



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

**REQUEST FOR PROPOSALS
FOR
TRANSPORTATION MANAGEMENT CENTER OPERATIONS**

RFP # 40100-51745 RELEASE #2

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1. INTRODUCTION

The State of Tennessee, Department of Transportation, hereinafter referred to as “the State,” issues this Request for Proposals (RFP) to define minimum contract requirements; solicit responses; detail response requirements; and, outline the State’s process for evaluating responses and selecting a contractor to provide the needed goods or services.

Through this RFP, the State seeks to procure necessary goods or services at the most favorable, competitive prices and to give ALL qualified respondents an opportunity to do business with the State as contractors, subcontractors or suppliers.

1.1. Statement of Procurement Purpose

Transportation Management Centers (TMC) are a coordinated effort for efficient and effective traffic monitoring, traffic incident detection and verification, traffic incident response, HELP and Rural Service Patrol (RSP) dispatching, intra- and inter-agency communication, traveler information, and performance monitoring and reporting by the State. The primary objectives of the TMC are to enhance safety, reduce incident duration, reduce secondary incidents, and improve traffic flow on interstates and other state highways.

The State is seeking a qualified TMC operations provider, hereafter referred to as the Contractor, to provide support and staffing for TMC operations during designated shifts as described herein. The Contractor’s role will involve supporting TMC operations efforts and tasks described herein.

The State aims to establish a reliable and efficient partnership with the chosen Contractor to ensure the smooth operation of the four State TMCs and the delivery of high-quality services to the State, the traveling public, and other agencies.

1.1.2. Reserved.

1.2. Scope of Service, Contract Period, & Required Terms and Conditions

The RFP Attachment 6.6., *Pro Forma* Contract details the State’s requirements:

- Scope of Services and Deliverables (Section A);
- Contract Period (Section B);
- Payment Terms (Section C);
- Standard Terms and Conditions (Section D); and,
- Special Terms and Conditions (Section E).

The *pro forma* contract substantially represents the contract document that the successful Respondent must sign.

1.3. Nondiscrimination

No person shall be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in the performance of a Contract pursuant to this RFP or in the employment practices of the Contractor on the grounds of handicap or disability, age, race, creed, color, religion, sex, national origin, or any other classification protected by federal, Tennessee state constitutional, or statutory law. The Contractor pursuant to this RFP shall, upon request, show proof of such nondiscrimination and shall post in conspicuous places, available to all employees and applicants, notices of nondiscrimination.

1.4. RFP Communications

- 1.4.1. The State has assigned the following RFP identification number that must be referenced in all communications regarding this RFP:

RFP # 40100-51745**1.4.2. Unauthorized contact about this RFP with employees or officials of the State of Tennessee except as detailed below may result in disqualification from consideration under this procurement process.**

- 1.4.2.1. Prospective Respondents must direct communications concerning this RFP to the following person designated as the Solicitation Coordinator:

Josh Polk
 Department of General Services
 312 Rosa L Parks Ave., Nashville, TN 37243
 615-360-4460
 Joshua.Polk@tn.gov

- 1.4.2.2. Notwithstanding the foregoing, Prospective Respondents may alternatively contact the following individual designated by the State to coordinate compliance with the nondiscrimination requirements of the State of Tennessee, Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act of 1990, and associated federal regulations:

Helen Crowley
 Department of General Services
 312 Rosa L Parks Ave., Nashville, TN 37243
 615-741-3836
 Helen.Crowley@tn.gov

- 1.4.3. Only the State's official, written responses and communications with Respondents are binding with regard to this RFP. Oral communications between a State official and one or more Respondents are unofficial and non-binding.
- 1.4.4. Potential Respondents must ensure that the State receives all written questions and comments, including questions and requests for clarification, no later than the Written Questions & Comments Deadline detailed in the RFP Section 2, Schedule of Events.
- 1.4.5. Respondents must assume the risk of the method of dispatching any communication or response to the State. The State assumes no responsibility for delays or delivery failures resulting from the Respondent's method of dispatch. Actual or digital "postmarking" of a communication or response to the State by a specified deadline is not a substitute for the State's actual receipt of a communication or response. It is encouraged for Respondents to submit bids digitally.
- 1.4.6. The State will convey all official responses and communications related to this RFP to the prospective Respondents from whom the State has received a Notice of Intent to Respond (refer to RFP Section 1.8).
- 1.4.7. The State reserves the right to determine, at its sole discretion, the method of conveying official, written responses and communications related to this RFP. Such written communications may be transmitted by mail, hand-delivery, facsimile, electronic mail, Internet posting, or any other means deemed reasonable by the State. For internet posting, please refer to the following website: <https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/supplier-information/request-for-proposals--rfp--opportunities1.html>.

- 1.4.8. The State reserves the right to determine, at its sole discretion, the appropriateness and adequacy of responses to written comments, questions, and requests related to this RFP. The State's official, written responses will constitute an amendment of this RFP.
- 1.4.9. Any data or factual information provided by the State (in this RFP, an RFP amendment or any other communication relating to this RFP) is for informational purposes only. The State will make reasonable efforts to ensure the accuracy of such data or information, however it is the Respondent's obligation to independently verify any data or information provided by the State. The State expressly disclaims the accuracy or adequacy of any information or data that it provides to prospective Respondents.

1.5. **Assistance to Respondents With a Handicap or Disability**

Prospective Respondents with a handicap or disability may receive accommodation relating to the communication of this RFP and participating in the RFP process. Prospective Respondents may contact the Solicitation Coordinator to request such reasonable accommodation no later than the Disability Accommodation Request Deadline detailed in the RFP Section 2, Schedule of Events.

1.6. **Respondent Required Review & Waiver of Objections**

- 1.6.1. Each prospective Respondent must carefully review this RFP, including but not limited to, attachments, the RFP Attachment 6.6., *Pro Forma* Contract, and any amendments, for questions, comments, defects, objections, or any other matter requiring clarification or correction (collectively called "questions and comments").
- 1.6.2. Any prospective Respondent having questions and comments concerning this RFP must provide them in writing to the State no later than the Written Questions & Comments Deadline detailed in the RFP Section 2, Schedule of Events.
- 1.6.3. Protests based on any objection to the RFP shall be considered waived and invalid if the objection has not been brought to the attention of the State, in writing, by the Written Questions & Comments Deadline.

1.7. **Pre-Response Conference**

A Pre-response Conference will be held at the time and date detailed in the RFP Section 2, Schedule of Events. Pre-response Conference attendance is not mandatory, and prospective Respondents may be limited to a maximum number of attendees depending upon overall attendance and space limitations.

The conference will be held at:

Microsoft Teams meeting

Join: <https://teams.microsoft.com/join/265703178191875?p=8DifChBCjNI3Y0Mn7W>

Meeting ID: 265 703 178 191 875

Passcode: ck7aJ7wB

[Need help? | System reference](#)

Dial in by phone

[+1 629-209-4396, 152347585#](#) United States, Triune

[Find a local number](#)

Phone conference ID: 152 347 585#

Join on a video conferencing device

Tenant key: stateoftn@m.webex.com

Video ID: 116 358 622 8

[More info](#)

The purpose of the conference is to discuss the RFP scope of goods or services. The State will entertain questions, however prospective Respondents must understand that the State's oral response to any question at the Pre-response Conference shall be unofficial and non-binding. Prospective Respondents must submit all questions, comments, or other concerns regarding the RFP in writing prior to the Written Questions & Comments Deadline date detailed in the RFP Section 2, Schedule of Events. The State will send the official response to these questions and comments to prospective Respondents from whom the State has received a Notice of Intent to respond as indicated in RFP Section 1.8 and on the date detailed in the RFP Section 2, Schedule of Events.

1.8. **Notice of Intent to Respond**

Before the Notice of Intent to Respond Deadline detailed in the RFP Section 2, Schedule of Events, prospective Respondents should submit to the Solicitation Coordinator a Notice of Intent to Respond (in the form of a simple e-mail or other written communication). Such notice should include the following information:

- the business or individual's name (as appropriate);
- a contact person's name and title; and
- the contact person's mailing address, telephone number, facsimile number, and e-mail address.

A Notice of Intent to Respond creates no obligation and is not a prerequisite for submitting a response, however, it is necessary to ensure receipt of any RFP amendments or other notices and communications relating to this RFP.

1.9. **Response Deadline**

A Respondent must ensure that the State receives a response no later than the Response Deadline time and date detailed in the RFP Section 2, Schedule of Events. The State will not accept late responses, and a Respondent's failure to submit a response before the deadline will result in disqualification of the response. It is the responsibility of the Respondent to ascertain any additional security requirements with respect to packaging and delivery to the State of Tennessee. Respondents should be mindful of any potential delays due to security screening procedures, weather, or other filing delays whether foreseeable or unforeseeable.

2. RFP SCHEDULE OF EVENTS

2.1. The following RFP Schedule of Events represents the State's best estimate for this RFP.

EVENT	TIME (central time zone)	DATE
1. RFP Issued		June 30, 2026
2. Disability Accommodation Request Deadline	2:00 p.m.	July 6, 2026
3. Pre-response Conference	10:00 a.m.	July 7, 2026
4. Notice of Intent to Respond Deadline	2:00 p.m.	July 9, 2026
5. Written "Questions & Comments" Deadline	2:00 p.m.	July 15, 2026
6. State Response to Written "Questions & Comments"		August 14, 2026
7. Response Deadline	2:00 p.m.	August 31, 2026
8. State Completion of Technical Response Evaluations		September 9, 2026
9. State Schedules Respondent Oral Presentation		September 11, 2026
10. Respondent Oral Presentation	8 a.m. - 4:30 p.m.	September 17 – 18, 2026
11. State Opening & Scoring of Cost Proposals	2:00 p.m.	September 23, 2026
12. Cost Negotiations (Optional)		September 24–28, 2026
13. State Notice of Intent to Award Released <u>and</u> RFP Files Opened for Public Inspection	2:00 p.m.	September 30, 2026
14. End of Protest Period		October 7, 2026
15. State sends contract to Contractor for signature		October 8, 2026
16. Contractor Signature Deadline	2:00 p.m.	October 16, 2026

2.2. **The State reserves the right, at its sole discretion, to adjust the RFP Schedule of Events as it deems necessary.** Any adjustment of the Schedule of Events shall constitute an RFP amendment, and the State will communicate such to prospective Respondents from whom the State has received a Notice of Intent to Respond (refer to section 1.7).

3. RESPONSE REQUIREMENTS

3.1. Response Form

A response to this RFP must consist of two parts, a Technical Response and a Cost Proposal.

- 3.1.1. **Technical Response.** RFP Attachment 6.2., Technical Response & Evaluation Guide provides the specific requirements for submitting a response. This guide includes mandatory requirement items, general qualifications and experience items, and technical qualifications, experience, and approach items all of which must be addressed with a written response and, in some instances, additional documentation.

NOTICE: A technical response must not include any pricing or cost information. If any pricing or cost information amounts of any type (even pricing relating to other projects) is included in any part of the technical response, the state may deem the response to be non-responsive and reject it.

- 3.1.1.1. A Respondent should duplicate and use the RFP Attachment 6.2., Technical Response & Evaluation Guide to organize, reference, and draft the Technical Response by duplicating the attachment, adding appropriate page numbers as required, and using the guide as a table of contents covering the Technical Response.
- 3.1.1.2. A response should be economically prepared, with emphasis on completeness and clarity. A response, as well as any reference material presented, must be written in English and must be written on standard 8 ½" x 11" pages (although oversize exhibits are permissible) and use a 12 point font for text. All response pages must be numbered.
- 3.1.1.3. All information and documentation included in a Technical Response should correspond to or address a specific requirement detailed in the RFP Attachment 6.2., Technical Response & Evaluation Guide. All information must be incorporated into a response to a specific requirement and clearly referenced. Any information not meeting these criteria will be deemed extraneous and will not contribute to evaluations.
- 3.1.1.4. The State may determine a response to be non-responsive and reject it if:
- a. the Respondent fails to organize and properly reference the Technical Response as required by this RFP and the RFP Attachment 6.2., Technical Response & Evaluation Guide; or
 - b. the Technical Response document does not appropriately respond to, address, or meet all of the requirements and response items detailed in the RFP Attachment 6.2., Technical Response & Evaluation Guide.
- 3.1.2. **Cost Proposal.** A Cost Proposal must be recorded on an exact duplicate of the RFP Attachment 6.3., Cost Proposal & Scoring Guide.

NOTICE: If a Respondent fails to submit a cost proposal exactly as required, the State may deem the response to be non-responsive and reject it.

- 3.1.2.1. A Respondent must only record the proposed cost exactly as required by the RFP Attachment 6.3., Cost Proposal & Scoring Guide and must NOT record any other rates, amounts, or information.

- 3.1.2.2. The proposed cost shall incorporate ALL costs for services under the contract for the total contract period, including any renewals or extensions.
- 3.1.2.3. A Respondent must sign and date the Cost Proposal.
- 3.1.2.4. A Respondent must submit the Cost Proposal to the State on a separate USB flash drive from the Technical Response (as detailed in RFP Sections 3.2.3., et. seq.).

3.2. Response Delivery

- 3.2.1. A Respondent must ensure that both the Technical Response and Cost Proposal files meet all form and content requirements, including all required signatures, as detailed within this RFP.

- 3.2.2. A Respondent must submit original Technical Response and Cost Proposal documents and copies as specified below.

3.2.2.1. Digital Media Submission

3.2.2.1.1. Technical Response. The Technical Response document should be in the form of one (1) digital document in "PDF" format properly recorded on its own otherwise blank USB flash drive and should be clearly identified as the:

"RFP # 40100-51745 TECHNICAL RESPONSE ORIGINAL"

and ONE (1) digital copies of the Technical Response each in the form of one (1) digital document in "PDF" format properly recorded on its own otherwise blank USB flash drive clearly labeled:

"RFP # 40100-51745 TECHNICAL RESPONSE COPY"

The customer references should be delivered by each reference in accordance with RFP Attachment 6.4. Reference Questionnaire.

3.2.2.1.2. Cost Proposal. The Cost Proposal should be in the form of one (1) digital document in "PDF" or "XLS" format properly recorded on a separate, otherwise blank USB flash drive clearly labeled:

"RFP # 40100-51745 COST PROPOSAL"

An electronic or facsimile signature, as applicable, on the Cost Proposal is acceptable.

- 3.2.3. A Respondent must separate, seal, package, and label the documents and copies for delivery as follows:

- 3.2.3.1. The Technical Response and copies must be placed in a sealed package that is clearly labeled:

"DO NOT OPEN... RFP # 40100-51745 TECHNICAL RESPONSE FROM [RESPONDENT LEGAL ENTITY NAME]"

- 3.2.3.2. The Cost Proposal must be placed in a separate, sealed package that is clearly labeled:

"DO NOT OPEN... RFP # 40100-51745 COST PROPOSAL FROM [RESPONDENT LEGAL ENTITY NAME]"

- 3.2.3.3. The separately, sealed Technical Response and Cost Proposal components may be enclosed in a larger package for mailing or delivery, provided that the outermost package is clearly labeled:

**“RFP # 40100-51745 SEALED TECHNICAL RESPONSE & SEALED COST
PROPOSAL FROM [RESPONDENT LEGAL ENTITY NAME]”**

- 3.2.4. A Respondent must ensure that the State receives a response no later than the Response Deadline time and date detailed in the RFP Section 2, Schedule of Events at the following address:

Josh Polk
Department of General Services
312 Rosa L Parks Ave., Nashville, TN 37243
615-360-4460
Joshua.Polk@tn.gov

3.3. Response & Respondent Prohibitions

- 3.3.1. A response must not include alternate contract terms and conditions. If a response contains such terms and conditions, the State, at its sole discretion, may determine the response to be a non-responsive counteroffer and reject it.
- 3.3.2. A response must not restrict the rights of the State or otherwise qualify either the offer to deliver goods or provide services as required by this RFP or the Cost Proposal. If a response restricts the rights of the State or otherwise qualifies either the offer to deliver goods or provide services as required by this RFP or the Cost Proposal, the State, at its sole discretion, may determine the response to be a non-responsive counteroffer and reject it.
- 3.3.3. A response must not propose alternative goods or services (*i.e.*, offer services different from those requested and required by this RFP) unless expressly requested in this RFP. The State may consider a response of alternative goods or services to be non-responsive and reject it.
- 3.3.4. A Cost Proposal must be prepared and arrived at independently and must not involve any collusion between Respondents. The State will reject any Cost Proposal that involves collusion, consultation, communication, or agreement between Respondents. Regardless of the time of detection, the State will consider any such actions to be grounds for response rejection or contract termination.
- 3.3.5. A Respondent must not provide, for consideration in this RFP process or subsequent contract negotiations, any information that the Respondent knew or should have known was materially incorrect. If the State determines that a Respondent has provided such incorrect information, the State will deem the Response non-responsive and reject it.
- 3.3.6. A Respondent must not submit more than one Technical Response and one Cost Proposal in response to this RFP, except as expressly requested by the State in this RFP. If a Respondent submits more than one Technical Response or more than one Cost Proposal, the State will deem all of the responses non-responsive and reject them.
- 3.3.7. A Respondent must not submit a response as a prime contractor while also permitting one or more other Respondents to offer the Respondent as a subcontractor in their own responses. Such may result in the disqualification of all Respondents knowingly involved. This restriction does not, however, prohibit different Respondents from offering the same subcontractor as a part of their responses (provided that the subcontractor does not also submit a response as a prime contractor).

3.3.8. The State shall not consider a response from an individual who is, or within the past six (6) months has been, a State employee. For purposes of this RFP:

3.3.8.1. An individual shall be deemed a State employee until such time as all compensation for salary, termination pay, and annual leave has been paid;

3.3.8.2. A contract with or a response from a company, corporation, or any other contracting entity in which a controlling interest is held by any State employee shall be considered to be a contract with or proposal from the employee; and

3.3.8.3. A contract with or a response from a company, corporation, or any other contracting entity that employs an individual who is, or within the past six (6) months has been, a State employee shall not be considered a contract with or a proposal from the employee and shall not constitute a prohibited conflict of interest.

3.3.9. This RFP is also subject to Tenn. Code Ann. § 12-4-101—105.

3.4. **Response Errors & Revisions**

A Respondent is responsible for any and all response errors or omissions. A Respondent will not be allowed to alter or revise response documents after the Response Deadline time and date detailed in the RFP Section 2, Schedule of Events unless such is formally requested, in writing, by the State.

3.5. **Response Withdrawal**

A Respondent may withdraw a submitted response at any time before the Response Deadline time and date detailed in the RFP Section 2, Schedule of Events by submitting a written request signed by an authorized Respondent representative. After withdrawing a response, a Respondent may submit another response at any time before the Response Deadline. After the Response Deadline, a Respondent may only withdraw all or a portion of a response where the enforcement of the response would impose an unconscionable hardship on the Respondent.

3.6. **Additional Services**

If a response offers goods or services in addition to those required by and described in this RFP, the State, at its sole discretion, may add such services to the contract awarded as a result of this RFP. Notwithstanding the foregoing, a Respondent must not propose any additional cost amounts or rates for additional goods or services. Regardless of any additional services offered in a response, the Respondent's Cost Proposal must only record the proposed cost as required in this RFP and must not record any other rates, amounts, or information.

NOTICE: If a Respondent fails to submit a Cost Proposal exactly as required, the State may deem the response non-responsive and reject it.

3.7. **Response Preparation Costs**

The State will not pay any costs associated with the preparation, submittal, or presentation of any response.

4. GENERAL CONTRACTING INFORMATION & REQUIREMENTS

4.1. RFP Amendment

The State at its sole discretion may amend this RFP, in writing, at any time prior to contract award. However, prior to any such amendment, the State will consider whether it would negatively impact the ability of potential Respondents to meet the response deadline and revise the RFP Schedule of Events if deemed appropriate. If an RFP amendment is issued, the State will convey it to potential Respondents who submitted a Notice of Intent to Respond (refer to RFP Section 1.8). A response must address the final RFP (including its attachments) as amended.

4.2. RFP Cancellation

The State reserves the right, at its sole discretion, to cancel the RFP or to cancel and reissue this RFP in accordance with applicable laws and regulations.

4.3. State Right of Rejection

4.3.1. Subject to applicable laws and regulations, the State reserves the right to reject, at its sole discretion, any and all responses.

4.3.2. The State may deem as non-responsive and reject any response that does not comply with all terms, conditions, and performance requirements of this RFP. Notwithstanding the foregoing, the State reserves the right to waive, at its sole discretion, minor variances from full compliance with this RFP. If the State waives variances in a response, such waiver shall not modify the RFP requirements or excuse the Respondent from full compliance, and the State may hold any resulting Contractor to strict compliance with this RFP.

4.4. Assignment & Subcontracting

4.4.1. The Contractor may not subcontract, transfer, or assign any portion of the Contract awarded as a result of this RFP without prior approval of the State. The State reserves the right to refuse approval, at its sole discretion, of any subcontract, transfer, or assignment.

4.4.2. If a Respondent intends to use subcontractors, the response to this RFP must specifically identify the scope and portions of the work each subcontractor will perform (refer to RFP Attachment 6.2., Section B, General Qualifications & Experience Item B.14.).

4.4.3. Subcontractors identified within a response to this RFP will be deemed as approved by the State unless the State expressly disapproves one or more of the proposed subcontractors prior to signing the Contract.

4.4.4. After contract award, a Contractor may only substitute an approved subcontractor at the discretion of the State and with the State's prior, written approval.

4.4.5. Notwithstanding any State approval relating to subcontracts, the Respondent who is awarded a contract pursuant to this RFP will be the prime contractor and will be responsible for all work under the Contract.

4.5. Right to Refuse Personnel or Subcontractors

The State reserves the right to refuse, at its sole discretion and notwithstanding any prior approval, any personnel of the prime contractor or a subcontractor providing goods or services in the performance of a contract resulting from this RFP. The State will document in writing the reason(s) for any rejection of personnel.

4.6. Insurance

The State will require the awarded Contractor to provide a Certificate of Insurance issued by an insurance company licensed or authorized to provide insurance in the State of Tennessee. Each Certificate of Insurance shall indicate current insurance coverages meeting minimum requirements as may be specified by this RFP. A failure to provide a current, Certificate of Insurance will be considered a material breach and grounds for contract termination.

4.7. Professional Licensure and Department of Revenue Registration

- 4.7.1. All persons, agencies, firms, or other entities that provide legal or financial opinions, which a Respondent provides for consideration and evaluation by the State as a part of a response to this RFP, shall be properly licensed to render such opinions.
- 4.7.2. Before the Contract resulting from this RFP is signed, the apparent successful Respondent (and Respondent employees and subcontractors, as applicable) must hold all necessary or appropriate business or professional licenses to provide the goods or services as required by the contract. The State may require any Respondent to submit evidence of proper licensure.
- 4.7.3. Before the Contract resulting from this RFP is signed, the apparent successful Respondent must be registered with the Tennessee Department of Revenue for the collection of Tennessee sales and use tax. The State shall not award a contract unless the Respondent provides proof of such registration or provides documentation from the Department of Revenue that the Contractor is exempt from this registration requirement. The foregoing is a mandatory requirement of an award of a contract pursuant to this solicitation. To register, please visit the Department of Revenue's Tennessee Taxpayer Access Point (TNTAP) website for Online Registration and the Vendor Contract Questionnaire. These resources are available at the following:
<https://tntap.tn.gov/eservices/#1>

4.8. Disclosure of Response Contents

- 4.8.1. All materials submitted to the State in response to this RFP shall become the property of the State of Tennessee. Respondents are cautioned not to provide any materials in response to this RFP that are trade secrets, as defined under Tenn. Code Ann. § 47-25-1702 and any other applicable law. By submitting a response to this RFP, the respondent acknowledges and agrees that the State shall have no liability whatsoever for disclosure of a trade secret under the Uniform Trade Secrets Act, as provided at Tenn. Code Ann. § 47-25-1701-1709, or under any other applicable law. Selection or rejection of a response does not affect this right. By submitting a response, a Respondent acknowledges and accepts that the full response contents and associated documents will become open to public inspection in accordance with the laws of the State of Tennessee.
- 4.8.2. The State will hold all response information, including both technical and cost information, in confidence during the evaluation process.
- 4.8.3. Upon completion of response evaluations, indicated by public release of a Notice of Intent to Award, the responses and associated materials will be open for review by the public in accordance with Tenn. Code Ann. § 10-7-504(a)(7).

4.9. Contract Approval and Contract Payments

- 4.9.1. After contract award, the Contractor who is awarded the contract must submit appropriate documentation with the Department of Finance and Administration, Division of Accounts.
- 4.9.2. This RFP and its contractor selection processes do not obligate the State and do not create rights, interests, or claims of entitlement in either the Respondent with the apparent best-evaluated response or any other Respondent. State obligations pursuant to a contract award shall commence only after the Contract is signed by the State agency head and the Contractor

and after the Contract is approved by all other state officials as required by applicable laws and regulations.

- 4.9.3. No payment will be obligated or made until the relevant Contract is approved as required by applicable statutes and rules of the State of Tennessee.

- 4.9.3.1. The State shall not be liable for payment of any type associated with the Contract resulting from this RFP (or any amendment thereof) or responsible for any goods delivered or services rendered by the Contractor, even goods delivered or services rendered in good faith and even if the Contractor is orally directed to proceed with the delivery of goods or the rendering of services, if it occurs before the Contract Effective Date or after the Contract Term.
- 4.9.3.2. All payments relating to this procurement will be made in accordance with the Payment Terms and Conditions of the Contract resulting from this RFP (refer to RFP Attachment 6.6., *Pro Forma* Contract, Section C).
- 4.9.3.3. If any provision of the Contract provides direct funding or reimbursement for the competitive purchase of goods or services as a component of contract performance or otherwise provides for the reimbursement of specified, actual costs, the State will employ all reasonable means and will require all such documentation that it deems necessary to ensure that such purchases were competitive and costs were reasonable, necessary, and actual. The Contractor shall provide reasonable assistance and access related to such review. Further, the State shall not remit, as funding or reimbursement pursuant to such provisions, any amounts that it determines do not represent reasonable, necessary, and actual costs.

4.10. **Contractor Performance**

The Contractor who is awarded a contract will be responsible for the delivery of all acceptable goods or the satisfactory completion of all services set out in this RFP (including attachments) as may be amended. All goods or services are subject to inspection and evaluation by the State. The State will employ all reasonable means to ensure that goods delivered or services rendered are in compliance with the Contract, and the Contractor must cooperate with such efforts.

4.11. **Contract Amendment**

After Contract award, the State may request the Contractor to deliver additional goods or perform additional services within the general scope of the Contract and this RFP, but beyond the specified Scope, and for which the Contractor may be compensated. In such instances, the State will provide the Contractor a written description of the additional goods or services. The Contractor must respond to the State with a time schedule for delivering the additional goods or accomplishing the additional services based on the compensable units included in the Contractor's response to this RFP. If the State and the Contractor reach an agreement regarding the goods or services and associated compensation, such agreement must be effected by means of a contract amendment. Further, any such amendment requiring additional goods or services must be signed by both the State agency head and the Contractor and must be approved by other state officials as required by applicable statutes, rules, policies and procedures of the State of Tennessee. The Contractor must not provide additional goods or render additional services until the State has issued a written contract amendment with all required approvals.

4.12. **Severability**

If any provision of this RFP is declared by a court to be illegal or in conflict with any law, said decision will not affect the validity of the remaining RFP terms and provisions, and the rights and obligations of the State and Respondents will be construed and enforced as if the RFP did not contain the particular provision held to be invalid.

4.13. Next Ranked Respondent

The State reserves the right to initiate negotiations with the next ranked Respondent should the State cease doing business with any Respondent selected via this RFP process.

5. EVALUATION & CONTRACT AWARD

5.1. Evaluation Categories & Maximum Points

The State will consider qualifications, experience, technical approach, and cost in the evaluation of responses and award points in each of the categories detailed below (up to the maximum evaluation points indicated) to each response deemed by the State to be responsive.

EVALUATION CATEGORY	MAXIMUM POINTS POSSIBLE
General Qualifications & Experience (refer to RFP Attachment 6.2., Section B)	10
Technical Qualifications, Experience & Approach (refer to RFP Attachment 6.2., Section C)	60
Oral Presentation (refer to RFP Attachment 6.2, Section D)	10
Cost Proposal (refer to RFP Attachment 6.3.)	20

5.2. Evaluation Process

The evaluation process is designed to award the contract resulting from this RFP not necessarily to the Respondent offering the lowest cost, but rather to the Respondent deemed by the State to be responsive and responsible who offers the best combination of attributes based upon the evaluation criteria. ("Responsive Respondent" is defined as a Respondent that has submitted a response that conforms in all material respects to the RFP. "Responsible Respondent" is defined as a Respondent that has the capacity in all respects to perform fully the contract requirements, and the integrity and reliability which will assure good faith performance.)

5.2.1. **Technical Response Evaluation.** The Solicitation Coordinator and the Proposal Evaluation Team (consisting of three (3) or more State employees) will use the RFP Attachment 6.2., Technical Response & Evaluation Guide to manage the Technical Response Evaluation and maintain evaluation records.

- 5.2.1.1. The State reserves the right, at its sole discretion, to request Respondent clarification of a Technical Response or to conduct clarification discussions with any or all Respondents. Any such clarification or discussion will be limited to specific sections of the response identified by the State. The subject Respondent must put any resulting clarification in writing as may be required and in accordance with any deadline imposed by the State.
- 5.2.1.2. The Solicitation Coordinator will review each Technical Response to determine compliance with RFP Attachment 6.2., Technical Response & Evaluation Guide, Section A—Mandatory Requirements. If the Solicitation Coordinator determines that a response failed to meet one or more of the mandatory requirements, the Solicitation Coordinator will review the response and determine whether:
 - a. the response adequately meets RFP requirements for further evaluation;
 - b. the State will request clarifications or corrections for consideration prior to further evaluation; or,
 - c. the State will determine the response to be non-responsive to the RFP and reject it.

- 5.2.1.3. Proposal Evaluation Team members will independently evaluate each Technical Response (that is responsive to the RFP) against the evaluation criteria in this RFP, and will score each in accordance with the RFP Attachment 6.2., Technical Response & Evaluation Guide.
- 5.2.1.4. For each response evaluated, the Solicitation Coordinator will calculate the average of the Proposal Evaluation Team member scores for RFP Attachment 6.2., Technical Response & Evaluation Guide, and record each average as the response score for the respective Technical Response section.
- 5.2.1.5. The Solicitation Coordinator will invite the top three (3) ranked Respondents to make an Oral Presentation. The ranking will be determined after the Technical Response score is totaled and ranked (e.g., 1 – the best evaluated ranking, etc.).
 - 5.2.1.5.1. The Oral Presentations are mandatory. The Solicitation Coordinator will schedule Respondent Presentations during the period indicated by the RFP Section 2, Schedule of Events. The Oral Presentations will be for a duration of one (1) hour. Respondents should leave time for potential questions from evaluators. The Oral Presentations will be held in-person. Any additional details regarding the Oral Presentation or Field Test will be provided by the Solicitation Coordinator at the time of scheduling. The Solicitation Coordinator will make every effort to accommodate each Respondent's schedules. When the Respondent Presentation schedule has been determined, the Solicitation Coordinator will contact Respondents with the relevant information as indicated by RFP Section 2, Schedule of Events.
 - 5.2.1.5.2. Respondent Presentations are only open to the invited Respondent, Proposal Evaluation Team members, the Solicitation Coordinator, and any technical consultants who are selected by the State to provide assistance to the Proposal Evaluation Team.
 - 5.2.1.5.3. Oral Presentations provide an opportunity for Respondents to explain and clarify their responses and for the State to test to better understand the practical application of the good or service as applicable. Respondents must not materially alter their responses and Presentations will be limited to addressing the items detailed in RFP Attachment 6.2., Technical Response & Evaluation Guide. Respondent pricing shall not be discussed or provided during Oral Presentations.
 - 5.2.1.5.4. The State will maintain an accurate record of each Respondent's Oral Presentation session. The record of the Respondent's Oral Presentation shall be available for review when the State opens the procurement files for public inspection.
 - 5.2.1.5.5. Proposal Evaluation Team members will independently evaluate each Oral Presentation in accordance with the RFP Attachment 6.2., Technical Response & Evaluation Guide, Section D.
 - 5.2.1.5.6. The Solicitation Coordinator will calculate and document the average of the Proposal Evaluation Team member scores for RFP Attachment 6.2., Technical Response & Evaluation Guide, Section D, and record that number as the score for Respondent's Technical Response section.
- 5.2.1.6. Before Cost Proposals are opened, the Proposal Evaluation Team and the Solicitation Coordinator will review the Technical Response Evaluation record and any other available information pertinent to whether or not each Respondent is responsive and

responsible. If the Proposal Evaluation Team or the Solicitation Coordinator identifies any Respondent that does not meet the responsive and responsible thresholds such that the team or the Solicitation Coordinator would not recommend the Respondent for Cost Proposal Evaluation and potential contract award, the team members or the Solicitation Coordinator will fully document the determination.

5.2.2. **Cost Proposal Evaluation.** The Solicitation Coordinator will open for evaluation the Cost Proposal of each Respondent deemed by the State to be responsive and responsible and calculate and record each Cost Proposal score in accordance with the RFP Attachment 6.3., Cost Proposal & Scoring Guide.

5.2.3. **Clarifications and Negotiations:** The State reserves the right to award a contract on the basis of initial responses received, therefore, each response shall contain the Respondent's best terms and conditions from a technical and cost standpoint. The State reserves the right to conduct clarifications or negotiations with one or more Respondents. All communications, clarifications, and negotiations shall be conducted in a manner that supports fairness in response improvement.

5.2.3.1. **Clarifications:** The State may identify areas of a response that may require further clarification or areas in which it is apparent that there may have been miscommunications or misunderstandings as to the State's specifications or requirements. The State may seek to clarify those issues identified during one or multiple clarification rounds. Each clarification sought by the State may be unique to an individual Respondent, provided that the process is conducted in a manner that supports fairness in response improvement.

5.2.3.2. **Negotiations:** The State may elect to negotiate with one or more Respondents by requesting revised responses, negotiating costs, or finalizing contract terms and conditions. The State reserves the right to conduct multiple negotiation rounds or no negotiations at all.

5.2.3.3. **Cost Negotiations:** All Respondents, selected for negotiation by the State, will be given equivalent information with respect to cost negotiations. All cost negotiations will be documented for the procurement file. Additionally, the State may conduct target pricing and other goods or services level negotiations. Target pricing may be based on considerations such as current pricing, market considerations, benchmarks, budget availability, or other methods that do not reveal individual Respondent pricing. During target price negotiations, Respondents are not obligated to reduce their pricing to target prices, but no Respondent is allowed to increase prices.

5.2.3.4. If the State determines that it is unable to successfully negotiate terms and conditions of a contract with the apparent best evaluated Respondent, the State reserves the right to bypass the apparent best evaluated Respondent and enter into terms and conditions contract negotiations with the next apparent best evaluated Respondent.

5.2.4. **Total Response Score.** The Solicitation Coordinator will calculate the sum of the Technical Response section scores and the Cost Proposal score and record the resulting number as the total score for the subject Response (refer to RFP Attachment 6.5., Score Summary Matrix).

5.3. **Contract Award Process**

5.3.1 The Solicitation Coordinator will review the Proposal Evaluation Team determinations and scores for consideration along with any other relevant information that might be available and pertinent to contract award.

- 5.3.2. The Solicitation Coordinator will determine the apparent best-evaluated Response using the scoring provided by the Proposal Evaluation Team. To effect a contract award to a Respondent other than the one receiving the highest evaluation process score, the Solicitation Coordinator must provide written justification and obtain the written approval of the Chief Procurement Officer and the Comptroller of the Treasury.
- 5.3.3. The State will issue a Notice of Intent to Award identifying the apparent best-evaluated response and make the RFP files available for public inspection at the time and date specified in the RFP Section 2, Schedule of Events.

NOTICE: The Notice of Intent to Award shall not create rights, interests, or claims of entitlement in either the apparent best-evaluated Respondent or any other Respondent.

- 5.3.4. The Respondent identified as offering the apparent best-evaluated response must sign a contract drawn by the State pursuant to this RFP. The Contract shall be substantially the same as the RFP Attachment 6.6., *Pro Forma* Contract. The Respondent must sign the contract by the Contractor Signature Deadline detailed in the RFP Section 2, Schedule of Events. If the Respondent fails to provide the signed Contract by this deadline, the State may determine that the Respondent is non-responsive to this RFP and reject the response.
- 5.3.5. Notwithstanding the foregoing, the State may, at its sole discretion, entertain limited terms and conditions or pricing negotiations prior to Contract signing and, as a result, revise the *pro forma* contract terms and conditions or performance requirements in the State's best interests, PROVIDED THAT such revision of terms and conditions or performance requirements shall NOT materially affect the basis of response evaluations or negatively impact the competitive nature of the RFP and contractor selection process.
- 5.3.6. If the State determines that a response is non-responsive and rejects it after opening Cost Proposals, the Solicitation Coordinator will re-calculate scores for each remaining responsive Cost Proposal to determine (or re-determine) the apparent best-evaluated response.

RFP ATTACHMENT 6.1.**RFP # 40100-51745 STATEMENT OF CERTIFICATIONS AND ASSURANCES**

The Respondent must sign and complete the Statement of Certifications and Assurances below as required, and it must be included in the Technical Response (as required by RFP Attachment 6.2., Technical Response & Evaluation Guide, Section A, Item A.1.).

The Respondent does, hereby, expressly affirm, declare, confirm, certify, and assure ALL of the following:

1. The Respondent will comply with all of the provisions and requirements of the RFP.
2. The Respondent will provide all services as defined in the Scope of the RFP Attachment 6.6., *Pro Forma* Contract for the total Contract Term.
3. The Respondent, except as otherwise provided in this RFP, accepts and agrees to all terms and conditions set out in the RFP Attachment 6.6., *Pro Forma* Contract.
4. The Respondent acknowledges and agrees that a contract resulting from the RFP shall incorporate, by reference, all proposal responses as a part of the Contract.
5. The Respondent will comply with:
 - (a) the laws of the State of Tennessee;
 - (b) Title VI of the federal Civil Rights Act of 1964;
 - (c) Title IX of the federal Education Amendments Act of 1972;
 - (d) the Equal Employment Opportunity Act and the regulations issued there under by the federal government; and,
 - (e) the Americans with Disabilities Act of 1990 and the regulations issued there under by the federal government.
6. To the knowledge of the undersigned, the information detailed within the response submitted to this RFP is accurate.
7. The response submitted to this RFP was independently prepared, without collusion, under penalty of perjury.
8. No amount shall be paid directly or indirectly to an employee or official of the State of Tennessee as wages, compensation, or gifts in exchange for acting as an officer, agent, employee, subcontractor, or consultant to the Respondent in connection with this RFP or any resulting contract.
9. Both the Technical Response and the Cost Proposal submitted in response to this RFP shall remain valid for at least 120 days subsequent to the date of the Cost Proposal opening and thereafter in accordance with any contract pursuant to the RFP.
10. The Respondent affirms the following statement, as required by the Iran Divestment Act Tenn. Code Ann. § 12-12-111: "By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to §12-12-106." For reference purposes, the list is currently available online at: <https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/library-/public-information-library.html>.

By signing this Statement of Certifications and Assurances, below, the signatory also certifies legal authority to bind the proposing entity to the provisions of this RFP and any contract awarded pursuant to it. If the signatory is not the Respondent (if an individual) or the Respondent's company *President* or *Chief Executive Officer*, this document must attach evidence showing the individual's authority to bind the Respondent.

DO NOT SIGN THIS DOCUMENT IF YOU ARE NOT LEGALLY AUTHORIZED TO BIND THE RESPONDENT

SIGNATURE:

PRINTED NAME & TITLE:

DATE:

**RESPONDENT LEGAL ENTITY
NAME:**

RFP ATTACHMENT 6.2. — Section A

TECHNICAL RESPONSE & EVALUATION GUIDE

SECTION A: MANDATORY REQUIREMENTS. The Respondent must address all items detailed below and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below.

The Solicitation Coordinator will review the response to determine if the Mandatory Requirement Items are addressed as required and mark each with pass or fail. For each item that is not addressed as required, the Solicitation Coordinator must review the response and attach a written determination. In addition to the Mandatory Requirement Items, the Solicitation Coordinator will review each response for compliance with all RFP requirements.

RESPONDENT LEGAL ENTITY NAME:			
Response Page # (Respondent completes)	Item Ref.	Section A— Mandatory Requirement Items	Pass/Fail
		The Response must be delivered to the State no later than the Response Deadline specified in the RFP Section 2, Schedule of Events.	
		The Technical Response and the Cost Proposal documentation must be packaged separately as required (refer to RFP Section 3.2., <i>et. seq.</i>).	
		The Technical Response must NOT contain cost or pricing information of any type.	
		The Technical Response must NOT contain any restrictions of the rights of the State or other qualification of the response.	
		A Respondent must NOT submit alternate responses (refer to RFP Section 3.3.).	
		A Respondent must NOT submit multiple responses in different forms (as a prime and a subcontractor) (refer to RFP Section 3.3.).	
	A.1.	Provide the Statement of Certifications and Assurances (RFP Attachment 6.1.) completed and signed by an individual empowered to bind the Respondent to the provisions of this RFP and any resulting contract. The document must be signed without exception or qualification.	
	A.2.	Provide a statement, based upon reasonable inquiry, of whether the Respondent or any individual who shall cause to deliver goods or perform services under the contract has a possible conflict of interest (<i>e.g.</i> , employment by the State of Tennessee) and, if so, the nature of that conflict. NOTE: Any questions of conflict of interest shall be solely within the discretion of the State, and the State reserves the right to cancel any award.	
	A.3.	Provide at least one of the following financial documents dated within the last three (3) months: (1) an official document or letter from an accredited credit bureau, indicating a satisfactory credit score for the Respondent (NOTE: A credit bureau report number without the full report is insufficient and will <u>not</u> be considered responsive.); (2) income statement, indicating the Respondent's financial operations; or (3) balance sheet, showing the Respondent's flow of funds. Any documentation disclosing the amount of cash flows from operating activities should be for the Respondent's most current operating period and must indicate whether the cash flows are positive or negative. If the cash	

RESPONDENT LEGAL ENTITY NAME:			
Response Page # (Respondent completes)	Item Ref.	Section A— Mandatory Requirement Items	Pass/Fail
		flows are negative for the most recent operating period, the documentation must include a detailed explanation of the factors contributing to the negative cash flows. NOTICE: All persons, agencies, firms, or other entities that provide opinions regarding the Respondent's financial status must be properly licensed to render such opinions. The State may require the Respondent to submit proof of such licensure detailing the state of licensure and licensure number for each person or entity that renders the opinions.	
	A.4.	Please attest the Respondent has reviewed the insurance requirements of the Pro Forma contract in Section D.32 and agrees to provide the necessary insurance coverages if the Respondent is awarded this contract.	
	A.5.	Please attest that the Respondent is or is capable of being lawfully authorized to do business in the State of Tennessee and holds or is capable of holding all necessary licenses, permits, and certifications required to provide services as required by the contract (refer to RFP Section 4.7.).	
	A.6.	Please provide two (2) reference letters for projects or programs similar to those required in the scope of the Pro Forma contract (RFP Att. 6.6) attached to this RFP that the Respondent is currently contracted for or has completed within the past five (5) years. The Reference letters should be on the reference's official company letter head and signed and dated within the last 3 months. These references used to satisfy A.6 shall be included in the Respondent's technical proposal. The references used to satisfy A.6 will be separate from the references submitted for RFP Attachment 6.4.	
State Use – Solicitation Coordinator Signature, Printed Name & Date:			

RFP ATTACHMENT 6.2. — SECTION B

TECHNICAL RESPONSE & EVALUATION GUIDE

SECTION B: GENERAL QUALIFICATIONS & EXPERIENCE. The Respondent must address all items detailed below and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below. Proposal Evaluation Team members will independently evaluate and assign one score for all responses to Section B— General Qualifications & Experience Items.

RESPONDENT LEGAL ENTITY NAME:		
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items
	B.1.	Detail the name, e-mail address, mailing address, telephone number, and facsimile number, if applicable, of the person the State should contact regarding the response.
	B.2.	Describe the Respondent's form of business (<i>i.e.</i> , individual, sole proprietor, corporation, non-profit corporation, partnership, limited liability company) and business location (physical location or domicile).
	B.3.	Detail the number of years the Respondent has been in business.
	B.4.	Briefly describe how long the Respondent has been providing the goods or services required by this RFP.
	B.5.	Describe the Respondent's number of employees, client base, and location of offices.
	B.6.	Provide a statement of whether there have been any mergers, acquisitions, or change of control of the Respondent within the last ten (10) years. If so, include an explanation providing relevant details.
	B.7.	Provide a statement of whether the Respondent or, to the Respondent's knowledge, any of the Respondent's employees, agents, independent contractors, or subcontractors, involved in the delivery of goods or performance of services on a contract pursuant to this RFP, have been convicted of, pled guilty to, or pled <i>nolo contendere</i> to any felony. If so, include an explanation providing relevant details.
	B.8.	Provide a statement of whether, in the last ten (10) years, the Respondent has filed (or had filed against it) any bankruptcy or insolvency proceeding, whether voluntary or involuntary, or undergone the appointment of a receiver, trustee, or assignee for the benefit of creditors. If so, include an explanation providing relevant details.
	B.9.	Provide a statement of whether there is any material, pending litigation against the Respondent that the Respondent should reasonably believe could adversely affect its ability to meet contract requirements pursuant to this RFP or is likely to have a material adverse effect on the Respondent's financial condition. If such exists, list each separately, explain the relevant details, and attach the opinion of counsel addressing whether and to what extent it would impair the Respondent's performance in a contract pursuant to this RFP. NOTE: All persons, agencies, firms, or other entities that provide legal opinions regarding the Respondent must be properly licensed to render such opinions. The State may require the Respondent to submit proof of license for each person or entity that renders such opinions.
	B.10.	Provide a statement of whether there are any pending or in progress Securities Exchange Commission investigations involving the Respondent. If such exists, list each separately, explain the relevant details, and attach the opinion of counsel addressing whether and to what extent it will impair the Respondent's performance in a contract pursuant to this RFP.

RFP ATTACHMENT 6.2. — SECTION B (continued)

RESPONDENT LEGAL ENTITY NAME:		
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items
		NOTE: All persons, agencies, firms, or other entities that provide legal opinions regarding the Respondent must be properly licensed to render such opinions. The State may require the Respondent to submit proof of license for each person or entity that renders such opinions.
	B.11.	Provide a brief, descriptive statement detailing evidence of the Respondent's ability to deliver the goods or services sought under this RFP (e.g., prior experience, training, certifications, resources, program and quality management systems, etc.).
	B.12.	Provide a narrative description of the proposed project team, its members, and organizational structure along with an organizational chart identifying the key people who will be assigned to deliver the goods or services required by this RFP.
	B.13.	Provide a personnel roster listing the names of key people who the Respondent will assign to meet the Respondent's requirements under this RFP along with the estimated number of hours that each individual will devote to that performance. Follow the personnel roster with a resume for each of the people listed. The resumes must detail the individual's title, education, current position with the Respondent, and employment history.
	B.14.	Provide a statement of whether the Respondent intends to use subcontractors to meet the Respondent's requirements of any contract awarded pursuant to this RFP, and if so, detail: (a) the names of the subcontractors along with the contact person, mailing address, telephone number, and e-mail address for each; (b) a description of the scope and portions of the goods each subcontractor involved in the delivery of goods or performance of the services each subcontractor will perform; <u>and</u> (c) a statement specifying that each proposed subcontractor has expressly assented to being proposed as a subcontractor in the Respondent's response to this RFP.
	B.15.	Provide a statement of whether or not the Respondent has any current contracts with the State of Tennessee or has completed any contracts with the State of Tennessee within the previous five (5) year period. If so, provide the following information for all of the current and completed contracts: (a) the name, title, telephone number and e-mail address of the State contact knowledgeable about the contract; (b) the procuring State agency name; (c) a brief description of the contract's scope of services; (d) the contract period; and (e) the contract number.
	B.16.	Provide a statement and any relevant details addressing whether the Respondent is any of the following: (a) is presently debarred, suspended, proposed for debarment, or voluntarily excluded from covered transactions by any federal or state department or agency; (b) has within the past three (3) years, been convicted of, or had a civil judgment rendered against the contracting party from commission of fraud, or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or grant under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

RFP ATTACHMENT 6.2. — SECTION B (continued)

RESPONDENT LEGAL ENTITY NAME:			
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items	
		(c) is presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses detailed above; and (d) has within a three (3) year period preceding the contract had one or more public transactions (federal, state, or local) terminated for cause or default.	
	B.17	Provide three (3) references from three different persons, in accordance with the instructions in Attachment 6.4.	
SCORE (for <u>all</u> Section B—Qualifications & Experience Items above): (maximum possible score = 10)			
State Use – Evaluator Identification:			

RFP ATTACHMENT 6.2. — SECTION C

TECHNICAL RESPONSE & EVALUATION GUIDE

SECTION C: TECHNICAL QUALIFICATIONS, EXPERIENCE & APPROACH. The Respondent must address all items (below) and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below.

A Proposal Evaluation Team, made up of three or more State employees, will independently evaluate and score the response to each item. Each evaluator will use the following whole number, raw point scale for scoring each item:

0 = little value 1 = poor 2 = fair 3 = satisfactory 4 = good 5 = excellent

The Solicitation Coordinator will multiply the Item Score by the associated Evaluation Factor (indicating the relative emphasis of the item in the overall evaluation). The resulting product will be the item's Raw Weighted Score for purposes of calculating the section score as indicated.

RESPONDENT LEGAL ENTITY NAME:					
Response Page # (Respondent completes)	Item Ref.	Section C— Technical Qualifications, Experience & Approach Items	Item Score	Evaluation Factor	Raw Weighted Score
	C.1.	Provide a narrative that illustrates how the Respondent will manage the project, ensure completion of the scope of services, and accomplish required objectives within the State's project schedule.		2	
	C.2.	Provide a narrative that illustrates the Respondent's experience with the on-call services described in the scope of services.		1	
	C.3.	Without the inclusion of costs, provide a narrative that illustrates the Respondent's experience with the additional operational services proposed by the Responder, along with expected benefits to the State and the traveling public.		1	
	C.4.	Provide a narrative that illustrates the Respondent's experience with coordinating with the State's personnel and personnel from other agencies and contractors.		1	
	C.5.	Provide a narrative that illustrates the Respondent's experience with developing and managing the Quality Management System as required in the scope of services.		1	
	C.6.	Provide a narrative that illustrates the Respondent's experience with developing		1	

RFP ATTACHMENT 6.2. — SECTION C (continued)

RESPONDENT LEGAL ENTITY NAME:					
Response Page # (Respondent completes)	Item Ref.	Section C— Technical Qualifications, Experience & Approach Items	Item Score	Evaluation Factor	Raw Weighted Score
		and managing the Quality of Operation Plan as required in the scope of services.			
	C.7.	Provide a narrative that illustrates the Respondent's experience with providing similar services as required in the scope of services at multiple locations.		2	
	C.8.	Provide a narrative that illustrates the Respondent's experience with developing and ensuring compliance with Standard Employee Guidelines.		1	
	C.9.	Provide a narrative that illustrates the Respondent's experience with the variable staffing requirements as required in the scope of services.		2	
	C.10.	Provide a narrative that illustrates the Respondent's experience with ensuring minimum staffing levels are met for all shifts in the event of staff sickness, vacation, or termination as required in the scope of services.		2	
	C.11.	Provide a narrative that illustrates the Respondent's experience with the timely recruiting and hiring of replacement personnel in the event of employee termination.		2	
	C.12.	Provide a narrative that illustrates the Respondent's experience with TMC operations training development, delivery, testing, and certification as required in the scope of services.		2	
	C.13.	Provide a narrative that illustrates the Respondent's experience with monthly and annual performance measurement and reporting as required in the scope of services.		2	
	C.14.	Provide a narrative that illustrates the Respondent's		2	

RFP ATTACHMENT 6.2. — SECTION C (continued)

RESPONDENT LEGAL ENTITY NAME:					
Response Page # (Respondent completes)	Item Ref.	Section C— Technical Qualifications, Experience & Approach Items	Item Score	Evaluation Factor	Raw Weighted Score
		experience with reporting and self-assessing performance deductions as required in the scope of services.			
	C.15.	Provide a narrative that illustrates the Respondent's experience with tracking and documenting personnel work hours.		1	
	C.16.	Provide a narrative that illustrates the Respondent's experience with using software systems similar to SWCS, Cameleon, Drivewyze, MH Corbin Platinum, PMIC, Power BI, TrafficVision Video Analytics, Vanguard, Vero, and Helpdesk.		1	
	C.17.	Without providing costs, provide a narrative that illustrates the Respondent's plan for establishing and maintaining pay rates that are above average market research hourly rates.		2	
	C.18.	Provide a narrative that illustrates the Respondent's experience and compliance with guides such as the State's TMC Operations Manual and experience with recommending updates.		1	
	C.19.	Provide a list of projects or programs similar to this one that the Respondent is currently contracted for or has completed within the past five (5) years. The list should specify whether the project or program was performance-based. The list should also specify whether the Respondent served as the prime contractor or subcontractor and must include the following details: Customer's name including project description, number and type of staff provided, and start and end dates. Do not include any costs related to these services.		2	

RFP ATTACHMENT 6.2. — SECTION C (continued)

RESPONDENT LEGAL ENTITY NAME:								
Response Page # (Respondent completes)	Item Ref.	Section C— Technical Qualifications, Experience & Approach Items	Item Score	Evaluation Factor	Raw Weighted Score			
<i>The Solicitation Coordinator will use this sum and the formula below to calculate the section score. All calculations will use and result in numbers rounded to two (2) places to the right of the decimal point.</i>								
Total Raw Weighted Score: <i>(sum of Raw Weighted Scores above)</i>								
<table border="0"> <tr> <td style="text-align: center;"> Total Raw Weighted Score Maximum Possible Raw Weighted Score <i>(i.e., 5 x the sum of item weights above)</i> </td> <td style="text-align: center; vertical-align: middle;"> X 60 <i>(maximum possible score)</i> </td> <td style="text-align: right; vertical-align: middle;"> = SCORE: </td> </tr> </table>					Total Raw Weighted Score Maximum Possible Raw Weighted Score <i>(i.e., 5 x the sum of item weights above)</i>	X 60 <i>(maximum possible score)</i>	= SCORE:	
Total Raw Weighted Score Maximum Possible Raw Weighted Score <i>(i.e., 5 x the sum of item weights above)</i>	X 60 <i>(maximum possible score)</i>	= SCORE:						
<i>State Use – Evaluator Identification:</i>								
<i>State Use – Solicitation Coordinator Signature, Printed Name & Date:</i>								

RFP ATTACHMENT 6.2.— SECTION D

TECHNICAL RESPONSE & EVALUATION GUIDE

SECTION D: ORAL PRESENTATION. The Respondent must address ALL Oral Presentation Items (below).

A Proposal Evaluation Team, made up of three or more State employees, will independently evaluate and score the oral presentation or field test response to each item. Each evaluator will use the following whole-number, raw point scale for scoring each item:

0 = little value 1 = poor 2 = fair 3 = satisfactory 4 = good 5 = excellent

The Solicitation Coordinator will multiply the Item Score by the associated Evaluation Factor (indicating the relative emphasis of the item in the overall evaluation). The resulting product will be the item's raw, weighted score for purposes of calculating the section score as indicated.

RESPONDENT LEGAL ENTITY NAME:				
Oral Presentation Items		Item Score	Evaluation Factor	Raw Weighted Score
D.1.	Bring key personnel to the oral presentation who are proposed to work on the contract, including the Contractor Project Manager, and TMC Operations Managers. Provide each attendee with a speaking role sufficient to assess whether the attendee has the ability to meet the verbal communication requirements within the scope of services. Provide information showing each attendee is familiar with their roles and responsibilities of his/her proposed position.		2	
D.2.	Provide additional details about their initial hiring and staffing plan to ensure full TMC operations within 60 days from the initial Contract Effective Date.		2	
D.3.	Provide the plan for providing on-call staffing and filling vacancies to meets the scope of services requirements.		2	
D.4.	Provide additional details on experience with quality management for performance-based contracts and how assessment of liquidated damages will be minimized and managed to avoid recurring assessments?		3	
Total Raw Weighted Score (<i>sum of Raw Weighted Scores above</i>): The Solicitation Coordinator will use this sum and the formula below to calculate the score. Numbers rounded to two (2) places to the right of the decimal point will be standard for calculations.				
total raw weighted score maximum possible raw weighted score <i>(i.e., 5 x the sum of item weights above)</i>				
X 10 <i>(maximum section score)</i> = SCORE:				
State Use – Evaluator Identification:				

RFP ATTACHMENT 6.3. (continued)

State Use – Solicitation Coordinator Signature, Printed Name & Date:

RFP ATTACHMENT 6.3

COST PROPOSAL & SCORING GUIDE

NOTICE: THIS COST PROPOSAL MUST BE COMPLETED EXACTLY AS REQUIRED

COST PROPOSAL SCHEDULE— The Cost Proposal, detailed below, shall indicate the proposed price for providing goods or services as defined in the Scope of Services of the RFP Attachment 6.6., *Pro Forma* Contract, for the entire contract period. The Cost Proposal shall remain valid for at least 120 days subsequent to the date of the Cost Proposal opening and thereafter in accordance with any contract resulting from this RFP. All monetary amounts shall be in U.S. currency and limited to two (2) places to the right of the decimal point.

NOTICE: The Evaluation Factor associated with each compensable unit is for evaluation purposes only. The evaluation factors do NOT and should NOT be construed as any type of volume guarantee or minimum purchase quantity. The evaluation factors shall NOT create rights, interests, or claims of entitlement in the Respondent.

Notwithstanding the cost items herein, pursuant to the second paragraph of the *Pro Forma* Contract, Section C.1. (refer to RFP Attachment 6.6.), the State is under no obligation to request any goods or services from the Contractor in any specific dollar amounts or to request any goods or services at all from the Contractor during any period of this Contract.

This Cost Proposal must be signed, in the space below, by an individual empowered to bind the Respondent to the provisions of this RFP and any contract awarded pursuant to this RFP. If the individual signing this Cost Proposal is not the *President* or *Chief Executive Officer*, the Respondent must attach evidence to the Cost Proposal showing the individual's authority to legally bind the Respondent.

RESPONDENT SIGNATURE:								
PRINTED NAME & TITLE:								
DATE:								
RESPONDENT LEGAL ENTITY NAME:								
Cost Item Description	Proposed Cost					State Use ONLY		
	Year 1	Year 2	Year 3	Year 4	Year 5	Sum	Evaluation Factor	Evaluation Cost (sum x factor)
Required TMC Operations Services (See Tables 1 and 2 for Minimum Staffing)	\$ / Year	\$ / Year	\$ / Year	\$ / Year	\$ / Year		1	

RFP ATTACHMENT 6.3. (continued)

RESPONDENT LEGAL ENTITY NAME:		Proposed Cost					State Use ONLY		
Cost Item Description	Year 1	Year 2	Year 3	Year 4	Year 5	Sum	Evaluation Factor	Evaluation Cost (sum x factor)	
On-Call TMC Technician	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour		2000		
On-Call Shift Supervisor	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour		800		
TMC Technician Overtime	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour		600		
On-Call Remote TMC Technician	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour		300		
Smart Corridor Traffic Signal Technician	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour	\$ / Hour		1400		
TOTAL EVALUATION COST AMOUNT (sum of evaluation costs above): The Solicitation Coordinator will use this sum and the formula below to calculate the Cost Proposal Score. Numbers rounded to two (2) places to the right of the decimal point will be standard for calculations.									
lowest evaluation cost amount from all proposals						x 20 (maximum possible score)	= SCORE E:		
State Use – Solicitation Coordinator Signature, Printed Name & Date:									

REFERENCE QUESTIONNAIRE

The standard reference questionnaire provided on the following pages of this attachment should be used and completed by all individuals offering a reference for the Respondent.

The Respondent will be solely responsible for obtaining completed reference questionnaires as detailed below:

- Provide references from three (3) different persons who are not current State employees for projects similar in size and scope to the goods or services sought under this RFP.
- Respondents may provide references that represent active, current contracts or contracts completed within the last five (5) years.
- The individual providing a reference shall not be a current State employee.
- Obtain and submit the completed reference questionnaires following one of the two processes described below:

Option #1 – Written References:

- (a) Add the Respondent's name to the standard reference questionnaire at RFP Attachment 6.4. and make a copy for each reference.
- (b) Send a reference questionnaire and a new, standard #10 envelope to each reference.
- (c) Instruct the reference to:
 - (i) complete the reference questionnaire;
 - (ii) sign and date the completed reference questionnaire;
 - (iii) seal the completed, signed, and dated reference questionnaire within the envelope provided;
 - (iv) sign his or her name in ink across the sealed portion of the envelope; and
 - (v) return the sealed envelope directly to the Respondent (the Respondent may wish to give each reference a deadline, such that the Respondent will be able to collect all required references in time to include them within the sealed Technical Response).
- (d) Do NOT open the sealed references upon receipt.
- (e) Enclose all sealed reference envelopes within a larger, labeled envelope for inclusion in the Technical Response as required.

Option #2 - Emailed References:

- (a) Add the Respondent's name to the standard reference questionnaire at RFP Attachment 6.4. and make a copy for each reference.
- (b) E-mail a reference questionnaire to each reference.
- (c) Instruct the reference to:
 - (i) complete the reference questionnaire;
 - (ii) sign and date the completed reference questionnaire;
 - (iii) E-mail the reference directly to the Solicitation Coordinator by the RFP Technical Response Deadline with the Subject line of the e-mail as "[Respondent's Name] Reference for RFP # 40100-51745".

NOTES:

- The State will not accept late references or references submitted by any means other than the two which are described above, and each reference questionnaire submitted must be completed as required.
- The State will not review more than the number of references indicated above.
- While the State will base its reference check on the contents of the reference e-mails or sealed reference envelopes included in the Technical Response package, the State reserves the right to confirm and clarify information detailed in the completed reference questionnaires, and may consider clarification responses in the evaluation of references.
- The State is under no obligation to clarify any reference information.

RFP # 40100-51745 REFERENCE QUESTIONNAIRE**REFERENCE SUBJECT:** RESPONDENT NAME (completed by Respondent before reference is requested)

The "reference subject" specified above, intends to submit a response to the State of Tennessee in response to the Request for Proposals (RFP) indicated. As a part of such response, the reference subject must include a number of completed and sealed reference questionnaires (using this form).

Each individual responding to this reference questionnaire is asked to follow these instructions:

- complete this questionnaire (either using the form provided or an exact duplicate of this document);
- sign and date the completed questionnaire and follow either process outlined below;

Physical:

- seal the completed, signed, and dated questionnaire in a new standard #10 envelope;
- sign in ink across the sealed portion of the envelope; and
- return the sealed envelope containing the completed questionnaire directly to the reference subject.

E-Mail:

- e-mail the completed questionnaire to:
Josh Polk
Joshua.Polk@tn.gov

(1) **What is the name of the individual, company, organization, or entity responding to this reference questionnaire?**

(2) **Please provide the following information about the individual completing this reference questionnaire on behalf of the above-named individual, company, organization, or entity.**

NAME:	
TITLE:	
TELEPHONE #	
E-MAIL ADDRESS:	

(3) **What goods or services does/did the reference subject provide to your company or organization?**

- (4) If the goods or services that the reference subject provided to your company or organization are completed, were the goods or services provided in compliance with the terms of the contract, on time, and within budget? If not, please explain.
- (5) If the reference subject is still providing goods or services to your company or organization, are these goods or services being provided in compliance with the terms of the contract, on time, and within budget? If not, please explain.
- (6) How satisfied are you with the reference subject's ability to perform based on your expectations and according to the contractual arrangements?

REFERENCE SIGNATURE:

(by the individual completing this
request for reference information)

(must be the same as the signature across the envelope seal)

DATE:

RFP ATTACHMENT 6.5.

SCORE SUMMARY MATRIX

	RESPONDENT NAME		RESPONDENT NAME		RESPONDENT NAME	
GENERAL QUALIFICATIONS & EXPERIENCE (maximum: 10)						
EVALUATOR NAME						
EVALUATOR NAME						
REPEAT AS NECESSARY						
	AVERAGE:		AVERAGE:		AVERAGE:	
TECHNICAL QUALIFICATIONS, EXPERIENCE & APPROACH (maximum: 60)						
EVALUATOR NAME						
EVALUATOR NAME						
REPEAT AS NECESSARY						
	AVERAGE:		AVERAGE:		AVERAGE:	
ORAL PRESENTATION/ FIELD TEST (maximum: 10)						
EVALUATOR NAME						
EVALUATOR NAME						
REPEAT AS NECESSARY						
	AVERAGE:		AVERAGE:		AVERAGE:	
COST PROPOSAL (maximum: 20)	SCORE:		SCORE:		SCORE:	
TOTAL RESPONSE EVALUATION SCORE: (maximum: 100)						
Solicitation Coordinator Signature, Printed Name & Date:						

RFP # 40100-51745 *PRO FORMA* CONTRACT

The *Pro Forma* Contract detailed in following pages of this exhibit contains some “blanks” (signified by descriptions in capital letters) that will be completed with appropriate information in the final contract resulting from the RFP.

**CONTRACT
BETWEEN THE STATE OF TENNESSEE,
DEPARTMENT OF TRANSPORTATION
AND
CONTRACTOR NAME**

This Contract, by and between the State of Tennessee, Department of Transportation ("State") and **Contractor Legal Entity Name** ("Contractor"), is for the delivery of Transportation Management Center ("TMC") operations services, as further defined in the "Scope." State and Contractor may be referred to individually as a "Party" or collectively as the "Parties" to this Contract.

The Contractor is **a/an Individual, For-Profit Corporation, Non-Profit Corporation, Special Purpose Corporation Or Association, Partnership, Joint Venture, Or Limited Liability Company.**

Contractor Place of Incorporation or Organization: **Location**

Contractor Edison Registration ID # **Number**

A. Scope:

- a. General. The Contractor shall provide all services and deliverables as required, described and detailed below, and shall meet all service and delivery timelines as specified by this Contract. The Contractor shall provide the services described in this Contract through careful planning, staff assignment and management, coordination, inspections, quality control, TMC operations, reporting, and other forms of administrative management techniques that shall optimize the Contractor's performance.
- b. The Contractor shall work closely with the State Project Manager, who will be responsible for the overall supervision of this Contract. The Contractor shall ensure that all work authorizations are completed within the term of this Contract.

A.1. Definitions. For purposes of this Contract, definitions shall be as follows and as set forth in the Contract:

- a. "ATMS" means Advanced Traffic Management Systems.
- b. "AWZM" means Active Work Zone Management.
- c. "CCTV" means Closed-Circuit Television.
- d. "CJIS" means the Criminal Justice Information Services Security Awareness Certification, a certification program required for individuals who have access to and handle highly sensitive information within the criminal justice system.
- e. "Contractor Executive Assistant" means the Contractor's staff member assisting the State and Contractor Project Manager as provided in Contract Sections A.53.-A.56.
- f. "Contractor Project Manager" means the Contractor's staff member(s) or manager(s), with overall responsibility and authority to oversee the contractual services being performed/provided by the Contractor in Contract Sections A.49.-A.52.
- g. "CV" means Connected Vehicles
- h. "Day" means a calendar day, unless otherwise specified.
- i. "DMS" means Dynamic Message Sign which is used by TMC to provide traveler information and public safety messages to travelers.
- j. "Due Date for Submittals" means Due dates for submission of all documents, reports, and any deliverables as identified in this Scope and the tables in Contract Section A.96. Performance Measures and Deductions.
- k. "ESS" means Environmental Sensing Station.
- l. "FTE" means Full-Time Equivalent.
- m. "GED" means General Educational Development.

- n. "HAR" means Highway Advisory Radio.
- o. "HELP" is the State's Safety Service Patrol covering Interstate and certain other routes in urban areas.
- p. "ICM" means Integrated Corridor Management.
- q. "IMSA" means International Municipal Signal Association
- r. "ISO 9001 Standard" means International Standards Organization 9001 which is a recognized national standard applicable to quality management related to deliverables, project management, and client services.
- s. "ITE" means Institute of Transportation Engineer which is a Community of Transportation Professionals
- t. "ITN" means Invitation to Negotiate.
- u. "ITS" means Intelligent Transportation Systems.
- v. "ISO" means International Standards Organization.
- w. "LCS" means Lane Control Signals used in the I-24 Smart Corridor.
- x. "LOA" means Letter of Authorization.
- y. "Market Research Hourly Rate" means annual salary or hourly rates for positions with similar duties, responsibilities, qualifications, and experience levels within Tennessee and neighboring states, as determined through documented market research performed by the Contractor and subject to State review.
- z. "Operations Training and Certification Program" means the Contractor's plan and program for ensuring TMC operations personnel are trained and certified as able to perform their roles and responsibilities.
- aa. "OVDS" means Overhead Variable Display Sign.
- bb. "P-CCTV" means Portable Closed-Circuit Television.
- cc. "QMS" means Quality Management System.
- dd. "RDS" means Radar Detection System.
- ee. "RSP" means Rural Service Patrol which will provide safety service patrol services on rural Interstate routes.
- ff. "SEG" means Standard Employee Guidelines.
- gg. "Smart Corridor" refers the ICM corridor along I-24 in the Nashville area.
- hh. "Start-up Period" means the sixty (60) days after Contract Effective Date to allow the Contractor time to hire, train, staff the State TMC's personnel and deliver are receive State approval of Start-up Period deliverables as required by the Contract.
- ii. "State Office Business Hours" means weekdays from 8:00 AM to 4:30 PM. The State's Offices are usually closed on holidays and weekends. For electronic submittals of reports and other deliverables, State Office Business Hours end at 12:00 AM (midnight).
- jj. "State Project Manager" staff member(s), manager(s), and/or consultant(s) with overall responsibility and authority to oversee the contractual services being provided by the Contractor for the State as described in this Contract.
- kk. "STEM" means Science, Technology, Engineering, or Math.
- ll. "SWZ" means Smart Work Zone.
- mm. "SWCS" means SmartWay Control Software.
- nn. "TBI" means Tennessee Bureau of Investigation.
- oo. "TCA" means Tennessee Code Annotated.

- pp. "TDOT" means Tennessee Department of Transportation.
- qq. "TIM" means Traffic Incident Management.
- rr. "TMC" means Transportation Management Center.
- ss. "AWZM" means Active Work Zone Management.
- tt. "TMC Business Hours" means twenty-four (24) hours per day, seven (7) days per week, and three-hundred and sixty five (365) days per year (24x7x365) within each of the State TMCs including holidays.
- uu. "TMC Continuity of Operations Plan" means the Contractor's plan to ensure management documentation of active events are transferred to incoming TMC personnel at each shift change.
- vv. "TMC Operations Manager" means the Contractor's staff responsible for the Contractor's overall operations at each TMC, as provided in Contract Sections A.58.-A.60.
- ww. "TMC Operations Manual" means the TDOT Transportation Management Center Operations Manual, available at: [TDOT - TMC Operations Manual.pdf](#). (See Attachment 6.7.)
- xx. "TMC Shift Supervisor" means the Contractor's staff responsible for the Contractor's services during a specific shift as provided in Contract Sections A.61.-A.64.
- yy. "TMC Staffing Plan" means the Contractor's plan for personnel recruiting, hiring, training, and maintaining staffing throughout the life of the Contract.
- zz. "TMC Technician" means the Contractor's staff performing TMC operations during specific shifts as provided in Contract Sections A.65.-A.68.
- aaa. "UPS" means uninterruptable power supply
- bbb. "VSL" means Variable Speed Limits
- ccc. "Written Notice" is herein defined as notice in writing, signed, and may be a facsimile of the original.
- ddd. "WWD" means Wrong-Way Driver.

A.2. Services Provided. The Scope provides staffing for daily recurring and as-needed on-call services for the four State TMCs during overnight and weekend hours in order to deliver effective incident management and traveler information in accordance with the TMC Operations Manual (See Attachment 6.7.).

- a. The Contractor shall function as an extension of the State's resources by providing qualified personnel to perform the duties and responsibilities assigned under the terms of this Contract.
- b. The State shall request on-call services on an as-needed basis. The Contractor understands and agrees that there is no guarantee that any or all of the on-call services described in this Contract will be assigned to the Contractor during the Term. The Contractor shall provide on-call services on a nonexclusive basis. The State, at its option, may elect to have any of the on-call services set forth herein performed by other contractors or State staff.
- c. The Contractor shall recommend TMC Operations Manual refinements to the State.

A.3. State-Contractor Relationships.

- a. The Contractor shall ensure that its Contractor Project, Manager, Contractor Executive Assistant, TMC Operations Managers, TMC Shift Supervisors, and TMC Technicians shall report to the State Project Manager. The State Project Manager shall be responsible for managing the fulfillment of contractual obligations between the Contractor and the State. The Contractor Project Manager shall ensure that the Contractor's staff understand the working relationship while fulfilling their responsibilities under the Contract.

- b. The Contractor shall ensure that its employees communicate effectively with the State's personnel in the English language, both verbally and in the form of written documentation.
 - c. The Contractor shall be responsible for any injury to person(s) or damage to or loss of property that may occur in performing any of the contractual services being performed or provided by the Contractor under this Contract, resulting from carelessness, negligence, or intentional acts of misuse on the part of its personnel.
- A.4. Contractor Experience and Judgement: The Contractor and Contractor's staff shall provide personnel with the managerial, technical and performance experience needed to meet the Contract requirements.
- A.5. Coordination with the State: The Contractor Project Manager or agreed-upon designee will meet on a weekly basis with the State Project Manager or designee.
 - a. The Contractor Project Manager shall be responsible for notifying the State Project Manager or his / her designee in writing within one calendar day of any and all emergencies and problems regarding TMC operations, staffing, and/or ITS and TMC control room maintenance issues negatively affecting operations.
 - b. The Contractor's TMC Shift Supervisors shall coordinate with the State's TMC Supervisors regarding traffic incident management activities and HELP and RSP dispatching and communication during shift handover period during the days the State's TMC Supervisors are working
- A.6. Quality Management: The Contractor shall submit a QMS Start-up Period deliverable for record keeping and documentation to support the overall operations. The Contractor shall ensure that the QMS is based on the ISO 9001 standards and must be approved by the State Project Manager prior to implementation. The Contractor shall ensure that the QMS include the following as a minimum:
 - a. The name of the QMS to be implemented.
 - b. Description of the record management system.
 - c. Quality Assurance/Control Plan that describes the procedures to be utilized to verify, independently check, and review that record keeping and documentation are being performed in accordance with the QMS.
 - d. Name(s) of the Contractor's staff that will perform the quality assurance and control reviews.
 - e. Once approved by the State, the Contractor shall implement the QMS for all documents produced and services delivered for this Contract by the Contractor, including documents created and services delivered before the QMS approval and implementation.
- A.7. Sub-Contractors: The Contractor shall be fully responsible for the satisfactory completion of all subcontracted work. The Contractor shall be responsible for the management, scheduling, quality control and administration of all subcontractor(s), including invoice processing and payment of the Sub-Contractor(s). The Contractor shall ensure that all subcontractors, whether they be an individual or a firm, must be approved by the State in writing prior to the initiation of any work.
- A.8. Cellular Communications:
 - a. The Contractor shall ensure that the Contractor Project Manager at the Effective Date will notify the State Project Manager of the cellular phone numbers of all Contractor's staff that need to be reachable (e.g., on-call personnel). The Contractor shall ensure that its Contractor Project Manager notifies the State Project Manager of any cellular phone number changes prior to the start of the applicable TMC shift.
 - b. The Contractor shall provide two (2) dedicated cellular phones to serve as "back-ups" for each of the four (4) TMC Control Rooms. The Contractor shall ensure that the backup cellular phones always remain active in the Control Room. The Contractor shall obtain and maintain all necessary licenses.

- c. The Contractor shall be responsible for all fixed and recurring costs associated with the required cellular phones throughout the term of this Contract.
- A.9. Where Services Are To Be Performed. The Contractor shall provide services at the following facilities as directed by the State Project Manager:
 - a. TDOT Region 1 TMC: 7238 Region Lane, Knoxville, TN 37914
 - b. TDOT Region 2 TMC: 7500 Volkswagen Dr., Chattanooga, TN 37416
 - c. TDOT Region 3 TMC: 6603 Centennial Blvd. Building R, Nashville, TN 37209
 - d. TDOT Region 4 TMC: 5344 Boswell Ave. Memphis, TN 38120
 - e. TDOT Traffic Operations Division: William R Snodgrass Tennessee Tower, Suite 2000, 312 Rosa L. Parks Avenue, Nashville, TN 37243
- A.10. Operations Policies and Procedures. The Contractor shall ensure that all staff meet or exceed performance policies and procedures as defined in the TDOT TMC Operations Manual, and in the policies, procedures delineated therein.
- A.11. Standard Employee Guidelines. The Contractor shall develop a TMC SEG based on the Contract requirements, the State's requirements, and the TDOT TMC Operations Manual. The Contractor shall provide the SEG to the State Project Manager for written approval prior to the Contractor beginning operations. TDOT reserves the right to require removal from this Contract of any employee who does not conform to the SEG or who damages the reputation of TDOT.

As a minimum, the Contractor shall ensure that the SEG addresses the following:

 - a. Operations staff uniforms;
 - b. Operations staff conduct;
 - c. Operations staff grooming; and
 - d. Operations staff identification.
- A.12. Operations Staff Uniform. The Contractor shall ensure that all of its control room staff apparel reflects positively upon the State and meet the requirements of TMC Operations Manual, Section 4.2 and Policy Number 230-01 Dress and Appearance as provided in **Attachment D**.
- A.13. Operations Staff Conduct. The Contractor shall ensure that control room operations staff exercise good sound judgment in performing their duties and conduct themselves in such a manner that will reflect favorably upon the State. At a minimum, the Contractor shall ensure that operations staff:
 - a. Conform to policies applicable to all TMC employees, including access to the building and building security, building cleanliness, and parking.
 - b. Be courteous at all times.
 - c. Not use personal cell phones or any non-work-related electronics, including videogames, video/music players, headphones, or earbuds in the Control Room.
 - d. Not use of reading material beyond work-related material in the control room.
 - e. Not sleep while on duty.
- A.14. Operations Staff Grooming. The Contractor shall ensure that its operations staff are well-groomed to reflect positively upon the State and to meet the requirements of TMC Operations Manual, Section 4.2 and Policy Number 230-01 Dress and Appearance as provided in **Attachment D**.
- A.15. Operations Staff Identification. The Contractor shall ensure that all of its staff visibly wear a picture identification at all times.

- A.16. Staffing Requirements. The Contractor shall provide all staff required in the Scope of this Contract. **Table 1** summarizes Contract staffing requirements at Contract initiation, during the Start-up Period, as provided in Contract Section A. 1, and for full operations.

Table 1: Contractor Staffing Requirements Summary

Contract Initiation Staffing	Start-Up Period Staffing	Full Staffing
Contractor Project Manager	Contractor Project Manager	Contractor Project Manager
Contractor Executive Assistant	Contractor Executive Assistant	Contractor Executive Assistant
Contractor TMC Operations Managers (2)	Contractor TMC Operations Managers (2)	Contractor TMC Operations Managers (2)
	TMC Shift Supervisors (per TMC Staffing Plan)	TMC Shift Supervisors (approximately 8.8 FTE, see Contract Section A.18.)
	TMC Technicians (per TMC Staffing Plan)	TMC Technicians (approximately 9.8 FTE, see Contract Section A.20, Table 2)

- A.17. Initial Staffing Requirements. The Contractor shall provide the following personnel for the life of the Contract, as a minimum:
- One (1) half-time Contractor Project Manager, for purposes of this Contract, half-time is defined as a minimum average commitment of twenty (20) hours per week;
 - One (1) full-time Contractor Executive Assistant; and
 - Two (2) full-time TMC Operations Managers, one (1) covering the TMCs in Regions 1 and 2 and one (1) covering the TMCs in regions 3 and 4.
- A.18. TMC Staffing Plan. The Contractor shall prepare and submit to the State Project Manager for written approval a TMC Staffing Plan. The Contractor shall ensure that the TMC Staffing Plan outlines the Contractor's processes for hiring and training operations staff and provide staffing level milestones to achieve the fully required staffing. The Contractor shall ensure that the TMC Staffing Plan identifies positions and the number of staff required for each TMC to meet the operational requirements of the Contract after the Contract Effective Date. As a minimum, the Contractor shall provide staffing described in Contract Section A.17, a TMC Shift Supervisor for each of the Contractor's daily shifts plus the Contractor shall provide at least the minimum number of TMC Technicians as shown in **Table 2** in Contract Section A.20.
- A.19. Start-Up Period Staffing Requirements. The Contractor shall ensure that the TMC Staffing Plan outlines the Contractor's processes for hiring and training operations staff and to achieve full staffing by the end of the start-up period.
- The Contractor shall hire, train, and assign required TMC operations staff during the start-up period as described in the Contractor's TMC Staffing Plan and the TMC Operations Training and Certification Program, as provided in Contract Section A.28., unless otherwise directed by the State.
- A.20. Full Staffing Requirements. At or before the end of the start-up period, the Contractor shall meet the minimum staffing needs as described in the TMC Staffing Plan to fully staff all TMC shifts with TMC Shift Supervisors and TMC Technicians. The Contractor shall determine official start and end times for Saturday and Sunday shifts. The Contractor shall ensure that shift start and end times are the same for all Regions. The Contractor shall ensure that weekday shifts start one-half hour before the end of the State PM shift and end one-half hour after the start of the State AM shift. The Contractor shall ensure that all shift durations include a half-hour overlap with the incoming shift and a mid-shift meal break. Unless otherwise directed by the State, the required minimum number of TMC Technicians staffing are shown in **Table 2**. Table 2 below shows the minimum TMC Technician staffing levels for times the Contractor shall use for staffing.

Table 2 Contractor Minimum Staffing Levels for State Staffing

TMC Technicians Only				
Time Periods	Region 1	Region 2	Region 3	Region 4
Mon-Fri 9:30 PM - 6:00 AM	1	1	1	1
Sat-Sun 10:00 PM - 6:00 AM	1	1	1	1
Sat-Sun 6:00 AM - 10:00 AM	1	1	1	1
Sat-Sun 10:00 AM - 2:00 PM	1	1	2	1
Sat-Sun 2:00 PM - 6:00 PM	2	2	3	2
Sat-Sun 6:00 PM - 10:00 PM	1	1	2	1

The Contractor shall ensure that meal breaks are staggered to maintain continuous TMC operations. Nothing in this section relieves the Contractor of the obligation to maintain the minimum staffing levels specified in Table 2 at all times, including during meal breaks.

At the State's option, the Contractor shall increase staff during periods where the number of traffic incidents per hour consistently exceeds three (3) managed incidents per Contractor TMC staff member (TMC Shift Supervisor and TMC Technician) per hour during any two-hour period within any TMC. The State will assess incident and congestion (recurring and non-recurring) frequency and severity, special needs associated with the RSP Program, implementation of integrated corridor management systems, deployment of ITS field devices, and other factors to support changes in staffing numbers and hours of operations. Additional TMC Technicians will be paid at the Contractor's unit rate for On-Call TMC Technicians per Section C.3. of this Contract. The Contractor may use overtime to meet increased TMC Technician staffing levels but shall not invoice the State at the TMC Technician Overtime unit rate without advanced written approval from the State.

A.21. Staffing Dismissal or Removal.

The State reserves the right to require the Contractor to immediately relieve an employee from duty, and/or bar an employee from further service under this Contract and be replaced by another qualified person, if it is the opinion of the State that the employee is not performing his/her duties in accordance with this Contract.

The Contractor guarantees that any person who is found to have falsified records, including, but not limited to, documentation of time worked, operations reports, or any other reports, either written or verbal, provided under this Contract, shall immediately be dismissed and replaced by another qualified person.

The relief or absence of staff member(s) will not liberate the Contractor from providing the contractual services according to schedules, requirements, descriptions, and terms of services as specified in this Contract. The Contractor shall ensure that each TMC is staffed at all times as defined in the Staffing Plan or Contract Effective Date notification.

A.22. Filling Permanent Staffing Vacancies. The Contractor shall meet the following requirements in the event of any permanent vacancies:

- a. Notify the State Project Manager and start the employee replacement process within one (1) working day of any vacancy.
- b. Replace any Contractor's staff in a non-managerial/non-professional position within sixty (60) calendar days after the vacancy starts. These positions include the Executive Assistant and the TMC Technicians only.
- c. Replace the Contractor Project Manager, TMC Operations Managers, and TMC Shift Supervisors within ninety (90) calendar days after the vacancy starts.

For permanent vacancies, the Contractor shall provide a temporary substitute within fourteen (14) days after the vacancy starts for the following positions:

- a. Contractor Project Manager;
- b. TMC Operations Manager; and
- c. Contractor Executive Assistant.

For permanent vacancies, the Contractor shall provide a temporary substitute within one (1) day after the vacancy starts for the following positions:

- a. TMC Shift Supervisor; and
- b. TMC Technician.

The Contractor shall ensure that all permanent and temporary replacement staff comply with the minimum qualifications required in this Contract for the position that is being replaced and shall be approved by the State Project Manager or designee.

- A.23. Filling Temporary Staffing Vacancies. The Contractor shall supply adequate temporary coverage for temporary absences. The Contractor shall provide a temporary substitute in the case of a temporary absence, voluntary or involuntary, of more than fourteen (14) days for the following positions:

- a. Contractor Project Manager;
- b. TMC Operations Manager; and
- c. Contractor Executive Assistant.

The Contractor shall ensure that the TMC Supervisor and Technician positions are provided for all TMC operations shifts as described in this Contract or an LOA, even when TMC Supervisors or Technicians are temporarily absent for personal time off or illness using on-call staffing practices. In the case of an emergency absence, the Contractor shall provide a temporary substitute within one (1) day after the absence starts for the following positions:

- a. TMC Shift Supervisor; and
- b. TMC Technician.

The Contractor shall ensure that all temporary substitute staff shall comply with the minimum qualifications required in this Contract for the applicable position and shall be approved by the State Project Manager or designee.

- A.24. Performance Monitoring. The Contractor shall submit for review and approval by the State Project Manager a Performance Monitoring Plan that will be used to measure performance for each staff position to correct underperforming situations. The Contractor shall ensure that the Performance Monitoring Plan tracks:

- a. Deliverables assigned to each position per the TDOT TMC Operations Manual and in the Contract.
- b. Control room tasks such as the number and timeliness of incident detections, incident verifications, incident response plan initiations, HELP or RSP dispatching, and other performance metrics.
- c. Exceptions to employee standards defined in the measures per Employee Guidelines.

The State will provide access to SWCS and other existing State data sources to support the Contractor's Quality of Operations Plan. The State will not allow the Contractor to install new systems or technologies within the TMC to support the Performance Monitoring Plan without prior State approval.

- A.25. Control Room Operations. It is the responsibility of the Contractor to become familiar with the daily activities and responsibilities of each TDOT TMC Control Room. The Contractor shall assume Control Room operations at these four TMC facilities, including overall Control Room management, oversight, and operations. The Contractor shall ensure that all operational activities conform to the requirement of and meet or exceed the performance metrics in the TDOT TMC Operations Manual and the State's policies. All activities in the TMC Operations Manual associated with the HELP Service Patrol Program will apply to the RSP Program, as appropriate, pending update of the Manual to specifically address activities unique to the RSP Program.

- A.26. Control Room Operations Services. The Contractor shall provide services in accordance with the requirements and performance metrics in the TMC Operations Manual to support Control Room operations, including:

- a. Operate and monitor all ITS devices within each TDOT Regional TMC.
- b. Provide real-time traveler information and support TDOT's SmartWay data entry.
- c. Support statewide alerts such as: Broadcast Emergency Response alerts, Amber, and Law Enforcement Officer or Blue alerts.
- d. Provide regional traffic incident management, detection, and coordination.
- e. Provide operations support for Variable Speed Limits systems.
- f. Provide operations support for WWD and WWD vehicle detection systems.
- g. Monitor real-time performance measures.
- h. Provide daily, monthly, quarterly, and annual performance measures reports.
- i. Monitor statewide freeway traffic, recurring congestion, and non-recurring congestion using ITS devices, State-provided data sources, and crowd-sourced third-party internet applications approved by the State. State-owned ITS device coverage is currently limited or non-existent in rural areas covered by the RSP.
- j. Monitor weather alarms and alerts.
- k. Dispatch HELP Program Service Patrols.
- l. Dispatch and communicate with RSP supervisors and operators and coordinate RSP responses requiring multiple RSP vehicles for incident response, incident scene traffic control, and/or for protect-the-queue services. The Contractor shall dispatch RSP as required for time periods outside of normal RSP hours of operations.
- m. Manage emergency coordination.
- n. Provide notifications to and/or coordination with incident responders such as law enforcement and fire rescue.
- o. Provide monitoring of the traffic signal systems for Region 3.
- p. Report signal malfunctions or failures to the appropriate local operating agency and maintain a log of all such incidents and communications for Region 3.
- q. Provide recommendations for improved signal operations to the local signal operating and maintaining agency for Region 3.
- r. Facilitate implementation of improved signal operations through coordination with the local signal operating, maintaining agency/agencies and retiming consultants for Region 3 .
- s. Provide coordination with all TDOT TMC and other traffic management or traffic signal operation centers for Traffic signal operations centers in Region 3.
- t. Provide operations support for lane closures, planned and unplanned.
- u. Provide Emergency Event Management Support.
- v. Provide SWZ management and operations support.
- w. Provide CV Applications Support.
- x. Create, modify, and/or maintain databases to store data necessary to perform performance measure analysis and any other TMC-related statistical analysis.
- y. Periodically archive data history records as directed by the State.
- z. Perform other tasks as required by the TDOT TMC Operations Manual and the State Project Manager.

A.27. TMC Continuity of Operations Plan. The Contractor shall be responsible for the continuity of operations during shift changes. The Contractor shall prepare and submit to the State a TMC Continuity of Operations Plan, as provided in Contract Section A.89., to the State Project Manager for written approval. The Contractor shall ensure that the TMC Continuity of Operations

Plan describes the formal process and steps for personnel from the outgoing TMC Shift Supervisors to brief the incoming TMC Shift Supervisor to ensure that current incidents, HELP and RSP dispatching status, open notifications, and other information are seamlessly passed to the incoming shift and staff. The Contractor shall ensure that the TMC Continuity of Operations Plan shall include a mechanism to document the topics covered and the success of the shift hand-off. The Contractor shall ensure that the TMC Continuity of Operations Plan is consistent with the State TMC Continuity of Operations Plan, in **Attachment B** of this Contract.

- A.28. TMC Operations Training Requirements. The Contractor shall develop and implement a TMC Operations Training and Certification Program with multiple levels of training, testing and certification based on the State's requirements. The Contractor shall ensure that the operations training and certification program is delivered to the State Project Manager for written approval. Personnel in training may participate in supervised training activities within the TMC while completing required certifications. Personnel shall not perform independent operational duties or be counted toward required staffing until all required training and certification requirements have been satisfied.
- A.29. Training Materials & Delivery. The Contractor shall create and develop all necessary TMC operations training manuals, interactive training, and testing programs, and materials for the Contractor's staff, incorporating any applicable State TMC staff training materials that are part of the TMC Operations Training and Certification Program.

At a minimum, the Contractor shall ensure that the TMC Operations Training and Certification Program provides initial training covering:

- a. TDOT TMC Operations Manual (See Attachment 6.7.).
 - b. Contractor's SOG.
 - c. SmartWay software.
 - d. Other Software that TMC Technicians will use.
 - b. Control Room Operations.
 - c. Shift change procedures.
 - d. ITS equipment uses, monitoring, troubleshooting, and reporting.
 - e. HELP Service Patrol and RSP duties and procedures.
 - f. National Responder Safety Training/ TIM.
 - g. Manual of Uniform Traffic Control Devices Chapter 6O, "Control of Traffic Through Traffic Incident Management Areas."
 - h. Intermediate MOT.
 - i. HELP Service Patrol and RSP dispatching using the North Atlantic Treaty Organization Phonetic Alphabet.
 - j. Overview of WWD.
 - k. Overview of SWZ.
 - l. Overview of Connected and Automated Vehicles.
- A.30. Certification Exams. At a minimum, the Contractor shall develop various technician and supervisor exams to demonstrate knowledge and capability based on the training programs and experience including both written exams and hands-on demonstration exams. All Certification Exams developed by the Contractor shall be subject to review and approval by TDOT. At a minimum, the Contractor shall ensure that the exams include:
- a. TMC Technician initial exam;
 - b. TMC Technician promotion Exam(s);
 - c. TMC Technician recertification Exam;
 - d. TMC Supervisor initial exam;

- e. TMC Supervisor promotion exam; and
- f. TMC Supervisor recertification exam.

A.31. Certification Requirements.

Technician Certification: Once training is completed satisfactorily and within six (6) months of hire, the Contractor shall ensure that the requirements to be certified as a TMC Technician are:

- a. No disciplinary action during employment at the TMC.
- b. The Technician trainee shall pass the TMC Technician certification exam(s) with a grade of at least seventy percent (70%).
- c. If the Technician trainee fails to achieve the minimum score at the exam(s), the TMC Operations Manager shall determine if training reinforcement is needed prior to allowing a re-test.

Shift Supervisor Certification: The Contractor shall ensure that the requirements to certify current TMC Technicians into Shift Supervisors are:

- a. Pass the TMC Technician certification exam(s) with a grade of at least eighty percent (80%).
- b. Pass the TMC Shift Supervisor Initial Exam with a grade of at least eighty percent (80%).
- c. Training on leadership and team management.

A.32. Annual Refresher Training. The Contractor's program shall include an annual refresher training course for all TMC Technicians and Supervisors with all TMC Technicians' and Supervisors' refresher training completed within forty-five (45) calendar days of the anniversary of their approval to work on the Contract. Upon completion of the annual refresher training courses, Technicians shall score a minimum of seventy percent (70%) and Supervisors a minimum of eighty (80%) on their respective Recertification Exams. If the minimum score is not achieved, the TMC Operations Manager shall determine if training reinforcement is needed prior to allowing a re-test.

A.33. Additional Training. The Contractor shall develop additional training materials and providing training outside the scheduled annual training refresher, as required by the State, including:

- a. New software deployments;
- b. New technology implementations; and
- c. Implementation of new traffic management programs or strategies.

A.34. Training Record Availability. The Contractor shall provide all training and certification records to the State for review within one (1) working day of the request.

A.35. TMC Operations Training and Certification Program Updates. The Contractor shall annually evaluate, update, and submit all TMC Operations Training and Certification Program materials to the State Project Manager. The Contractor shall ensure that updates are submitted no later than the Contract anniversary date each year.

A.36. Program & Materials Update. The Contractor shall maintain all training materials so they remain current and aligned with:

- a. Updates to the TDOT TMC Operations Manual;
- b. Changes in ITS deployment and field operations;
- c. Software system updates; and
- d. TMC policy updates.

The Contractor shall submit all revised training materials to the State for review and approval before implementation.

- A.37. Annual Refresher Training Confirmation. As part of the annual update cycle, the Contractor shall confirm that all the TMC Technicians and Supervisors completed their required annual refresher training within forty-five (45) calendar days of their employment anniversary.

The Contractor shall provide certificates of completion and all associated documentation shall be made available to the State within twenty-four (24) hours of request.

- A.38. Ongoing Training Adjustments. The Contractor shall revise training modules throughout the contract term as needed to incorporate:

- a. New technologies;
- b. Updated procedures;
- c. New operational strategies; and
- d. Any State-mandated adjustments.

- A.39. Control Room Reporting Requirements. The Contractor shall comply with all reporting requirements established by the State and shall submit all required reports in the timelines, formats, and levels of accuracy prescribed by this Contract. The Contractor shall ensure that all reports support regional and statewide operational oversight, performance evaluation, and program accountability. The State will provide access to SWCS and other existing State data sources to support the Contractor's reporting requirements. The State will not allow the Contractor to install new systems or technologies within the TMC to support reporting without prior State approval.

- A.40. Monthly TMC Performance Reports. The Contractor shall prepare and distribute Monthly TMC performance reports within twelve (12) calendar days after the end of each month. The Contractor shall include the following in the monthly reports:

- a. TMC Monthly Performance Measures Report for each Region;
- b. Statewide TMC Monthly Performance Measures Summary Report; and
- c. TMC Operations Summary Report for each Region.

The Contractor shall develop and submit report formats and procedures for State approval within sixty (60) days after Notice to Proceed. The Contractor shall ensure that all report formats allow quick comparison between RTMCs and enable efficient aggregation for statewide analysis.

- A.41. TMC Monthly Performance Measures Report. The Contractor shall prepare and submit to the State Project Manager a performance measures report that documents compliance with all Performance Measures as defined in Contract Section A.96. for each TMC during the month covered by the report. The Contractor shall ensure the report for Region 3 covers the Nashville Smart Corridor. The Contractor shall identify in the monthly performance measure report whether a performance measure criterion was met or if the criterion was not met. For unmet criteria, the Contractor shall ensure that the report provides the number of occurrences, the circumstances of each occurrence, and a remediation plan if the criterion was unmet more than once in the reporting period.

- A.42. Statewide Monthly Performance Measures Summary Report. The Contractor shall prepare and submit to the State Project Manager a performance measures report listing frequencies of all unmet performance measures by region and in total.

- A.43. Monthly TMC Operations Summary Report. The Contractor shall prepare and submit a report providing a summary of the status of TMC operations for the previous month. The Contractor shall report the following information from the previous month:

- a. Total number of events managed, as a total and broken down by route and by type;
- b. Number of lane blockage events managed, as a total and broken down by route;
- c. HELP and RSP average dispatching time for travel lane blockage events;
- d. Average HELP and RSP response time from the time from first TMC dispatch to first HELP and/or RSP arrival;
- e. Average confirmation time for lane blockage events:

- f. Average time to post DMS for lane blockage events; and
 - g. Average time between event updates posted to the SmartWay traveler information system for all events. **RFP Attachment 6.6, Sections A.2, A.26.o.-s.,z. and A.45.e.**
- A.44. Annual Reports. The Contractor shall prepare and distribute annual reports within twenty-one (21) days after the end of each Contract year. The Contractor shall ensure that each required annual report includes:
- a. TMC operations summaries which summarize operations for the year and monthly for each TMC and statewide..
 - b. Annual idea to improve TMC Operations and recommendations for updates to the TDOT TMC Operations Manual report.
 - c. TMC Training Program and Certification Program results which. provides the results of the training and certification program for the year, including records for all active TMC Supervisors and Technicians.
- A.45. On-Call Services. The Contractor shall provide the following services:
- a. **On-Call TMC Technicians**. At the State's written request, the Contractor shall provide TMC Technicians at days, times, and at locations designated by the State. The Contractor shall ensure that on-Call TMC Technicians meet the requirements of an TMC Technician. With twenty-four (24) hours' notice to the Contractor, the State may request an On-Call TMC Technician to cover State Technician absences or due to emergencies, major special events, long-term incidents, SWZ, AWZM,, , or other unanticipated events where above normal traffic and/or incidents are expected to occur, or to attended State-mandated training courses.
 - b. **On-Call Shift Supervisors**. At the State's written request, the Contractor shall provide TMC Shift Supervisors at days, times, and at locations designated by the State. On-Call TMC Shift Supervisors shall meet the requirements of an TMC Shift Supervisor. With twenty-four (24) hours' notice to the Contractor, the State may request an On-Call TMC Shift Supervisor to attend a State-mandated training course or for other reasons as determined by the State.
 - c. **On-Call Services Requiring Premium Overtime**. The Contractor may request, subject to the State's written approval, TMC Technicians to work beyond forty (40) hours in a week due to **on-call services during** emergency, major special events, long-term incidents, Smart or Active Work Zones, or other unanticipated events where above normal traffic and/or incidents are expected to occur.
 - d. **On-Call Remote TMC Technicians**. At the State's written request, the Contractor shall provide remote on-call TMC Technicians and technologies to staff a TDOT TMC from non-State facilities using a State-furnished secure, Internet-based remote TMC Operations Application. An on-call remote TMC Technician may be requested by the State to **support** testing of a SWCS remote TMC application or to provide remote TMC operations for times and dates designated by the State.
- The Contractor shall pay the remote On-Call TMC Technician a salary above the average market research hourly rate.
- e. **On-Call Smart Corridor Signal Technician**. At the State's written request, the Contractor shall provide an on-call Smart Corridor Traffic Signal Technician at days, times, and at locations designated by the State. The on-call Smart Signal Technician shall meet the requirements of an TMC Technician plus have at least three (3) years' experience with arterial management, signal operations, and/or AAM/ICM operations. The Contractor shall pay the on-call Smart Corridor Traffic Signal Technician at above the average market research hourly rate.
- A.46. Contractor Personnel Requirements. The Contractor shall furnish all personnel necessary to perform the services required under this Contract and shall ensure that all personnel meet the minimum qualifications, certifications, and standards established by the State. The Contractor shall ensure that all of its personnel performing work under this Contract are trained, qualified,

and capable of fulfilling their assigned responsibilities in accordance with State operational requirements and applicable laws, regulations, and policies.

A.47. Required Personnel. The Contractor shall provide the following Personnel as required by the Staffing Plan unless otherwise directed by the State:

- a. Contractor Project Manager;
- b. Executive Assistant;
- c. TMC Operations Managers;
- d. TMC Shift Supervisors; and
- e. TMC Technicians.

A.48. General Personnel Requirements. The Contractor shall provide personnel that meet the following minimum requirements, plus additional requirements listed for each personnel classification:

- a. Be a minimum of eighteen (18) years of age.
- b. Have received a High School Diploma or equivalent General Educational Development certification.
- c. Possess a valid Tennessee driver's license.
- d. Be legally authorized to be employed in the United States.
- e. Possess no criminal background as validated by the Tennessee Bureau of Investigation of the criminal history check dating back to the employee's date of birth and associated fingerprinting.
- f. Be drug-free in accordance with Tenn. Code Ann. § 50-9-101 - 50-9-113 and submit to drug testing every twelve (12) months and random drug testing in accordance with State Drug-Free Workplace and Drug Testing Policy at a certified testing laboratory of the Contractor's choosing and documented in an official report submitted to the State, upon request.
- g. Be fluent in the English language.
- h. No use of tobacco while in State-owned facilities or vehicles.
- i. Not carry firearms or other weapons while in State-owned facilities.

The Contractor shall immediately discharge any employee found to be in non-compliance with the above requirements or the following position-specific responsibilities.

The Contractor shall submit a remediation plan for an employee who is performing below expectations on only a few position-specific responsibilities described in this Section. The Contractor shall notify the State within one (1) working day of the intent to submit a remediation plan and initiate the plan within two (2) working days. The Contractor may include in the remediation plan additional training, mentoring, testing, and/or other requirements along with a commitment to complete the employee's recertification within ten (10) working days.

A.49. Contractor Project Manager. The Contractor shall provide the State with a Project Manager for the life of the Contract. Any changes to the Contractor's Project Manager, or any other indicated personnel in charge of work, shall be subject to review and approval in writing by the State before performing any billable services.

A.50. Project Manager Responsibilities. The Contractor shall provide project management including all work necessary to provide for general management, public outreach, oversight, quality control, and administration of all Contract activities and support personnel. The Contractor shall ensure that project management activities include the following:

- a. Provide oversight of all work performed under this Contract.
- b. Prepare and submit monthly invoices and supporting invoice documents at no cost to the State .

- c. Prepare and submit monthly performance measure reports. See Contract Section A.40. for reporting requirements.
- d. Track project budget and provide monthly updates, status of work, and cost summaries.
- e. Administer and document the Staffing Plan to ensure that the appropriate resources are available.
- f. Provide adequate staff and resources for all tasks and activities throughout the duration of the Contract.
- g. Ensure the operations staff have the required qualifications and background check documentation before being used for this Contract.
- h. Ensure proper training, scheduling, and oversight of the TMC staff.
- i. Review the TDOT TMC Operations Manual and provide input to the State for periodic updates of the TDOT TMC Operations Manual and training materials.
- j. Ensure the Contractor's staff adhere to their respective required roles and responsibilities.
- k. Provide coverage for all Contractor's TMC staff during absences.
- l. Provide oversight and management of all subcontractors utilized by the Contractor for this project.
- m. Participate in monthly progress meetings with TDOT staff, with previous meeting minutes and task list produced by Contractor.
- n. Attend meetings as requested by the State.
- o. Prepare and distribute meeting minutes within three (3) working days after each meeting attended by the Contractor Project Manager or designee.
- p. Establish, document, and monitor performance management measures for the Contractor's TMC staff.
- q. Cooperate and coordinate with other agencies and firms, including the State, all public agencies, contractors, and Contractors working for the State.
- r. Ensure that all deliverables are delivered to and approved by the State.

The Contractor's Project Manager shall be responsible for notifying the State and/or the State's Project Manager or his/her designee of any emergencies and problems regarding operations and/or maintenance issues negatively affecting operations.

The Contractor's Project Manager shall be available to meet with the State's Project Manager or his/her designee at a mutually convenient time for both parties during State Office Business Hours to discuss work requirements prior to the Contractor assuming the responsibilities of this Contract at no cost to the State.

If during the Term of this Contract a new Project Manager is to be employed by the Contractor, to meet the provisions of the Contractor's Project Manager, the individual shall be available to meet with the State's Project Manager or his/her designee at a mutually convenient time for both parties during State Office Business Hours to discuss work requirements prior to the Contractor's new Project Manager assuming the responsibilities of this Contract at no cost to the State.

The Contractor's Project manager shall work at the William R. Snodgrass, Tennessee Tower, 20th Floor, Nashville, TN during normal business hours unless otherwise directed or approved by the State's Project Manager.

The Contractor shall ensure that the Contractor Project Manager or agreed-upon designee meets on a weekly basis with the State Project Manager to review and discuss tasks completed during the previous period, task assignments for the current period, and provide a one-month "look ahead" schedule.

The Contractor shall ensure that the Contractor Project Manager meets monthly with each of the Contractor's TMC Operations Managers, TDOT Traffic Operations Division staff, and TDOT

Regional traffic operations staff to discuss staffing, operational status, staffing performance, and other topics as required.

The Contractor shall ensure that the Contractor Project Manager meets quarterly or as otherwise directed by the State with the State Project Manager and other traffic operations staff to discuss freeway operations issues and new and emerging programs including, but not limited to, recommendations from the Contractor regarding performance of the freeways, ways to improve mobility and safety, status of implementation of the innovation/improvement idea, and other high-level discussion topics as required.

The Contractor shall provide meeting minutes within two (2) working days after each meeting for review and approval by the State. The Contractor shall bring copies of the agenda and the meeting minutes from the preceding meeting to the meeting for distribution to the attendees. The Contractor shall track the status of the action items resulting from meetings, including follow-up with the individual and/or entity responsible for the action item, identifying the availability of requested information or documents, identifying the point of contact for the information, and establishing initial contact with that individual or entity.

A.51. Project Manager Minimum Qualifications. The Contractor shall ensure the Contractor Project Manager meets the following requirements:

a. Alternative general requirements:

i. Alternate 1:

- a) Be a graduate of an accredited four-year college or university with a degree in engineering discipline or any other science, technology, engineering, or math (STEM) discipline, or a Master of Business Administration, and
- b) Have a minimum of three (3) years of project management experience and five (5) years' experience in a TMC or similar operations facility.

ii. Alternate 2:

- a) Have a bachelor's degree;
- b) Have five (5) years of project management experience; and
- c) Have a minimum of three (3) years TMC management experience and six (6) years' total experience in a TMC or similar operations facility.

iii. Alternate 3:

- a) Have a minimum of five (5) years' TMC management experience; and
- b) Ten (10) years' total experience in a TMC or similar operations facility.

b. Contractor Project Manager Knowledge, skills, and abilities:

- i. Good leadership and interpersonal skills.
- ii. Excellent understanding of key management concepts.
- iii. Create project schedules in Microsoft Windows applications.
- iv. Ability to clearly communicate technical information in layman's terms.
- v. Ability to work alternate work schedules and be on-call 24 hours/day.
- vi. Skilled in the use of all Windows operating systems.
- vii. High-level knowledge of Microsoft Word, Excel, and PowerPoint.
- viii. Ability to author technical reports and correspondence.
- ix. Ability to coordinate real-time activities and priorities.
- x. Innovative, progress-driven mindset.
- xi. Ability to work in a fast-paced, quickly changing environment requiring proactive as well as reactive operational adjustments.
- xii. Direct experience with the day-to-day operations of a similar center.
- xiii. Knowledge and ability to create monthly invoices and project status budget reports.
- xiv. Ability to manage team operations by directing and coordinating activities consistent with established goals, objectives, and policies.
- xv. Ability to perform project-related assignments to include planning, organizing, and developing complicated tasks as assigned by the State.

- xvi. Ability to use and apply extensive knowledge of project management theories and practices.
 - xvii. Ability to have direct oversight of project professionals and staff.
 - xviii. Ability to provide direction and structure for operating units.
 - xix. Ability to participate in developing policy and strategic plans.
 - xx. Ability to ensure that all products created or new ideas introduced meet the quality standards and objectives of the State.
- A.52. Minimum Project Manager Salary. The Contractor shall employ a qualified Project Manager at a salary above the average market research hourly rate for similar positions for the duration of the Contract.
- A.53. Contractor Executive Assistant. The Contractor shall provide a Contractor Executive assistant to support day-to-day business matters including, tracking all deliverables of this Contract, scheduling meetings, distribution all meeting minutes, and other tasks as assigned by the State Project Manager or designee..
- A.54. Contractor Executive Assistant Responsibilities. The Contractor shall identify and staff a full-time Contractor Executive Assistant to be located at the William R. Snodgrass Tennessee Tower, 20th Floor, Nashville, TN, or as directed by the State's Project Manager. The Contractor shall ensure that the Contractor Executive Assistant responsibilities include, but are not limited to:
- a. Coordinates and directs administrative support functions for the TMC and implements policies and procedures for the production of documents, workflow, filing, ordering of supplies, records maintenance, and other clerical services.
 - b. Tracks deliverables in this Contract and keeps the Contractor and TDOT management informed of approaching due dates on these deliverables. The Contractor shall ensure that the workday following each deliverable due date, the Executive Assistant follows up with an email to the TDOT management staff and the Contractor's Project Manager on the status of the deliverables.
 - c. Receives deliverables from the Contractor, processing transmittal to the State, and distributing the deliverable documents and reports to the TDOT management staff via email and/or hard copy for review and approval. When TDOT management has comments or questions, the Contractor shall ensure that Contractor Executive Assistant transmits them to the Contractor via email and follow up with the transmittal of the final version of the deliverable.
 - d. Manages new TMC employee onboarding process for all TMCs.
 - e. Monitors budget, accounting, and TMC time records.
 - f. Establishes policies and procedures for document development, retention, and disposition, and determines the records identification system for information management storage and retrieval.
 - g. Determines and establishes record formats and storage methods and confers with management regarding record management needs.
 - h. Is a member of the TMC marketing team and assists in all coordination of activities to include the production of materials, advertisements, and public outreach.
 - i. Provides all office supplies, to include consumables and non-consumable products, and all production equipment and supplies.
 - j. Coordinates with other agencies for all meeting room reservations and assures that the proper setup of all meeting rooms meets the needs of the group using the rooms.
 - k. Assists other TMC personnel with administrative support, including but not limited to photocopying and scanning, and organizing materials.
 - l. Files and distributes correspondence.
 - m. Coordinates TMC building maintenance and repairs with the State.
 - n. Coordinates TMC building janitorial services with the State.

- o. Assists with the scheduling of meetings for all TDOT TMC-related staff with internal and external stakeholders as needed.
- p. Manages TMC meeting resources, such as conference rooms.
- q. Manages distribution lists and ensures appropriate personnel are added/removed.
- r. Performs all other tasks assigned by the State.

A.55. Contractor Executive Assistant Minimum Qualifications. The Contractor shall ensure that the Contractor Executive Assistant has the following qualifications:

- a. General qualifications;
 - i. Two (2) years' experience in a position of similar requirements or equivalent.
 - ii. Very good understanding of office principles, such as collaboration, teamwork, integrity, ethics, innovation, and accountability.
 - iii. High level of skill in the use of the Microsoft Office suite.
 - iv. Proficient in all office-related equipment
- b. Knowledge, skills and abilities:
 - i. Ability to write meeting minutes and file all materials based on ISO 9001 standards or similar.
 - ii. Good interpersonal skills.
 - iii. Ability to clearly communicate information regarding the TDOT TMC Program and TMC to all tours and visitors.
 - iv. Ability to coordinate real-time activities and priorities.

A.56. Contractor Executive Assistant Minimum Salary. The Contractor shall employ a qualified Contractor Executive Assistant at a salary above the average market research hourly rate for similar positions for the Term of the Contract.

A.57. TMC Operations Manager. The Contractor shall provide two (2) full-time on-site TMC Operations Manager to cover two TDOT TMCs as required in Section A.17. The Contractor shall ensure that the TMC Operations Manager manages the daily operations activities for their assigned TMCs in accordance with the TDOT TMC Operations Manual, protocols, and policies. TMC Operations Managers' shifts shall be designed to overlap with State TMC personnel and with Contractor TMC Supervisors.

A.58. TMC Operations Manager Responsibilities. The Contractor shall ensure that the TMC Operations Manager's responsibilities include, but are not limited to:

- a. Day-to-day management of the Control Room Operations staff, scheduling and resources, including problem resolution concerning Control Room Operations.
- b. Ensuring effective communication with the State Project Manager, TMC Team Leads and Shift Supervisors.
- c. Ensuring effective as-needed communication with the Contractor's Project Manager and other management staff.
- d. Ensuring effective daily contact with all Contractor Shift Supervisors on a daily basis.
- e. Ensuring effective face-to-face communication with all Contractor TMC Technician personnel on a weekly basis. At least once per month, the Contractor shall ensure that the TMC Operations Manager communicates in-person rather than virtual, unless otherwise directed by the State.
- f. Participating in TIM Team meetings, TIM after-action review meetings, and ensuring appropriate interagency coordination.
- g. Ensuring appropriate interagency coordination with other RTMCs.
- h. Participating in TMC tours and presentations.

- i. Attending meetings as directed by the State to include Regional TIM Team meetings and others as directed.
- j. Preparing monthly reports of performance measures for Technicians and Supervisors.
- k. Determining and using existing measures of effectiveness in terms of efficiency and effectiveness in providing transportation management, traveler information, and incident management.
- l. Actively collaborating in updates to TDOT TMC Operations Manual.
- m. Actively collaborating in the development and update of Supervisor and Technician training and certification materials to conform to updates in the TDOT TMC Operations Manual.
- n. Modifying training materials as necessary as a result of system and employee performance analysis.
- o. Overseeing the Supervisors and Technicians training and certification process.
- p. Ensuring adequate staff coverage of the Control Room.
- q. Performing all other tasks assigned by the State.

A.59. TMC Operations Manager Minimum Qualifications. The TMC Operations Manager should have at the minimum the following experience, knowledge, skills, and abilities:

- a. Minimum of five (5) years' experience in the operations of a facility using employee policies and procedures, equipment, systems and software, tools, daily operations, and security and safety procedures similar to those described in the TMC Operations Manual.
- b. Understanding of freeway management, traffic incident management, dispatching, traveler information, and traffic engineering principles
- c. Comprehensive knowledge of Incident Management operations
- d. Skilled in the use of Advanced Traffic Management System (ATMS) applications
- e. Skilled in the use of the Windows operating system
- f. High-level knowledge of Microsoft Word, Excel, and PowerPoint
- g. Good leadership and interpersonal skills
- h. Good understanding of key management concepts
- i. Ability to clearly communicate technical information in layman's terms
- j. Ability to work alternate work schedules and be on-call 24 hours/day
- k. Ability to author technical reports, manuals, and correspondence
- l. Ability to coordinate real-time activities and priorities
- m. Able to always maintain a professional demeanor and appearance
- n. Ability to clearly communicate technical information in layman's terms
- o. Ability to coordinate real-time activities and priorities

A.60. Minimum TMC Operations Manager Salary. The Contractor shall employ a qualified TMC Operations Manager at a salary above the average market research hourly rate for similar positions for the duration of the Contract. If the TMC Operations Manager is a former State employee, the minimum pay rate shall meet or exceed the employee's State pay rate at the time of employment by the Contractor.

A.61. TMC Shift Supervisor. The Contractor shall ensure that TMC Shift Supervisors are responsible for principal monitoring the TMC operations, strong familiarity with the Region's freeway system, and overseeing TMC Technicians assigned to the Supervisor's shift.

A.62. TMC Shift Supervisor Responsibilities. The Contractor shall ensure that TMC Shift Supervisors are responsible for:

- a. Assigning incidents, geographical areas, and tasks to TMC Technicians to ensure balanced workload among the Supervisor and Technicians and to ensure complete coverage of routes managed by the TMC.
- b. Communicating with TDOT personnel regarding implementation of HELP or RSP on-call services in accordance with the TMC Operations Manual.
- c. Adjusting Technician assignments, as needed, based on situational awareness, Technician experience and capabilities, and coverage for approved breaks.
- d. Mentoring and training TMC Technicians.
- e. Reporting any Technician performance or discipline issues as described in the SEG to the TMC Operations Manager.
- f. Recommending retraining or other actions to resolve performance issues.
- g. Reporting attendance and clocking-in/out issues to the TMC Operations Manager.
- h. Ensuring that at least the Supervisor or a minimum of one Technician are on duty in the control room during allowable breaks as defined in the TDOT TMC Operations Manual and/or the SEG.
- i. Shift Supervisors may perform operational duties when necessary; however, the primary responsibility of the Shift Supervisor position shall remain supervision, oversight, and management of TMC operations and personnel. A qualified Shift Supervisor may be temporarily assigned to perform TMC Technician duties to address operational needs, vacancies, leave, training, or other staffing shortages. However, an individual shall not simultaneously satisfy both a Shift Supervisor and TMC Technician staffing requirement during the same scheduled work period. All required supervisory coverage and minimum staffing requirements shall be maintained as specified in Table 2. An individual may not be counted toward more than one minimum staffing requirement during the same shift.

- A.63. TMC Shift Supervisor Minimum Qualifications. The Contractor shall provide TMC Shift Supervisors who meet the following experience, knowledge, skills, and abilities qualifications, at a minimum:
- a. Able to meet the minimum requirements for a TMC Technician, see below.
 - b. Have at least three (3) years of experience as a TMC Technician or similar experience.
 - c. Able to verbally communicate with TMC Technicians to assign and adjust control room activities, as needed.
 - d. Able to maintain effective working demeanor during high-stress situations and traffic incidents, even when communicating with others who are experiencing a traumatic event.
 - e. Able to mentor and train entry-level and other Technicians both through structured training and informal methods, as needed.
- A.64. TMC Shift Supervisor Minimum TMC Shift Supervisor Salary. The Contractor shall ensure that minimum hourly rates for Freeway Shift Supervisors shall exceed the average market research hourly rate for similar positions or \$1.00 above the maximum hourly rate for the TMC Technician positions they supervise, whichever is greater. If the TMC Shift Supervisor is a former State employee, the Contractor shall ensure that the minimum pay rate meets or exceeds the employee's State pay rate at the time of employment by the Contractor. At the discretion of the State, the Contractor shall provide proof of compliance with these minimum rate requirements through verifiable sources, including payroll registers or employee payroll checks.
- A.65. TMC Technicians. The Contractor shall ensure that TMC Technicians are responsible for monitoring of the Interstate system and possess a strong familiarity with the Region's Interstate system.
- A.66. TMC Technicians Responsibilities. TMC Technician responsibilities are defined in the TDOT TMC Operations Manual and the Contractor shall ensure that TMC Technicians provide the following services:

- a. Monitoring the status of the freeways using CCTV, HELP Service Patrols, RSP, and detector data to include detecting, confirming, updating, and responding to scheduled and unscheduled traffic and incident management events, congestion, and travel time imbalances in the geographical coverage area.
- b. Entering all scheduled and unscheduled events and congestion into SmartWay software and disseminating information using ITS devices, website, and the SmartWay traveler information system.
- c. Coordinating with other Control Room staff, law enforcement, and external agencies in response to incidents.
- d. Dispatching HELP Service Patrols and RSP to motorists, events, and to assist law enforcement in a timely and efficient manner.
- e. Managing WWD events.
- f. Detecting, confirming, and reporting equipment faults affecting Control Room equipment and TMC system field equipment.
- g. Performing daily ITS infrastructure checks during the morning shift and reporting ITS device failures in accordance with the TDOT TMC Operations Manual.
- h. Coordinating with maintenance staff as needed.
- i. Following TDOT TMC Operations Manual and Regional policies and procedures.
- j. Complying with the SEG.
- k. Notifying the TMC Operations Manager and the applicable TMC Shift Supervisor of planned or unplanned absence soon enough for fill-in or on-call staff to be contacted and scheduled.
- l. A technician with at least two (2) years of TDOT TMC experience may, when approved by the State, fill in for a short-term Supervisor absence.

A.67. TMC Technicians Minimum Qualifications. The Contractor shall provide TMC Technicians who meet the following qualifications, as a minimum:

- a. Able to follow verbal directions and written procedures.
- b. Able to learn and memorize two-way radio communication protocols and procedures.
- c. Able to effectively work on multiple computer-related TMC tasks simultaneously while maintaining both timeliness and quality of work, even during stressful traffic incidents.
- d. Adhere to the TDOT TMC Operations Manual uniform and personal appearance requirements.
- e. Able to work varying shifts, if required.
- f. Able to sit at a computer workstation.

A.68. Minimum TMC Technicians Salary. The Contractor shall employ qualified TMC Technicians at a salary above the average market research hourly rate or similar for the duration of the Contract. If the TMC Technician is a former State employee, the Contractor shall ensure that the minimum pay rate shall meet or exceed the employee's State pay rate at the time of employment by the Contractor. At the discretion of the State, the Contractor shall provide proof of compliance with these minimum rate requirements through verifiable sources.

A.69. Invoices. The Contractor shall submit all invoices in accordance with Contract Section C.5.

A.70. Reimbursable Expense Invoices (Travel Only). The Contractor shall submit invoices for State-approved travel expenses in accordance with Contract Section C.4. Any travel must be approved in writing by the State prior to its occurrence.

A.71. State Facilities. At each of the four (4) TMC and the Traffic Operations Division office, the State will provide access to the following facilities for the Contractor's staff, as needed:

- a. Workspace within the Traffic Operations Division and the four (4) RTMCs and access to all equipment and software.
- b. Control Room equipment/furnishings, including video monitors, workstations, consoles, chairs, tables, and utilities.
- c. Traffic Operations Division office space including desks, workstations, consoles, chairs, access to restrooms, break rooms, printers, fax machines, copiers, and landline phones for business use.
- d. Janitorial services, and access control systems..
- e. Utilization of the State's computer services for programs needed by the Contractor and approved by the State in accordance with the Contractor's agreement for the period of this Contract.

A.72. State Services. The State will provide the following services and data relevant to the Contractor's Scope at no cost to the Contractor:

- a. Provide all criteria and full information as to the State's requirements for Contractor's services, including objectives, constraints, budgetary limitations, and time restraints.
- b. Furnish all State TMC Operations Manual, policies, procedures, standards, and forms, as well as applicable software.
- c. Facilitation of meetings with applicable State staff or others.
- d. Provide Contractor personnel with building, network, and system access, as needed. Terminate Contractor personnel access upon personnel leaving the Contract or upon Contract termination. Access will be granted by the State once onboarding, security, and background screening requirements are satisfied.

A.73. State's Project Manager Responsibilities. The State will designate a project manager to administer the terms of the Contract. The State Project Manager will be responsible for all work performed under this Contract and approving all Contractor invoices, staffing, training programs, and other deliverables listed in this Contract. Depending on the needs of the State, the State Project Manager will request On-Call TMC Technicians and Shift Supervisors and request or approve the Contractor's use of billable TMC Technician overtime.

The State will conduct reviews of the various phases of the Contractor's activities. Reviews will be conducted to determine compliance with this Contract. The Contractor shall cooperate with and assist the State's Project Manager in conducting these reviews.

All aspects of this Contract and/or of each LOA will be coordinated through the State's Project Manager (or his/her designee). All LOAs and approvals shall be in writing and executed by the State prior to commencement of work.

During any temporary absence from the office of the State's Project Manager, the State shall authorize another individual (Designee) to perform the State's Project Manager's duties.

A.74. General Provisions. The Contractor shall comply with all general provisions established by the State related to holidays, hours of operation, staffing requirements, and work-hour documentation. The Contractor shall ensure that all general provisions apply to all personnel and services performed under this Contractor and shall govern the Contractor's operational, administrative, and billing practices throughout the Contract Term. The Contractor shall ensure that TMC Shift Supervisors and Technicians work their normal hours on State holidays.

A.75. State Observed Holidays. The following holidays are observed by the State. If any of these holidays fall on a Saturday, the preceding Friday is observed. If any fall on a Sunday, the following Monday is observed. The Governor may approve different or additional days for state office closures.

- a. New Year's Day
- b. Martin Luther King Jr. Day

- c. President's Day
- d. Good Friday
- e. Memorial Day
- f. Juneteenth
- g. Independence Day
- h. Labor Day
- i. Veteran's Day
- j. Thanksgiving Day and the following day
- k. Christmas Day

The Contractor Project Manager and Executive Assistant shall not bill for work on these days unless otherwise directed by the State. The TMC Operations Managers shall not bill for work on these days unless the day falls on the TMC Operations Manager's normal work day per the Staffing Plan or unless otherwise directed by the State. The Contractor shall provide Control Room staffing for all holidays within the four (4) RTMCs as required by the Staffing Plan or as directed by the State.

- A.76. Hours of Operations. The Contractor shall ensure that State Office Business Hours apply to the availability of the Contractor Executive Assistant who will work within the State's Traffic Operations Division office.

The Contractor shall ensure that TMC Business Hours apply to TMC Operations Managers, TMC Shift Supervisors, and Technicians who will work within a State TMC during assigned overnight and weekend shifts, as provided in ` Contract Section A.20., Table 2 for Contractor's TMC shifts.

- A.77. Work-Hour Tracking and Documentation. The Contractor shall provide and maintain a time clock system, at the Contractor's expense, to accurately track and provide documentation of billable hours worked by the Contractor's staff. The Contractor shall provide a report depicting hours worked, including overtime for all Control Room Supervisors and Technicians under this Contract. The Contractor shall submit the hours-worked report monthly with the Monthly Invoices.

- A.78. Resumes. During the Contract, the Contractor shall provide resumes of all proposed staff and all new hires for approval by the State prior to hiring. The Contractor shall submit resumes containing the following information, but not limited to:

- a. Applicable experience and capabilities related to their proposed position.
- b. Speak, write, and understand English fluently.
- c. Current state-issued driver's license.
- d. Minimum age of eighteen (18) years.
- e. Education, certifications, diploma(s), degree(s), professional affiliation(s) as applicable for the proposed position.
- f. Minimum of the last three employment positions unless having worked less after graduating from high school or college.
- g. Other information to assist in vetting the candidate for the proposed position.

The State reserves the right to reject any staff candidates prior to being assigned duties.

- A.79. Intelligent Transportation System (ITS) Device Management. As part of the Control Room Operations, the Contractor shall monitor and operate all ITS devices within each respective TMC. The Contractor shall monitor and operate the following systems, but not limited to:

- a. Closed-Circuit Television Cameras and Portable CCTV for real-time roadway monitoring.
- b. Dynamic Message Signs , Portable Variable Message Signs , Overhead Variable Display Signs , Highway Advisory Radio Transmitters and Beacons, and Lane Control Signals for driver communication to improve situational awareness and incident notifications.

- c. Environmental Sensing Stations to track Hazardous Weather-Related conditions.
- d. Radar Detection Sensors for live traffic data analytics.

A summary of the key ITS devices currently deployed by TDOT in each Region is shown in **Table 3**. The number of ITS devices constantly changes as additional ITS devices are deployed.

Table 3 TS Deployment Per Region

ITS Devices	R1–Knoxville	R2–Chattanooga	R3–Nashville	R4–Memphis
CCTV	126	128	264	126
P-CCTV	5	5	3	2
DMS	31	35	109	48
P-VMS	5	0	3	0
LCS with VSL	0	0	67	0
HAR Beacon	33	16	47	40
HAR Transmitter	20	7	14	16
RDS/VDS	117	200	405	178
ESS	0	9	0	0

The Contractor shall interact with the ITS field devices for traffic monitoring, traffic incident management, and traveler information dissemination in accordance with the TMC Operations Manual.

- A.80. ITS Software. The Contractor shall ensure that all TMC operations staff use SWCS for monitoring and managing ITS devices and facilitate all activities for software installation and maintenance.

The Contractor shall ensure all TMC operations staff use, as appropriate, the State-installed software systems listed below and described in TMC Operations Manual Sections 5.6.4 and 6 and the TDOT Smartway Central System Software Support Plan (See **Attachment C**):

- a. SWCS.
- b. Cameleon software.
- c. Drivewyze software.
- d. MH Corbin Platinum software.
- e. Process for Managing Incidents in Contingencies (PMIC) software.
- f. Power BI software.
- g. SmartWay website access.
- h. 511 Floodgate entry website access.
- i. TrafficVision Video Analytics website access.
- j. Vanguard software.
- k. Vero software.
- l. Helpdesk ticket software.

The Contractor shall ensure that all TMC operations staff have an individual unique username and password assigned to them by the State. The Contractor shall ensure that all TMC operations staff are responsible for logging onto the software system(s) at the beginning of each shift and logging off the system(s) at the end of each shift.

The Contractor shall facilitate all system hardware and software changes that may be implemented by others during the term of this Contract as directed by the State, including updating the systems to accommodate roadway changes and ITS coverage expansion.

- A.81. Freeway ITS Maintenance. The Contractor shall routinely and proactively monitor ITS field devices and TMC technologies as directed by the State. The Contractor shall notify the State in accordance with the TDOT TMC Operations Manual Section 5.6 Troubleshooting and Device Checks and State SmartWay Central Software Support Plan Section 3.2 Issue Reporting,

Tracking and Escalation as provided in **Attachment C** about any observed device or communication outages or malfunctions.

- A.82. Current Standards. The Contractor shall adhere to the latest version of the TDOT TMC Operations Manual, policies, and guidelines provided by the State.
- A.83. Intellectual Property. Anything produced by or developed in connection with this Contract shall become the exclusive property of the State of Tennessee and may not be copyrighted, patented, or otherwise restricted as provided by Tennessee state law. Neither the Contractor nor any individual employed under this Contract shall have any property interest in the product. With respect to any deliverable that constitutes a work of authorship within the subject matter and scope of U.S. Copyright Law, 17 United States Code (U.S.C.) Sections 102-105, such work shall be a “work for hire” as defined in 17 U.S.C. Section 101 and all copyrights subsisting in such work for hire shall be owned exclusively by the State pursuant to Tennessee Statutes, on behalf of the State of Tennessee. In the event it is determined as a matter of law that any such work is not a “work for hire,” the Contractor shall immediately assign all copyrights subsisting therein to the State for the consideration set forth in the Contract and with no additional compensation. The foregoing shall not apply to any preexisting software or other work authorship used by the Contractor to create any deliverable, but which exists as work independently of the deliverable, unless the Contractor developed the pre-existing software or work pursuant to a previous Contract with the State or a purchase by the State under a State Term Contract. The State shall have full and complete ownership of any and all software developed pursuant to this Contract, including without limitation:
- a. Written source code;
 - b. Source code files;
 - c. Executable code;
 - d. Executable code files;
 - e. Data dictionary;
 - f. Data flow diagram;
 - g. Workflow diagram;
 - h. Entity relationship diagram; and
 - i. All other documentation needed to enable the State to support, recreate, revise, repair, or otherwise make use of the software.

The Contractor guarantees that upon termination of any personnel under this Contract that they shall bear the responsibility of immediately returning all State property to the State. If the Contractor is unable to return the said items, they shall notify the State and bear any costs associated with ensuring the security of the State.

- A.84. Contractor Employee Identification.
- a. The Contractor shall ensure that all Contractor personnel/sub-consultant(s) wear the applicable company markings/emblems/identifications, always identifying themselves as Contractor employees while working in any State location.
 - b. If work is to be performed by the Contractor personnel/sub-consultant(s) during State Office Business Hours or TMC Business Hours, the Contractor shall ensure that its personnel/sub-consultant(s) sign in at the required State location and obtain State identification to be admitted to any State location.
 - c. The Contractor shall ensure that any work performed by the Contractor Executive Assistant outside of State Office Business Hours is coordinated with the State Project Manager, who will be responsible for providing access to the facilities.
 - d. No Contractor personnel will be allowed to enter any State location without identification.

A.85. Technology, Equipment and Remote Access Requirements.

- a. Contractor Use of State Equipment and Supplies.**

- i. The Contractor shall ensure that its personnel/sub-consultant(s) do not utilize any equipment/supplies provided by the State for uses other than intended under this Contract.
- ii. The Contractor shall ensure that all State equipment/supplies shall be used and maintained in strict accordance with all applicable State's policies and procedures.

b. Contractor-Provided Equipment Requirements for Remote TMC Operations

- i. The Contractor shall ensure:
 - 1. The remote position has access to: a laptop computer with adequate power and random-access memory to efficiently run the remote TMC Application.
 - 2. The computer includes:
 - a. Adequate data security protocols, such as a State-approved VPN appliance; and
 - b. Computer monitors with adequate capability, resolution, and space to view multiple windows simultaneously;
 - 3. The Internet connection is of sufficient bandwidth and speed to efficiently communicate with the remote TMC Application and view multiple streaming video images simultaneously;
 - 4. Provision of an uninterruptable power supply (UPS) with a minimum of one-hour of battery life at full remote TMC power load; and
 - 5. Provision of a land-line or mobile phone with stable band-width and speed to communicate with TDOT TMC Supervisor, HELP Operators, RSP Operators, and others as required by the TDOT TMC Operations Manual.
- ii. Remote Access Requirement: For all remote services, on-call or as positions approved by the State, the Contractor shall ensure that any Contractor-owned or Contractor-provided computer, laptop, workstation, mobile device, network equipment, or other technology used to access State systems, networks, software applications, or data complies with all applicable State information technology, cybersecurity, and access control requirements. Prior to being granted access to State systems, networks, software applications, or data, such devices shall be subject to review and approval by the State. The State reserves the right to require specific security configurations, endpoint protection software, virtual private network (VPN) technology, multifactor authentication, operating system updates, encryption, access restrictions, or other cybersecurity measures as a condition of access. The State may deny, suspend, or revoke access for any device that does not meet applicable security requirements.

- A.86. Work authorization. The Contractor shall ensure that work commences once the State has furnished the Effective Date as described in Section B.1.
- A.87. Kick-off Meeting. Within one (1) week of the Effective Date, the Contractor Project Manager shall meet with the State Project Manager to finalize the schedule for Start-Up Period and full staffing and for the required Start-up Period deliverables.
- A.88. Existing TMC Operations Staff. The existing TMC operations staff are either TDOT or Covendis employees. Covendis employees are temporarily filling either permanent TDOT vacancies or covering short-term absences. With implementation of this Contract, some of these employees may become available for hiring by the Contractor.

As part of the start-up transition, the Contractor shall offer employment to all current TDOT TMC employees and Covendis TMC employees who choose to apply for and who meet the

Contractor's minimum qualifications. The State reserves the right to approve or deny any such hires.

The Contractor shall employ recruiting and hiring strategies that prioritize the retention of qualified existing and available TMC staff, reduce uncertainty, and alleviate stress related to the employment transition, in alignment with the commitments outlined in the Contractor's Technical Proposal.

Existing training records, certifications, and qualification documentation associated with current TDOT and Covendis personnel shall be considered by the Contractor when evaluating employee qualifications and transition planning. However, such records do not automatically satisfy the Contractor's training and certification requirements under this Contract. The Contractor shall be responsible for verifying qualifications and ensuring all personnel satisfy the training and certification requirements established pursuant to Sections A.28 through A.37.

- A.89. 60-Day Start-Up Period Deliverables. The Contractor shall complete the following deliverables during the Start-up Period, as stipulated throughout the Scope:
- a. On or before fourteen (14) days after the initial Contract Effective Date, the Contractor shall submit the Quality Management System as required in Contract Section A.6.
 - b. On or before twenty-one (21) days after initial Contract Effective Date, the Contractor shall develop and submit the TMC Standard Employee Guidelines to the State for approval (official deliverable) as required in Contract Section A.11.
 - c. On or before fourteen (14) days after the initial Contract Effective Date, the Contractor shall submit the TMC Staffing Plan as required in Contract Sections A.18., A.19., and A.20. to the State for approval.
 - d. On or before twenty-one (21) days after initial Contract Effective Date, the Contractor shall submit for review and approval by the State the Performance Monitoring Plan that describes the metrics that will be used to measure performance for each staff position, and the plan to correct underperforming situations as required in Contract Section A.24.
 - e. On or before twenty-one (21) days after initial Contract Effective Date, the Contractor shall provide for approval by the State an TMC Continuity of Operations Plan as required in Contract Section A.27. The Contractor shall ensure that the TMC Continuity of Operations Plan is implemented immediately upon Contractor beginning Control Room operations.
 - f. On or before twenty-one (21) days after initial Contract Effective Date, the Contractor shall develop and submit for State approval an TMC Operations Training and Certification Program as required in Contract Section A.28. with multiple levels of testing and certification based on the State's requirements. The Contractor shall incorporate existing and/or develop necessary TMC operations training manuals, interactive training, and testing programs and materials.

At the conclusion of the sixty (60) day Start-Up Period, and unless otherwise directed by the State, the Contractor shall assume full responsibility for all Contract-required TMC operations, staffing, supervision, dispatching, reporting, and operational activities identified in this Contract. No phased transition by region, facility, or shift is anticipated.

- A.90. End of Contract Transition. If at the end of this Contract, the State selects a different Contractor for TMC Operations, the Contractor shall provide services for up to ninety (90) days as directed by the State. The Contractor shall cooperate with the State and with the new Contractor to transition the Contractor's TMC Operations staff to the new Contractor. Positions subject to transition requirements, as a minimum, include the TMC Operations Managers, TMC Shift Supervisors, and TMC Technicians. The Contractor shall also cooperate with the State in the event the State opts to return to using state employees for TMC Operations.
- A.91. Performance Measures and Requirements. The Contractor shall comply with all performance measures, reporting requirements, and corrective action processes established by the State under this Contract. The State and the Contractor shall cooperatively use performance measures to evaluate service delivery, ensure program accountability, determine compliance with Contract requirements, and assess any applicable payment deductions for non-performance.

- A.92. Non-Compliance Warning Letters. After receipt of a Monthly Report with Contractor- or State-identified performance issues, the State may issue a warning letter identifying a non-compliance performance issue along with a corrective action plan to allow the Contractor to correct performance issues in lieu of applicable deductions. The State's corrective action plan will include a timeframe for the Contractor to address the performance issue(s).
- A.93. Non-Compliance. For some performance failures, the liquidated damages described herein will continue to be applied daily until the Contractor complies with the relevant Contract terms and conditions. The Contractor shall notify the State when in non-compliance with each monthly invoice. Application of liquidated damages shall not waive or limit the State's right to terminate the Contract in accordance with Sections D.4., D.5., or D.6, or any other provision of this Contract which gives the State the right of termination.
- A.94. Submittal Due Date Adjustments. When a submittal's due date falls on a non-workday weekend or holiday, the due date will move to the following workday. For monthly and quarterly deliverables, the due date will be moved forward one day for every holiday occurring between the end of the month and the due date.
- A.95. Performance Measures Changes. The State reserves the right, at its discretion, to modify, remove or add performance measures, criterion, requirements, and/or deductions or incentives by a contract amendment at any time during the term of this Contract. As a minimum, the Contractor shall propose for the State's approval Performance Measures relative to the Contractor's proposed optional services. The Contractor is encouraged to develop and recommend any new performance measurement item or standard that can be demonstrated to be directly traceable to improved performance of the transportation system, safety of the system for incident responders and the public. All changes in performance measurement standards and reporting are at the discretion of the State.
- A.96. Performance Measures and Deductions. Performance measures and liquidated damages are described in Table 4 through Table 15.

Table 4: Start-Up Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.89.a.	Submit QMS	By 14 days after the Contract Effective Date	QMS delivered after the due date	\$300 per day
A.89.d.	Submit Performance Monitoring Plan	By 21 days after the Contract Effective Date	Plan delivered after the due date	\$300 per day
A.89.f.	Submit initial TMC Operations Training and Certification Program	By 21 days after the Contract Effective Date	Program delivered after the due date	\$300 per day
A.89.e.	TMC Continuity of Operations Plan	By 21 days after the Contract Effective Date	Plan delivered after the due date	\$300 per day
A.89.b.	Submit TMC Standard Employee Guidelines (SEG)	By 21 days after the Contract Effective Date	SEG delivered after the due date	\$300 per day
A.89.c.	Submit the Full Staffing Plan	By 14 days after the Contract Effective Date	Staffing Plan delivered after the due date	\$300 per day

Table 5: Vendor Project Manager Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
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A.6.e.	Adhere to approved QMS	All deliverables processed per QMS	QMS not followed	\$100 per occurrence
A.50.i.	TMC Operations Manual and training programs update recommendations	Annually, by the one-year anniversary of the Contract Effective Date	Recommendation not provided by the due date	\$500 per occurrence
A.50.m. A50.n.	Attend required meetings	Attend or provide a representative	Contractor not represented at a required meeting	\$200 per occurrence
A.50.o.	Provide meeting minutes	Delivery within 3 working days after each meeting	Minutes delivered after the deadline	\$100 per occurrence per day \$500 maximum

Table 6: TMC Operations Staff Behavior Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.11.	Operations staff conform to the Standard Employee Guideline (SEG)	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day

Table 7: TMC Operations Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.25. A.26.	Meet or exceed performance metrics defined in the TMC Operations Manual	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Perform TMC Technician Tasks	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Perform TMC Supervisor (TMC Operational Manager) Tasks	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Perform TMC Shift Supervisor Tasks	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Locate, confirm, and respond to incidents as quickly as possible	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Estimate incident duration	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
TMC Manual Section 7, 8 and Appendices	Engage SWCS resources	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Dispatch HELP & RSP	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Engage TDOT resources	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Notify other responders	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Provide traveler information	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Send email notifications	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day
TMC Manual Section 7, 8 and Appendices	Provide major incident notifications	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day

Table 8: Help Desk Ticket Performance Measure and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
TMC Manual Section 5.6.4	Prepare and submit Helpdesk tickets	Multiple	Upon discovery and documentation of non-conforming activity	\$50 per person per occurrence per day

Table 9: TMC Contract Staffing Performance Measures and Deductibles

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.16. A.17.	Provide Contract Project Manager, Contract Executive Assistant, and TMC Operations Managers	Provide at Contract Effective Date	Required staff not provided	\$500 per day per position

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.16. A.18. A.19.	Provide TMC start-up period staffing	Provide staff during the start-up period per the Staffing Plan	Required staff not provided	\$300 per day per position
A.16. A.20.	Provide post-start-up period staffing	Provide post-start-up staff per the Staffing Plan	Required staff not provided	\$300 per day per position
A.21.	Removed non-performing staff	Immediately upon the determination of a non-performance issue	Staff not removed immediately	\$500 per day per person
A.22.	Vacancy notifications	Notification within 1 working day	Notification was not provided on time	\$100 per day per vacancy
A.22.	Fill non-managerial, non-professional vacancies	Fill position within 60 days of vacancy	Position not filled by the due date	\$300 per day per vacancy
A.22.	Fill managerial or professional vacancies	Fill position within 90 days	Position not filled by the due date	\$500 per day per vacancy
A.23.	Fill temporary Project Manager, Executive Assistant, and TMC Operations Manager absences	Fill temporary absence within 14 days	Temporary absence not filled	\$200 per day per absence
A.23.	Fill temporary TMC Supervisors and Technician absences	Ensure shifts are covered per the Staffing Plan	Required staff not present per staffing plan	\$300 per hour per absence
A.23.	Fill emergency TMC Supervisors and Technician absences	Fill a temporary emergency absence within 1 day	Temporary absence not filled	\$300 per day per absence

Table 10: Continuity of Operations Performance Measure and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.27.	Implement TMC Continuity of Operations Plan	Shift Supervisors conduct and document all shift changes per the Plan	Upon discovery of failure to conduct or document shift hand-off per the Plan	\$100 per occurrence

Table 11: Operations Training and Certification Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.29.	Implement TMC Operations and Training and Certification Program	Multiple requirements leading to personnel certification	Upon discovery and documentation of non-certified personnel in the Control Room	\$500 per occurrence per day
A.28.	Submit training and certification records upon request	Submit records within 1 working day of the request	Records submitted after the due date	\$500 per occurrence per day
A.35.	Update TMC Operations and Training and Certification Program	Submit the Program annually on the anniversary of the Contract initiation	Update submitted after the due date	\$1000 per occurrence
A.37.	Conduct annual refresher training	Refresher training conducted with 45 days of employee	Refresher training was not completed by the due date	\$500 per person per day

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
		approval to work on the Contract		

Table 12: Reporting Deliverables Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.40. A.41.	Submit TMC Monthly Performance Measures Report	Submit within 12 days after the month end	Report not submitted by the due date	\$200 per occurrence
A.40. A.42.	Submit a statewide monthly TMC performance measures report	Submit within 12 days after the month end	Report not submitted by the due date	\$200 per occurrence
A.40. A.43.	Submit a monthly TMC operations summary report	Submit within 12 days after the month end	Report not submitted by the due date	\$200 per occurrence
A.44.a.	Submit the annual TMC operations summary report by TMC and statewide	Submit within 21 days after the Contract year end	Report not submitted by the due date	\$500 per occurrence
A.44.b.	Submit annually an idea(s) to improve TMC operations and to improve the TMC Operations Manual	Submit within 21 days after the Contract year end	Report not submitted by the due date	\$500 per occurrence
A.44.c.	Submit the annual results of the TMC Training and Certification Program report	Submit within 21 days after the Contract year end	Report not submitted by the due date	\$500 per occurrence

Table 13 Contractor Personnel Deliverables Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.48. A.51. A.55. A.59. A.63. A.67.	Employees meet general and position-specific requirements	Immediate dismissal of the employee not conforming to any one of the requirements	Upon discovery of non-compliance	\$500 per occurrence per person per day
A.48.	Employees fulfill general and position-specific responsibilities	Submit and execute a remediation plan for recertifying under-performing personnel	Upon not meeting the remediation plan milestones	\$200 per day per milestone
A.52. A.56. A.60. A.64. A.68.	Pay required for Contractor staff salaries	Meet or exceed market research minimum hourly pay rates for each Contract position	Upon discovery of a non-compliant pay rate	\$100 per week retroactive to the date of approval to work on the Contract

Table 14: Invoicing Requirements Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.69. C.5.	Submit invoices for Contract labor	Monthly with 30 days of the following month	Invoice not submitted by the due date	\$200 per occurrence
A.96. C.5.	Identify the applicable deduction in each invoice	Identify deductions due with the invoice	Deductions not identified with the invoice	\$100 per occurrence per deduction
A.96. C.5.	Self-deduct performance non-compliance deductions from invoices	Deduction applied to the second invoice after unmet requirements occurred	Upon determination that the applicable deduction was not applied	\$100 per deduction per month
A.70. C.4.	Invoice approved Contract-related travel expenses	Invoice travel expenses monthly with a monthly invoice	Upon determination that travel expenses were not invoiced or supporting documentation was not provided	\$50 per travel event per month

Table 2: Miscellaneous Deliverables Performance Measures and Liquidated Damages

Section	Performance Measure	Requirement	Liquidated Damages Initiation Criterion	Liquidated Damages
A.77.	Track TMC Control Room staff's daily start and end times	Provide a time clock system	Upon discovery, the time clock is not present or non-functional	\$100 per occurrence per day
A.77.	Document Control Room work hours by person	Submit hours-worked reports with monthly invoices	Upon discovery that the hours-worked report is not submitted with monthly invoice	\$100 per occurrence per day
A.84.	Contractor employee identification	Employees wear identification while in TDOT facilities	Upon discovery of non-identified person	\$100 per occurrence per day

B. TERM OF CONTRACT:

- B.1. Effective Date. This Contract shall be effective on **DATE** ("Effective Date") and extend for a period of sixty-two (62) months after the Effective Date ("Term"). The State shall have no obligation for goods or services provided by the Contractor prior to the Effective Date.

C. PAYMENT TERMS AND CONDITIONS:

- C.1. Maximum Liability. In no event shall the maximum liability of the State under this Contract exceed **Twenty Seven Million Eight Hundred Fifteen Thousand Dollars and Zero Cents (\$27,815,000.00)** ("Maximum Liability"). This Contract does not grant the Contractor any exclusive rights. The State does not guarantee that it will buy any minimum quantity of goods or services under this Contract. Subject to the terms and conditions of this Contract, the Contractor will only be paid for goods or services provided under this Contract after a purchase order is issued to the Contractor by the State or as otherwise specified by this Contract.
- C.2. Compensation Firm. The payment methodology in Section C.3 and the Travel Compensation provided in Section C.4. shall constitute the entire compensation due the Contractor for all goods or services provided under this Contract regardless of the difficulty, materials or equipment required.

The payment methodology includes all applicable taxes, fees, overhead, and all other direct or indirect costs incurred or to be incurred by the Contractor.

C.3. Payment Methodology. The Contractor shall be compensated based on the payment methodology for goods or services authorized by the State in a total amount as set forth in Section C.1.

- a. The Contractor's compensation shall be contingent upon the satisfactory provision of goods or services as set forth in Section A.
- b. The Contractor shall be compensated the initial lump sum amount of \$150,000 upon completion of and State written approval of all Start-up Period staffing and deliverables defined in Section A.
- c. The Contractor shall be compensated based upon the following payment methodology:

Required Services	
Line Item	Yearly Lump Sum Amount
Required TMC Operations Services (See Tables 1 and 2 for Minimum TMC Staffing)	\$ _____/YR

Start-Up Period Staffing and Deliverables	
Line Item	Initial Fixed Lump Sum
Start-up Period Staffing	\$75,000.00
Start-up Period Deliverables	\$75,000.00
Total Fixed Lump Sum	\$150,000.00

Optional TMC Staffing Services	Hourly Rate
On-Call TMC Technician	\$ _____/HR
On-Call Shift Supervisor	\$ _____/HR
TMC Technician Overtime	\$ _____/HR
On-Call Remote TMC Technician	\$ _____/HR
Smart Corridor Traffic Signal Technician	\$ _____/HR

Travel Cost-Reimbursement	
Line Item	Cumulative Travel Reimbursement for Contract Term Not To Exceed
Travel Expenses in accordance with C.4.	\$50,000.00

- d. The Contractor shall be reimbursed for hours spent in the State requested special training at the On-Call TMC Technician and Supervisor Contracted hourly rate in this section C.3.c.
- e. The Contractor shall be reimbursed for services rendered during Emergencies and Special Events using applicable Contract rates. The Contractor's invoice shall separately delineate services and clearly indicate applicable events, dates, times, and personnel information.

C.4. Travel Compensation. Compensation to the Contractor for travel, meals, or lodging shall be subject to amounts and limitations specified in the current "State Comprehensive Travel Regulations."

The Contractor must include (in addition to other invoice requirements of this Contract) a complete itemization of requested travel compensation and appropriate documentation and receipts as required by the "State Comprehensive Travel Regulations."

C.5. Invoice Requirements. The Contractor shall invoice the State only for goods delivered and accepted by the State or services satisfactorily provided at the amounts stipulated in Section C.3., above. The Contractor shall submit invoices and necessary supporting documentation, no more frequently than once a month, and no later than 30 days after goods or services have been provided.

For lump-sum payment items, the Contractor shall ensure that each invoice contains an itemized list of all staff, hours worked per staff member, and the classifications and number of TMC operations staff on-duty during each of the Contractor's TMC shifts that were provided during the billing period. For on-call payment items, the Contractor shall ensure that the invoice contains all on-call staff names, dates worked, times of the day worked, hours worked, and the applicable Contract unit rates. For on-call payment items, the Contractor shall ensure the invoice references the State's official on-call services request and ensure that on-call hours invoiced do not exceed the authorized on-call hours for the invoice period. The Contractor shall provide any additional documentation needed to demonstrate the services were provided and to support all amounts charged as part of the invoice.

As part of the monthly invoice, the Contractor shall provide a Performance Measures Report to document the extent of compliance with the performance measures itemized in Contract Section A.96, Table 4 through 15. If the Contractor identifies any instances of non-compliance, infractions or deviations from the Contract requirements during the monthly invoice period, the final invoice amount shall reflect those compensatory adjustments. The State may waive compensatory adjustments in the event that the Contractor has met the requirements of a corrective action plan letter issued by the State in accordance with Contract Section A.92. The reporting of infractions shall not absolve the Contractor of any responsibilities or liabilities resulting from the non-compliance.

Invoices shall be submitted to the following address and contain the following items:

TDOT.PCD.Invoicing@tn.gov

Each invoice, on Contractor's letterhead, shall clearly and accurately detail all of the following information (calculations must be extended and totaled correctly):

- i. Invoice number (assigned by the Contractor);
- ii. Invoice date;
- iii. Contract number (assigned by the State);
- iv. Customer account name: Tennessee State of Transportation, Traffic Operations;
- v. Customer account number (assigned by the Contractor to the above-referenced Customer);
- vi. Contractor name;
- vii. Contractor Tennessee Edison registration ID number;
- viii. Contractor contact for invoice questions (name, phone, or email);
- ix. Contractor remittance address;
- x. Description of delivered goods or services provided and invoiced, including identifying information as applicable;

- a. Descriptions of delivered goods or services shall be expected to include routine Section A services.
 - b. Description details of delivered goods or services for emergencies or for high-profile planned or unplanned incidents. .
 - xi. Number of delivered or completed units, increments, hours, or days as applicable, of each good or service invoiced;
 - xii. Applicable payment methodology (as stipulated in Section C.3.) of each good or service invoiced;
 - xiii. Amount due for each compensable unit of good or service; and
 - xiv. Total amount due for the invoice period.
 - a. Contractor's invoices shall:
 - i. Only include charges for goods delivered or services provided as described in Section A and in accordance with payment terms and conditions set forth in Section C;
 - ii. Only be submitted for goods delivered or services completed and shall not include any charge for future goods to be delivered or services to be performed;
 - iii. Not include Contractor's taxes, which includes without limitation Contractor's sales and use tax, excise taxes, franchise taxes, real or personal property taxes, or income taxes; and
 - iv. Include shipping or delivery charges only as authorized in this Contract.
 - b. The timeframe for payment (or any discounts) begins only when the State is in receipt of an invoice that meets the minimum requirements of this Section C.4.
- C.6. Payment of Invoice. A payment by the State shall not prejudice the State's right to object to or question any payment, invoice, or other matter. A payment by the State shall not be construed as acceptance of goods delivered, any part of the services provided, or as approval of any amount invoiced.
- C.7. Invoice Reductions. The Contractor's invoice shall be subject to reduction for amounts included in any invoice or payment that is determined by the State, on the basis of audits conducted in accordance with the terms of this Contract, to not constitute proper compensation for goods delivered or services provided.
- C.8. Deductions. The State reserves the right to deduct from amounts, which are or shall become due and payable to the Contractor under this or any contract between the Contractor and the State of Tennessee, any amounts that are or shall become due and payable to the State of Tennessee by the Contractor.
- C.9. Prerequisite Documentation. The Contractor shall not invoice the State under this Contract until the State has received the following, properly completed documentation.
- a. The Contractor shall complete, sign and present to the State the "Authorization Agreement for Automatic Deposit Form" provided by the State. By doing so, the Contractor acknowledges and agrees that, once this form is received by the State, payments to the Contractor, under this or any other contract the Contractor has with the State of Tennessee, may be made by ACH; and
 - b. The Contractor shall complete, sign and return to the State the State-provided W-9 form. The taxpayer identification number on the W-9 form must be the same as the Contractor's Federal Employer Identification Number or Social Security Number referenced in the Contractor's Edison registration information.

D. MANDATORY TERMS AND CONDITIONS:

- D.1. Required Approvals. The State is not bound by this Contract until it is duly approved by the Parties and all appropriate State officials in accordance with applicable Tennessee laws and regulations. Depending upon the specifics of this Contract, this may include approvals by the Commissioner of Finance and Administration, the Commissioner of Human Resources, the Comptroller of the Treasury and the Chief Procurement Officer. Approvals shall be evidenced by a signature or electronic approval.

- D.2. Communications and Contacts. All instructions, notices, consents, demands, or other communications required or contemplated by this Contract shall be in writing and shall be made by certified, first class mail, return receipt requested and postage prepaid, by overnight courier service with an asset tracking system, or by email or facsimile transmission with recipient confirmation. All communications, regardless of method of transmission, shall be addressed to the respective Party at the appropriate mailing address, facsimile number, or email address as stated below or any other address provided in writing by a Party.

The State:

Joshua Brown, Director, Traffic Operations Division
William R Snodgrass Tennessee Tower, Suite 2000
312 Rosa L. Parks Avenue, Nashville, TN 37243
Phone: 615-253-4541

The Contractor:

Contractor Contact Name & Title

Contractor Name

Address

Email Address

Telephone # Number

FAX # Number

All instructions, notices, consents, demands, or other communications shall be considered effective upon receipt or recipient confirmation as may be required.

- D.3. Modification and Amendment. This Contract may be modified only by a written amendment signed by all Parties and approved by all applicable State officials.
- D.4. Subject to Funds Availability. The Contract is subject to the appropriation and availability of State or federal funds. In the event that the funds are not appropriated or are otherwise unavailable, the State reserves the right to terminate this Contract upon written notice to the Contractor. The State's exercise of its right to terminate this Contract shall not constitute a breach of Contract by the State. Upon receipt of the written notice, the Contractor shall cease all work associated with the Contract. If the State terminates this Contract due to lack of funds availability, the Contractor shall be entitled to compensation for all conforming goods requested and accepted by the State and for all satisfactory and authorized services completed as of the termination date. Should the State exercise its right to terminate this Contract due to unavailability of funds, the Contractor shall have no right to recover from the State any actual, general, special, incidental, consequential, or any other damages of any description or amount.
- D.5. Termination for Convenience. The State may terminate this Contract for convenience without cause and for any reason. The State shall give the Contractor at least thirty (30) days written notice before the termination date. The Contractor shall be entitled to compensation for all conforming goods delivered and accepted by the State or for satisfactory, authorized services completed as of the termination date. In no event shall the State be liable to the Contractor for compensation for any goods neither requested nor accepted by the State or for any services neither requested by the State nor satisfactorily performed by the Contractor. In no event shall the State's exercise of its right to terminate this Contract for convenience relieve the Contractor of any liability to the State for any damages or claims arising under this Contract.
- D.6. Termination for Cause. If the Contractor fails to properly perform its obligations under this Contract in a timely or proper manner, or if the Contractor materially violates any terms of this Contract ("Breach Condition"), the State shall have the right to immediately terminate the Contract and withhold payments in excess of compensation for completed services or provided goods. Notwithstanding the above, the Contractor shall not be relieved of liability to the State for damages sustained by virtue of any Breach Condition and the State may seek other remedies allowed at law or in equity for breach of this Contract.

D.7. Assignment and Subcontracting. The Contractor shall not assign this Contract or enter into a subcontract for any of the goods or services provided under this Contract without the prior written approval of the State. Notwithstanding any use of the approved subcontractors, the Contractor shall be the prime contractor and responsible for compliance with all terms and conditions of this Contract. The State reserves the right to request additional information or impose additional terms and conditions before approving an assignment of this Contract in whole or in part or the use of subcontractors in fulfilling the Contractor's obligations under this Contract.

D.8. Conflicts of Interest. The Contractor warrants that no part of the Contractor's compensation shall be paid directly or indirectly to an employee or official of the State of Tennessee as wages, compensation, or gifts in exchange for acting as an officer, agent, employee, subcontractor, or consultant to the Contractor in connection with any work contemplated or performed under this Contract.

The Contractor acknowledges, understands, and agrees that this Contract shall be null and void if the Contractor is, or within the past six (6) months has been, an employee of the State of Tennessee or if the Contractor is an entity in which a controlling interest is held by an individual who is, or within the past six (6) months has been, an employee of the State of Tennessee.

D.9. Nondiscrimination. The Contractor hereby agrees, warrants, and assures that no person shall be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in the performance of this Contract or in the employment practices of the Contractor on the grounds of handicap or disability, age, race, creed, color, religion, sex, national origin, or any other classification protected by federal or state law. The Contractor shall, upon request, show proof of nondiscrimination and shall post in conspicuous places, available to all employees and applicants, notices of nondiscrimination.

D.10. Prohibition of Illegal Immigrants. The requirements of Tenn. Code Ann. § 12-3-309 addressing the use of illegal immigrants in the performance of any contract to supply goods or services to the state of Tennessee, shall be a material provision of this Contract, a breach of which shall be grounds for monetary and other penalties, up to and including termination of this Contract.

- a. The Contractor agrees that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this Contract. The Contractor shall reaffirm this attestation by submitting to the State a completed Attestation (accessible through the Edison Supplier Portal) and included at **Attachment A**, semi-annually during the Term. If the Contractor is a party to more than one contract with the State, the Contractor may submit one attestation that applies to all contracts with the State. All Contractor attestations shall be maintained by the Contractor and made available to State officials upon request.
- b. Prior to the use of any subcontractor in the performance of this Contract, and semi-annually thereafter, during the Term, the Contractor shall obtain and retain a current, written attestation that the subcontractor shall not knowingly utilize the services of an illegal immigrant to perform work under this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant to perform work under this Contract. Attestations obtained from subcontractors shall be maintained by the Contractor and made available to State officials upon request.
- c. The Contractor shall maintain records for all personnel used in the performance of this Contract. Contractor's records shall be subject to review and random inspection at any reasonable time upon reasonable notice by the State.
- d. The Contractor understands and agrees that failure to comply with this section will be subject to the sanctions of Tenn. Code Ann. § 12-3-309 for acts or omissions occurring after its effective date.
- e. For purposes of this Contract, "illegal immigrant" shall be defined as any person who is not: (i) a United States citizen; (ii) a Lawful Permanent Resident; (iii) a person whose physical presence in the United States is authorized; (iv) allowed by the federal Department of Homeland Security and who, under federal immigration laws or regulations,

is authorized to be employed in the U.S.; or (v) is otherwise authorized to provide services under the Contract.

- D.11. Records. The Contractor shall maintain documentation for all charges under this Contract. The books, records, and documents of the Contractor, for work performed or money received under this Contract, shall be maintained for a period of five (5) full years from the date of the final payment and shall be subject to audit at any reasonable time and upon reasonable notice by the State, the Comptroller of the Treasury, or their duly appointed representatives. The financial statements shall be prepared in accordance with generally accepted accounting principles.
- D.12. Monitoring. The Contractor's activities conducted, and records maintained pursuant to this Contract shall be subject to monitoring and evaluation by the State, the Comptroller of the Treasury, or their duly appointed representatives.
- D.13. Progress Reports. The Contractor shall submit brief, periodic, progress reports to the State as requested.
- D.14. Strict Performance. Failure by any Party to this Contract to require, in any one or more cases, the strict performance of any of the terms, covenants, conditions, or provisions of this Contract shall not be construed as a waiver or relinquishment of any term, covenant, condition, or provision. No term or condition of this Contract shall be held to be waived, modified, or deleted except by a written amendment signed by the Parties.
- D.15. Independent Contractor. The Parties shall not act as employees, partners, joint venturers, or associates of one another. The Parties are independent contracting entities. Nothing in this Contract shall be construed to create an employer/employee relationship or to allow either Party to exercise control or direction over the manner or method by which the other transacts its business affairs or provides its usual services. The employees or agents of one Party are not employees or agents of the other Party.
- D.16. Patient Protection and Affordable Care Act. The Contractor agrees that it will be responsible for compliance with the Patient Protection and Affordable Care Act ("PPACA") with respect to itself and its employees, including any obligation to report health insurance coverage, provide health insurance coverage, or pay any financial assessment, tax, or penalty for not providing health insurance. The Contractor shall indemnify the State and hold it harmless from any costs to the State arising from Contractor's failure to fulfill its PPACA responsibilities for itself or its employees.
- D.17. Limitation of State's Liability. The State shall have no liability except as specifically provided in this Contract. In no event will the State be liable to the Contractor or any other party for any lost revenues, lost profits, loss of business, decrease in the value of any securities or cash position, time, goodwill, or any indirect, special, incidental, punitive, exemplary or consequential damages of any nature, whether based on warranty, contract, statute, regulation, tort (including but not limited to negligence), or any other legal theory that may arise under this Contract or otherwise. The State's total liability under this Contract (including any exhibits, schedules, amendments or other attachments to the Contract) or otherwise shall under no circumstances exceed the Maximum Liability. This limitation of liability is cumulative and not per incident.
- D.18. Limitation of Contractor's Liability. In accordance with Tenn. Code Ann. § 12-3-701, the Contractor's liability for all claims arising under this Contract shall be limited to an amount equal to two (2) times the Maximum Liability amount detailed in Section C.1. and as may be amended, PROVIDED THAT in no event shall this Section limit the liability of the Contractor for: (i) intellectual property or any Contractor indemnity obligations for infringement for third-party intellectual property rights; (ii) any claims covered by any specific provision in the Contract providing for liquidated damages; or (iii) any claims for intentional torts, criminal acts, fraudulent conduct, or acts or omissions that result in personal injuries or death. For clarity, except as otherwise expressly set forth in this Section, Contractor's indemnification obligations and other remedies available under this Contract are subject to the limitations on liability set forth in this Section.
- D.19. Hold Harmless. The Contractor agrees to indemnify and hold harmless the State of Tennessee as well as its officers, agents, and employees from and against any and all claims, liabilities, losses, and causes of action which may arise, accrue, or result to any person, firm, corporation, or other entity which may be injured or damaged as a result of acts, omissions, or negligence on the part of

the Contractor, its employees, or any person acting for or on its or their behalf relating to this contract.

The Contractor further agrees it shall be liable for the reasonable cost of attorneys' fees, court costs, expert witness fees, and other litigation expenses for the State to enforce the terms of this contract.

In the event of any suit or claim, the Parties shall give each other immediate notice and provide all necessary assistance to respond. The failure of the State to give notice shall only relieve the Contractor of its obligations under this Section to the extent that the Contractor can demonstrate actual prejudice arising from the failure to give notice. This Section shall not grant the Contractor, through its attorneys, the right to represent the State in any legal matter, as the right to represent the State is governed by Tenn. Code Ann. § 8-6-106.

D.20. HIPAA Compliance. As applicable, the State and Contractor shall comply with obligations under the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), Health Information Technology for Economic and Clinical Health ("HITECH") Act and any other relevant laws and regulations regarding privacy (collectively the "Privacy Rules"). The obligations set forth in this Section shall survive the termination of this Contract.

- a. Contractor warrants to the State that it is familiar with the requirements of the Privacy Rules and will comply with all applicable requirements in the course of this Contract.
- b. Contractor warrants that it will cooperate with the State, including cooperation and coordination with State privacy officials and other compliance officers required by the Privacy Rules, in the course of performance of the Contract so that both parties will be in compliance with the Privacy Rules.
- c. The State and the Contractor will sign documents, including but not limited to business associate agreements, as required by the Privacy Rules and that are reasonably necessary to keep the State and Contractor in compliance with the Privacy Rules. This provision shall not apply if information received or delivered by the parties under this Contract is NOT "protected health information" as defined by the Privacy Rules, or if the Privacy Rules permit the parties to receive or deliver the information without entering into a business associate agreement or signing another document.
- d. The Contractor will indemnify the State and hold it harmless for any violation by the Contractor or its subcontractors of the Privacy Rules. This includes the costs of responding to a breach of protected health information, the costs of responding to a government enforcement action related to the breach, and any fines, penalties, or damages paid by the State because of the violation.

D.21. Tennessee Consolidated Retirement System. Subject to statutory exceptions contained in Tenn. Code Ann. §§ 8-36-801, *et seq.*, the law governing the Tennessee Consolidated Retirement System ("TCRS"), provides that if a retired member of TCRS, or of any superseded system administered by TCRS, or of any local retirement fund established under Tenn. Code Ann. §§ 8-35-101, *et seq.*, accepts State employment, the member's retirement allowance is suspended during the period of the employment. Accordingly, and notwithstanding any provision of this Contract to the contrary, the Contractor agrees that if it is later determined that the true nature of the working relationship between the Contractor and the State under this Contract is that of "employee/employer" and not that of an independent Contractor, the Contractor, if a retired member of TCRS, may be required to repay to TCRS the amount of retirement benefits the Contractor received from TCRS during the Term.

D.22. Tennessee Department of Revenue Registration. The Contractor shall comply with all applicable registration requirements contained in Tenn. Code Ann. §§ 67-6-601 – 608. Compliance with applicable registration requirements is a material requirement of this Contract.

D.23. Debarment and Suspension. The Contractor certifies, to the best of its knowledge and belief, that it, its current and future principals, its current and future subcontractors and their principals:

- a. are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department or agency;

- b. have not within a three (3) year period preceding this Contract been convicted of, or had a civil judgment rendered against them from commission of fraud, or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or grant under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;
- c. are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses detailed in section b. of this certification; and
- d. have not within a three (3) year period preceding this Contract had one or more public transactions (federal, state, or local) terminated for cause or default.

The Contractor shall provide immediate written notice to the State if at any time it learns that there was an earlier failure to disclose information or that due to changed circumstances, its principals or the principals of its subcontractors are excluded, disqualified, or presently fall under any of the prohibitions of sections a-d.

- D.24. Force Majeure. "Force Majeure Event" means fire, flood, earthquake, elements of nature or acts of God, wars, riots, civil disorders, rebellions or revolutions, acts of terrorism or any other similar cause beyond the reasonable control of the Party except to the extent that the non-performing Party is at fault in failing to prevent or causing the default or delay, and provided that the default or delay cannot reasonably be circumvented by the non-performing Party through the use of alternate sources, workaround plans or other means. A strike, lockout or labor dispute shall not excuse either Party from its obligations under this Contract. Except as set forth in this Section, any failure or delay by a Party in the performance of its obligations under this Contract arising from a Force Majeure Event is not a default under this Contract or grounds for termination. The non-performing Party will be excused from performing those obligations directly affected by the Force Majeure Event, and only for as long as the Force Majeure Event continues, provided that the Party continues to use diligent, good faith efforts to resume performance without delay. The occurrence of a Force Majeure Event affecting Contractor's representatives, suppliers, subcontractors, customers or business apart from this Contract is not a Force Majeure Event under this Contract. Contractor will promptly notify the State of any delay caused by a Force Majeure Event (to be confirmed in a written notice to the State within one (1) day of the inception of the delay) that a Force Majeure Event has occurred and will describe in reasonable detail the nature of the Force Majeure Event. If any Force Majeure Event results in a delay in Contractor's performance longer than forty-eight (48) hours, the State may, upon notice to Contractor: (a) cease payment of the fees for the affected obligations until Contractor resumes performance of the affected obligations; or (b) immediately terminate this Contract or any purchase order, in whole or in part, without further payment except for fees then due and payable. Contractor will not increase its charges under this Contract or charge the State any fees other than those provided for in this Contract as the result of a Force Majeure Event.
- D.25. State and Federal Compliance. The Contractor shall comply with all State and federal laws and regulations applicable to Contractor in the Contractor's performance of this Contract.
- D.26. Governing Law. This Contract shall be governed by and construed in accordance with the laws of the State of Tennessee, without regard to its conflict or choice of law rules. The Tennessee Claims Commission or the state or federal courts in Tennessee shall be the venue for all claims, disputes, or disagreements arising under this Contract. The Contractor acknowledges and agrees that any rights, claims, or remedies against the State of Tennessee or its employees arising under this Contract shall be subject to and limited to those rights and remedies available under Tenn. Code Ann. §§ 9-8-101 - 408.
- D.27. Entire Agreement. This Contract is complete and contains the entire understanding between the Parties relating to its subject matter, including all the terms and conditions of the Parties' agreement. This Contract supersedes any and all prior understandings, representations, negotiations, and agreements between the Parties, whether written or oral.
- D.28. Severability. If any terms and conditions of this Contract are held to be invalid or unenforceable as a matter of law, the other terms and conditions of this Contract shall not be affected and shall remain in full force and effect. The terms and conditions of this Contract are severable.

- D.29. Headings. Section headings of this Contract are for reference purposes only and shall not be construed as part of this Contract.
- D.30. Incorporation of Additional Documents. Each of the following documents is included as a part of this Contract by reference. In the event of a discrepancy or ambiguity regarding the Contractor's duties, responsibilities, and performance under this Contract, these items shall govern in order of precedence below:
- a. any amendment to this contract, with the latter in time controlling over any earlier amendments;
 - b. this contract with any attachments or exhibits (excluding the items listed at subsections c. through f., below), which includes **Attachment A, Attachment B, Attachment C, and Attachment D**;
 - c. any clarifications of or addenda to the Contractor's proposal seeking this Contract;
 - d. the State solicitation, as may be amended, requesting responses in competition for this Contract;
 - e. any technical specifications provided to proposers during the procurement process to award this Contract; and
 - f. the Contractor's response seeking this Contract.
- D.31. Iran Divestment Act. The requirements of Tenn. Code Ann. § 12-12-101, *et seq.*, addressing contracting with persons as defined at Tenn. Code Ann. §12-12-103(5) that engage in investment activities in Iran, shall be a material provision of this Contract. The Contractor certifies, under penalty of perjury, that to the best of its knowledge and belief that it is not on the list created pursuant to Tenn. Code Ann. § 12-12-106.
- D.32. Insurance. Contractor shall maintain insurance coverage as specified in this Section. The State reserves the right to amend or require additional insurance coverage, coverage amounts, and endorsements required under this Contract. Contractor's failure to maintain or submit evidence of insurance coverage, as required, is a material breach of this Contract. If Contractor loses insurance coverage, fails to renew coverage, or for any reason becomes uninsured during the Term, Contractor shall immediately notify the State. All insurance companies providing coverage must be: (a) acceptable to the State; (b) authorized by the Tennessee Department of Commerce and Insurance ("TDCI"); and (c) rated A- / VII or better by A.M. Best. All coverage must be on a primary basis and noncontributory with any other insurance or self-insurance carried by the State. Contractor agrees to name the State as an additional insured on any insurance policy with the exception of workers' compensation (employer liability) and professional liability (errors and omissions) insurance. All policies must contain an endorsement for a waiver of subrogation in favor of the State. To the extent that Contractor is unable to obtain insurance coverage containing such a waiver, Contractor agrees to indemnify and hold harmless the State as well as its officers, agents, and employees from and against any and all subrogation claims, liabilities, losses, and causes of action which may arise, accrue, or result to any insurer who provides insurance coverage carried by Contractor, regardless of negligence. In any such claim or action brought against the State, the Contractor shall satisfy and indemnify the State for the amount of any settlement or final judgment, and the Contractor shall be responsible for all legal or other fees or expenses incurred by the State arising from any such claim. The State shall give the Contractor notice of any such claim or suit; however, the failure of the State to give such notice shall only relieve the Contractor of its obligations under this Section to the extent the Contractor can demonstrate actual prejudice arising from the State's failure to give notice. This Section shall not grant the Contractor, through its attorneys, the right to represent the State of Tennessee in any legal matter, as provided in Tenn. Code Ann. § 8-6-106.
- Any deductible or self-insured retention ("SIR") over fifty thousand dollars (\$50,000) must be approved by the State. The deductible or SIR and any premiums are the Contractor's sole responsibility. The Contractor agrees that the insurance requirements specified in this Section do not reduce any liability the Contractor has assumed under this Contract including any indemnification or hold harmless requirements.

To achieve the required coverage amounts, a combination of an otherwise deficient specific policy and an umbrella policy with an aggregate meeting or exceeding the required coverage amounts is acceptable. For example: If the required policy limit under this Contract is for two million dollars (\$2,000,000) in coverage, acceptable coverage would include a specific policy covering one million dollars (\$1,000,000) combined with an umbrella policy for an additional one million dollars (\$1,000,000). If the deficient underlying policy is for a coverage area without aggregate limits (generally Automobile Liability and Employers' Liability Accident), Contractor shall provide a copy of the umbrella insurance policy documents to ensure that no aggregate limit applies to the umbrella policy for that coverage area. In the event that an umbrella policy is being provided to achieve any required coverage amounts, the umbrella policy shall be accompanied by an endorsement at least as broad as the Insurance Services Office, Inc. (also known as "ISO") "Noncontributory—Other Insurance Condition" endorsement or shall be written on a policy form that addresses both the primary and noncontributory basis of the umbrella policy if the State is otherwise named as an additional insured.

Contractor shall provide the State a certificate of insurance ("COI") evidencing the coverages and amounts specified in this Section. The COI must be on a form approved by the TDCI (standard ACORD form preferred). The COI must list each insurer's National Association of Insurance Commissioners (NAIC) number and be signed by an authorized representative of the insurer. The COI must list the State of Tennessee – CPO Risk Manager, 312 Rosa L. Parks Ave., 3rd floor Central Procurement Office, Nashville, TN 37243 as the certificate holder. Contractor shall provide the COI ten (10) business days prior to the Effective Date and again thirty (30) calendar days before renewal or replacement of coverage. Contractor shall provide the State evidence that all subcontractors maintain the required insurance or that subcontractors are included under the Contractor's policy. At any time, the State may require Contractor to provide a valid COI. The Parties agree that failure to provide evidence of insurance coverage as required is a material breach of this Contract. If Contractor self-insures, then a COI will not be required to prove coverage. Instead, Contractor shall provide a certificate of self-insurance or a letter, on Contractor's letterhead, detailing its coverage, policy amounts, and proof of funds to reasonably cover such expenses. The State reserves the right to require complete copies of all required insurance policies, including endorsements required by these specifications, at any time.

The State agrees that it shall give written notice to the Contractor as soon as practicable after the State becomes aware of any claim asserted or made against the State, but in no event later than thirty (30) calendar days after the State becomes aware of such claim. The failure of the State to give notice shall only relieve the Contractor of its obligations under this Section to the extent that the Contractor can demonstrate actual prejudice arising from the failure to give notice. This Section shall not grant the Contractor or its insurer, through its attorneys, the right to represent the State in any legal matter, as the right to represent the State is governed by Tenn. Code Ann. § 8-6-106.

The insurance obligations under this Contract shall be: (1)—all the insurance coverage and policy limits carried by the Contractor; or (2)—the minimum insurance coverage requirements and policy limits shown in this Contract; whichever is greater. Any insurance proceeds in excess of or broader than the minimum required coverage and minimum required policy limits, which are applicable to a given loss, shall be available to the State. No representation is made that the minimum insurance requirements of the Contract are sufficient to cover the obligations of the Contractor arising under this Contract. The Contractor shall obtain and maintain, at a minimum, the following insurance coverages and policy limits.

a. Commercial General Liability ("CGL") Insurance

- 1) The Contractor shall maintain CGL, which shall be written on an ISO Form CG 00 01 occurrence form (or a substitute form providing equivalent coverage) and shall cover liability arising from property damage, premises and operations products and completed operations, bodily injury, personal and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

The Contractor shall maintain single limits not less than one million dollars (\$1,000,000) per occurrence. If a general aggregate limit applies, either the general

aggregate limit shall apply separately to this policy or location of occurrence or the general aggregate limit shall be twice the required occurrence limit.

b. Workers' Compensation and Employer Liability Insurance

- 1) For Contractors statutorily required to carry workers' compensation and employer liability insurance, the Contractor shall maintain:
 - i. Workers' compensation in an amount not less than one million dollars (\$1,000,000) including employer liability of one million dollars (\$1,000,000) per accident for bodily injury by accident, one million dollars (\$1,000,000) policy limit by disease, and one million dollars (\$1,000,000) per employee for bodily injury by disease.
- 2) If the Contractor certifies that it is exempt from the requirements of Tenn. Code Ann. §§ 50-6-101 – 103, then the Contractor shall furnish written proof of such exemption for one or more of the following reasons:
 - i. The Contractor employs fewer than five (5) employees;
 - ii. The Contractor is a sole proprietor;
 - iii. The Contractor is in the construction business or trades with no employees;
 - iv. The Contractor is in the coal mining industry with no employees;
 - v. The Contractor is a state or local government; or
 - vi. The Contractor self-insures its workers' compensation and is in compliance with the TDCI rules and Tenn. Code Ann. § 50-6-405.

c. Automobile Liability Insurance

- i. The Contractor shall maintain automobile liability insurance which shall cover liability arising out of any automobile (including owned, leased, hired, and non-owned automobiles).
- ii. The Contractor shall maintain bodily injury/property damage with a limit not less than one million dollars (\$1,000,000) per occurrence or combined single limit.

d. Professional Liability Insurance

- 1) Professional liability insurance shall be written on an occurrence basis or on a claims-made basis. If this coverage is written on a claims-made basis, then:
 - i. The retroactive date must be shown, and must be on or before the earlier of the Effective Date of the Contract or the beginning of Contract work or provision of goods and services;
 - ii. Insurance must be maintained and evidence of insurance must be provided for at least five (5) full years from the date of the final Contract payment; and
 - iii. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date on or prior to the Contract Effective Date, the Contractor must purchase "extended reporting" or "tail coverage" for a minimum of five (5) full years from the date of the final Contract payment.
- 2) Any professional liability insurance policy shall have a limit not less than one million dollars (\$1,000,000) per claim and two million dollars (\$2,000,000) in the aggregate; and
- 3) If the Contract involves the provision of services by medical professionals, a policy limit not less than three million (\$3,000,000) per claim and three million dollars (\$3,000,000) in the aggregate for medical malpractice insurance.

D.33. Major Procurement Contract Sales and Use Tax. Pursuant to Tenn. Code Ann. § 4-39-102 and to the extent applicable, the Contractor and the Contractor's subcontractors shall remit sales and use

taxes on the sales of goods or services that are made by the Contractor or the Contractor's subcontractors and that are subject to tax.

- D.34. Confidentiality of Records. Strict standards of confidentiality of records and information shall be maintained in accordance with the requirements of this Contract and applicable state and federal law. All material, information, and data regardless of form, medium or method of communication, that the Contractor will have access to, acquire, or is provided to the Contractor by the State or acquired by the Contractor on behalf of the State shall be regarded as "Confidential Information." The State grants the Contractor a limited license to use the Confidential Information but only to perform its obligations under the Contract. Nothing in this Section shall permit Contractor to disclose any Confidential Information, regardless of whether it has been disclosed or made available to the Contractor due to intentional or negligent actions or inactions of agents of the State or third parties. Confidential Information shall not be disclosed except as required under state or federal law or otherwise authorized in writing by the State. Contractor shall take all necessary steps to safeguard the confidentiality of such Confidential Information in conformance with the requirements of this contract and with applicable state and federal law.

As long as the Contractor maintains State Confidential Information, the obligations set forth in this Section shall survive the termination of this Contract.

- D.35. Boycott of Israel. The Contractor certifies that it is not currently engaged in, and covenants that it will not, for the duration of the Contract, engage in a Boycott of Israel, as that term is defined in Tenn. Code Ann. § 12-4-119.
- D.36. Prohibited Contract Terms. The prohibited contract terms and conditions enumerated in Tenn. Code Ann. § 12-3-515, shall be a material provision of this Contract. The Contractor acknowledges, understands, and agrees that the inclusion of a term or condition prohibited by Tenn. Code Ann. § 12-3-515, shall be null and void and the Contract shall be enforceable as if the Contract did not contain such term or condition.
- D.37. Foreign Adversary Company Attestation. The Contractor attests that they are not a "Foreign adversary company" within the meaning of Pub. Ch. 768 (2026) and that the Contractor is not knowingly selling an information and communications technology final product or service within the meaning of Pub. Ch. 768 (2026).

E. SPECIAL TERMS AND CONDITIONS:

- E.1. Conflicting Terms and Conditions. Should any of these special terms and conditions conflict with any other terms and conditions of this Contract, the special terms and conditions shall be subordinate to the Contract's other terms and conditions.
- E.2. Additional lines, items, or options. At its sole discretion, the State may make written requests to the Contractor to add lines, items, or options that are needed and within the Scope but were not included in the original Contract. Such lines, items, or options will be added to the Contract through a Memorandum of Understanding ("MOU"), not an amendment.
- a. After the Contractor receives a written request to add lines, items, or options, the Contractor shall have ten (10) business days to respond with a written proposal. The Contractor's written proposal shall include:
 - i. The effect, if any, of adding the lines, items, or options on the other goods or services required under the Contract;
 - ii. Any pricing related to the new lines, items, or options;
 - iii. The expected effective date for the availability of the new lines, items, or options; and
 - iv. Any additional information requested by the State.
 - b. The State may negotiate the terms of the Contractor's proposal by requesting revisions to the proposal.

- c. To indicate acceptance of a proposal, the State will sign it. The signed proposal shall constitute a MOU between the Parties, and the lines, items, or options shall be incorporated into the Contract as if set forth verbatim.
 - d. Only after a MOU has been executed shall the Contractor perform or deliver the new lines, items, or options.
- E.3. Partial Takeover of Contract. The State may, at its convenience and without cause, exercise a partial takeover of any service that the Contractor is obligated to perform under this Contract, including any service which is the subject of a subcontract between Contractor and a third party (a "Partial Takeover"). A Partial Takeover of this Contract by the State shall not be deemed a breach of Contract. The Contractor shall be given at least thirty (30) days prior written notice of a Partial Takeover. The notice shall specify the areas of service the State will assume and the date the State will be assuming. The State's exercise of a Partial Takeover shall not alter the Contractor's other duties and responsibilities under this Contract. The State reserves the right to withhold from the Contractor any amounts the Contractor would have been paid but for the State's exercise of a Partial Takeover. The amounts shall be withheld effective as of the date the State exercises its right to a Partial Takeover. The State's exercise of its right to a Partial Takeover of this Contract shall not entitle the Contractor to any actual, general, special, incidental, consequential, or any other damages irrespective of any description or amount.
- E.4. Unencumbered Personnel. The Contractor shall not restrict its employees, agents, subcontractors or principals who perform services for the State under this Contract from performing the same or similar services for the State after the termination of this Contract, either as a State employee, an independent Contractor, or an employee, agent, subcontractor or principal of another Contractor with the State.
- E. 5. Drug-Free Workplace. The Contractor shall provide a drug-free workplace pursuant to the Drug-Free Workplace Act of 1988, Title 41 U.S.C. §§ 701, *et seq.*, and the regulations in Title 41 U.S.C.A. §§ 8101 through 8106.
- E.6. Equal Employment Opportunity. During the performance of this Contract, the Contractor agrees as follows:
 - a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
 - b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
 - c. The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

- d. The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other Contract or understanding, a notice to be provided by the agency Contracting officer, advising the labor union or workers' representative of the Contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- e. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- f. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- g. In the event of the Contractor's non-compliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- h. The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or Contractor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or Contractor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the Contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any Contract or Contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government Contracts and federally assisted construction Contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (Contract, loan, insurance, guarantee); refrain from

extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the State of Justice for appropriate legal proceedings.

- E.7. Liquidated Damages. If any of the events described in Contract Section A.96. occur ("Liquidated Damages Event"), the State may assess damages on Contractor ("Liquidated Damages"). The State shall notify the Contractor of amounts to be assessed as Liquidated Damages. The Parties agree that due to the complicated nature of the Contractor's obligations under this Contract it would be difficult to specifically designate a monetary amount for Contractor's failure to fulfill its obligations regarding the Liquidated Damages Event as these amounts are likely to be uncertain and not easily proven. Contractor has carefully reviewed the Liquidated Damages contained in Section A.96. and agrees that these amounts represent a reasonable relationship between the amount and what might reasonably be expected in the event of a Liquidated Damages Event and are a reasonable estimate of the damages that would occur from a Liquidated Damages Event. The Parties agree that the Liquidated Damages represent solely the damages and injuries sustained by the State in losing the benefit of the bargain with Contractor and do not include any injury or damage sustained by a third party. The Contractor agrees that the Liquidated Damages are in addition to any amounts Contractor may owe the State pursuant to the indemnity provision or any other sections of this Contract.

The State is not obligated to assess Liquidated Damages before availing itself of any other remedy. The State may choose to discontinue Liquidated Damages and avail itself of any other remedy available under this Contract or at law or equity.

- E.8. State Furnished Property. The Contractor shall be responsible for the correct use, maintenance, and protection of all articles of nonexpendable, tangible personal property furnished by the State for the Contractor's use under this Contract. Upon termination of this Contract, all property furnished by the State shall be returned to the State in the same condition as when received, less ordinary wear and tear. Should the property be destroyed, lost, or stolen, the Contractor shall be responsible to the State for the fair market value of the property at the time of loss.
- E.9. State Ownership of Goods. The State shall have ownership, right, title, and interest in all goods provided by Contractor under this Contract including full rights to use the goods and transfer title in the goods to any third parties.
- E.10. Prohibited Advertising or Marketing. The Contractor shall not suggest or imply in advertising or marketing materials that Contractor's goods or services are endorsed by the State. The restrictions on Contractor advertising or marketing materials under this Section shall survive the termination of this Contract.
- E.11. Lobbying. The Contractor certifies, to the best of its knowledge and belief, that:
- a. No federally appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of an agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
 - b. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with any contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

- c. The Contractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into and is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352.

- E.12. Federal Funding Accountability and Transparency Act (FFATA). This Contract requires the Contractor to provide supplies or services that are funded in whole or in part by federal funds that are subject to FFATA. The Contractor is responsible for ensuring that all applicable requirements, including but not limited to those set forth herein, of FFATA are met and that the Contractor provides information to the State as required.

The Contractor shall comply with the following:

- a. Reporting of Total Compensation of the Contractor's Executives.

- (1) The Contractor shall report the names and total compensation of each of its five most highly compensated executives for the Contractor's preceding completed fiscal year, if in the Contractor's preceding fiscal year it received:
 - i. 80 percent or more of the Contractor's annual gross revenues from federal procurement contracts and federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and
 - ii. \$25,000,000 or more in annual gross revenues from federal procurement contracts (and subcontracts), and federal financial assistance subject to the Transparency Act (and subawards); and
 - iii. The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Securities and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>.)

As defined in 2 C.F.R. § 170.315, "Executive" means officers, managing partners, or any other employees in management positions.

- (2) Total compensation means the cash and noncash dollar value earned by the executive during the Contractor's preceding fiscal year and includes the following (for more information see 17 C.F.R. § 229.402(c)(2)):
 - i. Salary and bonus.
 - ii. Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.
 - iii. Earnings for services under non-equity incentive plans. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.
 - iv. Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.

- v. Above-market earnings on deferred compensation which is not tax qualified.
 - vi. Other compensation, if the aggregate value of all such other compensation (e.g. severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds \$10,000.
- b. The Contractor must report executive total compensation described above to the State by the end of the month during which this Contract is awarded.
- c. If this Contract is amended to extend the Term, the Contractor must submit an executive total compensation report to the State by the end of the month in which the term extension becomes effective.
- d. The Contractor will obtain a Unique Entity Identifier (UEI) number and maintain its UEI number for the term of this Contract. More information about obtaining a UEI Number can be found at: the System for Award Management (SAM.gov).

The Contractor's failure to comply with the above requirements is a material breach of this Contract for which the State may terminate this Contract for cause. The State will not be obligated to pay any outstanding invoice received from the Contractor unless and until the Contractor is in full compliance with the above requirements.

IN WITNESS WHEREOF,

CONTRACTOR LEGAL ENTITY NAME:

CONTRACTOR SIGNATURE

DATE

PRINTED NAME AND TITLE OF CONTRACTOR SIGNATORY (above)

STATE OF TRANSPORTATION:

WILL REID, COMMISSIONER

DATE

APPROVED AS TO FORM AND LEGALITY:

ATTESTATION RE PERSONNEL USED IN CONTRACT PERFORMANCE

SUBJECT CONTRACT NUMBER:	
CONTRACTOR LEGAL ENTITY NAME:	
EDISON VENDOR IDENTIFICATION NUMBER:	

The Contractor, identified above, does hereby attest, certify, warrant, and assure that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this Contract.

CONTRACTOR SIGNATURE

NOTICE: This attestation MUST be signed by an individual empowered to contractually bind the Contractor. Attach evidence documenting the individual's authority to contractually bind the Contractor, unless the signatory is the Contractor's chief executive or president.

PRINTED NAME AND TITLE OF SIGNATORY

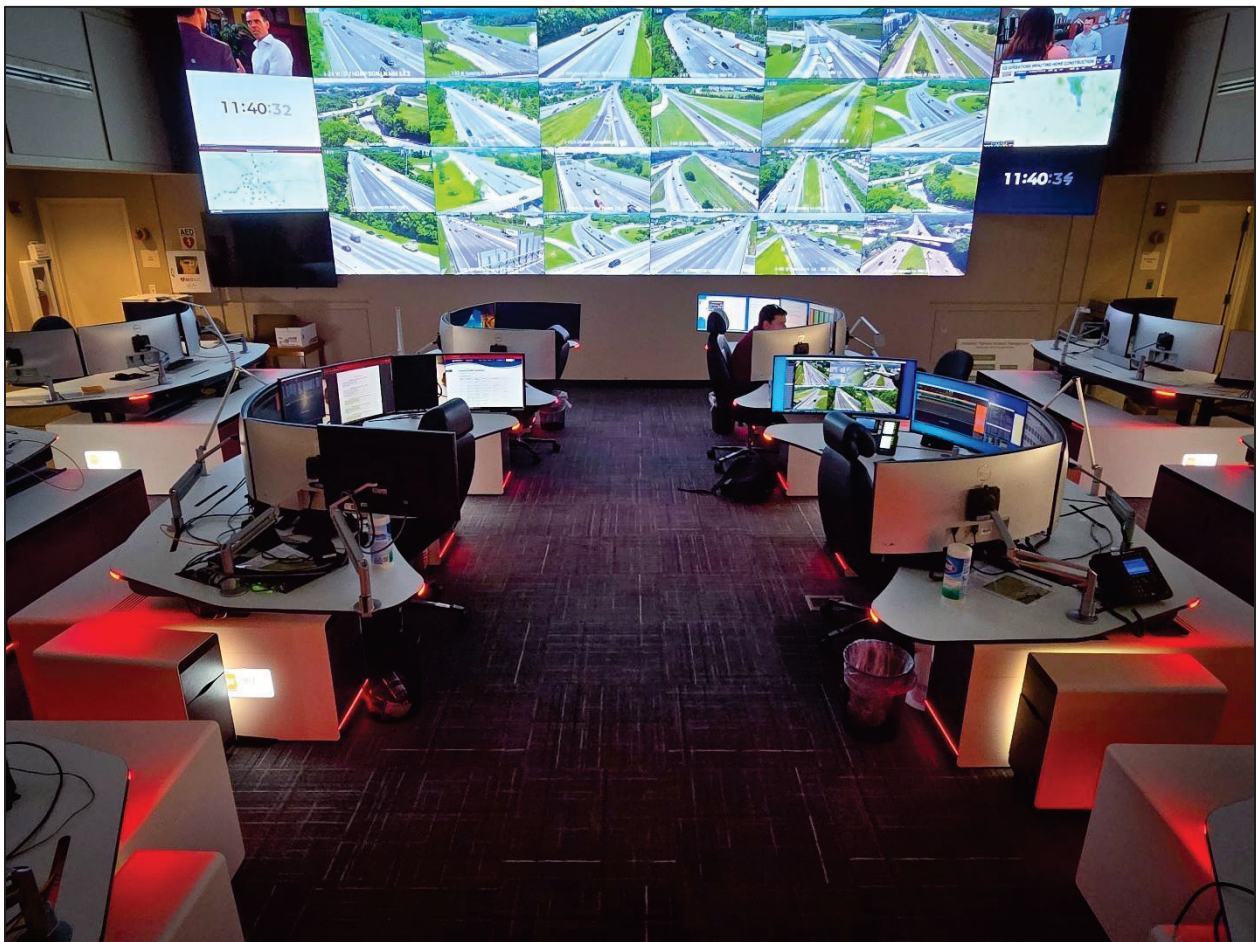
DATE OF ATTESTATION

Tennessee Department of Transportation

Transportation Management Center Operations Manual

December 2025

Version 2025.1





Developed by TDOT Traffic Operations Division

Tennessee Department of Transportation

Transportation Management Center Operations Manual

Version effective December 1st, 2025 and
supersedes all versions executed prior to

This manual establishes guidelines for the Transportation Management Center Operations Staff within the Tennessee Department of Transportation for personnel involved in the TMC environment and approved by the officials below.

X

Commissioner
Tennessee Department of Transportation

X

Bureau Chief
Tennessee Department of Transportation

X

Chief of Field Operations
Tennessee Department of Transportation

X

Director
TDOT Traffic Operations Division

X

Regional Director
TDOT Region 1

X

Regional Director
TDOT Region 2

X

Regional Director
TDOT Region 3

X

Regional Director
TDOT Region 4

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1 Document History

1.1 Summary

This version of the manual is a rewrite of material first created in 2012. The changes were needed to reflect change in overall TMC operations. The content in this manual was built through a cooperative effort including TMC Management.

1.2 Document Location

Paper copies are valid only on the day they are printed. The master copy will be held by the Traffic Operations Division. Consult with the TDOT Traffic Operation Division if there is any doubt about the accuracy of this document or have a recommendation to improve its usefulness. This document in its current, updated state will be maintained at a location within the state's shared network.

1.3 Revision History

Revision Number	Revision Date (MM/YY)	Summary of Changes	Authors
2022.1	2022-11	Updated contents and format with participation of TDOT staff in all Regions and central office. Removed sections that no longer represent the ATMS system in use. Added introductory session to clearly define the purpose of and activities associated with the detection and verification of traffic disruptions, communications among response agencies and providing accurate and timely traveler information.	Brown, Crittenden, Dykes, Haynes, Morton, Perez, Settles, Western, White, Wiggins, Word, Wright
2023.1	2023-10	Minor updates, clarifications and format modifications. Added additional tasks to Tech Senior/ Shift Supervisor Tasks. Added additional details to the CCTV Verification section. Removed references for use of SWIFT.	Input from all Traffic Operations Managers and Supervisors

		Added additional information to Post to DMS and HAR section. Added dispatch information to Dispatch HELP section of document. Updated Appendix E to reference recently developed COOP document. Added language regarding the policy for recording video.	
2025.1	2025-12	Major reformatting and restructure. Replaced/added all screenshots. Added Content and Sections: 4.1.2 - On-Call Emergencies 4.1.4 - Shift Change Requests 4.7 - Social Media Engagement Procedure 5.2 - Radios 5.6.1 - Daily Device Checks 5.6.2 - Weekly Radio Checks 5.6.4 - Helpdesk Ticket Creation 6 - Systems/Software (all Sections) 7 - TMC Tools (all Sections) 8.1 - Roles and Responsibilities All appendices (A-F) replaced/added	Dennis, Dykes, Haynes, Padgett, Pannell, Perez, Smith, Western, White, Wright

1.4 Revision Approvals

Version	Date
Revision 2022-01: Approved	11/01/2022
Revision 2023-01: Minor updates. No approval required.	10/26/2023
Revision 2025-01: Approved	12/01/2025

2 Acronym List

Acronym	Defined
ATMS	Advanced Traffic Management System
BOLO	Be On (the) Lookout
CAD	Computer Aided Dispatch
CCTV	Closed-Circuit Television
CMV	Commercial Motor Vehicle
DMS	Dynamic Message Sign
DSRC	Dedicated Short Range Communication
EMA	Emergency Management Agency
FHWA	Federal Highway Administration
GPS	Global Positioning System
HAR	Highway Advisory Radio
HOV	High Occupancy Vehicle
ICM	Integrated Corridor Management
IPP	Individual Performance Plan
IT	Information Technology
ITS	Intelligent Transportation Systems
LCS	Lane Control Signs
LE	Law Enforcement
MUTCD	Manual on Uniform Traffic Control Devices
PD	Police Department
PMIC	Process for Managing Incidents in Contingencies
PSA	Public Service Announcement
RCA	Remote-Controlled Application
RDS	Radar Detection Sensors
RSP	Rural Service Patrol
RWIS	Roadway Weather Information System
SWCS	SmartWay Central Software
SWIFT	Statewide Information for Travelers
SwRI	Southwest Research Institute
TACN	Tennessee Advanced Communications Network
TBI	Tennessee Bureau of Investigation
TDOT	Tennessee Department of Transportation
TEMA	Tennessee Emergency Management Agency
THP	Tennessee Highway Patrol
TIM	Traffic Incident Management
TMC	Transportation Management Center
TODS	Tourist Oriented Directional Signs
TSMO	Transportation Systems Management and Operations
VSL	Variable Speed Limits
VSN	Virtual Sign Network

3 Introduction

3.1 Purpose

This manual is guidance for all Transportation Management Centers (TMCs) within the Tennessee Department of Transportation (TDOT) system, including permanent centers in Chattanooga, Knoxville, Memphis, and Nashville metropolitan areas.

This is a procedural manual for TMC operations to enhance public safety and mobility as part of an overall Transportation Systems Management and Operations (TSMO) philosophy and practice within TDOT.

All procedures and standards contained in this document have been reviewed and approved by the Traffic Operations Division and TDOT executive management. Any changes, additions, or deletions of procedures noted in the document have received TDOT approval before being printed and included in this manual.

This manual deals with operational processes. Manual references for how to use the Advanced Traffic Management System (ATMS) are available for reference, but this manual should be the main operational guidance document in use by all TMCs. It is written especially to be used as a training and review guide on the purposes and mission of the TMCs in Tennessee.

This manual serves as a guide for what must be done and why. Exact tactics are largely up to the Regions to create based on their own specific circumstances, provided they meet these minimum standards. TMC procedures should never threaten the viability of the information provided to the citizens of Tennessee. A focus on what motorists and agency partners experience and have come to expect is paramount.

TMC Management is responsible for maintenance of this document and for submitting requests for changes to the TDOT Headquarters Traffic Operations Division. Once changes have been reviewed and approved by the Traffic Operations Division, it will be updated and communicated to all Traffic Operations Managers for internal posting electronically. It will be the responsibility of TMC Management to provide training on the updated procedures to their respective operations staff. Paper copies should be avoided and treated as potentially inaccurate.

3.2 Overview of TMC and Traffic Operations Division

The mission of TDOT is to provide a safe and reliable transportation system that supports economic growth and quality of life.

Traffic Operations is a term encompassing many areas of TDOT activity, with some being directly connected to TMC operations, and others only connected in a secondary way.

Traffic Operations Division functions directly involving the TMC:

- Overseeing TMCs
- Providing direction and support to TMC operations management
- Designing and deploying Intelligent Transportation System (ITS) expansion projects to support TMC operations
- Monitoring and reporting on transportation system performance
- Establishing TMC, Traffic Incident Management (TIM), and Traffic Engineering guidelines and procedures
- Motorist Information Systems management and support (Tennessee SmartWay public website, Tennessee 511 phone system, social media platforms)
- Review of national best practices for TSMO

Traffic Operations Division functions TMCs must be aware of:

- Managing TDOT wireless radio network
- Supporting communication, coordination, and collaboration among Headquarters and Regional offices
- Research, management, and deployment of ITS projects
- ITS Architectures and System Engineering Analysis
- Traffic engineering legal support for TDOT/State Government (State Traffic Engineer)
- Traffic engineering studies (including traffic simulation and analysis)

3.3 How the TMC Enhances Traffic Safety

Each person involved in any part of Traffic Operations has an individual impact on safety.

Efficient actions advance public safety. Commitment to teamwork in any TMC location and between locations also has a positive impact. The cooperative attitude in TDOT TMCs is evident and building upon that cooperation will pay dividends in public safety and mobility. Open and honest discussions, along with information sharing contribute to continued success.

This type of teamwork begins with staff and supervisors coordinating with managers in the TMC and with Traffic Operations leadership to seek out new ideas and processes. This will promote an environment that continuously demonstrates curiosity and a willingness to change so that public safety and mobility are enhanced.

The team approach reaches beyond TMC operations to include partnerships with HELP, TDOT Maintenance, Police Departments, Fire Departments, Tennessee Highway Patrol (THP), emergency medical personnel, towing companies and others.

3.4 Enhancing Traffic Mobility for All Road Users

Mobility means the efficient and reliable use of the transportation system, so the TMC commitment to supporting safe mobility comes down to three basic principles:

- Inform road users as early as possible and as far in advance of roadway disruptions.
- Coordinate efforts with all parties engaged on the ground to resolve incidents safely and quickly.
- Perform all functions as fast, accurately, concisely, and efficiently as possible.

Performance is measured and reported regularly to educate Tennessee residents on how their tax dollars are being used to improve the safety and reliability of their transportation system, as well as providing data to help drive future TSMO investments in the system.

3.5 TMC Operations Mission

The mission of TDOT TMC Operations is to:

- Detect roadway disruptions
- Understand impacts of the disruptions
- Engage all resources available to mitigate danger and enhance safety
- Transfer the information to all internal and external partners
- Share responsibility cooperatively with all other response agencies

3.6 TMC Operations Objectives

There are goals for safe traffic operations and mobility for all. TDOT is responsible for its system of roadway design, construction, maintenance, and operation to meet those goals.

Detect Roadway Disruptions

- Detection comes primarily from within the TMC, from others within the HELP program, or in TDOT Maintenance.
- Detection also comes from public safety partners and public safety communicators. Traffic sensors, traffic systems, and applications are other means of detection that motorists and the TMC can depend upon.

Understand Impacts of Disruptions

- Partners are a great source of information when it comes to understanding the impacts of a roadway disruption. This could include emergency management, 911 dispatch, law enforcement alerts, or email/phone notifications to a TMC.
- Closed-circuit television (CCTV) cameras are very reliable sources of verification in the areas where CCTV coverage exists.
- Individual and collective experience as well as using historical data can be used to gauge impacts. For example, TMC staff, if asked, can look at a scene they have seen before, a type of incident they have seen before, in a location they have seen before, and predict the likely impact that is to be expected.
- Information from ITS devices or partner information that is translated into the SmartWay Central Software (SWCS) can be used to detect abnormal traffic patterns through data such as travel times and speed data.

Engage People, Systems, and Tools to Enhance Public Safety

- Engage SWCS as an incident notification and actions tool.
- Engage HELP and TDOT Maintenance as needed.
- Engage Tennessee 511 phone system, SmartWay public website, and other systems.

Transfer Information to Internal and External Partners

- Accurately enter all information so that performance data is as complete as possible.
- Sharing of information with HELP/ TDOT to get assistance to a scene quickly.
- Sharing available information with external partners to improve safety.

3.7 Strategies for Achieving Objectives

- Maintain good relationships with THP, local law enforcement, and other partner agencies.
- Pay attention to all information sharing and partnerships aiming to improve both process and relationships.
- Appreciate all responders and respect each for their missions.
- Capture lessons from successful teamwork that can be used in TIM sessions.
- Continuously improve processes, procedures, and systems.
- Look at each activity as something that can be assessed for improvement.
- Share each good practice, shortcut, and process improvement found with internal and external partners.
- Be open to the ideas of others to improve TMC Operations.

4 Employee Policies and Procedures

4.1 Staffing and Attendance

Each Regional TMC should be staffed appropriately to ensure operational efficiency 24 hours per day, 7 days per week. This includes all holidays. Scheduling shall be the responsibility of TMC Technician Seniors (TMC Shift Supervisors) and will be approved by TMC Management.

Staffing will generally include a TMC Shift Supervisor and two TMC Technicians during all shifts at a minimum. The exception is the overnight shift that may include one to two staff members.

It is understood that as conditions change at the TMC (special events, inclement weather, scheduled construction, change in operational hours, staffing and other unexpected or emergency situations) work schedules will be altered to accommodate as required. It may be necessary to schedule additional resources during the AM peak or PM peak periods as determined by TMC Management.

TMC Management will work with the TMC Shift Supervisors to ensure that appropriate staff are on duty during all hours of operation. This may include extending hours for on-duty staff or calling in additional personnel to provide coverage.

All shift work schedules will adhere to current TDOT Policies and Procedures regarding shift length, lunch breaks, and wellness breaks.

More attendance information can be found in the [Attendance and Leave Manual](#) (tn.gov).

4.1.1 Work Schedules

The operations staff will be provided a general work schedule when beginning work at the TMC, based on the hours of operation as determined by each Regional TMC. The TMC Shift Supervisors and TMC Management will maintain the staff schedule to ensure employee coverage.

The schedule will be maintained and documented on a weekly schedule matrix and posted in a predetermined area accessible to the staff.

4.1.2 On-Call Emergencies

Certain situations will result in TMC staff being called into work during off-scheduled times or staying late past regular shift times (e.g., staffing or inclement weather emergencies).

A shift that is understaffed and unable to perform TMC tasks efficiently will result in additional TMC Technicians being called into work or a previous shift staying late.

TMC functions are even more crucial during inclement weather (e.g., snow, ice, heavy rain). TMC staff are expected to arrive for their scheduled shifts during times of harsh weather conditions. If a TMC employee cannot use their typical mode of transportation or feel unsafe doing so, that employee should notify the TMC Shift Supervisor about arranging transportation with a HELP Operator. TMC Shift Supervisors should consult with HELP Management to determine availability and location of HELP Operators in the area that will be able to pick up an employee and return them home after their shift ends.

TMC staff should be aware of the possibility of being called into work to assist shifts during times of expected or sudden inclement weather conditions.

4.1.3 Wellness Breaks and Lunch Breaks

Employees are encouraged to take breaks during their shift. Wellness breaks will not exceed a 15-minute break before their lunch period (first half of the shift) and a 15-minute break following their lunch period (second half of the shift). An additional break may be allowed for shifts longer than 8 hours.

Due to the unpredictable nature of TMC workflow and the potential for emergency responses, break periods may be restricted during emergency situations and only one person per shift may be on break at a time per TDOT work schedule guidelines under [Policy Number 230-11](#) (teamtn.gov) and [Tennessee Code Annotated §4-4-105](#) (lexis.com).

The lunch period is a maximum of 30 minutes and shall be taken by all employees during a full shift. If an incident occurs, TMC staff may be asked to return to their workstation.

Lunch breaks will not be authorized during the first or second shift rush hour periods. Wellness breaks and lunch breaks should be restricted to the TMC area if understaffing or inclement weather are likely to require every available employee in attendance. This applies for all TMC Shift Supervisors and TMC Technicians due to the immediate availability required of the position and nature of job duties.

Lunch breaks will vary depending on the schedules of TMC staff and around TDOT's service to the public.

Breaks cannot be used to begin a scheduled shift at a later time nor to end a scheduled shift at an earlier time.

4.1.4 Shift Change Requests

All TMC Technicians requesting a permanent shift change to a vacant position on another shift must have permission from their current TMC Shift Supervisor and permission from the TMC Shift Supervisor of the desired shift. The current shift a TMC Technician works on cannot be left understaffed or left with all untrained personnel as a result of a shift change.

All TMC Shift Supervisors requesting a permanent shift change must consult TMC Management to access the availability and needs of the vacant position.

4.1.5 Leave Requests

Employees requesting scheduled time off are encouraged to give early notice and to submit the request in writing, using the appropriate TDOT forms in advance. Leave requests must be submitted into Edison. Only one employee per shift may be off at one time on a scheduled leave unless otherwise approved by TMC Management. Preference will be given to the employee requesting the time off first. If an employee is off on a specific holiday one year, the next preference will be given to another employee for that holiday the following year. Do not expect to be off on more than one holiday per year unless no one else has requested to be off on that holiday.

4.1.6 Unplanned Absence

Emergencies do occur and will be handled on a case-by-case basis. Every effort to contact the on-duty TMC Shift Supervisor via phone should be made if a staff member is unable to report to work or will be late. Contact should be made no less than 2 hours before shift start time for any absence to provide time to contact possible replacements. The employee calling out must talk to the TMC Shift Supervisor on duty. Voicemail is not to be used.

4.2 Dress Code

TMC staff should be dressed in business casual attire within the TMC Operations Room. All employees of the Department are expected to maintain a professional standard of dress and grooming that reflects good taste and common sense.

Religious or medical dress will be accommodated unless the accommodation creates an undue hardship.

At no time will the following items be allowed to be worn in the TMC, unless indicated otherwise:

- Sweatpants
- Yoga or spandex pants without a long top
- Flip-flops
- Hats (allowable for field employees not working in an office environment)
- Halter or crop-tops that bare mid-section
- Clothing that contains any content that is in violation of State or TDOT laws, rules, or policies regarding discrimination and harassment
- Items of clothing containing vulgarity or illegal content
- Jeans with tears or holes
- Tank tops, spaghetti strap tops, or strapless tops

The text above is an excerpt. The TDOT's Dress and Appearance Policy in its entirety can be found under [Policy Number 230-01](#) (teamtn.gov).

4.3 Cleaning and Maintenance Coordination

TDOT strives to provide a clean work facility. It is the responsibility of all TMC employees to keep the TMC clean, organized and presentable. The TMC workstations, copy room, break room, and restrooms will be kept clean, neat, and organized at all times. It is every employee's responsibility to clean up after themselves. No food or drinks will be allowed at the console workstations at any time except with the prior authorization from TMC Management. Anyone with concerns about the conditions of the work facility should immediately inform the TMC Shift Supervisor.

The cleaning service provided by TDOT is responsible for cleaning (vacuuming, removing garbage, emptying recycle bins, etc.) the bathrooms, the TMC Operations Room, the lobby area, and the second floor offices. When the cleaning personnel needs to access the TMC Operations Room, they will knock on the door or ring the door call button for access. This activity is normally not disruptive and may take place during rush hour periods. TMC Management should ensure that the TMC is cleaned and vacuumed as scheduled. This cleaning can be postponed if a major incident is being managed and the cleaning staff will create a distraction during that time.

All additional building maintenance will be coordinated through TMC Management. The operational nature of the TMC requires special attention be paid to any scheduled work being performed. All work conducted in the TMC Operations Room will be coordinated through the TMC Shift Supervisor on duty. The normal maintenance activities for the building will be conducted so operations are not impacted during incident management. System upgrades, computer maintenance, and general building maintenance should be scheduled in advance and will occur during non-critical operational periods.

4.4 Smoking Policy

There will be no smoking or vaping inside the TMC building. Smoking will be allowed outside the TMC a minimum of fifty (50) feet from any main entrance.

Smokers will not be afforded extra break time to smoke more than the normally allowed 15-minute wellness break periods and may only leave the TMC area with the permission of the TMC Shift Supervisor or TMC Management.

The text above is an excerpt. The TDOT's Smoking Policy in its entirety can be found under [Policy Number 230-05](#) (teamtn.gov).

4.5 Drug Testing Procedure

No TDOT employee will be allowed to work under the influence of or within detectable limits of alcohol or controlled drugs, nor manufacture, distribute, possess, or use such during work hours.

The text above is an excerpt. The TDOT's Drug-Free Workplace Policy in its entirety can be found under [Policy Number 230-02](#) (teamtn.gov).

No employee will be allowed to work under the influence of any controlled substance or other prescribed or other lawfully obtained drugs when taking these drugs impairs the employee's ability to perform his/her job. TMC job positions (TMC Technician Trainee, TMC Technician, and TMC Technician Senior) are recognized as safety-sensitive positions and will be randomly tested as part of the random pool for drug testing as stated in TDOT's Safety-Sensitive Employees Alcohol and Drug Testing guidelines under [Policy Number 230-18](#) (teamtn.gov).

If an employee is convicted of violating any criminal drug statute while in the workplace, he or she will be subject to discipline up to and including termination. Alternatively, the Department may require the employee to successfully finish a drug abuse program. As a condition of employment or continued employment, the law requires all employees to abide by this policy.

This policy will be administered in accordance with applicable laws, rules, regulations, and contract provisions. The Department's Human Resources Division (615-741-3461) will administer this policy and any contract entered for the purpose of enforcing this policy. Additional information regarding the administration of the alcohol and drug testing procedures under [Policy Number 230-18](#) (teamtn.gov) is contained in TDOT's "Administration Guide for CDL Personnel Regarding Alcohol and Drug Testing Procedures," which is incorporated herein by reference. TMC staff may seek technical assistance by calling the TDOT Human Resources Division within their Region.

4.6 News Media Engagement Procedure

If contacted by anyone in news media, TMC staff should immediately contact and consult with the Headquarters Community Division Director or Regional Communications Officer before providing any information, response, or opinion to the news media.

The text above is an excerpt. The TDOT Communications and Legislative Affairs Policy in its entirety can be found under [Policy Number 160-01](#) (teamtn.gov).

4.7 Social Media Engagement Procedure

The use of social media to monitor traffic obstruction information from public sources is permitted within the TDOT TMC environment. The use of any social media on a state computer is bound by all applicable state policies and standards. TMC staff should not post any opinions or statements while using social media on the state system.

An employee's personal social media use should not be attributable to an agency or department of the State of Tennessee or the employee's job function. Any personal use must be conducted in such a manner that a reader would not think that the employee is speaking for or on behalf of his/her agency or department.

The text above is an excerpt. The TDOT Personal Use of Social Media Policy in its can be found under [Policy Number 12-058](#) (tn.gov).

Under no circumstances should CCTV images or sensitive information be saved to or photographed with personal devices for social media posts or personal use.

4.8 Visitor and Tour Procedure

TDOT expects that requests will be made for meetings with TMC staff and for tours of the TMC. These opportunities are welcomed and encouraged. Experience has shown that numerous groups, ranging from local Boy Scout troops to Federal authorities, will request scheduled and unscheduled tours of the TMC. All tours shall be coordinated with the Traffic Operations Manager or designee. Media related tours shall be coordinated through the respective TDOT Region Community Relations Officer.

Generally, TMC Management or the on-duty TMC Shift Supervisor will conduct the tours. Although the length and coverage of the tour is at the discretion of the tour conductor, the conductor shall always be responsive to the audience. All TMC staff members will be pleasant and thoughtful of visitors and will always act in a professional manner. The exact tour program will be developed to meet the needs of the tour group and may be made available at the TMC and at off-site locations as required.

The tour will generally begin in the entrance of the TMC and will flow into the large conference room behind the operations room, or second floor conference room where an overhead view of operations is possible. The tour conductor will brief the tour group on duties of TMC staff and the benefits of ITS. If the group has a specific, pre-approved interest in viewing the TMC operations firsthand, the tour will be brought into the TMC Operations Room, maintenance, and communications rooms depending on incident response activities.

Following the tour, the tour leader should ensure that all questions have been answered or noted for follow-up. The group will then be safely escorted from the building.

4.9 Training

The operations staff will receive the training required to conduct assigned duties and the training will be appropriate for all positions. The purpose of the training is to provide TMC Shift Supervisors, TMC Technicians, and others the means to effectively operate the hardware and software located in the TMC. TMC Management and TMC Shift Supervisors will be responsible for scheduling the training and will ensure appropriate staff attends authorized, required training as stated in the Mandatory Learning and Leadership Development Procedures under [Policy Number 12-050](https://www.tn.gov/policy-number-12-050) (tn.gov).

The initial training must include the use of legacy systems that were used before SWCS. These are alternate means of data entry, camera control, and activation of Dynamic Message Sign (DMS) messages.

In addition to the general TMC training, each TDOT employee will be given a state mandated Individual Performance Plan (IPP). The IPP will be specific to individuals and developed in accordance with the Performance Management Program procedures under [Policy Number 12-064](https://www.tn.gov/policy-number-12-064) (tn.gov). Individuals who desire additional training, courses, or other opportunities should approach TMC Management or a TMC Shift Supervisor for authorization and approval.

4.10 Regional Organization Chart

A basic Regional organization chart should be made available to all personnel within the TMC. The organization chart outlines the reporting relationships of staff assigned to the TMC.

Personnel issues shall be handled at the lowest supervisory level possible. This will save time and effort of all concerned. If the TMC Shift Supervisor and TMC Technician cannot work out an issue, the open-door policy of the Traffic Operations Manager shall apply.

Personnel issues involving temporary staffing contractors should be relayed to the TDOT Human Resources Division.

4.11 TDOT Organization Chart

The regularly updated TDOT organization chart can be found at the following link: [TDOT Organization Chart](#) (tn.gov).

5 TMC Equipment Usage

Computers are for use with any of the TMC authorized ITS software, email, and Microsoft Office Products in accordance with TDOT's Information Technology Resources Acceptable Usage procedures under [Policy Number 280-02](http://teamtn.gov) (teamtn.gov) regarding use for the Internet and email communications. This equipment is for official use only. Activity will be monitored either by direct observation or monitoring software.

Radios, telephones, and other communications devices will be utilized for business communication only and will follow the existing TDOT standards for voice communications. The user will receive training on the correct use of the devices from TMC Management or the TMC Shift Supervisor.

TDOT may assign communication devices (cellphones, portable radios, laptops, etc.) to TMC staff and others responsible for operations and support activities. It is the responsibility of the individual to only use this equipment in the manner for which it was designed and within the operational procedures outlined in this document. Personal use of this equipment is not authorized. All equipment shall be issued with the appropriate user manual. If required, special training may be provided.

Individuals will report lost or missing equipment immediately to their supervisor. All equipment issued to individuals for their use will be logged into the recording and reporting system in place by TDOT for accountability and record keeping procedures. Users may be required to replace any equipment that was damaged or lost while in their care at full price, if it is determined that the loss was due to the user's lack of accountability or misuse of the device(s).

5.1 ATMS

All hardware and software connected to the Advanced Traffic Management System (ATMS) is for the exclusive use of TDOT in conducting ITS related work. Use of ATMS equipment not related to the Regional ITS/transportation program is not permitted. The current ATMS system is known as SmartWay Central Software (SWCS), created and provided by Southwest Research Institute (SwRI) based in San Antonio, Texas.

No unauthorized software or hardware shall be connected to or installed on any ATMS equipment. Authorization for installation of this hardware/software must come through TDOT. Staff desiring to install specific software, or hardware will be required to seek authorization from TMC Management, who will determine the need for the software. If warranted, TMC Management will approach the TDOT TMC Information Technology (IT) Department for authorization to have the equipment or software installed.

5.2 Radios

Every TMC will contain primary dispatch radio consoles, portable radios (usually held by the TMC Shift Supervisor on duty), and backup desktop remotes. The quantity of each of these radios within the TMC Operations Room varies depending on the Region.

Primary dispatch radios and portable radios operate on the Tennessee Advanced Communications Network (TACN). TACN is a statewide radio system utilized by first responders, including HELP operators. More information on TACN can be found at tn.gov/safety/tacn.

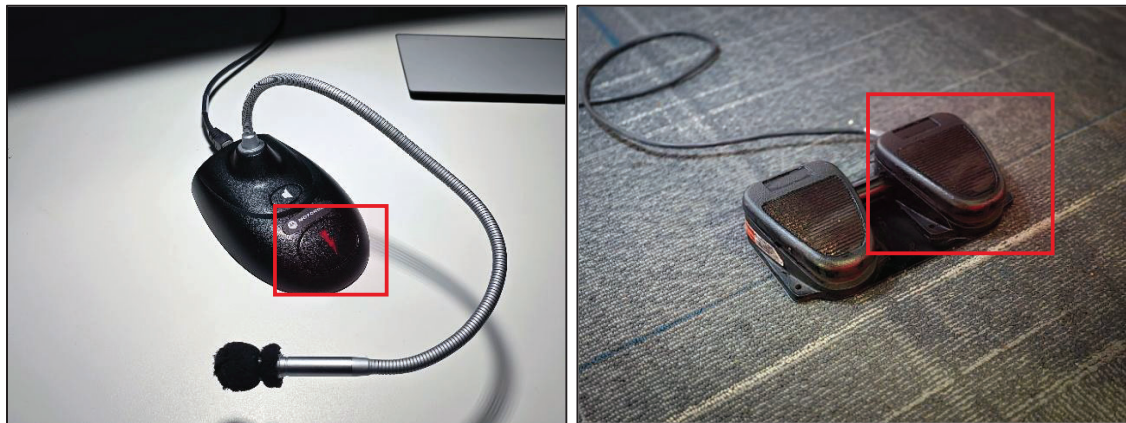
Backup desktop remotes do not operate on the TACN ethernet network but do contain TACN “talkgroups,” or channels. These pre-programmed channels help to maintain communication with HELP Operators if the TACN ethernet network is down.

Communications on these radios is strictly for official use only. Any information relayed over the radio should be concise, relevant, and clear. TMC staff will primarily communicate with HELP Operators and TDOT Maintenance, but it is possible for other agencies to call in through TMC dispatch. There should be at least one employee occupying a dispatch workstation at all times.

Primary Dispatch Radio

The primary dispatch radio microphone can be activated by a TMC dispatcher through the base of the microphone or by a foot pedal beneath the workstation.

Using the base, the microphone will become live when holding down the button with the red lightning bolt icon. Using the foot pedal, the microphone will become live when holding down the right pedal. The microphone will remain live until either of these triggers are released.



Portable Radio

The portable radios can typically be found with the TMC Shift Supervisor on duty every shift. These radios can be used to communicate with HELP Operators or other agencies and possesses near identical capabilities as the primary dispatch radio.

The radio charger and battery are usually found at the TMC Shift Supervisor workstations.

The radio/battery should be placed on the charger when not in use. Always turn off the portable radio before charging.



Backup Desktop Remote

The backup desktop remotes are intended to be used if the TACN ethernet network is down or primary dispatch consoles can't be utilized by TMC dispatchers. These remotes can be found on TMC workstations and quantity will vary per each TMC.



To select different talkgroups, use the “ZNUP” and “ZNDN” buttons below the remote screen.



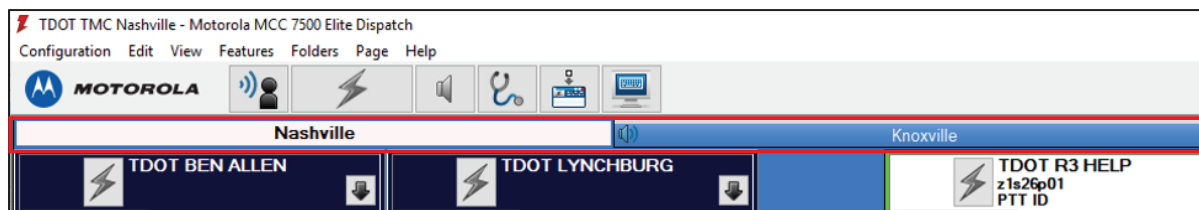
To activate the microphone, hold down the button with the red lightning bolt symbol at the bottom right of the remote base. The button located in the middle of the handset can also be held to activate the microphone and become ready for dispatch.



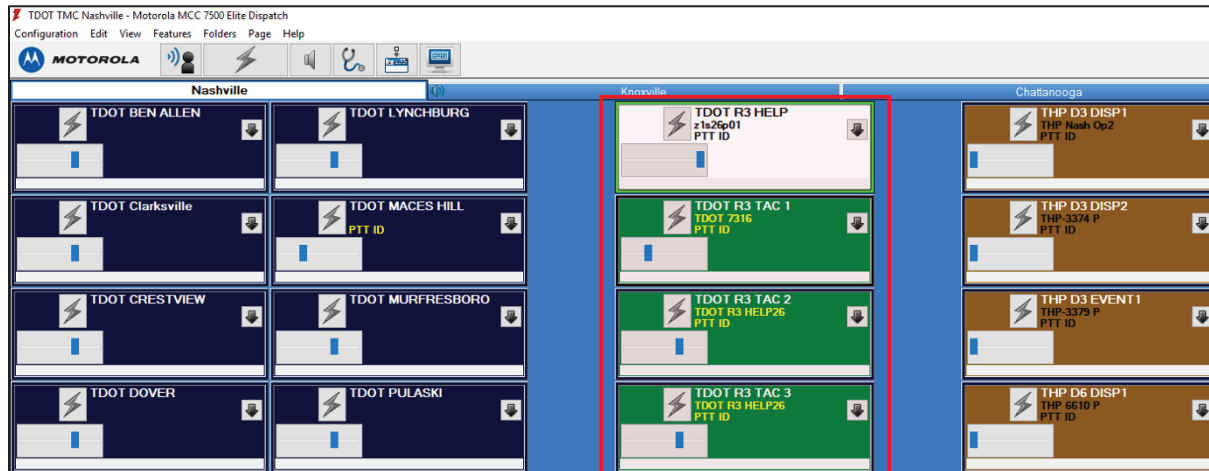
Dispatch Monitor

Multiple HELP and agency channels are clickable via the dispatch monitor located at every workstation that contains a primary dispatch console. The channels can be selected using the separate mouse that should rest below the monitor.

Each Regional TMC and their dispatch channels can be accessed by clicking the tabs near the top of the page that list different cities: Knoxville (Region 1), Chattanooga (Region 2), Nashville (Region 3), and Memphis (Region 4).

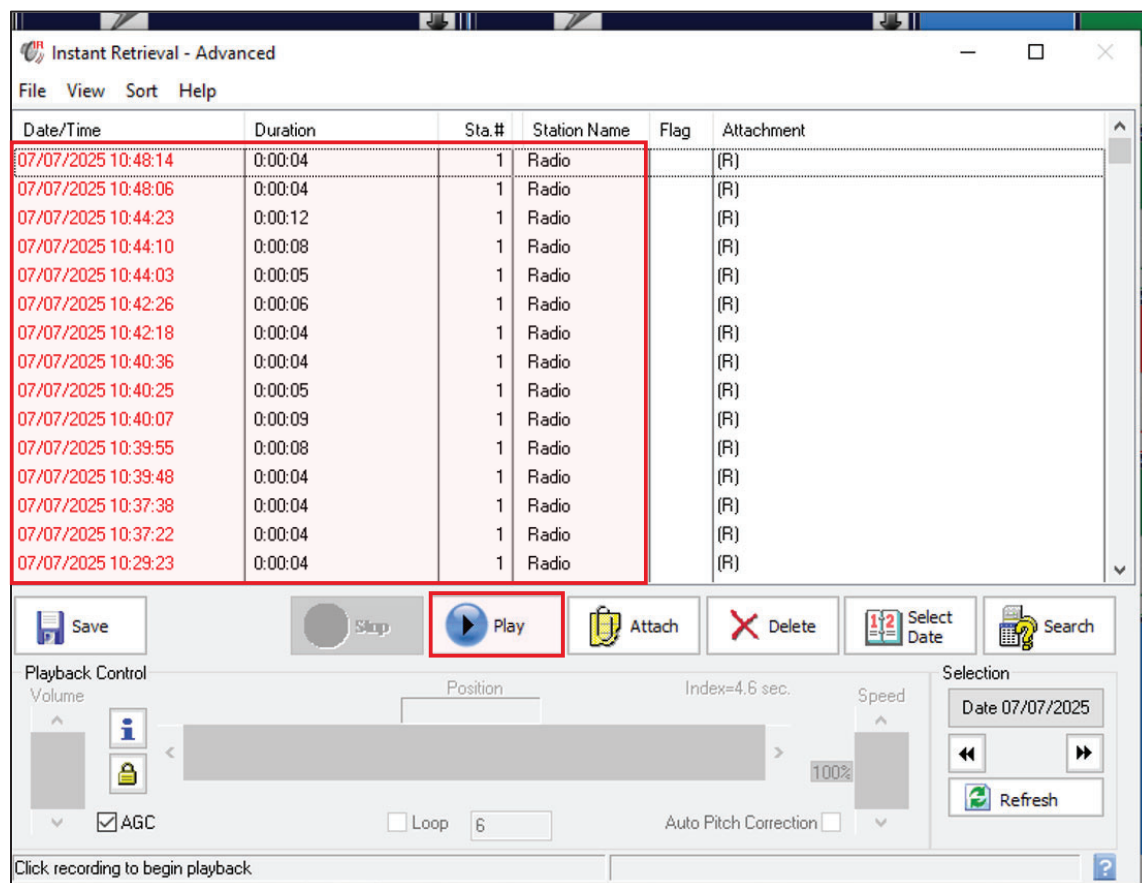


Dispatch monitor Region selection tabs



Dispatch monitor channel selection

Audio recordings are also available for playback usually found on a separate window located at the bottom of the dispatch monitor. Recordings will remain for playback until they are overwritten by future recordings. There is a memory usage limit typically lasting around 48 hours of average daily radio use.



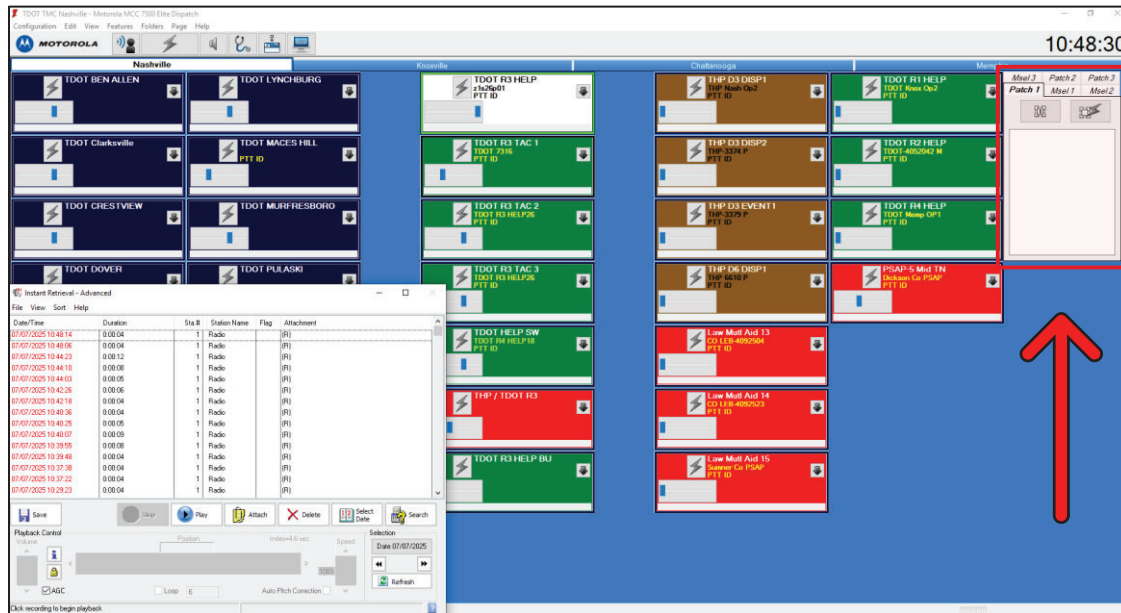
Dispatch monitor audio playback

Patching

Radio patching is the process of connecting 2 or more radio talkgroups and enabling communication between them.

If needed, an additional radio channel (e.g., a Partner Region HELP channel or TDOT Maintenance channel) can be patched, or combined, with a Region's primary HELP channel to communicate within all added channels at the same time.

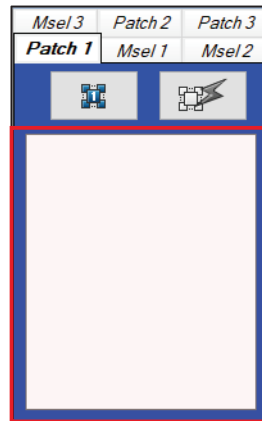
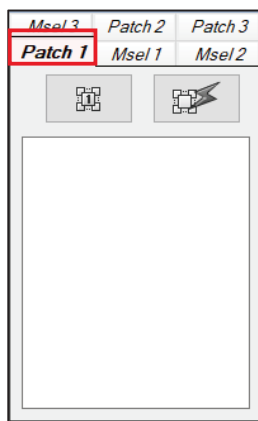
The patching selection box is located at the top right of the dispatch monitor display.



Dispatch monitor display

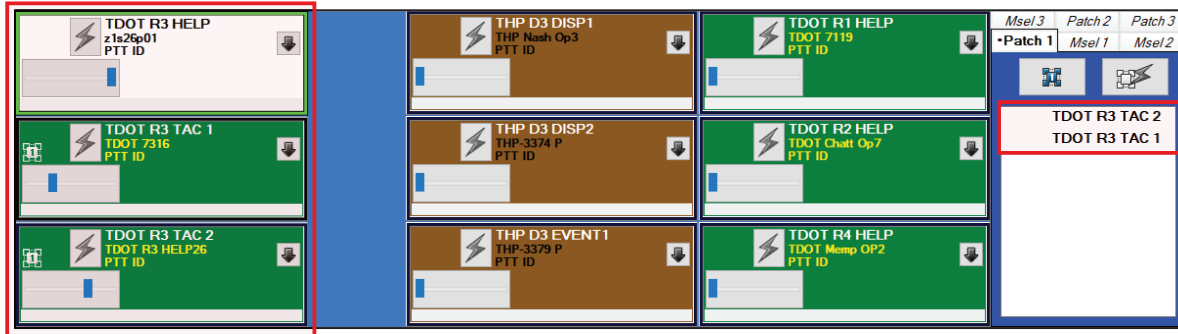
The “Patch 1” button can be click and multiple channels can be selected to be grouped into the patch box below.

The patch box will be highlighted in blue to indicate channels are ready to be selected.

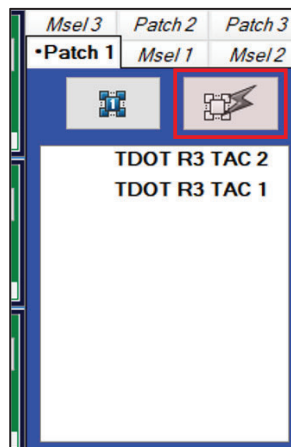


In the example below, the primary dispatch channel on this radio console is the “TDOT R3 HELP” channel, indicated by the full white box highlight.

The green boxes below that dispatch channel, (TDOT R3 TAC 1 and TDOT R3 TAC 2), were clicked and populated within the Patch 1 box to the right. This indicated that these 3 channels are now patched together.



To communicate with all 3 channels at the same time, click the button above the patch box with the lightning bolt icon.



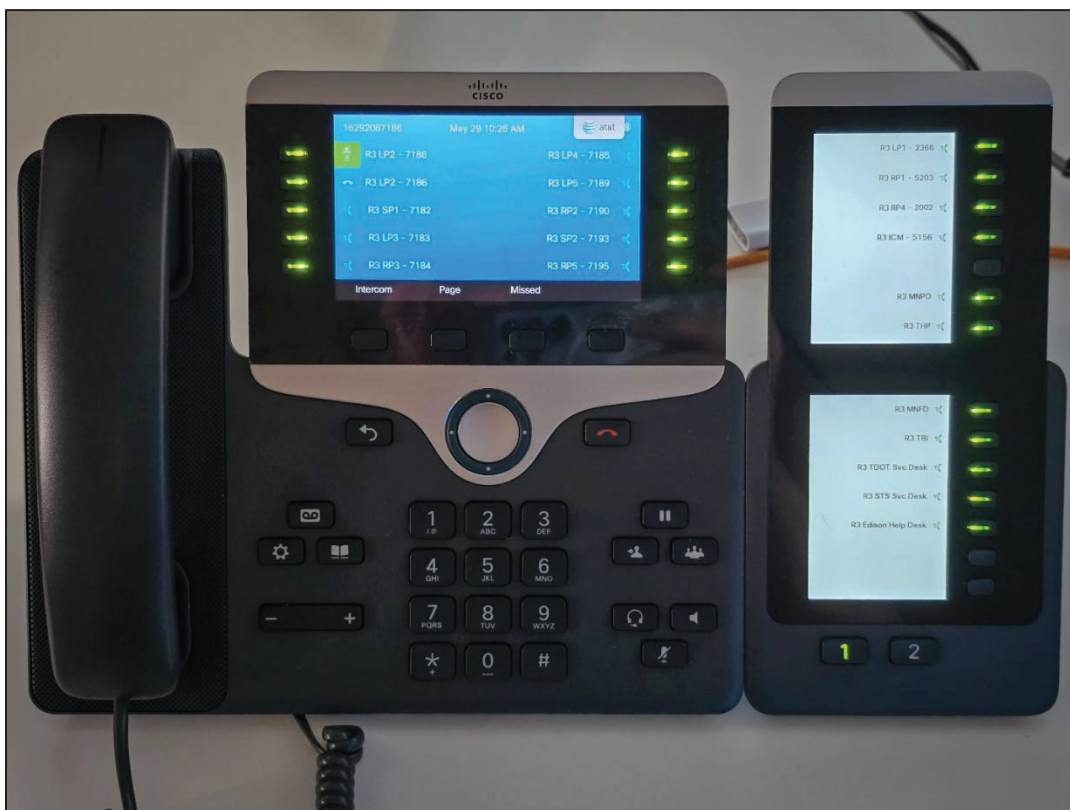
5.3 Telephones

TMC telephones and state-issued cellphones should be used for official communications only. It is understood that telephones and fax machines may be needed for personal communications between spouses, parents, children, coordination of child-care, or other non-work-related activity. This must be limited to the minimum and not abused. Inappropriate use or abuse of this equipment will not be tolerated and repeated abuse of this procedure may result in disciplinary action.

Use of cell phones for personal reasons at the workstation is prohibited. All personal cell phones must be turned off or set to vibrate while in the TMC Operations Room so as not to disturb other workers. If an emergency call needs to be taken, notify the TMC Shift Supervisor and step out of the TMC Operations Room.

If a TMC employee is on a phone call of a personal nature or non-urgent matter, the employee is expected to terminate the call immediately when needed for incident management. If the TMC employee is on the line with a motorist requesting travel information or non-urgent information and an emergency situation occurs, it must be relayed to the caller that an emergency incident requires immediate action and their call will have to be returned at a later time if needed.

A standard phone greeting by TMC staff phone is, “TDOT SmartWay, how can I help you?”



The telephones within the TMC should never ring more than two times before a call is answered. If the TMC is understaffed, stacking calls should be answered and additional

callers should be placed on hold. Before a second caller is placed on hold, the TMC employee answering the phone should quickly determine the department and need of the second caller. It needs to be established which caller is relaying a higher priority of emergency information.

For example, there is one available call taker in the TMC. This employee is on the phone with a motorist asking about traffic conditions on a roadway. A second call comes in and is identified to be the Tennessee Bureau of Investigation (TBI) calling about an Amber Alert. The second call should be followed through first due to the nature and urgency of the call.

5.4 Television

Television service is provided for viewing weather and news channels, for operational use, and for coordination purposes. TMC Management will maintain control of the television remote and other tuning devices and will determine which personnel will have the ability to change channels.

5.5 Workstation Equipment

TDOT will provide TMC staff with a work location that includes a computer workstation with software. This equipment is the property of TDOT. No software will be installed without TDOT permission. Internet access will be provided for official use only. This equipment will not be used in an inappropriate manner. This includes “surfing” the Internet, playing games, streaming movies, etc. Use of internet information sources is permitted in pursuit of situational awareness, including the monitoring of news and other media sources.

Equipment will be operated under the manufacturer’s directions for operation and in accordance with TDOT’s Information Technology Resources Acceptable Usage procedures under [Policy Number 280-02](#) ([teamtn.gov](#)).

Specific issues related to operation of the computers, printers, etc., will be directed to the TDOT IT Department once it is determined to be a non-ATMS software related issue. TDOT IT can forward ATMS issues to the ATMS provider if needed. The ATMS Software User Manual can also be utilized for troubleshooting ATMS issues.

5.6 Troubleshooting and Device Checks

In an effort to maintain maximum uptime and preparedness, TMC devices should be routinely checked for proper functionality. This is especially important for devices or communication methods not used on a daily basis. Any device failures should be promptly reported through the appropriate channels to facilitate a swift resolution.

5.6.1 Daily Device Checks

TMC Shift Supervisors and TMC Management are responsible for having an overall awareness of device conditions and statuses, including DMS function and CCTV camera responsiveness. It

is also important that TMC Shift Supervisors confirm the successful operation of backup CCTV and DMS systems and access to the Partner Region's devices through the Remote-Controlled Application (RCA) subsystem activatable through the SWCS Operator Map.

If there is a device malfunction, a Helpdesk ticket should be created for the Regional IT Department to review.

A daily checklist should be completed and recorded (see [Appendix A](#)).

5.6.2 Weekly Radio Checks

TMC Shift Supervisors and TMC Management are responsible for ensuring weekly testing of the statewide radio network and devices.

Realistically, the primary dispatch radio will likely be tested regularly through daily dispatching. Backup desktop remotes exist on a different network than primary dispatch radios and should be tested to ensure functionality. The radio connection between TMC Partner Regions should also be tested to ensure dispatch capabilities exist in the event that an emergency scenario requires one Region to dispatch for another.

If there is a radio malfunction, the ITS Communications Department should be notified.

A weekly checklist should be completed and recorded (see [Appendix A](#)).

5.6.3 Software or Hardware Checks

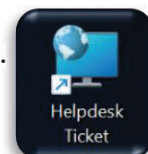
TMC staff should do an initial self-check when an issue arises. Checking all settings and configurations is a first step. Refreshing or restarting an application or computer should also be considered, if applicable. A persistent issue by one staff member should be checked with another, to see if it is an issue isolated to only one staff member or the first sign of a joint issue.

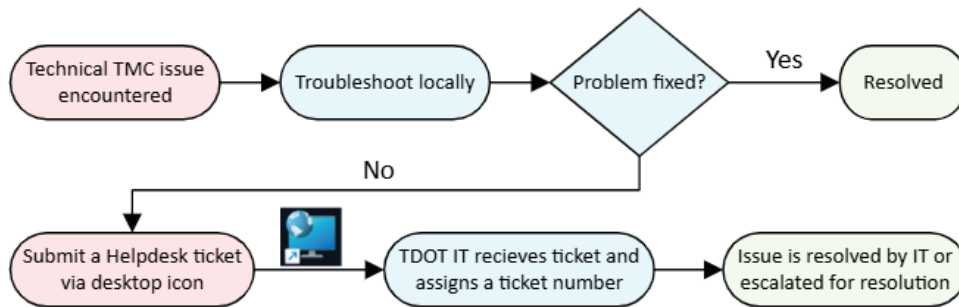
Once the self-check and peer check are complete, staff should check with the TMC Shift Supervisor. When no obvious solutions have been found, a Helpdesk ticket should be created for the Regional IT Department to review.

5.6.4 Helpdesk Ticket Creation

Helpdesk tickets are created to compile information related to hardware and software issues for the TDOT IT Department to review, reference, and resolve. This creates a documentation of the issue encountered. Any details of the issue that might help IT find a solution (time of occurrence, recurring issues, screenshots, explanations of how active the system was at the time, etc.) should be reported. It is permissible to discuss the issue with IT Department staff directly, but not without a Helpdesk ticket.

The [Helpdesk link](#) icon should be located on the desktop of all TMC workstations.





The Helpdesk ticket request page should be filled out in a similar way to the example below. This ensures the ticket is forwarded to the correct department and addressed as quickly as possible.

Include as much information as possible in the “additional comments” box and provide any screenshots taken with the “add attachments” button at the bottom of the page.

Example Helpdesk Ticket

Create TDOT Incident

Submit IT related requests to the TDOT IT division.

Use this service to submit IT related requests to the TDOT IT division.

* Please provide the user's account name and/or RACF ID.

JJ12345

* Please provide a contact phone number.

123-456-7890

* Please select the region associated with this request.

Region 3

* Please provide the location associated with this request.

R3 TMC, 6603 Centennial Blvd., Nashville TN. 37209

* Please select the type of service being requested.

Software

* Please provide the application name(s) associated with this request.

SWCS

* Please select the type of action that is needed.

Other

* Please provide any additional comments needed to fulfill this request.

Please forward to Region 3 TMC IT; multiple SWCS subsystems show as failed.

Submit

Add attachments

ServiceNow/Helpdesk desktop icon > Login screen > ticket creation page

6 Systems/Software

6.1 Cameleon

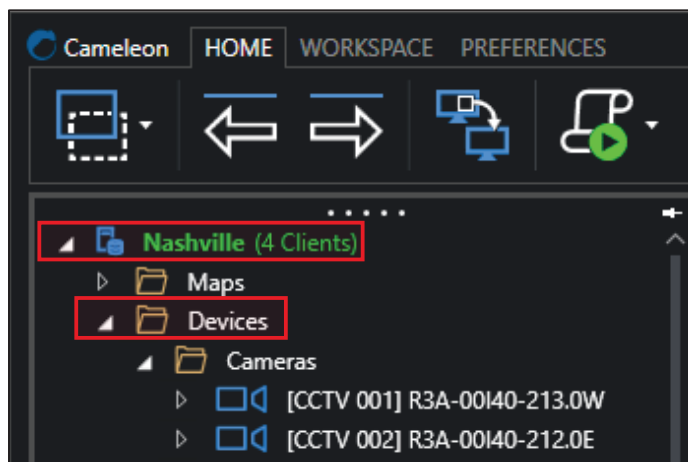
Cameleon is a software that should be installed at every TMC workstation. In the event SWCS is offline, Cameleon is intended to be used as a backup software for CCTV camera viewing and control.

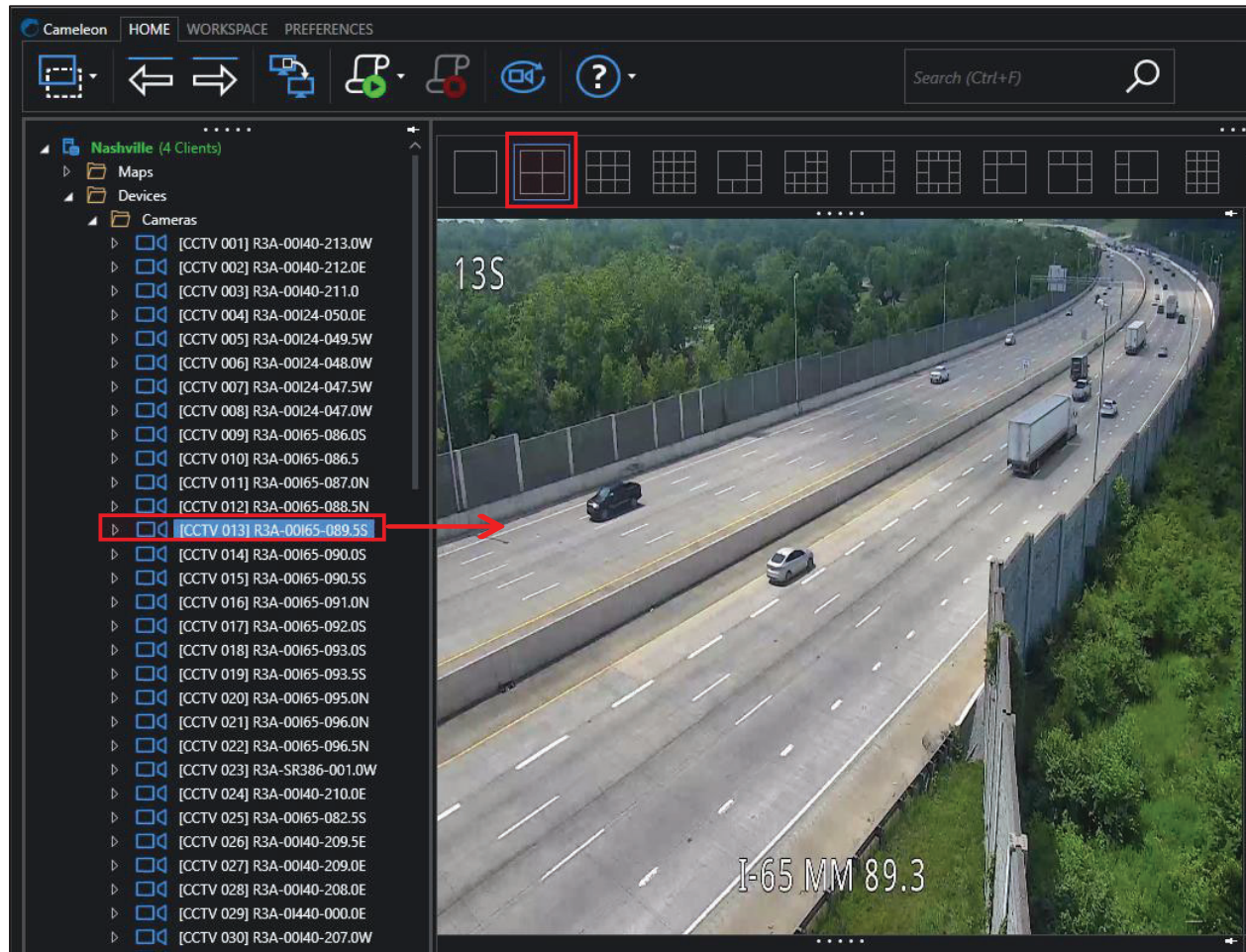
For login credentials, consult with the Regional IT Department.



Cameleon login page

All CCTV cameras in the Region should be accessible in the “Devices” folder. From there the cameras can be dragged and dropped into a chosen display template.





Cameleon homepage > click a grid display > city selection > Devices > click, hold, and drag device

6.2 Drivewyze

Drivewyze is a tool TDOT utilizes with the purpose of prewarning and notifying CMV (Commercial Motor Vehicle) drivers of approaching incidents or congestion. For major roadway projects, messages can be sent to CMV drivers with specific detour information and timeframes. The messages are sent to the in-cab vehicle displays of CMV drivers that are subscribed to Drivewyze services.

Drivewyze services are divided into three main categories: Congestion Alerts, Emergency Alerts, and Planned Alerts. Data dashboards can also be accessed by TMC Management for tracking purposes related to these alerts.

Congestion Alerts

These alerts are automatic and sent to Drivewyze subscribers when they enter a three-mile radius of traffic congestion on predetermined controlled-access roadways in each Region. The traffic congestion data is provided by the analytics company INRIX.

No effort from TMC staff is required for these alerts to be sent.

Congestion Alert Example



Source: Drivewyze

Emergency Alerts

These alerts are designed to be sent to warn CMV drivers of sudden lane-blocking events that are expected to last longer than 3 hours. TMC staff will need to identify the coordinates of the incident's location and notify Drivewyze of the incident details over the phone through a 24/7 hotline. The Drivewyze call taker will activate alerts for that area and TMC staff will call the phone number back when the incident has cleared.

Procedure for Emergency Alerts

1. Determine that the incident will likely last longer than 3 hours.
2. Call 1-888-285-1040 at any time to reach a Drivewyze employee and relay the incident location (coordinates), estimated clearance time, which lanes are blocked, and a brief description of the emergency itself (e.g., overturned tractor trailer).
3. Call 1-888-285-1040 to cancel the alerts when the incident has cleared.

The Drivewyze employee will formulate an appropriate message based on the information provided unless the TMC Shift Supervisor has a specific wording desired for the alert messages.

For more detailed instructions, consult TMC Management about a Drivewyze Process Guide provided by the TDOT Traffic Operations Division.

Planned Alerts

These alerts utilize predetermined Virtual Sign Network (VSN) locations selected by TMC Management in each Region. Planned alerts are designed to be sent to warn CMV drivers of major and long-term roadway projects with lane blockage. A primary goal of these messages is to provide detour instructions and overall prewarning for events that will impact CMV routes (e.g., severe storm damage and bridge closures).

Planned Alerts may also be utilized to display special awareness events or safety campaigns (e.g., festivals, sporting events, weather-related messages, or safety messages).

TMC Management is responsible for coordinating these alerts unless delegated to another TMC employee.

Procedure for Emergency Alerts

1. Determine that there is a need to display an alert for a campaign or a major project lasting days, weeks, or months that CMV drivers should be aware of.
2. Input the event information into the provided "TDOT – Virtual Signs Data" Excel spreadsheet at least 48 hours before the event begins, if possible.

- Email the updated Excel sheet to cmvalerts@drivewyze.com.

For more in-depth steps, consult the provided Drivewyze Process Guide document.

Data Dashboards

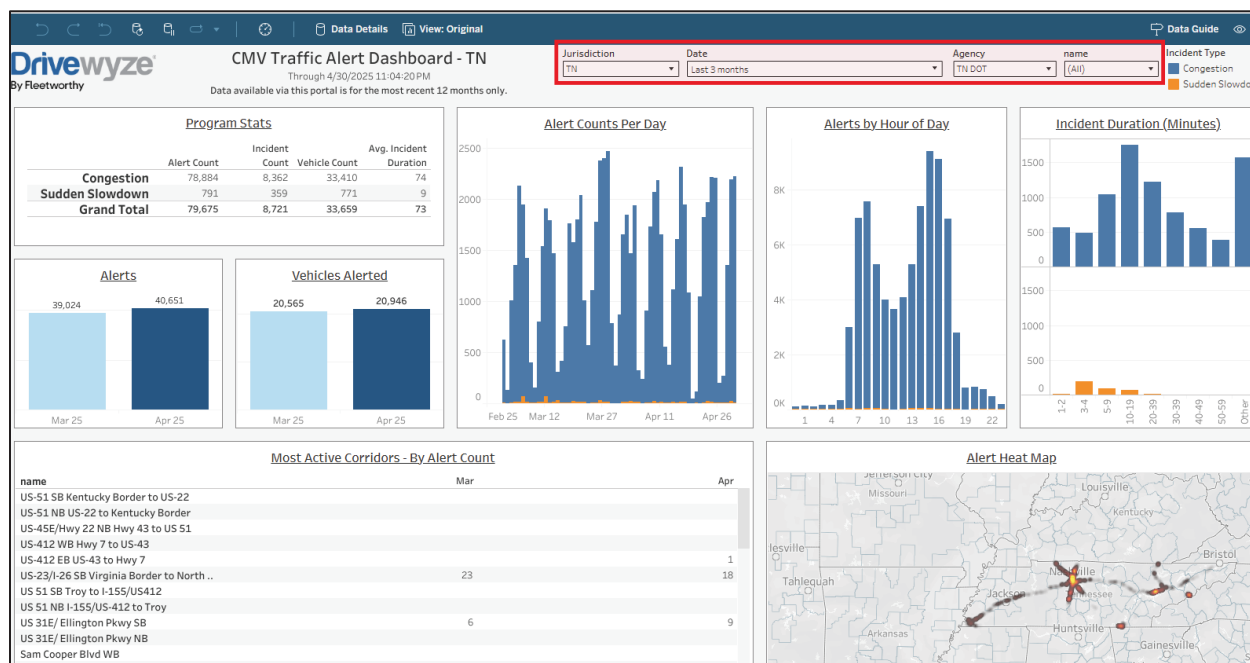
A total of six logins can exist for users to access the Drivewyze data dashboards. Each Traffic Operations Manager and two TDOT Traffic Operations Division employees should have login information.

For login credentials, consult a TDOT Traffic Operations Division employee.

There are two Drivewyze links that can be utilized to retrieve alert data.

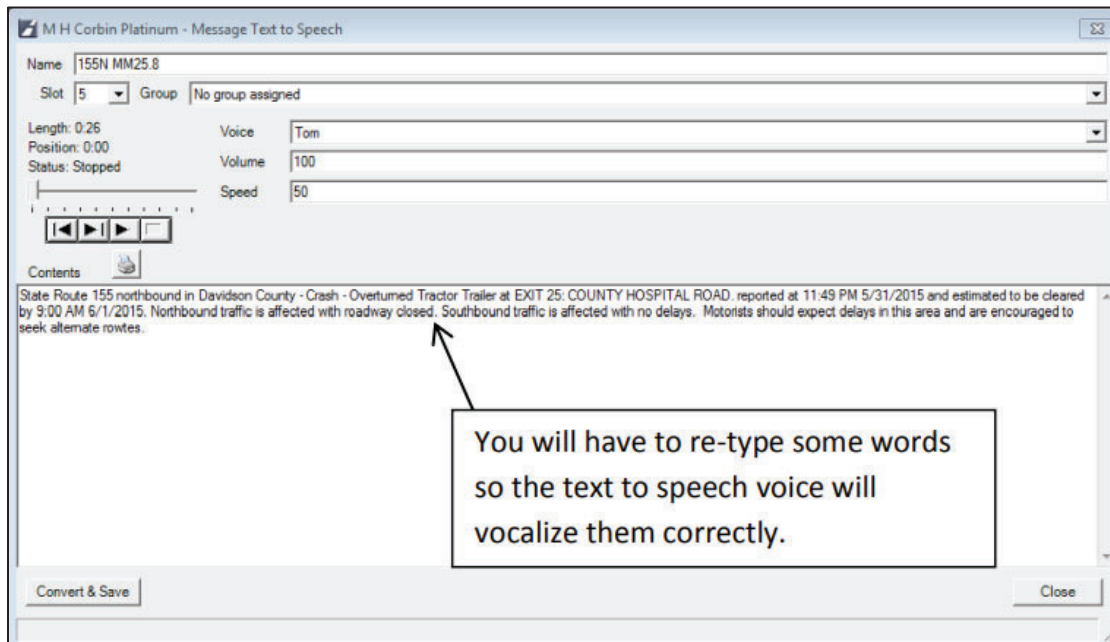
- [VSN Dashboard](#): This link will display data retrieved from Planned Events that were created and utilized through VSN locations.
- [Traffic Alert Dashboard](#): This link will display data retrieved from Congestion Alerts when congestion is detected within three miles of subscribed CMVs.

Data in each dashboard can be filtered to achieve the desired results.



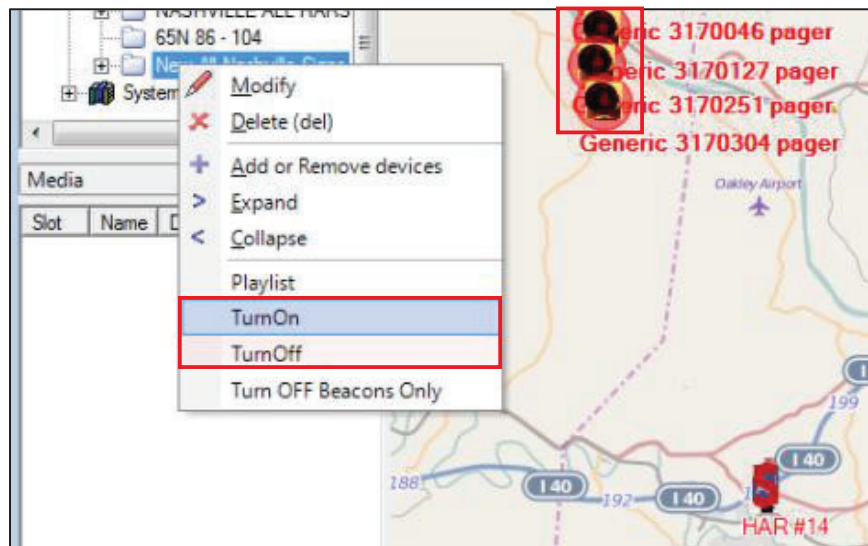
Traffic Alert Dashboard homepage

New messages will need to be created in the software to accurately and concisely reflect the current incident information or public service announcement (PSA) they will be broadcasting. The message can be audibly replayed before activation until the desired message is achieved.



Platinum message creation page

After the message is created, transmitter icons on the map need to be right clicked and the message playlist can be added to the transmitter. Fixed flashing beacon icons can be right clicked on the map and activated or deactivated.



Platinum homepage

6.4 PMIC

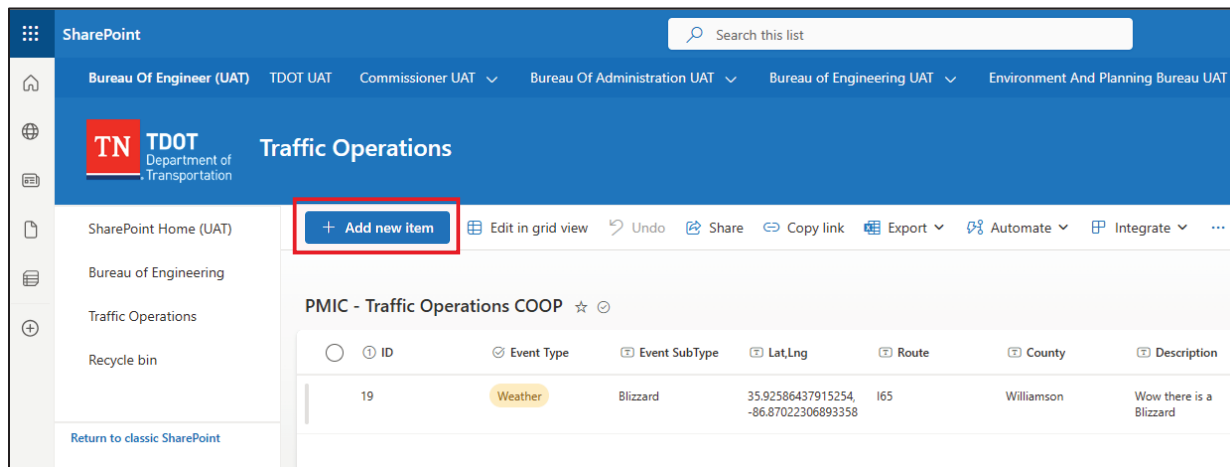
The Process for Managing Incidents in Contingencies (PMIC) is designed to be a backup method for event creation for TMC staff in the event of SWCS being unavailable. Event details usually entered into the SWCS Event List would instead be entered into PMIC.

The events created within PMIC will appear on the SmartWay Traffic Map, viewable to the public. Therefore, PMIC entries should be lane-blocking and traffic disrupting incidents. TMC staff should not utilize PMIC for event types that do not need to be displayed to the public (e.g., abandoned vehicles or motorists on the right shoulder).

PMIC is housed within a [TDOT SharePoint](#). Typically, TMC Management and TMC Shift Supervisors will have credentials and access to the PMIC SharePoint.

For PMIC access requests, contact a member of the TDOT Headquarters Traffic Operations Division. For SharePoint configuration questions, consult with the Region IT Department.

Once logged in, the “Add new item” button can be clicked to add a new event.



PMIC TDOT SharePoint

The information input on the “New item” page is freeform and should be thoroughly rechecked for accuracy before message activation.

- **Title** – This title is for internal viewing and will not be publicly displayed
- **Event Type** – Select Incident, Construction, Weather, or Special Event
- **Event SubType** – This will be the title displayed to the public
- **Lat,Lng** – Exact latitude and longitude of the event location and will determine the icon location on the SmartWay Map
- **Note:** Right clicking the desired location on Google Maps can provide coordinates
- **Route** – The interstate or state route the event is on

- **County** – The county the event is in
- **Description** – The freeform description that dictates the message that will be displayed to the public
- **Begin Date** – The desired date and time for the icon and message to go live and be viewable to the public
Note: Dates are listed in Central Time and will need to be adjusted for any event locations located in Eastern Time
- **End Date** – If applicable, the estimated event end date and time
- **Active** – Clicking “Yes” will confirm activation and publication of the event
- **Add attachments** – If applicable, add any additional screenshots or relevant files to attach for internal viewing
- **Save** – Click this when all information has been confirmed to be correct

New PMIC Event Example

New item

Title

TEST Event: I-40 Emergency Roadwork

Event Type *

Construction

Event SubType *

Emergency Roadwork

Lat,Lng *

36.141490, -86.671117

Route *

I-40

County *

Davidson

Description *

Interstate 40 Eastbound in Davidson County, Mile Marker 216.2 - 217.2, Emergency Roadwork 2 Right Lanes (of 4) Blocked.

Begin Date *

6/3/2025 09:00 AM

End Date

6/3/2025 10:00 AM

Active

☒ Yes

Attachments

Add attachments

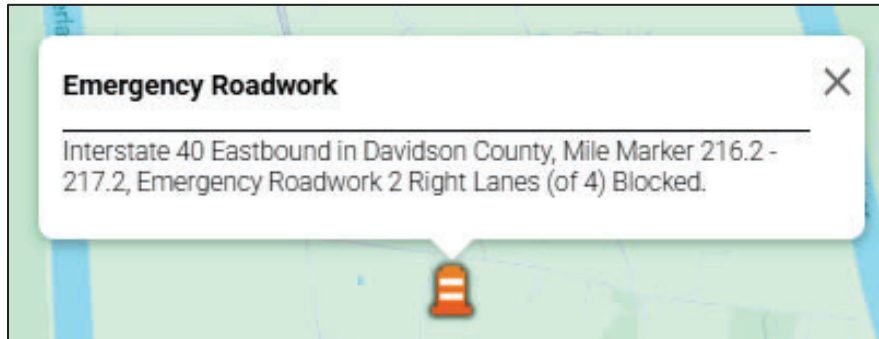
Save

Cancel

PMIC TDOT SharePoint > add new item

Within 10 minutes after the set activation time, the icon and message will be displayed to the SmartWay Traffic Map for the public to view.

PMIC-Created SmartWay Message Example



SmartWay Traffic Map > hover over icon

The events can be edited and managed at any time on the PMIC SharePoint homepage. Events will need to be monitored and updates (e.g., lane blockage changes, location changes, early clearances) will need to be applied as soon as possible to prevent displaying inaccurate information to the public.

+ Add new item Edit Edit in grid view Undo Share Copy link Comment Delete Automate							
PMIC - Traffic Operations COOP							
ID	Event Type	Event SubType	Lat,Lng	Route	County	Description	
100000019	Construction	Emergency Roadwork	36.141490, -86.671117	I-40	Davidson	Interstate 40 Eastbound in Davidson County, Mile Marker 216.2 - 217.2, Emergency Roadwork 2 Right Lanes (of 4) Blocked.	

PMIC TDOT SharePoint

The event icons can be removed from the SmartWay Map by unchecking the “Active” checkbox in the “Edit” menu or by deleting the event with the “Delete” button.

Active

☒ Yes

Attachments

Add attachments

Save

Cancel

PMIC TDOT SharePoint > edit item

6.5 Power BI

TDOT's [Power BI](#) is used primarily as a tool to review performance metrics and to search for past SWCS Event reports and chronologies. All TMC employees should be able to log into the website with their TDOT email addresses and passwords.

For login credentials, consult with the Regional IT Department.

The Ad Hoc Reports page is a commonly used tab for locating specific SWCS events.

File

Share

Export

Get insights

Subscribe to report

TDOT-All Regions TMC Reports

TDOT-All Region Analyses

Executive Summary

Daily Report - Regional Br...

Ad Hoc Reports

HELP Track Analysis

TDOT Full Closure Analysis

Dictionary

Tutorial

Executive Summary

5/19/25
Last Updated

TN
TDOT
Department of
Transportation

1/1/202412/31/2024

Region
All

Goal - To give a high-level view of the following:
Roadway Clearance Time - First recordable awareness to all lanes cleared.
Incident Clearance Time - First recordable awareness to last departure time.
Lane Blockage Time - First lanes blocked to last lanes cleared excluding time when all travel lanes were open.

HELP On Scene - Lane Blocking Only

HELP On Scene	Not On Scene	On Scene		Total/Avg.	
Total Incidents	Avg. Roadway Clearance Time (Min)	Avg. Incident Clearance Time (Min)	Total Incidents	Avg. Roadway Clearance Time (Min)	Total Incidents
Region 1	270.1	286.6	1722	28.7	126.9
Region 2	99.3	137.0	1776	24.3	96.3
Region 3	47.9	71.9	2250	26.8	135.6
Region 4	56.1	137.3	1038	22.5	110.3
Total/Avg.	119.1	153.4	6786	25.3	120.8

Total Incidents - HELP Response

16,228

HELP Response, Lane Blocking only

Total Incidents - No HELP Response

6,786

No HELP Response, Lane Blocking only

Total Incident Management Events

110,719

Avg. Roadway Clearance Time (Min) - HELP Response

25.3

HELP Response, Lane Blocking only

Avg. Roadway Clearance Time (Min) - No HELP Response

119.1

No HELP Response, Lane Blocking only

Percent of Incidents Under 90 Minutes

95.3%

Lane Blocking only, with HELP Response

Homepage > Executive Summary tab

TDOT-All Regions TMC Reports
TDOT All Region Analysis
Executive Summary
Daily Report - Regional Br...
Ad Hoc Reports
HELP Truck Analysis
TDOT Full Closure Analysis
Dictionary
Tutorial

Homepage > Ad Hoc Reports tab

Various filters can be applied to narrow down the search for a specific SWCS event. Date range, Region, and Traffic Event ID can be input on the Ad Hoc Reports page. The “Filters” button can be selected to further specify the details of the event being sought.

Filters

Ad Hoc Reports

Date

5/1/2025

5/2/2025

Region

Region 2

v

License Plate #

Search

q

Search by Traffic Event ID

Search

q

Traffic Type	Total Traffic Events	Total Traffic Events Under 90 Min. Lane Blockage Time	Total Traffic Events Over 90 Min. Lane Blockage Time	Percent Under 90 Min.	Total Traffic Events with HELP On Scene	Avg. Incident Clearance Time (Min)	Median Incident Clearance Time (Min)	Avg. Lane Blockage Time (Min)	Median Lane Blockage Time (Min)
MultiVehicle Crash	5	5		100.0%	3	115.1	46.1	9.6	6.0
Total/Average	5	5		100.0%	3	115.1	46.1	9.6	6.0

Ad Hoc Reports page

Filters

Ad Hoc Reports

Filter Pane

←

Incident Type

MultiVehicle Cr...

v

HELP Activity

All

v

County

All

v

Lane Blocking

Y

v

Crashes Only

Yes

v

Code 3 Response

All

v

Urban/Rural

All

v

Direction

Northbound

v

Status

All

v

Full Closures Only

All

v

Route

All

v

Attribute

All

v

Total Lane Blocking Minutes

0.0

813693.0

Ad Hoc Reports page > Filters button

The events containing the filtered information will populate at the bottom of the Ad Hoc Reports page. An event can then be right clicked, “drilled through,” and all event details can be viewed or exported.

5/2/2025 10:38:12 AM	5/2/2025 11:24:18 AM	198356 Region 2	MultiVehicle Crash	Interstate 75	1	Northbound	Hamilton County
5/2/2025 3:32:27 PM	5/2/2025 4:25:34 PM	198376 Region 2	MultiVehicle Crash	Copy	>	Northbound	Hamilton County
5/1/2025 1:50:33 PM	5/1/2025 9:02:00 PM	198287 Region 2	MultiVehicle Crash	Share	>	Northbound	Hamilton County
5/2/2025 6:05:36 PM	5/2/2025 6:34:23 PM	198390 Region 2	MultiVehicle Crash	Show as a table		Northbound	Hamilton County
5/2/2025 3:50:07 PM	5/2/2025 4:06:18 PM	198379 Region 2	MultiVehicle Crash	Include		Northbound	Hamilton County
				Exclude			
				Drill through	>	Drill Through Report	
				Clear selections			

Right click an event > Drill through > Drill Through Report

The event’s chronology is located at the bottom of the “Drill Through Report” page. The Export button is located near the top left of the page.

Export
Get insights
Subscribe to report

Drill Through Report

198356
Event ID

MultiVehicle Crash
Event Type

5/2/2025 10:38:12 AM
Start Date

Region 2
Region

Hamilton County
County

Closed
Status

Event Information

Status: Closed
Report Date: 5/2/2025 10:38:12 AM
Confirmation Date: 5/2/2025 10:38:12 AM
Last Status Date: 5/2/2025 11:24:18 AM
Event Type: MultiVehicle Crash
Region: Region 2
County: Hamilton County
Route: Interstate 75
Direction: Northbound
MM: 1
Duration (Min): 46.1
Lane Blocking: True
Max Travel Lanes Blocked: 1
Notifying Contact Agency: TMC Operator
Secondary Occurred: False
Hazmat: False
Rollover: False
Fire: False
Has DMS: False
THP IncidentNO: N/A
Roadway Type: Urban
Conditions: Dry, Clear, Daylight

Blockage Pattern

Date	Blockage	Interval (Min)	Duration (Min)
5/2/2025 11:24:10 AM	No Lanes Blocked.	44	0
5/2/2025 11:14:13 AM	Right Lane (of 5 Lanes) Blocked, Right Shoulder Blocked.	35	0
5/2/2025 10:38:21 AM	Right Shoulder Blocked.	0	0

HELP Truck

Date	Vehicle ID	Driver	Activity
------	------------	--------	----------

Involved Vehicles

Type	Make	Model	Tag	State	Color
------	------	-------	-----	-------	-------

Agency Response

Date	Agency
5/2/2025 10:57:17 AM	Chattanooga Police
5/2/2025 11:14:04 AM	Rollback Tow

Chronology

Date	Type	Description	Created By
5/2/2025 10:38:12 AM	ATIS SEVERITY	minor	Brad Scroggins
5/2/2025 10:38:12 AM	EVENT TYPE	MultiVehicle Crash	Brad Scroggins
5/2/2025 10:38:12 AM	LOCATION	HAMILTON on Interstate 75 Northbound, Before MILE MARKER 1	Brad Scroggins
5/2/2025 10:38:12 AM	OWNER	JJ09542	Brad Scroggins
5/2/2025 10:38:12 AM	STATUS	Active	Brad Scroggins
5/2/2025 10:38:21 AM	BLOCKAGE	Right Shoulder Blocked.	Brad Scroggins

File
Share
Export
Get insights

Analyze in Excel
PowerPoint
PDF
Event ID

Drill Through Report page

6.6 SmartWay

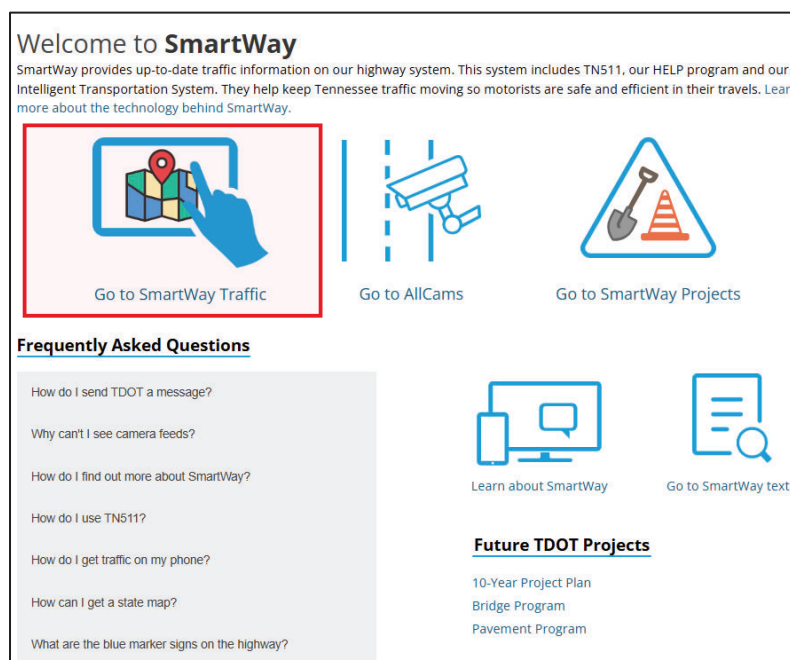
TDOT's [SmartWay website](http://smartway.tn.gov) (smartway.tn.gov) provides traffic information accessible to the public. Some of the provided information includes live CCTV camera feeds, DMS messages, construction project details, active incident details, traffic congestion and Tennessee 511 incorporation.

When a lane blocking event is input within SWCS and a 511 is activated in the Response Plan, the location and details of that incident will populate on the SmartWay Traffic Map within 5-10 minutes. All DMS messages posted by TMC staff will be displayed on SmartWay. All CCTV views and movements controlled by TMC staff will also be viewable on the SmartWay website. This type of transparency highlights the importance of accurate event details and Sensitive Video Images guideline adherence mentioned in [Section 7.2.2](#) of this document.

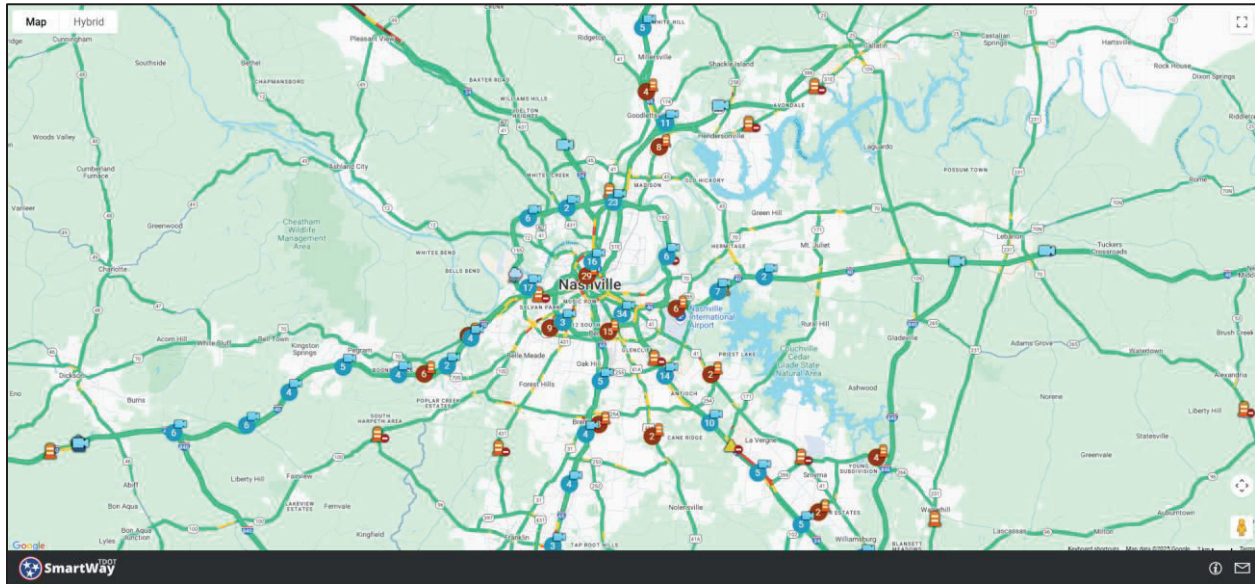
During active incidents, the SmartWay Traffic Map should be periodically checked by TMC staff for accurate details and information being displayed. For example, the icon information, location, and the DMS that are displayed should make sense to the public that are utilizing the website.

The SmartWay Traffic Map should also be used by TMC staff to monitor for mystery traffic queues in abnormal locations. This is done by looking for red lines along the roadway which indicate severe traffic slowdowns. If there is a red line on the map in an area that is usually green during certain time periods, there is likely something obstructing traffic in the area. THP or the local Police Department (PD) can be called for further details if the TMC has not already been made aware of what the disruption is.

One of the most useful tools utilized on the website is the SmartWay Traffic Map. This map is accessible via desktop and mobile phones.

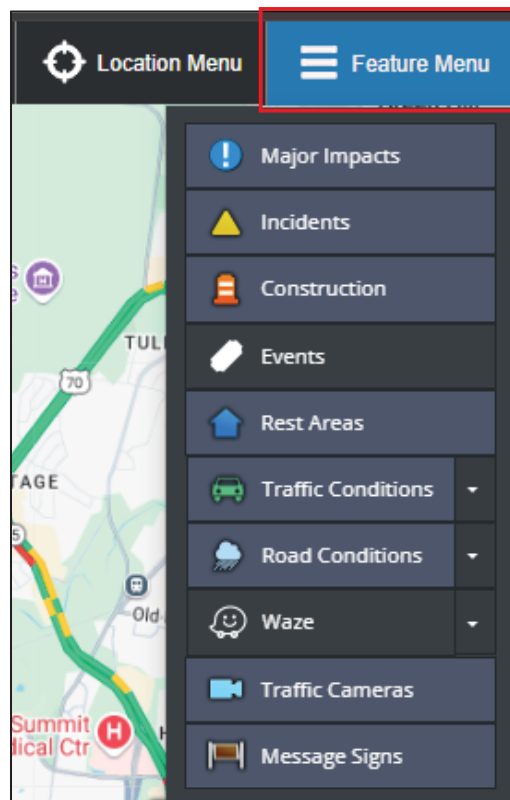


SmartWay homepage (desktop)



SmartWay Traffic Map (desktop)

Icon logos on the map can be filtered to the user's desired search preferences.



SmartWay Traffic Map (desktop) > Feature Menu tab

Below is an example of a 511 item in a SWCS event Response Plan being activated and populated to the SmartWay Traffic Map.

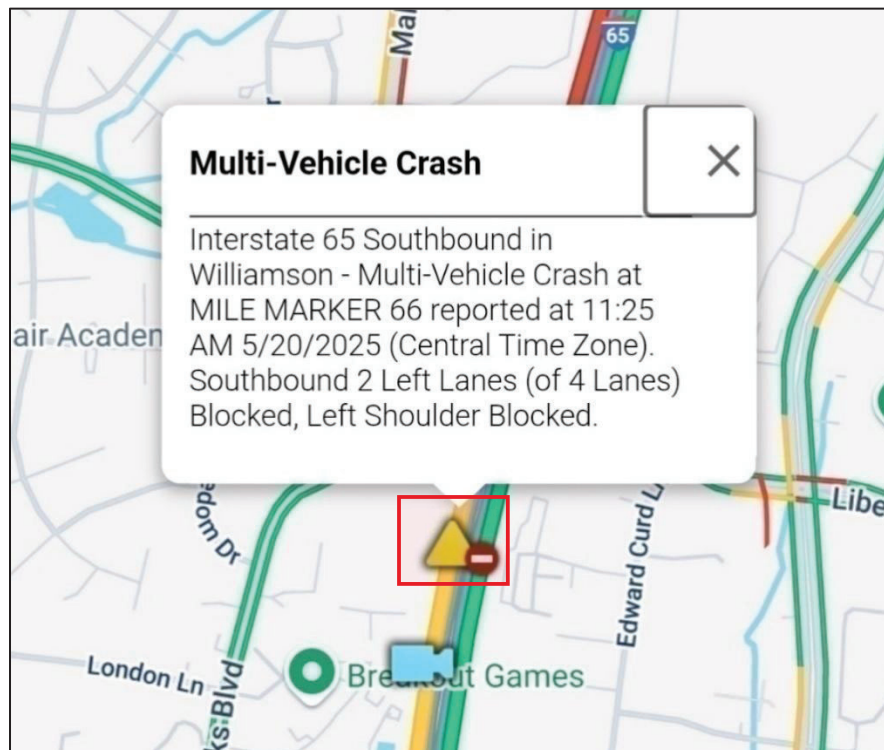
Response Plan: Event 417335 - Region 3 Production

Activate Plan Terminate Plan Add Item Edit Item Remove Item Find Devices on Map View Associated Camera Edit Activation Delay Accept Load Predefined Save As Predefined Get New Suggestion DMS Dist: 5 LCS Dist: 10 LCS Initial Dist: 1

Current Plan Suggestions

Device Details	Roadway/Direction	Mile Marker	Activation Action	Response Plan Message Details
511 ATIS			Publish	Multi-vehicle crash in WILLIAMSON county going Southbound on Interstate 65 before MILE MARKER 66 with 2 Left lanes blocked Last updated 5/20/2025 11:57:30 AM

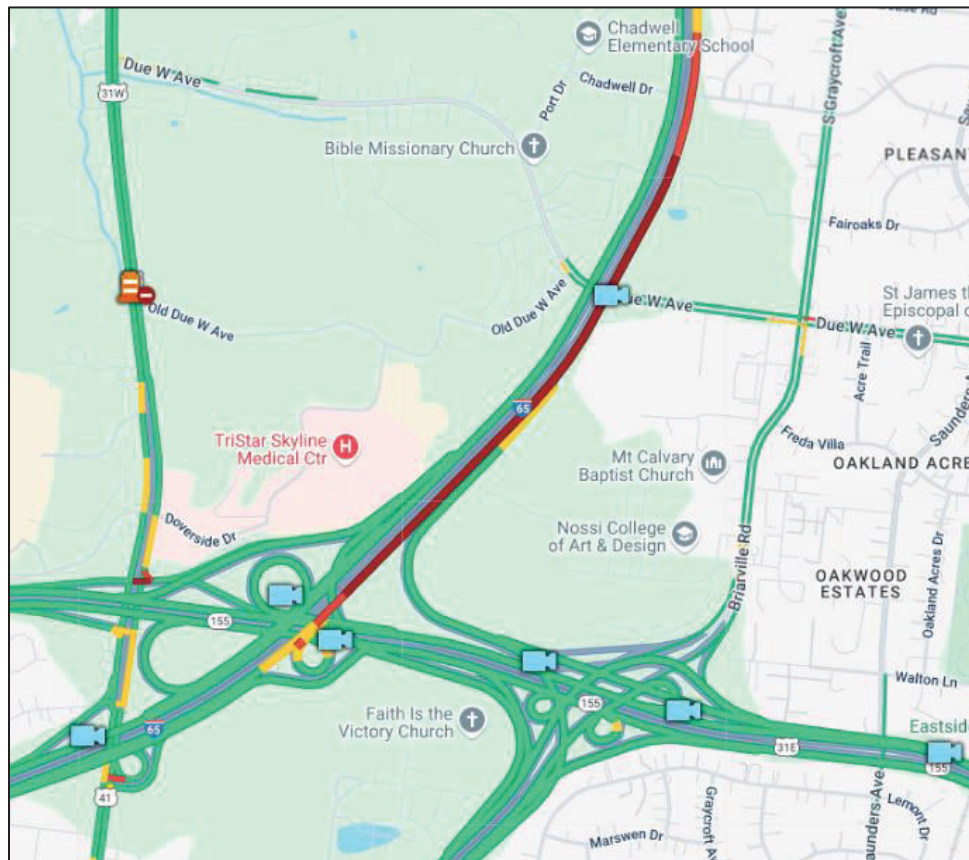
SWCS Event List > click an event > Save and Suggest Response Plan



SmartWay Traffic Map > click Incident icon

Below is an example of a stretch of roadway experiencing severe congestion. This congestion is during a time period that is usually free flow traffic speeds in this area. There is no construction nor incident icon indicating a reason for this congestion. This indicates to the public that TDOT does not know what is causing this traffic jam.

TMC staff should then investigate by contacting THP or local PD for possible information. A HELP Operator can also be dispatched to “be on the lookout” (BOLO) or survey the area. If the location is outside of a HELP Operator’s designated route, consult HELP Management.



SmartWay Traffic Map

6.7 SmartZone

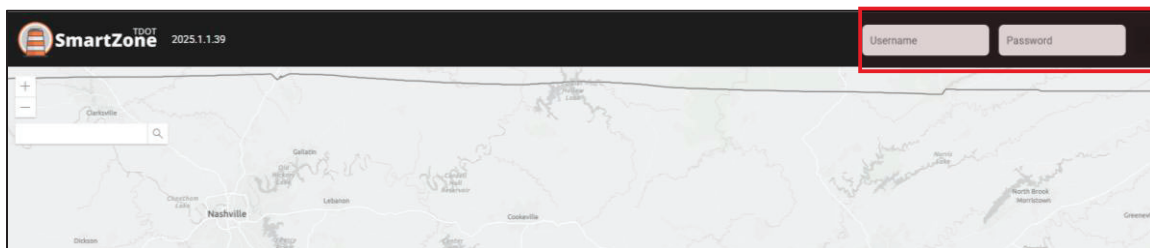
[SmartZone](http://smartzone.its.tn.gov) (smartzone.its.tn.gov) is a web-based application designed for internal use by TDOT staff to input lane closure, inclement weather, and special event information that will be displayed to the public SmartWay Traffic Map. TDOT Maintenance and Construction staff are the primary users of this software.

Within the application it is possible to view CCTV camera feeds, DMS messages, and rest stop information on the interactive map, depending on the user's permissions. The event types that can be entered are traffic incidents (yellow triangle icon), construction projects (construction barrel icon), weather incidents (cloud icon), special events (ticket icon), and rest stop information (blue house icon).

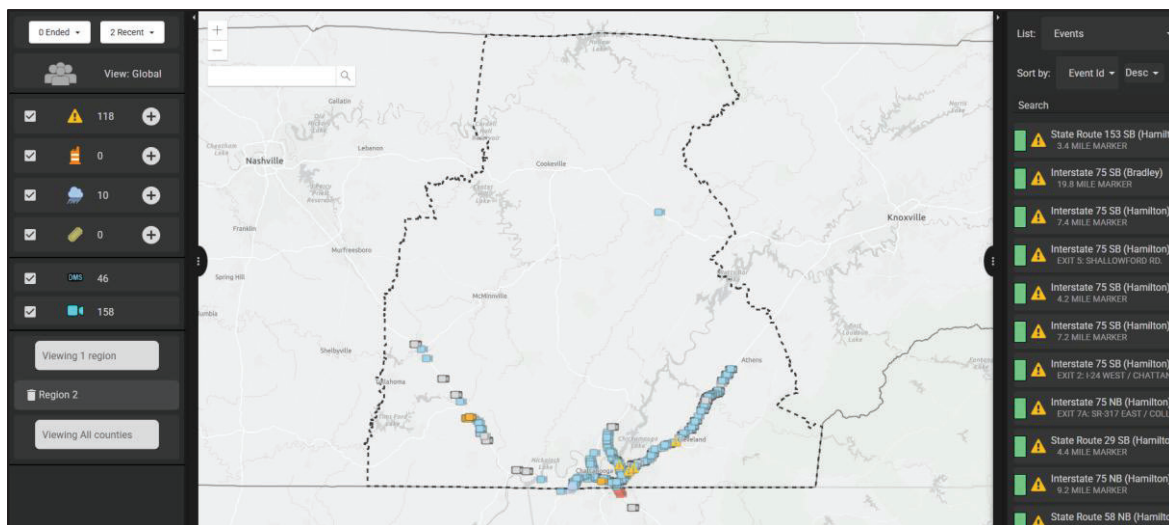
SmartZone and the SWCS software exist on the same database. If the SWCS software is down for any reason, SmartZone will be down as well.

SmartZone is the replacement for the Statewide Information for Travelers (SWIFT) application. Entries will also populate to SWCS and can be viewed via the Operator Map and Events List.

For login credentials or software issues, consult with the Regional IT Department.

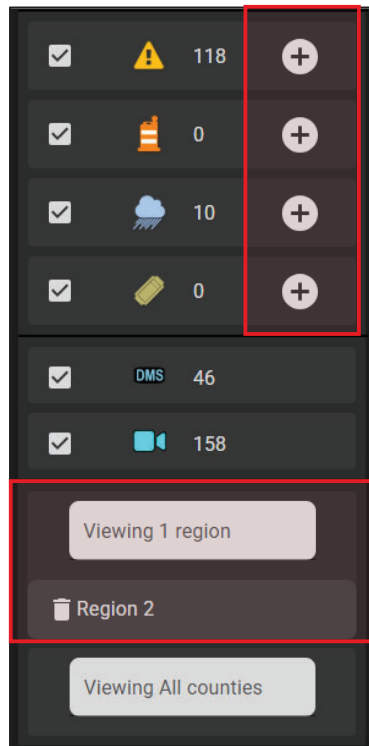


SmartZone login page



SmartZone homepage

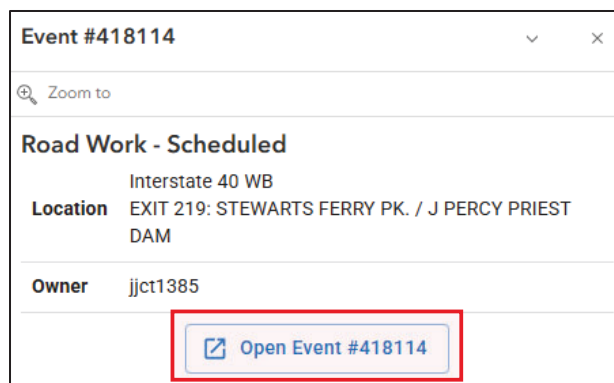
The permissions given to each user will dictate which icons and Regions the user will have access to view and edit. If an icon (event type) or a Region is missing that a user requires, a Helpdesk ticket must be submitted requesting access.



SmartZone Map left side panel

When an event entry is activated, it will be announced on the Tennessee 511 phone system and displayed on the SmartWay Traffic Map by default unless selected otherwise.

Every entry should be monitored closely and closed out by the appropriate Department that activated the event and is aware of any roadway changes made within the event. Any user with proper permissions can edit and close any event created by a different user by clicking the “Open Event #” button on any active event.



SmartZone Map > click icon of an existing event

All event details can be entered and adjusted within the event details page.

Create Operations Event

Select a Center/Region

Regions: Region 3

Event Details

Event Owner: Dennis.Alexxande

Event Type:

Event Status:

Notifying Agency:

Notifying Conta...

Event Attributes

Add attribute...

Contract ID

Contract ID value

Unit ID

Unit ID value

Location

☐ Wide Area?

County:

Road:

Direction:

Location:

Additional Comments

Type: Public

SmartZone homepage > Construction Barrel icon > plus sign icon 

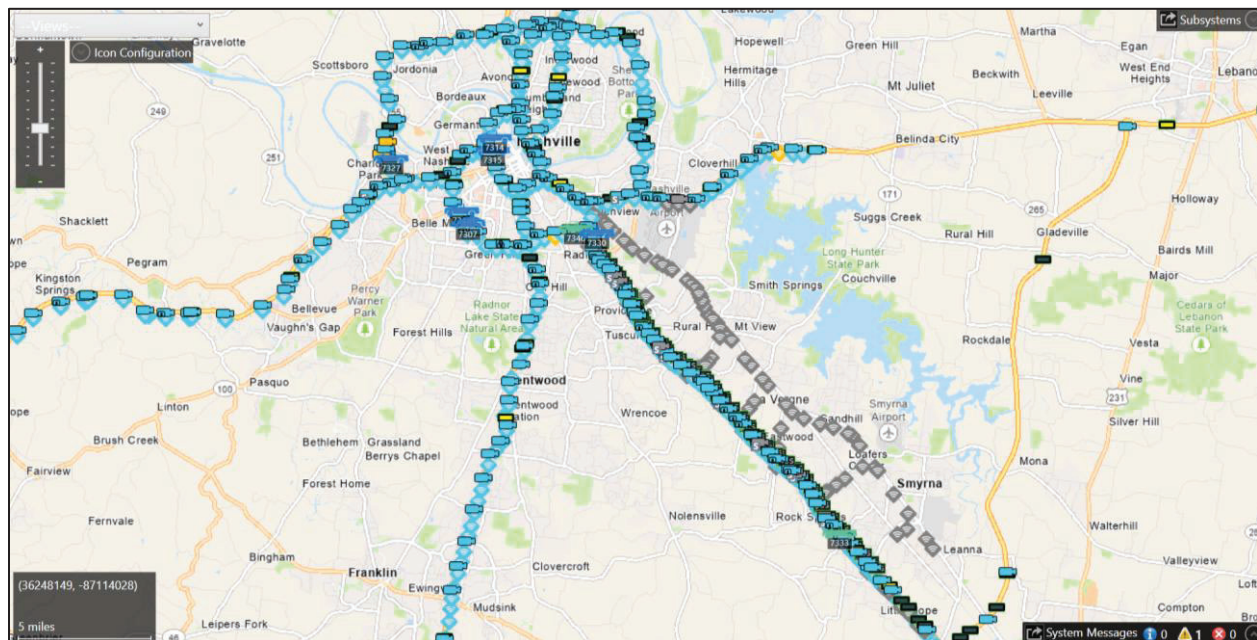
6.8 SWCS

SmartWay Central Software (SWCS) is a software developed the Southwest Research Institute (SwRI) designed as a hub and control point for TDOT devices. This software is the primary tool TMC staff utilizes for incident and device management. Devices tracked or controlled within SWCS include, but are not limited to, CCTV cameras, RDS, DMS, LCS, HAR, and HELP unit Global Positioning System (GPS) locations. Various alert systems are also integrated within SWCS that are further detailed in [Section 7](#) of this document.

TMC staff will utilize SWCS for entering information regarding traffic events, HELP Operator response, construction projects, device monitoring, and several other tasks. Data input into SWCS is stored and retrievable for a set timeframe per TDOT's data retention policy.

For login credentials or software issues, consult with the Regional IT Department.

For more detailed information on SWCS usage, refer to the SWCS User Manual and other sections of this document. The SWCS User Manual can be found by right clicking on the SWCS Operator Map and clicking the "Help" button in the dropdown menu.



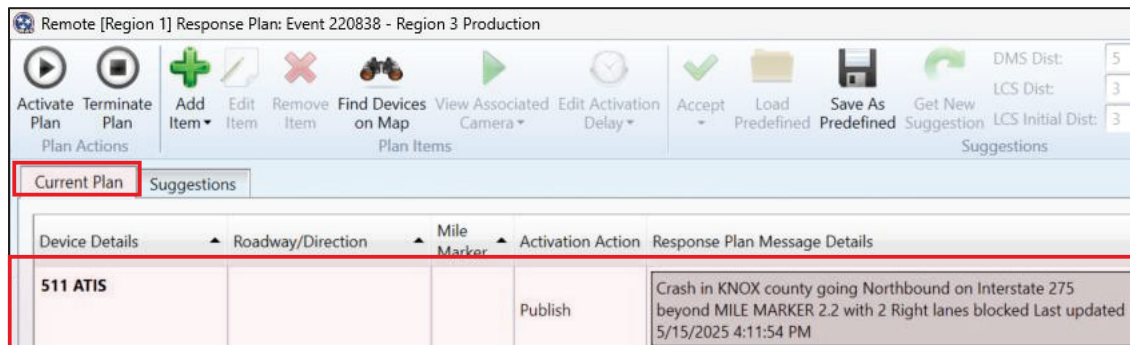
SWCS Operator Map v2025.2.0

6.9 Tennessee 511

The [Tennessee 511](#) is a phone system designed to provide motorists real-time information on TDOT roadway incidents and conditions (e.g., crashes, construction projects, and inclement weather).

To access the information over the phone, callers need to dial 511 from a cellphone or landline when inside the state of Tennessee. If outside of the state, callers need to dial 877-244-0065. The automated, voice-activated system will then be able to inform the caller of current roadway incidents, weather forecasts, constructions zones and other relevant motorist information.

One way 511 receives its incident information is through the TMC. When a 511 plan is activated in a SWCS event Response Plan, this creates a notification in the 511 phone systems and will provide callers with the incident details until the event Response Plan is deactivated. If incident details change (e.g., a change in which lanes are blocked) then the 511 in the event Response Plan should be updated to relay accurate information to callers.



SWCS > Event List > click an event > Save and Suggest Response Plan > ensure 511 is in Current Plan tab

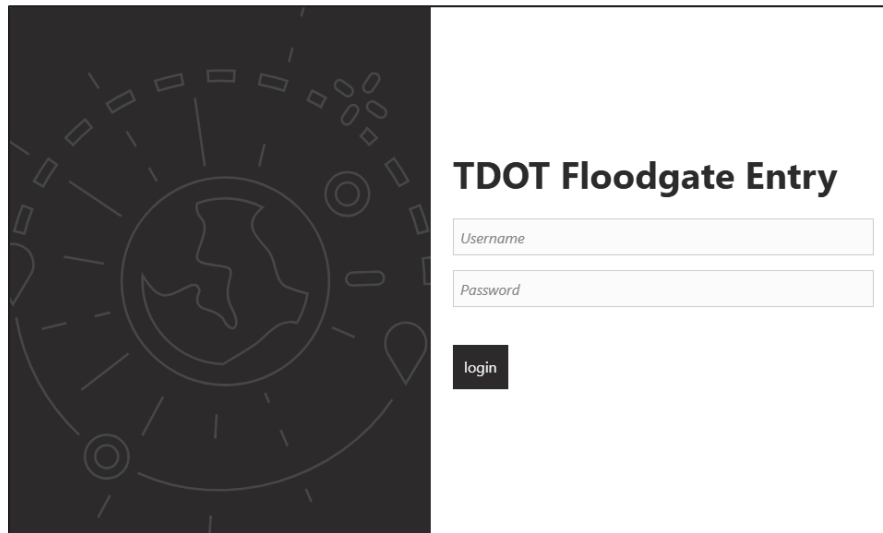
More information about 511 can be found at tn.gov/tdot/welcome-to-tennessee-511.

6.9.1 511 Floodgate

The [TDOT 511 Floodgate](https://cms-tn.carsprogram.org/floodgates) entry website (cms-tn.carsprogram.org/floodgates) is designed to prioritize major incidents. When incident details are entered as a 511 Floodgate message, the information of that incident will be relayed to 511 callers first before all other messages.

511 Floodgate messages should be created when at least half of the roadway is blocked and the incident will last 3 hours or more.

Typically, TMC Management and TMC Shift Supervisors will have credentials and access to the 511 Floodgate website.



TDOT Floodgate Entry

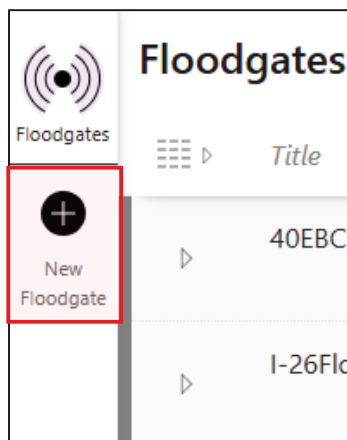
Username

Password

login

511 Floodgate login page

After logging in, all active 511 Floodgate messages will be displayed on the page. To create a new message, click the “New Floodgate” button on the left side panel.



511 Floodgate homepage

The title is for internal reference and will not be displayed or announced to the public. The contents of the voice message can be added in the large box below the title. In order to have the voice message sound more natural, spaces and commas should be strategically placed within the message (e.g., typing “2_14” instead of “214” causing the automated voice to say the mile marker number in a more common way: “two fourteen” instead of “two hundred and fourteen”).

511 Floodgate Message Example

New Floodgate

DRAFT

Title

I-40 Flooding/Road Closed

A traffic alert has been issued for I-40 westbound in Davidson County. All lanes are closed at mile marker 2 14 due to storm impact.

For detour, use state route 1 55.

Motorists should expect delays, use caution, and be prepared to stop through this area.

511 Floodgate homepage > New Floodgate

The “Preview Phone Audio” bottom in the bottom left of the page can be clicked to hear how the message will sound to the public on the 511 phone system. Alter the message until the desired wording is achieved in the audio preview before activation.

Preview Phone Audio

Set the expected date and duration of the incident. This can be edited later.

Starts:

immediately

tomorrow

next week

next month

Start Date

05/21/2025

Start Time

10:30 AM

Duration:

indefinitely

30 min

1 hour

1 day

1 week

End Date

05/21/2025

End time

07:00 PM

The 511 Floodgate message can then be saved as a draft for later use or created and sent to be a priority message announced to the public in the 511 phone system.

cancel

save as draft

create

511 Floodgate messages can be edited at any time on the homepage using the edit icon.

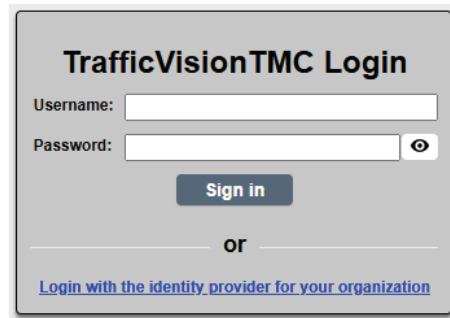
6.10 TrafficVision Video Analytics

The video analytics [website by TrafficVision](https://tn.trafficvision.com) (tn.trafficvision.com) is a tool that detects stopped or slowed objects in the roadway by utilizing TDOT's CCTV camera footage.

The website should be constantly monitored for traffic-disrupting alerts during every TMC shift. Alerts displayed by the website should be inspected and closed out properly. TMC staff should determine if the alert requires a response from the TMC and should be responded to appropriately (e.g., enter a SWCS event, dispatch HELP, or notify THP).

For login credentials, consult TMC Management. Any additional issues with the website should be entered into a Helpdesk ticket and submitted to the Regional IT Department.

More in depth training documents and best practices can be found on TrafficVision's [documentation webpage](https://docs.trafficvisions.com/v3) (docs.trafficvisions.com/v3).



TrafficVisionTMC Login

Username:

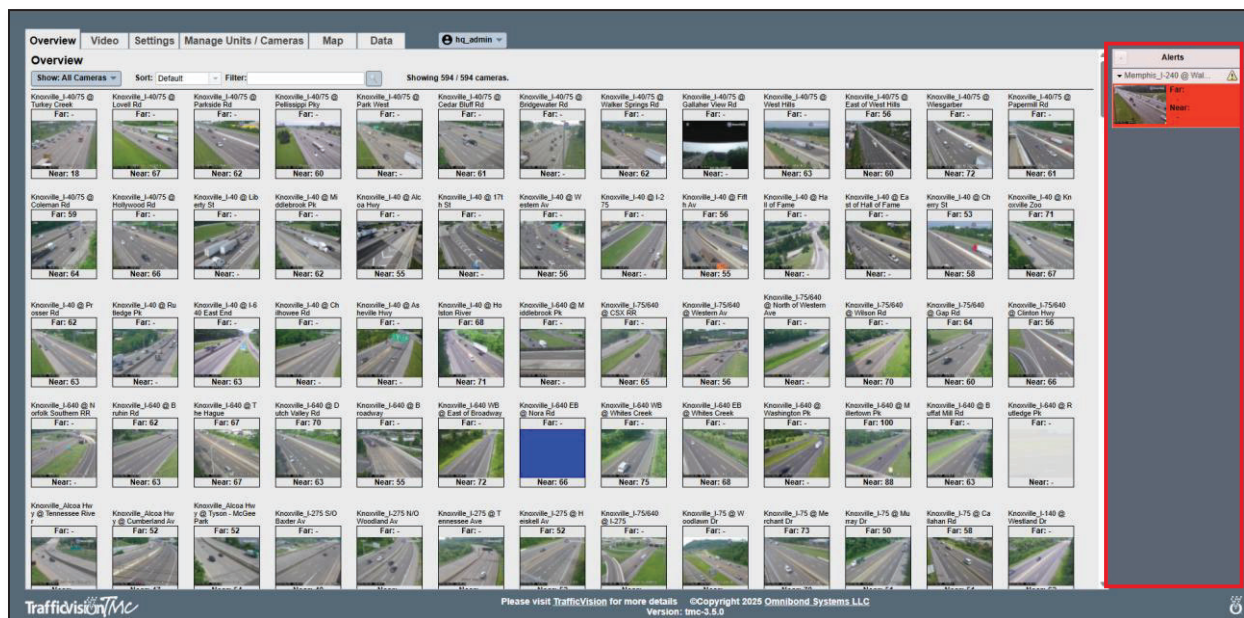
Password: 

Sign in

or

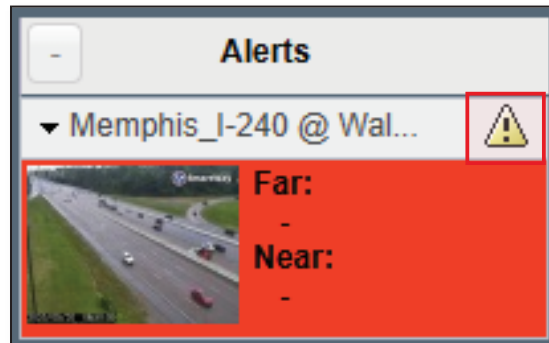
[Login with the identity provider for your organization](#)

TrafficVision login page



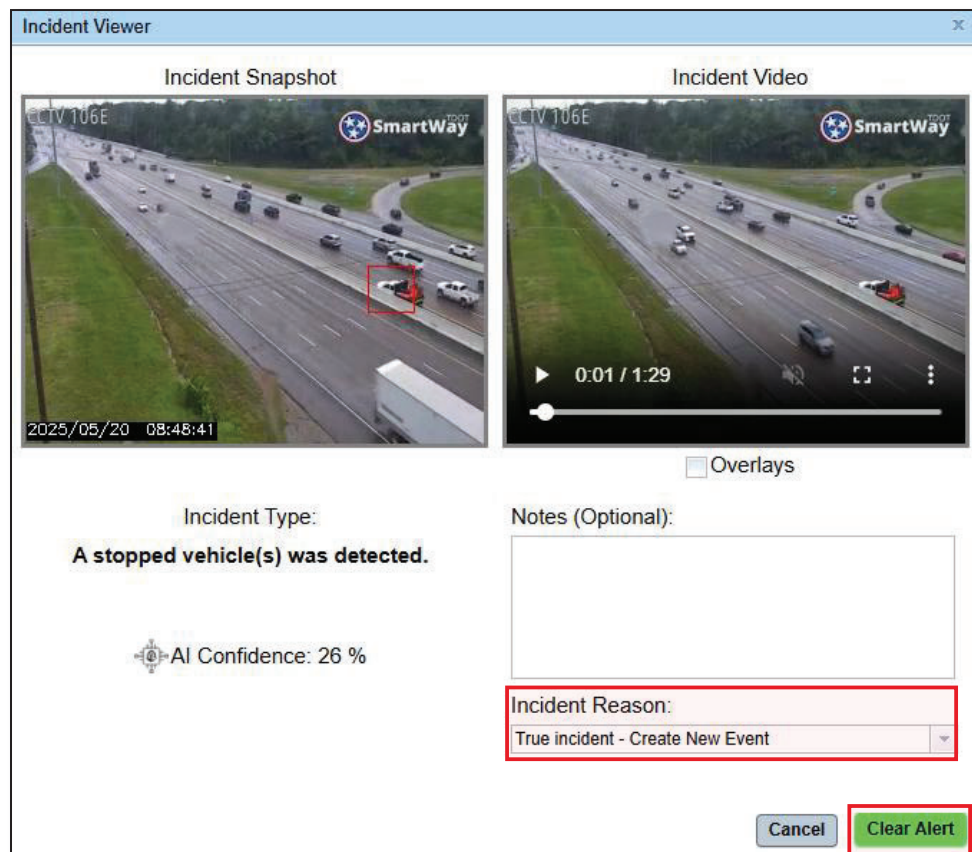
TrafficVision homepage

TDOT CCTV camera feeds and video analytic alerts will be displayed on the homepage. The primary interaction TMC staff will have with the website is the examination and reaction to displayed alerts found on the right side of the webpage.



TrafficVision alert box

After the triangle icon in the alert box is clicked, an “Incident Viewer” window will display in the middle of the page. Under the “Incident Snapshot” title will display a screenshot of what triggered the alert. Under the “Incident Video” title will display a brief video of time before and after the alert.

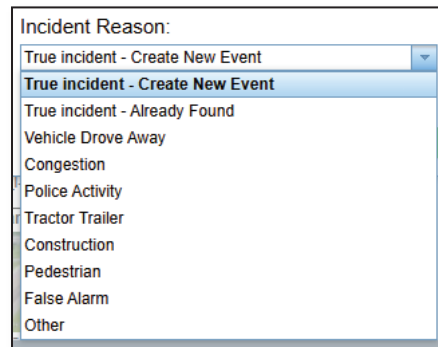


Click TrafficVision alert triangle icon  > Incident Viewer window

After investigation of what triggered the alert, TMC staff must select a reason for why the alert was triggered. If the alert is of an incident that was not already found by TMC staff and that requires a TMC response (e.g., stranded motorist or multivehicle crash) then the reason “True incident – Create New Event” would be selected. This would indicate a SWCS event will be input as a result.

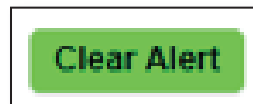
If the alert is of an incident already found by TMC staff and already created within SWCS when found on the TrafficVision website, the reason “True incident – Already Found” would be selected.

Every other reason should be selected as needed and is left to the judgement and experience of TMC staff to determine what the triggered alert appeared to be.



Click Incident Reason drop down list

Every alert should be closed using the “Clear Alert” button after a reason is selected.



6.11 Vanguard

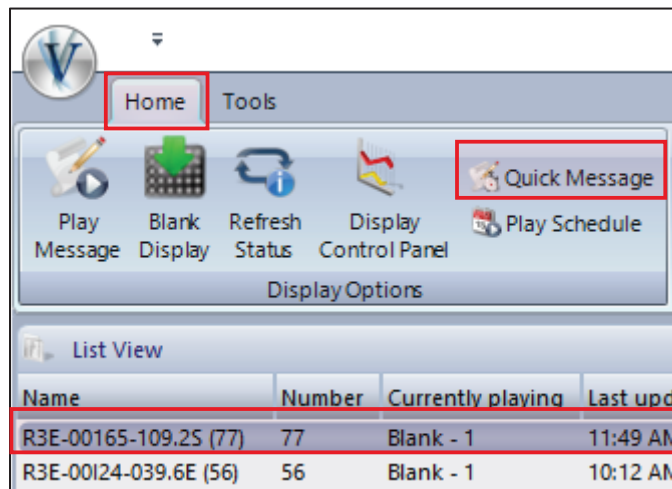
Vanguard is a software that should be installed at every TMC workstation. In the event SWCS is offline, Vanguard is intended to be used as a backup software for DMS message posting and editing.

For login credentials, consult with the Regional IT Department.

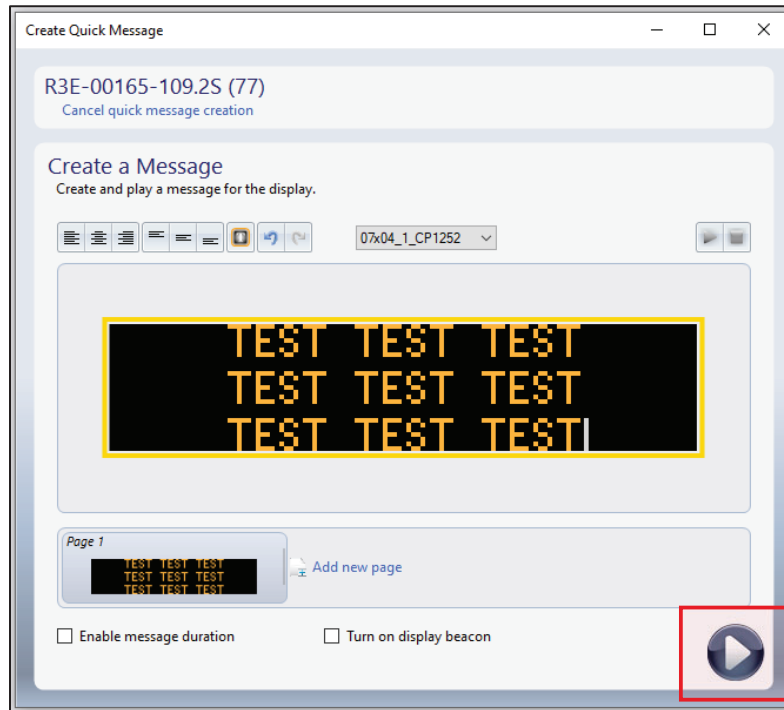


Vanguard login page

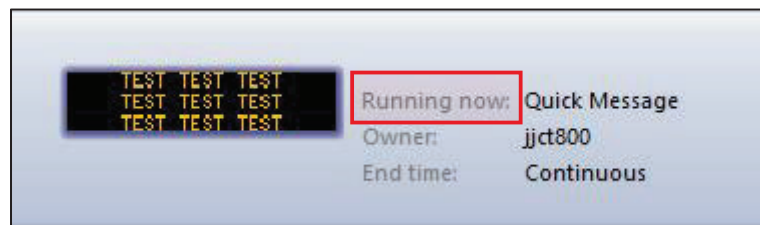
All active DMS in the Region should be accessible on the homepage. From there, individual DMS can be selected and messages can be created and activated. After DMS are posted, confirm via CCTV camera, if possible, that the posted message looks as desired. Consult with the Regional IT Department for any setting adjustments that need to be made.



Click a device > Quick Message

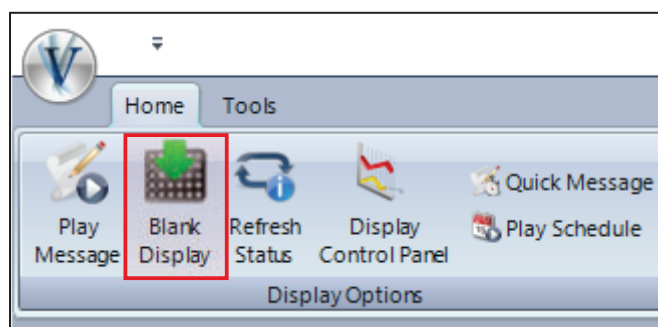


Edit the DMS message > click the play icon button to activate



View the bottom of the page after activation to confirm the message is running

Use the “Blank Display” button to deactivate any posted messages and blank the DMS.



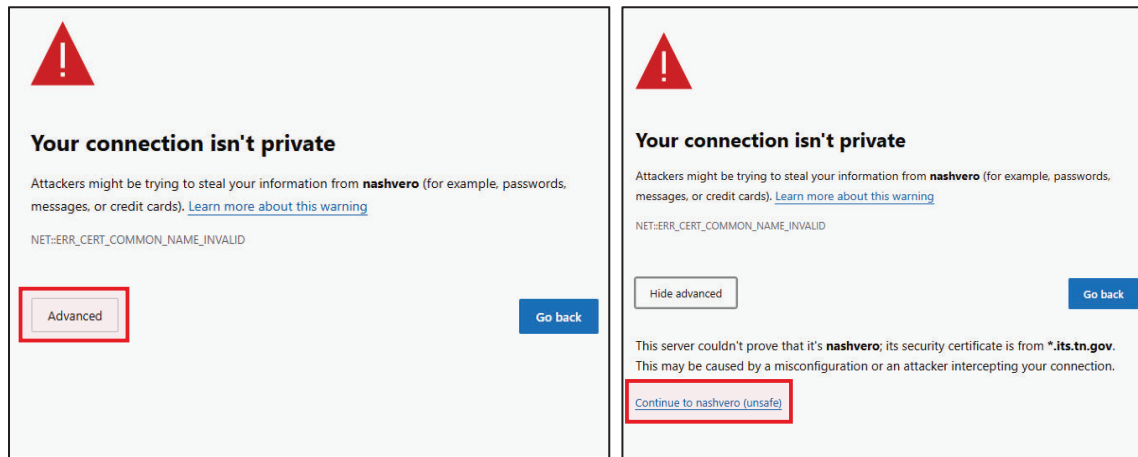
Vanguard homepage > select active DMS > click Blank Display to deactivate

6.12 Vero

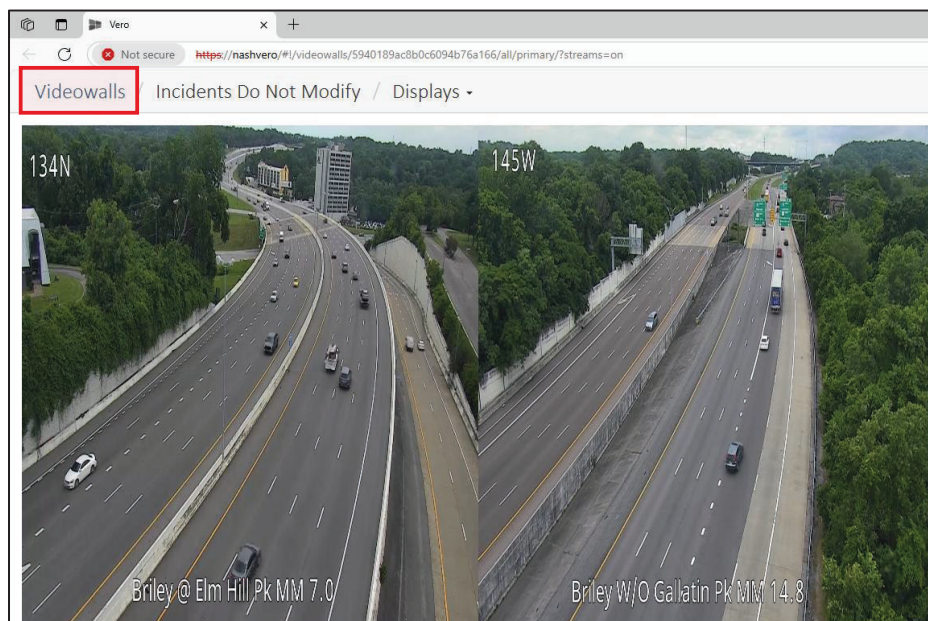
[Vero](#) is a software linked with the CCTV video wall within the TMC Operations Room. Camera views on the bottom two rows of the video wall can be changed out to any available camera feed when needed. This is usually done for preemptive monitoring of common crash locations or easier incident viewing for TMC Management or other visitors.

For login credentials or software questions, consult with the Regional IT Department or TMC Management.

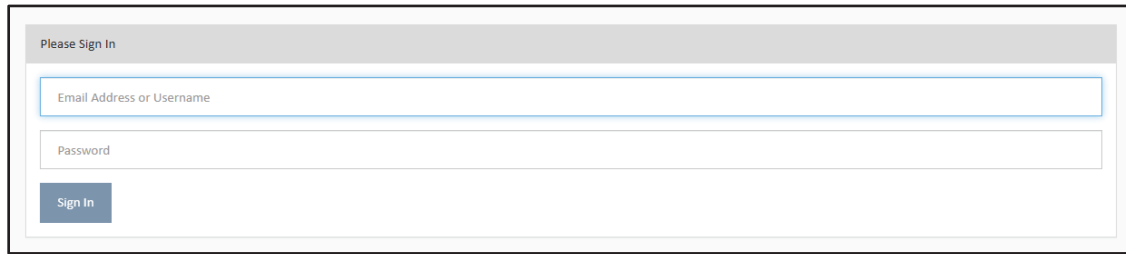
When at a TMC workstation, the Vero link may prompt a privacy warning popup window. The “Advanced” button should be click and the “Continue” link can be selected to proceed.



The “Videowalls” button can be clicked to be redirected to a login page.



Vero homepage



Please Sign In

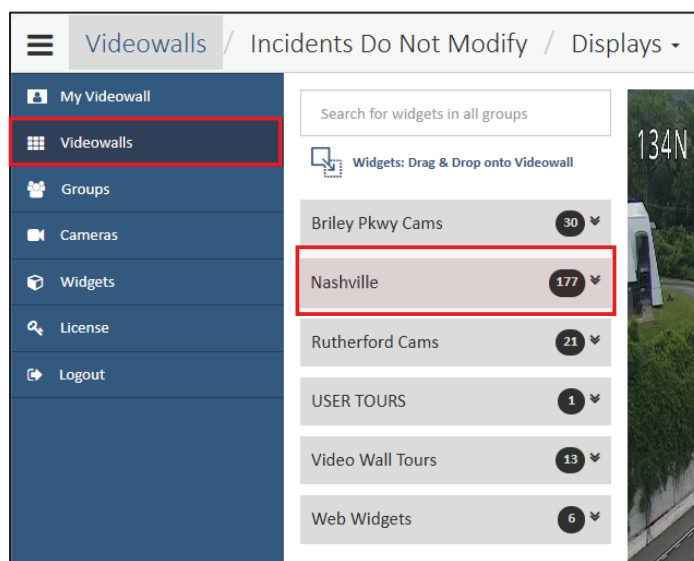
Email Address or Username

Password

Sign In

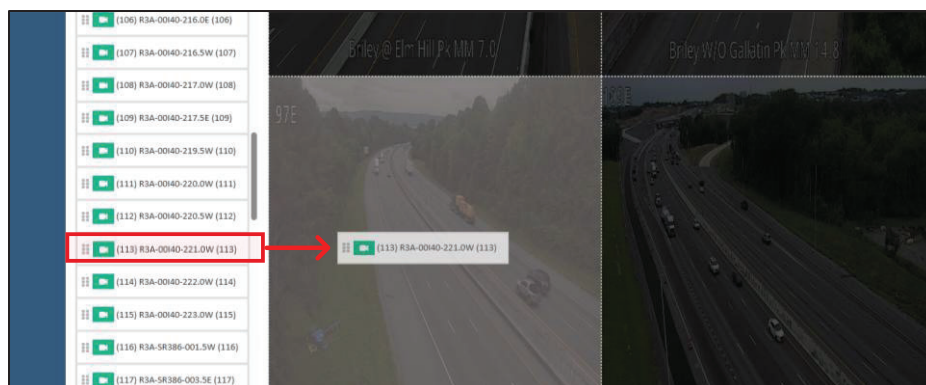
Vero login page

The “Videowalls” button in the left side tab column can be clicked to display available locations and camera feeds.



Vero user homepage

The camera feeds can be dragged and dropped on top of the desired monitor and it should display in the same location on the TMC video wall.



Vero user homepage > Videowalls tab > city/route selection

Below is an example of the result of the selected CCTV camera (113) being dragged and dropped in the bottom left box of the Vero camera display template. The CCTV feed is then immediately posted to the TMC video wall in the same location.



7 TMC Tools

TMC staff shall locate, confirm, and respond to incidents as quickly as possible to reduce incident response, clearance times, and limit duration of disruptions.

There are many ways detection can occur. For TMC operations, incident awareness may be the result of TMC proactive actions or the result of information provided to the TMC. There are several tools and sources of information available to TMC staff to use for initial detection and incident clearing that will be detailed in this section.

7.1 HELP Dispatch

A normal operational procedure in TDOT Regions is to dispatch HELP concurrently with entry into SWCS. If not found by the HELP Operator first, disruptions are usually found by TMC staff viewed on CCTV cameras or the TMC staff are notified by an external partner (normally law enforcement).

HELP assistance data is recorded in SWCS during and after trucks are dispatched, arrive, and depart an incident scene. HELP Operators generally communicate whether additional aid is needed at the scene and multiple HELP Operators may be called to or respond to the scene.

The TMC is a communications hub for HELP trucks, as the dispatch function typically engages radio and can engage cell phone communication if needed. The communication with on-scene HELP Operators is important for retrieving reliable incident information the TMC staff need to be aware of. Lane impacts and scene changes can be communicated from the HELP Operator to the TMC dispatcher. Through that information, the TMC staff can update tools such as DMS, HAR, 511, and SmartWay Map messages.

Protecting HELP operators and other responders is a very important role played by the TMC staff while maintaining awareness of the response area, traffic queue safety, and growing traffic backups. The TMC staff are able to utilize CCTV camera footage in most coverage areas to get a wider look at a scene and communicate any safety issues directly to HELP Operators.

The TMC dispatcher should always have all on-scene HELP Operators in plain view on their desktop if the HELP Operator is within CCTV camera range. If a HELP Operator is on a scene out of camera view, the TMC dispatcher should routinely check the welfare of the HELP Operator if there has been no communication for several minutes.

For more details on radio types and usage, see [Section 5.2](#) of this document.

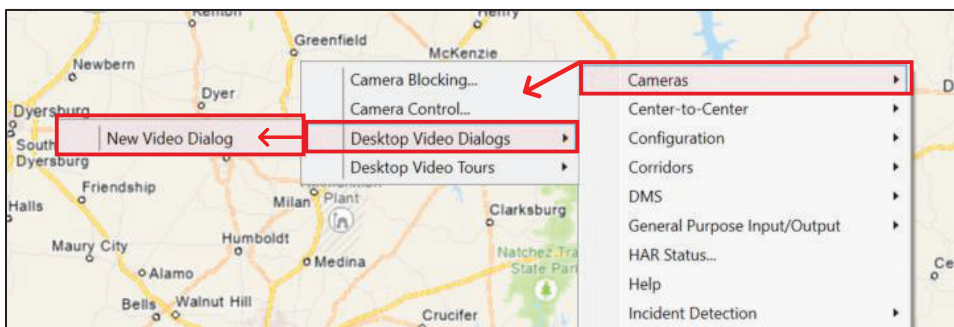
7.2 CCTV

Feeds from TDOT's closed-circuit television (CCTV) cameras can be viewed on the desktop and multiple monitors on a video wall in the TMC Operations Room. Camera views can be configured to show either single camera video feeds or "tours" of camera feeds, which can show multiple rotating camera views changing on a predefined timeframe.

Video tours are helpful when the number of CCTV feeds to be viewed are numerous. This could include scenarios involving long and complex scenes or areas where there is less traffic and fewer obstructions to locate. Tours can also be helpful with finding camera failures at a more thorough rate when performing device checks. Tours are configurable in each Region and per each user.

CCTV camera feeds and control options are located within SWCS or, if necessary, the Cameleon backup software. The placement of the pole the camera is attached to, as well as other information on the camera image itself is an important tool for incident location. If any information stated on any camera image is incorrect, or if the camera's placement on the SWCS Operator Map is wrong, the Regional IT Department should be notified.

If any camera feeds experience hardware failures or visual glitches, the Regional IT Department should be notified.

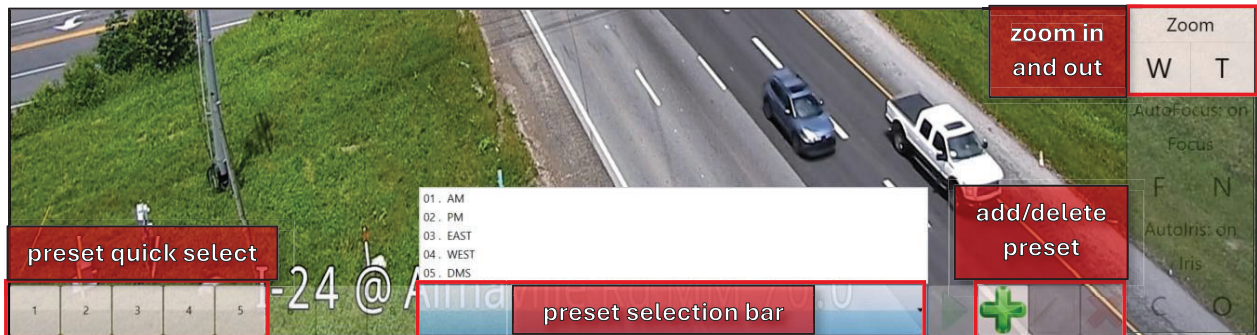
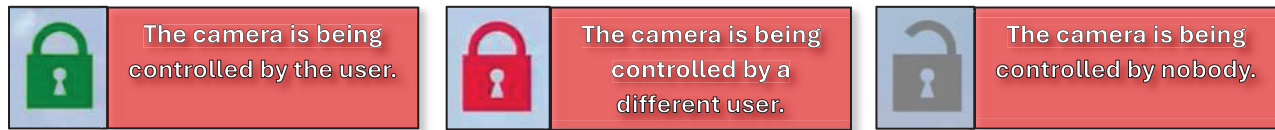


SWCS Operator Map



SWCS Operator Map > right click > Cameras > Desktop Video Dialogs > New Video Dialog

Camera Control Icons



7.2.1 Recording CCTV Footage

It is not TDOT policy to record CCTV camera footage. TMC staff may capture CCTV camera screenshots for incident management purposes and departmental notifications. Videos for training purposes can only be recorded with explicit approval by the Traffic Operations Manager in coordination with the TDOT Headquarters Traffic Operations Division.

Recorded SmartWay CCTV footage may be seen on social media, commercials, or news channels and TMC staff may be asked how this footage was obtained. TMC staff should be aware that this footage would have likely been recorded with personal video recording software and was not provided directly from TDOT.

7.2.2 Sensitive Video Images

TDOT CCTV camera views should never be zoomed in enough to clearly identify a person or vehicle license plate. All CCTV camera feeds accessible within the TMC are available worldwide over the internet streaming as live feeds to the public. The camera view should be turned away from potentially offensive, invasive, or graphic video after an incident is identified. The camera view can be panned back to traffic, emergency responders, or to the rear of the traffic queue.

In very extreme circumstances, a camera feed may be restricted from public view by contacting the Regional IT Department, who in turn contact the CCTV provider. This method of restriction is often utilized for security concerns (e.g., when a government official plans a publicized visit to the state.)

Under no circumstances should CCTV images or sensitive information be saved to or photographed with personal devices for personal use of any kind.

7.3 DMS

Dynamic Message Sign (DMS) messages can be added to the response plan to fit the situation. This tool greatly improves communication and motorist awareness regarding traffic disruptions, weather conditions, or future roadway projects.

Incident locations should be referenced on DMS based on their proximity to an exit number, which is based on mile markers, and can include added information on the actual location (e.g., BEFORE EXIT 398 or AT EXIT 87).

“Before” messages tell drivers they may not be able to access a specific exit. “After” messages communicate to drivers that the exit referenced is still open. “At” messages typically mean that the exit is closed or is immediately surrounding the ramp location.

Not all exit numbers are located exactly at mile markers that correspond to the exit number. It is important for TMC staff to know the actual mile marker that immediately precedes an exit ramp or entry point so that the correct messaging can be generated.

For more details on DMS messaging, see [Appendix C](#).

7.4 HAR

Highway Advisory Radio (HAR) messages are audio recordings transmitted and broadcast to the public on specific radio channels. The audio recorded can either be text-to-speech or live vocal recordings from TMC staff. Fixed flashing beacon signs along the roadway are used to alert drivers when a message is available to listen to. The specific radio channel that needs to be tuned to is displayed on the signs.

HAR Fixed Flashing Beacon Sign Example



The advantage of HAR is the ability to reach a large audience using radio technology found within most vehicles. The types of messages relayed are typically travel information relevant to the surrounding area (e.g., road conditions, construction, special events and major incidents). When there is no traffic event to alert the public of, PSAs are generally transmitted throughout the week and the HAR is typically updated once a week on Sunday.

For more details on HAR software, see [Section 6.3](#) of this document.

7.5 LCS

Lane Control Signs (LCS) can be activated to prewarn for lane blockages and can be used to display Variable Speed Limits (VSL). Currently this system is only implemented along the I-24 Smart Corridor within Region 3.

The signal heads that display the LCS are located above each travel lane and the right shoulder of the roadway. Each signal head is fixed on an overhead structure called a gantry. The LCS are activated by TMC staff and typically display a symbol such as a colored X or arrow.

The VSL system is displayed automatically and governed by speeds detected by RDS.

For more details on LCS posting, see [Appendix D](#).

For more details on VSL, see [Appendix E](#).

7.6 Waze Alerts

The passenger/driver-powered Waze application is integrated into the Event Management subsystem of SWCS. Alerts are shown on the right side of the Event List. Waze alerts can be toggled off and on at the bottom of the alerts list, where other alert sources are also shown. Waze alert icons display on the SWCS map if icons are selected to show.

All alerts displayed in the Waze app are entered from the public. A Waze alert by itself is not enough to confirm an incident type or location. All Waze alerts should be investigated and verified before creating a SWCS event or dispatching a HELP Operator.

Detected	Location	Type	Details
20 min ago	I-40 Eastbound Lat: 36077962 Lon: 86988281	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, POT_HOLE - Nashville, T.N
1:45	I-40 Southbound Lat: 36193951 Lon: 86776334	Waze	Incident detected by Waze: JAM - Nashville, T.N (Removed)
37 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, STAND, STILL TRAFFIC - Nashville, T.N (Removed)
34 min ago	I-40 Southbound Lat: 36209919 Lon: 86776373	Waze	Incident detected by Waze: JAM/JAM, HEAVY TRAFFIC - Nashville, T.N (Removed)
34 min ago	I-40 Eastbound Lat: 36077962 Lon: 86776373	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, POT_HOLE - Nashville, T.N
34 min ago	I-40 Eastbound Lat: 36077962 Lon: 86776373	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, CONSTRUCTION - Nashville, T.N
34 min ago	I-40 Eastbound Lat: 36077962 Lon: 86776373	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, POT_HOLE - Nashville, T.N
30 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, STAND, STILL TRAFFIC - Nashville, T.N
37 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, STAND, STILL TRAFFIC - Nashville, T.N
37 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, STAND, STILL TRAFFIC - Nashville, T.N
39 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, POT_HOLE - Nashville, T.N
41 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, STAND, STILL TRAFFIC - Nashville, T.N
50 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: HAZARD/HAZARD, ON ROAD, POT_HOLE - Nashville, T.N (Removed)
51 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, HEAVY TRAFFIC - Nashville, T.N
62 min ago	I-40 Westbound Lat: 36142993 Lon: 86752473	Waze	Incident detected by Waze: JAM/JAM, HEAVY TRAFFIC - Nashville, T.N

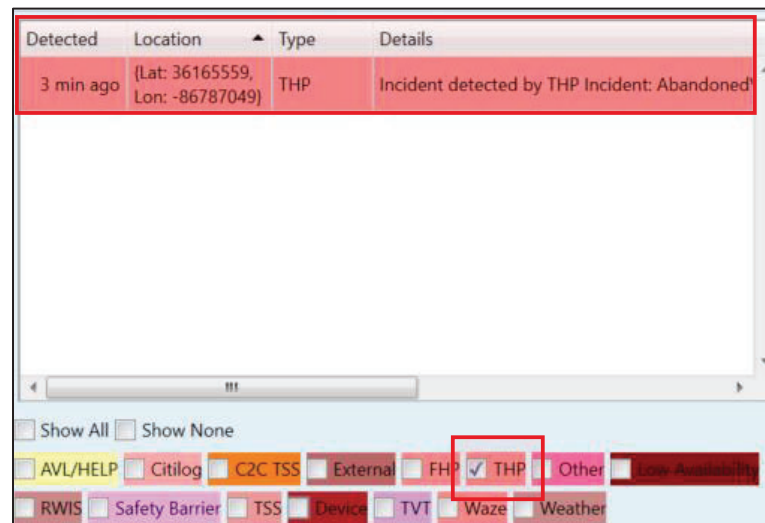
SWCS > right click SWCS Operator Map > Event List

7.7 RWIS Alerts

Roadway Weather Information System (RWIS) stations collect environmental/weather data and report it back to the TDOT community. Alerts from RWIS may also appear in the alerts listing to the right of the Events List. RWIS alerts should be analyzed for likelihood of accuracy before additional verification is undertaken. RWIS can and has been used as the earliest indicator of visibility issues such as those encountered in foggy conditions and can sometimes show a potential disruption before CCTV camera views.

7.8 THP Alerts

The Tennessee Highway Patrol (THP) takes in information regarding potential lane blocking issues and sends the notification through its Computer Aided Dispatch (CAD) to the SWCS system. The alerts and map icons showing the locations of those alerts are used by the TMC staff. The alerts are listed to the right of the Events List. THP alerts are solid indicators of potential obstructions and each TMC should define how it validates those alerts before posting information to the public. THP alert icons will also display on the SWCS map if chosen for display. Those confirmed incidents only reach the public if posted to the SmartWay Traffic Map or reported to the 511 phone system.



SWCS > right click SWCS Operator Map > Event List

7.9 Speed Data

SWCS collects speed data from various sources, including speed detection units and independent sources. Traffic speeds and travel times are available to the TMC staff in different ways.

TDOT primarily uses Radar Detection Sensors (RDS) and "BlueTOAD," which is a combination of Bluetooth sensors and Dedicated Short Range Communications (DSRC) data. The DSRC units are in use on I-24 between Nashville and Murfreesboro. Additional

DSRC units will be in use in the I-24 Smart Corridor, on arterial roadways, and attached to traffic signals.

Vehicle probe data is purchased from the analytics company INRIX that collects GPS data from smartphones and other Bluetooth devices. This provides another dataset that is used in the TMC to supplement data where there are no RDS.

The examples below are traffic speed and delay detection methods found within SWCS. Sorting different columns for slowest times or time delays allow TMC staff to see slowdowns in real time. This data can be used to find potential traffic incidents in areas where unusually low traffic speeds are detected and to verify speed changes once incidents are cleared.

TSS - Status - Region 3 Production

Set Op Status Status Find On Map Location Enable Dynamic Linking Disable Enable System-Wide Dynamic Linking Disable

Detector Status	Detector Name	Roadway/Direction	Mile Marker	Speed ▲	Occupancy	Volume	Last Updated
Active	R3G-SR006-13.9S (127)	State Route 6 Southbound	13.9	7	37	5	04/16/2025 09:53:51
Active	R3G-00140-206.8W (99)	Interstate 40 Eastbound	206.8	12	32	24	04/16/2025 09:53:52
Active	R3G-00140-211.6W (4)	Interstate 40 Westbound	211.6	12	8	1	04/16/2025 09:53:40
Active	R3G-00140-207.6E (95)	Interstate 40 Eastbound	207.6	16	32	31	04/16/2025 09:53:55
Active	R3G-00140-213.3W (316)	Interstate 40 Westbound	213.3	14	29	13	04/16/2025 09:53:40
Active	R3G-00165-88.4S (32)	Interstate 65 Southbound	88.4	15	35	9	04/16/2025 09:53:35
Active	R3G-00140-215.4E (325)	Interstate 40 Westbound	215.4	16	24	22	04/16/2025 09:53:43
Active	R3G-00140-214.9W (322)	Interstate 40 Westbound	214.9	16	39	23	04/16/2025 09:53:52
Active	R3G-00124-59.3W (278)	Interstate 24 Westbound	59.3	18	17	2	04/16/2025 09:53:50
Active	R3G-00124-59.0W (277)	Interstate 24 Westbound	59	19	46	8	04/16/2025 09:53:48
Active	R3G-00165-87.4S (28)	Interstate 65 Southbound	87.4	18	36	46	04/16/2025 09:53:49
Active	R3G-00140-207.3W (104)	Interstate 40 Eastbound	207.3	17	31	34	04/16/2025 09:53:41
Active	R3G-01440-007.4W (198)	Interstate 440 Westbound	7.4	19	30	23	04/16/2025 09:53:52

SWCS > right click on SWCS Operator Map > Traffic Detection > Status
(Detectors filtered and sorted by slowest speed)

Travel Times - Region 3 Production

Enable Disable Enable Disable Alternate Routes Matching Routes Systemwide By Link Routes

	Link Name	Current	Freeflow	Delay
+	R3_DMS 19 DTLP	17 mins	10 mins	8 mins
+	R3_DMS 41 65 via 440W	12 mins	6 mins	7 mins
+	R3_DMS 7 Shelby	17 mins	10 mins	7 mins
+	R3_DMS 7 Broadway	16 mins	10 mins	7 mins
+	R3_DMS 41 65 via 40W	11 mins	6 mins	6 mins
+	R3_DMS 9 Rosa Parks	17 mins	11 mins	6 mins
+	R3_DMS 9 JRobertson	17 mins	12 mins	6 mins
+	R3_DMS 9 DTLP	16 mins	11 mins	6 mins
+	R3_DMS 10 J Robertson	17 mins	11 mins	6 mins

SWCS > right click on SWCS Operator Map > Travel Times > Status
(Travel times filtered and sorted by most delay)

VSL Status - Region 3 Production

Operational Mode VSL Group Find on Map Max Speed Override Cancel Override Expand All Collapse All Groups Segments Device Templates Disable External Overrides External Overrides

Name	Roadway/Direction	Status	Suggested Speed	Speed	Volume	Timestamp
▷ R3F-00I24-062.8E (145)	Interstate 24 Eastbound	Normal				5/13/2025 3:12:39 PM
▷ R3F-00I24-062.4E (143)	Interstate 24 Eastbound	Normal				5/13/2025 3:12:39 PM
▷ R3F-00I24-061.8E (141)	Interstate 24 Eastbound	Normal				5/13/2025 3:12:39 PM
▷ R3F-00I24-061.3E (139)	Interstate 24 Eastbound	Normal				5/13/2025 3:12:39 PM
▷ R3F-00I24-060.8E (137)	Interstate 24 Eastbound	Triggered		58	42	5/13/2025 3:12:39 PM
▷ R3F-00I24-060.3E (135)	Interstate 24 Eastbound	Triggered		24	43	5/13/2025 3:12:39 PM
▷ R3F-00I24-059.8E (133)	Interstate 24 Eastbound	Triggered		21	34	5/13/2025 3:12:39 PM

SWCS > right click on SWCS Operator Map > Variable Speed Limit Status

(Triggered statuses show traffic speeds under posted speed limit)

This feature currently utilized only in Region 3 (see [Appendix E](#))

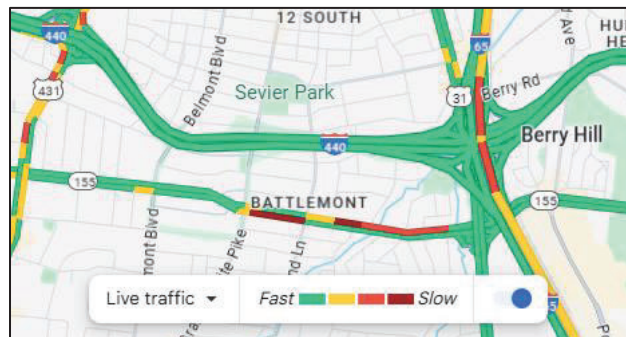
7.10 Speed Mapping

Speed mapping is available on the SmartWay website map as well as independent speed sources (Google Maps, Apple Maps, Waze, INRIX, etc.). It is important to understand the differences in color coding of speed maps to accurately judge the impact and to monitor speeds over a short period of time to better determine if the speed reduction is temporary.

Staff must understand the colors seen on the different speed map sources for more accurate evaluation of what they indicate. There is no standard for what a color means when comparing one application to another.

E.g., Google Maps

- Green means good traffic flow (50 mph or more)
- Yellow means slower traffic (25 – 50 mph)
- Red means slow or stopped traffic (0 – 25 mph)



Google Maps

Speed mapping and comparison of current speeds to typical speeds is an important tool that TMC staff can use to better understand the impacts and scope of a disruption. Google Maps has a comparison tool available in its traffic layer that can make understanding the changing nature of traffic conditions.

In the example below, “Live traffic” conditions on a roadway in Region 4 can be compared to “Typical traffic” conditions of the same area. This helps TMC staff understand how the current conditions are different from historical traffic data collected over any chosen timeframe.



Google Maps

8 Daily Operations

8.1 Roles and Responsibilities

In a TMC, there are TMC Technician Trainees, TMC Technicians, TMC Technician Seniors / Shift Supervisors, and TMC Management positions. The appropriate number of each is based on the needs of the Region determined by TMC Management.

Responsibilities for each job description are outlined below:

8.1.1 TMC Technician/Trainee Tasks

- Use TDOT computer equipment and communications systems as directed
- Use technical systems and software as directed, as well as being able to identify, understand, and troubleshoot issues
- Elevate any complex issues or questions to the TMC Shift Supervisor
- SmartWay Traffic Map incident monitoring and detail verification
- View CCTV feeds to detect, verify, understand, and monitor conditions
- Use the existing ATMS, also known as SWCS, to document, update, and close out traffic disruption events so that the public can be advised through:
 - SmartWay website and Tennessee 511 phone system
 - Dispatch of HELP Operators or other TDOT resources
 - Highway message boards and other TMC tools
- Inform the appropriate level of TDOT management and leadership
- Accurately perform all tasks so that measurement of activities is as accurate and complete as possible
- Communicate verbally and through messaging or email within the TMC itself
- Communicate reliable information promptly to emergency responders

8.1.2 TMC Technician Senior / Shift Supervisors Tasks

- Perform all TMC Technician tasks as needed
- Ensure the Daily Device Checklist is completed at shift start (see [Appendix A](#))
- Submit Helpdesk tickets when hardware/software failures are detected

- Ensure connection to the TMC's Partner Region (Regions 2 and 4 partners; Regions 1 and 3 partners) is available via SWCS using the RCA subsystem
- Handle any complex issues raised from TMC Technicians during a shift
- Maintain awareness of work environment including safety and cleanliness concerns
- Direct staff to prioritize decisions and activities
- Maintain situational awareness of ATMS system performance
- Pull SWCS event reports and data through Power BI as needed

8.1.3 TMC Management Tasks

- Perform all TMC Technician and TMC Technician Senior tasks as needed
- Oversee training for all TMC personnel
- Ensure the Weekly Radio Checklist is completed (see [Appendix A](#))
- Ensure the Monthly COOP Alternate Site Checklist is completed (see [Appendix A](#))
- Coordinate with IT on equipment/systems issues and filing of Helpdesk tickets
- Participate in meetings as assigned by TMC leadership
- Regularly plan, organize, and coordinate operations and activities associated with the TMC and provide oversight of ATMS projects
- Provide day-to-day management of ATMS
- Provide day-to-day management and operational support of the Regional TMC
- Provide day-to-day management and coordination with the TMC IT Support and maintenance contractor for scheduled and emergency maintenance of the Regional ITS infrastructure
- Assists TMC leadership in the preparation of all reporting requirements
- Conduct interviews for vacant positions in the TMC
- Public relations activities such as TMC marketing efforts, TMC tours, presentations, and regular team meetings
- Work closely with the TDOT Traffic Operations Division to establish communication, collaboration, and cooperation between Headquarters and Regional staff
- Assist TMC leadership with directives or tasks as required

8.2 Incident Verification

Any incident information relayed to TMC staff is dependent upon trusted and confirmed verification. Below are examples of different sources of information that TMC staff will encounter and will have to decide the trustworthiness of that information.

8.2.1 CCTV Verification

Once a potential incident is detected, it may be verified using the CCTV cameras where available. The procedure is done by TMC staff moving a camera view to the area where the incident was claimed to be detected and visually confirming the information to be true.

When an incident is located, the camera should be centered, zoomed, used to inspect the scene. The incident scene and any lanes affected should be determined and visually confirmed. If the view is not clear enough, lane blockages should never be assumed. SWCS event information should only be input when incident information is visually confirmed with this method of verification.

CCTV feed verification is useful for TMC staff to witness real-time changes to the incident scene, giving the ability to update responding HELP Operators and TMC tools with little delay.

Adhere to the Sensitive Video Images guidance mentioned in [Section 7.2.2](#) of this manual for what types of images to not display on the live camera feed.

8.2.2 HELP Verification

HELP Operators can identify incidents and report back to the TMC, as per standard operating practice. The HELP Operator's report to the TMC is considered verified and accurate information. The HELP Operator will inform the TMC of an incident by giving the mile marker location, direction of travel, type of incident, lane(s) impacted, and involved vehicle information.

TMC staff should attempt to locate the incident on camera to monitor the situation for the safety of the HELP Operator, emergency responders, and other motorists on scene.

In areas outside of camera coverage, it is essential that TMC staff be kept updated by the HELP Operator as to changes in lane blockages so that TMC prewarning tools are displayed correctly and 511 information is updated. These updates should be given in 15-minute intervals, or as indicated by the on-scene activities. It is possible the HELP Operator might be engaged in direct, life-saving action that would preclude timely reporting.

8.2.3 EMA/911 Verification

Emergency Management Agency (EMA) / 911 dispatch commonly communicate directly with TMC staff regarding either confirmed or suspected incidents. These alerts should be considered valid only if based on information from an agency source that is on-scene. If the information is secondhand and passed down from the motorist themselves or from an automatic cellphone alert, for example, the incident still needs proper verification.

8.2.4 Law Enforcement Verification

This verification comes directly from the local Law Enforcement (LE) Dispatcher who calls the TMC to report an incident, from monitoring the Regional LE radio frequencies, or the THP CAD alerts. This method generally involves the local LE as the first responder vehicle on the scene of an incident. The local LE officer will call their Dispatch Center and report the time the officer arrived on the scene of the incident. The officer is expected to provide location, direction of travel and occasionally the lane(s) impacted.

TMC staff should attempt to locate the incident on a camera to provide an additional source of verification, as well as monitor the queue for safety.

Much like the EMA/911 verification, TMC staff should confirm that an emergency responder is actually on scene to ensure the information given to the TMC employee is accurate. If a suspected incident location is overheard through a LE dispatch channel, it should not be entered into SWCS as a verified incident. An incident is not verified unless it is seen on camera or an emergency responder is on scene to confirm the location. The suspected location should first be dispatched to a HELP Operator as a BOLO event to investigate the area if unable to find on camera.

If the LE is THP, this information should come through the THP CAD feed automatically instead of requiring the LE Dispatch Center to contact the TMC via phone call. This type of THP Alert should then be displayed on the SWCS Event List (see [Section 7.8](#)). The TMC may need to seek additional information from dispatch to completely understand the extent of the incident impacts.

In areas outside of camera coverage, it is important to know when all emergency response vehicles clear the scene and the status of the congestion at that time. Incident status will determine the actions taken when monitoring the incident and providing updated information to the motorist. TMC staff should maintain awareness of congestion, using speed mapping to assist with tracking lingering congestion from an incident that has cleared.

8.2.5 Social Media Verification

Valid broadcast, online, and social media reporting can be an early alert source but should not be used as a verification method. Only TMC-specific lessons and history can determine how trusted other sources (e.g., Facebook, Instagram, TikTok) can be considered.

Waze, for example, is information taken from drivers and passengers. Multiple posts from the scene or area where Waze reports are coming from is an indicator of accuracy, but the scene has still not been verified by a reliable source. Also, the scene of any incident could change from the time it was reported. All media and social media reports must be investigated and confirmed before presenting information to the public.

8.2.6 TDOT Personnel Verification

TDOT sources such as TMC staff, TDOT Maintenance personnel, TDOT Construction personnel, and Regional offices should be treated as trusted and validated sources of detection if they confirm to be on-scene with an incident.

8.3 Agency Resources and Communication

Early detection of roadway disruptions and hazards will help determine if other agencies need to be notified for a resolution. Resources can be defined as other Departments, agencies, or equipment that help achieve safe and efficient clearance of disruptions.

8.3.1 TDOT Resources

TMC staff should alert TDOT Maintenance and other TDOT Departments when the need for assistance is needed or requested. Typical events that require a TDOT Maintenance response are guardrail repairs, road surface repairs, storm drain clearing, shoulder debris removal, and queue protection.

Timely notifications are crucial for getting any obstructions cleared or repairs resolved as soon as possible to prevent potential future incidents. Each Region has a basic contact list of who to contact and how to handle those types of special circumstances.

For non-emergency maintenance requests, an online [TDOT Maintenance Request Form](#) (tn.gov) is typically filled out or 833-836-8349 (833-TDOTFIX) is called. The public can also be given this information for reporting any non-emergency hazards themselves.

For emergency requests, a TDOT Maintenance contact should always be called.

8.3.2 Department and Agency Notification

This section is for direction on how email and other communications should be made by TMC staff regarding major incidents. It is understood that some Regional Operations Staff or TDOT Executive Staff may ask for something in addition to the minimum. The listing may change as needed and will be communicated to each Region through TMC Management.

Standard practices are determined by each Region for when and how to notify different agencies. Notifications to dispatch centers, EMA, 911, or other responders can be made via appropriate communication methods (e.g., email, messaging, telephone). Emails to internal TDOT recipients is required as per Regional and state guidelines, including the information flow to appropriate TDOT personnel (see [Appendix B](#)).

Updates on disruption status should be provided if incident information changes significantly. Changes in impacted lanes or significant patient medical conditions are examples of information that warrant an update.

TMC staff should maintain awareness of any disruption through CCTV camera feeds when available, whether HELP Operators are involved or not. Incidents that occur outside of camera range or HELP Operator assigned route range can still warrant agency and departmental notifications if severe enough.

Below is a chart displaying a wide list of event types and typical agencies and employees that need to be notified when the listed events are confirmed.

Event Notification Chart

Type of Event	Contacts to Notify/Update:
Earthquake related	Regional and Assistant Region Directors within the affected Region(s) Chief Engineer Assistant Chief Engineer of Operations HQ Maintenance Division Director HQ Traffic Operations Director Community Relations Division Director and all four Regional Community Relations Officers Tennessee Emergency Management Agency (TEMA)
Bridge or tunnel collapse	
Terrorist activities	
Natural disasters (e.g., floods or tornadoes)	
Weather- related closures caused by snow or ice	
Fatality of a prominent individual	
Any incident that may create statewide or national attention	
Any incident involving a motor carrier resulting in a fire, explosion, release of hazardous materials, or necessitating an evacuation	
Any chain reaction incident involving more than 10 vehicles	

8.3.3 Media Event Likelihood

One of the requirements for both TDOT and the Federal Highway Administration (FHWA) is to be aware of the likelihood of media attention that goes beyond a television station showing traffic times and maps. Drivers and passengers are also drawn to photograph and record roadway incidents even if the incident does not overly disrupt traffic. This sometimes results in posts and information spreading on social media. Monitoring online news sources can help determine if the incident is drawing special media attention elsewhere.

Examples of incidents that might draw extra media attention include lengthy delays, fire, police activity, fatalities, celebrity involved incidents, or special events.

8.3.4 FHWA Processes

The Federal Highway Administration (FHWA) is a national clearinghouse for reporting of significant highway events. The TMC is a reporter to the FHWA as a representative of TDOT. Information here is provided to describe FHWA processes and for clarity on TMC reporting requirements to the FHWA Regional office in Nashville.

FHWA classifies major impact incidents as “A” type (e.g., major earthquakes that cause significant highway damage, a major bridge collapse that causes significant disruption to highway operations, or a terrorist incident.) These incidents would generate immediate widespread media or political interest. “A” type incidents require FHWA Regional offices to notify national headquarters immediately at any time of the day or night.

“B” type incidents, although very significant, requires Regional FHWA representatives to notify FHWA Headquarters as soon as possible, but during daylight hours only.

Below are examples of “B” type incidents determined by the FHWA:

- Significant disruption to highway operations resulting from natural disasters such as major floods or hurricanes. These types of disasters are normally predicted or anticipated, unlike a sudden earthquake
- Loss of life or serious injury of a prominent individual such as a member of Congress, diplomatic dignitary, or another major public figure
- Any highway incident (e.g., multi-vehicle crash, bridge collapse) that creates national media attention. It is acknowledged that it will be difficult to determine initially if certain incidents will create national media attention
- Highway incidents involving motor carriers resulting in fire, explosion, or the release of hazardous materials that necessitate the evacuation of the immediate area
- Highway incidents involving the deaths of 10 or more people
- Any chain-reaction incident where more than 10 vehicles are involved, regardless of the number of injuries, period of road closure, or national media interest
- Any incident involving a school bus resulting in serious injuries or deaths to school children

- Any incident that causes significant damage or closure over 8 hours to a major highway or bridge such as an interstate or principle arterial road, excluding planned construction projects or closures caused by common weather conditions

If there is any doubt as to whether to report the incident, then it should be reported.

The email address used when notifying the FHWA is fhwa-tn.incidentreporting@dot.gov.

9 Security and Safety Procedures

9.1 Pass Keys and Controlled Access

The TMC operations staff will be issued electronic passkeys or fobs for access to the TMC Operations Room and the entry gate into the complex. The TMC Operations Room is a secure area and entry requires the use of a passkey. Visitors and other personnel without a passkey are required to contact the TMC Shift Supervisor on duty or TMC Management to request permission to enter any secure areas within the TMC.

The TMC is to remain secured at all times. All electronically locked doors will always remain closed and should not be blocked or propped open at any time.

The authority to issue access keys and decide the level of access for each individual will remain with the regional Traffic Operations Manager.

If a TMC employee forgets or loses their access card and needs entry to the front gate, they must speak with the security guard on duty or call the TMC Shift Supervisor to speak with the security guard. If there is no security guard, the TMC employee will have to speak with the TMC Shift Supervisor to arrange for someone to trigger the gate's motion detection from the inside of the complex.

All lost electronic passkeys, fobs, or standard door keys must be reported immediately to TMC Management for deactivation.

9.2 Evacuation

A staff member designated by the Traffic Operations Manager will be responsible for the evacuation and take accountability of the staff at the pre-determined rally point. That person will also contact 911 or any emergency services needed. Once safe, that person should contact the Partner Region TMC to report the incident and relay the need for that Region to take control of the TMC functions.

Region 1 and Region 3 TMCs are partners. Region 2 and Region 4 TMCs are partners.

9.3 Fire Drill

Fire drills are scheduled and conducted in accordance with the State of Tennessee's policies and procedures. The staff should exit the building using the closest fire exit and move quickly to a pre-determined rally point. Employees should only take personal items related to immediate safety when leaving the building.

All fire drills are to be treated as if danger exists, since a fire could occur during a drill. The procedure utilized for fire drills shall apply to actual fire evacuations. The 911 center should be called as quickly as possible to handle an emergency and the Traffic Operations Manager should be called immediately.

9.4 Power Failure

During a power failure, the TMC possess a backup generator that maintains critical equipment and keeps the TMC in operation.

The generator should only be handled by designated and trained personnel. Any critical equipment affected by the loss of power before the generator is started or in the event of generator failure shall be shut down using procedures listed in the User Manual for that piece of equipment. When power is restored, the equipment shall be restarted using the normal start-up procedure.

Weekly testing of the generator functions is done in all Regions.

9.5 Bomb Threats

In the event of a bomb threat or similar threat that endangers TMC staff, the TMC Shift Supervisor or TMC Management should act accordingly using sound judgment. The 911 center should be called as quickly as possible to handle any emergencies and the Traffic Operations Manager should be called immediately if not already notified.

For more detailed instructions on navigating different endangerment scenarios in the TMC, reference the separate COOP documents mentioned in the next section of this document.

9.6 Continuity of Operations Plan (COOP)

The TDOT TMC is an essential element to help promote safe mobility for all roadway travelers. Any event that obstructs TMC operations is considered significant and demands a planned, coordinated approach to recover TMC functions as soon and as safely as possible.

The Continuity of Operations Plan (COOP) is designed to streamline and prepare TMC staff for all possible event types that could cause loss of TMC functions or staff endangerment. The entire COOP documents are separate from this manual and should be accessible to all TMC staff from within the TMC Operations Room. Stored with the COOP documents should be an Alternate Site Guide, COOP checklists, and contact lists for the TMC, IT, TDOT Maintenance, and the same contacts of the Partner Region's TMC as well.

The COOP contains sets of scenarios created for three types of TMC disruptions:

- Systems
- Facilities
- Personnel

The goal of the COOP is to provide thorough and detailed instructions able to be followed by any level of TMC personnel. The use of these instructions is to initiate a series of actions aimed at retaining essential TMC functions, where possible.

The primary COOP documents for each Region are the same and all TMC staff must review and understand the steps in each emergency scenario. TMC Management must ensure every member of TMC staff has acknowledged to having reviewed each emergency scenario in the

COOP. Any COOP training exercises will be designed to regularly test the scenarios and the preparedness of the TMC staff.

Each TMC should have an alternate location for operations for the possibility of the normal TMC facility being unusable or inaccessible. All personnel must be familiar with the alternate worksite and be aware of any access issues or special access instructions. Every alternate site must have adequate lighting, internet and functioning restrooms inside or nearby the site. The alternate site should be inspected at least once per month and the Monthly COOP Alternate Site Checklist (see [Appendix A](#)) should be utilized to conduct the inspections.

If the alternate site is also unusable or inaccessible, the TMC's Partner Region will have to be notified. If able, the Partner Region will take control of the systems of the TMC experiencing the emergency.

There are also steps and procedures to follow for the TMC staff taking on the responsibility of dispatching and operating devices of the TMC experiencing an emergency. A COOP System Takeover Checklist (see [Appendix A](#)) can be followed if TMC staff are unsure of procedures required for smoothly taking over another Region's TMC functions.

One physical copy of COOP documents and additional emergency-related documents must be kept inside a wall-mounted container in a central location within the TMC Operations Room. A second physical copy of identical documents must be kept in the alternate site inside a wall-mounted container. The location of these documents should be known to every TMC employee. All COOP documents, contact lists, instruction guides, and other emergency documentation should be updated with any major changes as soon as possible.

One digital copy of COOP documents should be accessible at every TMC workstation in a location known to every TMC employee.

Appendix A – Operational Checklists

Daily Device Checklist

TMC Shift Supervisors are required to have the following checked at the start of each shift:

- ☐ Ensure all workstations have internet
- ☐ Ensure SWCS is functional
- ☐ Ensure the SWCS RCA subsystem is enabled and connected to the TMC's Partner Region
- ☐ Ensure Vanguard (backup DMS software) is functional
- ☐ Ensure Cameleon (backup CCTV software) is functional
- ☐ Cycle through all CCTV cameras and report any new failures to IT
- ☐ Check the status of all DMS and report any new failures to IT
- ☐ Check the status of all RDS and report any new failures to IT
- ☐ Check the status of all LCS, if applicable. If contracted out, it will be the responsibility of the contactors to check the status of all LCS and report failures to the assigned maintenance contractor.

Weekly Radio Checklist

TMC Management is required to have the following checked on a weekly basis:

- ☐ Ensure the primary dispatch radio is functional (likely done naturally during dispatch)
- ☐ Ensure backup desktop remotes are functional
- ☐ Complete a radio check with the TMC's Partner Region

Example: Region 3 backup dispatcher switches to Region 1 channel

Callout: "Region 3 TMC radio check"

Reply: "Loud and clear"

Monthly COOP Alternate Site Checklist

TMC Management is required to check the following on a monthly basis:

- ☐ Ensure internet is functional within the COOP alternate site
- ☐ If there are computers on-site, ensure there are no pending Windows updates
- ☐ If an ITS Domain exists (ability to utilize SWCS without a VPN), ensure SWCS is functional
- ☐ If an ITS Domain does not exist, ensure SWCS is functional on the state VPN
- ☐ Ensure SWCS is up to date
- ☐ Ensure necessary lights are functional
- ☐ Ensure necessary plumbing is functional
- ☐ Ensure there are no added safety hazards inside or outside of the site

COOP System Takeover Checklist

This checklist is for the TMC that is taking over control of the Partner Region's functions. This is not for the TMC experiencing the emergency.

- ☐ Confirm with TMC Management or a TMC Shift Supervisor that the Partner Region TMC has called and requested all or specific functions be taken over
- ☐ Ensure a backup dispatcher switches to the Partner Region's HELP channel. If no backup dispatcher is available, patch the Partner Region's HELP channel to the supporting Region's HELP channel using the dispatch monitor
- ☐ Ensure a brief announcement is given to the Partner Region's HELP Operators advising them that dispatch and TMC operations are being maintained by the supporting Region
- ☐ If needed, make an announcement to the Partner Region's HELP Operators if their TMC is unsafe to return to, depending on the nature of the Partner Region's emergency
- ☐ Ensure RCA subsystem in SWCS is enabled on all TMC Technician workstations and the Partner Region's devices are viewable
- ☐ Ensure the Regional IT Department is aware of the emergency and is supplied any information needed to forward phone lines, if possible
- ☐ Maintain contact and receive regular updates from the Partner Region TMC experiencing the emergency, if possible

Appendix B – Departmental Email Notifications

The TMC staff should send departmental emails per Regional procedures. These emails are typically used to disseminate serious incident information among agencies. The type of incidents documented in departmental emails usually involve prolonged lane blockages and major events such as, but not limited to, overturned CMVs or fatalities.

TMC Management may ask TMC staff to send additional, separate notifications (text, email, messaging) based on Regional need, but the initial emails shared with TDOT leadership must be consistent.

Agencies to Notify

Specific incident types will change which agencies are notified in departmental emails. Below are agency group emails used statewide. It is common for each Region to include additional agencies not listed below. Consult with TMC Management in the Region to determine if any additional agency emails should be included or if notification preferences of the agencies below have changed.

Regional TDOT Group Emails

TDOT Region 1: TDOT_Incident_Notification_R1@tn.gov

TDOT Region 2: TDOT_Incident_Notification_R2@tn.gov

TDOT Region 3: TDOT_Incident_Notification_R3@tn.gov

TDOT Region 4: TDOT_Incident_Notification_R4@tn.gov

Notify for all incidents a departmental email is created for in the given Region (i.e., if the email is of an incident within Region 2, only use the Region 2 group email).

TDOT Headquarters: TDOT_Incident_Notification_HQ@tn.gov

Notify for fatalities or long-term closures with at least half of the roadway blocked for more than 2 hours or less than half of the roadway blocked for more than 3 hours.

Federal Highway Administration (FHWA): fhwa-tn.incidentreporting@dot.gov

For details on FHWA notifications, see [Section 8.3.4](#) of this document.

Tennessee Emergency Management Agency (TEMA): TEMA.SWP@tn.gov

Notify when environmental hazards are present (e.g., fuels leaks or chemical spills).

Email Format

The format style of all departmental emails should contain the following information:

1. The email subject line should contain the incident location:

Example

DAVIDSON Interstate 40 Westbound Before MM 191.8

2. The email body should include the location, incident type, which lanes are blocked, expected duration, enroute/on-scene responders, and traffic queue length. It is important to be correct and consistent. Incorrect spelling and grammar can cause confusion and affect the reputation of information delivered by TMC staff.

Example

Event location: DAVIDSON Interstate 40 Westbound Before MM 191.8 (the same information as the subject line).

Incident: Overturned Vehicle

Impact: 2 Right Lanes Blocked

Expected Duration: 120 minutes (always use minutes)

TDOT Incident Commander on Scene: Metro PD (this is used to refer to the first emergency responder agency that arrives on scene)

The following information should then be listed in a generally consistent order per email:

- **2 Right Lanes Blocked**
(list again which lanes are blocked)
- **Multivehicle injury crash involving 2 passenger cars**
(a brief description of the event)
- **Metro PD and FD on scene**
(list which agencies are on scene)
- **EMS and HELP 7333 enroute**
(list which agencies are enroute)
- **Current queue: 3 miles**
(review CCTV feeds or SmartWay map to determine queue length)

3. All message updates should contain the same subject line, with the word “(UPDATE)” added at the end, so that the email is not confused with another incident email. Note: the most recent email should be replied to. Send an “(UPDATE)” message when there is any change in lane blockage or there has been no important updates within 1 hour.

Example

DAVIDSON Interstate 40 Eastbound Before MM 194.8 (UPDATE)

4. In the body of the updated email, include any changes in lane blockage, medical statuses, estimated clearance times, agency arrivals, agency departures, updated queue length or any other important information.
5. When an incident has cleared and the queue has cleared, send a final email with the word “(FINAL)” added at the end of the subject line.

Example

DAVIDSON Interstate 40 Eastbound Before MM 194.8 (FINAL)

6. If a camera screenshot of an incident is attached or pasted in the email, the image should be clear and relevant. A screenshot should not be used if the camera view of the incident is obstructed, distant, unclear, or contains graphic images. In addition, a screenshot of a map view of the incident should not be used.

Screenshot Instructions:

- Press: **Windows Key + Shift + S** to use the Windows Snipping Tool
- Drag the cursor to draw a box around the CCTV image
- Press: **Ctrl + C** to copy the image
- Press: **Ctrl + V** to paste the image at the bottom of the email

Good Screenshot Example



Bad Screenshot Example



Departmental Email Example

 Send	To	TDOT Incident Notification R3 ; TDOT Incident Notification HQ
	Cc	
Subject DAVIDSON Interstate 40 Eastbound Before MM 194.4		
EVENT LOCATION: DAVIDSON Interstate 40 Eastbound Before MM 194.4		
INCIDENT: Jackknifed Tractor Trailer		
IMPACT: Right Lane (of 2 Lanes) Blocked, Right Shoulder Blocked.		
EXPECTED DURATION: 120 MINUTES		
TDOT INCIDENT COMMANDER ON SCENE: HELP Supervisor 7307		
- Right lane blocked - MVA involving jackknifed tractor trailer hauling 13k lbs. of freight - No hazmat - No injuries - THP, HELP 7307, Class 'C' wrecker on scene - R3 Maintenance enroute for queue control - Estimated clearance time: 120 minutes - Current queue: 3.5 miles		
		

Appendix C – Roadway Fundamentals

Roadway Terminology

Learning proper lane terminology is crucial when communicating to HELP Operators, TMC staff, or other agencies regarding where a roadway incident is located and which lanes motorists should expect a hazard in. Below are photos that show proper lane labelling.

Highway Lane Terminology



Other commonly used terminology are the words “downstream” and “upstream.” These words are usually used to refer to traffic flow while using an incident or center location as a reference point.

The approaching traffic or location before an incident, for example, is considered to be upstream. The departing traffic or location after an incident is considered to be downstream.

This type of terminology may be heard when referring to DMS posting. If DMS are posted for a lane blocking event, TMC staff will need to ensure all pre-warning DMS messages are posted on upstream devices. If any DMS are downstream and warning of a crash ahead, this would be inaccurate information to the motorists that already passed the crash scene.

Upstream vs. Downstream



Highway Signage

It is important for TMC staff to be familiar with understanding highway signage. Signs will be regularly viewed on CCTV for the purpose of pinpointing roadway incidents and relaying location information to emergency agencies. Below are examples of common signs that will be referenced by TMC staff.

More detailed information on highway signage can be found in the most current versions of the MUTCD or the TDOT HELP Operator Training Manual.

Median Reference Markers

TDOT has installed two signs, one facing in each direction, along 228 miles of Interstate highways in the four metropolitan areas. Each sign gives four pieces of information.

1. Direction of travel
2. Route number
3. Log Mile number
4. A tenth of a mile past the indicated milepost

These signs are placed in both directions of travel, often back-to-back on the same post. Be cognizant of which side of the sign is being viewed and what direction traffic is moving to determine which side of the roadway an incident is located on.



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Ramp Reference Markers

There may be signs located on ramps from one interstate to another interstate. The ramp reference marker will show what interstate the sign is located on, what interstate the ramp leads to, and the number of the sign itself.

All interstate-to-interstate ramps have 3 or 4 emergency reference signs equally spaced along the full length of the ramp.



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Event Severity and Response

Every roadway incident can be classified with a severity type and a HELP response level. The type and level of the incident will then determine how a HELP Operator responds to the scene.

HELP Operator Incident Levels

Level 1: Shoulder Assist – Incidents which do not encroach upon the travel lanes. The shoulder assist occupies the shoulder for less than 15 minutes. During the shoulder assist there are no lanes of the roadway blocked.

Level 2: Roadway Assist for lane blocking incidents – Incidents of short duration which occupy the travel lanes up to 30 minutes

Level 3: Roadway Assist for lane blocking crashes or crashes involving injuries – Incidents of short-term stationary nature which occupy the travel lanes for a time up to approximately 90 minutes.

Level 4: Roadway Assist for major property damage, spilling of hazardous materials, fatality, or criminal investigation – Major incidents which may necessitate closure of the entire travel lanes of the roadway for an extended period. If an incident is expected to last more than 24 hours MUTCD requirements for work zone traffic control must be met.

Incident Severity

The MUTCD categorizes incident severity into 3 levels based on lane blockage duration: Minor, Intermediate, and Major. The image below details the criteria for the 3 severity levels.

More detailed information on incident severity levels can be found in the most current versions of the MUTCD or the TDOT HELP Operator Training Manual.

MINOR • Affects traffic less than 30 minutes	INTERMEDIATE • Affects traffic 30 to 120 minutes • Tennessee target 90 min.	MAJOR • Affects traffic more than 2 hours
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HELP Operator Training Manual (2023)

Incident Response Codes

The HELP Operators typically patrol assigned routes on the freeway system but will also be required to suspend their routine patrol to respond to an incident. An incident's severity establishes the response warranted by the HELP Operator. The image below details the criteria for the 3 levels of code responses HELP Operators will engage in.

More detailed information on HELP Operator incident response procedures can be found in the most current version of the TDOT HELP Operator Training Manual.

	CODE 1	CODE 2	CODE 3
Description	<i>Unconfirmed Incident while continuing Normal Patrol</i>	<i>Confirmed Incident not Blocking Mainline Travel Lanes and Diverted from Normal Patrol with Supervisor Approval</i>	<i>Confirmed Incident when Main Line Travel Lanes are Blocked</i>
Example	Vehicle on the right shoulder- unknown problem & unconfirmed	Confirmed vehicle on the left shoulder - issue with the vehicle	Confirmed crash in the mainline travel lane or confirmed broken-down vehicle in the travel lane.

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Appendix D – DMS Procedures

Overview

The use of all Dynamic Message Signs (DMS), fixed location and portables assigned to the TMC, is limited to the TDOT TMC. The message design and display of the DMS messages must provide timely, reliable, accurate, and relevant information to be effective.

TDOT maintains authority to always control the DMS. TDOT owns all DMS on controlled access highways and is responsible for all activities impacting travelers along these corridors. TDOT has precedence and final authority over any use of these signs and message content approval. The TMC staff that monitors each incident shall be responsible for validating the continuance and clearance of DMS messages. TMC Shift Supervisors are responsible for ensuring that all active messages during the shift are accurate, appropriate, and removed when not needed.

For real-time messaging, only information about incidents, traffic, roadwork, environmental, or pavement conditions that could affect driver safety and traffic efficiency shall be displayed on the DMS.

For planned and awareness messaging, only information about scheduled roadwork, campaign messages, Amber Alerts, Blue Alerts, and special events that will adversely affect travel shall be displayed on the DMS.

Any other exceptions to messaging must be pre-approved by HQ Traffic Operations Division. Requests for special messages should be submitted by email to tdot.trafficops@tn.gov at least five weekdays in advance.

Objectives

Credibility

Credibility is an extremely important consideration in properly operating a DMS system. Regardless of how well a message is designed, motorists will eventually come to distrust the signing system if the messages are not changed at the correct times and updated to reflect current traffic conditions. Each time the information displayed is disproved, the credibility of the system decreases. Eventually the messages are ignored and the DMS system is in jeopardy.

The primary reasons why message credibility suffers:

- Information is inaccurate (e.g., no accident is observed when traffic passes by the location where an incident was displayed on a DMS).
- Information is not correct (e.g., the message is not consistent with current conditions).
- Information is irrelevant (e.g., the message displays lane blockage information regarding an incident across the state).

- Information is obvious by inspection (e.g., the message displays a heavy congestion warning when motorists are driving bumper to bumper in peak traffic).
- Information is repetitive (e.g., the message is the same each morning when motorists pass the sign). Displaying the same information daily for recurring congestion on a DMS can result in many motorists ignoring the DMS messages over time. When an important message is displayed that will impact their trip, the motorists may not read the message. Some agencies use flashing beacons on DMS to attract the attention of motorists when important messages are displayed.
- Information is trivial (e.g., “DRIVE CAREFULLY,” “SUPPORT YOUR LOCAL RED CROSS,” time and temperature). Displaying trivial information can result in many motorists, particularly commuters, ignoring the messages that have no direct impact on their trips and consequently will begin ignoring the DMS.

Consistency

Drivers need consistency in messaging formats and styles so when moving from one Region to another, the driver is accustomed to how the message is delivered. Consistency builds understanding, and drivers are more likely to understand messaging that is similar.

A consistent approach uses Federal Highway Administration guidance at its core and is foundational. The FHWA guidance is responsible for message creation, including using exits as a reference point in messaging.

Accuracy

To ensure that DMS credibility remains high, message accuracy must be a top priority for the staff. Staff must constantly monitor incidents and modify messages as the situation changes. If TMC staff are unable to monitor an incident, DMS message activation and alteration can only be made after information is provided from a reliable source or agency that is on scene (e.g., a HELP driver, local PD, THP).

Accuracy is reliant on TMC staff confirming an incident’s location, roadway impact, expected duration and understanding the scope of potential emergency responders that are likely to arrive as the timeline of the incident progresses.

Message Formatting

All DMS lines should have a 21-character limit, including spaces, depending on the font size and style chosen to be used. The messages should always be in all capital letters.

In general, the pattern for the display of DMS messages involving lane blockage should follow this basic format:

Line 1: The Problem. What is the reason for the message (blocked lanes)?

Line 2: The Location. Where is the problem (at, past, before an exit)?

Line 3: The Distance. How many miles ahead (DMS location to the problem location)?

Examples



Lane blockage messages are the most common types of DMS messages. However, there are exceptions to the typical formatting depending on the type of message and whether the message is scheduled to a roadway project where exact lane blockage is unknown.

Alternate DMS Examples



Line 1 Usage:

The first line on DMS is typically used to describe the type of impact or non-recurring situation. The accuracy and detail of this information is vital for the composition of a concise and accurate message. Line 1 should never be blank.

The following message types are commonly found in Line 1 of DMS.

- **(RIGHT, LEFT or CENTER) LANES BLOCKED:** To be used when a verified incident is affecting the normal traffic flow for that specific time of day. This message will be used for any incident that blocks travel lanes.

- **(RIGHT, LEFT or CENTER) LANES CLOSED:** To be used when a verified highway construction, maintenance incident, or any other long-term incident is affecting the normal traffic flow for that specific time of day.
- **ONE LANE TRAFFIC:** To be used when only one lane or shoulder is useable for travel. Shoulder traffic is considered one lane traffic flow. This is also typically used during complex crash scenes where a line of traffic is weaving in between a crash before emergency responders are able to control traffic.
- **SLOW TRAFFIC (LOCATION)/LANE BLOCKAGE CLEARED:** To be used in the event of non-recurring congestion or as a result of a cleared incident. Another cause of non-recurring delays could be when motorists cause congestion by “rubbernecking” an incident that has occurred in the opposite direction of traffic flow. This message must be used conservatively to be effective and should be turned- off immediately when the congested conditions start to subside.
- **(LOCATION) TRAFFIC:** To be used to direct diverted traffic in conjunction with DMS downstream.
- **(LOCATION) CLOSED:** To be used when a mainline roadway is closed at some point downstream due to the effect of an incident. This message shall only be used when the entire roadway is blocked and impassable by traffic.
- **RAMP PARTIALLY CLOSED:** To be used when there is an incident on an exit ramp, but traffic is still able to get by.
- **SLOW RAMP TRAFFIC:** To be used when exit ramp traffic extends onto the highway and causes stopped traffic in a travel lane.
- **DEBRIS:** To be used to alert motorists of any verified debris that is a safety hazard or adversely affecting traffic flow. This message should be used for any debris that is unaccompanied by a vehicle or is not related to a crash. For example, a debris message should not be used to refer to a spilled load in the event of a truck rollover.
- **ROADWORK:** To be used to alert motorists to any verifiable roadwork that closes a lane or shoulder. The term “roadwork” refers to any maintenance or construction projects.
- **LEFT SHOULDER BLOCKED:** To be used when a vehicle is located on an unsafe left shoulder or the motorist needs assistance.

Line 2 Usage:

The second line on DMS is typically used to refer to the location of an incident, the location of congestion caused by an incident, or some other non-recurring event. Knowledge of the incident location give motorists the decision to continue driving the planned course or search for an alternate route. Exit numbers are typically used as a point of reference for the incident location. Line 2 should never be blank.

The following wordings are commonly found in Line 2 of DMS.

- **AT (EXIT):** To be used when an incident occurs at or between the exit and entrance ramp of a roadway.
- **PAST (EXIT):** To be used when an incident is downstream from the nearest entrance ramp or intersection.
- **BEFORE (EXIT):** To be used when an incident is upstream from the nearest exit ramp or intersection.
- **BETWEEN (EXIT):** The symbol “-“ is used when an incident is between two well-known exits (e.g., BETWEEN EXIT 99-102).

Line 3 Usage:

The third line on DMS is typically used to relay the distance from the DMS sign to the incident. This line is also used as a call to action or warning for motorists to heed.

The following message types are commonly found in Line 3 of DMS.

- **(#) MI AHEAD:** To be used for any situation that lies immediately downstream of the DMS. Mileage used is in half mile increments and as a decimal point (e.g., 3.5 MI).
- **AHEAD:** To be used without a mileage number when the incident is half a mile or less downstream from the DMS.
- **Blank Line:** To be used in rare occasions where 2 lines provide complete information or if there is a 2-page alternating DMS message and page 2 of the message does not need a third line of information.
- **MERGE LEFT/MERGE RIGHT:** To be used if lane closures are within a quarter mile of the DMS.
- **USE CAUTION:** To be used to inform motorists of a hazardous situation where the safety of the motorists or responding agencies are at risk. This message should only be used if the back of the queue is one mile or less from the DMS.
- **USE (ALTERNATE ROUTE LOCATION):** To be used for major incidents that cause excessive traffic delays. Alternate routes here should list the roadways that motorists should take to detour around the incident (e.g., USE I-24E TO I-65S).
- **CONSIDER ALT ROUTE:** To be used for major incidents that cause excessive traffic delays. There is no specific route suggested. The decision is left for motorists to decide whether to continue toward the incident or to divert. This message is also commonly used for future project advisories for motorists to consider ahead of time.
- **FOLLOW DETOUR:** Detour messages can only be run with the approval of the TMC Shift Supervisor or TMC Management. They can be used for incidents where all travel lanes are closed, motorists are not permitted to bypass the incident scene, and an established detour is set up by maintenance crews or law enforcement personnel.

Message Abbreviations

DMS messages should only include abbreviations when necessary. Abbreviations are needed when full words exceed the character limit a line of a DMS message. Full words should always be used if the number of characters will fit and convey the desired message.

Below are the abbreviations for common words used by TDOT for DMS messages.

DMS Abbreviations				
ALTERNATE	ALT		MONDAY	MON
AVENUE	AVE		NORTHBOUND	N
BOULEVARD	BLVD		PARKING	PKING
CENTER	CNTR		PARKWAY	PKWY
CLOSED	CLSD		PIKE	PK
DRIVE (location)	DR		RIGHT	RT
EASTBOUND	E		ROAD	RD
FEET	FT		SATURDAY	SAT
FRIDAY	FRI		SHOULDER	SHLDR
HIGHWAY	HWY		SOUTHBOUND	S
INTERSTATE	I-		STATE ROUTE	SR
JUNCTION	JCT		SUNDAY	SUN
LANE	LN		THROUGH	THRU
LEFT	LFT		THURSDAY	THUR
MAXIMUM	MAX		TUESDAY	TUES
MILE MARKER	MM		VEHICLE	VEH
MILES	MI		WEDNESDAY	WED
MINUTES	MIN		WESTBOUND	W

Message Types

Advertising

Messages advertising a product, service, campaign, or political party are prohibited. Messages for special events should be designed such that advertising is not embedded in the messages.

AMBER Alerts

A DMS message should be displayed for AMBER Alerts only at the direct request of the Tennessee Bureau of Investigation (TBI). If any law enforcement agency requests activation of a DMS in support of an AMBER Alert, ask them to notify TBI.

In an effort to prevent impulsive vigilantism, vehicle details are not to be displayed if there is no license plate number given within TBI's AMBER Alert details.

TDOT has the sole discretion to override AMBER Alerts for any message activation that is in the interest of motorist safety.

Procedure for AMBER Alerts

1. TBI issues an AMBER Alert.
2. TBI will contact the TMC and request to speak to a lead employee.
3. TBI will inform the TMC employee of the alert and will send an email with the following information:
 - Name and rank of TBI Official
 - Area of the state where the abduction took place
 - Suspect vehicle description and license number if available
4. The TMC employee will then verify the authenticity of that call by calling TBI at **1-800-TBI-FIND** and confirming the AMBER Alert activation.
5. Once the AMBER Alert has been confirmed, the TMC will post properly formatted alert messages on all available DMS (see format below) and set to a high priority level.
6. The TMC will post a 511 Floodgate message with TBI contact information and any suspect vehicle details, if applicable.
7. The TMC will post alert messages on all available HAR devices with TBI contact information and any suspect vehicle details, if applicable.
8. The TMC employee will notify TMC Management.
9. The TMC will leave the DMS, 511 Floodgate, and HAR posted for three (3) hours.

10. TBI will update before the three-hour expiration and request an additional 3 hours of alert displays if necessary.
11. TBI will notify the TMC when the situation is resolved and all alerts can be deactivated.
12. If TBI misses the three-hour notification deadline, the TMC is to call **1-800-TBI-FIND** to confirm whether the situation is resolved or still ongoing.

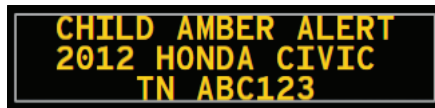
Format for AMBER Alerts

The following message format is to be displayed on two alternating DMS boards if TBI has specific information on the vehicle:

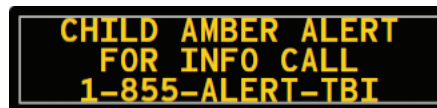
DMS Page 1: CHILD AMBER ALERT | YR COLOR MAKE MODEL | STATE AND LICENSE PLATE

DMS Page 2: CHILD AMBER ALERT | FOR INFO CALL | 1-855-ALERT-TBI

Example Page 1



Example Page 2



The following message format is to be displayed if no vehicle information is available:

DMS Page 1: CHILD AMBER ALERT | FOR INFO CALL | 1-855-ALERT-TBI

Example



Blank Signs

DMS may be blank mode when traffic, roadway, or environmental conditions do not warrant the display of a message.

Blue Alerts

A DMS message should be displayed for Blue Alerts only at the direct request of TBI. If any law enforcement agency requests activation of a DMS in support of a Blue Alert, ask them to notify TBI.

In an effort to prevent impulsive vigilantism, vehicle details are not to be displayed if there is no license plate number given within TBI's Blue Alert details.

TDOT has the sole discretion to override Blue Alerts for any message activation that is in the interest of motorist safety.

Procedure for Blue Alerts

1. TBI issues a Blue Alert.
2. TBI will contact the TMC and request to speak to a lead employee.
3. TBI will inform the TMC employee of the alert and will send an email with the following information:
 - Name and rank of TBI Official
 - Area of the state where the incident took place
 - Suspect vehicle description and license number if available
4. The TMC employee will then verify the authenticity of that call by calling TBI at **1-800-TBI-FIND** and confirming the Blue Alert activation.
5. Once the Blue Alert has been confirmed, the TMC will post properly formatted alert messages on all available DMS (see format below) and set to a high priority level.
6. The TMC will post a 511 Floodgate message with TBI contact information and any suspect vehicle details, if applicable.
7. The TMC will post alert messages on all available HAR devices with TBI contact information and any suspect vehicle details, if applicable.
8. The TMC employee will notify TMC Management.
9. The TMC will leave the DMS, 511 Floodgate, and HAR posted for three (3) hours.
10. TBI will update before the three-hour expiration and request an additional 3 hours of alert displays if necessary.
11. TBI will notify the TMC when the situation is resolved and all alerts can be deactivated.
12. If TBI misses the three-hour notification deadline, the TMC is to call **1-800-TBI-FIND** to confirm whether the situation is resolved or still ongoing.

Format for Blue Alerts

The following message format is to be displayed on two alternating DMS boards if TBI has specific information on the vehicle:

DMS Page 1: TN BLUE ALERT | YEAR COLOR MAKE MODEL | STATE AND LICENSE PLATE

DMS Page 2: TN BLUE ALERT | FOR INFO CALL | 1-855-ALERT-TBI

Example Page 1



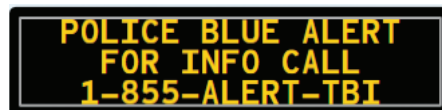
Example Page 2



The following message format is to be displayed if no vehicle information is available:

DMS Page 1: POLICE BLUE ALERT | FOR INFO CALL | 1-855-ALERT-TBI

Example



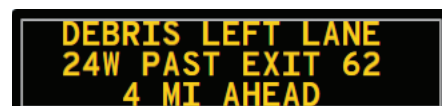
Debris

DMS should be activated for any debris on the roadway causing traffic diversion or safety hazards. The wording of the DMS should specifically reference debris to communicate to motorists to be on the lookout for unique and unpredictable objects downstream.

Debris DMS messages should never be used to refer to a vehicle or pedestrian. Debris DMS messages can be used to refer to animal carcasses.

If a good Samaritan or an emergency responder stops to remove the debris, the DMS messaging should be quickly changed to display a typical lane blockage message.

Example



Full Color DMS

The colors used for the legends and backgrounds on DMS shall be as provided in the table of “Common Uses of Sign Colors.” (See Table 2A-2 of the 2023 [Manual on Uniform Traffic Control Devices](#) (MUTCD), or equivalent table in a superseding MUTCD). A single DMS phase may be used to display a standard static sign as allowed by the MUTCD. The image shall be a reasonable approximation of the standard MUTCD sign. Text may be combined with an image of a standard MUTCD sign on a single DMS phase.

Intermodal Information

DMS may be used to display messages to inform motorists of conditions to assist them with intermodal travel. Messages may be used to inform motorists of the availability of parking at Park-and-Ride facilities, commuter rail train schedules, or other applicable inter-modal information as approved by TDOT. This information is of a lower priority than information concerning roadway incidents and other situations that affect motorist safety.

Outside Agency Support

Any DMS message requests made by media outlets, law enforcement personnel, or other outside agencies must be authorized by the regional Traffic Operations Manager. Examples may include weather suggestions, planned projects in adjoining states, or public service announcements.

Example



Peak Period Messages

During daily peak traffic periods, messages shall be used to advise motorists of travel times and unusual conditions (e.g., crashes and lane blockages). DMS shall not be used to advise motorists of normal daily recurrent peak traffic congestion conditions (e.g., “HEAVY TRAFFIC”).

Pre-Warning/Construction

Pre-warning messages are displayed on DMS to warn motorists of future roadwork or other projects that will affect travel times or include lane blockages. The planned work must be confirmed in writing and planned at least 24 hours in the future. If the planned work is cancelled, any scheduled pre-warning DMS must be cancelled.

The priority number of an incident should override pre-warning messages automatically. If this does not happen, pre-warning DMS should be deactivated and replaced as needed.

Once the incident is cleared the pre-warning messages should be reactivated.

Pre-warning messages should be posted after 7PM, ideally one hour before the planned work. Exceptions may include projects beginning before 7PM or major projects that will cause significant traffic delays and lane closures.

TMC Management may override any decisions on how many DMS are used during rush hour.

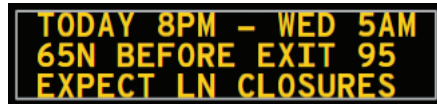
Typical Format:

Line 1: (DAY) (Scheduled Start Time) - (DAY) (Scheduled Finish Time): If the work will be started and finished within the same day, only use (DAY) once.

Line 2: (Location): using AT, PAST or BEFORE.

Line 3: (Lanes Impacted): if unknown use EXPECT LN CLOSURES.

Example



Public Service Announcements (PSA)

PSAs related to driver safety issues can be displayed, but only as a supplement to local or statewide driver safety media campaigns on the same topic. The PSAs shall not be displayed in urban areas during the peak periods except for Air Quality Alerts or other PSAs which target commuters as determined by TDOT's Traffic Operations Division. The total duration of the display should not exceed 6 hours per day (typically 9AM – 3PM) at any permanent DMS location. The number of days is dependent on the duration of the media campaign and will be at the direction of the Community Relations Office.

PSAs should be displayed sparingly (typically one DMS per corridor in a Region) to preserve the integrity of DMS use for communicating urgent traffic messages. Basic principles of effective sign messaging contained in "The Federal Highway Administration's Guidelines for DMS Messaging" indicate that when used on a regular basis for non-critical messages and PSAs, motorists may begin ignoring the signs and miss urgent traffic condition messages.

If more than one PSA are to be displayed on the same day at the same time, both events should be displayed at alternate DMS locations.

The Tennessee Department of Transportation retains sole discretion in determining PSA content and time allocation. PSAs are designed to increase public awareness of traffic or transportation-specific topics and require approval from TDOT's Traffic Operations Division.

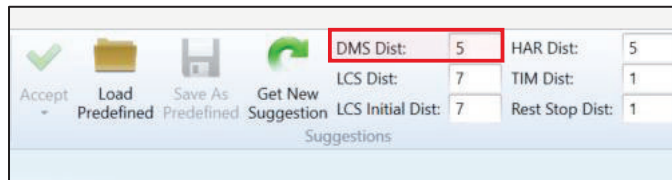
Examples



Queue Management

During an Incident

When DMS are posted in SWCS during an incident, they should extend 3-5 miles by default. When the traffic queue caused by an incident extends past the default distance, the distance should be extended to available DMS to prewarn for motorists approaching the queue. TMC staff should preemptively extend the DMS distance if the incident is expected to cause significant delays.



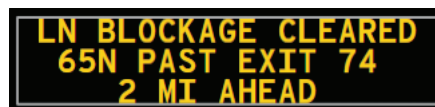
Accept	Load Predefined	Save As Predefined	Get New Suggestion	DMS Dist: 5	HAR Dist: 5
				LCS Dist: 7	TIM Dist: 1
				LCS Initial Dist: 7	Rest Stop Dist: 1

SWCS > Event List > click an event > Save and Suggest Response Plan > edit DMS mileage

After an Incident

The DMS will often remain posted after an incident involving significant lane blockage has been cleared. This scenario will prompt the posting of LANE BLOCKAGE CLEARED messages. When travel lanes and left shoulders are opened/cleared in a SWCS event, the Response Plan should automatically suggest queue management messages. TMC staff will monitor the queue caused by the incident and drop the queue management DMS after the traffic has dissipated or traffic has returned to normal volumes given the location (e.g., rush hour volumes).

Example



Shoulder Incidents with Emergency Vehicle

All shoulder incidents that are being assisted by HELP or any other emergency vehicle within one mile of a DMS on the same route, will have the following message displayed until the emergency vehicle leaves:

EMERGENCY VEH AHEAD | MOVE OVER/SLOW DOWN | IT'S THE LAW

The following stipulations should be met:

- The DMS must be displayed upstream from the scene
- The DMS must be on the same route
- The DMS must be in the same direction
- The DMS message should have a lower priority level (a higher number)

Example



Special Event Messages

Traffic-related information that provides advance notice of upcoming special events that will attract 50,000 people or more and will adversely affect travel by generating major traffic or roadway closures may be displayed. The content of messages for Special Events will be limited to traffic or parking impact only. No mention of the actual event itself is permitted in any Special Event messages. The advance notification should not be given more than seven days prior to the special event. Days of the week should be indicated rather than calendar dates in the message. Messages that impact the safety and operations of the roadway shall have priority over advance notice messages.

Messages may also be used to direct motorists from the primary route to an alternative route that will eventually lead to a parking area. Portable DMS might be used on the alternative route to direct motorists to the special event parking areas. Parking-related messages should not be displayed more than 3 hours prior to the start of the event. Messages that impact the safety and operations of the roadway shall have priority over special event messages.

Coordination and meetings with local agencies should occur quarterly to review and refine this policy. These meetings allow local agencies to see how the police could better utilize the tools the TMC provides.

Examples



Test Messages

It is sometimes necessary to display messages on a DMS to assure correct operations or for special studies. Acceptable test messages should either state TEST or TEST MESSAGE, display a portion of the alphabet, a sequence of numbers, or a non-message test pattern such as moving columns or rows. Other test messages shall be reviewed and approved by the Traffic Operations Manager before being displayed.

Examples



Travel Times

The system is designed to automatically calculate travel times from some DMS to selected destinations using the speed detectors along the freeway. Travel time messages may be displayed at any time when traffic conditions do not warrant the use of other messages. The Traffic Operations Manager can work with regional IT staff to request travel time messaging on certain DMS. The DMS that will utilize travel times must be authorized by TMC Management. Travel times should be displayed during peak travel periods (6AM-9AM and 4PM-7PM).

Examples



Weather

DMS messages are routinely used to warn motorists of roadway hazards caused by weather conditions. During mild weather conditions (e.g., light rain and fog), DMS messaging should be used on all available DMS in the area experiencing an unsafe travel environment. Mild weather DMS are a lower priority than DMS with more crucial information (e.g., construction prewarning, lane blockages, and Amber/Blue alerts).

During severe weather conditions (e.g., tornado warnings and ice), DMS messaging should be used on all available DMS in the area experiencing the severe weather. Severe weather DMS are a higher priority than all messages except messages that detail active lane blockage.

Mild Weather Example



Severe Weather Example



Message Editing

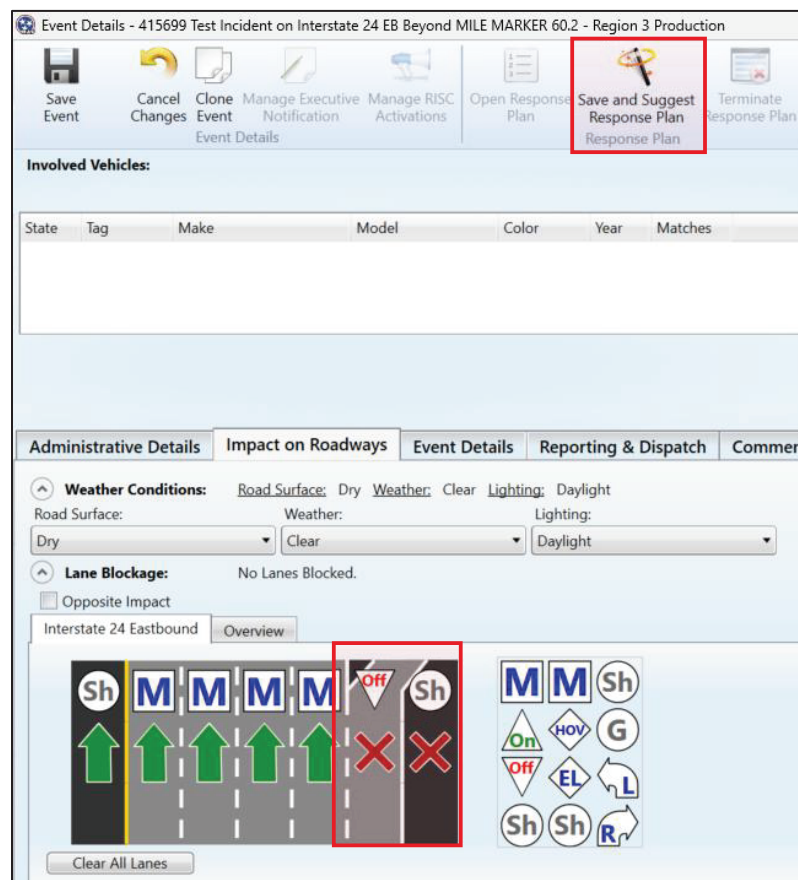
When a DMS message is automatically suggest in SWCS, sometimes the message does not represent the best wording for the specific incident being managed by TMC staff.

Following proper formatting and abbreviation guidelines, a DMS message can be edited before or after activation. Typically, either Line 1 or Line 2 of the DMS message will be edited. Line 3 indicates distance and it is more likely the event was created at the wrong location rather than the generated DMS line being incorrect.

Example scenario:

A crash has occurred on an interstate in a lane that is displayed as an exit ramp in the SWCS software. This particular ramp lane is combined with an acceleration ramp and is much longer than a typical exit ramp lane.

The suggested DMS signs display “RAMP PARTIALLY CLSD” for Line 1. The TMC technician feels it would be more comprehensible for approaching motorists if the upstream DMS signs read “RIGHT LANE BLOCKED” instead. The hope is to help communicate that the crash is a decent distance before the actual departure area of the ramp to the surface street.



SWCS > Event List > click an Event > Save and Suggest Response Plan > edit DMS mileage

Response Plan: Event 415699 - Region 3 Production

Activate Plan Terminate Plan Add Item Edit Item Remove Item Find Devices on Map View Associated Camera Edit Activation Delay Accept Load predefined Save As predefined Get New Suggestion DMS Dist: 5 HAR Dist: 0 LCS Dist: 10 TIM Dist: 1 LCS Initial Dist: 2 Rest Stop Dist: 1

Current Plan: **Suggestions**

Available Suggestions: Automatically Generated

Device Details	Roadway/Direction	Mile Marker	Suggested Plan Message Details
511 ATIS			Incident in DAVIDSON county going Eastbound on Interstate 24 beyond MILE MARKER 60.2 with Off-ramp closed Last updated 5/8/2025 11:43:55 AM
Email			Email Groups: I-24 SMART Corridor, TDOT Region 3 Noti Subject: Title: Incident Location: DAVIDSON I0024 EB Exit 60 Beyond MM 60.2 Body: EVENT LOCATION: DAVIDSON Interstate 24 Eastbound Beyond MM 60.2 INCIDENT: Incident IMPACT: Exit Ramp Closed, Right Shoulder Blocked. EXPECTED DURATION: 0 MINUTES TDOT INCIDENT COMMANDER ON SCENE: Notes: Notes:
DMS R3E-00124-056.3E (79) [(Local) Region 3] Active	Interstate 24 Eastbound	56.2	RAMP PARTIALLY CLSD 24E PAST EXIT 60 4 MI AHEAD

Until Canceled 5

Click suggested DMS to edit > click Accept > All/Selected Items

Response Plan: Event 415699 - Region 3 Production

Activate Plan Terminate Plan Add Item **Edit Item** Remove Item Find Devices on Map View Associated Camera Edit Activation Delay Accept Load predefined Save As predefined Get New Suggestion DMS Dist: 5 HAR Dist: 0 LCS Dist: 10 TIM Dist: 1 LCS Initial Dist: 2 Rest Stop Dist: 1

Current Plan Suggestions

Device Details	Roadway/Direction	Mile Marker	Activation Action	Response Plan Message Details
DMS R3E-00124-056.3E (79) [(Local) Region 3] Active	Interstate 24 Eastbound	56.2	Add	RIGHT LANE BLOCKED 24E PAST EXIT 60 4 MI AHEAD

Until Canceled 5

Click the DMS > Edit Item

DMS: R3E-00124-056.3E (79)

Priority: 5 1-256

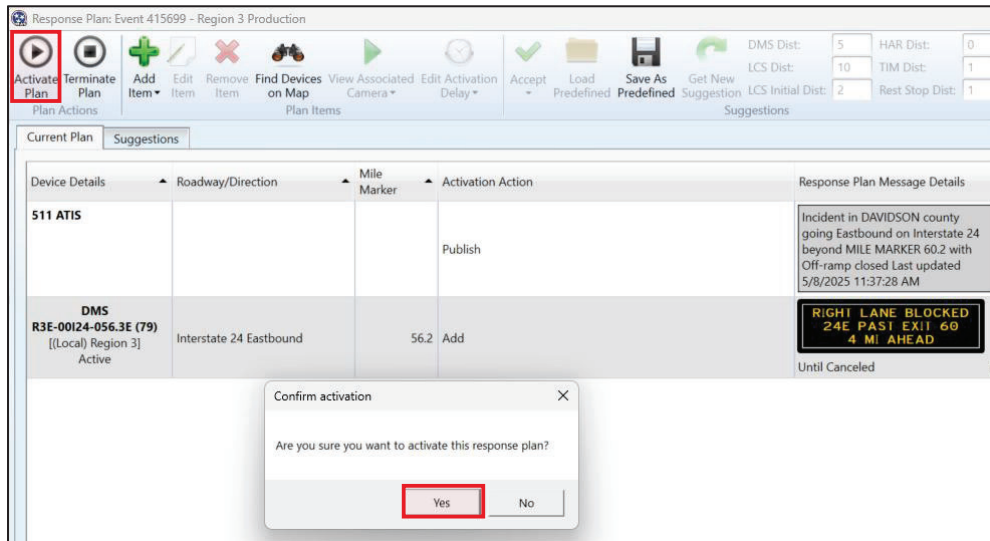
☒ Force Caps ☐ Enable Beacons

Message Libraries

RIGHT LANE BLOCKED
24E PAST EXIT 60
4 MI AHEAD

Font: 20x16_4_SeriesE(M) Graphic: None Color: Default Sign default

Click and edit the wording (typically only Line 1) > Save

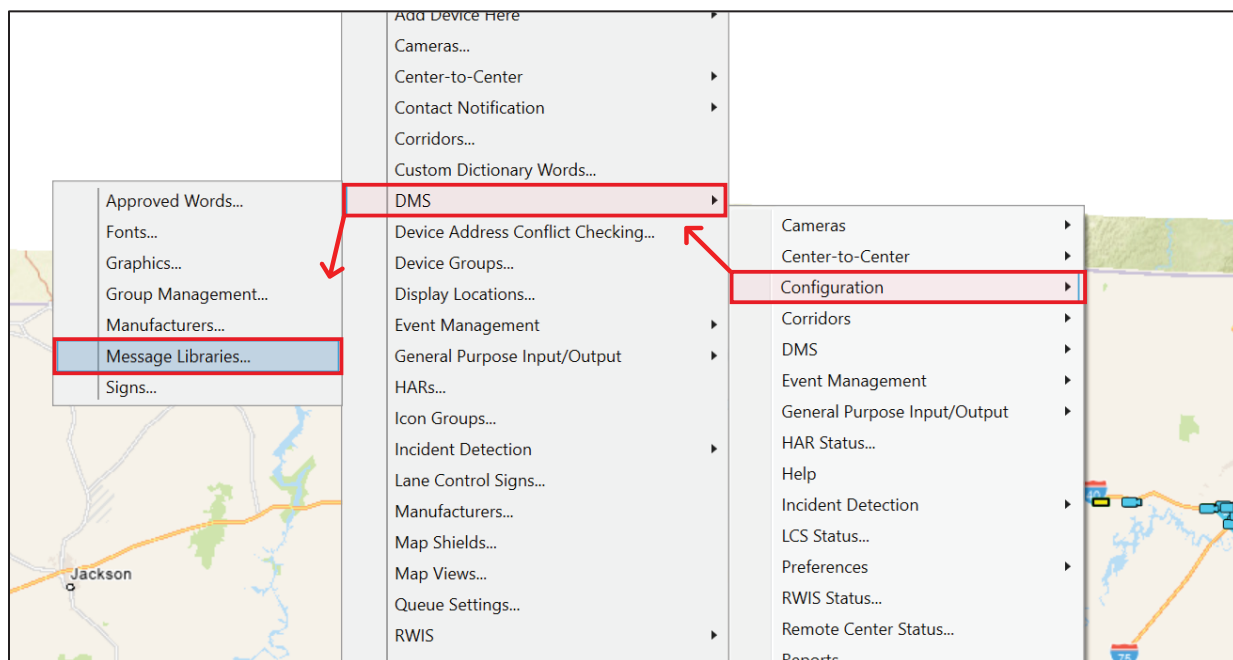


Click Activate Plan > click Yes

Message Library

Use of the message library gives staff the ability to select a proper message to display. The message library contains predefined messages (following the proper message design process) prepared for known issues and approved awareness campaigns. If a problem develops that fits the scenario, TMC staff can utilize DMS signs within the library.

Message Library Location

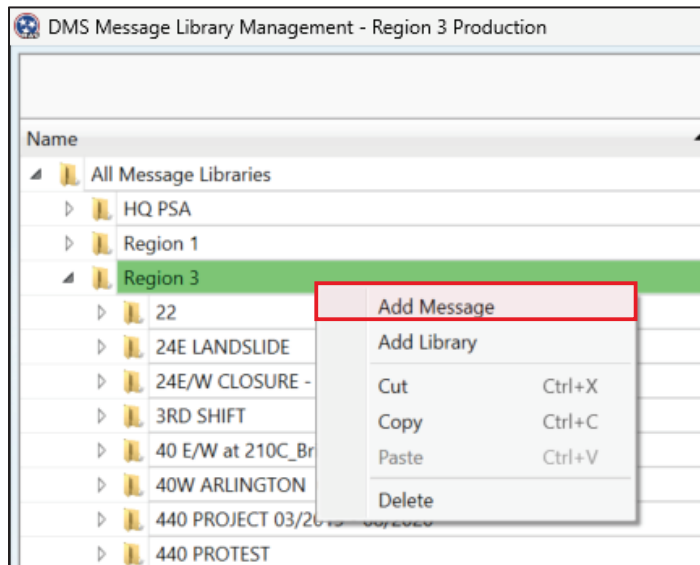


SWCS Map > mouse right click > Configuration > DMS > Message Libraries

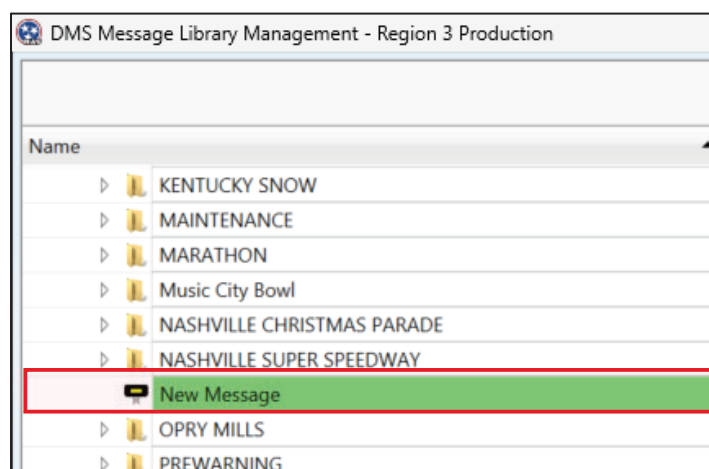
Adding a Message

Because of the importance and publicity of DMS messaging, only TMC Shift Supervisors, with the approval of TMC Management, may create and add a new message to the library.

Once in the DMS message library, select the correct folder for which Region or division the new message should reside in. When a new message is created it will appear in alphabetical order in the current list as “New Message.” Scroll down and click the new message to rename and edit it.



Right click within folder > Add Message

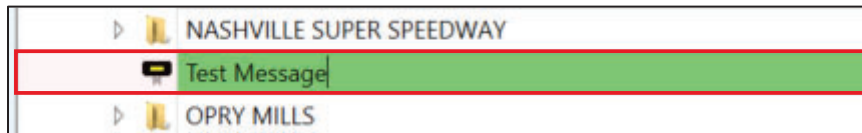


Scroll down to New Message

Editing a Message

Because of the importance and publicity of DMS messaging, only TMC Shift Supervisors, with the approval of TMC Management, may edit already created and approved messages in the library.

To rename a message, left click the message name and change the text. The sign can be dragged and dropped into any fold in the library if needed.

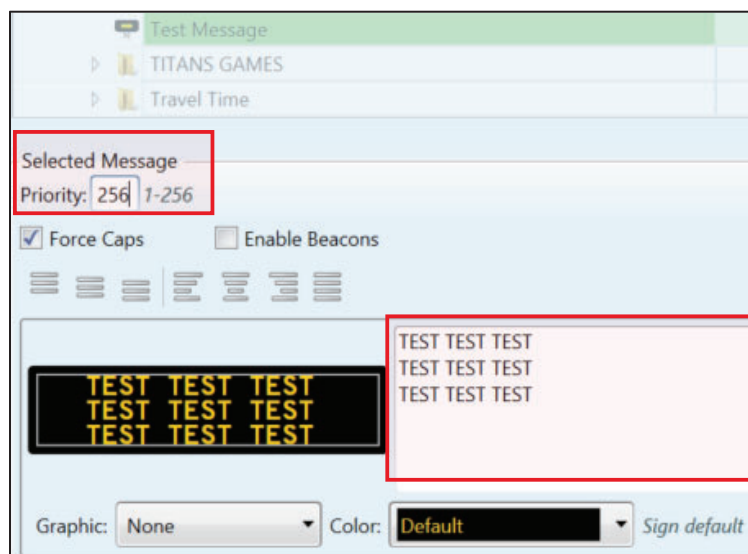


After the message is clicked, the text and style of the message can be edited at the bottom of the page. All text formatting should adhere to procedures detailed in the [DMS Message Formatting](#) section in this document. Almost all modification settings on this page should be left in their default mode. When the sign is created, click “Save” in the bottom right.

Note the Priority setting in the screenshot below. This setting is often set to a higher number for awareness or campaign messages to give priority posting to DMS messages with more vital information when there is a posting conflict. The priority number on newly created signs will default to Priority 1.

A lower priority number indicates a sign that displays emergency information that motorists must see as soon as possible. Priority 1 example: a sign indicating a blocked lane ahead.

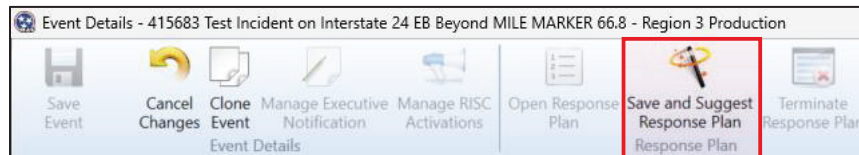
A higher priority number indicates a sign that can contain important or relevant information but is not as pressing for motorists to see if there is a conflicting emergency message. Priority 256 example: a campaign message for air quality control awareness.



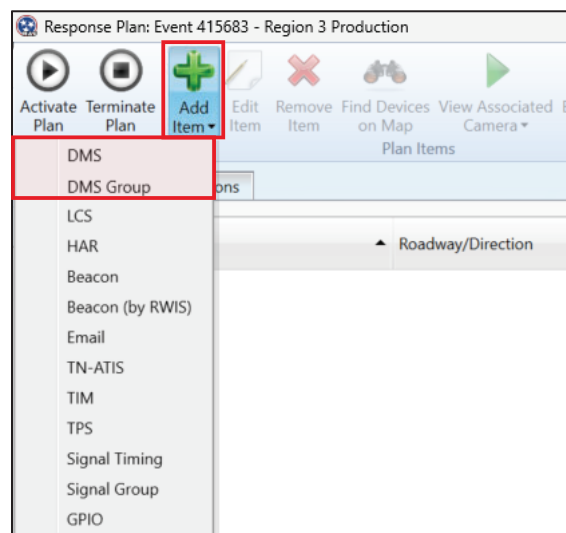
Selecting a Message Within an Existing Event

To make use of a preformatted and preapproved message in the DMS message library, a variety of chosen DMS locations can be selected in a created event in SWCS using the Event List.

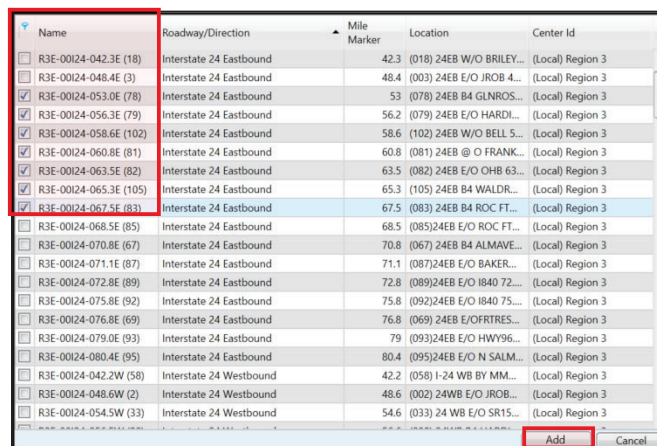
Once an event is created, open the Response Plan and add specific DMS that should display the message.



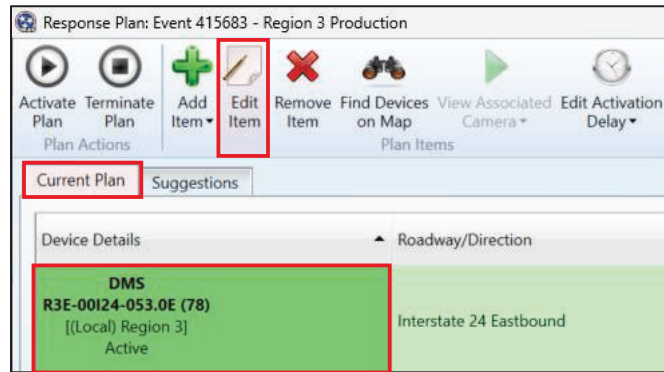
SWCS Event List > click an event > Save and Suggest Response Plan



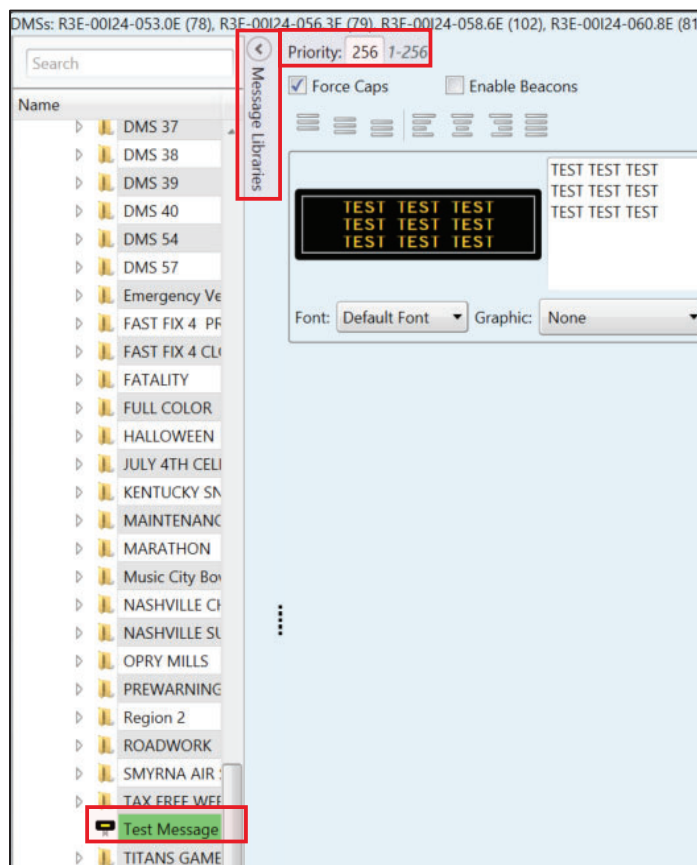
Current Plan tab > Add Item > DMS or DMS Group



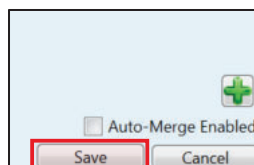
Click checkboxes to select DMS > click Add



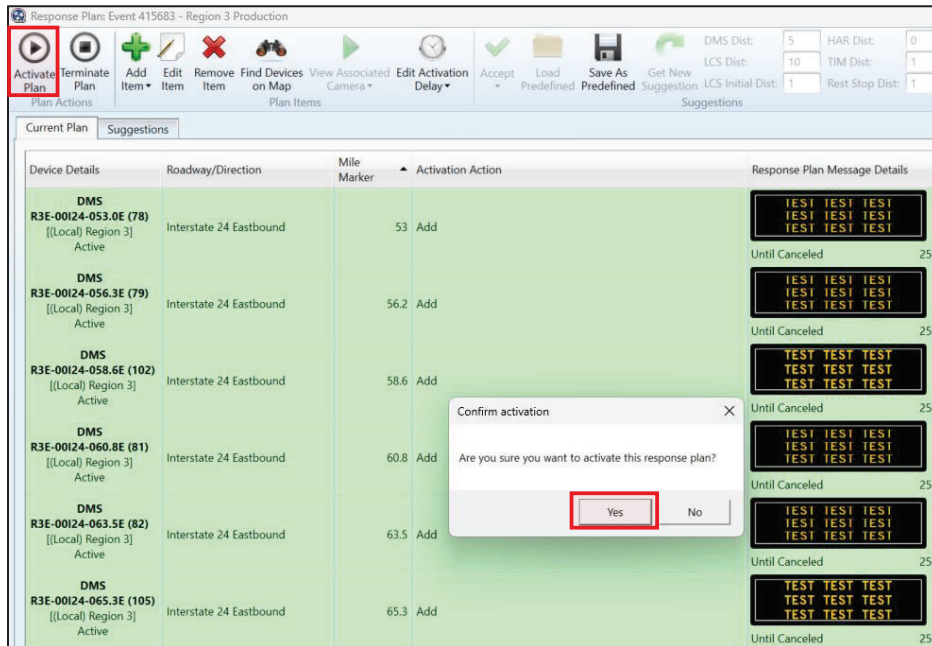
Current Plan tab > click a DMS location (shift + click for several at once) > Edit Item



Click Message Libraries button > click desired message > ensure Priority is correct



Click Save



Click Activate Plan > click Yes to activate

Manual Activation of DMS

If there is a need to post individual DMS messaging without the preprogrammed Response Plan feature within SWCS, it is important to understand the basic strategy for message posting.

Selection of DMS

The general accepted policy is to activate at least two upstream DMS for any lane closure incident. Think of the motorist as they travel under the DMS and allow for at least two opportunities to exit prior to arriving at the incident. More DMS should be activated as the effects on traffic change or the length of time for the closure increases.

It is important to confirm the direction of roadway an incident occurred on. A DMS may be located directly upstream from an incident, but the sign could be installed and displaying messages on the opposite side of the roadway. If an incident is split between both directions on a roadway, DMS messaging for both directions would be permitted.

After an incident location is confirmed, it is best practice to view a map and decide if traffic approaching from alternate DMS-equipped interstates and state routes have the possibility of arriving to the incident location. The roadway the incident occurred on will often not be the only route affected.

For advance warning of future lane closures and special events, the messages being displayed are usually a general warning and can be displayed on DMS over a wide area.

Because of the relatively infrequent spacing of fixed DMS, portable DMS may need to be provided to augment fixed signs for major events or queues.

Desired Motorist Response

The TMC staff controlling a DMS must decide what they want motorists to do in response to the message that is to be displayed. Most messages will encourage motorists to reduce speed, take an alternate route, or move out of a blocked lane. The chosen response will dictate how the wording in the message is written and displayed.

Message Selection

The SWCS system contains a message library that allows TMC staff to utilize preformatted message templates for various types of incidents and scenarios. If a problem develops that fits the scenario, staff should select a message from the library and display it on the appropriate DMS. This approach requires that the staff be able to verify that all the information to be displayed on the DMS is correct (e.g., which lanes are blocked and the location of the incident).

Message Modification

Some DMS messages may require modifications by TMC staff prior to displaying it on a sign. The modification may be needed to display the correct location of an incident to motorists, the lane(s) that are affected, the action that should be taken, etc. All modified messages must follow the MUTCD rules for abbreviations. Always use full words when possible and use abbreviations only when needed.

The potential for errors among modified messages can increase during periods of high staff workload. Staff need to pay special attention to ensure that the message is reviewed prior to posting on a DMS.

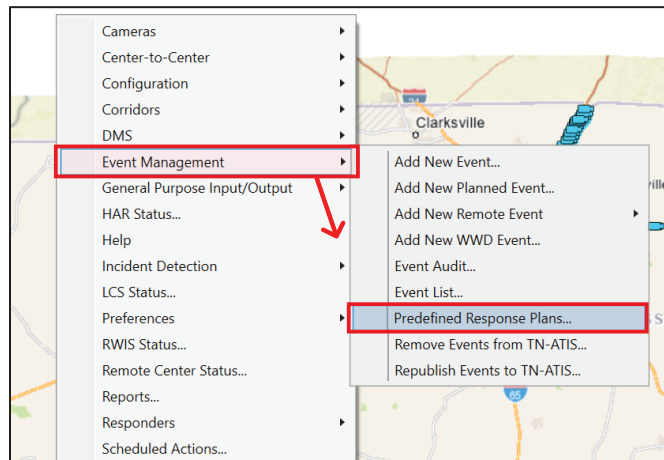
Message Creation

If a message in the library does not properly address the conditions or cannot be modified to address the situation, a new message must be created. Principles and procedures illustrated in the next section of this manual should be followed to formulate the message. Staff who have responsibility for creating new messages must have adequate training of the message design process.

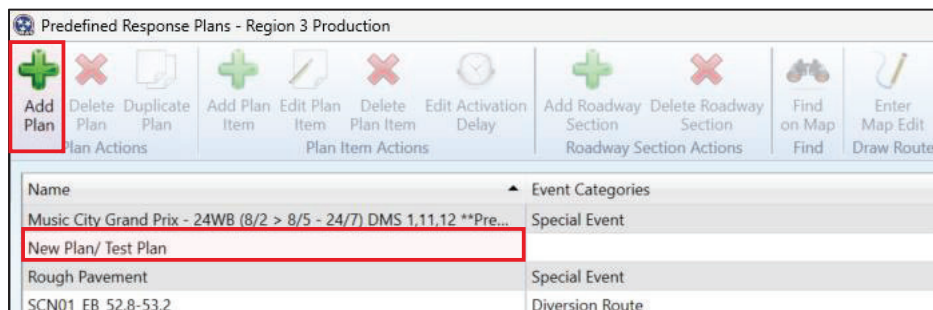
No new message format will run without prior approval of the TMC Shift Supervisor. TMC staff will create the approved message that will work for the incident and then request the TMC Shift Supervisor to review and approve the message. The TMC Shift Supervisor will be responsible to make sure the message meets the message guidelines approved by TMC Management and does not contain any banned words or phrases.

Predefined Response Plans

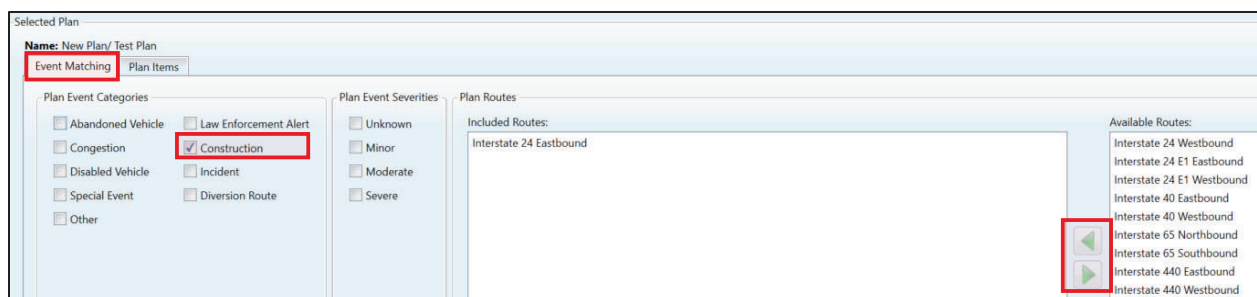
A variety of chosen DMS locations can be selected and paired with preformatted DMS messages and saved into a Predefined database. This will store the message and chosen locations for future use, removing the need to add individual locations manually. This is especially useful for scenarios such as planned construction, yearly festivals, weather safety messages or mass campaign messages.



SWCS Operator Map > mouse right click > Event Management > Predefined Response Plans



Add Plan > scroll to and click the new plan to rename

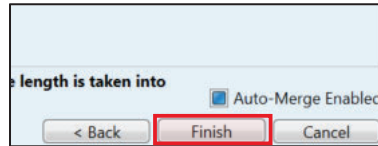


Use check boxes to select the event type > click arrows to include routes

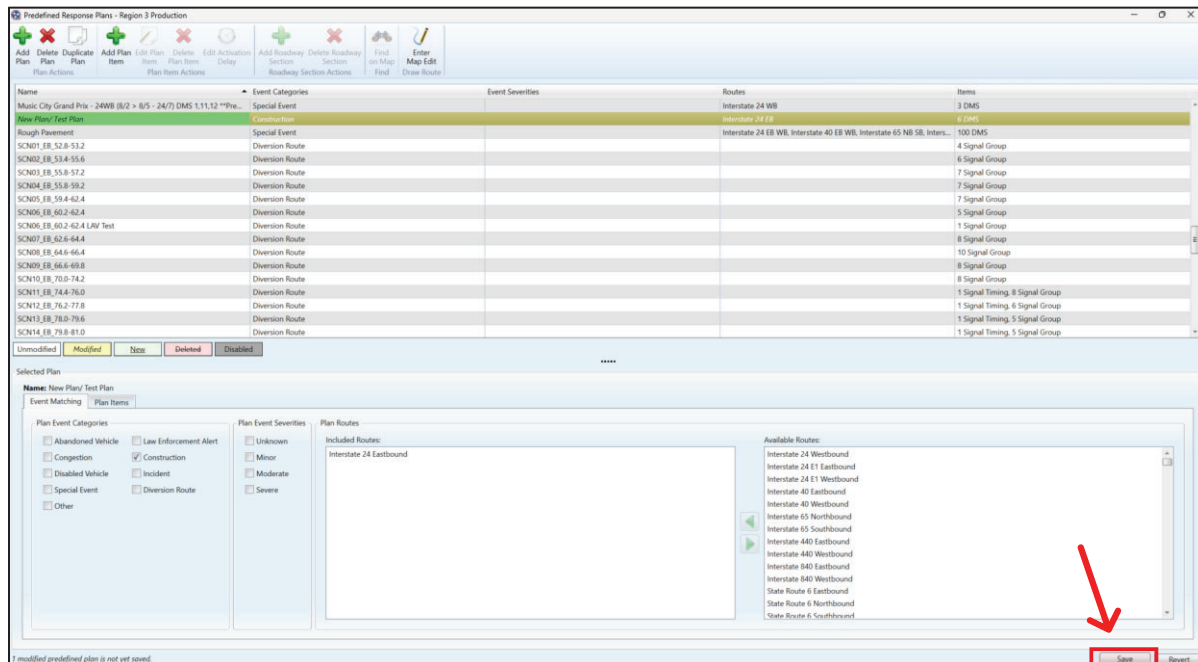
Click Add Plan Item > ensure Item Type is correct > select locations

Click Next

Click Message Libraries button > click desired message > ensure Priority is correct

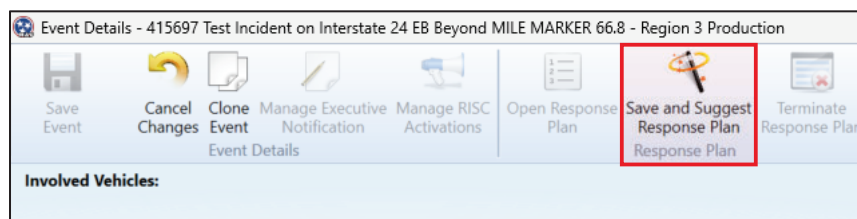


Click Finish

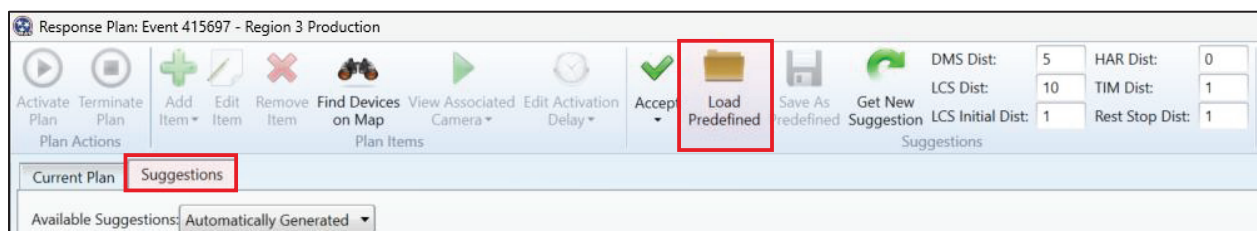


Click Save on the Predefined Response Plans page

The newly created Predefined Response Plan can now be used for any event created within SWCS. To select the plan adhere to the following steps.



SWCS Event List > Create Event > Save and Suggest Response Plan



Suggestions tab > Load Predefined

Select a Predefined Response Plan to load as a suggestion:

Name	Center ID
Music City Grand Prix - 24 EB DMS 3,5,7,14,18,48 Event Day (8/5)	(Local) Region 3
Music City Grand Prix - 24 EB (8/2 > 8/5 - 24/7) DMS 3,5,14 **Prewarn**	(Local) Region 3
Music City Grand Prix - 24 WB DMS 1,11,12,25,33,39 Event Day (8/5)	(Local) Region 3
Music City Grand Prix - 24WB (8/2 > 8/5 - 24/7) DMS 1,11,12 **Prewarn**	(Local) Region 3
NC wide load detour	(Remote) Region 1
New Plan/ Test Plan	(Local) Region 3
Patches of Ice	(Remote) Region 1
Reduce Speed During Wet Conditions	(Remote) Region 1
Roane County Fog East	(Remote) Region 1
Rough Pavement	(Local) Region 3

Load Plan Cancel

Scroll and click the desired plan > Load Plan

Response Plan: Event 415697 - Region 3 Production

Plan Actions: Activate Plan, Terminate Plan, Add Item, Edit Item, Remove Item, Find Devices on Map, View Associated Camera, Edit Activation Delay, **Accept**, Load Predefined, Save As Predefined, Get New Suggestion

Available Suggestions: New Plan/ Test Plan

Device Details: 511 ATIS

Accept > All Items

Click Accept > All Items

Response Plan: Event 415697 - Region 3 Production

Plan Actions: **Activate Plan**, Terminate Plan, Add Item, Edit Item, Remove Item, Find Devices on Map, View Associated Camera, Edit Activation Delay, Accept, Load Predefined, Save As Predefined, Get New Suggestion

Current Plan

Device Details	Roadway/Direction	Mile Marker	Activation Action	Response Plan Message Details
511 ATIS			Publish	Unconfirmed Incident in RUTHERFORD county going Eastbound on Interstate 24 beyond MILE MARKER 66.8 Last updated 5/8/2025 11:20:59 AM
DMS R3E-00124-053.0E (78) [(Local) Region 3] Active	Interstate 24 Eastbound	53	Add	TEST TEST TEST TEST TEST TEST Until Canceled 256
DMS R3E-00124-056.3E (79) [(Local) Region 3] Active	Interstate 24 Eastbound	56.2	Add	TEST TEST TEST TEST TEST TEST Until Canceled 256
DMS R3E-00124-058.6E (102) [(Local) Region 3] Active	Interstate 24 Eastbound	58.6	Add	TEST TEST TEST TEST TEST TEST Until Canceled 256
DMS R3E-00124-060.8E (81) [(Local) Region 3] Active	Interstate 24 Eastbound	60.8	Add	TEST TEST TEST TEST TEST TEST Until Canceled 256
DMS R3E-00124-063.5E (82) [(Local) Region 3] Active	Interstate 24 Eastbound	63.5	Add	TEST TEST TEST TEST TEST TEST Until Canceled 256

Confirm activation
Are you sure you want to activate this response plan?
Yes No

Review Current Plan tab > click Activate Plan > click Yes to activate

Appendix E – LCS Procedures

Overview

The use of all Lane Control Signs (LCS) is limited to the TDOT Region 3 TMC. The symbols displayed on the LCS must provide accurate and comprehensible messaging for motorists to follow and adhere to. The symbols and messages displayed on the LCS are designed to give motorists real time information regarding downstream lane blockages and traffic congestions.

TDOT maintains authority to always control the LCS. TDOT owns all LCS along the I-24 Smart Corridor and is responsible for all activities impacting travelers along this corridor. TDOT has precedence and final authority over any use of these signs and content approval. The designated Integrated Corridor Management (ICM) contractors that monitor each incident shall be responsible for validating the continuance and clearance of LCS. The ICM contractors are responsible for ensuring that all active messages during the shift are accurate, appropriate, and removed when not needed. If no ICM contractors are on shift, these responsibilities are taken on by the TDOT TMC staff. If an LCS emergency or malfunction occurs, the ICM Coordinator is to be contacted.

There are currently 67 LCS gantries that span from mile marker 53.2 to mile marker 70.3 in both directions on Interstate 24. This stretch spans through Davidson County and Rutherford County and is known as the I-24 Smart Corridor. Each gantry is spaced approximately half a mile from each other. Each gantry is fixed with 1 signal head above each travel lane and 1 signal head above the right shoulder.

Objectives

Credibility

Much like DMS, credibility is important when operating and posting on LCS. If activated symbols and messages do not reflect accurate downstream situations, motorists will eventually come to distrust the signage system and messages will be ignored.

The primary reasons why message credibility suffers:

- Symbols are inaccurate (e.g., a red X is left displayed in a lane that is actually open downstream).
- Symbols don't reflect a serious threat (e.g., a red X is displayed due to a flat piece of cardboard in a lane).
- Information is irrelevant or obvious (e.g., there is more than 1 gantry with all green arrows displayed on each sign board).
- Information is repetitive (e.g., there are three gantries before a lane closure displaying a red X).

Consistency

Motorists need consistency in symbol meaning and messages displayed in order to build trust and understanding of the prewarning presented by the LCS. The LCS messaging formula designated for most roadway incidents must be followed consistently unless an incident warrants a diversion from the formula. Consistency builds understanding, and drivers are more likely to understand messaging that is similar.

Accuracy

To ensure that LCS credibility remains high, message accuracy must be a top priority for the staff. Staff must constantly monitor incidents and modify messages immediately as the situation changes. Due to a high-risk factor and need of instant information, If TMC staff are unable to monitor an incident, LCS symbols should not be posted. Information provided by a reliable source (THP, PD, HELP Operators) has the potential to be delayed by minutes as they work a scene. Changes and scene alterations need to be reflected on the LCS immediately to avoid displaying misinformation and potential safety hazards presented to motorists.

Accuracy is reliant on TMC staff confirming an incident's location, roadway impact, and understanding the scope of potential emergency responders that are likely to arrive as the timeline of the incident progresses.

Symbol and Message Meanings

Blank



A signal head not displaying any symbol or message signifies to motorists that there are no known obstructions or reduced speeds ahead. Individual signal heads or all signal heads on a gantry can also be blank due to hardware failures or maintenance services.

Yellow X



A signal head displaying a yellow X signifies to motorists that the lane below the symbol has an obstruction downstream (typically about 1 mile) and motorists will soon be unable to drive in that lane.

Red X



A signal head displaying a red X signifies to motorists that the lane below the symbol has an obstruction immediately downstream (typically less than half a mile) and motorists will very soon be unable to drive in that lane. Sometimes the obstruction can be just before or directly under the signal head displaying the red X depending on the location.

Green Arrow



A signal head displaying a green arrow signifies to motorists that the lane below the symbol is clear of any obstruction downstream and is free to drive in.

HOV 2+ ONLY



A signal head (typically the lane 1 head) displaying this High Occupancy Vehicle (HOV) lane message is to remind motorists that the timeframe is active for the lane to be used in accordance to Tennessee's HOV laws and restrictions.

HOV OPEN TO ALL



A signal head (typically the lane 1 head) displaying this HOV lane message is usually used when a lane blockage incident has occurred downstream during HOV time periods. It symbolizes that although it is a time period for active HOV restrictions, the HOV lane is currently open for all motorists to use to increase traffic flow due to a lane blockage in a different upcoming lane.

TAKE NEXT EXIT



A signal head (typically the right shoulder head) displaying a TAKE NEXT EXIT message signifies to motorists that they need to exit the interstate at the next available exit ramp. This is typically used during full closure incidents.

SLOW TRAF AHEAD



A signal head (typically the right shoulder head) displaying a SLOW TRAF AHEAD message signifies to motorists that traffic is congested ahead.

REDUCE SPEED AHEAD



A signal head (typically the right shoulder head) displaying a REDUCE SPEED AHEAD message signifies to motorists that traffic speeds ahead are reduced due to congestion, an incident, a roadway project, or a special event.

SPEED LIMIT (White Background with Black Font)



A signal head displaying a speed limit sign with a white background (used on right shoulder heads) signifies to motorists what the enforceable speed limit is for the roadway section being traveled in. The white background and shoulder head placement of this sign indicates that the number displayed is what the speed limit is during free flow traffic conditions. With these signs, VSL has not been triggered. For more details on VSL, see [Appendix E](#).

SPEED LIMIT (Black Background with White Font)



A signal head displaying a speed limit sign with a black background (used on all available signal heads) signifies to motorists what the enforceable speed limit is for the roadway section being traveled in. The black background and multiple signal head placement of these signs indicates that the VSL threshold has been met and reduced speeds have been triggered. For more details on VSL, see [Appendix E](#).

White Box



A signal head displaying a white box is often used for testing the functionality of a particular signal head and is useful for discovering any pixel errors when in camera view.

Symbol and Message Formatting

In general, the pattern for the display of LCS messages involving lane blockage should follow this basic format for most scenarios:

Gantry 1 (furthest upstream): This gantry will display a yellow X above the blocked lane(s).

Gantry 2 (next downstream): This gantry will display a yellow X above the blocked lane(s).

Gantry 3 (next downstream): This gantry will display a red X above the blocked lane(s) and signalizes a lane blockage immediately at or past this gantry.

Gantry 4 (furthest downstream): This gantry will display green arrows above all travel lanes to signalize that the blockage is behind the driver and all lanes ahead are clear to the best of the TMC staff's knowledge.

Example



There are several different types of scenarios that could change this formula, but there are aspects of the formatting that should never change.

- There should always be, at most, two yellow X's leading into a red X unless there are no active gantries available upstream.
- There should always be 1 gantry displaying all green arrows in travel lanes after a gantry displaying red X's unless there is no active gantry available downstream.
- There should never be a green arrow symbol above a lane that leads into a red X symbol in the same lane downstream.
- There should never be a yellow X symbol above a lane that does not lead into a red X symbol in the same lane downstream.
- There should never be a yellow X symbol above a right shoulder.
- There should never be green arrows displayed in all travel lanes that do not have upstream gantries displaying red and yellow Xs.
- There should never be green arrows displayed in all travel lanes on more than 1 consecutive gantry.

Symbol and Message Types

There are several types of incidents that can trigger an LCS response and depending on several factors will influence how and when symbols and messages are displayed. Below are common types of incidents that may require LCS activation.

Debris

The type of debris on the roadway and the effect it has on traffic should be closely considered.

- If traffic is actively diverting around debris creating a safety hazard, LCS activation is necessary and prewarning for an active lane blocking incident should be implemented (e.g., large shreds of tires, a bathtub, a box, or a deer carcass).
- Debris that traffic is actively driving over should be reconsidered before LCS activation. A flat piece of cardboard, for example, does not warrant a Red X symbol that is used to represent a lane is blocked and not able to be traveled in. Debris such as this could result in HELP being dispatched to inspect and remove it, but it would be more beneficial to anticipate the HELP Operator's arrival and then activating LCS when the lane is actually blocked.
- Debris that is always moving around the roadway should be reconsidered before LCS activation. For example, a bucket that is rolling around and constantly struck into various lanes could cause issues if LCS is activated above lanes that the debris is no longer in. This could prompt motorists to merge into the lane that the debris has now moved into.
- Debris that has been whirling around multiple lanes should be reconsidered before LCS activation. For example, a flurry of Styrofoam packing peanuts could occupy all lanes, but traffic would likely be driving slowly through the debris. Displaying a Red X across all lanes would indicate a full road closure and would not be an accurate representation of the incident.
- Debris that straddles the dividing line between two travel lanes should be reconsidered before LCS activation. If a Red X is displayed above 2 lanes, this will indicate to motorists that those 2 lanes are blocked and not able to be traveled in. If a certain piece of debris is small enough to fit in between 2 lanes and traffic is able to maintain those lanes while traveling in them, LCS activation is likely unnecessary. It could be more beneficial to wait for the debris to be blown into 1 primary lane or await an emergency responder that will remove the debris.

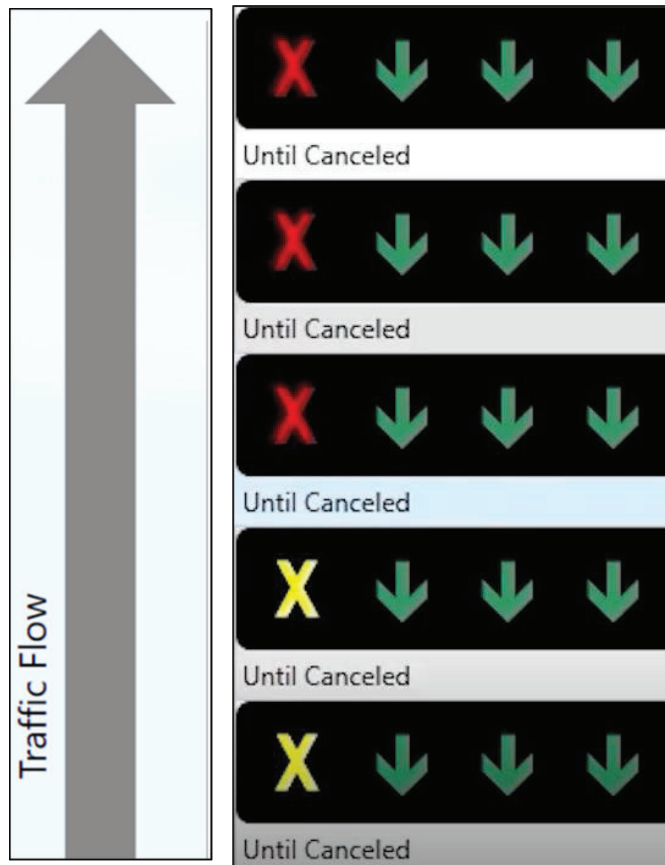
Every scenario involving debris will be different and the best judgement of the TMC staff should be used. How motorists will perceive and react to LCS when approaching any incident should be greatly considered.

Extended Lane Blocking Incidents

The scene of a lane blocking incident could span past the length of more than 1 gantry location on the roadway. This scenario is most common among construction projects that involve lane closures of more than half a mile. Some crash scenes could also be positioned or extended in ways that require more than 1 red X symbol in a travel lane.

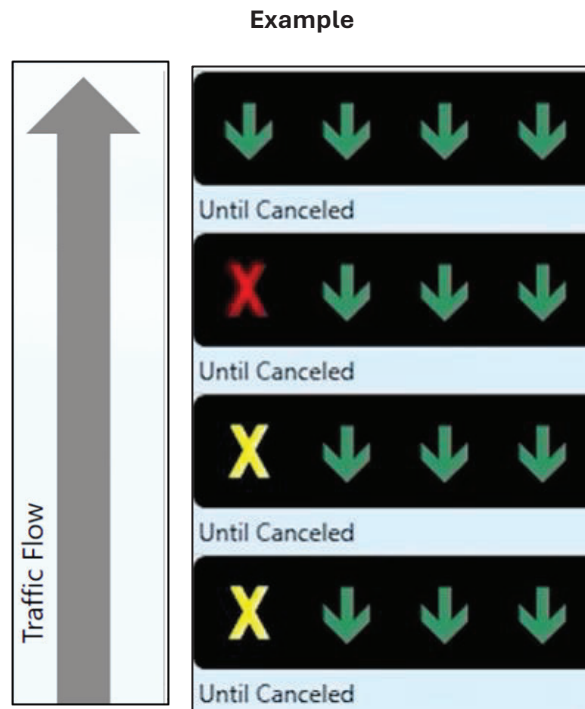
A common crash scenario could include a collision under a gantry prompting 1 Red X to be displayed above the collision. As emergency responders arrive to the scene, the crash scene is then extended farther upstream. This would prompt the need to post a Red X on the next upstream gantry to account for the extended crash scene.

Example



Lane Blocking Incident

The LCS should be activated for any travel lane blocking incident. These incidents will include the typical message formatting mentioned in the previous section. Any number or combination of travel lanes could be blocked during these events.



Left Shoulder Incidents

There are currently no signal heads over any left shoulders.

If an incident sits solely on the left shoulder, no LCS displays should be activated by TMC staff. It is a good practice to closely monitor left shoulder incidents for the likely event of an emergency responder eventually occupying the left lane to provide traffic control or generate a traffic queue if needed. Only once the left lane gets blocked by any amount should the LCS be activated.

The signal heads in the left lane should not be utilized to prewarn for a left shoulder event. If a red X is displayed on a signal head above any lane, it needs to mean that there is an obstruction within that lane. A yellow X should never be used alone and not leading into a red X.

Queue Management

A traffic queue should never be considered a lane blocking incident, even if the queue itself is caused by an incident. LCS symbols (X's and arrows) should not be activated to prewarn for congestion. Only the active scene of any incident or roadway project should be signed for.

The VSL system is designed to automatically display reduced speed limit signs on active signal heads to prewarn for congestion when slowdowns are detected through roadway sensors. If LCS symbols are manually activated in this scenario it would be a misuse of the system and would override the ability for VSL to be displayed.

Right Shoulder Incidents

Certain incidents located on the right shoulder can benefit from a Red X displayed for prewarning. This prewarning should only be used when emergency vehicles (HELP Operators, police, active tow trucks) are on scene and not for every stranded motorist or vehicle on the shoulder. TMC staff should make the judgement call of when a Red X display over a right shoulder would promote safety instead of causing confusion or a distraction. Some important things to consider:

- Is the shoulder incident close enough to the upstream gantry that will display the Red X? If not, motorists may think the shoulder Red X is a mistake.
- Is the emergency unit on the shoulder on an active scene? There could be a PD unit running radar on the shoulder or an abandoned emergency vehicle. If lights are not activated on the emergency vehicle, they may not need a shoulder Red X.
- Is the shoulder incident around a curve or at the top of the hill? If so, the incident will probably benefit from a shoulder Red X.
- A shoulder Red X should be monitored constantly and removed immediately after the last emergency vehicle departs. This will support the credibility and accuracy of the LCS expected by motorists.

Example



Appendix F – VSL Functionality

Overview

The use of Virtual Speed Limits (VSL) is limited to the TDOT Region 3 TMC. VSL are dynamic speed limits that are posted on the LCS along the I-24 Smart Corridor. The displayed speeds change based on real-time traffic speeds detected by the RDS positioned along the roadway.

The ICM contractors are responsible for ensuring that all VSL functions are working as intended. If no ICM contractors are on shift and a VSL emergency or malfunction occurs, the ICM Coordinator is to be contacted.

The objectives of credibility, consistency, and accuracy apply to VSL the same as LCS. If triggered speed limits on the signal heads do not reflect accurate downstream situations, motorists will eventually come to distrust the VSL system and the enforceable speed limits will be ignored.

If all signal heads over travel lanes are displaying a speed limit of 50, for example, it is expected that the motorists will very soon come upon a slowdown if they haven't already.

Although the VSL system is self-automated and the fixed RDS sensors record data on their own, the VSL status screen should still be monitored when possible. Any complaints from motorists or suspected malfunctions noticed by TMC staff must be investigated to ensure the system is functioning as intended.

System Behavior

The VSL system is designed to display speed limits based on different scenarios of connectivity with the RDS that are tracking the speed data, scenarios dependent on the location of gantries, and scenarios involving signal head failures. The overall behavior of the system is designed to limit confusion and give preparation for motorists.

Manual Speed Limit Changing

There is no scenario where users should manually alter speed limit displays on gantry signal heads. It is not the job of TMC staff or ICM staff to guess the traffic speeds on the interstate. This misuse of the system would be hazardous to motorists and a liability.

RDS Failure

In the event that multiple RDS are disabled or are experiencing extremely low visibility (usually due to fog or heavy rain), the VSL system will default to only displaying the location's maximum posted speed limit on the right shoulder signal head.

The system will not always be able to display proper prewarning speed limit signs. In the event of where the RDS cannot detect traffic speeds, it is a safer design for the posted speed limit to be displayed rather than the VSL system posting slowdown alerts for traffic speeds it cannot detect.

Ramping Down Speeds

The VSL system is designed to gradually decrease in displayed speed limit numbers no greater than 10 miles per hour per downstream gantry. This means TMC staff should never witness 1 gantry displaying 60 mph signs and the next downstream gantry displaying 30 mph signs, for example. The gradual decrease of speed in that scenario would typically be 60, 50, 40, and then 30.

This design is to prevent sudden and panicked braking from motorists. If any VSL behavior is witnessed disregarding the gradual speed decrease rule, it must be reported immediately.

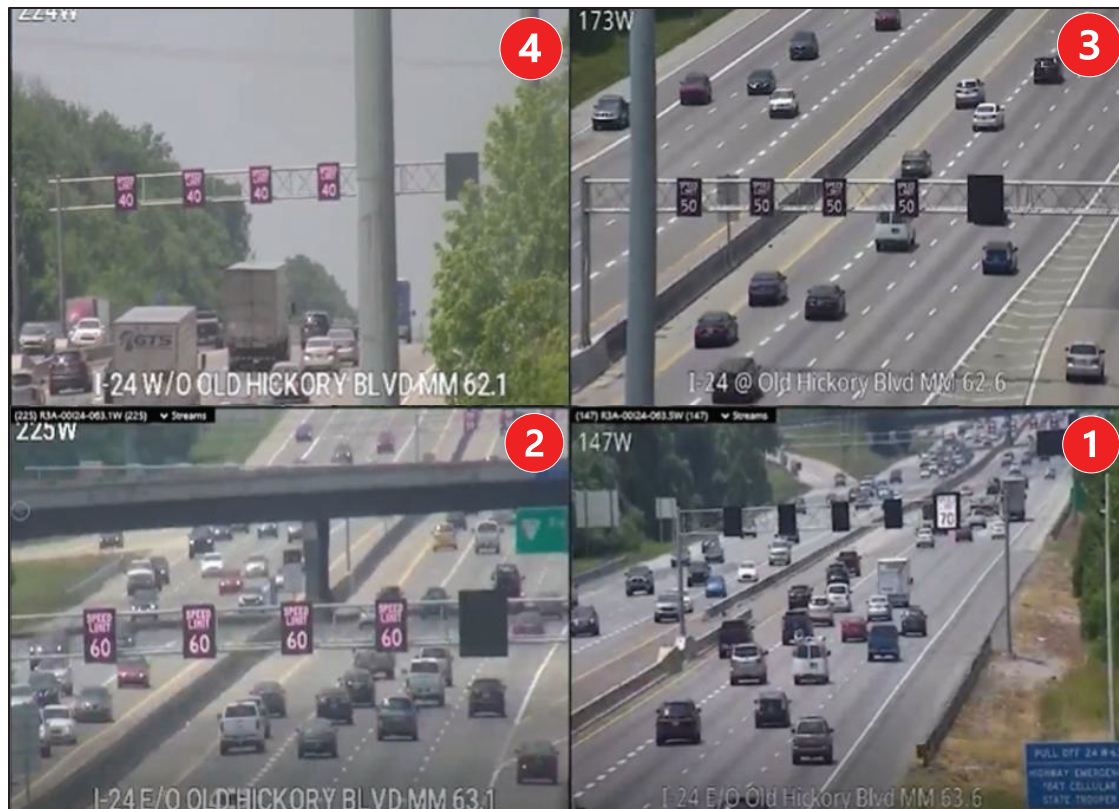
Gantry 1 (furthest upstream): The gantry below displays free flow speeds of 70 mph.

Gantry 2 (next downstream): This gantry below displays speeds of 60 mph

Gantry 3 (next downstream): This gantry below displays speeds of 50 mph

Gantry 4 (next downstream): This gantry below displays speeds of 40 mph

Example

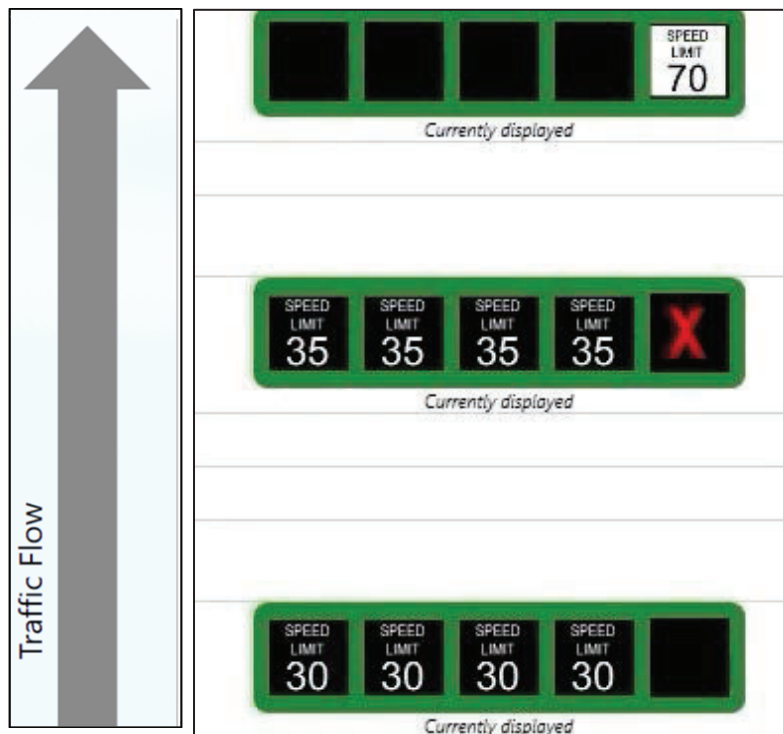


Ramping Up Speeds

Contrary to the gradual decrease in speeds needed, there is no need for traffic speeds to ramp up gradually after a slowdown. For example, if motorists are going past a crash scene under a gantry that caused a slowdown of 30 mph and now the roadway is completely open, the next gantry will likely display a posted speed limit of 70 mph.

This jump from 30 to 70 mph will not pose a safety concern. If the roadway is open and clear of any obstructions, motorists can return to normal free flow speeds at their own pace.

Example



System Monitoring

The most efficient way to monitor the system is through the VSL Status screen or the LCS Status screen within SWCS. All gantries can be scrolled through and viewed at once on these pages. The accuracy of live signs and locations can be verified instantly.

If a signal head is experiencing a failure, it should be highlighted with a red or blue box bordering the malfunctioning signal head icon. If VSL posted on signal heads is displaying speed limits in a way the system is not intended, it can be easily discovered on these pages.

The VSL Status page can also be used for event detection. When a gantry is highlighted as “Triggered,” this means speeds in that area have dropped below the free flow posted speed limit in real time. TMC staff can use that information to scan the area of the slowdown and potentially find incidents before the TMC is notified.

VSL Status

Operational Mode

VSL Group

Find on Map

Max Speed

Cancel Override

Expand All

Collapse All

Groups

Segments

Device Templates

Enable External Overrides

External Overrides

Configure

Traffic Flow

Name	Roadway/Direction/Mile Marker	Suggested Speed	Speed	Volume	Occupancy	Status	Message Displayed	
R3G-00I24-56.7W (26.7)-n...	Interstate 24 Eastbound (56.7)		68	35	/			
▲ R3F-00I24-057.5W (125)		SPEED LIMIT 70	Normal					
R3F-00I24-057.5W-5 (125)	Interstate 24 Westbound (57.5)						SPEED LIMIT 70 Currently displayed	
R3G-00I24-57.3W (268)-n...	Interstate 24 Westbound (57.3)		65	35	6			
▲ R3F-00I24-058.2W (127)		SPEED LIMIT 35	31	43	22	Triggered		
R3F-00I24-058.2W-5 (127)	Interstate 24 Westbound (58.2)						SPEED LIMIT 35 SPEED LIMIT 35 SPEED LIMIT 35 SPEED LIMIT 35 Currently displayed	
R3G-00I24-57.7W (270)-n...	Interstate 24 Westbound (57.7)		59	30	7			
R3G-00I24-58.1W (273)-n...	Interstate 24 Eastbound (58.1)		31	43	22			
▲ R3F-00I24-058.9W (130)		SPEED LIMIT 30	20	37	35	Triggered		
R3F-00I24-058.9W-5 (130)	Interstate 24 Westbound (58.9)						SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 Currently displayed	
R3G-00I24-58.3W (274)-n...	Interstate 24 Westbound (58.3)		22	24	38			
R3G-00I24-58.6W (275)-n...	Interstate 24 Westbound (58.6)		32	35	19			
R3G-00I24-58.8W (276)-n...	Interstate 24 Westbound (58.8)		20	37	35			
▲ R3F-00I24-059.5W (132)		SPEED LIMIT 30	6	1	68	Triggered		
R3F-00I24-059.5W-5 (132)	Interstate 24 Westbound (59.4)						SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 Currently displayed	
R3G-00I24-59.0W (277)-n...	Interstate 24 Westbound (59)		6	1	68			
R3G-00I24-59.3W (278)-n...	Interstate 24 Westbound (59.3)		8	5	56			
▲ R3F-00I24-060.1W (134)		SPEED LIMIT 30	10	5	51	Triggered		
R3F-00I24-060.1W-5 (134)	Interstate 24 Westbound (60.1)						SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 SPEED LIMIT 30 Currently displayed	

SWCS > right click on SWCS Operator Map > Variable Speed Limit Status

COOP

Continuity of Operations Plan



What is Your Emergency?

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SWCS ISSUES

Examples	Steps to Follow
- Cannot log into SWCS - Cannot use crucial features such as Event Management - Cannot post or clear DMS in SWCS - Unable to view or control CCTV in SWCS - Unable to access RCA subsystem for partner region in SWCS	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Check that backup systems are functional Step 3: Notify IT and enter a Helpdesk ticket. Provide all details and screenshots if applicable Step 4: Notify your TMC supervisor of the issues Step 5: Notify your Partner Region for potential need to take control of your systems in case backup systems fail or to assist with event/ report entry Step 6: Utilize backup systems (listed below) Step 7: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: - Cameleon for CCTV control - Vanguard for DMS Secondary Backup Option: - CCTV viewing via SmartWay map, SmartView Plus, TriStar Traffic phone app Final Backup Option: - Notify your Partner Region to take control of your systems

LOSS OF INTERNET

Examples	Steps to Follow
- Unable to access web-based sites or apps - Voice Over Internet Protocol (VOIP) phones fail	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Notify IT. Provide all details and screenshots if applicable Step 3: If phones fail, notify THP (TN Hwy Patrol) and your local PD dispatch of the outage and a backup phone number to use Step 4: Notify your TMC supervisor of the issues Step 5: Try to discover if the internet outage is limited to TMC or widespread Step 6: Attempt to use Hotspot feature on state-issued cellphone to connect available laptops or any applicable devices Step 7: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: - Internet Hotspot feature on state-issued cellphones or other capable devices Final Backup Option: - Notify your Partner Region to take control of your systems

BACKUP CCTV SYSTEM ISSUES

Examples	Steps to Follow
- Cannot log into backup CCTV system (Cameleon) - Cannot view cameras in backup CCTV system	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Notify IT and enter a Helpdesk ticket. Provide all details and screenshots if applicable Step 3: Notify your TMC supervisor of the issues Step 4: If SWCS fails during this time, refer to Page 3. Step 5: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: - Continue to use SWCS Secondary Backup Option: - CCTV viewing via SmartWay map, SmartView Plus, TriStar Traffic phone app Final Backup Option: - Notify your Partner Region to take control of your systems

BACKUP DMS SYSTEM ISSUES

Examples	Steps to Follow
- Cannot log into backup DMS system (Vanguard) - Unable to post or clear a DMS in backup system	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Notify IT and enter a Helpdesk ticket. Provide all details and screenshots if applicable Step 3: Notify your TMC supervisor of the issues Step 4: If SWCS fails during this time, refer to Page 3. Step 5: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: - Continue to use SWCS Final Backup Option: - Notify your Partner Region to take control of your systems

TDOT NETWORK FAILURE

Examples	Steps to Follow
- Staff unable to log into ITS PC, apps or software - Getting error messages when logging into the TDOT system	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Notify IT and enter a Helpdesk ticket. Provide all details and screenshots if applicable Step 3: Notify your TMC supervisor of the issues Step 4: Prepare to utilize backup options below if IT cannot quickly fix the issue Step 5: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: - Notify your Partner Region to take control of your systems Secondary Backup Option: - If IT advises, use VPN (Virtual Private Network) to access network on alternate devices.

SEVERE SYSTEM SLOWDOWN

Examples	Steps to Follow
- Network and/or systems are accessible but pages severely lag or don't load at all - Crucial functions not working promptly because of severe and prolonged lagging	Within 1 hour Step 1: Verify outage (be sure it is not isolated to your PC) Step 2: Check that backup systems are functional Step 3: Notify IT and enter a Helpdesk ticket. Provide all details and screenshots if applicable Step 4: Notify your TMC supervisor of the issues Step 5: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if they become unusable

POWER OUTAGE

Examples	Steps to Follow
- Power goes out and backup generator turns on - Workstations may flash on/ off and power supplies may beep - All interior and/or exterior lights go out	Within 1 hour Step 1: Notify Facilities Department of the issues Step 2: Notify IT of the issues Step 3: Notify your TMC supervisor of the issues Step 4: Notify your Partner Region of the situation and potential need to take control of your systems Step 5: Prepare any equipment needed for relocation to your alternate site Step 6: Contact personnel at alternate site (if applicable) or send someone to assess the site’s availability depending on the time of the emergency

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if the alternate site is also without power and get direction from TMC leadership

PHONE OUTAGE

Examples	Steps to Follow
Phones inside the TMC do not work	Within 1 hour Step 1: Notify IT of the issues Step 2: Use state-issued cellphones as needed, notify THP (TN Hwy Patrol) and your local PD dispatch of the outage and a backup phone number to use Step 3: Notify your TMC supervisor of the issues Step 4: Notify your Partner Region via email or cellphone of the situation and potential need to take control of your systems Step 5: If the issue is prolonged, the alternate site can be considered if work flow and quality won't be compromised. Contact personnel at alternate site (if applicable) or send someone to assess the site's availability depending on the time of the emergency and whether phones at the alternate site are also down Step 6: Prepare any equipment needed for relocation to your alternate site Step 7: Stay in contact with IT and if emergency lasts longer than 24 hours, document any details and actions for the possibility of a formal review

Backup Options

Primary Backup Option:

- If issue is prolonged and your alternate site is without functioning phones, consult IT about forwarding phone calls to your Partner Region. Notify **Partner Region** if IT will commence forwarding phones to them. Once phones are forwarded, your Partner Region can enter events via RCA using information they receive regarding your Region. They can also communicate with you via email and cellphone when necessary.

WATER OUTAGE

Examples	Steps to Follow
- No water coming out of faucets - Unable to flush toilets	Within 1 hour Step 1: Notify Facilities Department of the issues Step 2: Notify your TMC supervisor of the issues Step 3: Notify your Partner Region of the situation and potential need to take control of your systems if the utility fix is prolonged or unknown Step 4: Prepare any equipment needed for relocation to your alternate site Step 5: Contact personnel at alternate site (if applicable) or send someone to assess the site’s availability depending on the time of the emergency and whether there is a water outage there too Step 6: Continuously check the repair status with the Facilities Department Step 7: If emergency is suspected to last longer than 24 hours, make plans on continuing to relocate staff to alternate sites and document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if the alternate site is also without water and get direction from TMC leadership

DISASTER DAMAGE

Examples	Steps to Follow
- High winds damaged roof and made building unsafe - Sinkhole creates a hazard to building foundation	Within 1 hour Step 1: Notify Facilities Department of the issues and they should call emergency response dispatch to gather information Step 2: Notify your TMC supervisor of the issues Step 3: Notify all Regions of your disaster damage and notify your Partner Region of the potential need to take control of your systems Step 4: Contact personnel at alternate site (if applicable) or send someone to assess the site's availability depending on the time of the emergency and whether there is disaster damage there too Step 5: Prepare any equipment needed for relocation to your alternate site Step 6: If emergency is suspected to last longer than 24 hours, make plans on continuing to relocate staff to alternate sites and document any details and actions for the possibility of a formal review

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if the alternate site also suffers from disaster damage and get direction from TMC leadership

OUTSIDE HAZARD PREVENTING ENTRY

Examples	Steps to Follow
- Tree or other debris preventing entry to facility - Flooded area preventing traffic or personnel from entering the facility	Within 1 hour Step 1: Notify Facilities Department via email or cellphone. If you do not have this contact information, there should be another contact list in the TMC's alternate site. Step 2: Notify your TMC supervisor via email or cellphone. If you do not have this contact information, there should be another contact list in the TMC's alternate site. Step 3: Notify IT via email or cellphone. If you do not have this contact information, there should be another contact list in the TMC's alternate site. Step 4: Notify your Partner Region via email or cellphone of the situation and potential need to take control of your systems. If you do not have this contact information, there should be another contact list in the TMC's alternate site. Step 4: Relocate to your alternate site and ensure the location is safe to enter, free of any hazards, and functional Step 5: Continuously check the cleanup status with the Facilities Department Step 6: If emergency is suspected to last longer than 24 hours, make plans on continuing to relocate staff to alternate sites and document any details and actions for the possibility of a formal review

Backup Options

Primary Backup Option:

- Notify your **Partner Region** to take control of your systems if the alternate site also possesses hazards and get direction from TMC leadership

INSIDE HAZARD OR SPILL

Examples	Steps to Follow
- Gas release inside facility - Chemical or cleaning solvent spills - Fire	Within 1 hour Step 1: Call 911 for assessment and prepare for evacuation unless the threat is obvious. Step 2: If the hazard threatens personal safety, adhere to the Regional Emergency Action Plan, know the relocation point mentioned in the plan, initiate evacuation and advise staff to take any needed personal items Step 3: Account for all personnel during evacuation Step 4: Account for all personnel again once you have arrived at your region's predetermined evacuation rendezvous location Step 5: Once safe, notify your TMC supervisor of your situation and status if they are not already aware. Step 6: Notify your Partner Region of the situation and potential need to take control of your systems Step 7: Relocate to your alternate site Step 8: Continuously check the cleanup status with the Facilities Department Step 9: If emergency is suspected to last longer than 24 hours, make plans on continuing to relocate staff to alternate sites and document any details and actions for the possibility of a formal review

Backup Options

Primary Backup Option:

- Notify your **Partner Region** to take control of your systems if the alternate site also possesses hazards and get direction from TMC leadership

EMPLOYEES SICK AT WORK

Examples	Steps to Follow
An illness at work that requires staff to leave	Within 1 hour Step 1: Determine severity of employee’s illness and send them home if they are able. Step 2: Send home other employees showing similar signs of illness Step 3: Confirm to the best of your ability there is no environmental reason for a widespread illness Step 4: Determine if any TMC leadership needs to know about the employee’s illness and make them aware following TDOT HR guidance Step 5: If the illnesses within the facility are becoming a widespread concern, notify your Partner Region of the situation and potential need to take control of your systems

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if all staff become ill in the facility and need to leave

EMPLOYEES SICK AT HOME

Examples	Steps to Follow
Staff are unable to report to work due to illness	Within 1 hour Step 1: Determine employee’s length of absence if possible Step 2: Adjust staffing on duty and inform them of the potential for staying past their normal shift if necessary Step 3: Make alternate plans in job roles in preparation for an extended time without usual staff Step 4: Determine if any TMC leadership needs to know about the employee’s illness and make them aware following TDOT HR guidance Step 5: If multiple employees call in sick, notify your Partner Region of the situation and potential need to take control of your systems or help with the workload

Backup Options
Primary Backup Option: Notify your TMC supervisor by cellphone or email if you are aware that all staff are unable to report to work. Advise them to notify your Partner Region to take control of your systems

EMPLOYEES STRANDED ON THE WAY TO WORK

Examples	Steps to Follow
Staff enroute to work but will be delayed for an undetermined amount of time	Within 1 hour Step 1: Determine cause and length of delay, if possible, to inform other employees that could be affected on the same route Step 2: Make necessary job role changes if necessary while waiting for stranded employees Step 3: Assign present staff to remain at work if there is a shift change approaching that would be unable to function efficiently without the stranded employees Step 4: Using TMC tools and resources, gather any information you can to determine the cause of the delay and whether it is in the TMC's realm for the possibility of assistance Step 5: If multiple employees are stranded, notify your Partner Region of the situation and potential need to take control of your systems or help with the workload

Backup Options
Primary Backup Option: Notify your TMC supervisor if you are aware that all staff are stranded and unable to report to work when their shift begins. They can decide to hold all existing staff at the TMC or notify your Partner Region to take control of your systems

ONLY INEXPERIENCED STAFF AT WORK

Examples	Steps to Follow
No experienced staff working on shift	Within 1 hour Step 1: Notify your TMC supervisor that there are no experienced employees are on shift immediately Step 2: Follow instruction from your TMC supervisor and await their efforts to call in support staff Step 3: Notify your Partner Region of the situation and potential need to take control of your systems or help with the workload Step 4: If there is no TMC supervisor on site, consider a Microsoft Teams meeting, video call or phone call to maintain contact with your TMC supervisor to advise the inexperienced staff through challenges they may face on the job until support staff arrives

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems due to no experienced staff on shift and no timeline on support staff arriving

NATURAL DISASTER INCIDENT

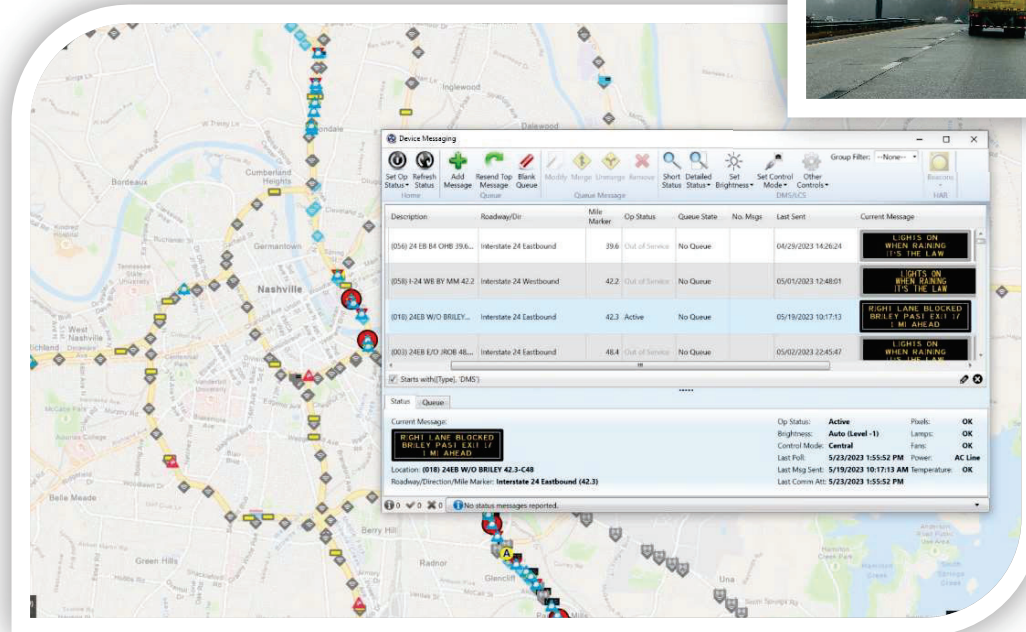
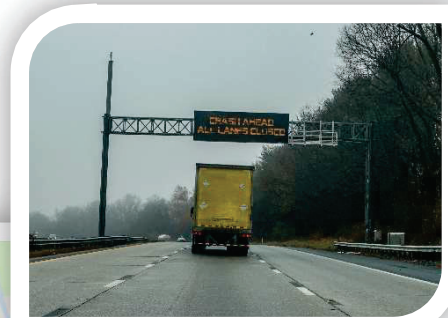
Examples	Steps to Follow
Natural disaster or related issue prohibiting travel or requiring absence	Within 1 hour Step 1: Determine potential scope of the issue Step 2: Notify your TMC supervisor of the situation and need for potential staff changes Step 3: If multiple employees are affected, notify your Partner Region of the situation and potential need to take control of your systems Step 4: If needed and able, relocate to the alternate worksite Step 5: Notify Facilities Department if there are hazards or damages in or around the TMC as a result of the natural disaster

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if too many essential personnel are absent or the workload is unmanageable

THREATS OF VIOLENCE

Examples	Steps to Follow
- Bomb threat - Terrorist threat - Active aggressor	Scenario 1: A threat of violence or destruction is called in to the TMC directly Step 1: Hang up and call 911 immediately and follow instruction of law enforcement Scenario 2: A terrorist threat is publicized and issued out in your area Step 1: Follow instructions of law enforcement and authorized personnel Step 2: Be prepared to evacuate at any moment Step 3: If you are advised to shelter in place, secure the building, close and lock all doors and remain within the TMC Step 4: Notify your TMC supervisor if they are not aware of the situation and have them advise whether to notify your Partner Region to take control of your systems Scenario 3: There is an active shooter on the complex Step 1: Call 911 immediately and inform them of an active shooter or if gunshots were heard nearby. Stay on the line with law enforcement to give live updates when needed Step 2: If the aggressor is outside of the complex, close and lock all doors, shelter in place and stay away from windows while awaiting law enforcement Step 3: On a separate phone, call the Front Gate Security (if applicable) to notify of the emergency and whether they have useful information to pass along to police and your staff: how many aggressors, location, description Step 4: Be wary of any door knocks or doorbell rings during the emergency Step 5: If the aggressor is inside or breaching the facility, evacuate using any exit that can be found or created

Backup Options
Primary Backup Option: Notify your Partner Region to take control of your systems if too many essential personnel are absent or the workload is unmanageable



SmartWay CS Support Plan 2023

version 1.3, May 26, 2023

TRANSPORTATION MANAGEMENT OFFICE

Tennessee Department of Transportation

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1 Introduction

The purpose of this document is to provide guidance for those that support the SmartWay Central Software (SWCS) application and related software and hardware. The support team for SWCS includes TDOT product owners, TMC IT support, SWCS software specialists, Traffic Operations Division staff who support the TMCs, and the consultants who support TDOT in these tasks.

The focus of this document is to provide information to the support team for a clear understanding of their roles and responsibilities and the underlying support processes. It will outline steps for issue escalation, release processes, and project events like backlog grooming and change control.

The intended audience of this document is the SWCS support team. It is not intended to meet the needs of system users or other stakeholders. It is not a trouble shooting guide, a user help guide, or a user manual.

1.1 Definition of Key Terms & Acronyms

- **Bug Items:**
 - Issues raised by users or stakeholders that are determined to be problems with the software. These are tracked in SwRI's JIRA and unless further clarification or prioritization is needed, they will move directly into the development queue. These items will be implemented with the next release unless the items meet the [criteria for a hot fix release](#).
- **Configuration Items:**
 - Issues raised by users or stakeholders that can be addressed through configuration. These can be completed by [Tier 1 support staff](#) or escalated to Tier 2 Support if assistance is needed. Complex configuration changes that impact multiple regions should be vetted through the backlog grooming process described later in this document.
- **Development Items:**
 - Issues raised by users or stakeholders that are determined to be potential future software development tasks. These are tracked on the Jira Board and discussed, prioritized, and expanded upon during backlog grooming sessions. These items are considered for development during release planning sessions.
- **Git:**
 - Free and open-source software for distributed version control

- **Issue:**
 - A generic term for items brought up by users or other stakeholders. Issues will be tracked in Jira and can be addressed in many ways depending on the root cause and solution. Issue can be another term for a “card” or “ticket.”
- **Jira:**
 - A development management software used to track issues and tasks. SwRI’s instance of Jira is used in the support of SWCS.
- **Master Branch:**
 - In Git, "master" is a naming convention for a branch of code. After cloning (downloading) a project from a remote server, the resulting local repository has a single local branch called the "master" branch. This can be seen as a repository's "default" branch.
- **Power User:**
 - A user of a computer system or program whose skills and expertise are more advanced than most other users, especially a person in an organization who is assigned additional administrative rights and responsibilities for that system or program.
- **Product Owner:**
 - A project's key stakeholder—typically someone from product management or the lead user of a system. In the case of SWCS, this will be the IT Product Owner and the Traffic Operations Product Owner.
- **PUG:**
 - Power User Group
- **Regression Test:**
 - A software testing practice that ensures an application still functions as expected after any code changes, updates, or improvements. Regression testing happens in addition to user acceptance testing.
- **Regression Test Scripts:**
 - A checklist or set of steps designed for testers to use to ensure that key functionality is not missed during regression testing.
- **Releases:**
 - Implementations of new code that introduce a set of new functionality and/or bug fixes that have followed the issue escalation and tracking process. Releases will occur on a pre-defined schedule and follow the processes outlined in this document.

2 SWCS Software Support

Central to the support of the TMC staff are the tasks and processes needed to keep the SWCS software both bug-free and aligned with the assistance the staff is expected to provide to the Tennessee traveling public. This section will break down each step of the support process into guidelines to be followed. It will cover topics such as enhancement and bug tracking, release planning, testing, and implementation.

2.1 Roles and Responsibilities

The responsibility for the ongoing support of the SWCS software is the responsibility of the SWCS project team. The SWCS project team consists of SwRI staff, consultant staff, TMC IT, and the TDOT product owners and their delegates.

SwRI is the lead for software support and is responsible for the development of all enhancements and bug fixes, creation of test scripts, and implementation of software updates into test and production systems. TDOT is the lead for defining the overall release process, end user communications, and the user acceptance process. The chart below provides a high-level view of the responsibilities of each group.

SwRI	TDOT
• Software development • System and regression testing • Bug fixes • Test script preparation • Software implementation • User training	• Release planning and scheduling • Stakeholder communication • Facilitating user acceptance testing • Change Advisory Board (CAB) approval • Go / No Go Decision

2.1.1 Additional Support Roles

Roles needed throughout the release cycle may be filled by a consultant, TDOT resource, or a SwRI resource. One or more people may fill these roles at any given time.

2.1.1.1 UAT Coordinator

The User Acceptance Testing (UAT) Coordinator role is needed during each step of the [UAT process](#). Their responsibilities include environment and test script check-out, providing test scripts and guidance to UAT Leads, and collecting and compiling UAT feedback.

2.1.1.2 Release Manager

The Release Manager role is needed during all steps of the release process outlined in this document. Their responsibilities include facilitating meetings such as backlog grooming, release planning and retrospectives, creating a release schedule, creating release documentation, and scheduling implementation emails and communicating implementation plans to the TMCs. The Release Manager should rely on this document to ensure all processes are being followed correctly.

2.2 Enhancement and Bug Identification and Tracking

A software release will often include both enhancement and bug fix items. In this section, the process for identifying and tracking bug and enhancement items will be discussed. The enhancement and bug fix items that are included in a software release can arise from a multitude of sources including:

- End user suggestions for software improvements
- Bugs identified by users
- Changes in TMC processes and procedures
- Changes to third party tools such as cameras, DMS and routers
- Changes to interfacing systems such as 511, THP CAD and Waze
- Need to capture additional information such as additional details about an event location

Enhancements and bugs are brought to the attention of the project team during a Power User Group (PUG) meeting, during region visits, emails and help desk tickets, and during any other conversation or meeting held between the project team and the regions or leadership.

2.2.1 Tracking Process

A structured approach to tracking issues and enhancement requests is required to minimize the risk of items getting lost or forgotten. SwRI's Jira is at the core of the tracking of items for SWCS.

The following sections provide details for the tracking process to be followed.

2.2.1.1 When are Enhancements and Bugs gathered?

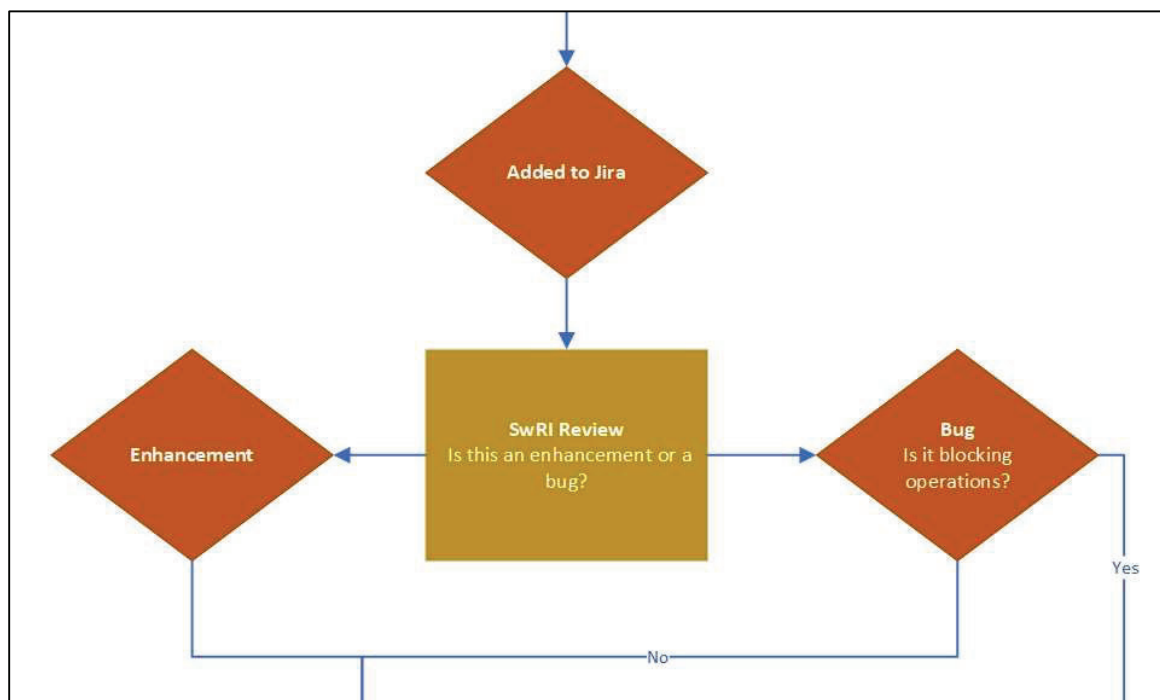


As stated at the [top of this section](#), the items that are included in a software release can arise from many different sources. Although Power User Group Meetings, region visits, emails, and Help Desk tickets are typically where these items arise, they can be brought up during any conversation or meeting held between the project team and leadership. The item is then captured and entered into SwRI's Jira system.

Any SWCS project team member who has access to Jira and is notified of an issue is responsible for adding the issue to the Jira board. Anyone who needs an issue added but does not have access can [contact SwRI](#) in order to have it added.

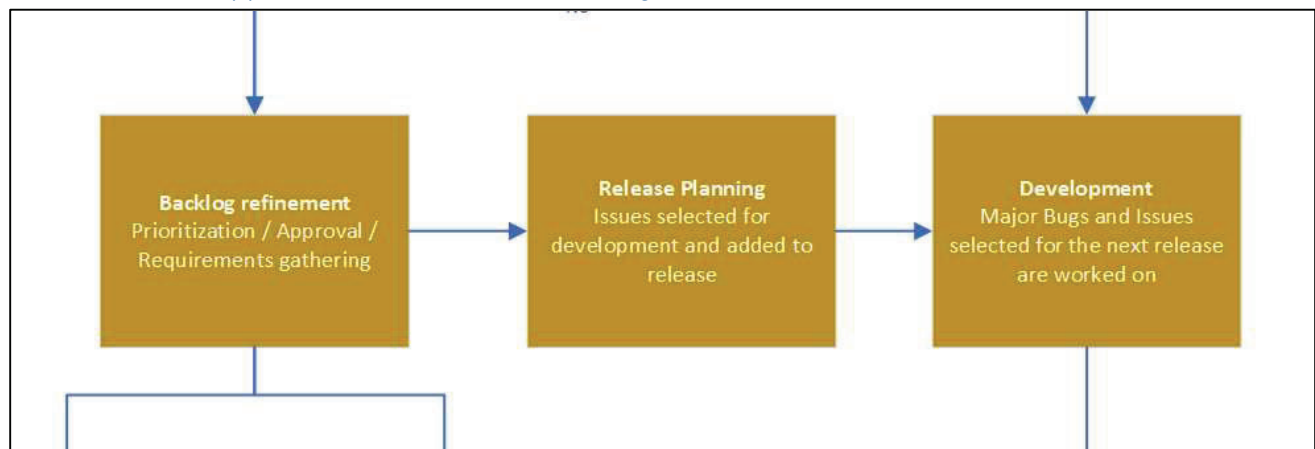
Bugs and issues will be reported by users and tracked in both TDOT's ServiceNow ticketing system, and SwRI's Jira ticketing system. For traceability, both ticketing systems record the identification number of the corresponding ticket in the respective system. See process for [Escalating Software Issues to SwRI](#) for more details.

2.2.1.2 How do Jira issues move between boards?



Once an item has been added to the Jira Board, SwRI will evaluate the item to determine if it is an enhancement or a bug. If it is determined to be a bug, it will be evaluated for severity. If it is severe enough to block operations, development will begin immediately. Enhancement issues and non-critical bugs will be marked as “ready for review” to wait for the next step.

2.2.1.3 What happens to an enhancement or bug once it has been added to Jira?



After SwRI has evaluated the issues added to the Jira Board, the project team will review and prioritize the issues during regular [backlog grooming sessions](#) as described below. Finally, during release planning, issues will be selected for inclusion in the specific release and development for the release can begin. Once development has completed, the code will be tested and released according to the guidelines in the [SWCS software release process](#) section of this document.

2.2.1.4 When does communication happen?



Communication with the TMCs is crucial to successful and effective user and software support. The results of a backlog grooming session should be summarized at the next PUG meeting by the meeting facilitator or their delegate. The product owners may decide that an issue is no longer of concern and determine that it will not be addressed. In this case, the decision should be communicated back to the user and/or region that brought up the issue via email, meeting, or other form of communication that the product owners decide is appropriate.

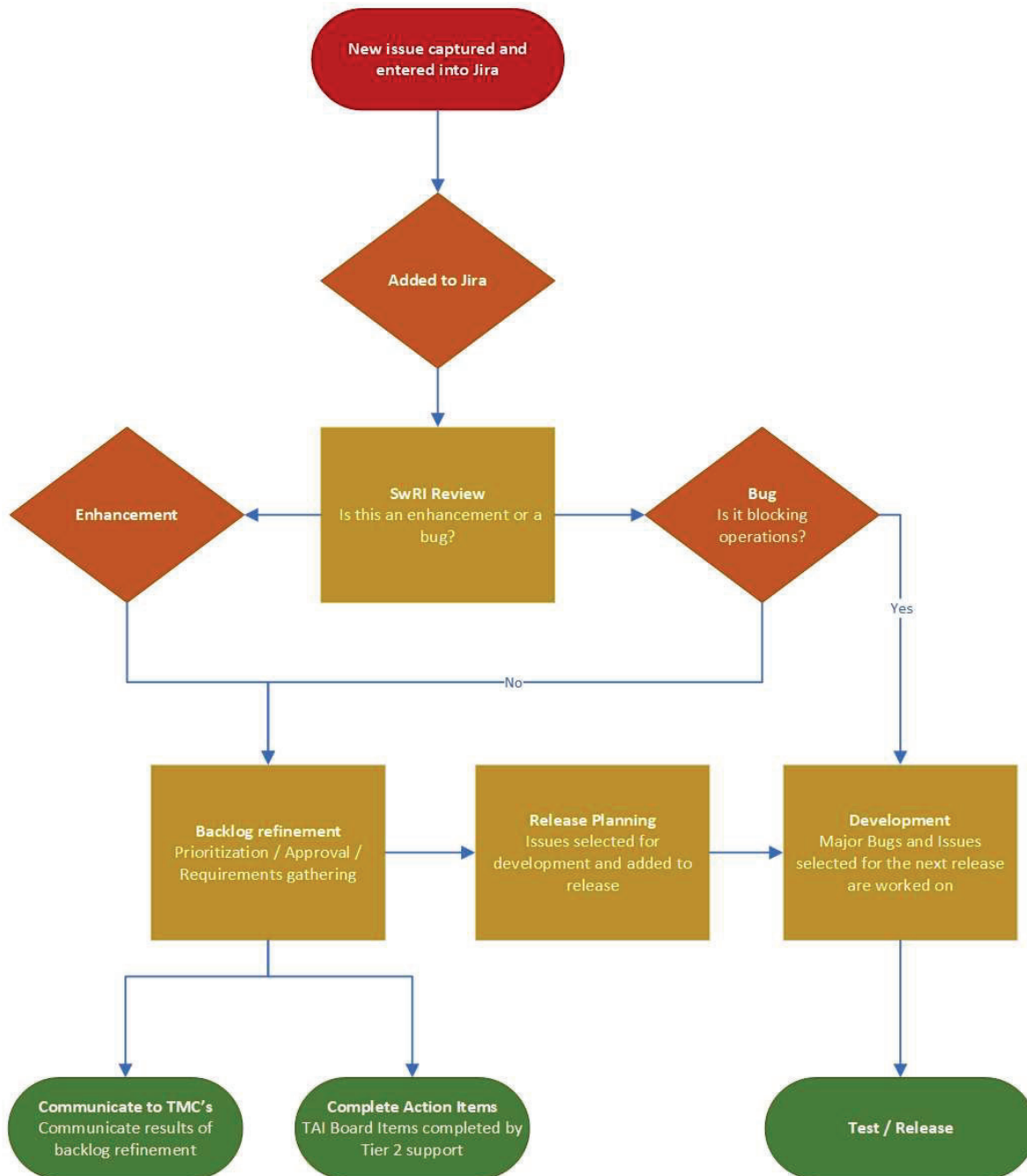


Figure 1: Enhancement & Bug Identification & Tracking Workflow

2.2.2 Requirement Gathering and Documentation

Requirement gathering is the process of identifying the desired functionality needed to meet users' needs for each enhancement. These details are documented in the Jira system. As much information as possible should be collected in order to assist the development team in fixing

bugs and working on enhancements. In some cases, additional information may be needed and gathered during communication with users, product owners and/or backlog grooming sessions.

Requirement gathering should take place as an ongoing process in order to prepare for release planning. Issues will be added to the backlog through the [Issue Escalation](#) and [Backlog Grooming](#) processes, and issues that need more information will be identified for requirement gathering. Requirement gathering can take place during an existing PUG meeting, ad hoc meetings, or via email. The requirements should be thoroughly documented in Jira.

2.2.3 Backlog Grooming

Backlog grooming is an ongoing process that exists outside of any release cycle. A backlog grooming session is a regularly scheduled meeting where development backlog items are discussed, reviewed, and prioritized by the project team. Backlog grooming sessions should be scheduled on a monthly basis to ensure the product owners are familiar with the backlog items and the backlog is kept up to date. The primary goal of backlog grooming is to prioritize the backlog and to ensure that backlog items are prepared for upcoming release planning sessions.

For SWCS, the backlog will be stored in SwRI's Jira. The process for adding items to Jira is described in the section named [Enhancement and Bug Identification and Tracking](#). Issues can be closed or marked as complete in Jira when the item has been resolved, or development has been completed. In some cases, the product owners may decide that an issue is no longer of importance, and it should be removed from the backlog and the decision communicated to the requester. SwRI may recommend an issue be removed from the backlog, but the product owners have the final say on what issues are removed. Issues are marked as "reviewed" in Jira during backlog grooming and remain at this step until the next [release planning session](#).

2.3 Release Planning

Release Planning is the phase of software development where bugs and features are selected for development for the upcoming release. Release planning sessions should be held prior to the start of development of a release and should only need to be held once per release cycle. Issues are selected from the development backlog, which will be kept up to date with regards to requirements and priority levels during the [Enhancement and Bug Identification and Tracking](#) process and the [Backlog Grooming](#) process.

2.3.1 Release Scheduling and Steps

New SWCS releases should be implemented in a quarterly cadence, with about 3 months between the start of development and implementation in production. Target dates should be made with holidays and moratoriums in mind using the Change Advisory Board Release Planning Calendar that is updated each year.

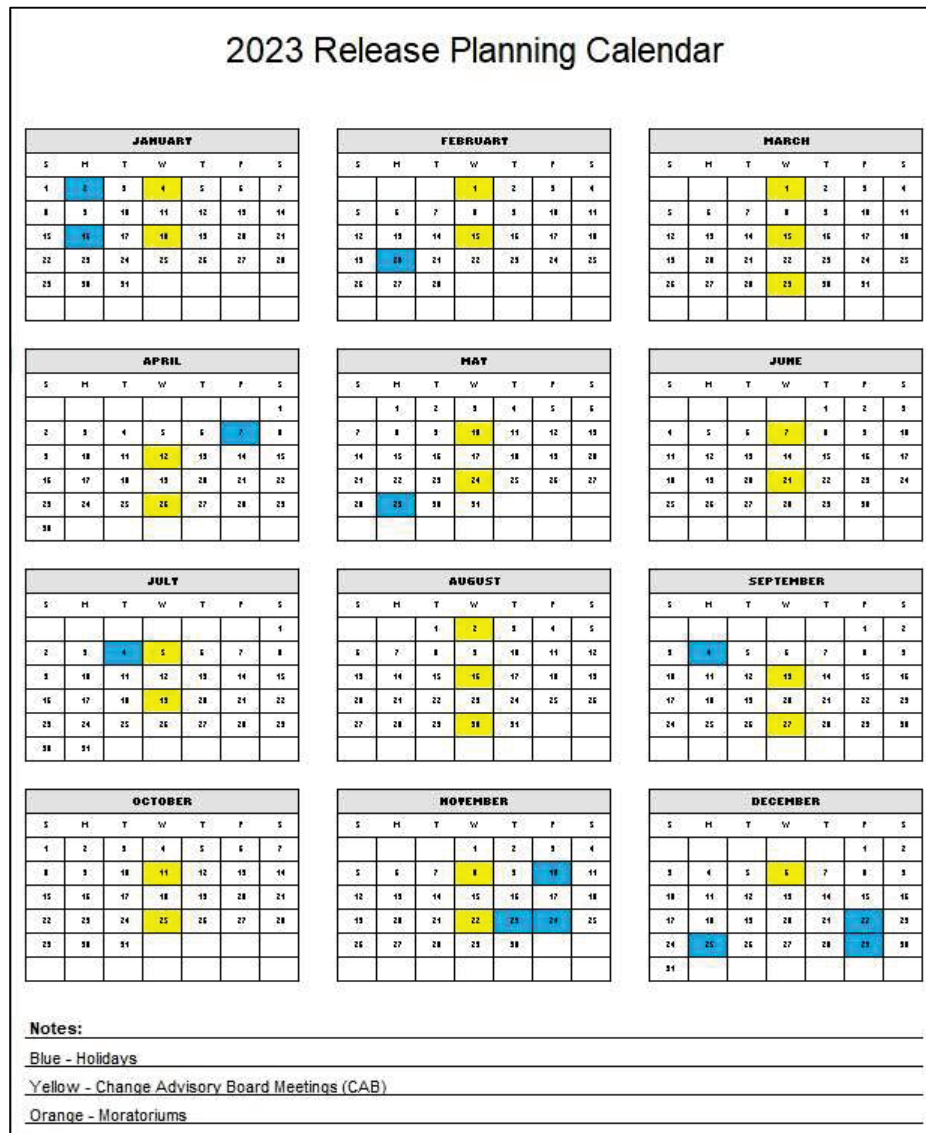


Figure 2: Example Release Planning Calendar as provided by the Change Advisory Board

The details of the release schedule will be tracked in MS Project. Once a target release date is determined, the project team will schedule release events based on the following guidelines. Below is an example of a standard release schedule extracted from MS Project.

Task Name	Duration	Resource Names	Notes
Example Release	116 days		
Planning & Contracting	6 wks	Product Owners, SwRI, GF Support	Should start about 2-4 weeks prior to the start of Development
Development and Internal Testing	11 wks	SwRI	

Task Name	Duration	Resource Names	Notes
Release Review with PUG	1 day	GF Support	Should be discussed at the regularly scheduled PUG meeting which is closest to the planned Code Migration to Test Environment date
Email to TMC Managers and TMC IT regarding Code Migration to Test Environment	1 day	GF Support	
Code Migration to Test Environment	4 days	SwRI	
Prepare Draft Test Scripts	1 day	SwRI	
Test Environment and Script Check Out	3 days	GF Support	
Draft UAT Slides Preparation	3 days	UAT Coordinator	
UAT Kick Off	1 day	UAT Coordinator,UAT Leads,Product Owners,SwRI,GF Support	
Schedule Release Retrospective	1 day	GF Support	
User Acceptance Testing	5 days	UAT Leads	Ideally this will span a weekend
Regression Testing, Training, Ad Hoc Testing	7 days	GF Support	Scope and extent of this may vary by release.
Submit UAT Results	0 days	UAT Leads	
Compile UAT Results	2 days	UAT Coordinator	
Go/No Go	1 day	GF Support,Product Owners,SwRI,UAT Coordinator	This should be at the end of UAT and two days prior to CAB
Submit CAB Meeting Document	1 day	Product Owners	
CAB Meeting	1 day	Product Owners	This is a pivotal date that may drive other related dates based on the preset CAB calendar.
Email to Regions Regarding Production Release Schedule	1 day	GF Support	
Code Migration to Production Environment	4 days	SwRI	This migration should typically start on a Monday or Tuesday
Release Migration Complete	0 days	SwRI	
Prepare Survey	5 days		
Send Survey	1 day		

Task Name	Duration	Resource Names	Notes
Hold Retrospective Meeting	1 day	GF Support,Product Owners,SwRI	Ideally this should be held about 1 week post the completion of the production code migration

2.3.1.1 Implementation Start Time

Prior to the CAB meeting, communication with regional Supervisors, Managers, and IT via email and/or a meeting is vital to ensure all parties agree on the scheduled start time for implementation. The Release Manager is responsible for ensuring all parties are notified. All regions should have a staggered implementation time, giving time between each implementation for [production check out](#).

2.3.2 Documentation and Communications

This section outlines who is responsible for the documentation and communications that should happen prior to a SWCS release, including release plans, user information sessions, and release numbers.

2.3.2.1 Release Plan

Prior to each release, a Release Plan document should be created by the Release Manager and shared with the product owners and regional staff. This document will include the following details:

- List of what is new in the release
- High Level release schedule
- Key dates in the release
- Breakdown of key dates where necessary
- Goals for user acceptance testing
- Logistics of assistance by SwRI and other consultants
- Expectations for all involved parties
- List of regional UAT Leads
- Risk mitigation for production migration

2.3.2.2 User Information Sessions

Several user information sessions should be held to ensure that users are prepared for upcoming changes. These may take place in the form of region visits, PUG meetings, or ad hoc meetings in order to present a demo, training, or other information about the planned changes. User information sessions should be coordinated by the Release Manager and SwRI.

2.3.2.3 Release Numbers

Each release of SWCS should be referred to consistently to avoid confusion. Releases will be named according to the year, followed by the release number of that year, and may be appended with the [SWCS version number](#) if it is known and appropriate for the communication. For example, *Release 2024.2 (3.0)* refers to the second release of 2024, and SWCS version 3.0. If the version number is unknown or not needed for the communication, it can be written as *Release 2024.2* or abbreviated to *R2024.2*.

2.3.3 ICM Initiative Coordination

An important initiative to be taken into consideration during release planning is the Integrated Corridor Management (ICM) Initiative, also known as the I-24 SMART Corridor project. This pilot project aimed to deploy a system in Region 3 that adds capabilities to actively manage traffic on Interstate 24 between Nashville and Murfreesboro. The project has integrated freeway and arterial roadway elements, along with physical, technological, and operational improvements, to provide drivers accurate, real-time information and to actively manage traffic. The ICM System has been integrated with SWCS so that TMC staff can utilize the lane control and variable speed limit capabilities as well as integrated traffic signals to move travelers efficiently and safely in the corridor.

To reduce the frequency of time-consuming testing efforts and changes to the SWCS software, code releases for ICM and SWCS should have controlled and thoughtful coordination for their schedule and scope. The goal of this effort is to establish a regular schedule for releases that would incorporate ICM and SWCS enhancements and bug fixes. Coordination will begin with SwRI's [Common Code Committee](#), who will manage the ICM and SWCS code bases to ensure a successful merge.

2.3.3.1 ICM Planning

Planning will be the first key touchpoint for coordination between ICM and SWCS. SWCS users and ICM users can request suggested enhancements and report bugs that may be included in a release. Coordination should begin early in the release cycle to ensure both teams have a holistic view of what has been selected for development for SWCS and ICM.

2.3.3.2 ICM Communications

Communication is the next touchpoint of coordination between ICM and SWCS. It is vital to ensure communications reach the correct groups. This should include engaging the staff that need to be involved in UAT for ICM specific functionality as well as the staff that need to be involved in UAT and regression testing for general SWCS functionality.

2.3.4 Hot Fixes

In some cases, an issue may arise that blocks TMC operations and needs to be fixed as soon as possible. When this happens, the product owners may authorize a hot fix. A hot fix is a code

release that occurs outside of a normal SWCS release. A hot fix will only be implemented for bugs or enhancements that are of the highest priority and/or are causing downtime and/or blocking the TMCs from performing their day-to-day tasks. SwRI and SWCS product owners will collaborate using their best judgement to determine if a bug warrants a hot fix. See the [Emergency CAB section](#) for more information about how a Hot Fix is submitted to the CAB when CAB approval is needed.

Hot fixes that must go through CAB are required to be implemented and verified in the Test System prior to implementation in Production. It is recommended that all Hot Fixes go through this same process to ensure that implementation in production will go smoothly.

2.4 Software Development and Internal Testing

SwRI is responsible for all phases of the development lifecycle, including requirements gathering, software development and internal testing. This includes participation in requirements gathering and documentation, configuration management, versioning, quality assurance, code reviews, and initial testing.

2.4.1 Requirements Gathering Phase

During the [requirements gathering](#) phase, backlog grooming and release planning meetings are held to discuss bug fixes and features. They are then entered into Jira using the [Enhancement and Bug Tracking Process](#), where they are categorized and tracked. SwRI is responsible for estimating the amount of work each bug fix or feature will require.

2.4.2 Development Phase

During the development phase, a developer will pick an issue to work on from the tickets that have been selected for development, or a SwRI Project Manager will assign one. When an issue is in the “in progress” status, this means a developer is assigned and actively working on the ticket. Before they begin work, the developer will create a branch in Git separate from the master branch. Once the developer believes the code is ready for review, they send a pull request (PR) to the master branch where it goes through a code review before it is merged with the master branch.

2.4.2.1 Code Review

The code review step is an important method of quality control and ensures there are no mistakes in the code. Set within the design structure of the master branch, the code review is performed by two different people: the SwRI Project Manager (PM) or the SwRI Software Project Manager (SPM), and another developer from SwRI. Once the PR is approved it is moved to the master branch, kicking off a new build and the issue moves on to the testing phase.

2.4.2.2 Dependencies

During the development phase, impacts to systems adjacent to SWCS must be considered and addressed to avoid downtime once the new code is implemented in production. The following table should be used as a guideline during development and added to as new adjacent systems are implemented.

If the Release Includes:	Consider Impact to:	Notes
Database Changes	Crystal Reports	
Data Archive	Crystal Reports, RITIS	
Event Management	Vanderbilt AI-DSS	
C2C Schema	511/Website	
Video Wall	Skyline Vero Video Wall	This dependency goes both ways. Changes to the physical wall could affect the SWCS compatibility
TSS	RITIS	

2.4.3 Internal Testing Phase

During the internal testing phase, no code is developed and the SwRI testing team uses an internal test system to test all the new features and bug fixes. The testing team primarily consists of the developers from SwRI, though sometimes others from SwRI will test. Any bugs found are then fixed and tested again in a cycle until no more bugs can be found with the code and it is ready to be deployed to the TDOT Test System in preparation for UAT.

2.4.4 Common Code Committee

The Common Code Committee is a group within SwRI whose primary purpose is to ensure that shared code maintains the integrity of the agreed upon design structure. They can also identify issues that might be critical to another project in order to share code fixes and new features that would be useful to another client. The committee will make sure the code is agreeable to all projects and, if necessary, reevaluate how they are maintaining the core shared code base. They can also create more efficient ways to move code from one place to another for updates and ensure common design and facilitate the sharing of code.

2.4.5 Versioning

Software versioning is the process of assigning unique version numbers to unique states of computer software and is maintained by the SwRI Project Manager. The version number includes four numbers that stand for different states of the code. The first number symbolizes the major code version, and only changes during large releases. The second number symbolizes minor changes and will change each time a new smaller release is implemented. The third number symbolizes hot fixes and helps the developers keep track of what patches have been implemented. The fourth number symbolizes the continual build server number, which is what

all of the code is compiled on. Any time there is a code change to the master branch, the build number increases. Below is an example version number, which can be found at the bottom of the subsystems tab in SWCS. In the example below, “TDOT03SWCS_CORE:8009” refers to the host name the user is connected to and is not part of the version number.

Ex: 2.2.0 Build 3360

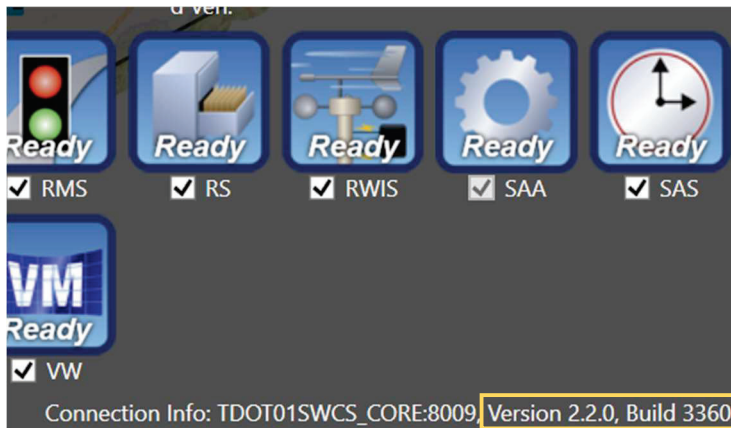


Figure 3: Example version number; found at the bottom of the subsystems tab in SWCS

2.5 Code Migration to Test System

The migration of the code into the test environment should be scheduled by the Release Manager, SwRI must coordinate with regional staff to ensure that the planned date and time is appropriate and works with the availability of support staff. At a minimum, an email should be sent by the SwRI Release Lead the day before the migration to the TMC Managers and TMC IT to provide the planned schedule and other details for the test migration. An email should also be sent to the TMC IT when implementation begins in Test.

Note: It may be beneficial with some releases to stagger the regional releases such that there is time to address any issues prior to deploying to multiple regions.

2.6 User Acceptance Testing (UAT)

User Acceptance Testing (UAT) is the phase of software development in which the software is tested in the real world by its intended audience. The purpose of UAT is to gain user acceptance of new features and bug fixes before they are implemented in Production.

2.6.1 UAT Roles and Responsibilities

2.6.1.1 Regional UAT Leads

To ensure that UAT runs smoothly, and testers have one point of contact for communication, each region will have a UAT Lead. The Regional UAT Leads will be appointed by the IT Product Owner and Traffic Operations Product Owner no later than one week prior to the start of UAT.

The Regional UAT Lead will be responsible for choosing testers from their respective regions. They will also be responsible for distributing test scripts, providing UAT guidance to testers, communicating with the UAT coordinator if there are any roadblocks, and collecting feedback and providing it to the project team. Regional UAT Leads may also participate in UAT as testers.

2.6.1.2 Testers

A tester should be someone with familiarity with both TMC operations and the expected behavior of the SWCS system. This crucial role should be filled by users with varying levels of experience to ensure that any changes are intuitive enough for any level of user. The role of the testers is to test new bug fixes and functionality and provide valuable user feedback to their UAT Lead.

Test scripts will be provided to the testers to help them perform a rigorous check of the upcoming release in the test environment. They should also be given time to perform ad hoc testing for functionality that they use in their daily responsibilities to ensure the release did not break any parts of the system not covered by the test scripts.

2.6.1.3 UAT Coordinator

The UAT Coordinator is the main point of contact for the Regional UAT Leads. The role of the UAT Coordinator is to create the UAT kickoff presentation, facilitate UAT kickoff, perform an environment and test script check out prior to the start of UAT, provide support and guidance to the Regional UAT Leads, and compile feedback from all regions into one document for review. The UAT Coordinator should be able to get any roadblocks or questions resolved with the help of Regional TMC IT and/or the project team.

2.6.2 UAT Process and Tools

The graphic below depicts the steps immediately prior to the start of the formal SWCS UAT period. The steps depicted in blue are completed by SwRI in the SwRI development system. The steps depicted in green are completed in TDOT's test system.



2.6.2.1 Test Scripts

In order to complete UAT, the testers will need a test script document to follow. This will help ensure that each new feature or bug fix in the release has been tested thoroughly and the testers have a clear understanding of the expected results for each step in the testing process. SwRI is responsible for creating test scripts and providing them to TDOT prior to the start of UAT.

The test script document will be reviewed during the UAT Kickoff meeting in order to eliminate confusion about how to follow and fill out the test script during UAT. An example test script can be found in [Appendix A](#). The UAT Coordinator and SwRI should also review the regression test scripts during the process of creating the release test scripts and make any updates necessary based on changes to SWCS. SwRI is ultimately responsible for storing and updating the regression test scripts.

2.6.2.2 Environment Checkout and Test Script Verification

After the updated software is deployed in the test environment and prior to the start of UAT, the UAT coordinator will work with team members to ensure that the environment and the scripts are ready for the testers. This is a crucial step where the test scripts are reviewed to ensure each step will make sense to the testers, there are no steps missing, and all information is accurate.

Each region's test environment will also be reviewed during this time in a step called regression testing to ensure that the new release has been implemented correctly, the system is up and running, and it can be logged into. The regression test checklist can be found in [Appendix B](#). If there are any issues found, they will be corrected prior to the official start of UAT.

2.6.2.3 UAT Kickoff Presentation

A UAT Kickoff Presentation will be created by the UAT Coordinator prior to the UAT Kickoff meeting. The purpose of this document is to:

- Share the schedule
- Review test scripts and release scope
- Set expectations
- Explain any special logistics

This document may be the same document used to communicate the [Release Plan](#).

2.6.2.4 UAT Demonstrations

In some situations, testing cannot be safely completed in the test environment due to a risk of impacting production operations. In this case, the functionality will be tested via a demonstration by the SwRI team either virtually or on-site. One example of a need for a demonstration would be when a test may require a simulator, such as when testing Response Plans. The UAT coordinator will collect any comments or concerns from the UAT demonstration and include it in the UAT feedback.

2.6.3 UAT Kickoff Meeting

The UAT Kickoff meeting is an important milestone in the UAT process. It is where the schedule and logistics of UAT are communicated to the UAT leads and they are given the opportunity to ask questions. The UAT Kickoff meeting should take place approximately one business day prior to the start of UAT and will be facilitated by the UAT Coordinator to include the IT Product Owner, Traffic Operations Product Owner, Regional UAT Leads, TMC Managers, Regional TMC IT representatives, and a SwRI representative.

2.6.4 UAT Scheduling

UAT should be scheduled to give weekend and evening staff the opportunity to participate in UAT. Testers should be given about one week to complete test scripts and provide feedback. The completion date for UAT must be at least one business day prior to the [Go/No Go meeting](#).

During the UAT Period, at least one person from the project team will be on call during business hours (Monday through Friday) to answer any questions that cannot be answered by the Regional UAT Lead or resolved by TMC IT.

For larger releases, a staggered UAT approach may be used to work out any confusion with the test scripts. A staggered approach includes giving one of the regions the test scripts and asking for feedback before the other regions begin testing. This approach helps the project team correct any issues with the test scripts, improving the accuracy of testing.

2.6.5 Test Documentation

Regional UAT Leads are responsible for ensuring that all steps required for UAT are completed and documented. Testers are responsible for documenting feedback and results found during testing.

2.6.5.1 Feedback

UAT Feedback will be recorded by the testers via the provided test scripts. Regional UAT Leads will collect each testers document and provide it to the UAT Coordinator by the end of the UAT period. Expectations will be made clear that the purpose of UAT is to provide valuable

feedback, but the ultimate go/no go decision lies with the IT Product Owner and Traffic Operations Product Owner.

The UAT feedback will be the primary input into the next phase of the release process: Implementation.

2.7 Implementation

Implementation is the phase of software development when new code is migrated to production. Prior to implementation, a Go/No Go Meeting will be held, and the change will be submitted to the Change Advisory Board (CAB) for approval; following implementation, a retrospective will be held.

2.7.1 Go/No Go Meeting

The Go/No Go Meeting is the step in the software development process where product owners formally give approval to move forward with the production implementation. At a minimum, attendees should include the Release Manager, UAT coordinator, a SwRI representative, the IT Product Owner, and the Traffic Operations Product Owner. This meeting gives the attendees an opportunity to review the feedback from user acceptance testing (UAT) and officially determine if the release is ready to move to production. Whenever feasible, the UAT feedback will be summarized and distributed to the Go/No Go meeting invitees by the UAT Coordinator at least 24 hours prior to the meeting.

Although it won't be made lightly, a decision to postpone the production migration may occur if it is determined that the release poses a major risk to effective TMC operations. SwRI's internal quality assurance processes, a disciplined UAT process, and effective communications with stakeholders during the release process should mitigate the risk of a No-Go decision.

The Go/No Go meeting must be held at least 4 hours prior to the CAB meeting and preferably 48 hours prior in order to give enough time to the IT Product Owner to rescind the submission in the case of a No-Go decision.

2.7.2 Change Advisory Board

The Change Advisory Board (CAB) is made up of IT specialists at TDOT with the goal of coordinating efforts within TDOT's IT organization, minimizing impact to IT systems, and balancing the use of IT resources. The CAB handles all communications for software changes that will impact TDOT employees.

2.7.2.1 *How to submit a change*

The CAB meets every other Wednesday at 10:30am Central. The CAB Meeting Form should be filled out and submitted a week before the CAB Meeting, and no later than end-of-day the preceding Monday, in order to present a change to the CAB. The form includes questions about

who will be involved in the changes, when they will be made, and what sort of communication is needed. An example form can be found in [Appendix C](#). The IT Product Owner or delegated resource is responsible for completing and submitting the form. It may be reviewed at the Go/No Go meeting at the discretion of the IT Product Owner.

2.7.2.2 CAB Meeting

When a change is submitted, someone who has knowledge about the requested change should be present at the CAB meeting to answer questions, in most cases the IT Product Owner. Questions may include: “do we need someone on standby if something needs rolled back; do we need support from multiple people;” etc. Since a SWCS change should have no impact to other systems, the change request should rarely be denied. The attending representative will inform the project team once CAB has approved the change.

2.7.2.3 Emergency CAB

In some cases, a problem in SWCS may block operations for the TMCs and require a Hot Fix that requires CAB approval. When this happens, the IT Product Owner or Traffic Operations Product Owner may call the Deputy Director of IT and request permission for an emergency out-of-cycle CAB meeting. The approval of the entire board is not necessary for hot fixes. For more information about hot fixes, see the [Hot Fix Section](#).

2.7.3 Production Code Migration

With support from Regional IT and others, SwRI is responsible for the production code migration of a new SWCS release. The production code migration should be scheduled such that only one region is updated in a given day. Whenever feasible, regional migrations should be staggered by one or more days for [production check out](#). With this strategy, if there is a failure or significant issue in one region, the next migration should be rescheduled until the root cause of the failure is identified.

2.7.3.1 Migration Communication Plan

Because SWCS is a mission critical system, SwRI must coordinate with the regional staff to ensure that the planned date and time is appropriate and works with the availability of support staff. The chosen time to begin implementation should not interfere with rush hour traffic or other emergency situations. Production migration scheduling will follow the procedures outlined in the [Release Scheduling and Steps section](#).

Unforeseen traffic events can occur at any time, so prior to starting implementation, SwRI must receive confirmation from TMC IT and the TMC Staff that they are not in the middle of a major event. If the region is experiencing an unforeseen traffic event, such as a major accident, SwRI and the regional staff should work together to reschedule implementation. SwRI will make sure that there is as little downtime as possible during implementations in order to minimize disruptions to TMC operations.

Immediately before SwRI begins implementation, an email should be sent to the full project team, TMC IT, the TMC Manager and TMC Supervisor to notify them that implementation is beginning. Another email should be sent by SwRI to the same group when implementation is completed.

2.7.3.2 Pre-Implementation Check List

There are several administrative tasks that must be completed prior to implementation to ensure everything goes smoothly. The Release Manager may not be responsible for completing every item on this list, but they should keep track to ensure each item gets completed.

1. Schedule Implementation Meetings
 - a. Once the migration has been approved by CAB, the Release Manager, or delegate, should schedule one meeting per region for the duration of the maintenance window. Meeting invites should go to the SwRI representative who will be performing the migration, regional IT, and the regional TMC Manager and Supervisor.
2. Communicate name of SwRI staff person to TMC IT
 - a. SwRI should communicate the name of the staff person completing the implementation to TMC IT prior to start of implementation.
3. Check that TMC staff are ready to be offline
 - a. Immediately before beginning implementation SwRI and/or the TMC IT staff should check with regional staff that they are not in the middle of a major event and ready to be offline.
4. Send implementation start email
 - a. SwRI should send the project team and regional staff an implementation start notification email immediately before implementation begins.

2.7.3.3 Contingency Plans

During scheduled or unscheduled downtime, operations may continue using alternate systems as a workaround. The following is a list of those systems and what SWCS Functionality they replace to be used as a contingency plan during downtime.

Alternate System	SWCS Functionality
Vanguard, Ledstar	DMS
Chameleon	Cameras
SWIFT	Incident Entries

2.7.4 Production Check Out

Production check-out is an important step in the release process where the users and project team perform a regression test in production after implementation to ensure that the system is

working as expected. The goal of regression testing is to perform a set of tasks that mimic the key functionality of the system and to validate that the production code migration was implemented properly. The list of tasks that should be performed as part of regression testing for a SWCS production check out can be found in [Appendix B](#).

2.7.5 Post Release Bugs

Once a release has been implemented, the users may find issues that were missed during UAT. If there are major issues that block operations, the decision can be made by the product owners to authorize a hot fix following the [hot fix procedures](#). These issues, along with other more minor issues, should be added to a punch list and tracked using the following process.

SwRI will be responsible for maintaining the punch list and sharing it with the project team. The punch list should include information on when and where the issue was found, the status of the issue, and how it will be resolved. The punch list should be shared with the PUG to communicate the resolution of issues.

2.7.6 Retrospective Meeting

A retrospective is a meeting where the project team reflects on a past portion of the project to improve performance in the future. SWCS project retrospectives should take place following each release and will focus on the period from beginning of development to the end of implementation in production for that release. The Release Manager should facilitate this meeting and the core project team including product owners, TMC IT Manager, and consultants should be in attendance.

Before the retrospective meeting, the project team should send out surveys to those in the TMCs who were impacted by the release. The feedback from these surveys should be reviewed in the retrospective meeting to gain an understanding of what could be changed going forward to make the process more successful for all parties. There will be one survey for TMC Managers and Supervisors, and one survey for other TMC staff. Example surveys can be found in [Appendix D](#).

During the retrospective, everyone will have the opportunity to discuss what went well, what could be improved, and actions to take in order to improve the process going forward. Feedback from the survey and any other feedback gathered following implementation will be shared and considered. Attendees should be asked to keep an open mind and focus on overall improvement, rather than placing blame. Someone should be designated to take notes in the retrospective to ensure that action items are implemented in the future releases.

3 SWCS End User Support

The users of the SWCS software are the staff and supervisors in each of the four TMC locations. The TMCs are manned 24/7 and the services provided to Tennessee travelers are considered a critical function. As such, the support needed to ensure required IT services such as the SWCS software are functioning and available is critical.

3.1 Support Tiers

The support of SWCS is divided into four levels, as is typical for software application systems of this size. This section will outline each level or “tier” of support, who is responsible for each tier, and what types of issues will be escalated to that tier.

3.1.1 Tier 1

The TMC IT group provides Tier 1 support for the SWCS users. As such, they are the organization’s “first line of defense” for resolving issues. Tier 1 is equipped to handle the following types of issues:

- Configuration changes
- DMS technical support
- Camera technical support
- User hardware issues including PCs
- User access issues
- Network issues
- Desktop issues

3.1.2 Tier 2

When an issue is beyond the skill or knowledge of the Tier 1 staff to resolve, it escalates to Tier 2. Tier 2 staff have the knowledge base and skills to handle more complex issues and support is shared among three groups. Responsible parties and the issues they can handle can include:

- SwRI Tier 2
 - More complex configuration changes
 - Troubleshooting for issues that could not be resolved by TMC IT
 - Contact information: 10-tdot-support@swri.org
 - For emergencies: (503) 470-4604
- TDOT IT/Network Staff
 - Network issues not able to be resolved at Tier 1
 - Hardware issues not able to be resolved at Tier 1
- Gannett Fleming

- Report issues or changes
- Contact information: hwilkie@gfnet.com cyorks@gfnet.com

3.1.3 Tier 3

If Tier 2 staff are unable to address the issue it escalates to Tier 3. Tier 3 is usually the highest level of technical skill in an organization. Issue tracking for Tier 3 issues will be handled internally within the following supporting organizations. Responsible parties and the issues they can handle can include:

- SwRI Development Staff
 - Bug fixes
 - Enhancements
 - The most complex configuration changes
- Specialized TDOT IT/Network Staff
 - Network issues not able to be resolved at Tier 2
 - Hardware issues not able to be resolved at Tier 2
- Gannett Fleming Developers
 - Report changes/issues that cannot be resolved by Tier 2 resources

3.1.4 Tier 4

An issue will be escalated to Tier 4 if external support for products or components is needed. Responsible parties include vendors such as Skyline (Video Wall), Cisco (Routers and Switches) and other vendors of software or hardware used by the TMC staff.

3.2 Issue Reporting, Tracking and Escalation

The support tiers outlined above are tasked with resolving issues brought up by system users and administrators, however, they can only resolve issues once they have been brought to their attention. This section will include the procedures that users should follow when they run into an issue with SWCS.

More information about what is considered an issue, bug, enhancement etc. can be found in the [Definition of Key Terms section](#).

3.2.1 Reporting an Issue

The following steps are given as a guide to the users in the TMCs to outline how to submit a support request for any SmartWay CS issues.

- 1) Once an issue arises, the operator must decide if the issue is a “How To,” or technical IT issue.

- a. If the issue is a “How To,” scroll a camera or start a module for example, the user can seek help from his/her supervisor.
 - b. If a device is not responding, for example, the user is able to take the device offline, then back online to attempt a quick refresh. The user should seek the SWCS User’s Manual for guidance.
 - c. If the issue is a technical issue such as an error or a connection problem, then proceed to the next step.
- 2) The operator must put a HelpDesk ticket into ServiceNow (on the user’s Desktop). This can be done in conjunction with asking for help in person, but a ticket must be opened by the user in order to receive email feedback on ticket resolution milestones. Seeking direct help from an onsite IT staff after the ticket is put in the system expedites the ticket, as the IT personnel can take immediate ownership of the ticket for resolution steps.
- 3) First step is to click on the “Helpdesk Ticket” icon on the user’s desktop. From there, start filling out the required fields under the Create TDOT Incident page. Under the “*Please provide any additional comments needed to fulfill this request”, following the following when it comes to a SWCS issue:
 - a. List the problem and make sure to include:
 - i. “Route to R4 TMC IT”, for example if it is at R4, somewhere in the description of the problem.
 - ii. “SWCS”, somewhere when you are describing the problem.
 - iii. Example, “SWCS – Not posting incidents – Route to R1 TMC”
- 4) The operator will receive email updates from IT regarding the resolution steps if the process calls for it in the specific ticket.
- 5) In addition to the ticket, TMC IT will send out a TMC Outage email if deemed necessary. This will go out to all members of the JJ.TDOT.TMC.OUTAGE@tn.gov email group.

3.2.2 Escalating Software Issues to SwRI

If a SWCS software issue is reported to Tier 1 that they cannot resolve, it will be escalated to SwRI support by either email or phone call, with phone calls generally being used in emergency situations. SwRI’s Jira project collects all issues submitted using the [Enhancement and Bug Identification and Tracking Process](#). SwRI will be responsible for:

- Tracking issues in Jira
- Providing the Jira ticket number to Tier 1 support at the time the report is received
- Communicating regular updates about issues and the resolution to any interested parties especially the person who reported the issue and anyone cc’d on the original issue communication
- Including the Jira number in related emails and communications whenever feasible

Tier 1 support will then update the ServiceNow ticket with the relevant information. All bugs should be tracked in both TDOT's ServiceNow ticketing system, and SwRI's Jira ticketing system. For traceability, both ticketing systems record the identification number of the corresponding ticket in the respective system. More details about how issues are tracked in Jira can be found in the [Tracking Process section](#). The following figure outlines how issues reported by TMC Staff are escalated to Tier 2 SwRI support and tracked between the two organizations.

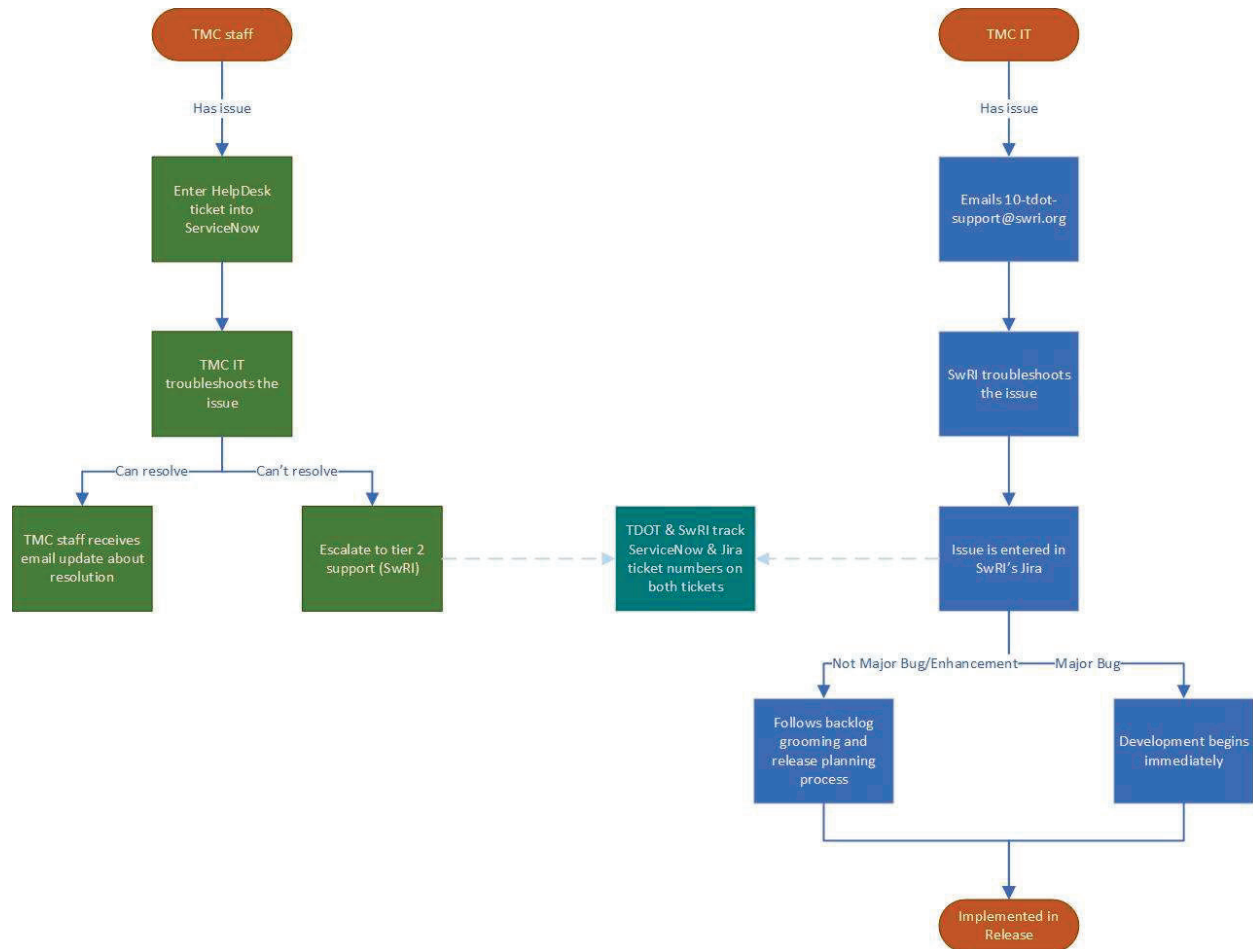


Figure 4: Issue escalation between TDOT and SwRI

3.3 TMC IT Information

TMC IT Staff are considered SWCS Tier 1 support and are a crucial support system for the TMCs. This section will outline how the TMC IT group is organized, their support schedule, and what resources are available to aid their support of SWCS and the TMCs.

3.3.1 TMC IT Organization

The following figure outlines the general organizational structure of TMC IT. Each position under the TMC IT Leads may or may not be filled by multiple people.

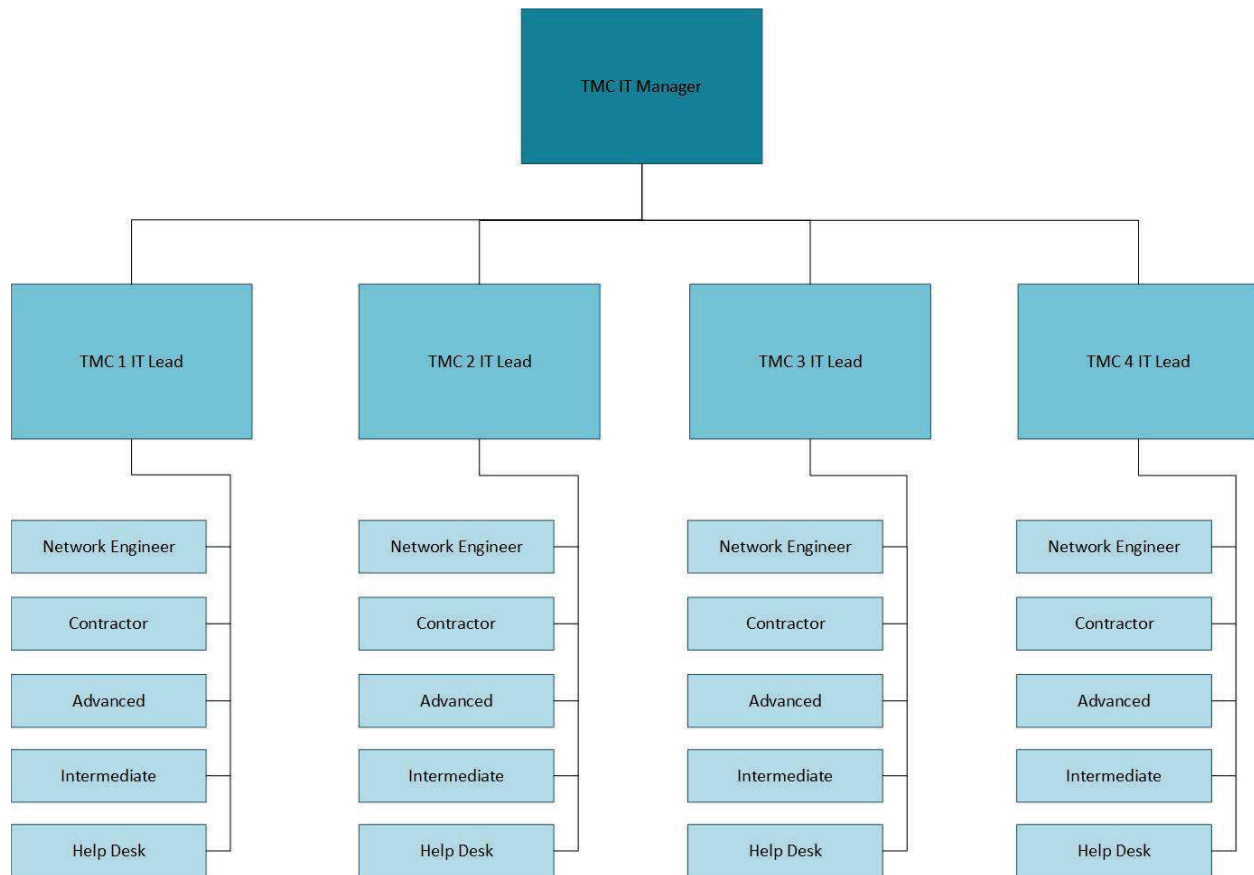


Figure 5: TMC IT Example Org Chart

3.3.2 TMC IT Support Schedule

Since the TMCs are manned 24/7 and the services provided to Tennessee travelers are considered a critical function, support for SWCS must be available at all times. TMC IT uses the following schedule to ensure that all issues can be addressed as soon as possible. Wherever the IT support is “on call” SWCS users have access to the on-call schedule in order to call for support. All regions plan to support 6:00am-midnight coverage in the future. The following schedule is subject to change.

Weekdays:

- Region 1
 - Monday – Thursday 6:30am – 11:00pm
 - Friday 6:30am – 9:30pm
 - On call schedule for evening hours
- Region 2

- Monday – Friday 6:30am – 7:30pm
 - On call schedule for evening hours
- Region 3
 - Monday – Friday 6:00am – 8:00pm
 - On call schedule for evening hours
- Region 4
 - Monday – Friday 6:00am – 1:30am
 - On call schedule for evening hours

Weekends:

- All regions on call

3.3.3 TMC IT Resources

All parties who use and support SWCS have a common goal of keeping Tennessee travelers safe. In order to accomplish this, the SWCS project team is continually looking for ways to provide resources to the TMC IT staff. This section will outline the meetings and documentation available to TMC IT staff to help amplify their ability to support SWCS and its users.

3.3.3.1 Office Hours

SwRI maintains a regularly occurring Microsoft Teams meeting called “Office Hours” for TMC IT Staff to drop in as needed to get questions answered. These meetings last for two hours and have proven to be beneficial in solving tough SWCS issues and increasing the knowledge base of TMC IT Staff. Recordings are taken during these meetings and saved to a central location that will allow TMC IT Staff to reference the solutions at a later date.

3.3.3.2 Documentation & Recordings

The recordings taken during Office Hours will be saved to a Confluence site that TMC IT Staff can access. SwRI will also document frequently asked questions in this space to create a wiki to help Guide TMC IT Staff in resolving SWCS issues.

3.3.3.3 User Manual

The SWCS User Manual contains not only helpful information for SWCS Users, but also sections that benefit SWCS Administrators such as TMC IT Staff. This User Manual should be continually updated as new SWCS releases are implemented.

3.3.3.4 Monthly IT Meeting

In addition to Office Hours and other documentation, a Monthly IT meeting is held in order to increase communications and coordination between the SWCS project team and the TMC IT Staff. New initiatives, upcoming SWCS releases, and open questions can be discussed at this meeting.

3.4 Role of the Power User Group (PUG)

The Power User Group (PUG) is the group of [Power Users](#) at TDOT that use SWCS on a daily basis. This group is comprised of TMC Managers, Supervisors, leads and any other TMC representatives that are needed. Meetings are generally held once a month and are facilitated by a consultant. A SwRI representative, the IT and Operations product owners, and any other appropriate representatives should be in attendance.

The PUG is crucial in the effort to effectively communicate to the TMCs, and they provide the project team with ongoing feedback to ensure SWCS is constantly being improved. The TMC representatives who attend the PUG should share information from the PUG with the rest of the TMC staff. They also provide essential support, feedback, and 2-way communication during [user acceptance testing \(UAT\)](#) as the UAT Leads are generally part of the PUG. Someone should always be designated to take notes during the PUG meetings to make sure action items are completed and bugs and enhancements are logged in JIRA. Those notes should be shared as soon as possible, and recordings made available to PUG members.

4 Appendix A – Example Test Script

Acceptance Testing Procedure

2. Regression Testing Procedure

2.1 Map Interaction

2.1.1 Test Objective

The purpose of this test case is to verify standard functionality of the Operator Map.

2.1.2 Prerequisites

- Databus and SAA modules must be running
- Tennessee is experiencing precipitation somewhere in the state

2.1.3 Test Procedure

Perform the following steps to verify correct functionality:

Test Step Number	Test Description	Visual Aid
1	Start the SmartWay Operator Map	

Acceptance Testing Procedure

2.1.4 Test Results

Test Step Number	Expected Outcome	Results	Notes
4	Icons matching the checked or unchecked menu icons will appear and disappear according to their state set.	Pass ☐ Fail ☐	
5	The map window will zoom to the location that matches the chosen view preset.	Pass ☐ Fail ☐	
7	An animated weather radar overlay will start playing on the map.	Pass ☐ Fail ☐	

5 Appendix B – Regression Test Checklist

- Monitor cameras
- Pull a camera onto your screen
- Pull a report
- Find travel time slowdowns
- Add a new event for a disabled vehicle
- Add an event with lane blockage
- Dispatch a HELP truck
- Generate a response plan, check accuracy of DMS messaging, 511 text, and execute it
- Add and remove lane blockages in an event
- Correct lane configuration by adding or removing a lane
- Send an email and add someone's email to the recipients

- Restart your computer and be sure SWCS is available
- SwRI also maintains Regression Test Scripts to ensure regression testing is thorough.

6 Appendix C – Change Advisory Board Form



Change Advisory Board

Name of Application:

Requestor:

What? Please summarize what changes are being made:

Where?

☐ Development
☐ Test
☐ Production

Who will be involved in the changes?

☐ Operations
☐ Database
☐ Other: Network and Security Architect

When? Please list preferred time(s)
 (This will have to be negotiated with Ops/DBA)

☐ After working hours
 Time: _____
☐ During working hours
 Time: _____

Communications

☐ Bridge line needed?
☐ Email needed?

If needed, please provide the verbiage necessary for this outage and what group(s) will need to be notified (Major apps usually require TDOT-ALL notifications).

- Application pushes must go to Test before they're placed in Production
- Testers are required for all pushes, at the time of the push. A valid test plan may be provided by the requestor in lieu of having testers so Ops can perform the testing, when possible.
- Production pushes will need to be done after hours. Dev/Test pushes may be done during business hours.

Rev. 01/23/2017

7 Appendix D – Retrospective Surveys

Appendix D.1 Manager & Supervisor Survey

<https://www.surveymonkey.com/r/R37CWSZ>

SunGuide 8 Release Retrospective

Reactions to September 2022 release of SunGuide 8 into SWCS

This is an opportunity for you to offer comment and suggestions on the recent SunGuide 8 release which upgraded SWCS. This survey is designed for managers to collectively comment. A separate survey is being created to be shared with all technicians and tech seniors. Thanks for your time and input.

1. Overall effectiveness of the release process

- | | |
|--|--|
| ☐ The process was smooth, without issue | ☐ The process had significant issues that were resolved to our satisfaction |
| ☐ The process had some bumps, but overall a success | ☐ The process had significant issues that are still unresolved |

Comments

2. Please evaluate the following parts of the process

	Very favorable	Favorable	Neutral opinion	Unfavorable	Very unfavorable
User Acceptance Testing Communication	☐	☐	☐	☐	☐
User Acceptance Testing Experience	☐	☐	☐	☐	☐
Training Offered Between UAT and Production	☐	☐	☐	☐	☐
Initial Production Experience	☐	☐	☐	☐	☐
Production Experience After Two Weeks	☐	☐	☐	☐	☐

Comment

* 3. Please list any other concerns with the release

Done

Appendix D.2 Staff Survey

<https://www.surveymonkey.com/r/FJPTQN8>

SunGuide 8 Release Staff Retrospective

Reactions to September 2022 release of SunGuide 8 into SWCS

This is an opportunity for you to offer comment and suggestions on the recent SunGuide 8 release which upgraded SWCS. This survey is designed for all staff to evaluate their experience with the release. Thanks for your time and input.

1. Overall effectiveness of the release process

- | | |
|--|--|
| ☐ The process was smooth, without issue | ☐ The process had significant issues that were resolved to our satisfaction |
| ☐ The process had some bumps, but overall a success | ☐ The process had significant issues that are still unresolved |

Comments

2. Please comment specifically on each item

	Agree	Neutral	Disagree
I was informed early enough about changes to be ready for them	☐	☐	☐
I would have preferred to have been told earlier about what was changing so I had more time to prepare	☐	☐	☐
My supervisor(s) did a good job of coaching us through changes	☐	☐	☐
The changes that I see meet what I was told would be changed	☐	☐	☐
The changes I see still make me want more improvements or enhancements	☐	☐	☐

The changes I
see allow me
to do my job
quicker or
more
efficiently

☐
☐
☐

The changes I
see reflect
earlier
comments I
made to my
supervisors or
made myself

☐
☐
☐

Other (please specify)

3. Please evaluate the following parts of the process

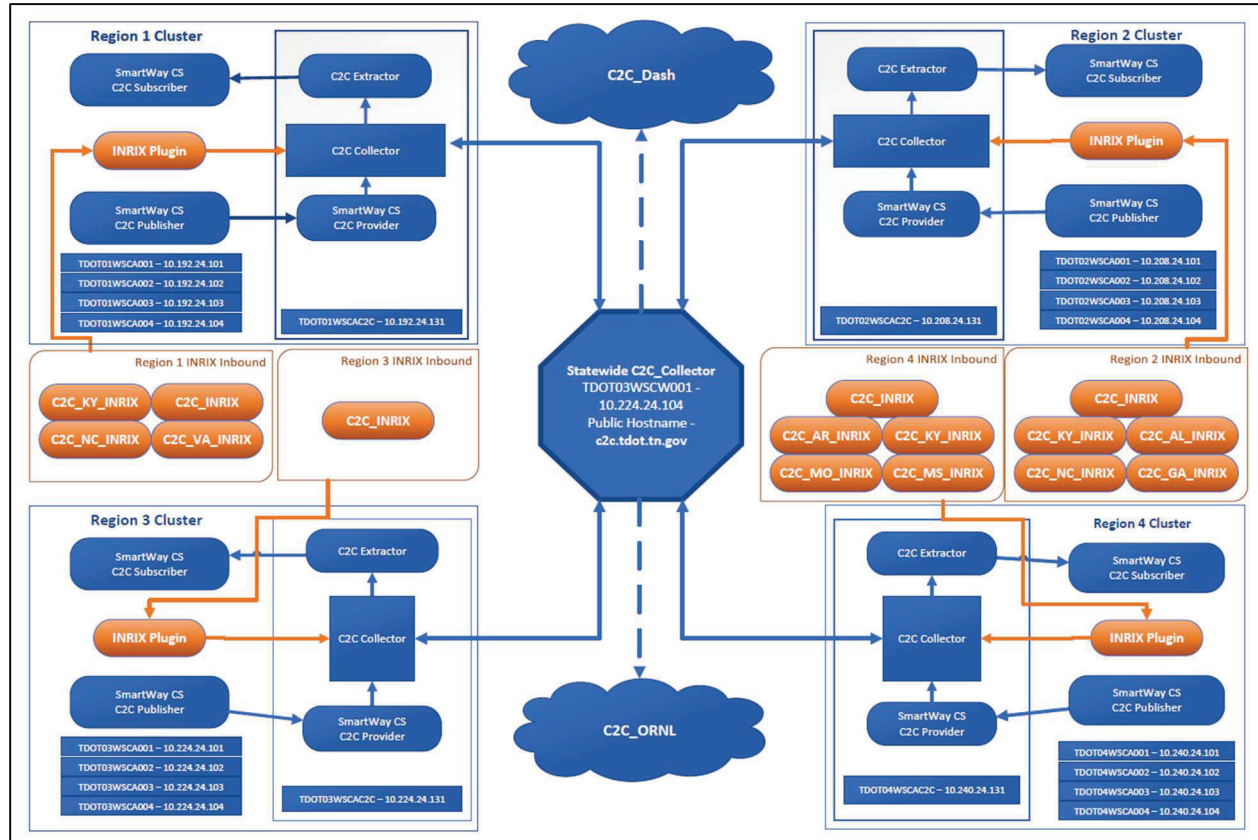
	Very favorable	Favorable	Neutral opinion	Unfavorable	Very unfavorable	Does not apply to me
User Acceptance Testing Communication	☐	☐	☐	☐	☐	☐
User Acceptance Testing Experience	☐	☐	☐	☐	☐	☐
Training Offered Between UAT and Production	☐	☐	☐	☐	☐	☐
Initial Production Experience	☐	☐	☐	☐	☐	☐
Production Experience After Two Weeks	☐	☐	☐	☐	☐	☐

Comment

* 4. Please list any other concerns with or comments about the release

Done

8 Appendix E – Connectivity Flowchart



 DEPARTMENTAL POLICY State of Tennessee Department of Transportation	Policy Number: 230-01 Effective Date: June 30, 2020
Approved By: 	Supersedes: March 12, 2012
SUBJECT: Dress and Appearance	

RESPONSIBLE OFFICE: Human Resources

AUTHORITY: T.C.A. §4-3-2303. If any portion of this policy conflicts with applicable state or federal laws or regulations, that portion shall be considered void. The remainder of this policy shall not be affected thereby and shall remain in full force and effect.

PURPOSE: This policy establishes standards governing employee on-the-job dress and appearance.

APPLICATION: All employees of the Department of Transportation.

POLICY: All employees of the Department are expected to maintain a professional standard of dress and grooming that reflects good taste and common sense. All employees should be well groomed, displaying good hygiene, and neatly dressed in clean, appropriate attire for the nature and location of his or her work. All employees will present a professional image to visitors, coworkers, customers, and the public.

Employees who report to and work in office environments should be dressed in business or business casual attire that is appropriate for the work location. Office employees may dress casual on Friday, so long as the attire is aligned with the guidelines in this policy.

Employees who report to work outdoors or in the field may dress casual as long as the attire remains appropriate for the work location.

The Department may require employees in certain units to dress in uniforms or other Personal Protective Equipment (PPE) provided or approved by the Department. These requirements will remain standard across all affected units in the Department and will be communicated by the relevant headquarters divisions with oversight. Supervisors should communicate any specific attire or Personal Protective Equipment (PPE) to staff members during new staff onboarding and orientation. All uniforms and PPE provided to employees by the Department should be kept clean and professional in appearance.

At no time will the following items be allowed to be worn by employees in any TDOT work location, unless indicated otherwise:

- Sweatpants
- Yoga or spandex pants without a long top
- Flip-flops
- Hats (allowable for field employees not working in an office environment)
- Halter or crop-tops that bare mid-section
- Clothing that contains any content that is in violation of State and/or TDOT laws, rules, and policies regarding discrimination and harassment
- Items of clothing containing vulgarity or illegal content
- Jeans with tears or holes
- Tank tops, spaghetti strap tops, or strapless tops

MEDICAL OR RELIGIOUS ACCOMMODATIONS: The Department will reasonably accommodate an employee's medical restrictions or religious beliefs in terms of workplace attire unless the accommodation creates an undue hardship. PPE in certain job classifications may still be required with medical or religious accommodations. Any employee requesting accommodations under this policy should contact TDOT Human Resources Office at 615-741-3461.

POLICY VIOLATIONS GUIDELINES:

1. Employees who violate this policy may be subject to appropriate disciplinary action as described in Rules of the Tennessee Department of Human Resources, Chapter 1120-10.
2. In addition to potential disciplinary action, employees in violation of dress or appearance standards may be required to go home and use their accumulated leave until returning in appropriate dress and appearance. This also includes employees who do not display proper levels of good hygiene and grooming.
3. The supervisor is responsible for maintaining the proper performance level, conduct and discipline of employees under his/or her supervision. Violations of this policy should be referred to the TDOT Office of Human Resources at 615-741-3461 for appropriate disciplinary action.