MTSC

MICHIGAN TRUCK SAFETY COMMISSION

Michigan Truck Safety Strategic Plan 2020-2024

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INTRODUCTION

In the mid-1980s, there was a negative perception of the Michigan trucking industry because of problems such as passenger car/truck crashes, hours of service violations, load spillage, and excessive speed by commercial drivers. To address these issues, the Michigan Trucking Association (MTA), the Michigan Brotherhood of Teamsters, the Michigan State Police (MSP), the Michigan Department of Transportation (MDOT), and the Michigan Legislature developed legislation establishing the Michigan Truck Safety Commission (MTSC). Although early legislation discussions focused on increased enforcement, education, and training emerged as focal points of the final legislation, with research and enforcement as sidebars. The MTA and the state's trucking industry were committed to enhancing the education and safety training of truck drivers and agreed to support an increase in truck registration fees to accomplish that goal.

In 1988, the Michigan Legislature created the MTSC with the enactment of Public Act 348 whose primary provisions were:

- Establishment of an 11-member commission representing a cross-section of transportation safety groups and individuals. Seven members are appointed by the governor with the advice and consent of the Senate. The remaining four members, all of which are public service positions, were by state statute.
- Development of a truck safety fund administered by the Office of Highway Safety Planning (OHSP) within the Michigan State Police.
- Expenditure of truck safety funds to conduct truck driver safety education programs, encouraging, coordinating, and administering grants for research and demonstration projects in truck driver safety education, and conduct special enforcement programs within the MSP Commercial Vehicle Enforcement Division (CVED).

The Michigan Truck Safety Strategic Plan for 2020-2024 has been developed to reflect updates from the previous 2016-2019 plan.

DEVELOPMENT OF SAFETY STRATEGIC PLAN

Crashes related to heavy trucks account for a significant number of injuries and fatalities. Efforts to reduce these crashes should focus on the development of strategies that address issues from the behavioral, environmental, and operational perspectives. A safety strategic plan should set focus areas, define priorities, resources, and processes for managing the attributes of the road, the driver, and the vehicle, to achieve the highest level of highway safety. This can be achieved by integrating efforts of relevant disciplines, stakeholders, and agencies.

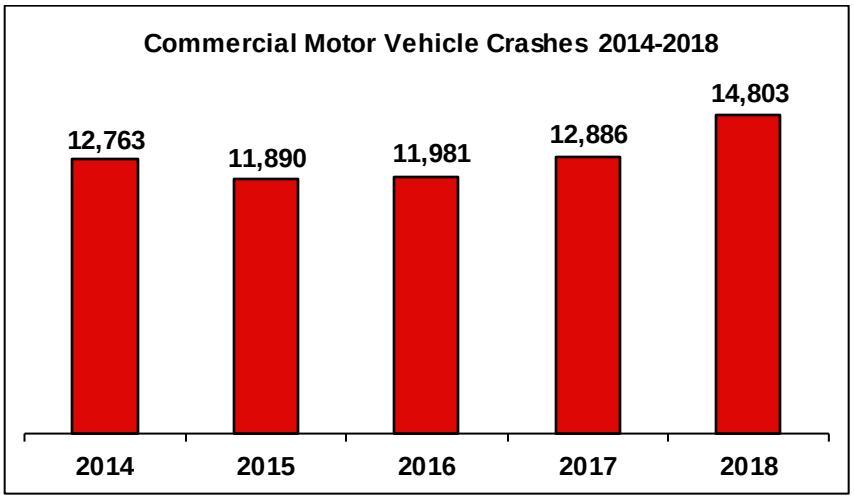
Achieving the desired results requires vast cooperation from the public and private sectors of the industry. The private sector, trucking industries, and motor carriers play the most fundamental role of ensuring compliance with regulations and implementing safety processes beyond compliance that further enhance safety. By focusing largely on regulation and enforcement, while also involving engineering and educational initiatives, the federal, state, and local governments play essential roles in the efforts to reduce crashes and improve safety.

In 1998, the American Association of State Highway and Transportation Officials (AASHTO) approved its Strategic Highway Safety Plan, which was developed by the AASHTO Standing Committee for Highway Traffic Safety with the assistance of the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration (NHTSA), and the Transportation Research Board (TRB) Committee on Transportation Safety Management. The plan includes strategies in 22 key emphasis areas that affect highway safety. The plan's goal was to reduce traffic-involved fatalities to 1.0 (or less) for every 100 million miles traveled. Each of the 22 key emphasis areas includes strategies and an outline of what is needed to implement the strategy. One of those emphasis areas is "Commercial Motor Vehicle Safety."

In Michigan, the Governor's Traffic Safety Advisory Commission (GTSAC) commissioned the development of a statewide and comprehensive strategic highway safety plan (SHSP) in October 2004. The GTSAC formed a comprehensive working group consisting of a cross-section of the traffic safety community in Michigan, and initially arrived at 12 emphasis areas, one of which is commercial vehicle safety. Appropriately, the MTSC was identified as the entity to address commercial vehicle safety issues for Michigan and serve as the action team to address issues within the GTSAC. Consequently, this plan serves as both the MTSC Safety Strategic Plan and as the Action Plan for the Commercial Vehicle Safety Action Team of the GTSAC identified in the 2019-2022 SHSP update.

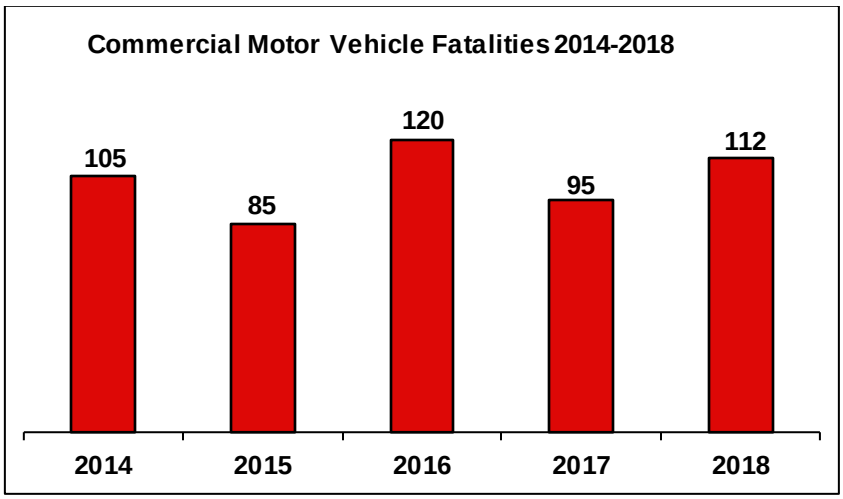
Commercial Motor Vehicle crash data analysis

In 2018, CMVs were involved in 4.7 percent (14,803) of the 312,798 traffic crashes. This is a 14.9 percent increase from 2017. From 2014-2018, CMV-involved crashes increased 16 percent.



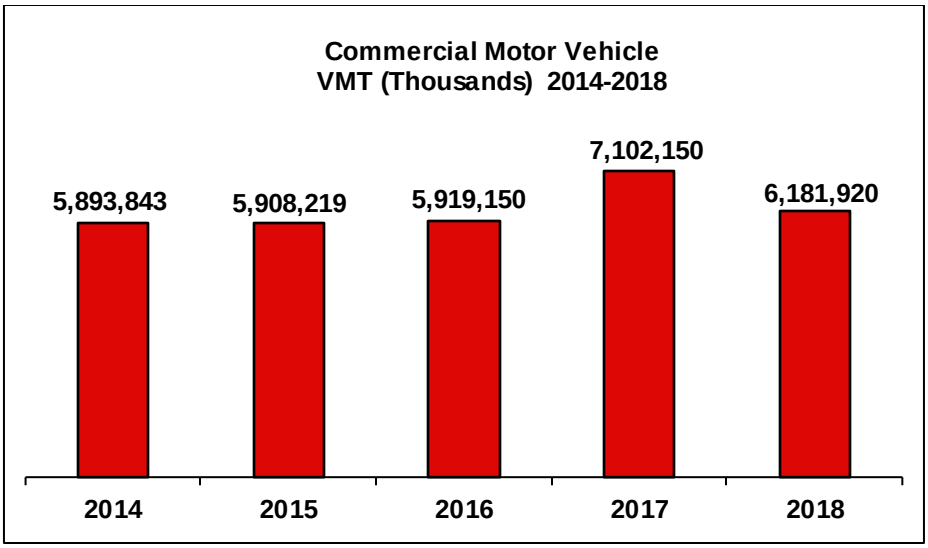
***Source: MSP Criminal Justice Information Center**

There were 112 people killed in CMV-involved crashes in 2018. This is a 17.9 percent increase from 2017. From 2014-2018, there was a 6.7 percent increase in CMV-involved fatalities. CMVs tend to be significantly heavier, stiffer, and higher than other vehicles on the road. Therefore, in a crash, the other vehicle absorbs most of the crash energy, leading to severe injury to the occupants of that other vehicle.



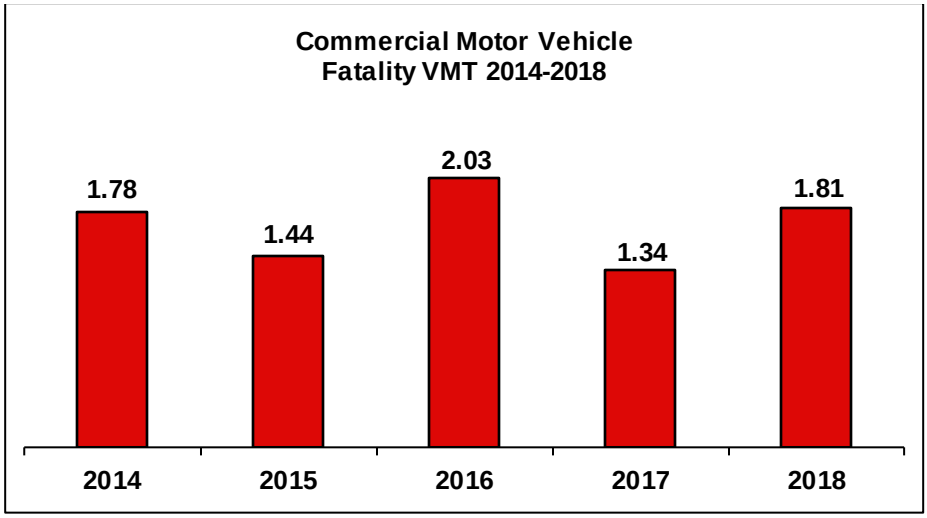
***Source: MSP Criminal Justice Information Center**

The vehicle miles traveled for CMVs decreased 13 percent from 2017 to 2018. From 2014-2018, the CMV VMT has increased 4.9 percent.



***Source: University of Michigan Transportation Research Institute (UMTRI)**

The fatality CMV VMT increased 35.3 percent from 2017 to 2018. From 2014-2018, the CMV VMT increased 1.6 percent.



***Source: UMTRI**

Detailed analyses of circumstances surrounding CMV-involved crashes were conducted to identify potential causes of these crashes and consequently propose appropriate strategies to mitigate the causes. A summary of findings from data analyses relevant to the development of this plan are as follows:

1. Fatalities of occupants from other vehicles is higher than for CMV occupants. About 90 percent of the fatalities are occupants of other vehicles.

2. "Unable to stop within assured clear distance" was the most common hazardous action committed by all drivers in CMV-involved crashes from 2014-2018. About 8 percent of CMV drivers and 12 percent of other drivers were coded with "unable to stop" as hazardous action committed. These percentages may suggest a need for more education on how to behave around and near CMVs while driving due to their inability to stop at assured clearance and for other drivers not to drive too close to them.

3. Truck defects have been associated with different types of crashes. Tires and wheel defects have been associated with single motor vehicle crashes, sideswipe crashes, and head-on crashes. The analysis showed that about a quarter of defective trucks involved in single-vehicle crashes that occurred had tire or wheel defects. It is, however, important to note that vehicle defects are rarely coded, therefore this statistic should not be generalized. Nevertheless, emphasis on the importance of routine maintenance may minimize CMV-involved crashes potentially caused by vehicle defects. Also, facilitating vehicle inspection by implementing technologies that assist officers in identifying trucks with brake defects may have a positive impact on such crashes.

4. The number of CDLs in 2018 was 355,618. From 2014-2018, the number of CDLs has increased by 6.1 percent. The current shortage of drivers may be associated with the lack of interest in truck driving as a career. Shortage of qualified drivers has the potential to increase the number of unqualified drivers behind the wheels. Strategies that promote truck driving as an alternative career, especially to high school students and former military, may be among the solutions to this problem.

MISSION

To improve truck safety by providing Michigan's trucking industry and citizens of Michigan with effective educational programs and by addressing significant truck safety issues.

VISION

Toward Zero Deaths on Michigan Roadways.

OBJECTIVES

To achieve the mission and the vision of the MTSC, the following objectives were identified:

- *****Prevent the CMV-involved fatality rate from reaching 2.23 in 2024.
- Reduce CMV-involved crashes through deployment and use of effective truck safety and enforcement technologies.
- Promote a safe driving culture among users through education and public awareness programs.
- Improve truck drivers' recruitment and training programs.

*The OHSP worked with the UMTRI to develop predictive figures generated from a multi-variate formula for the goal target-setting process for VMT. The quantitative target was based on five-year moving average crash trends using a regression predictive statistical model. The core performance target was predicted using a liner regression model.

EMPHASIS AREAS

To support the mission and vision of the MTSC, emphasis areas and strategies were identified. The emphasis areas were derived from an analysis of Michigan crash data and a 2016 survey of truck drivers. Also, a focus group meeting with the MTSC Commissioners was held to refine the emphasis areas as well as the strategies. Additionally, review of other states' strategic highway safety plans was conducted to identify emphasis areas and strategies relevant for Michigan. The following seven emphasis areas were identified:

1. CMV Driver Training and License Programs
2. Vehicle Maintenance and Inspection
3. Technology for Safety and Efficiency
4. Seat Belt Use, Fatigue, and Distracted Driving
5. CMV Driver Shortage
6. CMV Driver and General Public Awareness
7. Truck Safety Management and Best Practices

Emphasis Area 1: CMV Driver Training and License Programs

Background

Driver action or inaction have been documented as the major cause of CMV-involved crashes. Driver training and license programs are very important to help drivers learn potential driving problems and how they can improve driving and avoid the potential to cause crashes. In December 2015, the UMTRI completed a study commissioned by the OHSP to assess the educational and training needs of CMV drivers and identify opportunities for improvements in Michigan. The study found that among current CMV drivers in Michigan, approximately 60 percent prepared for the CDL test by enrolling in programs at community colleges, private truck driving schools, or schools operated by trucking companies. The study also found that the scope and quality of training programs vary considerably partly because there is no standardized training curriculum, and most programs cover general competencies. Many programs do not offer adequate behind the wheel driving time and have outdated equipment resulting in a lack of exposure to modern telematics.

Among the important trainings that CMV drivers need is understanding and management of the dynamics of their vehicles. For example, how the CMV configuration and weight affect braking maneuver, is important. Being able to control and stop within safe distance is critical for the

safe operation of a CMV. A skid pad enables practical training of CMV drivers on how to manage the dynamics of their CMVs when braking.

Model Strategies

- Continue to explore the feasibility and cost-effectiveness of opening a skid pad facility in Michigan and pursue the options presented based on the findings.
- Continue providing the Driver Performance Measurement training to truck drivers through the Professional Driver Coaching program.
- Improve defensive driving knowledge through the National Safety Council's Defensive Driving Course for the Professional Truck Driver.
- Continue to educate motor carriers and drivers on the driver metrics in the Federal Motor Carrier Safety Administration's Compliance, Safety, and Accountability (CSA) program.
- Advocate standardization of entry-level driver training during and after orientation programs to include state and federal regulations (in addition to driving skills).
- Underscore the importance of training in stopping, backing maneuvers, and skid control for entry-level drivers.
- Expand education and consider periodic training for motor carriers and drivers with CDLs through online courses, classroom, driving, etc.

Emphasis Area 2: Vehicle Maintenance and Inspection

Background

Trucks need to be inspected and maintained frequently to avoid crashes caused by vehicle defects. Roadside inspections routinely identify proportions of trucks that need to be taken out of service immediately because they are considered too hazardous to continue operating. Michigan's 2014-2018 crash data shows that about 1 percent of non-PDO crashes involving a defective CMV are fatal crashes. Review of crash reports indicated that brakes and tire or wheel defects were the common defects reported for these crashes. Again, it is important to mention that truck defects are not commonly coded, except when it is obvious. Vehicle maintenance programs may minimize CMV-involved crashes potentially caused by vehicle defects.

Inspection reviews play an important part in removing potential defective CMVs from the road. For the period 2014-2018, the Michigan State Police Special Truck Enforcement Teams (STET) had conducted roadside inspections as tabulated in Table 1. The statistics in Table 1 demonstrate the

need to continue inspections of trucks. Such efforts should be sustained to reduce future risks resulting from defective trucks operating on Michigan roads.

Table 1. STET 2014-2018 Statistics

Year	Safety Inspections	Verbal Warnings	Total Vehicle Stops	Total Citations	Speeding	Moving Traffic	Seat Belts	CDL	Illegal Parking	Log Book
2014	8,950	7,007	13,783	8,889	2,396	378	1,087	252	146	341
2015	7,678	5,528	11,377	7,402	2,089	360	855	226	124	389
2016	7,926	6,361	12,525	7,813	2,464	367	973	266	98	320
2017	6,718	5,857	10,870	6,398	1,282	357	1,041	257	179	220
2018	6,571	5,659	10,082	5,147	1,124	467	799	216	75	130

Model Strategies

- Highlight the importance of driver training on how to identify problems with brake systems and tires to minimize the chances of their vehicle to be placed out-of-service (OOS) in an inspection.
- Promote "Periodic Inspection Training" seminars for maintenance personnel.
- Support efforts in conducting inspections, compliance reviews, and weigh station operations.
- Advocate efforts to conduct targeted enforcement for regulatory compliance by both motor carriers as well as CMV drivers.
- Support efforts to increase compliance by truck drivers and firms with applicable statutes and regulations.

Emphasis Area 3: Technology for Safety and Efficiency

Background

Application of technology is among the key ways to improve truck safety and efficiency. While vehicle-based technologies may have a direct impact on truck performance by assisting the driver, using advanced technologies for enforcement may enhance officers' performance. Technologies such as lane departure warning, blind spot detection systems, and integrated safety systems are increasingly becoming a necessity for truck operation due to their ability to improve safety and increase efficiency. In anticipation of autonomous heavy-duty trucks, enhancement of fleet safety above minimum required levels by purchasing and using truck safety technologies (i.e., electronic

braking systems, high-performance tires, convex and side mounted mirror, etc.) and advanced technologies (i.e., collision avoidance warning systems, adaptive cruise control, back-up camera, etc.) is desirable. Currently, Michigan does not have any tax incentives that promote these technologies to be implemented. It is important to continue employing and to consider new truck safety and enforcement technologies.

Model Strategies

Enforcement Technologies

- Explore the feasibility of automating collection of inspection data to facilitate enforcement.
- Explore implementing systems that use advanced technologies to assist police officers in identifying potential violators.

Emphasis Area 4: Seat Belt Use, Fatigue, and Distracted Driving

Background

Driver fatigue and distracted driving are among factors leading to CMV-involved crashes. Similar to the effects of driving while fatigued, distraction while driving may slow reaction time, decrease situational awareness, and impair judgment because of the driver taking eyes and mind off the road. Distracted drivers present challenges for law enforcement. Distraction (particularly use of hand-held electronics under the 2012 federal regulation 49 CFR 392.80- 329.82) may be a factor in CMV-involved crashes due to drivers not paying full attention to their surroundings.

Driving under fatigue poses a safety hazard to truck drivers and the general driving public. Unrealistic scheduling may contribute to driving while fatigued as drivers attempt to "catch up" with the schedules. Among other efforts, strategies to hold shippers, carriers, and receivers responsible for unrealistic schedules of freight hauling may be needed to potentially reduce fatigue-involved crashes. Exploration of innovative strategies such as "Chain of Responsibility" (CoR) or required compensation for drivers during loading and unloading, may be considered. CoR could be one of the factors associated with a reduction in fatigue. For such innovative strategies, it is important to first determine if the strategy can be implemented by Michigan only or if it requires national efforts to be successful.

Safety belt use is one of the cheapest, easiest, and most important ways to protect CMV drivers when involved in a crash. Although, Michigan law requires the use of seat belts when operating a CMV, some CMV drivers still do not use seat belts. The observation study conducted

in Michigan in 2015 indicated that the statewide safety belt use rate for CMV drivers was 81.05 percent, which is 5 percent lower than the 84.8 percent study in 2012. From 2014-2018, the seat belt use rate for all other drivers has averaged 94 percent.

Model Strategies

- Promote efforts to increase fatigue awareness among CMV drivers, shippers, carriers, and all other drivers.
- Advocate for the education of motor carriers and CMV drivers on the dangers of distracted driving.
- Encourage road agencies to continue incorporating rumble strips into new and existing roadways.
- Support efforts to enforce rules to control the use of cell phones while driving.
- Highlight the importance of efforts focused on programs for seat belt use.

Emphasis Area 5: Driver Shortage

Background

From 2014-2018, Michigan has experienced an increase of 6.1 percent in the number of CDLs. Young people may not consider truck driving as a career option, especially since one needs to be at least 21 years old to get a CDL. This is a nationwide problem. Shortage of qualified drivers has the potential to increase the number of unqualified drivers behind the wheel. Strategies that promote truck driving as an alternative career, especially to high school students and former military, may minimize this problem.

Model Strategies

- Promote inclusion of CDL training in community colleges and technical schools.
- Encourage and support efforts that introduce the trucking industry as a career choice in high school and former military.
- Identify and support efforts aimed at addressing the driver shortage, especially those that are potentially beneficial for Michigan, by reviewing national efforts by the trucking industry.

Emphasis Area 6: CMV Driver and General Public Awareness

Background

Most of the crashes involving CMV and passenger vehicles are initiated by driving errors by light vehicle drivers around heavy trucks. Some drivers of passenger vehicles may not be aware trucks have substantially different performance characteristics (stopping distances, acceleration, and maneuverability). Similarly, CMV drivers need to understand the concept of "sharing the road" with other drivers. About 53 percent of CMV drivers surveyed stated that they were not aware of "Share the Road" programs. Also, it is important that the general driving public be aware of the safest practices when driving around CMVs. Furthermore, awareness of resources available to CMV drivers, the public, and truck owners is necessary to increase engagement and involvement in CMV-involved safety initiatives and programs.

Model Strategies

- Support the incorporation of "Share the Road" messages and information into materials targeting car and other light vehicle drivers through print and electronic media.
- Support efforts to increase awareness of the "Share the Road" program in strategic locations such as the MDOS branch offices, Michigan Welcome Centers, and highway rest stops.
- Increase the level of attention to truck safety issues in public and private driver education programs used across the state as well as in the driver education test used by the MDOS.
- Support the MCTS's efforts to enhance small carriers' awareness of the resources available to them.
- Reach out to small carriers and encourage them to provide training to their entry-level drivers.
- Support education and outreach to the public and industry on how to safely operate in and around CMVs.
- Promote the MCTS's programs, especially the truck simulator to increase its utilization.
- Enhance the visibility/activities of the MTSC through effective promotions and communications.
- Support efforts to encourage CMV and other drivers to engage in safer driving by encouraging implementation and enforcement of laws that will counter aggressive driving behaviors.

Emphasis Area 7: Truck Safety Initiatives and Best Practices

Background

Tuck safety initiatives and implementation of best safety practices are critical to the improvement of truck safety in Michigan. Timely, accurate, and accessible data are also a critical component of truck safety management. Data is required to identify CMV-involved safety problems, establish priorities, design interventions, evaluate countermeasures, and detect emerging problems. Important data on CMVs and operators are collected and maintained by different entities (e.g., law enforcement agencies, the judicial system, etc.). Rapid entry and compilation of such data can greatly improve the detection of problems and enable timely interventions. It is important to develop nationally recognized safety management programs that will enhance knowledge of truck safety initiatives through industry "best safety practices."

Model Strategies

- Encourage efforts to analyze and correct unsafe roadway infrastructure and operational characteristics through engineering and enforcement interventions.
- Emphasize the timely and accurate reporting of inspection and crash data.
- Emphasize periodic analyses of crash data to provide longitudinal information on crashes and compare Michigan with other states.
- Encourage the effective utilization of CMV crash data in decision-making.
- Participate in efforts to develop cooperative CMV safety programs and partnerships with state departments, e.g., MDOT, OHSP, MDOS, MSP, and other traffic safety partners to improve information sharing and understanding of the collective mission of truck safety.
- Support mobile enforcement and implementation of STET operations in high-risk areas to improve compliance.

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ACKNOWLEDGEMENTS

The Michigan Truck Safety Commission (MTSC) completed the update of this strategic safety plan in 2019. The MTSC consists of a diverse group of commissioners and at large traffic safety professional members including representatives from:

Michigan Department of State

Michigan Department of State Police

Michigan Office of Highway Safety Planning

Michigan Transportation Commission

Michigan Trucking Association

Michigan Four-Year Colleges or Universities

Michigan Community Colleges

Michigan Organized Labor

Michigan General Public

Michigan Private Motor Carriers

All parts as described within this plan are necessary, but there is flexibility to customize the structure and process according to external and internal factors. It is anticipated that the plan will be updated periodically and otherwise revised.