

Good morning. On behalf of Secretary of Transportation Leslie Richards, thank you for the opportunity to speak to you today about SB 427.

As you know, current Pennsylvania law does not specifically address the testing of Highly Automated Vehicles (HAVs) on the commonwealth roadways. While there is nothing in current law that precludes these vehicles from being tested when a driver is present in the driver's seat, changes in law are necessary to keep up with the advancements in technology while ensuring highway safety. SB 427 addresses the testing of highly automated and platooning vehicles on the commonwealth's transportation system.

HAV technology holds tremendous potential for improving the quality of life of our citizens. HAVs offer new mobility options for senior citizens and those with medical conditions or disabilities that prevent them from driving, environmental benefits in the form of reduced emissions and congestion, and of course, safety. Statistics show that most motor vehicle crashes are caused by some form of human error. In 2015, over 35,000 people died in motor vehicle crashes in the United States, and unfortunately, 2016's numbers are on track to exceed 40,000 fatalities. This technology offers the potential to significantly drive down the death toll on our highways.

Pennsylvania is a recognized leader, both nationally and internationally, for its work to encourage the development of highly automated vehicle technology while ensuring every effort is made to address public safety concerns. Secretary Richards established the Autonomous Vehicle Policy Task Force in June 2016, which is co-chaired by PennDOT's policy director Roger Cohen and myself, with the goal of establishing a policy for the testing of HAV technology in

Pennsylvania, with safety as its top priority. State and federal agencies – like the Pennsylvania State Police, the Department of Insurance, the Department of Community and Economic Development, the Turnpike Commission and the Public Utility Commission – are represented on the task force, as well as stakeholder groups like the Federal Highway Administration, Pittsburgh City Council, AAA, the Society of Automotive Engineers, the American Trucking Association and the Pennsylvania Trucking Association, General Motors, the University of Pennsylvania, Carnegie Mellon University and Uber. Additionally -- and for this we are incredibly appreciative – the executive directors of the four chairs of the Transportation Committee attended the task force meetings and were active participants in the development of the task force’s policy recommendations, which were released in late November. A town hall webinar was held on December 12 to seek public comment. The policy is, without a doubt, a “living document,” which will be revised as needed over time. We understand that the policy will need to be revised once legislation is finalized and enacted.

We understand that some individuals may feel uneasy about this technology and its use, and this hearing is just one more example of the critical outreach to the citizens of the commonwealth to help develop an understanding of the technology, its potential benefits for the future and our mutually shared commitment to public safety. The commonwealth is poised to be a hub of autonomous vehicle innovation, and when you consider the potential that automated vehicle technology holds, we can’t afford NOT to be proactive and develop testing policies and regulations that facilitate innovation while keeping the public safe.

Specific to SB 427, printers number 396, several of PennDOT's internal experts in the field of automated vehicles reviewed the proposed bill, and we respectfully offer the following comments based on that review.

Section 3601 of the bill adds a variety of definitions as it pertains to the addition of Chapter 36, "Highly Automated Vehicles and Platooning Testing."

On page 2, line 13, PennDOT recommends that the definition of an "Automated Vehicle Tester" be amended to ensure consistency with existing Vehicle Code definitions, and to allow for simplicity. For example, "person" and "manufacturer" are terms that are included in the "Automated Vehicle Tester" definition in this bill, but "person" and "manufacturer" are already defined in section 102 of the Vehicle Code.

On page 3, line 11, we recommend that the phrase "self-parking" should be replaced with "parking."

We recommend that the language referring to "Highly automated vehicle system" on page 3, line 14 should be amended to include the direct definition from the Society of Automotive Engineers', or SAE's, document SAE J3016, without reference to the standard. The definition in the standard may change in the future, which could result in a different meaning without the input of the legislature or the Department.

On page 3, line 19, the term "Manufacturer" should be replaced as it relates to Chapter 36, since "Manufacturer" is already defined in section 102 of the Vehicle Code.

On page 4, line 2, a definition for "minimal risk condition" should be added.

On page 4, line 3, the definition of “platooning” indicates that a platoon will be equipped with at least one highly automated vehicle. Since highly automated vehicles are SAE Levels 3, 4, and 5, the bill precludes Level 1 and Level 2 platooning vehicles. It is possible that testers may want to test platooning, involving Level 1 or 2 vehicles.

Section 3611 provides for Testing Authorization, and establishes an application process. Application will be made to PennDOT, and PennDOT will ultimately provide testing authorization.

The bill requires a public comment period on the development of the application process, and requires the Department to respond in writing to each potential or current HAV tester and indicates that the Department may respond to other persons in writing who have provided comment during the public comment period. This is discussed on page 7, lines 4-11. The Department would not necessarily know who is a potential HAV tester and would not be able to distinguish potential testers from “other persons.” When read in conjunction with section 3761 (regarding statement of policy, public comment on statement of policy and legislative review of statement of policy) the bill potentially forces the Department to make a regulatory enactment in contravention of the Commonwealth Documents Law and the Regulatory Review Act. We recommend that lines 4-11 be deleted.

On page 7, lines 16 through 20, Section 3611 (c)(2) requires the department to issue an HAV sticker. On page 7, line 21, we recommend that “denied” should be replaced with “returned,” as this paragraph deals with applications that are not outright rejected but rather returned for clarification or additional information.

Regarding page 7, lines 29 and 30 and page 8, lines 1 through 5, this bill gives the Department the ability to deny, suspend, or cancel an application, however, it is unclear what a suspension or cancellation of an application involves. The Department should be able to approve, deny, or ask for clarifications regarding applications, but the words “suspend” and “cancel” do not apply to applications, and we recommend that they be removed from these locations.

On page 8, lines 6 through 9, the bill allows the Department to establish the number of applications to approve within the first two years of the effective date. This is operationally unnecessary, and “two years” timeframe appears arbitrary. We recommend that lines 6 through 9 be deleted.

On page 8, lines 10 through 19, the prescriptive nature of the language dealing with identification requirements and markings could interfere with markings that other jurisdictions may require if vehicles are also being used for testing outside Pennsylvania. We recommend that lines 9 through 24 be amended to allow for the identification requirements to be established by the Department in consultation with the Pennsylvania State Police. As written, Section 3611 (d)(2) -- page 8, lines 10-13 -- indicates the sticker shall be affixed on the registration plate of an HAV. Since we do not know how many test vehicles will be subject to the HAV sticker, the cost per sticker can vary widely; however, we estimate the cost to be about \$600.00 per 1,000 stickers.

The bill requires persons currently testing to be in grandfathered status and the language on page 8, line 30 provides for a one-year grace period. We recommend amending

the grace period to three months, which would need to be coordinated with the effective date of the legislation.

Page 9, lines 2 through 5: The bill requires that a person who is a potential automated vehicle tester prior to the effective date of the bill notify the Department that they are a potential tester. There is no definition for a potential automated vehicle tester and this requirement is unnecessary. Delete lines 2-5.

Page 9, lines 6-11: the bill requires the Department publish a list of approved testers on the Department's website and in the Pennsylvania bulletin. Costs to perform this task are expected to be minimal.

Section 3621 establishes requirements for the testing of highly automated vehicles and platooning vehicles.

Regarding page 9, lines 19 through 25, the bill as it is currently written requires the tester only possess the statement of policy, and does not address compliance with policy. An amendment is necessary to require the tester to *comply* with policies.

Language on page 9, line 30 and page 10 lines 1-7 discuss that the bill allows the Department, in conjunction with the Pennsylvania State Police, to provide recommendations to vehicle testers on limiting or restricting the testing of HAVs or platooning vehicles. This language is unnecessary as the Department would not need a law to merely make

recommendations. We recommend that this language be deleted, as it is somewhat redundant with what is covered in the statement of policy section.

The bill allows HAVs meeting SAE's level 4 or 5 to be occupied or controlled remotely by wireless communication or other technology. The language on page 10, lines 16-18 needs to be amended to include control of an automated driving system. Additionally, it is possible that vehicles may have manual or automated driving modes. For example, a Level 5 vehicle may be able to operate in a completely autonomous mode or have the autonomous mode turned off, which would require manual operation in a manual "mode." We also recommend adding "as long as the HAV can achieve a minimal risk condition" at the end of line 18.

A tester is required to submit information as to how an HAV or platooning vehicle will be placed back into service after being involved in an accident as described under section 3746 of the vehicle code. An amendment is necessary in the language on page 11, line 10 to also address section 3747.

Page 11, lines 11-30: We recommend that these sections be amended to clarify reporting requirements for testers and infrastructure owners when intrusion occurs.

Page 11, lines 28-29 requires notification by the Department when there is an intrusion through infrastructure that attempts to access a HAV or platooning vehicle. The Department would not have knowledge of this if the infrastructure involved is not owned by the Department, therefore, we recommend that this language is amended.

Section 3631 provides requirements for the inspection of HAVs and platooning vehicles.

The bill requires that a vehicle being used for HAV testing have a valid safety inspection. It is unclear whether HAVs registered in another state will be required to undergo a Pennsylvania safety inspection. It is our understanding that the inspection requirement would only apply to HAVs that are registered in Pennsylvania, which is already current law. We recommend that this entire section be removed. In the alternative, this language would need to be amended for vehicles that are not registered in the Commonwealth. It is very possible that an HAV may be registered in another jurisdiction outside of Pennsylvania. In those cases, the safety inspection requirements of the state in which the vehicle is registered would apply and some states may not have a safety inspection program.

Section 3641 provides requirements for the registration of HAVs and platooning vehicles, and section 3642 provides requirements for the titling of HAVs and platooning vehicles.

The titling and registration requirements in Chapters 11 and 13 apply to all vehicles, including HAVs, making these provisions duplications of current law. Moreover, having these two subsections will lead to confusion regarding whether the intent is to require all HAVs to be titled and registered in PA or to also allow vehicles which are registered in another state that comply with exemptions in Chapters 11 and 13. We recommend removal of these subsections.

For purposes of titling of vehicles, the legislation calls for an entirely new data field in PennDOT's system that capture a new "code". The Department does not use the term "code" to identify the status of the vehicle. Rather, the Department uses the term "brand" to identify the status of the vehicle (i.e. flood, recovered theft, salvage, antique) as identified in the

Vehicle Code. The use of the term “code” in the proposed legislation suggests that HAV coded vehicles are not seen as branded vehicles and are separate and distinct from a branded vehicle. The Department would suggest that HAV titled and registered vehicles are *branded* as HAVs and the term “branded” is used in lieu of “coded” in the legislation. Alternatively, the department would prefer the code not be prescribed in the legislation to require the use of the acronym HAV. Rather, the legislation could dictate that a code be used to represent the Highly Automated Vehicle, but not specify what the code should be. This offers the Department flexibility to use the HAV code, use another similar code, or change the HAV use in the future to another code that is consistent across jurisdictions.

The Department relies on certain documentation to identify the status of the vehicle on the title and registration accordingly. Presumably, an HAV vehicle will not have available vehicle documentation that is traditionally used to designate its status as an HAV for titling and registration purposes. Consequently, the Department will be reliant on yet-to-be established processes and procedures that will provide documentation and information to affirm the HAV designation to be placed on the Certificate of Title and registration.

The language requires an HAV-designated vehicle to re-title and re-register in order for the HAV code to appear on the title and registration. For re-titling purposes, the current titling fee of \$51 would apply under the Vehicle Code, however there is no fee under the Vehicle Code that provides for the cost of re-registering the vehicle with the HAV code. A fee for this purpose will need to be identified and appropriate amendatory language will be needed.

The Certificate of Title is a high-volume, inventoried product with pre-printed fields and blocks. Changes to the title would require up to a 6-month implementation for current title stock to be exhausted. Assuming the technical system solution would not require a change to the title (i.e., the HAV code can be printed on the title without any new special designated block), then the current title stock could be used. Either way, there is no additional operational cost for the change made to the title.

The Department would need to make updates to its Information Technology systems.

Sections 3651 and 3652 establish liability for violations.

It is very possible that vehicles may have manual or automated driving modes. For example, it is possible that a Level 5 vehicle may be able to operate in a completely autonomous mode or have the autonomous mode turned off, which would require manual operation in a manual "mode." Language on page 14, lines 6 through 9 should be amended to address this capability and scenario. Additionally, this section only addresses liability for violations for this chapter, and does not address the larger issue of tort liability.

Section 3661 establishes platooning vehicle requirements.

The bill as currently written requires the tester only possess the statement of policy. An amendment is necessary on page 14, lines 23-27 to require the tester to *comply* with policies.

The bill requires the test operator to allow for reasonable access for other motor vehicles for safe movement along lanes. Language on page 15, lines 11-14 should be amended to include explicit exemption from section 3310, which deals with following distance.

The bill requires that each platooning vehicle be occupied by at least one operator, thus precluding automated, unmanned test shadow vehicles. Language on page 15, lines 15-17 should be amended to include automated test shadow vehicles.

Section 3671 gives Department responsibility for issuing statement of policy.

The bill directs the Department to issue a statement of policy relating to the provisions of the bill. As drafted, the bill's requirement of a statement of policy, coupled with the public comment period and legislative input/review function, is likely to be challenged as inconsistent with the regulatory process set forth in the Commonwealth Documents Law and the Regulatory Review Act. This approach is risky, of dubious enforceability, and runs counter to our agency's obligations to ensure the safety of the motoring public. We recommend that this section -- which can be found on page 15, line 23 to page 16, line 13 -- be deleted in its entirety and replaced with the following: "Within 90 days of the effective date of this bill, the Department shall develop and implement all policies and standards necessary to implement Subchapter H which shall be published in the Pennsylvania Bulletin. The issuance of the policies and standards shall not be subject to review pursuant to the Act of June 25, 1982 (P.L.633, No. 181), known as the "Regulatory Review Act" and shall not be subject to sections 201 through 205 of the Act of July 31, 1968 (P.L. 769, No. 240), referred to as the Commonwealth Documents Law. The policies and standards shall address the following..."

The bill requires the Department to respond in writing to each potential or current HAV tester, and indicates that the Department may respond to other persons in writing who have provided comment during the public comment period. The Department would not necessarily know who is a potential HAV tester and would not be able to distinguish potential testers from “other persons,” therefore we recommend that lines 8-13 should be deleted.

Page 16, lines 15-16: The bill requires the Department to ensure the statement of policy conforms to the duties of the Commonwealth as “delegated” by the National Highway Traffic Safety Administration. The term “delegated” is not accurate, as NHTSA does not hold the authority to delegate duties to the states. This language should be amended to ensure that policy conforms to all applicable federal laws, regulations, and is consistent, if applicable, with federal guidelines.

Section 3681 allows the Department to suspend or cancel a testing permit upon receipt of certain violations, establishes requirements to notify the tester of a suspension or cancellation of their permit, provides for an appeals process, and creates a misdemeanor of the third degree for a person who conducts testing without a valid permit.

Language on page 17, lines 3-23 is unclear on how the Department will receive these violations. It is anticipated that these violations will need to be tracked and managed manually, meaning staff resources would be needed to perform these tasks.

We recommend amending page 17, line 19 to add a section for allowing for permit suspension for violation of policies or standards established as per section 3671.

We recommend that an additional subsection is added to section 3681 (d), with the following language: "Upon information and belief, the Department may issue a rule to show cause to any person suspected of conducting highly automated vehicle testing without the necessary permit required under Section 3621. Any person found to be conducting highly automated vehicle testing without a permit shall be subject to the penalties set forth in this Section and shall immediately apply for the necessary permit to continue testing."

Section 3682 allows for the suspension or cancellation of registration for HAVs and platooning vehicles if there is evidence of unsafe or unfit conditions for testing on a trafficway.

This section would only apply if the vehicle is registered in Pennsylvania. The Department cannot suspend or cancel the registration for an HAV or platooning vehicle registered in another jurisdiction.

The Department will rely on an outside entity to provide notice of required suspension. The Department will have no way to know otherwise when a vehicle registration should be suspended due to violations. Additionally, Section 3682 (b) -- page 18, line 24 -- indicates that the Department shall notify the "automated vehicle tester." If the Department is providing the notice, this must be changed to "registrant." Official notices are automated and are sent to the registrant as identified in the motor vehicle registrant system. Unless the "automated vehicle tester" is the registrant, they would not receive a registrant's notice of registration suspension.

It is recommended that this section be deleted because the permit suspension and cancellation is sufficient penalty.

On page 18, line 28 to Page 19, line 6: all other registration suspensions are appealed to the Courts of Common Pleas pursuant to section 1377 of the Vehicle Code. The Department recommends removal of this Section. If retained, it would require the creation of a HAV database to track violations involving HAVs.

If this section is not deleted, the Department would need to make changes to its Information Technology systems.

Section 3683 provides for the license suspension of a test operator.

This section subjects test operators to the assignment of points in accordance with Section 1535 of the Vehicle Code presumably for violations of a HAV the person is testing. Serious traffic violations, such as reckless driving or leaving the scene of an accident involving an attended vehicle, result in no points but the imposition of a suspension. This section does not authorize the imposition of operating privilege suspension on an HAV tester for serious traffic violations. Accordingly, for minor traffic offenses listed in Section 1535, a test operator would receive points but for serious traffic violations, an HAV tester would receive no points or suspension. This is a presumably unintended result, and we recommend that this section be amended.

Section 3684 provides for miscellaneous penalties -- including a summary offense and a fine of up to \$1,000,000 -- when testers violate provisions not otherwise prescribed in the Vehicle code chapter.

The penalty amount is potentially excessive and unclear as to the origin or basis.

Section 3685 requires the Department to promulgate regulations for the suspension or cancellation of the permit and registration. It is recommended that language on page 19, lines 20-24 be amended to provide for expedited rulemaking and/or temporary regulations from which the Department can develop and promulgate final regulations with the following: "Within ninety (90) days of the effective date of this bill, the department shall develop and implement all policies and standards necessary to implement Subchapters [H] which shall be published in the Pennsylvania Bulletin. The issuance of the policies and standards shall not be subject to review pursuant to the act of June 25, 1982 (P.L.633, No.181), known as the "Regulatory Review Act," and shall not be subject to sections 201 through 205 of the act of July 31, 1968 (P.L.769, No.240), referred to as the Commonwealth Documents Law. The policies and standards shall address the following... [add specific topics here]." Further, it is recommended that the language for suspending and canceling vehicle registration be removed, as suspension or cancelation of the permit suffices as an appropriate penalty. The Department cannot suspend or cancel registration for a vehicle registered out of state.

Section 3691 defines what information pertaining to HAVs and platooning vehicles is confidential information.

We recommend deleting the language on page 19, line 29 to Page 20, line 11 and replacing it with “Notwithstanding any other provisions of law, automated vehicle tester data, information or reports submitted to the Department under this chapter that would constitute or reveal proprietary trade secrets or personally identifiable information about an individual shall not be disclosed to a third party.”

On page 20, line 2, the bill identifies the information which cannot be disclosed to a third party, however it is unclear as to who “third party” covers. For example, it is not known if a “third party” would include other state and federal agencies and law enforcement officers.

Additionally, the language on page 20, line 5 -- “other information regarding an automated vehicle tester” -- appears to be too broad and vague and we recommend amending.

Section 3691.11 establishes the Highly-Automated Vehicle Safety Advisory Committee.

Section 3691.31 establishes reporting requirements for the Department.

Page 23, lines 12-26 state that the Department is responsible for the production of a transition report; however, the items to be included are items not fully under the control of the Department. Other agencies may have to contribute to the report. For example, the State Police will need to provide input regarding law enforcement and emergency response items, occupant safety items may fall under NHTSA’s area of responsibility, and the Department of Insurance has expertise in civil liability.

The overcoming barriers report could be combined with the transition report, as described on Page 23, Lines 29-30 and Page 24 lines 1-10.

It is estimated that obtaining resources to research and develop the Financial Needs report as required in section 3691.31(c) will cost the Department \$150,000. Costs for this report would not be incurred until the 2024-2025 fiscal year.

Section 3691.41 establishes the policy of the commonwealth to promote and encourage HAV and Platooning vehicle testing with other jurisdictions.

Section 3691.42 requires reciprocal agreements to be in writing and published for access by the public.

Section 3691.43 allows for the suspension of reciprocity benefits.

To implement requirements of this bill as currently written, the Department needs to make changes to its mainframe computer systems. Costs are estimated at \$175,000 and it would take 7 months to complete the required systems work. If the amendments are made as requested to section 3641, section 3642, section 3682, and section 3685, systems costs would be reduced to \$25,000 and the needed systems work could be completed within the effective date as proposed in the bill.

Thank you for the opportunity to discuss SB 427. We at PennDOT appreciate the legislature's proactive approach in ensuring that HAV testing, is conducted with public safety as a top priority. We are happy to take questions now.

