5,858	230	3.85%
2006	5,974	5,939	145	2.43%
2007	6,317	6,257	195	3.09%
2008	6,817	6,754	167	2.45%
2009	5,016	4,983	110	2.19%
2010	6,648	6,594	157	2.36%
2011	7,157	7,126	117	1.63%
2012	8,071	8,038	125	1.55%
2013	8,797	8,766	127	1.44%
2014	9,842	9,792	154	1.56%
2015	11,983	11,930	165	1.38%
2016	11,511	11,444	160	1.39%
2017	3,182	3,166	37	1.16%
	121,220	**120,353**	**2,687**	**2.22%**

2016
Lackawanna County Test Data

2016 Lackawanna MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	4	0	0.00%
1976	1	1	0	0.00%
1977	7	7	0	0.00%
1978	8	8	1	12.50%
1979	17	16	2	11.76%
1980	3	3	0	0.00%
1981	10	10	0	0.00%
1982	9	9	0	0.00%
1983	5	5	0	0.00%
1984	38	38	2	5.26%
1985	28	27	5	17.86%
1986	45	45	0	0.00%
1987	62	61	5	8.06%
1988	86	86	3	3.49%
1989	108	108	1	0.93%
1990	111	111	3	2.70%
1991	139	138	5	3.60%
1992	157	155	10	6.37%
1993	255	253	10	3.92%
1994	410	403	22	5.37%
1995	616	610	20	3.25%
1996	730	728	19	2.60%
1997	1,171	1,166	35	2.99%
1998	1,603	1,593	62	3.87%
1999	2,059	2,046	55	2.67%
2000	2,985	2,973	90	3.02%
2001	3,345	3,321	110	3.29%
2002	4,303	4,282	124	2.88%
2003	5,165	5,100	185	3.58%
2004	6,381	6,314	202	3.17%
2005	6,655	6,619	167	2.51%
2006	6,685	6,570	250	3.74%
2007	7,112	7,078	153	2.15%
2008	7,471	7,434	152	2.03%
2009	5,540	5,484	140	2.53%
2010	7,287	7,248	124	1.70%
2011	7,941	7,833	207	2.61%
2012	8,749	8,708	120	1.37%
2013	9,926	9,887	137	1.38%
2014	11,039	10,985	181	1.64%
2015	11,922	11,869	160	1.34%
2016	3,451	3,427	58	1.68%
2017	80	80	1	1.25%
	123,719	**122,843**	**2,821**	**2.28%**

2015
Lackawanna County Test Data

2015 Lackawanna MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	3	3	0	0.00%
1976	4	4	0	0.00%
1977	10	10	1	10.00%
1978	10	10	0	0.00%
1979	14	14	0	0.00%
1980	6	6	0	0.00%
1981	10	9	1	10.00%
1982	12	12	0	0.00%
1983	8	8	0	0.00%
1984	35	35	1	2.86%
1985	28	28	0	0.00%
1986	57	56	4	7.02%
1987	72	72	2	2.78%
1988	93	93	2	2.15%
1989	122	120	5	4.10%
1990	126	123	7	5.56%
1991	179	178	5	2.79%
1992	230	230	5	2.17%
1993	320	318	6	1.88%
1994	535	530	25	4.67%
1995	810	807	23	2.84%
1996	970	967	38	3.92%
1997	1,461	1,452	51	3.49%
1998	1,980	1,968	70	3.54%
1999	2,500	2,494	82	3.28%
2000	3,465	3,451	99	2.86%
2001	4,007	3,978	139	3.47%
2002	5,157	5,088	185	3.59%
2003	5,925	5,803	293	4.95%
2004	6,976	6,909	219	3.14%
2005	7,453	7,361	234	3.14%
2006	7,292	7,192	225	3.09%
2007	7,545	7,520	130	1.72%
2008	8,029	8,004	149	1.86%
2009	5,910	5,885	96	1.62%
2010	7,826	7,784	138	1.76%
2011	8,548	8,504	153	1.79%
2012	9,566	9,521	175	1.83%
2013	11,115	11,063	143	1.29%
2014	10,590	10,533	171	1.61%
2015	3,313	3,298	55	1.66%
2016	40	40	0	0.00%
	122,352	**121,481**	**2,932**	**2.40%**

2014
Lackawanna County Test Data

2014 Lackawanna MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	3	3	0	0.00%
1976	5	5	0	0.00%
1977	12	12	0	0.00%
1978	20	20	0	0.00%
1979	16	16	0	0.00%
1980	10	10	0	0.00%
1981	13	13	0	0.00%
1982	11	11	0	0.00%
1983	8	8	1	12.50%
1984	43	43	2	4.65%
1985	48	47	2	4.17%
1986	75	74	7	9.33%
1987	84	84	4	4.76%
1988	114	113	7	6.14%
1989	152	150	11	7.24%
1990	163	161	6	3.68%
1991	227	226	14	6.17%
1992	313	309	13	4.15%
1993	441	439	15	3.40%
1994	665	659	32	4.81%
1995	998	994	29	2.91%
1996	1,219	1,213	32	2.63%
1997	1,815	1,805	62	3.42%
1998	2,424	2,410	66	2.72%
1999	3,163	3,146	103	3.26%
2000	4,198	4,177	131	3.12%
2001	4,907	4,741	288	5.87%
2002	5,976	5,922	196	3.28%
2003	6,826	6,786	186	2.72%
2004	7,811	7,700	302	3.87%
2005	8,257	8,216	204	2.47%
2006	7,774	7,749	144	1.85%
2007	8,237	8,203	172	2.09%
2008	8,485	8,457	149	1.76%
2009	6,304	6,269	125	1.98%
2010	8,207	8,170	147	1.79%
2011	9,369	9,325	143	1.53%
2012	10,304	10,249	171	1.66%
2013	10,576	10,520	180	1.70%
2014	3,320	3,305	52	1.57%
2015	48	48	1	2.08%
	122,641	**121,808**	**2,997**	**2.44%**

2017

Luzerne County Test Data

2017 Luzerne MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	6	6	0	0.00%
1976	13	13	2	15.38%
1977	15	15	1	6.67%
1978	28	28	3	10.71%
1979	31	31	0	0.00%
1980	21	21	1	4.76%
1981	20	20	0	0.00%
1982	17	17	0	0.00%
1983	23	23	0	0.00%
1984	60	60	3	5.00%
1985	66	66	4	6.06%
1986	87	87	3	3.45%
1987	151	151	3	1.99%
1988	176	175	6	3.41%
1989	194	194	7	3.61%
1990	217	213	10	4.61%
1991	227	226	10	4.41%
1992	311	306	22	7.07%
1993	458	454	17	3.71%
1994	817	736	110	13.46%
1995	1,036	1,029	34	3.28%
1996	1,300	1,292	52	4.00%
1997	1,905	1,896	62	3.25%
1998	2,584	2,575	89	3.44%
1999	3,166	3,150	107	3.38%
2000	4,752	4,724	172	3.62%
2001	5,421	5,401	181	3.34%
2002	7,046	7,011	193	2.74%
2003	8,155	8,046	321	3.94%
2004	9,771	9,656	339	3.47%
2005	10,347	10,187	386	3.73%
2006	9,843	9,806	215	2.18%
2007	10,503	10,442	258	2.46%
2008	10,342	10,264	247	2.39%
2009	7,693	7,630	141	1.83%
2010	9,336	9,275	170	1.82%
2011	10,592	10,544	175	1.65%
2012	12,094	12,043	172	1.42%
2013	12,860	12,802	211	1.64%
2014	14,421	14,372	169	1.17%
2015	16,277	16,213	201	1.23%
2016	16,527	16,455	199	1.20%
2017	5,319	5,300	55	1.03%
	194,228	192,955	4,351	2.24%

2016
Luzerne County Test Data

2016 Luzerne MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	5	5	0	0.00%
1976	14	14	1	7.14%
1977	21	20	2	9.52%
1978	31	31	1	3.23%
1979	25	24	1	4.00%
1980	19	19	1	5.26%
1981	18	18	0	0.00%
1982	22	22	0	0.00%
1983	32	32	1	3.13%
1984	70	70	5	7.14%
1985	88	88	4	4.55%
1986	102	101	4	3.92%
1987	164	162	9	5.49%
1988	203	203	7	3.45%
1989	243	241	9	3.70%
1990	259	257	15	5.79%
1991	303	303	18	5.94%
1992	413	412	12	2.91%
1993	595	593	15	2.52%
1994	932	929	24	2.58%
1995	1,325	1,318	47	3.55%
1996	1,654	1,645	63	3.81%
1997	2,546	2,539	81	3.18%
1998	3,163	3,155	96	3.04%
1999	4,038	4,026	97	2.40%
2000	5,774	5,749	173	3.00%
2001	6,403	6,377	164	2.56%
2002	8,412	8,385	208	2.47%
2003	9,372	9,192	406	4.33%
2004	10,853	10,728	349	3.22%
2005	11,293	11,255	260	2.30%
2006	10,795	10,552	465	4.31%
2007	11,369	11,307	230	2.02%
2008	10,878	10,838	207	1.90%
2009	8,021	7,974	163	2.03%
2010	9,764	9,731	151	1.55%
2011	11,342	11,275	218	1.92%
2012	12,688	12,645	174	1.37%
2013	14,025	13,973	191	1.36%
2014	15,344	15,276	189	1.23%
2015	16,242	16,160	234	1.44%
2016	5,490	5,469	60	1.09%
2017	63	63	0	0.00%
	194,413	**193,176**	**4,355**	**2.24%**

2015
Luzerne County Test Data

2015 Luzerne MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	6	6	0	0.00%
1976	16	16	0	0.00%
1977	13	13	0	0.00%
1978	22	22	1	4.55%
1979	33	32	1	3.03%
1980	14	14	0	0.00%
1981	17	16	1	5.88%
1982	14	13	4	28.57%
1983	23	23	1	4.35%
1984	65	65	1	1.54%
1985	87	86	2	2.30%
1986	111	110	4	3.60%
1987	182	179	9	4.95%
1988	235	233	11	4.68%
1989	298	297	6	2.01%
1990	303	300	14	4.62%
1991	368	367	15	4.08%
1992	530	524	20	3.77%
1993	693	690	25	3.61%
1994	1,173	1,168	39	3.32%
1995	1,632	1,624	57	3.49%
1996	2,036	2,026	77	3.78%
1997	2,998	2,979	92	3.07%
1998	3,784	3,772	106	2.80%
1999	4,819	4,795	168	3.49%
2000	6,696	6,667	201	3.00%
2001	7,378	7,308	275	3.73%
2002	9,452	9,212	467	4.94%
2003	10,224	10,075	406	3.97%
2004	11,557	11,407	392	3.39%
2005	11,951	11,847	375	3.14%
2006	11,142	11,051	304	2.73%
2007	11,824	11,702	347	2.93%
2008	11,470	11,439	198	1.73%
2009	8,595	8,557	141	1.64%
2010	10,345	10,289	149	1.44%
2011	11,858	11,820	174	1.47%
2012	13,721	13,662	196	1.43%
2013	15,079	15,011	186	1.23%
2014	15,253	15,178	188	1.23%
2015	5,414	5,392	75	1.39%
2016	67	67	0	0.00%
	191,498	**190,054**	**4,728**	**2.47%**

2014
Luzerne County Test Data

2014 Luzerne MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	10	10	0	0.00%
1976	16	15	2	12.50%
1977	23	23	0	0.00%
1978	43	43	3	6.98%
1979	29	29	1	3.45%
1980	24	24	1	4.17%
1981	20	20	1	5.00%
1982	29	29	0	0.00%
1983	35	35	0	0.00%
1984	82	81	3	3.66%
1985	104	103	6	5.77%
1986	148	147	8	5.41%
1987	221	221	9	4.07%
1988	247	246	12	4.86%
1989	353	351	13	3.68%
1990	410	404	20	4.88%
1991	524	522	13	2.48%
1992	619	616	22	3.55%
1993	937	934	31	3.31%
1994	1,418	1,407	55	3.88%
1995	2,150	2,139	78	3.63%
1996	2,501	2,486	90	3.60%
1997	3,768	3,752	124	3.29%
1998	4,642	4,623	130	2.80%
1999	5,897	5,871	174	2.95%
2000	7,966	7,942	211	2.65%
2001	8,707	8,471	478	5.49%
2002	10,412	10,284	369	3.54%
2003	11,112	11,057	304	2.74%
2004	12,404	12,149	550	4.43%
2005	12,531	12,456	348	2.78%
2006	11,591	11,549	245	2.11%
2007	12,222	12,177	244	2.00%
2008	12,228	12,171	257	2.10%
2009	8,905	8,882	118	1.33%
2010	10,890	10,851	163	1.50%
2011	12,859	12,802	203	1.58%
2012	14,800	14,738	224	1.51%
2013	15,316	15,255	187	1.22%
2014	5,253	5,231	66	1.26%
2015	199	199	1	0.50%
	191,645	**190,345**	**4,764**	**2.49%**

2017
Lycoming County Test Data

2017 Lycoming MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	5	5	0	0.00%
1976	9	9	0	0.00%
1977	12	11	2	16.67%
1978	18	18	2	11.11%
1979	24	23	2	8.33%
1980	5	5	0	0.00%
1981	8	8	0	0.00%
1982	7	7	1	14.29%
1983	21	20	7	33.33%
1984	26	26	2	7.69%
1985	39	39	5	12.82%
1986	53	53	4	7.55%
1987	75	75	3	4.00%
1988	85	85	5	5.88%
1989	98	97	7	7.14%
1990	110	110	4	3.64%
1991	144	143	8	5.56%
1992	179	177	6	3.35%
1993	270	268	18	6.67%
1994	372	356	27	7.26%
1995	555	549	29	5.23%
1996	637	632	31	4.87%
1997	911	902	40	4.39%
1998	1,094	1,085	45	4.11%
1999	1,447	1,436	61	4.22%
2000	1,975	1,963	91	4.61%
2001	2,199	2,185	66	3.00%
2002	2,814	2,797	105	3.73%
2003	3,198	3,162	134	4.19%
2004	3,681	3,656	138	3.75%
2005	3,896	3,839	173	4.44%
2006	3,900	3,878	142	3.64%
2007	3,926	3,912	103	2.62%
2008	4,085	4,065	126	3.08%
2009	2,845	2,790	100	3.51%
2010	3,860	3,806	109	2.82%
2011	4,668	4,651	93	1.99%
2012	4,913	4,893	83	1.69%
2013	5,038	5,015	79	1.57%
2014	5,705	5,672	79	1.38%
2015	5,210	5,193	54	1.04%
2016	4,716	4,701	46	0.98%
2017	1,602	1,594	17	1.06%
	74,435	73,911	2,047	2.75%

2016
Lycoming County Test Data

2016 Lycoming MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	9	8	2	22.22%
1976	4	4	0	0.00%
1977	17	17	3	17.65%
1978	15	15	1	6.67%
1979	31	31	4	12.90%
1980	9	9	0	0.00%
1981	11	10	2	18.18%
1982	10	10	0	0.00%
1983	21	20	4	19.05%
1984	28	27	2	7.14%
1985	36	35	5	13.89%
1986	63	61	4	6.35%
1987	86	85	3	3.49%
1988	131	130	5	3.82%
1989	127	126	6	4.72%
1990	140	139	8	5.71%
1991	177	177	8	4.52%
1992	228	227	8	3.51%
1993	305	305	10	3.28%
1994	452	448	18	3.98%
1995	662	661	24	3.63%
1996	794	787	34	4.28%
1997	1,156	1,145	55	4.76%
1998	1,349	1,341	53	3.93%
1999	1,762	1,748	58	3.29%
2000	2,475	2,458	99	4.00%
2001	2,573	2,554	94	3.65%
2002	3,244	3,216	133	4.10%
2003	3,557	3,507	157	4.41%
2004	4,054	4,025	145	3.58%
2005	4,185	4,167	137	3.27%
2006	4,151	4,057	224	5.40%
2007	4,177	4,165	110	2.63%
2008	4,238	4,185	145	3.42%
2009	2,882	2,869	65	2.26%
2010	3,915	3,900	72	1.84%
2011	4,875	4,818	112	2.30%
2012	5,117	5,095	87	1.70%
2013	5,310	5,285	82	1.54%
2014	5,443	5,416	63	1.16%
2015	4,983	4,965	52	1.04%
2016	1,699	1,691	15	0.88%
2017	25	25	0	0.00%
	74,526	73,964	2,109	2.83%

2015
Lycoming County Test Data

2015 Lycoming MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	8	7	3	37.50%
1976	7	7	1	14.29%
1977	11	11	0	0.00%
1978	21	21	2	9.52%
1979	27	27	1	3.70%
1980	13	13	0	0.00%
1981	8	8	0	0.00%
1982	15	15	0	0.00%
1983	22	22	1	4.55%
1984	37	37	1	2.70%
1985	47	47	3	6.38%
1986	65	64	6	9.23%
1987	90	87	10	11.11%
1988	148	148	9	6.08%
1989	170	169	11	6.47%
1990	176	175	3	1.70%
1991	215	213	11	5.12%
1992	285	282	12	4.21%
1993	377	375	17	4.51%
1994	542	538	28	5.17%
1995	794	789	35	4.41%
1996	930	925	30	3.23%
1997	1,395	1,384	61	4.37%
1998	1,618	1,607	57	3.52%
1999	2,068	2,056	87	4.21%
2000	2,860	2,842	123	4.30%
2001	2,904	2,892	108	3.72%
2002	3,649	3,591	155	4.25%
2003	3,945	3,856	213	5.40%
2004	4,379	4,352	158	3.61%
2005	4,473	4,431	179	4.00%
2006	4,341	4,327	128	2.95%
2007	4,407	4,341	171	3.88%
2008	4,334	4,327	94	2.17%
2009	3,079	3,064	50	1.62%
2010	4,123	4,103	68	1.65%
2011	5,111	5,081	95	1.86%
2012	5,461	5,445	80	1.46%
2013	5,327	5,295	80	1.50%
2014	5,461	5,420	74	1.36%
2015	1,978	1,975	7	0.35%
2016	48	48	1	2.08%
	74,969	**74,417**	**2,173**	**2.90%**

2014
Lycoming County Test Data

2014 Lycoming MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	8	8	0	0.00%
1976	9	9	1	11.11%
1977	11	11	2	18.18%
1978	25	25	3	12.00%
1979	25	25	3	12.00%
1980	14	14	0	0.00%
1981	15	14	2	13.33%
1982	14	14	1	7.14%
1983	22	22	2	9.09%
1984	33	33	1	3.03%
1985	49	48	5	10.20%
1986	77	75	10	12.99%
1987	97	96	1	1.03%
1988	181	178	9	4.97%
1989	176	175	11	6.25%
1990	239	238	14	5.86%
1991	254	253	5	1.97%
1992	385	385	16	4.16%
1993	452	449	15	3.32%
1994	767	645	154	20.08%
1995	1,026	1,020	42	4.09%
1996	1,235	1,227	59	4.78%
1997	1,750	1,735	85	4.86%
1998	1,998	1,990	77	3.85%
1999	2,510	2,493	107	4.26%
2000	3,305	3,290	108	3.27%
2001	3,439	3,409	132	3.84%
2002	4,077	4,061	138	3.38%
2003	4,236	4,216	141	3.33%
2004	4,831	4,713	275	5.69%
2005	4,795	4,755	189	3.94%
2006	4,559	4,542	140	3.07%
2007	4,540	4,524	117	2.58%
2008	4,534	4,518	101	2.23%
2009	3,185	3,168	69	2.17%
2010	4,232	4,224	66	1.56%
2011	5,312	5,281	95	1.79%
2012	5,453	5,434	83	1.52%
2013	5,079	5,041	88	1.73%
2014	2,009	1,992	34	1.69%
2015	49	45	5	10.20%
	75,007	**74,395**	**2,406**	**3.21%**

2017
Mercer County Test Data

2017 Mercer MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	3	3	1	33.33%
1976	3	3	0	0.00%
1977	7	7	0	0.00%
1978	7	7	0	0.00%
1979	11	11	2	18.18%
1980	2	2	0	0.00%
1981	2	2	0	0.00%
1982	4	4	1	25.00%
1983	5	5	0	0.00%
1984	11	11	0	0.00%
1985	17	16	1	5.88%
1986	22	21	4	18.18%
1987	35	35	1	2.86%
1988	42	42	0	0.00%
1989	48	48	2	4.17%
1990	69	68	3	4.35%
1991	61	61	0	0.00%
1992	101	101	5	4.95%
1993	86	86	2	2.33%
1994	159	159	7	4.40%
1995	251	249	17	6.77%
1996	302	301	9	2.98%
1997	445	443	29	6.52%
1998	583	580	19	3.26%
1999	724	716	20	2.76%
2000	1,068	1,011	87	8.15%
2001	1,146	1,140	37	3.23%
2002	1,665	1,649	46	2.76%
2003	2,291	2,094	285	12.44%
2004	2,640	2,491	224	8.48%
2005	3,108	3,089	78	2.51%
2006	3,175	3,165	73	2.30%
2007	3,592	3,578	75	2.09%
2008	3,943	3,926	91	2.31%
2009	2,711	2,703	37	1.36%
2010	3,342	3,331	46	1.38%
2011	4,098	4,057	94	2.29%
2012	4,473	4,456	73	1.63%
2013	4,796	4,778	61	1.27%
2014	5,640	5,616	73	1.29%
2015	5,569	5,550	62	1.11%
2016	4,735	4,713	66	1.39%
2017	1,148	1,143	12	1.05%
	62,140	61,471	1,643	2.64%

2016
Mercer County Test Data

2016 Mercer MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	4	0	0.00%
1976	3	3	0	0.00%
1977	10	10	0	0.00%
1978	7	6	2	28.57%
1979	11	11	0	0.00%
1980	3	3	0	0.00%
1981	3	3	0	0.00%
1982	9	9	1	11.11%
1983	10	10	0	0.00%
1984	21	21	1	4.76%
1985	20	20	1	5.00%
1986	28	28	0	0.00%
1987	46	46	2	4.35%
1988	53	53	2	3.77%
1989	77	77	5	6.49%
1990	60	60	1	1.67%
1991	88	88	3	3.41%
1992	118	117	7	5.93%
1993	112	109	9	8.04%
1994	292	223	76	26.03%
1995	299	297	11	3.68%
1996	338	338	11	3.25%
1997	576	574	14	2.43%
1998	730	729	23	3.15%
1999	949	943	31	3.27%
2000	1,308	1,298	55	4.20%
2001	1,481	1,475	54	3.65%
2002	2,331	2,071	323	13.86%
2003	2,716	2,633	141	5.19%
2004	3,051	3,035	95	3.11%
2005	3,657	3,630	112	3.06%
2006	3,501	3,487	101	2.88%
2007	4,008	3,982	112	2.79%
2008	4,355	4,338	103	2.37%
2009	2,923	2,910	52	1.78%
2010	3,566	3,554	62	1.74%
2011	4,344	4,319	86	1.98%
2012	4,867	4,847	77	1.58%
2013	5,424	5,395	73	1.35%
2014	5,731	5,704	81	1.41%
2015	5,202	5,177	68	1.31%
2016	1,240	1,233	20	1.61%
2017	18	17	1	5.56%
	63,590	**62,887**	**1,816**	**2.86%**

2015
Mercer County Test Data

2015 Mercer MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	4	3	2	50.00%
1976	2	2	0	0.00%
1977	11	11	1	9.09%
1978	12	12	2	16.67%
1979	11	11	1	9.09%
1980	6	6	2	33.33%
1981	2	2	0	0.00%
1982	7	7	1	14.29%
1983	6	5	1	16.67%
1984	17	17	1	5.88%
1985	20	20	1	5.00%
1986	27	26	7	25.93%
1987	45	45	1	2.22%
1988	63	62	7	11.11%
1989	81	81	0	0.00%
1990	86	86	0	0.00%
1991	107	107	4	3.74%
1992	129	129	4	3.10%
1993	158	156	11	6.96%
1994	364	272	105	28.85%
1995	388	385	17	4.38%
1996	561	477	102	18.18%
1997	688	680	34	4.94%
1998	885	883	33	3.73%
1999	1,271	1,206	110	8.65%
2000	1,654	1,643	74	4.47%
2001	1,916	1,808	183	9.55%
2002	2,560	2,547	90	3.52%
2003	3,075	3,061	115	3.74%
2004	3,537	3,483	143	4.04%
2005	4,186	4,163	144	3.44%
2006	3,917	3,903	109	2.78%
2007	4,431	4,417	106	2.39%
2008	4,653	4,642	83	1.78%
2009	3,180	3,168	52	1.64%
2010	3,869	3,854	80	2.07%
2011	4,642	4,609	97	2.09%
2012	5,290	5,270	69	1.30%
2013	5,505	5,482	78	1.42%
2014	5,083	5,051	76	1.50%
2015	1,378	1,369	16	1.16%
2016	27	27	1	3.70%
	63,854	**63,188**	**1,963**	**3.07%**

2014
Mercer County Test Data

2014 Mercer MODEL YEARS	TESTS CONDUCTED	TOTAL PASS	TOTAL FAIL	Failure Rate of Total Vehicles Tested
1975	3	3	2	66.67%
1976	3	3	0	0.00%
1977	9	9	2	22.22%
1978	14	14	2	14.29%
1979	12	12	0	0.00%
1980	2	2	0	0.00%
1981	6	6	0	0.00%
1982	8	8	0	0.00%
1983	9	9	0	0.00%
1984	22	22	1	4.55%
1985	24	23	2	8.33%
1986	38	38	1	2.63%
1987	52	51	2	3.85%
1988	72	72	3	4.17%
1989	97	97	3	3.09%
1990	101	101	5	4.95%
1991	120	119	5	4.17%
1992	176	173	10	5.68%
1993	204	201	11	5.39%
1994	343	341	14	4.08%
1995	484	477	18	3.72%
1996	662	604	86	12.99%
1997	873	869	42	4.81%
1998	1,229	1,219	61	4.96%
1999	1,721	1,550	249	14.47%
2000	2,201	2,191	95	4.32%
2001	2,455	2,276	278	11.32%
2002	3,101	3,082	100	3.22%
2003	3,552	3,530	133	3.74%
2004	3,925	3,912	146	3.72%
2005	4,531	4,509	149	3.29%
2006	4,181	4,160	130	3.11%
2007	4,686	4,674	116	2.48%
2008	4,879	4,859	97	1.99%
2009	3,406	3,395	57	1.67%
2010	3,930	3,906	71	1.81%
2011	5,090	5,061	90	1.77%
2012	5,349	5,328	88	1.65%
2013	4,989	4,967	69	1.38%
2014	1,460	1,454	19	1.30%
2015	25	25	0	0.00%
	64,044	**63,352**	**2,157**	**3.37%**

APPENDIX B:
SENATE RESOLUTION 168 (2017)

PRIOR PRINTER'S NO. 1091 PRINTER'S NO. 1260

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE RESOLUTION

No. 168 Session of 2017

INTRODUCED BY LANGERHOLC, VOGEL AND BROOKS, JULY 14, 2017

SENATOR YAW, ENVIRONMENTAL RESOURCES AND ENERGY, AS AMENDED, OCTOBER 17, 2017

A RESOLUTION

Directing the Joint State Government Commission to establish an advisory committee to conduct a thorough and comprehensive analysis of the potential impact of removing ~~Cambria County~~ <-- CERTAIN COUNTIES from the emissions testing program and <-- report findings and recommendations to the Senate.

WHEREAS, The Clean Air Act of 1963 was the first Federal legislation regarding air pollution control, authorizing research into techniques for monitoring and controlling air pollution; and

WHEREAS, The Clean Air Act of 1970 authorized the development of comprehensive Federal and state regulations to limit emissions from both stationary and mobile sources, including the establishment of National Ambient Air Quality Standards (NAAQS) and requirements for State Implementation Plans (SIPs) to achieve the NAAQS; and

WHEREAS, The Clean Air Act of 1970 also increased enforcement authority and authorized requirements for control of motor vehicle emissions; and

WHEREAS, The Clean Air Act Amendments of 1990 substantially

increased the authority and responsibility of the Federal Government by authorizing new regulatory programs, increasing enforcement authority and expanding research programs; and

WHEREAS, To ensure compliance with Federal standards, the Environmental Protection Agency (EPA) required states to submit for approval an SIP that included regulations the Commonwealth would use to clean up polluted areas; and

WHEREAS, The SIP that Pennsylvania submitted to the EPA targeted vehicle emissions standards for 25 of Pennsylvania's 67 counties, including the most heavily polluted areas, mostly urbanized areas and areas with heavy amounts of industrial activity; and

WHEREAS, In 1997, the Commonwealth implemented the first phase of the enhanced auto emissions testing program in nine counties in the Philadelphia and Pittsburgh regions, with plans to expand the emissions testing program to the remaining 16 counties over time; and

WHEREAS, In 1999, the planned expansion of the emissions testing program to the Lehigh Valley and South Central regions was delayed due to, in part, a lack of opportunity for stakeholder groups to guide the improvement plan for those regions; and

WHEREAS, The expansion of the emissions testing program to the Lehigh Valley and South Central regions was again delayed to allow the Pennsylvania Department of Transportation and the Department of Environmental Protection time to evaluate the impact of new technology on the emissions inspection program; and

WHEREAS, In 2002 and 2003, lawsuits were initiated by two environmental groups challenging the limited implementation of

the SIP, ultimately leading to the Commonwealth's full implementation of the vehicle emissions testing program by bringing the remaining 16 counties identified in the SIP into compliance with the vehicle emissions testing program, and resulting in the inclusion of most of the counties which require this testing today, specifically regions designated as nonattainment areas for ozone levels by the EPA; and

WHEREAS, The nonattainment classification requires areas failing to meet the NAAQS for ground-level ozone to adhere to the SIP and to attain and maintain the standard; and

~~WHEREAS, Cambria County was designated as a marginal nonattainment area after November 1991; and~~ <--

~~WHEREAS, Cambria County was redesignated as a maintenance area based on the 1997 ozone standards, meaning Cambria County was successfully working toward attainment; and~~

~~WHEREAS, Cambria County was redesignated as an attainment area based on 2008 ozone standards and is no longer listed as a nonattainment or maintenance area; and~~

WHEREAS, In order to change which counties are required to participate in the emissions testing program, the Department of Environmental Protection is required to submit a revised SIP to the EPA for approval; and

WHEREAS, The EPA approved Pennsylvania's fully implemented SIP in 2005; therefore be it

RESOLVED, That the Joint State Government Commission establish an advisory committee, consisting of representatives of the Department of Transportation and the Department of Environmental Protection and others who possess knowledge of the vehicle emission inspection program and the SIP to facilitate the work of the Joint State Government Commission; and be it

further

RESOLVED, That the Joint State Government Commission, working with the advisory committee, conduct a thorough and comprehensive analysis of issues relating to the potential impact to the Commonwealth of removing ~~Cambria County~~ EACH PARTICIPATING COUNTY OF THE THIRD, FOURTH AND FIFTH CLASS, INDIVIDUALLY AND COLLECTIVELY, from the emissions testing program; and be it further <--

RESOLVED, That the final report include recommendations to make up for the loss of environmental credits associated with the approved SIP, the cost in actual dollars, historically and projected, to each of the respective departments, and any other potential financial aspect to the Commonwealth; and be it further

RESOLVED, That the Joint State Government Commission report findings and recommendations to the Senate no later than one year from the adoption of this resolution.