

VEIP Modernization Report

**A Report to the Maryland General Assembly
Senate Finance Committee
Senate Budget and Taxation Committee
House Environment and Transportation Committee
and
House Appropriations Committee**

December 2021

MSAR# 13247

Maryland Department of the Environment
Maryland Department of Transportation
Motor Vehicle Administration

This report was prepared in response to language contained in House Bill 44, enacted as Ch 670, of the Acts of 2021. The language states:

On or before January 15, 2022, in accordance with § 2–1257 of the State Government Article, the MVA and the MDE shall submit a joint report to the Senate Finance Committee, the Senate Budget and Taxation Committee, the House Environment and Transportation Committee, and the House Appropriations Committee that provides:

(1) information on the proposed changes to the vehicle emissions inspection program under consideration, and what legislative and regulatory changes are necessary to effect those changes;

(2) the projected fiscal impact of the proposed changes on the Transportation Trust Fund;

(3) information on how the proposed changes may impact air quality and any discussions and approvals sought by U.S. Environmental Protection Agency of the proposed changes to the program; and

(4) an environmental justice analysis of the impact of running the program and assessing fees only on citizens who own older cars, and a recommendation on whether to pay vehicle emissions inspection program expenses from vehicle registration fees.

Background

Environmental stewardship and environmental justice (EJ) are top priorities for both the Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) and the Maryland Department of the Environment (MDE), and both agencies remain committed to ensuring cleaner air for all Marylanders. The State’s planned Vehicle Emissions Inspection Program (VEIP) modernization efforts fall within the scope of the authority granted to the MDE and the MDOT MVA in Maryland statutes pertaining to the VEIP, and takes into consideration the significant improvements in vehicle technology along with the tremendous progress our State has made toward cleaning our air. Our departments have a goal of adjusting emissions testing requirements in response to these advancements, preserving air quality, continuing progress on EJ and equity, and providing better customer service for Maryland citizens.

Air Quality Progress

The VEIP has been a cornerstone program for Maryland’s air quality efforts since it was adopted in 1984. The program underwent significant updates in 1996 to meet requirements of the federal Clean Air Act (CAA) Amendments of 1990, including geographic expansion to include 14 Maryland jurisdictions based on the air quality designation (nonattainment pollution level) and population density. Maryland has had a long, negative air quality history and a great amount of effort has gone into successfully overcoming this since the VEIP’s establishment.

In the 1990s, Maryland had areas designated by the U.S. Environmental Protection Agency (EPA) as “severe” for ground level ozone, a pervasive air pollutant that harms human health and

the environment, meaning that only a few areas in California had worse ozone air quality than Maryland. In the following decade, Maryland was also designated as a nonattainment area for fine particle pollution, the highest risk air pollutant the State regulates. A Massachusetts Institute of Technology study also identified Maryland's air as the riskiest air to breathe in the eastern half of the country. By 2008, as part of the process for a strengthened federal ozone air quality standard, the Baltimore area was designated as the worst ozone area outside of Texas and California.

In response to these challenges, Maryland has implemented hundreds of emissions reduction strategies that have been very effective in reversing the previous negative air quality trends. Currently, the State is meeting all federal health-based air quality standards, except for the ozone standard, which the State is on the verge of attaining.

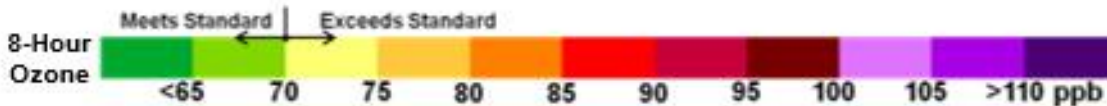
Maryland met the fine particle standard in 2012. Measured fine particle levels are now well below the federal standard Statewide and continue to trend downward. Ozone levels are also trending down, as displayed in **Exhibit 1** and **Exhibit 2**. 2020 saw the lowest ozone levels ever recorded, having just three days where the standard was exceeded by a small margin in isolated areas of the State.

Exhibit 1. Maryland's Shrinking Ozone Problem

The Shrinking Ozone Problem

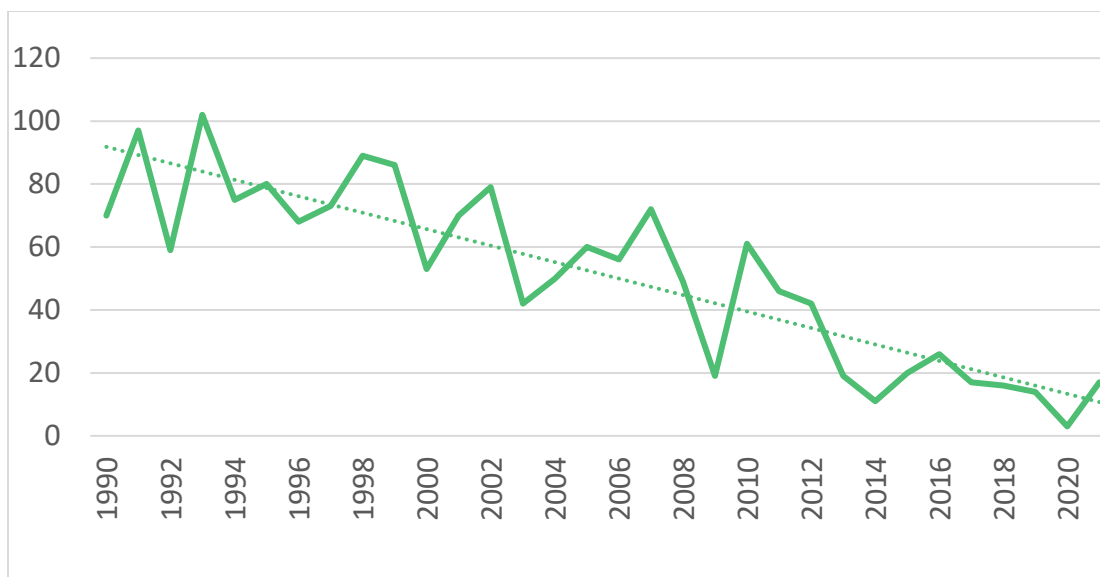


Lower Ozone Levels and Significant Spatial Risk Reduction



Source: MDE

Exhibit 2. Downward Trend in the Number of Ozone Exceedance Days



Source: MDE

The preliminary data for the 2021 ozone season is also showing low overall ozone levels. Most incidents of ozone exceedances continue to be isolated in nature and reflect Maryland's ongoing air quality improvements. In 2021, there have been more days exceeding the ozone standard compared to 2020; however, the 2020 data was gathered during the height of the COVID-19 pandemic. The 2021 data still follows the overall downward trend in number of exceedances over time and continues to show that when exceedances occur, the federal standard is exceeded by a very narrow margin. This air quality progress is in vast contrast to the past where numerous, widespread, significantly high exceedances occurred. Our research partnership with the University of Maryland shows that approximately 70 percent of Maryland's ozone problem originates in upwind states on bad air quality days. It is this transport of emissions into the State that is preventing Maryland from attaining the federal ozone standard.

The Maryland General Assembly has been an instrumental partner in driving our clean air progress. The 2006 Maryland Healthy Air Act has proven to be the single largest program ever to improve the State's air quality and is one of the primary reasons the State is well below the fine particle standard and approaching attainment for ozone. The air quality improvement resulting from the emission reductions achieved by this law exceeded expectations. The 2007 Maryland Clean Cars Act which required Maryland to adopt the California Clean Cars Program, has also played a major role in helping the State make progress on the ozone problem. In addition to these important measures, the MDE has adopted over 300 emission reduction regulations in the past 30 years, covering virtually every emission source from hair spray to incinerators. The MDE has also initiated multiple legal actions to reduce air emissions in upwind states like Pennsylvania and West Virginia. In addition to addressing criteria pollutants under the CAA, these efforts have either directly or indirectly helped the State make progress on reducing ozone levels and greenhouse gas (GHG) emissions.

The main purpose of the VEIP is to control vehicle emissions that lead to the formation of ground-level ozone. While both nitrogen oxides (NO_x) and volatile organic compound (VOC) emissions are precursors to ozone, intensive research has shown that controlling NO_x emissions is the key to keeping ozone levels low in Maryland, and this strategy has been very effective in helping the State make great progress toward achieving air quality goals. By requiring regular vehicle testing and repair of vehicles that fail testing, the VEIP ensures that NO_x emissions are reduced. The VEIP also has a minor role in reducing mobile sources of GHG emissions. The design features of the vehicle, primarily those related to fuel economy, determine the level of vehicular GHG emissions, and the VEIP inspections help ensure that the vehicle's fuel economy performance is sustained through proper repair and maintenance.

The State's efforts to modernize the VEIP are consistent with the efforts to continue to lower air pollution and reduce GHG emissions. The significant air quality improvements in Maryland, along with the dramatic vehicle technology advancements since the VEIP was first introduced, allow the State to implement well-planned and practical enhancements to the VEIP, creating a much more user-friendly program for Maryland motorists while continuing to protect air quality.

New vehicles are now more than 98 percent cleaner than new vehicles of the 1980s, since VEIP was first implemented. Emissions control technology developments including the introduction of catalytic converters, fuel mixture controls, and other emissions components helped initiate this progress, which fostered ongoing advancements in computers and electronic controls. These separate technologies were integrated into one comprehensive, computer-controlled system, called the On-Board Diagnostics (OBD) system. The OBD system allows our modern, increasingly stringent emissions standards to be achievable and provide for cleaner air. The OBD system monitors the functionality of virtually every component that can affect emissions performance. Continual, comprehensive monitoring allows the OBD system to keep track of vehicle health over the full range of operating conditions and identify malfunctioning or deteriorating components. The OBD testing protocols have become more stringent to prevent vehicle manufacturers from manipulating OBD data. The OBD testing is the primary test method available to identify vehicles responsible for the NO_x emissions and 98 percent of vehicles are now equipped with OBD systems.

The VEIP is a very effective program that was critical in keeping vehicles of the 1980s and 1990s running cleanly, prior to the availability of modern OBD emissions control technology. As increasingly tougher emissions standards for new cars have been instituted in recent years, emissions control technology has evolved to meet the challenges, as shown in **Exhibit 3** below. Newer, cleaner vehicles now constitute a large portion of the overall vehicle population, and the VEIP, while still an important strategy, is not as large a contributor to Maryland's air quality progress as in the past. The VEIP does not exist in rural western or eastern Maryland, where the air quality is below the EPA thresholds for nonattainment.

Exhibit 3. Maryland’s Improvements in Air Quality and Vehicle Emissions

Key Criteria	1996	2021
Ozone Designation	Severe - only areas in California were worse	Marginal - cleanest designation
Number of bad ozone days annually	71	17*
Spatial exposure to unhealthy ozone levels	Statewide	Isolated, small-scale events
Other air pollutants	High levels of fine particulates, carbon monoxide, NOx, etc.	Attaining all criteria pollutants under the CAA except for ozone. Often well below health-based standards
Statewide vehicle NOx emissions	126,740 tons per year	60% reduction
Statewide vehicle VOC emissions	72,139 tons per year	70% reduction
Vehicle NOx changes due to technology advancements	NA	98% cleaner
Vehicle VOC changes due to technology advancements	NA	98% cleaner
Percent of vehicles with mandatory OBD control systems	<1% of the fleet	98% of the fleet
Length vehicle manufacturers must demonstrate compliance with emissions standards	50,000 miles/ 5 years	150,000 miles/ 15 years

*Preliminary data **Source:** MDE

The major factors in lowering emissions to continue air quality progress in the modern era are power plant controls, controls in upwind states to reduce transported pollution, heavy-duty truck improvements, and zero emissions vehicle (ZEV) adoption. The MDE is already working to achieve additional emission reductions in these areas. Maryland’s 2015 NOx regulations, the Regional Greenhouse Gas Initiative, and market forces will continue to drive dramatic reductions from power plants. By 2030, all coal-fired power plants, the largest stationary source emission category in Maryland, will likely no longer operate. Maryland will continue to take legal action and work with the EPA, the Ozone Transport Commission (OTC), and other states to address air pollution coming into Maryland. The OTC action under Section 184(c) of the CAA, triggered by a petition from Maryland that asked the EPA to require the use of coal-fired power plant emission controls in Pennsylvania consistent with Maryland’s regulatory requirements, is expected to be decided in the near future.

The MDE is also implementing initiatives to reduce emissions from heavy-duty trucks and expand the use of ZEVs. As the number of heavy-duty truck miles travelled is forecasted to grow significantly in the coming decades, new initiatives that will require more stringent emissions standards for newly manufactured trucks and an acceleration of their electrification are essential to reducing emissions. Both the EPA and the State of California are evaluating more stringent

emissions standards for newly manufactured trucks that will provide a 90 percent reduction in NOx emissions effective in the 2024-2027 timeframe. The MDE is monitoring these efforts and coordinating with stakeholders to bring about the greatest emissions reductions possible. Maryland is also working on truck electrification, and in July 2020, joined 14 other states and Washington, D.C. in signing a joint agreement committing to work collaboratively to advance and accelerate electric truck deployment, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks. These efforts will build upon the successful efforts of Maryland's legislatively established Zero Emission Electric Vehicle Infrastructure Council (ZEEVIC) to increase ZEV deployment in Maryland.

Recent transportation programs continue to provide increasingly greater emissions reductions as vehicle fleets turn over. Both cars and fuel today are significantly cleaner than they were just a decade ago. The best-known programs are the Maryland Clean Cars Program and the federal Tier 2 and Tier 3 Vehicle and Fuel Standards, which combine more stringent new vehicle emissions standards with cleaner gasoline to reduce NOx emissions. California is working on developing its next round of clean car standards, and the MDE is monitoring these efforts to continue to ensure that the cleanest vehicles are available in Maryland.

Other ongoing State actions to reduce emissions include the Idle Free Maryland Program, which encourages common sense actions to eliminate unnecessary idling and educates motorists on the benefits of reducing excess idling, a stepped-up effort to address tampering with small and large vehicles emission control systems, and an interagency Port of Baltimore partnership that has been successfully working on projects of mutual interest that improve air quality and enhance the business environment. Technology advancements through the years are allowing Maryland to implement new programs that will provide significant air quality benefits moving forward, preserving and enhancing the State's effort to provide cleaner air.

Proposed VEIP Changes and Approvals

The MDE and the MDOT MVA have worked closely together over the years to make administrative modifications to the VEIP operations as part of our collaborative and continuous improvement efforts. These changes, as well as those outlined in the Request for Proposals (RFP) for a new VEIP Management and Operations contract, accommodate the ongoing advancements in technology and innovation in both the vehicle manufacturing and vehicle emissions testing industries. The outcome is an emissions program in Maryland that is characterized by more efficient and more accurate vehicle testing, low failure rates among newer vehicles, and ensuring when customers make expenditures on vehicle repairs that they are effective in addressing emissions-related faults, all while continuing to protect air quality. We believe the additional proposed VEIP changes are important and appropriate to pursue at this time. The intention is to update the VEIP regulations to reflect the new program components so we may continue to administer the VEIP in a manner that is convenient for customers, operationally efficient, and economically sound for the State.

VEIP Modernization Effort

The existing MDOT MVA VEIP Operations contract was originally scheduled to expire on September 30, 2019. In 2017, in anticipation of the expiration, the agencies undertook an extensive research and planning process to consider alternatives, review best practices in other states, and make decisions about the best path forward for the VEIP in the coming years. The MDOT MVA issued a 2018 VEIP Management and Operations solicitation and had planned to award the replacement contract in March 2019. However, a protest was received after evaluation of the proposals and the debriefings. Based on the information in the protest, the MDOT MVA determined it was necessary to further clarify the requirements of the program. As a result, all proposals were rejected to revise the specifications and re-advertise after consultation with the Office of Legal Counsel and pursuant to COMAR 21.06.02.02 C (1). The procurement was re-advertised on April 17, 2019, and the MDOT MVA presented a replacement contract in October 2019 with a Notice to Proceed date in November 2019.

However, during the solicitation process, the MDOT MVA received three protests. The MDOT MVA denied each of the protests and a consolidated appeal was filed to the Maryland State Board of Contract Appeals. During the appeal litigation, the MDOT MVA was requested to produce certain documents, which were provided and later determined that four MDOT MVA-generated documents, produced to the protestor by the Office of the Attorney General, contained proprietary and confidential information from the entities. As a result, the MDOT MVA concluded that it was in the State's best interest to cancel the procurement and subsequently rejected all proposals.

In advance of a subsequent VEIP Management and Operations contract procurement, the MDOT MVA and the MDE evaluated the program and included several revisions in the current (active) RFP. The current proposed changes to the VEIP stem from the agency's 2017 study, and regularly updated analyses that are backed by increasing evidence that these modernization efforts would enhance the customer experience without negatively impacting air quality. The first steps of this effort were implemented in 2018 through regulatory changes. The 2018 modernization consisted of two elements: the first was delaying the initial test requirement for new vehicles from two years of age to three years, due to the very low VEIP failure rates of these vehicles. The second element was to introduce the phase-out of the outdated idle test, which does not provide the NO_x emissions reductions needed for continued improvement of ozone air quality. The idle test phase-out was begun by eliminating the testing requirement for pre-1996 light duty vehicles which cannot undergo the OBD test because they were built without OBD control systems.

The 2022 VEIP modernization effort consists of creating Motorist Assistance Centers (MACs) and other types of customer support, further extending the initial testing requirement for new vehicles from three years of age to six years, completion of the phase-out of the obsolete idle test, and implementation of emerging remote-OBD (R-OBD or ROBD) testing. These changes can be made under existing statutory authority to design and implement the VEIP as assigned to the MDE and the MDOT MVA under Maryland Code, Transportation Article, Title 23, Subtitle 2, and will require regulatory action. No legislative action is needed to effect these changes.

VEIP Regulation Revision Process

Stakeholder review and input are key components of the VEIP regulation revision process. The review process helps to ensure participation from within the agencies, as well as from stakeholders, other agencies, the public, and other units affected by our regulations. Draft regulations are brought before the Maryland Air Quality Control Advisory Council (AQCAC) for advice and adoption recommendations. AQCAC reviews draft air quality regulations in consideration of air quality and public health goals, evaluates air pollution control measures as requested by the MDE, and advises the MDE on proposals by recommending adoption, rejection, or modification. AQCAC includes representatives from industry, labor, professional associations, local and regional government organizations, academia, farming, the public health community, and the public. AQCAC meetings are open to the public and the MDE notified legislative leaders regarding the most recent AQCAC meeting where the VEIP was discussed. The MDE has communicated plans for the VEIP enhancements to AQCAC since December 2018 and has posted public information on its website. AQCAC recommended that the MDE and the MDOT MVA move forward with adoption of the VEIP regulation proposal at its June 14, 2021 meeting.

The VEIP modernization changes will also follow the standard regulatory adoption process that every State regulation is required to follow, including submission of the regulations for review by the Administrative, Executive, Legislative Review (AELR) Committee.

Per statute and the standard regulatory adoption process, the MDE and the MDOT MVA are further required to publish a public notice and information on the regulatory proposal in the Maryland Register, to hold a public hearing, and have a 30-day public comment period. The hearing and comment period gives stakeholders opportunities to submit comments and provide input for the agencies' consideration and response.

VEIP Modernization Components

Motorist Assistance Centers (MACs)

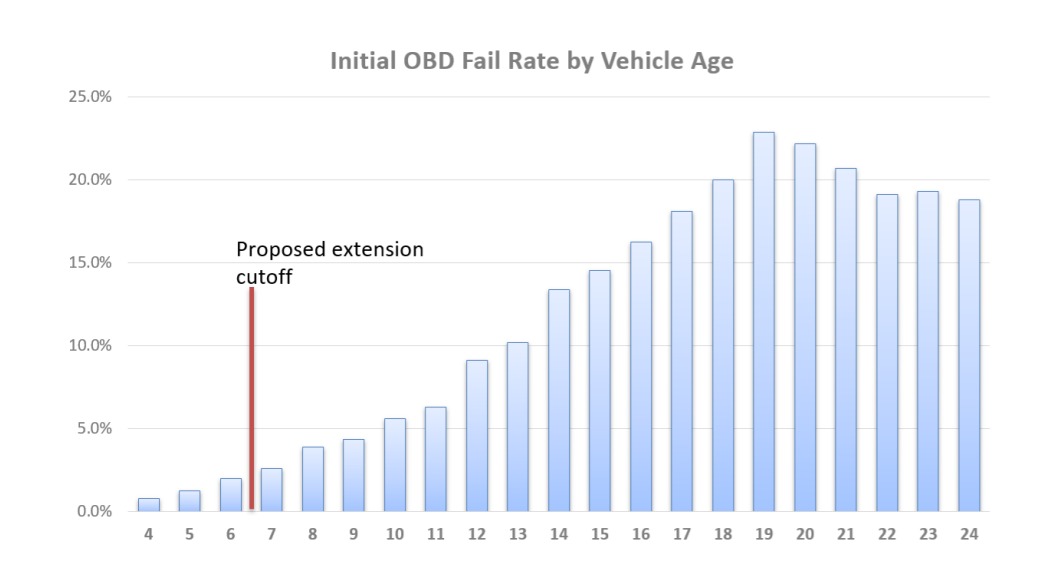
The MDE and the MDOT MVA will advance improvements in customer convenience as part of the VEIP modernization process. The introduction of MACs includes an emissions repair specialist available at the stations for support to assist both motorists and the repair industry at getting the correct repairs completed on the first visit. The improvements in repair success will carry through multiple VEIP test cycles, reducing overall fail rates and customer inconveniences, and ensuring continued air quality progress. MACs are becoming a common enhancement among other states' programs to ensure effective, lasting emissions repairs. This is an especially important component of the program, given the complexity of modern vehicle emissions technology. MACs will improve the repair industry's ability to maintain vehicles, and help more people get the repairs needed to pass their VEIP test. As the agencies take steps to improve customer convenience with the introduction of MACs, the MDOT MVA has also implemented an important computer system upgrade called Customer Connect, which includes an online portal to provide motorists with direct access to the VEIP information and related apps. Customers can get notifications of their VEIP due dates and will be more aware of when their

test date is approaching. The agencies will continue to work with the repair industry to help ensure that technicians have access to the training, skills development, and diagnostic tools needed to perform effective emissions-related repairs. Other efforts to assist Maryland motorists are also under development at the MDE and the MDOT MVA. The overall goal of these efforts is to implement customer-friendly technical assistance to reduce initial VEIP test failures as much as possible.

Six-Year Delay for Initial Testing of New Vehicles

At this time, new vehicles require VEIP testing in the third year of ownership, also referred to as the third model year (MY). However, current data shows that vehicles up to age six years consistently pass the VEIP testing at rates of 98.7 percent. Vehicles in this age range are now extremely low emitting with remarkably dependable emissions control systems. When building new vehicles, manufacturers are required to demonstrate that the low emissions levels are long-lasting and backed by robust warranties. The requirement for these vehicles to be VEIP tested at age three is no longer an effective air quality improvement measure and the MDE and the MDOT MVA have received consistent customer feedback on the requirement to drive to a VEIP facility, knowing the extremely low failure rate of these newer vehicles.

Exhibit 4. Initial OBD Fail Rate by Vehicle Age



Source: MDOT MVA

Completion of Idle Test Phase-Out

The MDE and the MDOT MVA will complete the phase-out of testing for all vehicles built before OBD computer controls due to their rapid retirement from the vehicle population. Heavy-duty vehicles (HDVs) have completed the transition to OBD compliance, and HDVs equipped with OBD systems will continue to be tested. The idle test has no impact on NOx emissions. The State is actively working to transition the HDV fleet to ZEVs, which will drive NOx emissions from this sector to essentially zero in future years, a focus that will greatly enhance Maryland’s clean air progress.

Remote-OBD

R-OBD technology provides the opportunity to test your vehicle yourself or at various facilities, which is currently possible with the telematics (computer systems) installed in many cars (e.g., GM On-Star, Toyota Safety Connect) or plug-in devices. R-OBD takes advantage of existing technology, with the use of a vehicle’s onboard electronics. This type of testing can be completed by the motorist in the vehicle, or by visiting a conveniently located repair facility or dealership. The availability of these options will increase consumer choice and convenience. Maryland is looking to follow the success of Oregon’s R-OBD program and that of states with hybrid programs that provide motorists the option of seeking testing at either centralized State stations or private businesses, such as New Jersey, Illinois, and Ohio. Maryland will also continue to offer our popular self-testing kiosk option, which 15 percent of eligible motorists currently choose as an alternative to a State station, with a reduced fee of ten dollars.

Projected fiscal impact of proposed VEIP changes on the Transportation Trust Fund (TTF)

By increasing the initial test delay for new vehicles from three to six years and eliminating the testing requirement for the small number of remaining pre-OBD vehicles, it is estimated that 243,857 vehicles will be removed from the test pool in Fiscal Year (FY) 2023, as shown in **Exhibit 5**. This is estimated to produce a net loss of \$4,457,570 in testing and late fee revenue, which would have contributed to the Transportation Trust Fund (TTF). However, over half of the VEIP testing fee revenue is used to pay for contractor and administrative costs of running the VEIP. It is anticipated that an updated contractor payment utilized in the new operations contract solicitation, as well as other efficiencies which may be gained under the new requirements will result in much lower actual revenue impact to the TTF. Under the current VEIP Management and Operations RFP, and the previous two versions issued, the MDOT MVA is transitioning the VEIP contract to a pricing model that is more advantageous to the State. The contract will move from the current flat contract price, regardless of the number of tests the contractor performs, to pricing per test administered. This will ensure that the State only pays for services performed, as the VEIP testing numbers will continue to fluctuate in the future. It is anticipated that ZEVs will account for a larger percentage of new vehicle purchases in the future, and these vehicles are already exempt from the VEIP testing.

Exhibit 5. Estimate of Economic Impact in FY23

		Reduction in Test Volume			Revenue Loss					Savings	Net Loss
		Initial Tests (-)	Used Vehicle Transfer Tests (+)	Net Reduction	Test Fees			Late Fees	Total Fees	Postage	
					Stations	Kiosks	Total				
Full Fiscal Year	Newest 4 - 6 Model Years (MY)	303,417	79,719	223,698	\$ 2,662,006	\$ 335,547	\$ 2,997,553	\$ 1,199,021	\$ 4,196,574	\$ 123,033	\$ 4,073,541
	Pre-OBD HDVs	20,159	N/A	20,159	\$ 282,226	n/a	\$ 282,226	\$ 112,890	\$ 395,116	\$ 11,087	\$ 384,029
	Total	323,576	79,719	243,857	\$ 2,944,232	\$ 335,547	\$ 3,279,779	\$ 1,311,911	\$ 4,591,690	\$ 134,120	\$ 4,457,570

Source: MDOT MVA

This estimate is for FY2023 and may differ from other test volume reports provided for the fiscal, calendar, or contract year. These numbers are an estimate based on current vehicle registration information, with the final number of vehicles impacted depending on Maryland customer vehicle purchases.

Air quality and U.S. EPA approval of the proposed VEIP changes

Air quality effects from the proposed changes to the VEIP were assessed and found to be negligible. The vehicles qualifying for the delay in initial testing have very low VEIP failure rates and the number of pre-OBD vehicles to be exempted is small and rapidly dwindling. The MAC component will help improve testing outcomes for all vehicles subject to the program. Using the EPA's Motor Vehicle Emission Simulator model, the MDE determined that the effect on NOx emissions is within a range of 0.02-0.20 tons per day (TPD) increase and the effect on VOC emissions within a range of 0.01-0.19 TPD increase, depending on the level of motorist assistance provided. Through the MAC component, as well as ongoing intensive customer service efforts, the agencies are committed to ensuring that measures are in place to provide the level of assistance needed to achieve the lower boundaries of these estimates.

Even at the higher end of the estimate range, the emissions impacts are very minimal and will not affect Maryland's ability to maintain the progress that has been made in achieving clean air and attaining federal air quality standards. The range of 0.01-0.20 TPD represents a very small amount in terms of air emissions. This amount of TPD of NOx and/or VOCs is not enough to cause localized impacts or cause air quality levels to exceed the federal ozone standard. For context, the 2015 power plant regulations achieved over 20 TPD of NOx reductions; the MDE legal actions against upwind power plants have the potential to reduce NOx emissions by 40 TPD. The MDE's current vehicle emissions control system anti-tampering initiative is expected to provide up to 5 TPD of NOx reductions.

The EPA has provided guidance documents to states on modifying existing Vehicle Emissions Inspection and Maintenance (I/M) programs such as the VEIP, in acknowledgement of the technology advances in pollution control and vehicle design that have occurred in recent decades. The EPA guidance explicitly allows for OBD-focused programs and expresses the role of OBD-only programs in lowering harmful air pollutants. The EPA does not prescribe a strict age or MY at which new vehicles must first be tested (often termed a grace period) nor an age at which older MY vehicles may be exempted from testing. The EPA guidance allows variation among states in determining these program parameters, as referenced in the following excerpt:

“Although the impact of MY-based exclusions will vary from area to area depending upon individual vehicle age distributions, [the model] allows for the modeling of both a grace period (i.e., the number of new MY vehicles exempted from the program) and an I/M exemption age (i.e., the age at which a vehicle is no longer required to be I/M tested).” (EPA, Considerations for State I/M Program Optimization, p. 5.)

The EPA has already approved the VEIP enhancements planned in Maryland in other states, per **Exhibit 6**, below. Even with the six-year proposed change, Maryland’s VEIP testing delay is less than California’s, which is already at an eight-year delay in testing of new vehicles. As demonstrated in the table below, both Colorado and Delaware are at seven-year delays and Utah at six years. The MDE has been communicating regularly with the EPA on this effort to modernize the VEIP while continuing to make progress on clean air.

Exhibit 6. State Vehicle Emissions Inspection Programs

	# Years New Vehicle Testing is Delayed	Testing Network	OBD Testing Only	Motorist Assistance Centers
Arizona	5	Centralized		
California	8	Decentralized		
Connecticut	4	Decentralized		
Colorado	7	Centralized		
Washington D.C.	3	Centralized		
Delaware	7	Centralized		
Georgia	3	Decentralized		
Idaho	5	Decentralized		
Illinois	4	Hybrid		
Indiana	4	Centralized		
Louisiana	2	Decentralized		
Maine	0	Decentralized		
Massachusetts	1	Decentralized		
Missouri	1	Decentralized		
Nevada	2	Decentralized		
New Hampshire	0	Decentralized		
New Jersey	5	Hybrid		
New Mexico	4	Decentralized		
New York	2	Decentralized		
North Carolina	2	Decentralized		
Ohio	3	Hybrid		
Oregon	4	Hybrid		
Pennsylvania	1	Decentralized		
Rhode Island	2	Decentralized		
Tennessee	1	Centralized		
Texas	2	Decentralized		
Utah*	6	Decentralized		
Vermont	0	Decentralized		
Virginia	4	Decentralized		
Wisconsin	3	Decentralized		
<i>Maryland - Current</i>	3	Centralized		
<i>Maryland - Enhanced</i>	6	Hybrid		

Notes: 1) Hybrid programs both operate centralized test stations and permit testing at repair facilities.
2) Some states' motorist assistance programs include financial assistance.
*Utah administers I/M programs by county with varying initial test delays.

Source: MDE

Environmental Justice and Fee Analysis

EJ Background

The MDE and the MDOT MVA are committed to ensuring cleaner air for all Marylanders through a technically sound, customer friendly VEIP. The MDE, the MDOT MVA, and the Maryland General Assembly have worked extensively over the years to provide EJ assistance to Maryland motorists. The following compares the three- and six-year testing delays to examine whether the program enhancements will have a negative effect on a specific demographic. Through the demographic and economic analysis conducted, it is determined that the programmatic change to a six-year initial testing delay does not transfer the economic impacts of the program to any specific demographic in the VEIP testing counties; however, the economic impact, in general, remains on customers with older MY vehicles. To negate the associated costs, the existing program mechanisms to assist customers including waivers, extensions, and exemptions will be in place to prevent economic hardship. The VEIP testing jurisdictions are set by EPA nonattainment status and coincide with the most densely populated regions of the State with the worst air quality.

Title VI Compliance

As a recipient of federal funding assistance, the MDOT MVA is required to comply with Title VI of the Civil Rights Act of 1964 (commonly referred to as Title VI), as amended, and other nondiscrimination laws and authorities. Title VI prohibits all state agencies receiving federal funds from discriminating against anyone or any demographic group in the United States on the basis of race, color, and national origin. Related nondiscrimination authorities also prohibit discrimination based on limited English proficiency, sex, age, low-income status, and disability.

The MDOT MVA fully complies with all aspects of Title VI, having in place an agency-level Title VI Plan, which is annually reviewed and approved by the MDOT MVA's federal partners, the Federal Motor Carrier Safety Administration (FMCSA) and the National Highway Traffic Safety Administration (NHTSA). The MDOT MVA also adopts the Federal Highway Administration's (FHWA) definition of EJ in all Title VI documents including the 2021 MDOT MVA Title VI Plan:

“Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people, regardless of race, ethnicity, income, national origin, or educational level with respect to the development, implementation and enforcement of environmental laws, regulations and policies. DOT is committed to ensuring a fast, safe, efficient, accessible, and convenient transportation system for communities nationwide. In doing so, DOT comprehensively incorporates EJ considerations into all of the Department’s programs, policies, and activities. By ensuring opportunities for minority and low-income communities to influence the transportation planning and decision-making processes through enhanced engagement and meaningful input, the Department actively prevents disproportionately high and adverse effects of transportation projects on minority and low-income communities.”

The MDE implements environmental laws and programs to protect and restore the environment for the health and well-being of Marylanders. The MDE supports the goal of achieving environmental equity for all Maryland residents. Accordingly, as the MDE implements state laws and programs to protect and restore the environment, it is the MDE's policy to implement environmental laws and programs wherever possible in a manner that reduces existing inequities and avoids the creation of additional inequities in EJ communities.

In December 2020, the MDE finalized an EJ Policy and Implementation Plan, which involves a series of actions to achieve the following objectives: strengthen EJ communities' understanding of environmental decisions, including permitting, regulation and, where practicable, enforcement through enhanced communication and outreach; strive to provide equitable environmental protections and benefits to all communities, particularly those that have been overburdened and underserved; review and respond to existing inequities associated with facilities in EJ communities; and focus and prioritize infrastructure financing in EJ communities.

Current VEIP Customer Support Initiatives

Through statutory requirements, the VEIP is designed to offer waivers for disabled drivers, senior drivers, and vehicle owners who are on active military duty, as well as vehicle owners who demonstrate progress toward acquiring emissions-related repairs even when the vehicle continues to fail VEIP testing. The MDOT MVA provides a substantial customer service program to ensure these waivers are made available to qualifying motorists, and further offers test scheduling alternatives such as date extensions so that vehicle owners may adjust the VEIP testing schedule for customer convenience.

Extension

The MDOT MVA provides time extensions to motorists who are unable to test by their assigned due date. The reason to apply for an extension may vary but may include availability, financial burden, repairs required, personal (such as medical reasons), out of area, and lost VEIP test due date notice. Customers can request up to three extensions in the two-year VEIP test cycle, resulting in a one calendar year delay of testing, which can be done [online](#) at the MDOT MVA website or in person at any of the 18 VEIP station locations. There is no charge for a VEIP extension. Customers request on average 393,000 extensions annually via online, email, phone, or at VEIP locations.

Waivers

The VEIP statutory framework provides for several waivers, outlined below, to offer relief to motorists with extenuating circumstances. Roughly 6 percent (nearly 75,000 tests) of all VEIP testing volume utilized waivers in FY 2020 and FY 2021.

Senior Citizen Waiver

Customers 70 years of age or older with vehicles driven less than 5,000 miles per year can request a senior citizen waiver for the remainder of the two-year test cycle. In addition, miles driven for a nonprofit organization can be deducted from the eligible customer's annual mileage with written certification on the organization's letterhead once approved. To qualify for the Senior Citizen waiver, all vehicle owners must meet the age and vehicle mileage requirements. Roughly 83 percent (on average 62,000) of all VEIP waivers issued were Senior Citizen waivers in FY2020 and FY2021.

Disabled Citizen Waiver

Customers who are permanently disabled, who have metal disabled registration plates, and whose vehicle is driven less than 5,000 miles per year, can request a disabled citizen waiver for the remainder of the two-year test cycle. To qualify for the disabled citizen waiver, all vehicle owners must meet the requirements for the disabled registration plates and vehicle mileage reporting to qualify. Roughly 6 percent (on average 4,500) of all VEIP waivers issued were disabled citizen waivers in FY2020 and FY2021.

Repair Waiver

Customers may apply for a repair waiver after a vehicle fails the VEIP test after undergoing emissions related repair. Vehicle owners must submit original receipts or invoices indicating the minimum repair cost of \$450.00 has been spent on emissions related repairs. A waiver will be issued for two years from the original assigned test date. The emissions related repairs must be made up to 30 days before the first inspection and up to 120 days after the last inspection. The vehicle must be tested after any repairs are made that are to count towards the repair waiver. Roughly 10 percent (on average 7,800) of all VEIP waivers issued were Repair waivers in FY20 and FY21.

Out-of-Area/Military Waiver

Active-duty military customers currently serving outside of Maryland can request a waiver to delay their VEIP inspection or accept emissions inspection test results from reciprocity states. To be eligible for a military waiver, at least one vehicle owner must be an active-duty member with military orders for deployment outside the United States or at an assigned duty station in a jurisdiction that is not subject to the VEIP. The Out of Area/Military waiver was recently adopted and does not have associated data or metrics at this time.

Exemptions

The MDOT MVA also administers exemptions that permanently eliminate the testing requirement for vehicles that meet certain criteria. See the full list of qualifying exempt vehicles in the funding recommendation section.

VEIP EJ Analysis

The VEIP has changed throughout the years to reflect the latest automotive technology advancements and the proposed changes simply continue this trend. The proposed amendments to the VEIP are the second phase of a modernization effort that began in 2017, with the goals of eliminating outdated test procedures, improving customer service, and reducing financial and regulatory barriers for Maryland motorists so they may benefit from these vehicle advancements and Maryland's air quality progress.

The following will compare the three- and six-year initial testing delay programs to illustrate that the program enhancements will not have a negative effect on a specific population or demographic group, as this enhancement has the largest impact on motorists. While the VEIP changes also includes exempting the small remaining number of older, pre-OBD technology vehicles, the attrition of older vehicles from the VEIP vehicle fleet is an ongoing process that the agencies expect and continually plan for. The population of pre-OBD vehicles has been steadily declining over the years as these vehicles are retired from operation due to age. Therefore, this analysis focuses on the effects of delaying the initial test for the newest, cleanest vehicles.

This analysis is a sample in time and that future trends, events, and influences can affect customer vehicular purchase behaviors at any time. All numbers provided are estimates, not guarantees.

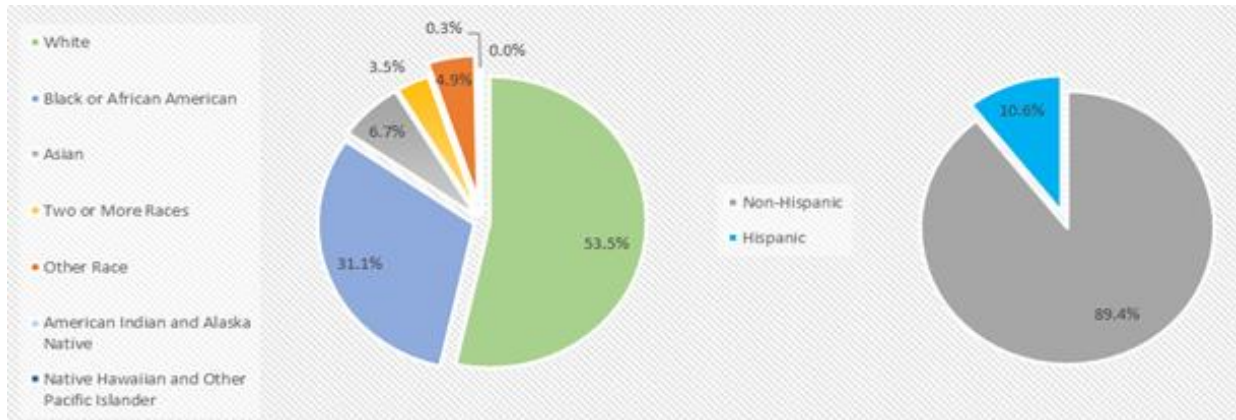
VEIP Testing Demographic Analysis

This section will review the demographic analysis for extending the VEIP testing delay for new vehicles from three to six years of age. The analysis will include race, education level, income, and poverty levels. The data utilized for this analysis is the MDOT MVA FY21 to FY23 VEIP testing population data and the U.S. Census data for Maryland. The MDOT MVA data only includes customers within the 14 jurisdictions who own vehicles that are subject to VEIP testing requirements. The U.S. Census data for Maryland includes all residents in the 14 testing jurisdictions, regardless of vehicle ownership or VEIP testing eligibility.

Customer Race

In Maryland, pulling from the 2020 Census Population data, the current demographic breakdown for the counties requiring VEIP testing are represented in **Exhibit 7** below. Most residents in the fourteen testing jurisdictions are White (53.5 percent%) with minority races representing the remaining 46.5 percent%. When comparing ethnicities, Hispanics represent 10.6 percent% of the sample population and non-Hispanic represent 89.4 percent%.

Exhibit 7. Race and Ethnicity Breakdown of VEIP Testing Counties



Source: U.S. Census Bureau Maryland Population Data (2020)

Exhibit 8. Difference in Registered Vehicle Owners Testing under the Proposed Testing Delay by County and Race¹

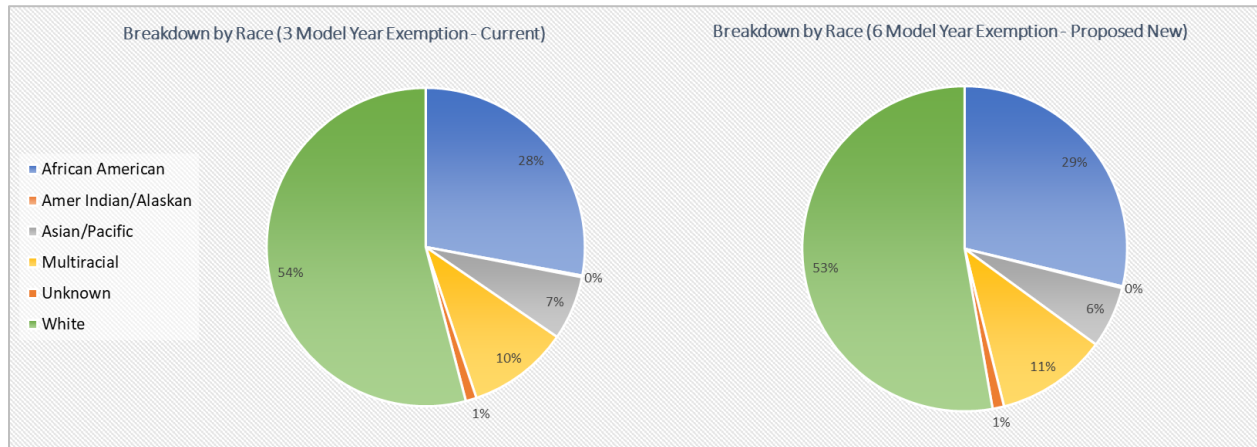
Jurisdiction	African American	American Indian/Alaskan	Asian/Pacific	Multiracial	Unknown	White	Grand Total
ANNE ARUNDEL	(3,404)	(49)	(1,302)	(1,082)	(438)	(19,414)	(25,689)
BALTIMORE	(7,388)	(48)	(2,332)	(902)	(118)	(21,743)	(32,530)
BALTIMORE CITY	(5,340)	(10)	(385)	(407)	(86)	(4,802)	(11,030)
CALVERT	(487)	(9)	(55)	(78)	(54)	(3,731)	(4,414)
CARROLL	(223)	(5)	(180)	(117)	(15)	(7,475)	(8,015)
CECIL	(147)	(4)	(49)	(40)	(16)	(3,191)	(3,446)
CHARLES	(3,289)	(32)	(265)	(278)	(89)	(3,084)	(7,036)
FREDERICK	(860)	(15)	(661)	(560)	(79)	(9,866)	(12,042)
HARFORD	(1,274)	(20)	(396)	(263)	(63)	(10,098)	(12,115)
HOWARD	(2,323)	(16)	(3,312)	(668)	(124)	(9,783)	(16,225)
MONTGOMERY	(5,929)	(47)	(7,251)	(5,074)	(395)	(22,933)	(41,629)
PRINCE GEORGES	(18,209)	(48)	(1,477)	(3,465)	(406)	(4,512)	(28,117)
QUEEN ANNES	(84)	(1)	(33)	(34)	(12)	(2,242)	(2,407)
WASHINGTON	(334)	(9)	(120)	(159)	(13)	(4,699)	(5,333)
Total Vehicles	(49,289)	(314)	(17,818)	(13,125)	(1,909)	(127,574)	(210,029)

Source: MDOT MVA, FY21-23 Estimated VEIP Testing Population

When comparing the U.S. Census demographic information in **Exhibit 7** to the proposed six-year initial testing delay parameters in **Exhibit 8**, vehicle ownership tends to trend relative but does appear to have a higher multiracial population and a slightly decreased population of African Americans.

¹ Annual estimate based on the average of currently registered vehicles eligible for the testing delay between FY21-23.

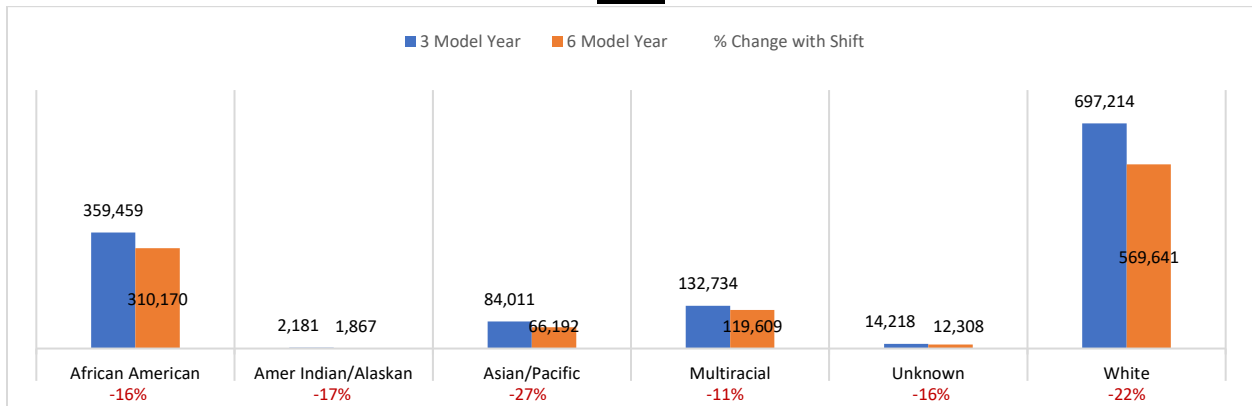
Exhibit 9. Comparison of Proportion of Vehicles Subject to VEIP by Vehicle Owner’s Race



Source: MDOT MVA, FY21-23 Estimated VEIP Testing Population

The sampling in **Exhibit 9** is a comparison of registered vehicle owners subject to VEIP testing in FY21 to FY23 using the three- and six-year initial testing delay program rules. When comparing the current and new initial testing delay programs, the share of racial minorities among vehicle owners in both programs are incremental, with most vehicle owners identifying as White (53 percent) compared to the minority races representing the remaining 47 percent. Under the six-year initial testing delay, White residents see a 22 percent decrease in the count of vehicle owners requiring testing. However, the percentage share of customers, amongst all races, remains consistent despite the decrease in population of testers and the change in program testing delay rules.

Exhibit 10. Annual Projected Reduction in VEIP Subject Vehicles by Vehicle Owner’s Race



Source: MDOT MVA, FY21-23 Estimated VEIP Testing Population

Exhibit 10 represents the population change in customers affected by the extension to a six-year initial testing delay. While the percentage share of customers within each racial group remains consistent with the proposed six-year initial testing delay, the data shows some minimal disparities in the percentage changes. The average percentage change (reduction of vehicles

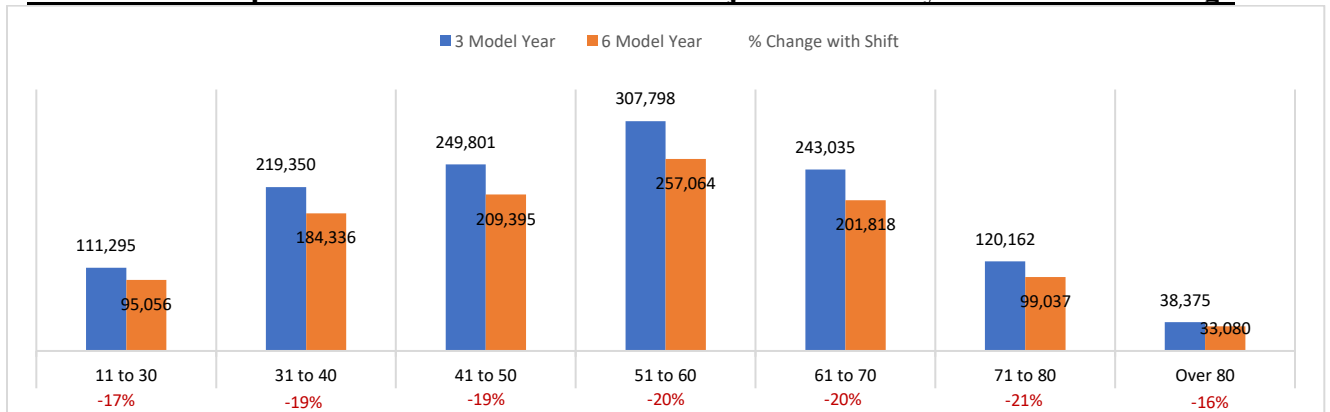
required to test) for all racial groups stands at 18 percent. Asian and White populations have an average shift of 27 percent and 22 percent, due to vehicle ownership patterns and purchase behavior of newer vehicles that are then exempt from testing until six-years of age.

Under the six-year initial testing delay program, the Hispanic population will experience an estimated 11 percent decrease in vehicle owners requiring testing compared to 21 percent decrease in Non-Hispanic vehicle owners.

Customer Age and Gender

Exhibit 11 illustrates the vehicle owners required to test for the VEIP by age. Under the six-year initial testing delay, the average decrease in total vehicle owners requiring testing volume amongst all age groups is 19 percent. Although the data indicates a lower percentage shift amongst the over 80 age group, there is the aforementioned VEIP customer support initiatives for qualifying seniors over the age of 70. Proportionally, this remains consistent with the current program’s three-year initial testing delay. The share of customers required to test in each of the age groupings is nearly identical under the new proposed program rules, meaning there is no direct impact of the proposed changes to the program participants.

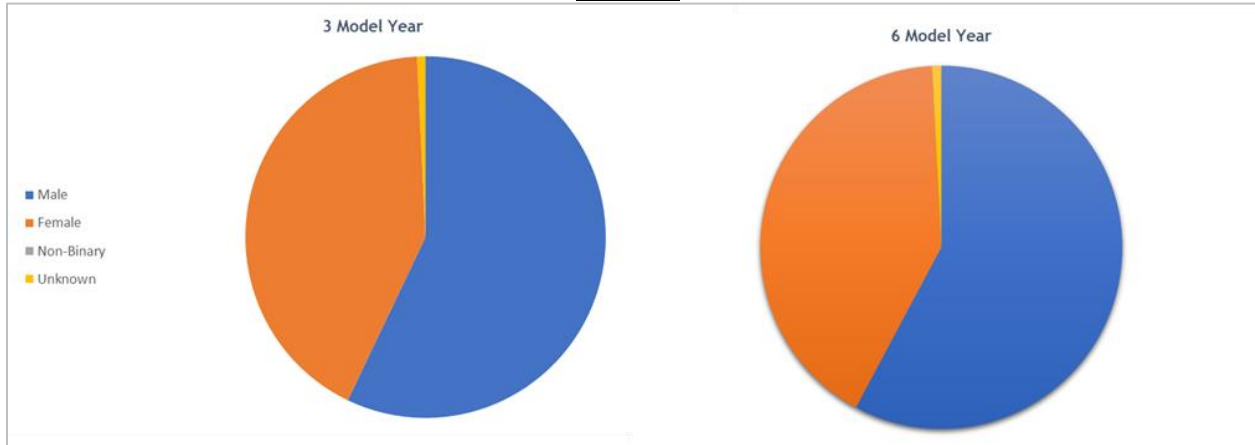
Exhibit 11. Comparison of Number of Vehicles Subject to VEIP by Vehicle Owner’s Age



Source: MDOT MVA, FY21-23 Estimated VEIP Testing Population

Exhibit 12 illustrates the breakdown by gender for vehicle owners in the proposed six-year testing delay compared to the three-year testing delay. Under the proposed rule, male residents see an 18 percent less vehicles requiring being tested compared to 22 percent female, 12 percent non-binary, and 8 percent unknown. Proportionally, this remains consistent with the current program’s three-year testing delay as the share of customers in each of the groups had a less than 1 percent change.

Exhibit 12. Comparison of Number of Vehicles Subject to VEIP by Vehicle Owner's Gender

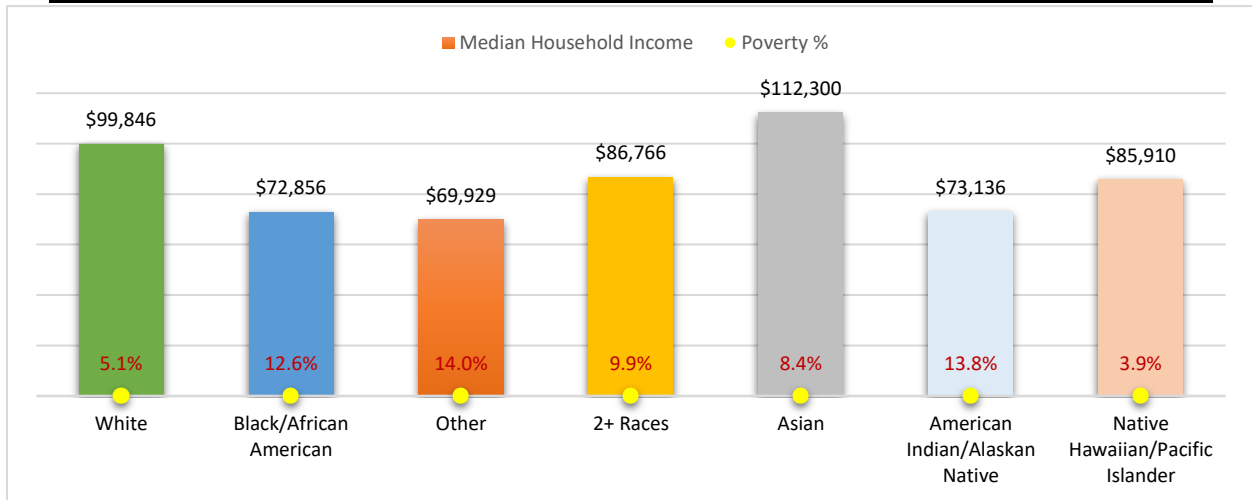


Source: MDOT MVA, FY21-23 Estimated VEIP Testing Population

Customer Income

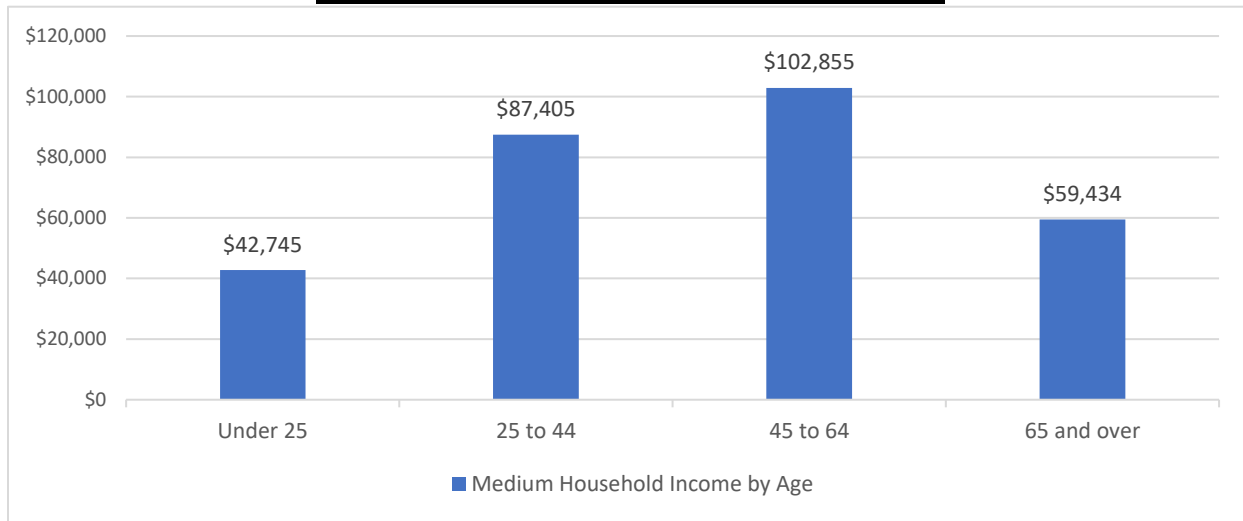
Exhibit 13 represents the average household income and poverty levels by race in the testing counties. The Other Race residents represent the largest group in poverty with 14 percent, followed by American Indian and Alaskan Natives with 13.8 percent. White residents represent the second smallest group in poverty in the testing counties with 5.1 percent. When comparing Hispanic to non-Hispanic residents of these testing counties in poverty, the breakdown is 7.5 percent non-Hispanic and 12.8 percent Hispanic.

Exhibit 13. Average VEIP Population Household Income and Poverty Levels by Race



Source: U.S. Census Bureau Maryland Population Data (2020)

Exhibit 14. Median Household Income by Age



Source: U.S. Census Bureau Maryland Population Data (2020)

In **Exhibit 14**, the median income for Marylanders under the age of 25 and 65 years and over is roughly 47 percent less than median household income for Marylanders between the ages of 25 and 64. However, when comparing to the proposed changes under the six-year initial testing delay program these groups represent an average of 4 percent of the total population of customers required to test.

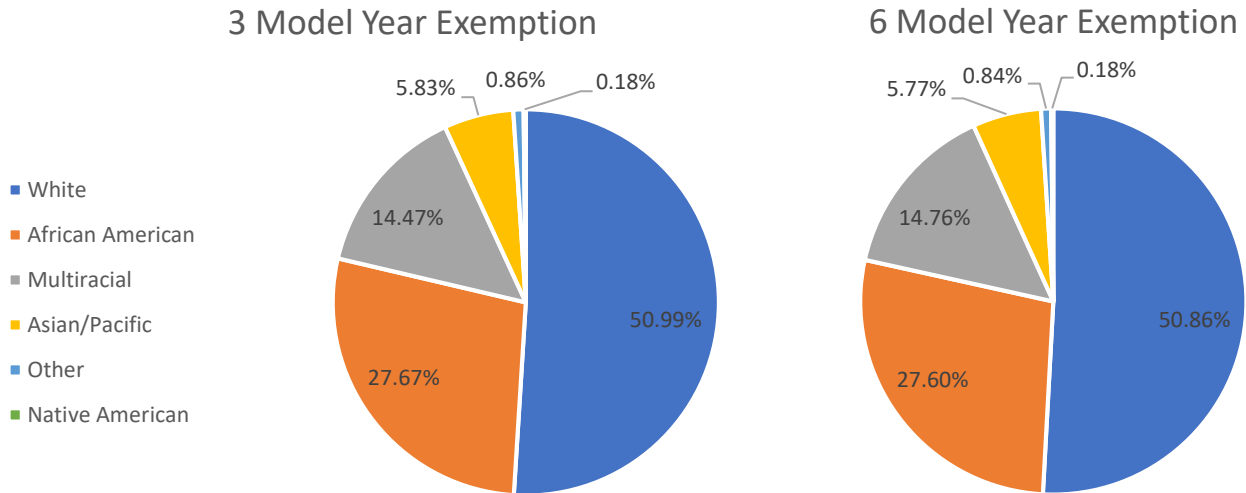
The current program waiver and exemptions options can assist this population of customers to prevent economic hardship. Customers of qualifying age and mileage can apply for a senior citizen waiver; alternatively, customers with extensive repair costs can apply for a repair waiver. In addition, under the new proposed contract, is the development of MACs to guide customers in acquiring effective, long-lasting emissions repairs.

VEIP Failure Rate Demographic Analysis

Exhibit 15 illustrates the number of vehicles that fail the VEIP test by the vehicle owner’s race and vehicle MY. Since the MDOT MVA does not collect demographic data on all VEIP customers, this analysis will assume that the demographic percentages below provide a reasonable representation of the general population of vehicle ownership by MY.

When comparing the current program’s three-year initial testing delay parameters to the proposed six-year initial testing delay, the percentage difference remains consistent per racial group. Utilizing the MDOT MVA and US Census data, this analysis indicates that a programmatic change to a six-year initial testing delay does not transfer the economic impact of the program to any specific racial group. The analysis showed the VEIP testing requirements and the associated costs remain on customers with older MY vehicles. Again, the current program waiver and exemptions options can assist this population of customers to address economic hardship. In addition, under the new proposed contract is the development of MACs to guide customers in acquiring effective, long-lasting emissions repairs.

Exhibit 15. Comparison of Failing VEIP Vehicles by Vehicle Owner’s Race



Source: FY21 VEIP Test Records (MDOT MVA)

EJ Conclusion

Through the above demographic and economic analysis, the MDOT MVA and the MDE have assessed the impact of running the program and the associated fees on customers; the programmatic change to a six-year initial testing delay does not negatively affect the population of motorists who remain subject to the VEIP requirements. However, the economic impact of paying the inspection fees and acquiring emissions-related repairs, in general, remains on customers with older MY vehicles.

While the costs remain unchanged for customers with older vehicles, the existing program mechanisms to assist customers including waivers, extensions, and exemptions will be in place to mitigate economic impact. In addition, under the new proposed contract, the development of MACs will be utilized to guide customers to make cost-effective, lasting emissions repairs. These features are intended to improve program quality and customer experience.

The MDOT MVA and the MDE will continue to improve the VEIP and evaluate opportunities for enhancements to achieve Maryland’s clean air goals and provide premier customer service.

Programmatic Funding Recommendation

Vehicle registration and VEIP fees are mandated by statute and processes have been automated and improved under the MDOT MVA’s Customer Connect program. Several logistical challenges have been identified with combining the Maryland vehicle registration and the VEIP fee programs.

Fees on Registration

The MDOT MVA has maintained the complex accounting infrastructure of the current VEIP fee program and collects a modest fee – VEIP fees are set at \$14.00 every two years by statute, or \$10.00 if customers use a kiosk to minimize the financial impact on customers. Registration fees consist of an annual \$17.00 surcharge for Emergency Medical Services, in addition to general registration fees for passenger vehicles ranging from \$50.00 - \$404.00 every two years (the average passenger vehicle is subject to a \$135.00 fee every two years). Combining the programs and imposing the additional fee of \$14.00 for the VEIP with the registration fee would increase the financial burden on some customers.

Maryland vehicle registration fees are paid when a vehicle is registered new or when it is sold used, and then every two years after the initial registration. The VEIP testing for eligible vehicles is also done on a two-year cycle, aside from the initial testing delays identified previously. The VEIP testing window does not always align with the collection of registration fees due to MY testing delays, and customer-initiated changes to their VEIP testing window through testing timing, exemptions, and waivers. These varying timelines would create two separate renewal requirements for vehicle registration and VEIP testing, and would need to be addressed prior to a decision to combine the programs. This misalignment in other states has prevented vehicle registrations and renewals while waiting to resolve failed VEIP tests. States have attempted to introduce additional late fees to encourage testing, but to date, that has not changed customer testing timeliness in other states. Adding additional fees and requirements as part of the registration renewal could cause other equity impacts.

Inclusion or Exclusion of VEIP Exemptions and Waivers

In addition to vehicles receiving VEIP waivers, to offer relief to customers in extenuating circumstances, there are also entire subsets of Maryland motorists which are exempt from testing. The VEIP is limited to specific geographic areas based on federal designations, and specific vehicles meeting certain criteria are also exempt from the VEIP.

Under State law, the VEIP testing is limited to the following 14 Maryland jurisdictions:

- Anne Arundel County
- Baltimore City
- Baltimore County
- Calvert County
- Carroll County
- Cecil County
- Charles County
- Frederick County
- Harford County
- Howard County
- Montgomery County
- Prince George's County
- Queen Anne's County
- Washington County

The following are VEIP-exempt vehicles:

- Vehicle models 1995 or older under 8,500 lbs. gross vehicle weight
- Vehicles weighing more than 26,000 lbs. gross vehicle weight
- Vehicles powered solely by diesel or all electric
- Motorcycles
- Vehicles registered as a farm truck, farm truck tractor, or farm area vehicle
- Vehicles registered as Historic or Antique vehicles (eligible vehicles 20 years or older)
- Fire apparatus or ambulance owned or leased by the state of Maryland, a county, municipality, volunteer fire department, or rescue squad
- Vehicles registered as Class N street rod vehicle, kit vehicle, or show vehicle
- A military vehicle owned by the federal government and used for tactical, combat, or relief operations, or for training for these operations
- Vehicles registered as a Class H school vehicle or Class P passenger bus

Given the wide range of exempt vehicle types, and the volume of vehicle owners that apply for waivers and extensions, a requirement to combine VEIP fee assessment and registration fee assessment would introduce additional complexity. Many issues would have to be considered and addressed, such as assessing VEIP fees through registration fees or if exemption status will carry into the new program. If the exemption status carries into the new program at a flat registration fee per vehicle type, then owners of exempted vehicles and vehicles registered in non-VEIP counties would experience additional financial burden from VEIP fees.

Any new, consolidated funding mechanisms could happen through statutory changes but may result in consequences for other State programs. Vehicle registration fees themselves are likely to become more complex over time due to the changing makeup of the customer vehicle fleet. These market shifts can be illustrated through the creation of alternative registration fees for electric vehicles in 30 states across the country. This is a separate issue that may need to be addressed before considering combining VEIP and registration fees.

Recommendation

Considering the challenges detailed above, the MDE and the MDOT MVA recommend continuing the separate collection of vehicle registration and VEIP fees. Combining the two programs would add unnecessary complexity to two evolving programs with the potential to negatively impact the State's administrative workload, revenue collection, and customer service.

Conclusion

Based on this current report by the MDE and the MDOT MVA, as well as the years of analysis behind these proposed changes, it is our joint belief that the current VEIP operations contract solicitation (that is on hold) accomplishes the overall goals of modernizing the program, maintaining air quality achievements, enhancing customer experience, continuing progress on EJ and equity, and minimizing impacts to the TTF.

Furthermore, moving forward with the new solicitation will off-set current and ongoing losses to the State based on the structure of the current contract. Every delay in finalizing the current procurement extends this higher-cost current contract, delaying cost savings for the State.