TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS (TSMO)

Guidebook

PART V: OPERATIONS

TSMO

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Chapter 1. Operations Program Overview

Pennsylvania Department of Transportation (PennDOT) is responsible for the movement of people and goods over a state-owned and maintained system of more than 40,000 miles of highways and 25,000 bridges. PennDOT's TSMO Strategic Framework document defines how the Department will utilize technology to effectively provide road users reliability and mobility.

PennDOT's TSMO Program Plan identifies the TSMO Guidebook Part V (Operations) to ensure continued improvement of PennDOT's Traffic Operations Program by using tools, data and collaboration between stakeholders to meet the goals and objectives specified in Section 1.1, TSMO Operations Approach. This document provides the necessary policies needed for PennDOT's Traffic Operations Program and is divided into eight chapters:

Chapter 1 Operations Program Overview
Chapter 2 General Policies
Chapter 3 RCRS Policies
Chapter 4 Advanced Traffic Management System (ATMS) Policies
Chapter 5 511PA Policies
Chapter 6 Continuity of Operations (COOP) Policies
Chapter 7 STMC Policies
Chapter 8 Traffic Management Center (TMC) Operator Strategies

The Operations policies within this document are sub-divided into the five topic areas below to ensure consistency, clarity and understanding of the document.

I. Purpose
II. Applicability
III. Responsibility
IV. Policy
V. Procedure

The appendices at the end of the document include figures, tables and other documents that provide quick reference guidance for TMC staff to perform their duties effectively.

1.1. TSMO Operations Approach

PennDOT's TSMO Strategic Framework document defines the TSMO Program's Vision, Mission and Goals. Figure 1 below identifies the TSMO Vision, Mission, Goals and TMC Objectives.

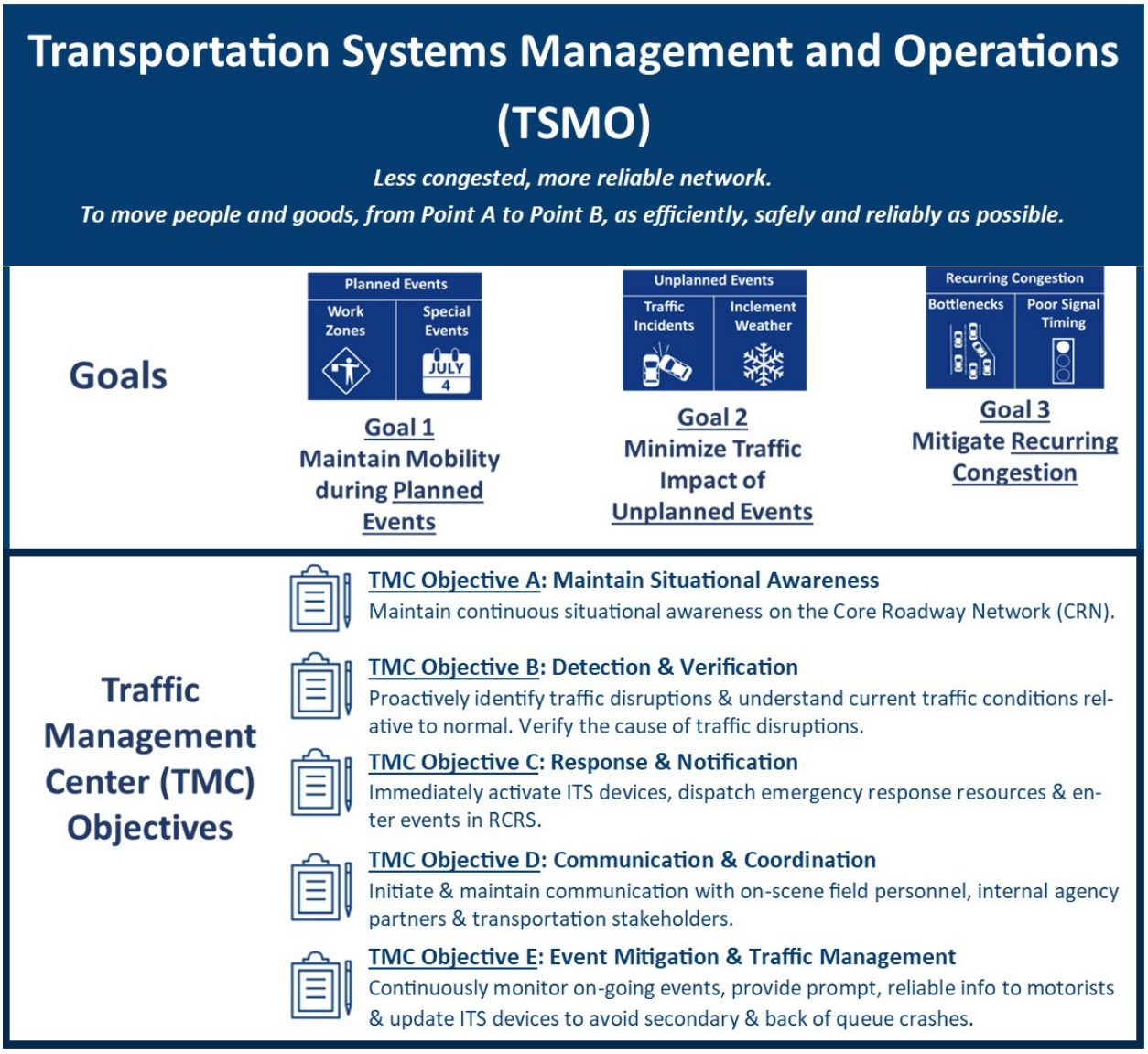


FIGURE 1: TSMO VISION MISSION AND GOALS

1.2. Operational Structure and Framework

PennDOT's Traffic Management Centers (TMCs) maintain situational awareness of planned and unplanned events impacting roadway operations and effectively identify and manage traffic events. PennDOT has divided the state into the four Traffic Operations regions identified in Section 1.3, TMC Coverage Area and Core Roadway Network (CRN).

- The Statewide Traffic Management Center (STMC) is co-located with the Pennsylvania Emergency Management Agency (PEMA) and operates 24/7/365. The STMC maintains statewide situational awareness, supports the other TMCs and provides coverage during RTMC service interruptions.
- Four Regional Traffic Management Centers (RTMCs) operate 24/7/365 and maintain situational awareness for their region. The RTMCs also cover operations for District TMCs in their region when they are not operational.
- Three District Traffic Management Centers (DTMCs) provide district specific management of their district during the most critical periods. Two DTMCs, located in districts 4 and 5, are operational Monday through Friday, covering the morning through the evening peak travel periods. District 1 operates a DTMC that is operational 24/7 during the winter months (November – April).

Figure 2 identifies the high-level similarities and differences between the Traffic Management Centers and how they operate to meet the TMC objectives identified in Section 1.1, TSMO Operations Approach.

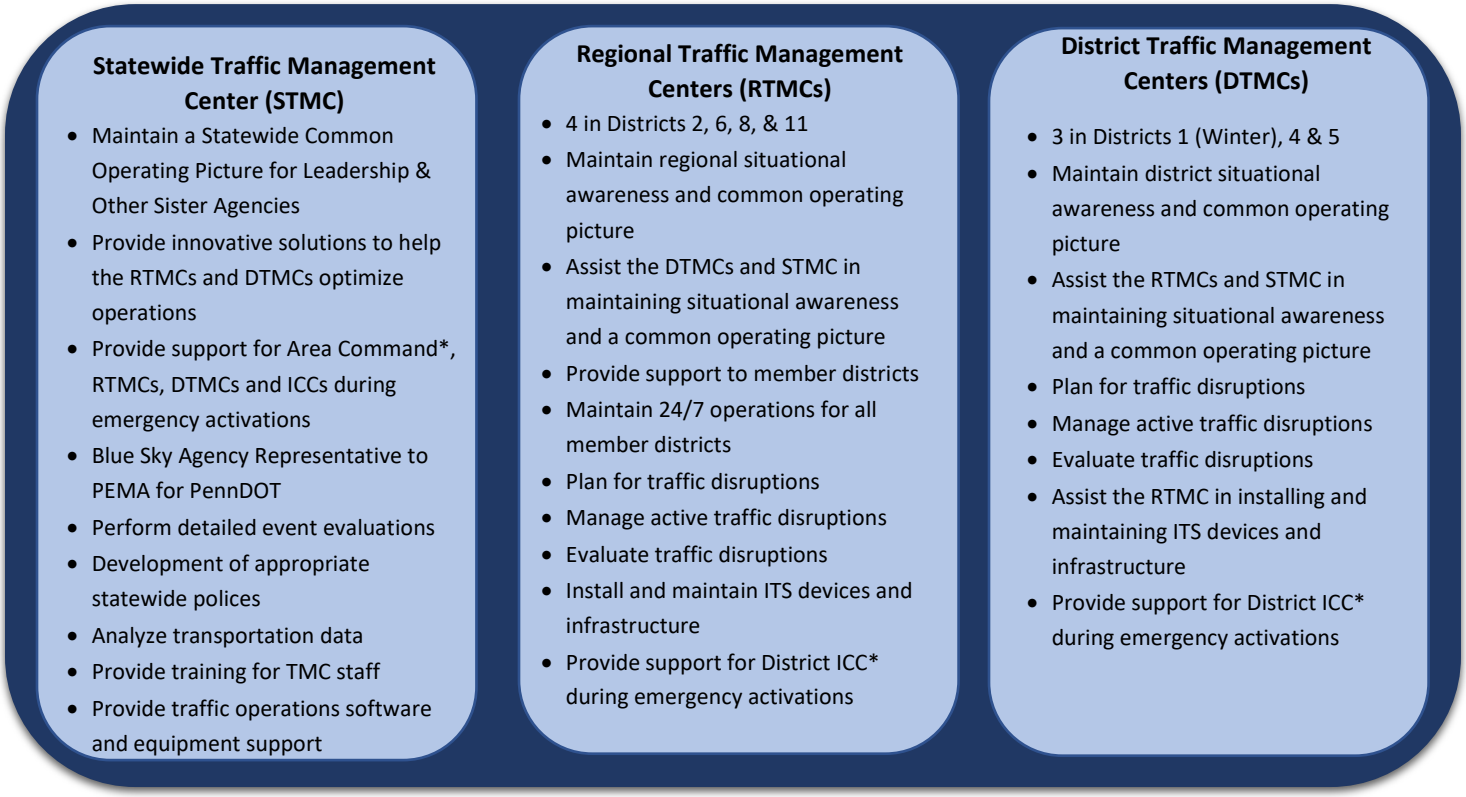


FIGURE 2: TMC RESPONSIBILITIES

*Further discussion of Area Command, Incident Command Centers and PennDOT's incident command structure can be found in Publication 911B: All Hazards Incident Management Manual

Chapters 2 through 7 provide the necessary policies, procedures and guidelines needed to provide consistent and appropriate accommodations for each TMC to perform the responsibilities identified in Figure 2. The roles and responsibilities of staff are identified in Section 2.3 TMC Traffic Operations Plan (TOP). Each TMC has Management/Supervisor staff (e.g., TMC Manager, Shift Supervisors), TMC Operators and TMC Support Staff to meet the strategies from Chapter 8.

Chapter 8 provides guidance for operators to effectively manage, notify and provide road users real-time information while increasing the reliability and mobility.

1.3. TMC Coverage Area and Core Roadway Network (CRN)

PennDOT has divided the state into 4 geographic regions which are managed as shown in Table 1: TMC Hours and Coverage Areas. Figures 3, 4 and 5 provide information on the Regional Coverage Areas and the Core Roadway Network.

TABLE 1: TMC HOURS AND COVERAGE AREAS

TMC	Hours and Coverage Area
Western RTMC (District 11)	• Full-time Coverage (24/7/365) • Districts 1, 10 (Armstrong, Butler and Indiana Counties), 11 and 12 • Note: From November 1 to April 1 District 1 DTMC is operational 24/7 and covers their District.
Central RTMC (District 2)	• Full-time Coverage (24/7/365) • Districts 2, 3, 9, and 10 (Clarion and Jefferson Counties)
Eastern RTMC (District 8 Located at PEMA)	• Full-time Coverage (24/7/365) • Districts 4, 5 and 8 • Note: Responsible for Districts 4 & 5 DTMCs when centers are not operational.
Southeastern RTMC (District 6)	• Full-time Coverage (24/7/365) • District 6 and City of Philadelphia TOC • Note: City of Philadelphia TOC only staffed during major events.
District 1 TMC	• Full-time Coverage (November 1 to April 1). • Western RTMC is responsible when center is not operational. • District 1 Coverage
District 4 TMC	• Part-time Coverage Monday thru Friday from 6 AM (06:00) to 6 PM (18:00) • District 4 Coverage. Eastern RTMC is responsible when center is not operational. • Note: TMC is activated when District ICC is activated.
District 5 TMC	• Part-time Coverage Monday thru Friday from 5:45 AM (05:45) to 8 PM (20:00) • District 5 Coverage. Eastern RTMC is responsible when center is not operational. • Note: TMC is activated when District ICC is activated.
STMC (Located at PEMA)	• Full-time Coverage (24/7/365) • Statewide EPLO-1 Coverage and support to RTMCs and DTMCs • Note: STMC may operate as or support TMCs during COOP operations.

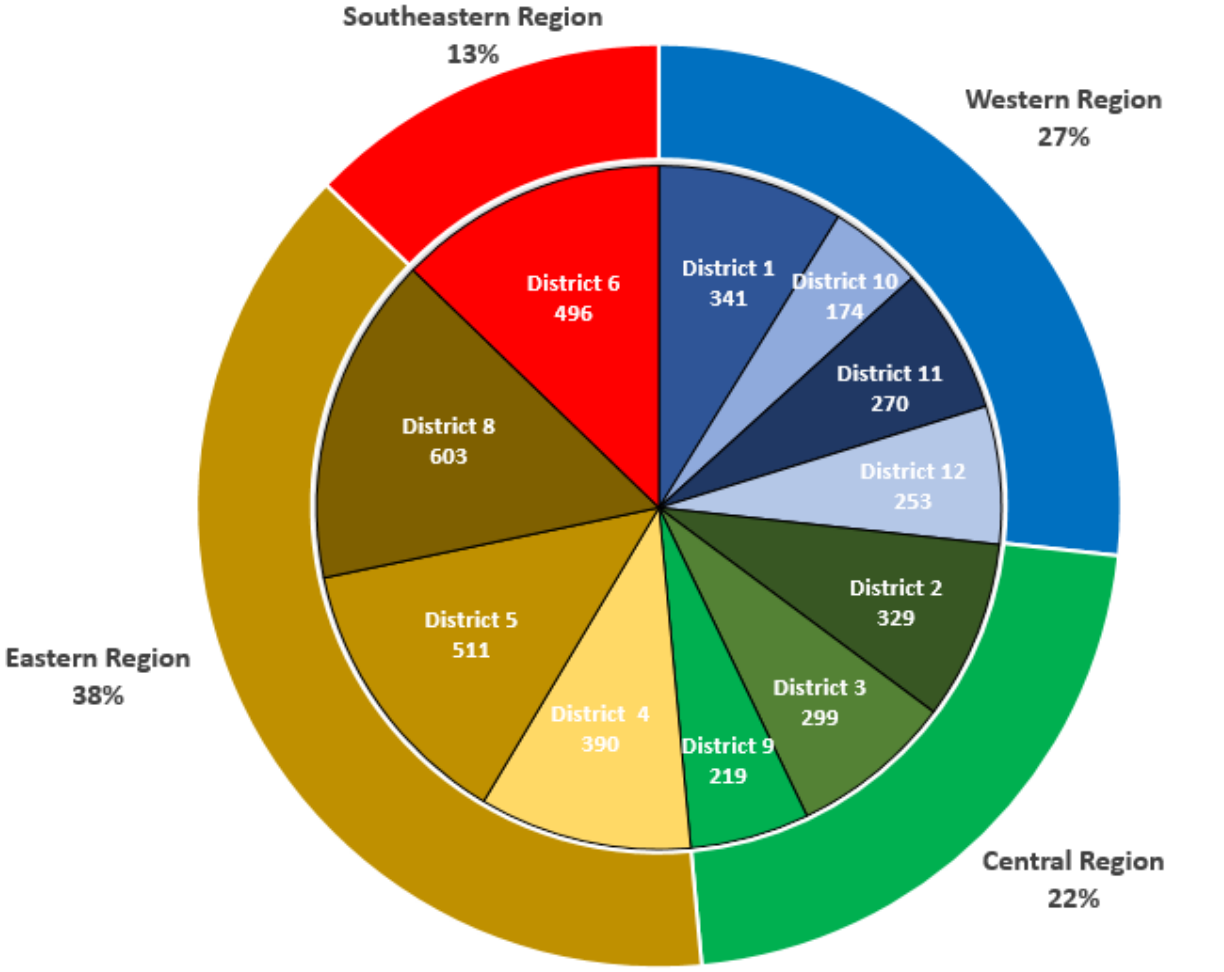


FIGURE 3: CORE ROADWAY NETWORK (CRN) MILEAGE BY DISTRICT AND REGION

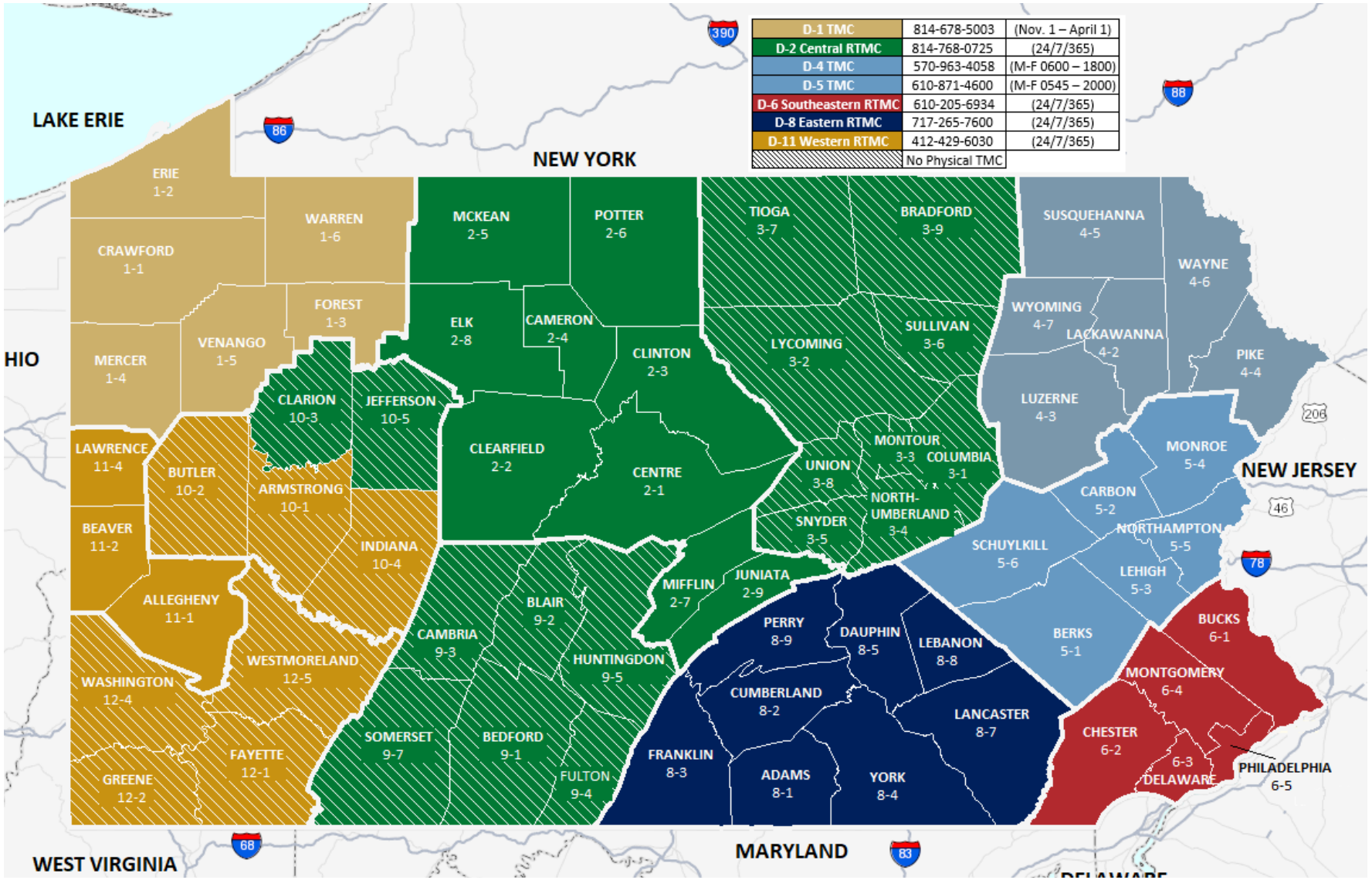


FIGURE 4: TMC REGIONS

Region	District	Route
Western Region	District 1	I-79
		I-80
		I-86
		I-90
		I-376
	District 10	I-79
		PA-28
	District 11	I-79
		I-279
		I-376
		I-579
		US-19
		US-22
		PA-28
		PA-60
	District 12	I-70
		I-79
		US-22
		US-119

Region	District	Route
Central Region	District 2	I-80
		I-99
		US-11/15
		US-22/322
		US-322
	District 3	I-80
		I-180
		US-15
		US-220
		PA-147
	District 9	I-70
		I-99
		US-22
		US-219
	District 10	I-80
Southeastern Region	District 6	I-76
		I-95
		I-295
		I-476
		I-676
		US-1
		US-30
		US-202
		US-322
		US-422
		PA-100
		PA-309

Region	District	Route
Eastern Region	District 4	I-80
		I-81
		I-84
		I-380
		US-6
		PA-309
	District 5	I-78
		I-80
		I-81
		I-176
		I-380
		US-22
		US-209
		US-222
		US-422
		PA-33
		PA-309
	District 8	I-78
		I-81
		I-83
		I-283
		US-15
		US-11/15
		US-22/322
		US-22/322
		US-30
		US-222
		US-322
		PA-283
		PA-581

FIGURE 5: CORE ROADWAY NETWORK ROUTE LIST

1.4. TMC Toolbox Operational Strategies

PennDOT's TSMO Strategic Framework and TSMO Guidebook Part I: Planning, Chapter 6 Mitigating Congestion, identify 21 solutions to manage and mitigate the goals and objectives in Section 1.1 TSMO Operations Approach. Table 2 describes how these solutions have been implemented in Pennsylvania.

TABLE 2: TSMO STRATEGIES

TSMO Solution	PennDOT's Operations Approach
Bridge De-icing	• PennDOT uses this solution at high crash bridge locations to help address winter weather conditions.
Closed Circuit TV Cameras (CCTV)	• PennDOT has deployed CCTV cameras at key problem areas, major interchanges, or systematically on key corridors to improve situational awareness, ensure early event detection and verification and provide road users additional traveler information. • CCTV cameras are critical for PennDOT Operations and Maintenance Staff to meet the TSMO TMC Objectives identified in Section 1.2, Operational Structure and Framework
Dynamic Curve Warning	• PennDOT has deployed Dynamic Curve Warning at high rollover crash locations to warn road users so they can reduce their speeds prior to the curve.
Changeable Message Sign (CMS)	• PennDOT has deployed CMS at key problem areas, prior to major decision points, prior to major interchanges, or systematically on key corridors to provide a way to provide accurate, timely and relevant safety and mobility information to the road users as they are traveling on PennDOT's roadways. • PennDOT TMC staff utilize the CMS to convey messages that fulfills a need, commands attention, provides a clear message and provides adequate time for proper road user response to meeting the TSMO TMC Objectives.
Dynamic Rerouting	• PennDOT has deployed Dynamic Rerouting in areas where the road user may have alternative route options. PennDOT uses the ATMS travel time module to automatically post and update travel times for multiple routes to a single destination. • PennDOT has also recently implemented new ATMS modules for specific corridors to perform additional Integrated Corridor Management (ICM), Incident Diversion, Smart Corridors Initiatives and Queue Warning to maximize the dynamic rerouting of the roadway users.
Flex Lanes	• Flex lanes change the use of space (i.e., lanes or shoulders) within a corridor to accommodate change travel demand at various times of the day. Examples include hard shoulder running and reversible lanes. • PennDOT will begin to deploy Flex Lanes in our Philadelphia area to support the high traffic demands along the I-76 and I-476 corridors. • Additional high traffic volume locations are also being considered along key urban roadways.
Freeway Service Patrols (FSPs)	• PennDOT uses Freeway Service Patrols in major urbanized areas of Districts 5, 6, 8 and 11 • PennDOT's TMC operators work with FSP staff to quickly identify, assist and/or remove incidents to reduce the incident duration and delay to the road users.
Integrated Corridor Management (ICM)	• PennDOT has implemented new ATMS modules for identified corridors to provide road users additional mode options (i.e., rail, transit, bike, etc.) as well as maximizing the effectiveness of parallel corridors using smart signal corridors to maximize the throughput to a destination. • PennDOT Operations staff continues to evaluate and improve key corridors such as major detour routes or heavily traveled parallel corridors to a key destination.

TSMO Solution	PennDOT's Operations Approach
Junction Control	• PennDOT began its first Junction Control Corridor along I-76 (Philadelphia). PennDOT also uses junction control along some tunnels in the Western Region to inform road users of lane closures or incidents ahead. • PennDOT Operations staff anticipate this will provide additional, advanced notification to road users of upstream impacts to lanes.
Managed Lanes	• PennDOT has deployed reversible High Occupancy Vehicle (HOV) lanes in District 11 (Pittsburgh) along I-279 to support daily commuter traffic as well as event traffic. Additionally, several bridges in Pittsburgh have reversible lanes to accommodate daily commuter traffic. • PennDOT TMC and Tunnel Maintenance continues to manage the HOV lanes and additional ATMS modules are being developed to improve this management.
Queue Warning	• PennDOT utilizes queue warning systems along identified corridors. Recent improvements to ATMS and the implementation of the Corridors Module allows PennDOT to expand the use of queue warning on permanent and temporary corridors through Smart Work Zone applications. The improvements to the tool, data and communications allow queue warning to be effectively deployed on key corridors. • PennDOT Operations staff will continue to identify key areas to implement this technology, especially in Work Zones to improve the safety and mobility of road users.
Ramp Metering	• PennDOT utilized ramp metering along I-476 in District 6 (Philadelphia) at 15 locations. Additionally, temporary ramp metering has been utilized along I-279 in District 11 (Pittsburgh) in 2018. • PennDOT Operations staff continues to utilize ramp meters along deployed corridors to reduce merge conflicts by providing gaps between entering traffic. Currently, time of day ramp metering is used, but adaptive ramp metering will be considered moving forward.
Roadway Weather Information System (RWIS)	• PennDOT has 77 RWIS stations statewide. These stations assess weather conditions and provide critical weather information, especially during the winter months. 90% of PennDOT roadways are located within a 15-mile radius of an RWIS station. • PennDOT Operations and Maintenance staff utilizes the information provided from the RWIS stations to determine current conditions to both notify motorists and treat the roadway.
Smart Corridors Initiatives	• PennDOT continues to improve its Communications backbone and provide high-speed connections to field devices to prepare for more smart corridors moving forward. PennDOT continues to pilot technologies to identify challenges and prepare for the future. Once a long-term Connected and Automated Technology is selected, PennDOT will be prepared to implement the solutions quickly.
Traffic Incident Management (TIM) Teams	• PennDOT has implemented TIM teams along key corridors and continues to expand the implementation. • PennDOT Operations staff utilize TIM teams to improve relationships with first responders and identify needed technology improvements moving forward. Additionally, statewide first responder training is a focus area.

TSMO Solution	PennDOT's Operations Approach
Traffic Incident Detection	• PennDOT utilizes third-party traffic data to effectively monitor, measure and manage the performance of roadway networks. Traffic Data providers, like INRIX, fuse anonymous data from diverse datasets such as phones, cars, trucks and cities on congestion, traffic incidents and weather-related road conditions. PennDOT then uses this information to provide travel times, provide travel condition information, maintain situational awareness and evaluate and determine roadway and operational performance • PennDOT utilizes crowd-sourced data to identify potential traffic concerns in a timelier manner. Crowd-sourced data providers, like Waze, provide user identification and confidence scores of potential roadway concerns. This data is then utilized by PennDOT through tools like Traffic Alerts to provide TMC operators with a more effective tool and data source when trying to identify incidents quickly.
Traffic Management Center (TMC)	• PennDOT TMC operators utilize ITS field devices for roadway situational awareness, monitor roadway performance and communicate roadway issues to roadway users. ITS consists of CCTVs, CMS, Highway Advisory Radios (HAR), RWIS and other technologies that help identify and notify roadway users of incidents or congestion. • PennDOT's Road Condition Reporting System (RCRS) is the web-based GIS application and shared database used to capture and share information on road work, winter road conditions, special events, incidents and inclement weather affecting traffic operations. RCRS provides situational awareness (SA), helps maintain traffic mobility and provides a common operating picture. RCRS information is shared with several commonwealth agencies and key third-party providers that disseminate real-time and advanced roadway condition information to road users. • PennDOT also utilizes an Advanced Traffic Management System (ATMS) allowing the TMCs to operate ITS field devices. This software also serves as the hub to bring in travel time data to allow TMCs to display the anticipated time it would take a roadway user to drive from point to point.
Traffic Signal Enhancements	• PennDOT and Pennsylvania municipalities have implemented traffic signal enhancements to improve traffic flow through signalized corridors. In addition, connected signals can also become part of integrated corridors to better manage traffic flow during congested periods and around incidents. • Traffic signal enhancements can smooth traffic flow and reduce congestion in signalized corridors.
Transit Signal Priority	• Transit signal priority can improve transit efficiency and reliability through a corridor by prioritizing transit vehicles. This can reduce transit vehicle travel time and allow transit vehicles to adhere to schedules. It also increases the total passenger capacity of a corridor by prioritizing vehicles with larger passenger capacity.
Traveler Information	• PennDOT provides a statewide traveler information system service to provide road users with traveler information. The 511PA system provides a website, Interactive Voice Response (IVR) phone system, personal traveler alerts system and mobile application providing road users with accurate, up-to-date information regarding current traffic conditions. • PennDOT uses the 511PA system to alert road users about current or potential travel information for enhanced traveling decisions.
Variable Speed Displays	• PennDOT built its first corridor along I-76 near Philadelphia. Additionally, PennDOT will implement Variable Speed Displays in work zones moving forward utilizing the same ATMS module that was developed for the permanent applications. • PennDOT will adjust speed limits to reflect current conditions and reduce the risk of secondary incidents.

Chapter 2. General Policies

2.1. Traffic Management Center (TMC) Facility Requirements

I. Purpose

To define the minimum requirements needed to be considered a Traffic Management Center.

II. Applicability

This procedure applies to all PennDOT Traffic Operations staff when utilizing appropriate Highway Safety and Traffic Operations Division Budget for resources, facilities, and equipment.

III. Responsibility

- TMC Managers and Bureau of Operations TMC Operations Unit Manager are responsible for ensuring that the appropriate requirements are maintained.
- New, Updates or Elimination of TMCs require approval by the appropriate District Executive (DE) and Bureau of Operations Director.

IV. Policy

The following are the minimum requirements to be considered a Traffic Management Center:

TABLE 3: TMC REQUIREMENTS

TMC	Description
Statewide Traffic Management Center (STMC)	• Shall be Co-located with the Pennsylvania Emergency Management Agency (PEMA) • Full Time Staffing (24/7/365) • Shall adequately meet the TMC Objectives identified in **Section 1.1** • Shall adequately meet the responsibilities identified in **Figure 2** • Shall meet the Traffic Management Center Requirements outlined in **Chapter 2** • Shall meet the STMC and Bureau of Operations Responsibilities outlined in **Chapter 7** • Facilities shall be access controlled in accordance with Part A below.
Regional Traffic Management Center (RTMC)	• Full Time Staffing (24/7/365) • Shall adequately meet the TMC Objectives identified in **Section 1.1**. • Shall adequately meet the responsibilities identified in **Figure 2** • Shall meet the Traffic Management Center Requirements outlined in **Chapter 2** • Facilities shall be access controlled in accordance with Part A below.
District Traffic Management Center (DTMC)	• Staffed during hours of operation as identified in the Traffic Operations Plan • Shall adequately meet the TMC Objectives identified in **Section 1.1** • Shall adequately meet the responsibilities identified in **Figure 2** • Facilities shall be access controlled in accordance with Part A below.

All current STMC, RTMC and DTMC facilities are identified in Section 1.3.

A. TMC Access Control

TMCs using Computer Aided Dispatch systems and information shall limit access to only TMC managers, operators, supervisors and support staff due to the sensitivity of the data sources. Additional personnel may be granted access to the TMC and shall be identified in the TOP. In addition, TMC support staff would include ITS maintenance personnel and TMC Traffic Incident Management Leads. Additional

support staff may be identified in the TOP. It is the responsibility of the TMC Manager and District Management Staff to ensure only those personnel necessary for TMC operations shall have access to the TMC.

V. Procedure

- **TMC Managers** will ensure conformance with minimum requirements each year.
- **The Bureau of Operations TMC Operations Unit Manager** will perform occasional QA/QC reviews to ensure conformance.
- When modifying TMC operational parameters (i.e., opening or eliminating a TMC or changing the hours of operation), the appropriate **District Executive (DE)** shall contact the **Bureau of Operations Director** and **Highway Safety and Traffic Operations Division Chief** to discuss the proposed modifications prior to a decision being made.

2.2. TMC Responsibilities and Authority

I. Purpose

To define the authority and responsibility of traffic operations staff, including managers, supervisors and operators when staffing, training and operating the TMC. Additionally, this also defines who makes those decisions when in the TMC.

II. Applicability

This procedure applies to all TMC employees.

III. Responsibility

Oversee and provide managerial direction to staff at TMCs ensuring and enforcing work policies and procedures are followed in accordance with Figure 2: TMC Responsibilities.

IV. Policy

- Bureau of Operations will provide a TMC Traffic Operations Plan template format for each TMC to complete. The contents of the TOP are defined in Section 2.3 and a template will be provided when drafting the TOP
- Affected Assistant District Executives (ADE)-Operations or District Traffic Engineers (DTEs) shall approve the Regional Traffic Operations Plan (TOP)
- Bureau of Operations Highway Safety and Traffic Operations Division Chief will provide concurrence prior to implementing the TOP
- TMC Operations and incident response decisions will come from TMC management staff or shift supervisors that are in the TMC while incidents are occurring. Outside support from management staff may be provided, but the TMC management staff or shift supervisor shall provide operational direction to TMC operators within the TMC.

TABLE 4: TMC STAFF DECISION-MAKING RESPONSIBILITIES

Role	Description
Operators	• Shall meet the TMC Operator Strategies outlined in **Chapter 8**
Shift Supervisors	• Ensure the statewide, regional and district Common Operating Pictures (Section 2.6) are maintained • Provide guidance to operators while managing a shift • Determine when additional incidents not covered by state, regional or district policies need to be monitored and managed • Shall meet the TMC Operator Strategies outlined in **Chapter 8** • When a TMC Manager is on duty, the shift supervisors shall ensure that the TMC Manager is aware of major incidents as well as key decisions. Additional TMC specific protocols can be developed, but they need to be clearly outlined in the TMC Traffic Operations Plan (TOP).
TMC Manager	• Shall ensure upper management is aware of major incidents as well as key decisions. • Provides support and guidance to Operators and Supervisors • Ensures ITS devices are managed and maintained in coordination with appropriate TMC support staff. • Shall adequately meet the TMC Objectives identified in **Section 1.1**. • Shall adequately meet the responsibilities identified in **Figure 2 Section 1.2**. • Shall meet the Traffic Management Center Requirements outlined in Chapter 2 • Shall meet the TMC Operator Strategies outlined in **Chapter 8**

V. Procedure

- TMC management staff will develop a Regional Traffic Operations Plan (TOP) to clearly identify procedures regarding communication, escalation of major incidents and key decisions within the TMC.
- Bureau of Operations TMC Operations Unit Manager will perform occasional QA/QC reviews to ensure conformance.
- When modifying TMC operational parameters (i.e., opening or eliminating a TMC or changing the hours of operation), the appropriate District Executive (DE) shall contact the Bureau of Operations Director to discuss the proposed modifications prior to a decision being made.

2.3. TMC Traffic Operations Plan (TOP)

I. Purpose

To define the requirements for each region's TOP.

II. Applicability

This policy applies to TMC managers, District Traffic staff from each member district, District Executives (DE), Assistant District Executives (ADE) responsible for traffic operations, District Traffic Engineers (DTE), the Bureau of Operations Director and the Bureau of Operations TMC Operations Unit Manager.

III. Responsibility

TMC Managers, District Traffic Engineers, District Traffic Staff and the Bureau of Operations TMC Operations Unit are responsible for developing the region's TOP. DEs, ADEs, DTEs and the Bureau of Operations Director are responsible for reviewing and approving TOPs.

IV. Policy

Each TMC shall develop and maintain a Traffic Operations Plan (TOP), which is the blueprint for performing TMC operations within their region. The TOP will define region specific TMC operations procedures and responsibilities that are not addressed in current policies.

The TOP is to be used by operational, supervisory and management personnel within the region, as well as those who work in other RTMCs during COOP operations. At a minimum, each region's TOP shall include the following:

TABLE 5: TRAFFIC OPERATIONS PLAN COMPONENTS

General Requirements	• Details regarding how the region fulfills each responsibility outlined in this publication, including how the TMC serves each county within the region • TOP Approval Procedures (including member district key personnel, Central Office key personnel and TMC key personnel) • All materials should be made available and be accessible through the TMC Portal
Staffing	• 2-week Shift Schedule (hours, number of operators) for each TMC in the region including management staff, supervisors and operators • Work locations for each TMC operator in the region • Specific duties and responsibilities of the operators not detailed in the TSMO Guidebook Part V
TMC Training Plan	• See Section 2.4
CCTV	• Camera control roles and responsibilities, including how to request to move a camera or request permission to move a camera • Any region-specific instructions for controlling cameras
Changeable Message Signs (CMS)	• CMS control and responsibilities, including details on coordinating with neighboring regions • Any region-specific instructions for posting and removing messages (i.e., travel time messages, queue warning messages)
Stakeholder Coordination	• Neighboring state(s) and region(s) coordination (i.e., Incident detection, CMS responsibilities) • Emergency coordination information (i.e., State and local police, fire, EMS) • Municipal Planning Organization (MPO)/Regional Planning Organization (RPO) coordination

	• Member district design, construction and maintenance coordination • Contact information for all stakeholders
Video Wall and TV Usage	• Available television broadcasts and schedule • Camera viewing plan for the video wall • TV broadcast schedule
Continuity of Operations Plan (COOP)	• Regional COOP information • District TMC COOP procedures • Region-specific COOP information • County and district contact information and procedures • TMC staff secondary contact information
Common Operating Picture	• STMC notifications • Neighboring state and region notification • District ICC communication • Operational limitations and changes due to emergency operations (winter storms, flooding, etc.) • Major road focus in addition to the 511 Core Road Network
Freeway Service Patrol (FSP)	• Primary and secondary contact information and methods • Hours of operation • Routes • Roles and responsibilities • Dispatch procedures • Activity log requirements
Traffic Incident Management (TIM) Plans	• Stakeholder contact information • Current TIM teams • Identify areas in need of TIM teams • TIM team traffic operations representation • See Section 2.8 for more information
Traffic Operations Plan (TOP) Performance	• TMC Health Metrics • Traffic Operations targets • Stakeholder feedback • Other measures
TOP Updates	• Recommended Annual Review • Update as necessary
QA/QC	• Quality reviews of TMC operations • ITS maintenance contract quality reviews
Five-year TOP	• Traffic operations improvements not included in the Regional Operations Plan (ROP) • ITS device deployment plans • TMC improvements • Staffing needs

V. Procedure

The Bureau of Operations TMC Operations Unit will assist the regions in developing the TOPs. The TOP must be approved by the Region's District Executives, Assistant District Executives responsible for traffic

operations, District Traffic Engineers and the Bureau of Operations Director. RTMC TOP development will include coordination with member districts. The completed, approved TOP will be submitted to the Bureau of Operations TMC Operations Manager for placement on the TMC Portal. Updates to the TOP will also be submitted to the Bureau of Operations TMC Operations Manager for the TMC Portal.

The TMC Manager and Bureau of Operations TMC Operations Unit will review the TOP on an annual basis and will provide any identified updates within one month of the review.

2.4. TMC Training Plan

I. Purpose

To define the requirements for each region to develop a plan for training TMC, ICC and other staff in the tools and procedures for traffic operations.

II. Applicability

This policy applies to TMC managers, DEs, ADEs, DTEs and District Traffic staff.

III. Responsibility

TMC managers are responsible for developing the plan for TMC staff, ICC staff and county staff training in the procedures for recording, reporting and managing traffic operations information.

IV. Policy

The TMC Training Plan shall define the training for all personnel using Traffic Operations tools. The training plan should identify training by groups, including, but not limited to, TMC personnel, County personnel, ICC personnel and District Traffic personnel.

Table 6 below shows the minimum required traffic operations training for the groups identified above and indicates alternative training.

TABLE 6: REQUIRED TRAFFIC OPERATIONS TRAINING

TMC Personnel	
Role	**Required Training**
TMC Operator	• TMC Boot Camp
TMC Supervisor	• TMC Boot Camp
TMC Manager and Support Staff	• TMC Managers Boot Camp* or TMC Boot Camp • ITS Maintenance Training* • Traffic Operations for ICCs*
County Maintenance Personnel	
Role	**Required Training**
Radio Room Operators	• Radio Room Operator Training • RCRS Training • TMC Notification Policy Training

ICC Personnel	
Role	**Required Training**
ICC Staff	• Traffic Operations for ICCs*
District Traffic Personnel	
Role	**Required Training**
District Traffic Staff	• Traffic Operations for ICCs* or Traffic Operations for District Staff*

*Training has not yet been created.

TMC Managers shall document all training conducted and ensure the appropriate staff have the training required by their role. The Training Plan shall describe refresher training and how personnel will be trained for new systems and updates to existing systems.

V. Procedure

The TMC Training Plan will be developed as part of the region's Traffic Operations Plan. The approval process is the same as the approval process for the Traffic Operations Plan. The TMC Operations Unit will keep a record of all training courses listed above completed by the staff above. The TMC Training Plan shall also identify how training records for other courses will be listed.

2.5. TMC Staffing

I. Purpose

To define minimum staffing requirements for TMCs.

II. Applicability

This policy applies to TMC Managers and Supervisors who are responsible for maintaining staffing levels.

III. Responsibility

TMC Managers and supervisors are responsible for maintaining staffing levels.

IV. Policy

TMC managers need to ensure that minimum staffing levels are maintained during all shifts. For 24/7 operations, at least one operator and preferably one supervisor should be scheduled. For TMCs that do not operate 24/7, the TMC Manager is responsible for ensuring the TMC can be staffed 24/7 for short duration incidents, such as winter storms and Continuity of Operations.

In addition to the operators and supervisors, the TMC must have an ITS Maintenance Lead or Coordinator and a TMC Traffic Incident Management Lead (Section 2.2). These positions may be filled by a supervisor or may be a separate position, depending on staffing levels and the workload of the supervisors. The ITS Maintenance Manager is responsible for overseeing ITS maintenance, including the ITS maintenance contract. The Traffic Incident Management Lead is responsible for overseeing the TMCs TIM program.

V. Procedure

The TMC Manager will work with the TMC Operations Unit to develop and maintain a staffing plan. The staffing plan will identify metrics to monitor shift performance and to identify staffing needs.

2.6. Common Operating Picture

I. Purpose

To define the requirements for maintaining a regional Common Operating Picture.

II. Applicability

This applies to all Traffic Operations personnel including TMC managers, supervisors and operators.

III. Responsibility

TMC managers, supervisors and operators are responsible for ensuring the regional Common Operating Picture is maintained.

IV. Policy

A Common Operating Picture (COP) is defined as a single display of all relevant traffic operations information shared with District Leadership, Area Command, Incident Command Centers and District, Regional and Statewide Traffic Management Centers. For traffic operations the COP is maintained by entering events into RCRS and disseminating the information as necessary to the appropriate parties. The Area Command notification policy defines the minimum requirements for reporting events to Area Command.

V. Procedure

TMCs are responsible for maintaining a Common Operating Picture for their area of responsibility. In addition, the TMC must maintain situational awareness of the surrounding areas and provide support as necessary. TMC Managers should work with supervisors and operators to ensure the Common Operating Picture is maintained at all times. When the TMC is unable to maintain the COP, the TMC should notify the STMC. The STMC can then begin Continuity of Operations support for the TMC.

2.7. TMC Resources

I. Purpose

To define the resources TMCs should develop and distribute to stakeholders.

II. Applicability

This applies to TMC managers and support staff.

III. Responsibility

TMC managers are responsible for ensuring the resources identified are developed and distributed to the appropriate personnel.

IV. Policy

TMC managers will create and distribute TMC Reporting Cards to any personnel that may report events to the TMC. At a minimum, the cards shall contain the following information:

- Roads and conditions that require reporting, see the RCRS Policy for required restrictions.
- The information needed by the TMC to manage the incident:
    - Location
    - Cause
    - Start and re-open times
    - Type of disruption
    - Contact name and number
    - Description
    - Special Conditions: fatal crash, bus crash, hazmat, etc.
    - Detour information
- TMC contact number, hours of operation, contact information for the RTMC after hours and a backup contact number
- Any other information requested by the TMC

V. Procedure

A template for creating a wallet-sized card is included on the TMC Portal. The cards should be distributed at safety and training events, such as winter schools.

2.8. Traffic Incident Management (TIM) Teams

I. Purpose

To define the role of the TMC in creating and participating in Traffic Incident Management Teams.

II. Applicability

This policy applies to TMC managers and TIM Leads.

III. Responsibility

TMC Managers and TIM Leads are responsible for representing the TMC with TIM teams. In areas where TIM teams do not exist, TMC managers and TIM Leads are responsible for coordinating with stakeholders to create TIM teams.

IV. Policy

TMC managers and TIM Leads are required to participate in regional TIM teams for all counties with Core Roadway Network. TIM teams are recommended for all other counties. For regions with District TMCs, the TIM roles and responsibilities for the RTMC and DTMC in TIM teams should be identified in the TOP. Member districts may also designate a TIM lead and coordinate TIM efforts with the RTMC TIM Leads.

V. Procedure

TIM Teams develop relationships between the various disciplines in incident management, create a planned, coordinated approach to make incident scenes safer for travelers and responders, clear incidents quickly and safely and promote information sharing with responders, support staff and travelers.

TMC managers, TIM leads and District Traffic Units should coordinate with District and County Maintenance, first responders, 911 centers and county and local government to develop TIM teams.

A. TIM Team Members

The following groups should be represented on each county's TIM team:

- Law Enforcement
- Fire and Rescue
- Emergency Medical Services
- County 911 Centers
- State and Local Transportation Agencies
- Planning Agencies
- Public Works
- Trucking and Driver Associations
- Emergency Management
- Towing and Recovery
- Hazardous Materials Contractors

B. TIM Team Role

To better coordinate the efforts of all stakeholders, TIM Teams should:

- Develop stakeholder relationships.

- Develop response plans for incidents
- Provide a structure for Incident Command
- Share information between stakeholders
- Define the roles and responsibilities for each group

C. TMC Role on TIM Teams

The TMC should be represented in TIM Team Meetings. In areas where TIM Teams have not been established, the TMC should work with the stakeholders listed above to establish TIM Teams. The TMC is responsible for managing traffic in their area to promote safe and efficient travel. During incidents it is important to coordinate between various stakeholders to ensure safety for travelers and first responders while limiting the impact to travelers. In addition, coordination between first responders and TMCs is critical to maintain a common operating picture and inform motorists.

2.9. TMC Performance Targets and Measurement

I. Purpose

To define the requirements for measuring Traffic Operations performance and setting targets for improving traffic operations performance.

II. Applicability

This applies to the Bureau of Operations TMC Operations Unit, STMC, RTMCs and DTMCs.

III. Responsibility

The TMC Operations Unit in coordination with the Traffic Systems and Performance Unit shall create and disseminate the performance metrics. The TMC Operations Unit and TMCs will set targets and procedures for meeting the targets.

IV. Policy

Performance metrics will be defined in two groups: the STMC and the RTMCs. The RTMC performance metrics will be divided by district, shift and RTMC/DTMC operational period. Performance targets will be divided into the same groups and will be developed by the TMC Operations Unit, the RTMCs and the DTMCs.

A. Performance Metrics

At a minimum, the following metrics will be tracked and reported:

STMC

- Situational Awareness: the time it takes the STMC to become aware of an incident meeting the requirements for an Area Command notification.
- Reaction Time: Average time it takes the STMC to notify Area Command from the time the STMC is aware of the incident.
- STMC Communication: Percent of the incidents the STMC reaches out to a TMC to notify the TMC of an event or to gather additional information
- No RCRS Area Command Notification: Percent of all notifications that do not meet the requirements for entry in RCRS.

RTMC/DTMC

- First Operational Response to an Incident:
    - Time to first response to an incident: measured as the time from the start of the incident to the first action taken by the TMC to mitigate the impact of the incident.
    - First Action: What is the first action taken by the TMC to mitigate the impact of an incident?
- Crash Capture Rates: this will compare the number of crashes reported in RCRS to crashes in Waze classified as heavy congestion incidents on the Core Roadway Network.
- RCRS Work Zone Accuracy: Percent of roadwork events in RCRS where the description of the event accurately defines the work.
- Two future metrics have also been identified:
    - Staffing Levels: evaluate optimum staffing levels by time of day based on data such as traffic volume, number of incidents, number of calls, etc.

- Effectiveness of Operational Responses: the impact of a TMC action (i.e., CMS messages) on diverting traffic or reducing congestion.

B. Performance Targets

Performance targets will be set for each of the metrics above by the affected TMCs and the Bureau of Operations TMC Operations Unit. The targets will be set based on historical data and trends. Performance targets will be set for five years and be reevaluated annually. Performance targets may be set for specific corridors, county, district or region. Performance targets may be set for specific times and days (i.e., Monday to Friday morning peaks)

V. Procedure

The Bureau of Operations TMC Operations Unit will meet with the management staff for each TMC to discuss the health metrics and to set targets for the next five years. The targets will be adjusted on an annual basis. In addition to setting the targets, the Bureau of Operations TMC Operations Unit and the TMC management staff will determine the actions necessary to achieve the targets. The action items will be tracked and progress toward the targets will be reported monthly.

2.10. TMC QC/QA

I. Purpose

To define the process for ensuring the quality of the information disseminated by Traffic Management Centers.

II. Applicability

This policy applies to all personnel working in the Statewide, Regional and District TMCs, TMC management personnel and support staff and the Bureau of Operations TMC Operations Unit.

III. Responsibility

All TMC personnel and managers are responsible for ensuring high quality information is passed from the TMCs to all internal and external partners.

IV. Policy

The TSMO Guidebook Part V: Operations provides the policies and guidance for TMCs to manage traffic in their area of responsibility and to notify internal and external partners. The information provided to those partners needs to provide the minimum information to make a decision. To ensure the information is consistent and accurate, a series of performance metrics and targets will be established and reviewed in accordance with the policy in Section 2.9. In addition, as part of each TMC's Traffic Operations Plan, a program for Quality Assurance and Quality Control (QA/QC) will be established. The plan for QA/QC will define the responsible parties, how operational responses and notifications will be monitored, how best practices will be identified and implemented and how deficiencies will be addressed.

2.11. TMC Required Applications and Tools

I. Purpose

To define the minimum required tools and applications for TMC operations.

II. Applicability

This applies to TMC supervisors and operators.

III. Responsibility

TMC supervisors and operators are responsible for ensuring they are using the tools and applications in this policy at a minimum.

IV. Policy

The following tools and applications are required to be used by operators to maintain situational awareness, monitor traffic conditions, manage incidents and disseminate information:

- TMC Email Resource Account (Section 2.14)
- ATMS (Chapter 4)
- RCRS (Chapter 3)
- Traffic Alerts or INRIX Traffic (Sections 2.17, 2.22 and 2.23)
- Video Management Solutions (Genetec)
- RWIS (Section 2.25)
- TMC Portal
- PEMA Knowledge Center and/or WebEOC (Section 2.18)
- Computer aided dispatch (if available)

2.12. TMC Notification

I. Purpose

The purpose of this policy is to define the requirements for notifying TMCs of incidents meeting the criteria in Appendix A. This policy also defines the chain of command for notifications.

II. Applicability

This policy applies to all field personnel who are responsible for reporting incidents to TMCs and all TMC personnel.

III. Responsibility

Field personnel and TMC personnel are responsible for reporting incidents meeting the criteria in Appendix A following the chain of command defined in Appendix A.

IV. Policy

The Traffic Operations Situational Awareness policy in Appendix A provides five sets of criteria for reporting transportation incidents. The policy also defines a chain of command for notification, shown in Figure 6.

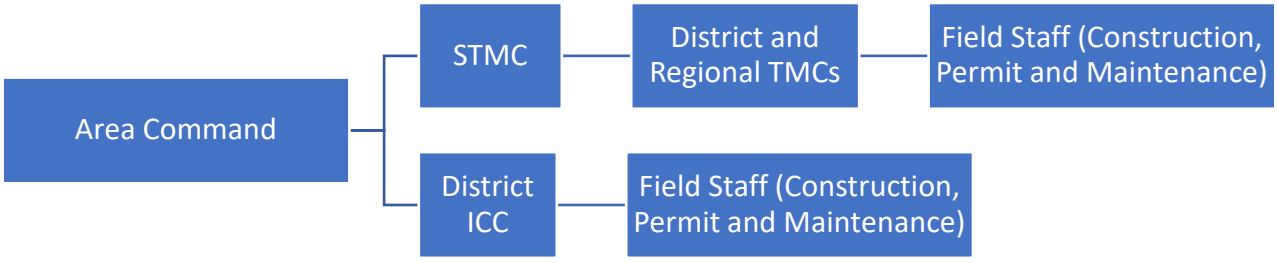


FIGURE 6: NOTIFICATIONS CHAIN OF COMMAND

For any notification meeting the criteria in Appendix A, the following information should be included:

- Incident Type
- Location
- Time of Occurrence
- Estimated Time to Reopen
- Injuries/Fatalities
- Knowledge of the incident
- PennDOT involvement
- Contact information
- Any decisions needed from Executive Staff
- Impact to traffic
  - Length of Queue
  - Trapped queue length
  - Detour routes

V. Procedure

For any incidents meeting the criteria in Appendix A, personnel should follow the instructions in Appendix A to notify the next level of the chain of command.

2.13. Security Requests for Resources

I. Purpose

The purpose of this policy is to define the actions a TMC needs to take when they receive a request from a federal or state security agency (i.e., Secret Service, FBI, PSP, etc.) for resources.

II. Applicability

This policy applies to all TMC managers, operators and supervisors, as well as other district personnel who may receive requests for TMC and ITS resources.

III. Responsibility

TMC personnel are responsible for following the procedures to notify the STMC of the request and to fulfill the request.

IV. Policy

TMC personnel who receive a request for resources shall notify the STMC of any requests along with the reason for the request in accordance with the Traffic Operations Situational Awareness Policy in Appendix A. TMCs should follow any region or district specific policies and procedures for contacting the appropriate personnel to fill the request. For requests to disable public camera feeds or turn the cameras away from the roadway at a specific time, the TMC should submit and IT ticket to complete disable the public feeds using the procedure in Section 5.6.

2.14. TMC Verification and Response

I. Purpose

To define the process for verifying and responding to incidents.

II. Applicability

This applies to TMC supervisors and operators.

III. Responsibility

TMC supervisors and operators are responsible for verifying and responding to incidents.

IV. Policy

The following flow chart shows the order in which incidents are managed by TMC operations staff:

A. Verification

The following sources may be used to verify incidents:

- CCTV
- Field Personnel, including Service Patrol, Police, Fire and PennDOT personnel

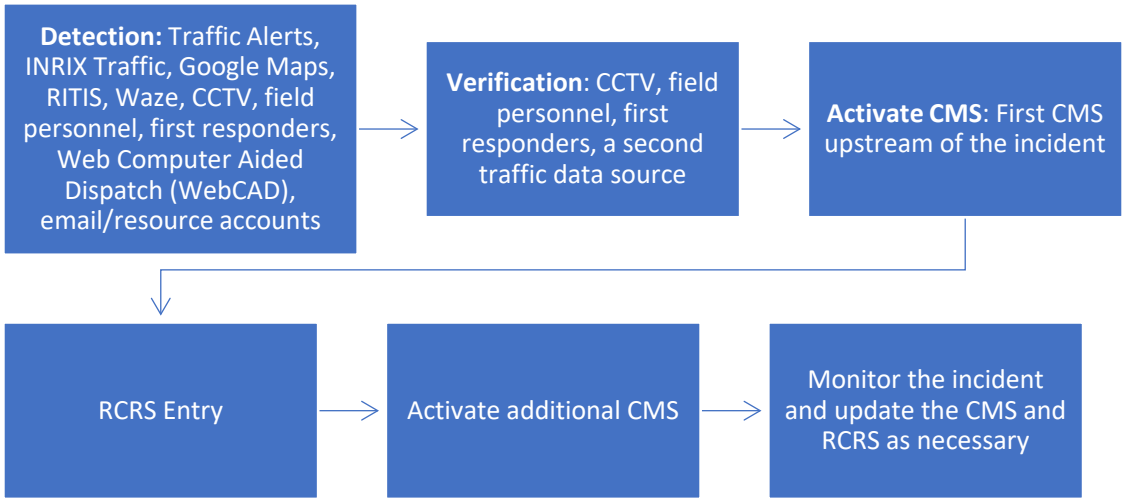
A minimum of two traffic data sources is required to verify an incident without field verification through CCTV or field personnel. The following are the verification options when using traffic data.

- Traffic Alerts incidents with a minimum of two sources
- Two of the following traffic data sources:
  - INRIX
  - RITIS
  - Google Maps
  - Waze

B. Response

The following flow chart shows the order in which incidents are managed by TMC operations staff:

TABLE 7:TMC INCIDENT MANAGEMENT FLOW CHART



2.15. TMC Email Resource Accounts

I. Purpose

To define the requirements for a TMC Email Resource Account.

II. Applicability

This policy applies to all TMC managers, supervisors and operators.

III. Responsibility

TMC managers are responsible for maintaining a resource account for the TMC and ensuring all operators have access to the resource account.

IV. Policy

Each TMC is required to have an email resource account (an email distribution list is **not** a resource account). The resource account is required to be used for all TMC email communication. All TMC personnel shall have access to the resource account. The TMC manager may grant access to the account to other personnel. The account shall be actively monitored by all active TMC staff. STMC and RTMC staff shall monitor the resource account at all times while DTMC staff shall monitor during their hours of operation.

2.16. TMC Maintenance Notification

I. Purpose

To define when planned maintenance activities should be completed for TMC facilities or traffic management systems.

II. Applicability

This applies to all personnel scheduling maintenance activities for TMC facilities or traffic management systems.

III. Responsibility

TMC managers are responsible for coordinating TMC facility and traffic management system maintenance to minimize the impact to traffic operations.

IV. Policy

TMC facility and traffic management system maintenance should be scheduled to minimize the impact to traffic operations during peak periods, special events and weather events. The maintenance should be coordinated with the TMC manager. All maintenance activities that may affect the operational capacity of the TMC shall be reported to the STMC.

2.17. TMC Winter Reporting

I. Purpose

To define the requirements for reporting TMC readiness in advance of winter storms.

II. Applicability

This applies to TMC managers.

III. Responsibility

TMC managers or their designee are responsible for reporting TMC readiness in advance of winter storms to the STMC.

IV. Policy

TMC managers or their designees shall submit the TMC First Report as requested by the STMC prior to the beginning of a winter storm.

V. Procedure

The STMC will request the TMC First Report form from each TMC with a specific return date and time. The TMC manager or designee will fill out the form with the required information and return the completed form to the STMC. The responses will be compiled by the STMC and reported to the Area Command Planning Section for reference during the storm. The current TMC First Report template can be found on the TMC Portal.

2.18. TMC Media and Crowd Sourced Data

I. Purpose

To define the requirements for verifying events reported via social media or crowd sourced data.

II. Applicability

This applies to TMC supervisors and operators.

III. Responsibility

TMC operators and supervisors are responsible for ensuring incidents identified through social media and crowd sourced data are verified before beginning operational responses.

IV. Policy

Social media and crowd sourced data (i.e., Traffic Alerts, INRIX Traffic) can be used to identify incidents. Secondary verification is required before beginning operational responses. The following sources may be used to verify incidents:

- County 911 centers or 911 Computer Aided Dispatch (CAD) information
- County Maintenance Personnel
- PSP or local police
- Freeway Service Patrol
- CCTV
- Third Party Traffic Information by at least two sources (crowd-sourced information as defined below)

A. Crowd-sourced Traffic Data

A minimum of one of the following sources of crowd sourced data is required to be used by operators to supplement CCTV and field reports for situational awareness:

- Traffic Alerts
- INRIX Traffic
- Waze
- Google maps
- RITIS

Traffic Alerts should be the primary traffic data tool, but the other tools listed above may also be used. If TMC Operators choose to use different traffic data sources at different workstations, there must be a transparent and a coordinated understanding of what traffic data sources are being used by each TMC Operator. These sources are used to improve situational awareness, especially in areas with no CCTV coverage. TMC personnel shall use traffic data sources to:

- Detect traffic disruptions and incidents.
- Determine and monitor the impact of incidents
- Determine when residual impacts no longer exist and traffic has returned to normal flow

B. Media Sources

The following sources may be used to supplement traffic data for situational awareness:

- Television news stations and associated websites
- Newspaper websites
- Radio stations and associated websites
- Traffic reporters
- Third-Party social media including Facebook, FireWire, TweetDeck and any other social media

2.19. Knowledge Center and WebEOC

I. Purpose

To define the requirements and procedures for using PEMA's Knowledge Center and WebEOC.

II. Applicability

This applies to TMC managers, supervisors and operators.

III. Responsibility

TMC personnel are responsible for ensuring the information provided by PEMA's Knowledge Center and WebEOC are used in accordance with this policy.

IV. Policy

The following are requirements for using Knowledge Center and WebEOC:

- All TMC personnel shall be assigned a username and password. All access requests for operations staff shall be submitted to the Statewide Traffic Management Center (STMC) via telephone at 717.346.4400 or email at RA-PDSTMC@pa.gov.
- All TMC Operators shall be signed in during their hours of operation and actively monitor the status board for the most recent events reported that may affect their area of responsibility.
- All information within Knowledge Center shall be verified and deconflicted using a secondary source of verification before disseminating the information and/or making an RCRS entry.
- TMC personnel shall not copy and paste information within Knowledge Center or WebEOC into the Road Condition Reporting System (RCRS).
- TMC personnel shall not enter or copy/paste exact information from Knowledge Center, especially sensitive information (see below for examples) in RCRS.

V. Procedure

Below are some examples of sensitive information that should not be entered in RCRS. This list is not all inclusive and judgement should be used when entering events in RCRS.

- Personal identifiable information (This includes both personal information as well as company information)
- Law enforcement sensitive information

2.20. CMS Policy

I. Purpose

To define the standards for using Changeable Message Signs (CMS).

II. Applicability

This applies to all personnel creating or entering messages for display on CMS.

III. Responsibility

TMC personnel are responsible for ensuring all posted messages conform to the CMS standards. Field personnel are responsible for ensuring all messages posted in the field conform to the CMS standards.

IV. Policy

All personnel creating messages for CMS shall follow the guidelines in Publication 200: Changeable Message Sign (CMS) Operating Standards. Prior to developing new messages, messages in the CMS message catalog in Publication 200 should be used.

V. Procedure

Publication 200: Changeable Message Sign (CMS) Operating Standards provides guidance for developing messages for use on CMS. In addition, the publication provides the policy for the types and amount of information that may be included in CMS messages.

A. Scheduled Safety Messages

Scheduled Safety Messages (SSMs) should only be run when there are no incidents or other higher priority messages needed to direct motorists. During periods of adverse weather, SSMs should be removed from the CMS. Other messages are not required to be posted, but messages in accordance with the Weather Messaging Guidance below may be posted.

B. Weather Messaging Guidance

During periods of adverse weather or before adverse weather is forecast, messages may be posted. Weather messages should reflect the advisories, watches and warnings issued by the National Weather Service or reflect conditions that impact the safety of the roadway, such as flooding or icy conditions. The messages should follow the guidance for messages in Publication 200: Changeable Message Sign Operating Standards.

2.21. CCTV Control

I. Purpose

To define the requirements for controlling cameras through Genetec.

II. Applicability

This applies to STMC, RTMC and DTMC operators and supervisors. This also applies to all other personnel who have pan, tilt, zoom control for CCTV through Genetec.

III. Responsibility

TMCs are responsible for controlling the CCTVs in their area of responsibility. Personnel from other regions, the STMC and other users shall coordinate control with the home region.

IV. Policy

All CCTV pan, tilt and zoom functions should be controlled by the home TMC for the CCTV. Other parties may be identified in the Traffic Operations Plan to control cameras. Other personnel should call the home TMC for permission to control the camera or request the home TMC adjust the camera. In situations where immediate action is necessary, personnel from other regions or from the STMC, may adjust the camera and notify the TMC after making the adjustment. Once the situation requiring the camera adjustment is resolved, the person who made the adjustment shall return the camera to its original setting.

2.22. TMC Handover Policy

I. Purpose

The purpose of this policy is to define the requirements for handing over operations from a District TMC to a Regional TMC or from a Regional TMC to a District TMC.

II. Applicability

This applies to the District, Regional and Statewide TMC staff handing over or receiving operations.

III. Responsibility

District and Regional TMC staff are responsible for transferring operations at the beginning and end of operational periods. They are responsible for maintaining the common operating picture and situational awareness during transfer procedures.

IV. Policy

A handover procedure shall be conducted prior to control being granted between districts.

V. Procedure

The initiating district shall call the receiving district prior to the ATMS handover taking place to ensure operational capabilities and convey situational awareness. After the districts have agreed the handover time is acceptable and situational awareness has been conveyed the Districts shall follow the procedure outlined below to complete the handover.

A. Without a Template

In ATMS, the initiating district shall follow the procedure in Figure 7. In ATMS, the receiving district shall accept control to finish the handover procedure.

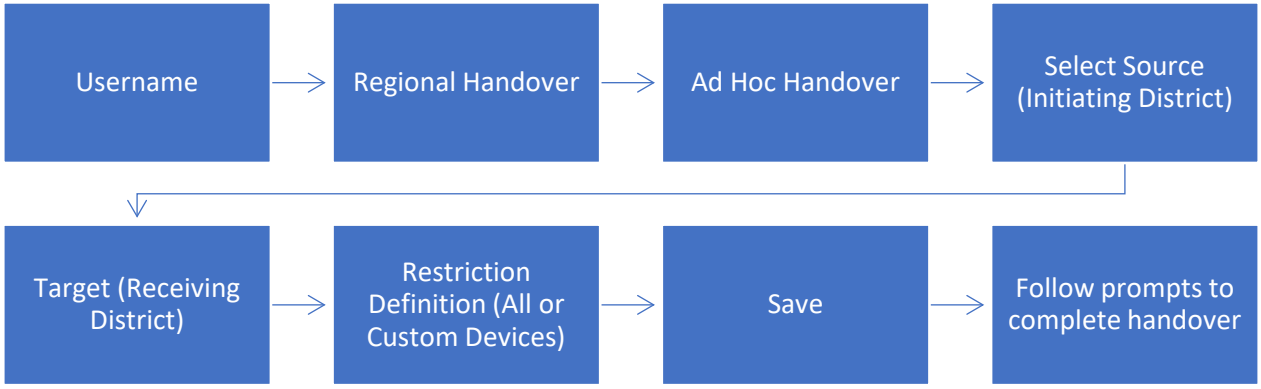


FIGURE 7: ATMS HANDOVER WITHOUT A TEMPLATE

B. With a Template

In ATMS, the initiating district shall follow the procedure in Figure 8. In ATMS, the receiving district shall accept control to finish the handover procedure.

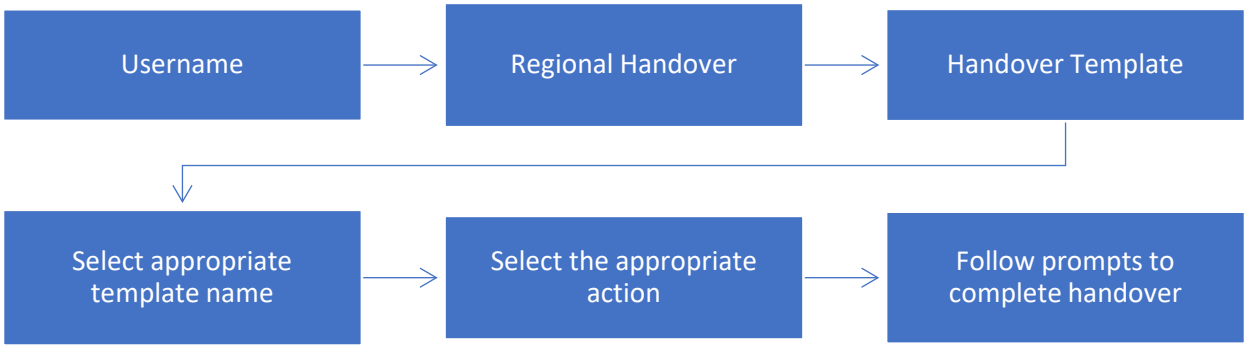


FIGURE 8: ATMS HANDOVER WITH A TEMPLATE

C. Finalizing Handovers

Once the initiating district is prepared to resume operations for their area of responsibility, they shall request control by phone call. Once the districts have agreed on an acceptable time and situational awareness has been conveyed, the receiving district shall give control and the initiating district shall accept control to finish the handover procedure.

2.23. PennDOT Traffic Alerts

I. Purpose

The purpose of this policy is to provide users with the comprehensive knowledge and guidance needed for proper utilization of the PennDOT Traffic Alerts system.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of the PennDOT Traffic Alerts system.

III. Responsibility

It is the responsibility of all TMC personnel to utilize and continuously monitor the Traffic Alerts system for events (planned & unplanned) adversely affecting traffic mobility throughout the Commonwealth on the core roadway network (CRN).

IV. Policy

Traffic Alerts provides TMC awareness and response to potentially high congestion incidents on PennDOT's critical roadways. All TMC personnel are required to utilize the PennDOT Traffic Alerts System. Incidents listed in Traffic Alerts with a minimum of two sources on the Traffic Dashboard (i.e., Waze and INRIX) are considered verified incidents.

V. Procedure

The Traffic Alerts system incorporates Waze, INRIX and RCRS incident data to present users with a continuous feed on events affecting the State's core roadway network (CRN). Key features include:

- User defined filters for Waze and INRIX incidents
- Real-time traffic speeds at incident location(s) from INRIX and Google Maps assisting users in identifying the severity of congestion, the presence of backlogs and potential trapped queues
- Closest CCTV camera suggestions for monitoring and verifying roadway conditions
- CMS locations for expedited incident response
- A running incident timeline to evaluate the magnitude of the traffic impact(s) of on-going events

All TMC personnel should become familiar with Traffic Alerts system and the functionality within. Users shall use the following URL for access to the system:

PennDOT Traffic Alerts
https://trafficalerts.penndot.pa.gov/#/home

All users shall be required to utilize Traffic Alerts throughout their assigned shifts to maintain an enhanced situational awareness and proactively identify congestion within their respective district(s)/region.

Users may request access via email to the PD, STMC resource account.

Traffic incidents listed on the Traffic Dashboard with two sources are considered verified incidents. For events with one source, a secondary verification source must be used before entering an RCRS Event. Verification sources are listed in Section 2.13. Once verified and entered into RCRS, the event(s) shall be monitored and managed continuously throughout the duration of each event and/or until traffic flow has returned to its normal state.

2.24. INRIX IQ

I. Purpose

The purpose of this policy is to identify INRIX IQ as an additional TMC tool in which users can actively identify traffic-related events and maintain situational awareness.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of INRIX IQ.

III. Responsibility

It is the responsibility of TMC personnel to utilize INRIX IQ as an additional situational awareness tool for identifying traffic events (planned and unplanned) adversely affecting the CRN.

IV. Policy

INRIX shall be utilized by TMC personnel for situational awareness and the identification of incidents via travel time delays caused by traffic congestion.

V. Procedure

INRIX IQ is an on-demand, cloud-based analytics suite that leverages INRIX IQ global traffic data to effectively monitor, measure and manage the performance of roadway networks. INRIX IQ fuses anonymous data from diverse datasets such as phones, cars, trucks and cities on congestion, traffic incidents and weather-related road conditions. INRIX IQ provides features such as bottleneck ranking, performance charts, congestion scans and user cost delay.

All TMC personnel should become familiar with INRIX IQ and the functionality within the system. Users shall use the following URL for access to the system:

INRIX IQ
https://iq.inrix.com

It is suggested that for individual users, CWOPA email and credentials are used when creating a new account.

Users should consider utilizing INRIX IQ to identify real-time traffic speeds, create congestion scans and monitor performance metrics. INRIX IQ data is also used within other software applications such as Google Maps, ATMS Travel Times and Traffic Alerts.

2.25. RITIS – Regional Integrated Transportation Information System

I. Purpose

The purpose of this policy is to provide authorized users with a high-level overview and comprehensive knowledge regarding historic and real-time operations tools and data analytics within the RITIS Platform.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of RITIS Platform.

III. Responsibility

It is the responsibility of all TMC personnel to utilize the RITIS system for identifying traffic events (planned & unplanned) adversely affecting the Commonwealths CRN.

IV. Policy

All TMC personnel should become familiar with the utilization and navigation of the RITIS Platform when applicable. RITIS shall be utilized by TMC personnel to maintain and enhanced situational awareness, traffic mobility and to minimize traffic impacts by way of data analytics and performance metrics.

V. Procedure

RITIS is a situational awareness, data archiving and analytics platform enabling effective decision making for incident response and planning. RITIS provides a range of analytics tools and features integrating existing data from transportation systems such as, but not limited to, traffic volume and speeds, work zone and incident information, crowd-sourced Waze data, weather data and travel times.

All TMC personnel should request to become an authorized user of the RITIS Platform using the following URL:

RITIS
www.ritis.org

It is suggested that the user utilize their CWOPA email credentials when creating a new account.

Users should consider utilizing RITIS in real-time to identify congestion caused by traffic-related events. **RITIS as a standalone source is considered unverified.**

TMC personnel responsible for creating and managing response plans for any upcoming events (e.g., holiday traffic, sporting events, etc.), shall utilize RITIS to properly manage and minimize traffic impacts on the CRN during these events.

2.26. RWIS – Road Weather Information System (Vaisala Navigator)

I. Purpose

The purpose of this policy is to identify RWIS – Vaisala Navigator as an additional TMC tool in which users can actively identify and monitor inclement weather and road conditions and maintain enhanced situational awareness.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of RWIS application.

III. Responsibility

It is the responsibility of system users to properly identify, monitor and make informed decisions regarding incident management based upon the data collected by RWIS Weather Stations.

IV. Policy

All users shall utilize RWIS during inclement weather events to proactively identify any adverse weather and/or roadway conditions on the CRN and respond as necessary.

When inclement weather (i.e., any weather-related event resulting in poor visibility and/or driving conditions) is identified, TMC personnel shall activate all available and relevant ITS devices as soon as possible to notify the traveling public of the changing weather conditions (current/expected) to provide as much advanced warning/notice as possible. This advanced warning/notice provides traveling motorists with the most up-to-date and accurate information and allows travelers to make informed and safe driving decisions.

V. Procedure

All TMC personnel should become familiar with RWIS system and the functionality within. Users shall use the following URL to access the system:

RWIS
https://rds.vaisala.com

Users should utilize the “Station Summary” for additional information regarding specific roadways throughout the Commonwealth to detect any change in weather and/or roadway conditions (e.g., surface temperature, grip, surface state, etc.). Weather Stations also provide pictures of the roadway every five minutes and can be used for situational awareness.

2.27. AVL – Automatic Vehicle Location

I. Purpose

The purpose of this policy is to provide users with a high-level overview and comprehensive knowledge of the Automatic Vehicle Location (AVL) system and the overall functionality.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of AVL system.

III. Responsibility

It is the responsibly of AVL users to utilize the program for enhanced situational awareness and information gathering such as PennDOT Fleet vehicle location, route/plow route coverage, material usage and road weather information.

IV. Policy

Users should monitor the AVL system during winter weather and/or emergency operations and if needed, identify the location of the closest PennDOT Fleet Vehicle available to assist with providing additional service and direct trucks to that location.

Users may also utilize the system to review and monitor the rate of material usage, truck speed and route coverage for an enhanced situational awareness throughout the entirety of an event.

V. Procedure

All TMC personnel should become familiar with AVL system and the functionality within. Users shall use the following URL for access to the system:

AVL
https://afmfe33.att.com/

All TMC(s)/RTMC(s) have been assigned specific login for their geographic areas. The AVL system must be utilized within Google Chrome for proper accessibility. District and/or region preferences have been predetermined and setup based on the area of operation. Users shall utilize AVL as an additional situational awareness tool.

For more information and guidance on the utilization of the AVL system, reference the TMC Portal>Documents>Walk-throughs>AVL.

Chapter 3. RCRS Policies

3.1. RCRS Event Policy

I. Purpose

The purpose of this policy is to define which events are required to be reported in RCRS.

II. Applicability

This policy applies to TMC Managers, Supervisors and Operators; County Maintenance Managers, Assistant Managers and Foreman, Construction Managers and Inspectors, Consultants and Contractors involved in Construction or Permit activities, First Responders and any other personnel responsible for managing events on PennDOT managed roadways.

III. Responsibility

Field personnel are responsible for reporting events in accordance with this policy. TMC personnel are responsible for entering and updating the events in RCRS. County personnel may also enter and update events in RCRS.

IV. Policy

Table 8 identifies the events and roads that need to be reported and monitored. The District or Regional Traffic Operations plan may identify additional reportable events. The events in the table are also color-coded for high, medium and low priority, however, all required events must be entered as soon as possible.

TABLE 8: RCRS REPORTABLE EVENTS

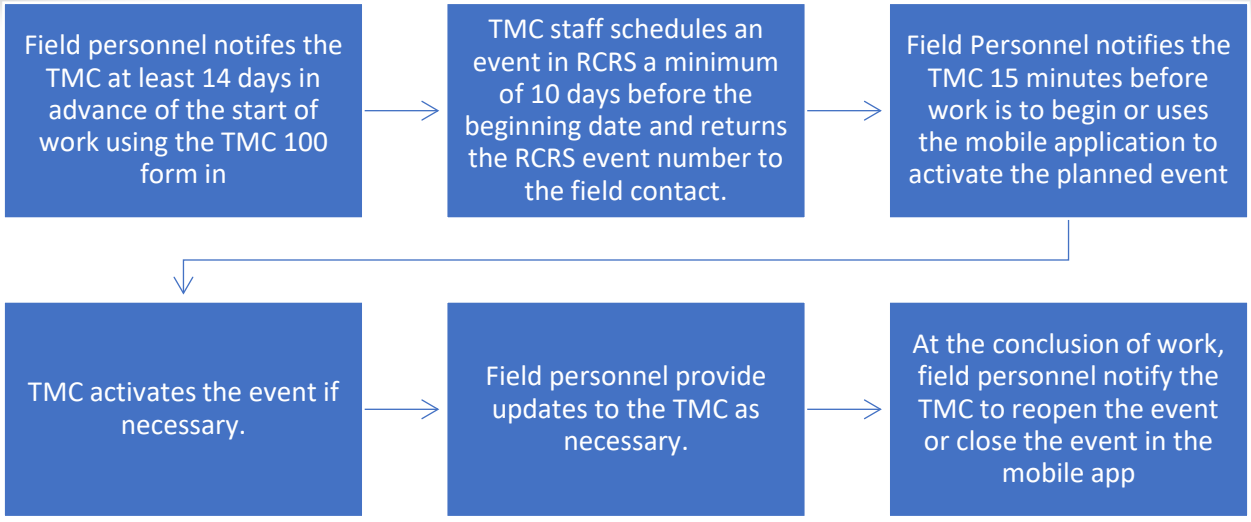
Roadway Type	Reportable RCRS Events			
	Full Closure and Planned Length, Width, Height or Weight Restrictions	Lane Restriction > 30 min	Lane Restriction < 30 min	Shoulder Closure > 15 min
Interstates[1]	Required	Required	Required	Required
Limited Access[1]	Required	Required	Required	Required
Traffic Routes[1,2]	Required	Required	Recommended	Recommended
Detour Routes	Required	Required	Recommended	Recommended
Other State Routes[3]	Required	Recommended	Recommended	Recommended

[1]Includes all ramps
[2]Includes all signed US routes and SRs between 0001 and 0999
[3]Unsigned state routes, 4-digit SRs (aka quadrant routes)

V. Procedure

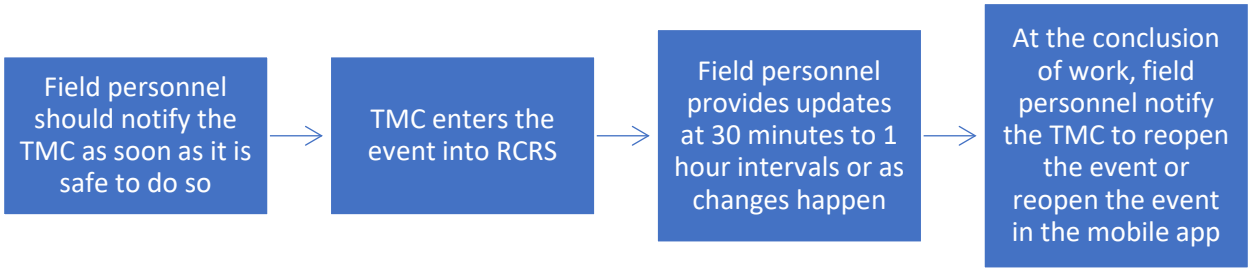
A. Planned Events

For planned events, the following flow chart shows the required notifications and the timeline for those notifications.



B. Unplanned Events

Unplanned events should follow the flow chart below.



C. TMC 100 Form

The TMC 100 Form will be used to notify TMCs of all planned events meeting the criteria in Table 8. Other forms used by specific districts, may continue to be used as a supplement to the TMC 100 form. The TMC receiving the form will enter all event information in RCRS not less than 14 days prior to the event beginning date. It is recommended that form entry be done during non-peak hours to limit the impact to operations. However, all planned events shall be entered a minimum of 10 days prior to the event beginning date. In addition, all TMC 100 forms indicating a width, height, length or weight restriction shall be sent to the District Permit Office in addition to the TMC.

3.2. RCRS Winter Restrictions

I. Purpose

To outline the policy for submitting and approving requests for winter restrictions, entering winter restrictions in RCRS and providing notification of those winter restrictions to the appropriate parties.

II. Applicability

This policy applies to Area Command, District ICCs, the STMC, RTMCs, DTMCs, District Management and County Management.

III. Responsibility

A District ICC will submit requests for winter restrictions to Area Command for approval (District Management should request restrictions through their District ICC). The STMC/ Area Command Planning Section will enter approved winter restrictions in RCRS and notify the appropriate parties per the Standard Operating Procedure. The District ICC shall notify the TMCs of the restrictions for advance notification. RTMCs and DTMCs are responsible for activating CMS for the affected areas within 10 minutes after notification by the STMC or ICC that Area Command has approved the request.

IV. Policy

Winter restrictions are divided into two categories: vehicle restrictions and speed restrictions. Area Command makes the final determination for when restrictions are necessary and approve them as needed when requested. District ICCs shall verify the active restrictions are still necessary every two hours and communicate/update Area Command to remove the restrictions or keep the restrictions in place. Speed restrictions shall only be in place when roadway and/or weather conditions warrant. Conditions that may warrant speed restrictions are detailed in Appendix A of the Commonwealth of Pennsylvania Inclement Winter Weather Travel Restriction and Ban Framework. Vehicle Restrictions may be in place before conditions warrant in preparation for a winter storm. Vehicle and Speed restrictions shall be lifted when roadway and/or conditions no longer warrant the restrictions.

V. Procedure

A. Speed Restrictions

District ICCs may request speed restrictions for the roadways and segments indicated in the Winter Weather Restriction Request form. The District ICC shall request the speed restrictions from Area Command by phone and by email (PD, PennDOT TCC). Winter Weather Restriction Request form shall be used to request the restrictions. The STMC/Planning Section will enter speed restrictions approved by Area Command in RCRS and notify the appropriate parties per the STMC notification policy in Section 2.12. The District ICC shall notify the TMCs of the restrictions for advanced notification. The District ICCs shall verify the active restrictions are still necessary every two hours and communicate/update Area Command on whether to remove the restrictions or keep the restrictions in place. Area Command may notify the District ICCs of speed restrictions that are deemed necessary, need adjusted or removed due to current conditions.

B. Vehicle Restrictions

District ICCs may request vehicle restrictions for the roadways and segments indicated on Winter Weather Restriction Request form. The District ICC shall request the vehicle restrictions from Area Command by phone and by e-mail (PD, PennDOT TCC). Winter Weather Restriction Request form shall

be used to request the restrictions. The STMC/Planning Section will enter vehicle restrictions approved by Area Command in RCRS and notify the appropriate parties per the STMC notification policy in Section 2.12. The District ICC should also notify the TMCs of the restrictions for advanced notification. The District ICCs shall verify the active restrictions are still necessary every two hours and communicate/update Area Command on whether to remove the restrictions or keep the restrictions in place. Area Command may notify the District ICCs of vehicle restrictions that are deemed necessary, need adjusted or removed due to current conditions. Vehicle restrictions may be implemented without speed restrictions and may be implemented before conditions warrant.

C. Restriction Notifications

The STMC will send out a notification for all vehicle and speed restrictions activations and updates to both internal and external stakeholders. The notification will include the RTMCs and DTMCs. In addition, the District ICC will notify the TMC of the restrictions. TMCs are responsible for activating CMS messages in support of the restrictions. Restriction messaging can be found in Publication 200: Changeable Message Sign (CMS) Standards. The STMC will enter Ticker and Floodgate messages in 511PA to support the restrictions.

3.3. RCRS Winter Roadway Condition and Truck Reporting

I. Purpose

To outline the requirements for reporting winter roadway conditions and truck stats in RCRS.

II. Applicability

This applies to TMCs, ICCs, District Maintenance and County Maintenance.

III. Responsibility

District Maintenance, TMCs and ICCs are responsible for ensuring the Winter Road Conditions and Truck Stats are reported in RCRS. County Maintenance is responsible for reporting the Winter Road Conditions, Truck Inventories and Truck Stats in RCRS.

IV. Policy

A. Winter Road Conditions

Winter Road Conditions are required to be reported/updated every two (2) hours when RCRS is in Emergency Mode/ICC is activated and are not required to be reported when RCRS is no longer in Emergency Mode/ICC is not activated and the road is returned to Condition 1. The condition levels in RCRS are as follows:

- Condition 1: Clear (dry or wet)
- Condition 2: Wet with freezing conditions (air or pavement temperatures at 34°F and expected to drop to freezing or below freezing during the storm)
- Condition 3: Snow and/or Slush Covered
- Condition 4: Snow Packed/Significant Snow Cover
- Condition 5: Icy
- Condition 6: Impassable

Table 9 contains the requirements for reporting winter road conditions.

TABLE 9: WINTER CONDITIONS REPORTING REQUIREMENTS

Road Condition Reporting	Reportable roadway	Responsible party
Normal Operations without ICC activation (Condition 2)	Roadways available/listed in RCRS Driving lane condition required Average condition of the roadway section	Recommended that the counties update the conditions in RCRS
Emergency Operations with ICC activation	Roadways available/listed in RCRS Driving and Passing lane conditions required Air temperature required	Recommended that the counties update the conditions in RCRS

B. Winter Truck Reporting

Winter Truck Stats are required to be reported every two (2) hours when RCRS is in Emergency Mode/ICC is activated. When RCRS is not in Emergency Mode, the Winter Truck Stats will no longer be available for updating.

V. Procedure

The RCRS User Manual details how to manage Winter Road Conditions and truck information in RCRS.

3.4. RCRS Levels of Access

I. Purpose

To define the levels of access in RCRS and the personnel who should have those permissions.

II. Applicability

This applies to all personnel who report events, winter road conditions, truck stats and weather restriction information in RCRS.

III. Responsibility

Field personnel are responsible for reporting events and changes to events meeting the criteria in Section 3.1 to the TMC. TMCs are responsible for entering and updating the events in RCRS. Counties may enter and update events in RCRS. Inn those counties, County maintenance personnel should report events to their respective. District Traffic Operations plans shall designate those responsible for maintaining winter road conditions and truck information in RCRS. This is commonly the responsibility of the county radio rooms. Finally, vehicle and speed restrictions will be entered and maintained by the STMC/Planning Section at the direction and approval of Area Command.

IV. Policy

The District RCRS coordinator is responsible for ensuring the appropriate personnel have access to RCRS with the appropriate permissions to enter and edit/view events, winter road conditions and truck information in RCRS. Also, the District RCRS coordinator is responsible for ensuring the correct personnel are part of the Notification Chain of Command as shown in Table 10. Any changes shall be submitted to a Statewide Admin.

TABLE 10: NOTIFICATIONS CHAIN OF COMMAND

30 minutes prior to expiration	At expiration	15 minutes after expiration	30 minutes after expiration	45 minutes after expiration	60 minutes after expiration
Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
County staff	County Staff	All previous levels	All previous levels	All previous levels	All previous levels
TMC Staff	TMC Staff	PennDOT EPLO	District ICC	District Executive	Emergency Incident Management Section Chief
			District RCRS Coordinator		Area Command

The Levels of Access in RCRS are defined as follows:

- **Level 1 – Read-Only User** –This type of users will not have the capability to enter or modify information in the RCRS. They can generate reports and modify their individual account settings to be notified by the RCRS using the Incident Communication Process (ICP).
- **Level 2 – Operator** – This is the largest user group within the RCRS administrative levels. Typically, Operators will have the ability to add or edit/view and notify for events and/or road conditions, but they will not have the capability to modify system functionality. Users shall have

the home region of the district they work in. The user shall have Edit/View capabilities for Events and Winter to their county(s) plus each county that touches their area.

- **Level 3 – Regional Admin** – Regional Admin users are typically RTMC operators and have all Operator user capabilities and can manage user accounts. Regional Admin users have a home region of one or more districts. They can manage users, county modes (Normal 24/7 vs. Emergency) and Winter Chains of Command within their home region.
- **Level 4 – Statewide Admin** –Statewide Admin users are typically Bureau of Operations personnel with all capabilities of the Regional Admin user. RCRS Coordinators also fall into this type of user. Statewide Admin users have a home region of all districts. They can manage base site data (system alerts) and toggle notification systems if permitted.
- **Level 5 – System Admin** – System Admin users have the ability to manage all functionalities and settings within the RCRS. System Admin users are the only users with the ability to Manage the Roadway Network (511 Network), Manage Event Chains of Command and QA/QC Events.

Table 11 shows the permissions for each user type.

TABLE 11: USER TYPES AND PERMISSIONS

	Read-Only User	Operator	Regional Admin	Statewide Admin	System Admin
Manage Events		X	X	X	X
Manage Detours				X	X
Manage Winter Conditions		X	X	X	X
Manage County Modes			X	X	X
Manage Event Chains					X
Manage Winter Chains			X	X	X
Manage Base Site Data				X	X
Manage User Accounts			Operators in Home Region	Operators, Regional & Statewide	All Users Statewide
Manage ITS Devices		*	*	*	X
Toggle Notification Systems				*	X
Manage 511 Road Network					*
QA/QC Events					*

*If needed, with manager approval

V. Procedure

The RCRS User Manual contains detailed information on how to enter and manage users, events, winter road conditions, truck information and winter restrictions.

3.5. RCRS Event Cause and Status Requirements

I. Purpose

To define the event types in RCRS and provide the policy for how and when to use each event type. This policy also defines the duration of events. This will ensure the events shown on 511PA accurately depict the traffic conditions.

II. Applicability

This applies to all personnel who manage events in RCRS.

III. Responsibility

TMC personnel or county personnel are responsible for entering the correct event types in RCRS and ensuring the event type is adjusted as the event conditions change.

IV. Policy

A. Causes

The following is a list of the causes and definitions of each cause.

- **Crash** – A single vehicle incident where the vehicle struck an object.
- **Crash (MULTI-VEHICLE)** – Incident with more than one vehicle involved.
- **Roadwork** – An event where a non-utility entity is performing work that impacts the roadway or flow of traffic on the roadway.
- **Moving Roadwork** – A roadwork event where the operation proceeds in the direction of normal traffic flow.
- **Utility Work** – Work performed by a Utility company or Utility contractor on a utility.
- **Rubbernecking** – Congestion is identified in the opposite direction of an active incident.
- **Other** – Any event which does not clearly fit any of the other causes listed.
- **Debris on Roadway** – A short term closure or restriction of a roadway due to debris on the roadway. Long term closures and restrictions should be updated to a cause that reflects the current conditions, for example, damaged roadway or roadwork. The debris on roadway cause should only be used for events lasting less than 72 hours.
- **Disabled Vehicle** – A vehicle that is no longer able to move under its own power.
- **Vehicle recovery/follow-**up – Should be used when recovery work was suspended and personnel have returned to recover the vehicle(s) when the roadway is safe, or resources are available or to conduct additional investigation at a later time than the initial incident.
- **Downed Utility** – Any utility that has been damaged and is impacting the roadway. This includes damaged wires, water mains and sewers. Downed utility should be updated to utility work as soon as the utility company or contractor arrives on scene to repair the utility. Downed utility events should be checked every 24 hours.
- **Downed Tree** – A tree that has fallen into the roadway.
- **Downed Tree in Wires** – A fallen tree that has affected wires. Downed tree in wires should be updated to utility work or roadwork as soon as the utility company or contractor arrives on scene to repair the utility.
- **Bridge Outage** – An event due to repair, replacement or closure not related to flooding.

- **Bridge Flood Precaution** – A short-term/temporary closure of a bridge or culvert resulting from overtopping water, pressure flow, flooded approaches or severe debris blockage of a bridge during a high water or flood event. Bridge flood precaution should be updated to the appropriate cause no more than 3 days after water flow has returned to normal.
- **Bridge Flood Washout/Damage** – A long-term closure of a bridge or culvert resulting from the complete or partial washout or other flood-related damage.
- **Flooding** – Any short duration closure of a roadway (not including bridges) due to flooding.
- **Damaged Roadway** – A long term partial or full closure of a roadway due to damage to the roadway.
- **Special Event** – Any event with a special event permit that impacts the flow of traffic on a roadway.
- **Vehicle Fire** – Any vehicle that is or was on fire.
- **Slow Vehicle** – A vehicle moving so slowly as to cause a traffic hazard.
- **Police Activity** – Any incident involving police that does not fit into any of the other causes. Minimal details about the nature of the incident shall be included. The only detail should be the impact on traffic in the area.
- **Winter Weather** – This cause is used for speed and vehicle restrictions or where vehicles are no longer able to traverse the route due to winter conditions.
- **Fire Department Activity** – An event involving the fire department that does not fit the definition of any of the other causes impacting the flow of traffic on the roadway.

B. Status

The following is a list of the statuses and definitions of each status.

- **Closed** – All lanes closed and vehicles are unable to pass the incident location.
- **Lane Restriction** – One or more lanes closed and vehicles are able to pass the incident location.
- **Shoulder Closed** – Shoulder is closed, all driving lanes open.
- **Traffic Disruption** – All lanes/shoulder open, but there is a disruption in traffic flow
- **Ramp Closure** – An exit/off-ramp or on-ramp is closed.
- **Ramp Restriction** – One or more lanes or the shoulder of an exit/off-ramp or on-ramp are closed
- **Residual Delays** – Available only when the cause has been updated to “INCIDENT CLEARED”. Used to indicate when an incident is no longer restricting traffic flow, but traffic flow has not returned to normal conditions.
- **Speed Restriction** – Roadway speed limit has been reduced for safety
- **Vehicle Restriction** – Roadway is not open to certain vehicle types
- **No Entry Access** – Roadway is open to traffic, but all on-ramps are closed

V. Procedure

Operators should follow the procedures in the RCRS User Manual to select the appropriate cause based on the definition in this section.

Chapter 4. Advanced Traffic Management System (ATMS) Policies

4.1. ATMS General

I. Purpose

The purpose of this policy is to provide a brief overview and shared comprehension of the available Advanced Traffic Management System (ATMS) modules. This policy will also identify the proper "Request for Access" process and procedure for all new system users.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization and/or management of PennDOT's statewide ITS command-and-control platform.

III. Responsibility

It is the responsibility of all PennDOT ATMS users to ensure proper management and utilization of the ATMS software (SwRI OpenTMS) in accordance with this policy.

IV. Policy

The ATMS system links traffic awareness and engagement tools into a single system permitting any authorized user in any location, contingent upon Virtual Private Network (VPN) access, to operate devices statewide. All users of ATMS must have and/or obtain access to the VPN to be able to access the ATMS system.

Not all ATMS users will be provided access to the modules listed below in Table 12. ATMS software access and individual operating permissions are granted based on predetermined, user-specific criteria. User-specific criteria includes but is not limited to: Job Title/Position, Operational need and VPN accessibility as explained in further detail below. Table 12 identifies all the available ATMS Modules:

TABLE 12: ATMS MODULES

Map Module	Manage Module	Devices Module	More Module	User Module
• Mapping Layers • Pins • Drag • Maintenance	• Alerts • Communication Logs • Contacts • Incidents • Notifications • Planned Events • Service Patrol • Weather	• Cameras • Detectors • HAR • Signals • Signs • Travel Times • Variable Speed Limits (VSL) Signs	• Reports • Travel Time Dashboard	• Administration • Regional Handover • Online Help • Administrator Help • User Preferences • Logout

A. Requesting Initial Access to ATMS

Initial access to the ATMS shall be obtained by PennDOT IT Help Desk Ticket submission.

If access is being requested, the requestee shall include the following information within their ATMS: Request for Access submission to the PennDOT IT Help Desk:

- Full Name – First and Last
- Contact Information (telephone/email)
- Job Title/Position
- Affiliated County/District/Region
- Operational Need (Reason for requesting ATMS access)
- Requested Area of Operation

Once the Request for Access ticket has a been initiated/entered, the individual user permissions shall be assigned and active within 24-48 hours from the time the initial request is received. All requests must include the above bulleted information to be processed immediately.

B. ATMS Permissions

User-specific operational permissions and criteria has been predetermined to provide ATMS users with the most efficient and effective operational experience. Each user's operational permissions shall be assigned accordingly based on the following criteria:

- **Job Title/Position** – must be provided to ensure proper level of module accessibility and functionality
- **Affiliated County/District/Region** – must be provided to ensure accurate area of operation is assigned accordingly
- **Operational Need** – must be provided to ensure proper module accessibility based on specific user preferences
- **Request Area of Operation** – must be known/provided for proper assignment of Regional coverage area(s)/user preferences

All ATMS User permissions are subject to change at the discretion of PennDOT Bureau of Operations personnel and management.

All those requesting access to ATMS, should reference Section V. Procedure; ATMS Request for Access below.

V. Procedure

A. ATMS Request for Access

As stated above in Section IV, all new users must be added to the ATMS System via request to the PennDOT IT Help Desk.

B. ATMS Initial Sign-in

Once system access and the proper operating permissions have been approved and granted, users will be required to initially sign-in to ATMS. Upon the initial sign-in attempt only, the system will request a username and password. All users must utilize their assigned CWOPA Username and Password to access the ATMS. After the initial login, the system will automatically sign-in the user without a request for a username or password.

C. ATMS User Preferences

ATMS User Preferences are user-specific assigned preferences (e.g., District, STMC, Area Command) that have been provided in accordance with the user's operational coverage area(s). These personal preferences allow the user to view and/or manage their available ATMS modules. These preferences are subject to change and/or may be modified at the discretion of PennDOT Bureau of Operations personnel or management based on the specific-users operational needs.

4.2. ATMS Management

I. Purpose

The purpose of this policy is to identify who is responsible for the management of the Advanced Traffic Management System (ATMS).

II. Applicability

This policy applies to all personnel within PennDOT Traffic Systems and Performance Section and all those who have been granted Administrative permissions within ATMS.

III. Responsibility

It is the responsibility of the PennDOT Traffic Systems and Performance section to continuously monitor the ATMS for full functionality of the system, continued enhancements and maintain open communications with SwRI OpenTMS developers.

IV. Policy

The PennDOT Traffic Systems and Performance section shall provide continuous detailed review and analysis of the system, provide business requirements and technical use-cases to verify and improve accuracy of data, perform data analysis and consult with TMC Operations managers regarding their daily operations efficiency and effectiveness while utilizing the ATMS. The Systems and Performance Unit shall be responsible for and/or assist with any ATMS Troubleshooting, User Authorized Testing (UAT) and analysis, overseeing of all district and regional UAT, submissions and accuracy of testing data, and any requests for system enhancements and bug fixes.

V. Procedure

As mentioned above in Section IV, the Traffic Systems and Performance section must provide its ATMS users with but is not limited to the below requirements. The ATMS Management Group shall maintain their responsibilities and provide the proper response methods as demonstrated in Table 13.

TABLE 13: ATMS MANAGEMENT GROUP RESPONSIBILITIES

ATMS Management Responsibility	Description
Provide ATMS Detailed Review & Analysis	• ATMS Management shall reach out and/or maintain open communication with its users on system functionality. • Comments/data should be collected and analyzed by the ATMS Management team during weekly Project Execution Management Team (PEMT) meetings
Provide Business Requirements & Technical Use-cases	• Provide users with User Acceptance Testing (UAT) to ensure all functionality and enhancements are working as designed/requested
Perform Data Analysis & TMC Manager Consultation of Daily Operations	• Works with TMCs to analyze data associated with ATMS use • Coordinates with TMC managers on daily operations
ATMS Troubleshooting	• ATMS management shall provide and maintain an ATMS Troubleshooting document available within the ATMS Username module drop-down accessible to all users
Oversight of UAT Testing and Analysis	• ATMS Management shall assign individuals to participate in recurring UAT of the ATMS system • ATMS Management shall provide each selected candidate with the necessary information, guidance and test cases developed by SwRI regarding the requested testing • ATMS Management shall be responsible for collecting all the data/information provided throughout testing • ATMS Management shall provide an analysis of the UAT data collected and disseminate the information to SwRI
Enhancement and Bug Fixes	• ATMS Management shall be responsible for the prioritization of all ATMS User Enhancements/Bug Fix requests through PennDOT IT and SwRI

4.3. ATMS Maintenance and Outage Procedure

I. Purpose

The purpose of this section is to identify the proper process and procedures for TMC personnel and operations affected during both ATMS maintenance and unplanned outages.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all users who utilize ATMS to report any issues or interruptions of service to the PennDOT IT Help Desk and the Statewide Traffic Management Center (STMC).

IV. Policy

All ATMS users experiencing any issues and/or outages within ATMS shall contact the PennDOT IT Help Desk or enter a Request for Service (RFS) as soon as possible utilizing the following methods:

PennDOT IT Help Desk
Telephone: 717-783-8330 or 855-783-8330
Email: PennDOT IT Help Desk "Request for Service"

Once the issue has been formally submitted, an immediate phone-call notification shall be made to the STMC at 717-346-4400 for further dissemination of information and follow-up.

A. Emergency ATMS Maintenance and Outages

A Standard Operating Procedure (SOP) has been created to provide all ATMS users with the proper protocol for PennDOT after-hours support escalation needed during critical emergencies. The BIO After-hours Support Escalation SOP document can be found within the TMC Portal>Publications & Policy section.

For further information and guidance regarding an After-hours Support Escalation submission, please visit the TMC Portal and/or utilize the link provided above.

V. Procedure

As stated above, all callers shall utilize the PennDOT IT Help Desk via telephone call or RFS submission process when any issues and/or concerns are experienced that impede services.

Once the submission has been made to the PennDOT IT Help Desk, an immediate notification should be made to the Statewide Traffic Management Center (STMC).

Statewide Traffic Management Center (STMC)
Telephone: 717-346-4400
Email: RA-PDSTMC@pa.gov

All callers must provide the following information/criteria to both the IT Help Desk and the STMC:

IT Help Desk Ticket Submission Criteria	STMC Follow-Up Criteria
• Emergency or Non-Emergency Issue • IT issue being observed • Urgency of the request • Contact Information	• Emergency or Non-Emergency Issue • IT issue being observed • Urgency of the request • Contact Information • PennDOT IT Help Desk Ticket #

It is the responsibility of the STMC to maintain situational awareness and follow-up with the remaining districts/regions regarding status of maintenance/outage and disseminate the information collected. The district(s)/region(s) should continue to update the STMC with any new information/updates acquired throughout the event timeline for an enhanced situational awareness and common operating picture for all affected operations.

In the case of any Emergency ATMS Maintenance and/or Outage, an after-hours support escalation SOP has been created and should be utilized.

4.4. ATMS Alerts and Notifications

I. Purpose

The purpose of this section is to provide a shared understanding of ATMS Alerts and Notifications within the system.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of the District/Regional Traffic Management Centers (RTMCs) to continuously monitor the alerts and notifications within ATMS to ensure maximum efficiency of operations, maintain an enhanced situational awareness and provide effective timely incident response.

IV. Policy

All alerts shall be given the proper attention needed to maintain TMC operations effectively and efficiently within ATMS. Each alert is to be acknowledged and a proper response provided based on operational impact level and time sensitivity.

V. Procedure

ATMS Alerts and Notifications will automatically appear within the bottom right-hand corner of the ATMS window when prompted. Both District and Regional TMCs will experience different alerts and notifications dependent upon the modules that are being utilized for their respective TMC operations.

The alerts/notifications that require immediate user action, will remain on the screen until acknowledged by the ATMS user. The alerts/notifications that do not require user action will automatically be moved to the Alerts tab after a predetermined amount of time has passed.

4.5. ATMS Communications Log

I. Purpose

The purpose of this policy is to identify the proper processes regarding the operation, utilization and management of the Advanced Traffic Management System (ATMS) Communications Log.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all TMC personnel for the entry of any event correspondence and maintaining the continuous updates of these events (planned & unplanned) throughout their 24/7 operation. This ensures the most accurate and up-to-date information is being captured and shared to all PennDOT Traffic Operations and TMC personnel.

IV. Policy

The ATMS Communications log is a real-time, running log used to record, share, track and store all correspondence and interactions (i.e., incoming/outgoing calls, verbal discussions, email, SKYPE/TEAMS correspondence, etc.) with users in Traffic Management Centers (TMCs) in addition to PennDOT internal/external sources regarding all transportation and non-transportation related events. The communication log shall be utilized by all TMC personnel to document all communications and interactions related to, but not limited to, the detection and verification of incidents, any additional information pertaining to any on-going events, after action reviews (AAR) and the composition of incident timelines.

It is important that all communications and interactions are documented throughout each event in a timely manner. These continued and up-to-date communications will help to:

- Maintain open and regular communication with Area Command, TMC personnel and transportation stakeholders
- Maintain a regional and statewide common operating picture throughout operations
- Assist in timely dissemination of information
- Maintain constant and enhanced situational awareness of TMC operations and events statewide
- Improve the effectiveness of communications overall, including frequency and quality of information being shared

The ATMS Communications Log and its contents shall always be kept up to date to reflect continued and enhanced situational awareness in addition to maintaining a regional and statewide common operating picture.

V. Procedure

It is important that all on-shift TMC personnel maintain continuous updates of planned and unplanned events throughout the entire shift. The information gathered and entered within the ATMS Communications Log can then be utilized by these stakeholders to make the most efficient and effective decisions in traffic and incident management.

Triggers in which the use of the ATMS Communications Log is prompted, but not limited to, are as follows:

- Incoming calls from external field personnel to PennDOT Area Command
- Outgoing calls from PennDOT Area Command to external field personnel
- On-camera validation of activities
- Media contact
- All transportation stakeholder correspondence
- Event updates, situational reports/updates
- 511PA Connect Activations/updates
- Planned/Active Vehicles Restrictions/updates

For further information and guidance on the proper utilization of the ATMS Communications Log, reference Section 8.5 Event Mitigation and Traffic Management.

4.6. ATMS Contacts

I. Purpose

The purpose of this section is to provide a shared understanding of the creation, utilization, and maintenance of the TMC and Traffic Operations contacts within ATMS.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all those entering any new and/or updating any contact information within ATMS to provide the most accurate and up-to-date contact information within the system.

IV. Policy

The ATMS Contacts module provides a list of configured contacts that are available for users to view, add, edit and delete. Contacts can be filtered and/or customized based on a user's operational area. All ATMS Contacts shall be maintained and kept up to date. It is pertinent that all contact information entered into the system has been verified and is accurate.

A. Entering a New Contact

Consistency is important when adding new contacts within the ATMS Contacts listing as it allows for users to easily navigate the contact list and helps to alleviate any duplicate entries. All those entering a new contact must follow the required entry guidelines and provide the minimum information from Table 14.

TABLE 14: ATMS CONTACTS LIST - NEW ENTRY CRITERIA AND POLICY DETAILS

Contact List Criteria	Policy Details
Contact Name	• All contacts entered within the ATMS Contacts List must have both the first and last name of the individual contact and/or the full "organization" name. ○ Example – John Smith or 911 Dauphin County
Contact Telephone Number & Type	• All new contacts must utilize a full 10-digit phone number including the 3-digit area code • Users must also utilize a dash (-) when entering the contact telephone number for consistency • Specific Contact "type" shall be provided (if known) ○ Contact Type Examples – cell/home/office
Contact Home Group	• Users must properly identify the contacts "Home Group" or their specific area of operation. • Contacts may have more than one (1) Home Group assigned to an entry ○ Example – 911 Centers and/or PennDOT Area Command
Email*	If provided, a contact's email address may be entered as an additional form of contact
Organization*	Organizations shall be predetermined
Notes*	Notes can be added to denote a specific contact "job position or title"

*Indicates an optional information entry field when creating a new contact within the ATMS Contacts module. The optional criteria are an added benefit to the contact but is not required/necessary to save the contact within ATMS.

B. ATMS Contact List Maintenance

The ATMS Contact list must be reviewed periodically for quality assurance and accuracy of information. Any inaccurate contact and/or out-of-date information should be modified or removed from the system at this time.

V. Procedure

All users shall enter and/or update any contacts within ATMS by utilizing the Manage Module>Contacts. Within the Contacts module, the user may add a New contact or simply edit an already existing contact.

All new ATMS Contact entries must include the Contact List Criteria provided above in Table 14. Not all contact list criteria are required. Optional criteria are shown with an asterisk (*).

For further information and guidance on the ATMS Contacts List module, reference the ATMS Administrator Help.

4.7. ATMS Incidents

I. Purpose

The purpose of this policy is to provide ATMS Users with the information and guidance necessary to manage any active event within the system in real-time and provide the user with the ability to activate, update and deactivate ITS devices as needed.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of ATMS Users to manage and monitor the ATMS Incidents List to ensure that all active incidents (e.g., roadwork, crashes, etc.) entered within RCRS and displayed within the system are accurate, up-to-date and that all available ITS devices are being utilized properly.

IV. Policy

ATMS Users shall continuously monitor the ATMS Incidents List for situational awareness and proper ITS device activations.

V. Procedure

ATMS Users shall utilize the ATMS Incidents List to verify the ITS devices that have been associated to any active event are properly being displayed and modified as necessary. If an active ITS device has not been associated to an event, the Incident List is a quick and easy way to allow the user to associate, edit and/or blank an ITS device.

In the event of a Full Road Closure, the ATMS user may utilize the Get Recommendations option to view and activate any recommended responses.

4.8. ATMS Planned Events

I. Purpose

The purpose of this policy is to provide ATMS users the tools necessary to create and manage resource plans within the system.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of the DTMCs/RTMCs to create, manage and execute activations and deactivations of planned local, regional and statewide events such as travel times, special events, etc.

IV. Policy

District and Regional TMCs shall create an ATMS Planned Event for any local and/or large-scale events throughout their respective area of operation. ATMS users must utilize the Planned Events module to schedule a specific date and time and/or execute an on-demand plan for these events. Within each planned event, ITS device(s) must be selected, associated and then activated. The ITS devices may include CMS, HAR/HAR beacons, Variable Speed Limits (VSL), and Signal Action Sets (SAS).

Any active ATMS Planned Event must be monitored for accuracy and effectiveness throughout the entirety of the event. At the conclusion of the event, users must verify that the system has automatically deactivated or manually deactivate the associated ITS devices.

V. Procedure

Users shall access planned events utilizing the Manage Module within ATMS to create, modify and/or activate an already existing planned event.

A. Planned Events List View

Users can create a new resource plan, utilize the search feature, filter by date or operational view and view already existing resource plans. Within the ATMS Resource Plan List View, existing resource plans allow the user to view the following information:

- Status
- Plan (Resource Plan Name)
- Description
- Start (Beginning Date/Time)
- End (Termination Date/Time)
- Home Group(s)
- Options
- Customizable Table Columns (Represented by the gear icon)

B. Creating a New Resource Plan

To create a NEW Resource Plan within the ATMS Planned Events Module, users must click NEW and enter all required information in Table 15.

TABLE 15: NEW ATMS PLANNED EVENT - ENTRY CRITERIA

Resource Plan Tabs	Event Entry Criteria	Criteria Description
Plan Details Tab	Plan Name	Provides a "Title" for the event (e.g., SSM – Click It or Ticket)
	Home Group	Identifies area of operation for the specific Planned Event
	Description	Provides any additional details regarding the events activation
	Confirmation Required Checkbox	Must be selected if the user does not want automatic activation of the planned event
Timing and Recurrences	Date(s) of Occurrence	Provides the date of event activation and deactivation
	Time(s) of Occurrence	Provides the exact time of event activation and deactivation
	Recurring Checkbox	Enables the user to schedule the event on a repeated basis (e.g., daily, weekly and monthly)
Resources	Signs	Identifies available CMS to be associated and activated for the event
	Highway Advisory Radio (HAR)	Identifies available HAR and HAR Beacons to be associated and activated for the event
	Variable Speed Limit (VSL)	Identifies available VSL to be associated and activated for the event
	Signal Action Sets (SAS)	Identifies available SAS to be associated and activated for the event
Activity Logs	Activity Log Details	Provides information including date created, username, activity, event information and options including the availability to manually enter a new entry within the activity log.

All users must be sure to **CLICK SAVE!** **If the user does not click SAVE, the entire planned event will not be created.** It is a best practice to click SAVE throughout the information entry process and/or after the completion of each Resource Plan tab.

C. Modifying an Existing Resource Plan

The options available for modifying a Resource Plan within the ATMS Planned Events module are listed in Table 16.

TABLE 16: MODIFYING EXISTING RESOURCE PLANS

Edit	Allows the users to modify the information within the Resource Plan only when the Resource Plan is inactive
Delete	Allows user to delete a specific Resource Plan
Clone	Enables the user to duplicate or copy a Resource Plan
Run/End Plan	Allows the user to activate and deactivate a Resource Plan
Print	Enables printing of the Resource Plan and all the information associated with the specific plan (e.g., Activity Log)

D. Activating/Deactivating a Resource Plan

Once a Resource Plan has been created and/or modified, the user must then activate or "run plan" if it has not already been scheduled. The status column will display the current status of the Resource Plan. Within the Status column, resource plans will be displayed as scheduled, unscheduled, active or expired.

If the user has scheduled a resource plan to automatically activate or run, that resource plan will then automatically deactivate or end at the assigned/scheduled time. However, if the confirmation required checkbox has been selected within the resource plan, during its initial creation, that plan will only run if the user clicks the activation alert notification pop-up. All alert notifications will appear within the bottom right-hand corner of the ATMS screen. The user must confirm, update or cancel the activation alert notification(s) within 15 minutes of the scheduled resource plan activation/run time. If the plan is **not** confirmed, the user must manually activate/run the desired resource plan.

The cancel function of the scheduled resource plan for activation alert notifications will stop the plan from running at its scheduled time and no further activation alert notifications will appear. If no alert notification selections are made, the resource plan will automatically expire/cancel. **If a resource plan is manually activated, it must be manually terminated.**

The update function of the scheduled resource plan for activation and expiration alert notifications may be utilized to postpone the start and/or end time of a resource plan.

To deactivate a scheduled resource plan within the Planned Events module, the user must confirm or update the expiration alert notification(s) within 15 minutes of the scheduled resource plan deactivation/end time or the resource plan will continuously run. If the plan deactivation is not confirmed, the user must then manually deactivate/end the desired resource plan.

4.9. ATMS Service Patrol Log

I. Purpose

The purpose of this policy is to provide, all those responsible for the operation and dispatch of Service Patrol vehicles, the ability to manage and document all the essential elements of information required within the ATMS Service Patrol module.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS Service Patrol module.

III. Responsibility

It is the responsibility of both District and Regional TMC personnel who manage and/or dispatch any service patrol vehicles to utilize the ATMS Service Patrol module in accordance with the below policy.

Not all districts/regions have roadways that require Service Patrol vehicles and therefore are not all responsible for the management and/or dispatch of these vehicles.

IV. Policy

All ATMS users must maintain an enhanced situational awareness and remain vigilant during Service Patrol hours of operation to ensure the safety of both motorists and its Service Patrol personnel. Users shall utilize the Service Patrol log within the ATMS Manage module to document all information regarding Service Patrol activities during their shifts.

TMC Operators/Supervisors shall maintain an open line of communication with their assigned Service Patrol vehicles and dispatch as needed.

V. Procedure

- All Service Patrol vehicle information (Truck #, Driver Name, Mileage & Start/End times) should be documented at the beginning and end of each vehicle's shift to ensure consistency and accountability.
- The user must document the arrival and departure time, incident location and any additional vehicle information when responding to an event within the ATMS Service Patrol Log.
- The user must also document all actions taken by their respective Service Patrol vehicle (e.g., refueled, traffic control, etc.)

4.10. ATMS Weather

I. Purpose

To provide the necessary information and guidance needed to properly navigate and utilize the weather service module within ATMS.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of ATMS users with the permissions and accessibility to the ATMS Weather module to utilize the module for real-time weather information/data gathering and sharing.

IV. Policy

ATMS users should utilize the Weather module within ATMS for information gathering and enhanced situational awareness during inclement weather events. The information gathered shall be used to identify, verify and provide real-time information regarding current and changing weather/road conditions.

A. RWIS Sensor Malfunctions/Concerns

If a user suspects that an RWIS Sensor is malfunctioning and/or is inoperable, the user may submit a concern via email to:

RWIS Sensor Concern Submission
Email: PD, BOMO Winter Ops
Subject: RWIS Sensor Concern

Reference the below procedure and submission criteria for the proper **RWIS Sensor Malfunction/Concern Submission** requests.

V. Procedure

Users should utilize the information within the ATMS Weather module to maintain an enhanced level of situational awareness of current weather and road conditions by monitoring information such as but not limited to air temperature, visibility, grip factors, road surface temperature, etc.

The Weather Module provides users with a Sensor Snapshot or still-image of specific roadway segment(s) that have been predetermined within the module. This information is continuously gathered by Road Weather Information System (RWIS) Station sensors and disseminated back to the ATMS Weather Module. These still shots should be utilized to identify both current and changing weather conditions (i.e., white outs) in addition to visibility conditions. Monitoring these weather/road conditions allows TMCs to provide advanced traveler information and warning via ITS activations and 511PA.

A. RWIS Sensor Malfunction/Concern Submission

As stated above, if a user suspects that an RWIS Sensor is malfunctioning and/or has become inoperable, the user may submit an email concern to:

RWIS Sensor Concern Submission
Email: PD, BOMO Winter Ops
Subject: RWIS Sensor Concern

Within the email, the following information shall be provided to assist with expediting the submission/repair process:

- Device Name (i.e., I-99 @ MM 63.5, Centre County)
- Date/Time the issue was observed
- Reason for why it is believed to be malfunctioning or the readings are in error

Once this information has be properly submitted to PD, BOMO Winter Ops, the provided information will be passed on to the RWIS vendor for review.

4.11. ATMS Signs

I. Purpose

Provide ATMS Users with the ability to access, view, manage and/or operate Changeable Message Signs (CMS) within the system.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all ATMS users to activate, update and blank CMS during events within a timely manner to provide motorists with accurate, up-to-date traveler information and guidance.

IV. Policy

All ATMS users shall only utilize the ATMS Signs module to operate CMS available within their respective district/region during any active event(s).

A. Blue-Sky CMS Activation Requests

In the event another district/region requests to utilize and/or operate another district's/region's CMS for non-emergency events, they may only do so if permission from the responsible/respective district/region for temporary use is granted. Once permission is granted, the correspondence shall be documented within the ATMS Communications Log.

B. Immediate/Emergency Response CMS Activation Requests

In the event a district/region requires the immediate/emergency activation of another district's and/or region's CMS, the District/Regional TMC in need of the device may activate the first available CMS upstream of the current emergency event if and only if the CMS is available and not currently being utilized for another active event. Any additional CMS that will need to be utilized for this immediate/emergency event should be prepared within ATMS prior to contacting the respective district/region. Once permission is granted, the district/region in need of the CMS to immediately activate any additional CMS.

V. Procedure

Users can view all available CMS via the Map function or by clicking the Devices Module and selecting Signs. Available devices will be dependent upon User Preferences. Authorized users can use the Map functionality and/or Signs module to view the current message displayed, activate, modify and/or blank a message on a selected CMS within the system.

A. Blue-sky CMS Activation Requests

As stated above, any district/region requesting access to any CMS outside of their respective district and/or region(s), must first contact the TMC responsible for the CMS in question with the following information:

- Reason for request (e.g., Why are additional CMS needed?)
- Listing of the device(s) being requested for utilization (e.g., CMS D8_81N-0.2 DMS-08-015)
- RCRS ID# of the event (if available at the time of request)

All request correspondence and device information must be documented within the ATMS Communications Log by both the requested and receiving District/Regional TMC.

At the conclusion of the event, the CMS requested for utilization must be blanked and/or returned to its original status. Once the requesting district/region has identified all CMS have been blanked and/or prior queued messages are being displayed properly, a phone call shall be made by the requesting TMC to confirm completion of their requested CMS utilization. Again, this correspondence must be documented within the ATMS Communications Log.

B. Immediate/Emergency Response CMS Activation Requests

Any district(s) and/or region requesting the immediate/emergency utilization of any CMS outside of their respective district/region shall be permitted to utilize and activate the most upstream and/or relevant CMS for the current event prior to contacting the effected TMC. Once activation of this initial CMS has been completed, the requesting district/region must then immediately contact the effected TMC and provide them with the following information:

- Reason for immediate/emergency request (e.g., Why are additional CMS needed?)
- Listing of the device(s) being requested for utilization (e.g., CMS D8_81N-0.2 DMS-08-015)
- Name of the initial CMS activated for the immediate/emergency event response
- RCRS ID# of the event (if available at time of request)

As stated previously, all request correspondence and device information must be documented within the ATMS Communications Log.

At the conclusion of the emergency event, the CMS requested for utilization must be blanked and/or returned to its original status. Once the requesting district/region has identified all CMS have been blanked and/or prior queued messages are being displayed properly, a phone call shall be made by the requesting TMC to confirm completion of their requested CMS utilization. Again, this correspondence must be documented within the ATMS Communications Log.

For further information and guidance on how to properly create and display CMS messages, reference Publication 200: CMS Operating Procedures.

4.12. ATMS Cameras

I. Purpose

The purpose of this policy is to provide ATMS users the information and guidance necessary to view and operate Closed Circuit Television (CCTV) within the Cameras Module.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all authorized ATMS users to view and operate Cameras within ATMS professionally and responsibly for event-related information gathering and enhanced situational awareness.

IV. Policy

All ATMS users shall only utilize the ATMS Cameras module to operate CCTV available within their respective district/region during events.

V. Procedure

Users can view all available CCTV via the Map function or by clicking the Devices module and selecting Cameras. Available cameras will be dependent upon User Preferences. Authorized users can use the Map function and/or Cameras module to view livestream footage, utilize Pan, Tilt, Zoom (PTZ) functions, restrict access to external users and/or reset cameras as needed.

4.13. ATMS Detectors

I. Purpose

The purpose of this policy is to provide information and guidance on the utilization of the Detectors module within ATMS. Detectors receive real-time speed data based on several criteria such as specific direction of travel per travel lane in addition to comparing both historical and current data.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

ATMS users are responsible for monitoring the information within the ATMS Detectors module and maintaining situational awareness of the current travel conditions within their respective district(s) and/or region.

IV. Policy

ATMS users shall utilize the speed data collected to provide the most up-to-date traveler information using ITS devices.

V. Procedure

Users can view and monitor speed detectors within the system through the Map function and/or the Devices module and selecting Detectors. Available detectors will be dependent upon User Preferences. Authorized users can use the Map function and/or Detectors module to view the current traffic and speed data on a selected roadway within the system.

4.14. ATMS Highway Advisory Radio (HAR)

I. Purpose

The purpose of this policy is to provide information and guidance on the utilization and activation of Highway Advisory Radio (HAR) Transmitters and Beacons within the ATMS HAR module. HAR Transmitters utilize an AM Radio frequency to provide motorists with the most up-to-date traveler information and roadway guidance necessary during events (e.g., inclement weather, major road closures, special events, etc.) located within a specific geographical area.

HAR Beacons provide a visual alert along the roadway utilizing permanent signage equipped with a flashing signal used to advise motorists to tune into an area-specific AM Radio Station (e.g., 1670 AM).

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

ATMS users are responsible for activating, updating and disseminating event information by utilizing the ATMS HAR module. ATMS Users shall continuously maintain situational awareness of the current event updates, travel conditions, detour routes, etc. within their respective district(s) and/or region.

IV. Policy

ATMS Users shall utilize the ATMS HAR module to disseminate information to the traveling public and update messaging as necessary with the most accurate and up-to-date traveler information and guidance.

Users must increase coverage area of both the HAR Transmitters and Beacons as the impact of an event progresses to ensure the event information is continuously shared and updated allowing motorists to make safe and informed driving decisions.

V. Procedure

Authorized users can view, activate, modify and terminate HAR Transmitters and Beacons within the system through the Map function and/or the Devices module and selecting HAR. Available HAR devices will be dependent upon User Preferences. Authorized users can use the Map functionality and/or HAR module to select specific Transmitters and Beacons available within a geographical area to provide planned and unplanned event details.

4.15. ATMS Signals

I. Purpose

The purpose of this policy is to provide information and guidance relative to the Signals module within ATMS. The Signals Module allows the user to assist with the diversion of traffic onto another roadway to reduce congestion and optimize traffic mobility.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of ATMS Users to properly monitor, run and stop action sets and/or individual signals based on current traffic data and events.

IV. Policy

All ATMS Users shall maintain situational awareness and know which available signals within their respective district(s)/region(s) can be manipulated by utilizing the Signals module to provide the most efficient route(s) when possible. Before activating an incident management traffic signal timing plan, users must contact the emergency contact for the municipality from Exhibit C of the Traffic Signal Maintenance Agreement. Changes to the signal timing plan for incident management shall follow the procedures in the Traffic Signal Maintenance Agreement. The agreement can be accessed using TSAMS.

V. Procedure

ATMS users can run, set an expiration timer and/or stop signal action sets that have predetermined signals already assigned to them. Before running a signal action set in ATMS, users must contact the municipal emergency contact listed on the Traffic Signal Maintenance Agreement. Signals can be utilized accessed through the Devices module by selecting Signals. Available Signals will be dependent upon User Preferences. Authorized users can use the Signals module to select specific action sets available to regulate signal timing during abnormally high traffic volumes due to both planned and unplanned events (e.g., vehicle crash, special event, etc.).

4.16. ATMS Travel Times

I. Purpose

The purpose of this policy is to provide information and guidance relative to the Travel Times module in ATMS. The Signals Module allows the user to assist with the diversion of traffic onto another roadway to reduce congestion and optimize traffic mobility.

II. Applicability

This policy applies to TMC Managers, TMC Supervisors, TMC Operators, Consultants and Contractors involved in TMC Operations, and any other personnel responsible for the utilization of and/or management of the ATMS System.

III. Responsibility

It is the responsibility of all authorized ATMS Users to continuously monitor ATMS Travel Times to ensure the information is being properly generated and displayed within the field on CMS. If Travel Times are not properly being displayed, CMS should be blanked immediately, and a Supervisor should be notified.

IV. Policy

Travel Time messages may be displayed when traffic speeds drop below free-flow conditions. Travel times should not be displayed when traffic speeds are at or above free-flow conditions during non-peak periods. Travel Time messages should be utilized as single-phase messaging when possible. A second phase can be added with additional information advising of events such as Lane Restrictions, Shoulder Closures, Congestion, etc. to assist motorists with informed travel decision making.

Publication 200: CMS Operating Standards provides example travel time messages and guidance for posting the messages.

V. Procedure

Travel Time messages assist motorists in making informed decisions and shall be utilized wherever generic traffic information is being considered or in place of subjective messaging (e.g., expect delays). Travel Time messages provide next to real-time updates to informing motorists of any changing traffic conditions.

Travel Time messages may be displayed on CMS within ATMS if travel times can be measured or calculated by way of INRIX speed data, electronic freeway sensor equipment (e.g., radar, toll tag readers, etc.) to establish, calculate and display travel time messages on CMS statewide through the ATMS Travel Times module software.

The below guidance shall be followed in accordance with the 2020 CMS Operating Standards when posting Travel Times on CMS within ATMS:

- Travel Time Messages should identify:
    - Major Exit Locations (Exit Number and/or destination).
    - Major Roadway Interchanges (Route Number)
    - Major destinations
    - Major decision points

- Travel Time distance should be provided when character spacing is available to provide motorists additional information or if providing multiple destination point travel times.
- Avoid using local road names where possible so that all motorists can understand the message.
- Long distance travel times may be difficult and misleading if congestion only begins near the destination point. In those situations, other traffic operations messaging should be utilized instead of travel time messaging.
- Minimum time thresholds established in ATMS should be used to ensure speeding is not encouraged. Once this threshold is applied, the travel time message will not report a time that is lower than the defined minimum.
- If the distance in miles to the destination is not provided in a CMS message, it is not necessary to use the minimum time threshold when building your travel times.
- Work Zone Travel Times need field verification of speed limit from the field point of contact.
- Travel time message should be labeled with “TRAVEL TIME TO” or “TIME TO” as character spacing permits

Chapter 5. 511PA Policies

5.1. 511PA General Information

I. Purpose

To define the general types of information included on the 511PA website.

II. Applicability

This applies to all personnel entering and managing traveler information through the 511PA Admin site or RCRS.

III. Responsibility

Personnel are responsible for following the policies in this section.

IV. Policy

The following information are the types of information disseminated through 511PA.

A. Core Roadway Network Closures

The 511PA system will automatically generate Floodgate and Ticker messages for all full closures on the Core Roadway Network. Operators can edit automated messages.

B. RCRS Outages

Planned or unplanned outages of RCRS that affect the data feed to 511PA with an estimated duration of 30 minutes or more require a Ticker and a Floodgate message.

C. Amber Alerts

Official Amber Alert advisory messages are generated by the Pennsylvania State Police (PSP).

When an Amber Alert is initiated, PSP provides a standardized message for broadcasting over the Emergency Alert System (EAS) and posting on their Amber Alert web site (http://www.psp.pa.gov/amber-alert). PSP contacts the Department's Harrisburg Emergency Preparedness Liaison Officer (EPLO) and provides the description of the suspect's vehicle and license plate information, if available, for use on 511PA. The EPLO then contacts the STMC for entry of the Amber Alert advisory message.

When there is complete information available, a Floodgate message and a website Ticker alert shall be posted on 511PA by the STMC.

When there is only partial information available for the Amber Alert, such as no description of the vehicle involved in the abduction, only a website Ticker alert shall be posted on 511PA by the STMC.

D. Missing Endangered Person Alert

Official Missing Endangered Person Alert (MEPA) advisory messages are generated by the Pennsylvania State Police (PSP).

When a MEPA is initiated, PSP provides a standardized message for broadcasting over the Emergency Alert System (EAS) and posting on their MEPA web site (http://www.psp.pa.gov/amber-alert). PSP contacts the Department's Harrisburg Emergency Preparedness Liaison Officer (EPLO) and provides the description of the suspect's vehicle and license plate information, if available, for use on 511PA. The EPLO then contacts the STMC for entry of the MEPA advisory message.

When there is complete information available, a Floodgate message and a website Ticker alert shall be posted on 511PA by the STMC.

When there is not a complete description of the vehicle, including the license plate, only a local Floodgate shall be posted on 511PA by the STMC.

E. Emergency Travel Advisories

Travel advisory messages are regional or statewide events that are of an emergency nature and severely impact transportation within the Commonwealth. When applicable, PennDOT's Area Command can request the STMC to post Ticker and Floodgate messages.

F. Weather Restrictions

These messages are generated to support winter operations, and may include Winter Weather Advisories, Speed Limit Restrictions, Vehicle Restrictions, and Ramp Restrictions or Full Road Closures. The 511PA system will automatically generate the appropriate Ticker and Floodgate messages. The STMC will activate the restrictions map prior to the storm if restrictions are planned or prior to enacting restrictions in RCRS for unplanned restrictions.

G. Trapped Queue

When a closure results in a trapped queue that is expected to last four (4) or more hours, the 511PA Connect system can be activated. Once activated, operators shall issue alerts every 15 minutes. Once the initial alert is sent, a corresponding incident website shall be automatically be activated. PennDOT's Area Command will determine when it is acceptable to activate the 511PA Connect system. For activation procedures, refer to the 511PA Connect Standard Operating Procedure and the 511PA Connect Walkthrough on the TMC Portal.

H. Major Regional Event

When a major or catastrophic event occurs in a region, the 511PA Connect system can be utilized to push out an advisory message to motorists that are in or enter a defined geofenced location.

Unlike trapped queue activations, the 511PA Connect website will not be activated in conjunction with the alert being disseminated. PennDOT's Area Command will determine when it is acceptable to issue an alert.

5.2. 511PA Connect

I. Purpose

To define the policies for activating a 511PA Connect and the procedures to activate, manage and close a 511PA Connect.

II. Applicability

This applies to STMC staff, Area Command Planning Section staff and Area Command Deputy Commanders.

III. Responsibility

The STMC is responsible for activating and monitoring 511PA Connect closures. During activations, Area Command Planning Section staff or Deputy Commanders may also activate and monitor 511PA Connect closures.

IV. Policy

511PA Connect is a trapped-traveler emergency communications tool that allows incident response teams to communicate via automated phone or text message directly with motorists who are trapped in a queue. Notifications are sent to cell phones in a geofenced area to motorists. Motorists are able to initiate two-way communication with the 511PA Connect system. The communications allow Area Command and the STMC to provide support to on-scene field personnel information on motorists in a trapped queue.

The types of 511PA Connect use cases are listed in Table 17. Area Command will approve all 511PA Connect messages. The STMC, Area Command Planning Section and the Area Command Deputy Commanders will coordinate 511PA Connect activation, monitoring and responses. All 511PA Connect activations will follow the procedures in the 511PA Connect Standard Operating Procedure. Districts may request the activation of 511PA Connect for an incident by contacting the STMC. The STMC will communicate the request to Area Command and Area Command will determine whether a 511PA Connect activation is warranted.

TABLE 17: 511PA CONNECT USE CASES

Function	Usage Type	Responsibility	Tool
511PA Connect	Trapped Queue	Area Command and STMC	511PA Connect Administrator Interface
	Major Regional Event	Area Command and STMC	511PA Connect Administrator Interface

V. Procedure

511PA Connect activations will follow the procedures in the 511PA Connect Standard Operating Procedure. Guidance on using the 511PA Connect Administration system can be found in the 511PA Connect Walkthrough. The 511PA Connect Checklist can be used to help determine if an event meets

the criteria for a 511PA Connect. The 511PA Connect Administration page may be accessed using the following link:

511PA Connect
https://admin-paconnect.511pa.com/Login

5.3. 511PA Floodgate and Ticker Messages

I. Purpose

To define 511PA Floodgate and Ticker messages and to define the procedures for activating the messages.

II. Applicability

This applies to all personnel requesting, entering or managing a 511PA Ticker or Floodgate message.

III. Responsibility

The STMC is responsible for posting and managing 511PA Ticker and Floodgate messages.

IV. Policy

A. 511PA Floodgate Messages

511PA Floodgate messages are manually recorded advisory messages that is placed in the 511PA IVR (Interactive Voice Response) system at a selected menu location. Floodgate messages can be placed on any of the eight IVR calling region menus or the statewide menu. The STMC will work with the affected TMCs to determine the appropriate regions for a message.

B. 511PA Ticker Messages

511PA Ticker messages are statewide scrolling alerts on the 511PA website and mobile application.

V. Procedure

Table 18 identifies specific types of 511PA Floodgate and Ticker messages and the roles and responsibilities for activating the messages.

TABLE 18: 511PA TICKER AND FLOODGATE MESSAGES

Function	Usage Type	Responsibility	Tool
IVR Floodgate Messages	Core Roadway Network Closures	511PA Vendor (automatic)	511PA System
	RCRS Outages	STMC	511PA Admin Tool
	Amber Alerts	STMC	511PA Admin Tool
	Emergency Travel Advisories	STMC	511PA Admin Tool
	Weather Restrictions (speed restrictions, vehicle restrictions and no entry access)	511PA Vendor (automatic)	511PA System
Website Ticker Alerts	Core Roadway Network Closures	511PA Vendor (automatic)	511PA System
	RCRS Outages	STMC	511PA Admin Tool
	Amber Alerts	STMC	511PA Admin Tool
	Emergency Travel Advisories	STMC	511PA Admin Tool
	Weather Restrictions (speed restrictions, vehicle restrictions and no entry access)	511PA Vendor (automatic)	511PA System

5.4. 511PA Special Event Pages

I. Purpose

To define the events that qualify for 511PA pages and the procedure to post the pages.

II. Applicability

This applies to all staff that coordinate special events including national, statewide or regional events or long-term construction projects.

III. Responsibility

Project or event leads are responsible for requesting 511PA Special Event pages in accordance with the policy and procedures below.

IV. Policy

Dedicated traveler information websites can be created for specific events in the following categories:

- **National Level Special Event:** An event spanning multiple days with a national security service (e.g., FBI or Secret Service) and the event will significantly impact the Core Roadway Network.
- **Long Term Major Construction Project:** A construction project lasting more than one month, will have a significant impact on the Core Roadway Network and will have associated detours and/or alternate routes where the Department has high quality speed data to provide accurate alternate travel times.
- **Special Event of Statewide or Regional Interest:** The event shall bring a significant traffic volume from outside the immediate area of the event and the special event will have a significant impact on the Core Roadway Network and the special event shall have associated detours and/or alternate routes where the Department has quality speed data to provide accurate alternate travel times

Table 19 details the development process and timeline for each type of special event and holiday page.

TABLE 19: 511PA SPECIAL EVENT PAGE REQUIREMENTS

	National Special Events	Long Term Major Construction Projects	Special Events of Statewide or Regional Interest
Request Deadline from the start of the event	6 Months	3 Months	3 Months
Approving Authority	Traffic Systems and Performance Unit and Central Office Press Office	Traffic Systems and Performance Unit and Central Office Press Office	Traffic Systems and Performance Unit and Central Office Press Office
Necessary Information Deadline	3 Months	2 Months	2 Months
Type of page	Separate multipage website and URL, but linked and promoted via 511PA	Dedicated traveler information page available through 511PA	Dedicated traveler information page available through 511PA

V. Procedure

The procedure for each type of page is the same. The business lead for the event will contact the Traffic Systems and Performance Unit according to the timeline in the table above. The Traffic Systems and Performance Unit and the Central Office Press Office will coordinate approval and development of the page according to the type of event. All necessary information will be provided to the Traffic Systems and Performance Unit according to the deadline in Table 19.

5.5. 511PA Maintenance and Outage Procedure

I. Purpose

To define the requirements for notifying the STMC of maintenance and outage procedures. This policy also defines the notifications to the public, PennDOT TMCs, executives and other stakeholders.

II. Applicability

This applies to TMC personnel.

III. Responsibility

TMC personnel are responsible for notifying the STMC if they notice any issues with devices in their region in the 511PA system. The STMC is responsible for notifying other TMCs, executives and other stakeholders of any outages or maintenance of the 511PA system.

IV. Policy

TMCs shall notify the STMC of any major device outages affecting 511PA. The STMC shall provide notification to the TMCs, executive staff, Area Command and other stakeholders of any device outages and planned maintenance for the 511PA system. Where major outages are expected or found the STMC may also post a Ticker or Floodgate message for the outage.

V. Procedure

The STMC will use email templates with the designated groups included. If there are any changes to the personnel who should receive the notifications, notify the STMC.

5.6. 511PA Camera Management

I. Purpose

To define procedures for TMCs to manage cameras in 511PA.

II. Applicability

This procedure applies to all TMC personnel, including operators, supervisors, managers and ITS Maintenance Managers and Coordinators.

III. Responsibility

TMC managers are responsible for ensuring cameras are managed in accordance with this policy. TMC operators and supervisors must follow the policies and procedures for camera use and management. ITS Maintenance Managers and Coordinators are responsible for ensuring each camera is added to 511PA.

IV. Policy

511PA provides access to PennDOT traffic cameras to the public. The public can access a live streaming video or static images. TMC staff shall use the cameras for official purposes.

A. Adding New Cameras to 511PA

When a new CCTV camera image becomes available to add to 511PA, the ITS Maintenance Manager or Coordinator should request PennDOT IT add the camera to 511PA.

B. Temporarily Disable Camera Feeds

Camera feeds may be temporarily disabled due to sensitive events. When these events are identified, TMC personnel shall request the feeds be disabled. The preferred method for all requests is to contact IT and start an IT service request to disable the affected cameras. If IT is unable to disable the affected camera feeds, TMCs may contact the STMC to disable the feed. During any period where sensitive images may be shown on the camera before IT or the STMC is able to disable the camera, the camera should be turned away from the incident.

V. Procedure

C. Disabling 511PA Camera Feeds

1. TMC requests IT disable the camera by calling the IT Help Desk or by using the Request for Service. All requests should include a list of the cameras affected and the expected start and end times of the event.
2. The TMC shall notify the STMC they have requested IT disable the cameras. The notification to the STMC shall include the cameras affected, the expected start and end time of the event and the reason for the request.
3. If the event is time sensitive and IT is unable to disable the camera feeds in a timely manner, the TMC may request the STMC disable the 511PA camera feeds.
4. After the event has cleared and the camera feeds are able to be restored, the TMC should contact IT and/or the STMC to restore the feeds.

Chapter 6. Continuity of Operations (COOP) Policies

6.1. Traffic Management Center (TMC) COOP Procedures

I. Purpose

The purpose of this policy is to define the roles and responsibilities of all Traffic Management Centers (e.g., District, Regional and Statewide TMCs) located within the Commonwealth in the event a Continuity of Operations Plan (COOP) is required due to a reduced operational capacity and/or TMC staff are unable to perform functions at their regular location.

II. Applicability

This policy applies to all Traffic Management Centers (DTMC, RTMC & STMC) and their personnel responsible for the continuous dissemination of traveler information throughout the Commonwealth of Pennsylvania.

III. Responsibility

It is the responsibility of all Traffic Management Centers (TMCs) and its staff to implement COOP procedures (found in the region's Traffic Operations Plan) as a result of any reduced operational capacity. It is the responsibility of TMC management to keep the procedure up to date as things change and keep all employees aware of the current procedure in place.

Both District and Regional Traffic Management Centers are responsible for reporting any emerging concerns/issues involving staffing, systems and/or facility prior to or immediately after the inability to properly function and/or any significantly reduced operational capacity to the Statewide Traffic Management Center (STMC).

All TMCs are responsible for ensuring the operational transfer process listed in Figure 9.

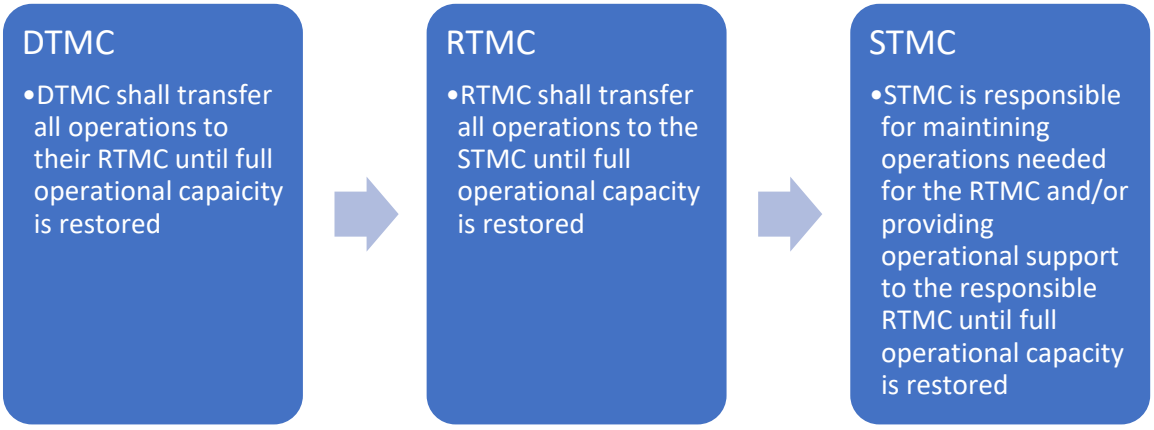


FIGURE 9: TMC CONTINUITY OF OPERATIONS

IV. Policy

A Continuity of Operations Plan (COOP) is a procedure for maintaining all TMC responsibilities when normally assigned staff are unable to perform operational functions at their regularly assigned facility. Each TMC shall include their individual COOP procedure within its Traffic Operations Plan (TOP) for both short-term and long-term conditions (emergency & non-emergency). The following situations require but are not limited to TMC COOP procedures being implemented:

- Insufficient staffing
- Traffic management systems/applications nonfunctional
- TMC facility not available and/or compromised

Each TMC shall identify a minimum of one (1) alternate location. In addition to the alternate location, each TMC shall maintain the equipment to begin remote operations from employees' homes, as detailed in Section 6.2. There should be a plan for short-term events and long-term events that keep the TMC staff from reporting to their designated workplace. Each location must have internet access and should have PennDOT intranet access. TMC Personnel shall have 24/7 access to these facilities. The equipment identified for use by the TMC shall be housed in the primary facility or one of the alternate facilities.

A. Transfer of Responsibility

The transfer of responsibility from one TMC to another operational area (e.g., another RTMC or STMC) may occur when any TMC has a significant reduction in operational capacity.

Once the affected TMC has become and/or been made aware of its reduced operational capacity, a phone call shall immediately be made to the STMC detailing its loss of capacities (partial or full), estimated time of outage, functional capabilities (if any) and any necessary contacts the STMC may need. The STMC shall accept all responsibilities for the affected district/region or distribute some or all responsibilities to another appropriate RTMC. These responsibilities include but are not limited to:

- Forwarding/Transferring of telephones by contacting IT if unable to forward from facility or phone lines are down.
- ITS device management/operation
- Maintaining enhanced situational awareness
- Planning and management of events (planned or unplanned)
- If the TMC is unable to function at full capacity, a situational awareness report shall be generated by the STMC to keep situational awareness for all TMCs. The STMC shall notify the chosen RTMCs management that is taking responsibility regarding the current situation and responsibilities they will be taking over for the impacted TMC.

B. Operational Handover Policy

All TMC operations handover procedures shall also be documented within the TMC TOP, including any additional and/or alternate communication methods in the event the primary communication method becomes compromised.

Any handover of operations for short-term COOP events shall be managed in consultation with the STMC, including identification of what capabilities/functionality have been compromised and/or remain available. The STMC shall manage this process and coordinate with the affected and/or compromised

RTMC (if possible). All work should be documented and shared with the impacted TMC when work returns to normal operations by utilizing the ATMS Communication Log or some other form of documentation if ATMS is not available.

V. Procedure

COOP procedures and TMC response levels are determined by the severity of an event. Table 20 identifies the levels or COOP Tiers to assist with the timeliness, effectiveness and proper response techniques are being utilized for each situation.

TABLE 20: CONTINUITY OF OPERATIONS TIERS

Length of Disruption (Hours/Days)	Tier #	Tier Description	Example COOP Events
Short-term (Less than 4 hours)	Tier 1	• Results in an outage and/or reduced operational capacity lasting no longer than 4 hours • Does not require relocation of TMC Operations/Operators • Back-up system(s) remain in place and operational	• Temporary Power outage (planned or unplanned) • Temporary Phone outage • Fire Drills • Software outage
Short-term (Greater than 4 hours but less than 12 hours)	Tier 2	• Short Term incidents that affect a TMC for less than 12 hours • TMCs ability to continue operations is limited	• Phone outage • Internet outage • Software outage
Long-term (more than 12 hours)	Tier 3	• Medium Term incidents that affect a TMC up to 5 days • TMC are required to move to their alternate locations • Required to set up and work from an alternate location	• Disease outbreak limited to one region • Fire or flooding events • Damaged Facility

A. DTMC

When a DTMC has reduced operational capacity, a transfer of responsibility shall occur from one operational area (DTMC) to another (RTMC or STMC).

Once a DTMC has detected a reduction in operational capacity, a phone call shall be made to the RTMC, detailing the loss of capacities (partial or full), estimated time of outage, functional capabilities and necessary contact information. The RTMC shall accept all responsibilities for the DTMC. The STMC may also take responsibility for the DTMC operations if the RTMC does not have the operational capacity.

If ATMS is working, the handover region should initiate the handover to the receiving RTMC/STMC. If there is no access to ATMS or email, a phone call to the STMC shall be made immediately. The STMC will facilitate the transfer of responsibility or take the responsibility itself and make proper notifications. The DTMC shall notify their immediate management.

B. RTMC

When a RTMC has reduced operational capacity, a transfer of responsibility shall occur from one operational area (RTMC) to another (RTMC or STMC).

Once a RTMC has detected a reduction in operational capacity, a phone call shall be made to the STMC, detailing the loss of capacities (partial or full), estimated time of outage, functional capabilities and necessary contact information. The STMC shall determine whether to accept all responsibilities for the RTMC or distribute all or some of the responsibility to another RTMC.

If ATMS is working, the handover region should initiate the handover to the receiving RTMC/STMC. If there is no access to ATMS or email, a phone call to the STMC shall be made immediately. The STMC will facilitate the transfer of responsibility or take the responsibility itself and make proper notifications. The RTMC shall notify their immediate management.

C. STMC

If any TMC's operations are impacted, the STMC will provide initial support for the impacted TMC. The STMC may request support from an unaffected RTMC or take complete responsibility until the TMC returns to normal operations.

When the STMC's operational capacity is impacted and the ERTMC is fully operational, the ERTMC shall accept the STMC's operational responsibilities until the STMC is operational from a remote location.

When the STMC's operational capacity is impacted and the ERTMC is also impacted, the CRTMC shall accept the ERTMC's operational responsibilities until the ERTMC is operational from a remote location. The STMC's operations will cease temporarily until the STMC is operational from a remote location.

6.2. TMC Remote Operations Policy

I. Purpose

The purpose of this policy is to define the roles and responsibilities of all Traffic Management Centers (e.g., District, Regional and Statewide TMCs) located within the Commonwealth in the event they are required to work remotely.

II. Applicability

The policy applies to all TMC centers (DTMC, RTMC and STMC) and their personnel who are responsible for maintaining the functionality of a TMC during a time of remote operations.

III. Responsibility

It is the responsibility of the TMC and its staff to ensure a smooth transition from normal operations to remote operations in the event of an incident where operations are forced to be remote. This includes issuing the proper equipment with the appropriate traffic management tools and software.

IV. Policy

To transition from normal operations to remote operations, a TMC shall define a procedure for the operation that should be identified in their Traffic Operations Plan (TOP). The procedure shall allow the TMC to continue operations until all staff are set up and ready for the transition.

During district, regional or statewide transitions to remote operations, the STMC should maintain operations until each district has moved to remote operations. In the event another TMC is to remain in place, the STMC shall move to remote operation with support from that TMC.

V. Procedure

Table 21 below shows the required equipment and traffic management tools/software needed for each individual operator to perform their duties at a remote location.

A. Operator equipment

TABLE 21: OPERATOR EQUIPMENT AND SOFTWARE

Equipment	Management Tools/Software
• Laptop • Two Monitors • Keyboard • Mouse • Headset • Docking Station	• RCRS • ATMS • Genetec • TMC Portal • Traffic Alerts • Incident Command Portal • PEMA Knowledge Center/WebEOC • PennDOT VPN Access • Microsoft Teams • Email access

TMC management shall identify and record each device that is handed out to each operator. In each region's TOP, a storage location for the remote operations devices shall be identified. The devices may

be used for both remote operations at employees' homes and work at an alternate worksite. Each device shall be checked on a biweekly to ensure the functionality. This includes logging into the laptops from a PennDOT facility to ensure the operators are not locked out and all updates have been downloaded.

For operators who do not have home internet access, Air cards or wireless hotspots shall be kept for remote operations.

B. Communication

TMC managers shall ensure operators can maintain a constant communication with each other while working remotely. A daily meeting room using Teams shall be setup on the Outlook calendar. At the beginning of a shift, an operator should log on and be able to join the meeting from the Outlook calendar. Operators shall remain in the meeting room to maintain constant communications. The following personnel should have access to the meeting:

- TMC Managers
- TMC Supervisors
- TMC Operators
- TMC ITS Maintenance Manager
- District Traffic Engineer

C. Transition

There are two ways to transition a TMC from normal operations to remote operations. The STMC shall provide support for either of the two option.

- TMC operators may transition at shift change. The current shift shall maintain operations until the first remote shift is able take control.
- TMC operators may also transition to remote by leaving one by one. When one operator is home and set up remotely another shall leave.

Chapter 7. STMC Policies

7.1. Area Command Notification Policy

I. Purpose

An important function of the Statewide Traffic Management Center (STMC) is the dissemination of information to PennDOT's Area Command, which will be used for making decisions during large-scale events. The purpose of this policy is to identify the pertinent events that are required by PennDOT Area Command to be reported on by the STMC.

II. Applicability

This policy applies to STMC personnel only who are responsible for managing these large-scale events.

III. Responsibility

STMC personnel are responsible for efficient and timely reporting of these events in accordance with this policy.

IV. Policy

The STMC shall gather all pertinent information for these events identified within the STMC Area Command Notification policy and provide Area Command with the most current, deconflicted and detailed situational awareness available. Once the information is gathered, the below policies and procedures shall be followed when communicating the information to Area Command.

V. Procedure

STMC personnel shall make notifications (e.g., telephone call and/or email SitRep) to Area Command depending on the event type listed within STMC Area Command Notification Policy. These event notification types have been predetermined by PennDOT Area Command and listed within the STMC Area Command Notification Policy.

Upon notification by a TMC and/or transportation stakeholder, STMC personnel shall provide the required information below in Table 22 when notifying PennDOT Area Command. Initial notification should be made within **15 minutes of incident verification.**

TABLE 22: AREA COMMAND NOTIFICATION REQUIRED INFORMATION

• Incident type
• Location
• Time of occurrence
• Estimated time to re-open
• Injuries/Fatalities
	• Knowledge of incident
	• PennDOT involvement
	• Contact information
	• Any decisions needed from Area Command
		• Impact to traffic:
		  ○ Length of queue
		  ○ Presence of trapped queue
		  ○ Detour Routes

STMC personnel shall reference the STMC Area Command Notification Policy for further guidance and information on the specific event types identified by Area Command as pertinent and the required notifications associated with each event.

If an active event is not listed within the Area Command Notification Policy or there are questions regarding an event, STMC personnel shall request further guidance from STMC Management.

The Area Command Notification policy can be found within the STMC SharePoint Site and the Traffic Management Center (TMC) Operations Portal.

7.2. Executive Leadership Notification Template Management and Use

I. Purpose

The purpose of this policy is to identify and provide PennDOT Executive Leadership personnel with accurate, up-to-date information regarding any large-scale events that occur throughout the Commonwealth. These events have been predetermined as per the PennDOT Traffic Operations Situational Awareness Memo (Appendix A).

II. Applicability

This policy applies to STMC personnel only who are responsible for the management and utilization of these situational report (SitRep) templates.

III. Responsibility

It is the responsibility of STMC management to update and maintain these templates and information within (e.g., email recipients). STMC staff will utilize and disseminate these templates as determined by the PennDOT Area Command Notification Policy.

IV. Policy

Executive Leadership Notification templates shall be utilized to provide PennDOT executives, leadership personnel and any other PennDOT transportation stakeholders with situational awareness of incidents meeting the criteria established within the PennDOT Traffic Operations Situational Awareness Memo (Appendix A). All email templates shall be warehoused within the STMC SharePoint>Area Command Templates folder.

These email templates allow for the STMC to accurately and consistently provide the proper event information and details needed for managing these events and effectively establish a common operating picture. All email templates shall be sent from the PD, STMC resource account (RA-PDSTMC@pa.gov).

V. Procedure

As stated above, STMC management personnel are responsible for the maintenance and modification of these templates within the STMC SharePoint site. Upon request and/or as needed, STMC management shall update any information within each template such as the email template recipients list. Upon any updates being made to these templates, a situational awareness email shall be distributed to all STMC personnel including which specific STMC template has been updated and what information has been added, modified and/or removed. Any questions or concerns regarding modifications shall be sent directly to the STMC Project Manager.

STMC personnel (e.g., STMC Operators and Supervisors) shall gather, deconflict/verify, document and disseminate all essential elements of information needed to meet the template's requirements. Upon completion and prior to distribution, the template shall be saved within the RA-PDSTMC@pa.gov drafts folder where an on-duty STMC staff member must quality check the information entered in the template for consistency and accuracy. Upon completion of the quality check, the STMC personnel responsible for its creation and review must provide their initials at the bottom of the template at which time the email may then be distributed.

7.3. Emergency and Winter Operations

I. Purpose

The purpose of this policy is to identify and provide expectations of STMC personnel during Emergency and Winter Operations.

II. Applicability

STMC personnel will serve as the PennDOT Area Command Planning Section during activations.

III. Responsibility

STMC personnel are responsible for reporting to PennDOT Area Command for emergency and winter weather activations at the Pennsylvania Emergency Management Agency (PEMA). STMC personnel are required to fulfill and maintain the positions of Planning Section Chief and Planning Section Support staff as per request of PennDOT Area Command.

IV. Policy

The assigned STMC Planning Section Chief and Support staff shall continuously maintain a common operating picture of transportation operations for the Department throughout the entire duration of all Emergency and/or Winter Weather activations as needed by PennDOT Area Command. As stated above, as Planning Section Chief and/or Support, assigned representative(s) of the STMC staff are required to report to the Area Command office (Room 240) within the PEMA building.

When part of Area Command, STMC steady-state personnel on-duty maintains a constant liaison with the assigned Planning Section affiliates.

V. Procedure

The STMC staff functioning as the Planning Section shall maintain the following Roles and Responsibilities:

- **Maintain Situational Awareness by** monitoring all available resources for current and evolving roadway conditions, reviewing ICC First Reports, and monitoring the Area Command Outlook Resource Account (RA-pdpenndottcc@pa.gov) for any pertinent information that is critical to the activation and/or AC mission.
- **Manage Situational Reports** by preparing and updating the Area Command Situational Reports (SitReps) utilizing all available information pertaining to a specific event. These email SitReps shall include a description of event, list of activated ICCs, status of critical resources, resource requests, planned activities, contingency planning, and accomplishments in addition to any active Speed/Vehicle Restrictions. Area Command SitReps are distributed via the TCC email account only (RA-pdpenndottcc@pa.gov), every two hours on the odd hour(s) throughout the entirety of an event. Upon completion, the Planning Section shall submit the report to the on-duty Area Commander for any corrections and/or modifications and approval prior to being sent. It shall be saved as a PDF and then distributed as an attachment to the Area Command e-mail and saved within the appropriate TCC Activation folder.
- **Manage Incident Action Plans (IAP)** by preparing and updating each report in concurrence with the Area Command Situational Report. The IAP serves as a quick reference contact listing for all on-duty Area Command staff and ICCs for the current activation. The IAP should be completed when any operational changes occur. It shall be saved as a PDF and then distributed as an

attachment to the Area Command e-mail and saved within the appropriate TCC Activation folder.

- **Manage Speed and Vehicle Restrictions** by receiving/responding to direct requests (e.g., telephone call & email) from District ICCs during winter weather events. The Planning Section chief and/or support personnel shall enter, update and manage all restrictions in RCRS upon the approval of the on-duty Area Commander.
- **Monitor 511PA Website** to ensure all information (e.g., restrictions) is properly fed from RCRS to the 511PA public site (www.511PA.com). The STMC and/or Planning Section personnel shall also monitor and manage all 511PA floodgate and ticker messages in response to any major events and/or restrictions (pre-emptive or active). In addition, upon enacting any vehicle restrictions or as per request of PennDOT Area Command, the 511PA Public Commercial Vehicle Restrictions map shall be enabled and monitored to ensure that all restrictions are accurately being displayed to the public. If an error occurs and any information and/or restrictions are not able to be displayed properly, a PennDOT IT Help Ticket shall be submitted immediately to remedy the issue as quickly as possible. At the conclusion of an event, it is the responsibility of the STMC and/or Planning Section personnel to disable the 511PA Public Commercial Vehicle Restrictions map utilizing the 511PA Administrative site.
- **Activate and Manage 511PA Connect** at the request and with the approval of the on-duty Area Commander. The STMC or the Area Command Planning Section personnel shall initiate a 511PA Connect, via the 511PAHelp Commonwealth of PA Emergency Traveler Response System (https://511pahelp.com/Dashboard#/Closures), for any major event(s) resulting in an extended road closure with significant trapped queues present. The 511PA Connect shall be managed within the STMC (CWWC), except for major event activations, in which case, the 511PA Connect activation will be initiated and managed by the Planning Section personnel within PennDOT Area Command located at PEMA (Room 240).
- **Support Deputy Traffic Enginee**rs by way of coordination of information and collaboration of guidance in response to any active major events that occur throughout the Commonwealth. While maintaining an active role within PennDOT Area Command, the Deputy Traffic Engineer is responsible for but not limited to the following:
    - Providing Traveler Information direction and support to the Planning Section Chief, STMC staff, and all PennDOT Traffic Management Centers (RTMCs/DTMCs)
    - Providing a leadership role and presence when 511PA Connect messaging is initiated
    - Assisting the Area Commander with necessary planning, situational awareness and/or any other operational needs during activations

The above procedure is not all inclusive and only denotes the high-level functions of the PennDOT Area Command Planning Section Chief, Support personnel and Deputy Traffic Engineer. Each Emergency and/or Winter Weather Activation will have its own unique and complex needs and expectations. Additional information and guidance can be referenced within the TMC Portal>Winter Ops.

7.4. Amber Alerts/MEPA Advisories

I. Purpose

The purpose of this policy is to provide information and guidance to effectively support the Pennsylvania State Police (PSP) during Amber and Missing and Endangered Person Advisory (MEPA) Alerts issued throughout the Commonwealth.

II. Applicability

This policy applies to STMC personnel only who are responsible for managing these alerts at the discretion of the designated PA Amber Alert Plan Designees identified within the Pennsylvania Amber Alert Plan.

III. Responsibility

It is the responsibility of the STMC and its personnel, in support of PSP, to disseminate all Amber/MEPA alert requests (e.g., telephone call and email notification). These alerts and any corresponding requests (e.g., ITS device activations), are to be communicated to the STMC from an authorized PSP designee only.

The STMC shall also be responsible for disseminating and providing any information, guidance and QA/QC needed upon request of any DTMC/RTMCs or PSP throughout the duration of the Amber/MEPA alert.

IV. Policy

The STMC is the main point of contact or POC for PennDOT during Amber and MEPA Alerts. It shall be the policy of the STMC to support and foster cooperation with the Pennsylvania State Police (PSP) in providing motorist awareness and timely dissemination of information and guidance to the affected DTMC/RTMCs.

The Amber Alert Program uses emergency alerts to notify the public about a child abduction. When specific criteria are met, bulletins containing child descriptions, information on suspected abductor(s), and/or involved vehicle details are issued for public dissemination. Broadcasters, vendors and other media outlets have agreed to publish Amber Alerts upon their dissemination. MEPA (Missing or Endangered Person Advisory) Alerts are like Amber Alerts but are not based on an abduction scenario. The criteria for reporting MEPA Alerts are lower than Amber Alerts, and stakeholders are not compelled to broadcast MEPA information.

The Pennsylvania State Police (PSP) is the coordinator of the Amber/MEPA Alert programs in Pennsylvania, and as such, is the only agency authorized to activate or terminate these alerts. PennDOT will support PSP in this program by way of ITS device activations and/or 511PA ticker activations when appropriate and requested by PSP. To effectively support PSP with ITS device activations (e.g., CMS & HAR), PennDOT must be provided with physical vehicle information in relation to the current alert.

There may be special circumstances in which vehicle information/details are unable to be provided. In these instances, the activation and support of CMS without the required vehicle information must be approved by PennDOT Leadership prior to any CMS activation.

V. Procedure

The STMC staff responsible for managing Amber/MEPA Alerts in support of PSP shall maintain the following Roles and Responsibilities:

- **Manage and Support PSP Amber/MEPA Alert Request** by taking all requests provided by a PSP Amber/MEPA Alert Designee only. These requests are to be made by both telephone call and email correspondence to the STMC (RA-PDSTMC@pa.gov). Upon meeting the proper request requirements, the STMC shall establish initial communication with the affected DTMC/RTMC's and PEMA by designated email SitRep. Disseminate Amber/MEPA Alert Request by providing all pertinent and required event information as stated within the designated STMC Amber/MEPA Alert email SitRep, which can be found on the STMC SharePoint>Area Command Email Templates. This includes event information* such as subject description, vehicle details, affected area and any ITS device activation requests (if applicable). *Event Information (includes but not limited to):
    - Subject Description – Height, Weight, Skin/Eye/Hair Color, Age, Sex
    - Vehicle Details – Year, Make, Model, Color, State/License Plate Number
    - Affected Area – County and District(s)

As mentioned above, if a PSP request does not contain vehicle details, CMS should not be activated unless otherwise approved and/or requested by PennDOT Leadership.

Once the initial STMC email SitRep has been sent, STMC personnel are then required to provide a follow-up telephone call to the affected DTMC/RTMCs verifying the request has been received and understood.

- If a DTMC/ RTMC does not understand, has any questions, or concerns regarding the initial request, the STMC shall provide the DTMC/RTMC with as much additional information and/or guidance necessary.

- **Activate and Manage 511PA Floodgate and Ticker** by utilizing the 511PA Administrative Website. Within this site, STMC personnel will enter the appropriate information using a preestablished template located on the TMC Portal>Winter Operations Section to ensure all pertinent information and details are captured within both Floodgate and Ticker messages.
    - Upon receiving the proper communication for termination of an event, from a PSP designee **only**, the STMC shall then deactivate the 511PA Floodgate and Ticker.
- **Monitor CMS Activations** by using the Advanced Traffic Management System (ATMS) to QA/QC any CMS activated for the event. The STMC should ensure all appropriate CMS have been activated within the affected district/region and are displaying the most up-to-date and accurate event information within a timely manner. If CMS have not been activated and/or need modified, after a minimum of 30 minutes, it is at the discretion of the STMC to follow-up with a phone call to the appropriate DTMC/RTMC.
    - Alert messaging will last until the event is terminated by an authorized PSP designee through the proper communication with the STMC.
- **Document Alert Correspondence** by utilizing the Communication Logs module within ATMS. All correspondence relevant to the Amber/MEPA Alert shall be documented within this module to maintain situational awareness and a statewide common operating picture.

- **Maintain Situational Awareness** by continuous monitoring of CMS activations and messaging, information sharing by way of the designated STMC Amber/MEPA Email SitRep, timely dissemination of all updates received by PSP and documentation of all correspondence throughout the duration of the event.
    - The STMC Supervisor on duty will monitor the status of the alert to ensure it is updated/terminated in a timely manner and shall be responsible for disseminating the applicable event information to the incoming shift when appropriate.

- **Manage Alert Termination Request** by way of proper communication (telephone call and/or email) received by a PSP Amber/MEPA Alert designee **only** to the STMC. At which time the STMC shall complete the termination process (e.g., "FINAL" Amber/MEPA Email SitRep) by providing all event and ITS device termination details. STMC personnel are then required to provide a follow-up telephone call to the affected DTMC/RTMCs verifying the termination request has been received. After all follow-up calls have been made, STMC personnel shall conduct a QA/QC of CMS to verify all messaging is current and accurate. The above procedure is not all inclusive and only denotes the high-level functions of the PennDOT Statewide Traffic Management Center (STMC), in the support of PSP, during Amber/MEPA alert activations. Each activation will have its own unique and complex needs and expectations as per request of PSP. Additional information and guidance can be referenced within the TMC Portal>Publications & Policy>STMC SOP Section - Pages 47 – 48.

7.5. PSP BOLO Alerts/Person(s) of Interest

I. Purpose

The purpose of this policy is to provide information and guidance to effectively support the Pennsylvania State Police (PSP) during any events resulting in a BOLO (Be On The Lookout) Alert and/or any Person(s) of Interest (POI) request is issued throughout the Commonwealth.

II. Applicability

This policy applies to STMC personnel only who are responsible for managing these requests at the discretion of the designated and/or authorized PSP designee.

III. Responsibility

It is the responsibility of the STMC, in support of PSP, to disseminate all BOLO and/or any POI alert requests (e.g., telephone call and email notification). These alerts and any corresponding requests (e.g., ITS device activations), are to be communicated to the STMC from an authorized PSP designee only.

The STMC shall also be responsible for disseminating and providing any information, guidance and QA/QC needed upon request of any DTMC/RTMCs or PSP throughout the duration of the BOLO and/or POI alert.

IV. Policy

All PSP requests shall be authorized by PennDOT Management, Area Command, and/or PennDOT Executive personnel prior to any action(s) taken or information shared (internally or externally) by the STMC.

It shall be the policy of the STMC, upon the approval of PennDOT Leadership only, to support and foster cooperation with the Pennsylvania State Police (PSP) in providing timely dissemination of information to both the affected DTMC/RTMCs and the public by way of STMC Situational reports, ITS device activations, and/or 511PA.

V. Procedure

The STMC staff responsible for managing BOLO Alerts/POI requests in support of PSP shall maintain the following Roles and Responsibilities:

- **Manage and Support PSP BOLO/POI Request** provided by an authorized PSP designee only. These requests are to be made by both a telephone call and email to the STMC. Upon meeting the proper request requirements and approvals needed by PennDOT Leadership, the STMC may then establish initial communication with the affected DTMC/RTMCs by STMC email SitRep and a follow-up telephone call.
- **Disseminate PSP BOLO/POI Request** by providing all pertinent and required event information by utilizing the STMC Amber/MEPA email SitRep, which can be found on the STMC SharePoint>Area Command Email Templates. This includes event information* such as subject description, vehicle details, affected area and any ITS device activation requests (if applicable).
  *Event Information (includes but not limited to):
  - Subject Description – Height, Weight, Skin/Eye/Hair Color, Age, Sex
  - Vehicle Details – Year, Make, Model, Color, State/License Plate Number
  - Affected Area – County and District(s)

As mentioned above, if a PSP request does not contain vehicle details, CMS should not be activated unless otherwise approved and/or requested by PennDOT Leadership.

Once the initial STMC email SitRep has been sent, STMC personnel are then required to provide a follow-up telephone call to the affected DTMC/RTMCs verifying the request has been received and understood.

- If a DTMC/ RTMC does not understand, has any questions or concerns regarding the initial request, the STMC shall provide the DTMC/RTMC with as much additional information and/or guidance necessary. Activate 511PA Floodgate and Ticker by utilizing the 511PA Administrative Website. Within this site, STMC personnel will enter the appropriate information and details requested by PSP.
- Upon receiving the proper communication from an authorized PSP designee for termination of the event, the STMC shall then deactivate the 511PA Floodgate and Ticker.
- **Monitor CMS Activations** by utilizing the Advanced Traffic Management System (ATMS) to QA/QC any CMS activated for the event. The STMC should ensure all appropriate CMS have been activated within the affected district/region and are displaying the most up-to-date and accurate event/vehicle information.
    - Alert messaging will last until the event is terminated by an authorized PSP designee through the proper communication with the STMC.
- **Document Alert Correspondence** by utilizing the Communication Logs module within ATMS. All correspondence relevant to the BOLO and/or POI Alert shall be documented within this module to maintain situational awareness and a statewide common operating picture.
- **Maintain Situational Awareness** by continuous monitoring of any CMS activations, messaging, and information sharing by way of STMC Email SitRep, timely dissemination of all updates received by PSP and documentation of all correspondence throughout the duration of the event.
    - The STMC Supervisor on duty will monitor the status of the alert to ensure it is updated/terminated in a timely manner and shall be responsible for disseminating the applicable information to the incoming shift when appropriate.
- **Manage Alert Termination Request** by way of proper communication (telephone call and/or email) received by an authorized PSP designee only to the STMC. At which time the STMC shall complete the termination process (e.g., “FINAL” Amber/MEPA Email SitRep) by providing all event and ITS device termination details. STMC personnel are then required to provide a follow-up telephone call to the affected DTMC/RTMCs verifying the termination request has been received. After all follow-up calls have been made, STMC personnel shall conduct a QA/QC of CMS to verify all messaging is current and accurate.

The above procedure is not all inclusive and only denotes the high-level functions of the PennDOT Statewide Traffic Management Center (STMC), in the support of PSP, during BOLO/POI alert activations. Each activation will have its own unique and complex needs and expectations as per request of the Pennsylvania State Police (PSP). For more information and guidance please reference the STMC Standard Operating Procedure located on the TMC Portal.

7.6. State Agency & Stakeholder Coordination

I. Purpose

The purpose of this policy is to ensure PennDOT information is shared (internally & externally) and a common operating picture is maintained with all appropriate State agencies and transportation stakeholders during large-scale events.

II. Applicability

This applies to all personnel who share information with other state agencies and transportation stakeholders.

III. Responsibility

An important function of the Statewide Traffic Management Center (STMC) is to maintain coordination and collaboration with other State agencies and transportation stakeholders during large-scale events. It is the responsibility of the STMC to continuously maintain an enhanced situational awareness and provide a common operating picture by way of coordination, collaboration and dissemination of information to external State agency partners and stakeholders (e.g., Adjacent State DOT's, Outside Transportation Agencies, TRANSCOM, etc.).

IV. Policy

The STMC shall proactively provide State Agency partners and stakeholders with the most accurate, up-to-date information and incident response plans regarding any large-scale events occurring throughout the Commonwealth that may directly and/or adversely affect another adjacent state agencies border(s) and/or transportation operations.

The STMC shall also maintain situational awareness of any large-scale event(s) occurring within any adjacent state(s) that may have a direct and/or adverse effect to the Commonwealth's border and/or transportation operations.

V. Procedure

STMC personnel shall maintain communication with State agencies and stakeholders by way of information sharing and coordinated response efforts during, but not limited to, weather and/or transportation-related events. A current and up-to-date Partner State Emergency Contact Listing must be maintained by the STMC. Additional adjacent State DOT and Outside Transportation Agency contacts shall be maintained and warehoused within the Emergency Operations Roster (EOR). Both the Partner State Emergency Contact Listing and the EOR can be accessed on the TMC Portal.

The STMC shall provide and share any planned or unplanned event response efforts with the affected Adjacent State DOT's and Outside Multi-State Transportation agencies (e.g., TRANSCOM) in coordination with PennDOT Area Command during scheduled multiple State Agency coordination calls. The coordination calls are utilized to determine the proper incident response to any planned or unplanned multi-jurisdictional events. The STMC must then prepare and disseminate, within a timely manner, any information and guidance (e.g., travel restrictions) to the affected Adjacent DOT's and Outside Transportation Agencies by appropriate STMC email SitRep.

The above procedure is not all inclusive and only denotes the high-level functions of the PennDOT Statewide Traffic Management Center (STMC) in the support of PennDOT Area Command during any

large-scale events with multi-state jurisdictional action plans. Each event will have its own unique and complex needs, expectations and incident response plan(s).

Chapter 8. Traffic Management Center (TMC) Operator Strategies

As stated in Section 1.1, TSMO Operations Approach, in PennDOT's Traffic Management Centers (TMCs), all personnel shall be dedicated to the support of PennDOT's Transportation Systems Management and Operations (TSMO) three (3) main goals:

FIGURE 10: TSMO GOALS

By maintaining mobility during planned events, minimizing traffic impacts of unplanned events and mitigating recurring congestion, all TMC personnel are effectively working together towards one (1) overall mission:

> Less congested, more reliable network.
> "To move people and goods, from Point A to Point B, as efficiently, safely and reliably as possible"

All TMCs have one (1) overall mission as stated above; to efficiently and effectively meet this goal, the five (5) strategies must be applied to overall TMC operations; "Moving people and goods from Point A to Point B, as efficiently, safely and reliably as possible."

This section summarizes the five (5) TMC Objectives associated with each TMC Strategy to support in the success of all PennDOT Traffic Management Centers:

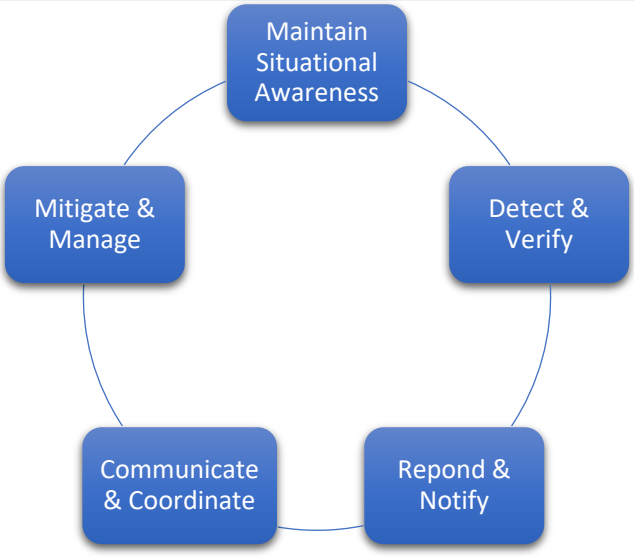


FIGURE 11: TMC OBJECTIVES

TABLE 23: TMC OBJECTIVES AND OPERATOR STRATEGIES

TMC Objective	TMC Operator Strategy
Maintain Situational Awareness	All operators shall maintain continuous situational awareness and traffic mobility on all state-owned roadways including all roadways within the Core Roadway Network (CRN).
Detection and Verification of Traffic Disruptions	All operators shall proactively identify traffic disruptions and understand current traffic conditions relative to normal. Once identified, it is the responsibility of the operator to properly verify the traffic disruption in a timely manner.
Response and Notification	Once a traffic disruption has been properly verified, operators shall immediately activate all available ITS devices (i.e., CMS, HAR, etc.), notify and/or dispatch available emergency response resources and enter the event(s) into the Road Condition Reporting System (RCRS).
Communication and Coordination	Operators shall initiate and maintain open communications with on-scene field personnel, internal agency partners and the appropriate transportation stakeholders.
Event Mitigation and Traffic Management	All operators shall continuously monitor and manage on-going events within their respective district(s)/region, provide prompt, reliable traveler information to motorists and actively update all ITS devices to avoid secondary and back of queue crashes.

8.1. Maintaining Situational Awareness on the Core Roadway Network (CRN)

FIGURE 12: MAINTAINING SITUATIONAL AWARENESS

TMC Operators must remain dedicated to maintaining the highest level of situational awareness possible on the Core Roadway Network (CRN).

Situational awareness is the overall comprehension of state-owned roadway conditions, the surroundings in which these conditions exist and understanding the impacts they may have on traffic mobility.

To maintain situational awareness, a TMC Operator will need to be vigilant in identifying traffic disruptions, verifying the cause of traffic disruptions and understanding the effect of traffic disruptions on the CRN. To maintain situational awareness, an Operator must concentrate on the Situational Awareness Focus Areas in Figure 13.

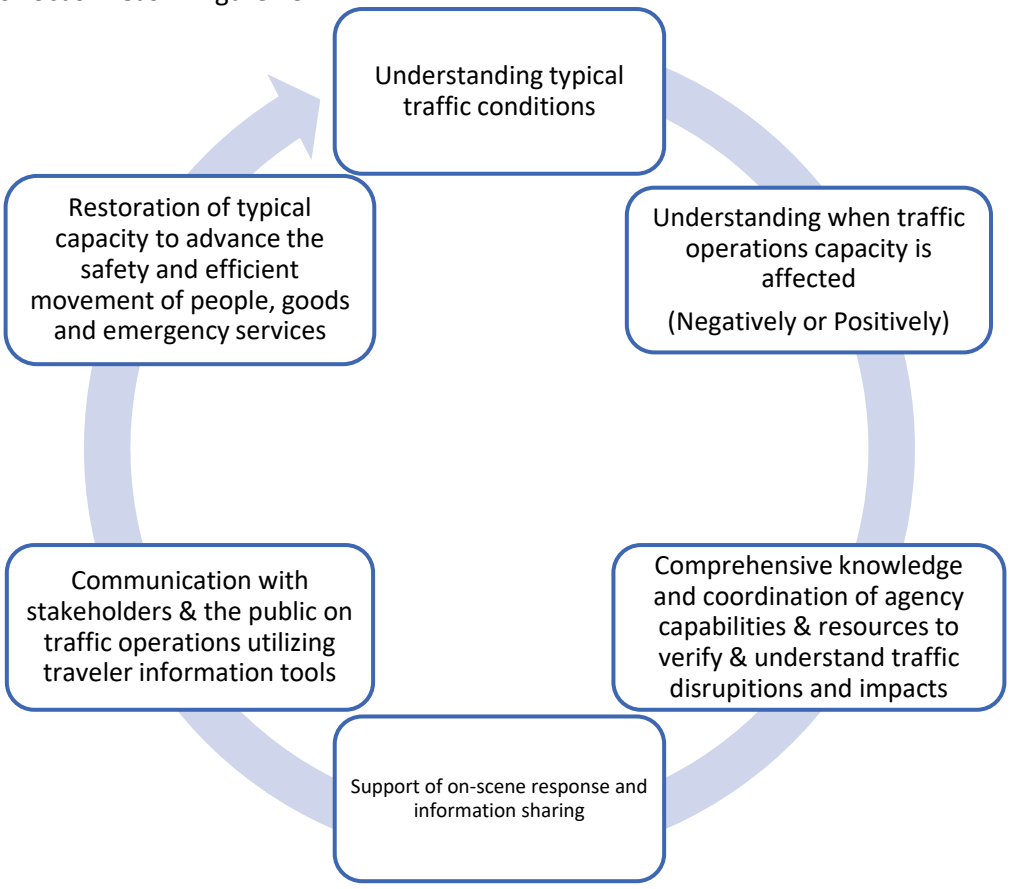


FIGURE 13: SITUATIONAL AWARENESS FOCUS AREAS

Concentrating on these Situational Awareness (SA) Focus Areas will not only allow TMC Operators to achieve an enhanced level of situational awareness, but it will also provide the standards in which a TMC Operator needs to be successful in identifying traffic disruptions. Table 24 provides Focus Area Standards in addition to the correlating SA thought process for each. These standards can be utilized as guidance and applied to the development and implementation of efficiency in traffic management.

TABLE 24: SITUATIONAL AWARENESS FOCUS AREA STANDARDS AND THOUGHT PROCESS

SA Focus Area Standards	SA Thought Process
TMC Operator must understand current traffic conditions relative to normal conditions	• What is "normal" for this time of day and location? • Are current conditions consistent with expectations? • Is there a reduction in the available number of lanes? • What are the specific "reason(s)" for or cause(s) of congestion? • How are planned events going to affect traffic conditions?
Understanding when traffic capacity is affected (negatively or positively)	• Is congestion increasing or improving? • Are there additional concerns from the backlog? • Is a lane closed which could affect roadway capacity? • Are traffic control devices functioning effectively?
Comprehensive knowledge, management and support of PennDOT capabilities and resources to verify and understand traffic disruptions and impacts	• Are there ITS devices located within the area? (i.e., CCTV, HAR, CMS) • What type and quantity of PennDOT resources are needed? • Can PennDOT field personnel be engaged for information gathering/sharing?
Support of on-scene response and information sharing	• Are there regular communication and re-evaluation intervals within field personnel established when an incident has limited visibility? (i.e., Due to lack of CCTV in Area of interest (AOI) or physical visibility) • Which stakeholders can provide the most up-to-date information? • Who can, and should this information be shared with?
Communication with stakeholders and the public on traffic operations utilizing traveler information tools	• Is the information within RCRS and 511PA accurate and efficient? • Are all CCTV devices functional within 511PA? • Is additional media help needed from the Press Office?
Restoration of typical capacity to advance the safety and efficient movement of people and goods, and emergency services	• Are all available CMS being utilized? (i.e., mainline, feeder route, downstream, etc.) • Are CMS activated far enough in advance to provide advanced warning and driver reaction time? • Is the proper messaging being displayed and updated with accurate and helpful information to the public? • What has been identified via CCTV that can be done differently or improve safety?

All TMC Operators must understand historic normal traffic conditions for a given time period and location(s) within their respective district(s)/region. The key to understanding when congestion occurs is

knowing what normal traffic conditions are for specific days, times and even seasons within their areas of operation.

In addition, TMC Operators are encouraged to refer to the following data sources in advance and/or in real time to help identify and verify historical congestion, so that the TMC operator can understand what is normal within their respective district(s)/region:

- **Mapping Applications** showing typical traffic for time and day such as those in Google Maps, RITIS, INRIX, etc.
- **Travel Time Data** showing travel time segment graphs and polling history which provide both current and historical data in the Advanced Traffic Management System (ATMS)

TMC Operators shall possess the comprehensive knowledge of what normal or recurring traffic conditions are in addition to having the ability to identify when traffic conditions are abnormal or non-recurring in their geographic region.

TABLE 25: RECURRING AND NON-RECURRING CONGESTION

Types of Congestion	Congestion Type Description
Recurring Congestion – Normal	• Traffic conditions that are **typical** in nature and can be **expected** to occur on a consistent basis (i.e., day, time and season) throughout a specific area or geographical region. • Recurring congestion occurs when the number of vehicles attempting to use a specific roadway exceeds that roadways available capacity (i.e., rush-hour), because of poor signal timing or due to physical bottlenecks (i.e., on/off ramps).
Non-recurring Congestion – Abnormal	• Traffic conditions that are typically caused by **unplanned** or **unanticipated** traffic events and/or circumstances that may not be probable by motorists such as crashes, disabled vehicles, inclement weather events, planned special events and work zones.

8.2. Detection and Verification of Traffic Disruptions

FIGURE 14: DETECTION AND VERIFICATION OF TRAFFIC DISRUPTIONS

A traffic disruption is an identifiable anomaly in a roadway's mobility resulting in the flow of traffic to degenerate and/or deviate from typical or normal conditions.

Traffic disruptions, or abnormal conditions, may be anticipated or unanticipated. Anticipated traffic disruptions include areas like work zones, special events, recurring physical bottlenecks, congestion at traffic signals and congestion resulting from weather. Unanticipated conditions are attributed to things like traffic incidents, unexpected bottlenecks from heavier than anticipated congestion and rapidly changing weather such as white-out conditions.

All operators shall proactively identify traffic disruptions and understand current traffic conditions relative to normal. Once identified, it is the responsibility of the operator to properly verify the traffic disruption in a timely manner.

For efficient and timely detection and verification of traffic disruptions, a TMC operator must utilize all available resources and tools provided within their respected TMC. The following resources, affiliated TMC tools and proper protocols should be used in the detection and verification of incidents:

TABLE 26: DETECTION AND VERIFICATION TOOLS AND PROTOCOLS

Detection/Verification Resources & Tools	Operator Protocols
Speed Data • Google Maps • Traffic Alerts* • RITIS • INRIX Traffic • Waze	• Operators shall monitor approved mapping applications with dependable speed data sources. • Multiple speed data sources should be monitored to alleviate inconsistencies between sources.
Travel Times • ATMS* • RITIS PDA Suite	• Operators shall display and continuously monitor travel times for increased delay and/or changes in travel speeds which must then be investigated in a timely manner.

Detection/Verification Resources & Tools	Operator Protocols
Emergency Response Agency Sources • WebEOC • Web Computer Aided Dispatch (WebCAD) • 800mHz Radio (Zetron)	• Operators shall utilize the identified Emergency Response Agency sources in the initial detection/identification of traffic disruptions. The Emergency response Agency sources shall be compared to other SA tools for validation/verification as these sources are considered unverified. • Operators shall actively monitor all available web-based Computer Aided Dispatch (Web Computer Aided Dispatch (WebCAD)) and emergency radio channels/transmissions from each county within their respective district(s)/region (if applicable) ○ A current listing of all known available Web Computer Aided Dispatch (WebCAD) URL links are available on the TMC Portal>TMC Quick Links>County Live Incident – Web Computer Aided Dispatch (WebCAD) – Master List
Third-party & Social Media Sources • FireWire • Broadcastify • Local/Regional Area News Sources	• Operators are encouraged to monitor all management approved third-party and social media sources for relevant information regarding traffic disruptions. ○ Third-party media include but are not limited to TV News stations/websites, newspaper websites, radio stations, traffic information websites, etc. ○ Social media sources include Facebook, Twitter, TweetDeck, etc. Outgoing TMC communications via social media is **NOT PERMITTED**!
Weather Information Sites • NOAA/NWS • WeatherSentry (DTN) • Road Weather Information System (RWIS) • AccuWeather	• Operators shall monitor available Weather Information Sources prior to and during any forecasted and/or active adverse weather events impacting the Commonwealth. • RWIS Dashboard shall be monitored during these weather events for indications of but not limited to changes in surface temperature, surface state, air temperature, grip, wind speed and visibility.
Email Resource Accounts	• Email Resource Accounts shall be monitored and utilized for receiving information from partners and stakeholders • Information received via email shall be acted upon immediately and/or within a timely manner by the acknowledging TMC operator. ○ Once email correspondence has been acknowledged, it is the responsibility of that operator to act promptly and accordingly.

* The red asterisk indicates verified information sources however, TMC operators are encouraged to utilize a secondary information source when verifying an incident.

8.3. Response and Notification

FIGURE 15: RESPONSE AND NOTIFICATION

Congestion occurs when the traffic demand exceeds available capacity. Congestion may also occur if there is a sudden increase in demand, a reduction in physical roadway capacity or a combination of both. Understanding congestion is critical to effective implementation of TMC Operator Strategies.

As stated above, there are two types of congestion that affect the overall traffic mobility: (1) Recurring Congestion and (2) Non-recurring congestion. It is important for an operator to understand and identify the cause(s) of congestion to properly respond to these events. Understanding these causes allows an operator to determine the type of incident response and notifications needed to properly manage an event. will assist TMC operators in determining and verifying the cause(s) of these congestion related events:

TABLE 27: VERIFYING CAUSES OF CONGESTION

Congestion Type	Congestion Causation Factors	Congestion Causation Description
Recurring Congestion	1 Poor Signal Timing	• Has a direct relationship with the available capacity of arterial roadways • Traffic signals are generally the limiting factor for capacity on arterial roadways • Signal timing has a direct relationship with the available capacity based on the percentage of time the signal is green vs. red • Results from interrupting traffic flow to serve conflicting movements
	2 Physical Bottlenecks i.e., On-ramps, off-ramps, toll booths, etc.	• Are locations where physical capacity is restricted as flows from higher capacity upstream roadway sections are funneled into lower capacity downstream roadway sections • Often occur downstream of major interchange on-ramps or downstream of mainline lane drops • Bottlenecks are often predictable based on time of day or day of the week, especially during morning and afternoon rush-hour periods

Congestion Type	Congestion Causation Factors	Congestion Causation Description
Non-Recurring Congestion	3 Work Zones i.e., construction, short and/or long-term maintenance, utility work, etc.	• Capacity reduction at locations which would not otherwise experience congestion • When demand exceeds capacity, the work zone functions as a bottleneck, with queues extending in advance of the work area • Work zones include but are not limited to; temporary lane closure, lane shift, and/or shoulder removal, etc.
	4 Traffic Incidents i.e., vehicle crashes, disabled vehicles, vehicle fires, debris on roadway, malfunctioning traffic signals, etc.	• Unplanned event(s) in which there is a temporary reduction of roadway capacity • Often result in congestion (major or minor) until the event is cleared and residual delays no longer remain • Traffic incidents include but are not limited to; temporary lane closure, lane shift, and/or shoulder removal, etc.
	5 Special Events i.e., sporting events, parades, festivals, 5k races, etc.	• Generate increased travel demand which can exceed roadway capacity • Can result in congestion on routes approaching and departing the event location • Special events may reduce available capacity from road closures Special events include but are not limited to; temporary lane closure, lane shift, and/or shoulder removal, etc.
	6 Inclement Weather i.e., snow squalls, whiteouts, flash flooding, icy conditions, etc.	• Reduces the effective capacity of the roadway and changes overall travel demand • Capacity may be reduced when severe or inclement weather is forecasted and/or active • Some inclement weather events may result in evacuation resulting in high demand on a specific roadway(s) which require special coordination

Once the cause of congestion has been successfully identified and verified, it is the responsibly of the operator to quickly respond to the event, beginning with ITS activations (i.e., CMS, HAR, etc.). It is important for operators to understand the effect timely activation of ITS devices has on traffic mobility and motorist safety. Motorists who are provided information faster will have more time to make informed decisions about an event's impact on their travel. This advanced warning allows motorists to prepare for situations such as, slow or stopped traffic and/or exit the roadway prior to the incident ahead thus, preventing secondary and back of queue crashes.

For further information and guidance regarding ITS activations and operating standards, TMC operators shall reference Publication 200: Changeable Message Sign (CMS) Operating Standards located on the TMC Portal>Reference Documents & Resources Section.

Once initial ITS devices have been properly activated, the TMC Operator must begin to notify and/or dispatch of other resources. Once these notifications have been made, it is imperative operators enter all pertinent and relevant event information in Road Condition Reporting System (RCRS) within a timely manner to ensure a common operating picture is established both internally and externally. For more information and guidance regarding the RCRS Event Entry process and criteria, operators shall reference Chapter 3 RCRS Policies.

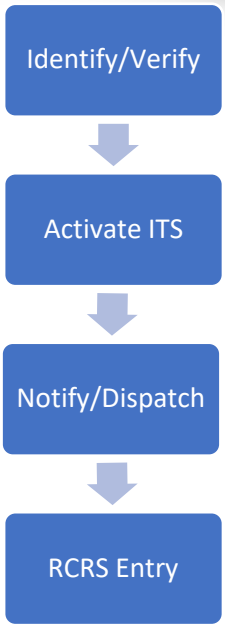


FIGURE 16: OPERATIONAL RESPONSE FLOW CHART

I. TMC Operator Notifications & Dispatch of Resources

TMC operators shall make timely notifications and, in some cases, dispatch resources to events to ensure the highest level of situational awareness is being maintained and a common operating picture is being established. Table 28 identifies key TMC Resources and the correlating notification and dispatch protocols for TMC Operators:

TABLE 28: TMC RESOURCES AND NOTIFICATION AND DISPATCH PROTOCOLS

TMC Resource	TMC Operator Notification & Dispatch Protocol
Field Personnel	• Operators shall make notifications to field personnel directly or to available maintenance office staff via telephone call and/or radio communications. • Operators may request dispatch of field personnel (i.e., County Maintenance, Freeway Service Patrol (FSP), Bridge Inspectors, etc.) during active events and/or upon the request of PennDOT assistance.
Emergency Responders	• Operators shall notify emergency responders by way of non-emergency telephone contact(s) to provide and/or request event information and deconflict this information when necessary. • Operators may request dispatch of specific emergency units (i.e., PSP, Fire Department, EMS, etc.) based on the severity of the event and its impact on traffic mobility.
Adjacent State TMCs	• Operators shall notify adjacent states by telephone call and/or email correspondence when an event is going to have a major impact to travel. • Operators may request adjacent state TMCs assistance by way of available ITS device activations providing advanced warning and traveler information to motorists.
District/Regional TMCs	• Operators shall make notifications by telephone, email and/or Microsoft Teams live-chatroom communications to any additional District and/or Regional TMCs that may be impacted. • Operators may request District and/or Regional TMCs assistance by way of ITS device activations (i.e., CMS & HAR) providing advanced warning and traveler information to motorists.
Statewide TMC	• Operators shall notify the STMC by way of telephone call and/or Microsoft Teams live-chat communications. ○ To assist TMC operators in the STMC notification process and procedure, a policy document has been developed and can be referenced on the TMC Portal>Publications & Policy>Notification Policies>TMC to STMC Notification Policy.
PA Turnpike	• Operators shall make notification by telephone for any events that will have an impact on any PA Turnpike operated roadways.
Media Contacts	• Operators shall notify approved media contacts (i.e., Traffic reporters, CRC contact, etc.) to provide active event information internally and externally for dissemination to the traveling public.

Once a traffic disruption has been properly verified, operators shall immediately activate all available ITS devices (i.e., CMS, HAR, etc.), dispatch any emergency response resources and enter the event(s) into the Road Condition Reporting System (RCRS).

8.4. Communication and Coordination

FIGURE 17: COMMUNICATION AND COORDINATION

Effective communication and coordination are two (2) main contributing factors in the success of TMC operators and traffic management. It is imperative that TMC operators work together with member districts, other Regional/Statewide TMCs and transportation stakeholders to effectively share information (both internally & externally) and create a common operating picture throughout any traffic-related events.

A common operating picture is established by timely gathering of information from all available sources, verifying their accuracy and ensuring all necessary partners/stakeholders are notified. This type of communication and coordination leads to more effective decision making, rapid stakeholder involvement and actions, appropriate mission execution and a more unified response.

TMC Operators shall maintain continuous, open communication and coordination between internal partners and external agencies throughout normal and emergency operations and provide timely traveler information to the public.

I. Information Sharing

TMC operators are responsible for sharing all available event information in a clear and concise manner to ensure every level of PennDOT involved has access to appropriate information. It is equally as important that information be shared externally to ensure a common operating picture is established and all available event information is shared.

II. Internal Information Sharing

Internal information sharing refers to the transfer of information within an organization. Proper internal communication and coordination plays a key role in successful event mitigation and traffic management during both normal and emergency operations. Operators shall share information internally with but are not limited to field personnel, the STMC and ICC staff when activated during emergency operations. The STMC is responsible for sharing information with PennDOT Area Command as needed.

III. External Information Sharing

External information sharing refers to the transfer of information outside an organization. TMC Operators shall proactively share information to create an external common operating picture with all emergency management partners, transportation stakeholders and the public throughout the duration of an event. This two-way, open communication allows all agencies involved to maintain an enhanced situational awareness and comprehensive knowledge of the information available to and from agency partners and transportation stakeholders. This external communication is necessary to ensure consistent, coordinated deployment of available resources, vehicle and speed restrictions, dissemination of traveler information and oversight of CMS messaging in support of neighboring states.

8.5. Event Mitigation and Traffic Management

FIGURE 18: EVENT MITIGATION AND TRAFFIC MANAGEMENT

It is important for a TMC Operator to be able to properly mitigate recurring and non-recurring congestion, identify the proper objectives in maintaining mobility during these events and implement specific traffic management tactics designed to minimize traffic impacts during these unplanned events.

I. Understanding the Effects of Traffic Disruptions

The effect of traffic disruptions depends upon the changes in traffic demand, effective roadway capacity and the expected duration of an event. TMC personnel should be aware of the below key factors when determining the effect(s) of traffic disruptions and in maintaining situational awareness:

TABLE 29: KEY FACTORS - DETERMINING THE EFFECTS OF TRAFFIC DISRUPTIONS

• What is normal for this time of day and location? • Are current conditions consistent with expectations? • Is there a reduction in the available number of lanes? • What are the specific sources of the congestions? • How will planned events effect conditions?	• Is congestion increasing or improving? • Are there any additional concerns from the backlog? • Is a shoulder closed which could affect capacity? • Are traffic control devices functioning effectively? • Are CMS displaying appropriate messages at appropriate locations?

TMC Operators shall maintain situational awareness during traffic disruptions by continuously monitoring the event and determining when the mobility impacts end and traffic flow has returned to historic normal.

Understanding the effect(s) traffic disruptions have on the Core Roadway Network is key for a TMC Operator to provide the appropriate response to an event. A TMC Operator must quickly identify, verify and most importantly manage the event(s) with full comprehension of the effects the disruption is going to have on both mobility and traveling motorists.

II. Managing Active Traffic Disruptions

Traffic management is aimed at attaining maximum efficiency from the CRN while minimizing the adverse effects and impacts on traffic. All operators shall continuously monitor and manage on-going events within their respective district(s)/region, provide prompt, reliable traveler information to motorists and actively update all ITS devices to avoid any secondary and/or back of queue crashes.

As traffic disruptions are identified, TMC operators must react quickly to begin properly managing these events. As stated above, understanding the effect(s) each event has on traffic mobility will allow the

operator to properly mitigate any adverse effects and provide timely dissemination of traveler information. The below tools and associated protocols shall be utilized by TMC operators to properly monitor, manage and mitigate the effects of traffic disruptions:

TABLE 30: TMC OPERATOR TOOLS AND PROTOCOLS

TMC Tools	TMC Operator Protocols
Changeable Message Signs (CMS)	• TMC operators shall utilize CMS to "describe" the roadway status associated with the active traffic disruption. ○ CMS messages should provide motorists with enough information to appropriately respond and make safe driving decisions such as preparing for slowed or stopped traffic and/or exiting the roadway. • TMC operators shall continuously monitor an incident and update CMS to reflect the current roadway status throughout the duration of an event. • Additional CMS should be activated as an event progresses and can be deactivated as traffic mobility improves and returns to historic normal.
Road Condition Reporting System (RCRS)	• Operators shall provide prompt and accurate event entry including updates within RCRS throughout the entire duration of an event. ○ Timely RCRS entry ensures proper event response and updates for public traffic information sources (i.e., 511PA, Google Maps, WAZE) and agency partners, that rely on data from RCRS, to quickly respond and/or update traveler information as it occurs.
ATMS Communications Log	• TMC operators shall document all activities and correspondence related to an event within the ATMS Communications Log. ○ The Comm Log provides overall situational awareness, a common operating picture, as well as a real-time and historical log of all activities and correspondence associated with an event. • Operators shall continuously monitor the Comm log for relevant event entries, updates and additional situational awareness regarding active events.
Email & Resource Accounts	• Email and Resource accounts shall be monitored and utilized as a key tool for communicating with and receiving information from member districts, Regional/Statewide TMCs and other transportation stakeholders. • Information received via email shall be acted upon immediately and/or within a timely manner by the acknowledging TMC operator. ○ Once email correspondence has been acknowledged, it is the responsibility of that operator to act promptly and accordingly.
Knowledge Center	• TMC operators shall continuously monitor and investigate entries within the Communication and Emergency Response Agency tools managed by PEMA for incident detection (unverified) and information sharing. • Operators must verify any information gathered within these systems utilizing a secondary verification source prior to dissemination of information. ○ Verified information sources can be referenced above in Section 8.2, Detection and Verification of Traffic Disruptions • TMC Operators shall not "copy & paste" information from these tools directly into RCRS.

As discussed in Section 8.1, Maintaining Situational Awareness on the Core Roadway Network (CRN), TMC Operators must remain dedicated to maintaining the highest level of situational awareness possible during active traffic disruptions to ensure effective and efficient traffic management and mitigation.

To further adhere to these mitigation strategies, additional TMC resources should be utilized by TMC operators to maintain situational awareness and assist in the effective traffic management. Table 31identifies these specific resources and provides high-level information and guidance to help TMC operators focus on proactive mitigation and management of active traffic disruptions:

TABLE 31: TMC RESOURCES AND PROTOCOLS

TMC Resources	TMC Operator Protocols
Speed Data & Travel Times	• TMC operators shall monitor speed data and travel time sources to assess the success of mitigation strategies. ○ Successful strategies should result in increased traffic mobility (i.e., decreased travel times) and a decrease in queue lengths and residual delays.
CCTV	• Operators shall continuously monitor CCTV, including operational views and/or tours of active traffic disruption areas to monitor changes in traffic conditions. ○ Protection of the traffic/trapped queues shall be a priority for TMC operators. • Upon identification of queued and/or stopped traffic via CCTV, appropriate CMS messages must be activated to provide advanced warning to motorists per CMS Operating Standards.
Third-party and Social Media Sources	• Operators are encouraged to monitor approved third-party and social media sources to enhance situational awareness of active traffic disruptions. ○ For example, during special events, the 'event' website (if applicable) should be monitored in addition to any available media sources.
Emergency Response Agency Systems	• TMC operators shall monitor emergency radio channels and Web Computer Aided Dispatch (WebCAD) to gather and provide additional information regarding an event.

Table 32 shows high-level focus areas standards and the associated thought processes that will assist TMC operators in effectively utilizing the above tools and resources while addressing active traffic disruptions:

TABLE 32: FOCUS AREAS AND THOUGHT PROCESS

Focus Area Standards	Managing Traffic Disruptions Thought Process

Understanding PennDOT's capabilities to manage the traffic disruption	• Is there CCTV coverage?
	• Are there CMS available?
	• What PennDOT resources are needed?
	  ○ What information is needed via these resources?
	• Do we have an on-scene contact?
	• Is the current event management plan working?
	  ○ If not, how can it be modified to improve efficiency?

Support internal/external partner and stakeholder operations	• What do our partners (i.e., Member districts, on-scene field personnel, STMC) need to know? • How do we share information about the backlog, trapped queue, secondary crash risk, etc.? • How often should we be gathering/sharing information and updates?
Communicate utilizing traveler information tools	• Are cameras functional on 511PA? ○ Do public camera feeds need to be deactivated due to severity/sensitivity of the event? • Are CMS properly activated with proper messaging, providing accurate and up-to-date information to motorists? • Do we need media help from press office to disseminate the information?

III. Providing Prompt & Reliable Traveler Information

PennDOT is committed to the prompt, reliable dissemination of traveler information and the safety of its motorists. Effective traveler information should provide accurate, up-to-date and relevant information about roadway conditions giving motorists the necessary information to make informed travel decisions, improving the reliability of their travel and optimizing their overall safety.

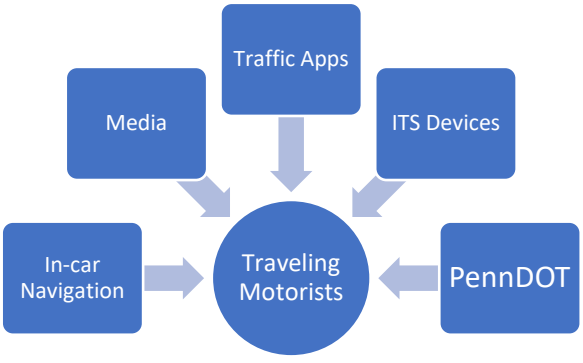


FIGURE 19: TRAVELER INFORMATION FLOW

Traveler information is a support function for TMC operators in meeting the three (3) main goals of TSMO; (1) Maintaining mobility in planned events, (2) Minimizing traffic impacts in unplanned events and (3) Mitigating recurring congestion. TMC operators must try and understand what the traveling public is seeing, hearing and ultimately how vehicles on the roadways are responding to the information that it is being provided publicly regarding an event. Understanding that information can be shared in many ways, is key to how the

information is received, understood and then utilized by the traveler to make informed driving decisions. Figure 19 demonstrates the different ways information is provided to motorists.

Motorists rely on the different ways of receiving information to make educated and safe travel decisions however, a TMC Operator must rely on the different TMC tools available to effectively provide these sources with prompt reliable traveler information.

Operators shall utilize the following TMC tools and operator protocols to properly disseminate real-time traveler information efficiently and effectively:

TABLE 33: TRAVELER INFORMATION SOURCES AND PROTOCOLS

TMC Operator Traveler Information Tools	TMC Operator Tool Type Information & Protocol

Road Condition Reporting System (RCRS)	• RCRS feeds event information and updates in real-time to PennDOT's Traveler Information System, also known as 511PA, in addition to external traffic applications such as Google Maps and WAZE.
	  ○ 511PA provides public information via their website (www.511PA.com) and free mobile application utilized for travel planning, routing and navigation.
	• TMC Operators must be vigilant in entering the most accurate and up-to-date event information into RCRS ensuring traveling motorists remain informed.
	  ○ Timely updates and removal of events must also be entered within RCRS within a timely manner.

Changeable Message Signs (CMS)	• CMS provide a timely and direct source of traveler information from the TMC to the public.
	• TMC operators must utilize CMS when available as a visual information source to motorists on the roadways.
	• All CMS messages must be clear, concise and easily understood by motorists.
	  ○ Messages must contain roadway conditions and status without overwhelming travelers familiar and unfamiliar to the area.
	  ○ Inaccurate information on CMS will erode motorist's confidence in CMS
	  ○ For more information and guidance on CMS messaging, reference Pub 200 - Changeable Message Signs (CMS) Operating Standards located on the TMC Portal.

TMC Operator Traveler Information Tools	TMC Operator Tool Type Information & Protocol

Closed Circuit Television (CCTV)	• CCTV images via 511PA provide travelers with a real-time look at major roadways and travel routes throughout the Commonwealth.
	  ○ These still images and live feeds provide the public with situational awareness on current travel and weather conditions.
	• Operators must be mindful of camera views potentially containing sensitive/graphic content during events as the public has access to these images.
	  ○ TMC Operators may request to have camera feeds temporarily disabled when needed.
	  ○ Reference Section 5.6 for policy and procedure.
	• TMC operators main focus shall remain on the backlog and/or queued traffic for situational awareness during an incident to avoid any back of queue and/or secondary crashes.

Highway Advisory Radio (HAR) or Virtual HAR	• HAR (where available) and Virtual HAR are an additional layer of traveler information that provide motorist with real-time information at any stage of an event. • Like CMS, HAR and Virtual HAR messaging must also be clear, concise and easily understood by motorist. • HAR and Virtual HAR should be utilized in conjunction to CMS where available.

IV. Avoiding Secondary & Back of Queue Crashes utilizing ITS Devices

As discussed in the above section, there are many tools and resources available to TMC operators assisting them in the prompt and reliable dissemination of traveler information. However, it is most important that TMC operators pay special attention to events (i.e., traffic and/or weather-related) that result in any type of non-recurring congestion (i.e., backlog) or trapped queue. **Queued or trapped traffic, also known as a trapped queue, is defined as vehicles and motorists who are temporarily stopped or trapped on a roadway between an event location and the last available exit point because of a full road closure**. Trapped queue scenarios occur most often on major interstates and other limited access highways as the distance between exits and/or points of relief are longer and the availability of an exit or vehicle turn-around option is limited. When these types of scenarios occur, the potential/probability for a secondary or back of queue crash increase substantially.

V. ITS Device Activations

It is imperative for TMC operators to continuously maintain an enhanced situational awareness during these types of closure events to ensure all resources are being utilized to provide as much advanced warning as possible to traveling motorists. **TMC operators must be responsible for the immediate activation of all available ITS devices (i.e., CMS, HAR, etc.) upon detection/verification of a backlog or trapped queue.** This immediate action provides the necessary advanced warning motorist need to make informed driving decisions and ultimately alleviate the probability of a secondary or back of queue crash.

ITS devices shall be posted in advance of any major alternate routes to provide ample opportunity for an effective diversion of traffic. TMC Operators are encouraged to utilize TMC tools such as Google Maps and/or Waze to quantify the backlog/trapped queue and identify alternate routes in unfamiliar areas. It is important for TMC operators to know which alternate routes can be utilized by both standard and commercial vehicles as there are instances where a detour route may only be suitable for standard vehicles.

Another important consideration is the extent or number of CMSs being activated in correlation with the anticipated duration of a closure and the distance of approaching motorists. For example, if a roadway will be closed for one (1) hour, then motorists who are approaching the closure within one (1) hour of travel time should be notified. Additional time should be added to account for any extended closures and residual delays due to the extended closure.

VI. STMC Reporting

TMC operators shall report to the Statewide Traffic Management Center (STMC) when a trapped queue is suspected or any criteria is met in accordance with the TMC>STMC Notification Policy located on the TMC Portal>Publications and Policy Documents section.

Appendix A. Situational Awareness Policy

pennsylvania
DEPARTMENT OF TRANSPORTATION

MEMO

DATE:

SUBJECT: Traffic Operations Situational Awareness

TO: District Executives

FROM: Michael Keiser, P.E.
Acting Deputy Secretary for Highway Administration

This memo, effective immediately, rescinds and replaces the memo titled “Situational Awareness”, dated May 21, 2021. The purpose of this memo is to identify the necessary notification and situational awareness needed for traffic operations events so that they can be appropriately elevated to District and Central Office Executive Leadership.

Since situational awareness impacts many different business areas, the Bureau of Maintenance and Operations (BOMO) has created the following five (5) Notification Categories:

- **County Notification Policy** (Exhibit A)
  - Provides reporting notification guidance, to the Traffic Management Centers (TMCs), as it relates to incidents and work zones identified or implemented by PennDOT field staff.
- **Construction and Permit Notification Policy** (Exhibit B)
  - Provides clarification on the reporting requirements, to the TMCs, located in General Note A-1 within Publication 213.
- **TMC to the Statewide Traffic Management Center (STMC) Policy** (Exhibit C)
  - Provides reporting notification guidance, to the TMCs, as it relates to incidents and work zones which require STMC notification.
- **STMC Area Command Notification Policy** (Exhibit D)
  - Provides reporting notification guidance for Area Command and Executive Leadership.
- **Incident Command Center (ICC) to Area Command Notification Policy** (Exhibit E)
  - Provides reporting notification guidance that the ICC(s) are to provide during winter activations.

The intent of providing notification through this guidance is not to supersede notification to immediate supervisors and/or managers, but to clarify when an event needs to be elevated. All notifications should be made upon incident verification and should include the following information:

- Incident Type
- Location
- Time of Occurrence
- Estimated Time to reopen
- Injuries/Fatalities
- Knowledge of the incident
- PennDOT involvement
- Contact Information
- Any decisions needed from Executive Staff
- Impact to Traffic
  - Length of queue
  - Trapped queue length
  - Detour Routes

Should you have any questions or require additional information, please contact David Gaffney, Manager, TMC Operations Unit, at 717.783.4340.

Highway Administration
400 North Street, 8th Floor | Harrisburg, PA 17120 | 717.787.6875 | www.penndot.gov

4940/DPF/hmq

cc: Assistant District Executives-Construction
Assistant District Executives-Maintenance
Louis Belmonte, P.E., Assistant District Executive-Operations, District 6
Maintenance Services Executives
Assistant Construction Managers
District Traffic Operations Staff
Traffic Management Center (TMC) Managers
County Maintenance Managers
Assistant County Maintenance Managers
Daryl St. Clair, P.E., Special Assistant, Highway Administration
Andrew Firment, Director, Operations and Performance Office
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T Jay Cunningham, P.E., Acting Director, BOMO
Douglas Tomlinson, P.E., Chief, Highway Safety and Traffic Operations Division BOMO
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James Griffin, Regional Manager, Operations and Performance Office
Jeffrey Mitchell, Regional Manager, Operations and Performance Office
Ryan McNary, Manager, Systems and Performance Unit, BOMO
David Gaffney, Manager, TMC Operations Unit, BOMO
Statewide Traffic Management Center (STMC)
PennDOT Area Commanders

EXHIBIT A - County Notification Policy

Incident Reporting to Traffic Management Center (TMC)

County personnel are responsible for the notification of TMCs upon verification of any incidents listed below:

- Initial notification should be made immediately upon incident verification
  - Additional notification(s) must be made as updates occur throughout the incident
  - Final notification must be made to the TMC upon conclusion of the incident

AMISH CONVEYANCE	
✆	Any incident involving an Amish conveyance vehicle (horse-and-buggy, etc.) with injuries or fatalities.
AUTONOMOUS VEHICLE CRASH	
✆	Any incident involving an Autonomous Vehicle (AV) or a Highly Automated Vehicle (HAV).
INFRASTRUCTURE DAMAGE	
✆	Any incidents causing infrastructure damage.
PENNDOT PROPERTY & EMPLOYEES	
✆	Any reportable crash involving a PennDOT vehicle (either vehicle is unable to be driven or there are injuries to either party)
✆	All incidents involving a PennDOT vehicle.
✆	Any incident damaging a PennDOT-owned bridge that consequently requires a structural inspection.
✆	Any incident damaging a PennDOT-owned building (caused by fire, flooding, collapse, etc.)
✆	Any incident resulting in significant injury or fatality of a PennDOT employee.
ROAD CLOSURES	
✆	Any incident resulting in a full road closure due to a crash. County personnel are responsible for providing all detour information upon notification (if applicable).
SCHOOL VEHICLES & PUBLIC TRANSIT/TOUR BUSES	
✆	Any incident involving a school vehicle (van, bus, etc.)
✆	Any incident involving a tour bus or public transit bus.
WEATHER RELATED	
✆	Any incident that occurs as a result of inclement weather conditions (drifting snow, flooding, etc.)
WORK ZONES	
✆	Any incident occurring within a work zone (inactive or active) regardless of involvement.

(**NOTE:** Contact your appropriate County Office for Winter Road Conditions)

Traffic Management Center (TMC) Numbers

Western Region		Central Region		Eastern Region		Southeastern Region	
District 1	412-429-6030	**District 2**	814-768-0725	District 4	570-963-4058	**District 6**	610-205-6934
District 10		District 3		District 5	610-871-4600		
District 11		District 9		**District 8**	717-265-7600		
District 12							

Reference Pub. 213 General Note A-1 (Pg. 11 of 505) for additional information

Incident Reporting Criteria

County personnel are responsible for providing the information below when notifying the TMCs of any incidents:

- County/Municipality
- State Route (SR)
- Direction
- Cause (Type of incident)
- Status of Roadway
- Info Reported By/Phone #
- On-Scene Contact/Phone #
- Time Incident Occurred
- Est. Time to Re-Open
- PennDOT/ Emergency Responder Arrival Time (if applicable)
- Beginning/End of Incident Location
- Description of Incident
- Additional Notes
- Any decisions need from AC (if applicable)
- Impact to traffic
  - Length of backlog
  - Trapped Queue Information
- Detour Information/Details

EXHIBIT A - County Notification Policy

Work Zones Notification to TMC

Guidance provided based on PennDOT Publication 213_General Note Section A_Worksite Procedures

PennDOT TMC notification may be required prior to establishing TTC restriction on state owned highways.

- The following indicates "when" a notification is required based on roadway type and work zone condition:

Roadway Type	Notification Status	Notification Criteria
Interstates & Limited Access	Required	All Work Zones or events that affect the roadway or shoulder
Traffic Routes (2 & 3-Digit SR)	Required	Full Road and Lane Closures greater than 30 minutes
	Recommended	Lane closures less than 30 minutes and any shoulder closure greater than 15 minutes
Other State Routes (4-Digit SR)	Required	Full Road Closures
	Recommended	Lane closures and any shoulder closure greater than 15 minutes

Personnel responsible for the Work Zone shall contact the appropriate PennDOT TMC:

- Prior to placing Work Zone Devices on the roadway
- Upon completed removal of all the devices

Notification Criteria and Type

NOTIFY TMC	
✉	PLANNED WORK ACTIVITIES utilize/submit TMC-100 Form at least 10 Days prior to scheduled work activities.
✉ 📞	UNPLANNED WORK ACTIVITES notification to the TMC needs to occur ASAP. • Must be at least 15 minutes prior to beginning of work or placing of TTC devices
Template	TMC-100 Form – *Found within Pub. 213, Appendix E.* *(TMCs are responsible for entering the TMC-100 form into RCRS)*
ADJUSTMENTS	
✉	ADJUSTMENTS within 10 Days prior to the scheduled work activities require an updated TMC-100 Form to be submitted to the TMC immediately.
Template	TMC-100 Form – *Found within Pub. 213, Appendix E.* *(TMCs are responsible for entering the TMC-100 form into RCRS)*
ACTIVATE EVENT	
📞	15 MINUTES PRIOR to setting up the work zone, notify via phone call the appropriate TMC. • Reference Pub. 213 General Note A-1 (Page 11 of 505)
ADJUSTMENTS	
📞	POST ACTIVATION ADJUSTMENTS within the Work Zone require immediate notification to the TMC.
DEACTIVATE EVENT	
📞	UPON REMOVAL of Work Zone devices, immediately notify the TMC via phone call.
📞 **PA TP**	PA TURNPIKE WORK ZONES must be called into the Turnpike Operations Center at (717) 939-9551 Ext. 4644

TMC-100 Form – Road Work Reporting Criteria		
• County/Municipality • State Route (SR) • Direction • Cause (Type of work) • Status of Roadway • Info Reported By/Phone # • On-Scene Contact/Phone #	• Event Begin Date/Time • Event Re-Open Date/Time • Repetition (Daily, Weekly, 24/7) • Beginning of Work Zone Signs • Beginning of Work Zone Restriction • End of Work Zone Restriction	• Description of Work • Additional Notes • Contractor Company Name • 24/7 Contractor Contact Name/Phone # • Restriction Details (Prohibit/ Length/Height/Width/Weight) • Detour Information/Details

EXHIBIT B – Construction and Permit Notification Policy

Work Zones Notification to TMC

Guidance provided based on PennDOT Publication 213_General Note Section A_Worksite Procedures

PennDOT TMC notification may be required prior to establishing TTC restriction on state owned highways.

- The following indicates "when" a notification is required based on roadway type and work zone condition:

Roadway Type	Notification Status	Notification Criteria
Interstates & Limited Access	Required	All Work Zones or events that affect the roadway or shoulder
Traffic Routes (2 & 3-Digit SR)	Required	Full Road and Lane Closures greater than 30 minutes
	Recommended	Lane closures less than 30 minutes and any shoulder closure greater than 15 minutes
Other State Routes (4-Digit SR)	Required	Full Road Closures
	Recommended	Lane closures and any shoulder closure greater than 15 minutes

Personnel responsible for the Work Zone shall contact the appropriate PennDOT TMC:

- Prior to placing Work Zone Devices on the roadway
- Upon completed removal of all the devices

Traffic Management Center (TMC) Numbers

Western Region		Central Region		Eastern Region		Southeastern Region	
District 1	412-429-6030	**District 2**	814-768-0725	District 4	570-963-4058	**District 6**	610-205-6934
District 10		District 3		District 5	610-871-4600		
District 11		District 9		**District 8**	717-265-7600		
District 12							

Reference Pub. 213 General Note A-1 (Pg. 11 of 505) for additional information

Notification Criteria and Type

	NOTIFY TMC
✉	PLANNED WORK ACTIVITIES utilize/submit TMC-100 Form at least 10 Days prior to scheduled work activities.
✉ 📞	UNPLANNED WORK ACTIVITES notification to the TMC needs to occur ASAP. • Must be at least 15 minutes prior to beginning of work or placing of TTC devices
Template	TMC-100 Form – *Found within Pub. 213, Appendix E. (TMCs are responsible for entering the TMC-100 form into RCRS)*
	ADJUSTMENTS
✉	ADJUSTMENTS within 10 Days prior to the scheduled work activities require an updated TMC-100 Form to be submitted to the TMC immediately.
Template	TMC-100 Form – *Found within Pub. 213, Appendix E. (TMCs are responsible for entering the TMC-100 form into RCRS)*
	ACTIVATE EVENT
📞	15 MINUTES PRIOR to setting up the work zone, notify via phone call the appropriate TMC. • Reference Pub. 213 General Note A-1 (Page 11 of 505)
	ADJUSTMENTS
📞	POST ACTIVATION ADJUSTMENTS within the Work Zone require immediate notification to the TMC.
	DEACTIVATE EVENT
📞	UPON REMOVAL of Work Zone devices, immediately notify the TMC via phone call.
📞 **PTC**	PA TURNPIKE WORK ZONES must be called into the Turnpike Operations Center at 717.939.9551 Ext. 4644

TMC-100 Form – Road Work Reporting Criteria

- County/Municipality
- State Route (SR)
- Direction
- Cause (Type of work)
- Status of Roadway
- Info Reported By/Phone #
- On-Scene Contact/Phone #
- Event Begin Date/Time
- Event Re-Open Date/Time
- Repetition (Daily, Weekly, 24/7)
- Beginning of Work Zone Signs
- Beginning of Work Zone Restriction
- End of Work Zone Restriction
- Description of Work
- Additional Notes
- Contractor Company Name
- 24/7 Contractor Contact Name/Phone #
- Restriction Details (Prohibit/ Length/Height/Width/Weight)
- Detour Information/Details

EXHIBIT C – TMC to STMC Notification Policy

TMC personnel are responsible for the immediate notification of the STMC upon verification of any incidents listed below:

- Additional notification(s) must be made as updates occur throughout the incident
- Final notification must be made to the STMC upon conclusion of the incident

Incident Reporting Criteria TMC personnel are responsible for providing the information below when notifying the STMC of any incidents:		

• RCRS Event ID#
• County/Municipality
• State Route (SR)
• Direction
• Cause (Type of incident)
• Status of Roadway
• Info Reported By/Phone #
• On-Scene Contact/Phone #
	• Time Incident Occurred
	• Est. Time to Re-Open
	• PennDOT/ Emergency Responder Arrival Time (if applicable)
	• Beginning/End of Incident Location
		• Description of Incident
		• Additional Notes
		  o Injuries/Fatalities
		  o PennDOT Involvement
		• Impact to traffic
		  o Length of backlog
		  o Trapped Queue Information
		• Detour Information/Details

AIR TRAFFIC	
	All aircraft crashes.
AMISH CONVEYANCE	
	Any incident involving an Amish conveyance (e.g. Horse-and-buggy).
AUTONOMOUS VEHICLE CRASH	
	Any incident involving an Autonomous Vehicle or a Highly Automated Vehicle (HAV).
INFRASTRUCTURE DAMAGE	
	Incidents causing infrastructure damage which closes the roadway.
LIMITED-ACCESS HIGHWAYS	
	Any closure expected to last longer than ***TWO HOURS.***
	Utility incidents affecting a limited-access highway (e.g. power lines down, water main breaks).
MULTIPLE FATALITIES	
	Any crash resulting in three or more confirmed fatalities.
PENNDOT PROPERTY & EMPLOYEES	
	All incidents involving a PennDOT vehicle and/or PennDOT employee.
	Any incident damaging a PennDOT-owned bridge that consequently requires a structural inspection.
	Any incident damaging a PennDOT-owned building (caused by fire, flooding, collapse, etc.).
RAIL TRAFFIC	
	Any train incidents.
SCHOOL VEHICLES & TRANSIT/TOUR BUSES	
	Any incident involving a school vehicle (van, bus, etc.) or incidents involving a tour bus or public transit bus.
SPECIAL CIRCUMSTANCES	
	Any incident resulting in an evacuation (e.g. fire alarm, suspicious package, etc) of a Transportation Hub (e.g. Airport, Port, Train Station and/or Bus Station)
	Any incident within a Transportation Hub (e.g. Airport, Port, Train Station and/or Bus Station) with confirmed knowledge of the following: active shooter, confirmed fire, found explosives or explosion.
	An incident with backlogs or trapped queues impacting adjacent states.
	Any major traffic disruptions causing significant impact to travel (e.g. law enforcement incidents, dignitary convoys, major protests, labor strikes).
	Suspected Life-Threatening Injury or Fatality of an Emergency Responder (Police Officer, Firefighter, Paramedic, Tow Truck Operator, etc.) while at a crash scene.
	Significant changes to incidents (e.g. secondary incidents, additional fatalities & crashes on a detour route).
	Any other event which significantly impacts travel.
TMC OPERATIONS	
	A TMC is forced to cease or reduce operations for any reason (fire, power failure, etc.) • This includes the significant reduction of a TMC's operational capacity due to communication loss.
WORK ZONES	
	All crashes in any work zone (active or inactive) or moving operation (manned by PennDOT or a private contractor)

EXHIBIT D – STMC Area Command Notification Policy

Initial notification should include the information below and be made within 15 minutes of incident verification.

- Incident Type and Location
- Time of Occurrence
- Estimated Time to reopen
- Injuries/Fatalities
- Knowledge of the incident
- PennDOT involvement
- Contact Information
- Any decisions needed from AC
- Impact to Traffic
  - Length of queue
  - Trapped queue Length
  - Detour Routes

AIR TRAFFIC	
✉	All aircraft crashes.
✉ 📞	Any aircraft crash that impacts a state roadway.
✉ 📞	All crashes involving a Commonwealth-owned aircraft.
Template	Aircraft Crash
AMBER/MEPA ALERTS	
✉	An Amber Alert or Missing Endangered Person Advisory (MEPA).
Template	AMBER/MEPA Alert Final Update - AMBER/MEPA Alert
AMISH CONVEYANCE	
✉	Any incident involving an Amish conveyance.
✉ 📞	Any incident involving an Amish conveyance vehicle (horse-and-buggy, etc.) with injuries or fatalities.
Template	Amish Conveyance Crash
AUTONOMOUS VEHICLE CRASH	
✉	Any incident involving an Autonomous Vehicle or a Highly Automated Vehicle (HAV).
Template	Autonomous Vehicle Crash
INFRASTRUCTURE DAMAGE	
📞	Any incidents causing infrastructure damage.
Template	Infrastructure Damage
LIMITED ACCESS HIGHWAYS	
✉	Any closure expected to last longer than ***TWO HOURS*** (gather info for 30 mins prior to notification).
✉ 📞	Any closure in excess of ***THREE HOURS***
✉ 📞	Any closure which may meet the criteria for a 511PA Connect activation.
✉ 📞	Utility incidents affecting a limited-access highway (e.g., power lines down, water main breaks).
Template	Major Road Closure
MULTIPLE FATALITIES	
✉ 📞	Any crash resulting in three or more confirmed fatalities.
Template	Fatal Crash
PENNDOT PROPERTY & EMPLOYEES	
✉ 📞	Any reportable crash involving a PennDOT vehicle. (Vehicle cannot be driven or either party is injured)
✉	All incidents involving a PennDOT vehicle.
✉ 📞	Any incident damaging a PennDOT-owned bridge that consequently requires a structural inspection.
✉ 📞	Any incident damaging a PennDOT-owned building (caused by fire, flooding, collapse, etc.).
✉ 📞	Any incident resulting in significant injury or fatality of a PennDOT employee.
Templates	PennDOT Vehicle Damage; Infrastructure Damage; PennDOT Vehicle Damage/Employee Injury
RAIL TRAFFIC	
✉ 📞	Any train incident resulting in a Hazmat or significant derailment outside a railyard
✉ 📞	Passenger/transit train incidents with injuries or fatalities.
✉ 📞	Non-passenger (freight) train incidents that impact a state roadway.
✉	Passenger/transit train incidents with no immediate injuries reported.
Template	Rail Line Closure

EXHIBIT D – STMC Area Command Notification Policy

REQUESTS & OPERATIONAL DECISIONS	
📞	Requests for speed limit/vehicle restrictions (caller will be redirected to AC).
📞	Requests from or received by the STMC for PennDOT on-site assistance.
📞	Incidents requiring immediate operational decisions (Mobile Equipment Team (MET) moves, etc.).
SCHOOL VEHICLES	
✉	This includes non-injury crashes and school vehicles with no students on board.
✉ 📞	Any incident involving a school vehicle (van, bus, etc.) with student injuries or fatalities.
Template	School Vehicle Crash
SPECIAL CIRCUMSTANCES	
✉	Any incident resulting in an evacuation (e.g. fire alarm, suspicious package, etc.) of a Transportation Hub (e.g. Airport, Port, Train Station and/or Bus Station)
✉ 📞	**Any incident within a Transportation Hub (e.g. Airport, Port, Train Station and/or Bus Station) with confirmed knowledge of the following: active shooter, confirmed fire, found explosives or explosion.**
✉	An incident with backlogs or trapped queues impacting adjacent states.
✉	Any major traffic disruptions causing significant impact to travel (e.g., law enforcement incidents, dignitary convoys, major protests, labor strikes).
✉ 📞	Suspected Life-Threatening Injury or Fatality of an Emergency Responder (Police Officer, Firefighter, Paramedic, Tow Truck Operator, etc.) while at a crash scene.
✉ 📞	Major changes to ongoing incidents (e.g. secondary incidents, additional fatalities, crashes on detour route).
✉ 📞	Any other event which significantly impacts travel.
TMC OPERATIONS	
✉	A TMC is forced to cease or reduce operations for any reason (fire, power failure, etc.) This includes the significant reduction of a TMC's operational capacity due to communication loss.
TRANSIT/TOUR BUSES	
✉	Any incident involving a tour bus or public transit bus.
✉ 📞	Any incident involving a tour bus or public transit bus with multiple injuries or fatalities.
Template	Transit Bus Crash
TURNPIKE PLAN X	
✉	All Turnpike closures using a Plan-X detour.
📞	Any closure in excess of ***THREE HOURS***
📞	Upon initiation of the Plan-X when there are winter weather conditions on the detour route
Template	Turnpike Closure
WEATHER RELATED	
✉	An unexpected weather event(s) (above and beyond forecasted levels) which could have a serious impact on transportation conditions. Send SITRep when there are **10** or more closures in a **Region.**
✉ 📞	Flooding and other weather-related closures affecting **10** or more roads in a **County**.
✉	Snow Squall Warning/Tornado Warning
Template	Weather Warning Statewide Road Closures due to Weather Related Events
WORK ZONES	
✉	All crashes in an active work zone or moving operations (manned by PennDOT or a private contractor).
✉ 📞	Crashes in any work zone (active or inactive) where one or more of the following circumstances exist: • Full Closure of a 511 Core Route, the crash creates a trapped queue or major backlog • Injury or Fatality to workers (PennDOT or private contractor) • A Fatality to vehicle occupants is involved PennDOT vehicle or equipment is struck
Template	Crash in a Construction Zone

FORWARD TO RTMC ONLY

MAINTENANCE NOTIFICATIONS	
✉	Determine (when) and (where) these interruptions are to occur and whether it will have an impact on **DOT Operations.**
Template	Enterprise Network Services Maintenance

EXHIBIT E – ICC to Area Command Notification Policy

Incident Command Center (ICC) Notification to Area Command

ICC personnel are responsible for the notification of Area Command upon verification of any incidents listed below:

- Initial notification should be made immediately upon incident verification
  - Additional notification(s) must be made as updates occur throughout the incident
  - Final notification must be made to the TMC upon conclusion of the incident

INFRASTRUCTURE DAMAGE	
	Incidents causing infrastructure damage which closes the roadway.
LIMITED-ACCESS HIGHWAYS	
	Any closure expected to last longer than ***TWO HOURS.*** *(Continue to notify AC with any major updates)*
	Utility incidents affecting a limited-access highway (e.g. power lines down, water main breaks).
	Any incident resulting in a Trapped Queue with a possibility of 511 PA Connect deployment. • Incidents occurring during inclement weather and/or incidents lasting for an extended period
MULTIPLE FATALITIES	
	Any crash resulting in three or more confirmed fatalities.
PENNDOT PROPERTY & EMPLOYEES	
	All incidents involving a PennDOT vehicle, equipment, building or employee
RCRS EMERGENCY MODE	
	Providing accurate road conditions every **TWO (2) HOURS** on the 511PA Network (*Notify County personnel*)
REQUESTS AND OPERATIONAL DECISIONS	
	Requests from or received by the STMC for PennDOT on-site assistance.
	Incidents requiring immediate operational decisions (Mobile Equipment Team (MET) moves, etc.).
WINTER RESTRICTIONS (SPEED AND VEHICLE)	
	SPEED RESTRICTIONS – As conditions warrant (*see "45 MPH Speed Restriction Considerations" below*) • Contact AC for restriction request(s) via telephone **AND** email • Following AC approval of restriction request(s), notify your appropriate TMC for CMS update(s)
	VEHICLE RESTRICTIONS – Contact AC for restriction request(s) via telephone **AND** email • Final restriction activations determined by Area Command in coordination with PSP, PEMA and PTC. • Following AC approval of restriction request(s), notify your appropriate TMC for CMS update(s)
SITUATIONAL AWARENESS	
ICC Reporting	Updates of incidents and field conditions recorded within FIRST Report

TMC & AC Contact Information	
Western Region (Districts 1, 10,**11** & 12)	**Central Region** (Districts **2**, 3 & 9)
412-429-6030	**814-768-0725**
Eastern Region (Districts 4,5 & **8**)	**Southeastern Region** (District **6**)
570-963-4058	**610-205-6934**
610-871-4600	
717-265-7600	
PennDOT Area Command (AC)	
717-783-5437 | RA-pdpenndottcc@pa.gov	
Statewide Traffic Management Center (STMC)	
717-346-4400 | RA-PDSTMC@pa.gov	

45-MPH Speed Restriction Considerations

Criteria	Implementing Speed Restrictions	Removing Speed Restrictions
RCRS Road Conditions	Level 3 Road Conditions reported within the last ½-hour	Roadway Conditions Improving to Level 2
INRIX Real-Time Speeds	50-MPH and falling	50-MPH and Increasing
Snowplow Operations	Plowing travel lanes	No longer plowing travel lanes
RWIS Rain State	Freezing rain and/or sleet actively occurring	Rain or clear conditions
RWIS Air Temp	Less than 35°F and falling	35°F and rising
RWIS Surface Temp	Less than 33°F and Roadway State: slushy, moist, wet)	33°F and rising
RWIS Grip Level	Less than 0.35	0.5 and rising
RWIS Visibility	Less than 1300 ft (1/4 mile) and falling	More than 1,300 ft (1/4 mile) and rising
RWIS Wind Speed	Greater than 15-MPH sustained winds and rising	Less than 20-MPH and falling
Anticipated Severe Weather	Approaching severe weather such as high precipitation, low visibility, or slick roadway events	When radar indicates severe weather has left the region
Winter Events	Increases in Winter related crashes	No Winter Weather events

***Note**: The following is only a guide when implementing or removing speed limit restrictions. One or more of these factors may provide the necessary justification when requesting speed restrictions. Speed Restrictions need to also have logical beginning and ending points.*

Appendix B. TMC 100 Form

To be completed by TMC personnel

RCRS ID # | Date Received | Time Received

TMC 100 Road Work Reporting Form

County
State Route
Direction
Cause
Status
Verification Method
Form Completed By
Phone

On-Scene Contact
On-Scene Contact Phone
Event Beginning Date
Event Beginning Time
Estimated Date to Reopen
Estimated Time to Reopen
24/7 Work Zone Pattern
Daily Pattern

Daily patterns must be reported each day prior to the start of work. Check all days the work will be active.

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

Beginning and Ending Location or Incident Location must be completed

Incident Location

County
Municipality
Street
or *Exit/SR Terminator*
or *On Ramp*
or *Mile*
or *Intersecting State Route*
or *Segment/Offset*

Beginning Location of Event

County
Municipality
Street
or *Exit/SR Terminator*
or *On Ramp*
or *Mile*
or *Intersecting State Route*
or *Segment/Offset*

Ending Location of Event

County
Municipality
Street
or *Exit/SR Terminator*
or *On Ramp*
or *Mile*
or *Intersecting State Route*
or *Segment/Offset*

Description (Describe the work being performed: eg. line painting, guide rail repair, pothole patching, etc.)

Description of Event
Notes

Contractor Information

24/7 Contractor Name
24/7 Contact Name
24/7 Phone Number

Restriction Details

Prohibit Permit Travel

Maximum Length ft. in.
Maximum Height ft. in.
Maximum Width ft. in.
Maximum Gross Weight lbs

Detour Details

Is Detour in Place? Yes No NA
Detour Information and Route

District	Region	Email Address	Phone Number	Dates of Operation	Days of Operation	Operational Period	Off hours Contact District
1	Western	RA-pddo01Dispatch@pa.gov Copy District 11	814-673-9661	November 1 to April 1	Sunday to Saturday	24 hours	11
2	Central	Pd-dist2-0RTMC@pa.gov	814-768-0725	365	Sunday to Saturday	24 Hours	
3	Central	Pd-dist2-0RTMC@pa.gov	814-768-0725	365	Sunday to Saturday	24 Hours	
4	Eastern	Ra-pddist40TMC@pa.gov Copy District 8	570-963-4058	365	Monday to Friday	06:00 to 18:00	8
5	Eastern	Pd-district5-0TOC@pa.gov Copy District 8	610-871-4600	365	Monday to Friday	06:00 to 20:00	8
6	Southeastern	Pd-district6-0RTMC@pa.gov	610-205-6934	365	Sunday to Saturday	24 Hours	
8	Eastern	Pd-dist8-0TMC@pa.gov	717-265-7600	365	Sunday to Saturday	24 Hours	
9	Central	Pd-dist2-0RTMC@pa.gov	814-768-0725	365	Sunday to Saturday	24 Hours	
10	Western	Pd-district11RTMC@pa.gov	412-429-6030	365	Sunday to Saturday	24 Hours	
11	Western	Pd-district11RTMC@pa.gov	412-429-6030	365	Sunday to Saturday	24 Hours	
12	Western	Pd-district11RTMC@pa.gov	412-429-6030	365	Sunday to Saturday	24 Hours	