Further Assessments of Safe, Quick Clearance Strategies – Phase II

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16. Abstract The Michigan TIM Action Team was created as part of Michigan's Strategic Highway Safety Program (SHSP) and reports to the Governor's Traffic Safety Advisory Commission (GTSAC). Progress towards the Action Team's goals were the subject of this research project. Research included responder workshops, literature reviews, leadership visioning, and a new survey of 1,200 Michigan motorists. Results of all those activities are presented here as an evaluation of progress. The research also resulted in recommendations for investment in a strategic approach for future TIM programmatic efforts, including outreach to build on progress.		
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TABLE OF CONTENTS

1. Executive Summary 1
2. Background 3
3. Workshop Overview 7
4. Regional Workshop Findings 16
5. Visioning Session Overview 18
6. Business Case for Michigan Traffic Incident Management 27
7. Summary of 2012 Resident Survey Results 34
8. Summary of 2017 Resident Survey 35
9. Improve Michigan Responder Safety/High-Visibility Vests 38
10. Improve Michigan Responder Safety/Steer it, Clear it 51
11. Focused Outreach Approaches and Background 55
12. Investment Opportunities 59
Appendix A: Detailed Literature Review 95
Appendix B: Regional Workshop Presentation 115
Appendix C: Visioning Workshop Presentation 128
Appendix D Motorist Survey Summary 202
Appendix E: Wisconsin Crash Investigation 262
Appendix F: Washington State Incentive Towing Program Handbook 265

LIST OF FIGURES

Figure 1 Regional Workshop Summary for Statewide Meeting 20
Figure 2 Formalized Michigan TIM Structure to Encourage Information Flow 28
Figure 3 The Statewide TIM Committee's Six Goals 30
Figure 4 Regional Distribution of theSurvey Responses (%) 216
Figure 5 Respondent Gender Distribution 217
Figure 6 Respondent Age Distribution 217
Figure 7 Race/Ethnicity of Respondents 218
Figure 8 Travel Frequency by Day of Week 219
Figure 9 Travel Frequency by Time of Day 219
Figure 10 2017 Survey Results Comparing TV and Radio for Traffic Media Use (%) . 220
Figure 11 DMS Messages Awareness Breakdown by Message Types (%) 221
Figure 12 Use of Real Time Traffic Information Based on Frequency 222
Figure 13 Mi Drive Website Ratings 228
Figure 14 Use of Mi Drive Application 229
Figure 15 Rating of Mi Drive Application 230
Figure 16 How Much Would You Slow Down for Emergency Vehicle? 240
Figure 17 Speed Reduction for Tow Truck 242
Figure 18 Conversation Word Cloud 251
Figure 19 Breakdown of Social Media Activity Platforms 252
Figure 20 Activity Breakdown for Posts Only 253
Figure 21 News and Interactions Breakdown by Platform 253
Figure 22 Posts Only by Social Media Platforms 254
Figure 23 Conversations by Gender 254
Figure 24 Conversations by Age 255
Figure 25 Twitter Conversations Word Cloud 257

LIST OF TABLES

Table 1 2016-17 Assessment Results Compared to 2012 2
Table 2 Document Review and Relevance 5
Table 3 Strengths and Needs Identified in Regional Workshops 16
Table 4 Michigan SMART TIM Goals 19
Table 5 Summary of "Improve Partnerships" Category 23
Table 6 Summary of "Train People" Category 24
Table 7 Summary of "Leverage Technology" Category 25
Table 8 Summary of "Make Needed Resources More Available" Category 25
Table 9 Summary of "Improve Program Sustainability" Category 26
Table 10 TIM Partner Tiers 29
Table 11 Regional TIM Steering Committees 31
Table 12 Local TIM Teams or LEPCs 32
Table 13 Initial Mi-TIME Funding Expansion 34
Table 14 Changes in Traveler Information Source Convenience 57
Table 15: Detailed List of TIM Investments 84
Table 16: List of Counties Above 2% of Survey Responses 215
Table 17 Education Breakdown of Respondents 218
Table 18 Media Traffic Report Comparisons with Past Surveys 220
Table 19 Access to Real Time Traffic Information on Personal Devices 222
Table 20 Use of Real-time Traffic Information by Region 223
Table 21 Familiarity with Mi Drive 223
Table 22 Familiarity with Mi Drive by Counties/Regions 224
Table 23 Comparison of Mi Drive Website Usage 224
Table 24 Use of Mi Drive Website by County 225
Table 25 Use Of Mi Drive Website by Region 227
Table 26 Use of Other Websites for Traffic Information 228
Table 27 Use of MI Drive App by Region 229
Table 28 Frequency of Using Mi Drive App 230
Table 29 Changes in Use of Other Sources of Traffic Information (Cited-Website) 230
Table 30 Other Sources of Real Time Traffic Information (Apps) 231
Table 31 Changes in Use of Smartphones for Traffic Information 231
Table 32 “Steer it, Clear It” Vehicle Action Awareness 232
Table 33 “Steer It, Clear It” Passenger Actions Awareness 232
Table 34 “Steer It, Clear It” Vehicle Action Awareness by Age (%) 233
Table 35 “Steer It, Clear It” Passenger Actions Awareness by Age (%) 233
Table 36 “Steer It, Clear It” Vehicle Action Awareness by Education (%) 233
Table 37 “Steer It, Clear It” Passenger Actions Awareness by Education (%) 234
Table 38 “Steer It, Clear It” Vehicle Action Awareness by Region 234
Table 39 “Steer It, Clear It” Passenger Actions Awareness by Region (%) 234
Table 40 Change in Awareness of “Steer It, Clear It” 235
Table 41 Awareness of “Steer It, Clear It” by Age (%) 235
Table 42 “Steer It, Clear It” Awareness vs. Actual Action (%) 235

Table 43 Awareness of the “Steer It, Clear It” Law by Region (%) 236
Table 44 Changes in Awareness of Move Over, Slow Down for Emergency Vehicle . 239
Table 45 Approaching Emergency Vehicle by County (Move Over, Slow Down) (%) . 241
Table 46 Approaching Emergency Vehicle by Region (Move Over, Slow Down) (%) . 241
Table 47 Approaching Tow Trucks (Move Over, Slow Down) 242
Table 48 Approaching Tow Truck by County (Move Over, Slow Down) (%) 243
Table 49 Approaching Tow Truck by Region (Move Over, Slow Down) (%) 243
Table 50 Changes in Awareness of Move Over, Slow Down 244
Table 51 Awareness of Move Over, Slow Down Actions by Age (%) 244
Table 52 Awareness of Move Over, Slow Down Law By Region (%) 244
Table 53 Counties Lacking Awareness of Move Over, Slow Down Law (%) 245
Table 54 Changes in Use of Traveler Information Sources 247
Table 55 Convenience of Traveler Traffic Information Sources 247
Table 56 Most Convenient Sources of Tourism/Travel Information 248
Table 57 Changes in Use of Social Media 249
Table 58 Changes in Use of Social Media by Platforms 249
Table 59 Changes in Awareness of MDOT Social Media Sites (%) 250
Table 60 Counties with Low/No Awareness of MDOT Social Media (%) 250
Table 61 Awareness of MDOT’s Facebook, Twitter, You Tube Presence (%) 250
Table 62 All Platform Metrics by Total Interactions (%) 256
Table 63 Sample Tweets 257
Table 64 Expected Completed Surveys for Non Equal-Probability ABS 260
Table 65 Proposed Sampling Strata 261

ACRONYMS

AAR	After Action Report/Review
ANSI	American National Standards Institute
APCO	Association of Public Safety Communications Officials
CAD	Computer Aided Dispatch
DOT	Department of Transportation
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
FHWA	Federal Highway Administration
GTSAC	Governor's Traffic Safety Advisory Commission
Hazmat	Hazardous Materials
ICS	Incident Command System
LEPC	Local Emergency Planning Committee
LTAP	Local Technical Assistance Program
MDOT	Michigan Department of Transportation
Mi-TIME	Michigan Traffic Incident Management Effort
MPO	Metropolitan Planning Organization
MSP	Michigan State Police
MUTCD	Manual on Uniform Traffic Control Devices
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
SHRP	Strategic Highway Research Program
SHSP	Strategic Highway Safety Program
SMART	Specific, Measurable, Action-Oriented, Measurable, Time-Based
SPDR	State Planning and Development Region
TIM	Traffic Incident Management
TOC	Traffic Operations Center
TSM&O	Transportation System Management and Operations
TTC	Temporary Traffic Control
TtT	Train the Trainer

1. Executive Summary

In 2012 the Michigan Department of Transportation (MDOT) conducted an assessment of safe, quick clearance laws in Michigan. That work focused on establishing strategies for accurately and effectively communicating information about safe, quick clearance laws to Michigan drivers.

During 2016 and 2017 MDOT conducted further assessments of progress for traffic incident management (TIM) by re-evaluating driver understanding of safe, quick clearance laws, assessing MDOT investments since 2012, and identifying new strategies for enhanced safety and efficiency of Michigan travel.

MDOT conducted eight regional meetings throughout the state and one executive visioning session with senior agency officials and partnering organizations. Researchers made the following subjective observations.

- TIM practitioners take pride in the work done at incident scenes.
- TIM training is robust and is inclusive of as many disciplines and jurisdictions as possible within the constraints of volunteer training for many trainees.
- TIM is a focus for the Michigan DOT community, at field levels, at Regional levels, and with statewide coordination through the office of the TIM Engineer.
- TIM practitioners and leadership engaged in the regional and visioning workshops were enthusiastic about growing the program.

From the regional workshops researchers identified five overarching goals.

- Continue to improve partnerships.
- Maintain the focus on training and readiness.
- Leverage technology to support policies and on-scene activities.
- Make needed resources available.
- Improve program sustainability.

Based on program needs, researchers suggested the following annual Mi-TIME funding.

Initial Mi-TIME Expanded Funding	
Category	Annual Amount
Mi-TIME Personnel Costs	$1,200,000
Regional Mi-TIME Funding	$4,500,000
Mi-TIME Training	$500,000
Performance Bonus & Pilot Funding	$5,000,000
Total Annual Funding	$14,200,000

The table below shows each focus area for the 2016-2017 assessment, the results, and the change from 2012.

Table 1 2016-17 Assessment Results Compared to 2012		
2016-2017 Assessment Focus Area	2016-2017 Assessment Results	2012 Assessment Results
Conduct a literature review of pertinent subject.	Efforts associated with Mi-TIME training and TIM Action Team goal setting are a national best practice and set the foundation for full program development.	Recommendations were given for public outreach and awareness, as well as operational best practices.
Conduct an assessment of the current TIM **program and next steps for the program.**	Eight regional workshops and one statewide executive visioning session identified five overarching goals and eight common themes to focus on for the future. (see below)	Not applicable.
Develop a list of investments that will enhance safe, quick clearance from the roadway system.	The Mi-TIME program requires 12 FTEs and a dedicated budget to reach its full potential. Section 11 contains investment details.	Not applicable.
Conduct a survey of M**ichigan's drive**r **knowledge of safe, quick clearance laws.**	A sample size of 1,200 respondents indicates awareness of safe, quick clearance has increased.	A sample size of 800 respondents set the baseline for measuring awareness of safe, quick clearance.
Develop a toolkit for steer it, clear it law outreach and high-visibility garments.	A trifold brochure, audio, video, and social media outreach materials were created.	Captain Clear-It and an associated outreach campaign was developed and implemented.

From the regional workshops researchers identified eight common themes for the future.

- Formalize TIM Teams.
- Improve traffic management and widely distribute detour routing plans.
- Increase awareness of the Mi-TIME program.
- Promote traffic operation centers and their utility.
- Enhance relationships with the towing and recovery community.
- Inventory radio communications capabilities, develop a communications gap closure plan, and provide joint responder communications training.
- Institutionalize the TIM program through written agreements.
- Make needed equipment and resources available.

2. Background

The Michigan TIM Action Team, created as part of Michigan's Strategic Highway Safety Program (SHSP), reports to the Governor's Traffic Safety Advisory Commission (GTSAC). The Team identifies traffic safety challenges and comprehensive solutions. The result of these efforts will support achievement of the mission, vision, and goals identified in the SHSP. The TIM Action Team, a multi-disciplinary panel of TIM strategists, planners, and practitioners, set a series of goals, with objective outcomes and target dates.

Generally, those objectives included:

- Increase compliance with high-visibility apparel requirements through education for all "workers" at a traffic incident.
- Increase public awareness of the Steer It, Clear It Law.
- Implement the Mi-TIME/Strategic Highway Research Program (SHRP) 2 TIM Training program in Michigan.
- Provide training information for the new secondary crash fields for integration with Michigan State Police crash report training.

The Action Team meets six times a year, with meeting locations in different regions, and always accessible by a telephone or web-based conferencing platform. All TIM practitioners, at all levels, are welcome to participate in meetings virtually or in person.

Information from TIM Action Team meetings is posted and shared with the public via the Mi-TIME website (www.michigan.gov/mi-timesafe).

Objectives and Scope of Research

Research included a scan of practices from throughout the country, survey results from Michigan motorists, and the workshops that included responders from field level through leadership.

The objectives of the research were to:

- Collect information from TIM practitioners on current practices.
- Assess the progress made toward objectives of the TIM Action Plan.
- Assess current TIM activities and attitudes throughout the state.
- Resurvey Michigan residents to judge the effectiveness of the past efforts.
- Formulate a new set of investments and tools to help guide future efforts.

The research included review of literature that might inform future actions Michigan could take to advance its TIM program. Those advancements might include investment of personnel, time, information, and relationship building.

The scope of work for this research specifically included the following actions and associated deliverables.

- Improve MDOT Return on Investment
    - Provide an updated review of new literature and any other studies published after the previous study.
        - Deliverables: 20 relevant abstracts from the FHWA knowledge management system and ongoing throughout the project as necessary.
    - Conduct an assessment of the current TIM program and next steps for the program.
        - Deliverables: Up to eight facilitated regional TIM meetings, TIM self-assessment data, Michigan TIM Strategic Action Plan, MDOT TIM Work Plan.
    - Develop a list of investments that will enhance safe, quick clearance from the roadway system.
        - Deliverable: Table of 100 TIM investment options and potential benefits, and 20 detailed investment options for Michigan. Table 15 includes the list of 100 investments.
- Improve Michigan Driver Safety
    - Conduct an updated survey of Michigan's driver knowledge of safe, quick clearance laws.
        - Deliverables: Develop and administer a targeted survey of 1,200 completions that will include a range of outreach activities and strategies to increase participation by hard-to-reach populations for inclusivity.
- Improve Michigan Responder Safety
    - Develop toolkits for Steer It Clear It outreach and high-visibility garments' use outreach.
        - Deliverables: Two public awareness toolkits will recommend a list of potential tools and tactics and a strategy for engaging traditional and evolving outreach efforts. Social media engagement will also be an integral part of outreach and the toolkit.

Statement of Hypotheses

Activities associated with the Michigan TIM Action Plan have improved knowledge, usefulness, and/or acceptance in the following areas:

1. Mi-TIME training that focuses on all responder disciplines
2. The use of high-visibility garments on the roadway
3. Public understanding of the importance of Michigan's laws (Steer It, Clear It driver removal law, and Move Over Law)

Literature Review

A review of local, regional, and federal research identified documents that might be helpful in advancing the cause of TIM in Michigan. The table below summarizes the

documents reviewed. **Appendix A: Detailed Literature Review** contains more details on each report.

Table 2 Document Review and Relevance	
Document Reviewed	Relevance to this Research
The Benefits of TIM (National Traffic Incident Management Coalition)	Identified business case areas of consideration.
New Jersey Highway Incident Safety Guidelines for Emergency Responders	Helped with program assessment and research about program institutionalization.
Successfully Managing Traffic Incidents (FHWA)	Assisted with preparation for regional workshops.
Hampton Roads TOC Highlights (Virginia DOT)	Demonstrates program institutionalization approach.
TIM Quick Clearance Guidance (Virginia DOT)	Assisted with comparison of MDOT SMART goals.
Work Zone Hazards Workbook (OSHA)	Identified requirements and suggestions for high-visibility toolkit and assisted with business case research.
Best Practices Supporting TIM Through Communication between TMCs and Law Enforcement (Transportation Research Board)	Identified opportunities to improve coordination between TMCs and on-scene personnel.
Florida TIM Program Strategic Plan (Florida DOT)	Provided a comparison with other program level goals.
TIM Teams (Florida DOT), Georgia TIM Guidelines (TIME Task Force)	Provided information associated with formalizing TIM Teams.
Pennsylvania Traffic Incident Management Report (State Transportation Advisory Committee)	Identified methods for formalizing a statewide TIM program structure.
Advancing TIM in Transportation Planning (FHWA)	Identified value of coordination of TIM activities with regional planning organizations.
TIM Best Practices (FHWA)	Provided catalog of practices across the nation.
TIM Teams Best Practices (I95 Coalition)	Provided evidence of practices throughout the eastern United States.
Education and Training Strategies to Encourage TIM Best Practices (Vanderbilt, Tennessee DOT)	Reinforced value of training focus for TIM.
TIM Teams Best Practices (Texas A&M)	Provided information associated with formalizing TIM Teams.
Memorandum of agreement for transportation planning and	Provides examples of regional planning partners taking the lead on TIM and

Table 2 Document Review and Relevance	
Document Reviewed	Relevance to this Research
programming between City Of Lincoln MPO and Nebraska Department Of Roads (City Of Lincoln)	institutionalization between state agency and local level.
Advantages and disadvantages of two-way radio vs. cellular (Staley Communication)	Research for addressing common theme of radio communication needs.
Determining the relative impact of PSAs and brochures upon general public drivers interfacing with emergency service vehicles (VFIS education, training, and consulting)	Provided research associated with the development of the high-visibility toolkit.
Lessons Learned: West Virginia Department Of Highways Traffic Engineering)	Provided a case study for TIM funding.

3. Workshop Overview

MDOT conducted eight regional workshops. This approach provided responders the opportunity to attend a workshop without the need to travel great distances. The approach also helped encourage future regional level discussions. MDOT and researchers conducted workshops in the towns shown in the list below on the dates indicated.

- Marquette Sept. 12, 2016
- St. Ignace Sept. 13, 2016
- Gaylord Sept. 14, 2016
- Kalamazoo Sept. 19, 2016
- Grand Rapids Sept. 20, 2016
- Saginaw Sept. 21, 2016
- Lansing Sept. 23, 2016
- Detroit Oct. 24, 2016

Researchers used a standard presentation to frame the discussion for each group. **Appendix B: Regional Workshop Presentation** includes the presentation used.

In each subject area during the three-hour sessions, participants identified successes, obstacles to success, and general visions for the future.

Facilitators guided participants through a series of subject areas from the Michigan TIM Action Plan, including:

1. Increased effective use of high-visibility apparel, practices, guidelines
2. Expanded Mi-TIME training to be inclusive of all disciplines
3. Flexibility in continuous attention to changing needs of Mi-TIME training
4. Public outreach and public understanding of Move Over Law

The FHWA TIM Self-Assessment question bank also guided the discussion in general areas of strategic activities, tactical activities, and support activities.

Summaries of each workshop in the following sections focus on strengths, opportunities, and needs.

Marquette Workshop

The initial workshop brought together six responders, law enforcement, fire/rescue, and emergency medical services, from a wide section of the western and central Upper Peninsula.

The themes that came from the workshop were that teamwork and trust were evident and were keys to success. Mi-TIME training targeting all response disciplines was also part of the discussion.

Participants cited local acceptance and leadership as keys to training success. Some departments completed training and others were still strategizing ways to complete.

Discussion focused on taking the cooperative attitudes and continuing to build communication and inclusion of all disciplines in all training dates.

Strengths

- TIM training is being conducted in the region
- Michigan State Police (MSP) have mandated TIM training be completed
- There is a detailed, communicated pre-emptive closure plan for M-28 based on specific weather conditions
- Positive, cooperative attitudes among community organizations are evident (example: “We know and trust each other. We trust others to do their stuff.”)

Opportunities

- Processes for After Action Reports (AARs) can be improved
- TIM training should be coordinated with MSP to maximize shared opportunities
- Include media in Mi-TIME training to enhance media understanding
- Share video with responders and agencies who indicate they need it
- Use Captain Clear-It at welcome centers, other opportunities to get more exposure to the message

Needs

- Grant funding for Personal Protective Equipment (PPE)
- Policies for High-visibility apparel (collected in toolkit welcomed)
- Maps of local roadways for tabletop exercises
- Continuing or Professional Education credits for training
- Electronic flares
- Traffic control equipment
- High-visibility Vests
- Signs for advance warning

St. Ignace Workshop

The second workshop drew seven participants representing law enforcement, fire/rescue, Emergency Medical Services (EMS), MDOT and bridge operations.

The themes that came from the workshop were that necessity of traffic operations on the Mackinaw Bridge drives response planning, support, and tactics. Rural issues were also evident, including the need to cope with slow response in some areas.

The discussion focused on building on existing good communication among responders and building an engaged, educated community of motorists.

Strengths

- Communications are interoperable (including radio for Coast Guard)
- Mi-TIME training is being conducted regularly
- There is great cooperation among agencies
- Sheriff is a TIM champion, Mi-TIME instructor, and influential in his community
- Plans for bridge maintenance and closures are known and shared

Opportunities

- Improve the AAR process and invite more agencies when AARs are done
- Include media in Mi-TIME training to gain their support
- Share video with responders and agencies who need it
- Get information to motorists about locations (mile markers), especially with the rural applications in the Upper Peninsula
- Leverage Michigan Law Enforcement List Serve for contacts, AAR surveys
- Include TIM in social media approaches
- Include TIM in Firefighter/EMT classes
- Sheriff willing to present at Traffic Safety Summit conference
- Have Communications Centers/Dispatch more involved in TIM and AAR
- Conduct Mi-TIME training in evening and on weekends for volunteers
- Eliminate over signage to reduce distractions
- Promote insurance rate advantages after training for towing, other responders
- Promote driver education

Needs

- Green lights for visibility in snow
- Radios
- Seat belt convincer availability
- Push bumper training and policies

Gaylord Workshop

The third workshop drew 14 participants, representing law enforcement, fire/rescue, EMS, and MDOT operations.

Many positive comments about the existing program and opportunities to grow within the region were voiced. New ideas advanced through active DOT operations including detour planning received positive feedback. Leveraging information sharing will be advantageous to advancing the TIM practice.

Responder agencies stressed high-visibility activities and equipment, including the importance of policy and practice.

Strengths

- TIM training is being conducted and trainers are enthusiastic
- There is good cooperation among agencies
- There appears to be a strong commitment to the use of high-visibility apparel

Opportunities

- AAR process can be improved to leverage partnerships
- Include trucking, utilities, contractors, driver educators, CPR instructors, insurers in TIM activities
- Train volunteer responders about the need to limit/control vehicles at incident scene
- Improve communication with TOC/Communications Centers/Dispatch
- Promote planned detour routing and sharing of those routes
- Promote use of Incident Command System (ICS) and ICS Training in TIM programming
- Include links to Mi-TIME website on EMS, other agency sites
- Include TIM messaging on plastic bags that can be used by others with fillers of their desire (fairs, schools, e.g.)
- Expand tabletop exercise schedules, with meaningful scenarios

Needs

- Pink emergency signs
- Portable dynamic message signs
- Policies for high-visibility apparel
- Traffic control equipment
- High-visibility vests
- Towing procedures that promote TIM
- Ability to control forward facing lights
- Mi-TIME Train-the-Trainer course that recognizes existing trainers' abilities

Kalamazoo Workshop

The MDOT office in Kalamazoo hosted the fourth workshop. Eighteen people attended representing law enforcement, fire, towing, transportation, EMS, MDOT and 911 communications.

This workshop focused on how to achieve increased information sharing about incidents with all partners.

The active involvement of MDOT personnel on scene, and the positive things that happen when all partners are united on scene were themes for this workshop.

Strengths

- TIM training is being conducted and MSP is an active partner
- Cooperation among agencies seems good
- 911 Center was represented at workshop
- EMS representation was good
- Improvement in use of ICS / Unified Command over past few years is evident

Opportunities

- Include driver educators, motorists, insurance, utilities, trucking, tribal agencies in all activities
- Work with volunteer fire companies to improve response
- HazMat /Environmental contractors don't always participate in TIM
- Promote TIM at local and regional conferences
- Include Association of Public Safety Communications Officials (APCO) in training and meetings
- Promote Driver Removal law to responders and motorists
- TIM issues are cultural across disciplines and should be recognized
- MDOT does not know about all crashes; improved communication is important
- Include Medical Examiner in meetings and training
- Promote planned detour routing: 911 Center should have routing
- Captain Clear-It, female counterpart can be used at Welcome Center and events

Needs

- Equipment can be pre-staged and sheltered in inclement weather
- Electronic Total Stations for all MSP posts
- Gates could be used to block freeway ramps due to closures / weather
- More traffic control trailers for maintenance would be helpful
- Portable dynamic message signs would be helpful
- Freeway Service Patrol should be considered
- Inter-agency partnership to share data
- Push bumpers and guidance on use
- Remove freeway walls and widen shoulders whenever possible

Grand Rapids Workshop

The MDOT office in Grand Rapids hosted the fifth workshop. Ten attended with a mix of emergency dispatchers, towing, MDOT, law enforcement, and fire personnel.

The group focused on identification of new opportunities to leverage progress in expanding the program.

The presence of the DOT Traffic Operations Center led to discussion of opportunities to improve the communications process among all stakeholders resulted.

Strengths

- TIM training is being conducted in multi-disciplinary settings
- Cooperation among agencies is very good.
- Improvement in use of ICS / Unified Command over past few years is evident

Opportunities

- Provide TIM training for construction personnel
- Provide training for response in blizzard conditions
- Meet with 911 Communications Dispatch Centers
- Create more TIM champions
- Work toward 24/7 resource availability
- Consider Traffic Operations Center as a first call for responders
- Use social media better to engage public
- Embrace safety technology of connected vehicles
- Consider expansion of the use of truck-mounted attenuators
- Public education may be done through community organizations
- Improve road commission response time

Needs

- Policies for towing during weather events
- Funds to employ new technology

Saginaw Workshop

The MDOT office in Saginaw hosted the sixth workshop. Seven responders from 911, fire, police, and MDOT comprised the attendees. This workshop was the site of one of the largest discoveries of the workshop process – the monthly public safety meeting in Saginaw County.

Public safety communications professionals articulated a strong commitment to training in this meeting.

Strengths

- There is currently a monthly public safety meeting conducted, and there is a discussion of transportation issues
- TIM training is being conducted at many levels
- 911 Center represented at workshop
- All dispatchers in St. Clair County have received Mi-TIME training
- 911 dispatchers are asking drivers to move vehicles from roadway
- Improvement in use of ICS / Unified Command over past few years is evident
- Saginaw Fire Chief is supportive of TIM and will promote training
- Bridgeport Fire Department has purchased equipment with TIM scene safety and blocking in mind

Opportunities

- Communication center should always be advised of incidents and status
- Include the public, public works and insurance companies in approaches
- Emphasize TIM in monthly Saginaw County Media-Public Safety meetings
- Address appearance that firefighter safety is slowing the clearance process
- Work with volunteer fire to improve response
- Promote TIM at local and regional conferences
- Promote planned detour routing / 911 Center and TOC should have routing
- Promote use of high-visibility apparel to law enforcement
- Agencies are using colored tape to visually identify status of vehicles checked on highway (vehicle triage concept came from AAR)
- Promote TIM at dispatcher / communications conferences

Needs

- Trailer with equipment and arrow board would be helpful
- Fire chiefs are putting a trailer together for Temporary Traffic Control (TTC)
- Enhanced mile markers would make a difference
- Tabletop exercises will improve coordination
- Set a specific speed limit for TIM scenes

Lansing Workshop

The MDOT Aeronautics Auditorium in Lansing hosted the seventh workshop. Twelve attended representing law enforcement, fire/rescue, emergency medical services, towing, and MDOT operations.

The discussion centered on expansion of education programming, for responders, and for the public. There was a discussion of educating on secondary crashes. Attendees also discussed formalizing leadership and ownership roles of the TIM program.

Strengths

- TIM training is being conducted, and includes dispatchers
- Improvement in use of ICS / Unified Command over past few years is evident
- Cooperative attitude is apparent
- Policies on mandatory use of high-visibility apparel exist
- Scene lighting guidance exists

Opportunities

- Establish AAR standards, policy, procedures
- Share video with responders and agencies who need it
- Establish more top down ownership for TIM
- Promote mutual understanding of discipline roles in incident management
- Communicate with the public about their roles
- Educate more on secondary crashes
- Work with firefighter training council on approval for Mi-TIME classes

Needs

- Trailer with equipment and arrow board
- Tabletop exercises
- Pay for TIM trainers
- Virtual ICS training
- Investigate use of drones

Detroit Workshop

The Southeastern Michigan Traffic Operations Center in Detroit hosted the eighth workshop. A total of 14 participated representing planning, MDOT, law enforcement, TMC/TOC, and fire/rescue.

The discussion centered on safe, quick clearance, interoperable systems and alerts among agencies. Discussion also included expansion of effective planning, leveraging the success of planning for planned events, including construction.

This workshop featured an in-depth discussion of the reluctance of law enforcement personnel to wear high-visibility apparel. The discussion included making the apparel more comfortable, and easier to wear. Discussion also occurred regarding using public outreach about high visibility to make it more expected and more acceptable.

Strengths

- Improvement in use of ICS / Unified Command over past few years is evident
- Southeastern Michigan Traffic Operations Center in Detroit is state of the art
- Macomb County TOC is state of the art and effective
- Medical examiner is involved in TIM discussion; it enhances response
- Computer Aided Dispatch (CAD) programs are being updated with “Call MDOT” button
- Planning, when done, is accepted and gives those involved a standard to assess in After Action Reviews

Opportunities

- Include Public Works in Mi-TIME Training
- Share real-time video with responders and agencies who need it
- Include public, public works and special event representatives as stakeholders
- Include discussion of TIM in meeting agendas
- Work with volunteer fire departments to promote and provide Mi-TIME training
- Promote planned detour routing / 911 Center and TOC should have routing
- More collaborative meetings / involvement of all stakeholders
- Address law enforcement agency resistance to high-visibility apparel
- Expand on the strengths of construction work zone planning

Needs

- Better quality high-visibility vests
- Program to make responders want to wear high-visibility apparel
- Driver education starting at early age
- Laws and enforcement to gain motorist compliance with laws
- Back of queue protection program and equipment
- Captain Clear-It and female counterpart for Welcome Center and events

4. Regional Workshop Findings

Although attendance at each location was not always high, invitations focused on regional leaders representing different TIM disciplines. Overall attendees engaged and appeared encouraged about the prospect of continued and heightened emphasis on TIM by MDOT. This effort also had a side effect on the Mi-TIME program overall, helping create activity, providing new engagement content, and helping emergency responders across Michigan feel like they had a voice in the future of TIM.

Table 3 shows consolidated strengths and needs based on fundamental areas of statewide TIM programs.

As the table shows, the Michigan TIM program is at risk in the area of sustainability and institutionalization. The needs are mostly equipment related, suggesting Michigan responders need help getting the resources they need. In addition, there was almost no awareness of activities completed by MDOT or others targeted at driver outreach and education.

The results of the regional workshops suggest that MDOT and its partners should focus on sustainability and institutionalization as well as outreach and education. It is important that partners understand the outreach campaigns implemented so they can help improve message dissemination.

Table 3 Strengths and Needs Identified in Regional Workshops

TIM Program Area	Strengths	Needs
Legislation and Leadership	• There appears to be a strong commitment to the use of high-visibility apparel • Scene lighting guidance exists • Investigate use of drones	• Policies for high-visibility apparel • Push bumper training and policies • Towing procedures that promote TIM • Inter-agency partnership to share data • Freeway Service Patrol expansion should be considered • Policies for towing during weather events • Funds to employ new technology

Table 3 Strengths and Needs Identified in Regional Workshops		
TIM Program Area	Strengths	Needs
Program Sustainability and Institutionalization	• There are detailed response plans for critical areas • Positive, cooperative attitudes among community organizations are evident • Communications are interoperable (including radio for Coast Guard) • There is currently a monthly public safety meeting conducted, and discussion of transportation issues • Fire Department has purchased equipment with TIM scene safety and blocking in mind	• Grant funding for Personal Protective Equipment (PPE) • Traffic control equipment • Electronic flares • High-visibility vests • Signs for advance warning • Green lights for visibility in snow • Radios • Seat belt convincer availability • Pink emergency signs • Portable dynamic message signs • Ability to control forward facing lights • Equipment pre-staged and sheltered in inclement weather • Electronic Total Stations for all MSP posts • Gates could be used to block freeway ramps due to closures / weather • More traffic control trailers for maintenance would be helpful
Practitioner Capacity Building	• TIM training is being conducted • Dispatchers have received Mi-TIME training • 911 dispatchers are asking drivers to move vehicles from roadway	• Maps of local roadways for tabletop exercises • Continuing or Professional Education credits for training • Mi-TIME Train-the-Trainer course that recognizes existing trainers' abilities • Improvement in use of ICS / Unified Command over past few years is evident • Tabletop exercises • Pay for TIM trainers • Virtual ICS training
Outreach and Education	• 911 Center represented at workshop	• Target the public safety communications professional community • Continue to work with drivers on understanding Steer It, Clear It • Enhance outreach on importance of high visibility garments

5. Visioning Session Overview

In addition to the regional workshop, researchers also conducted a visioning session. Attendees at the workshop represented agencies and other partners from a statewide perspective. Session facilitators provided a summary of the TIM Action Plan Goals, results of regional workshops, and guided brainstorming sessions to determine the best way forward. The presentation materials and results of brainstorming activities are included in **Appendix C: Visioning Workshop Presentation**.

Review of TIM Action Plan Goals

Initial research activities created strategies on how to improve TIM across Michigan through outreach and education of safe quick clearance laws. Ultimately several specific, measurable, action-oriented, reasonable and time-based (SMART) goals resulted. **Table 4** shows progress on these goals.

Table 4 Michigan SMART TIM Goals	
Goal	Current Status
Increase compliance with high-visibility apparel requirements through education for all 'workers' at a traffic incident from 59% to 75% by December 31, 2014. **Increase compliance with high-visibility apparel requirements through education for all 'workers' at a traffic incident to 100% by December 31, 2016.**	• Data from 2014 Results • Overall 62.6% • Law Enforcement 54.1% • Fire 60.0% • Transportation 96.8% • Towing 78.1% • EMS 65.1% • Other 40.7%
Through a targeted public education campaign, increase awareness of the Steer It, Clear It Law, with public from 13% to 50 % percent by September 30, 2016.	• Many activities completed to increase the awareness such as Captain ClearIt, a mascot for the campaign, social media, brochures and more.
Pass legislation for the Hold Harmless law through agencies and association support during this legislation period by December 31, 2014.	• Passed October 14, 2014 • In Effect January 7, 2015
Implement SHRP 2 TIM Train the Trainer (TtT) program with 120 trainers trained by December 31, 2014. **Implement the SHRP 2 TIM TtT program with 1,500 first responders trained by December 31, 2016.**	• Michigan has 159 trainers as of October 2016. Goal achieved on September 25, 2017 with 128 instructors. • Reached the 1,500 responders trained goal June 2015
Continue Mi-TIME training to train 20% (6,500) of the first responder community by December 31, 2016.	• 4,518 Trained as of October 2016

Michigan government agencies have made roadway safety a priority through a Strategic Highway Safety Plan (http://www.michigan.gov/documents/msp/SHSP_2013_08_web_412992_7.pdf). The Mission, vision, and goals of the plan emphasize the importance of roadway safety in Michigan.

MISSION: Improve traffic safety in Michigan by fostering effective communication, coordination, and collaboration among public and private entities.

VISION: Toward Zero Deaths on Michigan Roadways

GOALS: Prevent traffic fatalities from reaching 967 in 2018; Prevent serious traffic injuries from reaching 4,600 in 2018.

Reducing the impact of traffic crashes is important to the Michigan economy as well. According to Michigan's 20-Year Freight Forecast, more than 290 million tons of freight moved by truck in 2009 with an expected increase of more than 55 percent by 2030.

Suggested Mi-TIME Focus Areas

A review and summary of the regional workshops previously described helped set the stage for identifying the future of the Mi-TIME program.

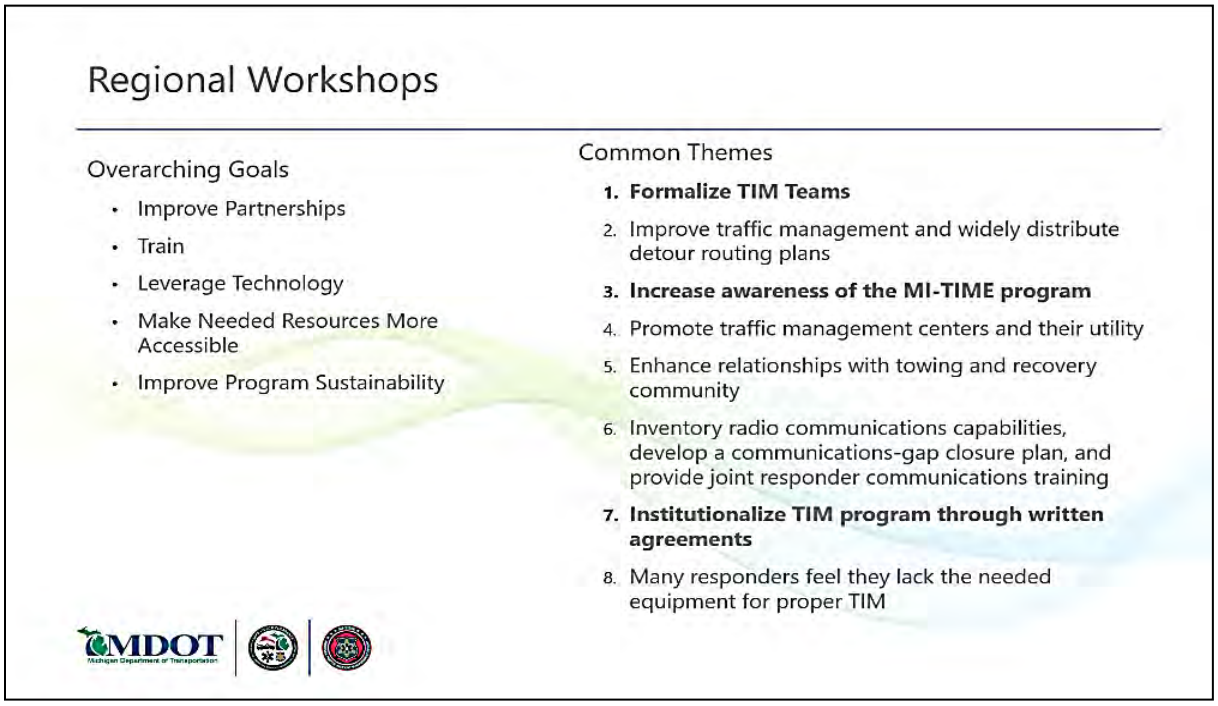


Figure 1 Regional Workshop Summary for Statewide Meeting

After a review of the regional workshops and discussion on the overarching goals shown in Figure 1, attendees divided into small, multidiscipline groups. Facilitators setup a station for each overarching goal while each small group rotated to each station. At each station, facilitators instructed small group members to identify strategies for obtaining each overarching goal. The following list shows the results of this brainstorming activity.

Improve Partnerships

- Develop a focused and efficient process for After Action Reviews

- Foster an environment where all partners have a voice in improvement
- Focus on improving radio communications with towing and recovery partners
- Promote TIM in all organizations as a core function
- Develop procedures that allows for efficient resource sharing
- Create multi-discipline crash teams
- Integrate medical examiners as core team members

Training

- Continue to support the delivery of multi-discipline training
- Brand the training effort as part of the Mi-TIME program
- Provide targeted training regarding towing operations during peak periods and weather events
- Make training talking points available to non-trainers
- Distribute information to motorists about what to do when they are involved in a crash
- Incorporate the Towards Zero Deaths Initiative into training so emergency responders can understand it more clearly
- Provide targeted training regarding roles and responsibilities for each discipline before, during and after an event
- Create a quick access guide for emergency responders and dispatch centers

Leverage Technology

- Create and link dispatch and monitoring systems
- Improve the understanding and use of interagency radio communications
- Develop a social media integration plan (both as a push and a pull)
- Understand connected vehicle technology, how to respond to these vehicles, and how to use these vehicles to improve response
- Create a common resource location and sharing tool
- Improve the Mi-Drive program to include 24/7 recovery system
- Promote new traffic camera access for emergency responders

Make Needed Resources More Accessible

- Develop resource staging plans for all hours of the day for high-impact areas
- Consolidate mutual aid agreements into a central repository and execute agreements where gaps exist
- Compile and share funding opportunities
- Make grant writing expertise available

Improve Program Sustainability

- Expand the performance management program to include secondary crashes, and other related measures

- Develop and maintain a business case document that includes focus on legislative, public, agency, stakeholder, and private sector roles and responsibilities
- Memorialize agency commitment and resource allocations
- Integrate TIM training into other sustained training opportunities
- Affirm the commitment to multi-discipline program delivery

Mi-TIME Vision

It is important that all partners share a cohesive vision for what the program is about and what it hopes to achieve. Performance management will help guide the delivery of the program, but the vision will serve as the rally point for progress. The vision statement below resulted from input from the attendees on what they thought were the program's greatest strengths and opportunities.

Create an effective Mi-TIME program by supporting a community of practice and promoting public education that leads to safe, quick clearance of roadway incidents.

Mi-TIME Objectives, Strategies, and Critical Success Factors

Based on regional needs and brainstorming, the meeting attendees identified revised SMART Objectives, strategies to achieve those objectives and critical success factors. Understanding the strengths and opportunities of the Mi-TIME program, establishing the goals and objectives of the program, and having a vision are all necessary ingredients of success. However, stakeholders and program participants should expect minimal success if critical success factors are not in place.

The following summaries (**Tables 5-9**) show the overarching goal, revised SMART objectives, strategies and critical success factors.

Table 5 Summary of "Improve Partnerships" Category		
SMART OBJECTIVES	STRATEGIES	CRITICAL SUCCESS FACTORS
• **Focus on incident clearance duration. Collect data, establish a baseline, and develop a management strategy for each region.** • **Conduct After Action Reviews on 20 percent of secondary crash incidents and high impact incidents to capture opportunities or best practices.**	• Formalize TIM Teams. • Enhance relationships with the towing and recovery community. • Integrate medical examiners as tier 2 team members. • Create multi-discipline crash teams	• Each agency must commit to institutionalizing its participation. • All disciplines must maintain professional standards by which it "professionalizes" TIM. • An archiving, information sharing, and process to create a common operating picture must exist to avoid re-work and the loss of tacit knowledge.

Table 6 Summary of "Train People" Category		
SMART OBJECTIVES	STRATEGIES	CRITICAL SUCCESS FACTORS
• **Through a targeted public education campaign, increase awareness of the Steer It, Clear It Law, with public from 47% to 65% percent by September 30, 2022.** • **Increase compliance with high-visibility apparel requirements through education to 75% by December 31, 2019.** • **Continue Mi-TIME training to train 70% of the first responder community by December 31, 2022.**	• Brand the training effort as part of the Mi-TIME not as entire program. • Provide targeted training regarding changes to towing operations during peak periods and weather events. • Make trainer talking points available to non-trainers. • Distribute information to motorists about what to do when they are involved in a crash. • Incorporate the Towards Zero Deaths Initiative into training so emergency responders can understand it more clearly.	• Maintain a specific effort to ensure that the most updated information is always available including a current list of people needing information. • A pool of trainers must be maintained, educated and enthusiastic to continue training momentum. • Method to demonstrate return on investment established, shared, and understood. • Periodic availability of driver proficiency on TIM, as a way to drive emphasized training areas.

Table 7 Summary of "Leverage Technology" Category		
SMART OBJECTIVES	STRATEGIES	CRITICAL SUCCESS FACTORS
• **Demonstrate the value of technology investment for reducing incident duration by developing a real-time benefit-cost ratio that compares the cost of technology implementation, user delay, and traffic volumes.**	• Improve traffic management and widely distribute detour routing plans • Promote traffic operation centers and their utility • Inventory radio communications capabilities, develop a communications-gap closure plan, and provide joint responder communications training • Develop a social media integration plan (both as a push and a pull). • Improve the Mi Drive program to include 24/7 recovery system. • Promote new traffic camera access for emergency responders • Create a common resource location and sharing tool • Understand connected vehicle technology, how to respond to these vehicles, and how to use these vehicles to improve response.	• Intelligent transportation system device uptime goal of 95% • Concentrated research and development to create a pipeline of new and available technologies • Adequate funding that prioritizes TIM as a core TSMO function.

Table 8 Summary of "Make Needed Resources More Available" Category		
SMART OBJECTIVES	STRATEGIES	CRITICAL SUCCESS FACTORS
• **Identify and select additional resource staging areas in each region to address existing geographic or need-based gaps by 2020.** • **Use existing agreements as the basis for growth in acknowledgements of cooperation and collaboration.**	• Develop TIM resource lists using ICS “typing” fundamentals. • Develop resource staging plans for all hours of the day for high-impact areas. • Consolidate mutual aid agreements into a central repository and execute agreements where gaps exist. • Compile and share funding opportunities. • Make grant writing expertise available.	• Program funding that make realistic delivery of products and services possible.

Table 9 Summary of "Improve Program Sustainability" Category		
SMART OBJECTIVES	STRATEGIES	CRITICAL SUCCESS FACTORS
• **Expand the Mi-TIME Program by September 2019 by increasing the number of people at MDOT focused on program implementation.**	• Establish written agreements with other agencies • Expand the performance management program to include secondary crashes, and other related measures. • Maintain the business case that includes focus on legislative, public, agency, stakeholder, and private sector roles and responsibilities. • Fund at least one TIM Coordinator position in each region. • Expand the compliment of central office TIM positions. • Implement the suggestions presented in the TIM business case.	• Continued buy-in and commitment to support from senior leadership. • Incentivize participation through funding. • Performance metrics that demonstrates fiscal responsibility.

6. Business Case for Michigan Traffic Incident Management

Since the inception of the Mi-TIME program in 2014, partners have focused on improving safety of TIM practitioners through practitioner capacity building and public education and outreach. More than 275 Mi-TIME training sessions have empowered more than 5,727 responders with 278 training sessions in just over three years. The primary implementation method involves volunteers taking on TIM as an "extra" job function. MDOT currently dedicates 2.25 full time equivalents (FTEs) to TIM.

Not counting coordination for work zones, planned special events, and weather emergencies Michigan first responders hold an estimated 670 hours of emergency coordination meetings annually across 83 counties.

The job of TIM for MDOT employees is large. Each of the 83 counties in Michigan maintain a Local Emergency Planning Committee (LEPC). Transportation is one core function of each LEPC. In some counties MDOT maintenance personnel represent the agency. In addition, each of MDOT's seven regions is implementing TIM differently. Some areas, mainly urban, are quite organized and emulate national dialogue on the subject. In other regions, mainly rural, TIM is implemented ad-hoc based on champions. Due to the size of the need, the Mi-TIME program needs to expand and become formalized. In 2012, the Federal Highway Administration held a Senior Executive Transportation and Law Enforcement Safety Summit. Summit attendees included representation from 35 states including Michigan. The result of the summit led to the establishment of four overarching program areas for TIM in the United States.

1. Legislation and Leadership – representing laws, regulations, and high-level agency cooperation for the advancement of TIM.
2. Institutionalization and Sustainability – representing agency policies, funding, and resources for the long-term implementation of TIM programs.
3. Practitioner Capacity Building – embodying the need to train current and future TIM professionals across a variety of subjects for responder safety and safe quick clearance.
4. Outreach and Education – Signifying the need to continually communicate the TIM message with drivers and others who can assist with improving TIM.

The Mi-TIME program currently addresses aspects three and four of the national vision and in specific cases has addressed portions of aspects one and two. The ability to improve TIM in Michigan will be possible by expanding the program to include more full involvement of aspects one and two. Providing a communication framework that encourages two-way information flow from local to statewide is the key to institutionalizing TIM as shown in **Figure 2** below.

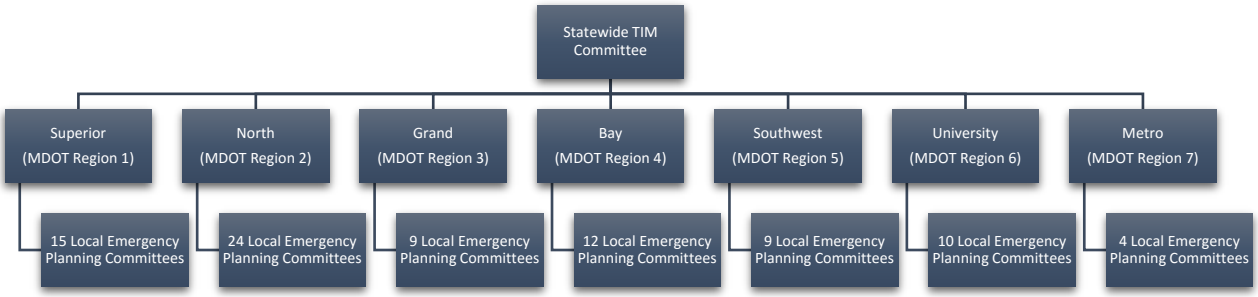


Figure 2 Formalized Michigan TIM Structure to Encourage Information Flow

Create a Statewide TIM Committee

The current TIM Action Team has achieved great progress. The next step is to expand the reach of the action team by initiating a new team that invites the formal participation of other TIM groups, structured as suggested in **Figure 2**. The TIM Action Team can function not only as a direct report to the Governor's Traffic Safety Advisory Commission (GTSAC), but also to the response community involved in TIM planning, preparedness, tactical response, support, and recovery. Although the TIM Action Team will remain independent to achieve the requirements outlined, researchers suggest formation of an executive leadership committee called the Statewide TIM Committee. As the GTSAC moves forward, there may be discussion of merging the two committees. However, in the short-term, taking this formalized step to create a formal structure that is inclusive of groups in **Table 10** can increase the effectiveness of key messages, help responders get answers to localized issues from a statewide perspective, and perhaps access to statewide resources faster, while improving overall performance.

Table 10 TIM Partner Tiers		
Tier	Partner	Reason for Designation
Tier 1 Response Activity	• Law Enforcement • Fire • EMS • Transportation • Towing and Recovery	• Regulatory authority of scene management • First response or only response
Tier 2 Active Support	• Emergency Management Agencies • Medical Examiner • HAZMAT Recovery • Cities and Towns • LEPCs	• Regulatory authority for portions of recovery • Secondary response • Adjacent impacts • Coordination responsibilities
Tier 3 Passive Support	• Media • Universities • Consultants • Freight Industry • Equipment providers and vendors • Data providers • LTAP Program • Industry Associations • Other States • Traveler Services Organizations	• No regulatory authority for scene management • Contributing partners • Source of education and program enhancement

Together the members of the Statewide TIM Committee will work to achieve the six goals shown in the figure below. They will work with representatives of the seven regional steering committees previously outlined in **Figure 3**. At each level, statewide, regional, and local steering committee leadership should consist of the most senior officials possible, empowered to make decisions on behalf of the organizations they represent.

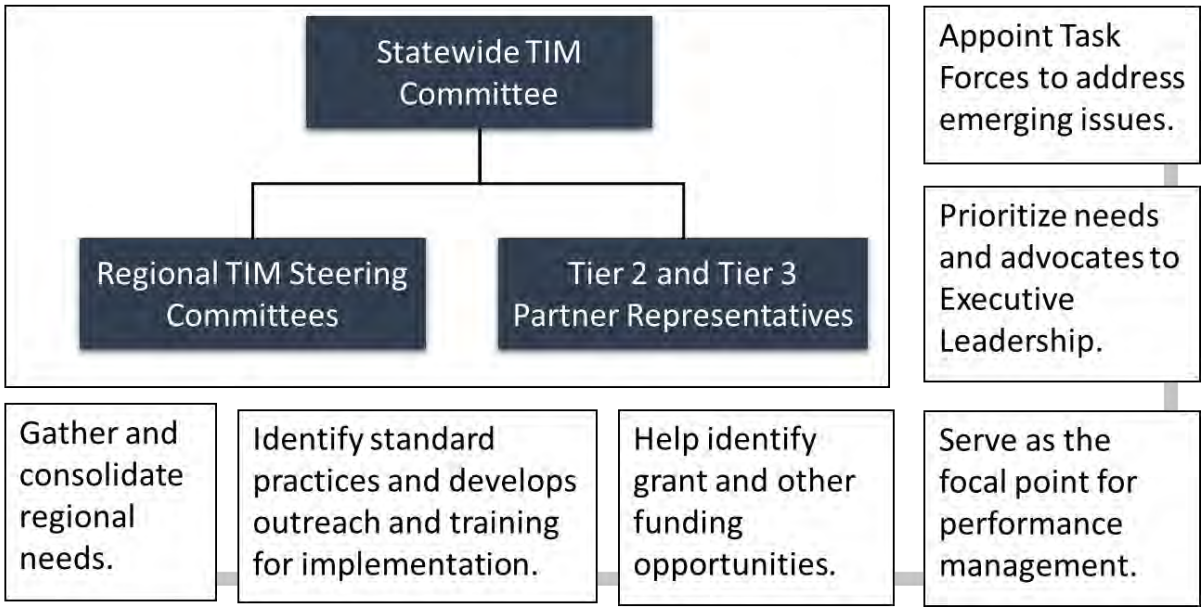


Figure 3 The Statewide TIM Committee's Six Goals

Regional TIM Steering Committees

In states such as California, Texas, Pennsylvania, and North Carolina, metropolitan planning organizations (MPOs) have taken the lead on TIM facilitation. In most cases this arrangement has been a success because convening groups to discuss issues important to the citizens they represent is a core function. Michigan can use its State Planning and Development Regions (SPDRs) to emulate national best practices. Available resources may vary by SPDR however all aim to spend public money in the most responsible way possible. Considering Transportation System Management & Operations (TSM&O) solutions such as TIM is key way to help stretch thin amounts of funding. MDOT should coordinate with the SPDRs as they align with MDOT regions to align resources and support from dedicated regional TIM coordinators. **Table 11** indicates the framework for regional TIM steering committees.

Table 11 Regional TIM Steering Committees

Category	Description
Roles and Responsibilities	• Establish an executive committee of tier 1 partners that meet regularly. • Convene quarterly steering committee meetings to include tier 2 and tier 3 partners as appropriate. • Identify representatives from each LEPC or other local TIM team. • Identify and recommend funding regionally significant TIM projects through the long-range planning, congestion mitigation, and annual work plan processes.
Bottom-up Activities	• Gather and prioritize local needs for equipment, supplies, training, etc. • Provide a forum for responders to voice concerns and discuss best regional practices. • Consolidate After Action Reviews and identify trends
Top-down Activities	• Develop training delivery goals for regional implementation • Disseminate statewide policies and procedures • Coordinate with adjacent regions

Each region should appoint one primary and one secondary representative to the Statewide TIM Action Team.

Local Emergency Planning Committees (LEPCs) / Local TIM Teams

As noted in this section, Local Emergency Planning Committees (LEPCs) have a similar function as TIM Teams and are required by federal law and administered in Michigan by the Department of Environmental Quality, specifically to include evacuation route planning for facilities covered under federal and state regulation. In areas where formal TIM teams exist, consider linking those teams with the local LEPCs. In areas where local TIM Teams do not exist, work with LEPC coordinators to add TIM as a focus area within the transportation responsibility. Then, work to link the LEPCs to the regional TIM Steering Committees and SPDRs. This will provide coordination among funding sources and local emergency preparedness activities.

Local TIM teams or LEPCs should have some specific responsibilities as shown in **Table 12**.

Table 12 Local TIM Teams or LEPCs

Category	Description
Roles and Responsibilities	• Establish an executive committee of tier 1 partners that meet regularly. • Convene quarterly meetings to include tier 2 and tier 3 partners as appropriate. • Identify locally significant TIM projects through emergency preparedness planning. • Administer training • Promote compliance with high-visibility requirements • Maintain an open communication dialog between Tier 1 and Tier 2 county resources.
Bottom-up Activities	• Gather and prioritize local needs for equipment, supplies, training, etc. • Conduct After Action Reviews

Funding

Michigan DOT provides 2.25 FTEs for TIM coordination. To fully achieve expansion of the Mi-TIME program and achieve current and future SMART Goals, consider additional funding for personnel support and specific project completion.

- Michigan DOT Compliment
  - Increase staffing to five FTEs at Michigan DOT Headquarters for statewide coordination.
  - For planning purposes assume an annual operations budget of $500,000 for direct salary.
    - Statewide TIM Engineer
    - TIM Equipment and Resource Provisioning Coordinator
    - Statewide TIM Team Coordinator
    - TIM Work Zone Coordinator

        - TIM Performance Analyst
    - Provide seven FTEs for Regional TIM Coordinators, located at each MDOT region offices.
    - For planning purposes assume an annual operations budget of $700,000 for direct salary.
- Program Funding
    - Provide dedicated MDOT funding using a system that rewards performance with set minimum and maximums.
    - Performance management is an important aspect of TIM. Most practitioners agree that communication and coordination ultimately result in improvements of key TIM measures of incident duration, roadway clearance time, secondary crashes and responder struck-by/near-miss events.
    - Regional TIM performance measures should be focused on outputs such as:
        - Percentage of regional responders participating in TIM Team activities
        - Percentage of annual After-Action Reviews completed as defined by the AAR Implementation Guide
        - Percentage of responders wearing high-visibility apparel based on a statistically significant annual sample.
        - The funds provided to each regional TIM steering committee should flow down to the local level using the same performance measures and a percentage of award funding mechanism.
        - Grants or funding
        - Fund the baseline program at $5,000,000 starting Fiscal Year 2019. Split evenly this would provide just over $700,000 to each region. However, based on performance measure achievement the amount could vary.
    - Focus statewide TIM performance measures on outcomes to align with other TSM&O Program objectives such as travel time reliability. To provide the TIM portion of TSM&O performance management, track the following output measures. Reference the Traffic Incident Timeline.
        - Time of Scene Arrival – Time of Dispatch of Tier 1 responders
        - Time of last response unit to leave the scene - time of Scene Arrival of the first response unit
        - Time of all lanes open for travel (roadway clearance) – Time of verification
        - The statewide TIM committee should agree on targets for these measures. If the program achieves annual targets, provide an additional $2,000,000 to the program, targeting the lowest achieving regions for improvement, and rewarding high

performers for performance. Pilot project funding could come from this budget line item as well.

Table 13 summarizes the funding suggestions to evolve the Mi-TIME Program.

Table 13 Initial Mi-TIME Funding Expansion	
Initial Mi-TIME Expanded Funding	
Category	Annual Amount
Mi-TIME Personnel Costs	$1,200,000
Regional Mi-TIME Funding	$4,500,000
Annual Mi-TIME Training	$500,000
Performance Bonus & Pilot Funding	$5,000,000
Total Annual Funding	$14,200,000

The Statewide TIM Action Team can develop specific criteria for funding eligibility, but it is anticipated that funding will be applied to ongoing costs associated with scene support to include TIM Team activities such as training, outreach and limited capital acquisitions of supplies associated with scene response.

MDOT included outreach to Michigan residents as part of research on safe quick clearance in 2012 and in 2017. The goal of the survey in 2017 was to gauge whether or not resident awareness of TIM increased over the five-year period and to collect new information for future use.

7. Summary of 2012 Resident Survey Results

The 2012 survey contained responses from 800 Michigan commuters, skewed toward residents who were in older age categories and higher levels of education, likely due to landline telephones used for data collection. The researchers used alternative weighting to address the issue, but the weighted results were not substantially different than the unweighted results. Researchers reported traditional media sources, such as radio and television, as the largest portion of traveler information sources in addition to dynamic message signs having the highest market penetration. The majority of respondents were not aware of Mi Drive and MDOT social media sites (74 percent and 90 percent, respectively). Also, the 2012 survey reported 72 percent of respondents were not aware of the Steer It, Clear It law but indicated that they would act in accordance with it. The result revealed that drivers over the age of 50, who live in rural regions, with a high school education or less, and who travel less frequently were less likely to be aware of the law or act in accordance with it. The results showed that the awareness of the Move Over, Slow Down law was higher than Steer It, Clear It law.

The 2012 research also resulted in the creation of Captain Clear-It. MDOT uses this character as part of informational flyers, brochures and other outreach materials to help

brand the program and raise awareness of TIM in Michigan. Researchers conducting the 2017 work updated used Captain Clear-It as part of outreach for the resident survey.

8. Summary of 2017 Resident Survey

The survey was developed to determine current levels of public knowledge regarding the Quick Clearance law and to help identify marketing and outreach strategies for informing the public. Additional questions were included which relate to the Move Over, Slow Down law. The current survey was designed to update the previous version for continuity (while enhancing shortcomings to improve the survey) and covered several key areas of interest, including:

- Demographic and travel characteristics of all respondents
- Awareness of the safe, quick clearance laws
- Regardless of awareness, reported occurrences of the public moving their vehicles off the roadway when drivable and absent of any injuries
- Traveler information sources used and desired by respondents, as well as media choice for traveler information
- Awareness of MDOT communication activities, as well as overall reception

The survey included 45 questions and took approximately 15 minutes to complete. See Appendix D for the complete survey. Researchers used an internet-based survey as the primary method, while also making a telephone version available in English, Spanish, and Arabic.

The overall survey focused on Michigan commuters over the age of 18, and included demographic variables such as age, gender, education, and race/ethnicity. A sample size of 1200 was determined in consultation with MDOT, which enabled a more robust segmentation by county and ability to aggregate media markets, MDOT regions, special populations, or other groupings. Researchers sent flyers to individual households requesting response, as well as two additional reminders. A website was provided that had additional information as well as the survey (which helped to verify legitimacy of the survey), and there was also a phone number for questions or survey completion (provided in English, Spanish, and Arabic). See Appendix D for an example mailed survey form and screenshots of the website.

Researchers used a stratified addressed-based sample (ABS) sample. By ordering the counties by decreasing number of occupied housing units, one can use a procedure based on the cumulated square- roots of the number of housing units to create the strata. This stratified design improves the precision of sub-state estimates involving the smaller counties and has approximately the same precision for statewide estimates.

The survey data underwent a weighting procedure. The process of weighting refers to the development of an analysis weight for each respondent. Analysis weights are necessary to achieve the survey objective of making unbiased inferences about the entire population. Without the weights, characteristics of the survey could result in

biased population estimates. See Appendix D for complete, step-by-step weighting procedure.

Demographic Summary

See Appendix D for relevant figures and tables. The gender distribution of the survey was 51.2 percent female, 48.4 percent male, which is close to the general distribution of population in the State (Census July 1, 2016 has 50.8 percent female, and 49.2 percent male). Age distribution skewed toward older residents as it was in the 2012 survey. The response rate is somewhat skewed to those with higher educational levels, also consistent with the 2012 survey. The general breakdowns of ethnicity parallel those of the state according to the 2016 Census, which had 79.6 percent White, 14.2 percent Black or African American, 5 percent Hispanic or Latino, and 3.1 percent Asian.

Travel Patterns

Almost ninety-nine percent of respondents reported traveling via automobile at least several days per week and at least 88 percent of the survey respondents reporting traveling regularly during all periods. See Appendix D for supporting tables and figures.

Media Usage

Approximately 45 percent of respondents make use of radio a few times a month or more, whereas use of TV is just below 32 percent. About 39 percent reported not using TV at all. Residents reported use of these sources, particularly radio, much more frequently in the 2017 survey than in the 2012 and 2010 ATIS surveys.

MDOT deploys portable dynamic message signs (DMS) for construction and travel time information. An overwhelming majority of respondents observed these messages. Travel time information was the most frequently observed message with (94.5 percent reportedly observed by respondents). 93.3 percent of respondents statewide observed the construction information. Appendix D contains regional breakdowns. Comparison with the 2012 survey results indicates generally increased awareness of DMS messages. For example, the percentage of respondents who reported observing travel times increased from 77 percent to 94.5 percent.

Over 89 percent of the sample reported owning a GPS device; 72 percent own one which displays traffic information while 17.1 percent own a GPS which does not. Overall ownership increased from 45 percent in the 2012 survey to 89.5 percent with virtually all of the increase occurring in devices that display traffic information (24 percent to 72.4 percent).

Approximately 28 percent of respondents reported being familiar with Mi Drive (roughly equivalent with 2012 totals). This potentially indicates a need for additional marketing and education. Among those who were familiar with Mi Drive, about 14 percent reported using Mi Drive more than a few times per month, 72.8 percent reported using it a few times per year, and 11.7 percent have never used it. Higher frequency of use increased slightly between 2012 and 2017 while the percentage of those reporting use a

few times per year increased substantially. For those respondents familiar with Mi Drive and who have used it, there was an indication of generally favorable experiences. Appendix D provides supporting tables, figures, and regional breakdowns.

Among those who have internet, about 15 percent reported they are at least aware of the Mi Drive app (and approximately 7 percent have used it), and amongst those users over 70 percent had a positive experience. Once again, there is an opportunity for marketing and education. Over 65 percent used it more than a few times a month.

Awareness of Steer It, Clear It Law

The vast majority of respondents (90.1 percent) would comply with the Steer It, Clear It law by moving their vehicle off the roadway. While relatively few respondents reported they would not comply with the law, this still represents a significant potential safety hazard. Identifying any distinguishing characteristics of this group can help determine the most effective outreach. Generally, there were limited differences between the two groups but several differences did emerge. There was a slightly greater tendency among drivers over the age of 50 to leave their vehicles in place after a crash. Those with high school degrees or some college and college degree are more likely to leave their vehicles in place as well. The Michigan Steer It, Clear It law does allow motorists discretion regarding whether to stay in the vehicle or have passengers exit. However, 71.5 percent of respondent said they would exit the vehicle.

As mentioned above, 90 percent of respondents would comply with the Steer It, Clear It law; however only almost half (47 percent) of them were either very aware or somewhat aware of the quick clearance legal requirement, with those over age 50 being less aware of the law than those under age 50. Appendix D provides regional breakdowns. Grand and Southwest region showed the lowest awareness of the Steer It, Clear It law.

It is interesting to note that the actual clear it action is greater than the knowledge of the law, likely a direct result of the action being seen as personally safer. Increasing knowledge of the law is likely less important than the actual reasoning for the law. Future education and outreach should consider this finding.

Awareness of Move Over Slow Down Law

The responses show that 87.2 percent of participants responded that they would slow down and move over as the law requires. But, almost 15% of respondents would either not slow down at all or only reduce their speeds by 1-5 mph.

A much higher percentage of respondents are aware of this legal Move Over, Slow Down Law requirement, with 84.4 percent reporting that they are either very aware or somewhat aware of the law. While most motorists are aware of the Move Over, Slow Down law, consider combining outreach with the Steer It, Clear It message when disseminating safety messages to the public. Interestingly, there has been a shift since the 2012 survey with fewer respondents being very aware and more being only somewhat aware.

Reliance on Traveler Information Sources

Most respondents still rely on traditional sources of information such as radio, television, and newspapers. Radio, social media, and television show a substantial increase since 2012. Thirty-nine percent of respondents reported use of smartphone apps. Radio news usage increased by 30 percent from the 2012 report and is the most commonly used source.

Awareness and Usage of Social Media

Usage of social media by respondents increased from 49 percent in 2012 to 90.1 percent in 2017, with Facebook by far the dominant web site (72.3 percent reporting usage). No other source was identified by more than 12 percent of respondents, except YouTube (41.2 percent usage rate). While general social media awareness was up from the 2012 levels, the survey showed that only 22.7 percent of respondents were aware of MDOT social media and 8.2 percent had used the websites.

9. Improve Michigan Responder Safety/High-Visibility Vests

A primary goal of TIM is improving the safety of responders on the roadway. High-visibility apparel helps on-scene responders by making them more distinguished from other background colors. The American National Standards Institute (ANSI) recommends effective colors and color patterns. The National Fire Protection Association (NFPA) and the Manual on Uniform Traffic Control Devices (MUTCD) adopt ANSI recommendations and release standards for use. Third party personal protective equipment (PPE) vendors incorporate the standards into products for purchase. Emergency responders should only purchase PPE from vendors that sell ANSI certified apparel to maximize safety and ensure compliance. The TIM Action Team set performance goals for ANSI certified PPE use to help raise awareness of this important aspect of TIM. The following toolkit helps bring renewed attention to the need for high-visibility PPE usage.

Be Seen, on Scene!

A toolkit to help responders understand, accept, and embrace high-visibility apparel

This “toolkit” includes resources to help any on-scene responder (public works, transportation, fire/rescue, towing/recovery, emergency medical services, hazmat, or law enforcement) increase the use of high-visibility apparel.

Resource	Audience	Notes
Brochure	All	Why “Be Seen, on Scene” is important
Sample policy	All	All-agency sample policy including exemptions
Audio scripts	Targeted	Interchangeable parts that can be recorded by any agency to share with its members
Video scripts	Targeted	Visual concept and script that could be used by an agency or association to encourage high-visibility usage
Talking points	All	Notes that may be helpful in convincing personnel
Social media ideas	All	Editable social media posts for disciplines
Outreach	All	Use of celebrity endorsers, special events ideas

High-visibility Apparel Brochure

Be seen on scene

High-visibility vests are required by regulation, and by law, in Michigan, for all workers at incidents.

These vests are not only required for first responders but also members of the media and others as well.

If your feet are on the street, your vest should be on your chest.

Vests can be augmented by leggings, pants, hats, caps, gloves, helmets, jackets, or shirts.

- The Manual of Uniform Traffic Control Devises (MUTCD) requires you to wear them when working an incident scene, involved in traffic control and related activities.
- The people you love expect you to wear them.

Whether you call them warning garments or safety apparel, they can be lifesavers on scene. Your families are counting on you!

Michigan's MUTCD says:

Every person in a work zone or temporary traffic control area must wear high-visibility apparel meeting the requirements of ANSI/ISEA 107-2015 Type R (Roadway) Class 2 and 3:

- On the road
- Along the road
- Exposed to traffic
- Exposed to work vehicles
- Exposed to responder vehicles

Law enforcement officers must wear high-visibility apparel when:

- Directing traffic
- Investigating crashes
- Working lane closures
- On obstructed roadways
- During disaster assistance

Responders are only exempt from the requirement when:

- Exposed to flame, heat, or hazard
- Doing potentially confrontational work

Wear it

- Wear it from the start of your shift; wear it all day.
- Keep it on the seat.
- Put it over your gear before you go.
- Keep an extra or two in your vehicle for forgetful partners.
- Put it on before you exit your vehicle.
- Think about your family when you put it on!

Standard Operating Procedure

INSERT NAME OF DEPARTMENT, UNIT, AGENCY

POLICY/STANDARD OPERATING PROCEDURE

High-Visibility Safety Apparel While Working In or Near Moving Traffic

PROCEDURE #:

EFFECTIVE DATE:

PURPOSE

The purpose of this Policy is to describe the required high-visibility apparel to be worn by personnel when working at an incident or event in or near moving traffic, construction vehicles, or emergency response vehicles. Incidents such as vehicle breakdowns, crashes, extrications, fluid spills, dangerous conditions involving weather, and fire activities are typical situations where this policy is applicable. Regardless of the cause, the presence of traffic and need to identify responders to one another and to the public is the guiding reason for creation, adoption, and enforcement of this policy. It is geared to enhance visibility and safety for responders.

BACKGROUND

On all roadways, the Michigan Manual on Uniform Traffic Control Devices (MMUTCD, 2011 Revised 2013) in chapter 6I.01 states, “All on-scene responders and news media personnel should constantly be aware of their visibility to oncoming traffic and shall wear high-visibility apparel.” Section 6E.02 requires traffic regulators, those actively involved in traffic control, to wear high-visibility apparel.

For incidents where exposure to the hazards of moving traffic are present for personnel working on foot, this policy can be summarized in the statement. “If your feet are on the street, your vest is on your chest.”

PROCEDURE

When a person is required to work in or near moving traffic, the following personal protective apparel shall be worn:

ANSI/ISEA 107-2015 Type R (Roadway) Class 2 and 3 apparel

(Note: Existing ANSI 107 and 207 apparel in good condition are still compliant)

If any person on scene, within the traffic management area, wears outerwear due to specific response needs or weather, the required vest or other high-visibility garment must be worn over (outside) the other outerwear.

All persons actively involved in traffic control (blocking vehicles, cone or flare setting, direction by sign or hand signals) must wear high-visibility vests, to increase the likelihood that they will be visible to motorists, and to other responders.

EXEMPTIONS

The exemptions for wearing a highway safety vest includes:

- Those directly involved in activities of exposure to high heat, and/or flames, or hazardous materials
- Law enforcement officers on traffic stops and similar potentially confrontational activities, while engaged in those activities.
- Exemptions end when the danger/exposure ends.

PENALTIES

[Insert how penalties might be addressed in your agency.]

Failure to wear appropriate high-visibility and/or other safety apparel may result in loss of benefits under the Workers Disability Compensation Act, if it is found that the injured party willfully disregarded this policy.

Audio Scripts and Ideas

These are designed to be considered for use by any responder agency. They can be recorded on a smartphone video camera and shared with others. The concepts here can be used in a variety of ways.

Any company with a high-visibility vest policy can use these to communicate to those they serve. Use the ideas on social media or record them in short bursts and link to them on your page.

Those who are still having trouble with responders who do not wear vests can use these ideas to help convince others.

A good, clear policy on safety apparel is your best bet, backed by enforcement by all involved.

"Be Seen, On Scene!" (:45 to :60)

Background sounds: Firehouse chatter, some clanging, best if recorded with knowledge of those putting gear away, prepping for next call)

Voice 1: "I've never been as scared out on the highway as I was tonight…"
Voice 2: "Hey it wasn't that big a deal … out and back in 25 minutes…I mean it was dark, but…"
Voice 1: "That's not it. You were putting the fire out. I was working traffic control. And the guy next to me, from that other company, he was NOT wearing his vest!"
Voice 2: What's the big deal? Sometimes you do, and sometimes you forget.
Voice 1: I will NEVER FORGET AGAIN! Some guy drove up on us, saw the other guy at the last minute and had to swerve (screech sound…) He almost hit ME!"
--
Narrator:
Responders? Being Seen on Scene is Your Life, Your Responsibility. Responders and Motorists Are Looking Out For Each Other.
Responders, Wear Your Vests! Be Seen On Scene!
Drivers? Look for the Responders and Slow Down! Move Over!
We're All In This Together!

“If Your Feet Are On the Street!) (:30-45)

Background sounds: Men and women chattering, police roll call room

Sergeant “All right, pipe down, we’ve got some stuff to go over.
Squads 1 to 5, be extra watchful tonight. Halloween parade, then kids scattering
Squad 6: We got a lead on that burglary. You have some investigation stuff. See the desk before your shift.
And all of you. Got some good news.
Augie, the officer who got hit the other night at the crash, he’s going to be OK. But he sent a message: Augie says: Wear your vest! Don’t get hit. Be seen on scene! I expect he will have lots to say if you don’t. Now hey! Let’s be careful out there!
--
Narrator:
Responders? Being Seen on Scene is Your Life, Your Responsibility. Responders and Motorists Are Looking Out For Each Other.
Responders, Wear Your Vests! Be seen on scene!
Drivers? Look for the Responders and Slow Down! Move Over!
We’re All In This Together!

“Just a Few Minutes!” (:30)

Background sounds: Hospital waiting room. Code called… etc.

Voice 1: “Think she’s going to make it?”
Voice 2: “I hope so but I don’t know. She got hit pretty hard. She almost had the car ready to tow and we all could have been off the road.”
Voice 1: I wish I had thrown her that vest. The guy who hit her said he didn’t see her. I wish I had her back… She just waved me off, said it would just be a few minutes.
Voice 2: Don’t beat yourself up. It’s HER LIFE, AND HER RESPONSIBILITY. I know I will never forget my vest again.
--
Narrator:
Responders? Being Seen on Scene is Your Life, Your Responsibility. Responders and Motorists Are Looking Out For Each Other.
Responders, Wear Your Vests! Be seen on scene!
Drivers? Look for the Responders and Slow Down! Move Over!
We’re All In This Together!

“Can We Talk?” (:15 to :30)

Background sounds: Nothing.

MATURE WOMAN VOICE (Can be modified for older male):

Can We Talk?
My son, my only son, has been a firefighter for 30 years. He always was a nut about safety. He told other people about safety. He trained his men. He got trained.
Sometimes, at holidays, we had to tell him he could quit trying to convince us.
Tonight, he forgot what he learned, and what he always taught.
They tell me he jumped out of the truck and ran off to help some kid who was wandering near a crash.
He forgot his vest. The one that made him visible? Yep, that one.
He got the child. And both of them got hit.
We need some of your thoughts and prayers right now.
Thanks.

Narrator:
Responders? Being Seen on Scene is Your Life, Your Responsibility. Responders and Motorists Are Looking Out For Each Other.
Responders, Wear Your Vests! Be seen on scene!
Drivers? Look for the Responders and Slow Down! Move Over!
We’re All In This Together!

Video Script Scenarios

Crash scene footage opening (:08) could be obtained as B roll or from past crashes.

Best perspective is driver level. Imagine a driver seeing things at the scene, a rubbernecker, for example. If creating video, use a drive by camera angle to cruise past the crash. Can extend to full 30 seconds if you wish. In that case, just use a voiceover.

Voice:

Too many emergency responders, in too many places in Michigan, and elsewhere, are being struck at incident scenes.

We have a message for all of you. Responders, wear your vests, light your scenes well, and make the traffic control easy to understand for motorists. Drivers and passengers, pay attention to traffic control instructions, slow down, move over a lane when you can, and do not watch the activity. Your moment of inattention could make you their next priority.

Remember, we are all in this together.

ALTERNATE:

Pan scene of crash and cut to bent down paramedic/EMT, who breaks from actions, and does fourth wall stare at camera, saying

“You see what I am doing? I am trying to save this guy’s life. He didn’t do anything but be in the wrong place at the wrong time. But you? You are looking over here, watching me, and that means you can’t be paying attention to your driving. Slow down. Move over. We’re doing all we can on our part. We wear our vests, and try to give you a safe space to travel. You do your part, so you’re not my next assignment. Thanks, and drive safe.”

Paramedic turns back to active care.

Tailgate or Roll-Call Messages

CARRY ON, MY WAYWARD SONS…

Take a few extra high-visibility vests and put them in your unit. They come in handy when another responder forgets a vest, or a motorist needs to be outside the vehicle, but still on the roadside.

BE PREPARED, BOY SCOUTS…

Those high-visibility vests can be put on over a firefighter's turnout coat, a practice that appears to be gaining momentum in Michigan. As one chief said, "They're easier to take off than to put on."

PARTNERS INVESTED

Wearing your vest, especially in low light conditions, is a good way to keep track of other responders, and to let them help keep track of you. Don't let responders go dark at night.

IN VESTS WE TRUST

Pay attention to the condition and reflectivity of your unit's vests. Next time you have night training, put everyone in vests and have them walk away from your truck or car lights. Pay attention to variations in reflectivity. If it's losing its light, get a new one. If they're still serviceable, they can be used as spares in the units.

TOWING THE LINE

It is not unusual to find that a towing/recovery owner expects all that all operators wear their vests at all times, on the job at least. Ever forget to pull your vest on? That can't happen if you are already wearing it.

KEEP IT CLEAN!

Schedule a Laundry Night as part of a training or other event. Either launder your vests appropriately together or have a contest for the one most in need of cleaning, then the cleanest. Have fun with the effort to remind wearers that you need to take care of all of the equipment, vests included.

VESTED INTEREST

Try a roll call game. Give a silly prize for the person who can get to a vest the fastest and back to the start point without running. Random games like this keep your folks sharp, and keep them from becoming complacent about the location and condition of their life saving vests.

EXTRA BENEFITS

Failure to wear required high-visibility apparel can be a reason to reduce or eliminate worker compensation benefits, if the action is deemed to constitute a willful and intentional act. Don't take a chance with your future claim, or worse, if your family has to stake the claim. Your life. Your responsibility.

Social Media Outreach Responders to Drivers

The following messages can be used by departments and agencies that are using their vests at all times. It is a message that recognizes the shared responsibilities drivers and responders have for mutual safety.

--

We wear our high-visibility vests, so you can see us better at traffic incidents. Please do your part by slowing down, moving over, and watching so that you get through our area safer.

--

When you are watching us (fight a car fire, hook up a car for a tow, assist a motorist, care for the injured), you are not watching the road. Pay attention to your job and let us do ours! We're all in this together.

--

Our department expects our folks to be as visible as possible on the roadways. If you see us wearing our bright, reflective vests, know we are there trying to get you somewhere safe, too. Thanks.

APPROACHES FOR RESPONDER TO RESPONDER

These messages are intended for agencies that want to encourage 100% compliance with the requirements for high-visibility at crash scenes. They are responder to responder messages, and engagement ideas.

GAME of TAG: "We've done a pretty good job of getting all our folks wearing their high-visibility vests. We're not perfect, but we are almost there. We challenge your folks to beat us every response. If we catch someone who is not visible, we will tag them and tell them they need to be seen on scene. If you catch us, tag us and tell us the same. Keep score! End of the year, pizza party on the one with the most "gotchas." It reinforces that every person should care about every other person's visibility.

THIS IS A WARNING: OUR SAFETY OFFICER is concerned that our own members are wearing their vests. So be prepared if he ever gets tabbed safety officer at a crash scene. We call him THE ENFORCER for a reason. He WILL tell you to wear your vest.

HAVE A FASHION SHOW: This is normally thought of as a small community kind of approach, where neighbors know neighbors. But it works anywhere. Your towing firm can challenge the fire company, EMS folks, and police to a fashion show of sorts. Rules or no rules, the only requirement is that a high-visibility vest be part of the outfit.

This could raise lots of awareness in a fun setting that can raise money for a worthy cause. Get or make a trophy, with a vest. Pass the trophy around year to year.

'PLAY A GAME

When we are kids, we like to play fill in the blank games. Try these, because we know responders are interested in games to fill down time.

The place I would hate to be wearing my vest is _____

My vest would look best on me wearing my _____ shoes.

The place I could wear my vest into that would not generate any comments is _____

My closest call ever when I didn't wear my vest was _____

The sporting event I would attend where I would fit in in my vest is_____

HASHTAGS FOR SOCIAL MEDIA

#moveoverslowdown

#steeritclearit

#beseenonscene

EXTRA IDEAS

Engage Endorsers for a 10-second video clip:

I LOOK SILLY HERE, BUT IF I WAS WORKING AT A TRAFFIC INCIDENT, I SURE WOULD WEAR MY HIGH-VISIBILITY VEST… Be Seen on Scene!

ALTERNATE: "I wouldn't go on the field without my helmet and pads. Why would I go out to a traffic incident without my vest? I wouldn't. You shouldn't, either. Be seen on scene!

- Pro Athlete (football, hockey, soccer, baseball, basketball, golf, racing, skiing)
- Media Personality
- Local Celebrity
- Responder in a different setting (grocery store, church, cheering on a local sports team, at the orchestra concert, ,e.g.)

10. Improve Michigan Responder Safety/Steer it, Clear it

Steer it, Clear it!

A toolkit to help communicate driver responsibilities for safe quick clearance of the highway

This “toolkit” include resources to help the responder community communicate to drivers the importance of the driver removal law known as Steer It, Clear It.

Resource	Audience	Notes
Audio Scripts	Targeted	Interchangeable parts that can be recorded
Video Scripts	Targeted	Visual concept and script
Social media ideas	All	Editable social media posts for disciplines
Targeted messages	Targeted	Markets and methods that came from survey results

Audio Scripts for Responders to Public

“Don’t Add to the Danger”

Background sounds: Silence. Brake Squeal.

Voice 1: “Being a firefighter is dangerous enough without adding to the danger”
Voice 2: “I know what you mean. Drivers need to do their part, and move their vehicles out of the roadway when a crash isn’t serious.”
Voice 1: “We all need to work together to make our highways safe after a crash.
Voice 2: “If your car is drivable, clear it to nearest safe point, off the highway, out of added danger.”
Voice 1: “Responders need to tend to you and others after a crash. Get yourself to safety so they can do their work, and help where everyone is safer.”

Narrator:
Steer it, Clear it! If you can move your vehicle from the roadway when there are no apparent injuries, do it. Look out for yourself, and your loved ones.

Audio Scripts for Drivers to Other Drivers

“I Should Have Moved My Car”

Background sounds: Emergency room/hospital sounds

Woman’s Voice: This is the worst night of my life. My child is going into surgery. And it may have been MY fault.
Soothing male voice: You can’t beat yourself up about it.
Woman’s voice: I should have moved my car. I could have moved my car. If I had moved it off the road, that truck could not have hit us. Davey would not be going into the operating room.
--
Narrator:
In Michigan, the law requires that drivers move their vehicles from the roadway if there are no apparent injuries. The law is there to help all of us be safer, the drivers, passengers, and responders who come to the scene. And if it wasn’t the law, it’s still the safest thing to do.
If you can steer it, clear it!

Audio Scripts Targeted from Older Drivers to Older Drivers

“What Would Mr. Adams Say?” (:60)
Background: Coffee Shop sounds, clinking glasses

Frank: How you doing Lou? What’s new?
Lou: What’s new? Wait ‘til you hear what I just learned.
Frank: Go ahead; I’m all ears.
Lou: Remember when we learned to drive, in driver education class, that we were supposed to leave the cars where they were after a crash?
Frank: Yeah, Mr. Adams was pretty clear about that.
Lou: Well, things have changed. I just found out that Michigan law requires you to move the vehicle from the roadway if you have been in a crash where your vehicle can be moved and there are no apparent injuries.
Frank: Where are you supposed to go? Mr. Adams said stay where you are.
Lou: Look for a safe refuge, like the shoulder, an emergency lane, or the median, and then call the police.
Frank: I bet the insurance company will hate that.
Lou: The law is clear. If a driver moves the vehicle, follows the law, it is not evidence of fault in the crash. Police and insurance company personnel know how to analyze crashes and determine the cause.
Frank: I didn’t know it either. You are not alone. I wonder if Mr. Adams knows.
--
If you can steer it, clear it! It’s not just the law. It’s the safest thing for all.

Audio/Video Script

BLACK SCREEN

Voiceover: Crashes … happen!

FLASH TO CRASH SOUND

Video clip of drivers moving vehicles from crash scene. Choose one where drivers do not exit their vehicles if you can.

Voiceover resumes: Secondary crashes are very much preventable.

If you are in a crash, check for any apparent injuries. If there are no injuries, and you can drive your vehicle, please move it to the nearest safe place off the roadway. It’s called Steer It, Clear It. It’s the law in Michigan. It’s safer for you. It’s safer for other drivers. It’s safer, for everyone.

SOCIAL MEDIA IDEAS/Mi DRIVE ideas

For sharing with AAA, similar partners

- Drivers involved in minor crashes who can drive their vehicles are required to remove it from the roadway. Get to the nearest safe point. If you can steer it, clear it!
- The Steer It, Clear It law is about safety. If you can drive your vehicle, move it from the roadway. If you can't move it, stay in your car and stay belted. If you can steer it, clear it.
- Police and insurance companies know all about the Steer It, Clear It law. They would rather be checking on the causes of one crash instead of two. If you are involved in a minor crash, and the vehicle is drivable, steer it and clear it out of the way.

For sharing with older drivers

Older drivers can be reached through Area Agencies on Aging, senior centers, churches and other service agencies. The effort in each community can be different but should focus on the drivers over 50.

- When many of us learned to drive, we were told to leave our car where it was if it was involved in a crash. Times, and the laws, have changed. In Michigan, the law requires you to move your drivable vehicle out of the road if there are no apparent injuries. If you can steer it, clear it!

For sharing with more educated drivers

One of the most surprising findings in the survey was that formal education past high school was a contraindication to awareness of the Steer It, Clear It law.

- Some things you don't have to learn. Like how safe and smart it is after a minor crash to move your vehicle from the travel lanes when you can drive it to a safer place. Common sense? Good idea? Smart and safe. If you can steer it, clear it!
- Not everything you needed was learned in kindergarten. As we get older and learn more, we know it is safer to do certain things. Remember! If your car is drivable and there are no apparent injuries, steer it to a nearby safer place so you can clear it from the roadway.

11. Focused Outreach Approaches and Background

The 2017 survey, compared to previous surveys, was analyzed to establish how new outreach might be focused. The following are highlights of comparisons that can be used to focus approaches to outreach, and a step or steps to take action in each area.

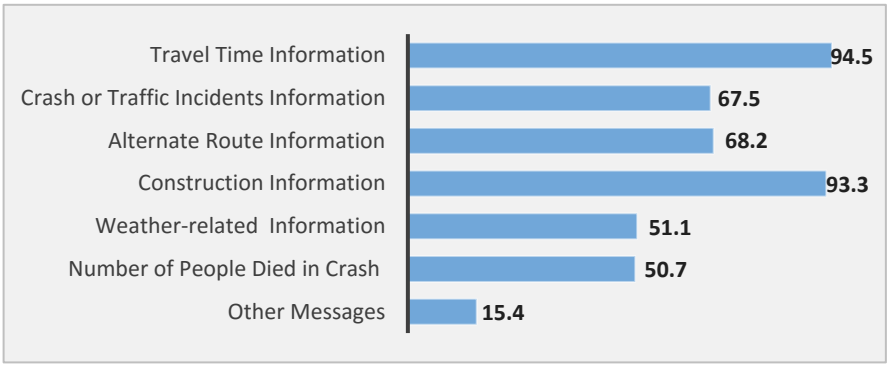
Usage of Radio and TV for traffic reports

- Respondents depend less on radio and TV as sources for traffic information than they did in 2012. Those who check traffic information a few times a day or more check radio (29.2%) more often than TV (23.5%). In 2012, 37% chose TV and 35% radio.
- In another question, respondents preferred radio traffic reports over TV by 44.5% to 33%.

TAKE ACTION: Radio will be more effective in reaching those seeking traffic information. These folks seek immediacy in their travel decisions, and radio offers more real time information, while TV is a planning medium.

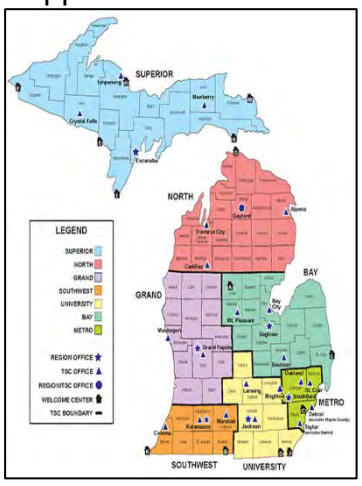
Awareness of DMS messaging

Respondents were asked which types of messages they remembered seeing on message boards.



- Generally, respondents are much more aware of messages that meet their immediate needs over the safety messages that were mentioned in the open-ended or included in “other messages” responses.

TAKE ACTION: Use crash and construction traffic control zones as opportunities to use both “Move Over, Slow Down” and “Steer It, Clear It” messaging to gain impact.



Access to GPS Traffic Information/Mi Drive usage

Respondents were asked about their access of real time traffic information via GPS-enabled applications, including their knowledge of Mi Drive.

- In five years (2012-17) respondents who have GPS with real time traffic availability was up threefold (72.4 vs. 24%) and overall GPS capabilities on private devices is doubled from 45 to 89.5%.

- A reported 66.7% have used real-time traffic information.
- Usage of GPS traffic information is highest in Metro and University MDOT regions
- Mi Drive is not well known as a provider (71.7% have never heard of the website), with highest usage of that site in Metro and University regions.
- Mi Drive has been used within the past year by 90.2% respondents who know of the site. That is up from 61% in 2012.

TAKE ACTION: Public use seems tied to understanding the site. Examine Mi Drive content vs. competing information providers, survey usefulness, modify as necessary and market well. Consider mobile device accessibility improvements, based on the following:

- Smartphone usage for traffic information continues to grow exponentially in Michigan. From 9% of respondents using the devices in 2010, to 20% by 2012, to nearly 69% in 2017, the evidence is clear that these applications are popular.
- Google Maps (75.4%) and WAZE (a Google product used by 11.1%) are used by respondents. Nearly 95% of those are using mobile applications.

TAKE ACTION: Continue to strengthen the relationship with Google and other traffic information providers and understand that all traffic data shared with these platforms can help reduce congestion and inform motorists of obstructions.

Steer It, Clear It Awareness and Actions

Survey respondents asked about how they would act, and what level of awareness they have of Michigan's driver removal law, also known as Steer It, Clear It.

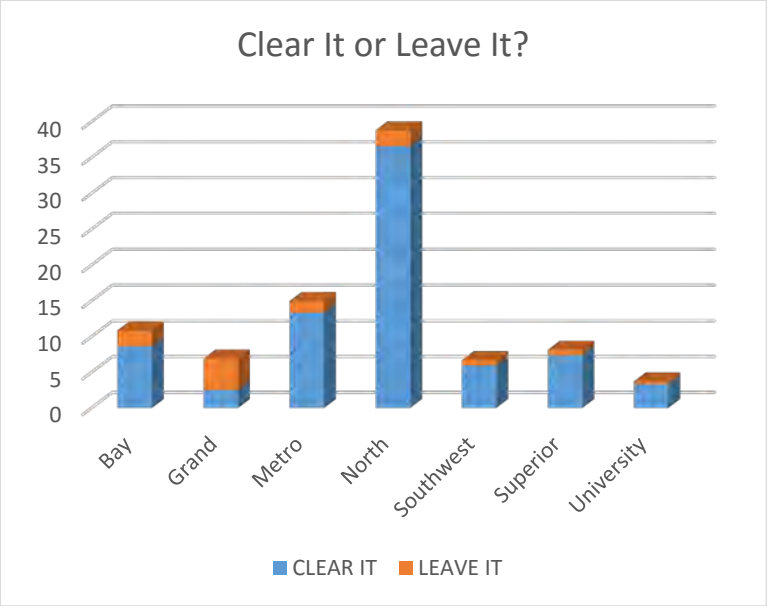
- 90.1 percent of respondents say they would move their vehicles from the roadway, up from 87% in 2012.
- Just 47% of those respondents said they understood the legal requirement to do so.

TAKE ACTION: Focus not on the law, but on the wisdom and common sense that is already inherently present. Focus messaging on: It's the smart thing to do. It's the right thing to do. Avoid the approach of "you will get in trouble if you do not do it."

FOCUS ACTION: Focus messaging to those over 50, and the 18-24 age group.

FOCUS ACTION: Focus the message in Grand, Bay, and North regions

FOCUS ACTION: The lowest knowledge of the law (more than 70% unaware) included: Alger, Alpena, Baraga, Cass, Cheboygan, Crawford, Eaton, Gladwin, Ionia, Iosco, Iron, Kalamazoo, Keweenaw, Lake, Leelanau, Luce, Montmorency, Ogemaw, Osceola, Otsego, Ottawa, Presque Isle, St. Joseph, and Van Buren counties.



Traveler Information Sources Changing

Respondents were asked which information sources were most convenient for them to access, separated into two groups of information: 1) all information; 2) Motor vehicle and driver behavior information. Numbers are expressed in percentages below:

Table 14 Changes in Traveler Information Source Convenience

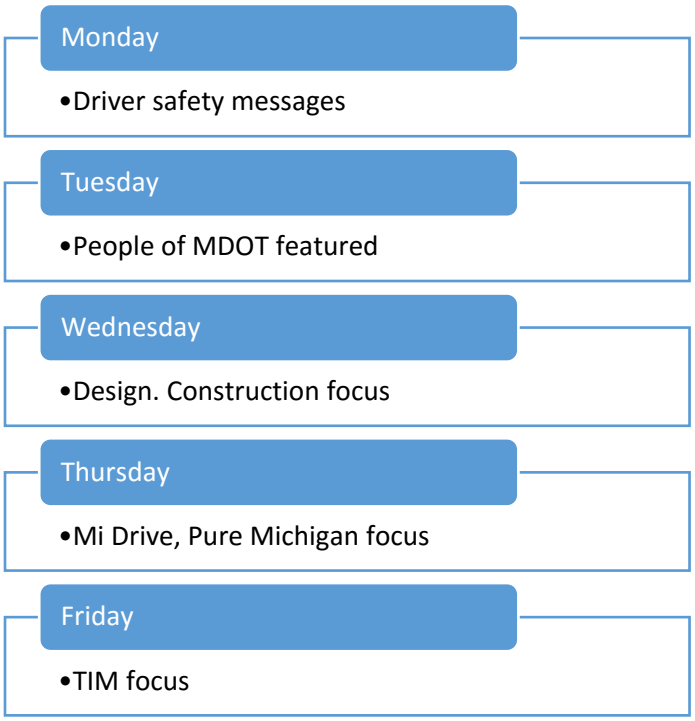
Source	2017 all information / change from 2012	Source	Motor vehicle and driver behavior only
Radio news/reports	46.3/ up from 17	Television news/reports	43
Smartphone apps	39.5 / not on 2012	Radio news/reports	28.7
Television news/reports	36.8 / up from 31	Newspapers/other regular print	17.1
Text alerts	16.6 / not on 2012	Facebook, Twitter, blogs, social	16.9
General word-of-mouth	13.5 / not on 2012	General word-of-mouth	14.2
Facebook, Twitter, social	10.3 / up from 2	Direct mail	13.9
Newspapers/other print	4.8 / down from 11	Smartphone apps	13.9

TAKE ACTION: Concentrate on traditional media for traditional information, incorporating social media as a fourth choice. Understand that radio and TV still have a place in the lives of the information consumer, and that smartphone apps are a very strong contender for real time traffic information.

Social Media Awareness Increasing

- Close to 75% of respondents use some type of social media a few times a week or more, up from 31% and 36% in 2010 and 2012. Facebook, You Tube, and Twitter are the top three platforms.
- The public makes no connection between those platforms and MDOT, even though the Department has a presence. Only 22.7% of respondents were aware of the MDOT presence.

TAKE ACTION: Use a targeted and measurable approach to generating awareness of the Department's presence on three platforms most likely to reach motorists. Daily postings are recommended, if sufficient content can be generated. The place of TIM in the rotation of messaging should be weekly, with a suggested approach here:



12. Investment Opportunities

One of the objectives of the research project was the distillation of information garnered from all research activities into a list of investment opportunities, combined to create a strategic planning type of focus for Michigan to pursue.

The investment opportunities might be programmatic at a statewide level, project-specific in a particular discipline or MDOT Region, or a combination.

Following are investment opportunities summarized for consideration.

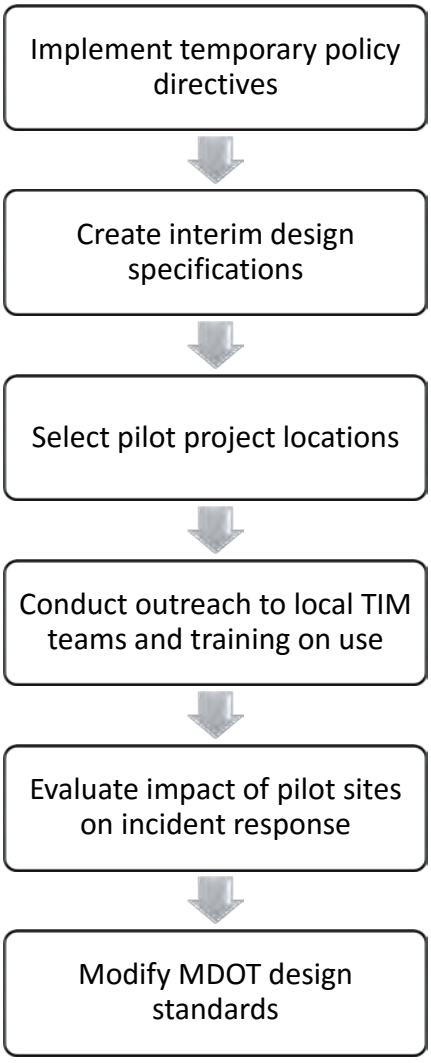
Project Title

Construct Maintenance and Emergency Crossovers

Project Overview

It is important that responders have the ability to move between different directions of travel without the need to use interchanges. In addition, to discouraging wrong-way driving by responders, their training also discourages parking vehicles on opposite travel directions not impacted by the incident. Parking in these situations distracts drivers not impacted by the incident, reduces responder safety while negotiating the median, and increases risk of being struck by fast moving vehicles. Finally, statistics show that when a patient receives treatment within one hour of a trauma and an initial assessment of needs within 15 minutes of a trauma, their chances of surviving and recovering increase exponentially. This speaks to the vital need for responders such as emergency medical services to reach the scene quickly.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Pilot, then statewide		
Timeframe	Dependent on construction schedule for pilot locations		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	N/A	N/A	N/A
Project Priority	**MEDIUM**		

References

The Missouri Department of transportation has developed extensive guidelines on the development and use of median crossovers. It is available through the following public link.
http://epg.modot.org/index.php?title=Category:240_Maintenance_and_Emergency_Crossovers

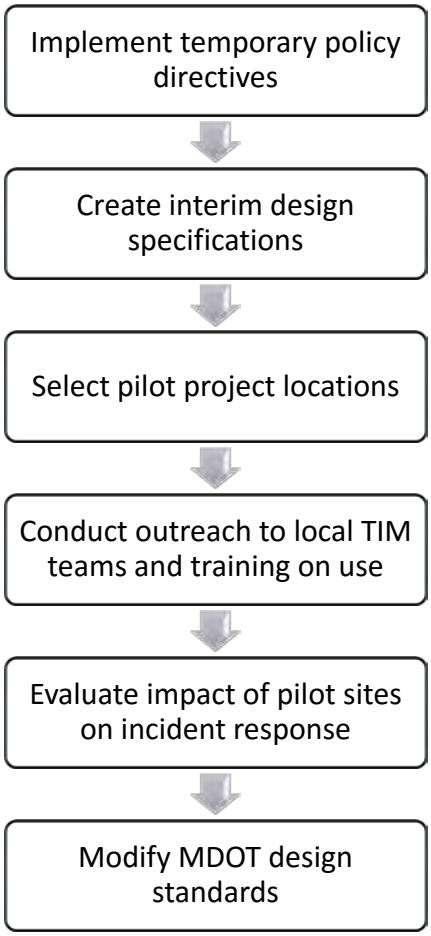
Project Title

Construct Fire Department Connection Points

Project Overview

Pre-planning response is a critical part of successful TIM. While bridges that cross other roads present additional safety concerns for on-scene emergency responders, they also provide the opportunity to increase safety. A fire department connection point is a section of pipe that is compatible with standard fire department hoses. When a crash occurs needing water from the fire apparatus is needed, the vehicle can be positioned off of the freeway. Removing one or two pieces of apparatus also removes the personnel that operate the apparatus, creates a smaller response area, and potentially impacts moving traffic less. Simple applications such as this are low cost at the time of construction but have a significant impact on user delays and responder safety. Coordinate with local responders to identify how best to apply National Fire Protection Association (NFPA) 1963, Standard for Fire Hose Connections.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Pilot, then statewide		
Timeframe	Dependent on construction schedule for pilot locations		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	N/A	N/A	N/A
Project Priority	**MEDIUM**		

References

The Pennsylvania Department of Transportation has used these items on many designs when planning for emergency response during highway design. Contact Jason Bewley at PennDOT's Harrisburg Area District for more information.

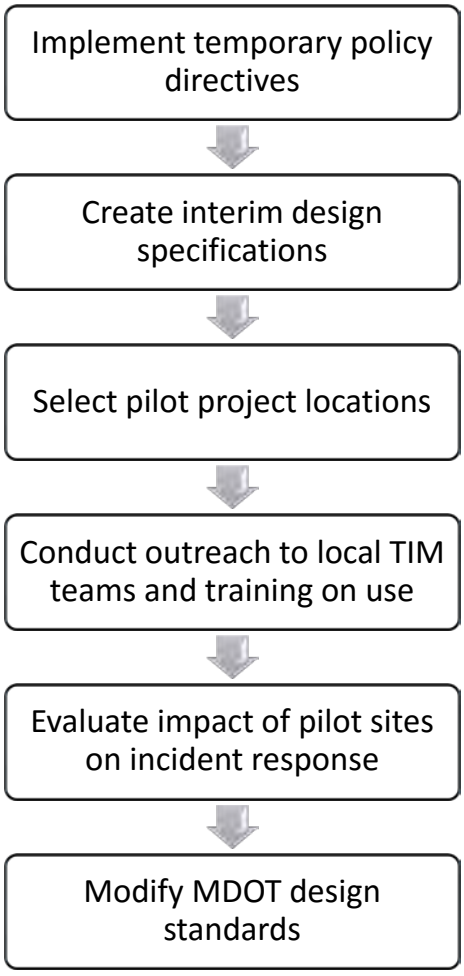
Project Title

Provide Emergency Access Doors and Fire Connections in Sound Barrier Walls

Project Overview

Pre-planning response is a critical part of successful TIM. Sound barriers are an enhancement that help reduce noise for areas adjacent to roadways but they also create a confined working space for emergency responders. Typically these doors are installed for maintenance and inspection purposes, however with proper training, access, and coordination they can be used to help reduce the number of responders on the highway. By properly coordinating with local emergency responders during the design process, larger doors may be selected that improve the ease of access.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Pilot, then statewide		
Timeframe	Dependent on construction schedule for pilot locations		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	N/A	N/A	N/A
Project Priority	**MEDIUM**		

References

Pennsylvania DOT provides specifications in Publication 408 with links to standard drawings for sound barrier doors (http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/408_2016/408_2016_4/408_2016_4.pdf, page 1086-3) and the Florida DOT provides details on fire connections through sound walls (http://www.fdot.gov/structures/StructuresManual/2004July/Components/sound_barrier_walls.htm#AASHTO).

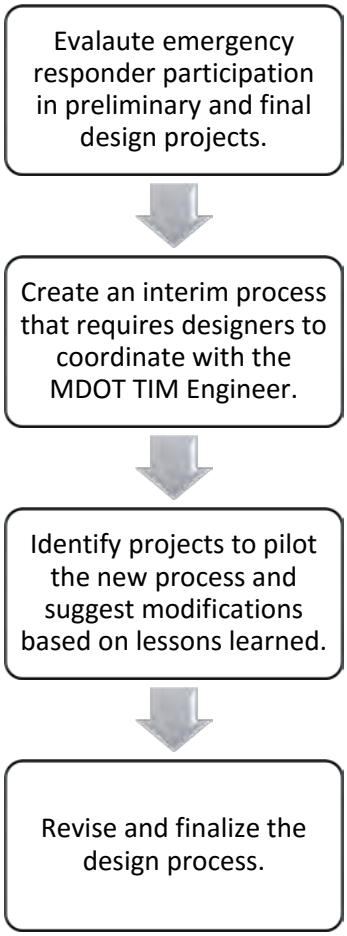
Project Title

Improve Emergency Coordination During Design

Project Overview

MDOT has spent considerable time and resources training emergency responders throughout Michigan. The FHWA Designing for Operations Guidebook suggests that responders be consulted earlier in the project development process. During preliminary and final design, engineers should conduct table top exercises with TIM Teams to determine how emergency response will be achieved in the final state. Based on lessons learned from the table top exercises revisions that balance response needs with project costs can be evaluated.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Varies		
Applicable Area	Statewide		
Timeframe	Two years		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	1	N/A	N/A
Project Priority	**HIGH**		

References

The FHWA Designing for Operations Guidebook provides information that supports this project (https://ops.fhwa.dot.gov/publications/fhwahop13013/ch3.htm#s37).

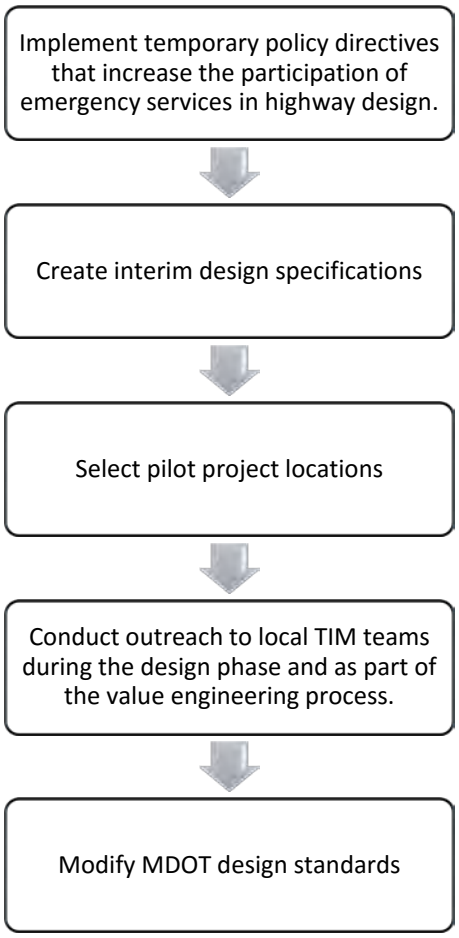
Project Title

Consider Shoulder Widths During Design

Project Overview

Sometimes using a design exception to reduce the shoulder width of roadways is an attractive cost saving measure for highway design. However, designers should also consider the needs of disabled motorists, emergency responders, and the impact of incidents when making the decision to reduce shoulder widths. Full width shoulders on the inside and outside of freeway lanes should be considered as a safety measure. When feasible, providing shoulders with a minimum of ten feet width can improve safety. If site specific needs can be met, a twelve foot shoulder provides the best safety and operational flexibility.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Varies depending on the individual construction costs of each project.		
Applicable Area	Statewide		
Timeframe	Dependent on construction schedule for pilot locations		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	N/A	N/A	N/A
Project Priority	**LOW**		

References

FHWA provides a case study about the considerations and impacts of shoulder width (https://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3_shoulderwidth.cfm). This case study includes tables that show the impact to traffic operations as well. While the Research Team for Further Assessments of Safe, Quick Clearance Strategies – Phase II found no policy to base this recommendation on, the experience of the authors indicates that shoulder width is a common challenge faced for TIM across the nation. The FHWA Designing for Operations Guidebook also supports this need (https://ops.fhwa.dot.gov/publications/fhwahop13013/ch3.htm#s37).

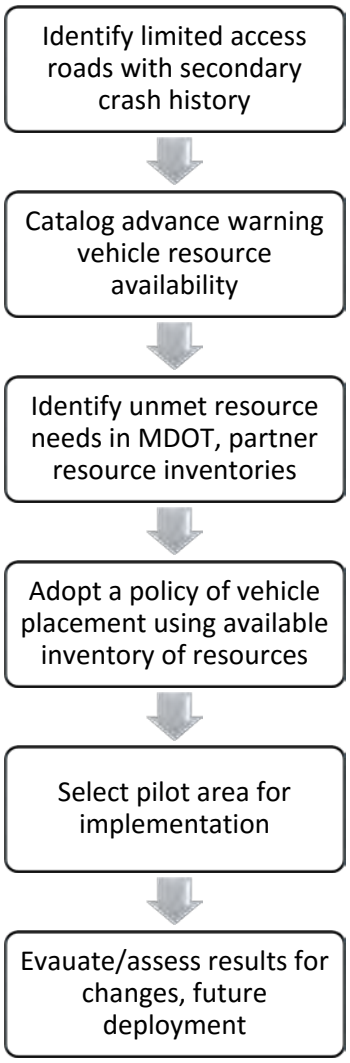
Project Title

Implement Back-of-Queue Protection Program

Project Overview

Michigan is not alone in facing the issue of secondary crashes. Most secondary crashes result in the same direction of the original crash, making protection of the back of the queue a priority. A specific, organized approach to protecting the back of the queue using active advanced warning tactics on limited access roadways could leverage MDOT, Road Commission, contractor, and responder resources effectively.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		
	Incident Duration		
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Medium to high		
Applicable Area	Pilot, then statewide		
Timeframe	12 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02 to oversee program	N/A	No
Project Priority	**HIGH**		

References

The most successful organized program is the Tennessee DOT model. TDOT invested in vehicles and staff to actively follow an interstate traffic queue and provide mobile advanced warning to match the queue length. Vehicles move back the queue as it lengthens, and position to adjust for sight distance issues. In major construction projects, contractors must provide specially-outfitted trucks with arrow and message boards to provide the same level of service. Secondary crashes have been reduced significantly. A link to a program video is https://www.youtube.com/watch?v=FU5aitYAfCM. Contact Gary Ogletree with TDOT for more information.

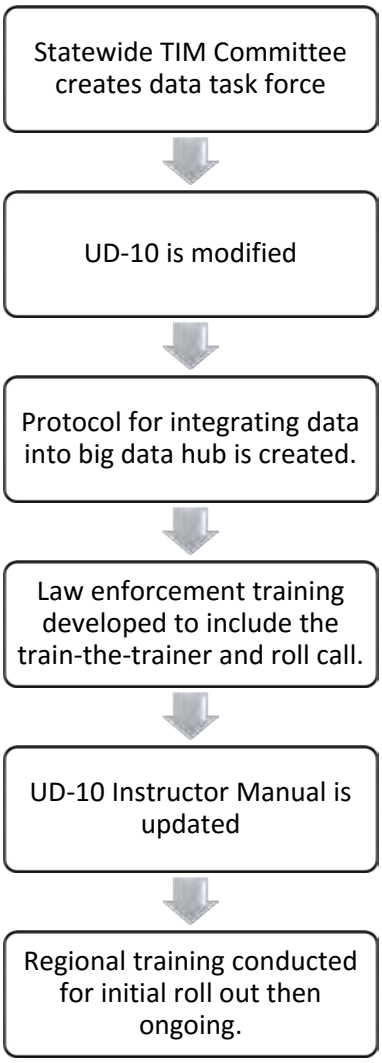
Project Title

Expand TIM Performance Management

Project Overview

Although Michigan is collecting TIM performance measures through efforts of traffic management centers, collecting information through law enforcement reporting expands the amount of data collected and through proper training, improves data reliability. This project focuses on modifying State of Michigan Crash Report Form, the statewide crash reporting form to include roadway clearance time and incident clearance,.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	None		
Applicable Area	Statewide		
Timeframe	1.5 years		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.1	N/A	No
Project Priority	**HIGH**		

References

There is recent precedence for modifying crash forms to include TIM performance management. In the past 12 months Iowa, Tennessee and Maryland have made changes. In Iowa, the crash form modifications are currently being implemented with training being developed and delivered. For Iowa, contact Scott Marler. For Maryland contact Joey Sagal. For Tennessee contact Brad Freeze.

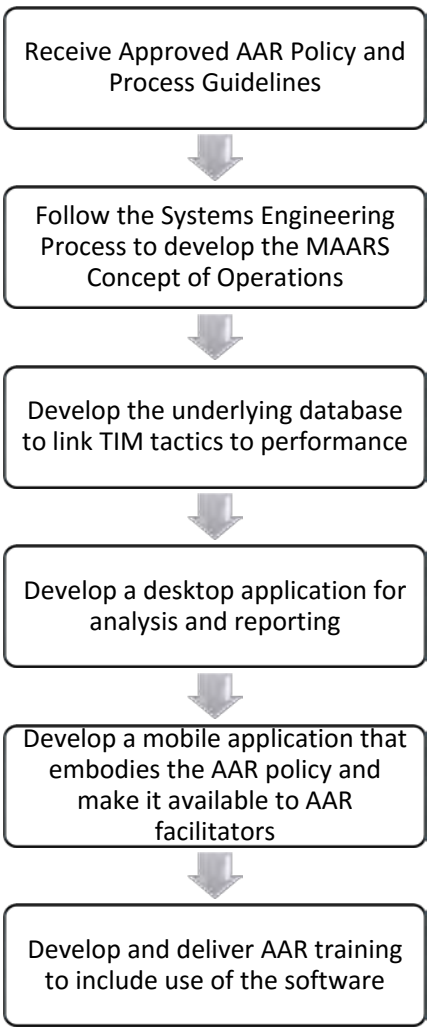
Project Title

Implement Mi-MAARS (Michigan After Action Review Software)

Project Overview

The challenge for TIM programs is capturing responders' implicit knowledge and transferring it into explicit knowledge. This investment will focus on creating a software platform that links strategies and tactics to effectiveness at the granular level and in a way that supports ongoing training and leadership needs through the AAR process to include a mobile AAR app, desktop software, and database to consolidate tactics and link them to performance.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	Capital investment of $750,000. Ongoing costs associated with database maintenance, assume 5% of capital investment.		
Applicable Area	Statewide		
Timeframe	12 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.5	• N/A	Yes
Project Priority	**HIGH**		

References

Recent research by the Arizona Department of Transportation focused on establishing a link between TIM tactics and the risk of secondary crashes. Tactics need to be systematically collected and linked to performance to help prioritize which tactics are best. A database of this type, hosted by MDOT or another statewide agency, would become a national best practice if created. Contact Tim Lane at ADOT to obtain more information about the agency's research.

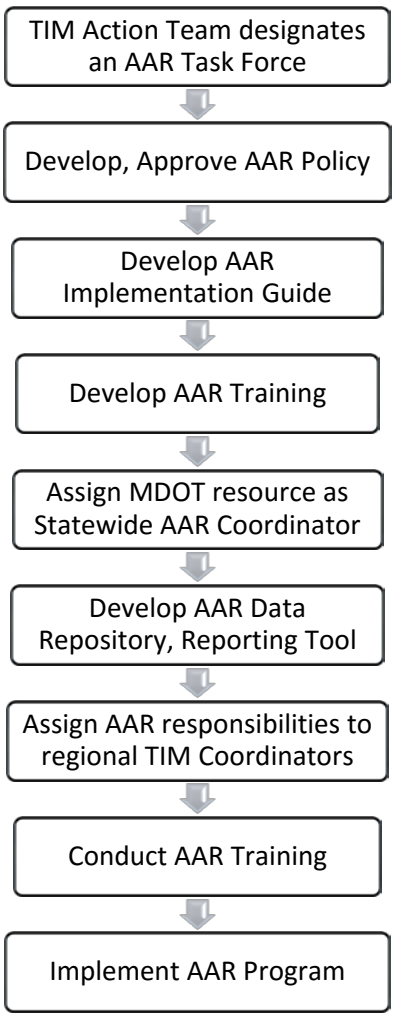
Project Title

Formalize the After Action Review Process

Project Overview

Across Michigan responders have acknowledged the value of meeting to improving safety and reduce time incident roadway impacts. As part of meetings attendees conduct after action reviews (AARs). These help document best practices and identify improvement opportunities. Ad-hoc procedures currently dictate AAR content, frequency, and facilitation style. This makes data collection inconsistent and harder to compare. This investment identifies opportunities to improve the effectiveness of AARs in Michigan. An initial threshold of conducting AARs on 20% of secondary crashes and high impact incidents to capture opportunities or best practices is suggested. During the development of the AAR policy the AAR Task Force will validate this suggestion.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	Operationalized after initial data repository implementation.		
Applicable Area	Statewide		
Timeframe	6 month startup, then ongoing		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.5	• Tier 1 partners – 80 hours	Optional
Project Priority	**HIGH**		

References

The TIM Knowledge Management System (http://kms.timnetwork.org) returns many documents on the topic. Contact Sarah Burnworth at the San Francisco Bay Area Metropolitan Transportation Commission, where they use microsimulation in AARs to show results of congestion. In addition, contact Josh Spano at the Southwest Pennsylvania Commission (SPC). That agency uses an electronic form for quick information gathering and to determine if a more detailed review is warranted.

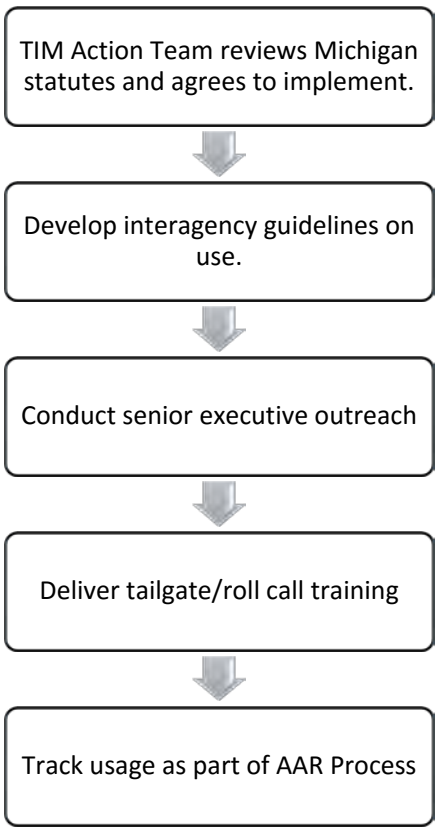
Project Title

Implement a Statewide Push Bumper Use

Project Overview

Many emergency vehicles and other public agencies are equipped with specialized bumpers that provide the capability of pushing a disabled vehicle from the roadway. Effective use of this specialized equipment relies on installation on the vehicle, enabling legislation that protects agencies and individuals from litigation, and continuous education of senior agency officials that set agency policy. Michigan's Hold Harmless law, PA 303 of 2014, MCL 257.618a (5)-(7), provides for an exclusion of liability for authorized emergency service providers. Therefore the work to be done for this investment involves supporting a dialog among tier 1 and tier 2 Michigan TIM groups that results in education, policy and codifying push bumper use.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	None		
Applicable Area	Statewide		
Timeframe	8 months to include training development and delivery		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.5	• Tier 1 partners – 8 hours	Optional for training development
Project Priority	**HIGH**		

References

Colorado State Patrol has produced a popular short video on the use of push in various situations. Accessing the Florida DOT Road Ranger training on push bumpers, as well as that used by Georgia DOT in its HERO program, will be a basis for developing common training for Michigan. The focus should be on education of responders, and the motorists.

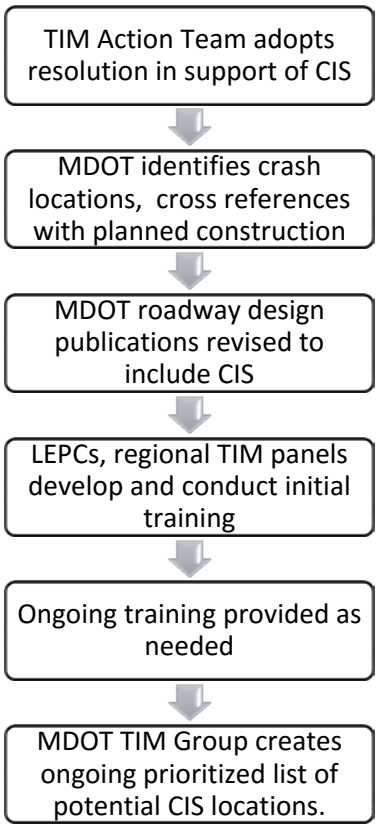
Project Title

Construct Dedicated Crash Investigation Sites

Project Overview

Safe, quick clearance has a direct impact on the risk of secondary crashes as shown in research conducted by the Arizona Department of Transportation. When constructed near high crash locations and recurring congestion locations dedicated crash investigation sites provide a greater distance between moving traffic and people involved in minor crashes than stopping on a shoulder. This has an impact to the safety of responders and an impact on moving traffic. According to the Highway Capacity Manual, a shoulder closure can impact roadway capacity of adjacent lanes. Vehicles stopped due to a minor traffic crash can distract drivers. This investment will result in an increased understanding of the value of crash investigation sites (CISs) and standardization in design as part of Michigan DOT roadway design. See Appendix E for more information.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		
Annualized Cost	Initial construction cost: $65,000 (Rural), $120,000 (Urban), $2,000 (Park-and-Ride)		
Applicable Area	Statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0	• Annual training inclusion	Only as part of roadway design
Project Priority	**HIGH**		

References

The Wisconsin Department of Transportation (WisDOT) has been installing crash investigation sites since 2000 and tracking the cost of construction. Contact Marquis Young at the Wisconsin Department of Transportation for additional questions. The WisDOT Design Manual, standard drawings, and historical cost information is included in Appendix E.

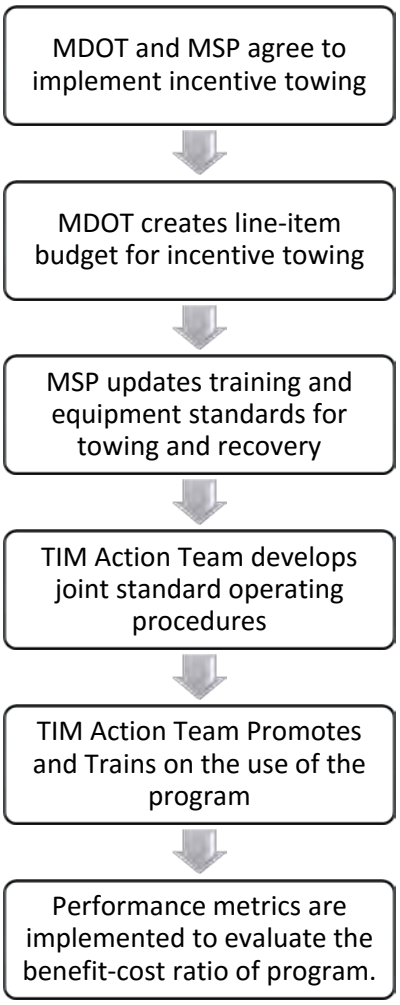
Project Title

Implement an Incentive Towing Program

Project Overview

Getting roads open faster is a key component of reducing the risk of secondary crashes, responder injuries and economic improvement. In some states, most notably Washington State, Florida and Georgia, the Department of Transportation pays qualified towing and recovery companies a premium for quick response and clearance. This investment will develop and implement an incentive based towing program in Michigan based on national best practices.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	$600 flat fee per cancelled call, $2500 per mobilized call. See appendix for WSDOT Program Structure and detailed fee structure.		
Applicable Area	Statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	1	16 hours for AAR	None
Project Priority	**HIGH**		

References

Many states have moved toward incentive towing including Washington State, Georgia, Ohio and Florida. The Washington State program appears to be the most organized and builds off of the strong practice in Florida. The Major Incident Tow (MIT) Program Handbook is included in Appendix F. Contact Vince Fairhurst at WSDOT for more program details.

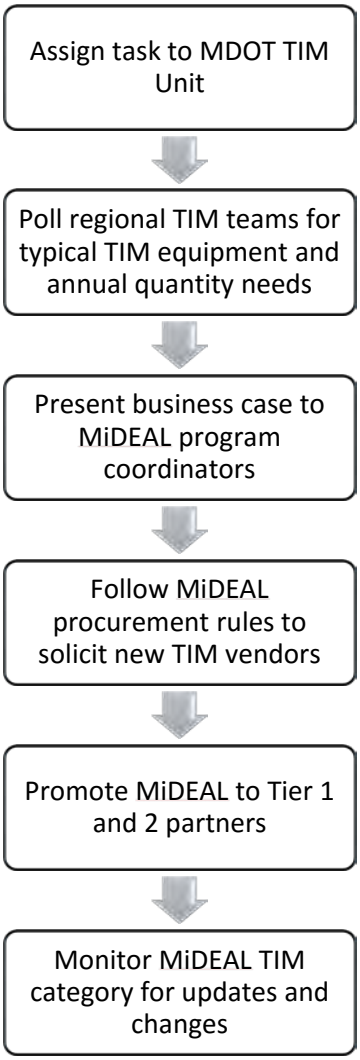
Project Title

Enhance MiDEAL for TIM

Project Overview

First response agencies across Michigan need access to affordable equipment and supplies to maximize safety of response. Michigan State Government can help reduce the cost burden associated with purchasing by enhancing the MiDEAL program. MiDEAL is an extended purchasing program which allows Michigan local units of government to use state contracts to buy goods and services. Membership in MiDEAL is open to cities, townships, villages, counties, school districts, universities, community colleges and non-profit hospitals, with fees to join. This project will involve working with MiDEAL program administrators to create a Traffic Incident and Emergency Management category, creating a list of commonly purchased TIM supplies and equipment, and advertising for more vendors in each category to ensure competitiveness.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		
	Incident Duration		
	Secondary Crashes		
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	Include with MDOT TIM Unit Funding		
Applicable Area	Statewide		
Timeframe	3 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**LOW**		

References

The Wisconsin Department of Transportation is the most notable agency to complete similar work. It created a similar list nearly 10 years ago. That list is maintained and available to TIM practitioners. Contact Marquis Young for additional details.

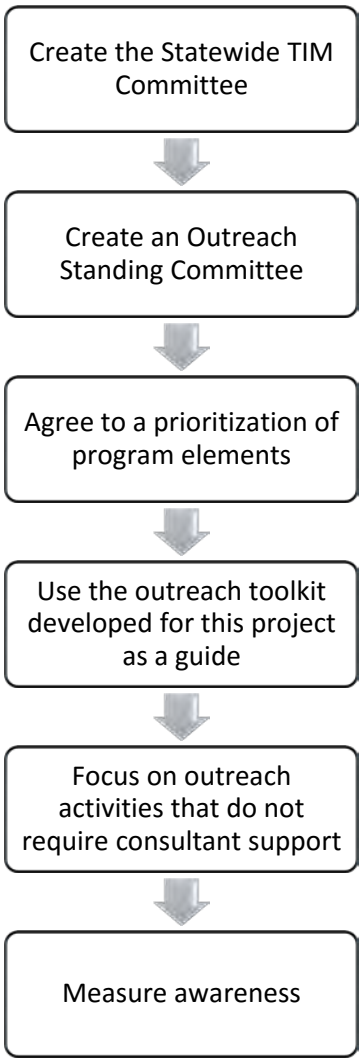
Project Title

Re-Brand Mi-TIME

Project Overview

Across Michigan Mi-TIME is synonymous with TIM training. This has been a great success for MDOT and recognized nationally for its achievements. Now is the time to take advantage of the brand awareness created and leverage it into a full blown TIM program focused on the goals outlined as part of the statewide meeting held in conjunction with *Further Assessments of Safe, Quick Clearance Strategies – Phase II*. Mi-TIME can be more of a resource beyond training, and include outreach materials, and links to other programming, to continue to make the site useful and an attraction to practitioners.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		X
Annualized Cost	None.		
Applicable Area	Statewide		
Timeframe	12 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**HIGH**		

References

TIM branding efforts have been completed by other agencies. In Florida, outside communication consultants are retained to highlight the program as part of travel information efforts. In Georgia, the TIME program is highly branded in the Atlanta area and is achieved through consultant support. In Pennsylvania the Turnpike has taken the role as lead agency to brand and implement a full statewide TIM program.

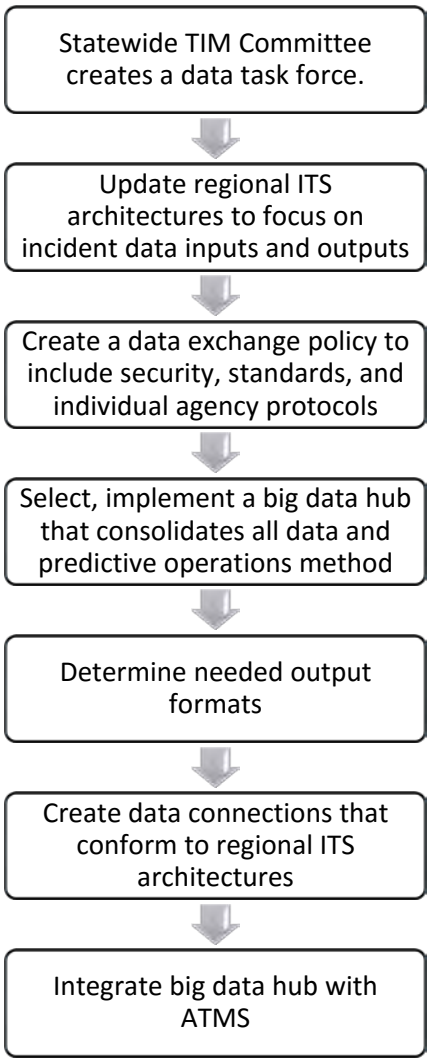
Project Title

Share Data Across Agencies

Project Overview

Decision support systems help agencies move towards predictive operations. Sharing data across agency boundaries is the first step towards creating the ability to use predictive analytics to improve TIM. From a responder standpoint, predictive operations improve resource staging, safety service patrol routes, and event planning. This investment will focus developing the interagency agreements and software platform needed to achieve effective interagency data sharing.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		X
	Practitioner Capacity Building		
	Outreach and Education		
Annualized Cost	$8 million capital investment, then annual database hosting costs.		
Applicable Area	Statewide		
Timeframe	48 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	1	N/A	Yes
Project Priority	**MEDIUM**		

References

The Tennessee Department of Transportation (TDOT) is taking the national lead on developing an approach to predictive operations by focusing on adapting the Tennessee Highway Patrol TITAN crash reporting system to traffic operations. Once the approach to predictive operations is complete, the process will be incorporated into the Department's new ATMS software platform. Contact Brad Freeze at TDOT for additional details. In addition the Port Authority of New York and New Jersey is taking a big data approach to congestion management, to include TIM. Contact Steven Demetropoulos at the Port Authority.

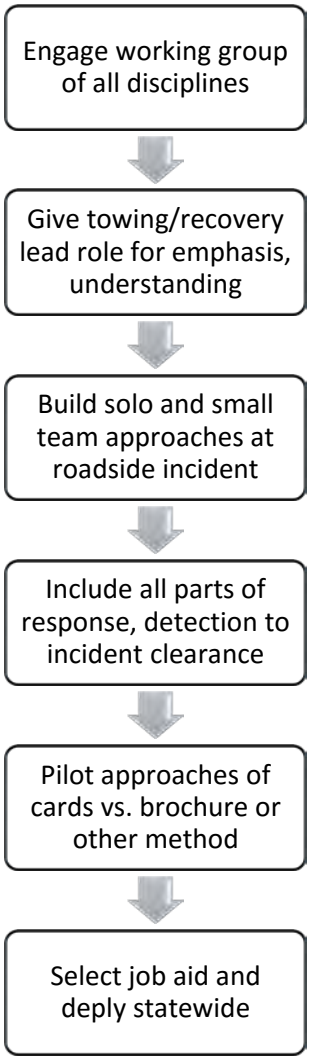
Project Title

Create Tow-Only TIM Response Card to support Solo Responders

Project Overview

Michigan has made great inroads in creating a towing-inclusive approach to TIM, and has a number of vocal, and supportive towing representatives involved in the program. In Mi-TIME training, the rate of towing operators struck, compared to others responding to crashes, is addressed. Tow operators are most likely to be alone on a response, but all response units could be alone at least for a time in any response. The creation of a "job aid" in the form of a card or other compact design could be a lifesaver for any individual or small team that needs to be effective in establishing a safe incident management area quickly. This could be a very small investment that could pay big dividends in every response community. Cover the following: Arrive Safe. Block Scene. Check Surroundings. Deploy Traffic Control, Escape Planning, Demobilization.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Statewide		
Timeframe	6 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**HIGH**		

References

Resources could include Towing and Recovery Association of America (TRAA), Emergency Responder Safety Institute (ERSI). No such tool exists at this point.

Project Title

Mandate DOT Participation in Regional Emergency Management Exercises

Project Overview

The value of exercising in concert with other responders, whether the incident/event exercised is on the highway or not, can't be overstated. Every emergency management response, no matter the location, depends on a reliable and predictable transportation system. Each MDOT region should identify the county and/or regional emergency management exercises that are scheduled, and request an opportunity to be part of the exercise planning process, participate in exercises, and assist in evaluation of the effectiveness of the exercise. The commitment of MDOT personnel to exercises will build trust and a clearer communications approach to incident management.

Project Workflow

Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Statewide		
Timeframe	12 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**HIGH**		

References

There are no external references for this type of project. There is no model for mandating participation in exercise planning, conduct, and evaluation. This could position MDOT as a leader among states. The following link is to emergency management agencies, and comes from the MSP site.
http://www.michigan.gov/documents/msp/LocalDir_external_320561_7.pdf

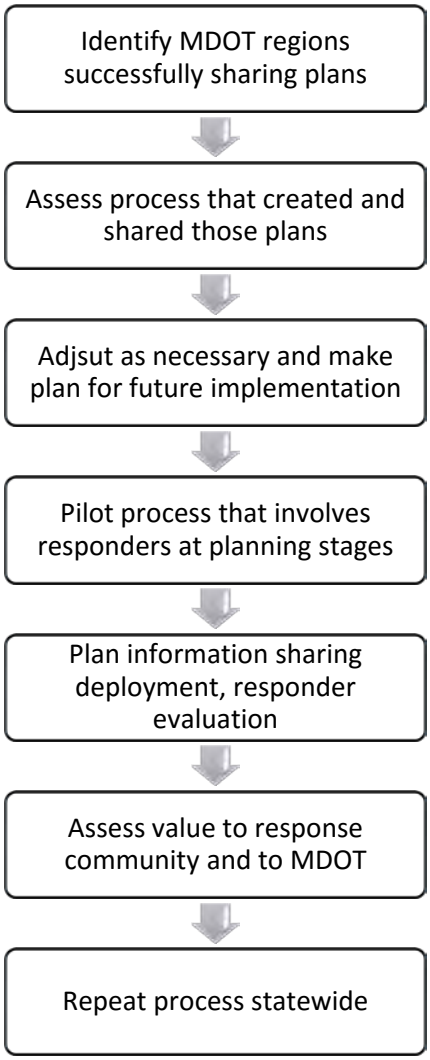
Project Title

Deploy Alternate Route Plans in Response Community

Project Overview

Michigan DOT has made significant progress in the design, implementation, and communication of predesignated detour routes for major roadways in some regions. The perception in the areas where those route plans have been shared with responders is that the shared knowledge makes a great impact, since the rerouting of traffic to alternate routes is sometimes accomplished without MDOT consultation or direction. A program that standardizes the plan delivery process, and method for receipt by responders is a next step and worthy goal.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	Low		
Applicable Area	Statewide		
Timeframe	12 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**HIGH**		

References

Pennsylvania DOT developed large scale detour plans and published them in Publication 911B. The contact is Jon Fleming. Delaware Valley Regional Planning Commission's Chris King has been a proponent of its Interactive Detour Routing Mapping (IDRuM), a web-based tool developed in conjunction with PennDOT. FHWA's Alternate Route Handbook (2006) stresses an interdisciplinary, multi-jurisdictional approach. https://ops.fhwa.dot.gov/publications/ar_handbook/arh.pdf

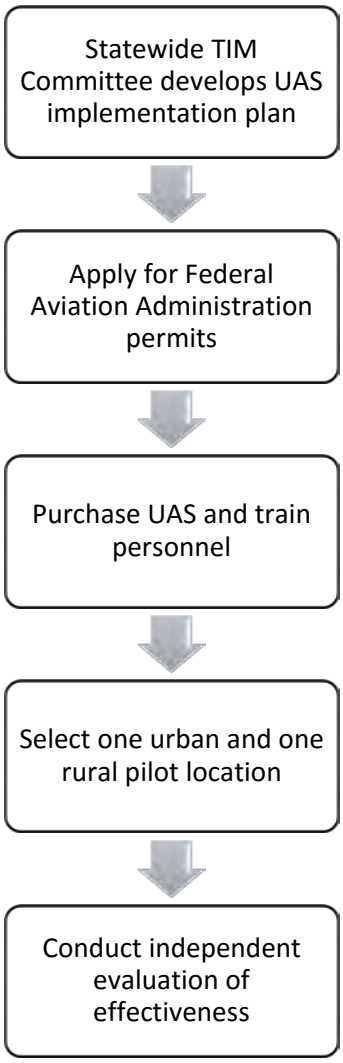
Project Title

Integrate the use of Unmanned Aerial Systems (UAS)

Project Overview

As part of the ITS World Congress held in Detroit MDOT successfully demonstrated the use of UAS to improve TIM situational awareness. The technology is mature enough to stream live coverage to traffic management centers and to other emergency response partners through a video sharing agreement. This project will focus on developing the policies and procedures necessary for integration into normal use.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	$10,000		
Applicable Area	Statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	Yes
Project Priority	**LOW**		

References

The Pennsylvania Turnpike Commission has obtained Federal Aviation Administration to use UAS on its facility in conjunction with incident response. Contact Bob Taylor for more information.

Project Title

Provide Crash Response Trailers in Rural Areas

Project Overview

Responder safety is improved when the proper equipment is available for response. Often, in rural areas equipment availability is limited and funding to purchase equipment can also be limited. In the mid 2000s Homeland Security Grants were used to purchase "Ready Trailers" in many areas. These trailers were box trailers that were stocked with commonly needed resources for incident response. Providing these trailers in rural areas with a concentration on providing equipment that improves scene visibility and situational awareness will help with response.

Project Workflow

Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	$40,000 per trailer		
Applicable Area	Rural regions		
Timeframe	9 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.02	N/A	No
Project Priority	**MEDIUM**		

References

Although officials in southwestern Pennsylvania have been unable to identify funding sources, TIM practitioners recognize the value of these trailers. Typical equipment would include vests, media interaction kits, cable median barrier kits, roof mounted CCTVs, audio/video equipment, cones and flares, and other high-visibility items. Typically there trailers would be deployed when incidents are predicted to last longer than 60 minutes. Contact Sgt. William Ahlgren of Cranberry Township Police to learn of their most recent efforts in trailer development and deployment.

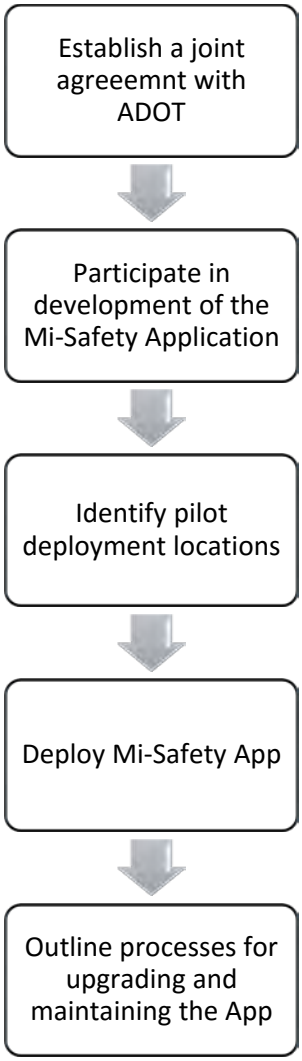
Project Title

Develop the Mi-Safety Mobile Application

Project Overview

Based on research of secondary crashes the Arizona Department of Transportation (ADOT) has identified the need to develop a mobile application for emergency responders that brings information from the traffic management center to the incident scene. This project will focus on developing a partnership with ADOT to cooperatively develop and deploy this application. Once fielded the application will provide location-based detour information, real-time traffic congestion data, and secondary crash risk information. As a second phase the application will integrate the use of wearable technology embedded in vests to improve compliance with high-visibility requirements (described separately.)

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		X
Annualized Cost	$250,000 (based on $250,000 match from ADOT.)		
Applicable Area	Pilot then statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.1	Yes	Yes
Project Priority	**MEDIUM**		

References

Once developed this app will be a national best practice and will take TIM to the next level in the United States. Research has shown that an app like this does not exist. For information about the secondary risk aspect of the app, contact Tim Lane at ADOT.

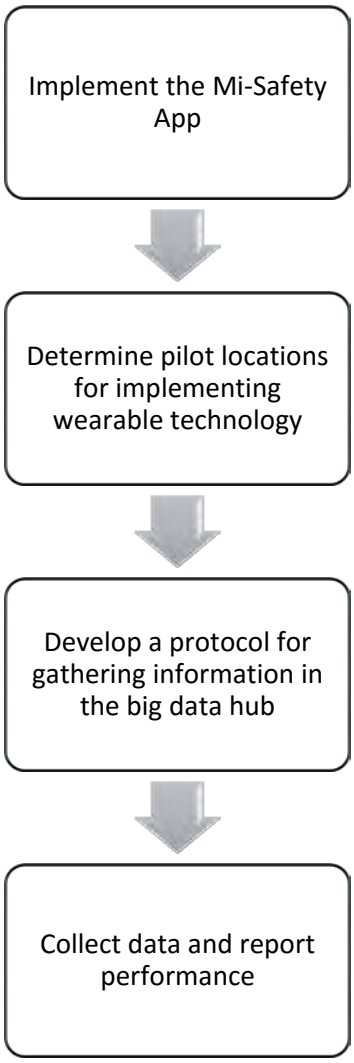
Project Title

Integrate Wearable Technology to Improve High-visibility Apparel Compliance

Project Overview

The industrial safety industry has been using wearable technology to improve work place safety for several years. The technology creates proximity monitoring for individuals wearing enabled PPE such as vests, gloves, helmet and other PPE commonly found in industrial settings. With improved Bluetooth, Wi-Fi and cellular technology this PPE can be applied to incident scenes. For example proximity alarms can be developed for smart phones, vests and GPS enabled vehicles. Other examples are also possible. This project will involve obtaining the technology, developing an integration plan, and interfacing with the Mi-Safety application (described separately in this report.)

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		
	Incident Duration		
	Secondary Crashes		
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	$250,000 for initial pilot study		
Applicable Area	Pilot then statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.1	Yes	Yes
Project Priority	**MEDIUM**		

References

Industrial safety technology has been developed in recent years. Review the case studies from Engineering News and Record at the following link. https://www.enr.com/articles/37987-q4-tech-report-wearable-technology-in-construction

Project Title

Update the State of Michigan Statewide Communications Interoperability Plan

Project Overview

The Michigan Statewide Communications Interoperability Plan (http://www.michigan.gov/documents/mpscs/RPT071127LLC_-_StateOfMI_Interop_Plan-FINAL_11-30-07_430222_7.pdf) was last updated in December 2007. Since that time TIM has become a primary focus of many agencies and communication capabilities have changed dramatically. This project will involve engaging communication interoperability plan coordinators to update the plan, consider TIM, and identify the most important aspects of the plan to pursue from a TIM perspective.

Project Workflow

Key Performance Indicator Impacted	Roadway Clearance Time		
	Incident Duration		
	Secondary Crashes		
	Responder Struck-By/Near Miss		
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	$300,000 (study only)		
Applicable Area	Statewide		
Timeframe	18 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.5	Yes	Yes
Project Priority	**MEDIUM**		

References

Interoperable communications is part of the National Unified Goal for TIM. Iowa is currently linking interoperable communications to its statewide TIM Committee. Contact Bob Yuni at Iowa DOT for more information.

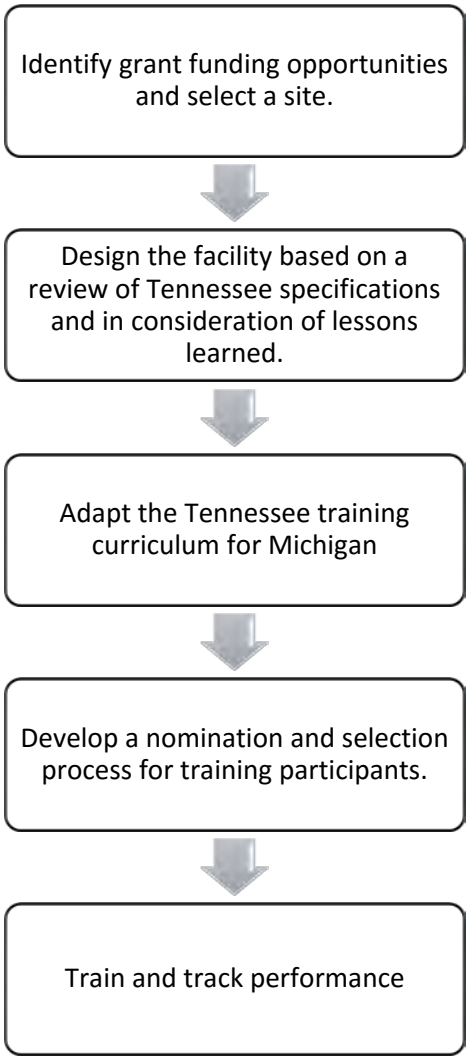
Project Title

Develop a Dedicated TIM Facility

Project Overview

The Tennessee Department of Transportation (TDOT) has developed greater partnerships, TIM emphasis, and better training through the implementation of a statewide TIM training facility hosted by the Tennessee Highway Patrol. This facility has not only provided a dedicated place to train, it has improved awareness and partnership activities between law enforcement and other emergency responders. MDOT and MSP should work together to create a similar facility in Michigan, and involve municipal champions.

Project Workflow



Key Performance Indicator Impacted	Roadway Clearance Time		X
	Incident Duration		X
	Secondary Crashes		X
	Responder Struck-By/Near Miss		X
TIM Program Element Impacted	Legislative and Leadership		X
	Sustainability		X
	Practitioner Capacity Building		X
	Outreach and Education		
Annualized Cost	$4-8 million based on site specific conditions		
Applicable Area	Statewide		
Timeframe	36 months		
Needed Resources	Annual MDOT FTE	Annual TIM Team Need	Consultant Support Needed?
	0.5	Yes	Yes
Project Priority	**MEDIUM**		

References

As mentioned, the only facility like this one in existence resides in Tennessee. Contact Colonel Tracy Trott at the Tennessee Highway Patrol for details. Cranberry Township, Butler County, Pennsylvania, recently turned its parking lots at its existing public safety training facility into a fully delineated driving course suitable for all responder training, representing multiple traffic situations. It is adjacent to existing classroom, burn pad, extrication pad, and fire tower. Contact Sgt. William Ahlgren for more.

Glossary of Additional Investments.

Table 15: Detailed List of TIM Investments	
Investment	Details
Automated vehicle location devices	Automated vehicle location devices give location, speed, diagnostics, and usage statistics depending on vehicle type. This data can help with NIMS compliant resource asset management and resource proximity to crash scenes. Focus on early implementation in rural areas helps scene response.
Break Mi-TIME into shorter segments	Mi-TIME training should be reexamined and a guide produced to trim training modules to short pieces, allowing the progression through the shorter modules to address time concerns, and to help with tailgate/roll call training.
Captain Clear-it needs to get out more	Captain Clear-it and a female counterpart can be scheduled to appear on a regular basis. This regularity can be promoted on social media. Where's Captain Clear-it? Leverage rest areas, welcome centers.
CAV Policy Development	Connected and Automated Vehicles pose specific threats to TIM responders, largely based on a lack of familiarity with details, much as the early issues with Hybrid and Electric Vehicles. Development of policies from the outset of the advancement will be in the best interest of TIM.
Co-location of public safety. MDOT	The shared physical space and relationships built there are worthy of continued investment of time and money. Use successes like McComb County and SEMTOC as launching pads for further talks.
Community Emergency Response Teams (CERT) use for large scale incidents and events	The Department of Homeland Security created Community Emergency Response Teams to enhance response and recovery from major incidents. Coordinating with this motivated percentage of the population can help TIM public outreach and education. https://www.ready.gov/community-emergency-response-team
Consider access gates	Access gates are used effectively in some states to reduce the need for human exposure in order to shut down limited access highways. Preventive measures like automated gates remove humans, and mechanical barriers limit the time of exposure of humans.

Table 15: Detailed List of TIM Investments	
Investment	Details
Continue to brand Mi DRIVE as an information source.	Mi-DRIVE is a resource that needs continuous promotion and engagement as a reliable pre-trip source, on-the-road source, and special event source of information. Promotion of Mi DRIVE is an important step.
Coordinate multiple modes for ESF 1	Consideration of all modes of transport, including pedestrian, will help MDOT fill its ESF 1 role. Multiple modes are more important when highway transportation is affected by TIM events. A clear plan for consideration of all modes is suggested.
Develop Scalable Scene Level Unified Command Process	Unified Incident Command principles are appropriate at every level of incident. Create an example-based job aid for those at minor, intermediate, major incident scenes and address full Unified Command in those incidents exceeding four hours.
Design for TIM	Highway design that considers responder needs in new capacity and reconstruction projects will help build relationships earlier, and pay off with emergency access a more planned part of new design.
Develop maritime relationship with TIM	The relationship among Coast Guard and other commercial maritime resources to TIM should be explored particularly on Great Lakes.
Develop TIM messaging promotions	Explore a plastic “goodie” bag with TIM-related information that can be provided to Parent Teacher Organizations and similar groups that they can use for take homes
Eliminate redundancy in safety programming	With several areas of MDOT involved in highway safety promotion, it is important to keep messaging consistent. Recognize and respect volunteers’ time by
Emergency communications plan	An emergency communications plan can be defined as a non-normal way to reach the public. It can be used when normal channels are unavailable. It is a kind of Continuity of Business plan that is a backup to normal information sharing channels. A matrix of expected communications channels with backup procedures would help MDOT and sister agencies provide meaningful information.

Table 15: Detailed List of TIM Investments	
Investment	Details
Establish TIM Command School Curriculum.	A TIM Command School would be designed to integrate existing training into an expanded curriculum. There is no requirement that new training be developed, if an inventory of command courses from various disciplines could be examined to provide cross-training among discipline leadership and command officers.
Examine over-signage in higher crash areas.	Plan and execute data collection that considers driver distraction caused by numbers of signs at higher crash areas.
Expand the use of Safety Service Patrols.	MDOT and municipal partners can be partners in planning for expansion of safety service patrols. Regional desires can be advanced to MDOT for consideration and cost sharing explored.
Expand TIM Network	Michigan-specific information sharing is important. Expanding awareness of the TIM Network and its information share potential, via website and social media, as a way for Michigan to learn more about what others are doing, and vice versa.
Field staff technology improvement	MDOT should develop and deploy technology to field staff that permits easy entry of data and information to auto populate Mi DRIVE, other applications
Focus on TIM in work zones	Work zone-based TIM activities present their own set of issues and opportunities. MDOT should continue to examine how TIM fits into contractor activities, and how contractor resources can be accessed to achieve safer, quicker clearance of obstructions in work zones.
Forward facing lights	As a compliment to a light shedding policy, new vehicles are often equipped with forward facing lights to improve opposite direction awareness. Retrofit existing vehicles as possible.
Hazmat training and exercise development	The basics of hazardous materials identification can help all responders. This is an expansion of the SHRP 2 concept that identifying that a full hazmat response is not needed saves time and enhanced quick clearance.
Improve Mi-TIME website	Consider multi-disciplinary process to populate the Mi-TIME training website

Table 15: Detailed List of TIM Investments	
Investment	Details
Improve relationship with public safety communicators.	MDOT should continue to nurture relationships with individual 911 and other public safety dispatchers, as well as involvement in the Michigan APCO activities, trainings, and conferences. MDOT presence at MiAPCO activities will send a message and provide a doorway to identifying common goals, trainings, and processes.
Integrate TIM funding in Transportation Improvement Program	The TIM community in Michigan can be more involved in pursuing transportation project investment in ITS infrastructure and systems to improve mobility and reduce congestion associated with TIM activities. A systemic approach involves local and regional responder teams identifying areas where projects might be programmed.
Integrated corridor management for alternate routes	For key alternate routes implementing integrated corridor management provides a focus of bringing together technology and TIM to reduce or better manage congestion
Interdisciplinary roll call training	Full deployment of a roll call training talks that can be adapted to all disciplines would be an outstanding way to continue to reinforce the need for multi-jurisdictional, interdisciplinary dependence and understanding. The best way to explain what any discipline does to a discipline that does not have a working knowledge is to have each discipline share its concerns, talking points, for a rollup that can be used by all. A 5-day approach could be one day each for transportation, tow/recovery, fire/rescue, law enforcement, and emergency medical.
Interdisciplinary tabletop exercise toolkit	A list of scenarios, a list of resources, and a list of random issues could be combined to begin discussion training exercises. Include normal and unexpected scenarios, a list of all resources, and the issues such as lack of personnel, lack of resources, scene access, etc. that can snarl any planned response.
Involve amateur communications network	Leveraging the existing resources of amateur radio is a way to include an underutilized resource community. Examine current plans in Michigan and develop what is needed to engage that community as a traveler information input and output channel.

Table 15: Detailed List of TIM Investments	
Investment	Details
Joint Operations Policy	A joint operations or operational policy clarifies the commitment and expectation of every responder unit or organization, and adds to reliability and sustainability.
Leverage commercial vehicle dispatchers	Partnerships with commercial vehicle dispatchers can be a source of information that help detect and understand disruption impacts. An information sharing system could provide an additional level of situational awareness.
Leverage FirstNet (https://www.firstnet.gov/)	Michigan should continue to be involved in FirstNET activities to monitor how its processes and protocols might improve Michigan's interoperability of communications.
Light Shedding	Studies have shown that responder vehicles can blind drivers approaching a scene, especially at night. Agencies should create a joint light shedding policy to find the correct balance of lighting to optimize responder and driver safety.
MDOT Emergency Operations Center Process and Plan	Examine processes used by MDOT representatives in the state EOC and provide linkage to the TIM programming and TIM relationships.
Monitor high-visibility standards	A continuing emphasis on high-visibility clothing, traffic control devices, lighting, and high-visibility markings (conspicuity) on vehicles should be maintained, and any new developments shared within the community. This could be a Mi-TIME web focus as well
Multi-agency crisis communication plan	The single most important interface with the public in a major event is a reliable, consistent source of information. Agencies that have planned public information material, deployment strategies, and a clear understanding by the public where to receive that information is important.
Multiple modes training exercises	MDOT should work with rail companies, airports to prepare meaningful rail-highway scenarios for training exercises, and perhaps integrate that into regional MDOT training expectations.
Online information sharing among responders	Private Facebook groups, list serves, email blasts and other devices can encourage sharing of information. The PennTIME Facebook group in Pennsylvania is an example.

Table 15: Detailed List of TIM Investments	
Investment	Details
Partner on outreach materials	MDOT can work with AAA of Michigan and the Michigan Association of Insurance Agents to develop and distribute information meaningful to all. Steer It, Clear It materials and explanation of laws can be coordinated with these associations to provide another information avenue. Sometimes, MDOT alone is not sufficient to get the message across.
Professional education credit for TIM training	MDOT should continue efforts to gain recognition for existing Mi-TIME training, and any additional training that might quality for the same kind of credits. This examination should be done by an expert in professional education accreditation.
Professional media involvement plan	Use the MDOT press office's contacts to involve them in establishing a mass media approach that is co-driven, rather than MDOT-driven. A statewide media advisory panel of large and small radio and TV, large and small print, regional and statewide digital-only channels might be in order.
Promote highway location identification.	MDOT can continue to make its drivers partners by explaining any location identifiers, including mile markers, so that drivers feel engaged, rather than confused. This can be as simple as a pamphlet and speaking at civic clubs and organizations to engage community.
Public works mutual aid process	Municipal public works departments are a good source of equipment, materials, labor, and expertise in the event that normal MDOT resources are stretched or unavailable. A plan for each county to coordinate resources is suggested.
Quarterly communications plan	A quarterly newsletter type of approach, directed at Mi-TIME instructors, responders, and drivers, should be developed, to augment TIM Action Team activity reports.
Resource training with MDOT mapping	MDOT mapping can be provided in a usable format to responder communities so that TIM discussions represent clearly the interdependence of the transportation network. Include rail and air facilities where possible.

Table 15: Detailed List of TIM Investments	
Investment	Details
Rural designated DOT responders	In rural areas responders typically serve multiple functions, even within MDOT. Determine which maintenance forces serve as responders and provide them with necessary equipment to respond.
Rural heavy towing response plan development	With fewer resources and greater coverage areas, rural heavy towing is less about competition and more about response capabilities, along with proper need identification. MDOT and MSP should develop response plans for rural areas that have high percentages of truck volumes to speed up recovery from large vehicle crashes.
Rural incident response plans	In some rural areas incidents are not frequently occurring events. However when they do occur, responder safety is just as important. Review high crash location rural areas and pre-plan responses.
Rural use of crash attenuators	In rural areas, scene protection can be enhanced by the use of truck or trailer mounted attenuators. In addition, automated vehicle attenuators can help improve scene safety without increasing personnel levels. MDOT should invest in a pilot project to field these vehicles while expanding availability of traditional mobile attenuator equipment.
Situational awareness policy for information flow	An incident communication process and situational awareness policy can improve response, recovery, and responder safety. This can be accomplished with technology or through coordination with traffic management and dispatch centers.
Social media usage standards for TIM.	Social media's focus on brevity and clarity is important. Social media standards to give information on work zones and TIM activities would help make tweets and posts more effective.
Statewide NIMS training expectations	MDOT should work with its emergency management training partners to clearly define which personnel from all agencies should be encourage and enabled to share in NIMS/ICS training. Classroom ICS courses pay dividends.

Table 15: Detailed List of TIM Investments	
Investment	Details
TIM Conference expansion project	TIM workshops and conferences beyond the statewide Governor's Conference can build relationships within regions and among regions. Cooperative sponsorships among MDOT, MSP, and state responder organizations, driver associations, freight, and insurance associations.
TIM Executive Training Course.	Executive training is generally thought to be an overview of the specifics of detection, verification, dispatch, ingress, scene activity, egress, and recovery efforts, for the purpose of executives understanding how policy, funding, and personnel deployment affect lives on the highway.
Tow trucks for safety service patrols	Pennsylvania and other states use tow trucks for safety service patrol vehicles. This improves clearance of inoperable vehicles and clearance of vehicles in narrow shoulder areas.
TRAA Vehicle Identification Guide	This guide provides basic categories for vehicle types and sizes. When used by on-scene responders, dispatch centers, and traffic management centers towing and recovery companies can dispatch the correct resources, reducing incident duration.
Traffic control kits assigned to responders or appropriate field staff.	Tennessee has developed incident control kits with proper equipment so when responders order replenishment, the kits are automatically stocked with the proper amount of items such as cones, vests, etc.
Training public safety communications professionals.	MDOT can work with MiAPCO to define needs, then coordinate planning to create education, training, exercise, and evaluation, including self-evaluation, that can be used by communicators to improve TIM understanding, appreciation, and engagement.
Video sharing policies	Video sharing policies covering sharing of information to and from Traffic Operations Centers should be pursued with all parties interested.

Further Assessments of Safe, Quick Clearance Strategies – Phase II

Appendices

Contents

Appendix A: Detailed Literature Review 95
Appendix B: Regional Workshop Presentation 115
Appendix C: Visioning Workshop Presentation 128
Visioning Workshop Brainstorming Results 195
Michigan TIM Strengths 195
Michigan TIM Opportunities 196
Michigan TIM Critical Success Factors 198
Michigan TIM Goals for the Future 200
Appendix D Motorist Survey Summary 202
Online and Phone Interview Questions 203
Survey Development 213
Weighting Methodology 214
Weighted Survey Results 215
Demographic Summary 216
Gender and Age 216
Education 217
Race/Ethnicity 218
Travel Patterns 218
Media Usage 219
Awareness of Steer It, Clear It Law 231
Awareness of Move Over Slow Down Law 239
Traveler Information Sources 246
Awareness of Social Media 249
Social Media Monitoring Summary 251
Conversation by the Numbers 251
Word Cloud of Conversation Drivers 251
Activity Breakdown by Network 252
Audience Demographics 254
Content and Influencer Insights 255
Twitter 256

Word Cloud of Conversation Drivers 256
Content Analysis 257
Influencers 257
Summary & Recommendations 258
Development of the Captain ClearIt flyers 259
General sampling plan 259
Appendix E: Wisconsin Crash Investigation 262
Appendix F: Washington State Incentive Towing Program Handbook 265

Appendix A: Detailed Literature Review

Benefits of Traffic Incident Management			
Date Published:	2006	Agency:	National TIM Coalition

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	

- National Unified Goal (NUG) for Traffic Incident Management
- Measuring Benefits

Publication Summary

This document discusses the benefits of Traffic Incident Management programs that work toward the common National Unified Goal (NUG) which aims to keep responders and the traveling public safe, as well as effectively clear the roadways to reduce congestion.

This document is applicable to this project due to the discussion of public and responder safety resulting from effective TIM practices. Not only is congestion reduced, but the mortality rate is also reduced when effective TIM programs are in place.

Effective TIM programs involve performance measures such as a reduction in roadway and incident clearance time. However, to reach these performance measures, agencies must work together to effectively communicate and coordinate toward the common goal.

Important Links and/or Key References

http://ntimc.transportation.org/Documents/Benefits11-07-06.pdf

State of New Jersey Highway Incident Traffic Safety Guidelines For Emergency Responders			
Date Published:	2014	Agency:	State of New Jersey

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	x

- Introduction
- Definition of terms
- Incident management
- Roles and responsibilities
- Recommended equipment
- General safety and risk management
- Incident response
- Arriving on scene
- Traffic control
- Demobilization
- Guideline maintenance and updates
- Feedback and resolution process

Publication Summary

This document serves as a safety guideline on Highway Traffic Incident Management for Emergency Responders with the goal of providing best practices to keep our first responders safe on the highways.

This document applies to this project by providing best practices of incident response in order to keep first responders safe. This document covers a variety of areas including vehicle positioning, wearing appropriate Personal Protective Equipment (PPE) and high visibility vests, protecting the scene, etc.

A significant area for further discussion in this document is the importance of high visibility to oncoming traffic. It is emphasized several times throughout the document that it is essential to wear high-visibility vests and gear to ensure that the oncoming traffic can see the first responder. Another factor in visibility is the protective positioning of vehicles to ensure responder safety.

Important Links and/or Key References

http://webcache.googleusercontent.com/search?q=cache:f-0EGok_mloJ:kms.timnetwork.org/getAttach/110/AA-00394/Statewide%2BGuidelines%2BVer%2B2%2BENDORSED%2B2014.pdf+&cd=1&hl=en&ct=clnk&gl=us

Successfully Managing Traffic Incidents is No Accident			
Date Published:	July/August 2013	Agency:	FHWA

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	

- TIM Defined
- Safety and Incident Management
- Congestion Caused by Crashes
- FHWA's Role in TIM
- National Leadership on Legislation
- Leadership on Coalition Building
- National Unified Goal
- Executive-Level Support
- Safety Service Patrols
- Advances in Visibility
- Training for Practitioners
- Public Awareness and Education
- Looking Ahead to 2023

Publication Summary

This document defines Traffic Incident Management, as well as discusses best practices and the importance of leadership, training, and Developing and Sustaining TIM programs.

This document is applicable to the project due to its discussion of best practices of TIM. This document offers up many different areas of discussion that are of value including the importance of training and executive leadership buy-in, as well as advances in visibility which includes reflective visibility patterns on response vehicles as well as high-visibility vests that help ensure the safety of first responders.

Another significant topic of discussion from the article is public awareness and education of Traffic Incident Management. The public must also be aware of the state's Move Over Laws as well as how to handle an incident scene to ensure the safety of both the traveling public and first responders, and to prevent secondary crashes from occurring.

Important Links and/or Key References

https://www.fhwa.dot.gov/publications/publicroads/13julaug/05.cfm

Hampton Roads Transportation Operations Center 2013 Highlights			
Date Published:	2013	Agency:	VDOT

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	x
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	x

- Recaps
- Training, safety, and incident management
- IT management
- Maintenance
- Control room
- Safety service patrol
- Know before you go

Publication Summary

This document reports on the function and best practices of a Transportation Operations Center (TOC). Several topics are discussed throughout the document that can be applicable in other areas which include training, safety, incident management, and a safety service patrol.

This TOC report is applicable to this project due to its discussion of a well-functioning Traffic Operations Center as well as the benefits of training and the use of a safety service patrol. Safety Service Patrols (SSPs) serve to quickly and safely assist motorists as well as reduce congestion and delay. This document also emphasizes the importance of safety meetings, to discuss any current issues and to reinforce the emphasis of a safe work environment. This idea can be translated to other areas of Traffic Incident Management and responder disciplines as well.

Another significant topic of discussion in this document is that of informing the traveling public with motorist information through the following venues: 511, Highway Advisory Radio, Internet, Lane Closure Advisory Management System, Social Media, DMS messaging system.

Important Links and/or Key References

http://www.virginiadot.org/travel/resources/Hampton_Roads/HRTOC_2013_Annual_Report.pdf

Traffic Incident Management Quick Clearance Guidance and Implications			
Date Published:	February 2016	Agency:	Virginia Transportation Research Council

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	x
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	x
Training	
Detour Route Awareness	
Other	

- Introduction
- Purpose and scope
- Methods
- Results

Publication Summary

The guidelines that were documented were a result of a study conducted by the Virginia Department of Transportation in which they piloted a quick clearance policy called Operation Instant Tow. Under this instant tow policy, a tow truck and Virginia state trooper were dispatched simultaneously, which reduced clearance times.

This document is applicable due to the traffic management strategies of working together towards he common goal of quick clearance, and keeping first responders safer by working together.

The document also discussed the development of a data tool that would provide VDOT with additional mechanisms to strengthen the outreach to emergency responders as well as improve awareness of the incident lane closures.

Important Links and/or Key References

http://www.virginiadot.org/vtrc/main/online_reports/pdf/16-r9.pdf

Work Zone Hazards Workbook – Occupational Safety and Health Administration (OSHA)			
Date Published:	2008	Agency:	Construction Safety Council

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	x

- Introduction to OSHA
- Introduction to MUTCD
- Worker Safety Considerations
- Competent Person & Training
- High Visibility Safety Apparel
- Temporary Traffic Control Zones
- Advanced Warning Area
- Transition Area
- Activity Area
- Traffic Control Devices
- Flagger Qualifications
- Flagger Operations
- Internal Traffic Control Plan
- Motor Vehicle Safety
- Emergency Planning & Response
- MUTCD References

Publication Summary

This document covers the importance of training and high visibility gear when it comes to work zone safety according to the Manual of Uniform Traffic Control Devices (MUTCD).

This document is applicable to this project in its discussion of high visibility gear in work zones and traffic management. One of the most important aspects emphasized, is that workers are required to wear ANSI 107 certified vests that require a 360-degree visibility; this means that the responder wearing the vest can be seen from all sides.

Another significant issue discussed in this document are the use of traffic control devices which involve messages, location, size, shapes, and colors that help to reduce crashes and congestion of traffic.

Important Links and/or Key References

https://www.osha.gov/dte/grant_materials/fy08/sh-17795-08/workzone_hazards_awareness_english.pdf

Best Practices Supporting TIM Through Integrated Communication Between Traffic Management Center and Law Enforcement and Effective Performance-Measurement Data Collection			
Date Published:	September 2013	Agency:	AASHTO/NCHRP

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	x
Traffic Management Centers	x
Radio Communications	x
Written Agreements	x
Towing Community Outreach	x
Training	x
Detour Route Awareness	
Other	

- Background
- Data Collection
- Scan Tour
- Key Findings
- Recommendations
- Implementation Strategy

Publication Summary

This document provides guidance for best practices for creating collaboration and communication among TIM operators and law enforcement. The National Unified Goal for TIM are the three strategies of Responder safety; Safe, quick clearance; and Prompt, reliable incident communications. These goals are reached through effective communications between and among TMC staff and law enforcement as well as other TIM partners. Radio communications is an effective way to help enhance and facilitate faster coordination.

This document is applicable to this project due to the many factors of TIM that it discusses, including multiple forms of communication and outreach, training, written agreements among agencies, written Standard Operating Procedures (SOPs), and best practices of Traffic Incident Management.

One significant issue to be further discussed that this document covers is the topic of communication and gaining trusting relationships between the law enforcement community and TIM partners such as the towing community. In order for an incident to be cleared quickly and safely, everyone must work together for the safety of the responders and travelers. Outreach and communication can take many forms such as regional stakeholder meetings and workshops used as an education tool, as well as to build trusting relationships.

Important Links and/or Key References

http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-68A_10-04.pdf

Florida Traffic Incident Management Program Strategic Plan			
Date Published:	February 2006	Agency:	Florida Department of Transportation

Category	Applicable
TIM Teams	
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	x

- Introduction
- Current Status of TIM in Florida
- Mission, Vision, Goals, and Objectives
- TIM Strategic Plan
- FDOT's Traffic Incident Management Business Plan
- Concluding Recommendation

Publication Summary

This Strategic Plan was written to identify actions and programs to help sustain the commitment to and expand the TIM program in Florida to help meet the needs of the traveling public, and to keep first responders safe.

Florida is working to enable all TIM personnel to participate in a common interagency communications system with the need for statewide programming.

This Strategic Plan also emphasizes outreach with other organizations that provide support to the state's safety program, such as the Community Traffic Safety Teams, professional associations, auto clubs, and insurance companies. A successful TIM program includes communication throughout various agencies.

Important Links and/or Key References

http://www.fdot.gov/traffic/Traf_Incident/pdf/TIM%20Strategic%20Plan%20Final.pdf

Traffic Incident Management Teams			
Date Published:	2016	Agency:	Florida Department of Transportation

Category	Applicable
TIM Teams	x
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	

- Traffic Incident Management Teams

Publication Summary

This document discusses the importance of TIM Teams and the benefits that occur from effective communication and coordination.

This document is applicable to this project through the discussion of the highly recommended TIM Teams to be in place for effective communication concerning Traffic Incident Management.

Emphasized in this article is the importance of communication and coordination of various people toward the common goal of reducing congestion and keeping first responders safe. It takes the work and attention of various stakeholders to reach this common goal. In Florida, TIM Teams are active in all of the FDOT districts. These teams consist of representatives from responding agencies and the towing community as well. These teams serve to review past response actions, look for areas of improvement, and conduct training.

Important Links and/or Key References

http://www.fdot.gov/traffic/traf_incident/TIM_Teams.shtm

Georgia Traffic Incident Management (TIM) Guidelines			
Date Published:	March 2011	Agency:	Georgia TIME Task Force

Category	Applicable
TIM Teams	x
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	x

- Introduction
- GA Traffic Incident Management Foundation
- Incident Management Process
- Incident Types/Classifications
- Priorities at an Incident Scene
- Stakeholder Responsibilities
- Responder Safety
- Emergency Temporary Traffic Control and Scene Safety
- Incident Actions
- Glossary Terms

Publication Summary

This document was written by the Georgia Traffic Incident Management Enhancement (TIME) Task Force to provide standard recommendations for traffic incident management and operations.

This document applies to this project by listing recommendations as well as responsibilities of different TIM disciplines at an incident scene, which reduces confusion. This document lists the roles and responsibilities of the different TIM stakeholders in writing that illustrates effective communication and coordination.

A significant item fir further discussion in this document would be the importance of High-Visibility apparel/safety vests. High reflective gear can save the lives of first responders by making them visible to the traveling public.

Important Links and/or Key References

http://www.timetaskforce.com/documents/TIM/Georgia%20TIM%20Guidelines%202011.pdf

Pennsylvania State Transportation Advisory Committee: Traffic Incident Management			
Date Published:	February 2014	Agency:	PennDOT

Category	Applicable
TIM Teams	x
Traffic Management	x
Emergency Responder Outreach	x
Traffic Management Centers	x
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	

- Introduction and Background
- Overview of TIM in Pennsylvania
- TIM Best Practices Overview
- Representative National/Regional TIM Practices
- Findings and Recommendations

Publication Summary

This document discusses Traffic Incident Management best practices in Pennsylvania, and provides recommendations moving forward.

This document is applicable to this project due to the discussion of MPO leadership and training in Pennsylvania to help facilitate regional TIM programs and the TAC (Transportation Advisory Committee) task force.

Recommendations include making sure that the traveling public is educated and aware of Move Over Laws; the need for a coordinated statewide, multidisciplinary TIM panel, and the need for a coordinated, unified, state TIM training program.

Important Links and/or Key References

https://www.dot.state.pa.us/public/pdf/STCTAC/TAC/Reports/TAC%20Incident%20Management%20-%20February%202014%20-%20Final%20Report.pdf

Making the Connection: Advancing TIM in Transportation Planning			
Date Published:	October 2015	Agency:	FHWA

Category	Applicable
TIM Teams	x
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	x
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	x

- Benefits for TIM professionals and planners
- Benefits for Regional Planners
- Case Study

Publication Summary

This document discusses the benefits of integrating Traffic Incident Management (TIM) into transportation planning. The document discusses the benefits for TIM professionals, as well as transportation planners.

This document is applicable to this project due to the various topics of TIM Teams, trainings, and access to resources being covered.

Integrating TIM and transportation planning opens up access to resources. By coordinating with other TIM stakeholders, supporting TIM strategies in transportation planning can help facilitate discussion of TIM funding. The document also emphasizes the need for TIM partners to communicate effectively and work together toward the common goal.

Important Links and/or Key References

http://ops.fhwa.dot.gov/publications/fhwahop13044/ch2.htm

Best Practices in Traffic Incident Management			
Date Published:	September 2010	Agency:	FHWA

Category	Applicable
TIM Teams	x
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	

- Task-Specific Challenges and Strategies
- Cross-Cutting Challenges and Strategies
- Concluding Remarks

Publication Summary

This document highlights the best practices and recommendations from an international scan tour conducted in Europe by a team of US TIM Experts to help improve Traffic Incident Management in the United States.

One of the recommendations from the international scan led to the development of the National Unified Goal (NUG) which consists of three major goals and eighteen strategies that are related to responder safety; safe, quick clearance; and prompt, reliable interoperable communications.

The basis for effective TIM practices is the need for training among first responders in the realms of safety, and safe, quick clearance.

Important Links and/or Key References

http://ops.fhwa.dot.gov/publications/fhwahop10050/fhwahop10050.pdf

Traffic Incident Management Teams Best Practice Report			
Date Published:	March 2010	Agency:	Delcan Corporation for the I-95 Corridor Coalition

Category	Applicable
TIM Teams	x
Traffic Management	x
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	

- Introduction
- Best Practices for TIM Teams
- Resources

Publication Summary

TIM Teams:

- coordinate activities to reduce the time it takes to respond and clear incidents on the roadway;
- manage the flow of traffic throughout the duration of the incident;
- develop best practices in order to keep responders safe and help prevent/reduce secondary crashes.

This document is applicable to this project due to discussing the benefits of TIM Teams as well as the key factors of successful TIM Teams which include: creating a dialogue for better inter-agency exercising of the 4-C's of communication, collaboration, cooperation, and coordination; creating opportunities for inter-agency training and exercises, which promotes teamwork; creating a plan for developing common operational strategies; creating better understanding of other agencies and their responsibilities; and creating practices that help the regional area as well as the local area.

It is most important to establish a leader, or a champion individual or discipline/agency that will help to promote TIM within the region and work toward developing a team and team approach. It is also important to consider that creating a TIM Team involves significant commitment by all stakeholders in order to set goals and objectives, and ultimately initiate implementation of best practices.

Important Links and/or Key References

http://www.i95coalition.org/wp-content/uploads/2015/03/TIMTeamBestPracticesFINALREPORT.pdf

Education and Training Strategies to Encourage Traffic Incident Management Best Practices in Tennessee			
Date Published:	October 2008	Agency:	Vanderbilt Center for Transportation Research

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	x
Detour Route Awareness	
Other	

- Introduction
- Message
- Audience
- Resources
- Recommendations

Publication Summary

This document summarizes a research project that established a more cost effective statewide program to ensure that first responders are being trained in the best practices of traffic incident management.

This document is applicable to this project due to its discussion of best practices in the area of training first responders.

The following were deemed as best practices in training first responders:
1. Follow the principles of NIMS, incident command, and unified command—and help accomplish respective missions 2. Carry out on-scene tasks concurrently (in parallel) and with urgency 3. Open as many lanes as possible as soon as possible 4. Minimize the number of people and vehicles at the scene 5. Be smart in positioning vehicles and equipment 6. Reassess the scene and adjust at least every 30 minutes 7. Wear reflective vests and use other PPE 8. Use cones and other traffic control devices (comply with the MUTCD) 9. Manage traffic proactively (at the scene, across from the scene, and at the back of the queue) 10. Communicate with partners and stakeholders 11. Recognize the impact of your actions—be part of the solution 12. Debrief and improve practices and procedures

Important Links and/or Key References

http://www.vanderbilt.edu/vector/research/TDOT_Educ_and_Trng_finalreport.pdf

Traffic Incident Management Teams Best Practice Report			
Date Published:	2012	Agency:	Texas A&M University

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	x
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	

- Description
- Target Market
- How will this help?
- Implementation Examples
- Application Techniques and Principles
- Issues
- Who is Responsible?
- Cost
- Data Needs

Publication Summary

Traffic Management Centers (TMCs) function to detect congestion and crashes for major streets and highways. Operators monitor CCTV systems and alert the proper responders and drivers via DMS boards when problem areas or crashes occur. This saves drivers time and helps to reduce the risk of a secondary crash through the use of sensors, cameras, and other technology. This document is applicable to this project due to discussing the benefits of TMCs which address both local and regional needs and can detect crashes quicker to help reduce incident time. Other factors to consider would be the cost of implementation which includes any data needs such as roadway sensors, signals, and CCTV cameras. Below is a list of best practices for a traffic management center.

Traffic Management Center Best Practice

- Type of Location: One or more urban areas with other models are possible.
- Agency Practices: Financial and operational commitment to work cooperatively with regional partners to improve traffic operations and emergency response capabilities associated on the transportation network.
- Frequency of Reanalysis: Long-term commitment to TMC partnership both to implement the system and to remain effective in managing transportation system operations and emergency needs over a long period of time.
- Supporting Policies or Actions Needed: Financial commitment to long-term capital and operating expenditures.
- Complementary Strategies: Signal operations and management, aggressive incident clearance, all active traffic management strategies, road weather management, traveler information management, special event management, managed (HOV/HOT) lanes, variable pricing, and reversible traffic lanes.

Important Links and/or Key References

https://mobility.tamu.edu/mip/strategies-pdfs/traffic-management/technical-summary/traffic-management-centers-4-pg.pdf

Memorandum of Agreement for Transportation Planning and Programming by the between the City of Lincoln Metropolitan Planning Organization and the Nebraska Department of Roads			
Date Published:	2012	Agency:	Lincoln MPO and Nebraska Department of Roads

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	x
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	

- Memorandum of Agreement (Understanding)

Publication Summary

This document is a Memorandum of Understanding between the City of Lincoln MPO and the Nebraska Department of Roads.

This document illustrates the benefits of written agreements between transportation agencies for the benefit of Traffic Incident Management practices.

Clearly documenting roles and responsibilities in a written document demonstrates and documents common practice for Traffic Incident Management. This helps to create better communication and coordination between among TIM Stakeholders and transportation planners.

Important Links and/or Key References

https://**lincoln**.**ne**.gov/**city**/**plan**/**mpo**/off/reports/2013/130228/moa.pdf

Advantages and Disadvantages of Two-Way Radio versus Cellular			
Date Published:	July 2015	Agency:	Staley Communication

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	x
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	

- Advantage: New Technology
- Advantage: Reliability
- Disadvantage: Limited Range
- Advantage: Lower Lifetime Cost
- Advantage: Easy Group Communication

Publication Summary

This document provides a comparison of the use of two-way radio communications for first responders over the use of cellular devices.

This document covers the topic of radio communications and the advantages that outweigh the disadvantages of using radio versus cellular devices in emergency response. The advantages that were covered were the use of new technology which incorporates many of the same features as a smart phone would; radio communications being much more reliable than cell phone coverage; the overall lower lifetime costs of radio communications; and the easy communication factor among multiple people.

The one disadvantage that was discussed was the limited range of radio communications; however, it was clear that the advantages outweighed the disadvantage discussed.

Important Links and/or Key References

http://www.staleycom.com/blog/advantages-and-disadvantages-of-two-way-radio-versus-cellular/

Determining the Relative Impact of PSAs and Brochures Upon General Public Drivers Interfacing with Emergency Service Vehicles			
Date Published:	February 2012	Agency:	VFIS Education, Training, and Consulting

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	x

- Executive Summary
- Background and Problem Statement
- Purpose and Scope of the Study
- Brief Overview of Emergency Responder Highway Safety Issues
- Public Service Announcements
- Analysis of Educational Outreach Activities
- Conclusions and Recommendations

Publication Summary

This document discusses the effectiveness of Public Service Announcements (PSAs) and brochures for communicating messages of importance to individuals. The goal of this project was to raise awareness so as to reduce the number of secondary crashes caused, and ultimately the number of deaths resulting from secondary crashes. This project was based on two problem statements that are the foundation for recommendations:

1. There is a lack of consistency and agreement of the different roles of emergency responders and operating near traffic; and
2. The general public lacks understanding of the role of responders during the incidents.

This document suggests that the way to rectify these issues is through education and awareness. Suggestions include modifying driver's education programs, and aggressive public education campaigns through the use of PSAs and brochures, etc.

This document covers the importance of educating the traveling public on how react during incidents so as to keep responders safe as well as preventing a secondary crash from occurring.

Some factors to consider are concerning the effectiveness of PSAs. The article states that PSAs are only as good as their distribution. PSAs need to be distributed to a large group of people so as best to spread the message and awareness. Another factor in PSA usage is that PSAs should be simple and repeat a single theme.

Important Links and/or Key References

https://www.ncjrs.gov/pdffiles1/nij/grants/238779.pdf

Lesson Learned: West Virginia Finds, Targets Additional TIM Funding			
Date Published:	2014	Agency:	West Virginia Department of Highways Traffic Engineering

Category	Applicable
TIM Teams	
Traffic Management	
Emergency Responder Outreach	
Traffic Management Centers	
Radio Communications	
Written Agreements	
Towing Community Outreach	
Training	
Detour Route Awareness	
Other	x

- Large Road System
- Fatalities
- Funding

Publication Summary

This document discusses the need for further Traffic Incident Management (TIM) funding in order to keep first responders and the traveling public safe.

Further TIM funding helps to increase mobility of traffic as well as to enhance the safety of motorists and first responders.

West Virginia found an approach to further funding through the following projects/programs:

- $25,000 to beta test FHWA TIM training in 2 locations in WV
- $180,000 in Consultant Services to develop TIM program and state specific training
- $1,000,000 set aside to assist any public agency participating in the WV TIM program with cones, roll-up signs, vests, and training materials

Important Links and/or Key References

http://kms.timnetwork.org/article/AA-00403/63/Industry-Topics/Funding/Lesson-Learned%3A-West-Virginia-Finds-Targets-Additional-TIM-Funding

Appendix B: Regional Workshop Presentation

Project Overview

- Continued effort by MDOT to partner for improvement in:
  - Emergency responder safety
  - Safe quick clearance of traffic crashes
- Project Objectives
  - Investigate national best practices that could be useful in Michigan
  - Conduct an updated survey of Michigan's driver knowledge of safe, quick clearance laws
  - **Assess the statewide TIM program and determine opportunities for improvement**
  - Develop a toolkit for safe, quick clearance outreach and high visibility garments
  - Develop a list of investments to enhance safe quick clearance

MDOT

Who and what we are

LET'S SET A COMMON OPERATING PICTURE FIRST

MDOT

Today's Purpose

- Discuss our progress
  - Toward Michigan TIM Action Plan Goals
  - Meeting FHWA TIM objectives
- Discuss our obstacles
  - What is slowing us down in our region?
- Discuss improving TIM
  - Responder Safety
  - Safe, Quick Clearance
  - Prompt, Reliable Communications

Introduction: *About the Facilitators*

- **Rusty James**
  - 30+ year Lenexa Police Department
  - 1 ½ years with NHTSA as Law Enforcement Liaison Central Region
  - 7 years Incident Management Coordinator with the MoDOT in Kansas City
- **Chuck Yorks**
  - 24-year veteran of newspaper reporting and editing
  - 5.437 years with PennDOT in community relations
  - 15 years Public Information Officer, NIMS/ICS trainer, incident management consulting
- **Self Introductions for all attendees**
  - Who am I? What do I do? I have been involved with TIM in the following ways...

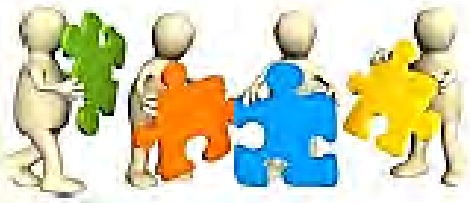
Introduction: *Defining TIM*

- Planned and coordinated incident response
- Multi-disciplinary process
- Detect, respond to, and clear traffic incidents
- Restore traffic as safely and quickly as possible

- *Which is most important to you as an individual traveler?*
- *What about in your TIM hat?*

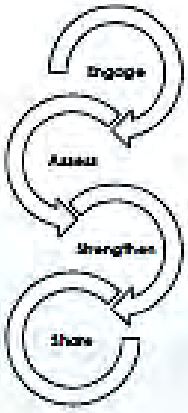
TIM Partners: Do we have who we need? More?

- 911 Dispatchers
- Emergency Management
- Fire Services
- Hazmat
- Law Enforcement
- Media
- Medical Examiners
- Metropolitan Planning Organization
- Planners
- Towing and Recovery
- Transportation
- Universities



Meeting objectives today

- **Engage** in a structured conversation about this region's TIM program
- **Assess** our strengths (progress) and opportunities (obstacles) locally
- **Strengthen** or establish relationships among response agencies and individuals
- **Share** those associated with statewide program efforts our regional vision



MDOT

Where we are

LET'S ASSESS PROGRESS ON GOALS IN THE MICHIGAN TIM ACTION PLAN

MDOT

Promote High-Visibility Apparel

- ☐ Survey agencies and companies on standards
- ☐ Create a toolbox for first responders with materials to use for training and documentation examples
- ☐ Educate on benefits at academies, in-service trainings
- ☐ Promote high-visibility requirements via newsletters and associations.

Coordinate Incident Response Among Responders

Continue Mi-TIME / SHRP 2 TIM TtT Program

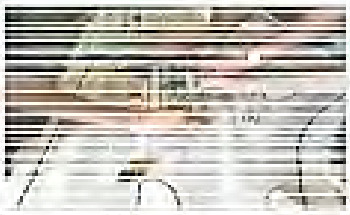
Revise Mi-TIME program material to include all first responder needs.

Develop guidelines and templates (After Action Reviews (AAR) for traffic incidents)

- ☐ Develop educational video (who's in charge at scenes)

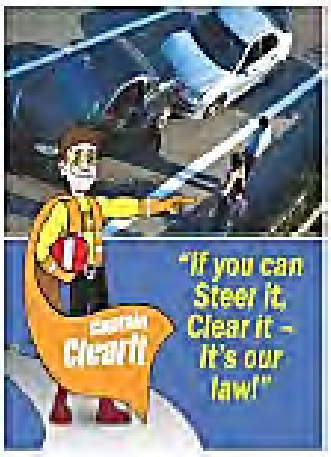
Conduct TIM Training for all Stakeholder Groups

- ☐ Encourage TIM general session and breakout sessions at Traffic Safety Summit
- ☐ Champion TIM topics at conferences and training
- ☐ Continue MI-TIME/SHRP 2 TIM TtT Program
- ☐ Revise program material to include all first responder needs.
- ☐ Incorporate TIM in tabletop exercises and work with Emergency Management



Educate Public on Safe, Quick Clearance, Vehicle Removal laws

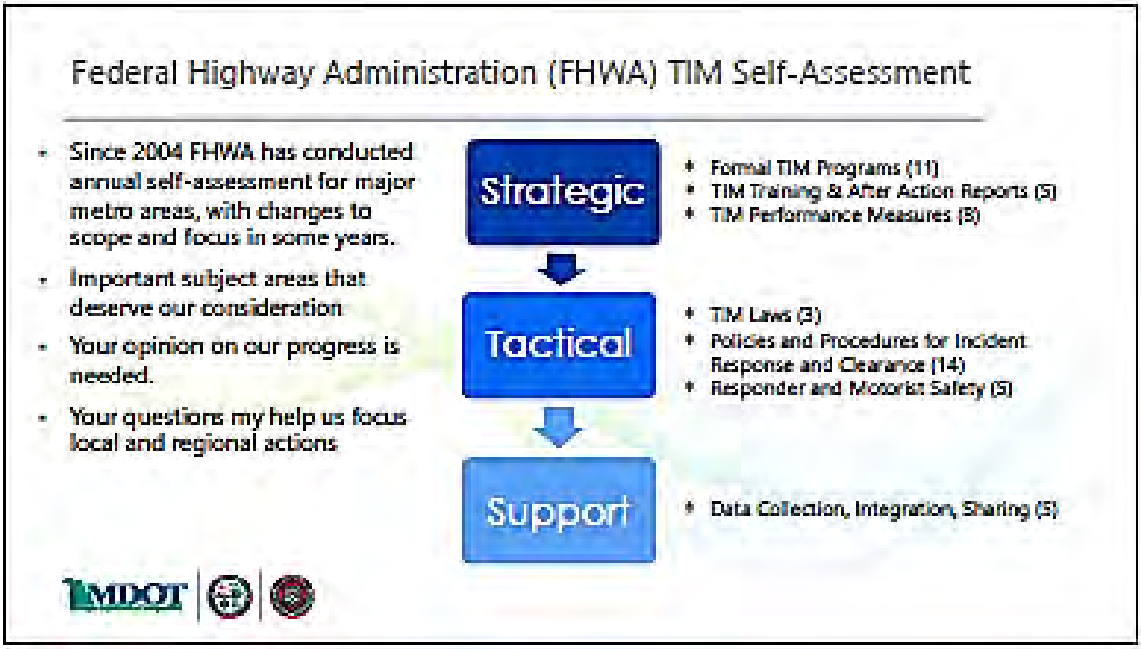
- ☐ Continue to use Captain ClearIt
- ☐ Dynamic Message Board messages
- ☐ Screen messages at Secretary of State branch offices
- ☐ Brochures
- ☐ Move Over Law

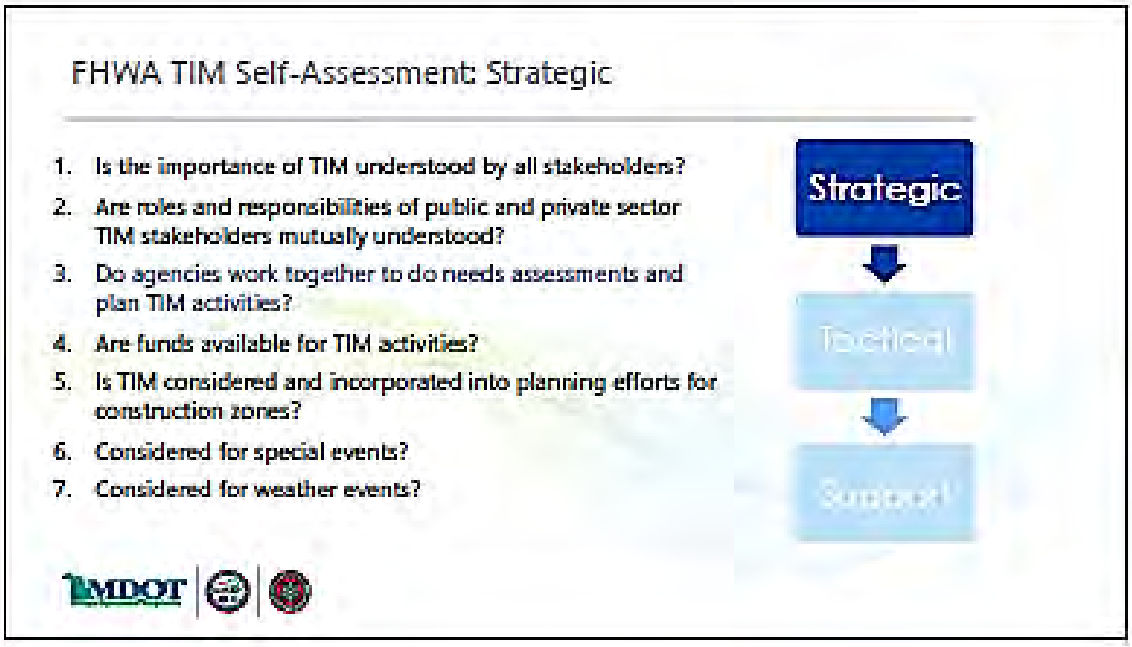


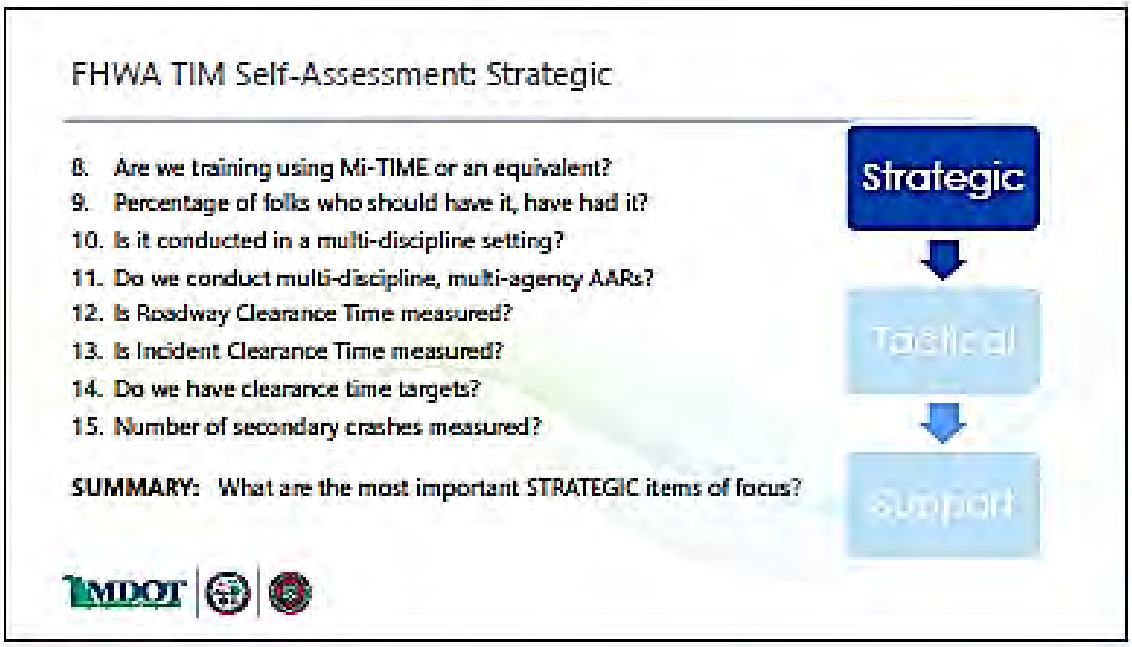

Resources designed for you
• Website Access
• http://www.michigan.gov/mi-timesafe
TIM
MDOT

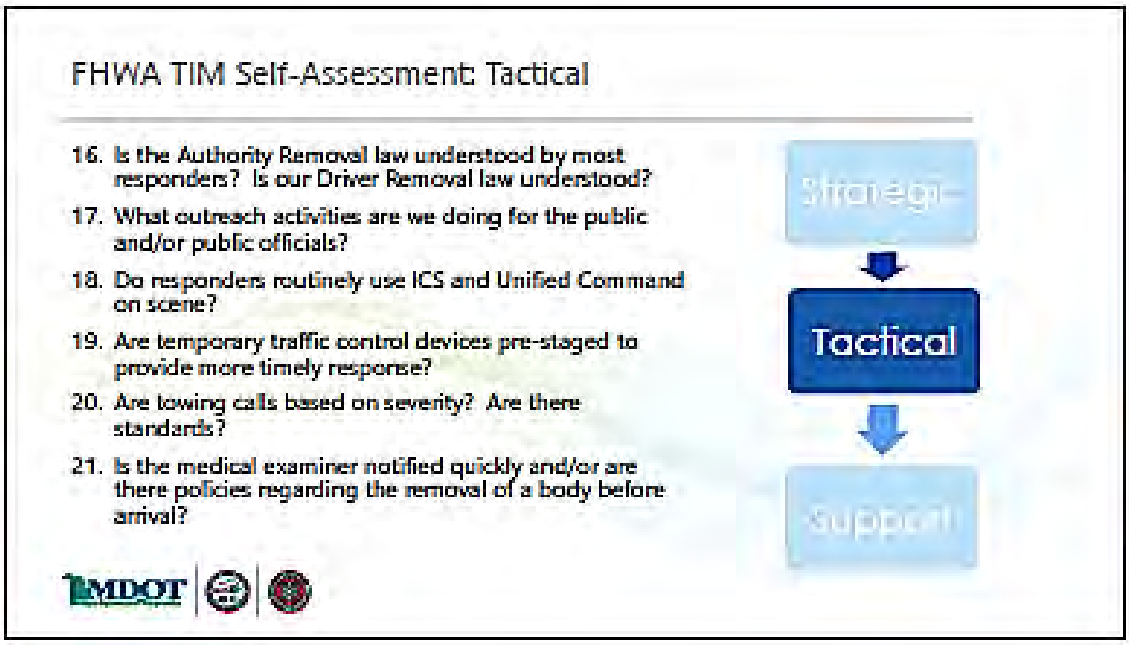

Resources designed for you
• http://www.michigan.gov/mi-timesafe
TIM
MDOT
Resources and Meeting Information
• PSA - Broken down or in a crash? Video
• Michigan TIM Action Plan
• TIM 2013 Accomplishment
• TIM Action Team
• FHWA Traffic Incident Management
• MI-TIME/SHSP2 National TIM Responder Training
• Traffic Incident Management Video
• ITS World Congress – Mock Incident
• Meeting Minutes
• 4-06-2016 Action Team Mtg Minutes
• 2-03-16 Action Team Mtg Minutes
• 12-08-15 Action Team Mtg Minutes
MI-TIME Links
• MI-TIME Trainer Application and Commitment Form
• MI-TIME Training Materials
• MI-TIME Trainer Agenda
• High Visibility
• National Unified Goal (NUG)
• Responder Safety
• TIM Network
• Steer It, Clear It
• MI Drive
• TIM Traffic Response Video
• Michigan Manual of Uniform Traffic Control (MMUTCD) Part 6
• Move Over Brochure


ASSESSMENT
Where we are
LET'S ASSESS PROGRESS ON GOALS IN THE FHWA SELF-ASSESSMENT
MDOT

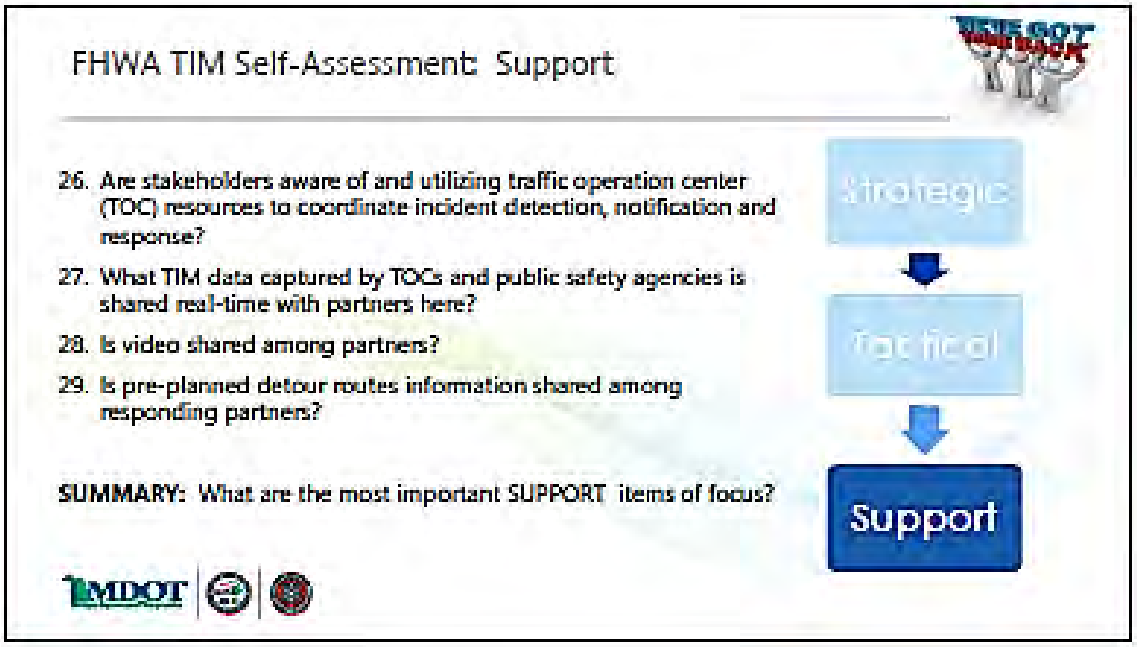

Federal Highway Administration (FHWA) TIM Self-Assessment
Since 2004 FHWA has conducted annual self-assessment for major metro areas, with changes to scope and focus in some years.
Important subject areas that deserve our consideration
Your opinion on our progress is needed.
Your questions my help us focus local and regional actions
Strategic
Formal TIM Programs (11)
TIM Training & After Action Reports (5)
TIM Performance Measures (8)
Tactical
TIM Laws (3)
Policies and Procedures for Incident Response and Clearance (14)
Responder and Motorist Safety (5)
Support
Data Collection, Integration, Sharing (5)
MDOT


FHWA TIM Self-Assessment: Strategic
1. Is the importance of TIM understood by all stakeholders?
2. Are roles and responsibilities of public and private sector TIM stakeholders mutually understood?
3. Do agencies work together to do needs assessments and plan TIM activities?
4. Are funds available for TIM activities?
5. Is TIM considered and incorporated into planning efforts for construction zones?
6. Considered for special events?
7. Considered for weather events?
Strategic
Tactical
Support
MDOT


FHWA TIM Self-Assessment: Strategic
8. Are we training using Mi-TIME or an equivalent?
9. Percentage of folks who should have it, have had it?
10. Is it conducted in a multi-discipline setting?
11. Do we conduct multi-discipline, multi-agency AARs?
12. Is Roadway Clearance Time measured?
13. Is Incident Clearance Time measured?
14. Do we have clearance time targets?
15. Number of secondary crashes measured?
SUMMARY: What are the most important STRATEGIC items of focus?
Strategic
Tactical
Support
MDOT


FHWA TIM Self-Assessment: Tactical
16. Is the Authority Removal law understood by most responders? Is our Driver Removal law understood?
17. What outreach activities are we doing for the public and/or public officials?
18. Do responders routinely use ICS and Unified Command on scene?
19. Are temporary traffic control devices pre-staged to provide more timely response?
20. Are towing calls based on severity? Are there standards?
21. Is the medical examiner notified quickly and/or are there policies regarding the removal of a body before arrival?
Strategic
Tactical
Support


FHWA TIM Self-Assessment: Tactical
22. Do standardized, documented response procedures / guidelines exist?
23. Are responders routinely utilizing temporary traffic control devices for the three incident classifications (minor, intermediate, major) in compliance with the Michigan Manual on Uniform Traffic Control Devices?
24. Do we provide back of the queue warning in a planned way?
25. Do we have written standards for vehicle positioning and emergency scene lighting reduction?
SUMMARY: What are the most important TACTICAL items of focus?
Strategic
Tactical
Support


FHWA TIM Self-Assessment: Support
26. Are stakeholders aware of and utilizing traffic operation center (TOC) resources to coordinate incident detection, notification and response?
27. What TIM data captured by TOCs and public safety agencies is shared real-time with partners here?
28. Is video shared among partners?
29. Is pre-planned detour routes information shared among responding partners?
SUMMARY: What are the most important SUPPORT items of focus?
Strategic
Tactical
Support
MDOT


Vision
Where are we going next?
OPEN AND HONEST DISCUSSION ON THE FUTURE OF TIM IN OUR REGION
MDOT

Today's Accomplishments

- Discussed our progress
  - Toward TIM Action Plan Goals
  - Meeting FHWA TIM objectives
- Discussed obstacles
  - What is inhibiting us in our region?
- Discussed future direction / goals
- Another portion of this project will survey Michigan on Action Plan goals. **If you had one question to ask Michigan about TIM, what would it be?**

Thank You

- Angie Kremer
  - Michigan Department of Transportation
  - Traffic Incident Management Engineer
  - kremera@Michigan.gov
  - Office: 517-636-0247
  - Mobile: 517-388-3372
- Paula Wiese
  - Michigan Department of Transportation
  - Traffic Incident & Work Zone Management Analyst
  - wiesep@Michigan.gov
  - Office: 517-636-5334

Appendix C: Visioning Workshop Presentation

Meeting Objectives

3

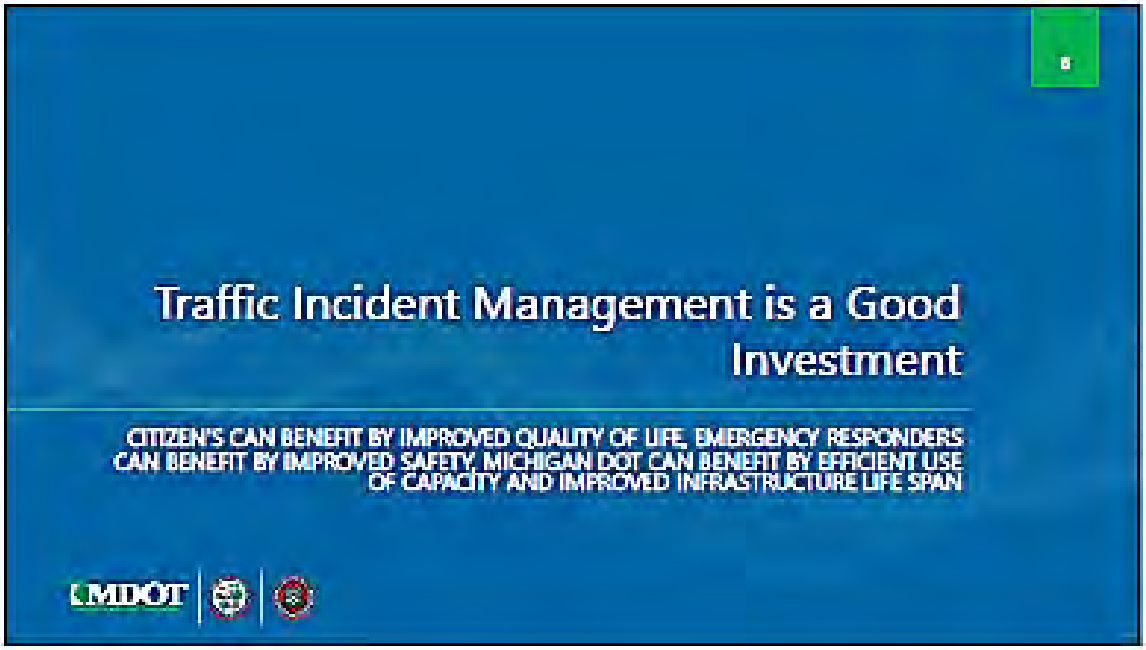
- Continue to build relationships among the people and agencies represented.
- Identify a way forward that protects emergency responders at the scene of an incident and motorists near an incident.
- Determine how best to achieve fair return on investment for citizens of Michigan that invest in the surface transportation system.

Agenda

4

- Part 1: Reflecting on Achievements and the Future
  - Outcomes from and progression since 2012.
  - How traffic incident management activities fit into other MDOT priorities.
  - Strengths and opportunities for traffic incident management statewide.
  - Set a vision for the future.
- TIM Network Peer Exchange
  - Scott Marler, Director of the Office of Traffic Operations, Iowa Department of Transportation
  - Colonel Tracy Trott, Tennessee Highway Patrol
  - Chief Allen Baldwin, Winchester, VA Fire Department
- Part 2: Planning for Progression that Leads to Success
  - Identifying critical success factors that support the achievement of the vision.
  - Next Steps


5
Introductions
WHO ARE YOU? WHO DO YOU REPRESENT?
MDOT


6
Traffic Incident Management is a Good Investment
CITIZEN'S CAN BENEFIT BY IMPROVED QUALITY OF LIFE, EMERGENCY RESPONDERS CAN BENEFIT BY IMPROVED SAFETY, MICHIGAN DOT CAN BENEFIT BY EFFICIENT USE OF CAPACITY AND IMPROVED INFRASTRUCTURE LIFE SPAN
MDOT

Michigan 2012 Implementation of Safe, Quick Clearance Research Project

- Literature Search
- Public Survey
  - 800 Michigan Drivers Surveyed
  - Asked questions on
    - Move Over & Steer It, Clear It Laws
    - How do they receive information
- Stakeholder Outreach
  - Workshop and phone calls with first responder agencies
- Outreach Strategies
- TIM Database Recommendations

SMART Goals for High Visibility

- Increase compliance with high-visibility apparel requirements through education for all 'workers' at a traffic incident from 59% to 75% by December 31, 2014.
- Increase compliance with high-visibility apparel requirements through education for all 'workers' at a traffic incident to 100% by December 31, 2016.

How are we doing in Michigan?

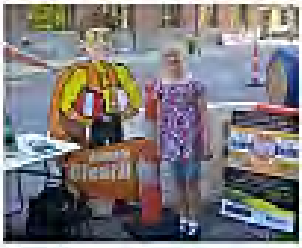
Percentages of responders wearing high visibility:

- Overall 52.6% ↑(3.6%)
- Law Enforcement 54.1%↓(0.9%)
- Fire 60.0%↑ (4.0%)
- Transportation 96.8% ↑(26.8%)
- Towing 78.1% ↑(0.1%)
- EMS 65.1% ↓(6.9%)
- Other 40.7% ↓(19.3%)

SMART Goals for Michigan

Through a targeted public education campaign, increase awareness of the Steer It, Clear It Law, with public from 13% to 50 % percent by September 30, 2016.

- Many activities have been done to increase the awareness such as
- Captain Clearit, a mascot for the campaign, social media, brochures and more.



SMART Goals for Michigan

Pass legislation for the Hold Harmless law through agencies and association support during this legation period by December 31, 2014.

- Passed October 14, 2014
- In Effect January 7, 2015

SMART Goals for Mi-TIME

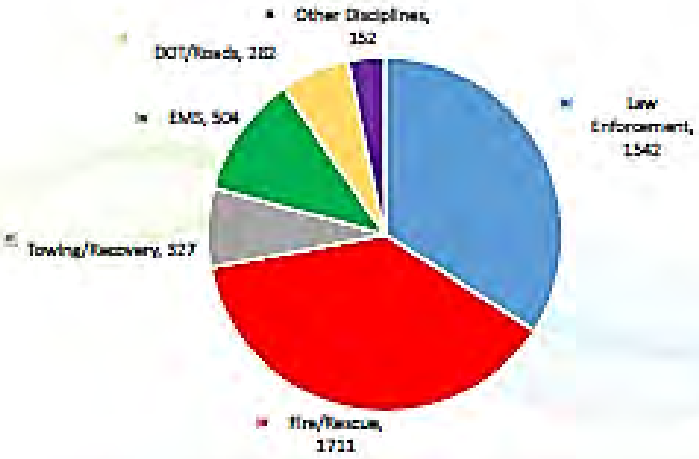
- Implement SHRP 2 TIM Train the Trainer (TtT) program with 120 trainers trained by December 31, 2014.
  - Michigan has 159 Instructors
- Implement the SHRP 2 TIM TtT program with 1,500 first responders trained by December 31, 2016.
  - Reached Goal June 2015

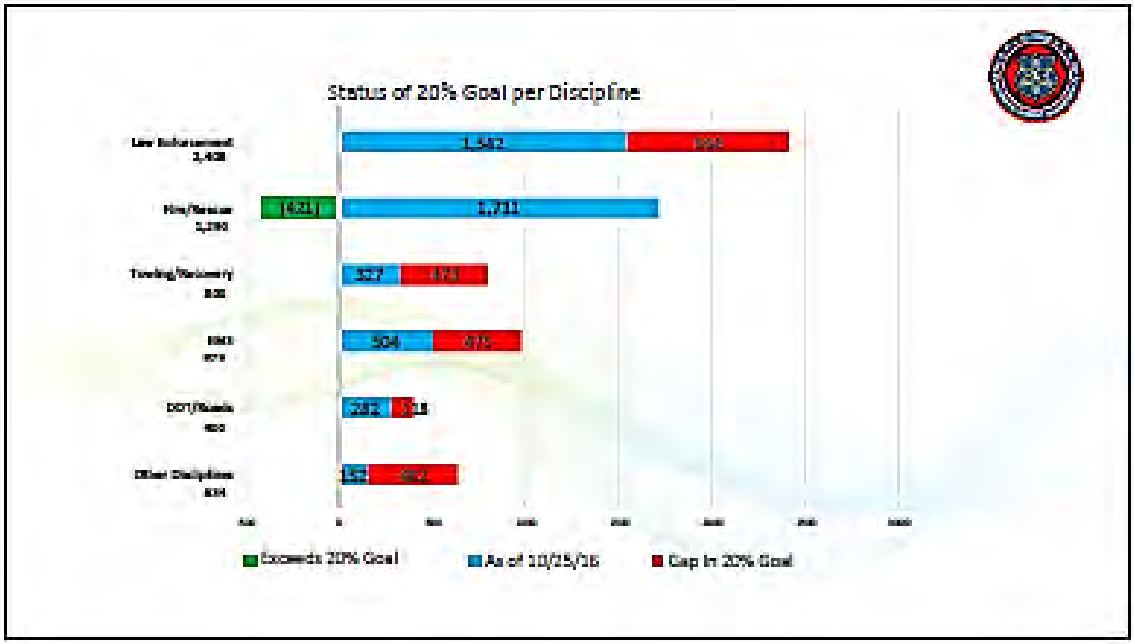
New SMART Goal for Michigan

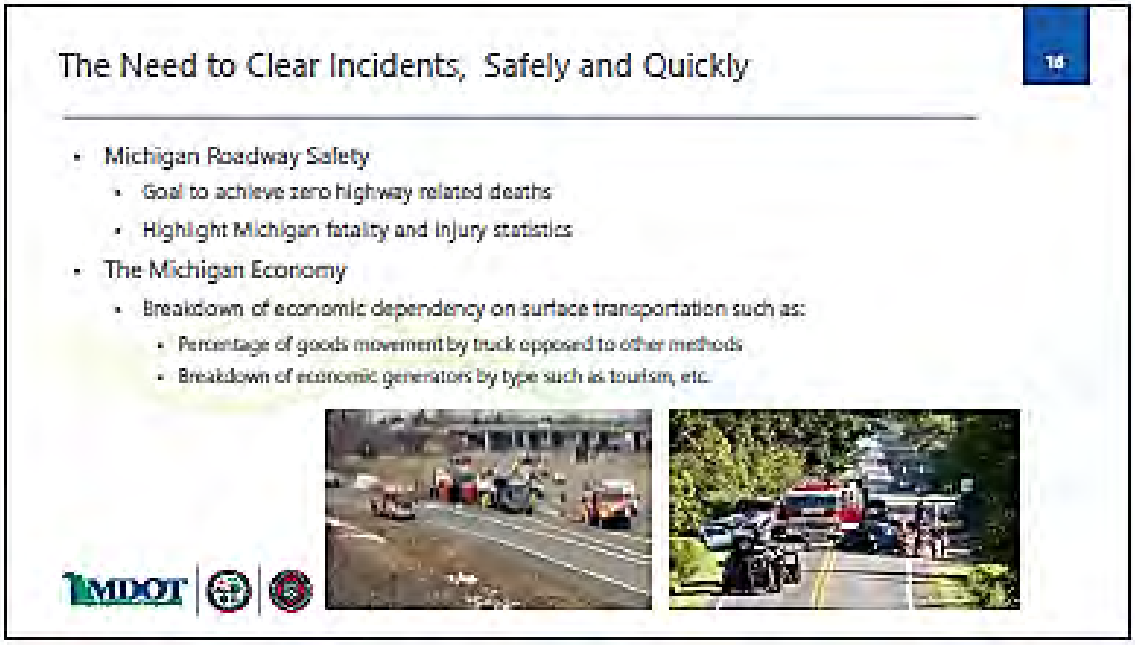
Continue Mi-TIME training to train 20% (6,500) of the first responder community by December 31, 2016.

Michigan First Reponders Trained

Total 4,518




Status of 20% Goal per Discipline
Exceeds 20% Goal
As of 10/15/16
Gap in 20% Goal


The Need to Clear Incidents, Safely and Quickly
16
Michigan Roadway Safety
Goal to achieve zero highway related deaths
Highlight Michigan fatality and injury statistics
The Michigan Economy
Breakdown of economic dependency on surface transportation such as:
Percentage of goods movement by truck opposed to other methods
Breakdown of economic generators by type such as tourism, etc.
MDOT

The Need to Clear Incidents, Safely and Quickly

17

Texas A&M Transportation Institute

- Emergency Responders Have a motto
  - *Everyone Goes Home Every Time*
- For years,
  - Emergency responders have rushed to the aid, placing the mission above personal safety.
  - The focus was on patient/participant care, not the traffic danger approaching the scene.
  - When danger was recognized, traffic was stopped. Not reducing the danger of additional incidents, but moving the second crash scene up stream, many times to the back of the queue.

Photo was taken from transportation.gov and shows a typical scene setup where responder safety is not taken into account.

TxDOT

The Need to Clear Incidents, Safely and Quickly

18

Texas A&M Transportation Institute

Thankfully times are changing!

Emergency responders now:

- Understand the importance of wearing PPE.
- Taking steps to combat dangers created by distracted driving near traffic crash scenes.
- Understand the importance of working together across disciplines.
- Communicating before, during and after events.
- Understand the need to get off the roadway as quickly as possible to reduce risk.
- Understand the value of investing in the motto.

TxDOT

The Need to Clear Incidents, Safely and Quickly

19

There's also an economic impact.

When the road is closed longer than necessary:

- We all lose money
- We all lose time
- We all lose confidence
- Some of us lose patience…

According to the Texas A&M Transportation Institute, congestion cost America $160 billion in 2015.

The Need to Clear Incidents, Safely and Quickly

20

The message is clear!

If we don't continue to clear incidents the best we can,

If we don't learn from our mistakes and successes,

And if we can't figure out how to make emergency responder safety a part of a zero deaths culture,

Then people will die, customers will be upset, and the goods and services we rely on will cost more.

21

10 Minute Break

MDOT

22

Regional Workshops

- Eight Workshops Held
  - Engage
  - Assess
  - Strengthen
  - Share
- Discuss TIM Action Plan Progress
- Program Assessment using FHWA TIM Self-Assessment as a Guide
- Discuss Future Direction of Program

MDOT

Regional Workshops

23

- Discuss progress
  - Toward Michigan TIM Action Plan Goals
  - Meeting FHWA TIM Objectives
- Discuss obstacles
  - What is slowing us down in our region?
- Discuss improving TIM
  - Responder Safety
  - Safe, Quick Clearance
  - Prompt, Reliable Communications

Regional Workshops

24

Overarching Goals

- Improve Partnerships
- Train
- Leverage Technology
- Make Needed Resources More Accessible
- Improve Program Sustainability

Common Themes

1. **Formalize TIM Teams**
2. Improve traffic management and widely distribute detour routing plans
3. **Increase awareness of the MI-TIME program**
4. Promote traffic management centers and their utility
5. Enhance relationships with towing and recovery community
6. Inventory radio communications capabilities, develop a communications-gap closure plan, and provide joint responder communications training
7. **Institutionalize TIM program through written agreements**
8. Many responders feel they lack the needed equipment for proper TIM

Regional Workshops – Formalize TIM Teams

25

Event pre-planning can improve on-scene coordination

- Establishes natural opportunities for training
- Helps emergency responders anticipate how other disciplines will respond and what their needs will be
- Builds program sustainability that can live beyond current champions
- Helps develop "We are all in this together" attitude

After action reviews are an essential part of the improvement process

- Understanding what went right and how we can improve is important

Regional Workshops – Increase Awareness of MI-TIME

26

- Celebrate the Success
  - Training is the foundational element of what practitioners need now – and will continue to need
  - Public awareness and education is vital
    - *Michigan's Move It Video has gone Viral*
  - Home of the TIM Action Plan
  - A dedicated, central resource for TIM in Michigan
  - Captain Clear It
    - The "brand" has been created
- Build for the Future
  - Extend the brand
  - Continued centralized training resource
  - Best practice availability
  - Performance management dashboards and other important program statistics
  - Reinforce the business case

Regional Workshops – Institutionalize TIM

27

TIM Champions are important to get activities started at the local level

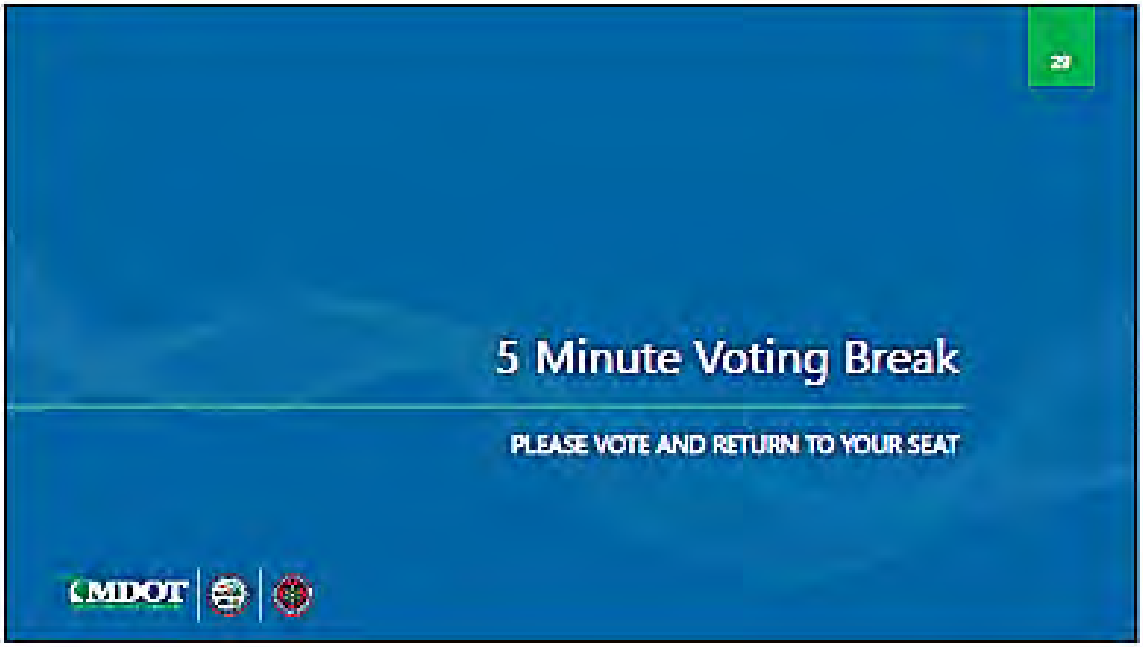
- Written agreements are essential to keep activities going over the long-term

- Overarching Commitment to Partnering
- Open Roads Policy
- Information Sharing
- Tactical Operations
- Strategic Management
- Partnership Management

Program Strengths and Opportunities

28

- Spend time working in groups to discuss strengths and areas of improvement for the program for these areas:
  - Agency policies
  - Institutionalization and sustainability
  - Practitioner Capacity Building
  - Public Outreach and Education


29
5 Minute Voting Break
PLEASE VOTE AND RETURN TO YOUR SEAT
MDOT


30
The Program Vision
WE'VE DISCUSSED WHERE WE'VE BEEN, NOW LET'S TALK ABOUT WHERE WE ARE GOING
MDOT

Vision Statements

Definition:

- Your vision is your dream.
- It's what your program believes are the ideal conditions for your partners.
- How things would look if the issue important to you were completely and perfectly addressed.
- Vision statements answer the question:
  - "What will success look like?"
- Vision statements are short phrases or sentences that convey your program's hopes for the future.

Should be:

- Understood and shared by members of the stakeholder community.
- Broad enough to include a diverse variety of local perspectives.
- Inspiring and uplifting to everyone involved in your effort.
- Easy to communicate.
- Short enough to fit on a T-shirt.
- Defining the issues that matter most to people in your program.

Vision Statement

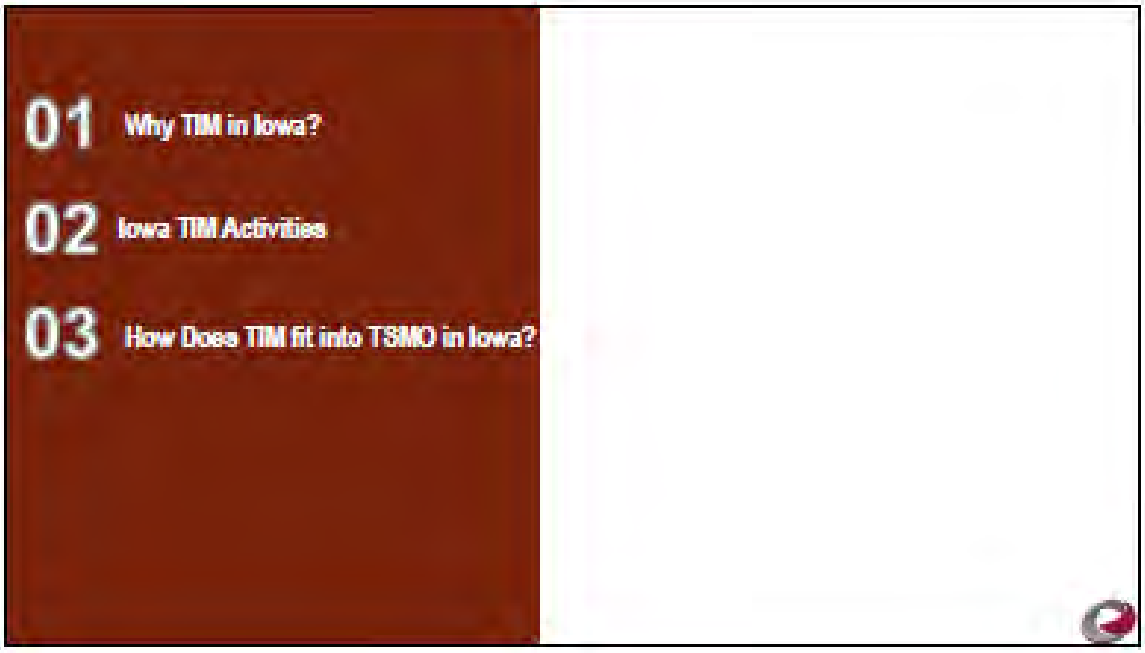
Examples:

- MDOT will be recognized as a progressive and innovative agency with an exceptional workforce that inspires public confidence.
- Provide the best performing transportation system for people, business and places.
- There will be a personal computer on every desk running Microsoft software.
- We will put a man on the moon before the end of the decade.
- To be the leader in providing high quality communication support services by exceeding our customers' service expectations.

Questions to Consider

- What is your dream for the program?
- What would you like to see change?
- What kind of program do we want to create?
- What do you think should be the purpose of this program?
- What would success look like?
- What am I really providing for my customers beyond products and services?
- What new things do we intend to pursue?
- What future customer needs do we want to satisfy?

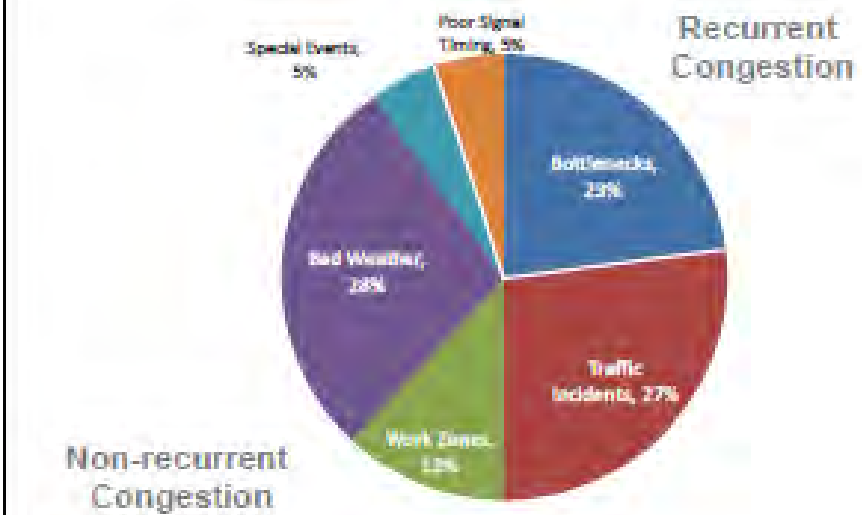

IOWA DOT TSMO
TRAFFIC INCIDENT MANAGEMENT IN IOWA
Michigan DOT TIM Visioning Session
October 26, 2016
IOWA DOT


01 Why TIM in Iowa?
02 Iowa TIM Activities
03 How Does TIM fit into TSMO in Iowa?

Iowa DOT TSMO

01 Why TIM in Iowa?

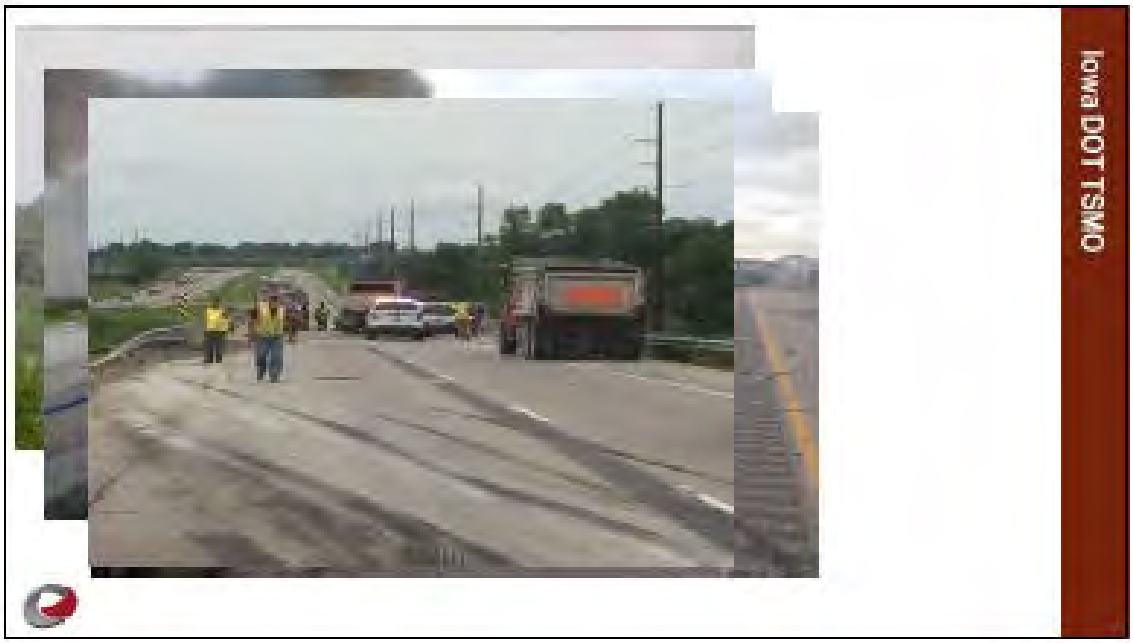
Iowa DOT TSMO




Iowa DOT TSMO

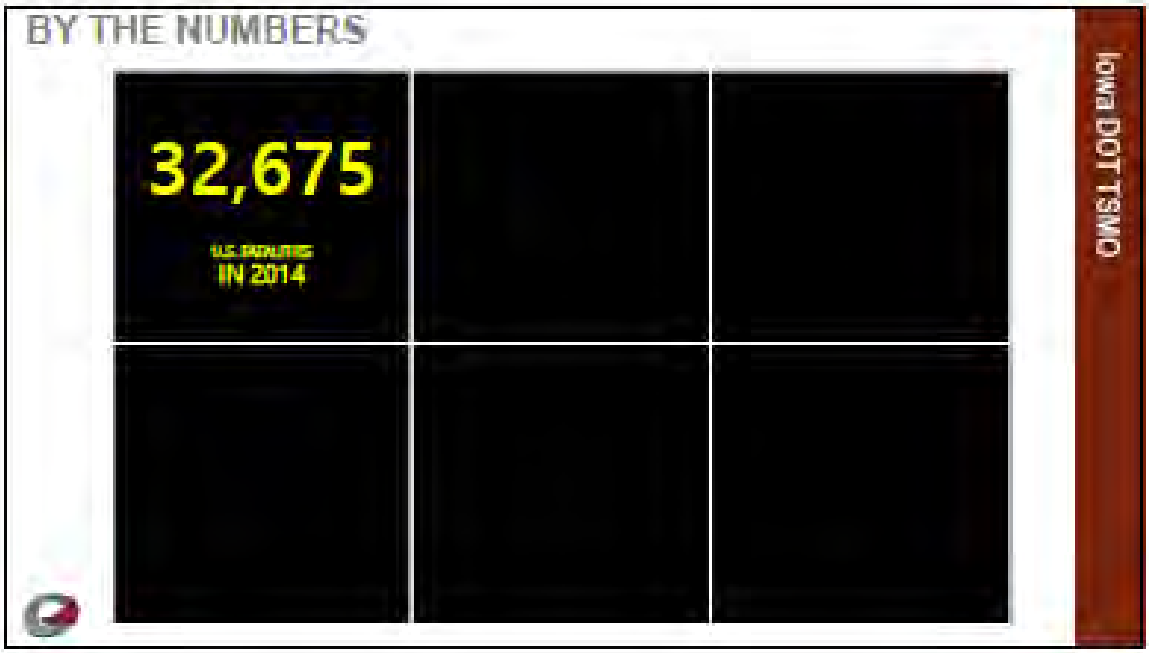

Iowa DOT TSMO

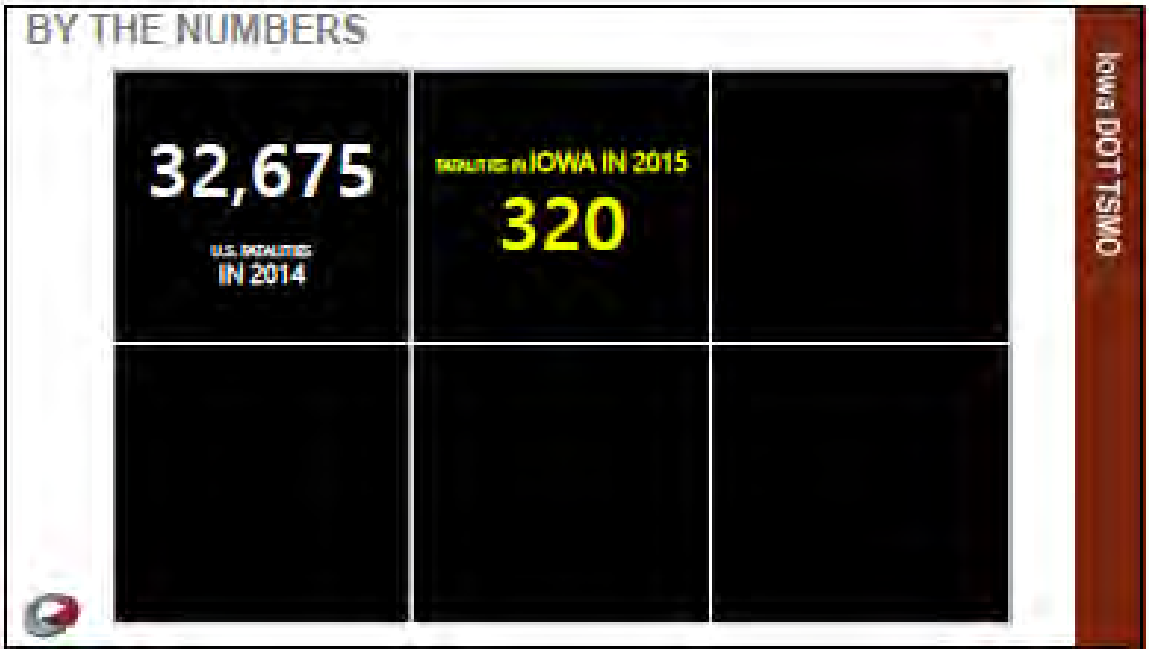

Iowa DOT TSMO


Iowa DOT TSMO

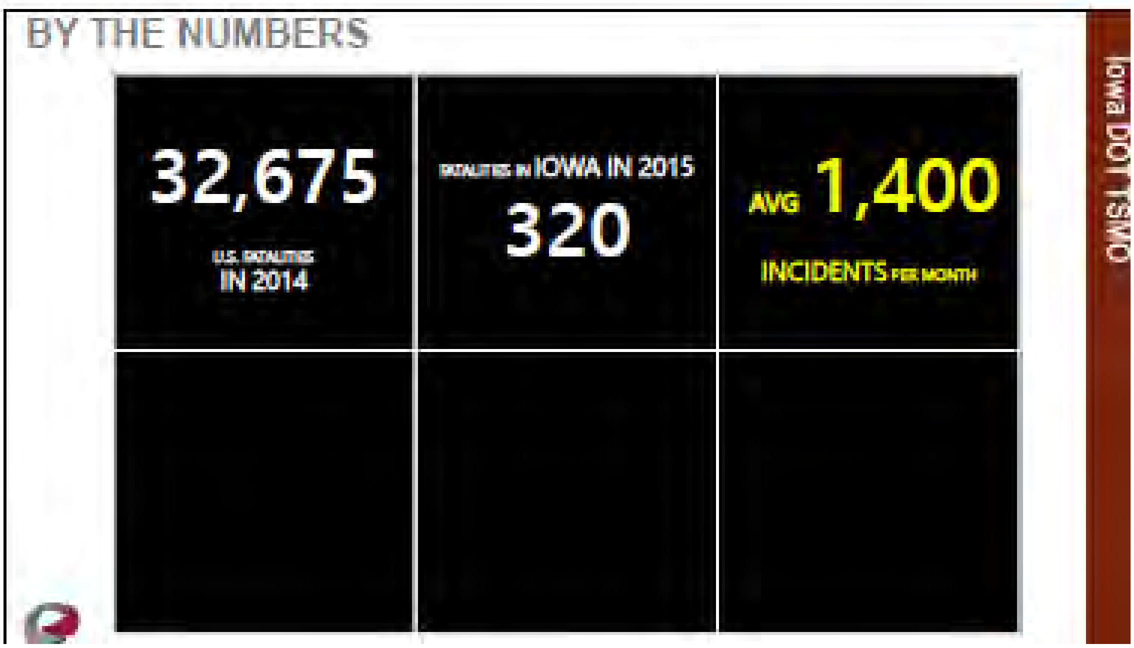

Iowa DOT TSMO

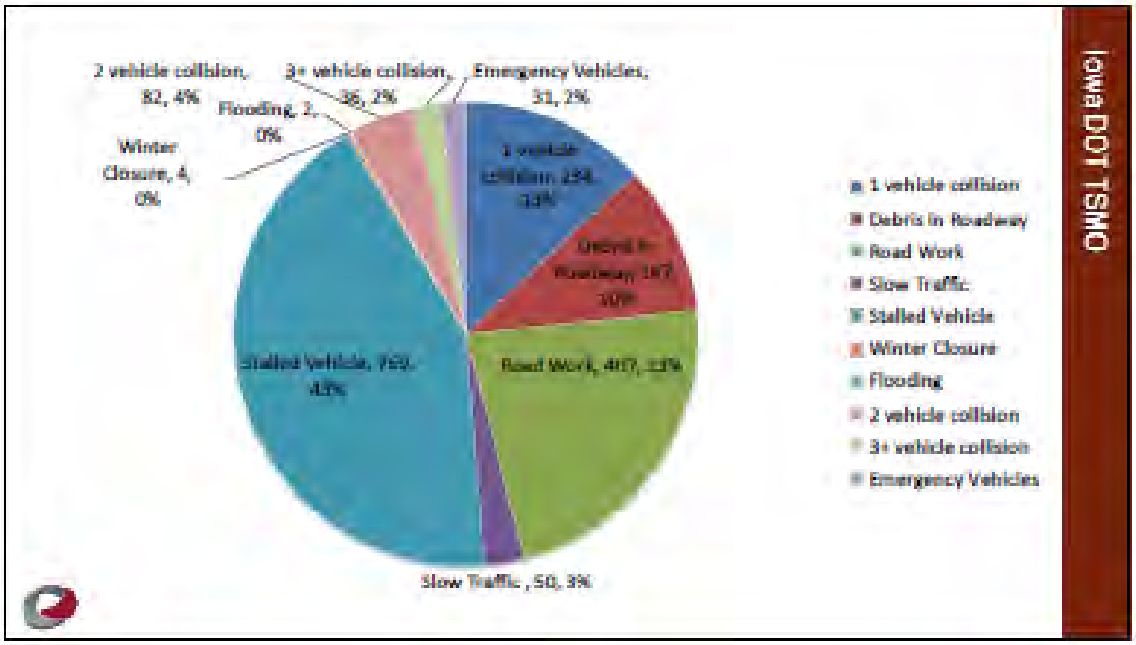

Iowa DOT TSMO

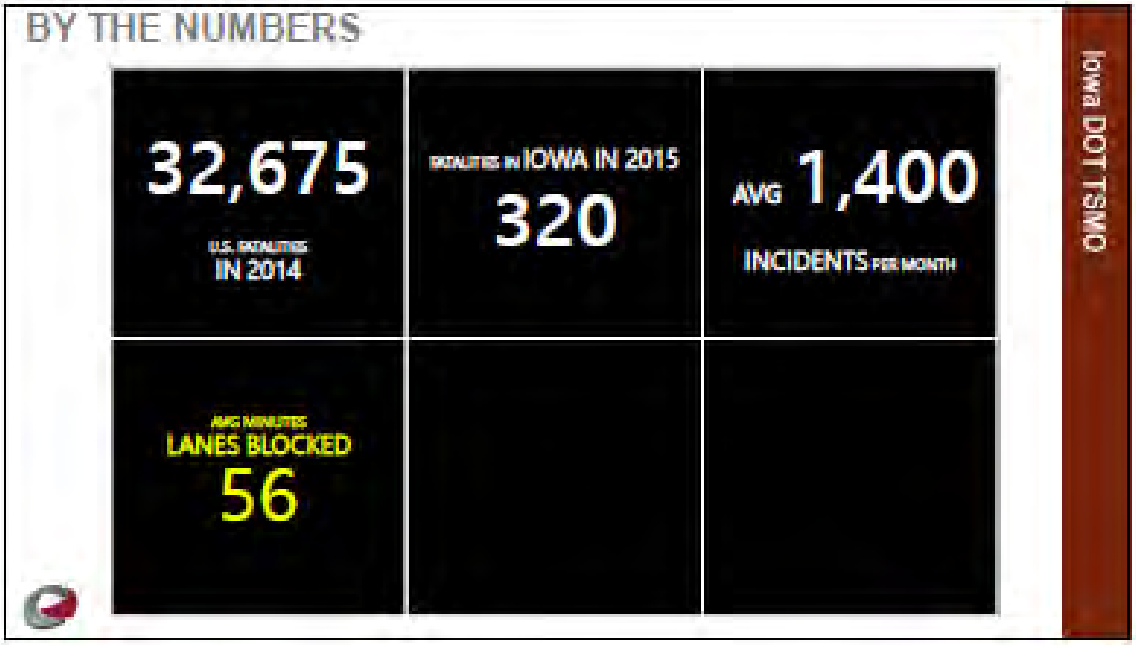

BY THE NUMBERS
32,675
U.S. FATALITIES
IN 2014
Iowa DOT TSMO

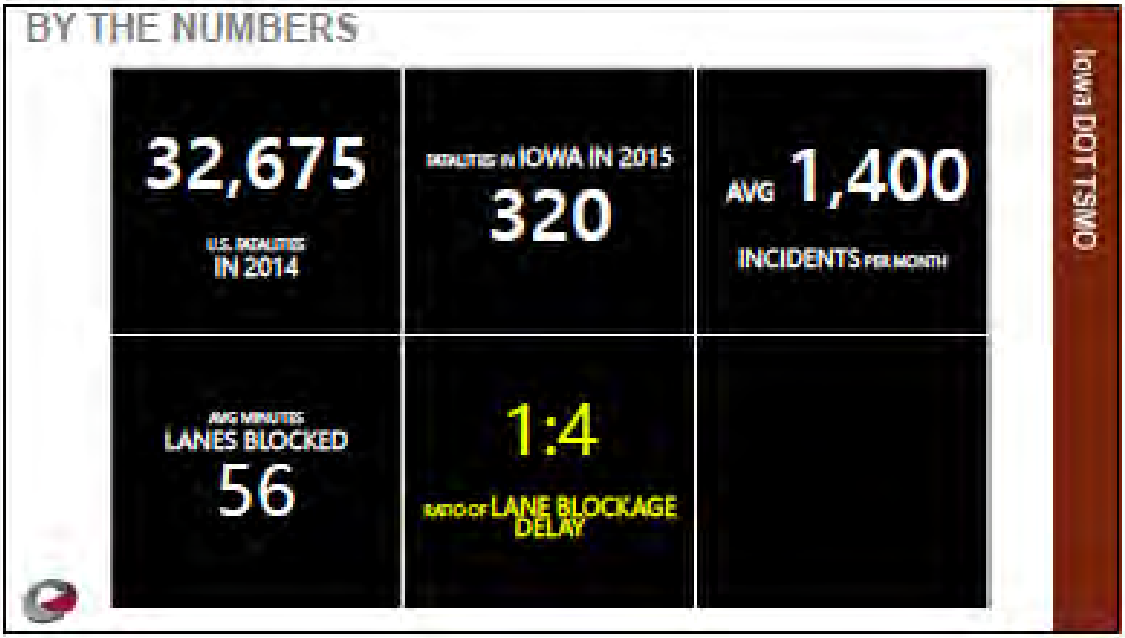

BY THE NUMBERS
32,675
U.S. FATALITIES
IN 2014
FATALITIES IN IOWA IN 2015
320
Iowa DOT TSMO

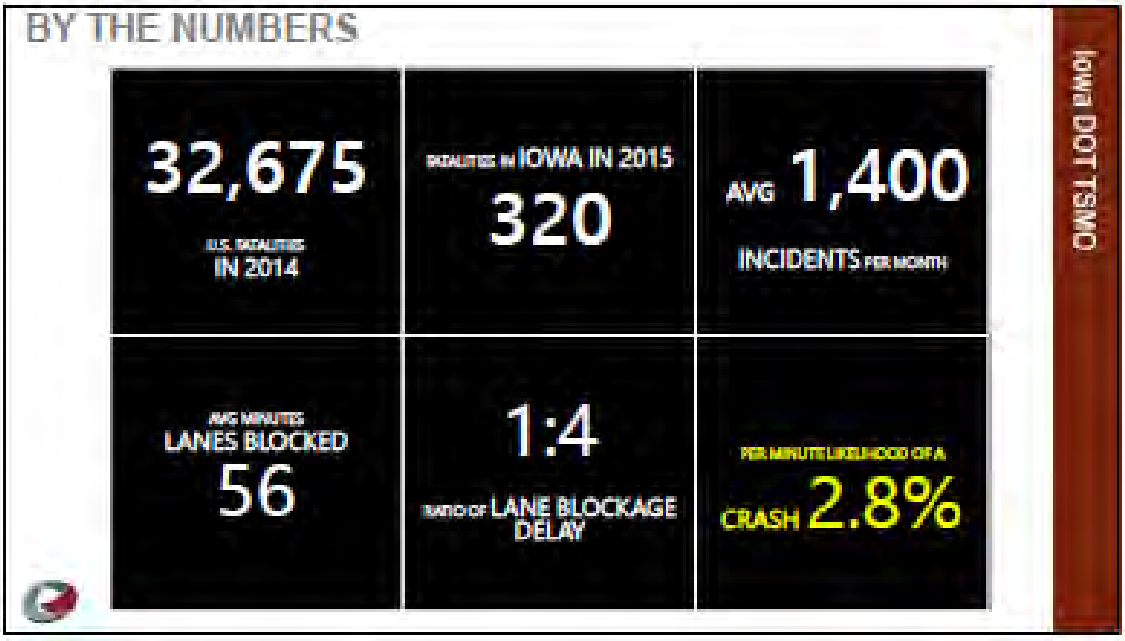

Iowa DOT TSMO
500
450
400
350
300
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014


BY THE NUMBERS
32,675
U.S. FATALITIES
IN 2014
FATALITIES IN IOWA IN 2015
320
AVG 1,400
INCIDENTS PER MONTH
Iowa DOT TSMO


2 vehicle collision, 82, 4%
3+ vehicle collision, 36, 2%
Emergency Vehicles, 31, 2%
Flooding, 2, 0%
Winter Closure, 4, 0%
Slow Traffic , 50, 3%
1 vehicle collision
Debris in Roadway
Road Work
Slow Traffic
Stalled Vehicle
Winter Closure
Flooding
2 vehicle collision
3+ vehicle collision
Emergency Vehicles
Iowa DOT TSMO


BY THE NUMBERS
32,675
U.S. FATALITIES IN 2014
FATALITIES IN IOWA IN 2015
320
AVG 1,400
INCIDENTS PER MONTH
AVG MINUTES
LANES BLOCKED
56
Iowa DOT TSMO


BY THE NUMBERS
32,675
U.S. FATALITIES IN 2014
FATALITIES IN IOWA IN 2015
320
AVG 1,400
INCIDENTS PER MONTH
AVG MINUTES LANES BLOCKED
56
1:4
RATIO OF LANE BLOCKAGE DELAY
Iowa DOT TSMO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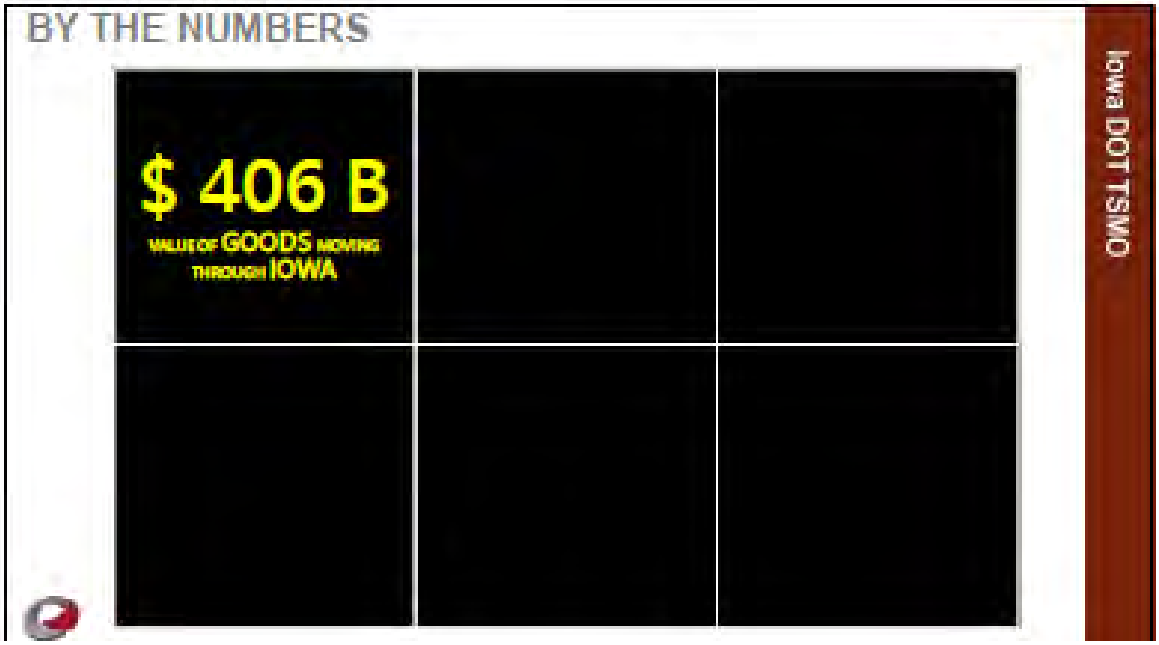
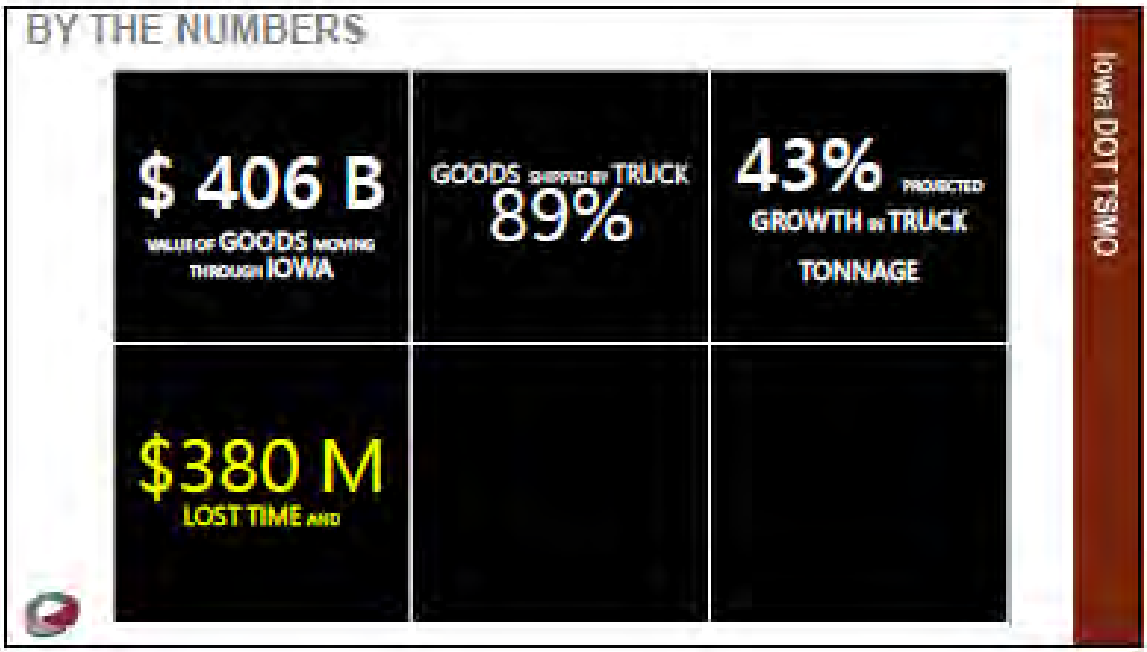
AVG 1,400
INCIDENTS PER MONTH
AVG MINUTES LANES BLOCKED
56
1:4
RATIO OF LANE BLOCKAGE DELAY
PER MINUTE LIKELIHOOD OF A CRASH 2.8%
Iowa DOT TSMO


WHY
People are safer when traffic keeps moving

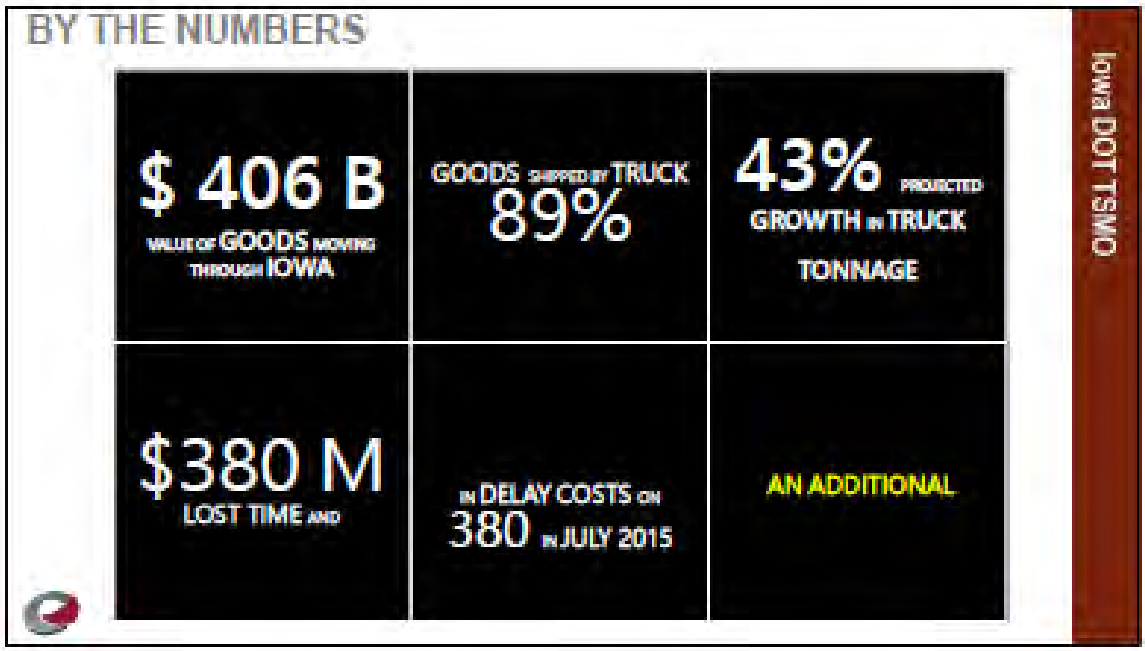

BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
Iowa DOT TSMO


BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
GOODS SHIPPED BY TRUCK
89%
Iowa DOT TSMO


BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
GOODS SHIPPED BY TRUCK
89%
43% PROJECTED
GROWTH IN TRUCK
TONNAGE
Iowa DOT TSMO


BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
GOODS SHIPPED BY TRUCK
89%
43% PROJECTED
GROWTH IN TRUCK TONNAGE
$380 M
LOST TIME AND
IOWA DOT TSMO


BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
GOODS SHIPPED BY TRUCK
89%
43% PROJECTED
GROWTH IN TRUCK TONNAGE
$380 M
LOST TIME AND
IN DELAY COSTS ON
380 IN JULY 2015
IOWA DOT TSMO


BY THE NUMBERS
$ 406 B
VALUE OF GOODS MOVING THROUGH IOWA
GOODS SHIPPED BY TRUCK
89%
43% PROJECTED
GROWTH IN TRUCK TONNAGE
$380 M
LOST TIME AND
IN DELAY COSTS ON
380 IN JULY 2015
AN ADDITIONAL
Iowa DOT TSMO


WHY
The transportation system is more efficient when traffic keeps moving

Iowa DOT TSMO

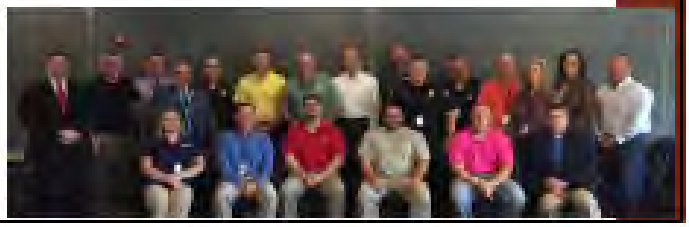
02 Iowa TIM Activities

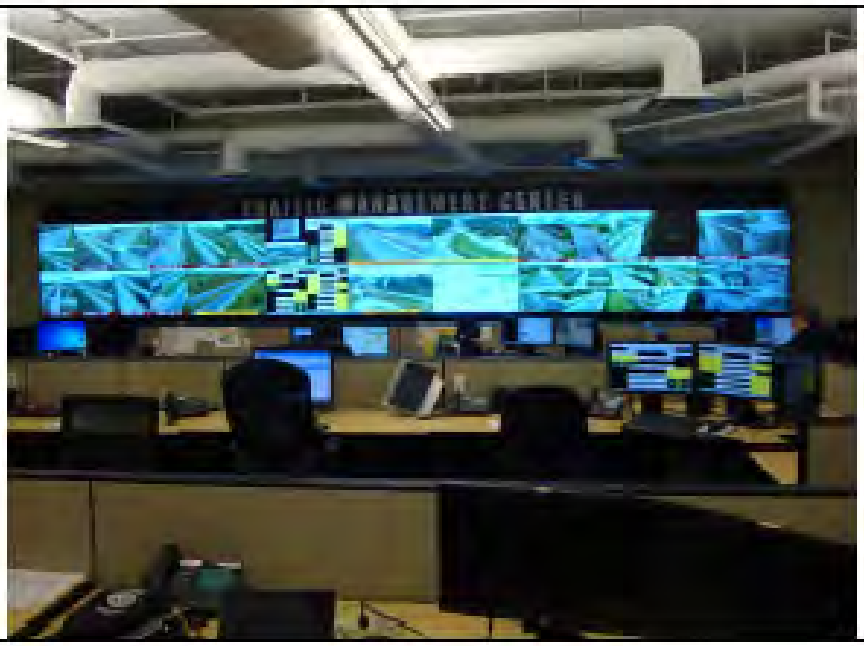
Iowa DOT TSMO

Statewide TIM Committee

GOALS

- Endorse and work towards National Unified Goal
- Establish and Promote Quick Clearance Targets
- Promote Emergency Responder TIM Training
- Plan and convene TIM Awareness Events
- Formally "Connect" with Regional Multi-disciplinary Safety Teams
- Support TIM legislation and policies





Highway Helpers

- Mission of service:
  - Back of queue protection
  - Provide service to get vehicles moving again and off the shoulders
  - Traffic control assistance at crash scenes
- Three areas
  - Cedar Rapids/ Iowa City – 43 miles with 10 miles on-call.
  - Des Moines - 50 miles with 22 miles on-call.
  - Council Bluffs – 16 miles with 14 miles on-call.

Iowa DOT TSMO

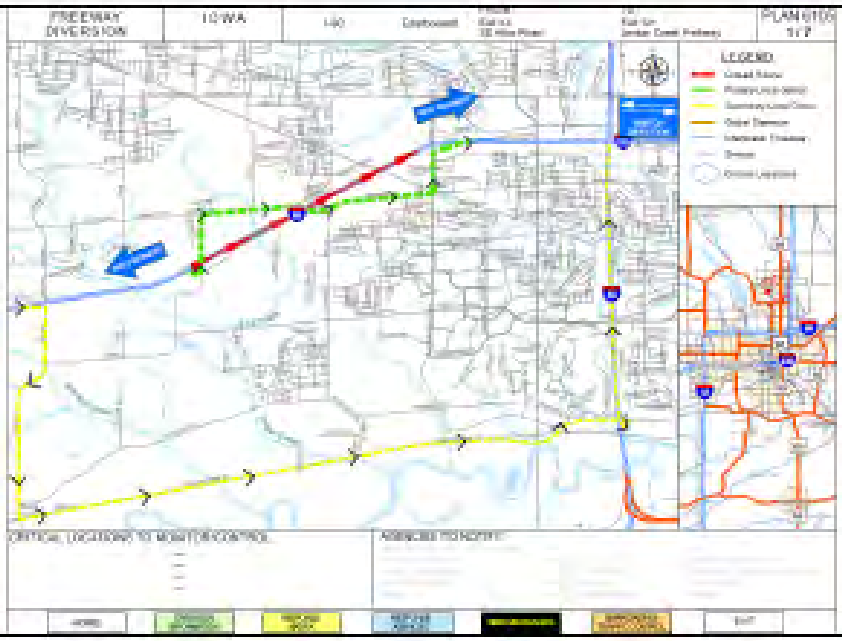

MERGE
LEFT
Iowa DOT TSMO


Iowa DOT TSI

TIM (Alternate Route) Plans

- Cedar Rapids
- Council Bluffs/Omaha
- Davenport/Quad Cities
- Des Moines
- Iowa City
- Sioux City
- Waterloo
- Interstate
- Work Zones

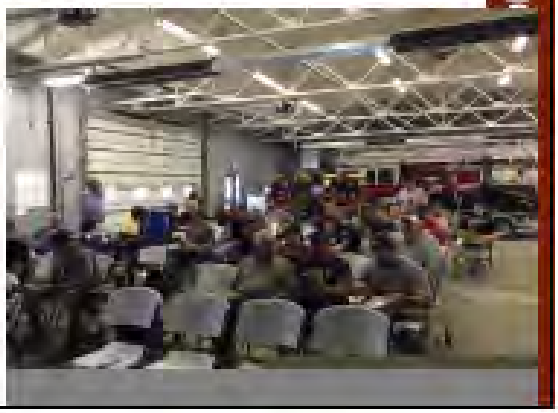
Iowa DOT TSMO



Iowa DOT TSMO

TIM Training

- Table Top Exercises
- AARs
- Incident Command Training
- SHRP2 Emergency Responder Training



Iowa DOT TSM

03 How does TIM fit into TSMO in Iowa?

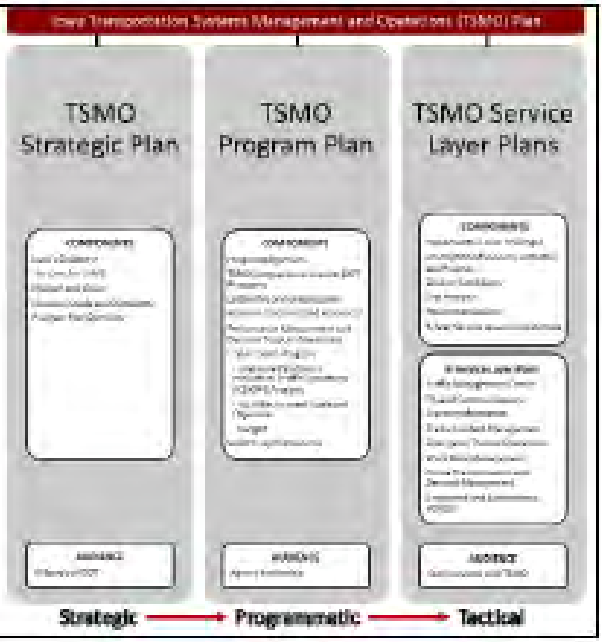
Iowa DOT TSMO

Iowa TSMO Plan

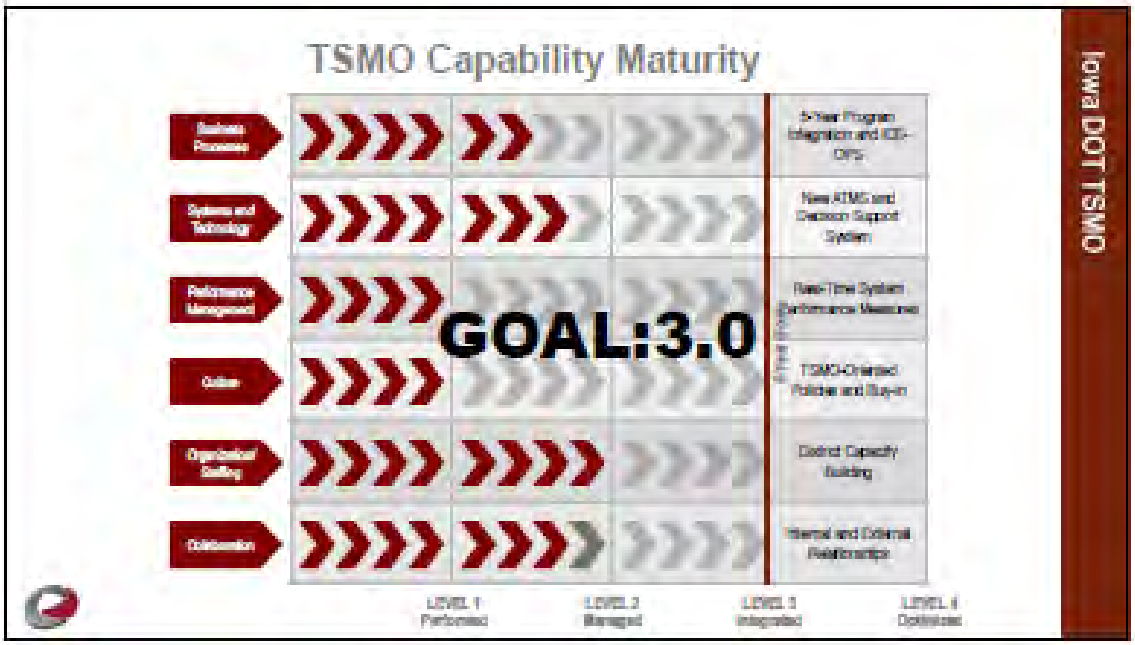
- Completed in February 2016
- 5 Year Plan
- Annualized Accomplishment Year Plan
- http://www.iowadot.gov/tsmo/

Iowa DOT TSMO

Three Levels of the TSMO Plan




TSMO Service Layers
Traffic Management Center
ITS and Communications
Traveler Information
Traffic Incident Management
Emergency Transportation Operations
Work Zone Management
Active Transp. and Demand Management
Connected and Autonomous Vehicle


TSMO Capability Maturity
GOAL:3.0
Iowa DOT TSMO


Contact Information
Scott Marler
Director, Office of Traffic Operations
scott.marler@dot.iowa.gov
515.239.1040
Iowa DOT TSMO


Highway Responder Safety
What the Fire Chief needs to know !
WWW.ResponderSafety.com On the Highway We've Got Your Back


DID YOU SEE THAT ACCIDENT?
R-25
CAUTION
CAUTION
CAUTION
LOOK OUT - BECAUSE THEY'RE NOT!
© 2007 Paul Combs : All Rights Reserved
www.ArtStudioSeven.com
WWW.ResponderSafety.com On the Highway We've Got Your Back

High Visibility

TIM Committees!

- Regional
- Multi-agency
- Regularly Scheduled
- Consistent Attendance
- Best Members to represent their agency

WWW.ResponderSafety.com On the Highway We've Got Your Back

Incident Management/Command

PD, FD & EMS as "Unified Command" must work together to implement an Incident Action Plan to manage the incident

Multi-Agency Response

- **Communication**
  - Prior to, during, and following the incident
- **Cooperation**
  - Cooperation vs. Competition
- **Collaboration/Coordination**
  - Collaboration before the incident
  - Coordination during the incident

Every agency has a role to play in safety and incident stabilization

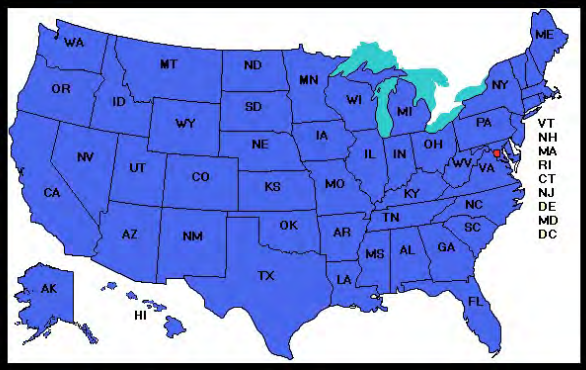
Common Policies & Procedures

Roadway operations SOP/SOGs

- ICS / Unified command
- Common terminology
- Apparatus/vehicle placement
- Temporary traffic control
- Personal protective equipment

Move Over Laws

http/www.moveoveramerica.com



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NFPA Standards

- Professional Qualifications
  - NFPA 1001 – Firefighter Pro Qual.**
  - NFPA 1091 - Standard for Traffic Control Incident Management Pro. Qual. (2015) **
- Health and Safety – NFPA 1500**
- Fire Apparatus – NFPA 1901**
- Ambulances – NFPA 1917**

** References the MUTCD

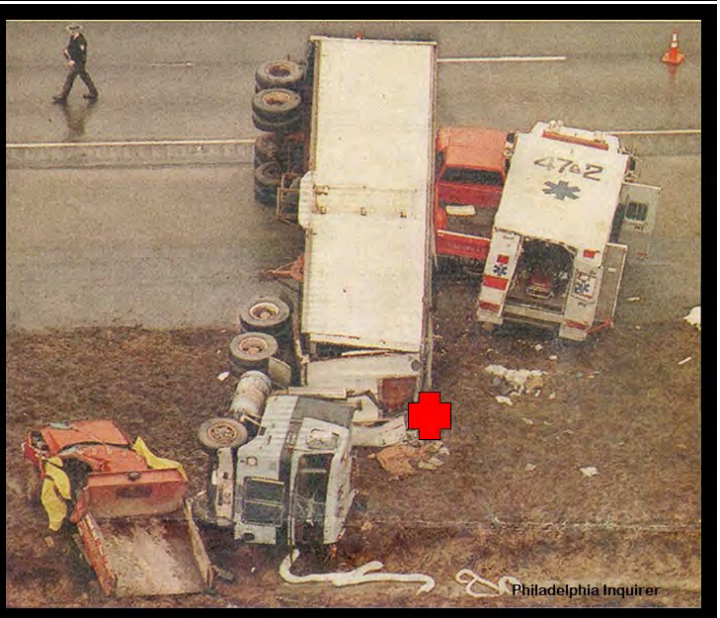
Pre-Planning

- Law Enforcement
- Fire/Rescue
- EMS
- Dispatchers
- DOT/Public Works
- HAZMAT (Public/Private)
- Towing & Recovery
- Medical Examiner
- Media

Working together is the key to successful roadway operations

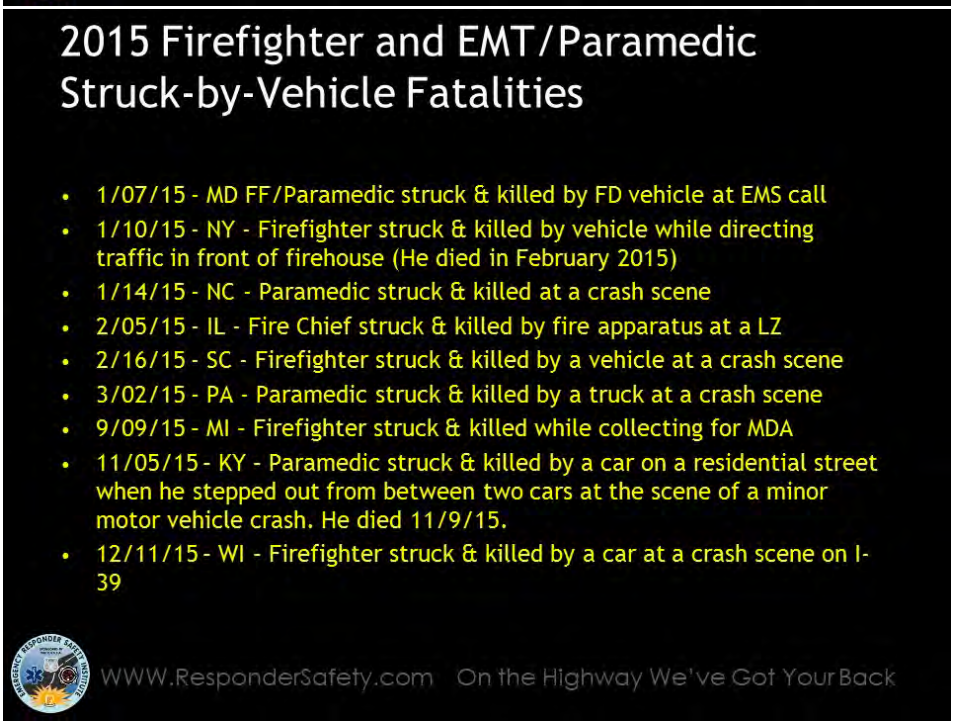
"D" Drivers are hitting & killing us

- ✓ Drunk,
- ✓ Drugged,
- ✓ Drowsy,
- ✓ Disgruntled,
- ✓ Disturbed,
- ✓ Distracted, +/or
- ✓ Just plain… Dumb

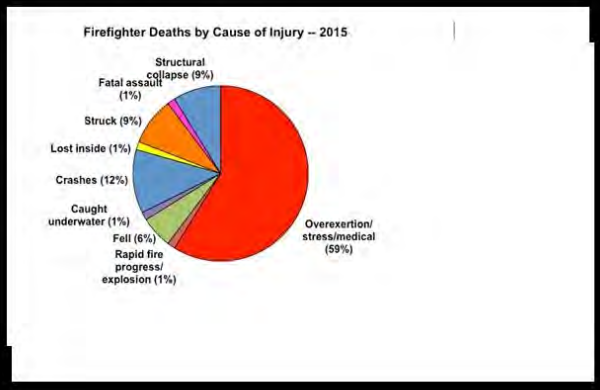


" It Was Just A Routine Call……"

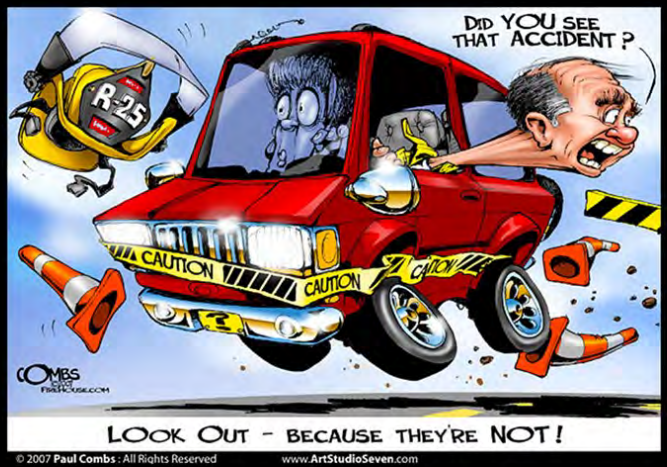

Incident Priorities
• #1 Life Safety.
• #2 Incident Stabilization.
• #3 Property Conservation.
(Restoration of traffic flow)
WWW.ResponderSafety.com On the Highway We've Got Your Back


2015 Firefighter and EMT/Paramedic Struck-by-Vehicle Fatalities
• 1/07/15 - MD FF/Paramedic struck & killed by FD vehicle at EMS call
• 1/10/15 - NY - Firefighter struck & killed by vehicle while directing traffic in front of firehouse (He died in February 2015)
• 1/14/15 - NC - Paramedic struck & killed at a crash scene
• 2/05/15 - IL - Fire Chief struck & killed by fire apparatus at a LZ
• 2/16/15 - SC - Firefighter struck & killed by a vehicle at a crash scene
• 3/02/15 - PA - Paramedic struck & killed by a truck at a crash scene
• 9/09/15 - MI - Firefighter struck & killed while collecting for MDA
• 11/05/15 - KY - Paramedic struck & killed by a car on a residential street when he stepped out from between two cars at the scene of a minor motor vehicle crash. He died 11/9/15.
• 12/11/15 - WI - Firefighter struck & killed by a car at a crash scene on I-39
WWW.ResponderSafety.com On the Highway We've Got Your Back

2015 LODD's



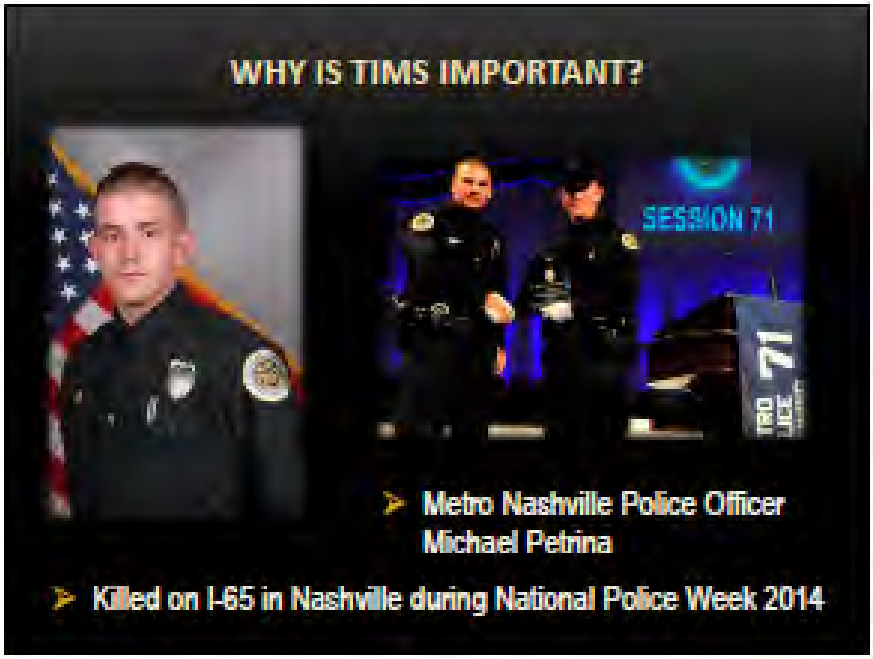
WWW.ResponderSafety.com On the Highway We've Got Your Back

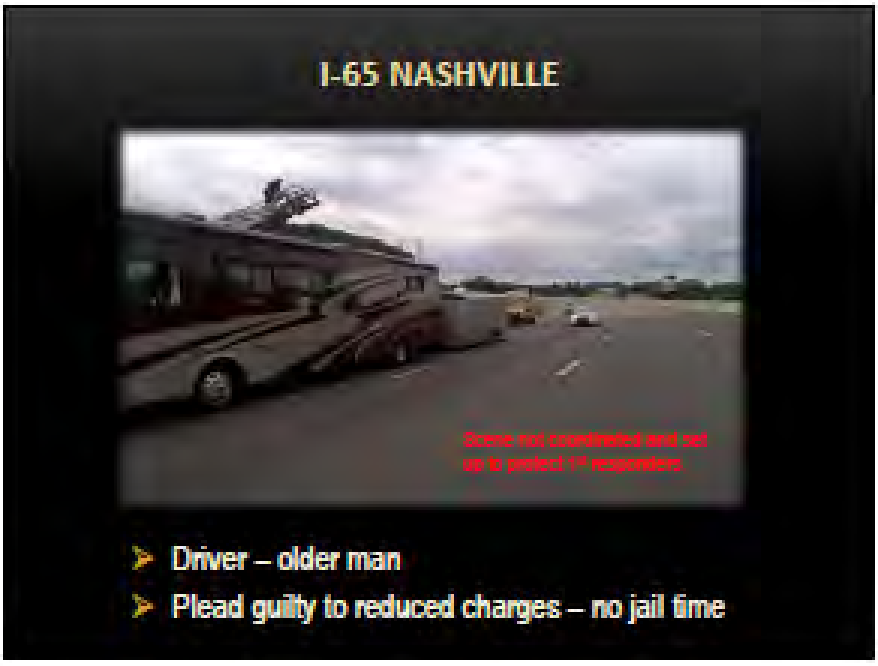


WWW.ResponderSafety.com On the Highway We've Got Your Back

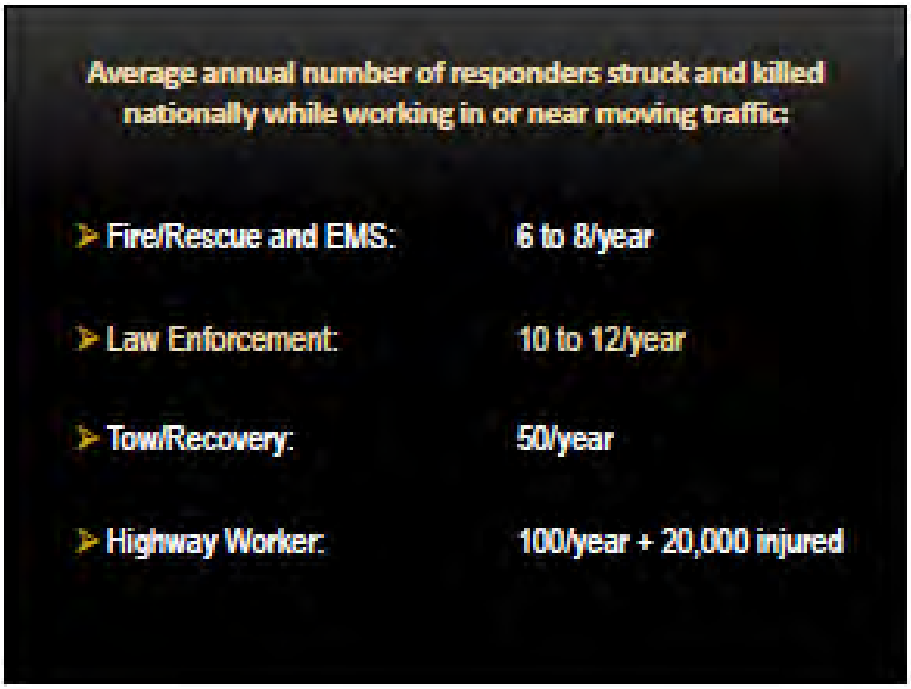

Allen Baldwin
Chief
Winchester Fire & Rescue Department
540-662-2298
Allen.baldwin@winchesterva.gov
FRIENDSHIP FIRE CO.
PRIDE of the NORTHSIDE
WINCHESTER VA.
ROUSS FIRE CO.
WINCHESTER
VIRGINIA
FIRE & RESCUE DEPARTMENT
WINCHESTER VIRGINIA
SHAWNEE VOL. FIRE CO.
EVER ALERT
EST. 1953
WINCHESTER VIRGINIA
SOUTH END
ENGINE 5 COMPANY
ONE DEPARTMENT - ONE FAMILY - ONE GOAL!


Tennessee's TIMS Training Facility
TENNESSEE
STATE TROOPER
HIGHWAY PATROL
Colonel Tracy Trott

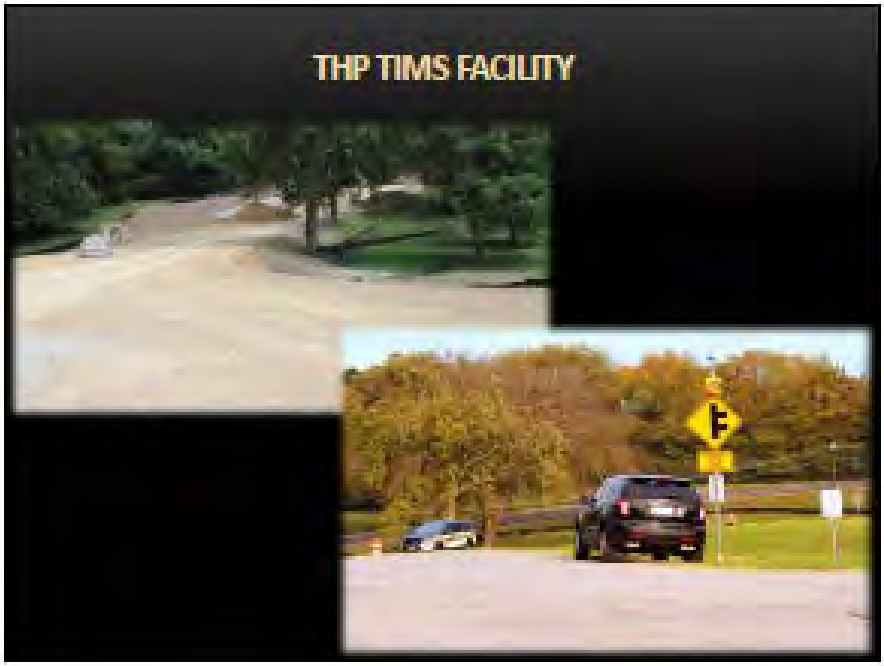

WHY IS TIMS IMPORTANT?
SESSION 71
Metro Nashville Police Officer Michael Petrina
Killed on I-65 in Nashville during National Police Week 2014


I-65 NASHVILLE
Scene not coordinated and set up to protect 1st responders
Driver – older man
Plead guilty to reduced charges – no jail time


THP I-65 CRASH NASHVILLE
August 2014 crash on I-65 in Franklin (South of Nashville)
Bridge had to be taken down and traffic diverted for months with lane closures.

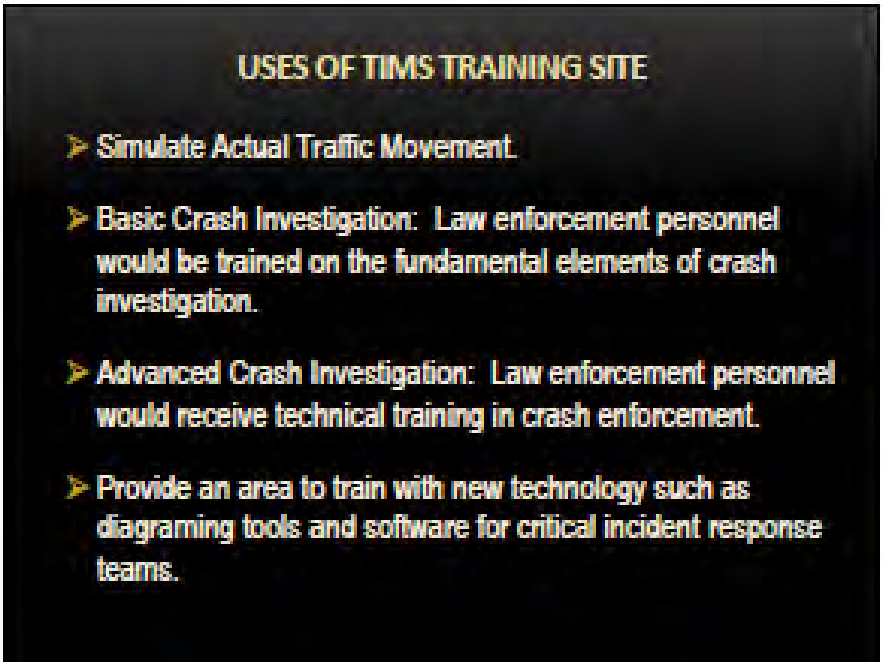

Average annual number of responders struck and killed nationally while working in or near moving traffic:
Fire/Rescue and EMS: 6 to 8/year
Law Enforcement: 10 to 12/year
Tow/Recovery: 50/year
Highway Worker: 100/year + 20,000 injured

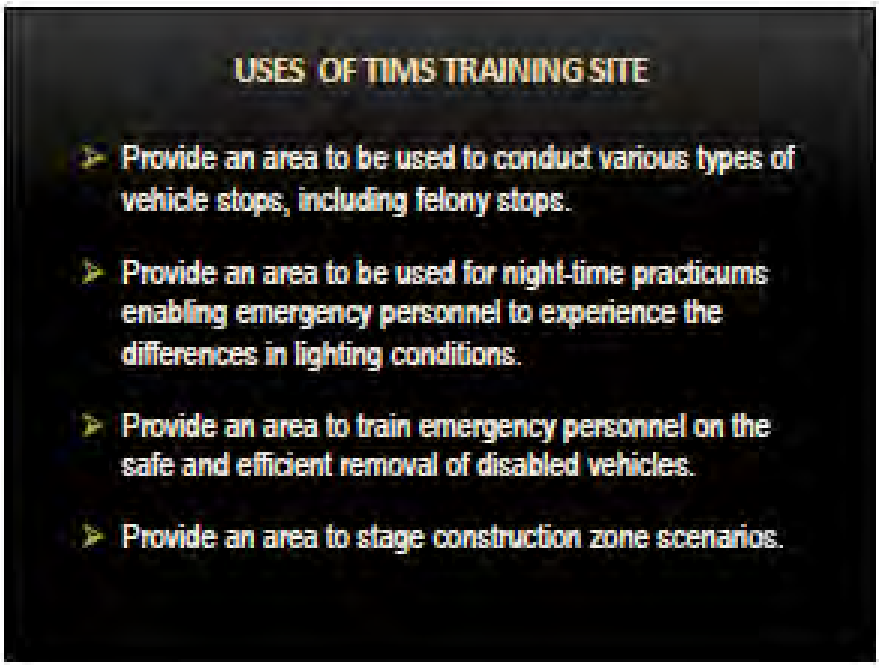

THP TIMS FACILITY

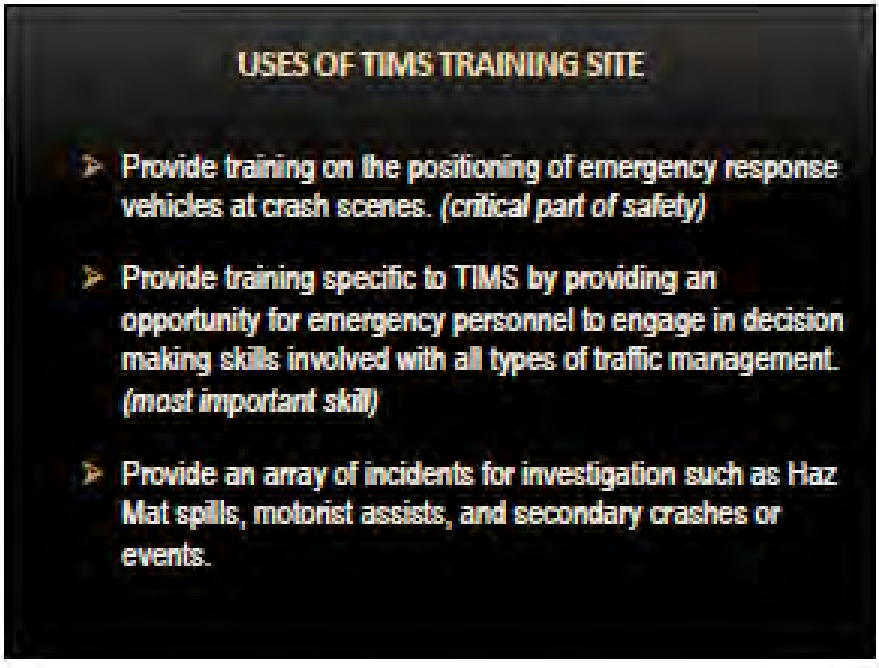

THP TIMS FACILITY

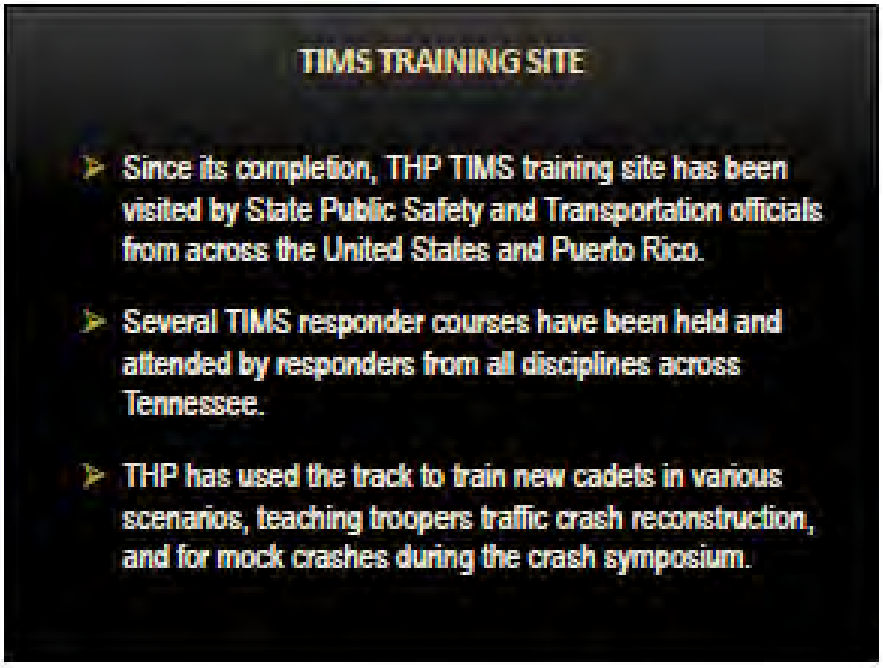

THP TIMS FACILITY

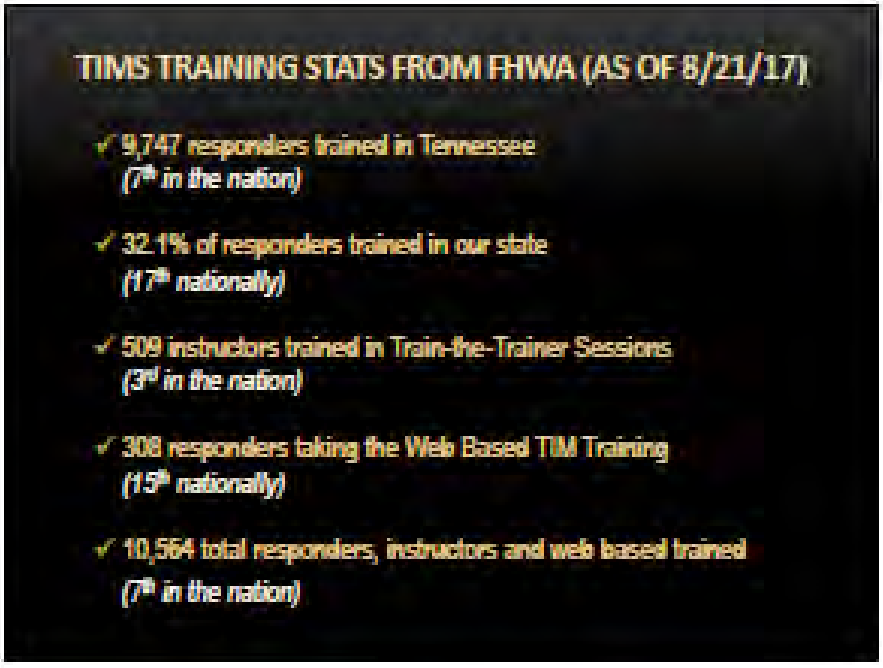

THP TIMS FACILITY

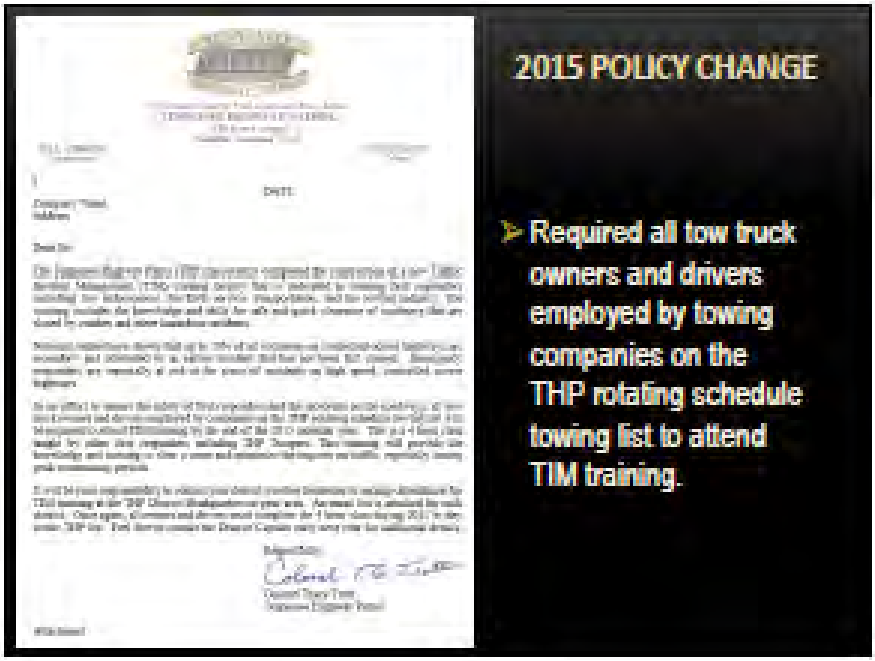

USES OF TIMS TRAINING SITE
Simulate Actual Traffic Movement.
Basic Crash Investigation: Law enforcement personnel would be trained on the fundamental elements of crash investigation.
Advanced Crash Investigation: Law enforcement personnel would receive technical training in crash enforcement.
Provide an area to train with new technology such as diagraming tools and software for critical incident response teams.


USES OF TIMS TRAINING SITE
Provide an area to be used to conduct various types of vehicle stops, including felony stops.
Provide an area to be used for night-time practicums enabling emergency personnel to experience the differences in lighting conditions.
Provide an area to train emergency personnel on the safe and efficient removal of disabled vehicles.
Provide an area to stage construction zone scenarios.


USES OF TIMS TRAINING SITE
Provide training on the positioning of emergency response vehicles at crash scenes. (critical part of safety)
Provide training specific to TIMS by providing an opportunity for emergency personnel to engage in decision making skills involved with all types of traffic management. (most important skill)
Provide an array of incidents for investigation such as Haz Mat spills, motorist assists, and secondary crashes or events.


TIMS TRAINING SITE
Since its completion, THP TIMS training site has been visited by State Public Safety and Transportation officials from across the United States and Puerto Rico.
Several TIMS responder courses have been held and attended by responders from all disciplines across Tennessee.
THP has used the track to train new cadets in various scenarios, teaching troopers traffic crash reconstruction, and for mock crashes during the crash symposium.


TIMS TRAINING STATS FROM FHWA (AS OF 8/21/17)
9,747 responders trained in Tennessee
(7th in the nation)
32.1% of responders trained in our state
(17th nationally)
509 instructors trained in Train-the-Trainer Sessions
(3rd in the nation)
308 responders taking the Web Based TIM Training
(15th nationally)
10,564 total responders, instructors and web based trained
(7th in the nation)



2015 POLICY CHANGE

- Required all tow truck owners and drivers employed by towing companies on the THP rotating schedule towing list to attend TIM training.

MOVER OVER - IMPORTANT PIECE TO TIM & SAFETY

- May 3, 2014 – Florida State Trooper Chelsea Richard and a wrecker driver were killed on Interstate 95.
- May 10, 2014 – Metro Nashville Police Officer Michael Petrina was killed.
- May 12, 2014 – The #MOVEOVER movement began…

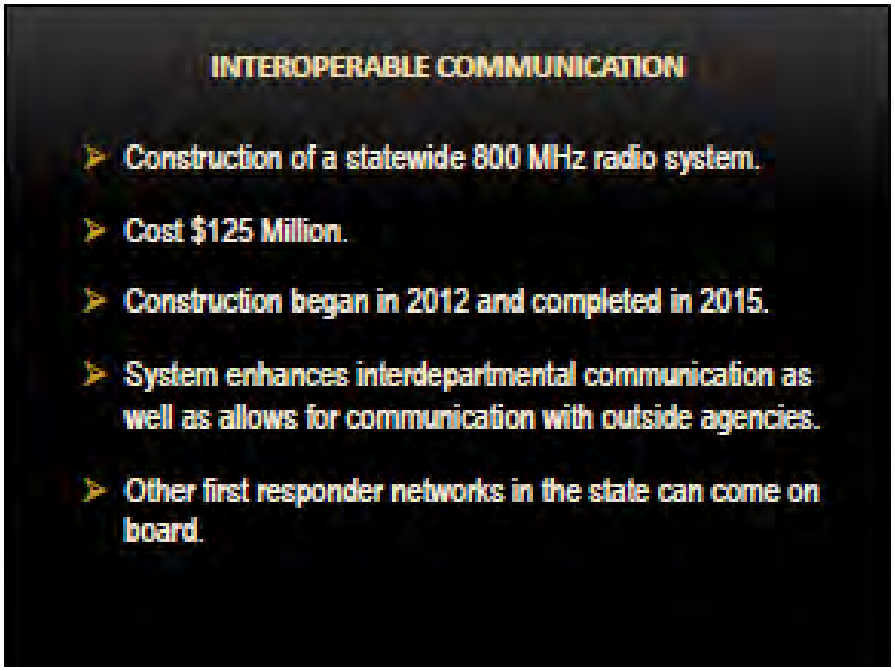

THE PHOTO THAT STARTED IT ALL...
The Tweet: For my troopers & law enforcement in TN & across the world, please #MoveOver

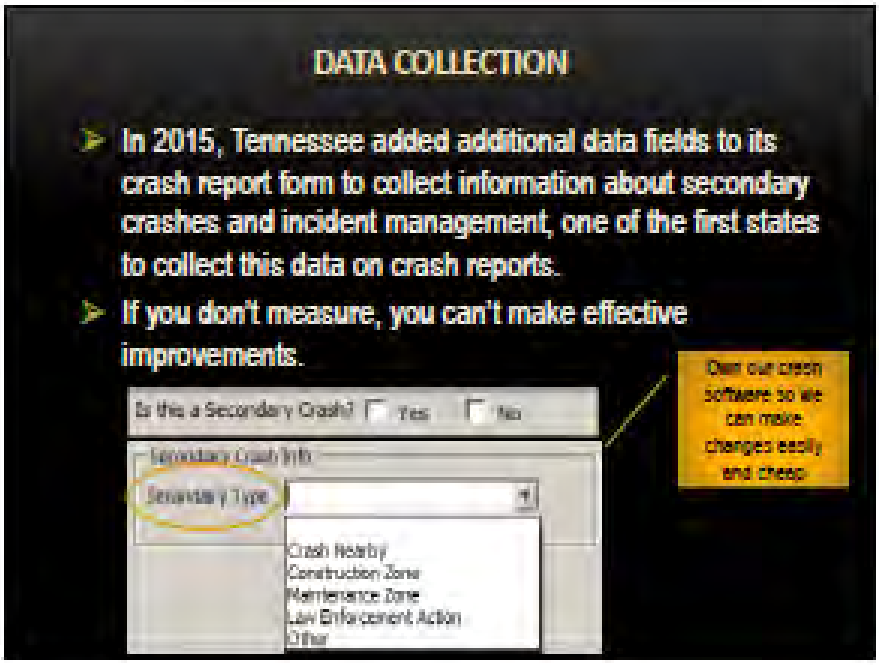

MOVE OVER – CHIEF OF POLICE MAGAZINE JULY 2014
From May 13, 2014 – May 20, 2014, the #MoveOver hashtag
was tweeted, retweeted, and replied to over 11,000 times
reached over 4.8 million Twitter accounts
generated a total of 29.1 million impressions about the #MoveOver campaign

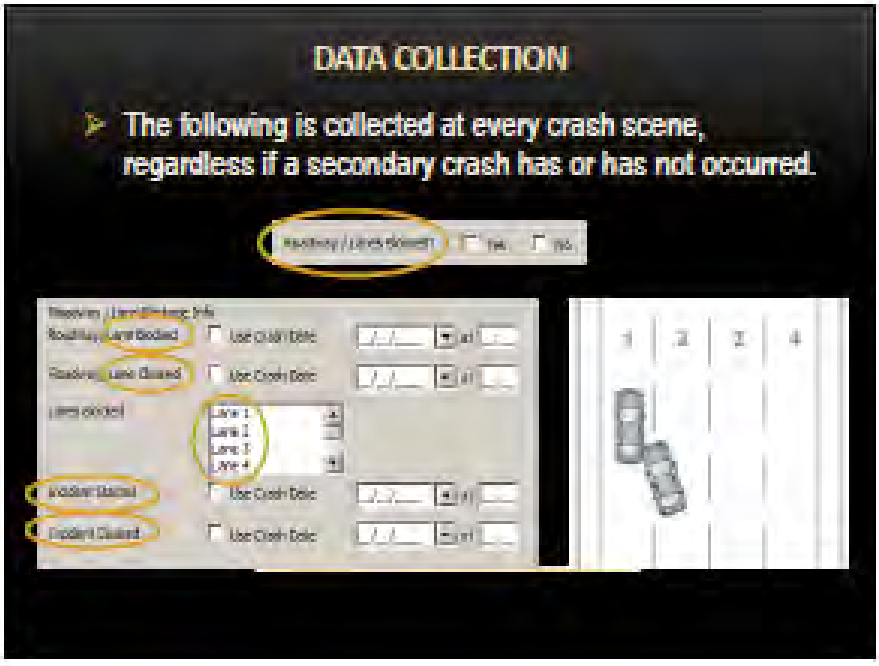

HOW #MOVEOVER WENT VIRAL
Families of first responders were some of the first to participate
Other law enforcement agencies and first responders quickly joined the movement
Elected officials, sports teams, and news media outlets showed their support as well

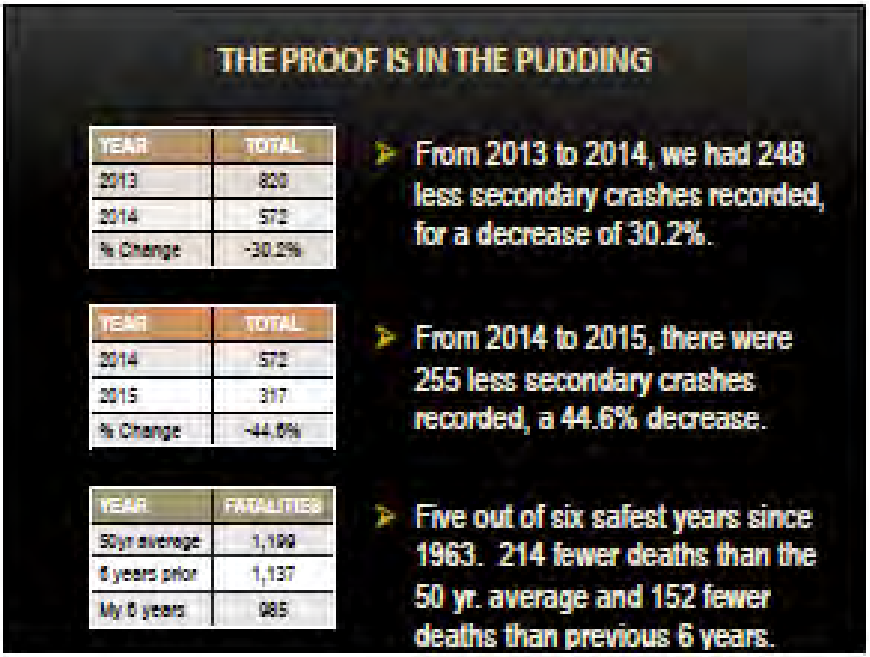

HOW #MOVEOVER WENT VIRAL
Those who did not have access to Twitter started sending pictures to THP's Facebook page
The general public learned about the movement and needed their voices to be heard


The Police Chief Magazine July 2014 Issue

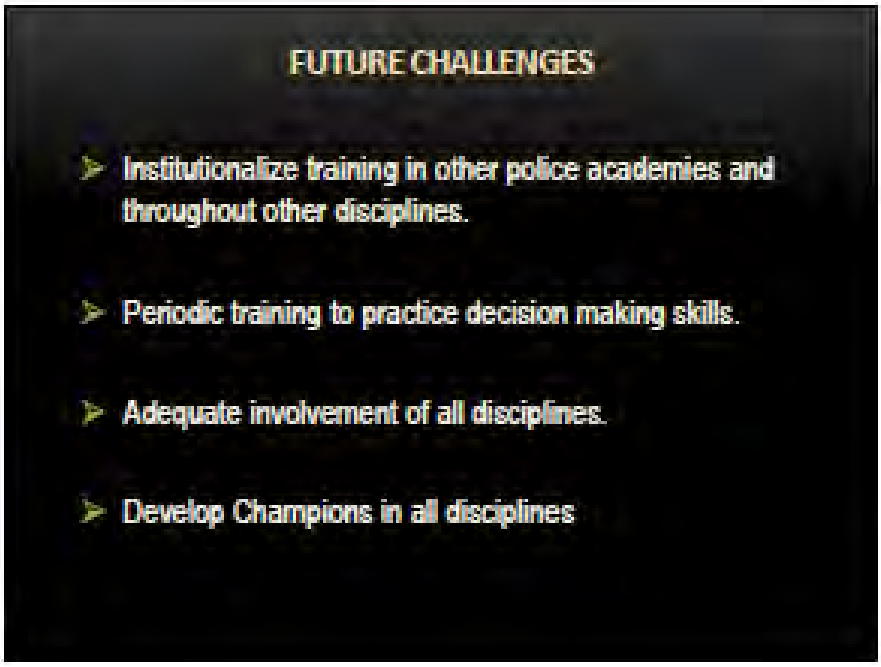

INTEROPERABLE COMMUNICATION
Construction of a statewide 800 MHz radio system.
Cost $125 Million.
Construction began in 2012 and completed in 2015.
System enhances interdepartmental communication as well as allows for communication with outside agencies.
Other first responder networks in the state can come on board.

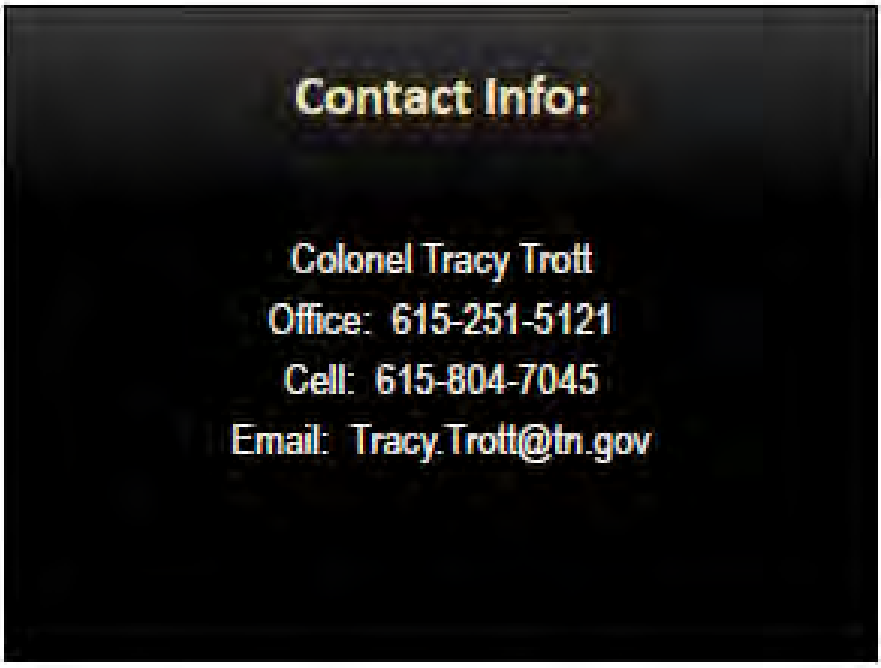

DATA COLLECTION
In 2015, Tennessee added additional data fields to its crash report form to collect information about secondary crashes and incident management, one of the first states to collect this data on crash reports.
If you don't measure, you can't make effective improvements.
Own our crash software so we can make changes easily and cheap
Is this a Secondary Crash?
Secondary Crash Info
Secondary Type
Crash Nearby
Construction Zone
Maintenance Zone
Law Enforcement Action
Other


DATA COLLECTION
The following is collected at every crash scene, regardless if a secondary crash has or has not occurred.
Roadway Lane Blocked
Roadway Lane Cleared
Lanes Blocked
Incident Started
Incident Cleared
1
2
3
4


THE PROOF IS IN THE PUDDING
YEAR TOTAL
2013 820
2014 572
% Change -30.2%
YEAR TOTAL
2014 572
2015 317
% Change -44.6%
YEAR FATALITIES
50yr average 1,199
6 years prior 1,137
My 6 years 985
From 2013 to 2014, we had 248 less secondary crashes recorded, for a decrease of 30.2%.
From 2014 to 2015, there were 255 less secondary crashes recorded, a 44.6% decrease.
Five out of six safest years since 1963. 214 fewer deaths than the 50 yr. average and 152 fewer deaths than previous 6 years.


2016 IACP National
Law Enforcement Challenge Awards
1st Place – State Police/Highway Patrol 501-1,500 Sworn
Special Category – Traffic Incident Management
Special Category – Technology (Predictive Analytics)


FUTURE CHALLENGES
Institutionalize training in other police academies and throughout other disciplines.
Periodic training to practice decision making skills.
Adequate involvement of all disciplines.
Develop Champions in all disciplines


Contact Info:
Colonel Tracy Trott
Office: 615-251-5121
Cell: 615-804-7045
Email: Tracy.Trott@tn.gov


TIM Network Peer Exchange
MDOT


Critical Success Factors
EVERY PROGRAM HAS SOMETHING THAT MUST GO RIGHT TO ACHIEVE THE VISION
MDOT

CSF Examples

Goals	Candidate Critical Success Factors
Gain 25% of local market share	• Increase competitiveness versus other local stores • Attract new customers
Achieve fresh supplies from "farm to customer" in 24 hours for 75% of products	• Sustain successful relationships with local suppliers
Sustain a customer satisfaction rate of 98%	• Retain staff and keep up customer-focused training
Expand product range to attract more customers	• Source new products locally
Extend store space to accommodate new products and customers	• Secure financing for expansion • Manage building work and any disruption to the business

What are Critical Success Factors

- What must go right for your project to succeed?
- What factors will insure failure should they not be addressed.
- Things that are under your influence.
  - If there are barriers to success that are outside your control, recognize them.
  - If they truly cannot be addressed, stop the project now and avoid frustration.
- Essential areas of activity that must be performed well to achieve the mission, objectives, or goals for your business or project.
- Help every team member to know exactly what's most important.
- Areas of activity that should receive constant and careful attention from management.

Measure Success Factors

If your CSFs go right, will you succeed?

Are the CSFs under your influence?

Will you fail if you do not achieve any one of your CSFs?

Do your fundamental components provide complete detail of each CSFs requirements?

Do your fundamental components point to specific areas of risk that you must address?

MDOT

Next Steps

MDOT

Outcomes from Today's Session

- Regional Workshop Summaries
- Vision and critical success factors
- Overall program direction, with defined SMART Goals

Driver Survey

- Continue to gauge public awareness of safe quick clearance laws
- Goals include improving both driver and responder safety
- Support three languages: English, Spanish, and Arabic
- Focus on:
  - Michigan residents over 18 who drive on a regular basis including demographic variables such as age, gender, education and race/ethnicity
- Goal is to exceed 800 response rate from previous work

Outreach Toolkit

41

Safe Quick Clearance and High Visibility Outreach Toolkit

- Brochures, flyers, postings
  - Building on the success of Captain Clear© and branding of MI-TIME Program.
- Social media outreach engagement and measurement
- Publisher Outreach Campaign
  - Online writers of websites, blogs, forums or news outlets
  - Buzz monitoring
  - Radian6

Upcoming MI-TIME Events

42

- MI-TIME Training
  - November 9, 10:00AM – 2:00PM & 4:00PM – 8:00PM, Saginaw
  - November 23, 10:00AM – 2:00PM & 4:00PM – 8:00PM, Lapeer
  - December 14, 10:00AM – 2:00PM & 4:00PM – 8:00PM, Saginaw
- TIM Action Team
  - December 7, 9:30AM-11:30AM, MDOT Horatio Earle Learning Center

Check the MI-TIME Website for locations, to register, and for additional details

How You Can be Involved

- Input for the project
- Join TIM Action Team
- Advocate within your association

Thank You for Your Attendance and Participation


Thank You
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Michigan Department of Transportation
Traffic Incident Management Engineer
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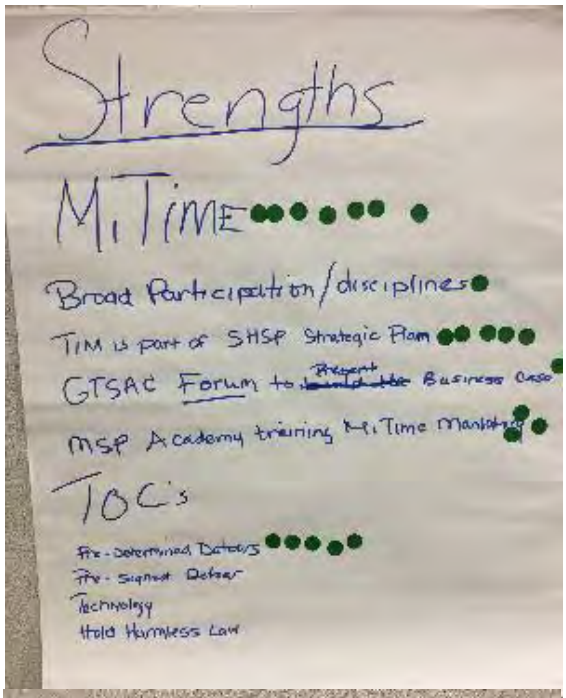
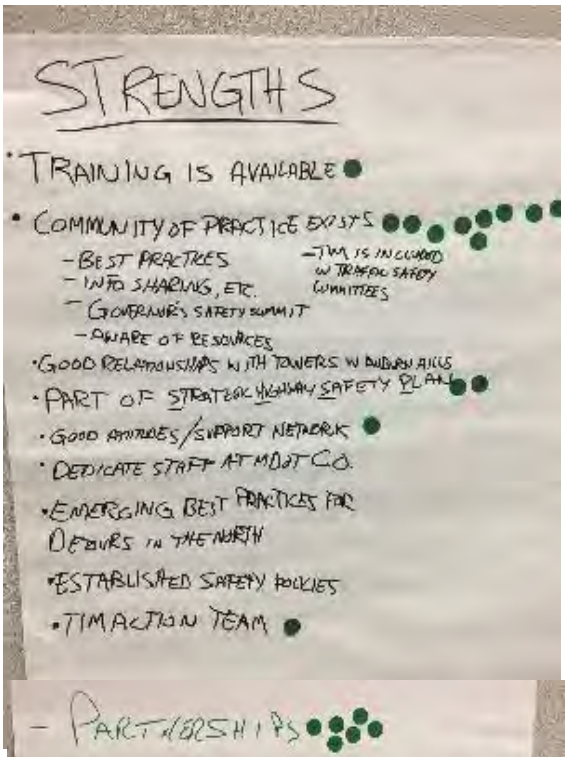
Michigan Department of Transportation
Traffic Incident & Work Zone Management Analyst
Office: 517-636-5134
MDOT

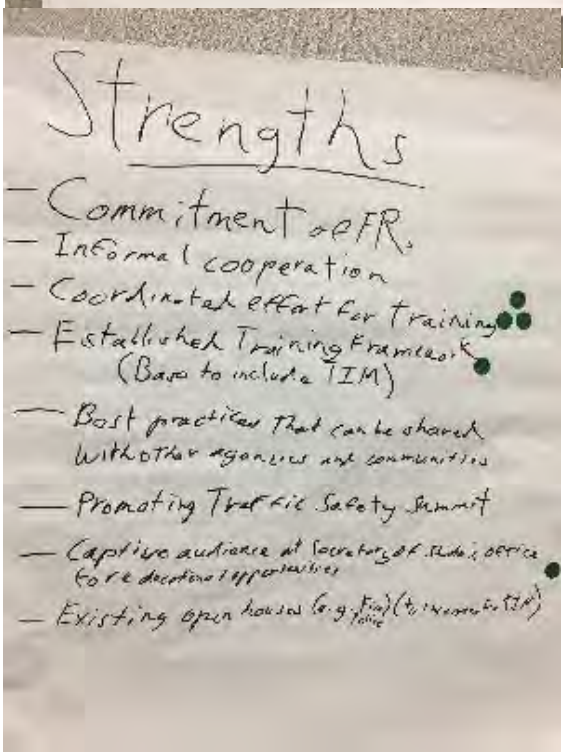
Visioning Workshop Brainstorming Results

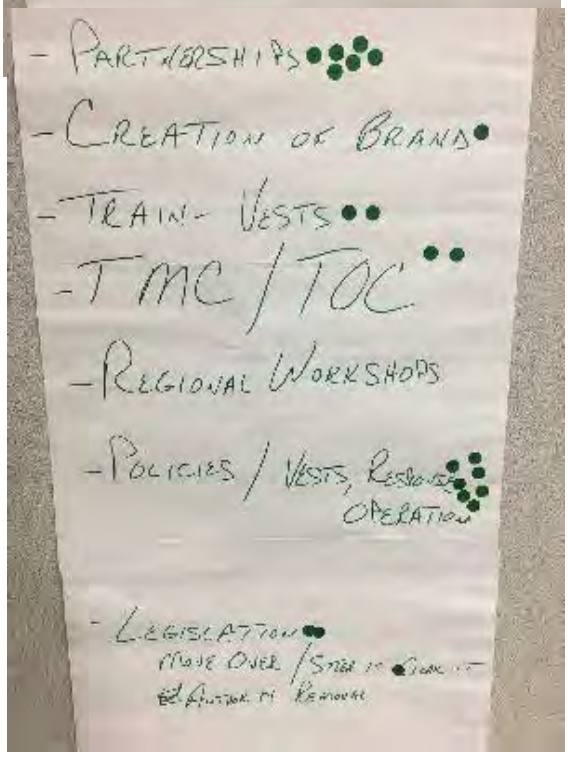
Workshop attendees divided into small groups to answer questions and discuss various aspects of TIM in Michigan. The photos in this section represent the results of those discussions on the various topics. The dots shown in some photos represent the results of attendee voting, typically to represent which areas they felt most strongly about.

Michigan TIM Strengths

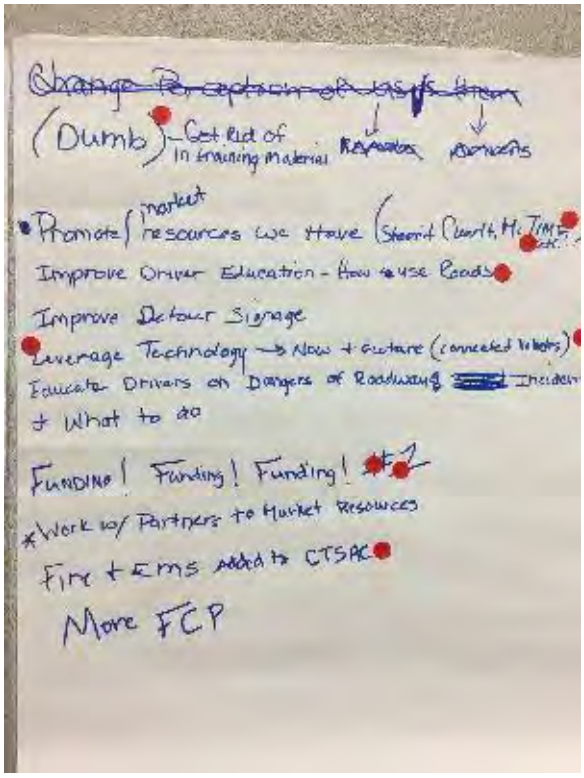


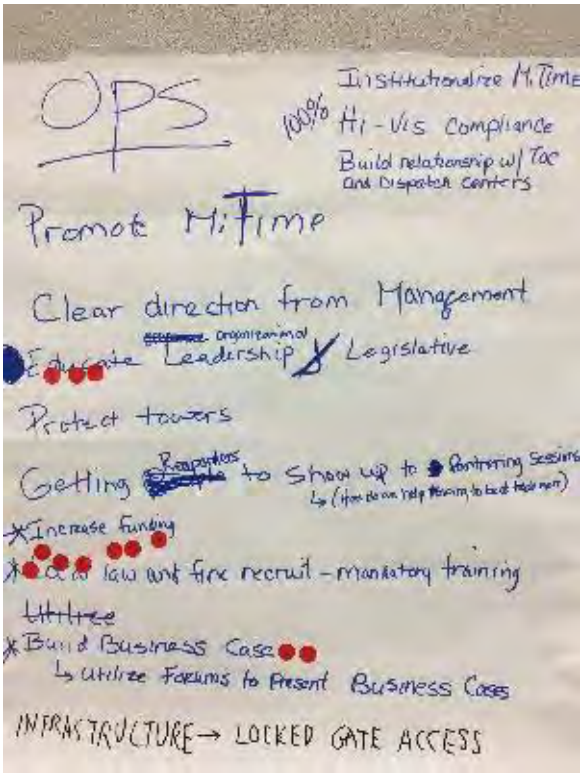


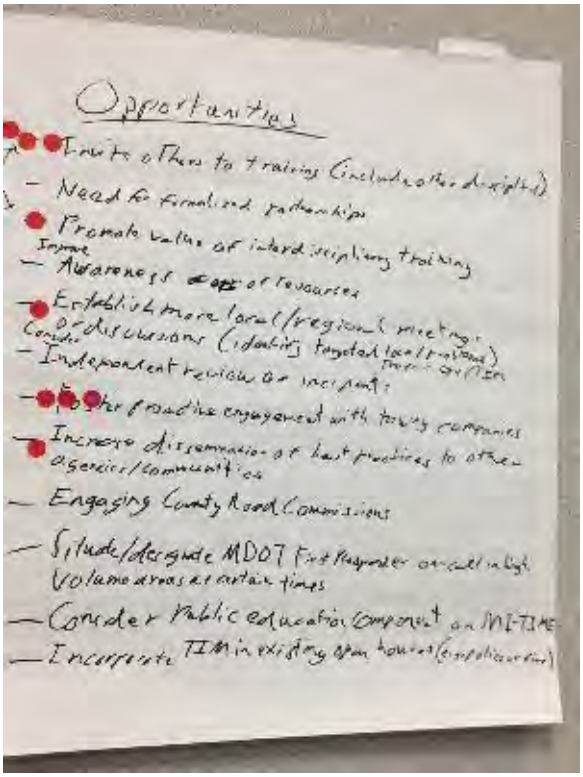


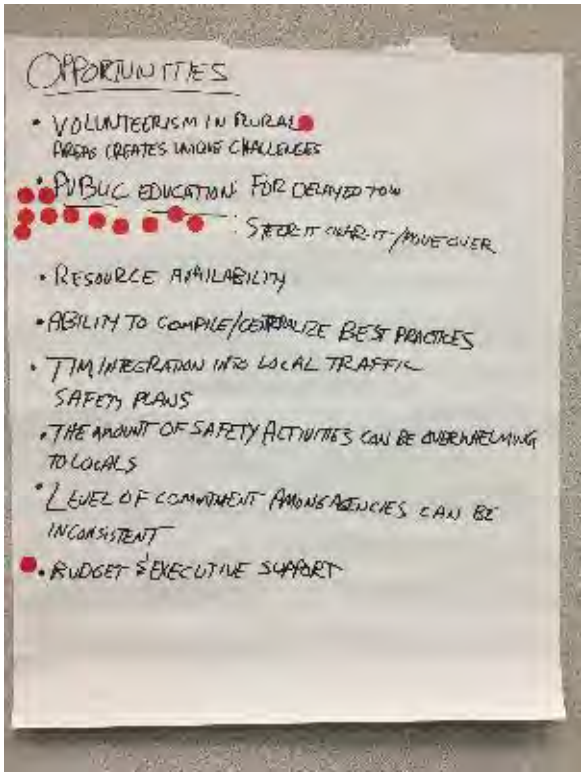


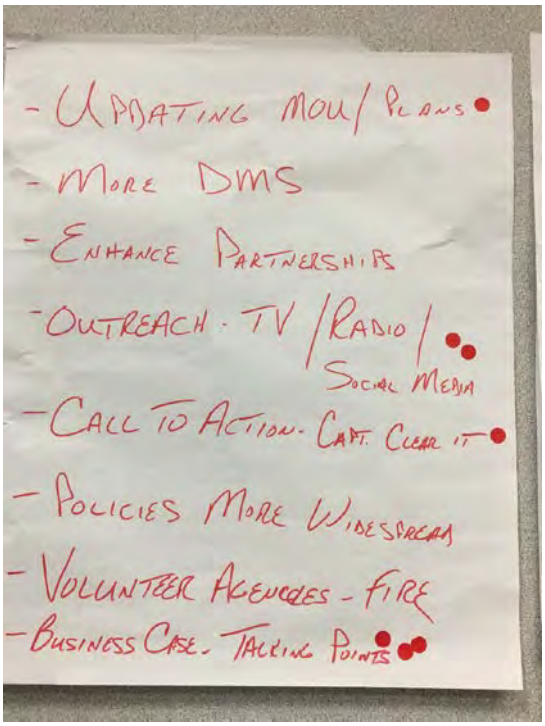
Michigan TIM Opportunities

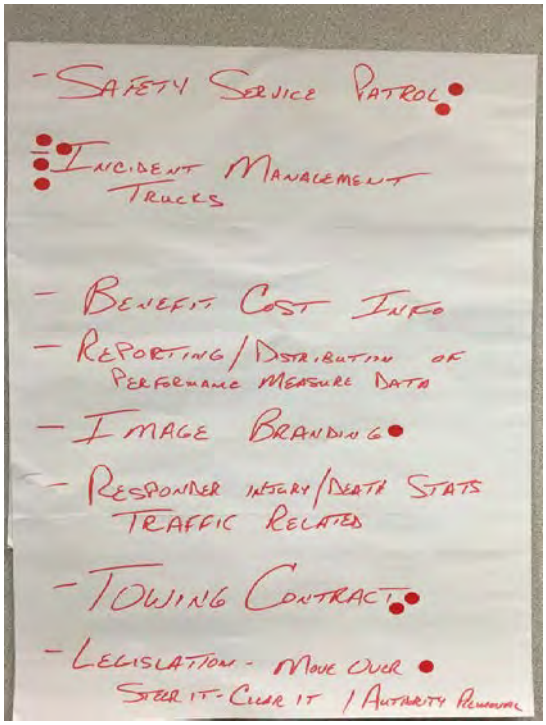




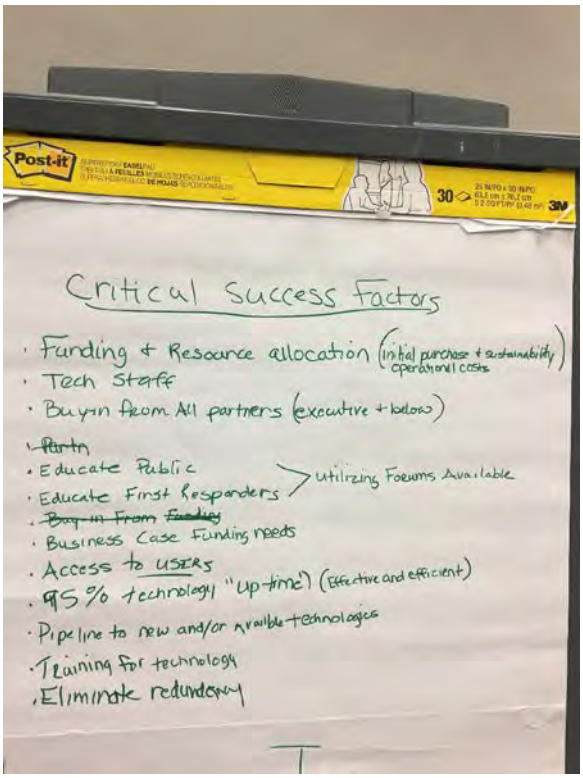


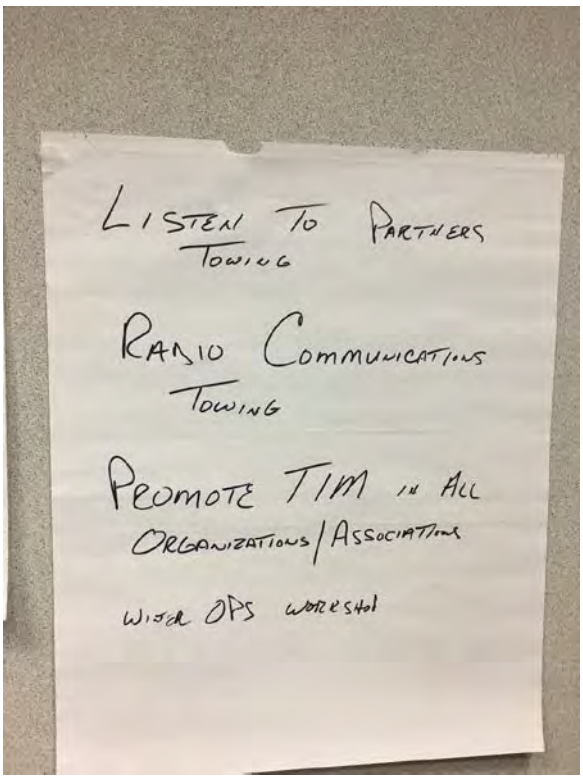


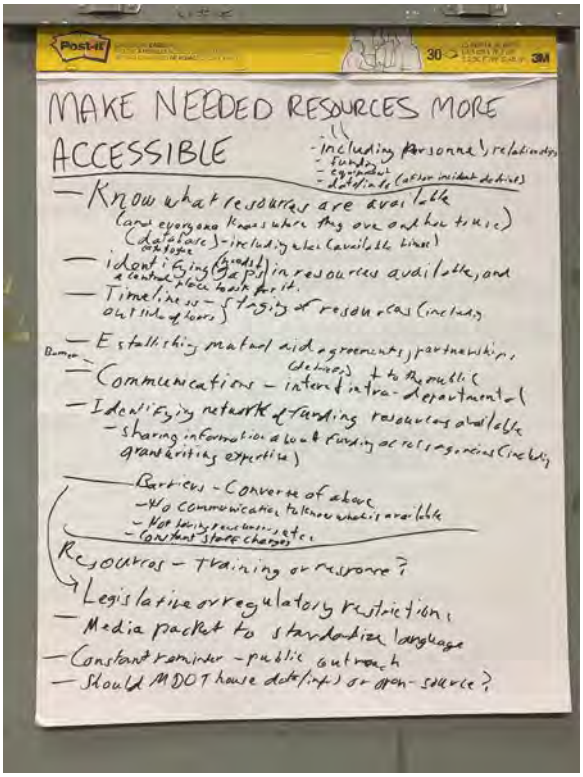

- Updating MOU/Plans
- More DMS
- Enhance Partnerships
- Outreach - TV/Radio/Social Media
- Call to Action - Capt. Clear it
- Policies More Widespread
- Volunteer Agencies - Fire
- Business Case - Talking Points

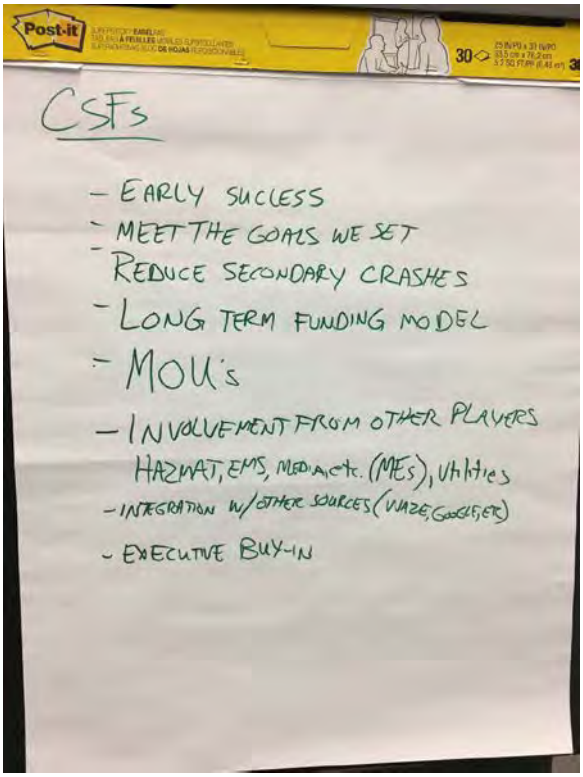

- Safety Service Patrol
- Incident Management Trucks
- Benefit Cost Info
- Reporting/Distribution of Performance Measure Data
- Image Branding
- Responder Injury/Death Stats Traffic Related
- Towing Contracts
- Legislation - Move Over Slow it - Clear it / Authority Removal

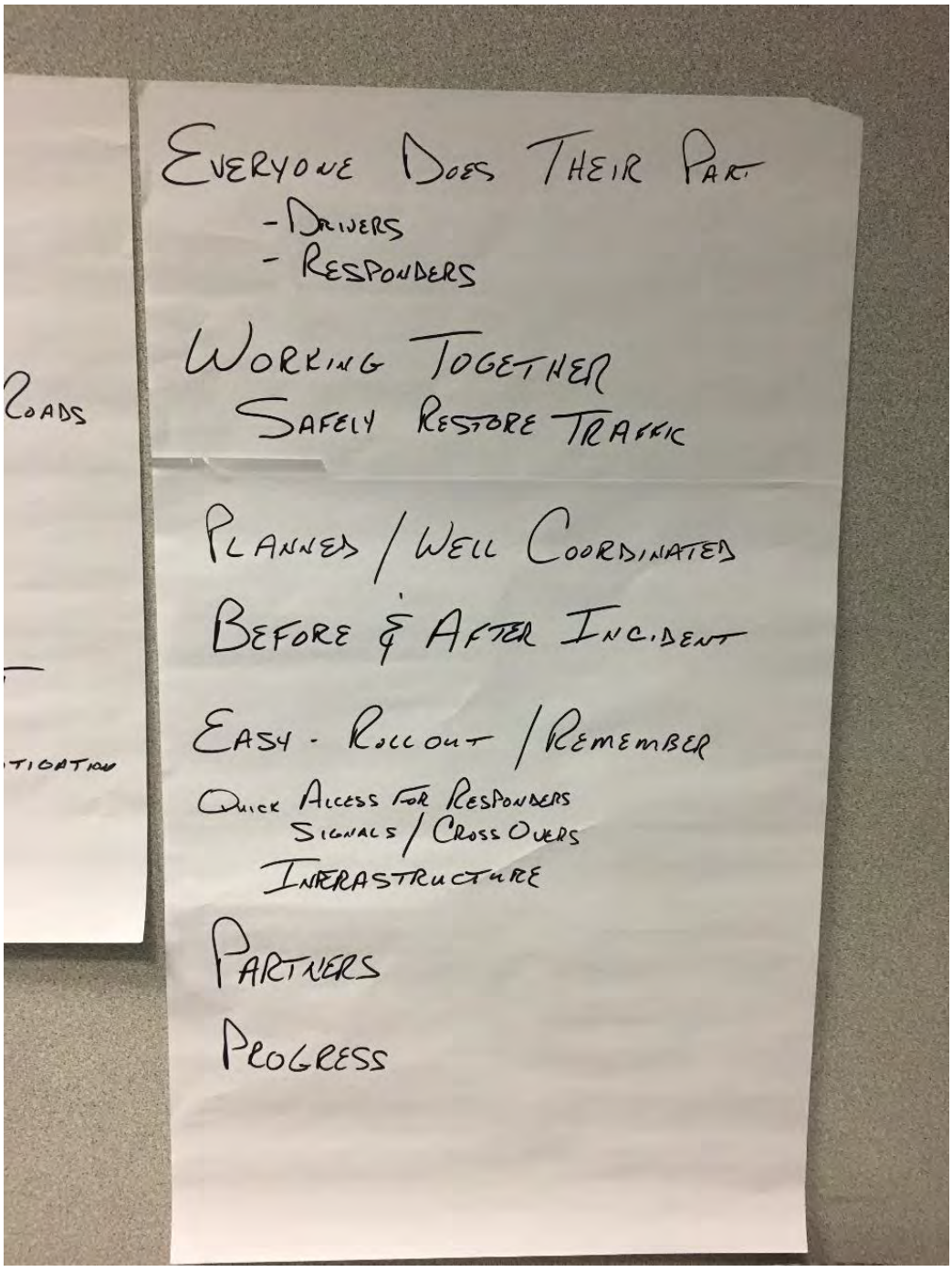
Michigan TIM Critical Success Factors



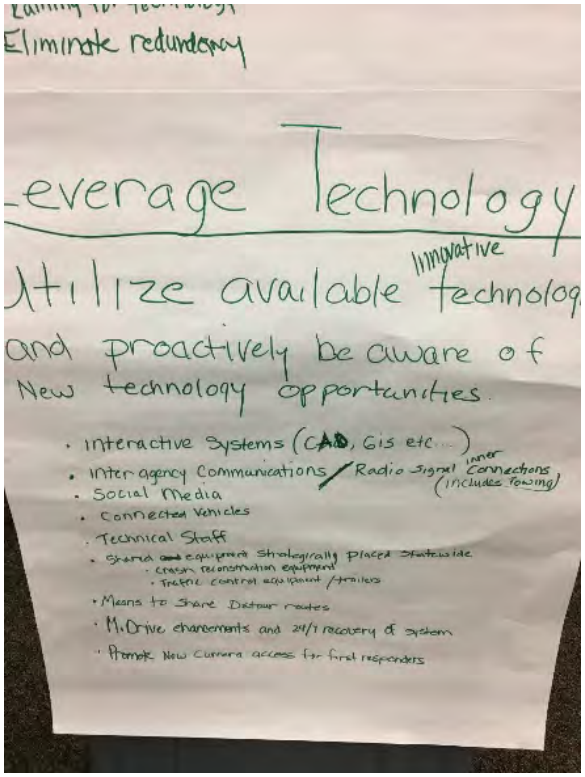


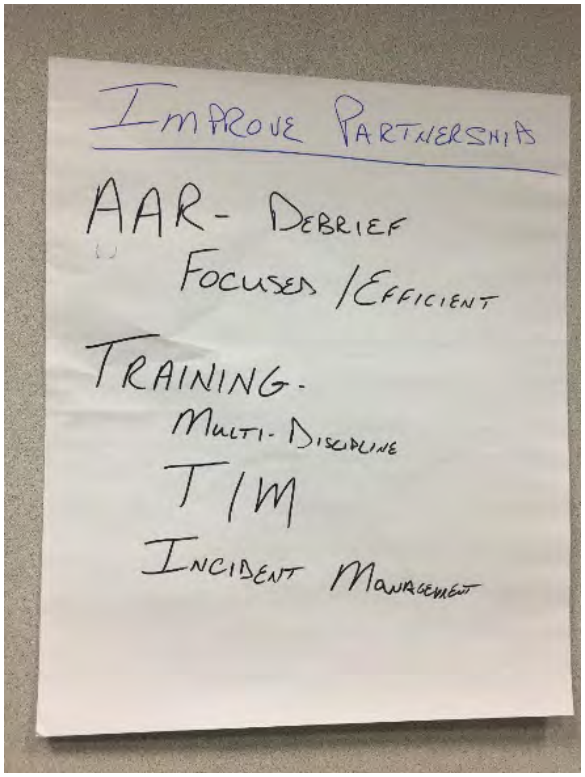


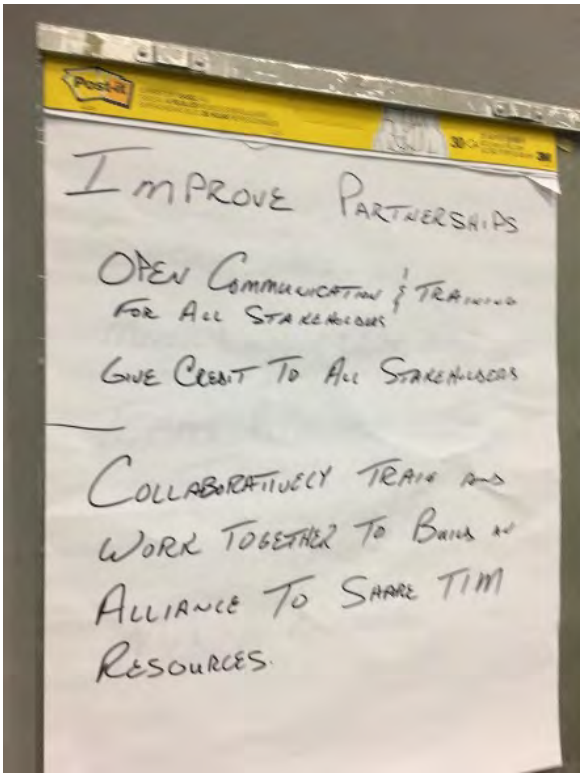


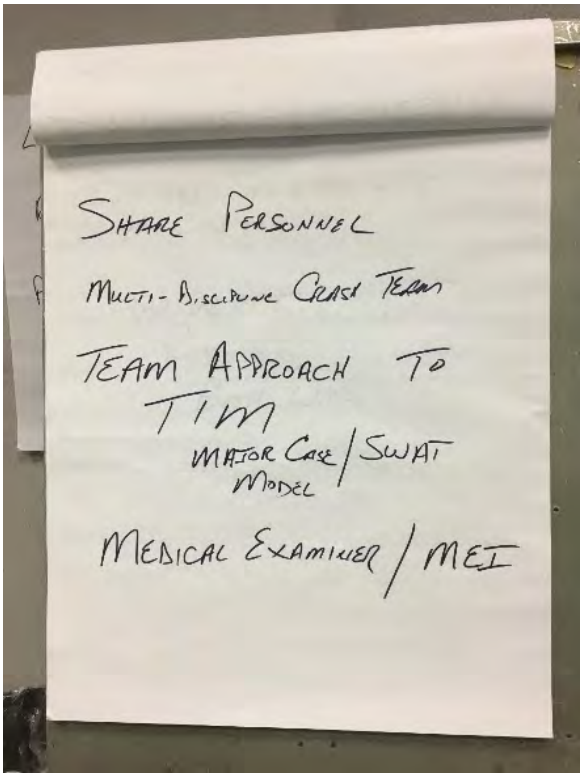

EVERYONE DOES THEIR PART
- DRIVERS
- RESPONDERS
WORKING TOGETHER
SAFELY RESTORE TRAFFIC
PLANNED / WELL COORDINATED
BEFORE & AFTER INCIDENT
EASY - ROLLOUT / REMEMBER
QUICK ACCESS FOR RESPONDERS
SIGNALS / CROSS OVERS
INFRASTRUCTURE
PARTNERS
PROGRESS

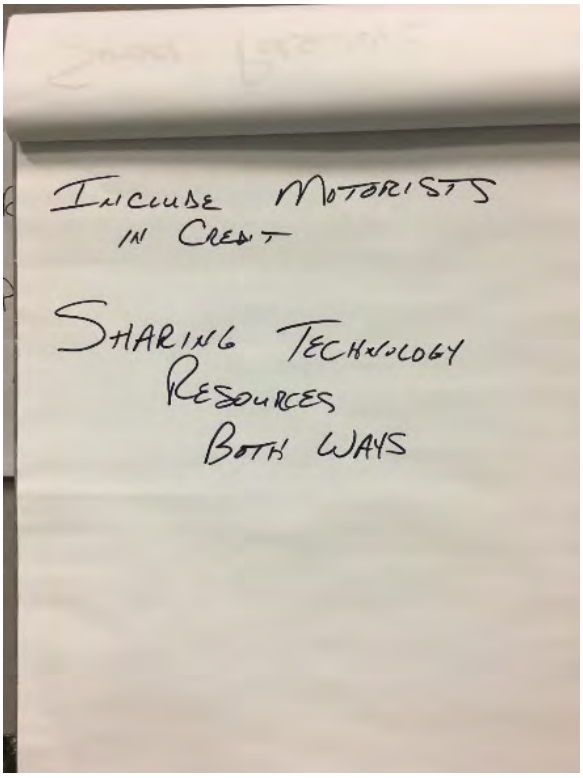
Michigan TIM Goals for the Future

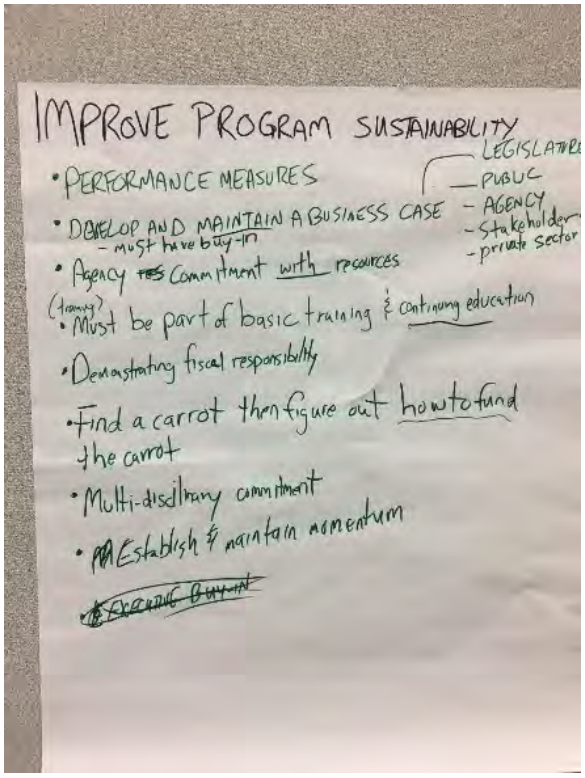


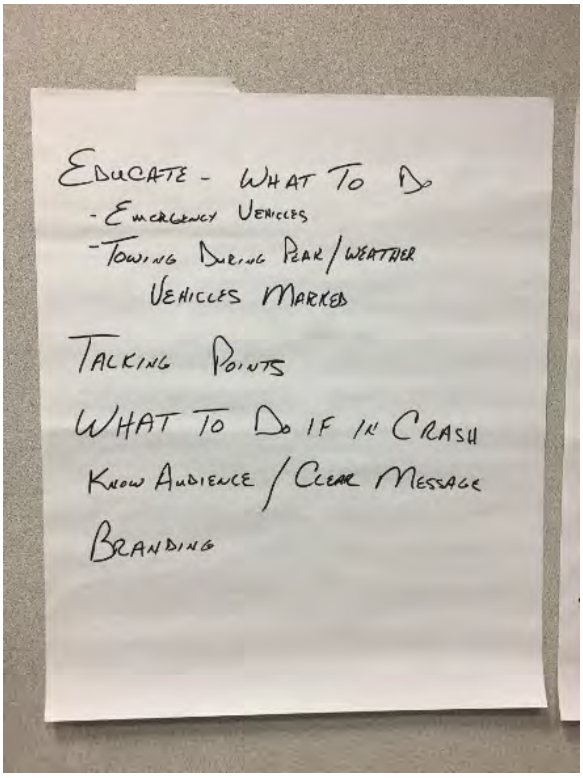


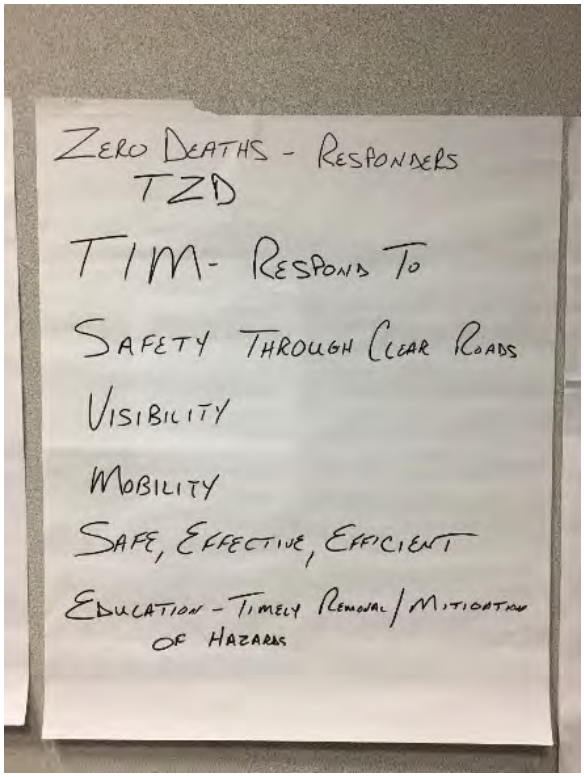





INCLUDE MOTORISTS IN CREDIT
SHARING TECHNOLOGY RESOURCES BOTH WAYS


IMPROVE PROGRAM SUSTAINABILITY
• PERFORMANCE MEASURES
• DEVELOP AND MAINTAIN A BUSINESS CASE
- must have buy-in
• Agency commitment with resources
(training)
• Must be part of basic training & continuing education
• Demonstrating fiscal responsibility
• Find a carrot then figure out how to fund the carrot
• Multi-disciplinary commitment
• Establish & maintain momentum
LEGISLATURE
PUBLIC
- AGENCY
- Stakeholder
- private sector


EDUCATE - WHAT TO DO
- EMERGENCY VEHICLES
- TOWING DURING PEAK/WEATHER
VEHICLES MARKED
TALKING POINTS
WHAT TO DO IF IN CRASH
KNOW AUDIENCE / CLEAR MESSAGE
BRANDING


ZERO DEATHS - RESPONDERS
TZD
TIM - RESPOND TO
SAFETY THROUGH CLEAR ROADS
VISIBILITY
MOBILITY
SAFE, EFFECTIVE, EFFICIENT
EDUCATION - TIMELY REMOVAL/MITIGATION
OF HAZARDS

Appendix D Motorist Survey Summary

This appendix provides all the specifics about the survey including the survey questions, survey development, methodology and results, and social media monitoring summary

Glossary of Media Metrics Terms

.

Blog	Truncation of the word “weblog” and is an informational or discussion website
Facebook	An individual’s personal Facebook profile (the platform is an American online social media and networking service).
Facebook Group	A public Facebook page that is composed of followers who share similar interests and who are able to post and exchange information within the group.
FB Page	Refers to public Facebook pages, such as from business entities that can be followed.
Flickr	Image- and video-hosting website and web services suite.
Foursquare	local, personalized search and discovery service mobile app.
Google+	social network owned by Google
Influence	Composite of the reach (number of unique users interacting with an influencer), impact (engagement generated from their content), quality (depth and complexity of content, i.e., picture and link posts as opposed to purely text), and volume of content relevant to the defined keywords
Instagram	A mobile, desktop, and internet-based photo-sharing application. It allows users to share pictures and videos either publicly or privately with followers.
Pinterest	A mobile and website company where users can upload images and images are used to discover information.
Reddit	American social news aggregation, web content rating, and discussion website
Twitter	Online news and social networking service where users post and interact with messages.
Youtube	American video-sharing website
Vkontakte	Large European social network

Online and Phone Interview Questions

The presentation format for online responses and also supporting instructions for interviewers are not included. Note that in questions below:

- o Round open bullets indicate the options for a "Mark one" format question (presented as radio buttons in a web version).
- □ Square open bullets indicate the options for a "Mark all that apply" format question (presented as check boxes in a web version).

1. In the past 12 months, I traveled in a motor vehicle on roads in Michigan:

- o Every day or almost every day of the week
- o Several days in a week
- o Several times a month
- o Several times a year
- o Less than several times a year

2. When I travel on roads in Michigan, I use:

a. A private vehicle Yes No
b. Public transportation Yes No

3. When I travel on roads in Michigan, I am:

- o Always the driver of the vehicle
- o Sometimes the driver, sometimes a passenger
- o Always the passenger in the vehicle

4. In the past 12 months, I have been in a motor vehicle on Michigan roads as a driver or a passenger:

	Yes	No	Sometimes	Undec/Ref
□ During morning rush, 6 a.m. to 9 a.m.	(1)	(2)	(3)	(4)
□ During the day between 9 a.m. and 4 p.m.	(1)	(2)	(3)	(4)
□ During evening rush, 4 p.m. to 7 p.m.	(1)	(2)	(3)	(4)
□ During the evening after 7 p.m.	(1)	(2)	(3)	(4)
□ On a Saturday or Sunday	(1)	(2)	(3)	(4)

The next questions are about sources people may use for information about traffic in their area.

5. In the past 12 months, I have listened to radio traffic reports:

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never listen to radio traffic reports
- o Undecided/refused

6. In the past 12 months, I watched television traffic reports:

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never watch television traffic reports
- o Undecided/refused

Now we'd like to ask you about the dynamic message signs that post traffic and other information on expressways and on other major highways.

7. On dynamic message signs, I have seen:

	Yes	No	Undec/Ref
☐ Travel time information indicating estimated travel times and miles to a location	(1)	(2)	(3)
☐ Information about crashes and other traffic incidents	(1)	(2)	(3)
☐ Information on alternate routes	(1)	(2)	(3)
☐ Road construction information	(1)	(2)	(3)
☐ Information on how many people have died in crashes	(1)	(2)	(3)
☐ Weather-related messages	(1)	(2)	(3)

8. Have you seen anything else on dynamic message signs not listed above?

- o Yes (please specify):_____
- o No
- o Undecided/refused

9. Do you have a GPS device (Global Positioning System) or app (such as a Garmin, Waze, Google Maps, or TomTom) for use in your vehicle or on your phone?

- o Yes
- o No

10. Can your GPS device or app provide real-time traffic information?

- o Yes
- o No
- o Not sure

11. Have you ever used real-time traffic information on your GPS device or phone app?

- o Yes
- o No

12. In the past 12 months, how often have you used the traffic information your GPS or app for routine trips?

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never

- o Not sure

13. In the past 12 months, how often have you used the traffic information on your GPS or app for long trips or first-time trips?

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never
- o Not sure

14. Within the next two years, how likely are you to have access in your vehicle to real-time traffic information as either part of a GPS device or your cell phone service?

- o Very likely
- o Moderately likely
- o A little likely
- o Not at all likely

15. The Michigan Department of Transportation (MDOT) maintains a website called Mi Drive (www.michigan.gov/drive) that posts real-time traffic information for state roads across the state. Please choose one of the following:

- o I have used the website
- o I have heard of the website but never used it
- o I have never heard of the website

16. If you have used Mi Drive in the past 12 months, how often have you used the website on a computer or cell phone?

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Not sure

17. If you have used Mi Drive, how would you rate your experience with the website on a computer or cell phone? Please choose one rating below: 1 = extremely unfavorable experience/did not like and 10 = extremely favorable experience/liked a lot.

1 2 3 4 5 6 7 8 9 10

18. Do you own a cell phone that has Internet/Wi-Fi access like a smartphone?

- o Yes
- o No
- o Undecided/refused

19. MDOT also maintains the Mi Drive app that posts real-time traffic information for roads across the state. Please choose one of the following:

- o I have used the app
- o I have heard of the app but never used it
- o I have never heard of the app

20. If you used the Mi Drive app in the past 12 months, how often have you used a smartphone or cell phone to access it?

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Not sure

21. If you have used the Mi Drive app on your cell phone, how would you rate your experience? Please choose one rating below: 1 = extremely unfavorable experience/did not like and 10 = extremely favorable experience/liked a lot.

1 2 3 4 5 6 7 8 9 10

22. To find real-time traffic information, do you use:

- o Any other websites? Yes No
- o Any apps? Yes No

? 23. In the past 12 months, how often have you used a computer or cell phone to find traffic information on other **traffic information** websites**?**

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never

24. Which other site did you use most frequently?

- o Waze maps
- o Google maps
- o Yahoo maps
- o Or some other site (*Please specify*):

  _____
- o Undecided/refused

25. In the past 12 months, how often have you used a cell phone to find traffic information on other traffic information apps?

- o A few times a week or more
- o A few times a month
- o A few times during the past 12 months
- o Never

26. Which other app did you use most frequently?

- o Waze
- o Google maps
- o Yahoo maps
- o Or some other site (*Please specify*):

  _____
- o Undecided/refused

Now we would like to ask you about two different traffic situations many drivers encounter.

27. What would be your first reaction to being involved in a traffic crash on a roadway in Michigan? Assume no one in your vehicle was obviously injured, the vehicle is drivable, and authorities have been notified

a. Before the police arrive, I would:
   - o Move the vehicle to the side of the road out of the way of traffic
   - o Leave the vehicle where it was

b. Until the police arrive, I would have all the passengers:
   - o Exit the vehicle and stay close to the crash
   - o Exit the vehicle and go to a short distance away (such as by the right of way fence behind a guardrail or some other safer area than right by the vehicle)
   - o Stay in the vehicle

28. In March 2010, Michigan enacted a "Steer It, Clear It" law that requires drivers of vehicles that are involved in a crash to move their vehicles to the side of the road out of the way of the regular traffic flow IF no one in the vehicle is seriously injured. How aware are you about this law?

- o Very aware of the "Steer It, Clear It" law
- o Only somewhat aware of the law
- o Not aware at all of Michigan's "Steer It, Clear It" law as it affects traffic crashes situations.
- o Undecided/refused

29. What do you think your first reaction would be if you saw an emergency response vehicle, such as a police car, an ambulance or fire truck, on the side of the road in front of you with its emergency lights flashing while you were driving along a roadway, highway or freeway that had two lanes **of traffic in the same direction?**

I would:

a. Stay in the same lane and:
   - o Continue driving at current speed
   - o Slow down
     - o If slow down, then by how much?

b. Move over into an open, available lane and:
   - o Continue driving at current speed
   - o Slow down
     - o If slow down, then by how much?

30. What do you think your first reaction would be if you saw a tow truck on the side of the road in front of you with its lights flashing while you were driving along a roadway, highway or freeway that had two lanes **of traffic in the same direction?**

I would:

a. Stay in the same lane and:
   - o Continue driving at current speed
   - o Slow down

- If slow down, then by how much?

b. Move over into an open, available lane and:
   - Continue driving at current speed
   - Slow down
     - If slow down, then by how much

31. Michigan is among the many states that has what is referred to as a "Move Over, Slow Down" law, also known as the Emergency Vehicle Caution Law. This law requires drivers who approach a scene where an emergency vehicle (including a tow truck) is on the road or shoulder with its lights flashing to slow down and proceed with caution while passing the scene and, if possible, to carefully move to a lane further away from the emergency vehicle. How aware are you of this law?

- Very aware of the "Move Over/Slow Down" law
- Only somewhat aware of the law
- Not aware at all of Michigan's "Move Over/Slow Down" law as it affects emergency vehicle situations
- Undecided/refused

32. Thinking about where you receive most of your information about traffic conditions, what are the most convenient sources? (Please choose up to two)

- ☐ Newspapers/other regular print publications
- ☐ Television news/reports
- ☐ Paid television advertising
- ☐ Radio news/reports
- ☐ Paid radio advertising
- ☐ Direct mail
- ☐ Free brochures available at public places
- ☐ Facebook, Twitter, blogs, or other social media
- ☐ E-mail
- ☐ Text alerts
- ☐ Smartphone apps
- ☐ General word-of-mouth
- ☐ Other: (please specify):

  _____
- ☐ Undecided/refused

33. Thinking about where you receive most of your information about the latest in requirements for motor vehicles and driving behavior, what are the most convenient sources? (Please choose up to two)

- ☐ Newspapers/other regular print publications
- ☐ Television news/reports
- ☐ Paid television advertising
- ☐ Radio news/reports
- ☐ Paid radio advertising

- ☐ Direct mail
- ☐ Free brochures available at public places
- ☐ Facebook, Twitter, blogs, or other social media
- ☐ E-mail
- ☐ Text alerts
- ☐ Smartphone apps
- ☐ General word-of-mouth
- ☐ Other: (please specify):

  _____
- ☐ Undecided/refused

34. Which other site did you use most frequently your information about tourism travel, what are the most convenient sources? (Please choose up to two)

- ☐ Newspapers/other regular print publications
- ☐ Television news/reports
- ☐ Paid television advertising
- ☐ Radio news/reports
- ☐ Paid radio advertising
- ☐ Direct mail
- ☐ Free brochures available at public places
- ☐ Facebook, Twitter, blogs, or other social media
- ☐ E-mail
- ☐ Text alerts
- ☐ Smartphone apps
- ☐ Pure Michigan: www.michigan.org
- ☐ General word of mouth
- ☐ Other: (please specify):

  _____
- ☐ Undecided/refused

35. In the past 12 months, how often have you used social media websites such as Twitter, Facebook, blogs, or YouTube?

- o Every day
- o Most days
- o A few times a week
- o Several times a month
- o Less than several times a month
- o Never
- o Undecided/refused

36. In the past 12 months, which social media websites have you used most often? (Please choose up to two)

- ☐ Facebook

- Twitter
- Blogs
- YouTube
- Another type:
- None
- Undecided/refused

37. Did you know that MDOT maintains the following social media sites to provide information about traffic conditions and other traveler information?

- Facebook Yes No
- YouTube Yes No
- Twitter Yes No

38. How aware were you in general that MDOT maintains Facebook or Twitter sites?

- Aware and have used
- Aware but have never used
- Was not aware

The last few questions are for statistical purposes only.

39. What year you were born?

- o 18 to 24 -- (**1993 to 1999**)
- o 25 to 29 -- (**1988 to 1992**)
- o 30 to 35 -- (**1982 to 1987**)
- o 36 to 40 -- (**1977 to 1981**)
- o 41 to 49 -- (**1968 to 1976**)
- o 50 to 55 -- (**1962 to 1967**)
- o 56 to 64 -- (**1953 to 1961**)
- o 65 and over -- (**1952 or before**)
- o Undecided/refused

40. What is the last grade or level of schooling you completed?

- o 1st to 11th grade
- o High school graduate
- o Non-college post-high school (technical training)
- o Some college
- o College graduate
- o Post-graduate school
- o Undecided/refused

41. How many members of your household are 16 or older (including you)?

- o 1
- o 2
- o 3
- o 4 or more

42. How many drivers (including you) are in your household?

- o 1
- o 2
- o 3
- o 4 or more

43. Are you Hispanic or Latino?

- o Yes
- o No

44. What is your race (mark all that apply)?

- ☐ White
- ☐ African American/Black
- ☐ Hispanic (Puerto Rican, Mexican-American etc.)
- ☐ Asian
- ☐ Native American
- ☐ Other (please specify): _____

- Refused

45. Sex of respondent

- o Male
- o Female

THANK YOU FOR YOUR TIME!

Survey Development

The survey questionnaire was developed to determine current levels of public knowledge regarding the Steer It Clear It law and to help identify marketing and outreach strategies for informing the public. Additional questions were included which relate to the Move Over, Slow Down law given that outreach efforts may include both. Utilizing extensive survey experience and knowledge, a survey was developed that reduces respondent error and improves efficiency. The survey was designed to update the previous version for continuity (while providing enhancements to improve the survey) and covered several key areas of interest, including:

- Demographic and travel characteristics of all respondents;
- Awareness of the safe, quick clearance laws;
- Regardless of awareness, reported occurrences of the public moving their vehicles off the roadway when drivable and absent of any injuries;
- Traveler information sources used and desired by respondents, as well as media choice for traveler information; and
- Awareness of MDOT communication activities, as well as overall reception.

A goal of the survey development was to minimize measurement error through good questionnaire design, adhering to the premise that every potential survey respondent should interpret the questions in the same way, be able to provide a response, and be willing to answer. The questionnaire development process started with the previous survey as a base for continuity and then, in consultation with MDOT, introduced any additional questions that identified key analytical concepts of interest. The draft source questionnaire was developed in English and went through multiple expert reviews from Westat's questionnaire design group. Questions from the 2012 survey were improved for clarity and consistency and additional questions were also included.

The overall survey focused on Michigan residents who drive on a regular basis, and include demographic variables such as age, gender, education, and race/ethnicity. The sampling plan below details the process of targeting representative households across the state. Households were sent flyers requesting their response, as well as two additional reminders.

The prior 2012 survey had a sample size of 800 completed interviews. Given the need for geographic and demographic representativeness as well as regional-level awareness, an increased sample size was warranted (especially with a second language version). In consultation with MDOT, a sample size of 1,200 was determined, which enabled a more robust segmentation by county and ability to aggregate media markets, MDOT regions, special populations, or other groupings. The current survey was successful in reaching this respondent goal, which is a 50% increase over the previous 2012 survey. The survey was administered with no monetary incentive for those who participated.

Westat developed a project-specific public website to provide information about the survey to the general public and verified the legitimacy and authenticity of the survey.

Weighting Methodology

The survey data underwent a weighting procedure. The process of weighting refers to the development of an analysis weight for each respondent. Analysis weights are necessary to achieve the survey objective of making unbiased inferences about the entire population. Without the weights, two characteristics of the survey could result in biased population estimates. First, stratified sampling was used to oversample the less-populous counties, in order to increase the number of respondents in these counties. If weights are not used when computing estimates, published survey estimates may over-represent less populated counties and underrepresent more populated counties.

Another survey characteristic that is a source of potential bias is nonresponse. In an ideal scenario, all of the survey invitations are received and all surveys are completed. In actuality, however, some of the invitations are returned as undeliverable and others are received by individuals who do not complete the survey. Analysis of the data from the 2017 MDOT Safe, Quick Clearance Survey requires the use of weights to adjust not only for variable selection probabilities but also for survey nonresponse.

Weights were developed using the following multi-step procedure:

- Step 1. For each sampled address, a household base weight was calculated that was equal to the reciprocal of each address's selection probability.
- Step 2. The household base weights were then adjusted for screener nonresponse. This adjustment was done with respect to groups of addresses called *nonresponse-adjustment cells*, which had similar address characteristics and included both households that completed the screener and those that did not. The household characteristics used to form the nonresponse adjustment cells were the county-based sampling stratum to which a household belonged and whether or not the household was a high-rise apartment building. Within each adjustment cell, this adjustment inflated the base weights of households that completed the screener to represent all households in the cell, including those that did not complete the screener.
- Step 3. This step used a procedure known as *post stratification* to ensure that weighted counts of households matched known population counts (from the 2009-2015 American Community Survey) for the four most populous counties and for groups of the other counties. This step created the final household weights.
- Step 4. Next, person base weights were computed by multiplying the final household weights by the response to the survey question about the number of individuals in the household aged 16 or older.
- Step 5. The final weighting step used a procedure known as *raking*, which is similar to post stratification, except that the agreement between weighted counts and known population counts is with respect to more

than one dimension, which in this case was two. One of the raking dimensions was the counties and groups of counties used to post stratify the household weights further broken down by sex. The second raking dimension was the same counties and groups of counties but broken down by the age categories 16 to 34, 35 to 54, and 55 or older. Population counts of persons for the two raking dimensions were obtained from the 2009-2015 American Community Survey. This step created the final person weights.

Weighted Survey Results

The survey results showed contribution of participants from more than 50 counties. **Table 16** highlights all counties where responses were above two percent of the total responses. This cutoff for the table was chosen for simplification in presenting the data, but all counties were used in the analyses.

Table 16: List of Counties Above 2% of Survey Responses

County	Count of Household	Percentage of Survey Responses by County (Weighted)
Genesee	29	2.1
Ingham	39	4.1
Kalamazoo	33	3.5
Kent	37	6.1
Livingston	26	2.2
Macomb	45	8.7
Oakland	88	12.5
Ottawa	35	3.7
Washtenaw	40	4.9
Wayne	60	17.6
Total	432	65.4

Figure 4 shows regional distribution of the responses. The Metro region and Superior region had the highest and lowest number of participants, respectively.

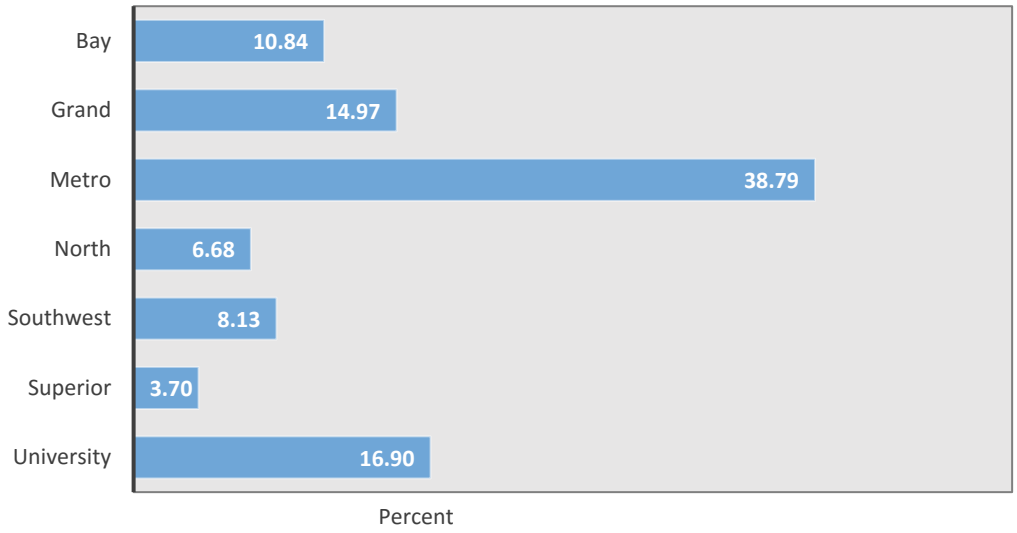


Figure 4 Regional Distribution of theSurvey Responses (%)

Demographic Summary

This section provides information on demographics of the participants.

Gender and Age

The distribution of the survey respondents by gender was 51.2 percent female and 48.4 percent male (**Figure 5**), which is close to the general distribution of population in the state (Census July 1, 2016 has 50.8 percent female, and 49.2 percent male). Age distribution, on the other hand, as shown in **Figure 6**, was skewed toward older residents. For example, according to the 2016 Census, Michigan residents 65 years and older accounted for 16.2% of the population. In contrast, 19.1% of this group of respondents was 65 years or older. This skew may be due to the lack of incentives in the survey, appealing to civic duty in responding, as well as older retirement age adults having more time to respond (and now being comfortable with online responding).

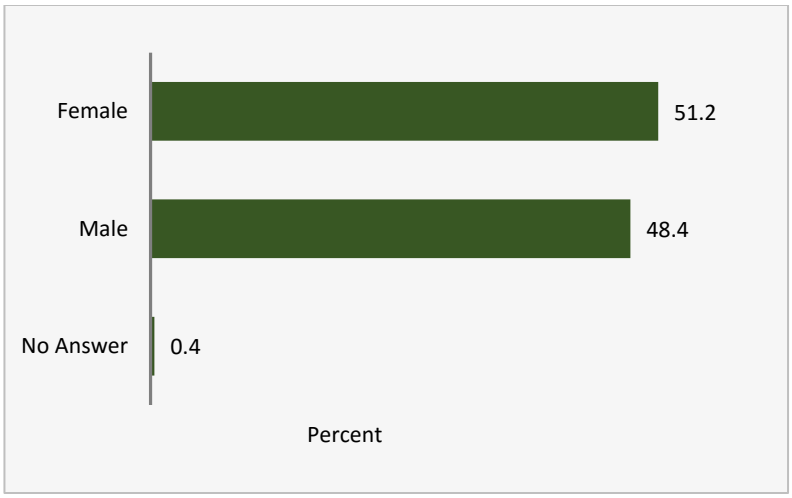


Figure 5 Respondent Gender Distribution

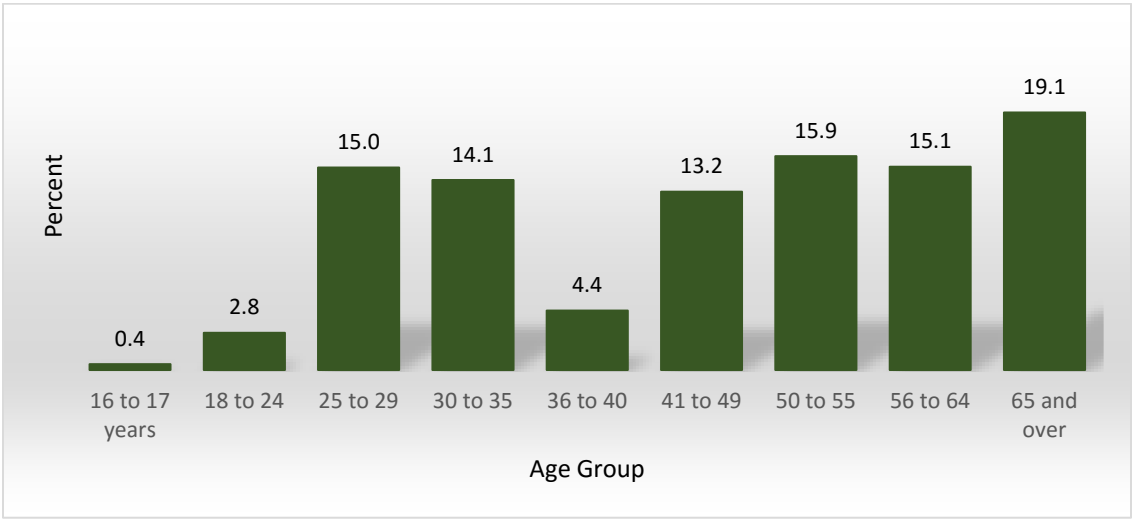


Figure 6 Respondent Age Distribution

Education

The education distribution of survey respondents is shown in **Table 18**. The response rate is somewhat skewed to those with higher educational levels. In comparison, the 2016 Census indicated that only 27.4% of Michigan residents had obtained a college degree (whereas the study respondents contained 41.4% college graduates). However, combining categories of those with no college education (for a total of 14 percent) provides an adequate sample to evaluate any differences in topics of interest between different educational groups.

Table 17 Education Breakdown of Respondents	
Education	Percent%
1st to 11th grade	1.3
High school graduate	8.6
Non-college post-high school (technical training)	4.1
Some college	21.5
College graduate	41.4
Post-graduate school	22.9
Undecided/refused	0.2
Total	100

Race/Ethnicity

Figure 7 shows the racial/ethnic distribution of survey respondents. The general breakdowns of ethnicity parallel those of the state according to the 2016 Census, which had 79.6 percent White, 14.2 percent Black or African American, 5 percent Hispanic or Latino, and 3.1 percent Asian. Black or African American and Hispanic or Latino responses were lower and White responses were slightly higher for the current survey. This is often the case with online web surveys.

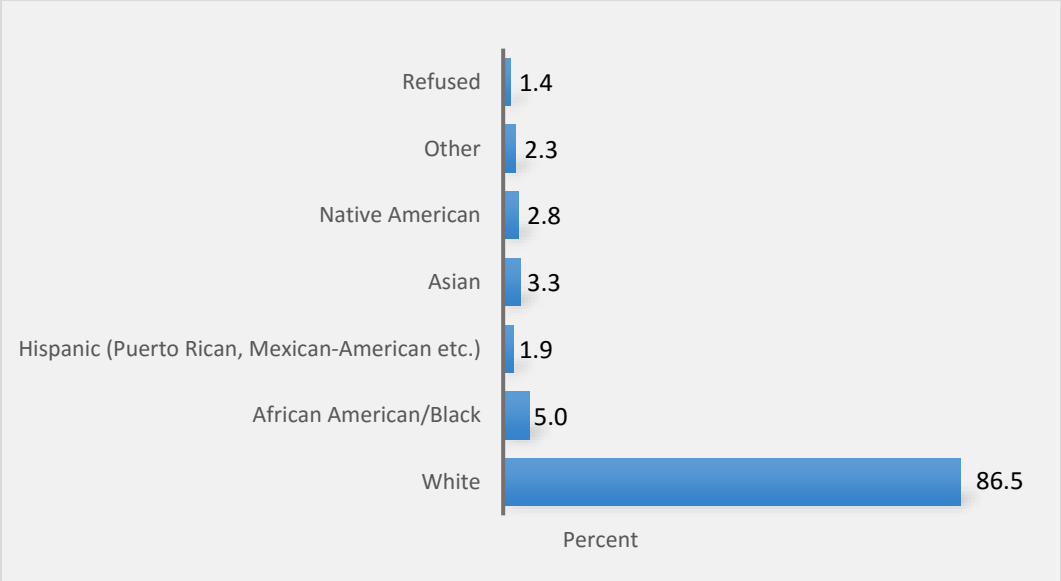


Figure 7 Race/Ethnicity of Respondents

Travel Patterns

Figure 8 summarizes the frequency of travel among survey respondents and shows that the survey effort met its goal of reaching regular drivers. Almost 99 percent of respondents reported traveling via automobile at least several days per week.

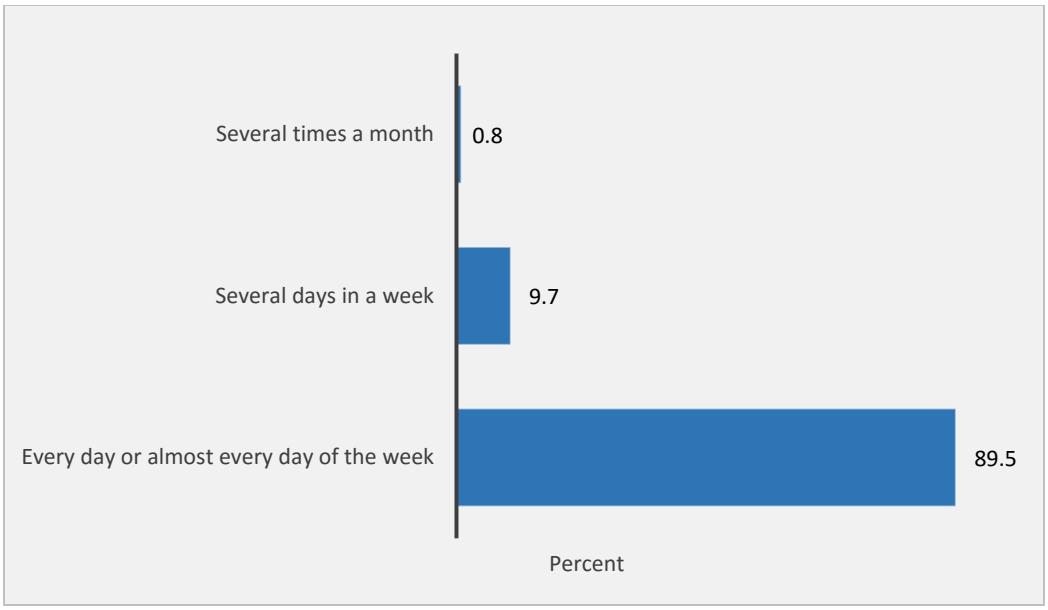


Figure 8 Travel Frequency by Day of Week

Another objective of the survey was to ensure that the sample included respondents who travel at different times of the day. **Figure 9** shows that this objective was accomplished with at least 88 percent of the survey respondents reporting traveling regularly during all periods.

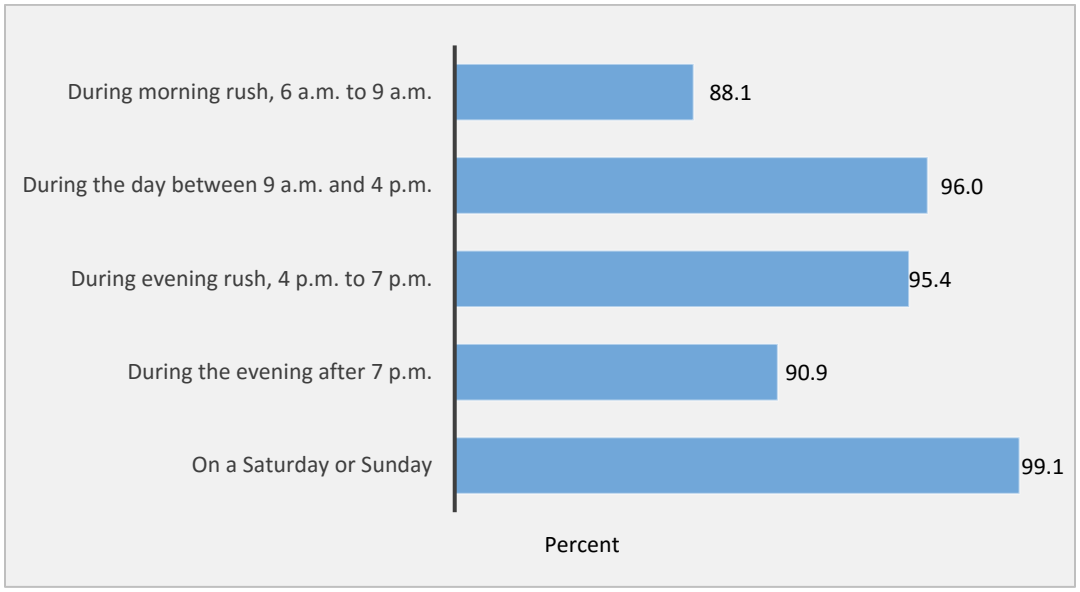


Figure 9 Travel Frequency by Time of Day

Media Usage

Table 18 and **Figure 10** documents the responses to the first of a series of questions used to identify rates of usage of various media for traveler information. Several of these questions were asked in the 2010 and 2012 surveys (included in the table) that

were conducted for an MDOT research project on 2010 Advanced Traveler Information Systems (ATIS) and 2012 Safe Quick Clearance in Michigan. This allowed a comparison of the changes that have taken place in use of traveler information sources over the past seven years. In 2017, approximately 45 percent make use of radio a few times a month or more, whereas use of television has decreased to just below 32 percent. Approximately 39 percent reported not using television at all. Use of these sources, particularly radio, was reported much more frequently in the 2017 survey than in the 2012 and 2010 ATIS surveys. This statement also was valid at region level. In all regions people tend to use radio more than Television except for Superior County. Superior County had the lowest rate of these sources (less than 10 percent). Overall North and Superior Counties were reported with the lowest use of both radio and television (5 to 15 percent usage). Grand, Metro, and University Counties reported the highest usage (above 40 percent usage).

Table 18 Media Traffic Report Comparisons with Past Surveys

FREQUENCY	Radio			Television		
	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)
A few times a week or more	29.2	35	35	23.5	37	28
A few times a month	15.3	9	8	9.5	10	5
A few times past 12 months	20.0	10	4	28.1	9	5
Not at all in past 12 months	35.5	45	53	38.7	44	62
Not sure/refused	-	1	-	0.2	-	-

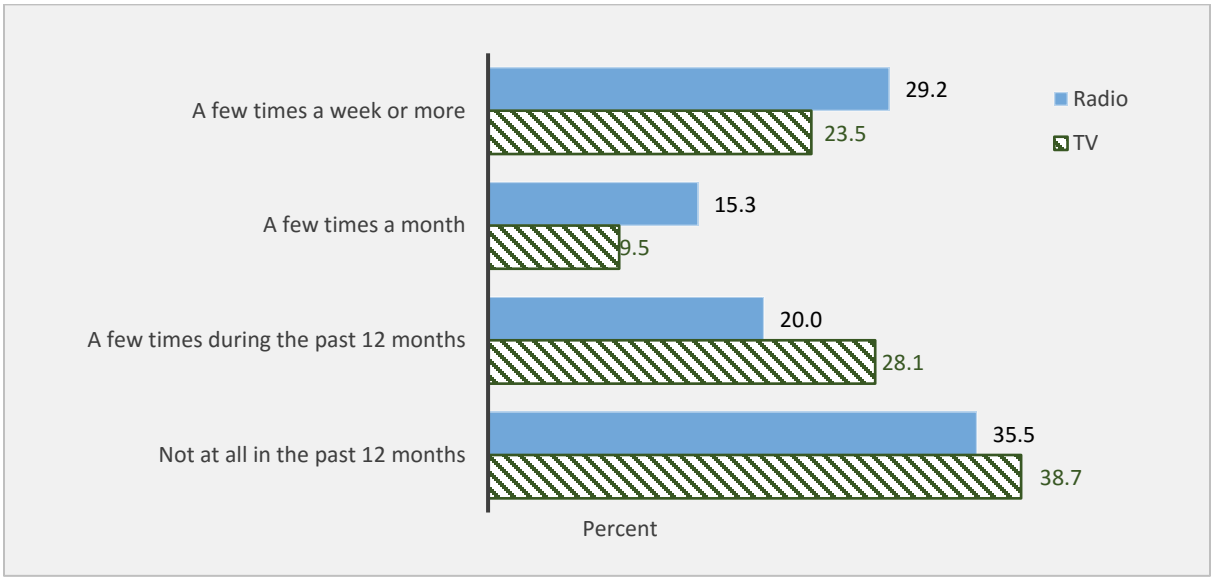


Figure 10 2017 Survey Results Comparing TV and Radio for Traffic Media Use (%)

Figure 11 summarizes the respondents' awareness of Dynamic Message Signs (DMS) and the various types of messages they have encountered. Portable changeable message boards are deployed by MDOT for construction and travel time information. They have been observed by an overwhelming majority of respondents in all regions. Travel time information was the most frequently observed message with 94.5 percent of respondents statewide having observed these types of messages. Construction information on DMS has been observed by 93.3 percent of respondents statewide. Crash information was observed by 67.5 percent of respondents statewide. Alternate route information, which is probably most frequently associated with construction or incident activity, was observed by 68.2 percent of the sample. Weather-related information was observed by 51.1 percent of respondents statewide. The percentage of respondents observing other messages on DMS was 15.4 percent statewide.

Comparison with the 2012 survey results indicates generally increased awareness of DMS messages. The percentage of respondents who reported observing travel times increased from 77 percent to 94.5 percent, the number of observing construction information increased from 88 percent to 93.3 percent, and those observing alternative route information increased from 58 percent to 68.2 percent. Other categories remained relatively stable.

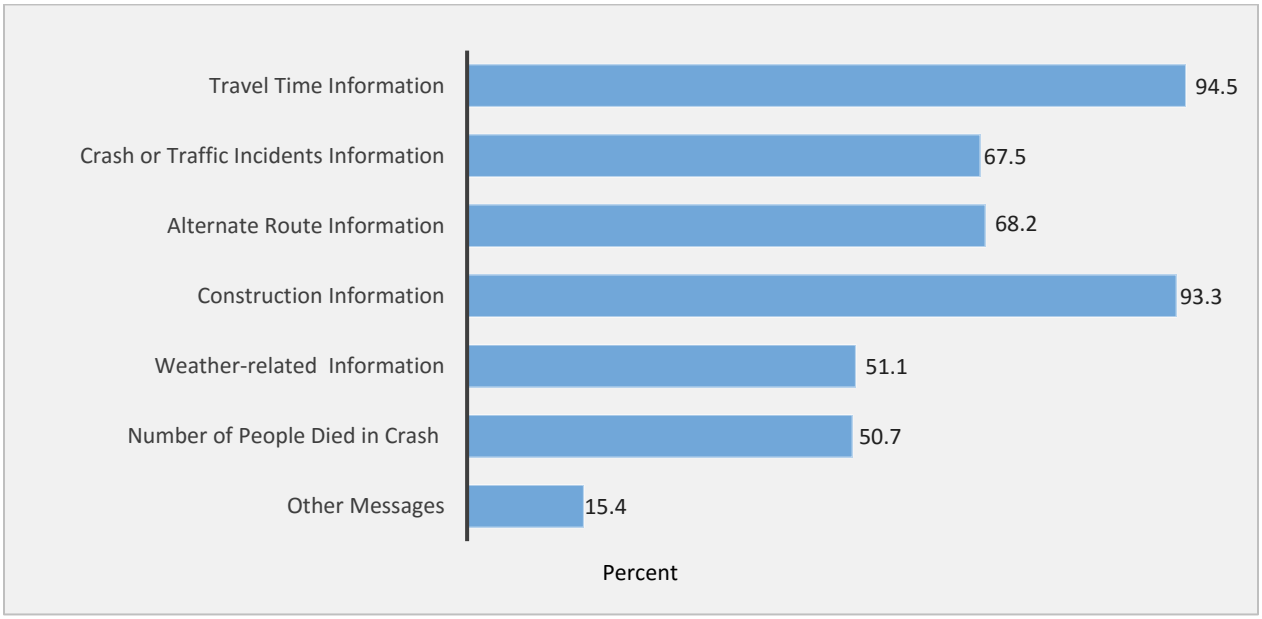


Figure 11 DMS Messages Awareness Breakdown by Message Types (%)

Respondents were also asked in an open-ended question what other types of messages were observed. The three most frequently cited were amber alerts, seatbelt usage (Click It or Ticket), and drunk driving related messages.

Table 19 addressed ownership and uses of GPS devices, many of which now provide real-time traffic information. Over 89 percent of the sample reported owning a GPS device; 72 percent own one which displays traffic information while 17.1 percent own a

GPS which does not. Overall ownership increased from 45 percent in the 2012 survey to 89.5 percent in 2017, with virtually all of the increase occurring in devices that display traffic information (24 percent to 72.4 percent). Additional questions were asked about frequency of real-time traffic information usage. Figure 12 shows just over 60 percent of those who have a GPS that displays real-time traffic information indicated using it a few times per month or more frequently.

Table 19 Access to Real Time Traffic Information on Personal Devices

Access to Real Time Traffic	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)
Yes, also displays traffic information	72.4	24	11
Yes, but does not display traffic information	17.1	21	20
No	10.5	54	69
Undecided/Refused	-	1	-
Have you used real-time traffic information	66.7	-	-

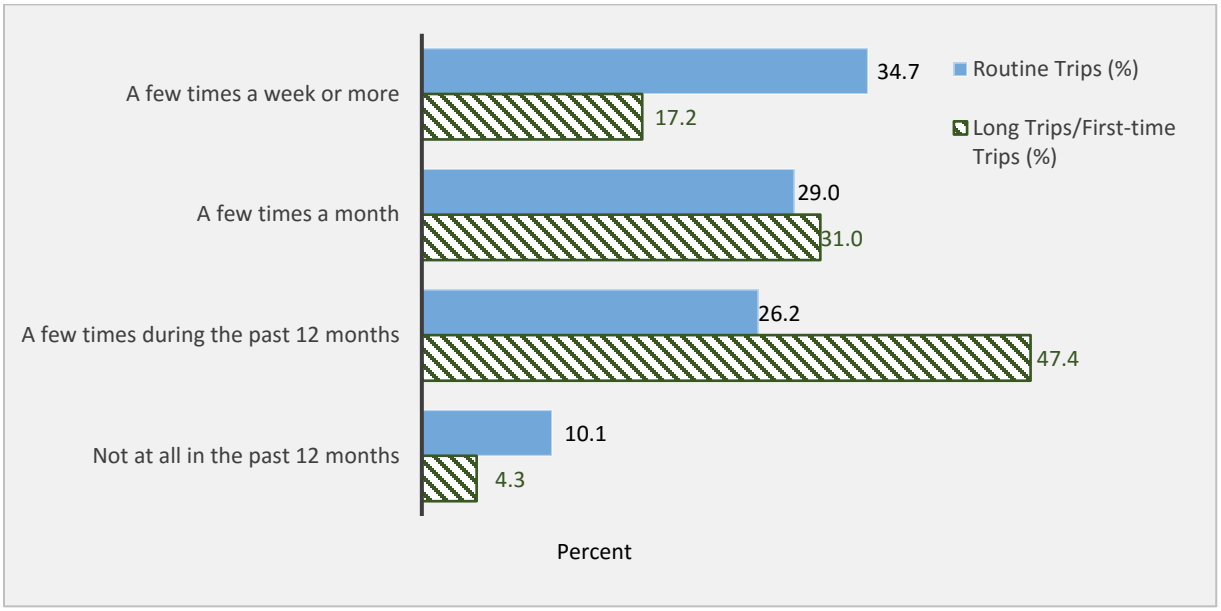


Figure 12 Use of Real Time Traffic Information Based on Frequency

Table 20 presents the real-time traffic information use by region. The ratio among respondents who used real-time traffic information compared to those who did not was 3:1 on average, except for the North and Superior regions.

Table 20 Use of Real-time Traffic Information by Region			
Region	Have used real-time traffic information on their phone (%)	Have NOT used real-time traffic information on their phone (%)	Do NOT have a GPS device or app (%)
Bay	6.66	2.86	1.33
Grand	10.53	3.38	1.06
Metro	26.74	8.53	3.51
North	3.75	2.11	0.82
Southwest	5.52	1.94	0.67
Superior	1.63	1.48	0.59
University	11.92	2.52	2.46
Total	66.74	22.81	10.45

Respondents were asked about their familiarity with Mi Drive, MDOT's traveler information web site. **Table 21** shows that 28.3 percent of respondents reported being familiar with Mi Drive, compared to 26 percent in the 2012 survey. This indicates a marginal increase in awareness and possibly a need for additional marketing and education. **Table 22** breaks familiarity down further with highest use counties and all regions shown.

Table 21 Familiarity with Mi Drive	
Familiarity with Mi Drive	Percentage
I have used the website	14.6
I have heard of the website but never used it	13.7
I have never heard of the website	71.7

Table 22 Familiarity with Mi Drive by Counties/Regions			
County			
County Name	I have used the website (%)	I have heard of the website but never used it (%)	I have never heard of the website (%)
Ingham	0.704	0.673	2.755
Kalamazoo	0.100	0.463	2.938
Kent	0.269	2.004	3.808
Macomb	0.962	0.983	6.752
Oakland	2.325	2.223	7.919
Ottawa	0.282	0.747	2.633
Washtenaw	0.856	0.197	3.852
Wayne	4.311	1.406	11.905
Region			
Region Name	I have used the website (%)	I have heard of the website but never used it (%)	I have never heard of the website (%)
Bay	0.97	1.67	8.21
Grand	1.06	3.12	10.79
Metro	7.6	4.61	26.58
North	0.67	0.62	5.39
Southwest	0.7	0.83	6.59
Superior	0.36	0.88	2.45
University	3.25	1.94	11.71

Table 23 shows the frequency of use of Mi Drive among those who reported being familiar with the site. About 14 percent reported using Mi Drive more than a few times per month, 72.8 percent reported using it a few times per year, and 11.7 percent have never used it. More frequent users increased slightly between 2012 and 2017 while the percentage of those reporting use a few times per year increased substantially. **Table 24** breaks familiarity down further by county.

Table 23 Comparison of Mi Drive Website Usage			
Frequency	2010 ATIS Survey (%)	2012 QC Survey (%)	2017 QC Survey (%)
A few times a week or more	8	6	3.7
A few times a month	12	8	11.7
A few times during past 12 months	43	47	72.8
Not at all in the past 12 months	36	39	11.7
Not Sure	1	-	-

Table 24 Use of Mi Drive Website by County				
COUNTY NAME	A FEW TIMES A WEEK OR MORE (%)	A FEW TIMES A MONTH (%)	A FEW TIMES DURING THE PAST 12 MONTHS (%)	NOT AT ALL IN THE PAST 12 MONTHS (%)
Alcona	0.09	0.01	0.00	0.00
Alger	0.06	0.00	0.00	0.00
Allegan	1.17	0.00	0.00	0.16
Alpena	0.89	0.00	0.00	0.06
Antrim	0.15	0.00	0.00	0.02
Arenac	0.12	0.00	0.01	0.02
Baraga	0.06	0.00	0.00	0.05
Barry	1.01	0.00	0.00	0.00
Bay	0.73	0.00	0.00	0.03
Benzie	0.19	0.00	0.00	0.02
Berrien	1.42	0.14	0.00	0.16
Branch	0.13	0.00	0.00	0.02
Calhoun	0.96	0.00	0.00	0.12
Cass	0.28	0.00	0.00	0.00
Charlevoix	0.24	0.00	0.00	0.07
Cheboygan	0.25	0.00	0.02	0.03
Chippewa	0.31	0.00	0.00	0.02
Clare	0.28	0.00	0.00	0.00
Clinton	0.76	0.00	0.00	0.43
Crawford	0.11	0.00	0.00	0.02
Delta	0.22	0.00	0.00	0.00
Dickinson	0.47	0.00	0.00	0.02
Eaton	0.61	0.00	0.00	0.07
Emmet	0.42	0.00	0.00	0.00
Genesee	1.84	0.00	0.00	0.26
Gladwin	0.42	0.00	0.01	0.03
Gogebic	0.12	0.00	0.00	0.02
Grand Traverse	1.71	0.00	0.00	0.03
Gratiot	0.44	0.00	0.00	0.00
Hillsdale	0.31	0.00	0.00	0.03
Houghton	0.63	0.00	0.00	0.04
Huron	0.43	0.00	0.00	0.00
Ingham	3.43	0.00	0.00	0.65
Ionia	0.29	0.00	0.01	0.04
Iosco	0.14	0.00	0.01	0.01
Iron	0.15	0.00	0.00	0.00
Isabella	0.47	0.00	0.00	0.00

Table 24 Use of Mi Drive Website by County				
COUNTY NAME	A FEW TIMES A WEEK OR MORE (%)	A FEW TIMES A MONTH (%)	A FEW TIMES DURING THE PAST 12 MONTHS (%)	NOT AT ALL IN THE PAST 12 MONTHS (%)
Jackson	0.94	0.00	0.00	0.09
Kalamazoo	3.40	0.00	0.00	0.05
Kalkaska	0.16	0.06	0.00	0.00
Kent	5.81	0.00	0.00	0.27
Keweenaw	0.05	0.00	0.00	0.00
Lake	0.02	0.00	0.00	0.00
Lapeer	0.67	0.00	0.02	0.03
Leelanau	0.37	0.00	0.00	0.02
Lenawee	0.79	0.14	0.00	0.00
Livingston	1.44	0.00	0.05	0.74
Luce	0.08	0.00	0.00	0.00
Mackinac	0.02	0.00	0.00	0.03
Macomb	7.73	0.00	0.12	0.51
Manistee	0.30	0.00	0.00	0.04
Marquette	0.83	0.00	0.00	0.13
Mason	0.16	0.00	0.00	0.01
Mecosta	0.23	0.00	0.00	0.00
Menominee	0.27	0.00	0.00	0.00
Midland	0.91	0.00	0.00	0.03
Missaukee	0.04	0.00	0.00	0.00
Monroe	1.32	0.00	0.00	0.07
Montcalm	0.24	0.00	0.03	0.00
Montmorency	0.00	0.00	0.00	0.04
Muskegon	0.95	0.00	0.00	0.00
Newaygo	0.16	0.00	0.00	0.01
Oakland	10.14	0.06	0.59	1.41
Oceana	0.39	0.00	0.00	0.03
Ogemaw	0.07	0.00	0.00	0.00
Ontonagon	0.01	0.00	0.00	0.01
Osceola	0.09	0.00	0.00	0.00
Oscoda	0.19	0.00	0.00	0.00
Otsego	0.24	0.03	0.00	0.01
Ottawa	3.38	0.00	0.05	0.18
Presque Isle	0.04	0.00	0.00	0.01
Roscommon	0.21	0.00	0.00	0.05
Saginaw	0.54	0.00	0.14	0.00
Sanilac	0.84	0.00	0.00	0.05

Table 24 Use of Mi Drive Website by County				
COUNTY NAME	A FEW TIMES A WEEK OR MORE (%)	A FEW TIMES A MONTH (%)	A FEW TIMES DURING THE PAST 12 MONTHS (%)	NOT AT ALL IN THE PAST 12 MONTHS (%)
Schoolcraft	0.07	0.00	0.00	0.02
Shiawasee	1.03	0.00	0.00	0.12
St Clair	0.92	0.00	0.00	0.09
St Joseph	0.80	0.00	0.02	0.02
Tuscola	0.22	0.00	0.00	0.08
Van Buren	0.43	0.00	0.00	0.07
Washtenaw	4.05	0.10	0.09	0.61
Wayne	13.31	0.00	0.54	3.35
Wexford	0.21	0.00	0.00	0.00
Grand total	85.39	0.55	1.71	10.64

Table 25 Use Of Mi Drive Website by Region					
Region	Have never used the website (%)	A few times a week or more (%)	A few times a month (%)	A few times during the past 12 months (%)	Not at all in the past 12 months (%)
Bay	9.87	0	0.18	0.76	0.04
Grand	13.91	0	0.09	0.71	0.26
Metro	31.19	0.06	1.25	5.27	1.02
North	6.01	0.1	0.03	0.44	0.1
Southwest	7.43	0.14	0.02	0.44	0.1
Superior	3.33	0	0	0.34	0.02
University	13.65	0.24	0.14	2.69	0.18
Total	85.39	0.55	1.71	10.64	1.72

Table 25 shows the use of Mi Drive website by region. Metro, Southwest, and University were the regions with the most frequent use. Metro along with University and Grand were the regions with the highest reported total lack of use of the Mi Drive website. For those respondents familiar with Mi Drive and who have used it, there was an indication of generally favorable experiences. Almost half of the participants rated their experience as favorable or extremely favorable, as seen in **Figure 13**.

Respondents also were asked about use of other websites for traffic information, as shown in **Table 26**. Approximately 25.7 percent of respondents reported using other web sites for traffic information, which increased slightly from the 2012 survey.

Figure 14 shows the use of the Mi Drive app. Among those who have internet/wifi, about 15 percent reported they are at least aware of the app (and approximately 7 percent have used it). This is an opportunity for marketing and education. **Table 27** shows that most of respondent in all regions were not aware of the Mi Drive app.

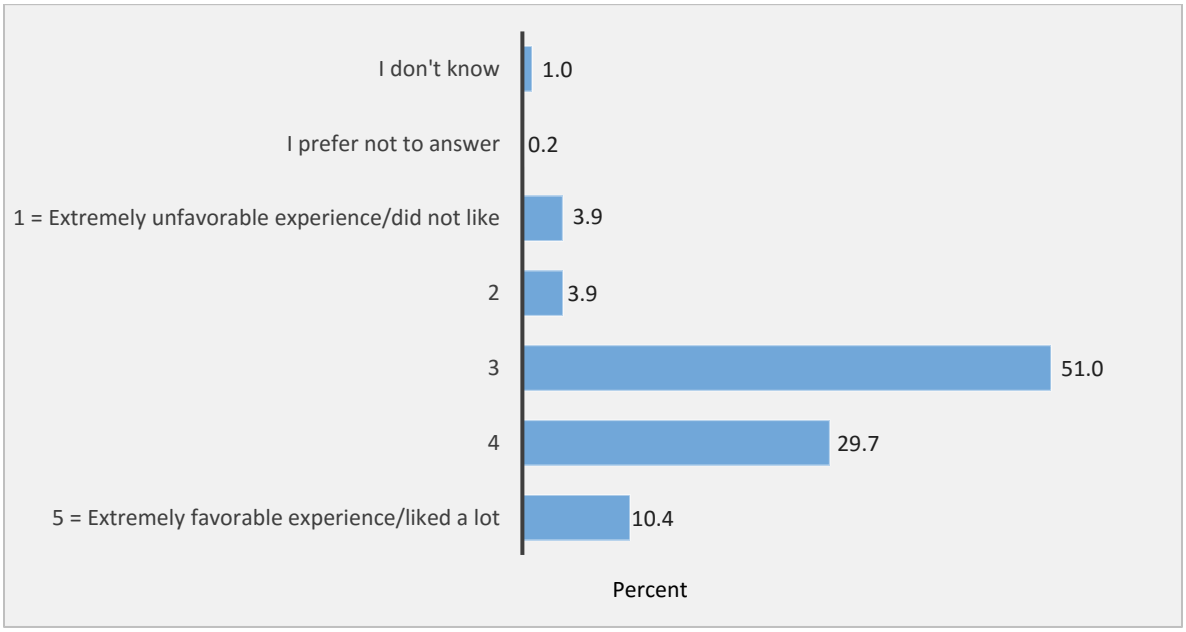


Figure 13 Mi Drive Website Ratings

Table 26 Use of Other Websites for Traffic Information			
USE OF OTHER WEBSITES	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)
Yes	25.7	14	13
No	74.3	86	86
Undecided/Refused	-	-	1

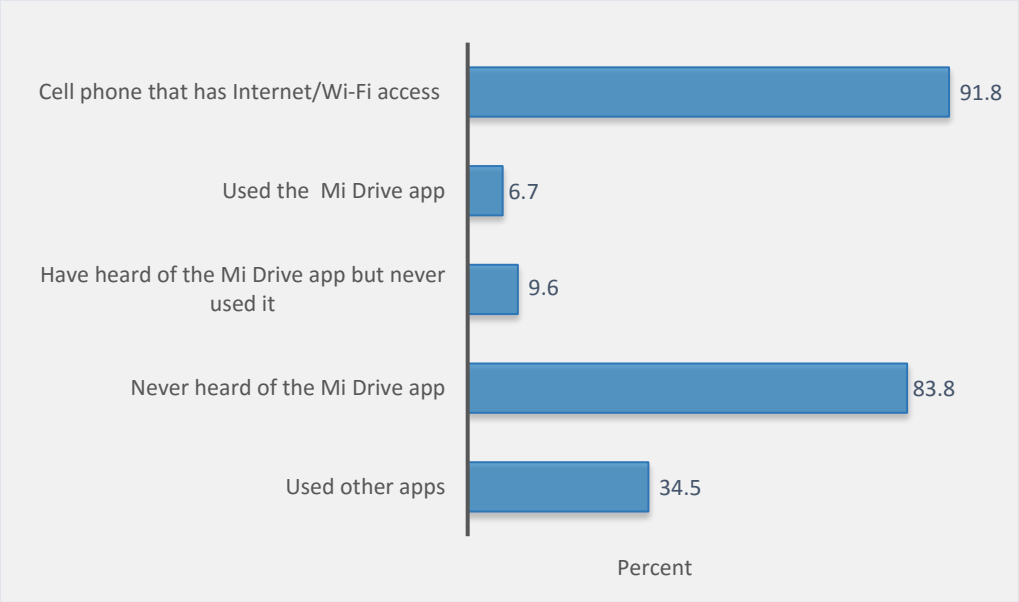


Figure 14 Use of Mi Drive Application

Table 27 Use of MI Drive App by Region				
Region	Used the Mi Drive app (%)	Have heard of the Mi Drive app but never used it (%)	Never heard of the Mi Drive app (%)	Used other apps (%)
Bay	0.21	0.94	8.1	2.65
Grand	0.24	1.36	12.2	5.71
Metro	4.29	2.96	29.13	16.46
North	0.27	0.41	5.23	1.15
Southwest	0.17	0.76	6.55	1.59
Superior	0.03	0.3	2.69	0.15
University	0.91	2.04	13	6.74
Total	6.12	8.77	76.91	34.45

Table 27 shows the use of Mi Drive app by region. Metro and University were the regions with the most frequent use. Metro along with University and Grand were the regions with the highest reported total lack of use of the Mi Drive app (in the case of respondents who heard of it). Figure 15 shows the Mi Drive app rating. Among respondents who have used the app, over 70 percent had a positive experience.

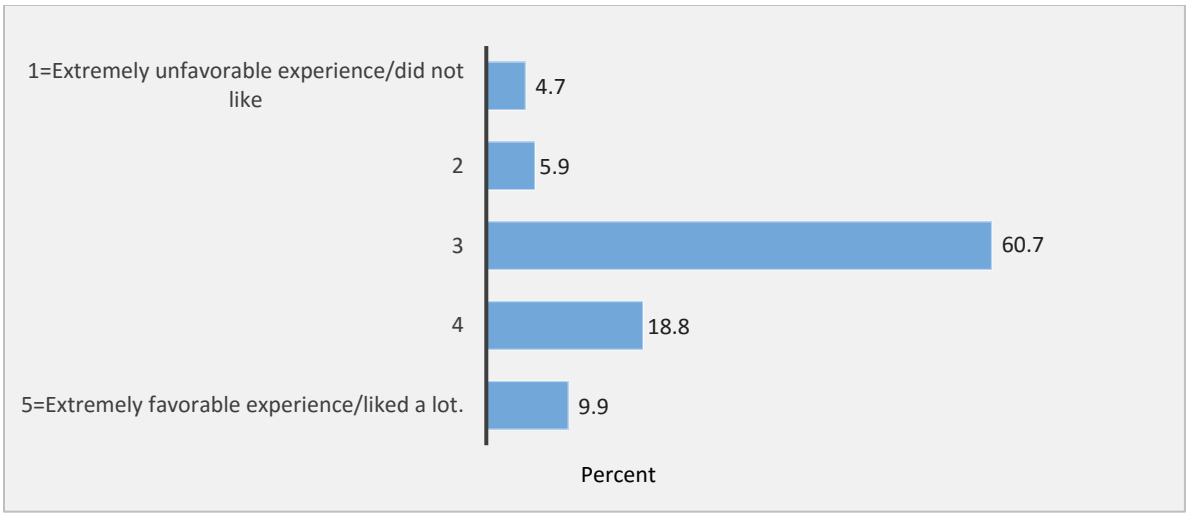


Figure 15 Rating of Mi Drive Application

Table 28 shows the Mi Drive app frequency of usage. Among respondents who used the app, over 65 percent used it a few times a month or more frequently.

Table 28 Frequency of Using Mi Drive App	
Frequency	Routine Trips (%)
A few times a week or more	57.6
A few times a month	7.7
A few times during the past 12 months	25.7
Not at all in the past 12 months	9.0

Those reporting the use of other traffic information web sites were asked which sites were used. Google maps was the most frequently mentioned site at 75.4 percent. As shown in **Table 29**,Google maps' share has increased since the 2012 survey. Similarly, **Table 30** indicates Google maps is the dominant traffic information app with 78.6 percent of respondents using it.

Table 29 Changes in Use of Other Sources of Traffic Information (Cited-Website)			
Sources	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)
Google Maps	75.4	36	31
Yahoo Maps	2.3	9	13
Map Quest	-	23	28
AAA	-	4	5
Local TV News	-	9	11
Waze	11.1	-	-
Some other Sites	11.2	-	-
Undecided/Refuse	-	-	-

Table 30 Other Sources of Real Time Traffic Information (Apps)	
Apps	2017 QC Survey (%)
Google maps	78.6
Waze	16.0
Some other app	4.7
Undecided/refused	0.5
Yahoo maps	0.2

Smartphones are being used increasingly for navigation and traffic information, and a question was included about smartphone ownership. The survey showed 91.8 percent of survey owning a smartphone (defined as web-enabled cell phone) compared to 36 percent in the 2012 survey. This is not surprising given societal shifts relating to smartphone access and use. The use of smartphones for traffic information increased significantly from 33 percent of respondents in 2012 to 92.2 percent in 2017, as seen in **Table 31**.

Table 31 Changes in Use of Smartphones for Traffic Information			
Frequency	2017 QC Survey (%)	2012 QC Survey (%)	2010 ATIS Survey (%)
A few times a week or more	39.6	8	5
A few times a month	29.2	12	4
A few times past 12 months	23.4	13	2
Not at all in past 12 months	0.8	67	88
Never	7.0	-	-

Awareness of Steer It, Clear It Law

The next series of survey questions address the behavior of drivers in crash situations that would invoke the safe quick clearance laws. The first question was asked as follows: “What would be your first reaction to being involved in a traffic crash on a roadway in Michigan? Assume no one in your vehicle was obviously injured, the vehicle is drivable, and authorities have been notified.”

Table 32 shows that 90.1 percent of respondents would comply with the Steer It, Clear It law by moving their vehicle off the roadway. Only 9.9 percent reported that they would behave in a way contradictory to the law.

Table 32 "Steer it, Clear It" Vehicle Action Awareness		
Question: What would be your first reaction to being involved in a traffic crash on a roadway in Michigan? Assume no one in your vehicle was obviously injured, the vehicle is drivable, and authorities have been notified. Before the police arrive, I would:		
Action	2012 QC Survey (%)	2017 QC Survey (%)
Move the vehicle to the side of the road out of the way of traffic	87	90.1
Leave the vehicle where it was	12	9.9
Undecided/Refused.	1	-

The Steer It, Clear It law does allow motorists discretion regarding whether to stay in the vehicle or have passengers exit so both answers are in compliance. **Table 33** results shows that 28 percent of respondents would choose to stay in the vehicle with all passengers.

Table 33 "Steer It, Clear It" Passenger Actions Awareness	
Question: What would be your first reaction to being involved in a traffic crash on a roadway in Michigan? Assume no one in your vehicle was obviously injured, the vehicle is drivable, and authorities have been notified. Before the police arrive, until the police arrive, I would have all the passengers:	
Action	2017 QC Survey (%**)**
Exit the vehicle and stay close to the crash	3.1
Exit the vehicle and go to a short distance away (such as by the right of way fence, behind a guardrail, or some other area safer than right by the vehicle)	68.4
Stay in the vehicle	28.4

Cross-tabulations were utilized to determine whether there were differences in the characteristics of those who said they would comply with Steer It, Clear It law and those who said they would not. While only one of eight respondents reported they would not comply with the Steer It, Clear It law, this still represents a significant potential safety hazard. Identifying any distinguishing characteristics of this group can help determine the most effective messages and outreach. Generally, there were limited differences between the two groups but several differences did emerge as shown in Tables 35 through 40, including breakdowns by age, by education, and by region.

The survey results indicate a slightly greater tendency among drivers over the age of 50 to leave their vehicles in place after an accident. Many of these drivers were likely trained to do this; at one time, driver training courses taught that vehicles should not be moved until law enforcement arrives. Results indicate those with high school degrees or some college and college degree are more likely to leave their vehicles in place as well.

Considering the proportion of the participants, Bay region has the relatively highest response of leaving the vehicle where it was.

Table 34 "Steer It, Clear It" Vehicle Action Awareness by Age (%)

Steer It Clear It Response-Vehicle Action	Age Group									Total
	16-17	18-24	25-29	30-35	36-40	41-49	50-55	56-64	65+	
Move the vehicle to the side of the road out of the way of traffic	0.4	1.6	14.6	13.7	4.3	12.4	14.3	12.7	16.0	90.1
Leave the vehicle where it was	0.0	1.2	0.4	0.4	0.1	0.9	1.5	2.4	3.1	9.9
										100%

Table 35 "Steer It, Clear It" Passenger Actions Awareness by Age (%)

Steer It Clear It Response-Passenger Actions	Age Group									Total
	16-17	18-24	25-29	30-35	36-40	41-49	50-55	56-64	65+	
Exit the vehicle and stay close to the crash	0.0	0.4	0.2	0.1	0.3	0.4	0.8	0.3	0.6	3.1
Exit the vehicle and go to a short distance away	0.4	0.9	11.0	9.9	2.8	8.3	10.6	10.4	14.0	68.4
Stay in the vehicle	0.0	1.4	3.8	4.1	1.3	4.6	4.5	4.4	4.4	28.4
										100%

Table 36 "Steer It, Clear It" Vehicle Action Awareness by Education (%)

Steer It Clear It Response-Vehicle Action	Education							Total
	Undecided/ refused	1st to 11th grade	High school grad.	Non-college	Some college	College grad	Post-grad. school	
Move the vehicle to the side of the road out of the way of traffic	0.1	1.1	6.5	3.8	18.5	37.9	22.2	90.1
Leave the vehicle where it was	0.1	0.3	2.1	0.3	3.0	3.4	0.7	9.9
								100%

Table 37 "Steer It, Clear It" Passenger Actions Awareness by Education (%)								
Steer It Clear It Response- Passenger Actions	Education							Total
	Undecided/ refused	1st to 11th grade	High school grad.	Non-college	Some college	College grad.	Post-grad. school	
Exit the vehicle and stay close to the crash	0.0	0.0	0.7	0.0	0.7	1.3	0.3	3.1
Exit the vehicle and go to a short distance away	0.1	0.8	5.3	3.6	16.9	25.5	16.2	68.4
Stay in the vehicle	0.1	0.4	2.5	0.5	3.9	14.5	6.4	28.4
								100%

Table 38 "Steer It, Clear It" Vehicle Action Awareness by Region		
Region	Move the vehicle to the side of the road out of the way of traffic (%)	Leave the vehicle where it was (%)
Bay	8.63	2.22
Grand	13.35	1.61
Metro	36.56	2.23
North	5.94	0.74
Southwest	7.34	0.79
Superior	3.31	0.39
University	14.95	1.95
Total	90.08	9.92

Table 39 "Steer It, Clear It" Passenger Actions Awareness by Region (%)			
Region	Exit the vehicle and stay close to the crash	Exit the vehicle and go to a short distance away (such as by the right of way fence behind a guardrail or some other safer area than right by the vehicle)	Stay in the vehicle
Bay	0.36	7.56	2.82
Grand	0.6	8.37	6
Metro	1.06	27.49	10.23
North	0.17	4.58	1.93
Southwest	0.13	5.91	2.09
Superior	0.19	2.71	0.78
University	0.59	11.74	4.57
Total	3.1	68.36	28.42

The survey also asked respondents whether they were aware that clearance of vehicles is required by law in cases where vehicles are moveable and there are no apparent injuries. While most respondents indicated that they would comply with the law, 47

percent were either very aware or somewhat aware of the quick clearance legal requirement. **Table 41** shows the breakdown of responses. A series of cross-tabulations were run to identify the characteristics of those reporting unfamiliarity with the quick clearance legal requirement. **Table 42** shows the relation between awareness of the law and age. Those over age 50 are less aware of the law than those under age 50. As shown in **Table 43**, those who were aware of the law were also more likely to comply with it. **Table 44** and **Table 45** show Steer It Clear It law breakdown by region.

Table 40 Change in Awareness of "Steer It, Clear It"

Awareness	2012 QC Survey (%)	2017 QC Survey (%)
Very aware	13	17.6
Only somewhat aware	15	29.7
Not aware at all	72	52.7

Table 41 Awareness of "Steer It, Clear It" by Age (%)

Awareness	Age Group									Total
	16-17	18-24	25-29	30-35	36-40	41-49	50-55	56-64	65 and over	
Very aware	0.0	0.0	2.0	1.7	0.8	1.8	3.5	2.6	5.2	17.6
Only somewhat aware	0.1	1.0	8.3	2.6	0.6	3.2	4.2	4.1	5.6	29.7
Not aware at all	0.3	1.7	4.7	9.9	3.0	8.3	8.1	8.4	8.4	52.7
										100%

Table 42 "Steer It, Clear It" Awareness vs. Actual Action (%)

Awareness of "Steer It, Clear It" law	Vehicle Action		Total
	Move It	Leave It	
Very aware of the "Steer It, Clear It" law	17.3	0.3	17.6
Only somewhat aware of the law	28.7	1.0	29.7
Not aware at all of Michigan's "Steer It, Clear It" law as it affects traffic crash situations.	44.1	8.6	52.7
Total	90.1	9.9	100.0%

Table 43 Awareness of the "Steer It, Clear It" Law by Region (%)			
Region	Very aware	Only somewhat aware	Not aware at all
Bay	2.01	3.37	5.47
Grand	2	3.25	9.72
Metro	8.34	13.05	17.4
North	1.33	1.35	4
Southwest	1.02	1.75	5.36
Superior	0.63	1.22	1.85
University	2.26	5.71	8.93
Total	17.58	29.7	52.72

Table 45 "Steer It, Clear It" Awareness by County (%) Percentage of Total Sample- Weighted			
County Name	**Very aware**	**Only somewhat aware**	**Not aware at all**
Alcona	0.07	0.00	0.03
Alger	0.02	0.00	0.04
Allegan	0.07	0.40	0.87
Alpena	0.18	0.13	0.73
Antrim	0.02	0.04	0.11
Arenac	0.02	0.03	0.11
Baraga	0.00	0.00	0.11
Barry	0.24	0.12	0.64
Bay	0.11	0.17	0.49
Benzie	0.03	0.04	0.14
Berrien	0.24	0.68	0.80
Branch	0.02	0.03	0.10
Calhoun	0.23	0.13	0.75
Cass	0.05	0.01	0.22
Charlevoix	0.05	0.08	0.18
Cheboygan	0.02	0.07	0.21
Chippewa	0.09	0.05	0.19
Clare	0.06	0.04	0.20
Clinton	0.30	0.11	0.86
Crawford	0.01	0.02	0.11
Delta	0.05	0.04	0.12
Dickinson	0.15	0.01	0.35
Eaton	0.07	0.10	0.50
Emmet	0.14	0.00	0.28
Genesee	0.50	0.57	1.06

Table 45 "Steer It, Clear It" Awareness by County (%) Percentage of Total Sample- Weighted			
County Name	Very aware	Only somewhat aware	Not aware at all
Gladwin	0.02	0.11	0.33
Gogebic	0.05	0.02	0.07
Grand Traverse	0.60	0.23	0.91
Gratiot	0.17	0.07	0.20
Hillsdale	0.15	0.13	0.05
Houghton	0.02	0.44	0.20
Huron	0.07	0.15	0.21
Ingham	0.39	1.65	2.09
Ionia	0.01	0.05	0.27
Iosco	0.01	0.01	0.14
Iron	0.00	0.04	0.12
Isabella	0.08	0.08	0.32
Jackson	0.10	0.39	0.54
Kalamazoo	0.34	0.71	2.46
Kalkaska	0.10	0.00	0.12
Kent	0.70	1.36	4.02
Keweenaw	0.00	0.00	0.05
Lake	0.00	0.00	0.02
Lapeer	0.08	0.46	0.17
Leelanau	0.00	0.07	0.32
Lenawee	0.02	0.33	0.58
Livingston	0.44	0.47	1.32
Luce	0.01	0.00	0.07
Mackinac	0.01	0.03	0.01
Macomb	2.38	2.21	4.11
Manistee	0.03	0.15	0.16
Marquette	0.17	0.43	0.36
Mason	0.02	0.08	0.09
Mecosta	0.09	0.10	0.04
Menominee	0.02	0.11	0.14
Midland	0.18	0.15	0.60
Missaukee	0.00	0.03	0.01
Monroe	0.22	0.27	0.90
Montcalm	0.29	0.05	0.10
Montmorency	0.00	0.00	0.04
Muskegon	0.00	0.31	0.67
Newaygo	0.02	0.07	0.08
Oakland	1.71	4.44	6.32

Table 45 "Steer It, Clear It" Awareness by County (%) Percentage of Total Sample- Weighted			
County Name	Very aware	Only somewhat aware	Not aware at all
Oceana	0.07	0.10	0.24
Ogemaw	0.00	0.02	0.05
Ontonagon	0.00	0.01	0.01
Osceola	0.00	0.00	0.09
Oscoda	0.00	0.18	0.01
Otsego	0.01	0.06	0.21
Ottawa	0.49	0.59	2.58
Presque Isle	0.00	0.01	0.04
Roscommon	0.06	0.15	0.05
Saginaw	0.10	0.31	0.27
Sanilac	0.13	0.49	0.27
Schoolcraft	0.04	0.03	0.01
Shiawasee	0.17	0.35	0.63
St Clair	0.33	0.28	0.41
St Joseph	0.07	0.14	0.65
Tuscola	0.00	0.09	0.20
Van Buren	0.07	0.05	0.38
Washtenaw	0.57	2.25	2.08
Wayne	4.25	6.40	6.98
Wexford	0.00	0.07	0.15
Grand Total	17.58	29.70	52.72

The following is the list of counties where more than 70 percent of their respondents claimed that they were not aware of this law:

- Alger
- Alpena
- Baraga
- Cass
- Cheboygan
- Crawford
- Eaton
- Gladwin
- Ionia
- Iosco
- Iron
- Kalamazoo
- Keweenaw
- Lake
- Leelanau
- Luce
- Montmorency
- Ogemaw
- Osceola
- Otsego
- Ottawa
- Presque isle
- St Joseph
- Van Buren

Awareness of Move Over Slow Down Law

Table 44 documents the results of an additional question regarding the Move Over, Slow Down law that requires vehicles to move away from emergency vehicles if space is available. The scenario used was as follows: "What do you think your first reaction would be if you saw an emergency response vehicle – such as a police car, an ambulance or fire truck on the side of the road in front of you with its emergency lights flashing, while you were driving along a major roadway, highway, or freeway which had TWO LANES of traffic in the same direction?" The responses show that 87.2 percent of participants would slow down and move over as the law requires. **Figure 16** shows the response to "how much would you slow down? Approximately 1% of respondents would stay in the same lane and slow down, so only one overall graph is shown for emergency vehicles and tow trucks together (representative of the move over option). Note that a sizeable percentage of respondents chose rather high speeds reductions (e.g., 36 to 45 and 46 to 55). It is possible that a portion of these respondents misinterpreted the question as asking for actual speed instead of speed reduction. Regardless, almost 15% of respondents would either not slow down at all or only reduce their speeds by 1-5 mph.

Table 44 Changes in Awareness of Move Over, Slow Down for Emergency Vehicle

Question: What do you think your first reaction would be if you saw an emergency response vehicle, such as a police car, an ambulance or fire truck, on the side of the road in front of you with its emergency lights flashing while you were driving along a roadway, highway or freeway that had two lanes of traffic in the same direction?		
	2012 QC Survey (%)	2017 QC Survey (%)
Stay in the same lane and continue driving at current speed	1	0.2
Stay in the same lane and slow down	2	0.8
Move over into an open, available lane and continue driving at current speed	9	11.8
Move over into an open, available lane and slow down	88	87.2

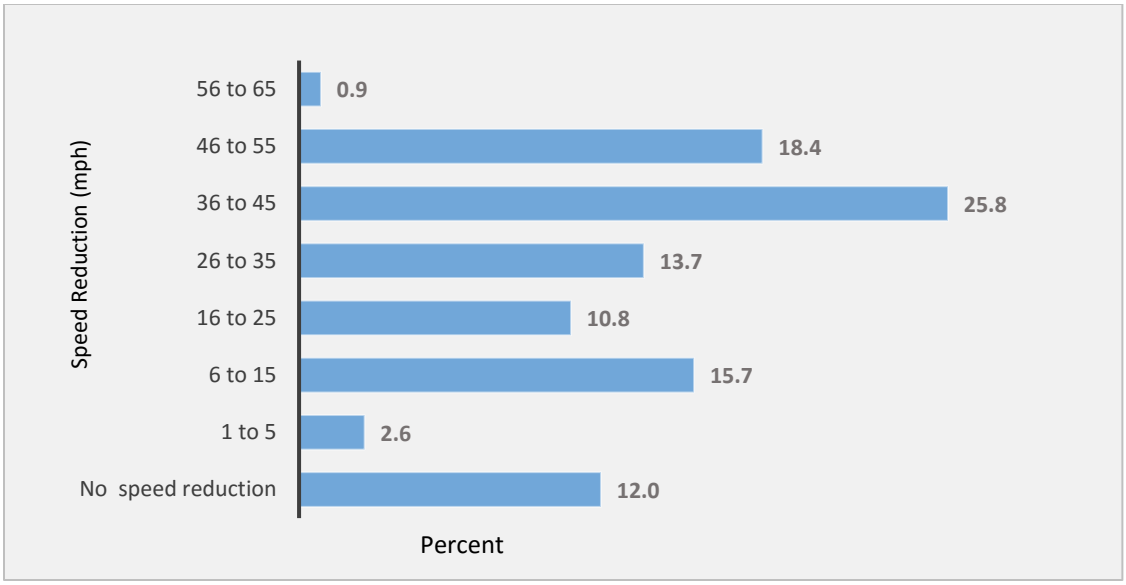


Figure 16 How Much Would You Slow Down for Emergency Vehicle?[1]

The percent of respondents by county who responded, “Stay in the same lane and continue driving at current speed,” or “Stay in the same lane and slow down” are listed in **Table 45**. **Table 46** indicates similar distributions of actions when approaching emergency vehicles by regions.

[1] It is possible that a portion of these respondents misinterpreted the question as asking for actual speed instead of speed reduction

Table 45 Approaching Emergency Vehicle by County (Move Over, Slow Down) (%)				
County Name	Stay in the same lane and continue driving at current speed	Stay in the same lane and slow down	Move over into an open, available lane and continue driving at current speed	Move over into an open, available lane and slow down
Alpena	0.00	0.03	0.00	1.02
Benzie	0.00	0.02	0.00	0.19
Houghton	0.00	0.05	0.00	0.62
Lapeer	0.00	0.02	0.00	0.70
Leelanau	0.00	0.02	0.02	0.35
Manistee	0.00	0.01	0.02	0.32
Midland	0.00	0.19	0.15	0.59
Newaygo	0.00	0.01	0.00	0.16
Oakland	0.00	0.24	2.15	10.08
St Joseph	0.00	0.02	0.00	0.84
Washtenaw	0.24	0.03	0.35	4.29
Wayne	0.00	0.17	2.04	15.41
Wexford	0.00	0.01	0.00	0.20

Table 46 Approaching Emergency Vehicle by Region (Move Over, Slow Down) (%)				
Region	**Stay in the same lane and continue driving at current speed**	**Stay in the same lane and slow down**	**Move over into an open, available lane and continue driving at current speed**	**Move over into an open, available lane and slow down**
Bay	0	0.21	1.23	9.39
Grand	0	0.01	1.96	12.99
Metro	0	0.41	5.2	33.18
North	0	0.1	0.19	6.39
Southwest	0	0.02	1.08	7.03
Superior	0	0.05	0.13	3.51
University	0.24	0.03	1.98	14.65
Total	0.24	0.83	11.77	87.16

Travelers were also asked about their reaction to a tow truck on the side of the road. **Table 47** and **Figure 17** show that individuals do not move over or slow down as much for tow trucks as for emergency vehicles.

Table 47 Approaching Tow Trucks (Move Over, Slow Down)	
Question: What do you think your first reaction would be if you saw a tow truck on the side of the road in front of you with its lights flashing while you were driving along a roadway, highway or freeway that had two lanes of traffic in the same direction? I would:	
	2017 QC Survey (%)
Stay in the same lane and continue driving at current speed	0.8
Stay in the same lane and slow down	1.3
Move over into an open, available lane and continue driving at current speed	23.8
Move over into an open, available lane and slow down	74.0

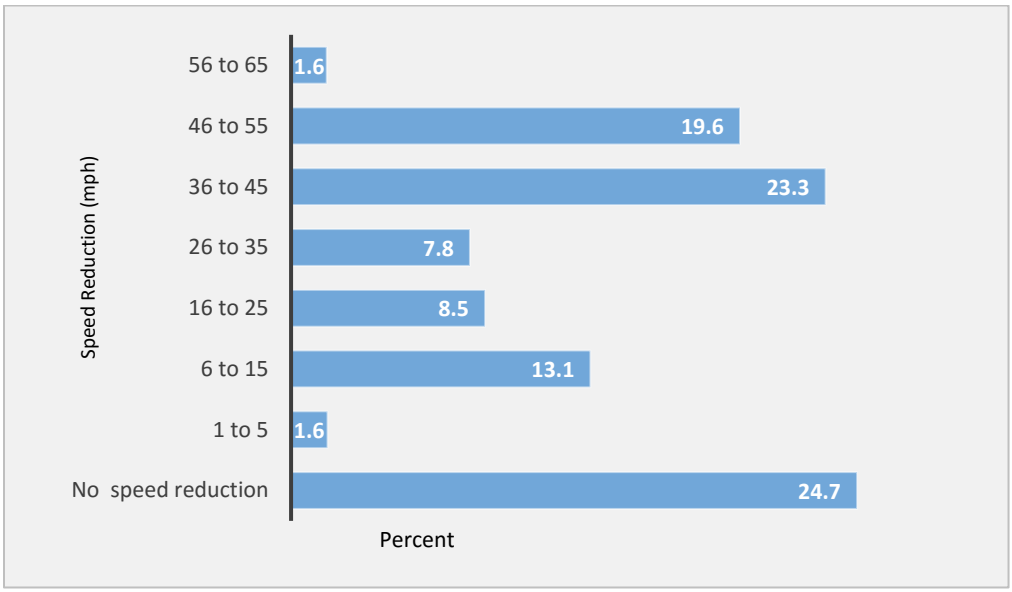


Figure 17 Speed Reduction for Tow Truck[2]

The percent of respondents by county who responded “Stay in the same lane and continue driving at current speed”, or “Stay in the same lane and slow down for tow trucks” are listed in **Table 48**. **Table 49** shows that respondents from Grand and University regions were more likely not to reduce their speed approaching tow trucks (based on the ratio over all respondents in each county).

[2] It is possible that a portion of these respondents misinterpreted the question as asking for actual speed instead of speed reduction

Table 48 Approaching Tow Truck by County (Move Over, Slow Down) (%)				
County Name	Stay in the same lane and continue driving at current speed	Stay in the same lane and slow down	Move over into an open, available lane and continue driving at current speed	Move over into an open, available lane and slow down
Alcona	0.00	0.01	0.03	0.06
Allegan	0.00	0.04	0.30	0.99
Arenac	0.00	0.02	0.04	0.10
Baraga	0.00	0.05	0.00	0.06
Bay	0.00	0.04	0.05	0.68
Benzie	0.00	0.02	0.00	0.19
Berrien	0.00	0.05	0.65	1.01
Branch	0.00	0.05	0.03	0.08
Gladwin	0.00	0.24	0.01	0.20
Lapeer	0.00	0.02	0.29	0.41
Macomb	0.00	0.10	1.86	6.74
Manistee	0.00	0.01	0.04	0.29
Mason	0.00	0.01	0.03	0.14
Oakland	0.07	0.40	3.92	8.08
Roscommon	0.00	0.01	0.01	0.24
Washtenaw	0.24	0.12	1.99	2.55
Wayne	0.00	0.11	3.37	14.13
Wexford	0.00	0.01	0.00	0.20

Table 49 Approaching Tow Truck by Region (Move Over, Slow Down) (%)				
Region	Stay in the same lane and continue driving at current speed	Stay in the same lane and slow down	Move over into an open, available lane and continue driving at current speed	Move over into an open, available lane and slow down
Bay	0	0.32	2.23	8.29
Grand	0.15	0.05	4.38	10.39
Metro	0.07	0.62	9.16	28.94
North	0	0.07	0.45	6.16
Southwest	0	0.09	2.02	6.02
Superior	0.38	0.05	0.18	3.09
University	0.24	0.12	5.42	11.12
Total	0.83	1.31	23.84	74.02

Table 50 shows that a much higher percentage of respondents are aware of the Move Over, Slow Down Law requirement, with 84.4 percent reporting that they are either very

aware or somewhat aware of the law. While most motorists are aware of the Move Over, Slow Down law, it could be combined with the Safe Quick Clearance law when disseminating safety messages to the public. There has been a shift since the 2012 survey with fewer respondents being very aware and more respondents being only somewhat aware. **Table 51** separates responses by age group.

Table 50 Changes in Awareness of Move Over, Slow Down

Level of Awareness	2012 QC Survey (%)	2017 QC Survey (%)
Very aware of the "Move Over/Slow Down" law	63	48.5
Only somewhat aware of the law	18	35.9
Not at all aware of Michigan's "Move Over/Slow Down" law as it affects emergency vehicle situations	19	15.6

Table 51 Awareness of Move Over, Slow Down Actions by Age (%)

Awareness	Age Group									Total
	16-17	18-24	25-29	30-35	36-40	41-49	50-55	56-64	65 and over	
Very aware	0.0	0.0	4.8	7.3	1.9	7.0	6.6	7.6	13.5	48.5
Only somewhat aware	0.4	1.8	8.8	4.3	1.6	3.7	6.8	4.7	3.8	35.9
Not aware at all	0.0	1.0	1.5	2.5	1.0	2.6	2.4	2.8	1.8	15.6
										100%

Table 52 shows respondents from Grant, Southwest, Superior, and University region had less awareness about the Move Over, Slow Down law.

Table 52 Awareness of Move Over, Slow Down Law By Region (%)

Region	Very aware	Only somewhat aware	Not aware at all
Bay	6.47	3.34	1.03
Grand	6.66	6.35	1.96
Metro	19.03	14	5.75
North	3.87	1.61	1.19
Southwest	3.81	3.03	1.3
Superior	1.57	0.77	1.35
University	7.09	6.81	3
Total	48.5	35.93	15.57

Table 53 shows the awareness of the "Move Over, Slow Down" law by counties. The table only includes the counties that had respondents not knowing about the Move Over, Slow Down law.

Table 53 Counties Lacking Awareness of Move Over, Slow Down Law (%)			
	Percentage Regard to Total Sample- Weighted		
Region	**Very aware of the "Move Over/Slow Down" law**	**Only somewhat aware of the law**	**Not aware at all of Michigan's "Move Over/Slow Down" law as it affects emergency vehicle situations**
Allegan	0.7	0.5	0.2
Alpena	1.0	0.0	0.1
Bay	0.6	0.1	0.1
Benzie	0.0	0.1	0.1
Berrien	0.7	0.8	0.2
Cass	0.0	0.1	0.2
Charlevoix	0.1	0.1	0.1
Chippewa	0.1	0.0	0.2
Crawford	0.0	0.0	0.1
Delta	0.1	0.0	0.1
Dickinson	0.2	0.2	0.1
Emmet	0.1	0.1	0.2
Genesee	1.1	0.8	0.2
Grand Traverse	1.1	0.3	0.3
Houghton	0.1	0.0	0.6
Ingham	0.8	2.2	1.2
Iosco	0.0	0.0	0.1
Isabella	0.4	0.0	0.1
Jackson	0.5	0.4	0.1
Kalamazoo	1.6	1.2	0.7
Kent	2.0	3.3	0.7
Lapeer	0.2	0.2	0.3
Leelanau	0.1	0.2	0.1
Lenawee	0.2	0.3	0.4
Livingston	1.7	0.4	0.1
Luce	0.0	0.0	0.1
Macomb	5.4	2.4	0.9
Manistee	0.2	0.0	0.1
Marquette	0.5	0.3	0.2
Menominee	0.1	0.1	0.1

Table 53 Counties Lacking Awareness of Move Over, Slow Down Law (%)			
	Percentage Regard to Total Sample- Weighted		
Region	**Very aware of the "Move Over/Slow Down" law**	**Only somewhat aware of the law**	**Not aware at all of Michigan's "Move Over/Slow Down" law as it affects emergency vehicle situations**
Midland	0.7	0.1	0.1
Montcalm	0.2	0.1	0.1
Muskegon	0.7	0.2	0.1
Oakland	6.1	4.4	1.9
Oceana	0.3	0.1	0.1
Ottawa	1.7	1.2	0.8
Shiawasee	0.7	0.3	0.2
St Joseph	0.3	0.4	0.2
Washtenaw	1.6	2.3	1.0
Wayne	7.5	7.2	3.0
Total	39.6	30.6	15
Grand Total Of All Counties	48.5	35.9	15.6

Below are the counties with more than 40 percent of respondents answering that they are not aware of the "Move over/Slow Down" law:

- Benzie
- Cass
- Chippewa
- Crawford
- Delta
- Emmet
- Houghton
- Iosco
- Lenawee
- Luce

Traveler Information Sources

The final set of questions addressed use of various sources of traveler information. **Tables 56, 57, and 58** summarize responses to questions about the following question, "Thinking about where you receive most of your information about travel, traffic conditions, and the latest in requirements for motor vehicles and driving behavior, what would be the most convenient place for you to be informed about it?" The largest number of respondents still rely on "traditional" sources of information such as radio, television, and newspapers. Radio, social media, and television show a substantial increase since 2012. The use of Smartphones apps was reported by 40 percent of respondents. Radio news usage increased by 30 percent from the 2012 report and is the most commonly used source.

Table 54 Changes in Use of Traveler Information Sources		
Question: Thinking about where you receive most of your information about travel, traffic conditions, and the latest in requirements for motor vehicles and driving behavior, what would be the most convenient place for you to be informed about it?		
MEDIUM	2012 QC Survey (%)	2017 QC Survey (%)
Newspapers/other regular print publications	11	4.8
Television news/reports	31	36.8
Paid television advertising	2	0.9
Radio news/reports	17	46.3
Paid radio advertising	-	2.2
Direct mail	4	1.7
Free brochures available at public places	2	0.1
Facebook, Twitter, blogs, or other social media	2	10.3
E-mail	8	0.6
Text alerts	-	16.6
Smartphone apps	-	39.5
General word-of-mouth	-	13.5
Other/ Undecided/refused	6	3.3

Table 55 Convenience of Traveler Traffic Information Sources	
Question: Thinking about where you receive most of your information about the latest in requirements for motor vehicles and driving behavior, what are the most convenient sources?	
MEDIUM	2017 QC Survey (%)
Newspapers/other regular print publications	17.1
Television news/reports	43.0
Paid television advertising	2.7
Radio news/reports	28.7
Paid radio advertising	4.2
Direct mail	13.9
Free brochures available at public places	2.5
Facebook, Twitter, blogs, or other social media	16.9
E-mail	8.2
Text alerts	9.2
Smartphone apps	13.9
General word-of-mouth	14.2
Other/ Undecided/refused	4.3

Table 56 Most Convenient Sources of Tourism/Travel Information	
Question: Thinking about where you receive most of your information about tourism travel, what are the most convenient sources? (Please choose up to two)	
MEDIUM	**2017 QC Survey (%)**
Newspapers/other regular print publications	13.4
Television news/reports	18.7
Paid television advertising	6.3
Radio news/reports	9.2
Paid radio advertising	7.2
Direct mail	5.7
Free brochures available at public places	18.8
Facebook, Twitter, blogs, or other social media	20.4
E-mail	6.3
Text alerts	1.1
Pure Michigan: www.michigan.org	34.6
Smartphone apps	6.9
General word-of-mouth	20.3
Other/ Undecided/refused	8.7

Awareness of Social Media

Respondents were asked specifically about their use of social media and results were compared to those of the 2010 and 2012 survey. In 2017, about 90 percent of respondents reported using some type of social media, up from 49 percent in 2012. (**Table 57**). Frequency of usage also increased substantially. Among those using social media, Facebook was by far the dominant web site, with 72.3 percent reporting usage as shown in **Table 58**. No other source was identified by more than 12 percent of respondents, except YouTube which had a 41.2 percent usage rate.

Table 57 Changes in Use of Social Media

Question: In the past 12 months, how often have you used social media websites such as Twitter, Facebook, blogs, or YouTube?			
Frequency	2010 QC Survey (%)	2012 ATIS Survey (%)	2017 QC Survey (%)
A few times a week or more	31	36	74.1
Several times a month	3	6	9.8
Seldom/ A few times during the past 12 months	6	7	6.2
Not at all in the past 12 months	-	-	
Never	60	51	8.1

Table 58 Changes in Use of Social Media by Platforms

Social Media Platforms	2012 QC Survey (%)	2017 QC Survey (%)
Facebook	85	72.3
Twitter	2	11.2
Blogs	2	3
YouTube	7	41.2
Another type:	2	7.4
I have not used any social media sites in the past 12 months.	1	-
Not sure	1	0.1

Table 59 shows the awareness of MDOT social media sites, including its Facebook page, Twitter feeds, and YouTube. While awareness was up from the 2012 level, the survey showed that only 22.7 percent of respondents were aware of MDOT social media. Of the 22.7 percent who were aware of MDOT social media, 8.2 percent claimed that they had used the websites.

Table 59 Changes in Awareness of MDOT Social Media Sites (%)			
	2010 ATIS Survey (%)	2012 QC Survey (%)	2017 QC Survey (%)
Yes	6	10	22.7
No	94	90	77.4
Undecided/Refused	-	-	-

Table 59 shows that 77 percent of the weighted population were not aware of MDOT social media and 55 percent of these belong to the counties listed in **Table 60.** Specifics about the lack of knowledge are in **Table 61.**

Table 60 Counties with Low/No Awareness of MDOT Social Media (%)			
County Name	I have used	I have heard of MDOT Facebook and Twitter sites, but never used them	I have never heard of the MDOT Facebook and Twitter sites
Berrien	0.410	0.180	1.124
Calhoun	0.039	0.072	1.005
Genesee	0.025	0.518	1.586
Grand Traverse	0.078	0.039	1.622
Ingham	0.241	0.588	3.303
Kalamazoo	0.075	0.172	3.254
Kent	0.020	1.538	4.522
Livingston	0.246	0.201	1.783
Macomb	0.701	0.202	7.794
Monroe	0.000	0.273	1.115
Oakland	1.075	2.367	9.025
Ottawa	0.426	0.521	2.716
Washtenaw	0.000	0.995	3.909
Wayne	3.183	2.893	11.546

Table 61 Awareness of MDOT's Facebook, Twitter, You Tube Presence (%)			
Question: Did you know that MDOT maintains the following social media sites to provide information about traffic conditions and other traveler information?			
	Twitter	YouTube	Facebook
Yes	13.5	4.2	16.5
No	86.4	95.7	83.5
Undecided/Refused	0.1	0.3	-

Social Media Monitoring Summary

For 38 days, researchers conducted social media monitoring relevant to MDOT, defined by a series of key terms developed. The following section documents a summary of insights and recommendations from the overall monitoring period, January 23 through March 2, 2017.

Keyword search parameters provide the basis for presented social media monitoring findings. Each regional or locally based term was combined with the overall string of keywords beginning with “Move Over, Slow Down.” Each local term used “Michigan” to improve relevance. Initially, one of the key terms included the word “fire,” which was changed to the term “firefighter” to improve results.

In total, there were 23,313 mentions of these keywords across searched platforms including Facebook, YouTube, Flickr, LinkedIn, Instagram, Pinterest, Foursquare, Reddit, Tumblr, Google+, Twitter, news outlets, blogs, and forums. The following sections provide specific highlights from this set of results.

Conversation by the Numbers

From January 23–March 2, 2017, there were:

- 21,104 social media posts related to keywords
- 1,646 conversations related to keywords

Word Cloud of Conversation Drivers

Figure 18 shows the top words used in association with the search keywords are below. Volume, uniqueness, and ability to generate content determine the size of each word.

Figure 18 Conversation Word Cloud

Activity Breakdown by Network

Figure 19 depicts the percentage of activity on each social media platform. This chart captures the percentage of posts combined with interaction or engagement with those posts. Total activity across all platforms is shown below.

The complete list includes: Facebook (FB Page, News, Instagram, Blog, Forum, Youtube, Twitter, Reddit, FB, Flicker, Google+, and Retail. In each graph the top 3 to 4 platforms are listed and the rest are listed as “others”.

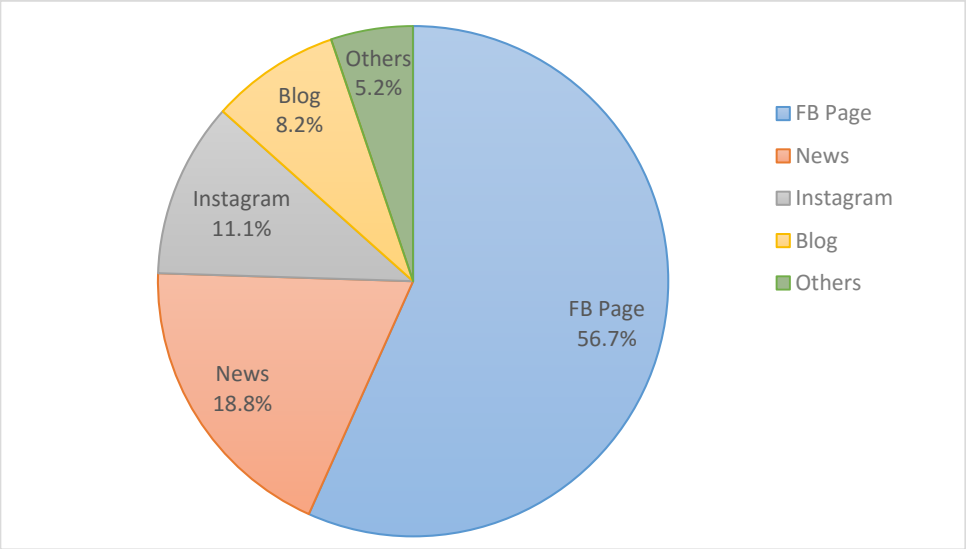


Figure 19 Breakdown of Social Media Activity Platforms

The distribution of only social media posts that occurred across all platforms was also reviewed and are presented in **Figure 20**. Although Facebook, News, and Instagram were top drivers of engagement; the largest amount of relevant content is posted on News, Blogs, and Twitter.

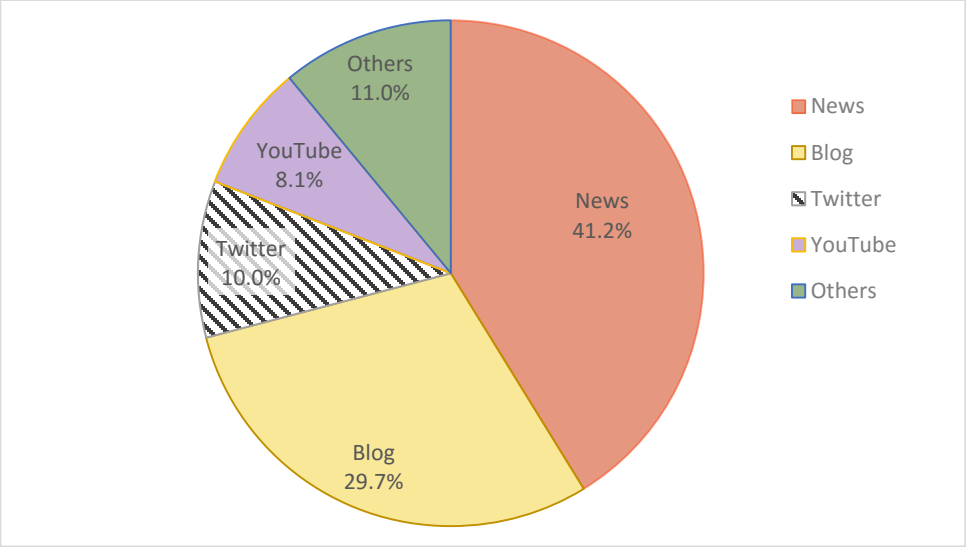


Figure 20 Activity Breakdown for Posts Only

Conversations that were happening solely on social media platforms were also tested by removing mentions from News platforms. **Figure 21** depicts this.

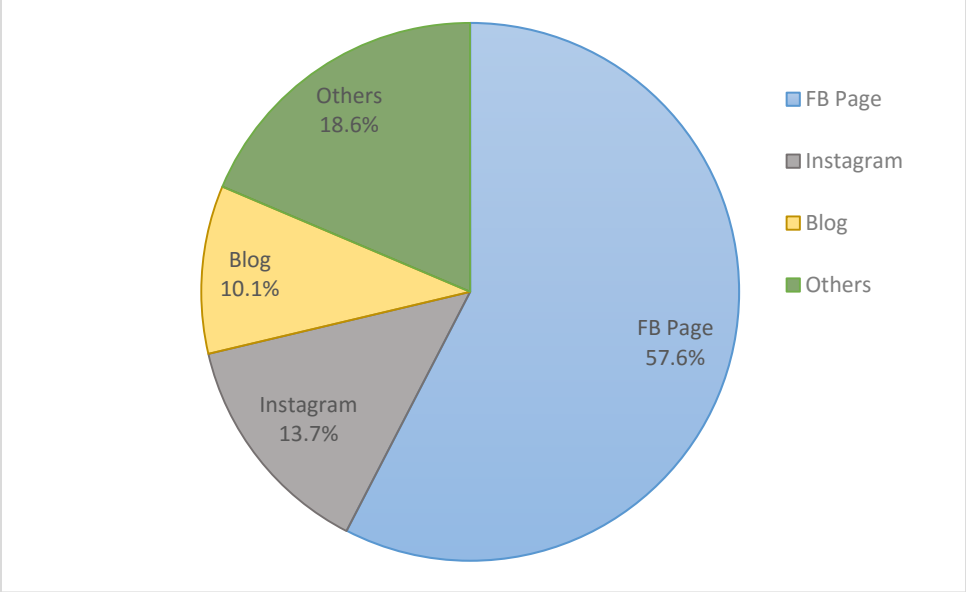


Figure 21 News and Interactions Breakdown by Platform

Similarly, the distribution of posts solely on social media platforms, with engagements removed from the analysis, was also analyzed and is presented in **Figure 22**.

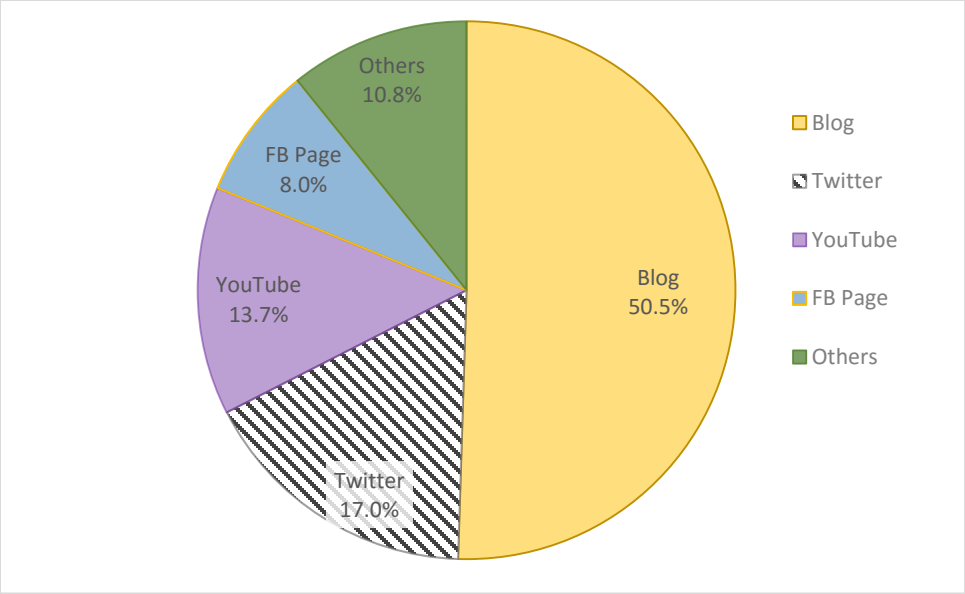


Figure 22 Posts Only by Social Media Platforms

Audience Demographics

Figure 23 and **Figure 24** show a breakdown of the audience demographics of people engaging with and/or posting content relevant to the defined keywords. This reflects conversations happening just on social media platforms (we removed News platforms to have a more accurate picture of the conversations). Overall, the average engagement and posting of content tends to be higher among females (54.5%) than males (45.5%) and is distributed between the three main age group segments. It should be noted that unlike the survey demographics that were tied to locations/regions and had benchmark annual surveys (e.g., Census) to anchor to as a reference point, the social media demographics are provided as a snapshot overview of the audience (but do not have a comparable reference point or distribution to anchor).

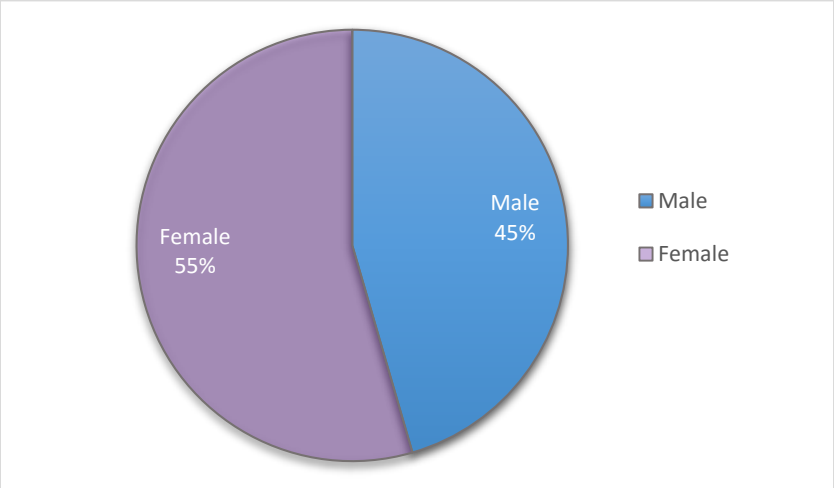


Figure 23 Conversations by Gender

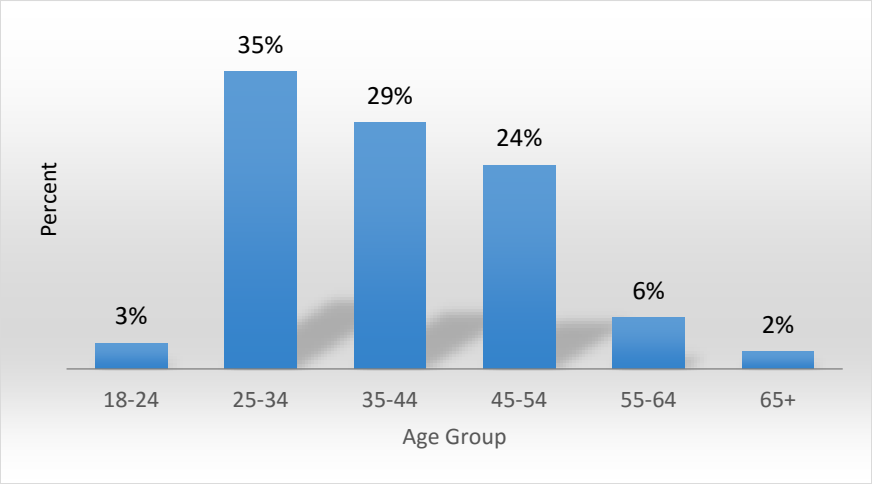


Figure 24 Conversations by Age

Content and Influencer Insights

Table 62 outlines metrics across all the platforms, specifically sorting by their number of engagements to gauge which channels were the most popular drivers of conversation.

Table 62 All Platform Metrics by Total Interactions (%)					
Network	Total Conversations	Total Posts	Total Interactions	Total Mentions	Engage Rate
FB Page	149	201	49,930	505	74%
Instagram	217	286	11,630	296	76%
News	96	8,701	11,517	8,760	1%
Forum	311	392	4,645	1,118	79%
Blog	346	6,258	2,575	7,108	6%
YouTube	23	1,704	2,223	1,750	1%
Reddit	106	120	1,328	256	88%
Flickr	36	49	860	51	73%
Twitter	283	2,106	783	2,147	13%
FB	11	996	262	997	1%
Retail	12	41	220	71	29%
Google+	52	223	176	224	23%
VKontakte	4	27	6	29	15%
FB Group	0	0	1	1	0%
Total:	1,646	21,104	86,156	23,313	8%

As measured by the number of interactions (e.g., likes, comments, shares, etc.) we can see that the top five platforms from January 23-March 2, 2017 were Facebook (public pages), Instagram, News, Forums, and Blogs. However, the table above also shows us that Twitter comprised a significant number of posts (2,106) and had the third highest number of posts after News (8,701) and Blogs (6,258). Therefore, the following section will take a closer look at the conversation on Twitter over this monitoring time period. We are focusing on the Twitter conversation because it is a more pure form of social media engagement and tied to a specific platform/channel. It is also more representative of the discourse among Michigan residents on these topics.

Twitter

Conversation by the Numbers

From January 23–March 2, 2017, there were:

- 2,106 **Tweets** related to keywords and
- 283 conversations (Tweets with at least one engagement) related to keywords.

Word Cloud of Conversation Drivers

Figure 25 shows the top words used in association with the search keywords on Twitter.

Figure 25 Twitter Conversations Word Cloud

Content Analysis

Table 49 contains a sample of three Tweets relevant to our keywords. Specifically, the three Tweets below had the highest number of engagement (i.e., replies, retweets, favorites).

Table 63 Sample Tweets	
Username	Tweet Content
Creepingsharia	**Michigan**: Another Sexual Assault by Another Muslim Uber **Driver** [Link] https://t.co/vnJKqtl42H
Davidshepardson	Great story for people who drive from DC to **Michigan**: Why no one will address the **traffic** jams of Breezewood, PA [Link]
Taximassive	**Michigan** Uber **Driver** Stabs Passenger 5 Times For 'Disrespecting' His Honda Civic: **Police** [Link] #deleteuber

Overall, the relevant content on Twitter showed more discourse among citizens of Michigan rather than entities reporting on local news stories, which contrasts with some of the other top platforms. Topic themes ranged from shares various news stories, to reactions of users to other Michigan drivers. Primarily, these entailed complaints about traffic and the driving habits in Michigan. Local news station account handles would also provide updates to users around traffic incidents or other timely updates.

Influencers

For the purposes of this report, “influence” is defined as a composite of the reach (number of unique users interacting with the influencer), impact (engagement generated from their content), quality (depth and complexity of content, i.e. picture and link posts as opposed to purely text), and volume of content relevant to the defined keywords.

The findings showed a consistency of news outlets’ various social media platforms as primary influencers relevant to these keywords. The most engagement consistently came from the news outlets’ Facebook pages as opposed to news outlets’ articles themselves.

1. ABC12 (Facebook)
2. Act of Mapping (Instagram)
3. CBS News (Facebook)
4. Complex Magazine (Facebook)
5. Cool Cop Cars (Instagram)
6. D.L. Hughley (Facebook)
7. Daily Mail Online (Facebook)
8. Danica Patrick (Facebook)
9. DUB Magazine (Instagram)
10. FOX 2 Detroit (Facebook)
11. JMillerSPEAKSOuT (YouTube)
12. KTLA 5 News (Facebook)
13. Law Enforcement Today (Facebook)
14. Little Things (Facebook)
15. Michigan Police Vehicles (Instagram)
16. MLive.com (News)
17. MSN News (Facebook)
18. SimpleReminders.com (Facebook)
19. Southern Poverty Law Center (Facebook)
20. Stewart-Haas Racing (Facebook)
21. The Young Turks (YouTube)
22. USA Today (Facebook)
23. WDIV Local 4 / ClickOnDetroit (Facebook)
24. WHIO-TV (Facebook)
25. WILX News 10 (Facebook)
26. WTHR-TV (Facebook)
27. WXYZ-TV Channel 7 (Facebook)
28. WZZM 13 Grand Rapids (Facebook)

Influencers uncovered on the Instagram platform included police vehicle photography enthusiasts, such as Michigan Police Vehicles, Emergency Vehicle Pictures, and Cool Cop Cars, which featured photos of various police vehicles.

Summary & Recommendations

When looking at both content and engagement across this time period, Facebook (46.7%) and News (18.9%) were the top two channels covering the keywords that were tracked. On Facebook, these were primarily local or regional news platforms' public Facebook pages, which featured news stories and linked to full articles.
The third most popular platform was Instagram (11.2%). As mentioned in the report, the influencers uncovered on this platform included police vehicle photography enthusiasts, and it is recommended MDOT have further discussions to see whether there could be interesting and creative ways to engage these accounts.

Blogs (8.3%) and Forums (4.5%) were also popular platforms for these keywords. Therefore, taking a deeper analysis into exactly which ones were driving the conversation could give additional insights into which should be engaged if seeking to implement an influencer campaign.

In terms of overall "influencers," those who spoke most frequently about keywords were primarily news outlets' Facebook accounts. For example, one account, Steward-Haas Racing, was identified as highly engaging and had mentioned being in Michigan. Furthermore, when a Michigan-based news story would become popular and "go viral," a non-local influencer would share it. This was observed in the February 22 report with the YouTube video by MillerSPEAKSOuT. This indicates the possibility that Michigan influences need not only reside in Michigan.

The topline review of Twitter content within this report identified an additional dialogue among users, some garnering greater attention to their posts than others. In terms of an influencer campaign, there are several recommendations revisiting the specific goals for this strategy. For example:

1. Increase the number of influencers living in Michigan who discuss and share issues relevant to the Michigan Department of Transportation. In this case, a next step would be to identify local influencers with whom to build a relationship who are not currently mentioning relevant keywords.
2. Engage influencers who are already speaking about issues related to the Michigan Department of Transportation, such as news outlets and their associated Facebook pages or the police vehicle photography Instagram accounts. A next step could be either to reach out to those outlets or ensure that relevant news stories are always shared proactively with them.

Based on this preliminary summary, the following is recommended:

1. Refine goals related to the influencer engagement campaign prior to continuing to monitor and identify influencers.

2. Determine which channels are ideal for the project survey dissemination efforts or other needs, and conduct a deeper dive (i.e. which Forum or Blog accounts/sites are most popular for posting).
3. Continue to monitor on a monthly basis and evaluate whether these keywords are relevant or if terms that are more specific are needed.

Development of the Captain ClearIt flyers

The MDOT Captain ClearIt character was used as part of informational flyers/brochures to be consistent with MDOT communication strategies. A one-page flyer was developed to include important information regarding crashes, the Steer It, Clear It law, and safety in a user friendly and visually appealing format.

General sampling plan

Households were recruited by mailing survey invitations to a randomly selected address-based sample (ABS). The size of the fielded ABS was 11,000. One person aged 16 or older was randomly selected in each recruited household to participate in the survey by completing a web questionnaire hosted on a Westat server or by calling an 800 number to be interviewed by a Westat telephone interviewer. Assuming that the 6 percent of the mailed invitations would be undeliverable and that the response rate would be 12 percent, the expected number of completed interviews was targeted to be approximately 1,200 (which was subsequently achieved).

One option for selecting the ABS is to select an equal probability sample of addresses. This would result in the 1,200 completed cases to be allocated to Michigan's 83 counties approximately proportional to the number of occupied housing units in each county. **Table 64** contains for Michigan's 20 largest counties (with respect to occupied housing units) the expected number of completed surveys out of 1,200 for an equal-probability ABS.

Table 64 Expected Completed Surveys for Non Equal-Probability ABS				
Rank	County	Occupied Households	Expected Number of Completes	Cumulative Proportion
1	Wayne	667,553	209	17.4%
2	Oakland	489,797	154	30.2%
3	Macomb	334,508	105	39.0%
4	Kent	230,895	72	45.0%
5	Genesee	165,962	52	49.3%
6	Washtenaw	136,471	43	52.9%
7	Ingham	109,806	34	55.8%
8	Kalamazoo	100,042	31	58.4%
9	Ottawa	95,304	30	60.9%
10	Saginaw	77,589	24	62.9%
11	Livingston	68,279	21	64.7%
12	Muskegon	64,889	20	66.4%
13	St. Clair	64,182	20	68.1%
14	Jackson	60,485	19	69.6%
15	Berrien	60,320	19	71.2%
16	Monroe	58,328	18	72.7%
17	Calhoun	52,842	17	74.1%
18	Bay	43,712	14	75.3%
19	Eaton	43,562	14	76.4%
20	Allegan	41,767	13	77.5%
21-83	63 counties	903,354	270	100.%

With an equal-probability ABS, 17 percent of the completes were expected to be in one county—Wayne County—and 45 percent of the completes were expected to be from four counties. The twenty largest counties were expected to contain 78 percent of the completes and the remaining 63 counties were expected to contain only 22 percent of completes. Selecting an equal-probability ABS would not provide large enough sample sizes for estimating sufficiently precise estimates for domains associated with smaller counties such as estimates for rural areas or for usage of secondary roads.

Consequently, an alternative sample design was chosen to select a stratified ABS. By ordering the counties by decreasing number of occupied housing units, one can use a procedure based on the cumulated square- roots of the number of housing units to create the strata described in **Table 65.**

Table 65 Proposed Sampling Strata				
Stratum	County Ranks	# of Counties	Proportion of Occupied Housing Units	Allocated # of Completes
1	1 - 4	4	45.0%	240
2	5 - 13	9	23.1%	240
3	14 - 27	14	15.3%	240
4	28 - 49	22	10.2%	240
5	50 - 83	34	6.4%	240

The expected number of completes was the same (240 completes) in each of the five strata, and within each stratum the 240 completes were allocated approximately proportional to the county's number of occupied housing units. For example, Stratum 1 consists of the four largest counties in Michigan. These 4 counties contain 45 percent of the state's occupied housing units, but the stratified design allocated only 20 percent of the sample to these four counties. Thus, stratum 1 was under-sampled, but because there are only four counties in this stratum, there are an average of 240/4 = 60 completes per county.

On the other hand, Stratum 5 contains the 34 smallest counties. These counties contain 6 percent of the state population, and the design allocated 20 percent of the sample to Stratum 5, so Stratum 5 is oversampled. Because Stratum 5 contains 34 counties, the average number of completes per county in Stratum 5 is only 240/34 = 7, which indicates any sub-state estimates involving the smallest counties should be for groups of counties.

The stratified design improves the precision of any sub-state estimates associated with the smaller counties. The over- and under-sampling does cause some loss in precision for statewide estimates, however. This loss in precision in the statewide estimates can be estimated, which indicates that the stratified design with 1,200 completed surveys yields statewide estimates that have the same precision as an equal-probability ABS with 800 completes, which was the number of completes in the previous survey cycle. Hence, the stratified design improves the precision of sub-state estimates involving the smaller counties and has approximately the same precision for statewide estimates as was provided in the previous cycle.

Appendix E: Wisconsin Crash Investigation

they could be spaced every five to 15 miles. These recommendations also take into account interchange spacing, which is reduced in urban areas compared to rural areas.

CIS Designs and Costs

The type of CIS deployed in a particular location will depend on a number of site characteristics, as well as available funding. Depending on funding levels, different features were proposed resulting in separate details and costs. A detailed drawing of different CISs is included in Appendix A.

In most cases, a CIS at the end of an exit ramp is preferred because it is the easiest for a distressed motorist to locate and use. The recommended size of an exit ramp CIS is 150 feet by 22 feet with a taper for both ingress and egress movements. This length will be able to safely accommodate at least a semi truck, passenger vehicle, and tow truck at the same time. It is also wide enough so that a tow truck can pass alongside another vehicle. Both versions of exit ramp CISs are paved. The *Rural Version* includes one light standard, while the *Urban Version* includes two light standards (primarily for personal safety reasons). The *Rural Version* does not include curb and gutter or a median and is estimated to cost $65,000 (see Sheet 1 in Appendix A and Table 2). Table 4 in Appendix B includes a detailed cost breakdown of construction materials. For the *Urban Version*, curb and gutter is included for drainage and a paved median separates the CIS from the exit ramp (see Sheet 2 in Appendix A). A planning-level cost estimate for the *Urban Version* is $112,000 (see Table 2).

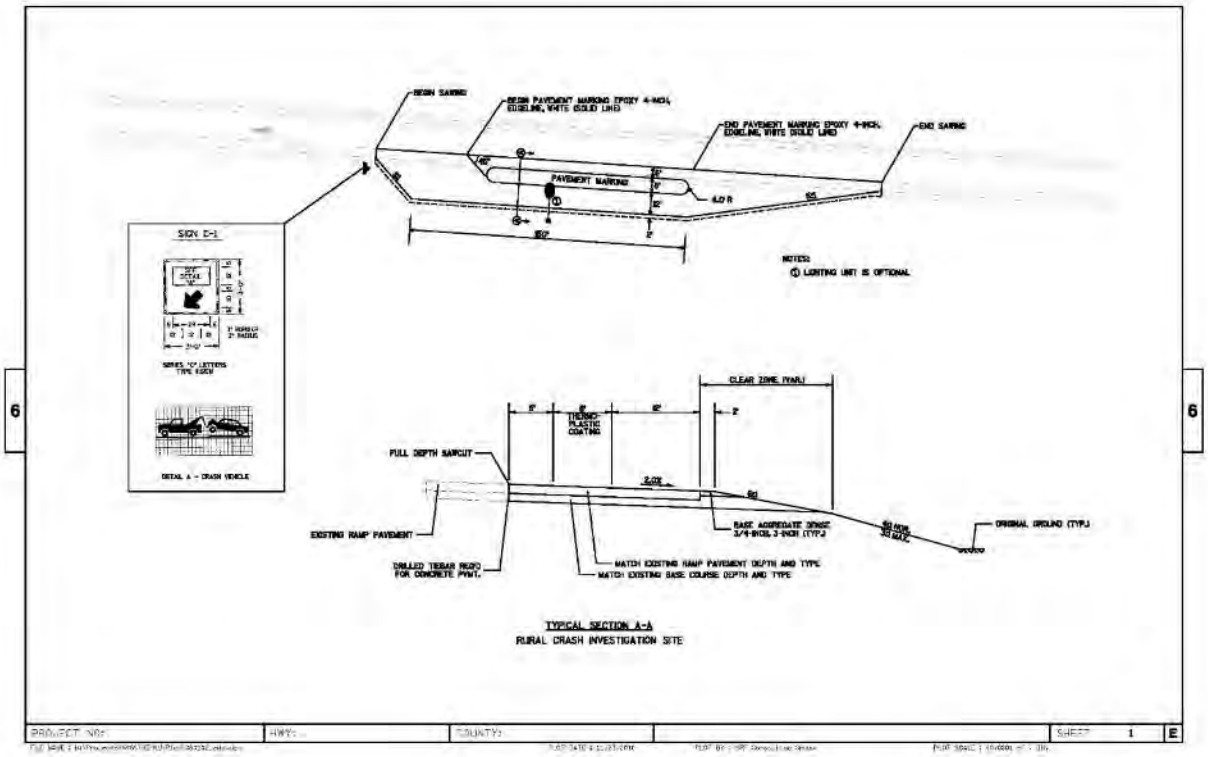
Table 2. Crash Investigation Site Concept Cost Estimate

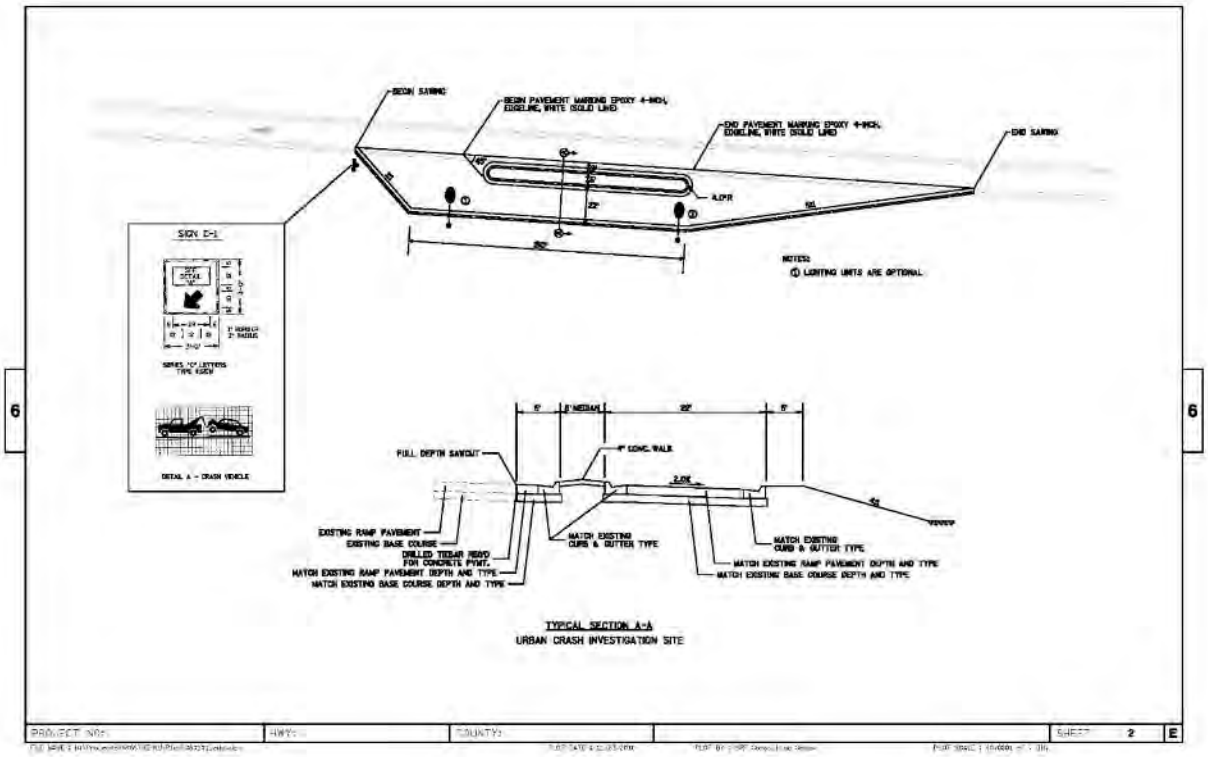
	Crash Investigation Site		
	Rural Exit Ramp	**Urban Exit Ramp**	**Park-and-Ride**
Construction Cost	$50,000	$88,000	$1,000
Miscellaneous Cost	$9,000	$14,000	$1,000
Contingency (10%)	$6,000	$10,000	--
Total	**$65,000**	**$112,000**	**$2,000**

In certain circumstances, a CIS on the exit ramp is not feasible. Some of these reasons include a lack of right-of-way, a loop ramp, or a viable publically-owned alternative near the interchange such as a park-and-ride lot. A CIS located at a site near an interchange would measure 150 feet in length (see Sheet 3 in Appendix A). As this type of CIS will be part of an existing park-and-ride, it was assumed to be paved, illuminated, and include curb and gutter for drainage. This type of CIS will cost approximately $2,000, which only includes costs for restriping and signing (see Table 2).

Other CIS Considerations

Stakeholders also suggested two other features that may be appropriate for certain deployments. At some of the existing CISs in the Milwaukee area, there are public pay phones. A call box or public phone may be appropriate in some specific locations for personal safety reasons and to increase response time. Another idea suggested would be to use existing cameras at interchanges to monitor activities at the CISs and increase the effectiveness of the response.


BEGIN SAWING
BEGIN PAVEMENT MARKING EPOXY 4-INCH, EDGELINE, WHITE (SOLID LINE)
END PAVEMENT MARKING EPOXY 4-INCH, EDGELINE, WHITE (SOLID LINE)
END SAWING
PAVEMENT MARKING
4.0 ft
NOTES:
① LIGHTING UNIT IS OPTIONAL
SIGN D-1
DETAIL A - CRASH VEHICLE
CLEAR ZONE (VAR.)
THERMO-PLASTIC COATING
FULL DEPTH SAWCUT
EXISTING RAMP PAVEMENT
DRILLED TIEBAR REBAR FOR CONCRETE PVMT.
BASE AGGREGATE GRADE 3/4-INCH, 3-INCH (TYP.)
ORIGINAL GROUND (TYP.)
MATCH EXISTING RAMP PAVEMENT DEPTH AND TYPE
MATCH EXISTING BASE COURSE DEPTH AND TYPE
TYPICAL SECTION A-A
RURAL CRASH INVESTIGATION SITE
PROJECT NO:
HWY:
COUNTY:
SHEET 1
E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BEGIN PAVEMENT MARKING EPOXY 4-INCH, EDGELINE, WHITE (SOLID LINE)
END PAVEMENT MARKING EPOXY 4-INCH, EDGELINE, WHITE (SOLID LINE)
END SAWING
4.0 ft
NOTES:
① LIGHTING UNITS ARE OPTIONAL
SIGN D-1
DETAIL A - CRASH VEHICLE
FULL DEPTH SAWCUT
4" CONC. WALK
EXISTING RAMP PAVEMENT
EXISTING BASE COURSE
DRILLED TIEBAR REBAR FOR CONCRETE PVMT.
MATCH EXISTING RAMP PAVEMENT DEPTH AND TYPE
MATCH EXISTING BASE COURSE DEPTH AND TYPE
MATCH EXISTING CURB & GUTTER TYPE
MATCH EXISTING CURB & GUTTER TYPE
MATCH EXISTING RAMP PAVEMENT DEPTH AND TYPE
MATCH EXISTING BASE COURSE DEPTH AND TYPE
TYPICAL SECTION A-A
URBAN CRASH INVESTIGATION SITE
PROJECT NO:
HWY:
COUNTY:
SHEET 2
E

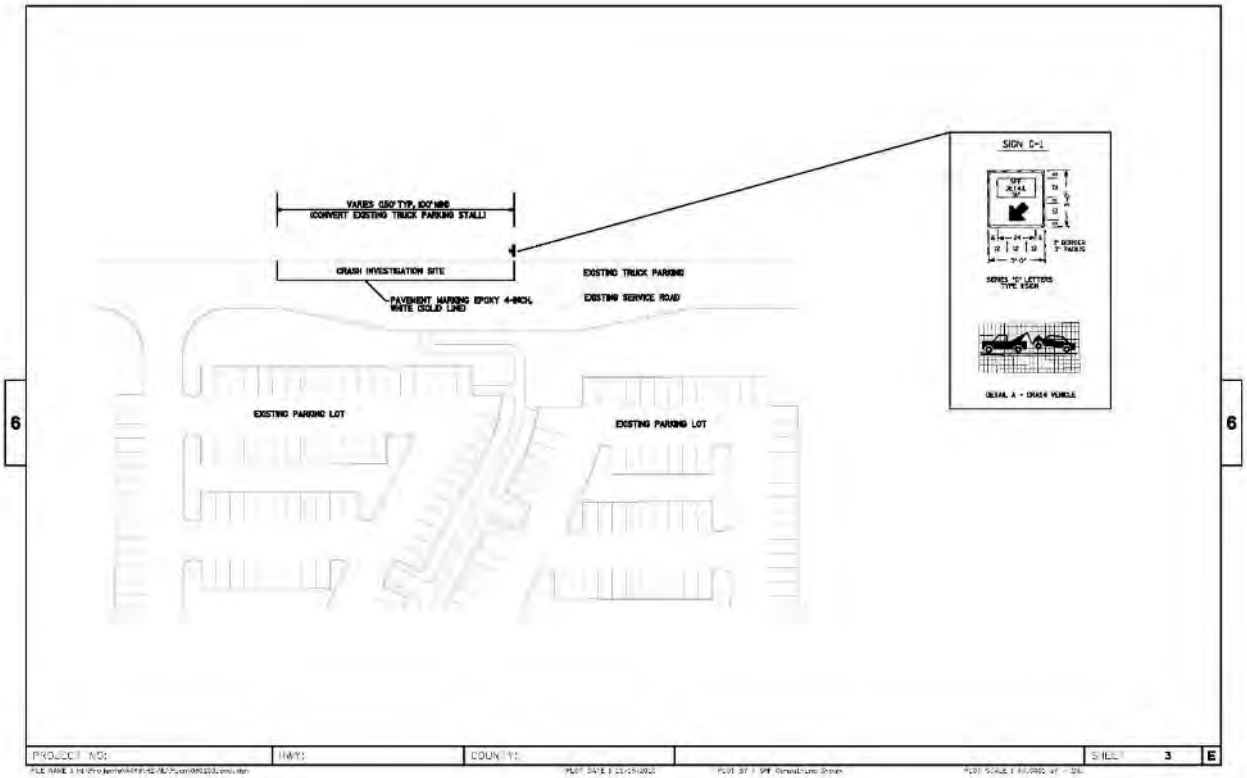


Table 4. Crash Investigation Site and Law Enforcement Pad Concept Cost Estimate (based on 2009 bid price information)

				Crash Investigation Site - Rural		Crash Investigation Site - Urban		Crash Investigation Site - Parking Lot		Law Enforcement Pad - Small		Law Enforcement Pad - Large	
	ITEM DESCRIPTION	UNIT	UNIT PRICE	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT
PAVING AND GRADING COSTS													
1	Common Borrow (CY)	cu. yd.	$4.00	1,500	$6,000	2,000	$8,000			250	$1,000	500	$2,000
2	Remo Pavement	(1)	sq. yd	$50.00	700	$35,000	900	$45,000			75	$3,750	300	$15,000
3	Concrete Walk	(2)	sq. yd	$25.00			70	$1,750						
4	Concrete Curb and Gutter		lin. ft	$30.00			600	$18,000						
5	Concrete Median Barrier (Permanent)	(3)	lin. ft	$66.00							115	$7,638	115	$7,638
	SUBTOTAL PAVING AND GRADING COSTS:				**$41,000**		**$72,750**					**$12,138**		**$24,638**
MISC. UNIT or PERCENTAGE OF PAVING AND GRADING COSTS													
1	Removals - Pavement	sq. yd.	$10.00	150	$1,500	75	$750			10	$100	50	$500
2	Turf Reinstatement & Erosion Control	5%			$2,000		$4,000				$1,000		$1,000
	SUBTOTAL MISC. PERCENTAGE COSTS:				**$3,500**		**$4,750**				**$1,100**		**$1,500**
LIGHTING COSTS													
1	Lighting Unit (permanent, standard)	each	$5,000	1	$5,000	2	$10,000						
	SUBTOTAL LIGHTING COSTS:				**$5,000**		**$10,000**						
SIGNING & STRIPING COSTS													
1	Maintain Signing (C&D)	each	$300	1.0	$300	1.0	$300	1.0	$300				
2	Pavement Marking Epoxy 4-inch, White (Solid)	lin. ft	5.00	125	$625	125	$625	150	$750	25	$125	150	$750
	SUBTOTAL SIGNING & STRIPING COSTS:				**$925**		**$925**		**$1,050**		**$125**		**$750**
	SUBTOTAL CONSTRUCTION COSTS:				**$50,425**		**$88,425**		**$1,050**		**$13,363**		**$26,888**
MISCELLANEOUS COSTS													
1	Mobilization	5%			$3,000		$4,000				$1,000		$1,000
2	Non Quantified Minor Items	10%			$5,000		$8,000				$1,000		$3,000
3	Traffic Control	Lump Sum	$1,000	1	$1,000	1	$1,000	1	$1,000	1	$1,000	1	$1,000
	SUBTOTAL MISCELLANEOUS COSTS:				**$9,000**		**$14,000**		**$1,000**		**$3,000**		**$5,000**
ESTIMATED TOTAL CONSTRUCTION COSTS without Contingency:					**$59,425**		**$102,425**		**$2,050**		**$16,363**		**$31,888**
1	Contingency or "risk" (10% to 20%)	10%			$6,000		$10,000				$2,000		$3,000
ESTIMATED TOTAL CONSTRUCTION COSTS PLUS CONTINGENCY:					**$65,425**		**$112,425**		**$2,050**		**$18,363**		**$34,888**

NOTE: (1) Includes aggregate base
(2) Paved median areas only. Does not include pedestrian sidewalks
(3) Includes 11.5 LF transition from 42" to 32" barrier and 100 LF of 32" barrier

Appendix F: Washington State Incentive Towing Program Handbook

Major Incident Tow (MIT) Program Handbook

Attachments A, B, C and MIT Activation Form

Authorized MIT- Registered Tow Truck Operators (MIT-RTTO)

Effective October 15, 2013 - October 14, 2015

Contact Information in this handbook is to be kept current by the MIT-RTTO Contractor and presented upon request by a WSP Tow Truck Inspectors (WSP-TTI) per signed WSP PART I (B) Letter of Appointment (LOA) – Major Incident Tow (MIT) List - Emergency Response and Mobilization Contract on file with the Washington State Patrol (WSP).

Washington State Department of Transportation (WSDOT)
Washington State Patrol (WSP)

Washington State Department of Transportation

Washington State Department of Transportation

WSP

Major Incident Tow (MIT) Program Handbook

Joint Operating Policy Statement (JOPS): Roles and Responsibilities 2

Attachment A – Major Incident Tow (MIT): Emergency Response and Mobilization Criteria 5

Attachment B – Events, collisions or other traffic incidents utilizing the services of those companies on the major incident response agreement 8

Attachment C – Equipment, Driver and Vehicle Requirements 9

Major Incident Tow (MIT) Activation Guide for Major Traffic Incidents 13

Contacts List 14

Sub-Contractor's Contact List 15

Copy of MIT Activation Form ..... Back Page

Washington State Department of Transportation

WSP

Joint Operations Policy Agreement (JOPS) - A WSDOT/WSP Partnership

Traffic Incident Management is a key component in the Joint Operations Policy Statement (JOPS) agreement between WSDOT and the Washington State Patrol (WSP). WSDOT and WSP have established a mutual goal of safely clearing highway traffic incidents within 90 minutes.

Achieving this goal requires additional partnerships with local fire and EMS services, the tow industry, the media, the insurance industry, and drivers. The purpose of establishing quick-clearance goals is to enhance motorist and responder safety and minimize congestion.

WSDOT Incident Response Team (IRT) Program

Background: The mission of WSDOT's Incident Response Program includes maintaining operational readiness to respond to and expedite the safe clearance of traffic incidents in cooperation and coordination with WSP and other responding entities under the National Incident Management System (NIMS). Developing and maintaining inter-agency partnerships and mutual understandings of each other's roles is crucial in fulfilling this mission. Roving Incident Response Vehicle patrols are the most visible component of WSDOT's Incident Response (IR) Program. These IR patrols drive congested roadways during peak traffic periods to detect and assist clearing minor traffic incidents such as disabled and stranded motorists, and quickly get them on their way. Rapid detection and clearance of minor traffic incidents minimizes incident-related congestion and helps prevent secondary incidents (collisions that occur in the backup).

WSDOT IR Technicians are trained and equipped to respond to and assist WSP with collisions and other serious traffic incidents. IR Technicians are also available for call-out 24 hours a day, 7 days a week for traffic incidents or other emergencies that occur on state roadways. In addition, WSDOT maintenance technicians are also available statewide 24/7 when long term traffic control or other specialized WSDOT equipment is needed at traffic incidents.

Objective: During major incidents, WSDOT's primary Incident Response role is to coordinate with and support WSP and other emergency responders as needed, by providing traffic control to improve safety of on-scene responders and motorists approaching the incident, and periodic incident and traffic updates to the appropriate TMC for dissemination through established traveler information systems.

Policy: The WSDOT will deploy scheduled roving incident response patrols in coordination with WSP in congested areas and maintain 24/7 call out availability.

Roles and Responsibilities:

WSDOT Responsibilities: Provide roving service patrols to quickly detect and clear minor incidents and assist WSP with all traffic incidents and hazards as needed, and maintain 24/7 call out availability to assist WSP.

WSDOT Lead: Incident Response Program Manager

Page 2 of 16

Washington State Department of Transportation

WSP

WSP Responsibilities: Work in partnership with WSDOT's incident response operators during incidents.

WSP Lead: Field Services Bureau Commander

Joint Agency Responsibilities: Continue to advocate funding for specialized resources which enable the 90 minute goal to be achieved.

Action: WSDOT, with WSP input, will regularly review "incident response" asset deployment for efficient and effective incident response performance. Both agencies will jointly support funding proposals to implement needed resources. WSP and WSDOT will work together to develop a method to measure incident response impacts on secondary collisions.

Measures of Performance/Reporting: Quarterly reporting of incident response program activity including number of incidents by geographical area and average response and clearance times.
Time Line: Ongoing.
Reference: WSDOT Gray Notebook Quarterly Reports available online:
http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm;
Incident Response Standard Operating Guidelines, Revised 2007; WSDOT's WITS (Washington Incident Tracking System); National Traffic Incident Management Coalition National Unified Goal Technical Brief on Benefits of Traffic Incident Management, 2006, available online:
http://www.transportation.org/sites/ntimc/docs/Benefits11-07-06.pdf

The JOPS identifies several Traffic Incident Management (TIM) strategies and Tow Initiatives including:

F. Major Incident Tow (MIT) Program

Background: WSP and WSDOT formally established the 90 minute clearance goal in 2002. In spite of the efforts of both agencies, the average clearance time for a heavy truck involved in a fatality collision in FY 06 was 349 minutes, or 5.8 hours. In order to expedite clearance of major incidents involving heavy trucks, WSDOT requested and received legislative funding to implement the Major Incident Tow (MIT) program to expedite the removal of heavy truck collisions on July 1, 2007. Based upon a similar program in Florida, the MIT program raises minimum training and equipment requirements and provides a $2,500 incentive payment when quick-clearance goals are met. The initial pilot program was funded for the 2008-09 biennium in King, Pierce, and Snohomish Counties. It is currently funded for the 2011-13 biennium in Clark, Cowlitz, Lewis, Thurston, Pierce, King and Snohomish counties.

Objective: Reduce congestion by clearing heavy truck involved incidents within 90 minutes or less.

Policy: WSP and WSDOT will jointly implement the Major Incident Tow program in Clark, Cowlitz, Lewis, Thurston, Pierce, King and Snohomish counties.

Washington State Department of Transportation

WSP

Roles and Responsibilities:

WSDOT Responsibilities: Working with WSP and the tow industry, administer the Major Incident Tow (MIT) Program including processing incentive payments and tracking activations, clearance times, and success rate.

WSDOT Lead: State Incident Response Program Manager

WSP Responsibilities: Initiate any changes necessary to their existing tow truck usage arrangements with the tow industry to ensure effective tow assistance.

WSP Lead: Field Operations Bureau Commander

Joint Agency Responsibilities: Address policy issues surrounding incident clearance which require the deployment of heavy tow trucks. Issues that will be addressed in WSP's "tow truck contract" discussion with the tow industry are:

- Performance measurement and customer satisfaction.
- Tow company compliance with state RCWs and WACs.

Action: WSP and WSDOT periodically evaluate the need for future expansion of the Major Incident Tow (MIT) Program based up the volume of heavy truck involved collisions in congested areas.

Measures of Performance/Reporting: Quarterly reports of MIT activations, clearance times, and analysis of success rate in meeting the 90 minute clearance requirement.
Time Line: This policy was enacted by interagency agreement on July 15, 2007.
Reference: WSP/WSDOT Interagency agreement #C080213GSC: Tow Incentive Program for Heavy Truck Collisions effective July 15, 2007. WSP Rotational Tow Contract: Part 1- Letter of Appointment, Major Incident Tow Pilot Project, July 15, 2007.

Washington State Department of Transportation

WSP

ATTACHMENT "A"

MAJOR INCIDENT TOW (MIT):
EMERGENCY RESPONSE AND MOBILIZATION PAYMENT CRITERIA

To reduce the cost and damages to the highway system occurring out of major incidents immediate and significant response is required in restoring the highway systems capacity, operation and function. Non-recurring congestion and secondary incidents caused by lost capacity constitute a major loss to the highway system and the traveling public. Within, this context it is the policy, the Washington State Department of Transportation (WSDOT), the Washington State Patrol (WSP) and its Major Incident Tow (MIT) authorized tow truck contractors to respond and return the highway system to original operating condition as quickly as possible. As such, this **Emergency Response and Mobilization** criterion is identified below.

The MIT Program authorized Tow Truck Operator (MIT-RTTO) will provide professional incident clearance and vehicle recovery services in accordance with the terms and conditions described in the Part I (B): Letter of Appointment (LOA) - Major Incident Tow (MIT) List and this **MIT Handbook** which contains **MIT Program Attachment's "A", "B", and "C"** in compliance with all applicable Revised Code's of Washington (RCW) and Washington Administrative Code's (WAC).

Note: If a partnership or contract is used with a different tow company to affect the recovery, all companies, tow trucks, equipment and personnel must be in good standing with WSP and DOL and possess both a current Part I (A): Letter of Appointment (LOA) - WSP Rotational Tow List ***and*** *a on file with the WSP along with all required personnel training and experience documentation as required prior to responding to a MIT Activation as a sub-contractor.*

The primary MIT Registered Tow Truck Operator (MIT-RTTO) called from the MIT Tow List will be the tow company lead contact at the scene. The MIT-RTTO Lead will coordinate the tow and recovery effort with the WSP Trooper-In-Charge (WSP TIC) and the WSDOT Incident Response Team Lead Technician (IRT Lead).

The WSP shall be deemed the official time keeper of the response, clearance, and delays and the WSP Computer Aided Dispatch (CAD) system will be the official time tracking tool for MIT activations.

The MIT-RTTO Lead will be responsible to prepare a MIT "incident file" containing the following information and documentation in order to receive payment:

1. A **MIT Activation Report** form completed by the MIT-RTTO lead company;
2. An **original invoice** clearing indicating that invoice is for a MIT Activation and identifies the date, time and location of the activation;
3. Any other relevant documentation to justify the emergency response and mobilization payment *(A Word document of chronology of the incident is preferred); and*
4. **Five (5) DIGITAL photographs** of the recovery effort.

Washington State Department of Transportation

WSP

These MIT related documents must be either e-mailed to incidentresponse@wsdot.wa.gov or mailed to the following address within **5 calendar days** of the date of the MIT activation:

WSDOT/ Incident Response Program Manager
P.O. Box 47344
Olympia, WA 98504 7344

The MIT-RTTO shall notify the WSP Communications Center when enroute to the scene and shall respond to major incident response requests within 15 minutes during regular business hours from the initial call from the WSP and within 30 minutes for after business hours activations. The MIT-RTTO Contractor acknowledges that the safe, quick clearance of the roadway is a high priority, and shall respond with the two (2) required recovery wreckers and shall upon Notice to Proceed (NTP) given by the WSP-TIC, immediately begin recovery operations. The recovery support vehicle[1] (if available) with required equipment, and or other required equipment as outlined in Attachment "C", shall be readily available for response to ensure the recovery meets the 90 minute clearance expectation.

Billing Vehicle Owners

The MIT-RTTO Contractor agrees to seek compensation for actual vehicle recovery and towing services performed pursuant to the LOA solely from the owner of the vehicle or their insurance provider. The Contractor agrees that no claim for compensation will be made against the WSP, the WSDOT, or its employees or agents for any recovery or towing services.

> ***NOTE:*** *Allegations of overcharging will be fully investigated. A sustained allegation of intentional overcharging shall result in the removal of the contractor from the rotation, and possible further administrative action taken against the Letter of Appointment.*

Performance Fees

The Contractor shall be eligible for a performance fee under paragraph 1 or 2 below, but not both, provided certain requirements are met.

1) In the event the MIT-RTTO Lead Contractor mobilizes and notifies WSP Communications they are enroute to the incident scene at the WSP's request with all equipment as specified in Attachment "C" within 15 minutes during business hours, 30 minutes after hours, and it is deemed by the WSP/WSDOT that recovery services are not necessary, the Washington State Department of Transportation agrees to pay a flat cancellation fee of $600.

   Once a "Notice to Proceed" is given to the MIT-RTTO Lead to commence actual performance of removal and clearance services, the Contractor is not eligible for the cancellation fee under this paragraph 1.

2) DOT agrees to pay the Contractor a flat rate **Emergency Response Mobilization Fee** of $2500 when services were authorized by WSP and/or the WSDOT. To qualify for the emergency response and mobilization fee the MIT-RTTO Contractor must:

[1] If no support vehicle is utilized, no charges shall be made for such equipment.

- Be enroute to the incident scene with two (2) heavy-recovery tows as outlined in Attachment "C" within 15 minutes from the official notification by WSP during regular business hours, and 30 minutes after business hours. All other required clearance and recovery equipment and necessary trained personnel shall readily be available if needed.

  NOTE: Upon arrival of required equipment, the WSP TIC may start the official recovery clock, provided the Contractor is capable of initiating the recovery procedures, when the WSP TIC gives the "Notice to Proceed" to the MIT-RTTO Lead; **AND**

- Have completed the removal and clearance of all collision scene vehicles, cargo, debris and non-hazardous vehicle fluids and opened all travel lanes within 90 minutes after the "Notice to Proceed" was given by a WSP and/or WSDOT authorized representative.

  NOTE: The MIT-RTTO Towing Company responding is responding at the direction of Law Enforcement for the purposes of clearing the roadway and impounding the vehicle(s). If needed, the final clean up and removal of wreckage and debris shall be coordinated with WSP and WSDOT and in the interest of protecting public safety, mobility and reducing the subsequent damage to the highway system, the recovery and ensuing impoundment may be postponed until the operation will have a minimal impact on traffic. (RCW 46.55.113.2(b))

3) **FORFEITURE OF PERFORMANCE FEES**

No performance payment shall be made to the MIT-RTTO Contractor under paragraph 2) of this Attachment "A" if the job has not been completed and all travel lanes are not open to traffic ninety (90) minutes after the Notice to Proceed has been given.

If the Contractor was ordered to stop their roadway clearance activity by WSP, WSDOT or other emergency entity on scene to assist in the investigation, for personnel safety, etc., they will not be penalized for the time they were delayed. This extended time must be documented by the WSP TIC and recorded in WSP CAD Log. In this instance the "net clearance time" will determine whether the MIT activation was successfully completed in less than 90 minutes.

Washington State Department of Transportation

WSP

ATTACHMENT "B"

EVENTS, COLLISIONS OR OTHER TRAFFIC INCIDENTS UTILIIZING THE SERVICES OF THOSE COMPANIES ON THE MAJOR INCIDENT RESPONSE AGREEMENT

TYPES OF VEHICLES AND SITUATIONS WHICH MAY REQUIRE A MAJOR INCIDENT RESPONSE:

Tractor-Trailer Combinations

- Rollover or other collisions blocking one or more travel lanes
- Multiple truck collision blocking one or more travel lanes
- Lost tandems or split trailer on or affecting multiple travel lanes
- Major impact with or on top of a median barrier wall, guard rail or with a bridge support

Trucks over 40,000 GVW

- Rollover blocking one or more travel lanes
- Loss of load blocking one or more travel lanes
- Major impact with or on top of a median barrier wall, guard rail or with a bridge support

Busses (Commercial/Motor coach)

- Rollover blocking one or more travel lanes
- Major impact with or on top of a median barrier wall, guard rail or with a bridge support

Other

- Any other collision or incident deemed by the WSP/WSDOT to command a major incident response deployment of equipment listed in this agreement.

See attached MIT Activation Guide for Major Traffic Incidents.

Washington State Department of Transportation

WSP

ATTACHMENT "C"

EQUIPMENT, DRIVER AND VEHICLE REQUIRMENTS
Two (2) CLASS C OR One (1) CLASS C AND AN S1

MAJOR INCIDENT TOW (MIT) Response

Upon signing the referenced agreement, the Contractor shall submit to the Washington State Patrol proof of the equipment with the minimum capacity, size and number, listed below:

A. Initial Response:

Recovery Wrecker Requirements (company owned or leased)

General truck requirements must meet the current criteria outlined in WAC 204-91A-170 for Class C, and Class S1 Rotators. Tow trucks must have a current inspection on file with the WSP. The contractor must respond to a MIT activation with (2) Class C or (1) Class C and (1) Class S1 Rotator. Trucks may be contracted with other tow companies, provided they meet all the above criteria.

Recovery Support Vehicle Requirements (Optional)[2]:
(Company owned, leased, contracted, rented, borrowed, and available for use at anytime)

One support vehicle with an enclosed body, utility body, or canopy capable of safely hauling all equipment specified. The truck/trailer shall be registered in the State of Washington and shall be capable of safely transporting the required items. The truck/trailer shall be stocked with the additional tools, equipment and materials listed under section "D" of this attachment. Additionally, the support vehicle shall comply with all the specified requirements for support vehicles listed in RCW 46.55 and WAC 204.91.

Note: If no support vehicle is utilized, all equipment required under Section D, SHALL be available for delivery to the scene, IF NEEDED, to affect an expeditious roadway clearance. No compensation shall be made to the tow company(s) if no support vehicle is utilized, and items listed under Section D are needed. The tow company(s) may charge a Class A truck fee to deliver said items to the scene, however, subcontractor fees shall not apply to required equipment.

If the contractor has a fully-equipped support vehicle, they may utilize such vehicle, and may charge the rates listed in the Contract

B. Subcontracted Service Providers

Additional Trucks and Heavy Equipment Requirements:
(Company owned, leased, contracted, rented, borrowed, and available for use at anytime)

The Contractor shall provide proof of existing account in good standing with a local company to provide the following services, as well as proof the contractor has the ability to provide the needed services 24 hours per day/seven days per week in less than one hour.

- A disposal company that can deliver to the scene of an incident dumpsters or hoppers for crash debris, fire debris and or spilled non-hazardous cargo[3]

[2] Support Vehicle Requirement may be waived by the WSP.
[3] Handling and disposing of hazardous materials allows for a 20% mark up from actual costs – Documentation MUST be provided

- A vacuum or suction service for off loading or recovering spilled grains, powders, plastic pellets, etc.
- A trucking or transport company that can provide sump, refrigerator or flat bed trucks and trailers
- A construction crane rental company with 50 ton and larger mobile cranes
- 1 ea. Forklift or Skid Steer Loader with fork attachments
- 1 ea. Tilt bed, hydraulic, lowboy semi-trailer (Landoll or equivalent) with a 35 ton capacity, 40 ft. bed and a 20,000 lb. winch with 75 ft. of 5/8" cable
- 1 ea. Tandem axle tractor with a sliding fifth wheel
- 1 ea. Rubber tired, end loader (when loaded on the lowboy trailer the combined height must not exceed 14ft.-0in.)
- Portable power-spreader or like item

Note: Contractors may mark up contractor services a maximum of 20 percent. As proof of service, Contractors must provide invoices upon request.

C. **Items required on recovery wreckers**

These tools, supplies and materials are required as a minimum and in addition to those items required under 46.55 RCW, 204-91A WAC, and 308-61 WAC. It is expected that a professional recovery wrecker operation will supplement this list with all items needed to operate in a safe and efficient manner:

- 1 ea. Digital Camera (cell phones do not qualify)
- 2 ea. 5/8" x 10' grade #8 chains
- 4 ea. ½" x 10' grade #8 chains
- 1 ea. Long handle (4 foot) flat blade shovel
- 1 ea. Long handle (4 foot) round blade
- 1 ea. Street brooms (20 inch min. head)
- 4 ea. Wheel chocks
- 1 ea. Complete brake release kit:
  Hand tools, hoses, glad hands, numerous fittings and brake caging bolts
- 2 ea. Heavy duty, industrial flashlights
- 4 ea. Load binders, transport chains and a cheater pipe

D. **Items in the recovery support vehicle or available for scene delivery if needed.**

- 1 ea. Gas powered 4000 watt minimum generator
- 1 ea. Gas powered cut-off saw
- 1 ea. Gas powered chain saw (14" minimum bar)
- 4 ea. 500-watt auxiliary flood lights w/stands
- 1 ea. Operable air compressor
- 1ea. Air impact wrench with sockets
- 1 ea. Air powered metal chisel
- 1 ea. Acetylene/oxygen cutting torch
- 1 ea. Bolt cutters (36")
- Two pair (4), wide profile, nylon recovery straps (2 – 25' and 2 – 30' straps)
- Two heavy duty snatch blocks (working load matched to the wrecker)
- Various hooks, clevis' and chokers (matched to the wrecker capacity)
- 4 ea. 4-foot, hardwood timbers (4"x6")
- 8 ea. 2-foot, hardwood cribbing (4"x4")

Items in the recovery support vehicle or available for scene delivery if needed. (continued)

- 1 ea. Extension ladder 12 ft minimum
- 1 ea. Long handle axe
- 1 ea. Sledge hammer (10-12 lbs.)
- 6 ea. Rolls of duct tape
- 1 ea. mechanics hand tool set
- 2 ea. Long handle shovels (flat blade)
- 2 ea. Long handle shovels (round blade)
- 2 ea. Aluminum or plastic coal or grain shovels
- 2 ea. Street brooms (20" minimum head width)
- 2 ea. Hand trucks
- 1 ea. Pallet puller
- 3 ea. Large tarpaulins (20ft.x20ft.)
- 200 lbs. or 50 gals. of oil dry or approved absorbent
- 1 roll of rubber floor runner (36" w x 40' l)
- 12 – 2"x 4"x 8' studs
- 2 rolls of heavy duty (80 gauge) stretch wrap with dispenser
- Sufficient load binders and securement chain for a 30 ton load
- 1 case of heavy duty, 55 gallon trash bags
- 100' X 20' roll of 6 mil. visqueen plastic sheeting
- 2 ea. Minimum 3 gallon hard/solid sided trash receptacle

E. **Driver requirements:**

Drivers of required equipment shall be qualified, competent, and trained in accordance with the equipment they operate. Lead drivers must have at least two years experience in the recovery of commercial motor vehicles. Company Owners shall provide documentation indicating company drivers have received formal training on use of large recovery vehicles from a recognized source such as a Tow Association (TRAW, ITOW, etc.) or equivalent.

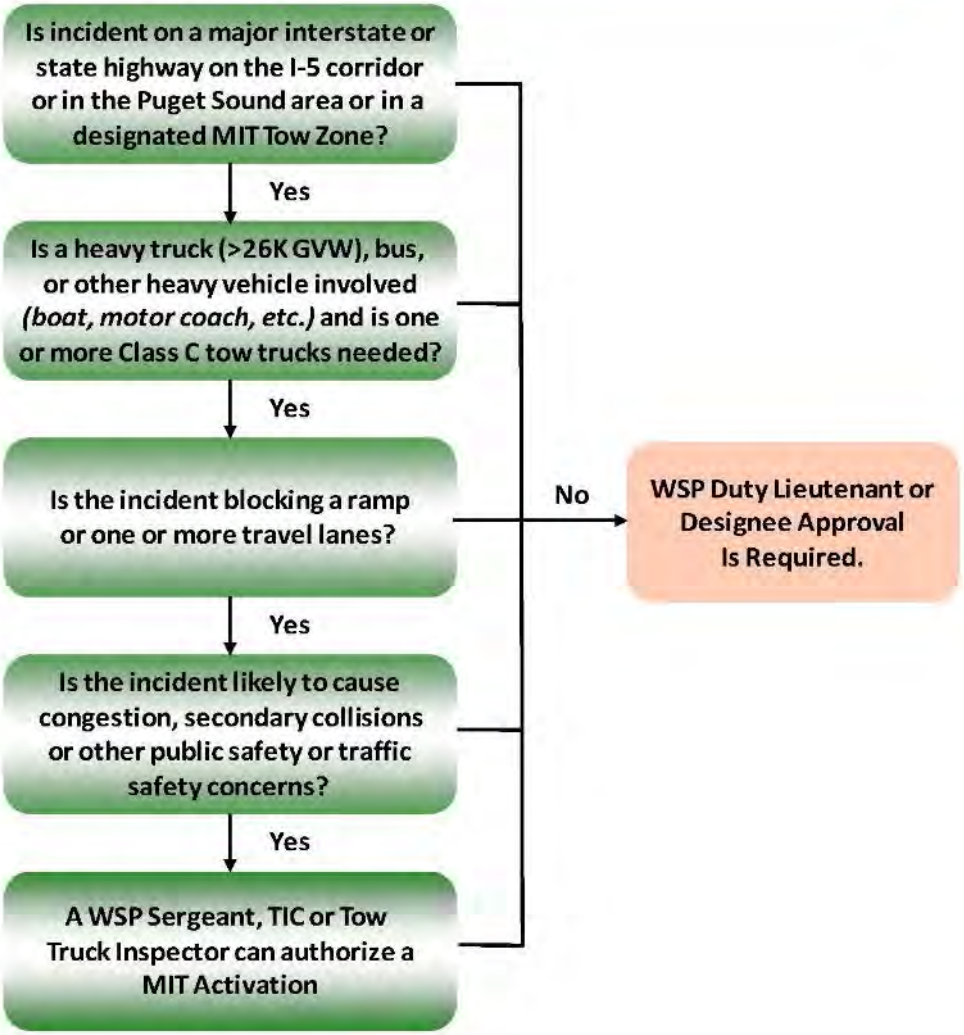
Operator negligence as a result of inexperience or lack of training will result in the immediate voiding of this agreement pending investigation.

Washington State Department of Transportation

WSP

Major Incident Tow (MIT) Activation Guide for Major Traffic Incidents

Revised January 5, 2012



Page 12 of 16

Washington State Department of Transportation

WSP

MIT Program Management - Contact Information

WSP Tow Truck Inspector - Contact Information

WSP District: _____

WSP Tow Truck Inspector: _____

Mailing Address, City, State, Zip: _____

Work Phone Number: _____

E-mail Address: _____

WSDOT Incident Response & Major Incident Tow Program Manager - Contact Information

WSDOT State IR Program Manager: **Vince Fairhurst**

Mailing Address: **P.O. Box 47,344, Olympia, WA 98504-7344**

Work Phone: **360-705-7287**

24/7 Cell Phone: **360-239-95292**

E-mail Address: IncidentResponse@wsdot.wa.gov

Major Incident Tow Webpage:

http://wsdot.wa.gov/Operations/IncidentResponse/initiatives.htm

Washington State Department of Transportation

WSF

MIT Sub-Contractor Service Provider - Contact Information

Per ATTACHMENT "C"
EQUIPMENT, DRIVER AND VEHICLE REQUIRMENTS, Two (2) CLASS C OR One (1) CLASS C AND AN S1

B. Subcontracted Service Providers
Additional Trucks and Heavy Equipment Requirements:
(Company owned, leased, contracted, rented, borrowed, and available for use at anytime)

The Contractor shall provide proof of existing account in good standing with a local company to provide the following services, as well as proof the contractor has the ability to provide the needed services **24 hours per day/seven days per week in less than one hour.**

Disposal Company: *that can deliver to the scene of an incident dumpsters or hoppers for crash debris, fire debris and or spilled non-hazardous cargo.*

CONTRACTOR: _____ 24/7 Contact number:_____

Vacuum/Suction Service Company: *for off loading or recovering spilled grains, powders, plastic pellets, etc.*

CONTRACTOR: _____ 24/7 Contact number:_____

Trucking or Transport Company: *that can provide sump, refrigerator or flat bed trucks and trailers.*

CONTRACTOR: _____ 24/7 Contact number:_____

Construction Crane Rental Company: *with 50 ton and larger mobile cranes.*

CONTRACTOR: _____ 24/7 Contact number:_____

Forklift or Skid Steer Loader: *with fork attachments.*

CONTRACTOR: _____ 24/7 Contact number:_____

Tilt bed, hydraulic, lowboy semi-trailer (Landoll or equivalent): *with a 35 ton capacity, 40 ft. bed and a 20,000 lb. winch with 75 ft. of 5/8" cable.*

CONTRACTOR: _____ 24/7 Contact number:_____

Tandem Axle Tractor: *with a sliding fifth wheel.*

CONTRACTOR: _____ 24/7 Contact number:_____