

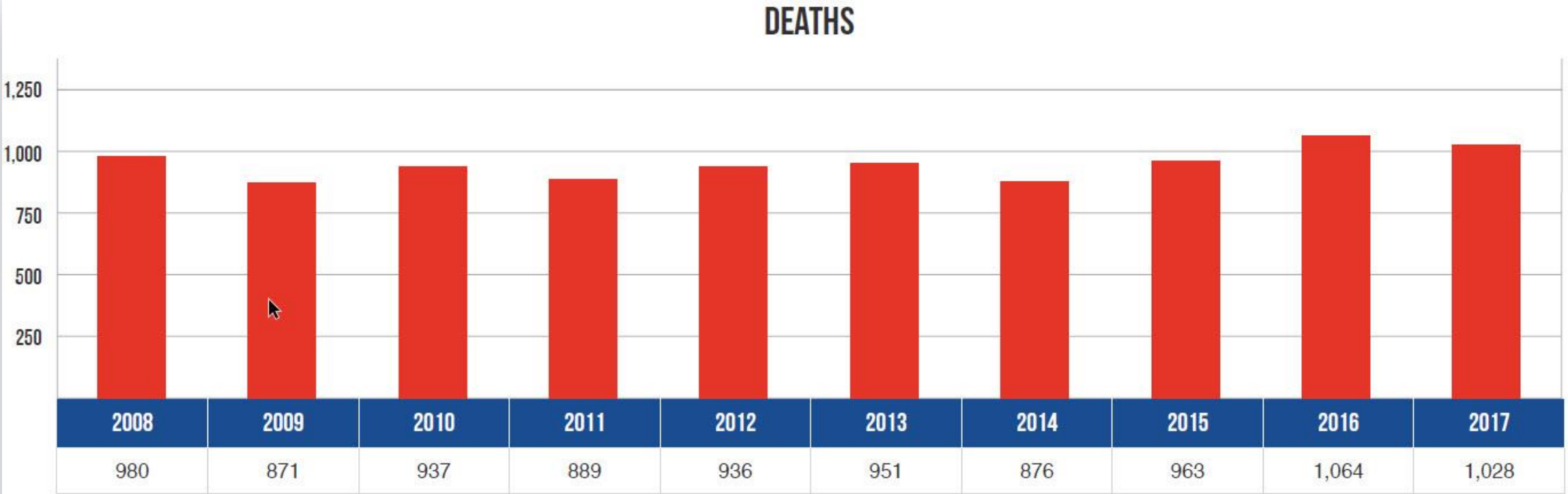


# Michigan DOT CAV Update

Elise Feldpausch and Kelly Bartlett (MDOT)

MAASTO CAV Summit • October 16<sup>th</sup> • 2019

# Michigan Traffic Deaths



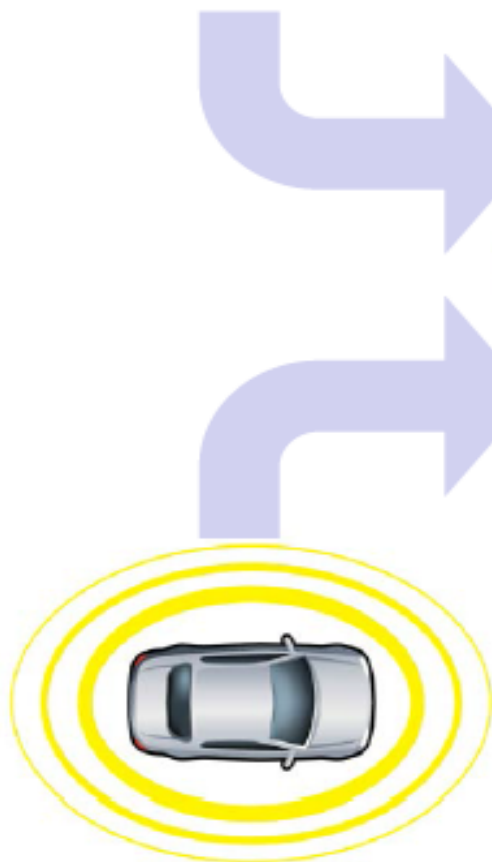
In 2017, 1,028 people died in motor vehicle crashes – an increase of 4.9 percent from 2008.

\*Image Courtesy of Michigan Traffic Crash Facts: Statewide 2017  
Michigan Office of Highway Safety Planning

# Connected Automation for Greatest Benefits

## Autonomous Vehicle

Operates in isolation from other vehicles using internal sensors



## Connected Automated Vehicle

Leverages autonomous and connected vehicle capabilities

## Connected Vehicle

Communicates with nearby vehicles and infrastructure



# Infrastructure Support of Automated Vehicles

## Digital Infrastructure

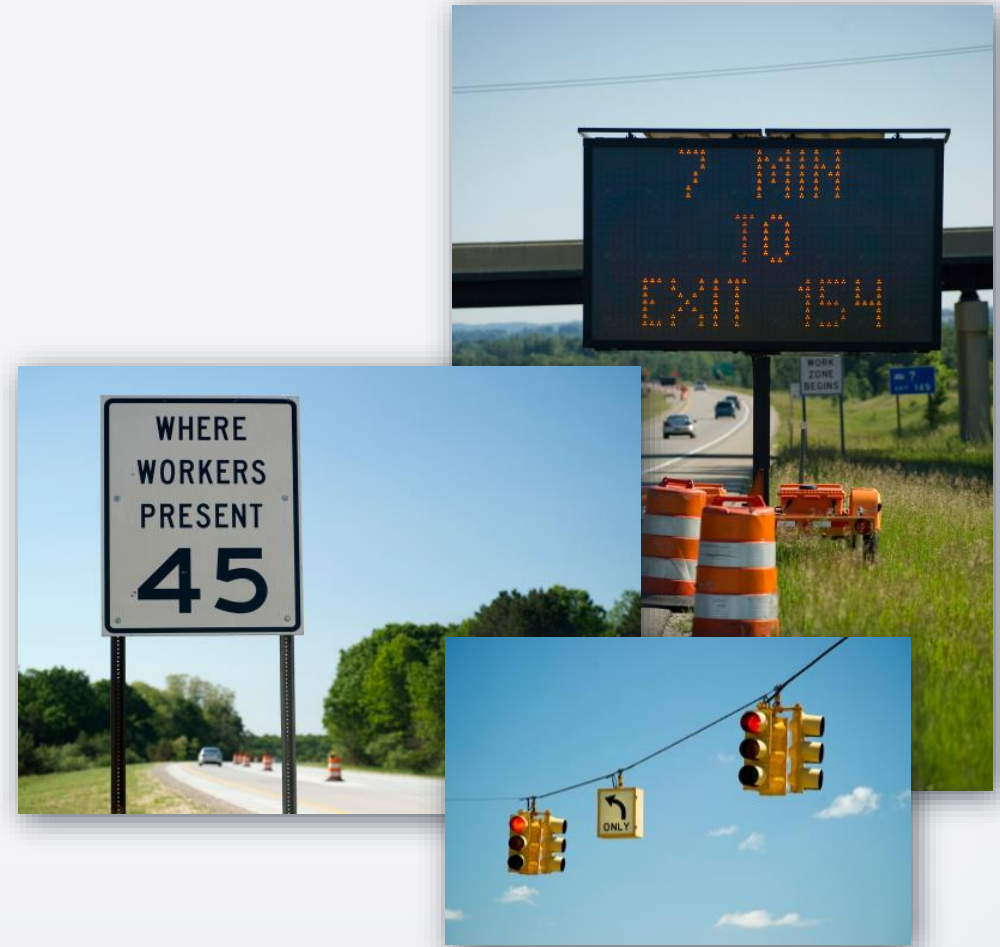
- Surveying / Digital Mapping
- Vehicle-to-Infrastructure Connection
  - SPaT
  - Traveler Info
  - V2I Applications

## Physical Infrastructure

- Pavement Markings
- Roadway Signage
- Geometric Design

## Regulatory Frameworks

- Senate Bills/Public Acts



MICHIGAN DEPARTMENT OF TRANSPORTATION

# Connected and Automated Vehicle Program Strategic Plan



# PROGRAM GOALS

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**Goal 1: Serve as a national model to catalyze CAV deployment**



**Goal 4: Accelerate CAV benefits to users**



**Goal 2: Establish Foundational systems to support wide-scale CAV deployment**



**Goal 5: Exploit mutual benefit opportunities between CAV tech and other department business processes/objectives**



**Goal 3: Make Michigan the go-to state for CAV research and development**



**Goal 6: Use Michigan experience to lead dialogue on national standards and best practices**

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# Open Invitation: Michigan's Legislation



## SENATE BILL No. 995

ILL No. 995

May 25, 2016. Introduced by Senators KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTEL, COLBECK, SCHMIDT, MARLEAU, HORN and ANANICH and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 2b, 602b, 643, 643a, and 665 (MCL 257.2b, 257.602b, 257.643, 257.643a, and 257.665), sections 2b and 665 as added and section 602b as amended by 2013 PA 231, and by adding sections 40c, 606b, and 665a; and to repeal acts and parts of acts.

### THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1 Sec. 2b. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2 SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3 THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
4 BASIS WITHOUT ANY SUPERVISION BY A HUMAN OPERATOR. AS USED IN THIS  
5 SUBSECTION, "DYNAMIC DRIVING TASK" MEANS ALL OF THE FOLLOWING, BUT  
6 DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING,

## SENATE BILL No. 996

ILL No. 996

May 25, 2016. Introduced by Senators KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTEL, COLBECK, SCHMIDT, MARLEAU, HORN and ANANICH and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," (MCL 257.1 to 257.923) by adding section 665b.

### THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1 SEC. 665b. (1) A MOTOR VEHICLE MANUFACTURER MAY PARTICIPATE IN  
2 A SAVE PROJECT IF IT SELF-CERTIFIES TO ALL OF THE FOLLOWING:  
3 (A) THAT IT IS A MOTOR VEHICLE MANUFACTURER. A PERSON THAT IS  
4 NOT A MOTOR VEHICLE MANUFACTURER MAY NOT PARTICIPATE IN A SAVE  
5 PROJECT.  
6 (B) THAT EACH VEHICLE IN THE PARTICIPATING FLEET IS OWNED OR  
7 CONTROLLED BY THE MOTOR VEHICLE MANUFACTURER AND IS EQUIPPED WITH  
8 ALL OF THE FOLLOWING:  
9 (i) AN AUTOMATED DRIVING SYSTEM.

SENATE BILL No. 996

## SENATE BILL No. 997

ILL No. 997

May 25, 2016. Introduced by Senators WARREN, KOWALL, JONES, STAMAS, BRANDENBURG, HERTEL, COLBECK, SCHMIDT, MARLEAU, HORN and ANANICH and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 2b and 601a (MCL 257.2b and 257.601a), section 2b as added by 2013 PA 231 and section 601a as amended by 2011 PA 115, and by adding section 665a.

### THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1 Sec. 2b. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2 SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3 THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
4 BASIS WITHOUT ANY SUPERVISION BY A HUMAN OPERATOR. AS USED IN THIS  
5 SUBSECTION, "DYNAMIC DRIVING TASK" MEANS ALL OF THE FOLLOWING, BUT  
6 DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING,  
7 BUT NOT LIMITED TO, DETERMINING DESTINATIONS OR WAYPOINTS;  
8 (A) OPERATIONAL ASPECTS, INCLUDING, BUT NOT LIMITED TO,

SENATE BILL No. 997

## SENATE BILL No. 998

ILL No. 998

May 25, 2016. Introduced by Senators HORN, KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTEL, SCHMIDT, MARLEAU and ANANICH and referred to the Committee on Economic Development and International Investment.

A bill to amend 1961 PA 236, entitled "Revised judicature act of 1961," by amending section 2949b (MCL 600.2949b), as added by 2013 PA 251.

### THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1 Sec. 2949b. (1) The manufacturer of a vehicle is not liable  
2 and shall ~~not~~ **MUST** be dismissed from any action for alleged damages  
3 resulting from any of the following unless the defect from which  
4 the damages resulted was present in the vehicle when it was  
5 manufactured;  
6 (a) The conversion or attempted conversion of the vehicle into  
7 an automated motor vehicle by another person.  
8 (b) The installation of equipment in the vehicle by another

SENATE BILL No. 998



# PUBLIC ACT No. 332

**Mike Kowall (R-White Lake), Primary Sponsor**

## SENATE BILL No. 995

May 25, 2016. Introduced by Senator KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTZ, CALIBECK, SCHMIDT, MORGAN, HORN and MANANCER and referred to the Committee on Economic Development and International Investment.

A Bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 20, 402a, 441, 443a, and 445 (MCL 207.20, 207.402a, 207.441, 207.443a, and 207.445), sections 20 and 445 as added and section 402a as amended by 2011 PA 211, and by adding sections 400, 406b, and 445a; and to repeal acts and parts of acts.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

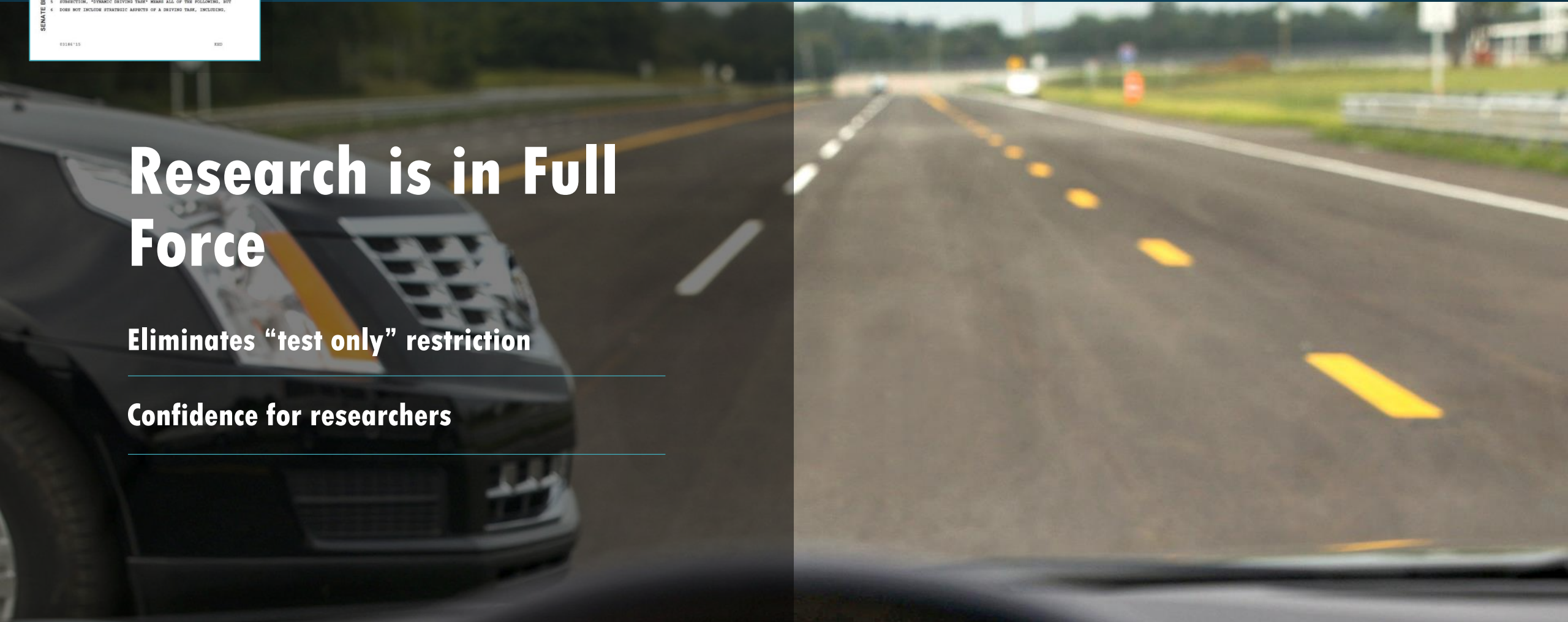
1 Sec. 20. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2 SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3 THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
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5 SUBSECTION, "DYNAMIC DRIVING TASK" MEANS ALL OF THE FOLLOWING, BUT  
6 DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING:

SENATE BILL No. 995  
02/04/16 XED

# Research is in Full Force

**Eliminates "test only" restriction**

**Confidence for researchers**







# PUBLIC ACT No. 332

Mike Kowall (R-White Lake), Primary Sponsor

## SENATE BILL No. 995

May 25, 2016. Introduced by Senator KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTZEL, COLBERG, SCHMIDT, MORLEAU, HORN and ANANICH and referred to the Committee on Economic Development and International Investment.

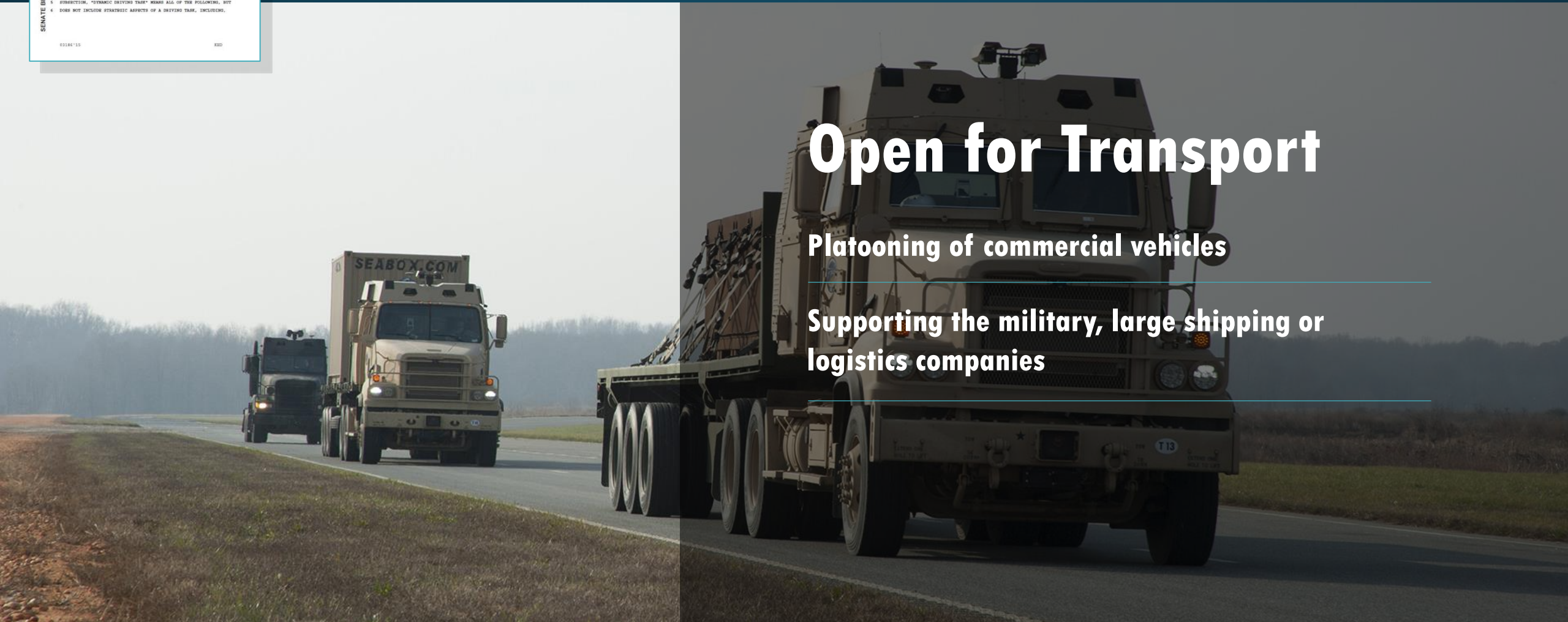
A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 20, 402b, 443, 443a, and 445 (MCL 207.20, 207.402b, 207.443, 207.443a, and 207.445), sections 20 and 445 as added and section 402b as amended by 2011 PA 211, and by adding sections 450, 450b, and 450c; and to repeal acts and parts of acts.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1 Sec. 20. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2 SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3 THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
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6 DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING,

SENATE BILL No. 995

03/04/16 KED



## Open for Transport

Platooning of commercial vehicles

Supporting the military, large shipping or logistics companies



# PUBLIC ACT No. 332

**Mike Kowall (R-White Lake), Primary Sponsor**

## SENATE BILL No. 995

May 25, 2016. Introduced by Senator KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTZEL, COLEBECK, SCHMIDT, MCKELLEN, WOOD and ANANICH and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 20, 402a, 641, 643a, and 645 (MCL 207.20, 207.402a, 207.641, 207.643a, and 207.645), sections 20 and 645 as added and section 402a as amended by 2011 PA 211, and by adding sections 400, 406b, and 645a; and to repeal acts and parts of acts.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

1     Sec. 20. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2     SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3     THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
4     BASIS WITHOUT ANY SUPERVISION BY A HUMAN OPERATOR. AS USED IN THIS  
5     SUBSECTION, "DYNAMIC DRIVING TASK" MEANS ALL OF THE FOLLOWING, BUT  
6     DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING:

SENATE BILL No. 995

02/04/16

KED

## A New Way to Ride

**Automated vehicle networks connected to consumers**

**Creates array of travel options for consumers**





# Public Act No. 332

Mike Kowall (R-White Lake), Primary Sponsor

## SENATE BILL No. 995

May 25, 2016. Introduced by Senators KOWALL, JONES, STAKAS, BRANDENBURG, WARREN, HERTZEL, OLSZEK, SCHMIDT, MCKELLEN, HORN and ANASTACIO and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 20, 402b, 643, 643a, and 645 (MCL 207.20, 207.42b, 207.643, 207.643a, and 207.645), sections 20 and 645 as added and section 402b as amended by 2011 PA 231, and by adding sections 40c, 406b, and 645a; and to repeal acts and parts of acts.

THE PEOPLE OF THE STATE OF MICHIGAN DO ENACT:

1     Sec. 20. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND  
2     SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF  
3     THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME  
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6     DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING,

SENATE BILL No. 995  
02/04/16  
KED



## State of Michigan Support

Council on Future Mobility reports to the legislature annually; recommends new laws or revisions are needed

What new policies would help enhance safety, mobility and the state's economy through this technology



# PUBLIC ACT No. 333

Mike Kowall (R-White Lake), Primary Sponsor

## SENATE BILL No. 996

May 25, 2016. Introduced by Senator KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, HERTZEL, COLBERG, SCHMIDT, MARLEAU, HORN and SHANNON and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," (MCL 257.1 to 257.933) by adding section 455; THE PEOPLE OF THE STATE OF MICHIGAN BEHAVE;

SEC. 455. (1) A MOTOR VEHICLE MANUFACTURER MAY PARTICIPATE IN A SAVE PROJECT IF IT SELF-CERTIFIES TO ALL OF THE FOLLOWING:

(A) THAT IT IS A MOTOR VEHICLE MANUFACTURER. A PERSON THAT IS NOT A MOTOR VEHICLE MANUFACTURER MAY NOT PARTICIPATE IN A SAVE PROJECT.

(B) THAT EACH VEHICLE IN THE PARTICIPATING FLEET IS OWNED OR CONTROLLED BY THE MOTOR VEHICLE MANUFACTURER AND IS EQUIPPED WITH ALL OF THE FOLLOWING:

(C) AN AUTOMATED DRIVING SYSTEM.

SENATE BILL No. 996

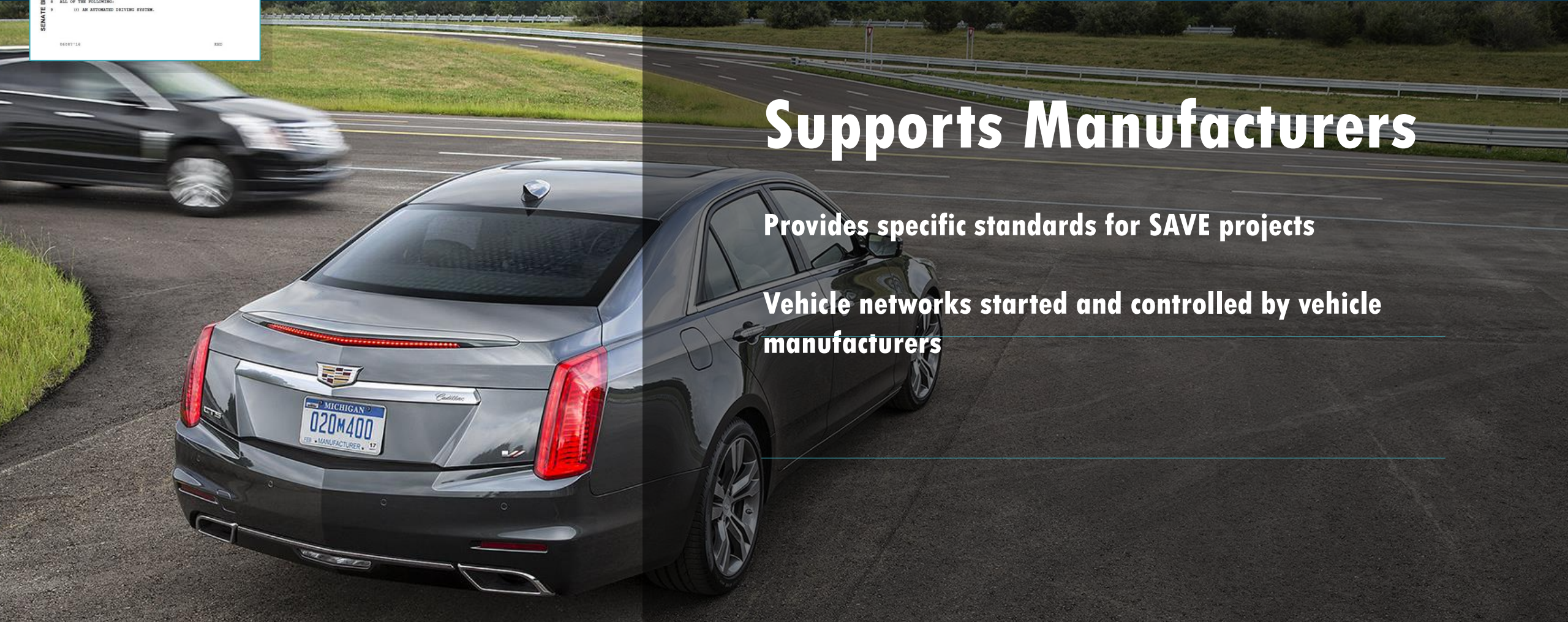
06/07/16

RED

## Supports Manufacturers

Provides specific standards for SAVE projects

Vehicle networks started and controlled by vehicle manufacturers





# PUBLIC ACT No. 334

Rebekah Warren (D-Ann Arbor), Primary Sponsor

## SENATE BILL No. 997

May 25, 2016. Sponsored by Senator WARREN, KOPWALL, JONES, STAMAS, BRANDENBURG, HERTZEL, COLBERG, SCHMIDT, MARLEAU, WOOD, and AMANN. CR and referred to the Committee on Economic Development and International Investment.

A bill to amend 1949 PA 300, entitled "Michigan vehicle code," by amending sections 20 and 401a (MCL 207.20 and 207.401a), section 20 as added by 2013 PA 331 and section 401a as amended by 2011 PA 115, and by adding section 461a.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

Sec. 20. (1) "AUTOMATED DRIVING SYSTEM" MEANS HARDWARE AND

SOFTWARE THAT ARE COLLECTIVELY CAPABLE OF PERFORMING ALL ASPECTS OF

THE DYNAMIC DRIVING TASK FOR A VEHICLE ON A PART-TIME OR FULL-TIME

BASIS WITHOUT ANY SUPERVISION BY A HUMAN OPERATOR. AS USED IN THIS

SUBSECTION, "DYNAMIC DRIVING TASK" MEANS ALL OF THE FOLLOWING, BUT

DOES NOT INCLUDE STRATEGIC ASPECTS OF A DRIVING TASK, INCLUDING,

BUT NOT LIMITED TO, DETERMINING DESTINATIONS OR WAYPOINTS;

(A) OPERATIONAL ASPECTS, INCLUDING, BUT NOT LIMITED TO,

SENATE BILL No. 997

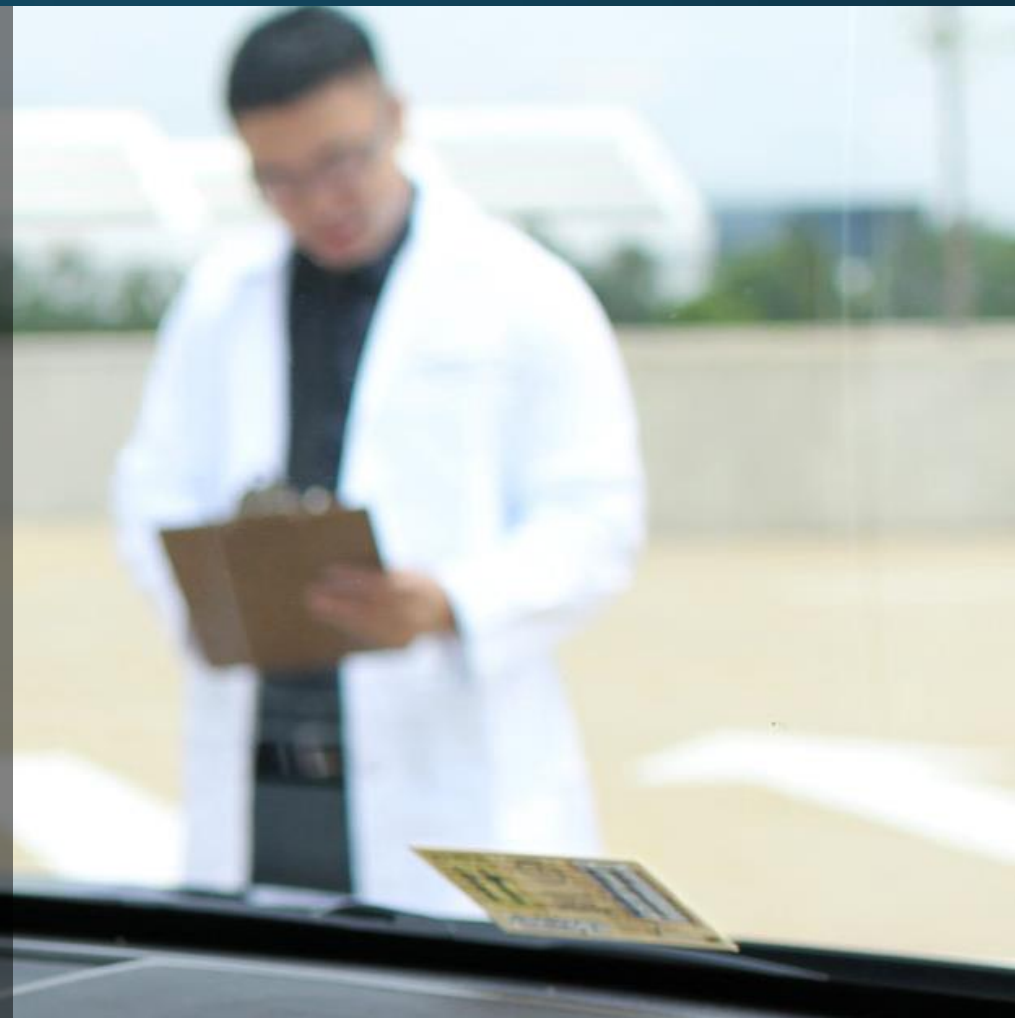
00443-16

RED

## World Class Destination

Creates the American Center for Mobility (ACM)

The mission of the ACM is still evolving and will include vehicle testing in real world conditions





# PUBLIC ACT No. 335

**Ken Horn (R-Frankenmuth), Primary Sponsor**

## SENATE BILL No. 998

May 25, 2016. Introduced by Senator HORN, KOWALL, JONES, STAMAS, BRANDENBURG, WARREN, BERTEL, SCHMIDT, MARLEAU and ANANCHE and referred to the Committee on Economic Development and International Investment.

A bill to amend 1961 PA 236, entitled

"Revised Jurisdiction act of 1961,"

by amending section 2949b (MCL 600.2949b), as added by 2013 PA 251,

THE PEOPLE OF THE STATE OF MICHIGAN,

1 Sec. 2949b. (1) The manufacturer of a vehicle is not liable  
2 and shall ~~NOT~~ be dismissed from any action for alleged damages  
3 resulting from any of the following unless the defect from which  
4 the damages resulted was present in the vehicle when it was  
5 manufactured:

6 (a) The conversion or attempted conversion of the vehicle into  
7 an automated motor vehicle by another person.

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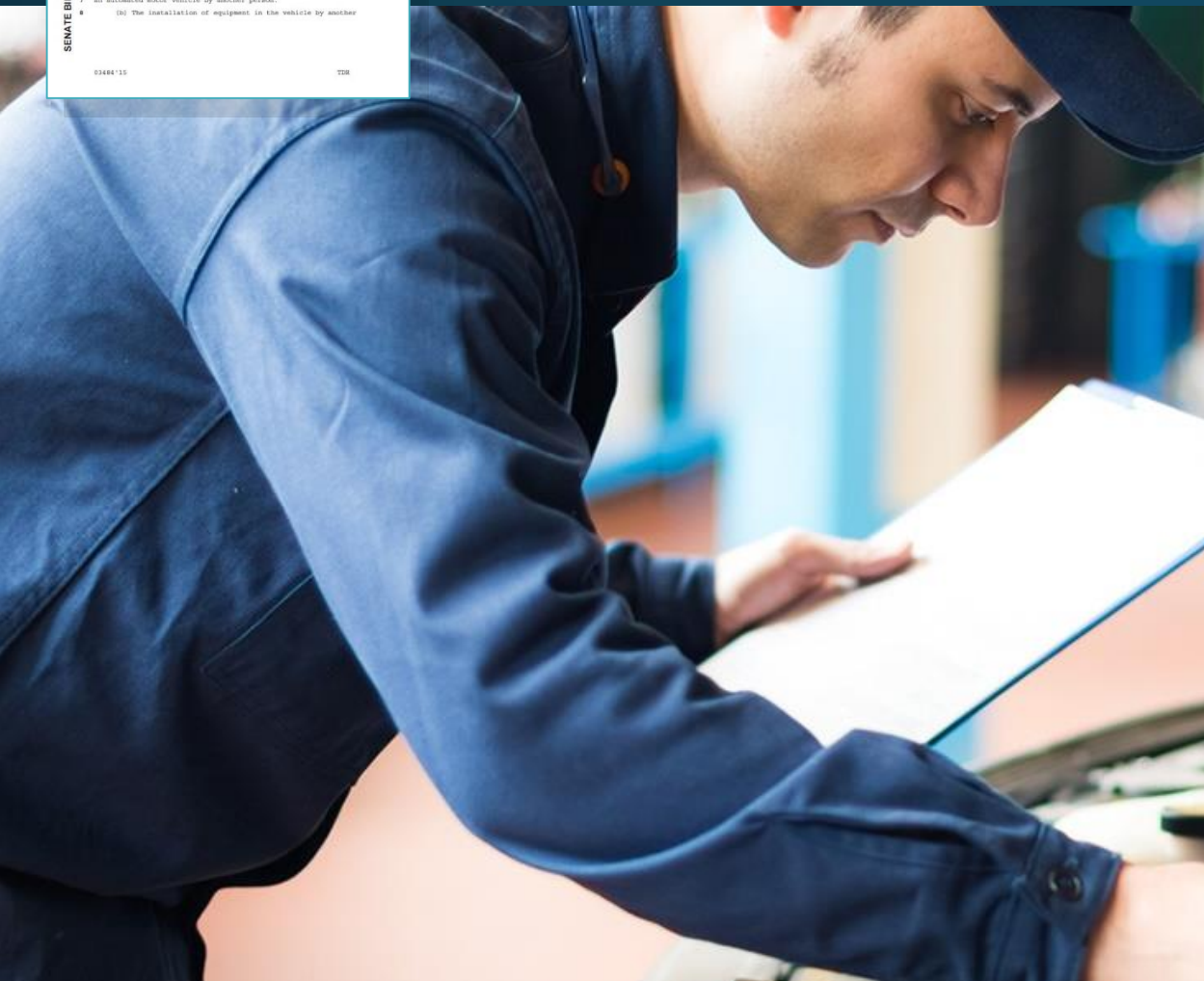
SENATE BILL No. 998

02484 '16

708

## Protection for Mechanics

Ensures that a mechanic, acting in compliance, will not be exposed to liability when working on autonomous technology.



# Contact Information

**Elise Feldpausch, CAV Technical  
Specialist  
feldpausche1@Michigan.gov**

**Kelly Bartlett, CAV Policy Specialist  
Bartlettk@Michigan.gov**

**PLANET M Website  
[www.planetm.com](http://www.planetm.com)**