Traffic Incident Management Program Plan

For the Topeka Metropolitan Area

April 2015

Kansas Department of Transportation

HNTB

Executive Summary

Purpose and Need

Traffic Incident Management (TIM) consists of a planned, coordinated and multidisciplinary process to detect, respond to and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective TIM reduces the duration and impacts of traffic incidents and thereby improves the safety of motorists, crash victims and emergency responders.

In June 2014, the Kansas Department of Transportation (KDOT) initiated the development of a plan to enhance TIM in the Topeka metropolitan area in partnership with city and county agencies. The high-level purpose of the resulting **Topeka Metropolitan Area TIM Program Plan** is improving coordination of *all* TIM responders, including those representing law enforcement, fire and emergency medical services, state and local departments of transportation, towing and recovery, and others. More specifically, the Plan:

1. Identifies near, medium and long-term strategies to enhance current traffic incident management practices;
2. Offers practical guidance for key TIM activities including, on-scene emergency response, traffic management, traveler information, communication and coordination; and
3. Establishes a programmatic structure for ongoing, sustained TIM improvement and training.

The Plan also emphasizes the importance of existing and future Intelligent Transportation Systems (ITS) and Motorist Assistance Services to effective TIM.

Process

Developing Plan components and recommendations followed a highly collaborative process with input and direction from Steering and Working Group Committees composed of state and local agency representatives. The Steering Committee provided executive-level policy input and committed agency resources for Plan development and ongoing TIM enhancement. A technically focused Working Group Committee guided the development of response strategies. Meetings were conducted and discussion facilitated with both groups to first identify and understand existing TIM issues, challenges and needs and then to collectively develop practical solutions and strategies to address identified needs.

Recommendations

Effective TIM requires ongoing commitment of all stakeholders to improve. As such, an overarching recommendation is establishing a formal Topeka TIM Working Group Committee whereby responders and stakeholders continue to meet at least quarterly to identify needs, facilitate communication and

coordination, implement Plan recommendations and foster relationships. An equally important recommendation that is critical to responder safety is training, which has already begun with the help of local police and fire departments. Training needs to be ongoing and sustained, so all responders are provided training.

Plan recommendations are grouped according to Near, Medium and Long-Term implementation timeframes. It is important to recognize that strategies identified for Near-Term implementation are those that typically serve to establish a Topeka TIM Working Group Committee led by KDOT that will continue with regular meetings and create momentum needed for continued success. A summary listing of each recommendation the Working Group Committee will address is listed by implementation timeframe below. More detailed descriptions of each are provided in Sections 2-5 of the Plan.

Near-Term – Issues to be addressed by TIM Working Group Committee

a. Hold Regular TIM Stakeholder Meetings
b. Conduct Regular After-Action Reviews
c. Develop Emergency Traffic Control and Scene Management Guidelines
d. Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages
e. Develop Detailed Contact and Resource List
f. Improve Dispatch Notification Process
g. Develop Communications/Coordination Protocol Guidelines
h. Continue Responder Training
i. Hold Traffic Incident Management Exercise
j. Accept TIM Program Plan and Develop Draft Inter-Agency Agreements

Medium-Term – Issues to be addressed by TIM Working Group Committee

a. Review and Revise the Emergency Alternate Route Plans
b. Implement Public Outreach Campaign
c. Conduct Outreach/Training for Minor Stakeholders
d. Conduct Upper Management Outreach Plan

Long-Term – Issues to be addressed by TIM Working Group Committee

a. Develop Dynamic Message Sign Deployment Plan and Identify Funding to Implement
b. Develop a Plan for Funding and Implementing a Virtual Traffic Management Center Shared by TIM Partners
c. Identify Funding and Plan for Implementing Expanded Video Sharing System
d. Identify Funding and Plan for Deployment of 2/10-Mile Reference Markers

Emergency alternate route plans were developed as part of this Plan. They are provided to stakeholders as a linked Adobe PDF application that allows plans to be accessed by clicking on a regional map. The TIM Working Group Committee will need to maintain these plans as part of the ongoing Topeka TIM Program.

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List of Acronyms

AAR	After-Action Reviews
ATIS	Advanced Travel Information System
BER	Bureau of Environmental Remediation
CAD	Computer-Aided Dispatch
CEPR	Commission on Emergency Planning and Response
CCTV	Closed-Circuit Television
DMS	Dynamic Message Signs
DNR	Department of Natural Resources
DOJ	Department of Justice
DOT	Department of Transportation
EMA	Emergency Management Agency
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ERG	Emergency Response Guidebook
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GPS	Global Positioning System
HAR	Highway Advisory Radio
HEMS	Helicopter Emergency Medical Services
ICS	Incident Command System
IFSTA	International Fire Service Training Association
ITS	Intelligent Transportation Systems
KC	Kansas City
KDEM	Kansas Division of Emergency Management
KDHE	Kansas Department of Health and Environment
KDOT	Kansas Department of Transportation
KTA	Kansas Turnpike Authority
LEPR	Local Emergency Planning Committee

LZ	Landing Zone
MAP	Motorist Assistance Program
MAP-21	Moving Ahead for Progress in the 21st Century
MUTCD	Manual on Uniform Traffic Control Devices
NFPA	National Fire Protection Agency
NIMS	National Incident Management System
NIJ	National Institute of Justice
NTIMC	National Traffic Incident Management Coalition
NUG	National Unified Goal
PSAP	Public Safety Answering Point
RWIS	Road Weather Information System
SSP	Safety Service Patrol
TIM	Traffic Incident Management
TIMA	Traffic Incident Management Area
TIMSA	Traffic Incident Management Self-Assessment
TMC	Traffic Management Center
TR	Tail Rotor
TRAA	Towing and Recovery Association of America
TTC	Temporary Traffic Control
USFA	U.S. Fire Administration

SECTION 1
Introduction

1.1 Introduction and Purpose

In June of 2014, the Kansas Department of Transportation (KDOT) initiated the development of a Traffic Incident Management (TIM) Program Plan for the freeway system and high-volume roadways in the Topeka metro area. Central to the development and stakeholder acceptance of this plan was the partnership of a multi-agency, multidiscipline TIM Working Group who provided expert input and guidance throughout the project.

The high-level purpose of the Topeka Metropolitan Area TIM Program Plan is to improve the coordination of efforts of all TIM responders, including law enforcement, fire, DOTs, and towing and recovery, thereby minimizing the negative impact traffic incidents have on safety and mobility. More specifically, the plan was developed to:

1. Identify strategies to improve current traffic incident management practices;
2. Offer practical guidance for communication and coordination, on-scene emergency response, and traffic management and traveler information; and
3. Establish a programmatic structure for ongoing, sustained TIM improvement and training.

The Plan also highlights the KDOT, Kansas Turnpike Authority (KTA) and City of Topeka Intelligent Transportation Systems (ITS) and describes how these systems can be used by TIM stakeholders to enhance response. The motorist assist service provided by the Kansas Highway Patrol (KHP) is also discussed.

1.2 Plan Development Process

To develop the Topeka Metropolitan Area TIM Program Plan a Steering Committee and Working Group Committee were formed. The Steering Committee's purpose was to provide agency commitment and policy input to the plan. The Working Group Committee was used to obtain input from TIM stakeholders that are directly involved in TIM response. The following agencies and organizations were invited to participate in the plan development process:

- Topeka Police Department
- Topeka Fire Department
- Shawnee County Sheriff's Office
- Kansas Highway Patrol
- Kansas DOT
- Kansas Turnpike Authority
- Towing and Recovery
- Topeka Public Works
- Shawnee County Public Works
- Shawnee County Emergency Management
- Consolidated Emergency Communications Center
- AMR (Emergency Medical Transport)
- Metropolitan Topeka Planning Organization
- Shawnee County Fire District #2
- Shawnee County Fire District #4
- Shawnee Heights Fire District
- Soldier Township

At the initial Steering Committee and Working Group Committee meetings, stakeholders were asked to identify needs/issues/challenges related to TIM in the Topeka metro area. Based on the input received, a list of 47 needs/issues/challenges were identified. Notes from these stakeholder meetings are provided in *Appendix A*.

Based on the needs/issues/challenges that were recognized, 20 TIM strategies were identified for discussion with the Working Group Committee. Many of the strategies addressed aspects of multiple needs/issues/challenges. To communicate the relationship between a strategy and the needs/issues/challenges that it addressed, a Needs/Issues/Challenges – Strategy Matrix was created. The matrix is provided in *Appendix B*.

Each of the TIM strategies were discussed with the Working Group Committee. The object was to obtain stakeholder input on the viability and desirability of each strategy. The resulting recommendations are grouped according to Near, Medium and Long-Term implementation timeframes. It is important to recognize that strategies identified for Near-Term implementation are those that typically serve to establish the formal Topeka TIM Program and create momentum needed for continued success. A summary of each recommendation by implementation timeframe is listed below. More detailed descriptions of each are provided in the section noted.

Near-Term

a. Hold Regular TIM Stakeholder Meetings (Section 5)
b. Conduct Regular After-Action Reviews (Section 5)
c. Develop Emergency Traffic Control and Scene Management Guidelines (Section 2)
d. Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages (Section 3)
e. Develop Detailed Contact and Resource List (Section 4)
f. Improve Dispatch Notification Process (Section 4)
g. Develop Communications/Coordination Protocol Guidelines (Section 4)
h. Continue Responder Training (Section 5)
i. Hold Traffic Incident Management Exercise (Section 5)
j. Accept TIM Program Plan and Develop Draft Inter-Agency Agreements (Section 5)

Medium-Term

a. Review and Revise the Emergency Alternate Route Plans (Section 3)
b. Implement Public Outreach Campaign (Section 5)
c. Conduct Outreach/Training for Minor Stakeholders (Section 5)
d. Conduct Upper Management Outreach Plan (Section 5)

Long-Term

a. Develop Dynamic Message Sign Deployment Plan and Identify Funding to Implement (Section 3)
b. Develop a Plan for Funding and Implementing a Virtual Traffic Management Center Shared by TIM Partners (Section 3)
c. Identify Funding and Plan for Implementing Expanded Video Sharing System (Section 4)
d. Identify Funding and Plan for Deployment of 2/10-Mile Reference Markers (Section 4)

1.3 Traffic Incident Management

Traffic incident management consists of a planned and coordinated multidisciplinary process to detect, respond to and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective TIM reduces the duration and impacts of traffic incidents and improves the safety of motorists, crash victims and emergency responders.

TIM can also be described as a process as presented in Figure 1. Each phase or activity of the TIM process is described in detail in the following.

1.3.1 Detection

Traffic incident detection is the process that brings an incident to the attention of the agency or agencies responsible for maintaining traffic flow and safe operations on the facility. Incident victims are most vulnerable from the time the incident occurs until the first responder arrives. Traffic flow is also likely to be most disrupted at this time. The more quickly an incident is detected, the more quickly the appropriate response can be dispatched. Quick response minimizes the exposure of those involved in the incident, speeds the implementation of traffic control, reduces the effect on traffic flow and minimizes overall incident impacts. Detecting traffic incidents quickly and accurately is critical.

Often motorists driving by an incident scene are the first to detect an incident and notify law enforcement by calling 911. However, incidents may also be detected by law enforcement, motorist assistance program (MAP) operators or other responders in the field, or by operators working in a traffic operations center.

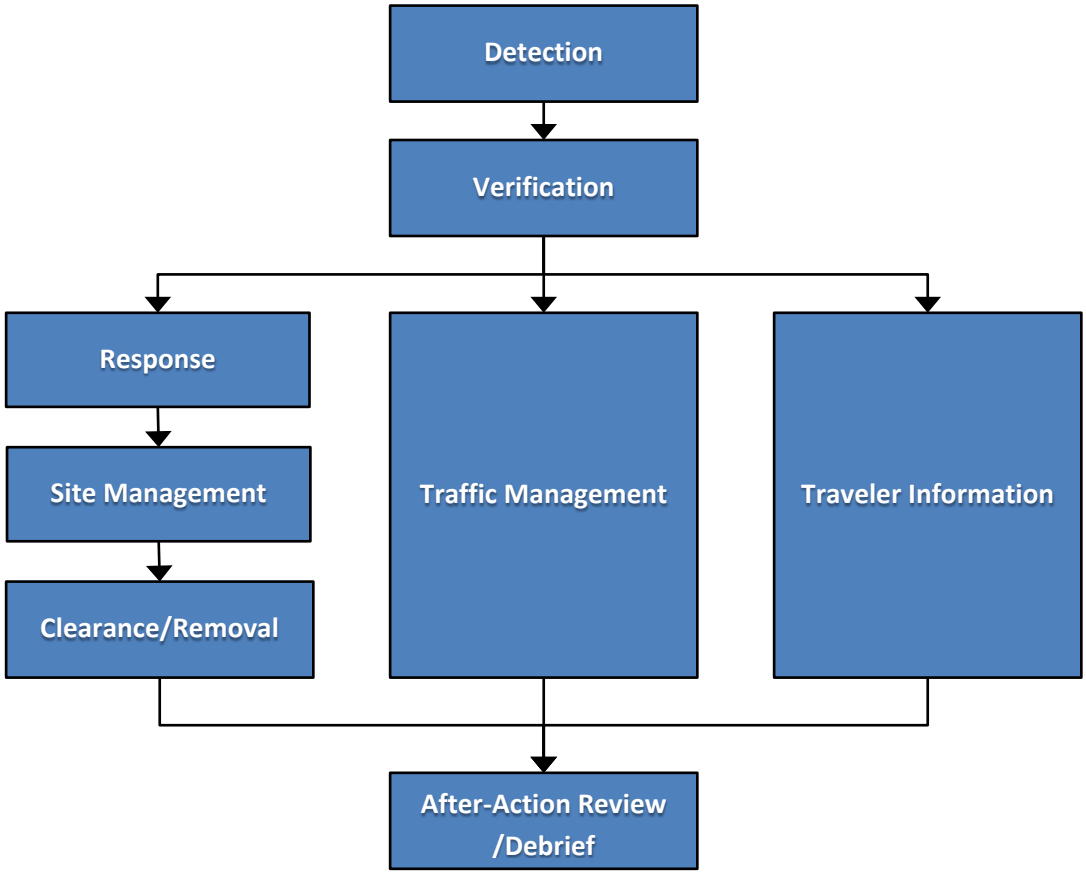


Figure 1: TIM Process

1.3.2 Verification

Verification of a traffic incident encompasses confirming that an incident has occurred, determining the exact location and direction of travel, and obtaining and assessing as many details about the incident as possible.

1.3.3 Response

Responding to a traffic incident involves deployment of the appropriate personnel, equipment, communication links, motorist information and traffic management as soon as it is confirmed that an incident has occurred. Appropriate response requires understanding the incident's nature and scope, as well as understanding the steps and resources necessary to clear it and restore normal operating conditions. Depending on the situation, those agencies that respond to a traffic incident may include fire, emergency medical services and transport, law enforcement/site investigation, transportation, towing and recovery, and hazardous materials clean-up.

1.3.4 Site Management

Site management is the process of accurately assessing traffic incidents, properly establishing priorities, notifying and coordinating with the appropriate agencies and organizations, and maintaining clear communications with each responder. The National Incident Management System (NIMS) and Incident Command System (ICS) are often used as a structure for site management. Ensuring the safety of

response personnel, incident victims, and other motorists is the foremost objective of site management. To be effective, responders and commanders at the incident site require accurate information about the incident's current status, overall progress toward clearance, and the equipment needed to complete the process. Effective site management requires continual assessment of the situation, the needs of the responders, and an understanding and respect for the priorities of other responders while working together cooperatively and productively. Regular planning, training, and communications with other responders produce the best results. Those managing the incident site must also have enough authority to determine courses of action, commit agency or other resources, and otherwise do their jobs without having to wait for guidance or approval from superiors who are not on site.

1.3.5 Clearance and Removal

Clearance involves the process of removing vehicles, wreckage, debris, spilled material and other items from the roadway so that capacity can be returned to normal levels. Traffic incident clearance and removal objectives include: restoration of the roadway to its pre-incident capacity as quickly and safely as possible; minimizing motorists' delays; facilitating effective use of all available clearance resources; enhancing the safety of responders and motorists; and protecting the roadway system and private property from unnecessary damage during the removal process. Clearance and removal is often the most critical step in managing major traffic incidents due to the time requirements to remove obstructions and restore traffic flow.

1.3.6 Traveler Information

Dissemination of traveler information is one of the primary services provided by today's transportation management/operations centers. Other traditional methods commonly used to disseminate traveler information include dynamic message signs (DMS), 511 systems and the internet. Even after an incident is cleared it is important to continue to provide traveler information until traffic flow returns to normal conditions. In some cases, depending on the severity of the traffic incident and the time that it occurs, traveler information may need to be provided for several hours.

1.3.7 Traffic Management

Traffic management is the application of traffic control measures at the incident site and on facilities affected by the incident, including emergency alternate routes. The overall goal is a balance between minimizing traffic disruption while maintaining a safe workplace for responders. Traffic control measures can be categorized into those that are intended to improve traffic flow past the immediate incident scene and those that are intended to improve traffic flow on emergency alternate routes. Techniques to improve flow past the incident include:

- Establishing traffic control at the scene
- Managing the roadway space (opening and closing lanes, blocking only the portion of the incident scene that is needed for safety, staging and parking emergency vehicles and equipment to minimize impact on traffic flow)
- Deploying appropriate personnel to assist in managing traffic

With few exceptions, traffic control is not the primary concern of most emergency responders. A common result is that motorists who are unfamiliar with an area are diverted and left to find their own way past the incident scene. Without proper control, traffic is often unnecessarily delayed, and along with that delay come costs in terms of lost time, wasted fuel, and degradation of air quality. When traffic is unnecessarily delayed, there is an increased likelihood of generating secondary crashes, which

significantly impacts the safety of other motorists and emergency responders. Actions by the responders when they reach the scene, both in regard to the incident itself and to traffic affected by the incident, has a tremendous bearing on the safe and successful resolution of the roadway emergency.

1.3.8 After-Action Review/Debrief

Each traffic incident is unique and, as such, one of the most effective ways to enhance quick clearance and improve safety is to regularly conduct after-action reviews (AARs). The purpose of an AAR is to discuss the decisions made and actions taken during an incident and to identify best practices and opportunities for improvement. An AAR can be held for any type or size of incident, but are most commonly conducted for major incidents.

1.4 National Unified Goal for Traffic Incident Management

In 2002, a National Conference on Traffic Incident Management was convened with the goal to develop and promote an agenda for improved TIM at the national level. Ultimately, the input received at this conference resulted in the formation of the National Traffic Incident Management Coalition (NTIMC). The NTIMC is a multidisciplinary partnership of national organizations representing public safety, transportation, and towing and recovery communities to coordinate experiences, knowledge, practices, and ideas. The NTIMC is committed to the safer and more efficient management of all incidents that occur on, or substantially affect, the nation's roadways.

One of the first accomplishments of the coalition was the development, and member ratification, of the National Unified Goal (NUG) for TIM:

- Responder Safety
- Safe, Quick Clearance
- Prompt, Reliable, Interoperable Communications

To support implementation of the NUG, the NTIMC also identified 18 strategies, which are summarized in Table 1.

Table 1: NUG Strategies

Crosscutting Strategies	
1. TIM Partnerships and Programs	4. TIM Technology
2. Multidisciplinary NIMS and TIM Training	5. Effective TIM Policies
3. Goals for Performance and Progress	6. Awareness and Education Partnerships
Responder Safety Strategies	**Safe, Quick Clearance Strategies**
7. Recommended Practices for Responder Safety	10. Multidisciplinary TIM Procedures
8. Move Over/Slow Down Laws	11. Response and Clearance Time Goals
9. Driver Training and Awareness	12. 24/7 Availability
Prompt, Reliable, Interoperable Communications	
13. Multidisciplinary Communications Practices and Procedures	16. Broadband Emergency Communications Systems

14. Prompt, Reliable Responder Notification	17. Prompt, Reliable Traveler Information Systems
15. Interoperable Voice and Data Networks	18. Partnerships with News Media and Information Providers

1.5 Stakeholder Roles and Responsibilities

Provided below are the typical roles and responsibilities of TIM stakeholders when responding to an incident as outlined in the Federal Highway Administration (FHWA) TIM Handbook.

1.5.1 Law Enforcement

In many cases, law enforcement is the first to arrive at the incident scene. Upon arrival, the first officer on scene assesses the situation and calls for additional resources (fire, emergency medical services (EMS), towing and recovery, etc.) as needed. The officer secures the scene for responder and motorist safety and conducts traffic control as necessary. Law enforcement also conducts crash investigations and/or evidence collection as dictated by the circumstances of the incidents.

Local law enforcement agencies in the Topeka area include:

- Kansas Highway Patrol – Troop B and Troop G (Kansas Turnpike)
- Shawnee County Sheriff's Office
- Topeka Police Department

1.5.2 Communication Center Telecommunicators

Telecommunicators are normally the first responders to have knowledge that an incident has occurred. The mission of telecommunicators is to quickly, accurately and completely convey the necessary information to the proper agencies to get the right personnel and equipment to the scene as quickly as possible. Telecommunicators typically also record incident information utilizing a computer-aided dispatch (CAD) system.

Local communication centers, or public safety answering points (PSAPs), include:

- Shawnee County Consolidated Emergency Communications Center
- Kansas Highway Patrol Central Communications Center

1.5.3 Fire and Rescue

In some situations, fire and rescue personnel may be the first responders to arrive at the incident scene. Upon arrival, fire and rescue personnel secure the scene to protect responders and motorists, and then assess injured parties. Fire and rescue personnel provide first aid until EMS personnel arrive. Fire and rescue personnel are also responsible for addressing any fire or potential fire hazards. In most locations, they also assess the scene for hazardous materials and notify remediation or clean-up contractors as needed.

Local fire and rescue providers include:

- Topeka Fire Department
- Shawnee County Fire District #2
- Shawnee County Fire District #4
- Shawnee Heights Fire District

- Soldier Township Fire Department

1.5.4 Emergency Medical Services

The primary responsibility for EMS is to assess injuries, administer triage on-scene as needed and move injured parties quickly to medical facilities for additional care. In the Topeka metro area and the rest of Shawnee County, AMR Kansas provides EMS functions.

1.5.5 Transportation Agencies

Within transportation agencies, it is typically the operational sections – traffic management centers (TMCs), maintenance field staff and the travel assistance program – that play a critical role in TIM. TMCs serve as the hub for collection and dissemination of incident information and play a critical role with incident detection and verification. At the incident scene, transportation agency responders focus on temporary traffic control, expedite scene clearance and restore traffic flow. Transportation agency responders typically include maintenance personnel and specialized traffic incident responders, such as MAP operators. Transportation agencies are also responsible for maintaining and operating traffic signal systems and in some cases can modify signal timing to facilitate traffic flow when emergency alternate routes are implemented.

Local transportation agencies include:

- KDOT – Topeka Metro Office
- KDOT ITS Unit (Virtual TMC)
- Topeka Public Works
- Shawnee County Public Works
- Kansas Turnpike Authority
- KC Scout TMC (After Hours)

1.5.6 Towing and Recovery

Towing and recovery professionals are private entities responsible for removing disabled vehicles, clearing incident debris and assisting with cleanup of spilled cargo.

1.5.7 Emergency Management Agencies

When the scope and severity of an incident dictates, state and local emergency management agencies (EMAs) may be coordinated with as part of the overall response to major emergencies.

Local emergency management agencies include:

- Shawnee County Emergency Management

1.5.8 Environmental/Natural Resources Agencies

State and local environmental and natural resources agencies are available to provide technical assistance, assess impacts and recommend mitigation strategies for both hazardous and non-hazardous related spills or cargo releases.

Local environmental/natural resource agencies include:

- Kansas Department of Health and Environment

1.6 Disclaimer

Within this plan there are references to materials in the Manual on Uniform Traffic Control Devices (MUTCD), State of Kansas statues, regulations and other guidance documents. These references are current as of March 2015.

SECTION 2
On-Scene Emergency Response

2.1 On-Scene Emergency Response Issues and Needs

Through multiple stakeholder meetings and discussions, TIM responders in the Topeka metropolitan area identified the following needs/issues/challenges related to on-scene emergency response:

- Need for communication and coordination between agencies
- Improved information sharing of scene size-up
- Communications to towing and recovery
- Coordinate scene access by all responders
- Right balance between blocking lanes for protection and opening lanes for traffic
- Responder vehicle parking at the scene
- Public and responder safety

To potentially address these needs/issues/challenges, the following strategies were discussed:

- Develop Emergency Traffic Control and Scene Management Guidelines - This strategy is recommended based on stakeholder input. This chapter of the report discusses these guidelines and other recommended on-scene practices.
- Enact Quick Clearance Legislation – Research on existing legislation found that KDOT and law enforcement have the needed authority to remove vehicles or other items creating a hazard, as discussed below. Stakeholders did not feel additional legislation was needed mandating that quick clearance occur. The responding agencies are committed to quick clearance as a matter of general practice.
- Develop Incident Command Guidelines – Stakeholders felt that the understanding of the National Incident Management System (NIMS) and the Incident Command System (ICS) has been much improved as a result of the National TIM Responder Training that has been conducted in the region. Since the ICS principals, as they apply to traffic incidents, have been accepted and are generally practiced, it was agreed that a specific strategy to enhance the understanding and use of ICS was not needed. Continuing TIM responder training will provide the needed knowledge.

2.2 On-Scene Emergency Response

2.2.1 Emergency Traffic Control and Scene Management Guidelines

Emergency traffic control and scene management guidelines provide TIM responders with a uniform approach to managing traffic incident scenes. The purpose of these guidelines is to help promote the safest possible work environment for responders, while also minimizing the risk of secondary crashes.

Example emergency traffic control and scene management guidelines are incorporated into Section 2 of this plan starting with Subsection 2.3. These guidelines should be reviewed in detail by the TIM stakeholders and refined, as needed, for the Topeka metro area. The guidelines cover the following topics:

- Responder safety fundamentals
- Scene size-up
- Traffic incident management area (TIMA) establishment
- Scene breakdown and demobilization
- Hazardous materials considerations
- Helicopter emergency medical services landing zones
- Crash reconstruction and investigation
- Quick clearance and removal operations

The guidelines are intended for use by all incident responders and the majority of the information contained in the guidelines is applicable to any traffic incident that occurs on any highway. However, these guidelines are not a substitute for technical knowledge, experience or effective judgment, nor are they intended to be procedures. They are general, broad-based, and each traffic incident scene will require assessment by the Incident Commander and other responders for the specific conditions presented in the field. In practice, the assessment and corresponding actions will require constant reevaluation so that vehicle positioning, traffic control and warning device placement are functional and safe.

To develop an effective set of guidelines, consideration was given to state and national rules/regulations and to similar initiatives occurring at the local, state and national level. First and foremost the guidelines use the Incident Command System (ICS) as a foundation principle. Of equal importance, the guidelines are consistent with Chapter 6I, Control of Traffic Through Traffic Incident Management Areas, of the Manual on Uniform Traffic Control Devices (MUTCD). The guidelines also incorporate other important standards such as National Fire Protection Agency (NFPA) *1901 Standard for Automotive Fire Apparatus*, which covers retroreflective striping requirements.

Due to the dynamic nature of traffic incident management, it is recognized and expected that periodic reviews and revisions to these guidelines may be required. TIM responders are encouraged to provide suggestions and/or recommended changes as these guidelines are applied in the field. All recommended changes or updates should be brought to the attention of KDOT's ITS Unit.

2.2.2 Emergency Vehicle Lighting Policy

At an incident scene, emergency vehicle lighting is often used to enhance the safety of response personnel and incident victims. However, excessive use of flashing lights can create unnecessary delay and confusion for motorists passing the scene, especially at night. Section 6I.05 of the MUTCD covers the use of emergency vehicle lighting and states that the use of emergency vehicle lighting can be

reduced if good traffic control has been established at the incident scene. MUTCD 6I.05 also recommends that public safety agencies examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. A complete summary of the guidance provided in 6I.05 of the MUTCD is provided in Section 2.3.3 below.

2.2.3 Crash Investigation/Reconstruction Tools and Resources

Major crashes typically must be treated as crime scenes and subsequently require evidence collection, which may include detailed measurements of skid marks, scrapes or gouges in the pavement, final vehicle position, etc. In-depth crash investigations are generally required for incidents during which a crash victim sustains life-threatening or fatal injuries, or when a crash is believed to be the result of criminal activity.

One tool intended to minimize the on-scene time required for law enforcement to complete crash investigations is photogrammetry. Photogrammetry uses digital pictures and specialized software to create accurate 3D measurements and object models. After photographs are taken in the field, the incident scene can be cleared and law enforcement officials can perform reconstruction calculations and drawings in the safe confines of their office utilizing photogrammetry software.

Photogrammetry can be used as a primary method for collision reconstruction or it can be used as a supplement to other collision reconstruction tools such as total stations. Utilizing photogrammetry, even as a supplement, can eliminate the need to revisit incident scenes to obtain missed measurements.

Total stations have also proven to be an effective tool for crash investigation. In addition to traditional models, total stations are now available as reflectorless, robotic and with GPS applications capability. Reflectorless mode allows for measurements to objects or points without having to place a prism at those points. Robotic mode allows measuring from a distance via remote control, eliminating need for a second operator to hold a prism pole. For GPS applications a total station can be equipped with a GPS receiver on its prism pole. The receiver uses the transmission from a GPS base station, which establishes a known 3D coordinate point.[1] These features allow for total station measurements to be taken by a single individual if necessary and have been shown to reduce the on scene time required for data collection during crash investigations.

As technology advances, it is important to continuously monitor and evaluate feasibility of using new crash investigation/reconstruction tools and technology with the goal of decreasing on scene time for data collection.

2.2.4 Safety Service Patrol

Safety Service Patrols (SSP) have been recognized across the nation as one of the most effective TIM strategies. SSPs generally consist of trained personnel who use specially equipped vehicles to systematically patrol congested highways searching for and responding to traffic incidents and providing motorist assistance. Program services vary across the United States; however, SSPs typically render assistance to motorists when needed and can push vehicles off the road, provide gasoline, and change flat tires or provide minor repairs to help motorists safely drive the vehicle from the highway. More robust programs provide additional functions such as clearance and recovery services, emergency temporary traffic control and management, and assistance with emergency services. State and local

[1] Galvin, Bob. "Reconstruction: Faster & Better." *Law Officer.* n.p. 21 July 2012. Web. 23 April 2013.

sponsoring agencies are using SSPs as a strategy to reduce traffic congestion, improve travel time reliability, and improve highway safety.

In Kansas, the SSP is referred to as the Motorist Assist Program (MAP). There are two MAPs that serve the Topeka Metro area. The Kansas Highway Patrol operates a MAP that has vehicles stationed in Topeka, Kansas City and Wichita. This MAP is equipped with four-way wrenches and jacks for changing tires, jumper cables, gasoline cans, and numerous other tools. The MAP operators are civilian employees of the Kansas Highway Patrol with responsibilities to:

- Improve traffic flow by moving disabled and abandoned vehicles to the shoulder
- Assist stranded motorists
- Assist KDOT and local law enforcement agencies in preventing incidents that endanger motorists and disrupt normal traffic flow
- Free road troopers to perform duties requiring law enforcement power

The second MAP serving the Topeka area is the State Farm Safety Assist, which is available along the Kansas Turnpike and can provide motorist assists. This service is available from Kansas City to Topeka and Wichita to the Oklahoma Border during weekday peak periods and on Sunday afternoons between Memorial Day and Labor Day. After Labor Day until the following Memorial Day the service continues to run between Kansas City and Topeka during the weekday morning peak period and two Sundays per month.

The many benefits attributed to SSP programs, including their cost effectiveness, make them a fundamental element of TIM programs and a key tactic in dealing with traffic congestion.

In general, SSPs can be categorized into one of three levels:

1. Baseline – provide services aimed at helping motorists safely drive their vehicle from the highway
2. Mid-level – provide incident response services in addition to motorist assistance and have the ability to relocate vehicles out of traffic lanes
3. Full-Function – provide all baseline and mid-level services, assist with emergency traffic control and management, and provide clearance and recovery services

2.2.5 Authority Removal and Hold Harmless Legislation

Authority removal legislation provides authority to designated public agencies, or their designee, to remove vehicles and/or spilled cargo from the roadway as quickly as possible to restore traffic flow. Authority removal legislation typically also includes hold harmless provisions that grants responders immunity from civil liability when participating in quick clearance activities, such as removing vehicles and/or cargo involved in a traffic incident that is blocking travel lanes. The current Kansas State Statute referencing traffic incident authority removal and hold harmless is found in Chapter 8, Article 15, Section 107. It states:

Except in the case of an accident involving death or apparent injury of any person or the transportation of hazardous material, authorized employees of the Kansas department of transportation, Kansas highway patrol or other law enforcement agency without the consent of the driver or owner of the vehicle or property, may require, assist in or cause the removal from the roadway any vehicle, debris or any other property which is obstructing the regular flow of traffic, creating or aggravating an emergency situation or otherwise endangering public safety.

Furthermore, the hold harmless provision of this section states that:
No state, county or municipal agency nor their authorized employees or agents shall be held liable for any damages resulting from the reasonable exercise of authority granted under this section.

2.3 Responder Safety Fundamentals

Maintaining the safety of all responders and personnel at traffic incident scenes is of paramount importance. Secondary incidents involving incident responders can take many forms but most often occur when responders are struck by passing vehicles while working at or near the incident scene. Emergency response professions are high-risk, and generally have a safety culture that considers preventable injuries or deaths completely unacceptable. This section describes several fundamentals that are foundational to keeping incident responders safe.

2.3.1 Responder Visibility

As stated in MUTCD Section 6D.03, all workers, including incident responders, within the right-of-way of a roadway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to work vehicles and construction equipment shall wear high-visibility safety apparel. This requirement applies to all incident responders, including, but not limited to: law enforcement, fire, emergency medical services, towing and recovery, medical examiner/coroner, county maintenance and transportation officials, insurance investigators, engineers, and media personnel.

Law enforcement personnel are exempt from this requirement when engaged in potentially confrontational law enforcement activities such as traffic stops and searches, but are required to wear high-visibility safety apparel when directing traffic, investigating crashes, or handling lane closures, obstructed roadways or disasters. Similarly, firefighters or other responders engaged in emergency operations that directly expose them to flame, fire, heat and/or hazardous materials may wear retroreflective turnout gear that is specified and regulated by other organizations (i.e., National Fire Protection Association).

The high-visibility safety apparel worn by incident responders must meet, and be labeled as meeting, one of two standards (or equivalent revisions):

- ANSI/ISEA 107-2004 Performance Class 2 or 3
- ANSI/ISEA 207-2006 Public Safety Vests

ANSI/ISEA 107-2004 is the *American National Standard for Highway Visibility Safety Apparel and Headwear*. This standard provides uniform guidelines for the design and use of high-visibility safety apparel such as safety vests, rainwear, outerwear, trousers and headwear to improve worker visibility during the day, in low-light conditions and at night. ANSI/ISEA 207-2006 is the *American National Standard for High-Visibility Public Safety Vests*. This standard establishes design and use criteria for highly visible vests that reflect the needs of public safety workers. Examples of high-visibility safety apparel are provided in Figure 2.

Figure 2: High-Visibility Safety Apparel Examples
Class 2 Vest, Class 3 Vest, Pant and Public Safety Vest

2.3.2 On-Scene Situational Awareness

Responders must always be mindful and aware of the situation or environment they are working in. When working on or alongside active highways:

- Never trust approaching traffic
- Never turn your back to approaching traffic
- Look before you move
- Plan an escape route
- Do not allow yourself to get tunnel vision, always maintain a view of the "big picture" and remember to consider how your actions may be affecting motorists traveling in the opposite direction
- Maintain knowledge of current weather conditions and consider how they may affect driving or visibility abilities of the passing motorists

Additionally, once a scene is secure and the incident is under control, release personnel that no longer have an active role or specific duty related to the incident from the scene. This will help the Incident Commander maintain order on the scene and will minimize the unnecessary exposure of responders to potentially hazardous working conditions.

2.3.3 Emergency Vehicle Lighting

As discussed in Section 6I.05 of the MUTCD, the use of emergency vehicle lighting is essential, especially in the initial stages of a traffic incident, for the safety of incident responders, persons involved in the incident and motorists approaching the incident scene. Emergency vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching motorists, especially at night.

Emergency vehicle lighting can be reduced if proper traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that involve a number of emergency response vehicles. If proper traffic control is established through placement of advanced warning signs and traffic control devices to divert traffic, then incident responders can perform their tasks on scene with minimal vehicle lighting. In addition, because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, it is recommended that any floodlights or vehicle headlights that are not needed for scene illumination or scene safety be turned off.

Section 6I.05 further recommends that public safety agencies review their policies on the use of emergency vehicle lighting and consider modifying them to minimize over-lighting, especially after a traffic incident scene is secured. Additionally, special consideration should be given to reducing or extinguishing forward facing emergency vehicle lighting, especially on divided highways, to reduce distractions to oncoming road users.

Incident Scene Illumination

While it is important to have proper illumination, or lighting, of the incident space, exercise care so that scene lights are not blinding traffic. When available, use vehicles with special lighting capabilities. By using vehicle mounted lighting that can be controlled remotely, the lights can be directed downward to minimize the amount of light that reaches the motorists.

2.3.4 Emergency Vehicle Markings

The use of reflective markings can increase the visibility of emergency vehicles parked in or near moving traffic, especially during nighttime conditions. Although there are no national standards associated with law enforcement vehicle markings, the 2009 Edition of the National Fire Protection Association (NFPA) *1901 Standard for Automotive Fire Apparatus* includes the following reflective striping and marking requirements for all fire apparatus:

- Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 square inches of retroreflective material affixed to the inside of the door.
- A retroreflective stripe(s), totaling a minimum of 4 inches in width, shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.
- At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe in the chevron shall be 6 inches in width and be a single color alternating between red and either yellow, fluorescent yellow or fluorescent yellow-green.

Examples of emergency vehicles with retroreflective chevron striping, during both daytime and nighttime conditions, are shown in Figure 3.

In 2009, the *Emergency Vehicle Visibility and Conspicuity Study* analyzed emergency vehicle visibility and conspicuity with an emphasis on expanding efforts to improve vehicle and roadway operations safety for all incident responders. The study was produced in partnership between the U.S. Fire Administration (USFA) and the International Fire Service Training Association (IFSTA), with support from the U.S. Department of Justice (DOJ) and the National Institute of Justice (NIJ). The study identified the following potential opportunities for improving the safety of emergency vehicles using readily available retroreflective products:

- Outline vehicle boundaries with “contour markings” using retroreflective material, especially on large vehicles
- Concentrate retroreflective material lower on emergency vehicles to optimize interaction with approaching vehicles’ headlamps
- Consider (and allow) the use of fluorescent retroreflective materials in applications where a high degree of day-/night-time visibility is desired

- Using high-efficiency retroreflective material can improve conspicuity while reducing the amount of vehicle surface area requiring treatment
- For law enforcement vehicles, retroreflective material can be concentrated on the rear to maintain stealth when facing traffic or patrolling
- Applying distinctive logos or emblems made with retroreflective material can improve emergency vehicle visibility and recognition

Figure 3: Emergency Vehicles with Retroreflective Chevron Striping
(Photo Courtesy of the City of Oak Creek Fire Department, WI)

2.4 Scene Size-Up

Responders that typically arrive first to the scene of a traffic incident have a multitude of responsibilities. One of the most important initial activities is communicating specifics about the incident (i.e., size-up) to the appropriate communications/dispatch center. An accurate incident or scene size-up is critical in that it serves as the basis for allocating the necessary resources to respond to and manage the incident. Improper or inadequate scene size-up leads to inefficiencies and may unnecessarily prolong the duration of the incident.

As soon as practical upon arriving at the scene of a traffic incident, the responder should provide their communications/dispatch center with the information outlined in the following subsections. Ideally, as much information as possible should be provided before initially exiting the response vehicle.

2.4.1 Location

It is critical to relay the exact location (including highway name, direction, cross street and/or mile marker, etc.) of the incident to the communications/dispatch center, as well as to all other responding

units. This information will assist other responders in planning response routes and, if necessary, identifying emergency alternate routes.

2.4.2 Vehicles

Relay the number and type of vehicles involved in the incident to the communications/dispatch center.

2.4.3 Injured Persons

Determine and communicate the estimated number of people injured, the extent of their injuries, and whether or not extrication will be necessary. This information is critical to responding fire and emergency medical services personnel and will allow them to begin planning for additional resources if necessary. Follow up will likely be required as additional information, such as victim condition and level of consciousness, becomes available.

2.4.4 Incident Classification

All traffic incidents will be classified based on the expected incident duration as outlined in Chapter 6I of the MUTCD. The three incident classes to be used are as follows:

Major (2 hours or more)

Major traffic incidents typically involve closing all or part of a roadway facility for a period exceeding two hours. During major incidents, motorists are usually diverted through lane shifts or directed around the incident using an emergency alternate route. Examples include:

- Fatal crashes or incidents that require a crash investigation
- Incidents involving a hazardous materials spill
- Overturned truck or tractor-trailer
- Structural damage
- Wildfires near the roadway

Intermediate (between 30 minutes and 2 hours)

Intermediate traffic incidents usually require traffic control on the scene to divert motorists past the blockage. Full roadway closures might be needed for short periods during incident clearance to allow responders to accomplish their tasks. Examples include:

- Rollover or multi-vehicle crashes
- Crashes involving personal injury
- Truck or tractor-trailer crashes

Minor (under 30 minutes)

For minor traffic incidents, it is not generally possible or practical to set up a lane closure with traffic control devices. Examples include:

- Disabled vehicles
- Minor crashes (e.g., property damage only)
- Roadway debris

To facilitate resource allocation and planning, relay the incident classification to the communications/dispatch center. An initial approximation is acceptable, as it can always be upgraded or

downgraded as necessary when more details are available. If the expected duration is bordering between two classifications, it is better to use the higher classification so that additional resources may be requested and mobilized.

2.4.5 Request for Local or County Public Works or Department of Transportation Support

For an intermediate or major incident, notify the local or county public works or department of transportation as appropriate. Notify the local or county public works department when an incident occurs on a local road or county facility and notify the department of transportation when an incident occurs on a state road. The public works or department of transportation can assist by providing the additional traffic control devices necessary for proper temporary traffic control.

2.4.6 On-Scene Conditions

Relay any important information regarding other conditions present at the scene that may affect the safety of responders. For example, limited visibility due to smoke from a vehicle fire, downed wires, or adverse weather conditions such as ice or fog are important details to communicate.

2.4.7 Hazardous Materials

It is necessary to quickly identify the presence or potential presence of hazardous materials at an incident scene in order to maintain the safety of all responders and passing motorists. Hazardous materials response is discussed in more detail in Subsection 2.7.

2.4.8 Towing and Recovery

If it appears that one or more of the vehicles involved in the incident are impacted such that they cannot be driven, notify towing and recovery personnel as early as possible. It is crucial that towing and recovery agencies are provided with accurate incident details so they are able to respond with the proper equipment.

2.4.9 Traffic Conditions

Traffic conditions, as well as potential alternate response routes for additional personnel, must be relayed to the respective responders' communications/dispatch center. Traffic related information, such as the length of traffic backups or queues will help responding units use an appropriate response route and can be used to identify locations where responders may need to set up additional traffic control. In addition, all impacted agencies should be notified when an emergency alternate route is activated. When the communications/dispatch center receives traffic condition information, they should in-turn relay this information to the KDOT Topeka Metro Office.

2.4.10 Additional Resources

Relay any requests for additional resources to the communications/dispatch center. Some additional resource examples include: helicopter emergency medical services, crash investigation/reconstruction services, and medical examiner.

2.5 Traffic Incident Management Area Establishment

A traffic incident management area (TIMA) is an area of highway where temporary traffic controls are imposed by authorized personnel in response to an incident. A TIMA extends from the first warning device (such as a sign or cone) to the last temporary traffic control device or to a point where vehicles return to the original lane alignment and are clear of the incident. A properly established TIMA helps to

maintain a safe working area for responders at an incident scene. Incident responders should establish a TIMA as soon as possible upon arrival at an incident scene.

2.5.1 Manual on Uniform Traffic Control Devices Chapter 6I

Chapter 6I of the MUTCD specifically focuses on traffic control through a TIMA. The primary functions of traffic control devices at a TIMA, as stated in MUTCD Chapter 6I, are to inform road users of the incident and to provide guidance information on the path to follow through the incident area. The ability to quickly deploy proper temporary traffic controls can greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. The MUTCD further states that an essential part of fire, rescue, spill clean-up, highway agency and enforcement activities is the proper control of road users through the TIMA in order to protect responders, victims and other personnel at the site. A copy of MUTCD Chapter 6I can be found in *Appendix A*.

A TIMA consists of four main components:

1. Advance Warning Area
2. Transition Area
3. Activity Area
4. Termination Area

Figure 5 illustrates the components of a TIMA, which are discussed in more detail in the following sections.

2.5.2 Advance Warning Area

The advance warning area is established upstream of the incident in order to alert motorists of the upcoming incident scene and reduction in travel speeds. Typically, advanced warning is provided using advance warning signs or electronic message signs as described below.

Advance Warning Signs

Warning and guide signs used for emergency traffic incident management situations have black lettering and a black border on a fluorescent pink background (per MUTCD Chapter 6I). Examples of these signs are shown below in Figure 4: Examples of TIMA Advance Warning Signs.

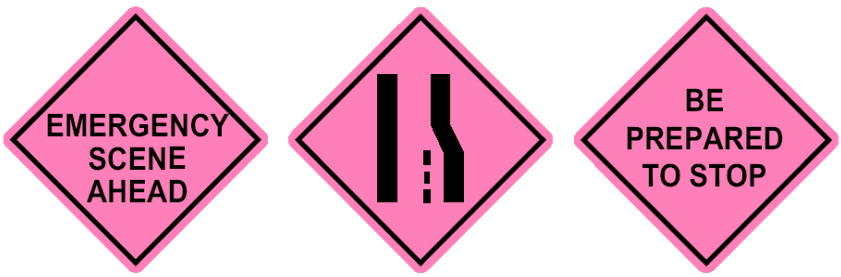


Figure 4: Examples of TIMA Advance Warning Signs

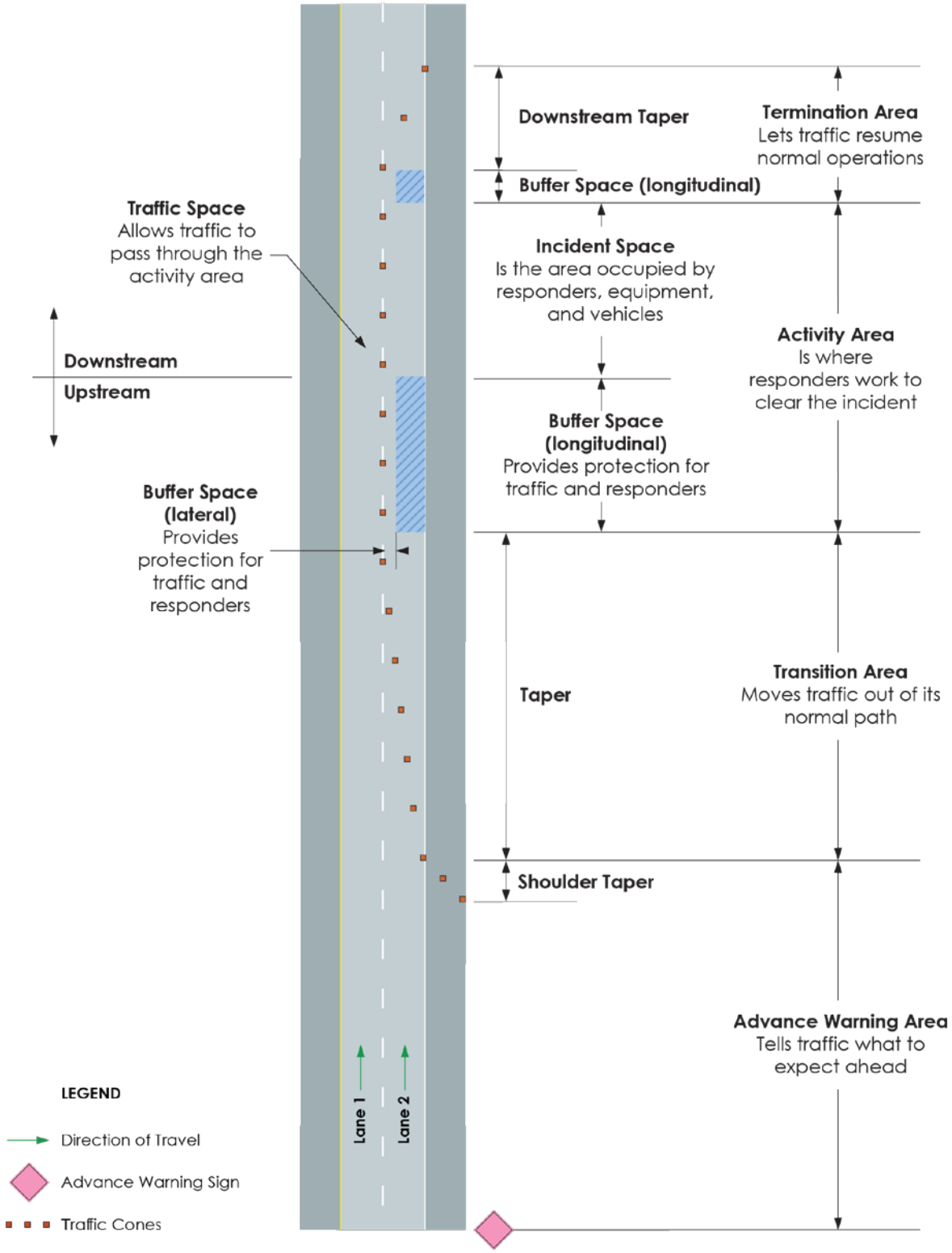
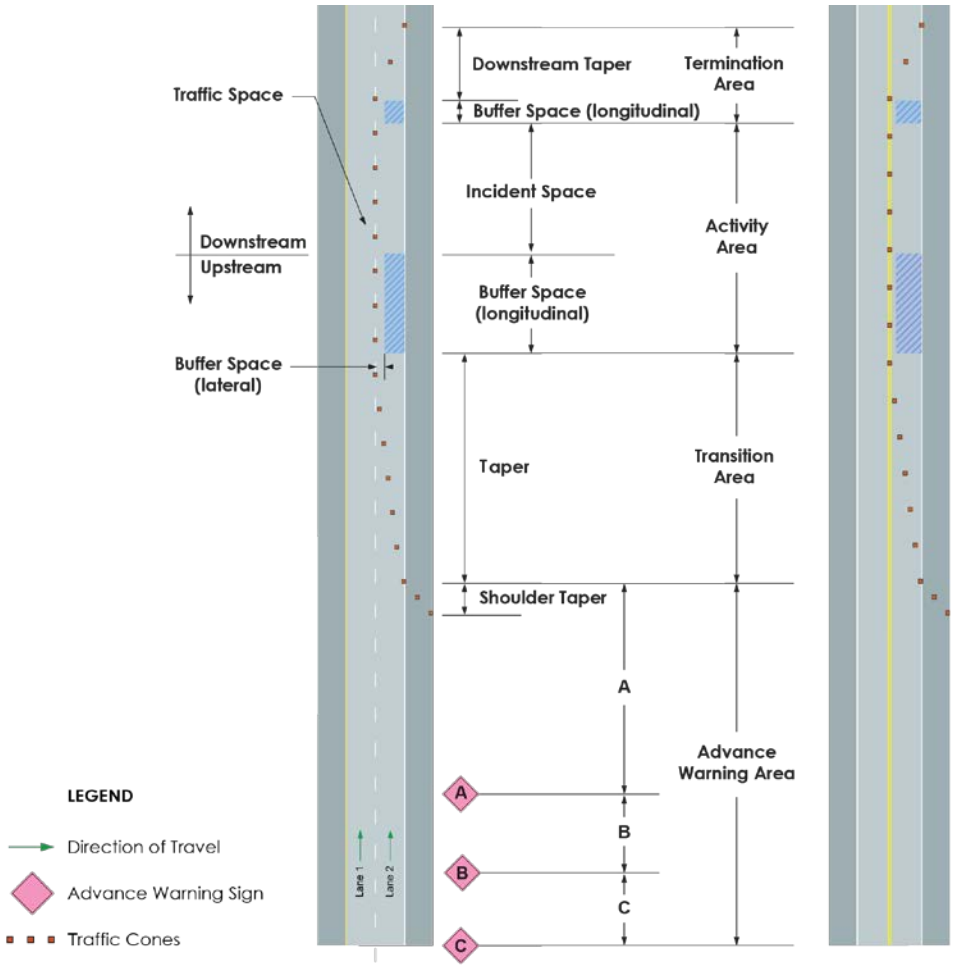


Figure 5: TIMA Components
(Source: Modified from 2009 MUTCD)



	Advance Warning Area				Transition Area			Activity Area	Termination Area	
Speed (mph)	**Advance Warning Sign Minimum Distance (ft)**				**Recommended Lengths (ft)**					**Cone Spacing (ft)**
	A	**B**	**C**	**Cumulative Total[1]**	**Shoulder Taper[2]**	**Taper**	**Distance Between Tapers (longitudinal)[3]**	**Buffer (longitudinal)**	**Downstream Taper**	
25	200	200	200	600	45	125	250	155	50-100	25
35	350	350	350	1,050	85	245	490	250		35
45	500	500	500	1,500	180	540	1,080	360		45
55	1,000	1,500	2,640	5,140	220	660	1,320	495		55
65	1,000	1,500	2,640	5,140	260	780	1,560	645		65

Source: 2009 MUTCD

[1] Total distance measured from the Transition Area to Advance Warning Sign C

[2] Shoulder taper was rounded up to nearest 5 feet

[3] Used when multiple lanes are closed

Figure 6: TIMA Components and Recommended Spacing
(Source: 2009 MUTCD – Diagram Not to Scale)

Recommended advance warning sign minimum spacing distances are provided in Figure 6. It should be noted that advance warning signs placed in urban areas may need to be placed at shorter distances to avoid sign clutter.

Dynamic Message Signs

Dynamic Message Signs (DMS) are the permanent, structure-mounted, electronic signs located on some segments of the state's highways. Kansas DOT remotely operates these signs from KDOT's district offices, the Eisenhower State Office Building in Topeka, and KC Scout and may be able to provide advance warning messages to motorists if an incident occurs near one or more DMS.

Portable Dynamic Message Signs

Portable DMS are another tool for providing advance warning. Portable DMS can be used for intermediate incidents and are strongly recommended for use during major incidents. KDOT has portable DMS that are available for deployment. The portable DMS that KDOT currently have must have the message programed in the field. The existing DMS could be upgraded to provide this functionality. When future portable DMS are procured, it is recommended that they have the capability to have the message changed remotely.

Shoulder Taper

The shoulder taper, set up using traffic cones or flares, should also be established as part of the advance warning area. The shoulder taper is used to advise motorists that the shoulder is closed ahead. Recommended shoulder taper lengths can be found in Figure 6 and additional information about properly setting up a taper is provided in Subsection 2.5.3.

All advance warning devices should be placed so that they provide warning for vehicles to slow before reaching the traffic backup. However, setting up a TIMA for traffic incident management situations near a corner, hill, or other reduced visibility situation may require adjusting the location of the advance warning device.

2.5.3 Transition Area and Tapers

The transition area is the section of highway where road users are redirected out of their normal path. Proper transition areas usually involve the use of tapers.

A taper, using traffic cones or flares, should be set up as soon as possible any time there is a lane closure or traffic is transitioned from one lane to another. Establishing a straight-line taper can be both difficult and dangerous. Exposure to the traffic flow is almost certain. Whenever resources permit, a spotter should be present to assist in watching for traffic during taper set up. Furthermore, it is highly recommended that responders place and retrieve cones while facing oncoming traffic.

The speed of the roadway should be considered when determining the length of a taper. Typically, the higher the roadway speed the longer the taper. However, initial scene set up is dynamic in nature and it is recognized that a balance must be reached between the roadway speed and the number of available cones. For example, as illustrated in Figure 7, if the first responder on scene only has five cones available when responding to an incident on a high speed roadway, they will only be able to set up a short taper; however, ***any taper is better than no taper***. A short taper should be extended as soon as resources permit. Figure 6 includes recommended taper lengths as outlined in the MUTCD.

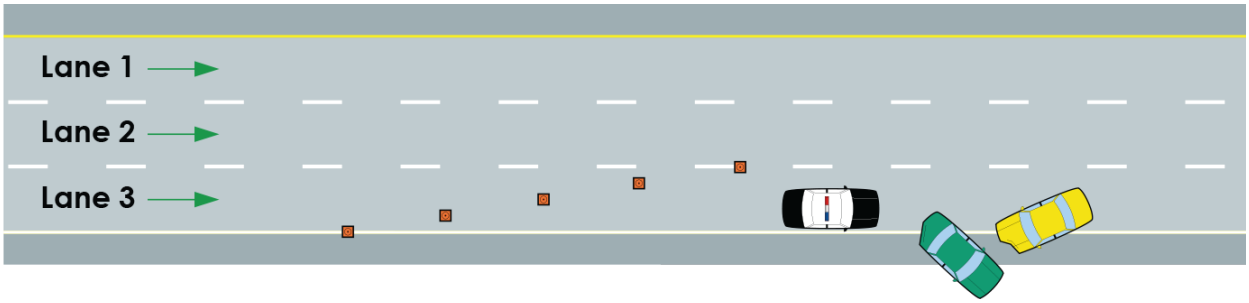


Figure 7: Initial Scene Set Up

Key points to remember when setting up a taper include:

- A taper should encompass as much equipment as is available on the scene
- Tapers should be set up to account for sight obstacles
- The taper should begin at the upstream end of the buffer space
- Try to maximize the spacing covered with the cones available
- Block as much of the roadway as needed and extend the taper out as far as possible to allow drivers time to merge

Skip lines also provide a useful guide for placing cones. Skip lines are the broken pavement markings used to separate two travel lanes.

Cones used for the purpose of emergency traffic control and scene management should be consistent with the standards established in MUTCD Section 6F.64. Such cones should be predominantly orange and made of a material that can be struck without causing damage to the impacting vehicle. When cones are used on freeways and other high-speed roadways, or at night, they should be 28 inches or greater in height, and should be retroreflective for maximum visibility. Retroreflection of 28 inch or larger cones should be provided by a 6-inch wide white band located 3 to 4 inches from the top of the cone and an additional 4-inch wide white band located approximately 2 inches below the 6-inch band. Figure 8 illustrates the appropriate cone dimensions.

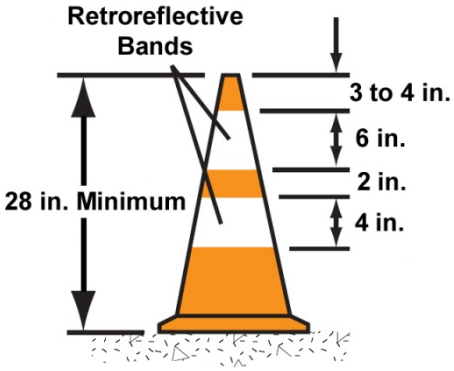


Figure 8: Traffic Cone Dimensions
(Source: Modified from 2009 MUTCD)

It is recommended that all emergency response vehicles be equipped with, at a minimum, five MUTCD compliant traffic cones. This recommendation follows guidance set forth in the NFPA 1901 Standard for

Automotive Fire Apparatus. Collapsible traffic cones are also available and offer an alternative solution for response vehicles with limited storage space.

2.5.4 Activity Area

The activity area is the section of the highway where incident response activities take place. The activity area is comprised of the upstream buffer space and the incident space.

Traffic cones should be placed along the edge of the activity area starting at the end of the transition area, following alongside the buffer space and the incident space. This will help define a clear boundary between the traffic space and the activity area.

Upstream Buffer Space

It is highly recommended that a longitudinal buffer space be established between the end of the transition area (taper) and the actual incident space. Since the majority of response activities take place in the incident space, the buffer will help provide additional protection for responders. Longitudinal buffer space is dependent on, but not limited to, the speed of passing traffic and sight distance when approaching the scene, as well as when passing the scene. Figure 6 provides suggested longitudinal buffer spaces as outlined in the MUTCD.

When needed, providing lateral buffer space is also possible. This is the area between the incident itself and the path of traveling vehicles. Lateral buffer space may be necessary to provide responders room to work. The amount of lateral buffer space to be used is dependent upon many conditions including, but not limited to, time of day, weather and road conditions. When the lateral buffer space needed to complete response activities encroaches or requires part of an adjacent lane, it is strongly recommended that the entire lane be closed. Partial lane closures can confuse drivers and decrease scene safety.

Incident Space

The incident space is the physical area of roadway within which responders perform their emergency medical services, fire, law enforcement and recovery tasks at a traffic incident.

2.5.5 Termination Area

The termination area is used to notify traffic that the TIMA is ending, and that they may resume normal driving. The termination area includes the downstream buffer space and the downstream taper.

Downstream Buffer Space

The need and length of the downstream buffer space is incident dependent. Similar to the activity area, cones should be extended the length of the downstream buffer space.

Downstream Taper

The downstream taper typically only needs to extend over a distance of approximately 50 to 100 feet, but is necessary to prevent motorists from entering the incident space or downstream buffer space where responders may be working. Cones should extend from the downstream buffer space to the shoulder.

2.5.6 Vehicle Positioning

The MUTCD defines safe-positioned as the positioning of emergency vehicles at an incident in a manner that attempts to:

- Protect the responders performing their duties
- Protect road users traveling through the incident scene
- Minimize, to the extent practical, disruption of the adjacent traffic

Positioning emergency vehicles to establish a safe work area is another foundational decision for responders arriving at an incident scene. Vehicle positioning is a critical element to protecting both emergency responders and motorists.

Blocking and Vehicle Positioning

The first emergency vehicle that arrives at an incident scene is responsible for positioning their vehicle as an initial block. Blocking is the action of positioning a responder vehicle in advance of an incident to obstruct the flow of moving traffic in one or more lanes. There are two main types of blocking:

- Linear Block – occurs when a responder positions their vehicle to block a single lane or the shoulder
- Multi-Lane Block – occurs when the first responder positions their vehicle to block multiple involved lanes

Figure 9 provides an example of a linear block and an example of a multi-lane block.

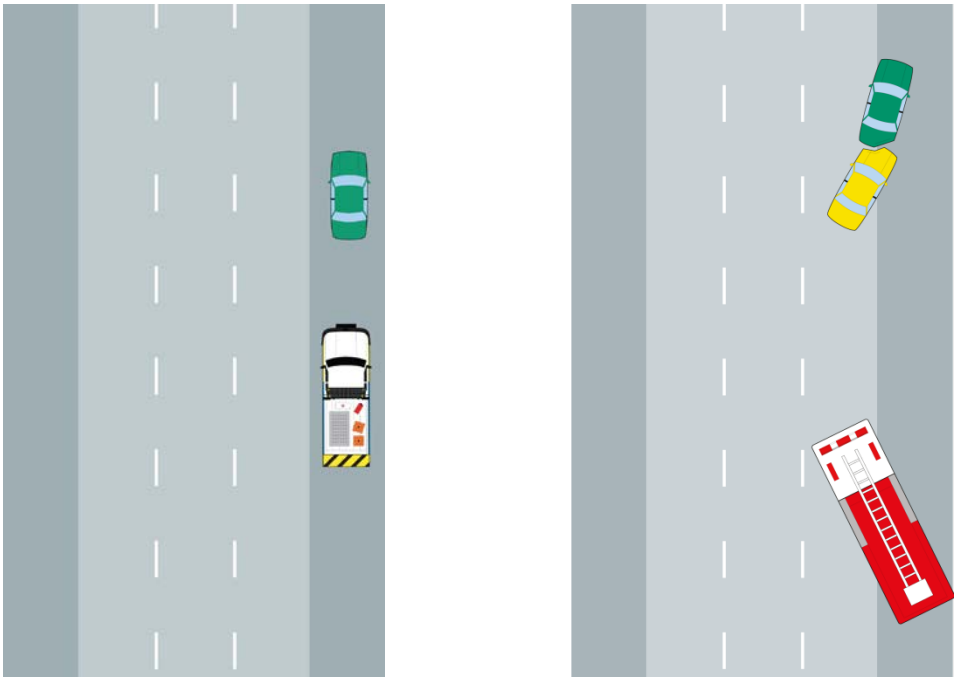


Figure 9: Example of Linear Blocking (Left) and Multi-Lane Blocking (Right)

The number of lanes that need to be blocked will vary based on the circumstances of the incident. However, when establishing a block, it is important to remember that the shoulder of a highway is considered a lane.

Blocking creates a barrier between traffic and the incident scene where responders are working. Blocking vehicles should be positioned upstream of the incident scene so that there will be sufficient distance for the vehicle to roll-ahead without hitting the incident area should it get struck, but not so much so that errant vehicles will travel around the blocking vehicle and strike the protected responders.

Additionally, there are two ways a vehicle can position on the roadway:

- Angled – meaning the vehicle is positioned at an angle with respect to the travel lanes
- Parallel – meaning the vehicle is positioned in parallel with the travel lanes or the shoulder

Critical Wheel Angle

When positioning a response vehicle, drivers should work on the assumption that a vehicle approaching from upstream may hit the unit. Turning wheels so that they are not facing the incident space is a recommended practice referred to as the critical wheel angle. The critical wheel angle may help divert a struck responder vehicle away from downstream responders. Agency policy about critical wheel angle should be followed, particularly in the case of law enforcement.

Collective Vehicle Positioning

All vehicles responding to an incident scene should be located on the same side of the roadway and in the same direction as the incident. The side will be dictated by the nature of the event, and the initial responding unit will set the example for others to follow. Responders should avoid stopping their vehicles on the opposite side of a divided highway and crossing the median to access the scene.

Whenever possible, responding vehicles should park on the shoulder as far away from the roadway as possible. While initial vehicle placement may temporarily provide quick access to the scene, the choice of placement impacts other responders. Vehicle operators must be aware of surroundings and be cognizant of how their choices impact other responders. Vehicles should never unnecessarily be placed in the flow of traffic.

Lane +1 Blocking

To increase responder and motorist safety, it may be necessary to close additional lanes for a short time. The practice of blocking the involved lane(s) plus one additional lane to provide a protected lateral space for safety is referred to as Lane +1 blocking. Use of the Lane +1 blocking creates incident/work space for responders that is protected against moving traffic. When considering Lane +1 blocking, a good rule of thumb is to take only as many lanes as you need for only as long as you need them and then work together to give them back.

Initial Emergency Vehicle Positioning

Figure 10 provides recommendations that are intended for initial vehicle positioning at an incident scene. Law enforcement vehicles, fire apparatus, and DOT or MAP vehicles are typically positioned upstream, while ambulances, tow trucks and other support units are typically positioned downstream. Vehicle positioning should be reviewed and adjusted as the incident progresses.

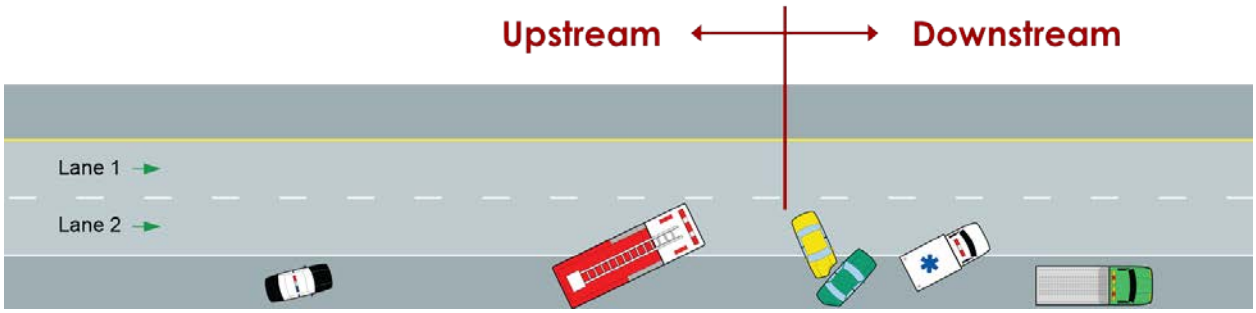


Figure 10: Initial Emergency Vehicle Positioning

Staging Area

The Staging Area is a location established where resources can be placed while awaiting a tactical assignment. Staging Areas allow for the organization of personnel and equipment to be readied for immediate use at the incident scene. The Staging Area is for holding incoming resources that are not actively involved in incident operations. Consideration should be given to the location and whether there is enough room for large response vehicles to easily enter or exit the area. Staging Areas also allow for un-needed resources and/or personnel to immediately depart the scene and return to service.

Personally Owned Vehicles

Due to the lack of vehicle markings and appropriate emergency lighting, and to reduce the number of vehicles at a scene, the use of personally owned vehicles (e.g., volunteer fire fighters, emergency medical responders, etc.) to respond to the scene of highway incidents is strongly discouraged. When it is necessary for a privately owned vehicle to respond to a highway incident, the vehicle must be parked safely in the downstream buffer area or, if possible, off of the roadway (e.g. a nearby parking lot). Since they lack the appropriate vehicle markings and lighting, personally owned vehicles should never be used as a blocking vehicle.

Bystanders and Citizens

Oftentimes, passing motorists will stop at a scene to render assistance or to merely look on to satisfy their curiosity. These vehicles and their occupants pose a serious and substantial threat to themselves and everyone working at or passing through the TIMA. If not absolutely needed to render assistance or provide information to law enforcement, they should be directed to leave the scene as safely and expeditiously as possible.

If these people are needed at the scene, their vehicles should be safely moved to the downstream buffer space, or preferably off-site in a staging area where law enforcement investigators can contact them when they are ready.

2.5.7 Flagger and Spotter

In certain circumstances, such as incidents occurring on a two-lane, bi-directional roadway, flagging operations may be required for safe direction of traffic. MUTCD Section 6E outlines basic flagging procedures for emergency situations, which are described in further detail below.

First and foremost, incident responders performing flagging duties must be wearing high-visibility safety apparel. Flaggers should also use clear and distinct hand signals when directing traffic. The flagger

should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times and should be visible to other road users. The flagger should be stationed sufficiently in advance of the responders to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, away from other responders, vehicles or equipment.

While STOP/SLOW paddles are preferred, a flag may be used at an emergency scene. The flag should be a minimum of 24 inches square, made of a red material, and securely fastened to a staff that is approximately 36 inches in length. Flags used at night should be retroreflectorized red. The free edge of the flag should be weighted so the flag will hang vertically, even in heavy winds. Figure 11 illustrates the appropriate methods of signaling with a flag as described below.

- To stop traffic, the flagger should stand on the shoulder of the road and extend the flag across the traffic lane. The flagger's free hand should be raised above shoulder height with the palm facing the approaching vehicle and eye contact should be made with the driver.
- To let traffic proceed, the flagger should lower the flag to their side and with their free arm motion traffic to proceed. Do not use the flag to motion traffic through.
- To alert and slow traffic, the flagger should extend the flag staff and slowly move the flag up and down in a sweeping motion between shoulder height and straight down. Their free hand should be kept down.

Figure 11: Use of Hand Signaling Device by Flaggers

When working at night, a flagger may use a flashlight, which can be equipped with a small traffic direction cone, to supplement the STOP/SLOW paddle or flag. The flagger should hold the flashlight in their left hand and hold the paddle or flag in their right hand. The flashlight should be used as described below and illustrated in Figure 12.

- To stop traffic, the flagger should hold the flashlight with the left arm extended and pointed down toward the ground, and then slowly wave the flashlight in front of the body in a slow arc from left to right.
- To let traffic proceed, the flagger should point the flashlight at the vehicle's bumper, slowly aim the flashlight toward the open lane, then hold the flashlight in that position. The flagger should not wave the flashlight.
- To alert or slow traffic, the flagger should point the flashlight toward oncoming traffic and quickly wave the flashlight in a figure eight motion.

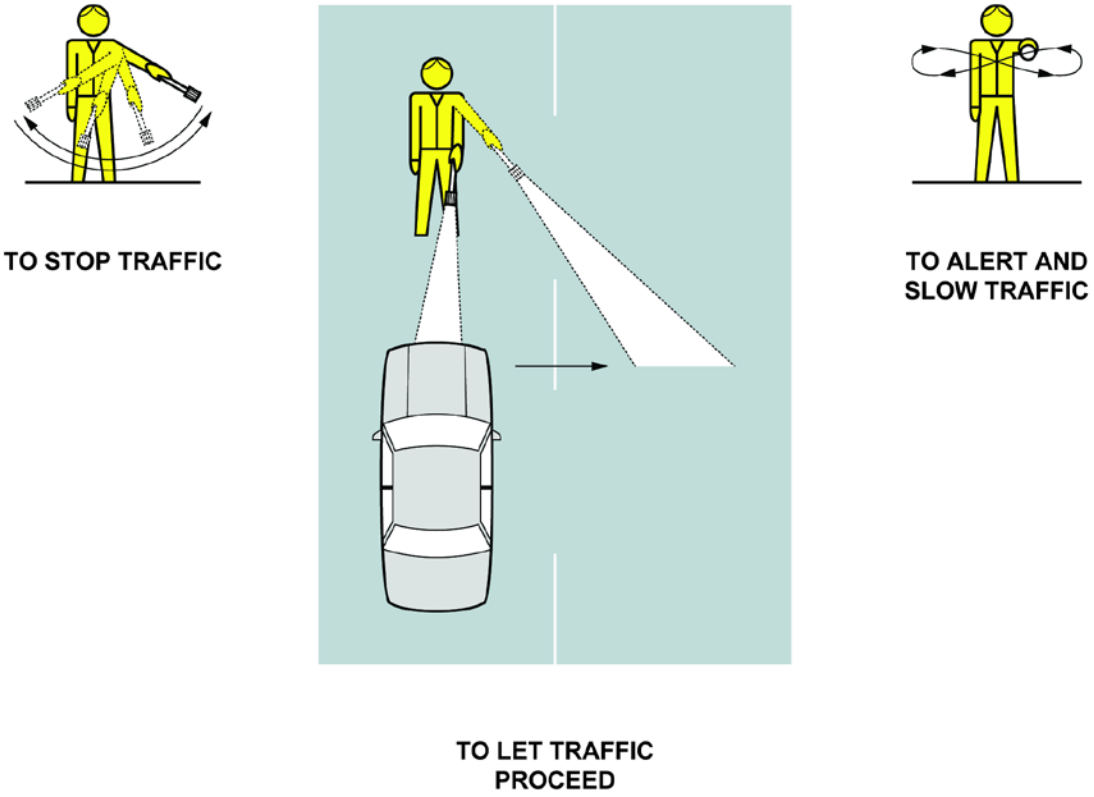


Figure 12: Use of Flashlight by Flaggers

Typically, flagging operations will require using a flagger at each end of the TIMA. Communication between the flaggers is critical and it is recommended that two-way radios be used. A single flagger can be used, but only in situations where there is a low volume of traffic, the TIMA is relatively short and the roadway is straight.

It is also recommended that, when resources permit, a traffic spotter be utilized to monitor traffic and activate an emergency signal if the actions of a motorist do not conform to established traffic control measures in place at the incident scene. The use of a portable air horn or similar device is suggested for use as an emergency signal. A portable radio is not recommended for this purpose, as it is unlikely that all responders on the scene would be monitoring the same radio frequency.

2.5.8 Traffic Incident Management Area Examples

MUTCD Chapter 6I provides guidance on the types of temporary traffic control devices that should be used at a TIMA based on incident type. For major and intermediate incidents, Chapter 6I states that temporary traffic control should include proper traffic diversions, tapered lane closures and upstream warning devices to alert approaching traffic of the end of a queue. For minor incidents, Chapter 6I recognizes that it is not generally possible or practical to set up a lane closure with traffic control devices and recommends that when a minor incident blocks a travel lane, it should be moved from that lane to the shoulder as quickly as possible. In the early stages of an incident, responders should use all equipment on hand to set up traffic control, realizing that the TIMA will be expanded and enhanced as

additional resources become available. The TIMA should evolve as the incident progresses and the number of closed lanes changes.

The following examples illustrate the ideal TIMA that responders should be working towards while on-scene.

Shoulder Closure

Figure 13 provides a shoulder closure TIMA example. Even though a travel lane is not directly impacted/blocked, if response activities are expected to last more than a few minutes a TIMA should be established to enhance on-scene safety. Incident response activities, including provisions for lateral buffer space, should not encroach on the travel lanes. If additional lateral space is required for response or recovery activities, the adjacent lane should be closed.

Divided Roadway

Figure 14 provides an example of a TIMA on a divided roadway. When establishing traffic control for incidents on this type of roadway, it is important to consider motorists' sight distance due to various roadway geometry including hills and crests.

Two-Way Roadway

Figure 15 provides a TIMA example for a lane closure on a two-lane roadway. Flaggers and spotters should be positioned within the shoulder taper and adjacent to the downstream taper to direct motorists. Flaggers should be in radio communication with one another.

Curved Roadway

Figure 16 provides an example of a TIMA when the incident occurs on or near a curve. Due to reduced sight distances, additional advance warning is required to advise approaching motorists of the incident scene. When possible, it is recommended that the advance warning area, transition area and buffer space start upstream of the curve. Similar practices should be followed for incidents on or near hills.

Full Freeway Closure

Figure 17 provides a TIMA example for a full freeway closure. Shoulder, double or triple tapers with appropriate longitudinal spacing between each taper are implemented to transition traffic to the nearest off-ramp. It is recommended that all response vehicles be positioned on the same side of the roadway even though the freeway is closed. This will serve to facilitate quicker lane openings as the incident de-escalates. In addition, anytime a full freeway closure occurs, consideration must be given to managing and addressing traffic stuck between the incident and the closure point.

Freeway Off-Ramp Closure

In Figure 18, the incident is located on a one-lane freeway off-ramp requiring its closure. In situations where there is a dedicated exit only lane, the entire lane should be closed if the ramp is closed.

Multi-Lane Intersection

Figure 19 depicts a TIMA at a major intersection where multiple lanes are entering the intersection from each direction. This particular scenario is for an incident near the center of the roadway. For some incidents it may be possible to maintain at least one through movement. Other movements

can be restricted to a right turn only. Vehicles should stage within the multiple buffer spaces around the incident and position such that they can easily maneuver away from the incident scene.

Four-Way Intersection

Figure 20 provides an example of a TIMA at a four-way intersection where one quadrant is blocked. It is preferred that motorists approaching the incident be restricted on which movements they can make. A flagger should be stationed within the intersection and spotters should be positioned within the advance warning and termination areas. In this example, motorists approaching from upstream are diverted around the incident scene.

Roundabouts

Establishing a TIMA in a roundabout can be challenging and largely depends on the location of the incident and the number of traffic movements required. Adding to this challenge is the relative lack of familiarity motorists have with roundabouts. Special attention must be given to verify motorists are channeled in the appropriate lane/direction to maintain scene safety. Figure 21 provides a single lane roundabout TIMA example and Figure 22 provides a multi-lane roundabout TIMA example.

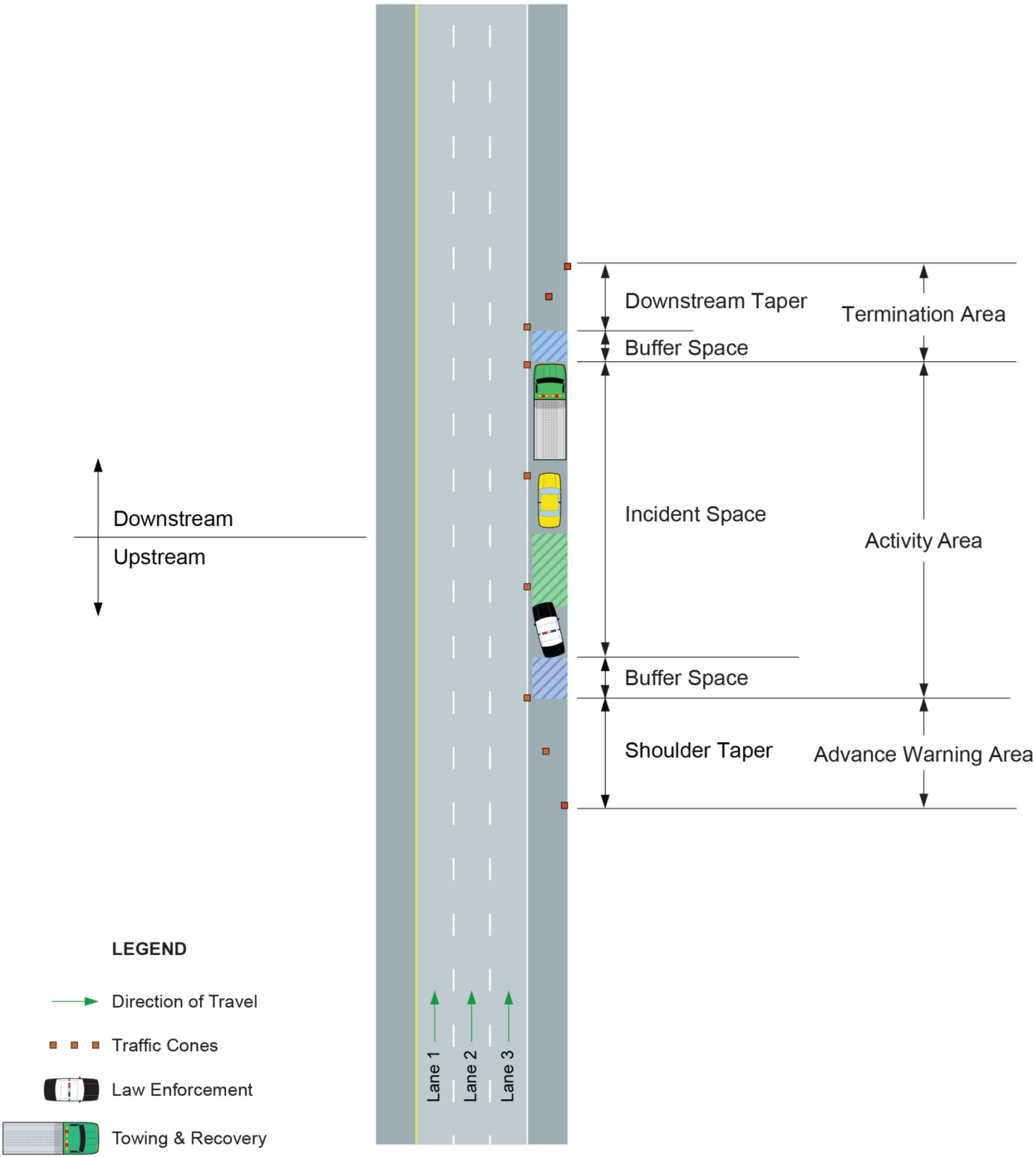


Figure 13: Shoulder Closure TIMA Example

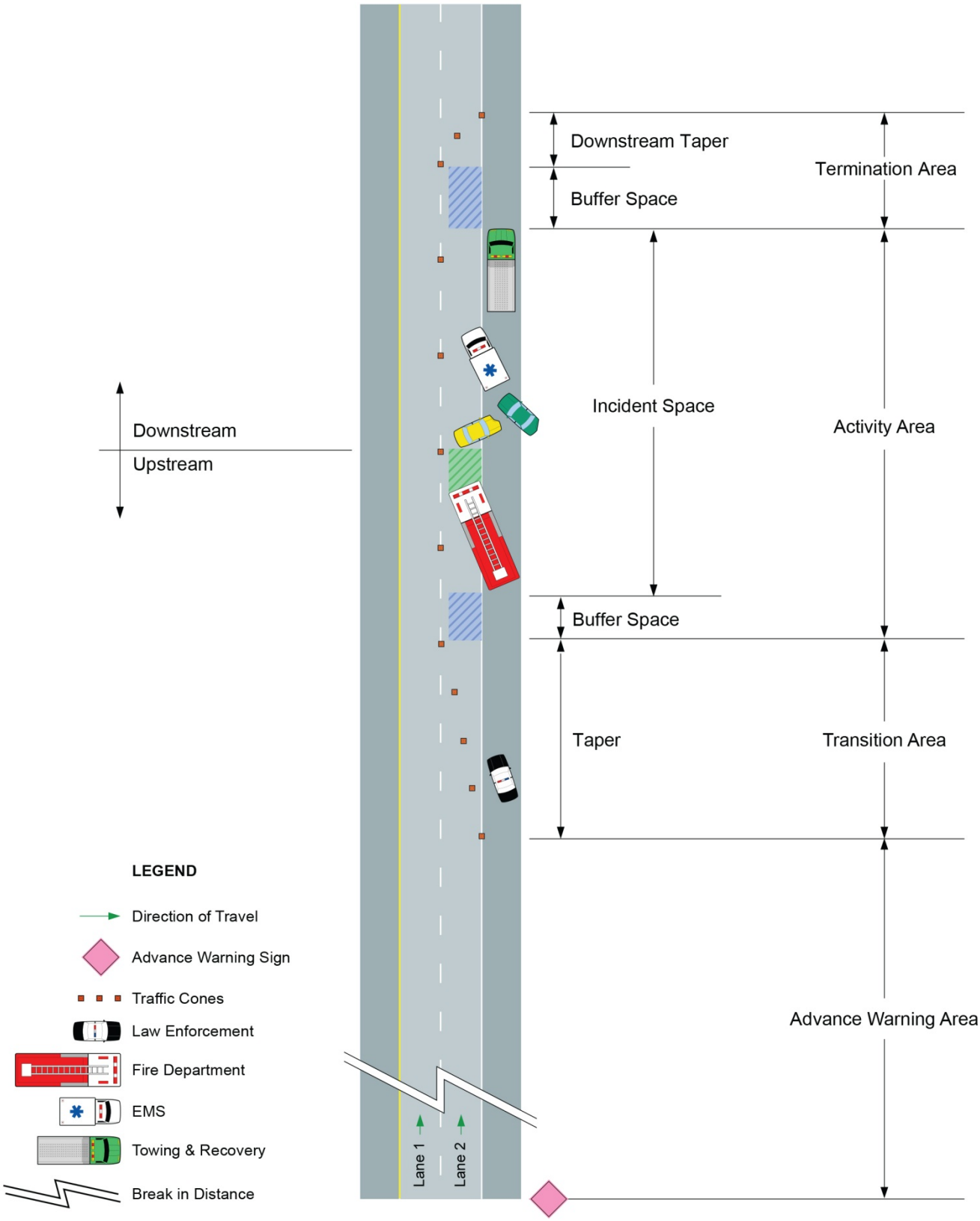


Figure 14: Divided Roadway TIMA Example

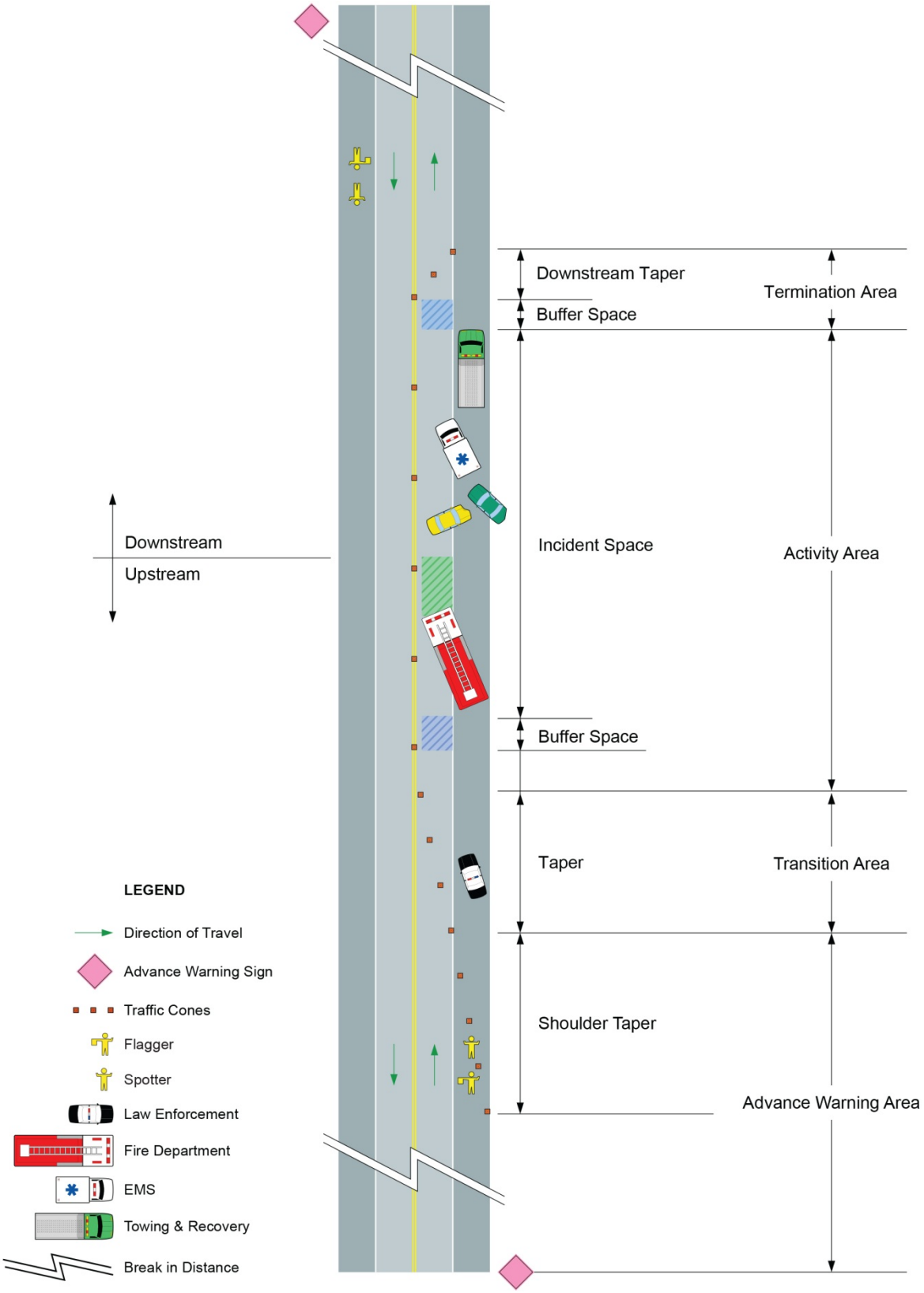


Figure 15: Two-Way Roadway TIMA Example

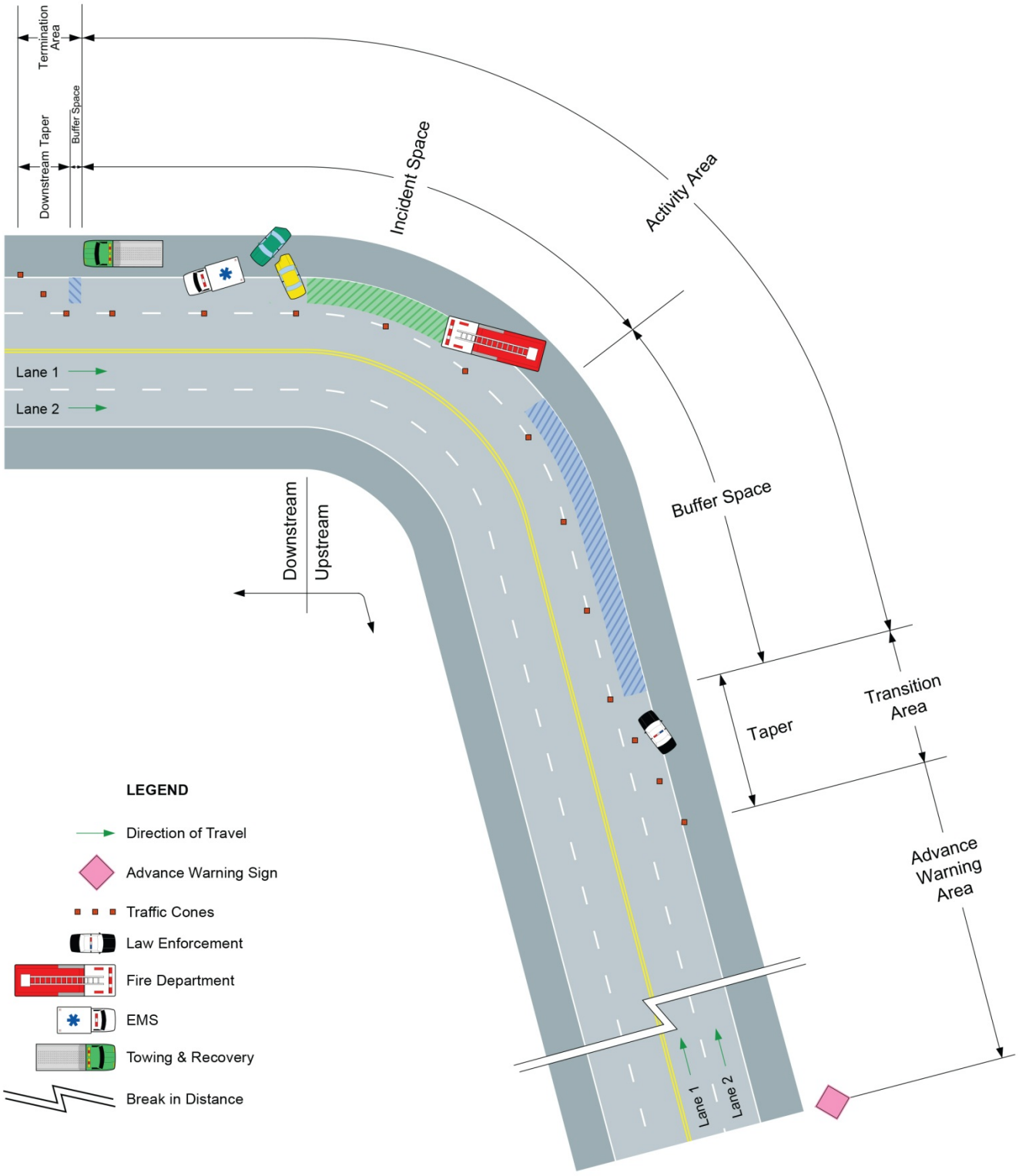


Figure 16: Curved Roadway TIMA Example

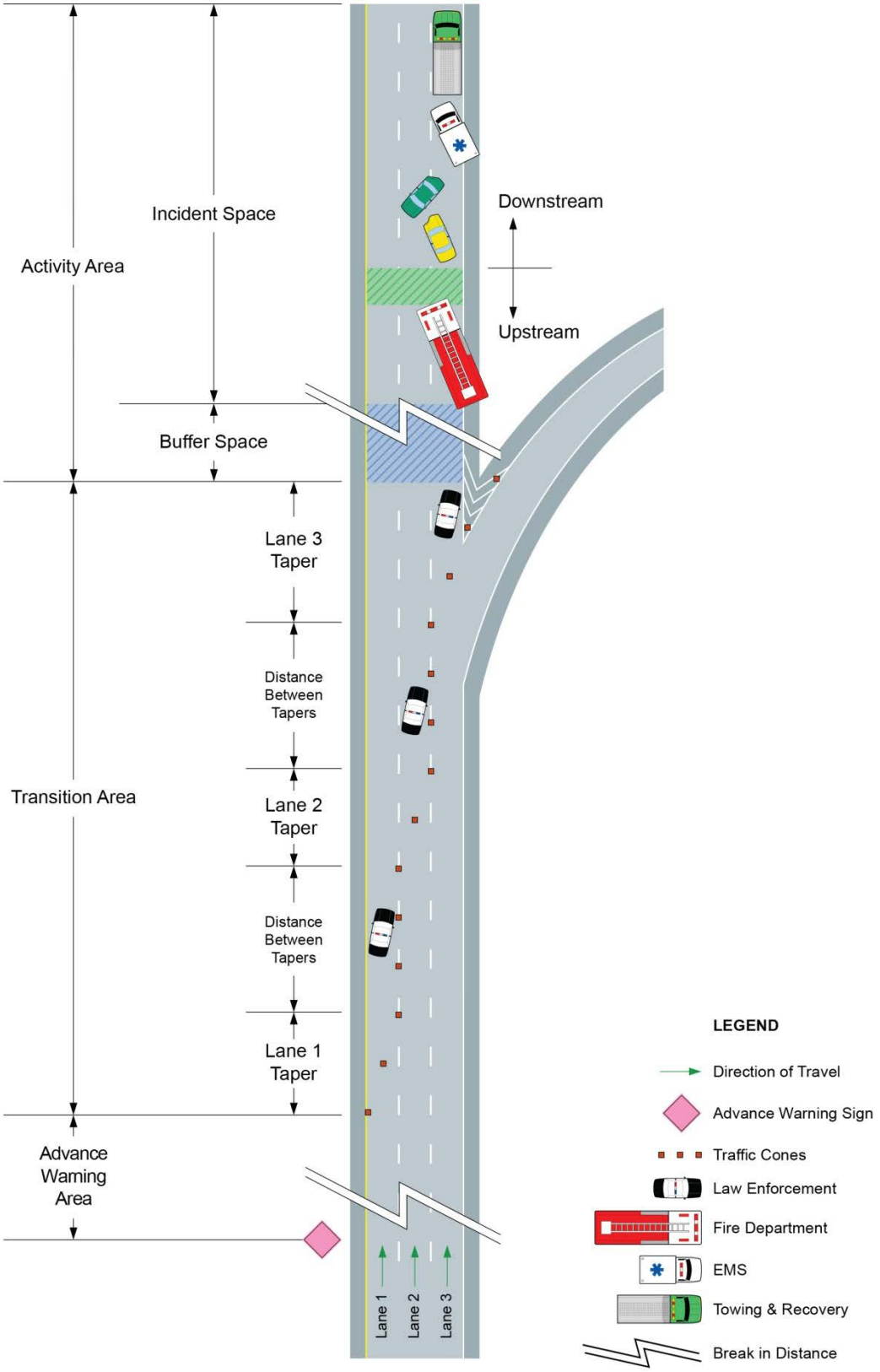


Figure 17: Full Freeway Closure TIMA Example

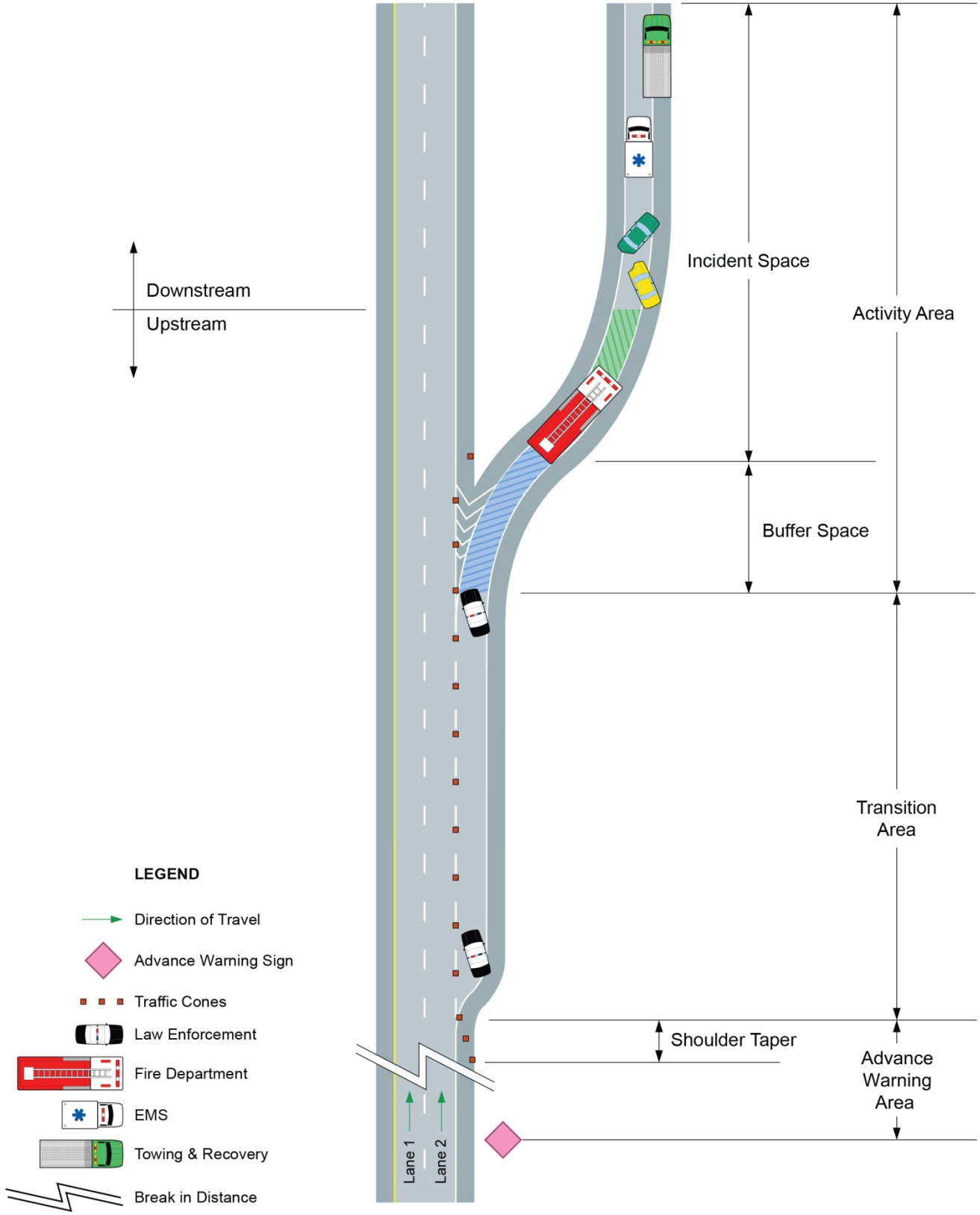


Figure 18: Freeway Off-Ramp Closure TIMA Example

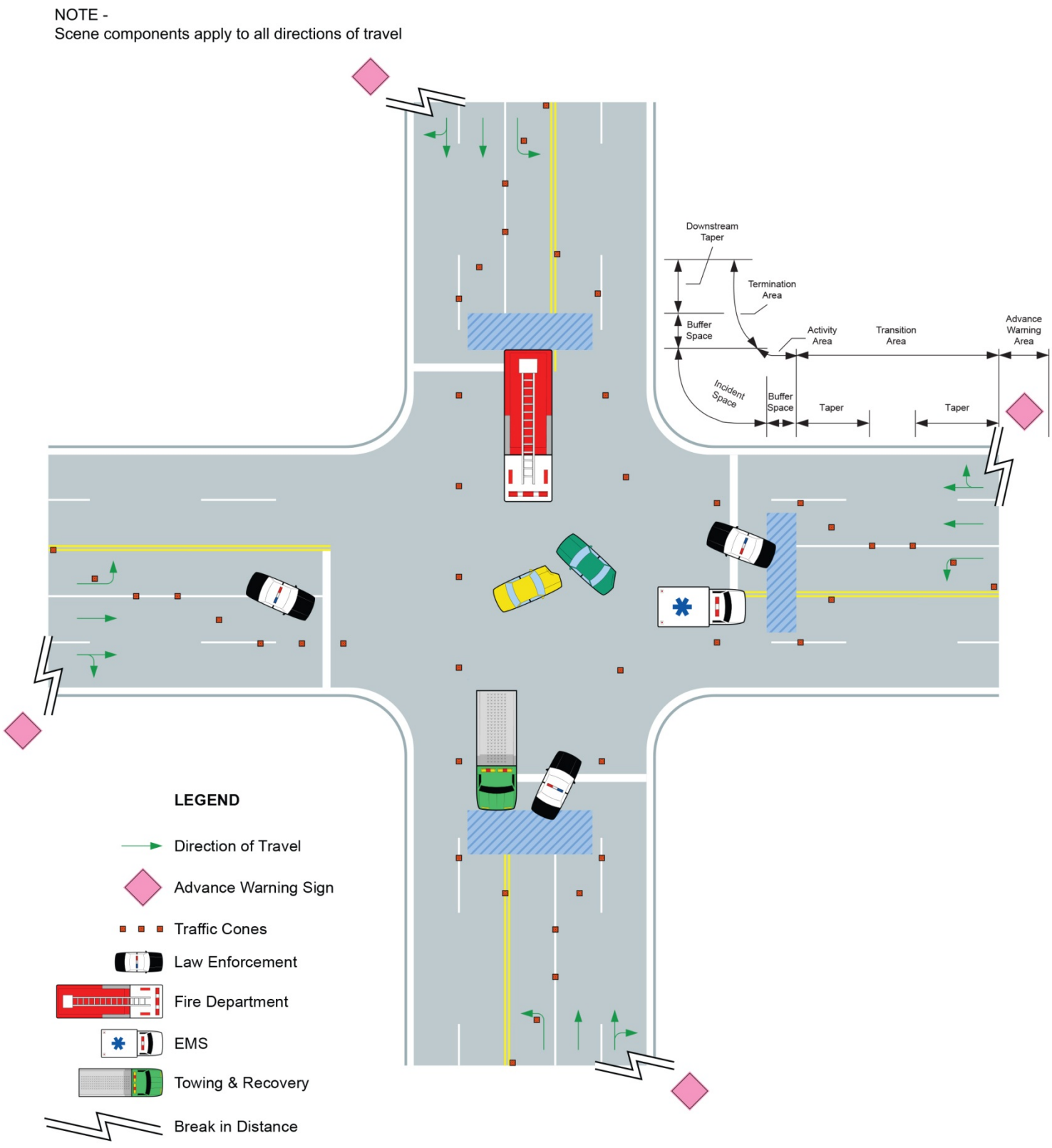


Figure 19: Multi-Lane Intersection TIMA Example

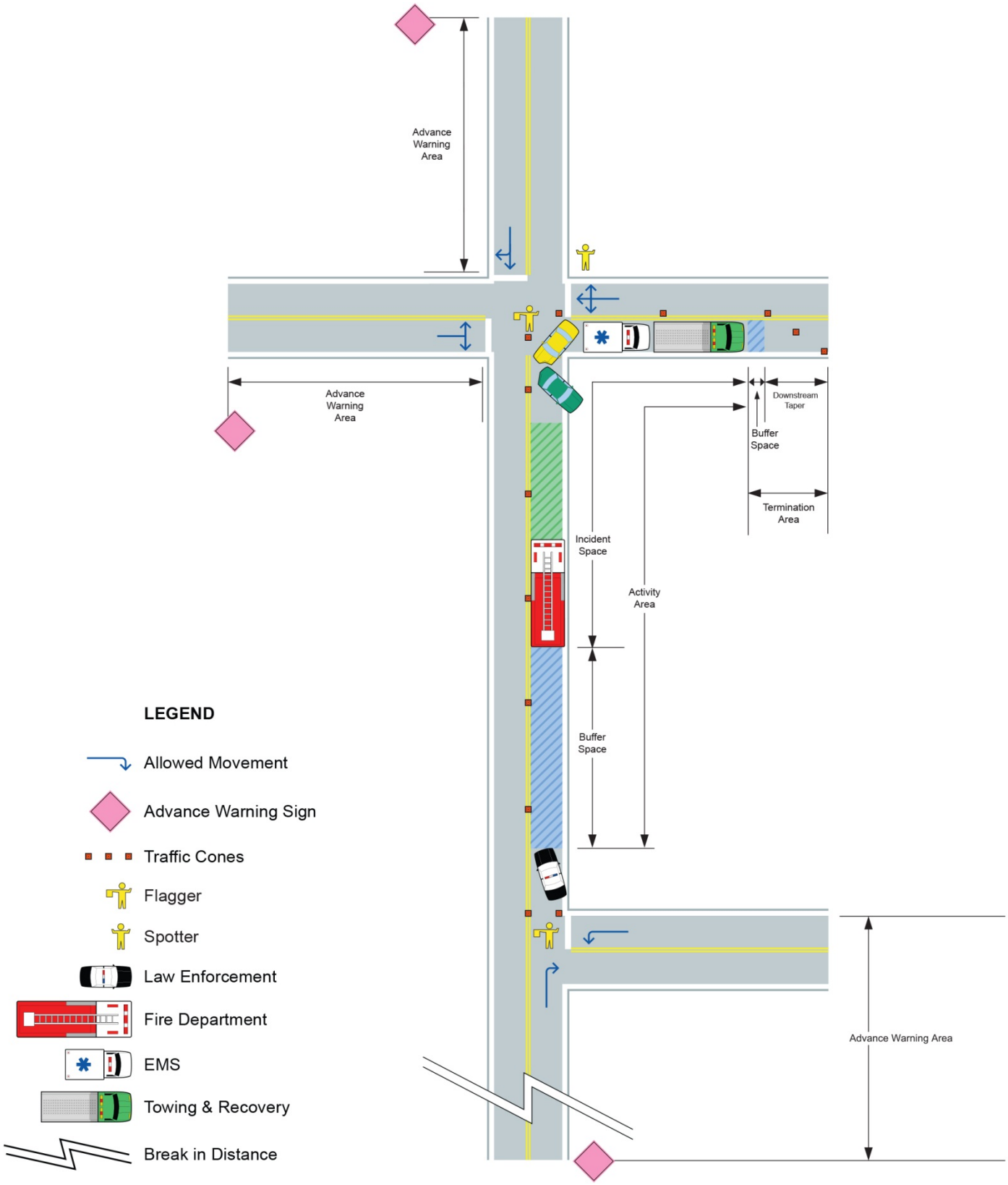


Figure 20: Four-Way Intersection TIMA Example

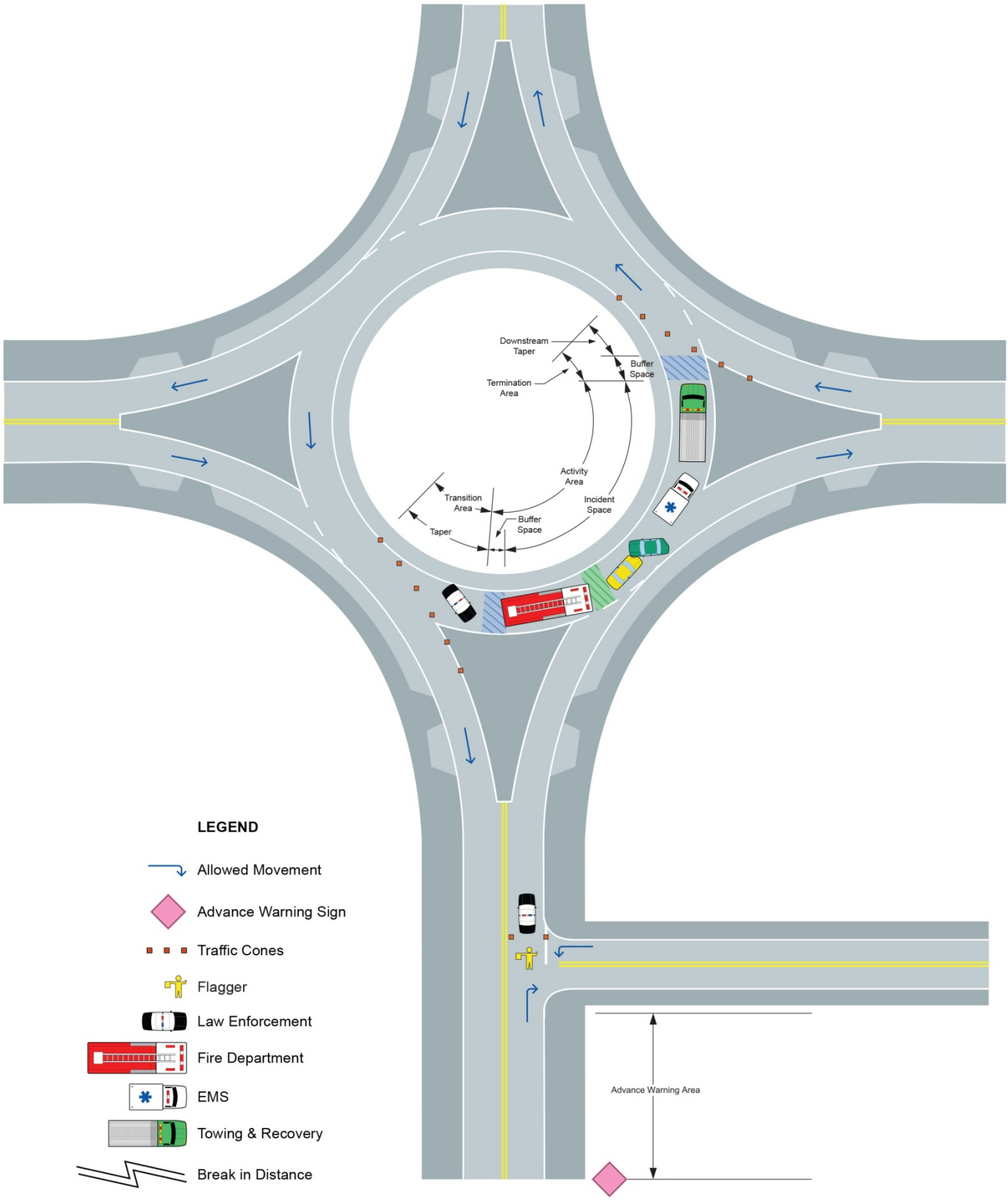


Figure 21: Single Lane Roundabout TIMA Example

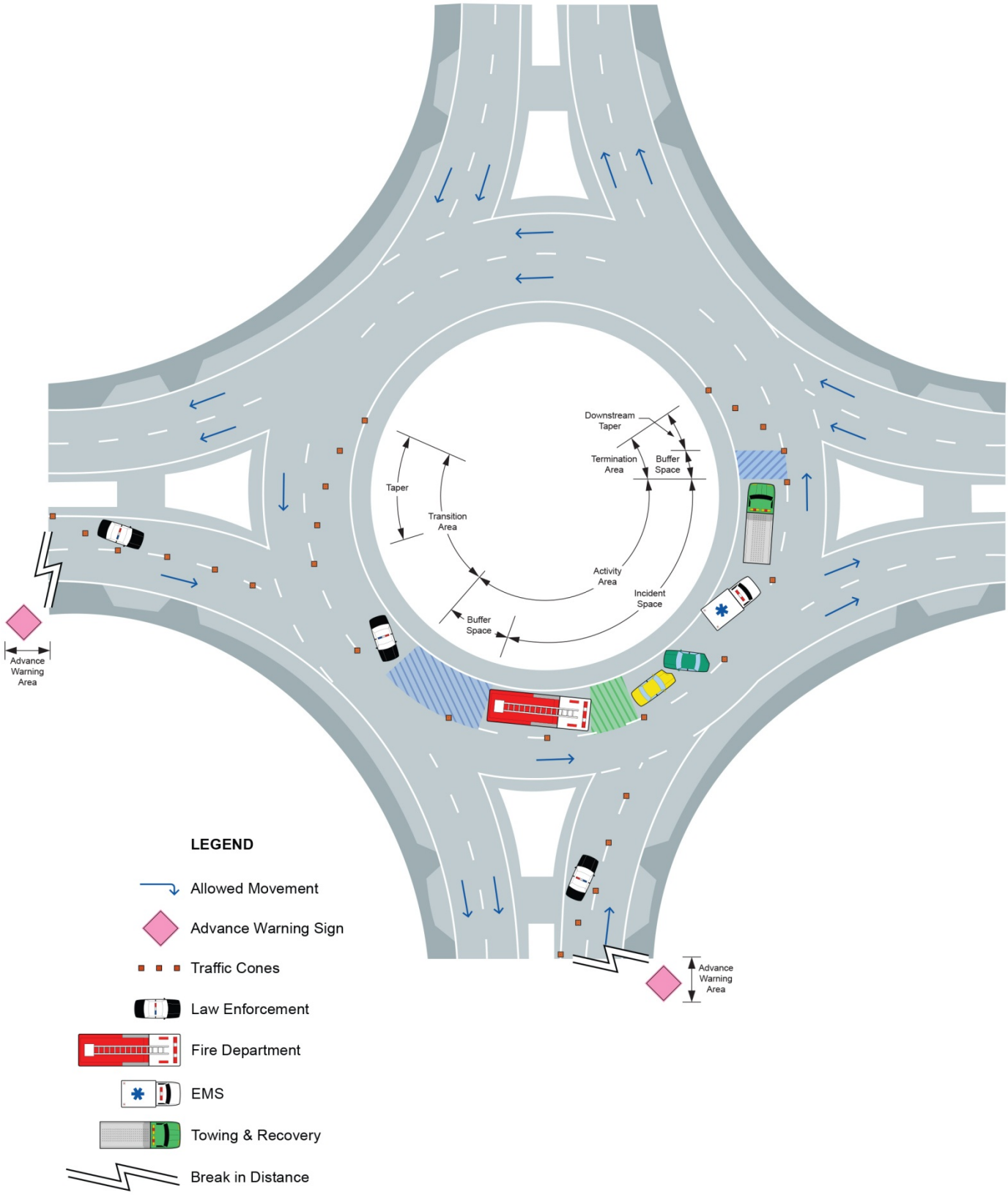


Figure 22: Multi-Lane Roundabout TIMA Example

2.6 Scene Breakdown and Demobilization

Equally important to properly establishing or setting up a TIMA, and associated traffic control, is safely breaking down or dismantling the scene. This activity includes demobilizing and removing equipment, personnel and response vehicles. All responders must exercise care when demobilizing, particularly if other responders remain present. In order to maintain safety, the Incident Commander must be notified of any responders departing the scene and the equipment or response vehicles that will be removed with them. Once victims, crashed vehicles, spills and associated debris have been removed, the Incident Commander must also monitor and control scene dismantling while recognizing the dangers of changing conditions and traffic returning to normal flow, oftentimes at high speeds. This is especially important for scene dismantling during nighttime or reduced visibility conditions. It is very important to dismantle the scene from the termination area backwards to the advance warning area. Other important scene demobilizing/dismantling considerations:

- Temporary traffic control or blocking may be required for responder departure (e.g., ambulances, towing and recovery, etc.)
- As responders depart, be aware that other responders may still be present
- Blocking vehicles (e.g., fire apparatus, truck mounted attenuators, etc.) may no longer be present and the “safe” area may no longer be intact – never turn your back to traffic and always watch for errant vehicles entering the scene
- Frustrated motorists that have been delayed by the incident may be particularly aggressive and drive at higher speeds or weave into lanes that appear to be open
- If possible, position a vehicle with its emergency vehicle lighting activated upstream of responders that are removing traffic control devices

Finally, when an incident scene has been fully cleared and all on-scene response is complete, notify the appropriate agencies including communications/dispatch centers and either the KDOT Topeka Metro Office (during business hours) or KC Scout (after business hours) that the roadway is open.

2.7 Hazardous Materials Considerations

2.7.1 Identification

Hazardous materials can be identified through labels, markings or placards. Labels are placed on the actual item or the individual package that the material is contained in. Markings are placed on the boxes that the materials are transported in. Placards are placed on the outside of the trucks that the material is being transported in. Placards, which should be placed on each side and each end of the transport vehicle, are typically the first reference responders use when trying to identify a hazardous material. Placards are color-coded based on the class of hazardous material being transported.

It is important to note that if the amount of transported material is below a certain quantity, the truck is not required to be placarded. However, a ‘dangerous’ placard may be used if the shipment contains non-bulk packages of two or more classes of hazardous materials. If available, the vehicle’s bill of lading, or shipping papers, should identify the type of material(s) being transported. It is important to always verify what material is being transported during an incident prior to initiating any recovery efforts.

The placard, or an orange panel placed below the placard, should include a four-digit number that can be referenced to identify the hazardous material using the Emergency Response Guidebook (ERG). The ERG is primarily a guide to aid incident responders in: 1) quickly identifying the specific or generic

classification of the material(s) involved in the incident; and 2) protecting themselves and the general public during this initial response phase of the incident. The ERG can found online at:

www.phmsa.dot.gov/hazmat/library/erg

2.7.2 Notification

Any discharge of a hazardous substance that adversely impacts or threatens to adversely impact public health, welfare or the environment must be reported to the Kansas Department of Health and Environment (KDHE) and the Local Emergency Planning Committee (LEPC). Shawnee County Emergency Management must be contacted as soon as possible to initiate the notification process.

If the hazardous condition involves the release of an Environmental Protection Agency (EPA) regulated material or an oil, the release may also need to be reported to the National Response Center. When a spill exceeds the reportable quantities of federally listed hazardous materials, the Shawnee County Emergency Management will notify the National Response Center. The Kansas Commission on Emergency Planning and Response (CEPR) requires a follow up written report within 7 days of the verbal report. The Kansas Division of Emergency Management (KDEM) facilitates the follow up written report. This written report is called a Form A report and is also required for petroleum spills that exceed 110 gallons.

As outlined in Kansas Administrative Regulations Article 28-48, all sewage, substances, materials or wastes, regardless of phase or physical state, which are, or threaten to contaminate or alter any of the properties of the waters of the state or pollute the soil in a detrimental, harmful, or injurious manner or create a nuisance, shall be reported. The following spills are reported to KDEM:

- Extremely Hazardous Substances
  - For spills onto land, the quantity designated as the final reportable quantity in 40 CFR 355
  - For spills into waters in the state, the quantity designated as the reportable quantity in 40 CFR 355, except where the reportable quantity is greater than 100 pounds in which case the reporting level shall be 100 pounds
- Hazardous Substances
  - For spills onto land, the quantity designed as the final reportable quantity in Table 302.4 in 40 CFR 302.4
  - For spills into waters in the state, the quantity designated as the reportable quantity in Table 302.4 in 40 CFR 302.4, except where the reportable quantity is greater than 100 pounds in which case the reporting level shall be 100 pounds
- Oil, Petroleum Products and Used Oil
  - For spills onto land, the reportable quantity is 110 gallons
  - For spills directly into the waters in the state, the reportable quantity is a quantity sufficient to create a sheen
- Other Reportable Incidents
  - All explosions and/or fires associated with oil, gas and geothermal activities
  - Any injury, death, property damage, evacuation from gas pipelines or hazardous liquid pipelines or other significant incident
  - Any incident, accident, or theft involving radiological materials
  - Any injury, death, property damage, or evacuation resulting from any hazardous event

The following spills are reported to KDHE and the Bureau of Environmental Remediation:

- Spills of brine, product, or any chemical that impacts the soils or waters of the state. Examples of these spills are:
  - Uncontrolled spill
  - Spills that enter a waterway
  - Spill that will result in potential fish kill or threat to wildlife
  - Spill of sufficient quantity to impact groundwater
  - Brine spill amount greater than 1 barrel that impacts soil
- Spills that do not significantly impact the soils or waters of the state (such as brine spill amount less than one barrel) can be reported during normal business hours
- Spills that do not have to be reported at all are spills that do not impact the soils or waters of the state. Examples are:
  - Dripping valves, salt crystals or brine valves
  - Spills within a containment structure that does not threaten human health, safety or the environment

For federal reportable quantities of specific substances, refer to Designation, Reportable Quantities and Notification (40 CFR, Part 302) which can be found online at:

http://www.epa.gov/osweroe1/docs/er/302table01.pdf

2.7.3 Response and Cleanup

As stated in Kansas Administrative Regulations 28-48, the owner or person responsible for the discharge of materials is responsible for reporting the spill. The individual responsible for the spill is also responsible for cleanup.

The Kansas State Statute for cleanup is covered in Chapter 65, Article 1, Section 171v and states that: *Whenever a water or soil pollutant is discharged intentionally, accidentally or inadvertently and the secretary of health and environment or his or her authorized personnel determines that the discharged material must be collected, retained or rendered innocuous, and if a discharger refuses to undertake cleanup operations or if the responsible discharger is unknown at the time, the secretary or his or her authorized representative may enter into an agreement with a person to conduct the necessary cleanup operations with payment for such cleanup work to be provided from the pollutant discharge cleanup fund. Any person responsible for or causing the discharge of materials which are determined necessary to cleanup under the provisions of this act shall be responsible for repayment of the costs of cleanup work upon reasonably detailed notification by the secretary or his or her authorized representative. If the responsible person fails to promptly submit payment for costs of the cleanup operations when so notified, such payment shall be recoverable in an action brought by the attorney general on behalf of the people of the state of Kansas in the district court of the county in which such costs were incurred. Any moneys recovered under this section shall be remitted to the state treasurer. Upon receipt thereof, the state treasurer shall deposit the entire amount thereof in the state treasury to the credit of the pollutant discharge cleanup fund.*

2.8 Helicopter Emergency Medical Services Landing Zones

When incident victims sustain critical injuries, Helicopter Emergency Medical Services (HEMS) may be required to respond. To promote the safety of HEMS staff, on-scene responders and the traveling public it is essential that a proper landing zone (LZ) be established.

2.8.1 Landing Zone Coordinator and Tail Rotor Guard

A LZ Coordinator should be designated by the Incident Commander to set up the LZ and maintain communications with the aircraft pilot through all phases of the HEMS response including approach, on-scene operations and departure. During aircraft approach, landing and takeoff, this individual should stand with their back to the wind in a location far enough back from the touchdown area that they can maintain eye contact with the pilot.

The LZ Coordinator should also designate someone to serve as the Tail Rotor (TR) Guard. The TR Guard is responsible for ensuring that no one approaches the tail rotor and should be positioned a minimum of 50 feet behind the tail rotor. If resources are limited, the LZ Coordinator can serve as the TR Guard once the aircraft has landed, but it is preferred that a separate TR Guard be designated. The TR Guard should remain in-place for the entire period between landing and takeoff (arrival to departure).

2.8.2 Landing Zones

The preferred LZ area is 150 feet x 150 feet regardless of time of day or wind speed/direction. As shown in Figure 23, the LZ should be a flat (maximum slope 5 degrees), firm surface that is free of overhead obstructions and easily blown debris. The LZ should not be in a low-lying area. If possible, the LZ should be located on the downwind side of the scene, which will help to reduce noise and dust and enables the helicopter to land closer to the scene. The LZ Coordinator should mark the direction of the wind by standing with their back to the wind, on the upwind side of the landing zone.

The LZ should be clearly marked with four lights, one in each corner. The LZ can be marked with red or amber strobes, weighted illuminated cones or weighted LED flares. The LZ should not be marked with lightweight items such as police/fire barrier tape or non-weighted cones. Responders should keep in mind that LED flares are difficult to see during the day but are beneficial at night. Similarly, cones are difficult to see at night but are preferred during the day. Green markings may not be visible to HEMS crews that are utilizing night vision goggles so LEDs that produce a green light should not be used.

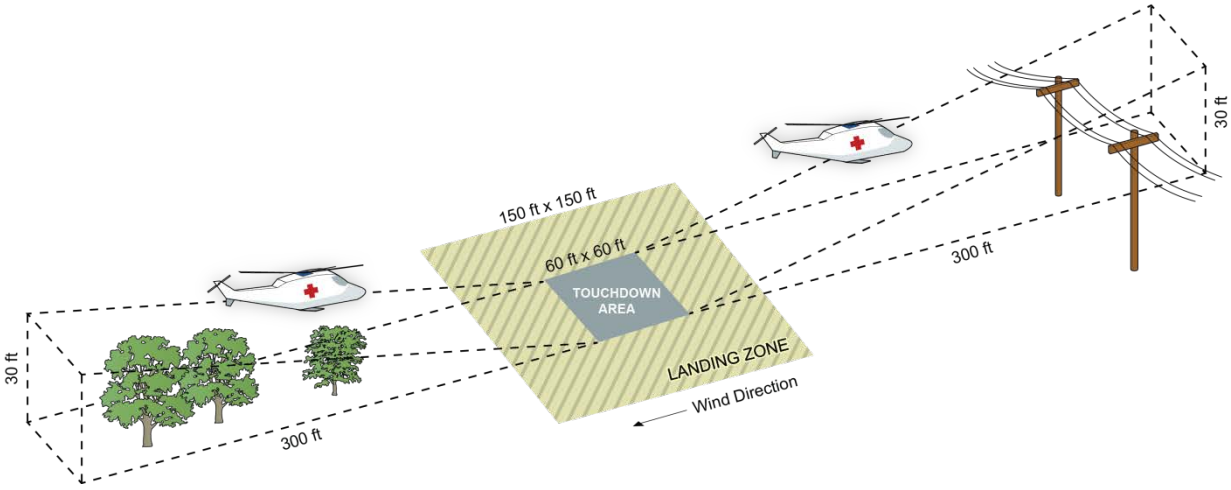


Figure 23: Landing Zone Example

Emergency lighting and low beam headlights can be used to help mark the LZ if necessary. Lights should be directed upwind towards the center of the LZ at a 45 degree angle. Lights should never be pointed upward towards the helicopter. If night vision goggles are being used the HEMS crew may request that lights, including those on response vehicles close to the LZ, be turned off. The LZ Coordinator should maintain communications with the pilot and be prepared to turn off lights if requested.

Emergency personnel and vehicles providing lighting assistance for aircraft landing must remain 100 feet away from the LZ. Non-emergency personnel (including crowds and media) and all other vehicles must be kept back a minimum of 200 feet from the LZ. Obstructions at the edge of the LZ that are in line with the approach/departure paths should be no higher than 4 feet and should be clearly marked with a row of lights, extending the length of the landing area.

Highway Closure Requirements

If an aircraft is landing on an undivided highway, on-scene personnel must close both directions of travel. The highway should remain closed until the helicopter departs.

If an aircraft is landing on a divided highway, on-scene personnel must close both directions of travel during landing and take-off. Traffic lanes in the opposing direction may be opened while the aircraft is on-scene; however, the pilot has the authority to request that both directions remain closed. If possible, adjacent crossovers should be blocked to prevent vehicles from accessing the scene counter-directional.

It may not be necessary to close both directions of travel in rural areas where the highway is divided by a large, wooded median. Based on access and resource restrictions, and the limited visibility of passing motorists, on-scene personnel may determine that it is not necessary to close traffic lanes in the opposing direction during landing and take-off.

An example of a TIMA with a HEMS LZ is illustrated in Figure 24.

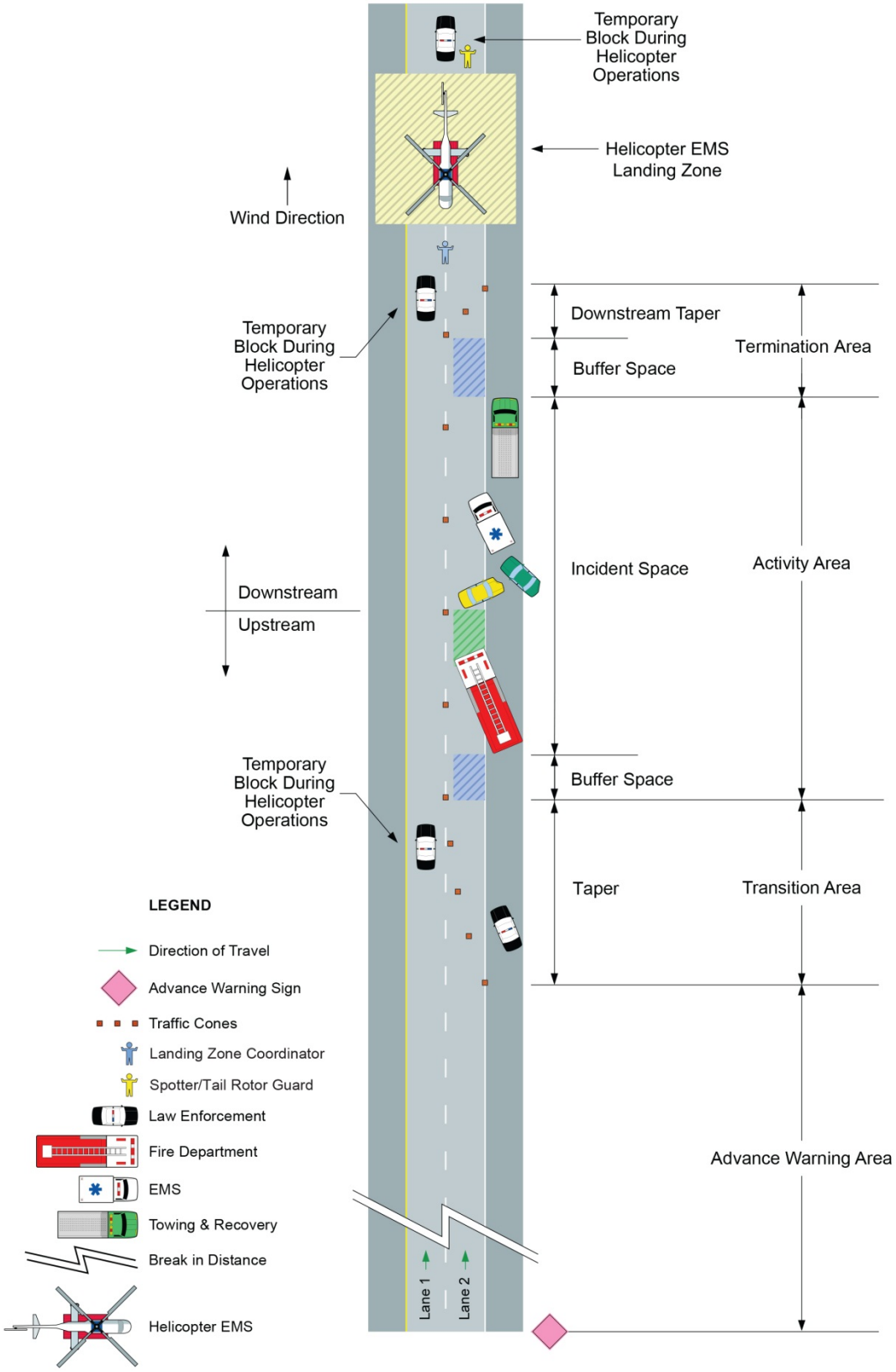


Figure 24: HEMS Landing Zone TIMA Example

Off-Site Landing Zones

It is preferable for the helicopter to land at the scene. The use of a safe, off-site LZ is acceptable as long as there will not be a delay in providing patient care. On-scene personnel should consider that use of an off-site LZ might cause other complications, most notably the need for enough resources to both secure the alternate LZ while maintaining a safe and secure incident scene and to transport the patient from the incident scene to the off-site LZ. The HEMS crew is responsible for all loading and off-loading of patients and equipment. If help is needed, the crew will designate on-scene personnel to assist and will provide instructions.

Multi-HEMS Response

If multiple HEMS need to respond to an incident scene, it is essential to notify both programs that there will be another helicopter approaching. Aircraft should be directed to the landing zone so they do not need to fly over one another. Each LZ should be a minimum of 150 feet x 150 feet. If there is not enough room to land two helicopters, sequencing of the landings may be required. This coordination will most likely occur between the two pilots in consultation with the LZ Coordinator. It is essential that both helicopters and on-scene personnel use the same radio frequency for communications.

2.8.3 Communications

A preferred radio frequency, free from excessive traffic, should be designated immediately for air to ground communications. The LZ Coordinator must use this frequency and establish communication with the responding HEMS aircraft prior to the pilot initiating any landing operations. An alternate, or back-up, frequency should also be identified in advance.

If there are issues with communication, the HEMS dispatch center can be contacted to discuss status and estimated time of arrival (ETA), and to assist with establishing communications. It is important for the LZ Coordinator to also be aware that if a portable radio is being used to communicate with the responding helicopter, the transmission range may be limited to 2-5 miles.

The ETA provided by the responding HEMS program is based on the global positioning system (GPS) location at the time of the initial call. Once the responding aircraft is airborne, it is likely that the ETA will be updated and a final update will be provided as the aircraft approaches the scene.

The pilot may not land until clear radio communications have been established with on-scene personnel. It is imperative that the pilot be advised of anything that may assist with or impede their arrival and response. Upon contact with the HEMS pilot, the LZ Coordinator should provide the following information:

- Wind direction (helicopters land and take off into the wind)
- Nearby landmarks to identify the LZ (airport, town, water tower, highway, etc.)
- Direction and distance from town, major landmarks or highways
- GPS coordinates (if available)
- Location of the LZ relative to the incident scene
- Location of any obstructions in the area

If possible, on-scene personnel caring for the patient(s) should also relay any known patient information, including number of patients, injuries and patient weight(s).

Hand Signals

While the use of hand signals may not occur often, there may be times that radio communications between the LZ Coordinator and the HEMS aircraft pilot may be lost or interrupted. For these situations, the standard hand signals illustrated in Figure 25 should be used. During nighttime conditions, the LZ Coordinator can hold lights so that the hand signals are clear to the pilot.

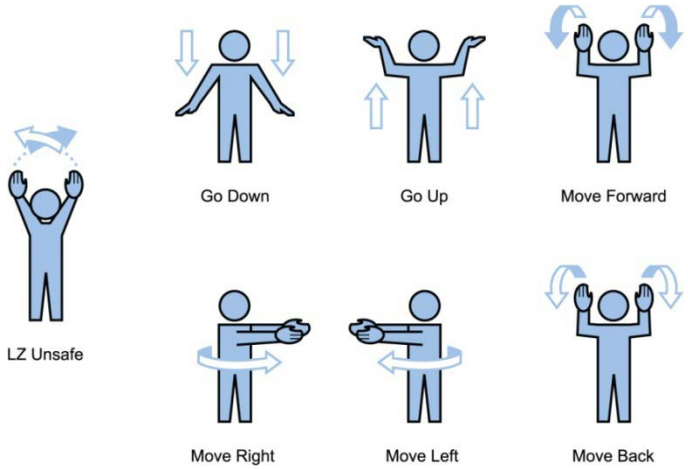


Figure 25: Landing Zone Coordinator Hand Signals

2.8.4 Safety Considerations

Never approach the aircraft from the rear as the spinning tail rotor is nearly invisible. Furthermore, on-scene responders should not approach the helicopter unless requested by HEMS personnel. If requested to approach the aircraft, the individual should be accompanied by one of the HEMS staff members, remain in the pilot's field of vision and only approach the aircraft from the front/side. Responders should not approach or depart the helicopter from an area that is higher than the aircraft. On-scene personnel need to be aware of the rotor wash created by the helicopter and the potential for flying debris during landing and take-off. Everyone near the LZ should wear eye and hearing protection or remain in a vehicle. In addition, secure all loose items, such as equipment, headgear and vehicle doors and windows.

The LZ must remain under the control of the LZ Coordinator and the TR Guard at all times including during aircraft approach, ground operations and aircraft departure. It is important to consider the safety of everyone at the scene including, but not limited to, on-scene personnel, the HEMS crew, motorists and all bystanders. Other on-scene emergency response personnel should assist with maintaining scene safety and security by:

- Providing traffic/crowd/media control
- Monitoring pedestrian and vehicular traffic (authorized and non-authorized)
- Ensuring no one crosses into the LZ
- Notifying the LZ Coordinator and/or HEMS crew of any hazards or obstructions
- Calling off the landing if needed
- Monitoring communications with the HEMS crew

HEMS Response to Scenes Involving Hazardous Materials

Upon initial radio contact, the HEMS crew must be made aware of any hazardous materials in the area. Never assume they have been previously informed. Patients must be field decontaminated prior to transport by helicopter. The Federal Aviation Administration (FAA) prohibits transportation of hazardous materials and helicopter crews do not have protective gear or breathing apparatus with them. The LZ should be at least 1 mile upwind of and not in a low-lying area for:

- Explosives
- Poisonous gases/vapors
- Chemicals in danger of exploding or burning
- Radioactive gas or materials

2.9 Crash Reconstruction and Investigation

Traffic incident scenes should be cleared as quickly as is practical, emphasizing restoration (i.e., opening) of all available traffic lanes without compromising short-lived and often un-retrievable evidence necessary for a thorough crash investigation. The investigation and reconstruction of traffic crashes has become increasingly more important in recent years. Among the most significant reasons for this include:

- Criminal, including homicide investigations, and civil aspects of traffic crash cases
- Litigation against law enforcement agencies and personnel
- Documentation of the economic and personal loss and injury of those involved in traffic crashes

Reconstruction is the objective analysis of physical evidence present in a collision event that serves to establish how the collision occurred, factually and objectively. In order to perform reconstruction of incident scenes, evidentiary items must be accurately documented and preserved for analytical purposes.

2.9.1 Evidence Collection

Consideration must be given to balancing the necessity of road or lane closure with the collection of evidence. There may be times when evidence is photographed and marked, and location measurements are collected at a later time. All responders must be mindful of the impact closures have on traffic and the potential for secondary crashes. When necessary, crash reconstructionists should gather key crash related evidence immediately and consider measuring the roadway itself at a later time when proper traffic control can be established. However, regardless of the situation, it is most important that safety be maintained for all personnel.

If something of potential evidentiary value needs to be moved in order to open the roadway, that item should be photographed and its location marked (with paint or other semi-permanent marking) prior to it being moved. Additionally, documentation recording the person(s) that marked, photographed and moved the item should be kept.

When available, the most current technology for capturing detailed measurements should be utilized to aid in quick clearance of the crash scene. Available technologies include total station, GPS, surveying, laser mapping and photogrammetry. Consideration should also be given to utilizing the closest qualified reconstruction personnel for initial scene documentation to aid in clearing the crash scene as quickly as possible.

Short-Lived Evidence

Short-lived evidence is most susceptible to being destroyed at a crash scene. Short-lived evidence is any evidence relative to a crash that will most likely be lost, destroyed or compromised due to weather or during the process of clearing the crash scene. Critical short-lived evidence can consist of blood, hair, tissue, fibers, tire marks, fluid trails, debris fields, gouges, scrapes, paint transfer, and the final rest positions of all vehicles and the bodies of victims. If at all possible, make note of occupant seating location/position and seat belt usage.

It should be noted that some tire mark evidence can be wiped off of the roadway similar to how eraser shavings can be wiped off of a piece of paper. These marks should be protected from foot traffic, fire hoses and vehicle movement until photographed and marked.

Vehicle Evidence

Within the vehicle there is potential DNA and other sensitive evidence such as blood, hair, tissue and fibers that may need to be collected and preserved. Other vehicle evidence may include seat positions, seat belts, deployed airbags and contents of the vehicle, including driver logbooks, cellular telephones, GPS units and other personal electronic devices. Extra care should be given to cases where the driver of the vehicle is not readily identifiable.

Under no circumstances should the vehicle itself be used as a garbage can. Debris that is swept up at a crash scene should be placed in appropriate containers and not dumped into the vehicle.

Electronic Evidence/Data

Electronic data, including that related to the deployment of airbags in passenger cars and light trucks, can be destroyed or deleted by providing power to the vehicle or cycling the ignition. Ignition keys should be removed and turned over to the personnel investigating the crash, not to tow operators. It is preferred that if power to the vehicle needs to be disconnected that it is disconnected by removing the cables from the battery terminals rather than physically cutting the power cables themselves. It is understood that when more severe circumstances exist, cutting the cables may be required. However, when no extrication of occupants is required, and there is no immediate fire hazard, the cutting of power cables is not necessary.

Some commercial motor vehicles contain electronic data pertaining to the crash and the events leading up to it. Portions of this data can also be destroyed by disconnecting power to the vehicle. In all cases, it is recommended that the ignition be turned off, and the keys be removed and turned over to the personnel investigating the crash. Unless exigent circumstances exist (such as a fire hazard), it is preferred that power lines not be disconnected or cut on commercial motor vehicles. Since most commercial motor vehicles are currently not equipped with air bags, leaving power supplied to these vehicles should not pose any additional hazard to rescue personnel.

2.10 Quick Clearance and Removal Operations

2.10.1 Quick Clearance

Motorists who are involved in crashes are exposed to the same dangers responders face when working in or near traffic. To improve the safety of motorists involved in minor crashes, Kansas State Statute Chapter 8, Article 15, Section 107 instructs drivers involved in crashes, if the vehicle is able to be driven, no one was injured and there is no transport of hazardous materials, where the vehicle is obstructing the regular flow of traffic, to make every reasonable effort to move the vehicle from the roadway.

Efforts to move the vehicle should be made only if it may be done safely, does not require towing and the vehicle may be operated under its own power without further damage to the vehicle or the roadway and without endangering other vehicles or persons.

2.10.2 Towing and Recovery

Incident clearance can be significantly delayed when towing and recovery agencies respond with the incorrect equipment because they were provided inaccurate information or simply told what equipment to bring. To facilitate information exchange, the Towing and Recovery Association of America (TRAA) developed a vehicle identification quick reference guide for law enforcement. A copy of the reference guide is provided in *Appendix B* and laminated copies of the guide can be obtained from TRAA at:

http://www.towserver.net/

2.10.3 Vehicle Removal

If a vehicle is in the shoulder/median and removal does not require that a lane be closed, towing and recovery professionals can remove the vehicle and coordination with local law enforcement is not necessary. However, towing and recovery professionals can request law enforcement assistance.

If a vehicle is in the shoulder/median and removal requires a travel lane to be closed, towing and recovery professionals must coordinate with law enforcement. In situations where law enforcement is on-scene, they, as acting Incident Commander or part of Unified Command, can determine if the lane closure can be done with the equipment on hand or if assistance from the public works or highway department will be necessary.

2.10.4 Delayed Heavy-Duty Clearance/Recovery

Depending on the circumstances, delaying some or all clearance/recovery activities may be appropriate in the interest of safety or facilitating traffic flow through the incident scene. For example, it may be safer for responders and motorists to pull a stuck vehicle out of the ditch area adjacent to the roadway after rush hour or when inclement weather subsides. In all cases, the decision to delay clearance/recovery must be made either by the Incident Commander or as part of Unified Command. During this decision process, it is important to consider:

1. Where the incident vehicles, spill, debris, etc. will be left with respect to the traveled way and/or clear zone. The term “clear zone” is used to designate the unobstructed, relatively flat area provided beyond the edge of the traveled way for the recovery of errant vehicles. Consideration should be given to whether or not the location of the vehicle may cause a safety hazard. Simply stated, the closer the vehicle is to the edge of the traveled way the greater the safety hazard.
2. The time period that the incident vehicles, spill, debris, etc. is anticipated to remain at the scene before they are cleared/removed. It is important to understand when traffic volumes may be reduced so that the impact on traffic flow may be minimized. The time of day for clearance/removal must also be considered, recognizing the safety implications of doing the work at night when visibility is reduced.
3. Mark the incident vehicles, spill, debris, etc. so that other motorists do not unnecessarily contact 911 when observing incident debris left for later removal. One method for marking involves the use of caution tape to border the incident debris.
4. Delayed clearance/removal is considered a planned activity. Therefore, lane closures and traffic control must be consistent with and conform to Kansas DOT, Topeka Public Works and Shawnee

County Public Works policies and procedures. In other words, MUTCD requirements for temporary traffic control (TTC) must be followed as opposed to a TIMA establishment, which is used for emergency conditions.

Once the decision to delay recovery operations is made, coordination and communication must occur between the responsible party, the Kansas DOT Topeka Metro Office, the highway department, local law enforcement and the agency responsible for recovery operations. During recovery operations, coordination and communication should also exist between these entities.

SECTION 3
Traffic Management and Traveler Information

3.1 Traffic Management and Traveler Information Issues and Needs

Through multiple stakeholder meetings and discussions, TIM responders in the Topeka metropolitan area identified the following needs/issues/challenges related to traffic management and traveler information:

- Enhance availability, accuracy and timeliness of traveler information
- Develop a Traffic Management Center (TMC) for the Topeka metropolitan area
- Conduct emergency alternate route planning
- Need to share CCTV camera video with TIM stakeholders

To address these needs/issues/challenges, the following potential strategies were identified and discussed:

- Review and Revise the Emergency Alternate Route Plans – As part of this plan emergency alternate route plans were developed for the Topeka metro area.
- Develop a Plan for Pre-Positioned Resources – As discussed below, this potential strategy was not recommended.
- Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages
- Develop Dynamic Message Sign Deployment Plan
- Develop a Virtual Traffic Management Center Shared by TIM Partners
- Deploy Image Sharing Technology - Image sharing technology is available in all smartphones. Photos from smartphones have been used to provide towing companies more information on the situation so they can tailor their response appropriately. There was consensus among stakeholders that sharing photos can improve the response to incidents. There was minimal concern that the sharing of photos for the purpose of improving incident response could create legal or ethical problems. Availability of smartphones for all responders can limit the ability to use this tool. Since the ability to share images is already available and in use, this was not considered a strategy that still needed to be addressed.
- Implement Expanded Video Sharing System

3.2 Traffic Management and Traveler Information Priority Strategies

3.2.1 Preplanned Emergency Alternate Route Plans/Guides

An emergency alternate route is a roadway or series of roadways that provide additional capacity to service primary route traffic that is being diverted due to an incident. The term "emergency" implies that the route is to be used for additional primary route capacity only under emergency conditions (i.e. major traffic incidents), not as a general, everyday "by-pass". Often an activity of formal TIM programs, advance planning and preparation of emergency alternate route plans enhances the on-scene traffic management capability of interagency incident responders. Proper emergency alternate route planning has a significant effect on improving the safety and efficiency of freeway operations under traffic incident conditions without undue impact on the surrounding community. This project included the development of emergency alternate route plans for I-70, I-470, and US 75, which are discussed in detail in Section 3.4.

Traffic Signal Timing Plans

In deploying emergency alternate routes, law enforcement and transportation responders must consider the operations of traffic signals along the route(s), particularly in urban areas where volumes are likely to be higher. Given the significant increase in traffic due to incident diversion, traffic signals may not be timed or have the required field equipment capabilities to accommodate the sudden volume increases. For preplanned routes, responders can use the information in the emergency alternate route plans to determine where traffic signals exist along a given route. One strategy to consider for operating traffic signals on emergency alternate routes is providing additional green time to the traffic movements carrying the increased emergency traffic flow. Special emergency alternate route signal timing plans can be developed or Topeka Public Works staff can adjust signal timing in real-time. Topeka Public Works has the ability to remotely adjust signal timings.

3.2.2 Pre-Positioned TIM Equipment

Storing equipment required for incident response near high incident locations instead of one central location can reduce the time needed to respond to an incident. Stored equipment may include trailers containing traffic control equipment (signs, cones, flags, etc.) specifically reserved for TIM. Field personnel should be consulted as to which materials and equipment they need and thought must be given to determine what resources would be most feasible to be kept at these sites. The storage sites must be secure so that resources are available when needed. In addition, agreements should be established between responding agencies regarding material and equipment use.

The KDOT Topeka Metro Office has a trailer pre-loaded with traffic control equipment at their office. At the present time, TIM stakeholders felt the expected benefits of additional pre-positioned TIM equipment did not outweigh the additional resources needed to pre-position the equipment.

3.3 Intelligent Transportation Systems Technologies

Traffic incident management is an operational approach that employs all available resources to identify, manage and clear incidents in a quick, effective manner. These resources include not only staff and equipment but also technologies that can be leveraged to monitor, verify and report incidents. The use of these technologies, referred to collectively as intelligent transportation systems (ITS), may allow operators to initiate a response soon after an incident occurs, reducing its duration and overall impact.

In select cases, ITS technologies may even prevent incidents from occurring, reducing the burden placed on staff and resources that would otherwise be needed if incidents did occur. In either case, the use of ITS investment can be instrumental in reducing response time, improving safety and mitigating incident-related impacts. Additionally, ITS investment serves as a mechanism for multiagency collaboration and coordination, which itself will lead to improved incident response and management.

3.3.1 Virtual TMC

The KDOT Topeka Metro Office serves as a virtual TMC for the Topeka metropolitan area. KDOT staff review CCTV camera images, post messages to DMS and assist with incident response Monday thru Friday during normal business hours. Staff is available and on-call after business hours but operations are transferred to KC Scout. In addition, the Topeka Metro Office provides a range of services/functions statewide including, but not limited to, traffic operations management, traffic incident response, field operations support, and emergency response notifications. Another virtual TMC site is within the KDOT Headquarters ITS Unit. This group operates and manages ITS devices statewide and provides a backup to the Topeka Metro Office.

Stakeholders felt that a new standalone TMC would not be warranted in the Topeka metro area at this time. Enhancing the sharing of information would be the first step toward an enhanced virtual TMC. The virtual TMC would provide access to key responders and would only be staffed during major incidents. Funding for development of the systems to support a virtual TMC will be the key constraint. This recommendation is a longer term strategy.

3.3.2 KC Scout

KC Scout is located in Kansas City and is funded by both the Kansas and Missouri DOTs. KC Scout manages traffic on more than 125 miles of freeway in the greater Kansas City metro area. KC Scout operators utilize CCTV camera images, post messages to DMS and activate the HAR. In addition, KC Scout provides a range of services/functions statewide including, but not limited to, traffic operations management, traffic incident response, and emergency response notifications.

KC Scout plays a key role in TIM activities by serving as the focal point for communication and coordination among the multiple incident response agencies in the Kansas City area. Specifically, KC Scout supports incident detection, verification and response, site management, traffic management, clearance and motorist information.

During business hours, KC Scout staff provides services for the greater Kansas City metro area. After business hours, they also provide support services for the Topeka area.

3.3.3 Statewide Advanced Travel Information System

The statewide advanced travel information system (ATIS) is the traffic control software platform that is used to disseminate information about regional freeway traffic. The ATIS can provide information from the ITS infrastructure to the public via phones, websites, vehicles, dynamic message signs (DMS), highway advisory radio (HAR) and other devices.

Approximately 30 closed circuit television (CCTV) cameras and 30 DMS have been installed along I-70 and in rural regions of the state. This equipment is managed through KDOT's virtual traffic management center. The system is operated from KDOT's district offices, the KDOT headquarters in Topeka and KC Scout. Information collected through the system is used to provide motorists with information on:

- Road closures
- Accidents
- Work zones
- Amber Alerts
- Other emergency information

In addition to the KDOT ATIS, KC Scout and the WICHway traffic management centers provide traveler information. KC Scout has an independent website that offers alerts for travelers. WICHway also has a website and provides information to travelers.

To improve incident management capabilities, Kansas DOT and its partner agencies should continue to explore potential enhancements to the ATIS software that can improve the manner in which incidents are detected, verified and communicated between agencies and the public. This may include communications enhancements between the KDOT, KC Scout, the WICHway, and regional emergency service dispatch/PSAPs and CAD systems. For instance, integrating filtered, non-sensitive CAD information within the ATIS platform may result in improved incident management response and coordination, and more rapid dissemination of information to the public. Similarly, integration or sharing of CCTV camera images or video with emergency response agencies may improve emergency response operations as well. Other potential enhancements may be identified through development of a performance monitoring program or standard after-action reviews/lessons learned.

KanDrive

KanDrive was launched by KDOT in 2009 as an additional method to provide information about KDOT's ITS and ATIS services to travelers, commuters and truck drivers. KanDrive uses the ITS and ATIS systems to provide information to motorists about:

- Weather-related driving conditions
- Work zones
- Traffic incidents
- Weather forecasts
- Traffic conditions (within the Kansas City area)
- Data from roadway weather stations
- Services for over-the-road truckers
- Tourist information

KanDrive can be accessed online by going to www.KanDrive.org. If using a mobile device, KanDrive can be accessed by going to the 511 mobile website (511mm.ksdot.org). KanDrive connects users to the 511 system information and also provides camera snapshots from CCTV cameras and messages from DMS. From the KanDrive site, users can access links that will take them to travel maps of the state, counties and cities; links to neighboring states' travel information; traffic information for Kansas City provided through KC Scout; work zone information for Kansas City, Wichita and Topeka; and information about the Kansas Turnpike.

Public-private partnerships between KDOT and the media are facilitated through Trafficland. These partnerships allow media outlets to use video feeds from the DOT's CCTV cameras. KDOT has partnered with a company called Trafficland to provide video feeds from CCTV cameras to media outlets. To obtain the camera feeds, Trafficland will sell subscriptions to media outlets that are interested.

511 Traveler Information System

Kansas's 511 traveler information service provides real-time travel information to the public. The service is free and was developed in part as a response to a nationwide effort to simplify travel information services within states and across state borders. The easy to remember 511 number is similar to those enacted for other services including emergency services (i.e., 911) and information services (i.e., 411).

Kansas's current 511 system provides information pertaining to:

- Road closures and restrictions
- Road conditions
- Construction and maintenance activity
- Camera images
- Messages posted to DMS
- Travel weather information

511 information is available via the following methods:

- An interactive website (511.ksdot.org),
- Any phone by calling 5-1-1 (locally) or 1-800-511-5368 (locally and nationally)
- Mobile device internet browser (511mm.ksdot.org)

The availability of information varies depending on the method used to access 511. For instance the Kansas 511 mobile site reports information for closed roads and driving conditions but does not provide camera images or messages posted to DMS.

Social Media

Traffic incident related information is also shared with the public and media through social media. The KDOT District 1 Public Affairs Manager actively uses Facebook and Twitter to provide traffic incident related information in near real-time. This information includes initial notification of an incident, updates as warranted and clearance notification. To allow this channel of communications to the public and media to operate effectively, KDOT must be notified of traffic incidents.

3.3.4 Dynamic Message Signs

Dynamic message signs (DMS) are electronic signs that display real-time travel information and alerts to motorists. The Kansas DOT uses both permanent and portable DMS units. Permanent DMS are larger signs that are located in advance of major decision points and are installed over or alongside the highway. Typically these signs are used to manage traffic by providing one of the following types of messages:

- Advance warning – Messages that give motorists advance warning to the downstream presence of slow or stopped traffic and queues. These messages are effective in reducing secondary incidents and for diverting traffic to other routes.
- Advisory messages – Messages that give motorists advance notice of a specific problem or condition along their route. These messages allow motorists to alter their driving behavior and may advise them to take voluntary action such as taking an alternate route or mode of travel. Advisory messages also include those where the public's involvement is needed, such as during AMBER alerts.

- Alternate route messages – messages that instruct motorists to take an alternate route and that guide them back to their intended route.

There are 14 permanent DMS in the Topeka metropolitan area that are operational. Figure 26 illustrates the locations of the various signs and if they are owned by KDOT or KTA.

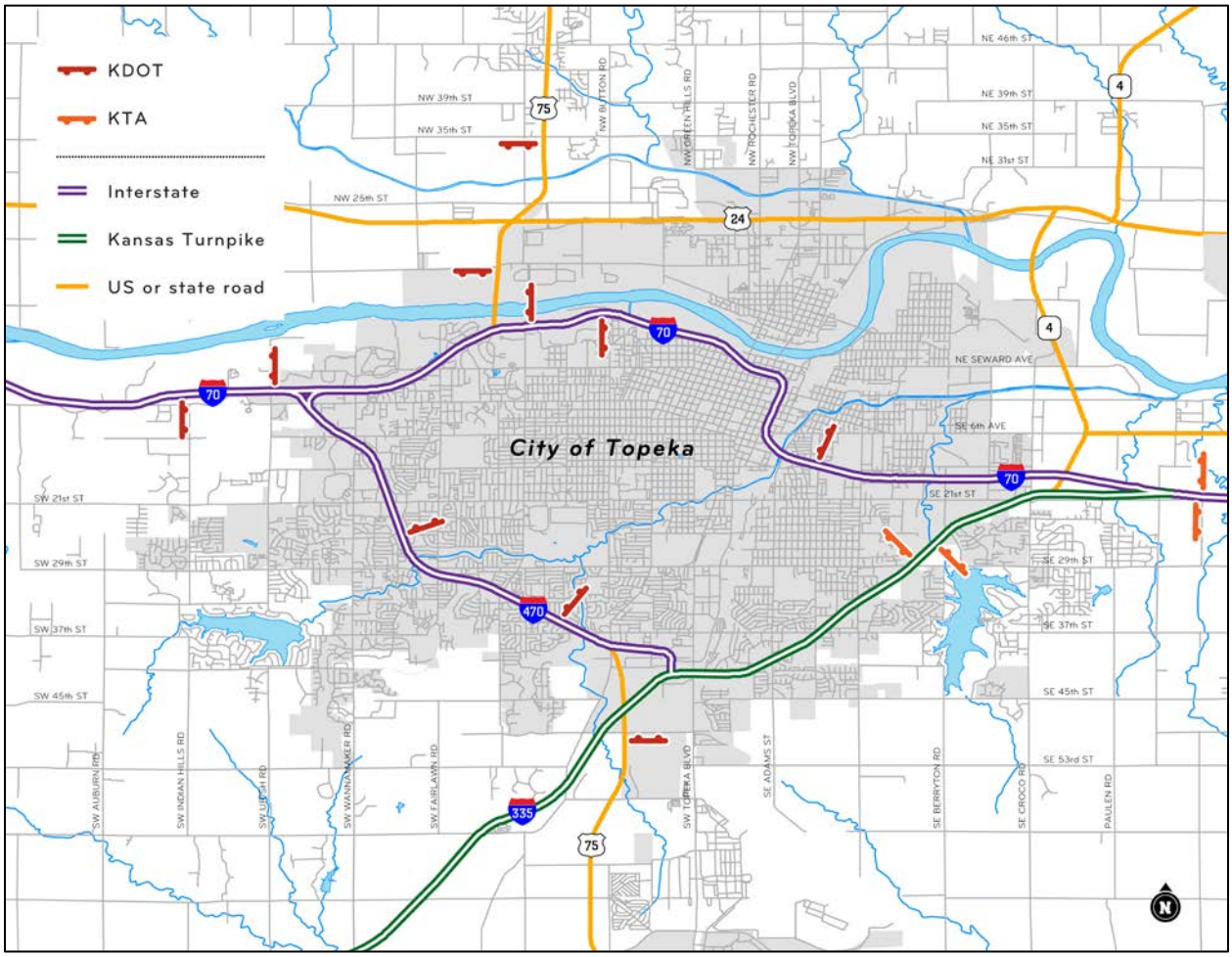


Figure 26: Dynamic Message Sign Locations and Ownership

While the existing DMS are available along most routes, it is recommended additional DMS be deployed on U.S. 24 and K-4. These are regional diversion routes in the Topeka metro area, so having the ability to provide drives traveling along these routes messages on DMS would be beneficial. A plan detailing where the new DMS will be located, and how the design and construction will be funded, must be developed.

The portable units are similar to the permanent units, but are smaller in size and are mounted on a trailer so they can be relocated to other areas when needed. These units are most often used for construction-related messaging, but are also used in response to a major incident or to assist with traffic control during a special event. Use of portable DMS units frees up the permanent units so that they can be used for incident-related messages and AMBER alerts.

Operation of Kansas DOT's portable DMS is the responsibility of the KDOT Topeka Metro Office. Kansas DOT staff will determine messages to be displayed and the general locations where portable DMS units should be located. The current portable DMS are not able to be remotely controlled. To change a message the KDOT staff must visit the DMS. When future portable DMS are procured, it is recommended that they have the capability to have messages change remotely through wireless communications link.

DMS messages may be selected from a preset menu of available message sets within the ATIS or composed by an operator in real-time. DMS message sets allow for consistency from one event to the next by displaying the same message every time a certain event occurs. The repetition of familiar, understandable messages improves driver reaction time and assists in incident response through more clear understanding of actions expected of the driver. It is recommended that usage guidelines and pre-planned messages be developed for the DMS in the Topeka metro area to reduce the time required to post messages and to improve message consistency.

3.3.5 Wi-Fi/Kiosks

Some rest areas in Kansas are equipped with free Wi-Fi. This enables travelers to connect to the Internet for no cost. KDOT plans to install Wi-Fi capabilities in additional rest areas and at state parks. There are also plans to install kiosks in some rest areas and at state parks. The kiosks will provide travelers with information for Kansas and all surrounding states. Information provided will include road conditions, work zone information, weather information, tourism, AMBER Alerts, and emergency information.

3.3.6 Closed-Circuit Television Cameras

Closed-circuit television (CCTV) cameras are used to monitor and verify congestion, incidents, weather and road surface conditions. CCTV cameras greatly enhance incident management operations through quick identification and verification of incidents. This enables quick dispatch of appropriate equipment needed to clear the incident, treat injured persons, and clear or treat the roadway.

In addition to the uses discussed above, CCTV cameras are also used by traffic management operators to monitor the operational status of field devices like DMS and to verify that these devices are working correctly and that posted messages are correct and legible.

There are 20 cameras within the Topeka metropolitan area, with several more located along I-70 and US 75 east, west and north of the metro area. The cameras located within the Topeka area and who owns each camera are illustrated in Figure 27.

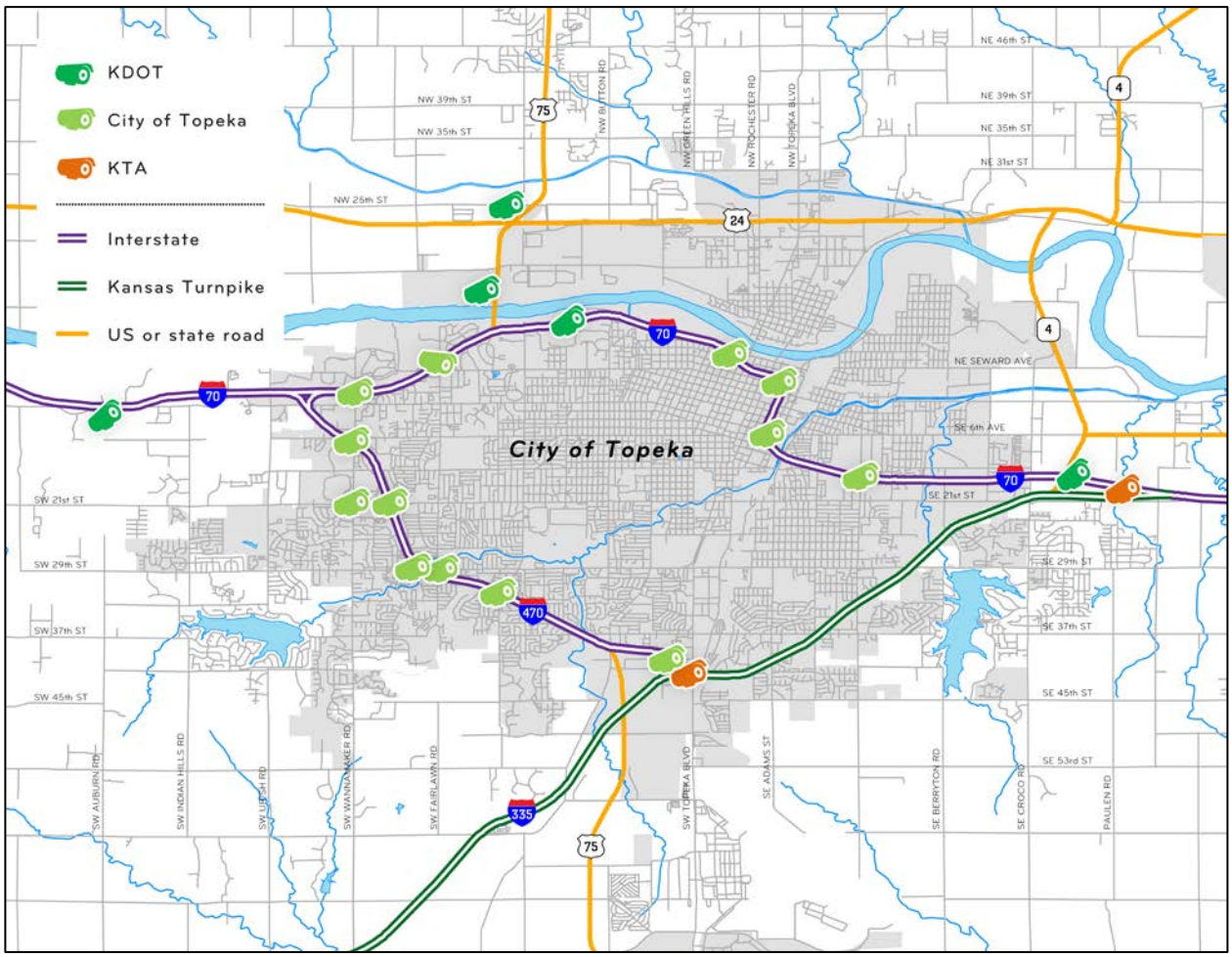


Figure 27: Closed-Circuit Television Camera Locations and Ownership

Cameras in the Topeka area are owned and operated by KDOT, KTA or the City of Topeka. To facilitate information sharing and quick incident response, KDOT and the City of Topeka Public Works recently implemented the ability to share camera views between the two agencies.

Implementing the ability to share video with additional TIM stakeholders is recommended. Sharing of video with dispatchers at the Consolidated Emergency Communications Center was considered very beneficial. Given that video sharing has already been implemented between KDOT and the City of Topeka Public Works, the same system can be implemented to share the video with other stakeholder agencies.

3.3.7 Road Weather Information System (RWIS)

Three (3) road weather information system (RWIS) locations are in operation within the Topeka metropolitan area. The RWIS site collects data on surface temperature, air temperature, relative humidity, wind speed, wind direction and wind gusts. One site is located in Westgate and the sensor is in the bridge deck. A second site is located along the Kansas Turnpike (site 7) and sensors are located in

the bridge deck and the pavement. The last site in the Topeka area is along the Kansas Turnpike (site 8) and also has sensors located in the bridge deck and the pavement.

If KDOT, in the future, expands the network of RWIS sensors to fill in coverage where there are gaps, adverse roadway conditions that can lead to traffic incidents will be easier to identify. This would improve situational awareness during weather related events and could feed into predictive modeling so that warnings can be issued prior to when weather events occur. Also, by archiving weather related information and analyzing it side-by-side with traffic and incident information, operators can gain a greater understanding of how weather impacts traffic and can apply this understanding to proactively respond to these events.

3.4 Emergency Alternate Routes

One tactic for managing traffic diverted around an incident scene is preplanning and implementing emergency alternate routes. Before emergency alternate route implementation a number of factors must be considered including, the incident type, its expected duration, and anticipated traffic impacts on the affected highway and the alternate route. The Topeka Metro TIM Plan Working Group consensus was that as long as the roadway is not completely blocked the formal emergency alternate route would not be implemented. Moving traffic on a reduced number of lanes and even the shoulder is preferred for safety reasons.

In cases where the roadway is completely blocked or must be closed, preplanned emergency alternate routes have been developed for the I-70 corridor from the Kansas Turnpike east junction to Auburn Road, the I-470 corridor from Topeka Boulevard to I-70, the US 75 corridor from 35th Street NW to I-70, and the US 75 corridor from I-470 to 77th Street SW. For each roadway segment along these four corridors an emergency alternate route map is provided that illustrates the agreed upon primary diversion route. Along these routes the location of traffic signals and stop signs are shown, along with proposed temporary detour sign locations.

Copies of the emergency alternate route guides are provided in *Appendix C*.

3.4.1 Development of Preplanned Emergency Alternate Routes

Local emergency alternate routes were developed to accommodate diverted traffic while minimizing out of direction travel. For each roadway segment along I-70, I-470 and US 75 that is included in the emergency alternate route guides, a primary route was identified. Most of the roadways used are arterial roadways, so during high demand traffic periods a significant amount of congestion is expected. The following considerations were taken into account when selecting routes:

- Roadway design and geometry (e.g., number of lanes, lane widths, shoulder widths, limited secondary access, etc.)
- Proximity of alternate to diverted highway
- Truck/trailer weight, height and turning movement restrictions
- Presence of traffic control devices such as signals and stop signs
- Impacts of additional traffic on emergency response routes
- At-grade railroad crossings (it was determined that at-grade crossings would be avoided)
- Existing signing (back to original route)

The initial routes were provided to the Topeka Public Works Department for review and comment. The routes were modified to address the comments received.

If significant congestion occurs at intersection approaches controlled by stop signs, initially a law enforcement officer must manually direct traffic. For longer term diversions stop signs can be covered and temporary signs deployed to only require the cross street to stop. Similarly, at signalized intersections law enforcement may initially be required to manually direct traffic, but for longer term events signal timings can be adjusted to accommodate the added demand resulting from the diverted traffic.

3.4.2 Emergency Alternate Route Application

The primary means of viewing the emergency alternate routes information is through the interactive application. This application provides users with all of the current emergency alternate route plans in an Adobe PDF file format. The application has a map interface which is designed to allow a user to access a specific emergency alternate route map and associated information very efficiently. The user "clicks" on the regional map in the general area of an incident. The user has the option to select which direction of travel the incident is affecting and can then view a map that will provide the alternate route information for that particular incident location.

3.4.3 Implementation of Emergency Alternate Routes

Deployment of emergency alternate routes can be resource intensive. Therefore, it is imperative for responders to coordinate with the each other as early as possible. Responders should recognize and account for a number of potential challenges, issues and resource needs in the deployment of an emergency alternate route. These include:

- Information dissemination to diverted motorists (e.g. static and dynamic signing) and positive reinforcement of information leading motorists back to the primary highway
- Need for personnel to monitor alternate route operations and for traffic control at certain intersections
- Need for additional temporary traffic control equipment on alternate routes
- Real-time communications with local jurisdictions, the Kansas DOT Topeka Metro Office and other responders
- Contingencies for incidents that occur on the alternate route itself

It is also important the responders communicate as incidents are cleared and the roadway is reopened, so that response actions can be discontinued and deployed equipment can be collected.

3.4.4 Regional Emergency Alternate Routes

Within the Topeka metro area the following roadways act as regional diversion routes that provide a high capacity alternate route for when there is an incident on I-70, I-470 or the Kansas Turnpike:

- I-70 from East Topeka toll plaza to I-470
- I-470
- Kansas Turnpike from East Topeka toll plaza to West Topeka toll plaza
- U.S. 75 from U.S. 24 to I-70
- U.S. 24 from K-4 to U.S. 75
- K-4 from I-70 to U.S. 24

Upstream of junctions between these roadways are dynamic message signs that can be used to alert drivers of roadway incidents or closures so that a regional diversion route can be taken. All these roadways are multilane and all except U.S. 24 are fully access controlled.

SECTION 4
Communication and Coordination

4.1 Communication and Coordination Issues and Needs

Through multiple stakeholder meetings and discussions, TIM responders in the Topeka metropolitan area identified the following needs/issues/challenges related to communication and coordination:

- Improve inter/intra-agency communication, notification and information sharing among all agencies, including the DOT and towing companies
- Enhance responder understanding of available TIM resources to enable more efficient resource sharing
- Improve identification of incident location
- Identify opportunities to provide earlier notification to enable quicker tow mobilization
- Enhance communication procedures

To address these needs/issues/challenges, the following potential strategies were identified and discussed:

- Develop Communications/Coordination Protocol Guidelines
- Develop Detailed Contact and Resource List
- Implement Expanded Video Sharing System
- Improve Dispatch Notification Process
- Identify Funding and Plan for Deployment of 2/10-Mile Reference Markers

4.2 Communication and Coordination Priority Strategies

4.2.1 Communication Procedures

In locations where agencies are operating on different radio systems (i.e., 800 MHz and VHF) it is important that clear communication procedures be developed, distributed and trained to. In areas like the Topeka Metro area where all agencies are on the same radio system, clear communications procedures must also be developed, distributed and trained. These procedures are needed to facilitate incident response and support information sharing.

4.2.2 TIM Callout and Resource Lists

TIM callout lists, and/or communication plans, provide key agency contacts on a city/county/regional basis. Plans can include general roles and responsibilities for each agency, communication flow diagrams, contact information (including names, positions, phone/cell/pager numbers, etc.), and/or media contact guidelines. Similarly, TIM resource lists specify who (personnel) and what (equipment) are available to assist with TIM when an emergency occurs on the system. Resource lists were developed by Topeka Emergency Management for major events. It is recommended that a TIM-specific resource list be developed and available to all emergency responders.

4.2.3 CCTV Video Sharing

In order to facilitate verification and response activities, some transportation agencies have started providing other responding agencies access to their CCTV video. Video sharing provides responding agencies the ability to verify incident details so they can confirm they are dispatching the proper response. Video sharing can be accomplished via the internet or, if available, using direct connections (wire or wireless) between agencies. The system implemented for sharing of video between KDOT and Topeka Public Works should be expanded to provide access to camera video feeds to dispatch and other public agencies. A plan must be developed to determine what must be done to allow expanded video sharing and funding must be identified to cover the cost to implement.

4.2.4 Improve Dispatch Notification Process

One main challenge in incident response is having dispatch personnel notify KDOT when there is a traffic incident. KDOT has worked with dispatch to get contact information added to the dispatcher's reference materials, but KDOT is not always contacted. KDOT wants to be contacted for all incidents impacting their roadway system. To address this problem it is recommended that KDOT be added to the system that sends out information on incidents by email and text. This system is already used to send out incident information to other entities. The primary challenge is that not all KDOT employees that may need the information have smartphones that accept the email or text.

4.2.5 Enhanced Reference Markers

Enhanced reference markers, also referred to as enhanced reference location signs, provide motorists and responders an additional tool for accurately identifying their location on the highway. Enhanced reference markers are signs posted along the highway that provide the name, direction and mile marker of the highway. Enhanced reference markers are typically placed every one-tenth or two-tenths of a mile along the median of the highway. An example of an enhanced reference marker used in the Kansas City area is provided in Figure 28. A reference marker scheme can also be used within larger interchange complexes.

Figure 28: Enhanced Reference Marker Example – I-35 SB at Mile Marker 235.2

Stakeholders felt that reference markers would be a benefit, but they were not a high priority. As the TIM program continues, the need for reference markers should be revisited. A plan will need to be developed to fund and deploy the reference markers. Funding to replace reference markers that are knocked down is a consideration as well. It was also concluded that none of the interchanges in the Topeka metro area were large or complex enough to warrant reference markers.

SECTION 5
TIM Program

5.1 TIM Program Issues and Needs

Through multiple stakeholder meetings and discussions, TIM responders in the Topeka metropolitan area identified the following needs/issues/challenges related to sustaining an ongoing TIM program:

- Develop a sustainable TIM program and develop a TIM plan to guide the program
- Promote and support on-going, multidiscipline TIM training and exercises
- Understand the relationship between TIM response and a TIM program
- Continue TIM meetings to address Topeka metropolitan area TIM issues/needs and facilitate multiagency coordination and communication

To address these needs, the following strategies are recommended:

- Hold Regular TIM Stakeholder Meetings
- Conduct Regular After-Action Reviews
- Accept TIM Program Plan and Develop Draft Inter-Agency Agreements
- Continue Responder Training
- Hold Traffic Incident Management Exercises
- Implement Public Outreach Campaign
- Conduct Outreach/Training for Minor Stakeholders
- Conduct Upper Management Outreach Plan

5.2 TIM Program

This document is the culmination of a process that served to assess current needs and develop a plan to improve current TIM practices in the Topeka metropolitan area. Since the beginning of this process, strong emphasis was placed on the importance of continuing the dialogue initiated through this project. The area's TIM program will serve as the mechanism or venue for this critical activity. To clarify, the goal of a TIM program is not to create a response, but rather to create a more effective, efficient response for all responding agencies. This distinction is very important. Incident response in and of itself does not entail the same degree of coordination, planning, and conscious effort required for TIM to be effective.

5.2.1 Organization

It is recommended that Kansas DOT continue to serve in a leadership role for coordinating TIM program activities. However, for the ongoing program to be successful and effective, all area agencies with TIM responsibility, including law enforcement, fire, departments of public works/transportation, and towing and recovery are expected to participate. In addition to their participation, their direct involvement in the program is vital to acquiring a multidiscipline perspective on TIM issues, needs, lessons learned and enhancements. Program participation also fosters the establishment of close working relationships among responders.

5.2.2 Mission

A mission for the Topeka TIM program has not yet been developed. As one of the near-term next steps, it is recommended that a formal mission be established.

An example mission from the Linn County/Cedar Rapids TIM Program is for all participants to work together as partners to:

- Improve responder safety
- Enhance the quick clearance of traffic incidents
- Promote safe, efficient mobility on the area's roadways
- Support prompt, reliable, interoperable communications

This example can be used as a thought starter but the Topeka metro TIM stakeholders must work together to craft their own agreed upon mission.

5.2.3 Agreement

An agreement for the Topeka TIM program has not yet been formalized. As the program continues, it is recommended that a formal agreement be established and agreed to by all TIM participants.

An example of the Linn County/Cedar Rapids TIM Program agreement states that program participants further agree to:

1. Assess – Regularly share and assess traffic incident management issues and needs within the context of the on-going TIM program and associated after-action reviews.
2. Strategize – Collaboratively plan for and develop solutions and strategies to address identified needs.
3. Measure – Monitor and measure TIM performance as a means of enhancing mobility, accountability, system preservation, safety and service.
4. Sustain – Sustain the ongoing TIM program by fostering multiagency, multidiscipline partnerships and actively participating in program meetings.
5. Promote – Promote widespread use of the information and guidelines contained in the Linn County/Cedar Rapids TIM Program Plan as well as existing/emerging related initiatives.
6. Train – Embrace multidisciplinary training as the foundation for effective traffic incident management.
7. Commit – Commit to a culture of responder safety.

The Working Group felt that some type of formal agreement, such as a memorandum of understanding, would be beneficial. This type of agreement is recommended to focus on the commitment from each agency's leadership to the importance and benefits of an ongoing TIM program.

5.3 TIM Program Activities

Activities associated with a TIM program can be diverse and are often dependent on available resources (both human and monetary). At a minimum, it is recommended that the Topeka TIM program include the following activities.

5.3.1 Meetings

The TIM Working Group Committee should continue to meet on a regular basis to discuss issues and advance near-term recommendations. Most successful programs throughout the U.S. meet on a regular basis. In addition to fostering partner relationships, the meetings will offer the opportunity to coordinate other program activities such as those listed below and others including the travel assistance program, funding opportunities, and continued strategy development. It is recommended that TIM meetings be held on a quarterly basis.

5.3.2 After-Action Reviews

As discussed in Section 1.2.8, one of the most effective ways to enhance quick clearance and improve safety is to regularly conduct after-action reviews (AARs). Effective AARs provide a constructive forum to identify conflicts and inefficiencies, and then take steps to resolve or eliminate them. AARs can also help open lines of communication and foster relationships among responders. It is essential that AARs be multidiscipline and include all agencies and personnel that were involved with the incident, including dispatchers. AARs can be initiated by any agency involved in the response to an incident and should take place as soon as possible. Finally, it is important that follow-up occur on the areas requiring improvement.

5.3.3 Training and Exercises

Multiagency, multidiscipline TIM training and exercises serve to establish the foundation for ensuring the capability of responders to achieve the National Unified Goal (NUG) for Traffic Incident Management: responder safety; safe, quick clearance; and prompt, reliable, interoperable communications. Routine training and exercises as part of an ongoing TIM program also enables responders to acquire a common set of core competencies that promote a shared understanding of the requirements for achieving safety of responders and motorists, quick response, and effective communications at traffic incident scenes.

FHWA recently established a TIM training framework that targets responders, managers, and decision makers. While stakeholders in the Topeka metro area have already invested their staff time and other resources in TIM training, these efforts must continue as new responders join various agencies. To verify that on-going TIM trainings occur and training/exercise offerings are identified, it is important to discuss training and exercise opportunities at each TIM meeting. It is recommended that champions be identified to help bring each identified training or exercise opportunity to fruition.

5.3.4 Performance Measurement

The program plan includes multiple strategies to enhance the operational characteristics and effectiveness of TIM in the Topeka metropolitan area. As the area progresses with an ongoing, sustained program, the effectiveness of TIM strategies must be assessed and reported. In addition, recent Moving Ahead for Progress in the 21st Century (MAP-21) legislation has put additional emphasis on performance measurement. TIM performance management and reporting can help partner agencies make difficult decisions about longer-term policy priorities (i.e., “doing the right thing”), as well as

where and how to apply day-to-day staff and capital resources (i.e.,"doing the right things well"). The success of the program and sustainable funding will be contingent on maintaining accountability for TIM program performance to policy makers and the traveling public.

To quantify the performance and benefits of incident management in the Topeka area, the TIM program should start with the following three nationally adopted performance measures and phase in reporting on more measures such as number of incidents, response time, and MAP assists as the program moves forward.

1. Roadway Clearance Time – The time between first recordable awareness of an incident by a responsible agency and first confirmation that all lanes are available for traffic flow.
2. Incident Clearance Time – The time between first recordable awareness of an incident by a responsible agency and time at which the last responder has left the scene.
3. Number of Secondary Crashes – The number of unplanned crashes beginning with the time of detection of the primary incident where a collision occurs either a) within the incident scene or b) within the queue, including the opposite direction, resulting from the original incident.

Assessing TIM performance is dependent on the ability to collect high quality data that supports identified measures. The systems associated with the Kansas DOT's Virtual TMC's TOC and law enforcement CAD are likely to be the source for much of the incident data required to measure TIM performance.

5.3.5 Outreach and Awareness

Building on TIM performance measurement is the activity of communicating benefits of TIM and program elements. FHWA has developed a number of templates for TIM outreach strategies such as brochures, posters, presentations, driver education program inserts, press releases and talking points. As the Topeka TIM program progresses forward and begins to gather performance related information, consideration should be made to implementing communications strategies such as these to increase awareness and promote benefits.

5.3.6 FHWA TIM Self-Assessment

The purpose of the FHWA TIM Self-Assessment (TIMSA) is to provide a formal process for state and local transportation, public safety and private sector partners to collaboratively assess their traffic incident management programs and identify opportunities for improvement on an annual basis. The assessments enable state and local program managers and practitioners to evaluate their TIM programs and identify strengths and weaknesses in their programs in order to prioritize program activities and initiatives. Each year the assessment is compared against the national baseline and previous year's assessments.

The assessment consists of questions covering the three main TIM program areas. These are:

- Strategic – Questions on formal policies and understandings among agencies and TIM partners including performance measure and program evaluation.
- Tactical – Questions covering on-scene response and clearance practices, traffic control, and responder and motorist safety.
- Support – Questions on interagency communications, data sharing, ITS for TIM and traveler information.

APPENDICES

Appendix A

Steering Committee and Working Group Committee Meeting Notes

MEETING DOCUMENTATION

Topeka Metro Traffic Incident Management Plan
Steering Committee Meeting No. 1

KDOT Project No. 089 KA-3592-01
HNTB Job No. 50983-PL-002

Meeting Date: September 4, 2014

Location: Topeka Fire Department Training Room

Purpose: Brief the project Steering Committee on the project, provide background on traffic incident management and obtain input on issues and challenges for traffic incident management in the Topeka Metro area.

Attending: See attached sign-in sheet.

The meeting followed the attached agenda. The following items were discussed:

1. To introduce the project the objectives of the project were stated to be:
    a. Develop a sustainable Traffic Incident Management (TIM) program
    b. Develop a TIM Plan to guide the ongoing TIM Program
    c. Collaboratively develop a TIM Program Plan that reflects multidiscipline perspectives
    d. Enhance communications among TIM stakeholders
2. Attendees were asked to introduce themselves and identify a traffic incident management issue or challenge in the Topeka Metro area. The following issues and challenges were provided:
    a. A formal emergency alternate route plan is needed for when I-70 and I-470 are closed by an incident.
    b. Keep discussion/dialogue among responders going and sustainable.
    c. Secondary incidents are a concern from a public and responder safety perspective.
    d. When I-70 west of Topeka is closed the diversion of traffic across the Carlson Road county bridge over the Kansas River can be a problem because the bridge is load restricted.
    e. The Polk-Quincy I-70 viaduct is a high incident location and also a difficult section of roadway on which to deal with incidents.
    f. Communications and coordination between all agencies is a challenge.
    g. It would be beneficial to have pre-defined DMS message plans which are dependent on incident location.
    h. Roles and responsibilities need to be better defined to document what are normal working hours for agencies and which agencies work 24/7.
    i. Improved internal communications between agencies will result in better external communications to the public.
    j. It needs to be recognized that social media is a method of communication. Information from the public can be obtained and information can be distributed to the public.

k. Keeping the public and responders safe must be the primary objective.

l. Dissemination of information on ITS devices that are available will allow their use to be leveraged.

m. Topeka recently developed an ITS plan.

n. The motorist assist provided by the Kansas Highway Patrol is an available asset.

o. The coroner at times has trouble accessing the scene. Roles need to be understood (e.g., coroner cannot do work until police complete their investigation).

p. Generally, diversion of traffic through downtown is a challenge.

q. Traffic incidents can impact the city when spills affect a streamway that are the responsibility of the city.

3. The need for enhanced traffic incident management in the Topeka Metro area was highlighted with information on the impact of traffic incidents. See the attached slides for specifics.

4. An overview of traffic incident management and a traffic incident management program was presented. See attached slides for specifics.

5. Previous traffic incident management related efforts in the Topeka Metro area were highlighted. These efforts included traffic incident management training, existing and planned ITS devices, and efforts to share CCTV camera video between the city of Topeka and KDOT. The attached slides contain a map highlighting some of the ITS devices available for use in the area. It was noted that Kansas Turnpike Authority dynamic message signs (DMSs) were not shown on the map.

6. The roles and responsibilities of the Steering Committee and the Working Group Committee were presented as follows:

    a. Steering Committee

        i. Commit to TIM as an agency/discipline

        ii. Provide manager/decision-maker/policy perspectives

        iii. Direct and support the development of a Topeka Metro TIM Program Plan

            1. Input to/approval of program plan

            2. Provide Working Group Committee members

    b. Working Group Committee

        i. Provide responder-level perspectives and expertise

        ii. Discuss Topeka Metro specific TIM challenges, issues, and needs

        iii. Review and comment on project deliverables including Program Plan components

        iv. Participation in ongoing Working Group Committee meetings

7. The general process for identifying issues and needs that will be used with the Working Group Committee was discussed. The primary focus areas are on-scene, traffic management and communications/coordination.

8. The Real-Time Rule 1201 was discussed as an unfunded federal mandate that increases the need for KDOT to be informed of traffic incidents. If a traffic incident closes a lane or the roadway on an interstate route, they must have the information available for download within 20 minutes of the traffic incident being verified.

9. The project's schedule was reviewed. The first Steering Committee meeting was one of two Steering Committee meetings. The second will be held in early February 2015 to review and discuss the draft TIM

Program Plan. The Working Group Committee is meeting later in the day and will also meet in October and December. They will also attend the joint meeting in early February 2015. A draft TIM Program Plan will be provided for review in mid-January and the final report will be submitted in late February. The presentation sides that are attached include a graphical representation of this schedule.

10. How the Steering Committee will influence the plan development process was questioned given that only two meetings are being held. The Working Group meeting notes will be shared with the Steering Committee, so they can be informed on what is being discussed. If a Steering Committee member would like to provide input at a Working Group meeting they are welcome to attend the meeting or they can ask a representative from their agency on the Working Group to present their thoughts to the group. The Program Plan will be a draft, so input provide at the joint meeting in February will be addressed before the final plan is completed.

Action Items:

1. Provide all Steering Committee members meeting notes.
2. Provide all Steering Committee members meeting notes from the Working Group Steering Committee.

The foregoing is our understanding of the issues discussed and conclusions reached. Please direct any comments or clarifications to Chuck Miller at cmiller@hntb.com.

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Issue Date: 09/18/2014

Topeka Traffic Incident Management Plan
Steering Committee Meeting
September 4, 2014

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Kansas Department of Transportation
Topeka Metro Traffic Incident Management Program Plan

Steering Committee Meeting

Thursday, September 4, 2014
10:00 a.m. to 11:30 a.m.
Topeka Fire Department Training Room
324 SE Jefferson St.

AGENDA

10:00am	**1. Welcome, Self-Introductions, TIM Challenges**
10:15am	**2. Project Background, Overview and Related Initiatives**
10:45am	**3. Project Committees**
10:55am	**4. Issues/Needs Identification**
11:05am	**5. Project Plan and Schedule**
11:15am	**6. Final Comments & Questions**
11:30am	**7. Adjourn**

MEETING DOCUMENTATION

Topeka Metro Traffic Incident Management Plan
Working Group Committee Meeting No. 1

KDOT Project No. 089 KA-3592-01
HNTB Job No. 50983-PL-002

Meeting Date: September 4, 2014

Location: Topeka Fire Department Training Room

Purpose: Introduce the Working Group Committee to the project, provide background on traffic incident management and obtain input on issues and challenges for traffic incident management in the Topeka Metro area.

Attending: See attached sign-in sheet.

The meeting followed the attached agenda. The following items were discussed:

1. To introduce the project the objectives of the project were stated to be:
    a. Develop a sustainable Traffic Incident Management (TIM) program
    b. Develop a TIM Plan to guide the ongoing TIM Program
    c. Collaboratively develop a TIM Program Plan that reflects multidiscipline perspectives
    d. Enhance communications among TIM stakeholders
2. Attendees were asked to introduce themselves and identify a traffic incident management issue or challenge in the Topeka Metro area. This process led to multiple group discussions on various topics. The following issues and challenges were provided and discussed by the group:
    a. Pre-planned emergency alternate routes are needed.
    b. When the Incident Command System (ICS) should be used needs to be discussed. There may be a benefit to using the ICS more often.
    c. TIM related exercises need to be considered. The City of Topeka Emergency Management agency could potentially facilitate.
    d. Communications and coordination among all responders is a challenge, but it is critical to successful TIM.
    e. Locating incidents can be a challenge. Reference markers were mentioned as a possible strategy.
    f. City camera video feeds need to be provided to Shawnee County dispatch, if possible.
    g. There are a lot of radio talk groups. Each agency has its own talk groups. Some additional standardization may be beneficial for traffic incident management.
    h. Dispatch can be a bottleneck. They have limited personnel as demonstrated by required mandatory overtime.
    i. When the legislature is in session emergency alternate routes through downtown are not workable.
    j. Pre-positioning TIM personnel and equipment during peak periods was suggested. It was noted that staffing is not available. Equipment might be more workable.

k. Need for a Topeka Traffic Management Center was discussed.

l. It was suggested that an operator from the Kansas City Scout Traffic Operations Center could attend a meeting to discuss what they do.

m. The right balance between blocking lanes to protect the scene versus opening the roadway needs to be discussed.

n. Secondary crashes are an important consideration that has potential impacts on public and responder safety.

o. It is important to keep roadways open when it can safely be accomplished.

p. Need to effectively use DMS messages to inform motorists.

q. Incident information is not always communicated to KDOT, so they can provide the information to the public through DMSs and the 511 system.

r. Using DMSs for safety messages versus leaving them blank when there are no incidents was discussed.

s. It was noted that the KC Scout traffic management center in Kansas City serves as the 24/7 contact for requesting messages on the DMSs.

t. It was noted that the Wichita traffic management center is the backup for the KC Scout center, so there is redundancy in the system.

u. Communication of incident information in a timely and accurate manner is a challenge.

v. Distracted drivers impacting responder safety is a concern.

w. When law enforcement first reaches an incident scene and provides the initial information on the incident, the information is not as comprehensive as it could be at times.

x. A relatively recent incident required the Department of Agriculture to be a responder. The Agricultural Department personnel did not understand the need for safe quick clearance.

y. Private companies wanting to off load cargo can be a problem. One example of this situation had a company hiring a number of people to help offload cargo at an incident site. This resulted in a safety concern.

z. Access to city and KDOT camera video is needed for others.

aa. There needs to be a commitment to training by all agencies.

bb. At times the training that is provided does not translate into actions in the field.

cc. Color vehicle classification cards are needed to allow for better communications on what towing equipment is needed.

dd. Dispatch staff needs to be involved in TIM training at some level. Steve Cyra noted that FHWA is about to release a condensed TIM training module targeted at dispatchers. The Topeka Police Department request that a copy of this training be provided to them.

ee. A request for traffic control for an incident that occurred the morning of the meeting did not get to KDOT in a timely manner.

ff. Managing traffic as a traffic incident evolves can be a challenge. When do roads/ramps need to be closed and when can they be reopened.

gg. Coordination between the Topeka Police Department and Kansas Highway Patrol can be improved.

hh. Getting the TIM process and relevant strategies going as soon as an incident is identified is needed.

ii. Responders arriving and parking on the other side of a freeway can be a problem.

jj. Upper level management buy-in for traffic incident management strategies can be a challenge. Documenting examples from local TIM success stories could be useful in selling TIM to management.

kk. After action reviews need to be more regularly held.

ll. Towing and recovery responders need to be provided better information, so they can determine the appropriate equipment to deal with an incident.

mm. Continued scene protection during the towing and recovery phase is sometimes a problem. Personnel and equipment providing protection may leave before the recovery process in complete.

nn. Training at times has to be delayed to when in-service training is scheduled.

oo. The safety of the public and responders needs to be a major focus.

3. The need for enhanced traffic incident management in the Topeka Metro area was highlighted with information on the impact of traffic incidents. See the attached slides for specifics.

4. An overview of traffic incident management and a traffic incident management program was presented. See attached slides for specifics.

5. Previous traffic incident management related efforts in the Topeka Metro area were highlighted. These efforts included traffic incident management training, existing and planned ITS devices, and efforts to share CCTV camera video between the city of Topeka and KDOT. The attached slides contain a map highlighting some of the ITS devices available for use in the area. It was noted that Kansas Turnpike Authority dynamic message signs (DMSs) were not shown on the map.

6. The roles and responsibilities of the Steering Committee and the Working Group Committee were presented as follows:

    a. Steering Committee

        i. Commit to TIM as an agency/discipline

        ii. Provide manager/decision-maker/policy perspectives

        iii. Direct and support the development of a Topeka Metro TIM Program Plan

            1. Input to/approval of program plan

            2. Provide Working Group Committee members

    b. Working Group Committee

        i. Provide responder-level perspectives and expertise

        ii. Discuss Topeka Metro specific TIM challenges, issues, and needs

        iii. Review and comment on project deliverables including Program Plan components

        iv. Participation in ongoing Working Group Committee meetings

7. A general process for categorizing issues and needs that will be used was discussed. The primary categories are on-scene, traffic management and communications/coordination.

8. The Real-Time Rule 1201 was discussed as an unfunded federal mandate that increases the need for KDOT to be informed of traffic incidents. If a traffic incident closes a lane or the roadway on an interstate route, they must have the information available for download within 20 minutes of the traffic incident being verified.

9. Because the group discussion was so fruitful at the beginning of the meeting, the incident scenario exercises and discussion of unique situations/challenges were not needed. The exercises are a tool for obtaining more input, but with this Working Group they were not needed. The discussion also covered most of the item considered potentially unique.
10. A significant component of the Traffic Incident Management Program Plan will be documenting pre-planned emergency alternate routes for use when I-70, I-470, U.S. 75 or the Kansas Turnpike is closed as the result of an incident. The proposed routes will be developed based on routes already developed by the Topeka Police department and routes developed for use during the Polk-Quincy viaduct rehabilitation project. The routes will be reviewed and discussed with the Working Group Committee.
11. The project's schedule was reviewed. The Steering Committee meeting held earlier in the day was one of two Steering Committee meetings. The second Steering Committee will be held as a joint meeting with the Working Group Committee in early February 2015 to review and discuss the draft TIM Program Plan. Two additional standalone Working Group Committee meetings will be held in October and December. A draft TIM Program Plan will be provided for review in mid-January and the final report will be submitted in late February. The presentation sides that are attached include a graphical representation of this schedule.
12. The best day of the week and time of day for the next Working Group Committee meeting was discussed. The group agreed that the next meeting shall be held **October 23rd from 9:00 a.m. to 12:00 noon**. The meeting will again be held at the Topeka Fire Department training room.

Action Items:

1. Provide all Working Group Committee members meeting notes.
2. Send out meeting invitations to Working Group Committee for October 23rd meeting.
3. Provide color vehicle classification cards to Working Group Committee meeting attendees.
4. Provide a copy of the TIM training that is targeted at dispatch personnel to the Topeka Police Department.

The foregoing is our understanding of the issues discussed and conclusions reached. Please direct any comments or clarifications to Chuck Miller at cmiller@hntb.com.

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Issue Date: 09/18/2014

Topeka Traffic Incident Management Plan
Working Group Committee Meeting
September 4, 2014

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Topeka Traffic Incident Management Plan
Working Group Committee Meeting
September 4, 2014

Name	Organization	Telephone	E-Mail
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Kansas Department of Transportation
Topeka Metro Traffic Incident Management Program Plan

Working Group Committee Meeting

Thursday, September 4, 2014
1:00 p.m. to 4:00 p.m.
Topeka Fire Department Training Room
324 SE Jefferson St.

AGENDA

1:00pm	**1. Welcome, Self-Introductions, TIM Challenges**
1:20pm	**2. Project Background, Overview and Related Initiatives**
1:50pm	**3. Issues/Needs Identification**
2:10pm	**4. Incident Scenario Exercise**
3:15pm	**5. Discussion of Unique Situations**
3:30pm	**6. Emergency Alternate Routes**
3:40pm	**7. Project Plan and Next Steps**
3:50pm	**8. Final Comments & Questions**
4:00pm	**9. Adjourn**

MEETING DOCUMENTATION

Topeka Metro Traffic Incident Management Plan
Working Group Committee Meeting No. 2

KDOT Project No. 089 KA-3592-01
HNTB Job No. 50983-PL-002

Meeting Date: October 23, 2014

Location: Topeka Fire Department Training Room

Purpose: Discuss potential strategies to address traffic incident management related needs, issues and challenges. Review and discuss draft emergency alternate routes.

Attending: See attached sign-in sheet.

The meeting followed the attached agenda. The following items were discussed:

1. The meeting was started with self-introductions.
2. The agenda was reviewed and it was noted that the focus of the meeting will be a review of proposed strategies and a review of proposed emergency alternate routes.
3. To obtain more insight into needs/issues/challenges related to traffic incident management, a recent traffic incident was discussed with the group. An example process for doing after-action reviews was presented and an example after-action review form was discussed.
4. The crash that was discussed occurred September 19th on the ramp from southbound U.S. 75 to eastbound I-70 (see attached presentation slides for more details). The following items were discussed:
    a. The only person at the meeting with firsthand knowledge from the traffic incident scene was Keith Brown from Brown's Super Service, but others had some information about the incident.
    b. The long duration of the ramp closure resulted from the need to remove the damaged overhead sign truss, the need to remove soil contaminated with diesel fuel and need to remove spilled contents of the trailer.
    c. There may have been some delay based on input from the trucking company's insurance adjuster requesting the ability to assess the site.
    d. The Kansas Department of Agriculture had to assess the food products cargo that had spilled and determined the food would not be fit for consumption.
    e. KDOT was on-scene in a timely manner assessing the damage to the sign structure and making the decision to remove the sign. They used a third party crane company to remove the sign.
    f. It was noted that several trucks have rolled on ramps in the same interchange. Deploying some type of speed warning system was discussed.
5. Discussion of potential strategies started by a review of the attached Traffic Incident Management Needs/Issues/Challenges – Strategy Matrix. The matrix associated potential strategies with needs/issues/challengers that the strategy will address. The needs/issues/challengers, which were provided by the Working Group Committee at the September meeting, are listed in the rows. The potential strategies are listed in the columns. An "X" in the matrix cell indicates that the strategy in the column will potentially

help address the need/issue/challenge. Some strategies address multiple needs/issues/challengers, while others only address one.

6. To discuss and assess each strategy, the strategies were reviewed one by one. The needs/issues/challenges that are addressed by the strategy were first presented and reviewed. Then the strategy was discussed. It was planned that at this meeting a portion of the strategies would be discussed, but the reminder would need to be discussed at the December meeting. Eight of the twenty strategies were discussed. The following strategies were discussed:

    a. **Develop Emergency Alternate Route Plans** - It was noted that this strategy was part of the current project. Emergency alternate route plans will be developed for I-70, I-470, U.S. 75 and the Kansas Turnpike. Developing a numbering scheme was discussed to allow specific route to be easily identified when communicating that they are being implemented. The preplanned routes facilitate better selection of a route during an incident, improve communications and identify routes on which improvements can be made, such as incident diversion traffic signal timing plans. There was discussion of whether or not multiple alternative routes were needed and whether or not they can be implemented in the field. It was also mentioned that along with temporary alternate route signing permanent signing can also be implemented in a similar manner as are used for hurricane evacuation routes. For the Polk-Quincy Viaduct project KDOT has detour route signs available for diversion of traffic on emergency alternate routes. It was agreed by the group that emergency alternate routes needed to be developed for the region.

    b. **Develop Emergency Traffic Control and Scene Management Guidelines** – Development of this type of guidelines for the Topeka metro area or the whole state of Kansas was discussed. An example guidelines document from Wisconsin, which Steve Cyra helped developed, was provided to the group for review and was discussed (http://www.dot.wisconsin.gov/travel/stoc/docs/emer-tc-sm-guidelines.pdf). These guidelines will help create a safe and consistent incident response environment. It was noted that FHWA is considering development of general guidelines that could be used across the country. The group agreed that this type of guidelines for the Topeka metro area or statewide would be useful.

    c. **Develop Communications/Coordination Protocol Guidelines** – Development of these guidelines would improve communications and coordination between agencies through the development of guidelines that are agreed to by all agencies. It would formalize the communications and coordination process. All agencies are on the same radio system, but they use their own channels for their agency. There are channels (event channels) available to all agencies that can be used for direct communications between responders. There is a consolidated dispatch for all the agencies in Shawnee County. The Kansas Highway Patrol has a separate dispatch. The current practice is that when needed the dispatches can request that responders all use one of the event channels. While using one channel can improve communications between agencies, the amount intra-agency radio traffic can congest a channel at times. Currently the responding law enforcement officer will request resources such as traffic control from KDOT or towing service through dispatch. It was agreed that development of more formalized communications/coordination protocols would be beneficial and should be done and completed in the near term.

    d. **Develop Detailed Contact and Resource List** – This proposed list would provide agency contact positions, contact information and associated resources that they can provide. Topeka Emergency Management is implementing an incident management resource tracking system. It tracks what resources are available during a response to an incident. The proposed traffic incident management contact and resource list would be focused on providing an easy reference guide for typical traffic incident management related resources. It was agreed that simple reference list would be beneficial.

e. **Develop DMS Usage Guidelines and Pre-Planned Messages** – Currently the law enforcement dispatch will call the KDOT Area Office to get information posted on DMS signs during regular business hours (8 to 5, Monday through Friday). Other times during the week they must contact the KC Scout traffic management center in Kansas City. KC Scout has operators available 24/7 to post needed messages. If pre-planned messages were developed, information could be posted sooner and in a more efficient manner. The contact information for DMS messages can be provided in the resource list discussed above. It was agreed that development of DMS usage guidelines and pre-planned messages was a good strategy.

f. **Develop Dispatch Notification Guidelines** – Currently dispatch will contact KDOT to request traffic control when on-scene law enforcement requests it. Whether or not a formal checklist that dispatcher would use to proactively ask on-scene responders if resources are needed would be beneficial was discussed. It was felt that a checklist was not needed. The challenges are dispatch workload and possible lack of awareness. It was suggested that dispatch be represented at the next meeting. It was agreed that instead of guidelines or a checklist, a one page reference/reminder sheet and awareness/training for dispatch is what is needed, so this strategy will be refined.

g. **Develop Plan for Pre-Positioned Resources** – It was noted that KDOT has a pre-loaded trailer with emergency traffic control equipment. It is available for immediate response to traffic incidents. After normal business hours, KDOT personnel must drive to the KDOT yard to get the trailer and then respond to the incident location. It was felt that the response time benefit of preposition resources does not outweigh the challenges of pre-position equipment. These challenges include where to store equipment and how to secure the equipment. The Topeka Police Department has had similar discussions concerning portable lights, but they have decided that keeping them at a one location makes the most sense. It was agreed that pre-positioned resources did not make sense for the Topeka metro area, so this strategy should not move forward.

h. **Enact Quick Clearance Legislation** – The "Move Over" law was considered to have some benefit, but many drivers do not comply. Unless a vehicle on a shoulder is considered an eminent danger, the typical practice is to give the owner 48 hours to remove the vehicle. This same policy is followed by KTA. There was opinion that law enforcement could do what was necessary to have obstructions removed from the roadway, but there was still some reluctance to be aggressive based on concerns about liability. Research needs to be done to determine if protections are in place or if additional legal protection would be beneficial.

7. Emergency alternate routes were discussed as being routes that are primarily used when at least one direction of travel on a freeway facility is closed to traffic because of a traffic incident. These are suggested routes that can be adjusted based on specific incident situations. Under the current project emergency alternate routes will be developed for the following facilities:

    a. I-70 from the east Topeka toll plaza to the Auburn Road interchange

    b. I-470

    c. U.S. 75 from 35th Street to I-70

    d. U.S. 75 from I-470 to 77th Street

    e. Kansas Turnpike from East Topeka to South Topeka interchanges.

8. Emergency alternate routes developed by the Topeka Police Department and routes refined for use during the Polk-Quincy Viaduct project were reviewed and refined to develop the proposed emergency alternate routes.

9. The following considerations were used in refining and selecting the routes:

    a. Roadway design and geometry (e.g., number of lanes, lane widths, shoulder widths, limited secondary access, etc.)

b. Proximity of alternate to diverted highway

c. Existing signing (back to primary route)

d. Truck/trailer weight, height and turning movement restrictions

e. Presence of traffic control devices such as signals and stop signs

f. Impacts of additional traffic on emergency response routes

g. At-grade railroad crossings with a high frequency of trains

h. Current pavement conditions

i. Popular pedestrian areas

j. Residential areas or school zones

10. To obtain input on specific emergency alternate routes and to generate discussion on emergency alternate routes, proposed routes for closures along the I-70 corridor were presented. For each interchange to interchange section of freeway routes were presented for closures in both directions. The following comments were provided on specific routes:

    a. For closures of I-70 between the Wannamaker Road and Fairlawn Road interchange in either direction, it was suggested that 6th Avenue would be a better route than 10th Avenue.

    b. For a closure on westbound I-70 between the 1st Avenue on-ramp and the MacVicar Avenue off-ramp the initially proposed route (exiting I-70 at 8th Avenue, using Madison to 6th Avenue, 6th Avenue to MacVicar Avenue and MacVicar Avenue to I-70) was suggested to not be the best option.

    c. The route for a closure of eastbound I-70 between the 8th Street on-ramp and 10th Avenue on-ramp which uses Monroe was a concern because of limits on truck turning.

    d. The route for a closure of westbound I-70 between the 10th Avenue off-ramp and 8th Street off-ramp that took traffic off I-70 at the 10th Avenue off-ramp was considered dangerous because the forced exit point is in a curve limiting sight distance for approaching vehicles. To address this situation, the traffic will instead be diverted at Adams Street.

    e. The route for a westbound I-70 closures between Adams Street and California Avenue needs to be moved from 10th Avenue to 21st Street. The 4-way stop intersection at 10th Avenue and California cannot handle truck movements.

    f. For the same reason the route for a westbound I-70 closure between Carnahan Avenue/Deer Creek Trafficway and California Avenue needs to be moved from 10th Avenue/6th Avenue to 21st Street.

11. The review of I-70 emergency alternate routes was completed from Auburn Road interchange to the Carnahan Avenue/Deer Creek Trafficway interchange. The remaining I-70 segments and segments along other routes will be reviewed and commented on by the City of Topeka Public Works Department.

12. December 17th from 9:00 a.m. to 12:00 noon for the next Working Group Committee meeting was proposed and agreed upon. *Following the meeting it was determined that the meeting will be held in Classroom C at the Topeka Law Enforcement Center (320 S Kansas Ave.).*

Action Items:

1. Provide all Working Group Committee members meeting notes.

2. Get representation from the Shawnee County Emergency Communications Center dispatch to attend the next meeting.

3. Contact KC Scout to discuss any consideration of quick clearance legislation.

4. Coordinate with Kent Pelton from the City of Topeka Public Works Department to obtain input on the draft emergency routes.

The foregoing is our understanding of the issues discussed and conclusions reached. Please direct any comments or clarifications to Chuck Miller at cmiller@hntb.com.

Author: Chuck Miller
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Issue Date: 11/07/2014

Topeka Traffic Incident Management Plan
Working Group Committee Meeting
October 23, 2014

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Topeka Traffic Incident Management Plan
Working Group Committee Meeting
October 23, 2014

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Kansas Department of Transportation
Topeka Metro Traffic Incident Management Program Plan

Working Group Committee Meeting

Thursday, October 23, 2014
9:00 a.m. to 12:00 p.m.
Topeka Fire Department Training Room
324 SE Jefferson St.

AGENDA

9:00am	**1. Welcome, Self-Introductions**
9:05am	**2. Informal Incident After-Action Review/Debrief**
9:25am	**3. Strategies to Address Issues/Needs/Challenges**
10:40am	**4. Break**
10:50am	**5. Emergency Alternate Routes**
11:50am	**6. Final Comments & Questions**
12:00pm	**7. Adjourn**

MEETING DOCUMENTATION

Topeka Metro Traffic Incident Management Plan
Working Group Committee Meeting No. 3

KDOT Project No. 089 KA-3592-01
HNTB Job No. 50983-PL-002

Meeting Date: December 17, 2014

Location: Topeka Police Department Training Room

Purpose: Continue to discuss potential strategies to address traffic incident management related needs, issues and challenges.

Attending: See attached sign-in sheet.

The meeting followed the attached agenda. The following items were discussed:

1. The meeting was started with self-introductions.
2. To start the meeting several recent traffic incidents were reviewed. The following items were discussed:
    a. The first incident discussed was a crash that occurred Tuesday night at U.S. 75 and NW 62nd Street. The intersection has experienced other incidents. Motorists must pay attention when approaching NW 62nd Street and when trying to enter U.S. 75. A flashing warning beacon or interchange may be considered at the location. KDOT was not notified of the incident or asked to help with traffic control.
    b. A recent house fire was mentioned that resulted in streets being blocked to run hoses to fight the fire. This required several streets to be blocked off by fire and police personnel. Topeka Public Works could have been contacted in this situation to assist with blocking streets to more efficiently use other city resources.
    c. The use of emergency alternate routes was discussed. It was noted that it was important provide motorists with guidance on how to get back on the original route.
    d. It was suggested that AMR the local EMS provider needs to be trained consistently with all other responders. On-scene command needs to tactfully explain where AMR should be positioned. The training will reduce the chances of secondary incidents.
    e. It was noted that when emergency alternate routes are implemented other events must be taken into consideration. Examples are the holiday shopping season and sporting events.
    f. Topeka Metro (transit service) needs to be notified of situations that impact their routes or service they provide.
3. The continued discussion of potential strategies resumed with a review of the attached Traffic Incident Management Needs/Issues/Challenges – Strategy Matrix. The matrix associates potential strategies with needs/issues/challenges that the strategy will address. The needs/issues/challenges, which were identified by the Working Group Committee at the September meeting, are listed in the rows. The potential strategies are listed in the columns. An "X" in the matrix cell indicates that the strategy in the column will potentially help address the need/issue/challenge. Some strategies address multiple needs/issues/challenges, while others only address one. The strategies with check marks next to them were discussed at the previous meeting.

4. To continue the discussion and assessment of each strategy, the strategies were reviewed one by one. The needs/issues/challenges that are addressed by the strategy were first presented and reviewed. Then the strategy was discussed. The following strategies were discussed:

    a. **Develop Dispatch Notification Awareness** – At the last meeting the need to increase awareness among dispatchers of the need to contact KDOT was discussed. At this meeting, dispatch representatives were able to attend, so this item was discussed in more detail. The challenge is notifying KDOT when there is a traffic incident. KDOT has worked with dispatch to get contact information added to the dispatcher's reference materials but KDOT is not always contacted. There was discussion on whether the dispatcher needed the on-scene responder to request assistance from KDOT. KDOT wanted to be contacted for other incidents impacting their roadway system, also. An agreed upon solution was to have KDOT added to the system that sends out information on incidents by email and text. This system is already used to send out incident information to other entities. The primary challenge is that not all KDOT employees that may need the information have smartphones that accept the email or text.

    More efficient use of the radio system channels was discussed. The ability to move some details conversations to other channels needs to be encouraged and trained to reduce traffic on primary channels. A communications focused TTX needs to be held at least quarterly.

    With the impending winter weather, there was discussion of requests to dispatch for roadway treatments. Dispatch passes the request along, but KDOT and Topeka Public Works have to consider the requests with all the priorities they are dealing with. KDOT's highest priorities are interchanges because road condition caused incidents can impact multiple routes.

    b. **Accept Program Plan and Develop Draft Inter-Agency Agreements** – It was agreed that the Program Plan would provide a start on acceptance of the TIM program, but a more formal agreement would be beneficial. The more formal agreement would focus on a commitment from agency leadership that a TIM program is important and beneficial. An agreement such as a memorandum of understanding (MOU) was considered a reasonable level of commitment. At this time a more formal agreement mandating what agencies must do is not considered a good idea.

    c. **Develop Incident Command Guidelines** – The group discussed the general acceptance and usage of Incident Command System (ICS) principals when dealing with traffic incidents in the Topeka region. The understanding of National Incident Management System (NIMS) and ICS has been much improved with the National TIM Responder Training that has been conducted in the region. Since the ICS principals, as they apply to traffic incidents, have been accepted and are generally practiced, it was agreed that a specific strategy to enhance the understanding and use of ICS was not needed. Continuing TIM responder training will provide the needed knowledge.

    d. **Continue Responder Training** – The local agency-led TIM responder training that has been widely held in the Topeka region has been very successful and is considered by all to be very beneficial. It was agreed that training must continue to educate new hires at agencies and needs to engage all responders.

    e. **Hold Traffic Incident Management Exercise** – The benefit of holding exercises to enhance training efforts was discussed. It was agreed that exercises would be beneficial.

    f. **Implement Public Outreach Campaign** – This strategy was proposed to address the problem of distracted drivers approaching and passing through traffic incident scenes. Drivers need to understand the importance of being vigilant when approaching an incident scene. There was no disagreement that this type of outreach would be beneficial. This effort could be part of a larger statewide effort led by the Kansas Traffic Safety Resource Office. The Kansas Highway Safety Plan currently has a strategy to reduce distracted driving.

g. **Conduct Outreach/ Training for Minor Stakeholders** – The objective of this strategy was to get infrequent mutual responders to better understand TIM protocols and awareness of the need for quick clearance. The two agencies that this strategy most applies to are the Kansas Department of Agriculture and the Kansas Department of Health and Environment.

h. **Conduct Upper Management Outreach Plan** – The group agreed that outreach to upper management was important to ensure that each agency understand the benefits resulting from the TIM program and is willing to dedicate resources to it.

i. **Deploy 2/10-Mile Reference Markers** – The consensus among the group was that there would be a benefit from deploying the 2/10-mile reference makers, but it was not a high priority at this point. Some type of reference scheme for interchanges was also discussed, but the interchanges in the Topeka area were probably not complicated enough to warrant special reference markings. At this point in time the freeways in the Topeka area were not considered to warrant 2/10-mile reference markers as have been deployed in the Kanas City and Wichita metro areas. As the program continues, the need for 2/10-mile markers can be revisited.

j. **Develop Dynamic Message Sign Deployment Plan** – At the present time, KDOT has limited funding for deployment of additional DMSs. When funding is available, there is a desire for additional DMSs on U.S. 24 and K-4.

k. **Develop Traffic Management Center for Topeka** – The group felt that a new standalone traffic management center (TOC) would not be warranted in the Topeka area at this time. Enhancing the sharing of information would be the first step toward a virtual TOC. The virtual TOC would provide access to key responders and would only be staffed during major incidents. Funding for development of the systems to support a virtual TOC will be the key constraint. Karen Gilbertson mentioned that there is a new round of Tiger Grant funding available. Information on Tiger Grants is available at www.dot.gov/tiger.

l. **Deploy Image Sharing Technology** – Image sharing technology is available in all smartphones. Photos from smartphones have been used to provide towing companies more information on the situation, so they can tailor their response appropriately. There was consensus in the group that sharing photos can improve the response to incidents. There was limited concern that the limited sharing of photos for the purpose of improving incident response could create legal or ethical problems. Availability of smartphones for all responders limits the ability to use this tool.

m. **Expanded Video Sharing System** – The City of Topeka and KDOT just implemented a system that allows each agency to see the cameras from the other agency. The same system can be used to share video with other responders. To allow for additional sharing of video, formal agreements will be needed covering who has access and control of the cameras.

5. It was reported that Kent Pelton reviewed and provided comments on the draft emergency alternate routes. The emergency alternate routes are be revised to address his comments.

6. Several candidate emergency alternate routes that would cross at-grade railroad crossings were discussed. The group felt that the at-grade railroad crossing should be avoided even if the emergency alternate route that avoided the crossings was much longer. The following locations were discussed and the associated revised emergency alternate routes that were agreed upon are:

    a. For a closure of I-70 westbound from the Adams St. on-ramp to the 8th St. off-ramp the initial emergency alternate route that used 10th Ave. will be changed to use 6th Ave. to cross the railroad tracks.

    b. For a closure of I-70 eastbound from the 10th St. on-ramp to Adams St. off-ramp the initial emergency alternate route that used 10th Ave. will be changed to use 6th Ave. to cross the railroad tracks.

c. For a closure of U.S. 75 northbound from the 77th St. on-ramp to the 57th St. off-ramp the emergency alternate route will be modified to take traffic off U.S. 75 at the Topeka Blvd. interchange just north of 93rd St. and to take Topeka Blvd. to the I-470 interchange.

d. For a closure of U.S. 75 southbound from the 57th St. on-ramp to the 77th St. off-ramp the emergency alternate route will be modified to take traffic west on I-470 to Topeka Blvd. At Topeka Blvd. traffic will be directed south to the U.S. 75 interchange just north of 93rd St.

e. For a closure of U.S. 75 northbound from the 57th St. on-ramp to the 42nd St. off-ramp the emergency alternate route will be modified to take traffic off U.S. 75 at the Topeka Blvd. interchange just north of 93rd St. and to take Topeka Blvd. to the I-470 interchange.

f. For a closure of U.S. 75 southbound from the 42nd St. on-ramp to the 57th St. off-ramp the revised emergency alternate route will be modified to take traffic west on I-470 to Topeka Blvd. At Topeka Blvd. traffic will be directed south to the U.S. 75 interchange just north of 93rd St.

g. For a closure of U.S. 75 northbound between 17th St./Silverlake Rd. and U.S. 24 the revised emergency alternate route will take traffic east on I-70 to the 1st Ave. off-ramp to access northbound Topeka Blvd. Topeka Blvd. will be used to access westbound U.S. 24 to get back to U.S. 75.

h. For a closure of U.S. 75 southbound between U.S. 24 and 17th St./Silverlake Rd. the revised emergency alternate route will take traffic east on U.S. 24 to Topeka Blvd. Southbound Topeka Blvd. will be used to 1st Ave. where westbound I-70 can be accessed to return to U.S. 75.

7. The next steps for the program plan development will be a draft report provided to the Steering Committee and Working Group in late January. Than a combined Steering Committee and Working Group meeting will be held in mid-February to present that plan and take comments. The final plan will be issued in early March.

Action Items:

1. Provide all Working Group Committee members meeting notes.
2. Schedule joint Steering Committee and Working Group meeting.
3. Produce draft report and submit to Steering Committee and Working Group for review.

The foregoing is our understanding of the issues discussed and conclusions reached. Please direct any comments or clarifications to Chuck Miller at cmiller@hntb.com.

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Topeka Traffic Incident Management Plan
Working Group Committee Meeting
December 17, 2014

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Topeka Traffic Incident Management Plan
Working Group Committee Meeting
December 17, 2014

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Kansas Department of Transportation
Topeka Metro Traffic Incident Management Program Plan

Working Group Committee Meeting

Wednesday, December 17, 2014
9:00 a.m. to 12:00 p.m.
Topeka Law Enforcement Center - Classroom C
320 S Kansas Ave.

AGENDA

9:00am	**1. Welcome, Self-Introductions**
9:05am	**2. Discussion of Recent Incidents**
9:20am	**3. Strategies to Address Issues/Needs/Challenges**
10:30am	**4. Break**
10:40am	**5. Strategies to Address Issues/Needs/Challenges**
11:40am	**6. Emergency Alternate Routes Update**
11:50am	**7. Next Steps**
11:55am	**8. Final Comments & Questions**
12:00pm	**9. Adjourn**

MEETING DOCUMENTATION

Topeka Metro Traffic Incident Management Plan
Steering Committee and Working Group Committee Meeting

KDOT Project No. 089 KA-3592-01
HNTB Job No. 50983-PL-002

Meeting Date: March 25, 2015

Location: City of Topeka Holliday Building

Purpose: Present the draft Topeka Metropolitan Area Traffic Incident Management Program Plan, discuss recommendations and obtain stakeholder comments.

Attending: See attached sign-in sheet.

The meeting followed the attached agenda. The following items were discussed:

1. A brief overview of the purpose and need for traffic incident management (TIM) was provided (see attached slides for details).
2. A copy of the draft report's Executive Summary was provided to the meeting attendees.
3. It was noted that the plan;
    a. Identified near-, medium- and long-term strategies,
    b. Offered practical guidance for key TIM activates,
    c. Established a programmatic structure for an ongoing TIM program, and
    d. Emphasized the importance of existing and future ITS and motorist assist.
4. The actual timeframe associated with near-, medium- and long-term strategies was discussed. These categories of recommendations do not have specific timeframes associated. Near-term included strategies that the stakeholders needed to begin working on immediately to get the program moving. They were also strategies that could be implemented without a lot of new resources. The long-term strategies require funding to be developed to implement. The medium-term strategies fell in between these two groups.
5. The plan development process was reviewed. The initial meetings focused on identifying needs/issues/challenges. The following two Working Group Committee meetings focused on discussing and refining potential strategies. A strategy matrix was used to associate the identified needs/issues/challenges with potential strategies.
6. A general overview of the plan was provided highlighting the focus of each section of the draft report and the appendices (see attached slides for details).
7. It was stressed that the two most important strategies were to establish the TIM Working Group Committee in order to continue regular meetings and continue training.
8. FHWA's new focus on documenting the number of responders trained compared to the number of responders was discussed. Karen Gilbertson was working to provide this documentation to her manager. Steve Cyra confirmed that nationwide FHWA is focused on documenting the percentage of responders trained. Karen is trying to develop a list of agencies trained and the number of individuals trained in each agency. Along with the number trained, Karen also needs to estimate the number of responders in each agency. Through the group discussion, it was suggested that the ICS training records would provide a starting point for determining the total number of responders that need TIM training.

9. The discussion of recommendations in the plan first focused on the medium- and long-term strategies to determine if any of these strategies should be changed to a near-term strategy. This approach also allowed the near-term strategies to be discussed last as the next steps in implementing the plan.

10. The Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages strategy was proposed as a medium-term strategy, but the group felt it should be moved to a near-term strategy. It was felt that the effort required to develop the usage guidelines and pre-planned messages could be accomplished in the near-term.

11. The group also felt that the Develop Communications/Coordination Protocol Guidelines strategy was critical, so it should be reclassified as a near-term strategy. This strategy can be advanced along with the Improve Dispatch Notification Process strategy that is already a near-term strategy.

12. It was suggested that the strategy of developing interagency agreements is an opportunity to begin outreach to upper management. Outreach to upper management is a medium-term strategy.

13. The recommended long-term strategies were reviewed. There was agreement with the proposed strategies, but it was suggested that descriptions need to be reworded to note the need to find funding to implement these strategies.

14. The emergency alternate route guides and a linked PDF application that will be provided to facilitate accessing them was presented and discussed. The emergency alternate routes are primarily for use when a direction of travel is closed on a freeway. The preferred alternate route is illustrated on a map along with traffic control at intersections along the route and temporary detour signs that would be needed to guide motorist back to the freeway route. Emergency alternate route guides were developed for I-70, I-470 and sections of U.S. 75 north and south of I-70 and I-470 respectively.

15. The linked PDF application provides a graphical interface that can be used to access the emergency alternate route guide associated with a specific freeway closure location. On a regional map of Topeka, the user clicks on the general location of the freeway closure. A zoomed-in map will open with directional arrows representing each roadway section that has an associated emergency alternate route. When an arrow is clicked on the associated emergency alternate guide appears. There will also be an emergency alternate route index that will allow the user to choose a guide based on the emergency alternate route number. See the presentation slides for a mockup of the interface.

16. The emergency alternate routes linked PDF application will be provided for download and installation on in-vehicle computers and dispatch computers. The only requirement is that the computer be able to view PDF documents and allow links in the document to be followed. The Adobe Acrobat Reader is free for download and provides the needed functionality. There are other PDF readers that can also be used.

17. To complete the plan itself, final comments need to be received by April 15th. The report will be revised based on comments received at the meeting and by April 15th. The emergency alternate route application must also be completed. The final plan and emergency alternate route application will be available for download from the KDOT website.

18. The final discussion focus was on the near-term recommendations. There was agreement that all the near-term recommendations along with several of initially designated medium-term recommendations need to be advanced immediately. These revised near-term recommendations that are next steps for the Working Group Committee are as follows;

    a. Hold Regular TIM Stakeholder Meetings
    b. Accept TIM Program Plan and Develop Draft Inter-Agency Agreements
    c. Conduct Regular After-Action Reviews
    d. Develop Emergency Traffic Control and Scene Management Guidelines
    e. Develop Detailed Contact and Resource List
    f. Improve Dispatch Notification Process
    g. Continue Responder Training

h. Hold Traffic Incident Management Exercise
i. Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages
j. Develop Communications/Coordination Protocol Guidelines

19. The group discussed how often the TIM Working Group Committee should meet and who would initiate the meeting. After some discussion it was agreed that meeting every other month was a reasonable timeframe to keep the momentum moving. KDOT committed to scheduling and organizing the meeting.

Action Items:

1. Distribute updated link to draft report to allow a final review and comments.
2. Develop meeting notes.
3. Revise draft plan based on comments received.
4. KDOT to schedule the first regular Topeka TIM Working Group Committee meeting.

The foregoing is our understanding of the issues discussed and conclusions reached. Please direct any comments or clarifications to Chuck Miller at cmiller@hntb.com.

Author: Chuck Miller
Copy to: Project File
Issue Date: 04/16/2015

Topeka Traffic Incident Management Plan
Steering and Working Group Committee Meeting
March 25, 2015

Name	Organization	Telephone	E-Mail
Doug Walbridge	K.T.A	785-224-9104	dwalbridge@kstowing.com
Keith Brown	Brown's Super Service Inc	785-224 6697	bss01@sbcglobal.net
Mitch Campbell	Topeka P.D.	785-368-9235	MCampbell@Topeka.org
Jeff Whisler	Topeka Police	368-9015	jwhisler@topeka.org
Steven Zeller	KHP	785 296-362	szeller@khp.ks.gov
Carlton Scroggins	Planning	785 368-3014	cscroggins@topeka.org
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Karen Gilbertson	FHWA-KS	785 273-2646	Karen.gilbertson@dot.gov
Tom Vlach	SNCO PW	785-251-6077	tom.vlach@snco.us
Shari Hilliard	KDOT	785 296-6356	sharih@ksdot.org
Kim Qualls	KDOT-PA	785-296-0192	Kqualls@ksdot.org
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Ryan Kutchen	K-tech towing	785-506-2567	k-techtowing@yahoo.com
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Topeka Traffic Incident Management Plan
Steering and Working Group Committee Meeting
March 25, 2015

Name	Organization	Telephone	E-Mail
GREG MOODY	TOPEKA FIRE DEPART.	368-4000	gkmoody@topeka.org
Jim Green	Topeka PD Emergency Management	368-1942	jim.green@topeka-org
KENT PELTON	City of Topeka Traffic Eng	368-3842	kpelton@topeka.org
David Jacobson	Kansas Turnpike	274.3650	djacobson@ksturnpike.com

Kansas Department of Transportation
Topeka Metro Traffic Incident Management Program Plan

Steering Committee and Working Group Committee Meeting

Wednesday, March 25, 2015
10:00 a.m. to 12:00 p.m.
City of Topeka Holliday Building, Holliday Conference Room
620 SE Madison

AGENDA

10:00am	**1. Welcome, Self-Introductions**
10:05am	**2. Propose and Need**
10:15am	**3. Process Overview**
10:25am	**4. Plan Overview**
10:35am	**5. Recommendations**
10:55am	**6. Break**
11:05am	**7. Emergency Alternate Routes and Application**
11:15am	**8. Next Steps (Near-Term Recommendations)**
12:00pm	**9. Adjourn**

Appendix B

Needs/Issues/Challenges – Strategy Matrix

Topeka Metro TIM Needs/Issues/Challenges - Strategy Matrix

12/17/2014

Category*		Needs / Issues / Challenges	Guidelines / Plans / Procedures										Training		Outreach / Awareness			Deployments				
			Develop Emergency Alternate Route Plans	Develop Emergency Traffic Control and Scene Management Guidelines	Develop Communications/ Coordination Protocol Guidelines	Develop Detailed Contact and Resource List	Develop Dynamic Message Sign Usage Guidelines and Pre-Planned Messages	Develop Dispatch Notification Guidelines	Develop Plan for Pre-Positioned Resources	Enact Quick Clearance Legislation	Accept Program Plan and Develop Draft Inter-Agency Agreements	Develop Incident Command Guidelines	Continue Responder Training	Hold Traffic Incident Management Exercise	Implement Public Outreach Campaign	Conduct Outreach/ Training for Minor Stakeholders	Conduct Upper Management Outreach Plan	Deploy 2/10-Mile Reference Markers	Develop Dynamic Message Sign Deployment Plan	Develop Traffic Management Center for Topeka	Deploy Image Sharing Technology	Implement Expanded Video Sharing System
CC		Locating incidents can be a challenge. Reference markers were mentioned as a possible strategy.																X				
CC		Traffic incidents can impact the city when spills affect a streamway that are the responsibility of the city.		X		X							X									
CC	PP	Communications and coordination among all responders is a challenge, but it is critical to successful TIM.			X	X														X		
CC	T	Roles and responsibilities need to be better defined to document what are normal working hours for agencies and which agencies work 24/7.			X			X														
CC		Improved internal communications between agencies will result in better external communications to the public.			X																	
CC		It needs to be recognized that social media is a method of communication. Information from the public can be obtained and information can be distributed to the public.			X																	
CC		Access to city and KDOT camera video is needed for others including the Shawnee County dispatch.																				X
CC		There are a lot of radio talk groups. Each agency has its own talk groups. Some additional standardization may be beneficial for traffic incident management.			X																	
CC		Dispatch can be a bottleneck. They have limited personnel as demonstrated by required mandatory overtime.															X					
CC		Incident information is not always communicated to KDOT, so they can provide the information to the public through DMSs and the 511 system.			x																	
CC		Communication of incident information by responders to KDOT in a timely and accurate manner is a challenge.			X																	
CC		When law enforcement first reaches an incident scene and provides the initial information on the incident, the information is not as comprehensive as it could be at times.		X									X								X	X
CC		A request for traffic control for an incident that occurred the morning of the meeting did not get to KDOT in a timely manner.			X	X		X														
CC		Coordination between the Topeka Police Department and Kansas Highway Patrol can be improved.										X										
CC		Towing and recovery responders need to be provided better information, so they can determine the appropriate equipment to deal with an incident.		X	X	X															X	X
OS	T	The coroner at times has trouble accessing the scene. Roles need to be understood (e.g., coroner cannot do work until police complete their investigation).		X									X									
OS	T	The right balance between blocking lanes to protect the scene versus opening the roadway needs to be discussed.		X									X									
OS	T	It is important to keep roadways open when it can safely be accomplished.		X						X			X									
OS		Distracted drivers impacting responder safety is a concern.		X									X		X							
OS	T	Responders arriving and parking on the other side of a freeway can be a problem.		X									X									
OS	T	Continued scene protection during the towing and recovery phase is sometimes a problem. Personnel and equipment providing protection may leave before the recovery process in complete.		X									X									
OS	T	A relatively recent incident required the Department of Agriculture to be a responder. The Agricultural Department personnel did not understand the need for safe quick clearance.		X									X			X						
OS		Private companies wanting to off load cargo can be a problem.		X						X			X									
OS	T	When the Incident Command System (ICS) should be used needs to be discussed. There may be a benefit to using the ICS more often.										X										
OS		Getting the TIM process and relevant strategies going as soon as an incident is identified is needed.		X									X									
OS		Color vehicle classification cards are needed to allow for better communications on what towing equipment is needed.		X																		
PP		Keeping the public and responders safe must be the primary objective.		X									X									
PP		Using DMSs for safety messages versus leaving them blank when there are no incidents.					X															
PP		Keep discussion/dialogue among responders going and sustainable.									X											
PP		Upper level management buy-in for traffic incident management strategies can be a challenge.															X					
PP		After action reviews need to be more regularly held.									X											
T		There needs to be a commitment to training by all agencies.															X					
T		At times the training that is provided does not translate into actions in the field.											X	X								
T		TIM related exercises need to be considered. The City of Topeka Emergency Management agency could potentially facilitate.												X								
T		Dispatch staff needs to be involved in TIM training at some level.											X									
T		Training at times has to be delayed to when in-service training is scheduled.															X					
TM		Formal pre-planned emergency alternate route plans are needed for when I-70, I-470 and U.S. 75 are closed by an incident.	X																			
TM		Secondary incidents are a concern from a public and responder safety perspective.		X		X	X	X											X			
TM	T	Managing traffic as a traffic incident evolves can be a challenge. When do roads/ramps need to be closed and when can they be reopened.		X									X									
TM		Need to effectively use DMS messages to inform motorists.					X															
TM		It would be beneficial to have pre-defined DMS message plans which are dependent on incident location.					X															
TM		Dissemination of information on ITS devices that are available will allow them to be used more often to better manage incidents and provide information to the public.					X												X			
TM		Diversion of traffic through downtown is a challenge that is even more problematic when the legislature is in session.	X																			
TM		Pre-positioning TIM personnel and equipment during peak periods was suggested.				X			X													
TM		Need for a Topeka traffic management center was discussed.																		X		
TM		The Polk-Quincy I-70 viaduct is a high incident location and also a difficult section of roadway on which to deal with incidents.	X	X					X										X			
TM		When I-70 west of Topeka is closed the diversion of traffic across the Carlson Road county bridge over the Kansas River can be a problem because the bridge is load restricted.	X																			

Category Codes:

OS - On-Scene
TM - Traffic Management
CC - Communications and Coordination
PP - Program & Policy
T - Training

Appendix C

MUTCD Chapter 6I

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS

Section 6I.01 General

Support:

01 The National Incident Management System (NIMS) requires the use of the Incident Command System (ICS) at traffic incident management scenes.

02 A traffic incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

03 A traffic incident management area is an area of a highway where temporary traffic controls are installed, as authorized by a public authority or the official having jurisdiction of the roadway, in response to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. It is a type of TTC zone and extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where vehicles return to the original lane alignment and are clear of the incident.

04 Traffic incidents can be divided into three general classes of duration, each of which has unique traffic control characteristics and needs. These classes are:

A. Major—expected duration of more than 2 hours,
B. Intermediate—expected duration of 30 minutes to 2 hours, and
C. Minor—expected duration under 30 minutes.

05 The primary functions of TTC at a traffic incident management area are to inform road users of the incident and to provide guidance information on the path to follow through the incident area. Alerting road users and establishing a well defined path to guide road users through the incident area will serve to protect the incident responders and those involved in working at the incident scene and will aid in moving road users expeditiously past or around the traffic incident, will reduce the likelihood of secondary traffic crashes, and will preclude unnecessary use of the surrounding local road system. Examples include a stalled vehicle blocking a lane, a traffic crash blocking the traveled way, a hazardous material spill along a highway, and natural disasters such as floods and severe storm damage.

Guidance:

06 *In order to reduce response time for traffic incidents, highway agencies, appropriate public safety agencies (law enforcement, fire and rescue, emergency communications, emergency medical, and other emergency management), and private sector responders (towing and recovery and hazardous materials contractors) should mutually plan for occurrences of traffic incidents along the major and heavily traveled highway and street system.*

07 *On-scene responder organizations should train their personnel in TTC practices for accomplishing their tasks in and near traffic and in the requirements for traffic incident management contained in this Manual. On-scene responders should take measures to move the incident off the traveled roadway or to provide for appropriate warning. All on-scene responders and news media personnel should constantly be aware of their visibility to oncoming traffic and wear high-visibility apparel.*

08 *Emergency vehicles should be safe-positioned (see definition in Section 1A.13) such that traffic flow through the incident scene is optimized. All emergency vehicles that subsequently arrive should be positioned in a manner that does not interfere with the established temporary traffic flow.*

09 *Responders arriving at a traffic incident should estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length, and then should set up the appropriate temporary traffic controls for these estimates.*

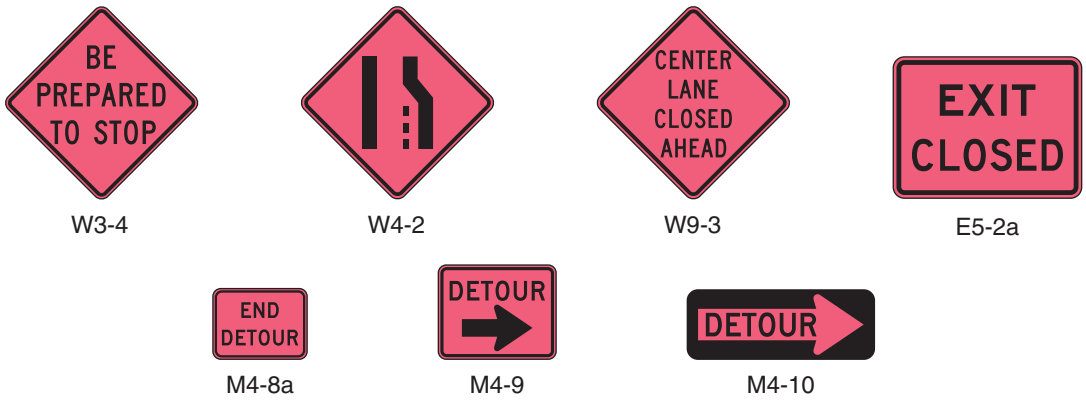
Option:

10 Warning and guide signs used for TTC traffic incident management situations may have a black legend and border on a fluorescent pink background (see Figure 6I-1).

Support:

11 While some traffic incidents might be anticipated and planned for, emergencies and disasters might pose more severe and unpredictable problems. The ability to quickly install proper temporary traffic controls might greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. An essential part of fire, rescue, spill clean-up, highway agency, and enforcement activities is the proper control of road users through the traffic incident management area in order to protect responders, victims, and other personnel at the site. These operations might need corroborating legislative authority for the implementation and enforcement of appropriate road user regulations, parking controls, and speed zoning. It is desirable for these statutes to provide sufficient flexibility in the authority for, and implementation of, TTC to respond to the needs of changing conditions found in traffic incident management areas.

Figure 6I-1. Examples of Traffic Incident Management Area Signs



Option:

12 For traffic incidents, particularly those of an emergency nature, TTC devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards.

Section 6I.02 Major Traffic Incidents

Support:

01 Major traffic incidents are typically traffic incidents involving hazardous materials, fatal traffic crashes involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours.

Guidance:

02 *If the traffic incident is anticipated to last more than 24 hours, applicable procedures and devices set forth in other Chapters of Part 6 should be used.*

Support:

03 A road closure can be caused by a traffic incident such as a road user crash that blocks the traveled way. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. A combination of traffic engineering and enforcement preparations is needed to determine the detour route, and to install, maintain or operate, and then to remove the necessary traffic control devices when the detour is terminated. Large trucks are a significant concern in such a detour, especially when detouring them from a controlled-access roadway onto local or arterial streets.

04 During traffic incidents, large trucks might need to follow a route separate from that of automobiles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous material might need to follow a different route from other vehicles.

05 Some traffic incidents such as hazardous material spills might require closure of an entire highway. Through road users must have adequate guidance around the traffic incident. Maintaining good public relations is desirable. The cooperation of the news media in publicizing the existence of, and reasons for, traffic incident management areas and their TTC can be of great assistance in keeping road users and the general public well informed.

06 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

07 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for all major traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

08 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

09 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

10 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

11 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

12 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

13 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.03 Intermediate Traffic Incidents

Support:

01 Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks.

02 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

03 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for intermediate traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

04 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

05 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

06 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

07 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

08 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

09 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.04 Minor Traffic Incidents

Support:

01 Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles.

02 Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

Guidance:

03 *When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.*

Section 6I.05 Use of Emergency-Vehicle Lighting

Support:

01 The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided facility are often distracted by emergency-vehicle lighting and slow their vehicles to look at the traffic incident posing a hazard to themselves and others traveling in their direction.

02 The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve a number of emergency vehicles. If good traffic control is established through placement of advanced warning signs and traffic control devices to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

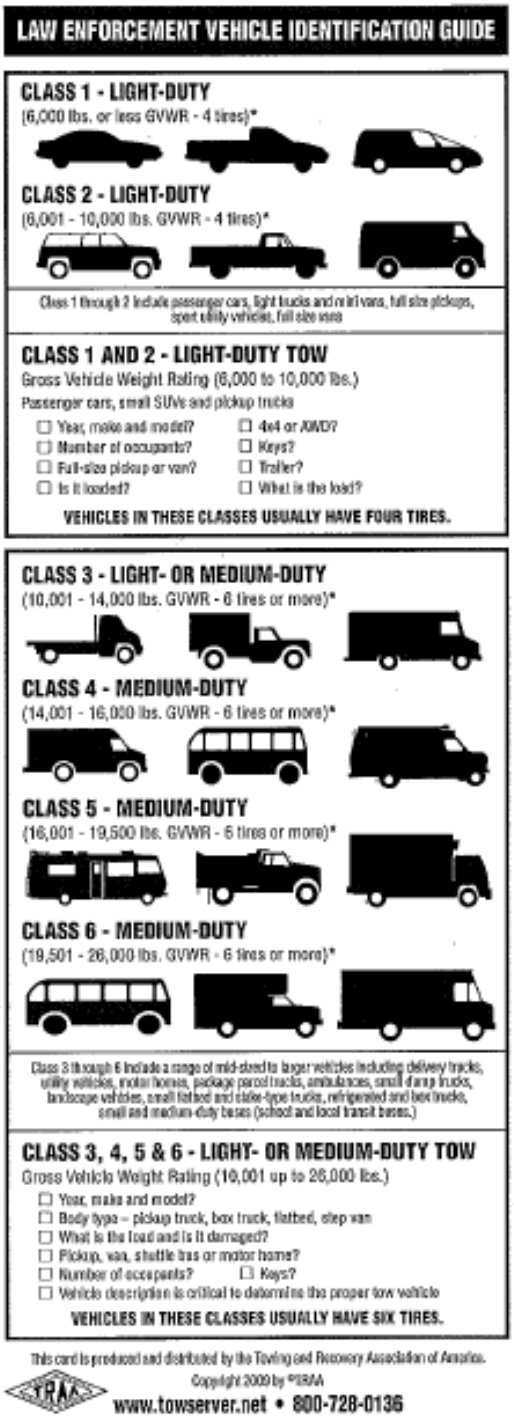
Guidance:

03 *Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special consideration should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.*

04 *Because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, any floodlights or vehicle headlights that are not needed for illumination, or to provide notice to other road users of an incident response vehicle being in an unexpected location, should be turned off at night.*

Appendix D

TRAA Vehicle Identification Quick Reference Guide



LAW ENFORCEMENT VEHICLE IDENTIFICATION GUIDE

CLASS 1 - LIGHT-DUTY
(6,000 lbs. or less GVWR - 4 tires)*

CLASS 2 - LIGHT-DUTY
(6,001 - 10,000 lbs. GVWR - 4 tires)*

Class 1 through 2 include passenger cars, light trucks and mini vans, full size pickups, sport utility vehicles, full size vans

CLASS 1 AND 2 - LIGHT-DUTY TOW
Gross Vehicle Weight Rating (6,000 to 10,000 lbs.)
Passenger cars, small SUVs and pickup trucks

- ☐ Year, make and model?
- ☐ Number of occupants?
- ☐ Full-size pickup or van?
- ☐ Is it loaded?
- ☐ 4x4 or AWD?
- ☐ Keys?
- ☐ Trailer?
- ☐ What is the load?

VEHICLES IN THESE CLASSES USUALLY HAVE FOUR TIRES.

CLASS 3 - LIGHT- OR MEDIUM-DUTY
(10,001 - 14,000 lbs. GVWR - 6 tires or more)*

CLASS 4 - MEDIUM-DUTY
(14,001 - 16,000 lbs. GVWR - 6 tires or more)*

CLASS 5 - MEDIUM-DUTY
(16,001 - 19,500 lbs. GVWR - 6 tires or more)*

CLASS 6 - MEDIUM-DUTY
(19,501 - 26,000 lbs. GVWR - 6 tires or more)*

Class 3 through 6 include a range of mid-sized to larger vehicles including delivery trucks, utility vehicles, motor homes, package parcel trucks, ambulances, small dump trucks, landscape vehicles, small flatbed and stake-type trucks, refrigerated and box trucks, small and medium-duty buses (school and local transit buses.)

CLASS 3, 4, 5 & 6 - LIGHT- OR MEDIUM-DUTY TOW
Gross Vehicle Weight Rating (10,001 up to 26,000 lbs.)

- ☐ Year, make and model?
- ☐ Body type – pickup truck, box truck, flatbed, step van
- ☐ What is the load and is it damaged?
- ☐ Pickup, van, shuttle bus or motor home?
- ☐ Number of occupants?
- ☐ Keys?
- ☐ Vehicle description is critical to determine the proper tow vehicle

VEHICLES IN THESE CLASSES USUALLY HAVE SIX TIRES.

This card is produced and distributed by the Towing and Recovery Association of America.
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www.towserver.net • 800-728-0136

CLASS 7 - HEAVY-DUTY
(26,001 - 33,000 lbs. GVWR - 6 tires or more)*

CLASS 8 - HEAVY-DUTY
(33,001 lbs. and over GVWR - 10 tires or more)*

Class 7 and 8 includes a range of heavier vehicles including large delivery trucks, motor coaches, all tractor-trailer combinations, refuse trucks, construction vehicles, etc.

CLASS 7 AND 8 - HEAVY-DUTY TOW
Gross Vehicle Weight Rating
(Class 7 - 26,001 to 33,000 lbs.)
(Class 8 - 33,001 and up to state limit)

- ☐ Year, make and model?
- ☐ Bus or motor home?
- ☐ Number of occupants?
- ☐ Two or three axle truck or tractor-trailer?
- ☐ What is the load and is it damaged?
- ☐ Keys?

STRAIGHT TRUCKS, BUSES OR MOTOR HOMES IN THESE CLASSES WILL USUALLY HAVE SIX TO TEN TIRES. TRACTOR AND TRAILER COMBINATIONS WILL HAVE FOURTEEN OR MORE TIRES.

MOTORCYCLES - LIGHT-DUTY TOW
Sports motorcycle – off road/basic street type
Performance motorcycle – "racing" model type
Touring motorcycle – large, heavy road touring type
Custom or 3-wheel motorcycle

TRAILERS - LIGHT-, MEDIUM- OR HEAVY-DUTY TOW

- ☐ Is it a truck and trailer to tow or just a trailer to tow?
- ☐ Number of axles and what is it hauling or is it designed to haul?
- ☐ Type of load or weight of load?
- ☐ If a tow, does the trailer have a ball, pintle or a fifth wheel hitch?

MOTOR HOMES - LIGHT-, MEDIUM- OR HEAVY-DUTY TOW
Class C – usually built on a van or pickup type truck chassis
Class A – usually built on a medium to large truck or bus chassis

LOCATION:
All locations are considered to be on the right hand shoulder unless advised the incident is in a lane of travel, in the center divider or off the road.
Locations should always be given so the tow truck can access the scene safely.
Freeway locations should always be given going in one direction, such as southbound south of a specific landmark or intersection.

REASON FOR THE TOW: Service call, storage, wreck or recovery
Service call: Specify the reason, fuel, tire, etc.
Tow: Specify the reason
Storage: Arrest or impound tow

- ☐ Is the vehicle stripped, burned, flat tires or no wheels?

Wreck: Condition of the vehicle

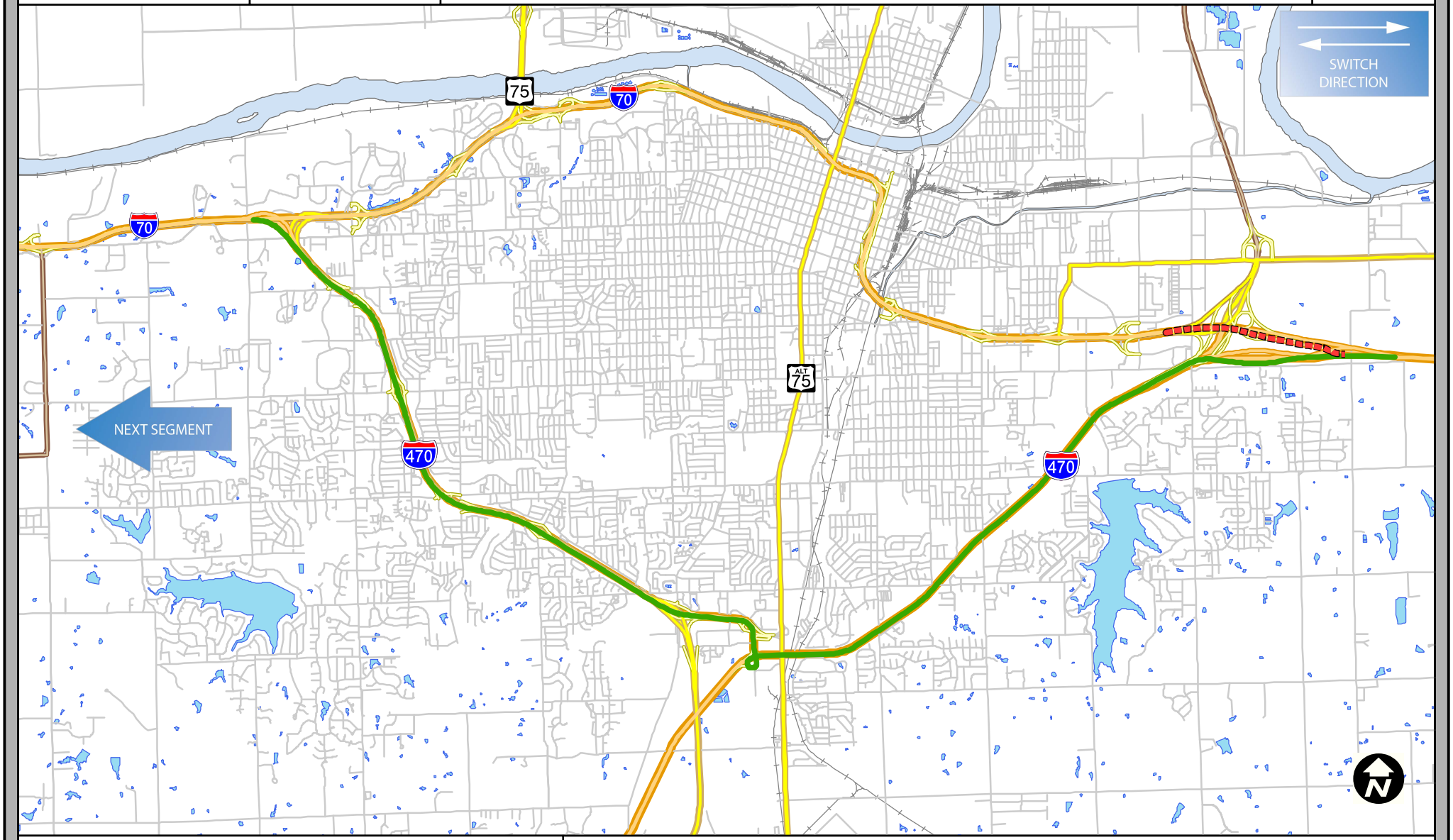
- ☐ Is the vehicle/truck overturned?
- ☐ Are lanes blocked?
- ☐ Is the vehicle off the road? ☐ How far?
- ☐ Any special problems at the scene or special equipment needed?

* **Note:** The Gross Vehicle Weight Rating (GVWR) of the vehicle to be towed or recovered can be found on the identification label on the vehicle's driver's side doorframe. The number of pounds listed on the label can then be compared with the DOT Classification Vehicle Type Chart for the correct DOT class.

Appendix E

Emergency Alternate Route Guides

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: K-4/I-470 Off Ramp	TO: East Topeka Toll Plaza	PLAN 70EB-1



Legend

Closure

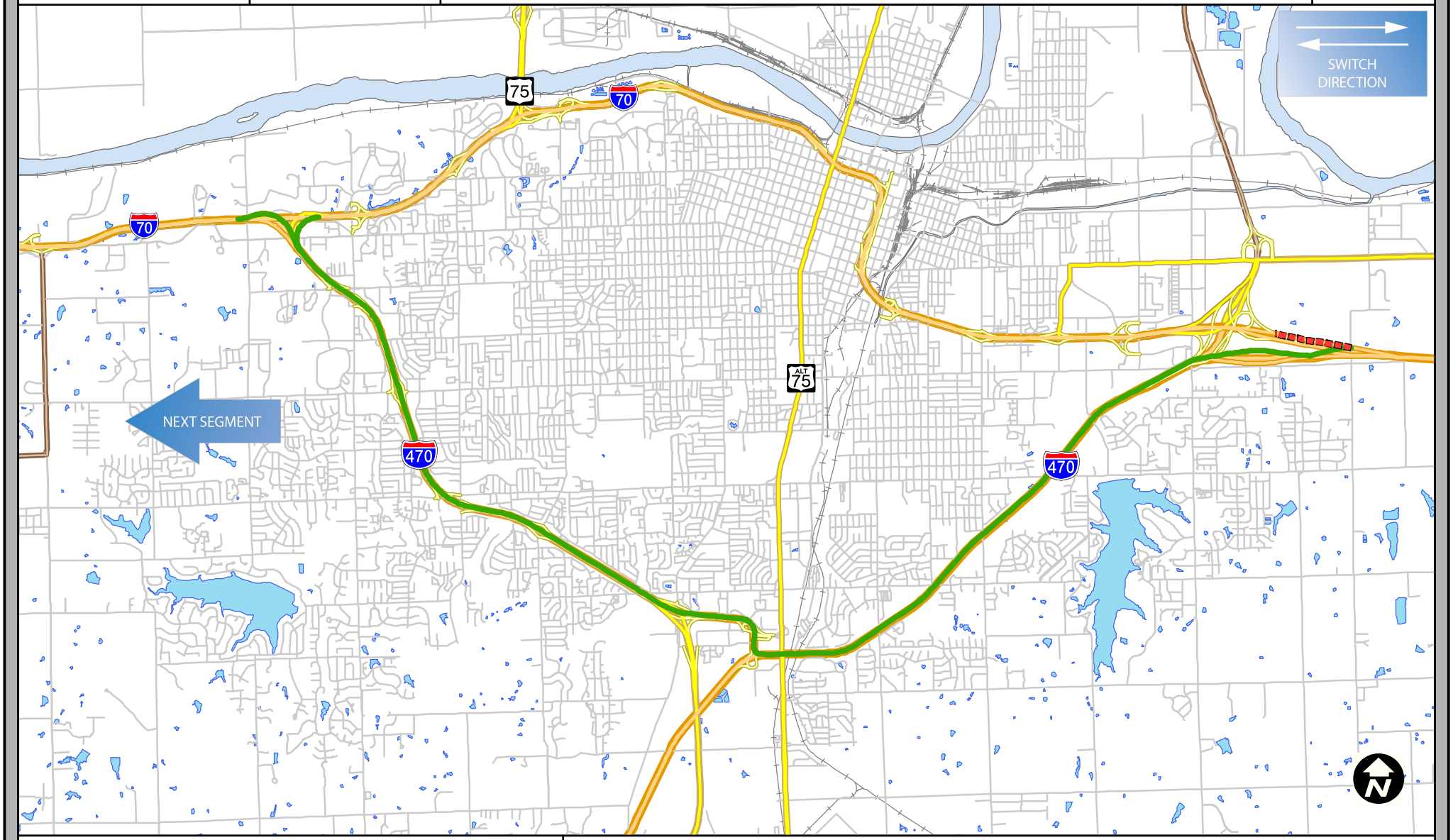
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
Kansas Turnpike Authority
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: I-70/470 Split	K-4 Northbound Off Ramp	PLAN 70WB-1



Legend

Closure

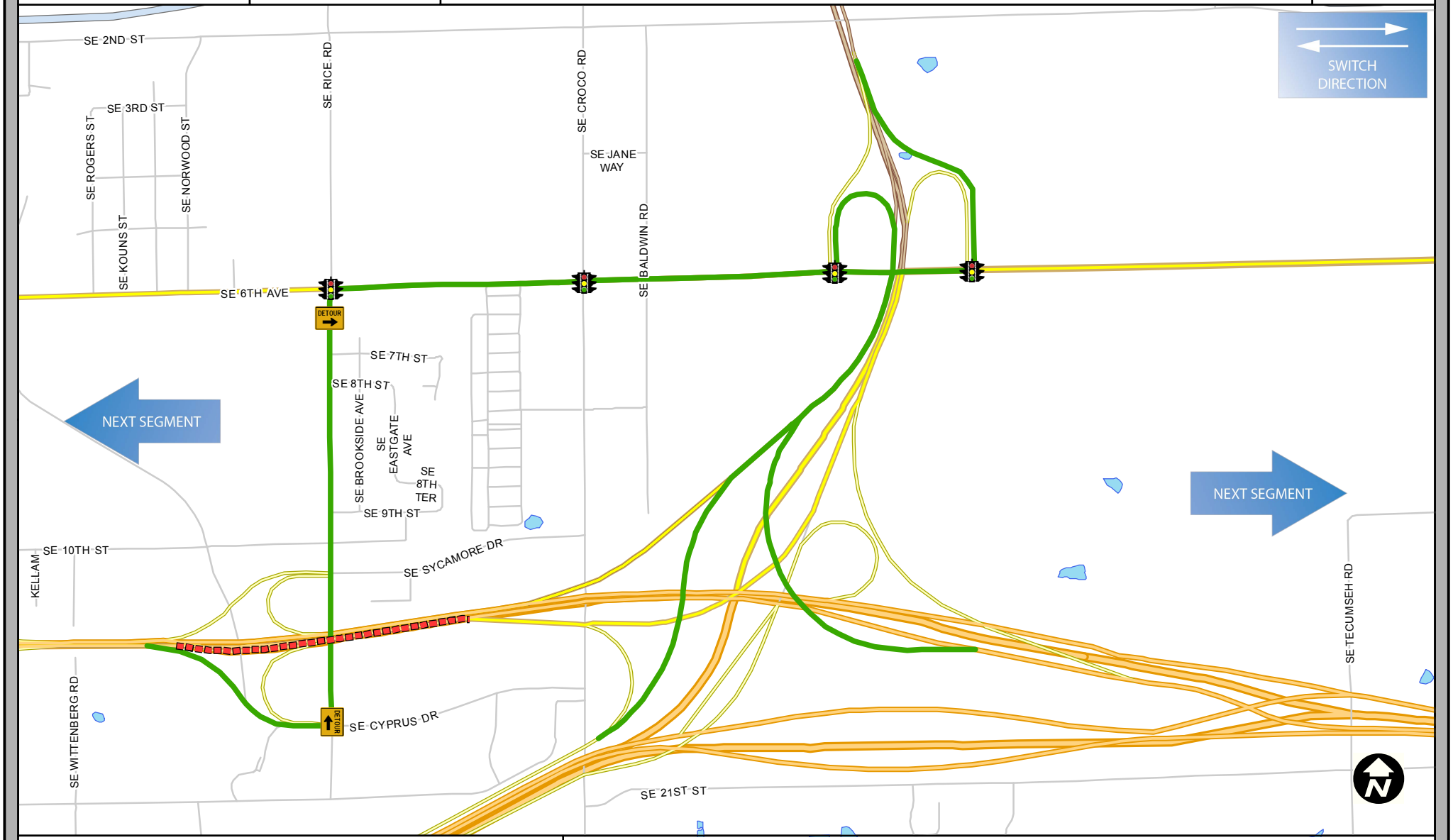
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
Kansas Turnpike Authority
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: Rice Rd. Off Ramp	TO: K-4 NB/I-470 Off Ramp	PLAN 70EB-2



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire District

HOME BACK EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Westbound	FROM: K-4 NB Off Ramp	TO: Rice Rd. Off Ramp	PLAN 70WB-2

Legend

Closure

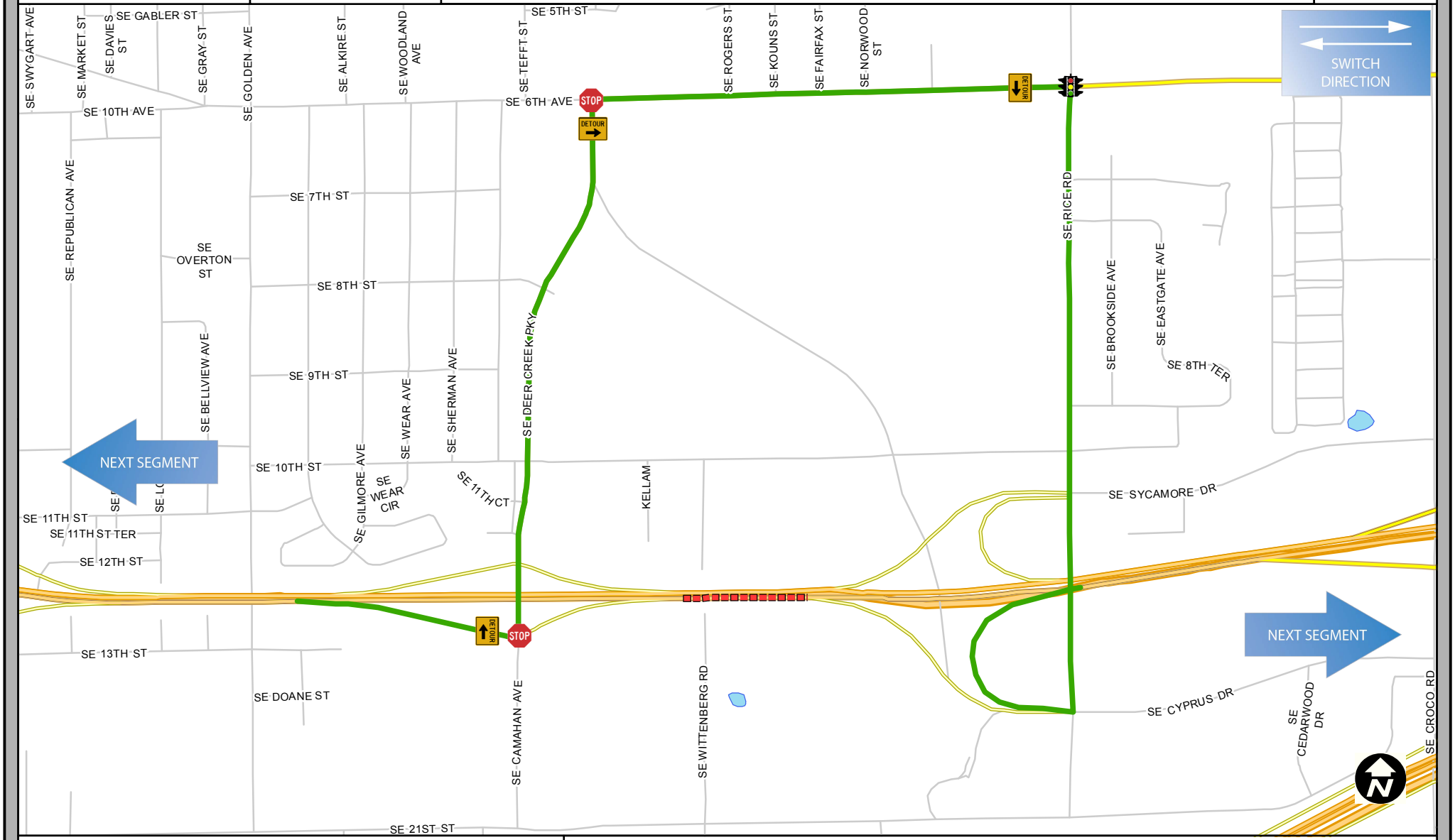
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Shawnee Heights Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: Deer Creek Pkwy On Ramp	TO: Rice Rd. Off Ramp	PLAN 70EB-3



Legend

Closure

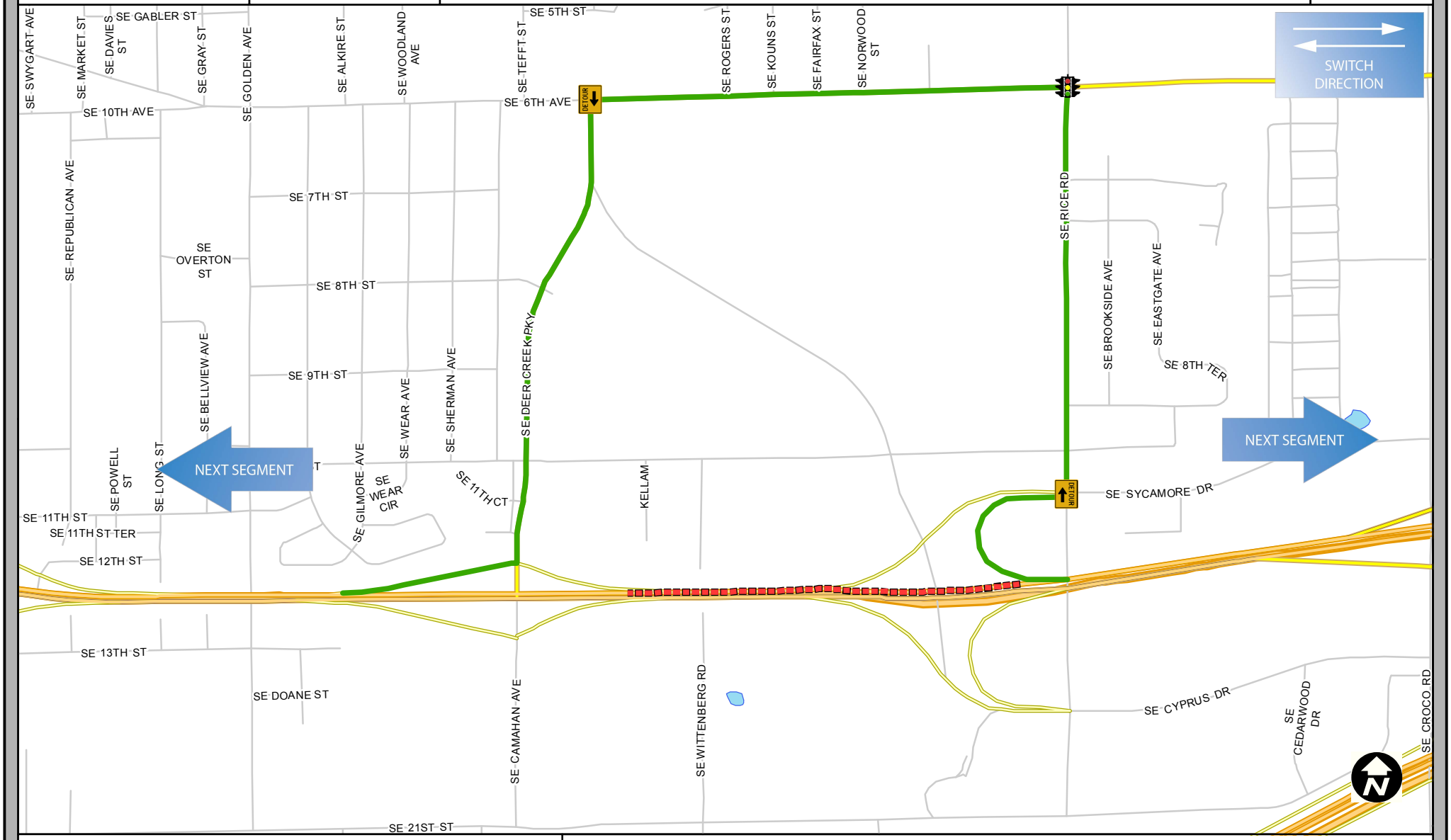
Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire District

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: Rice Rd. Off Ramp	Deer Creek Pkwy Off Ramp	PLAN 70WB-3



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: California Ave. On Ramp	TO: Deer Creek Pkwy Off Ramp	PLAN 70EB-4

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Westbound	FROM: Deer Creek Pkwy On Ramp	TO: California Ave. Off Ramp	PLAN 70WB-4

Legend

Closure

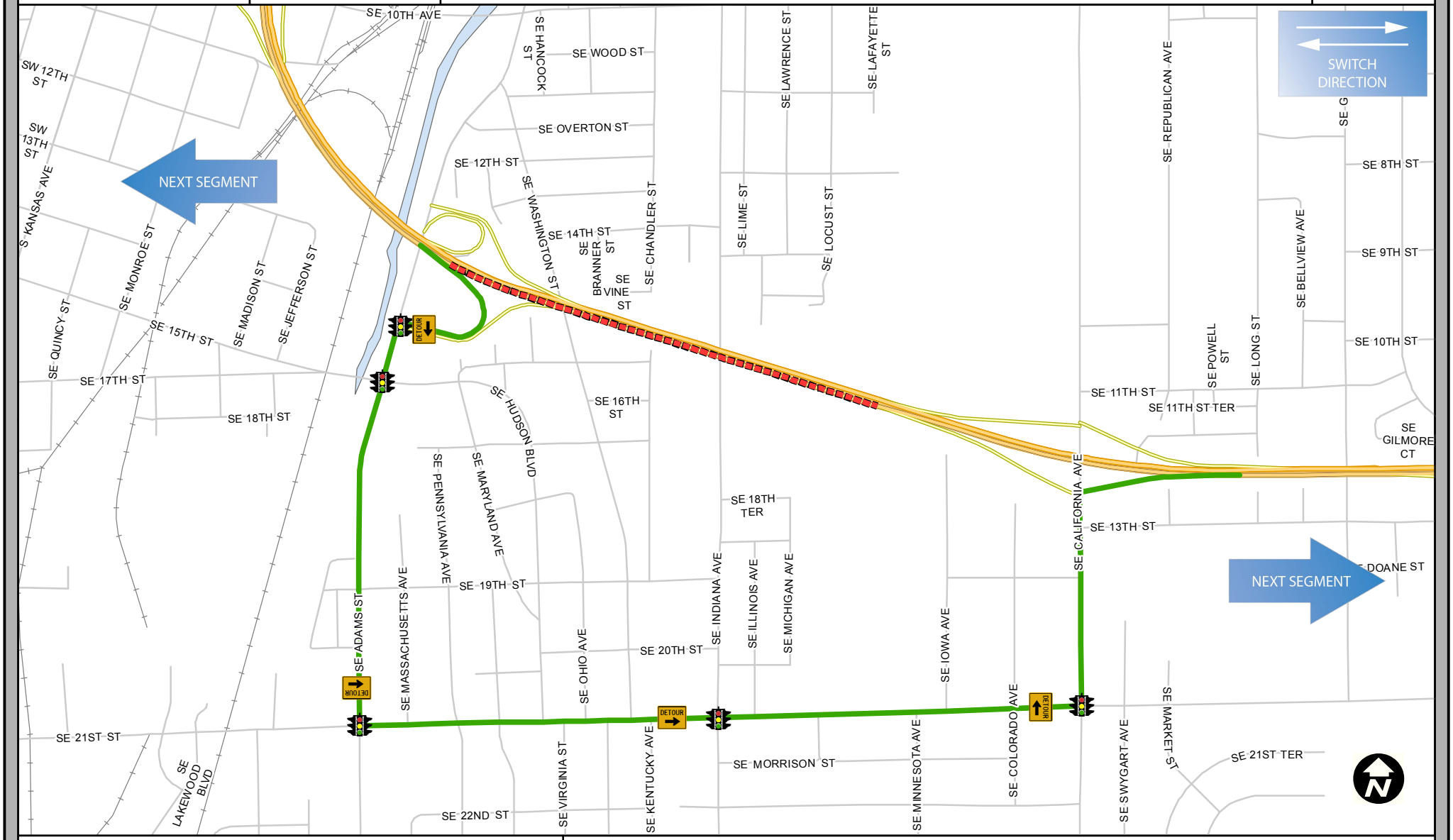
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: Adams St. Off Ramp	TO: California Ave. Off Ramp	PLAN 70EB-5



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation

City of Topeka

Kansas Highway Patrol

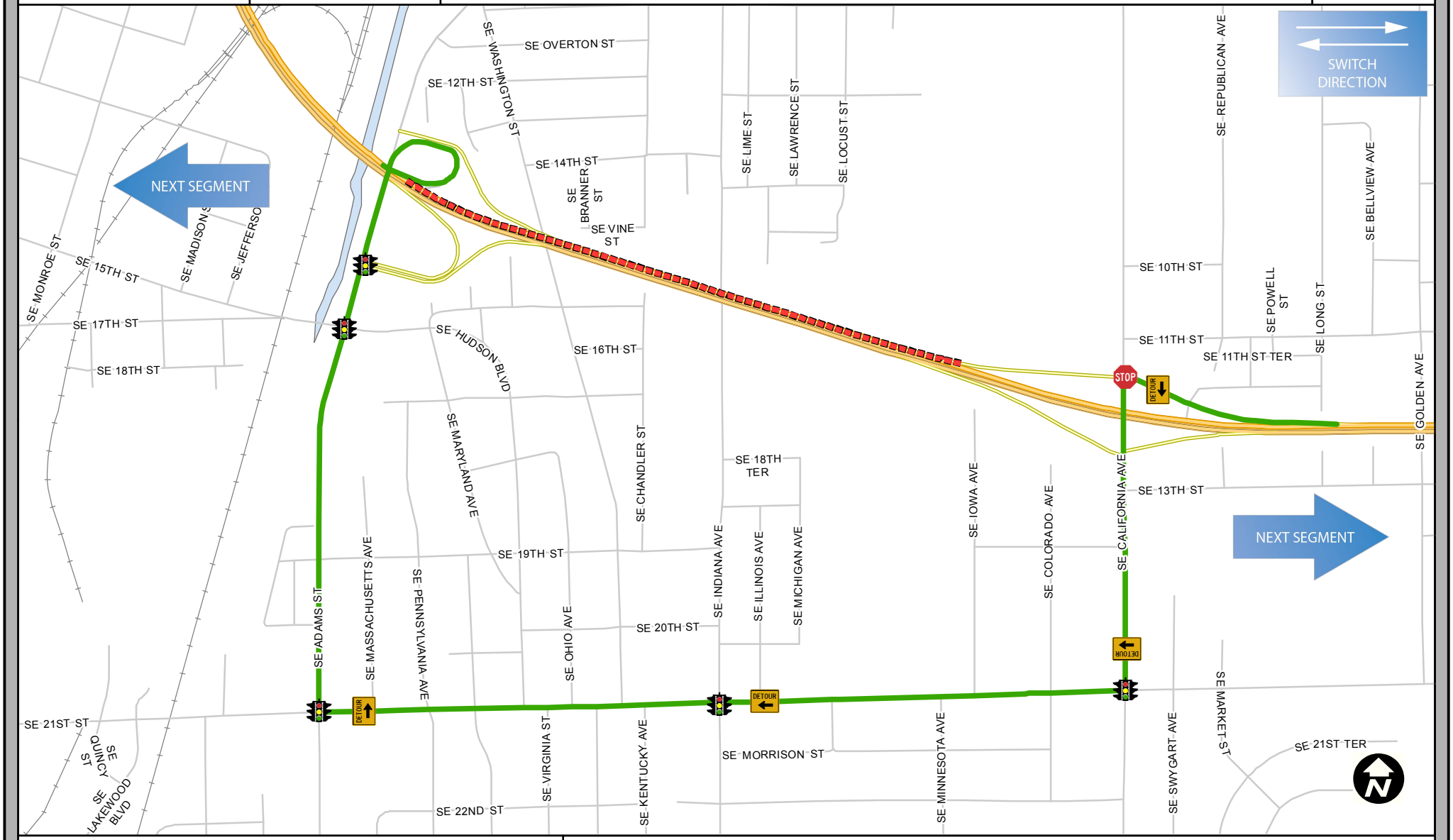
Topeka Police Department

Topeka Fire Department

AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: California Ave. On Ramp	TO: Adams St. On Ramp	PLAN 70WB-5



Legend

Closure

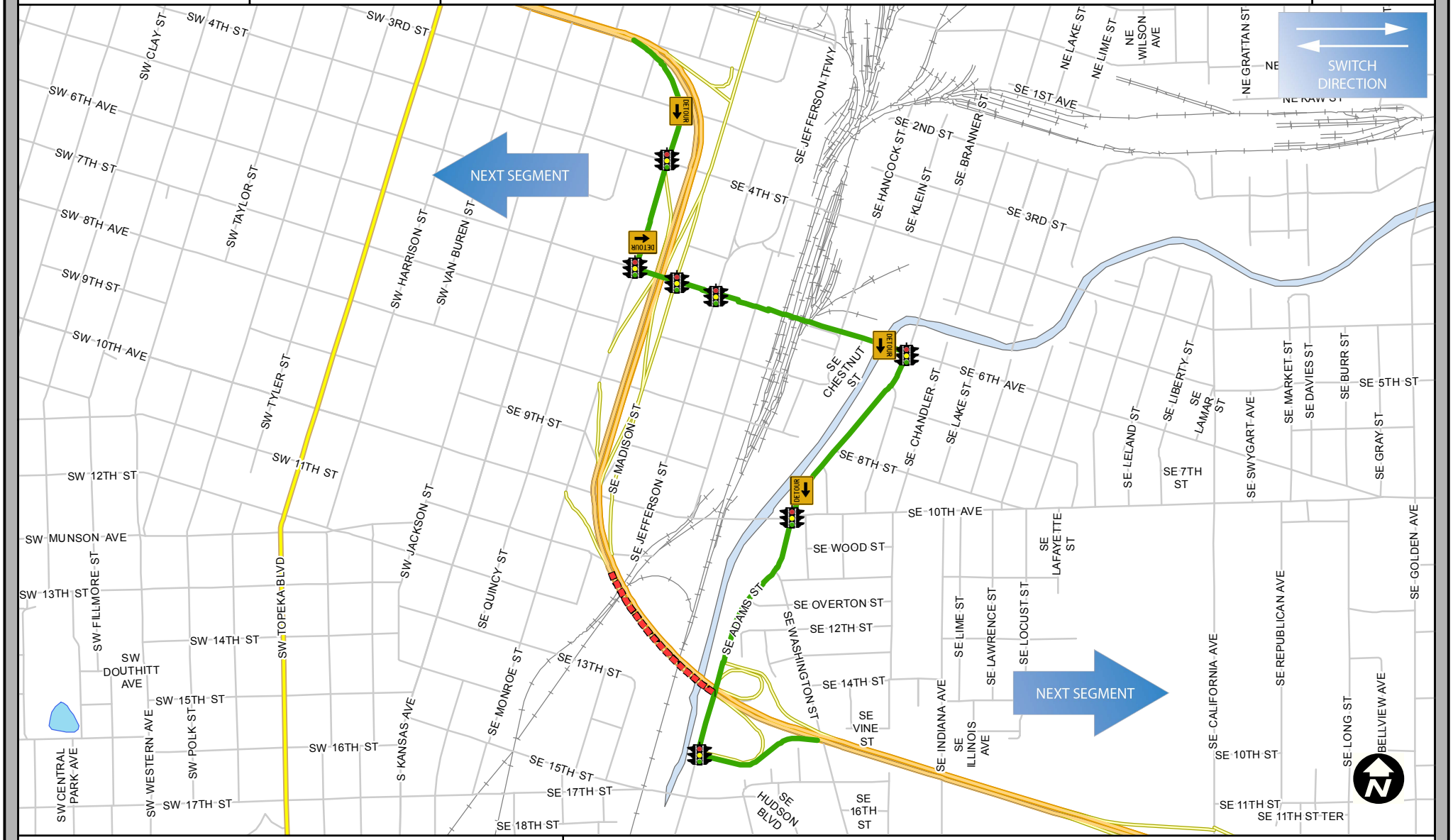
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: 10th Ave. On Ramp	Adams St. Off Ramp	PLAN 70EB-6



Legend

Closure

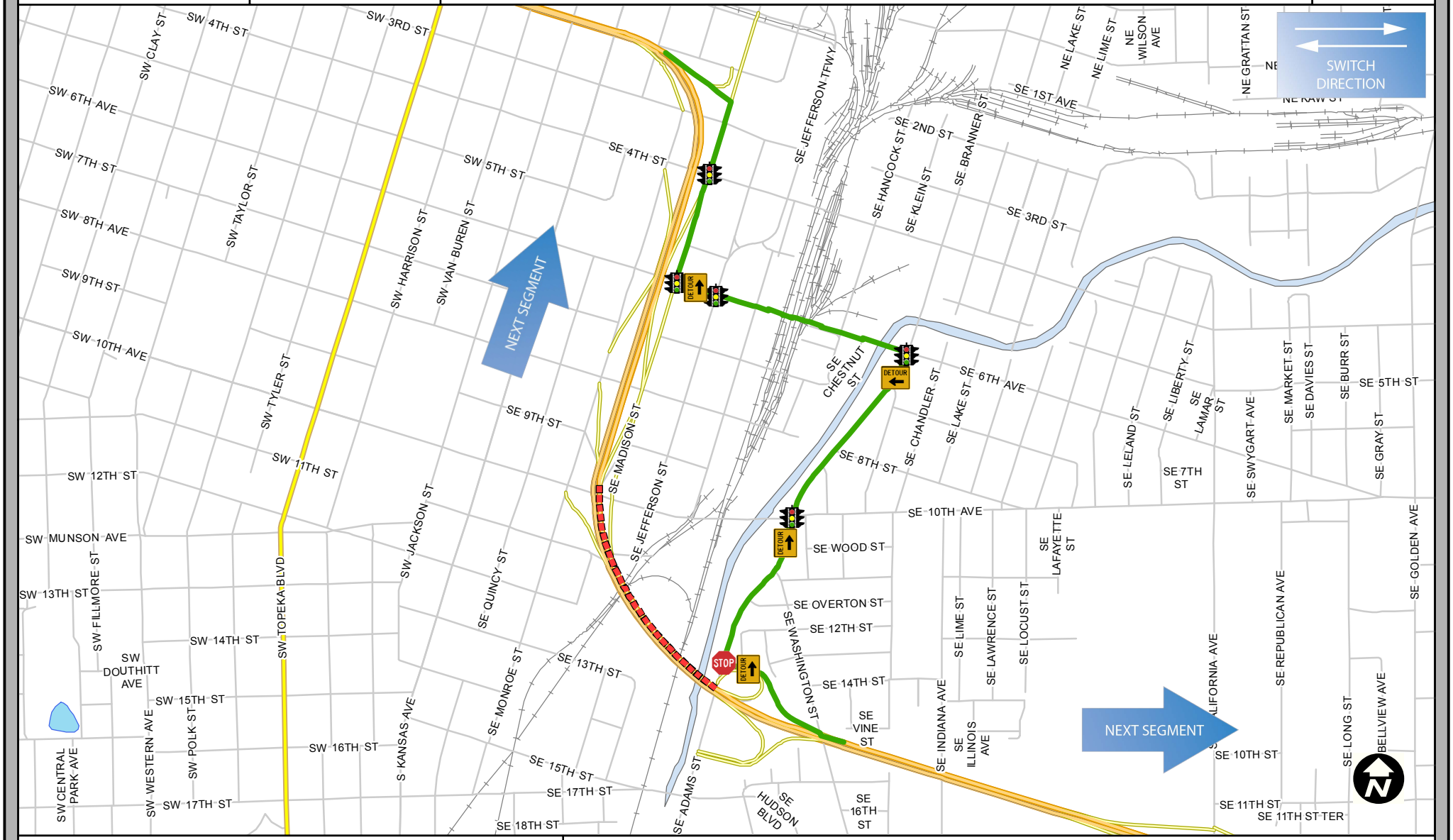
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: Adams St. On Ramp	TO: 8th St. Off Ramp	PLAN 70WB-6



Legend

Closure

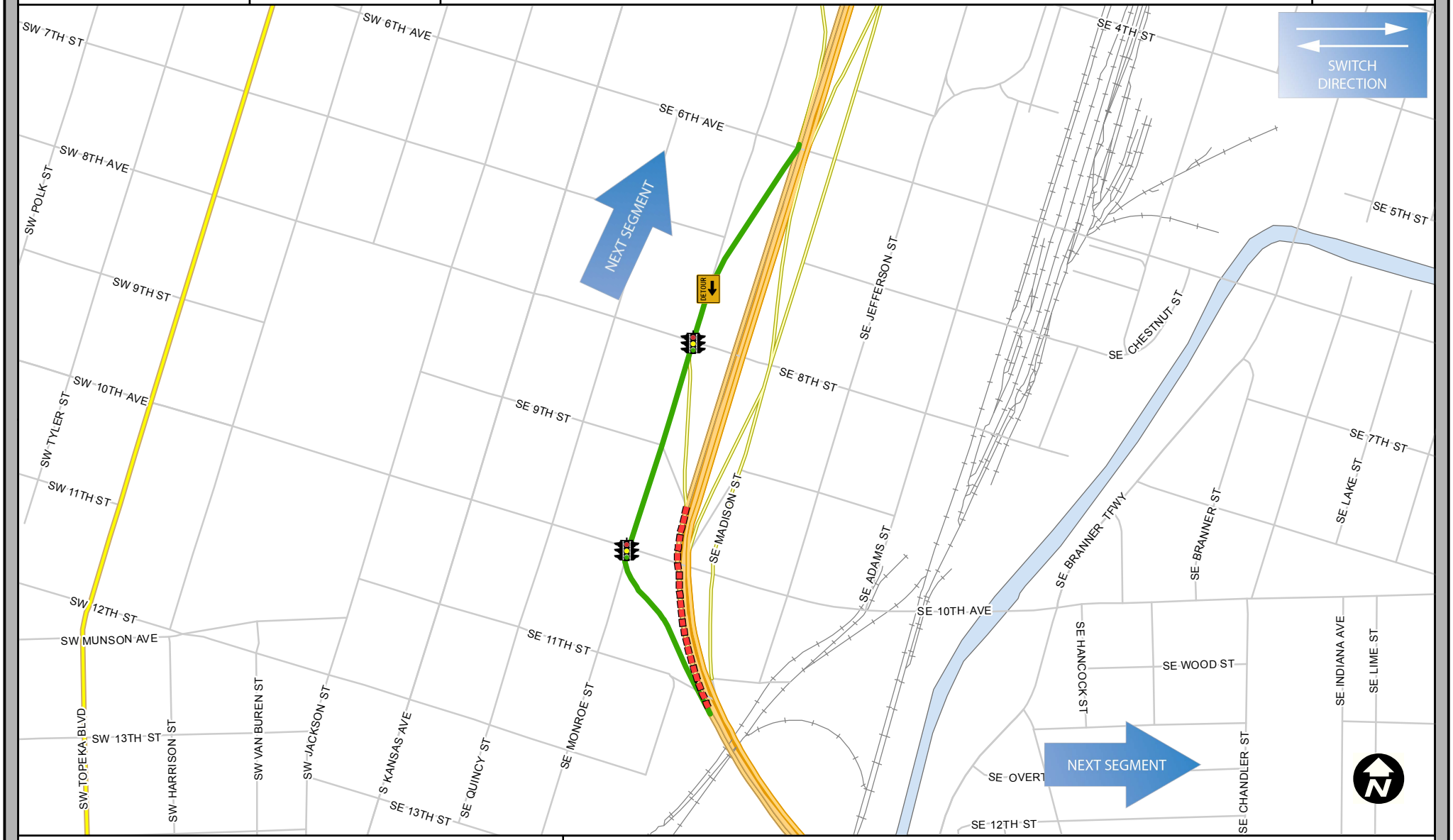
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: 8th St. On Ramp	TO: 10th Ave. On Ramp	PLAN 70EB-7



Legend

Closure

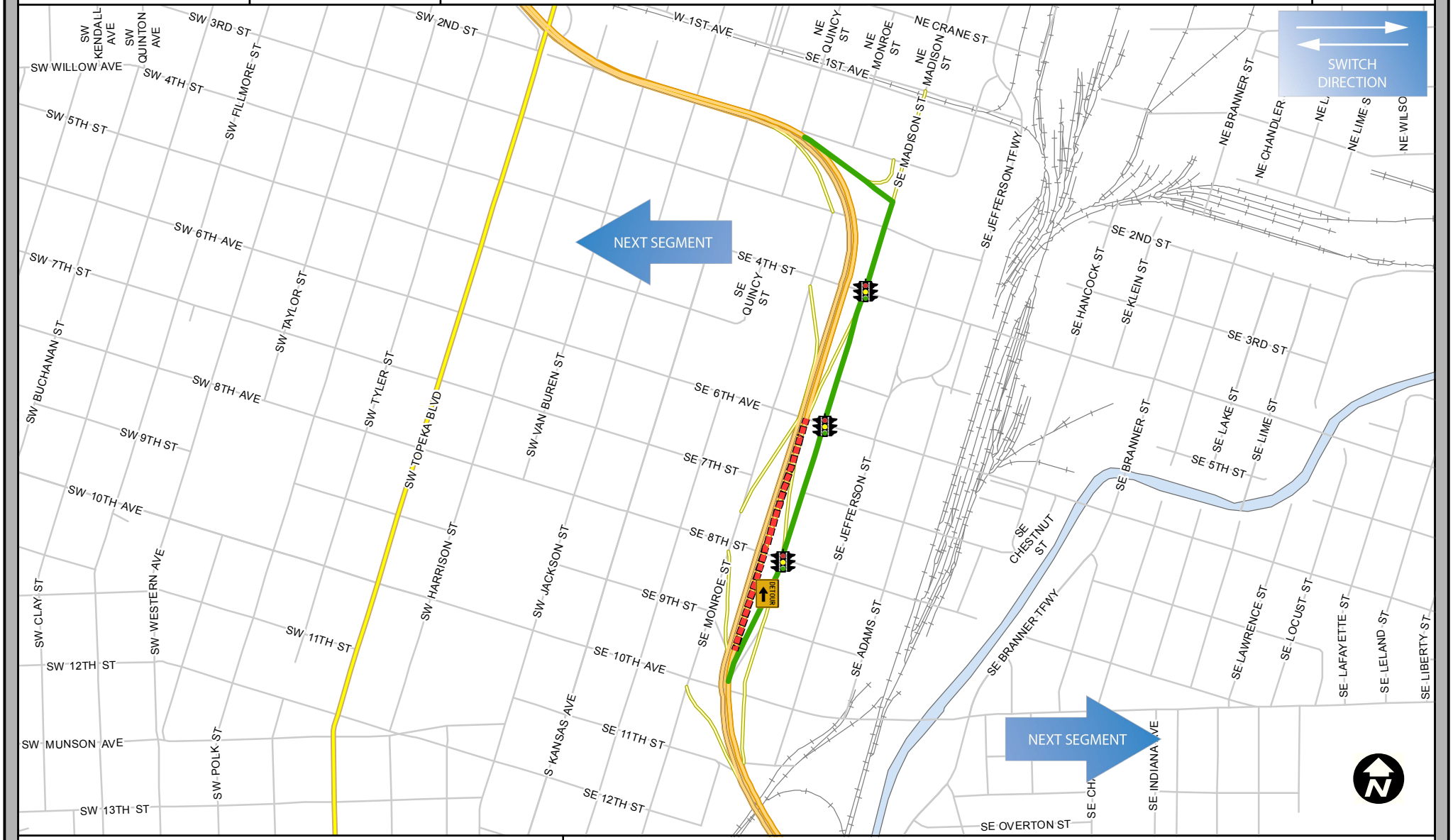
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: 8th St. On Ramp / 4th St. Off Ramp	PLAN 70WB-7



Legend

Closure

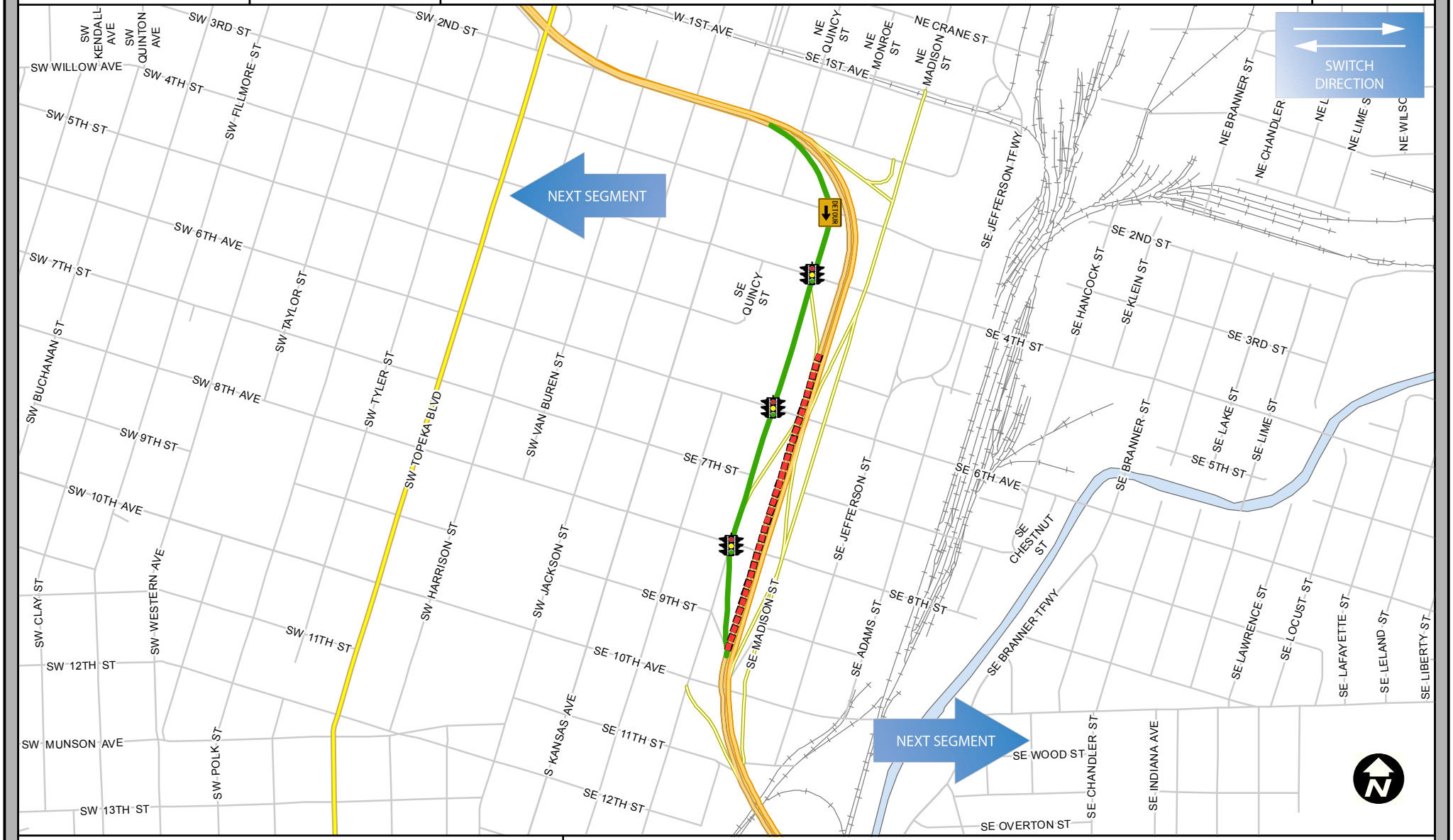
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: 4th St. On Ramp / 8th St. On Ramp	PLAN 70EB-8



Legend

Closure

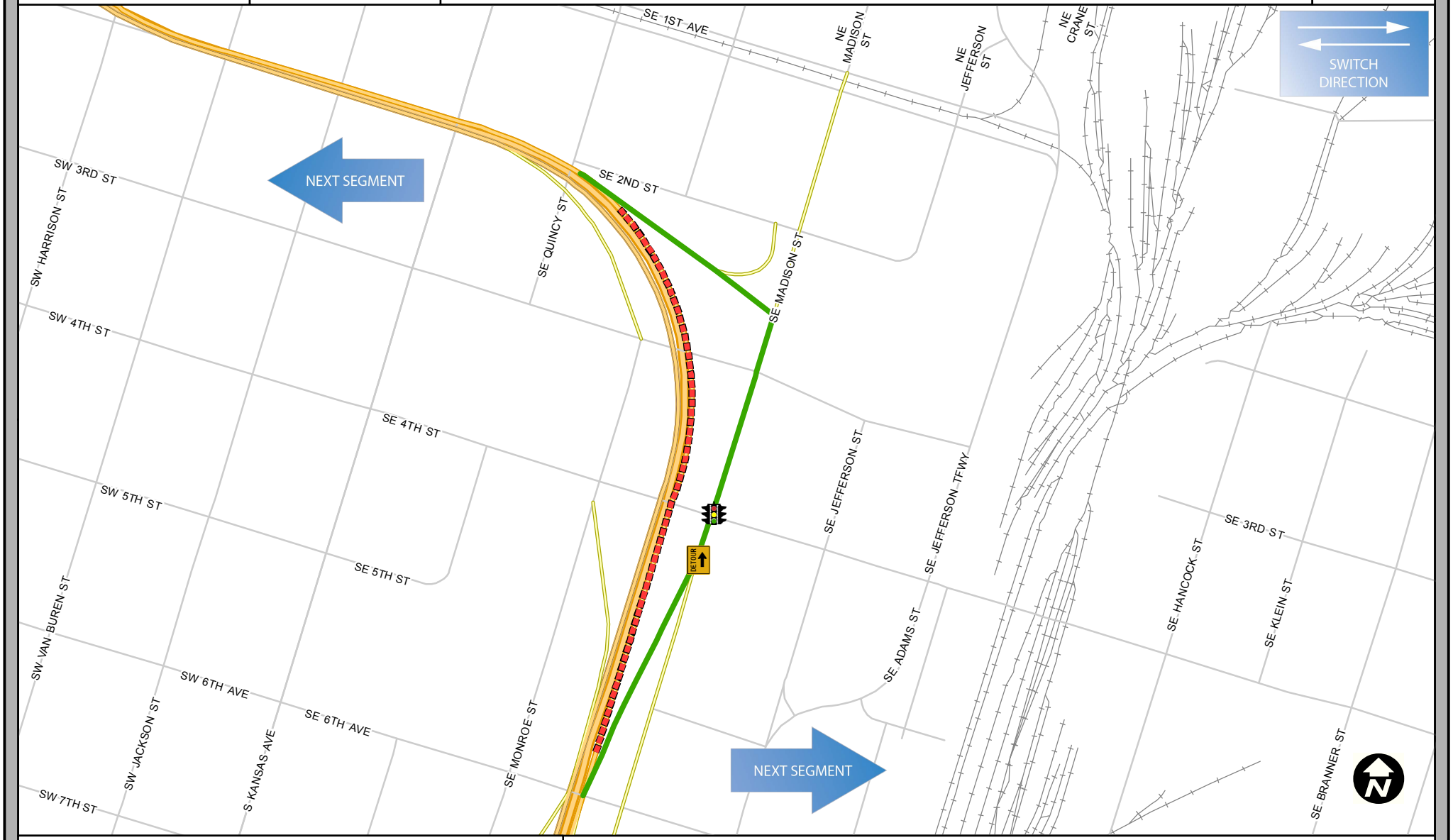
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: 4th St. Off Ramp / 3rd St. On Ramp	PLAN 70WB-8



Legend

Closure

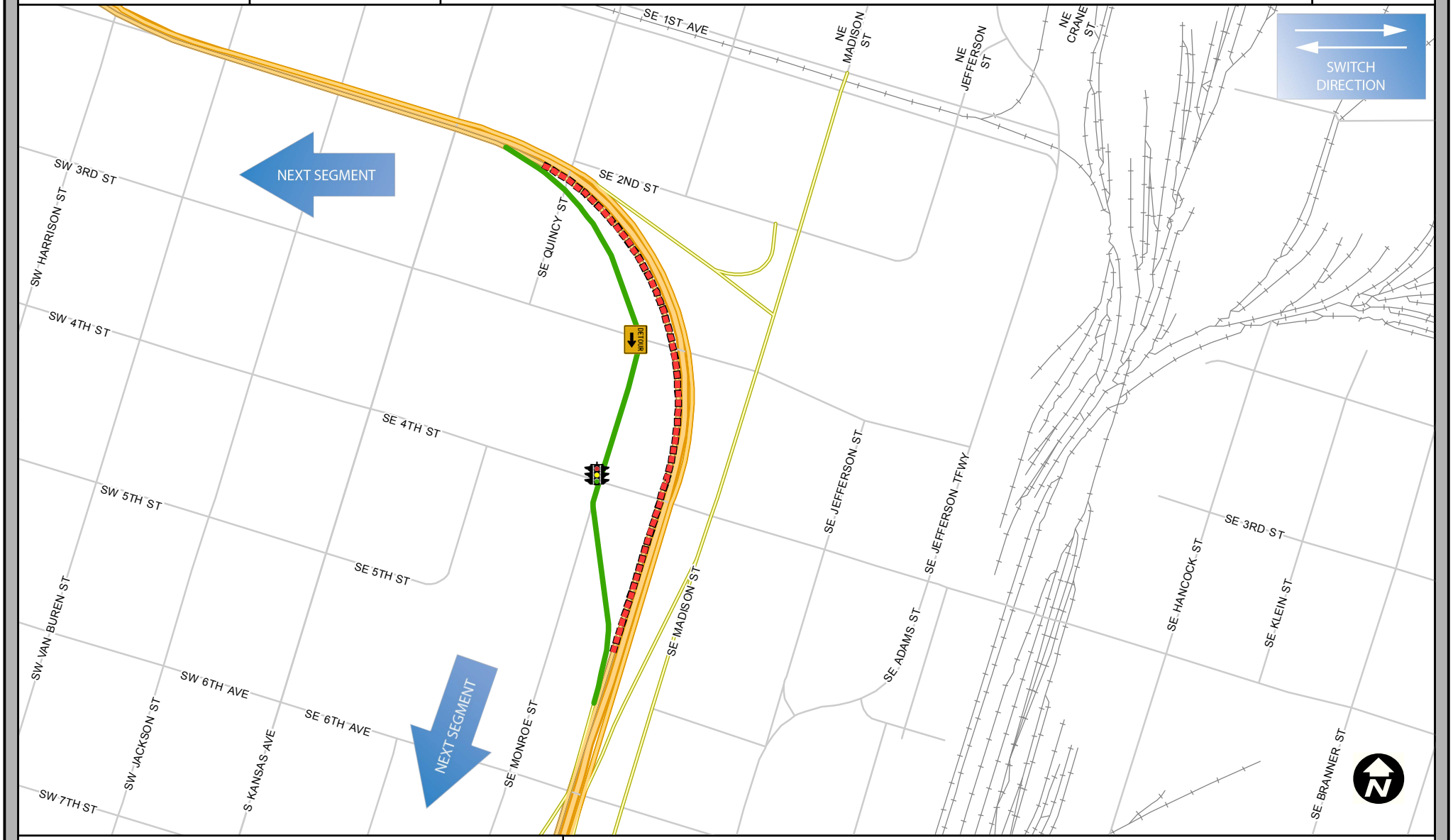
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: 3rd St. Off Ramp	TO: 4th St. On Ramp	PLAN 70EB-9



Legend

Closure

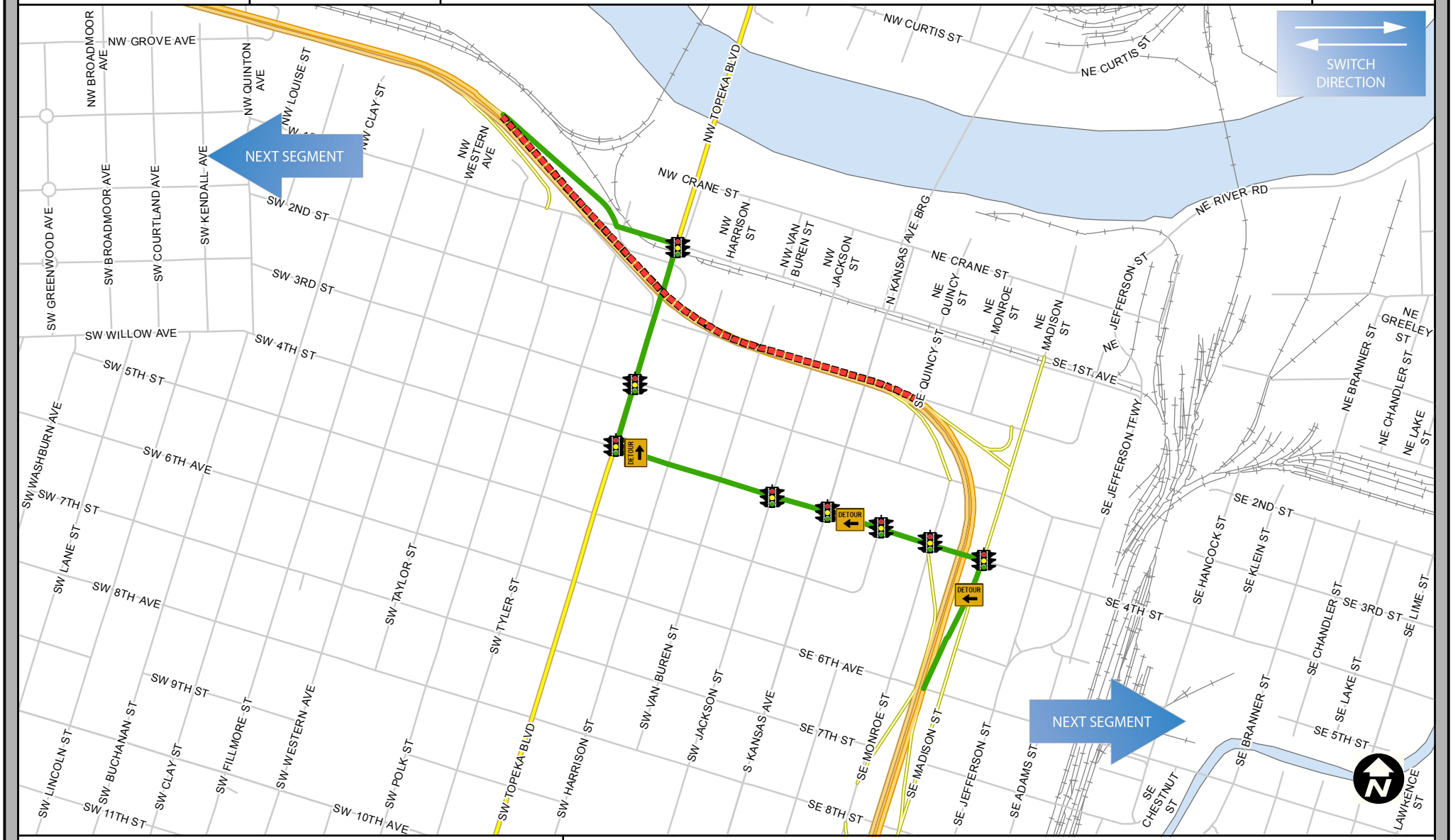
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: 3rd St. On Ramp	TO: 1st Ave. On Ramp	PLAN 70WB-9



Legend

Closure

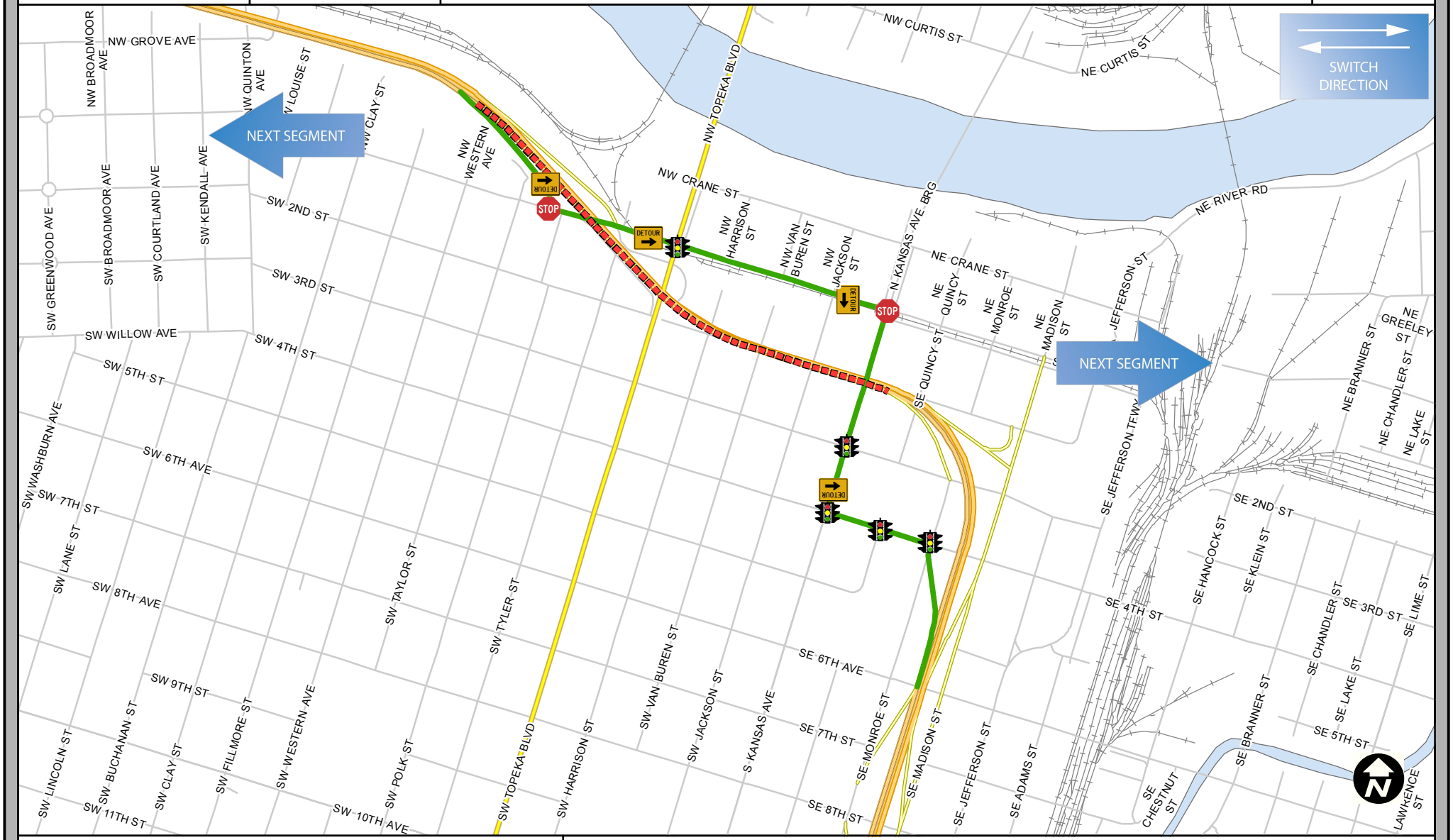
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: 1st Ave. Off Ramp	TO: 3rd St. Off Ramp	PLAN 70EB-10



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: 1st Ave. On Ramp / MacVicar Ave. Off Ramp	PLAN 70WB-10

Legend

Closure

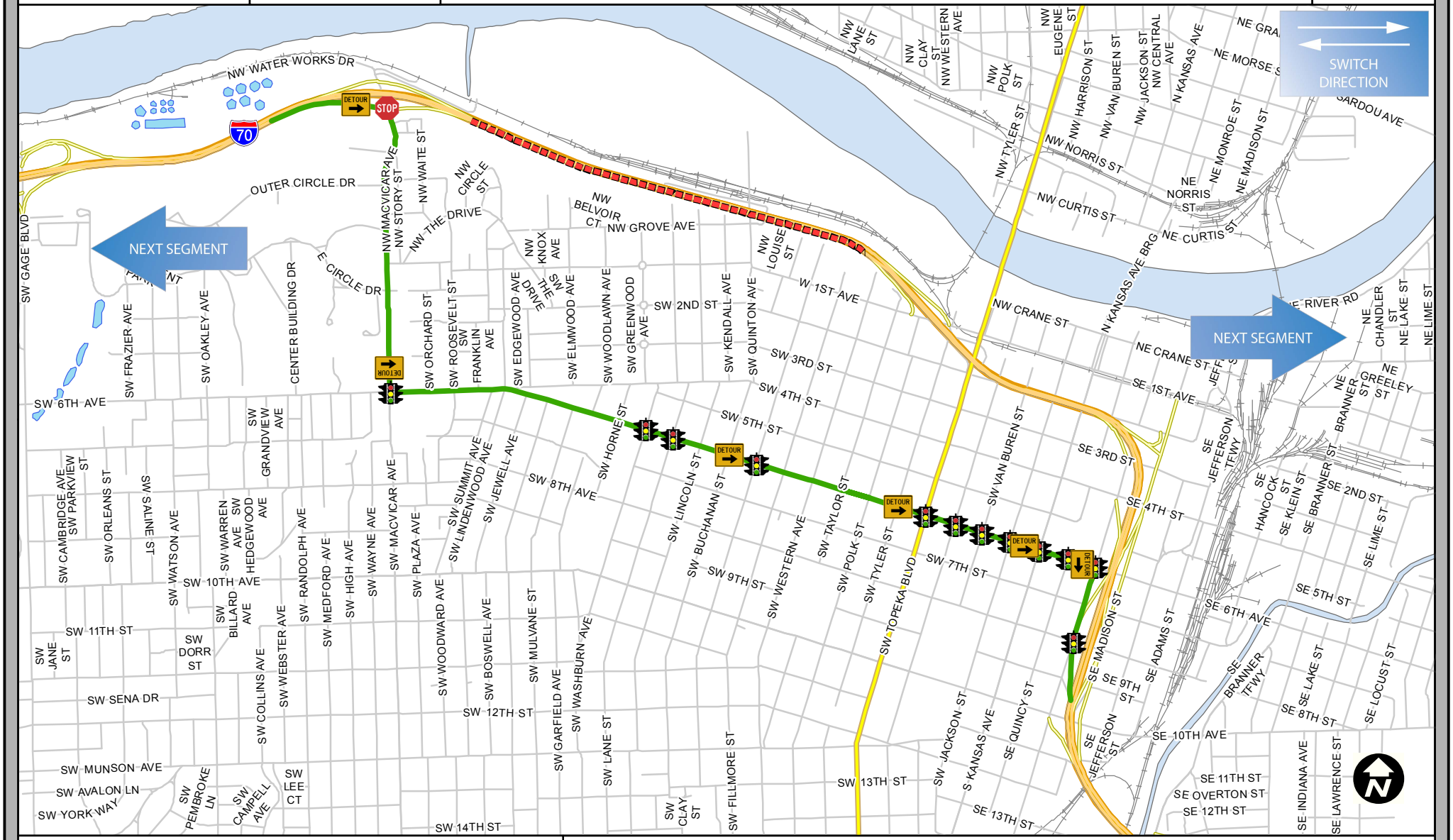
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: MacVicar Ave. On Ramp	1st Ave. Off Ramp	PLAN 70EB-11



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: MacVicar Ave. On Ramp / Gage Blvd. Off Ramp	PLAN 70WB-11

Legend

Closure

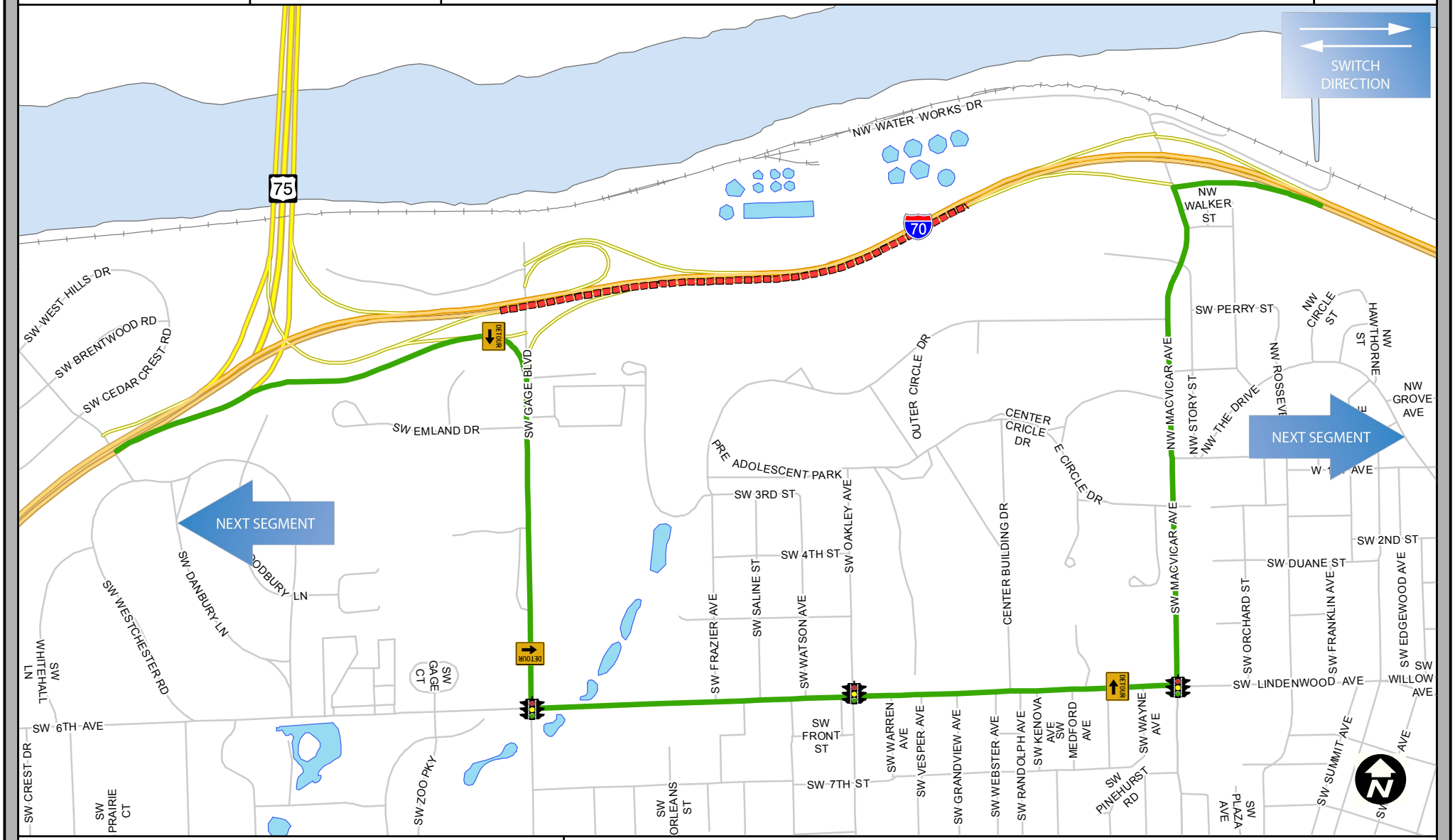
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: US 75 SB On Ramp	MacVicar Ave. Off Ramp	PLAN 70EB-12



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: Gage Blvd. Off Ramp	US 75 NB Off Ramp	PLAN 70WB-12

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: US 75 NB Off Ramp	TO: US 75 SB On Ramp	PLAN 70EB-13

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Solder Township Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: US 75 NB Off Ramp / US 75 SB On Ramp	PLAN 70WB-13

Legend

Closure

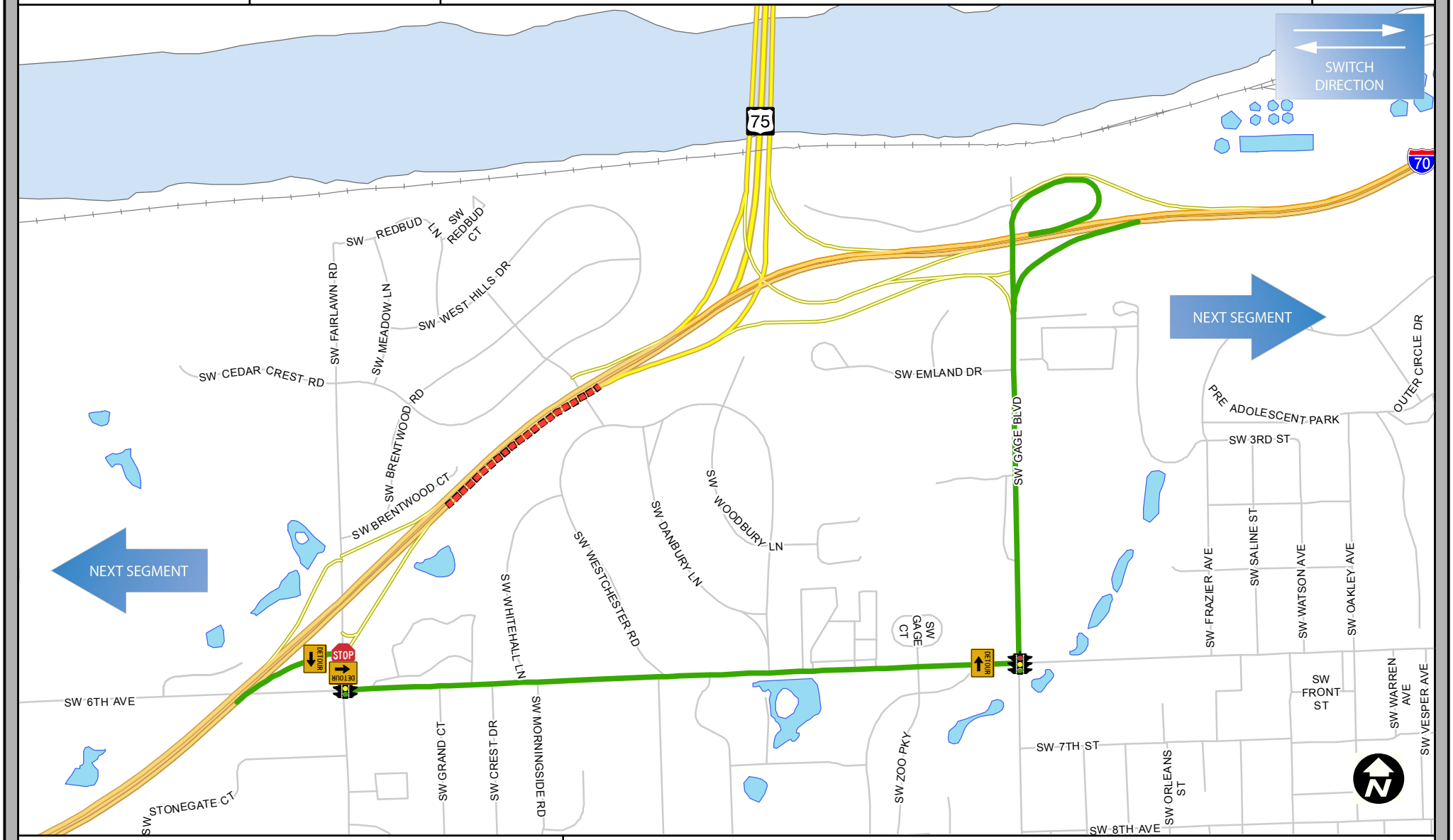
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Eastbound	FROM: Fairlawn Rd. On Ramp	TO: US 75 NB Off Ramp	PLAN 70EB-14



Legend

Closure

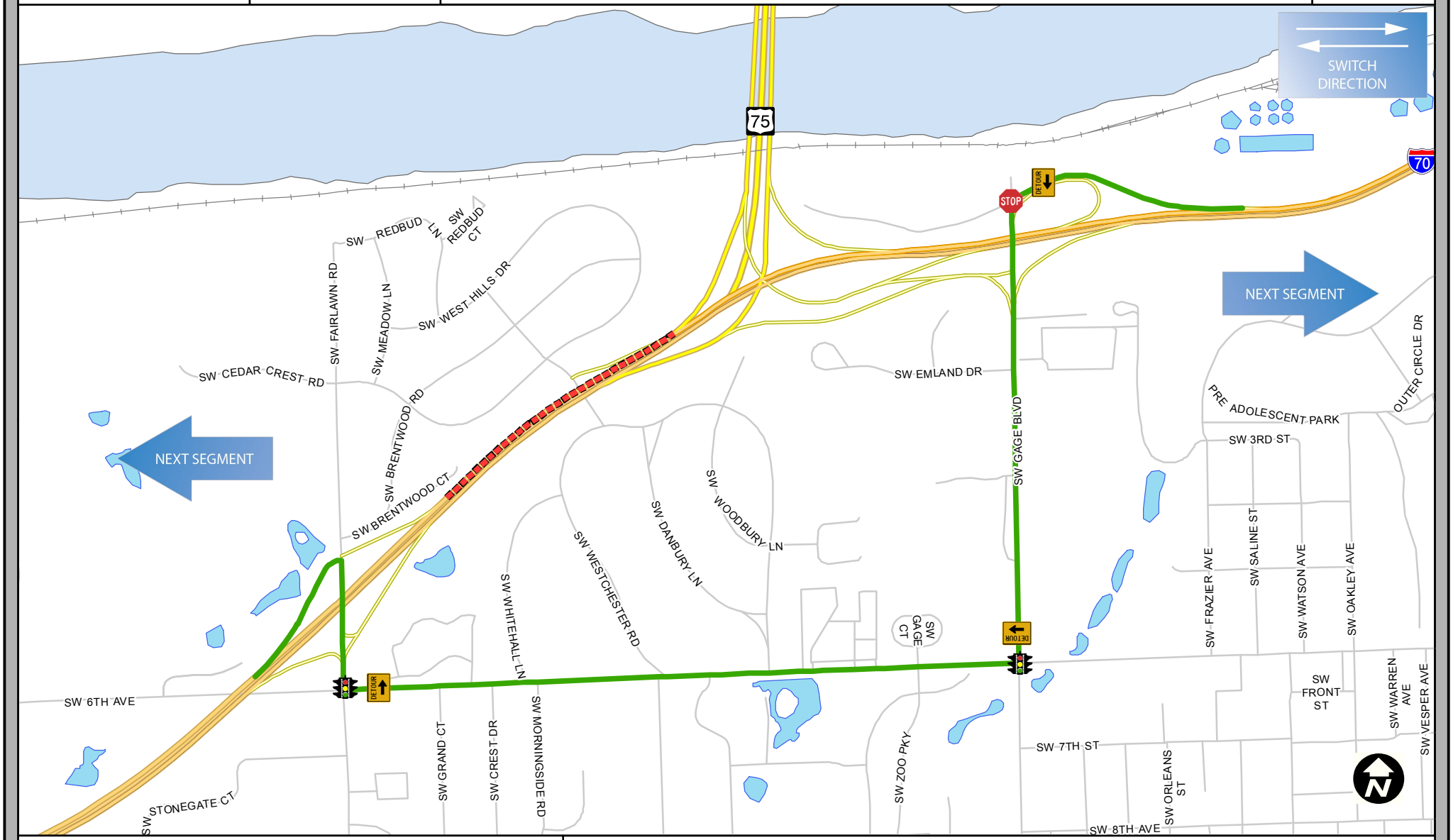
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: US 75 SB On Ramp	Fairlawn Rd. Off Ramp	PLAN 70WB-14



Legend

Closure

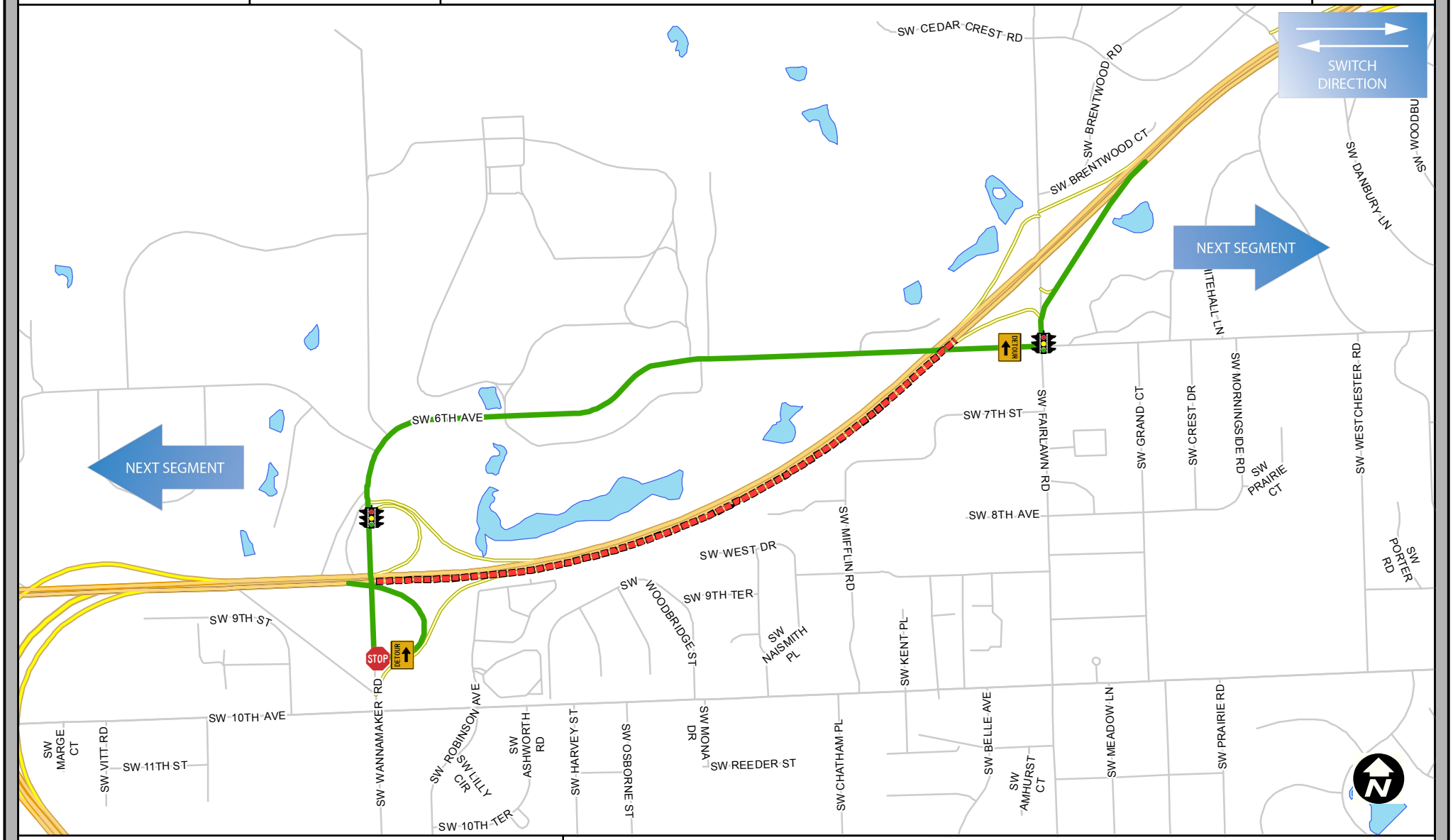
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: Wannamaker Rd Off Ramp	TO: Fairlawn Rd. Off Ramp	PLAN 70EB-15



Legend

Closure

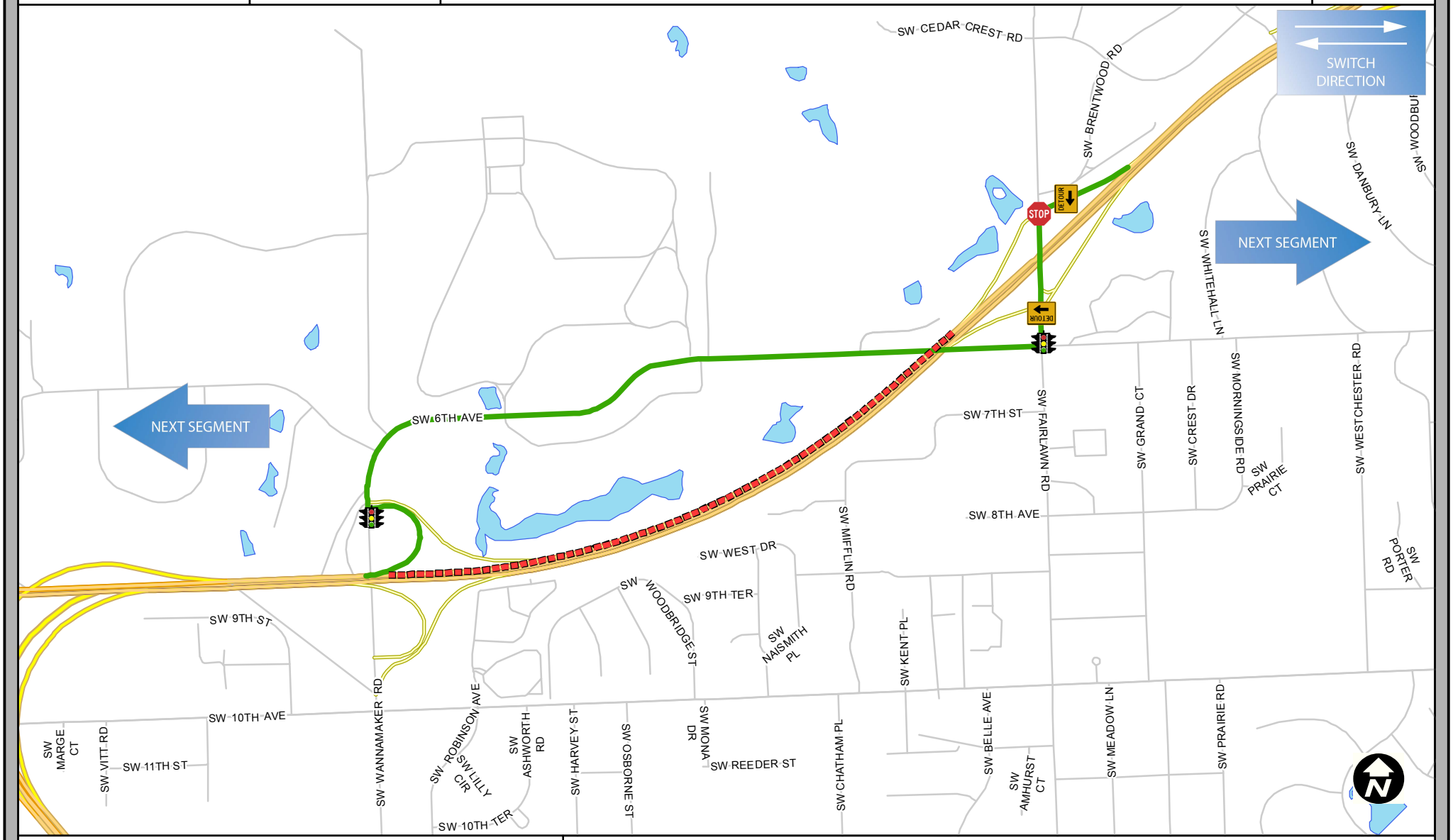
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-70 Westbound	FROM: Fairlawn Rd. On Ramp	TO: Wannamaker Rd On Ramp	PLAN 70WB-15



Legend

Closure

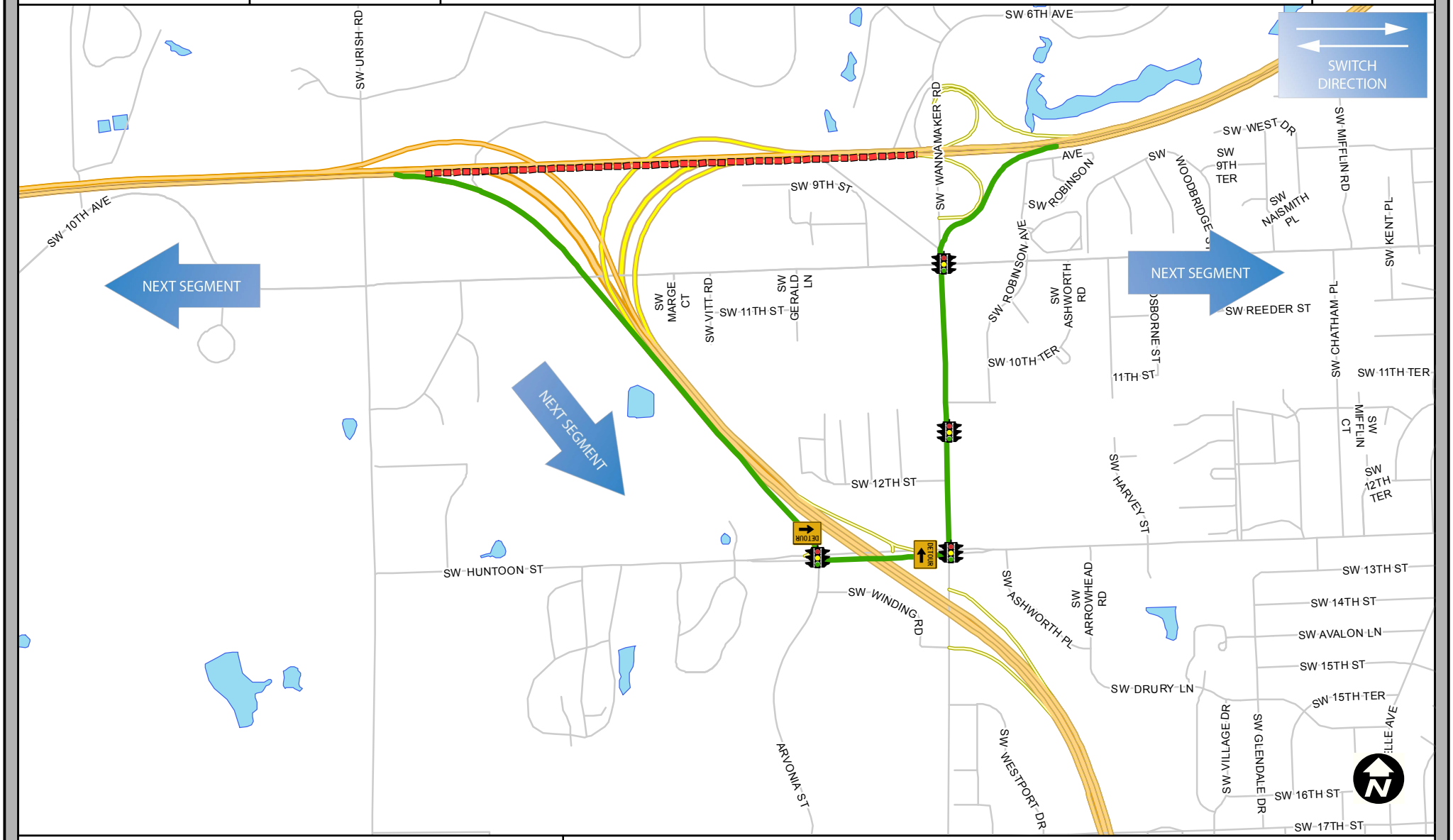
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: I-470 SB Off Ramp	TO: Wannamaker Rd Off Ramp	PLAN 70EB-16



Legend

Closure

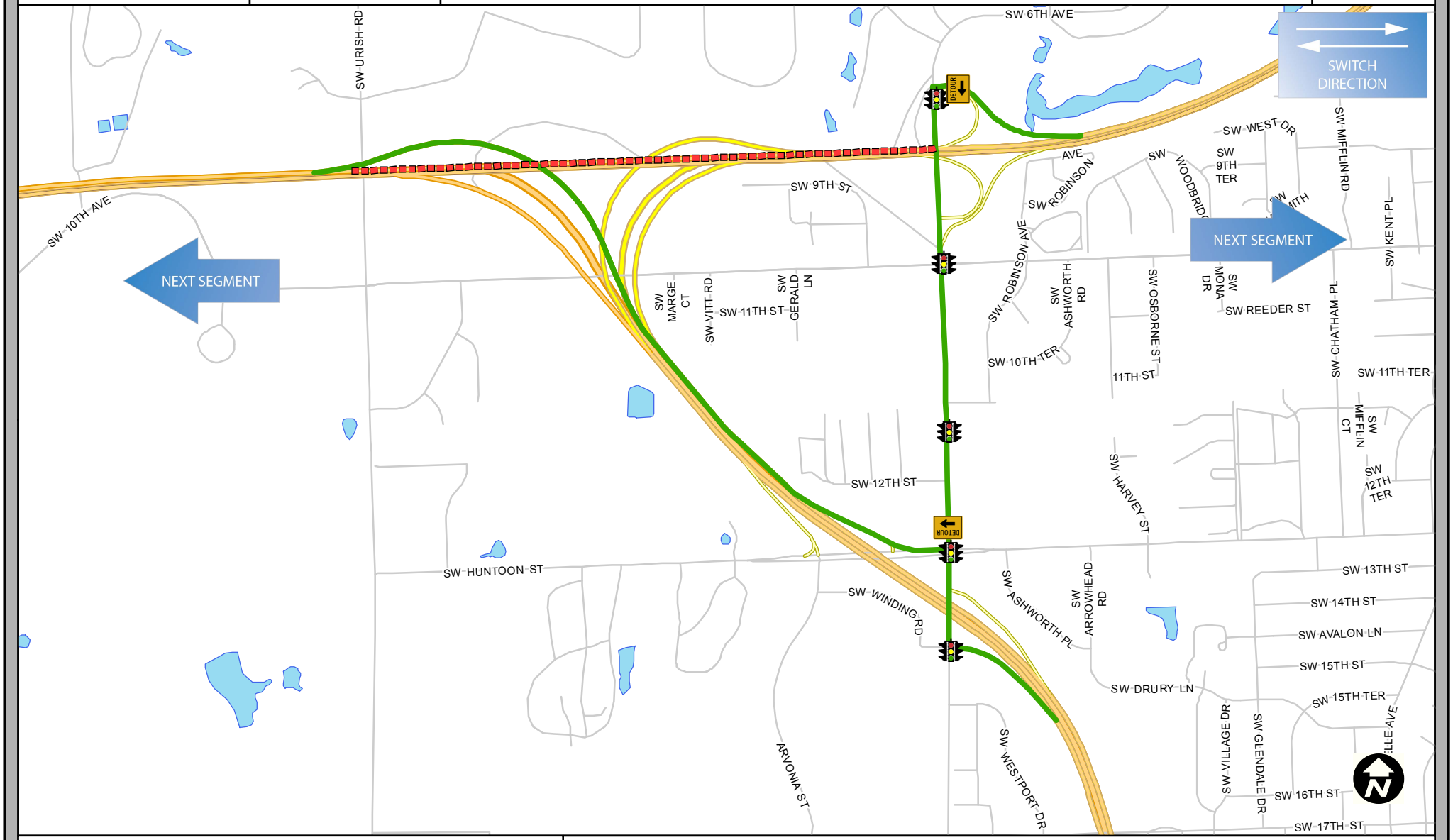
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: Wannamaker Rd On Ramp	TO: I-470 NB On Ramp	PLAN 70WB-16



Legend

Closure

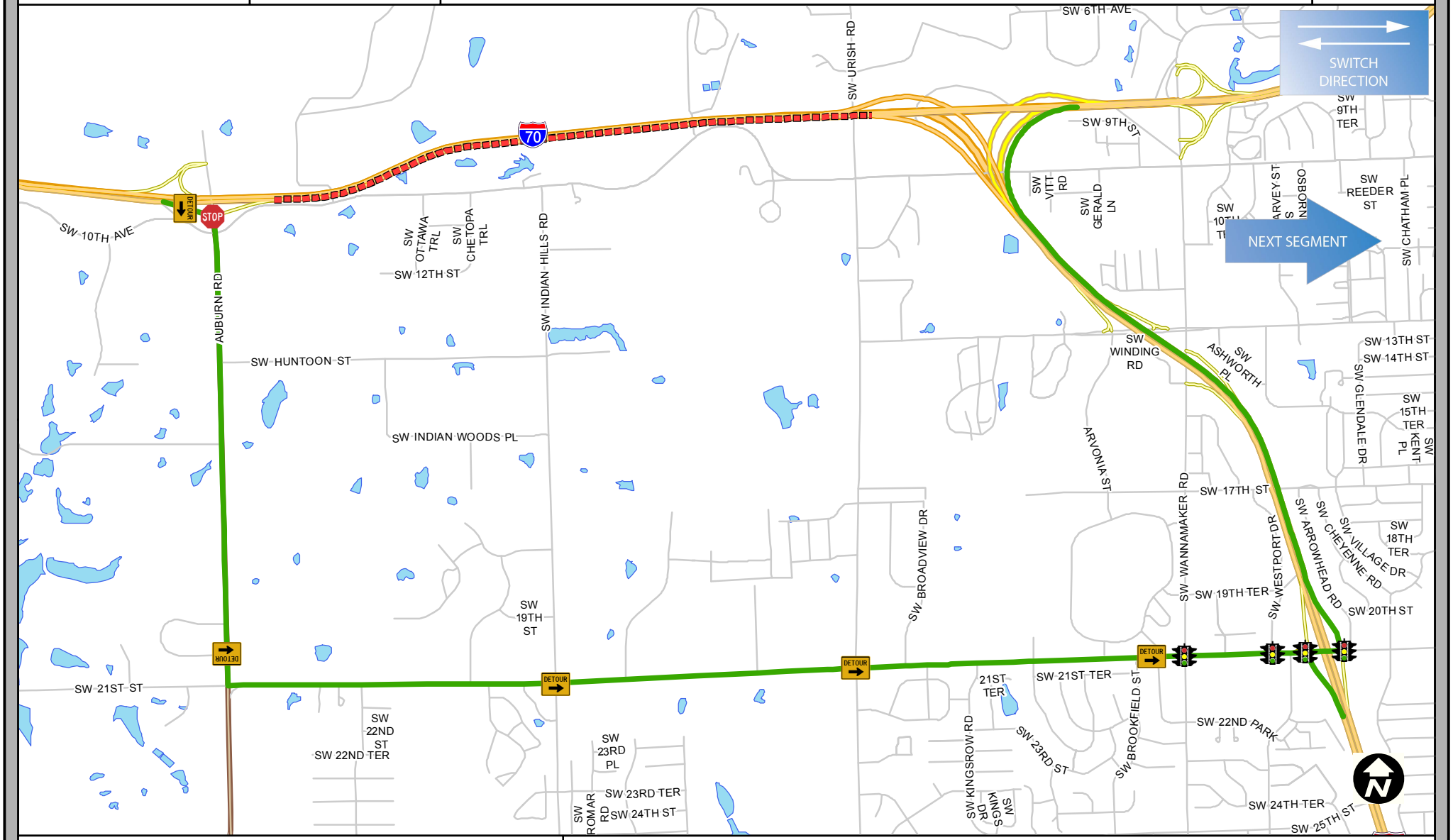
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Eastbound	TO: Auburn Rd. On Ramp	TO: I-470 SB Off Ramp	PLAN 70EB-17



Legend

Closure

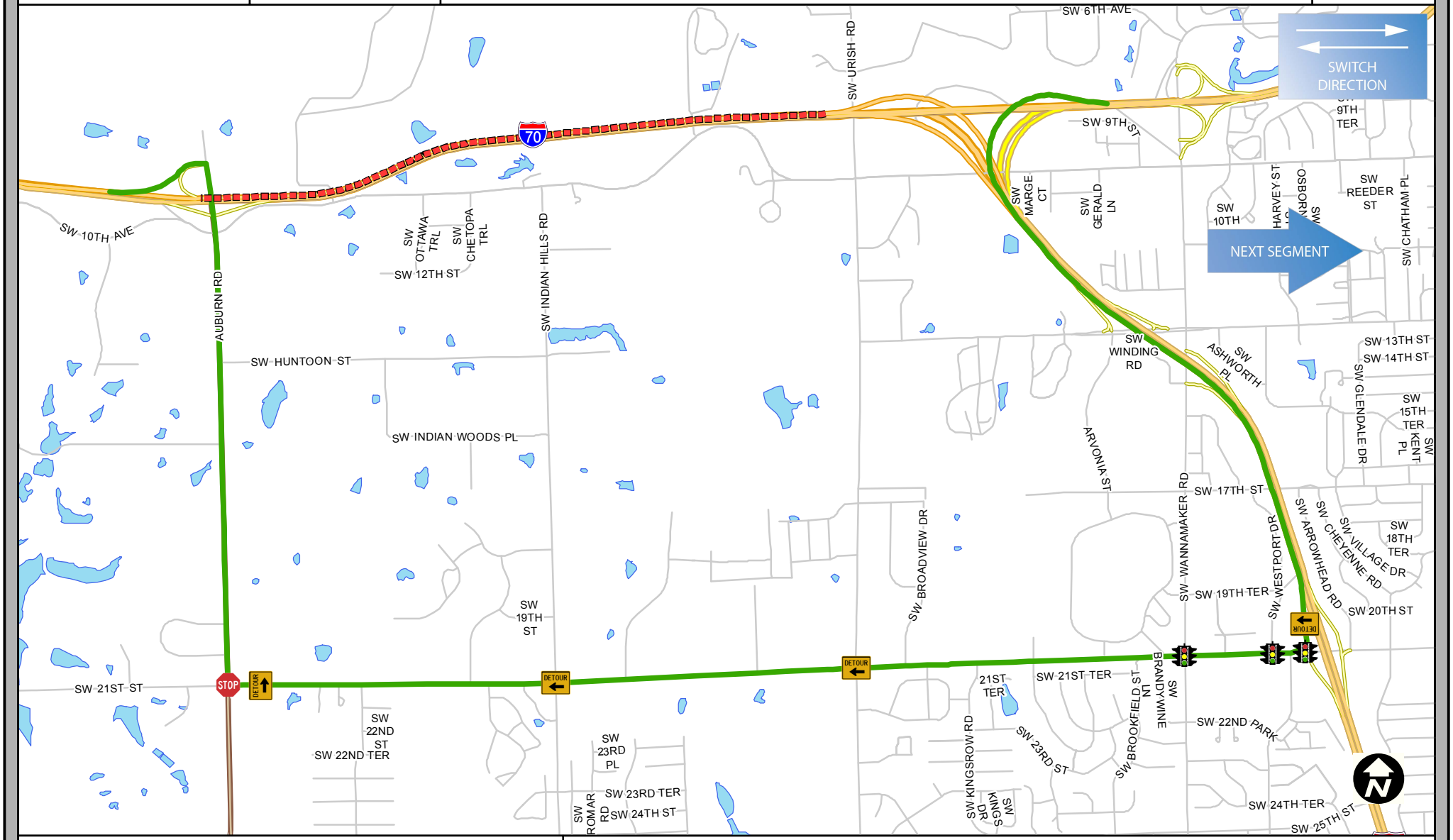
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Auburn Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	FROM: I-70 Westbound	TO: I-470 NB On Ramp	TO: Auburn Rd. Off Ramp	PLAN 70WB-17



Legend

Closure

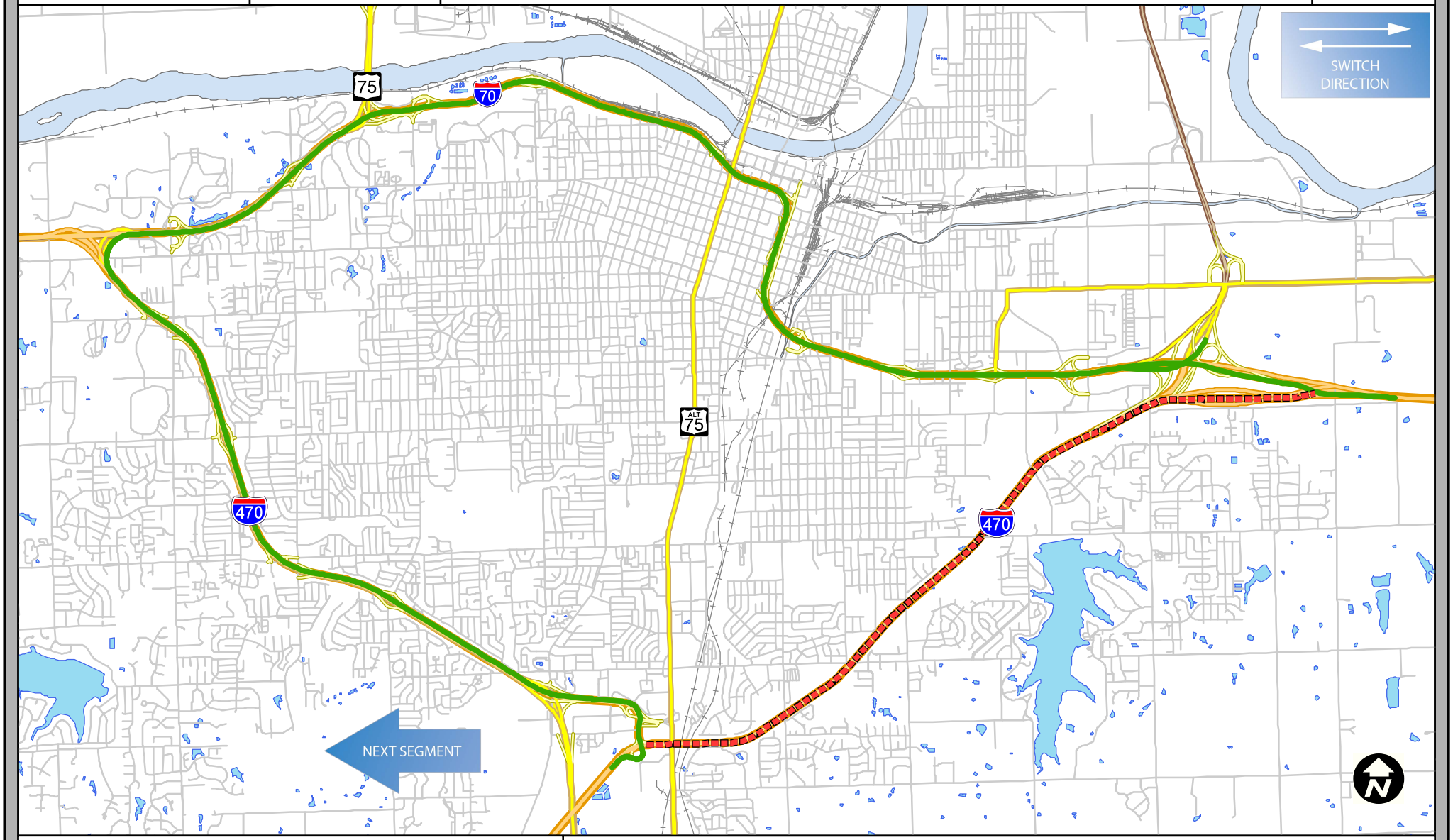
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Auburn Fire Department

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: Topeka Blvd. On Ramp	TO: I-70 Merge	PLAN 470EB-01



Legend

Closure

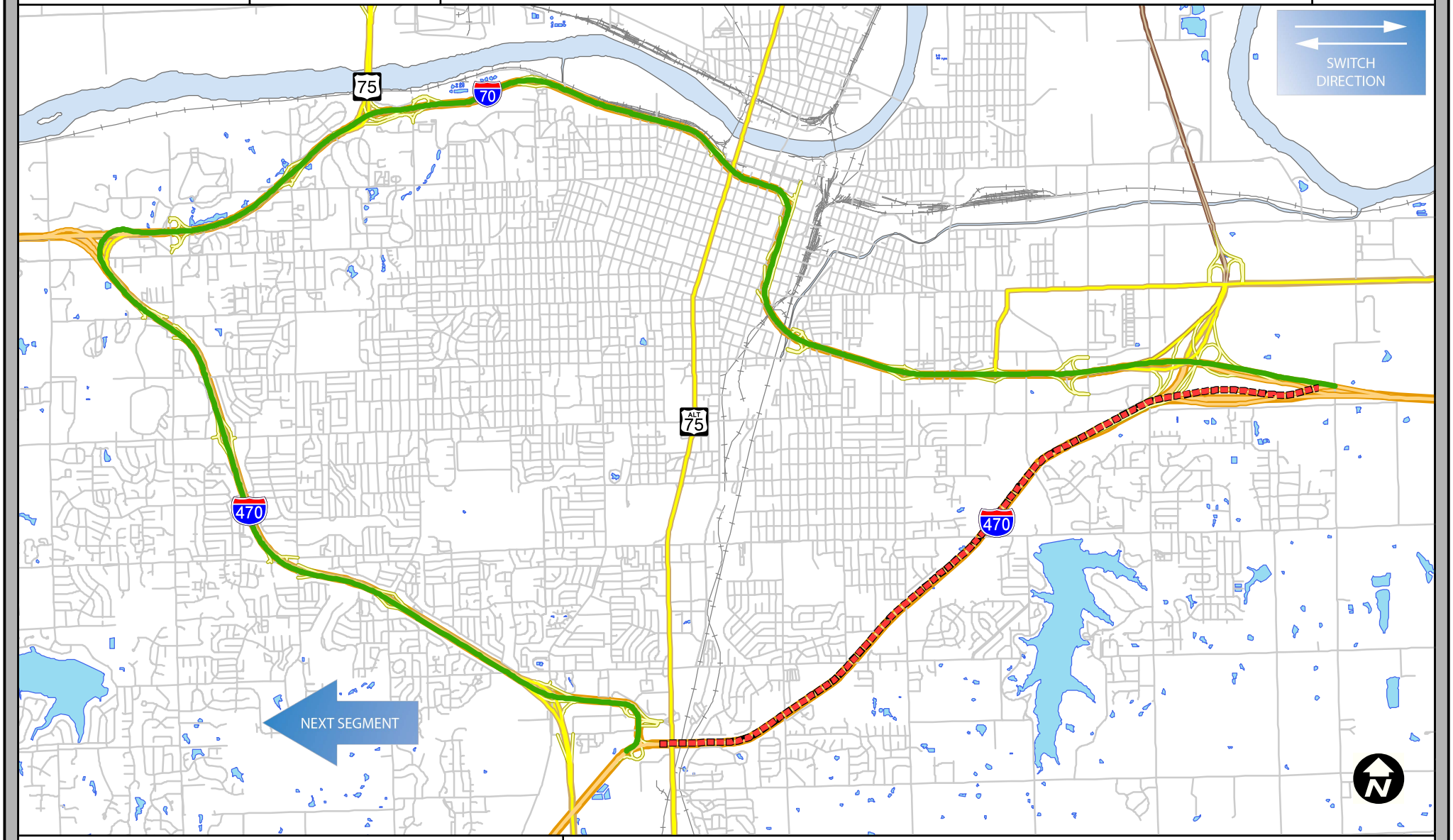
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
Kansas Turnpike Authority
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: I-70 Diverge	TO: Topeka Blvd. Off Ramp	PLAN 470WB-01



Legend

Closure

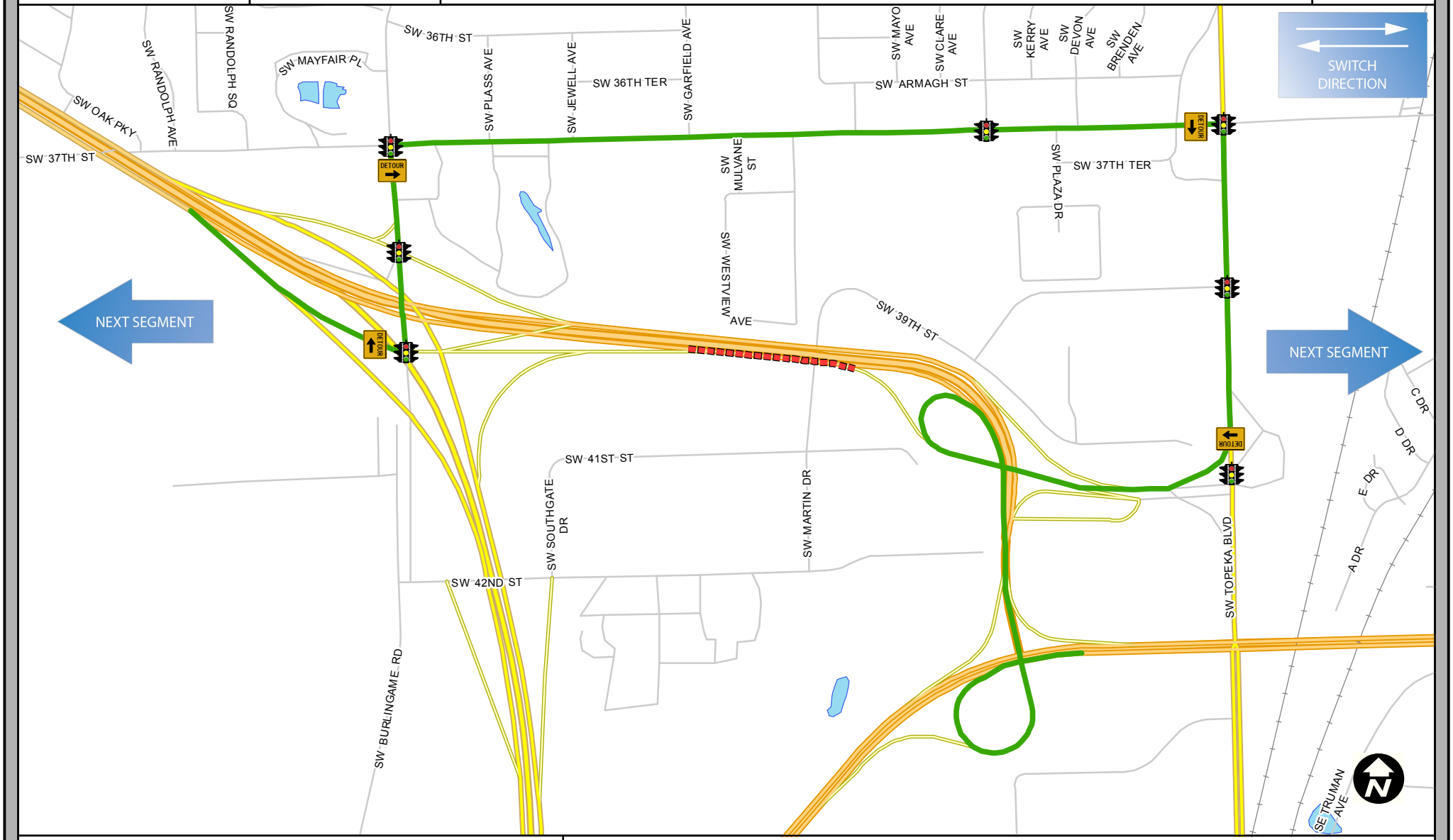
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
Kansas Turnpike Authority
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: Burlingame On Ramp	TO: Topeka Blvd. Off Ramp	PLAN 470EB-02



Legend

Closure

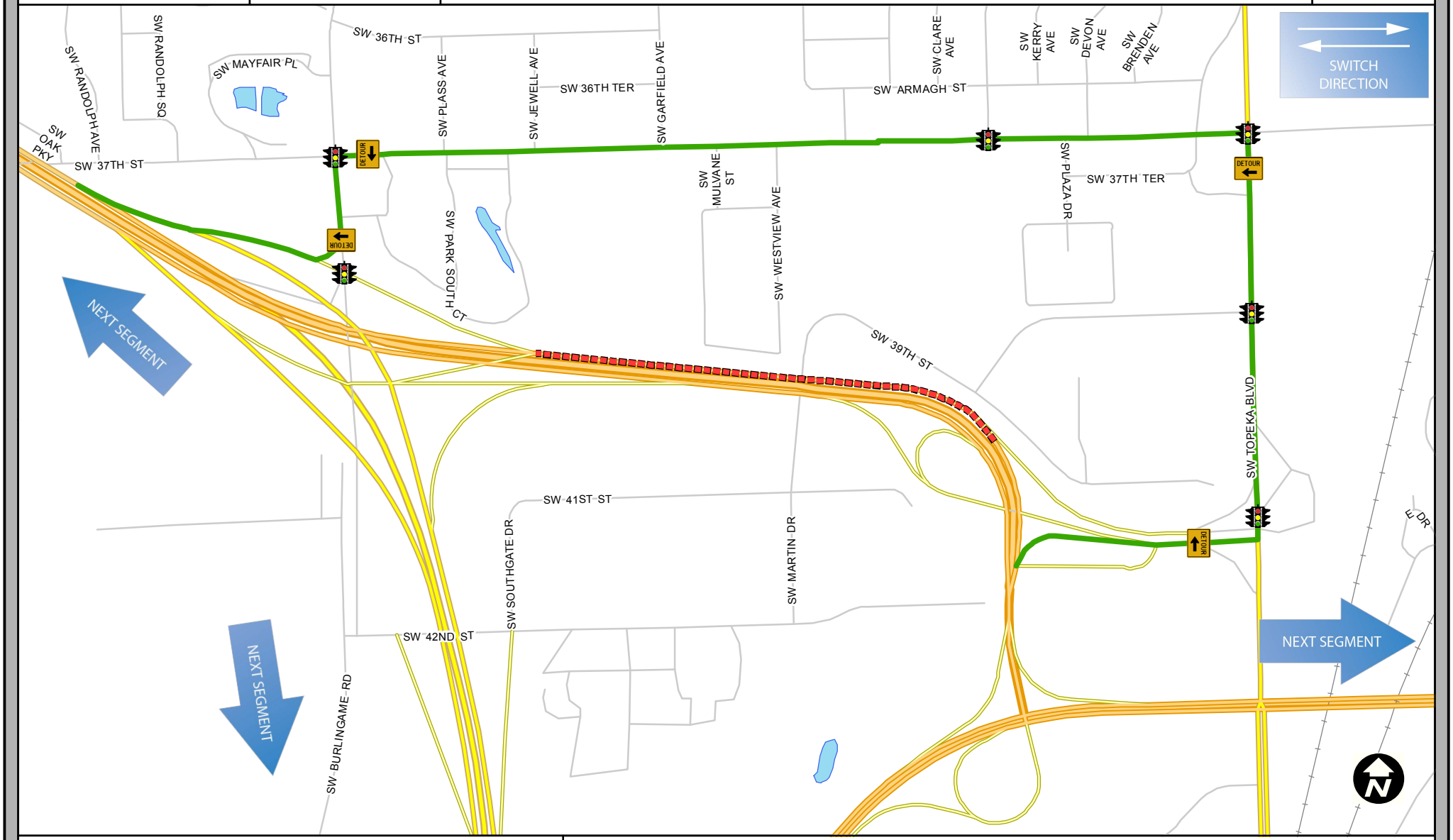
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: Topeka Blvd. On Ramp	TO: Burlingame On Ramp	PLAN 470WB-02



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: Gage Blvd. On Ramp	TO: Burlingame Off Ramp	PLAN 470EB-03

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: Burlingame On Ramp	TO: Gage Blvd. Off Ramp	PLAN 470WB-03

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: Fairlawn Rd. On Ramp	TO: Gage Blvd. Off Ramp	PLAN 470EB-04

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: Gage Blvd. On Ramp	TO: Fairlawn Rd. Off Ramp	PLAN 470WB-04

Legend

Closure

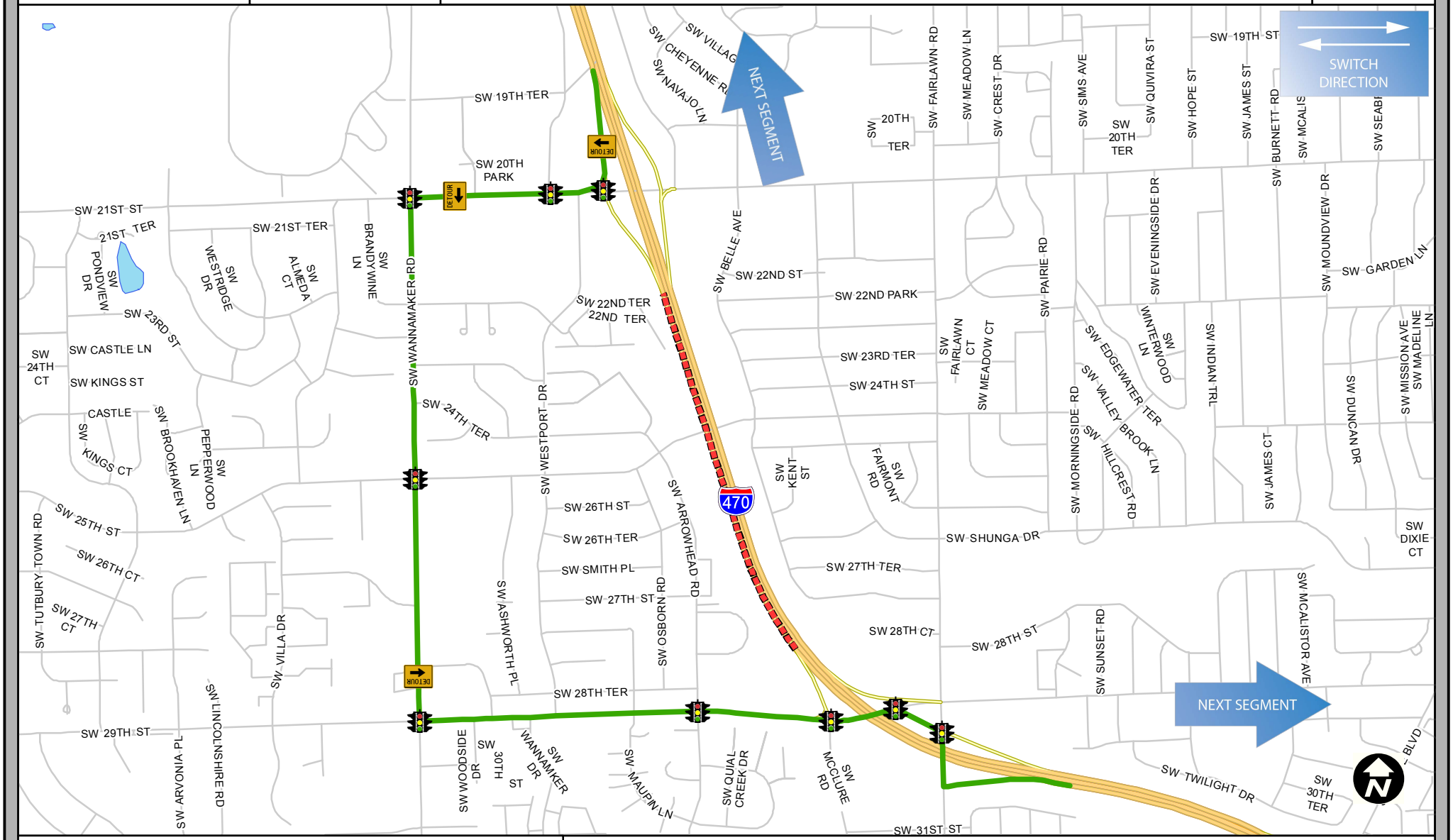
Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

HOME | BACK | EXIT

FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: 21st St. On Ramp	TO: 29th St. Off Ramp	PLAN 470EB-05



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: 29th St. On Ramp	TO: 21st St. Off Ramp	PLAN 470WB-05

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: Wannamaker Rd. On Ramp	TO: 21st St. Off Ramp	PLAN 470EB-06

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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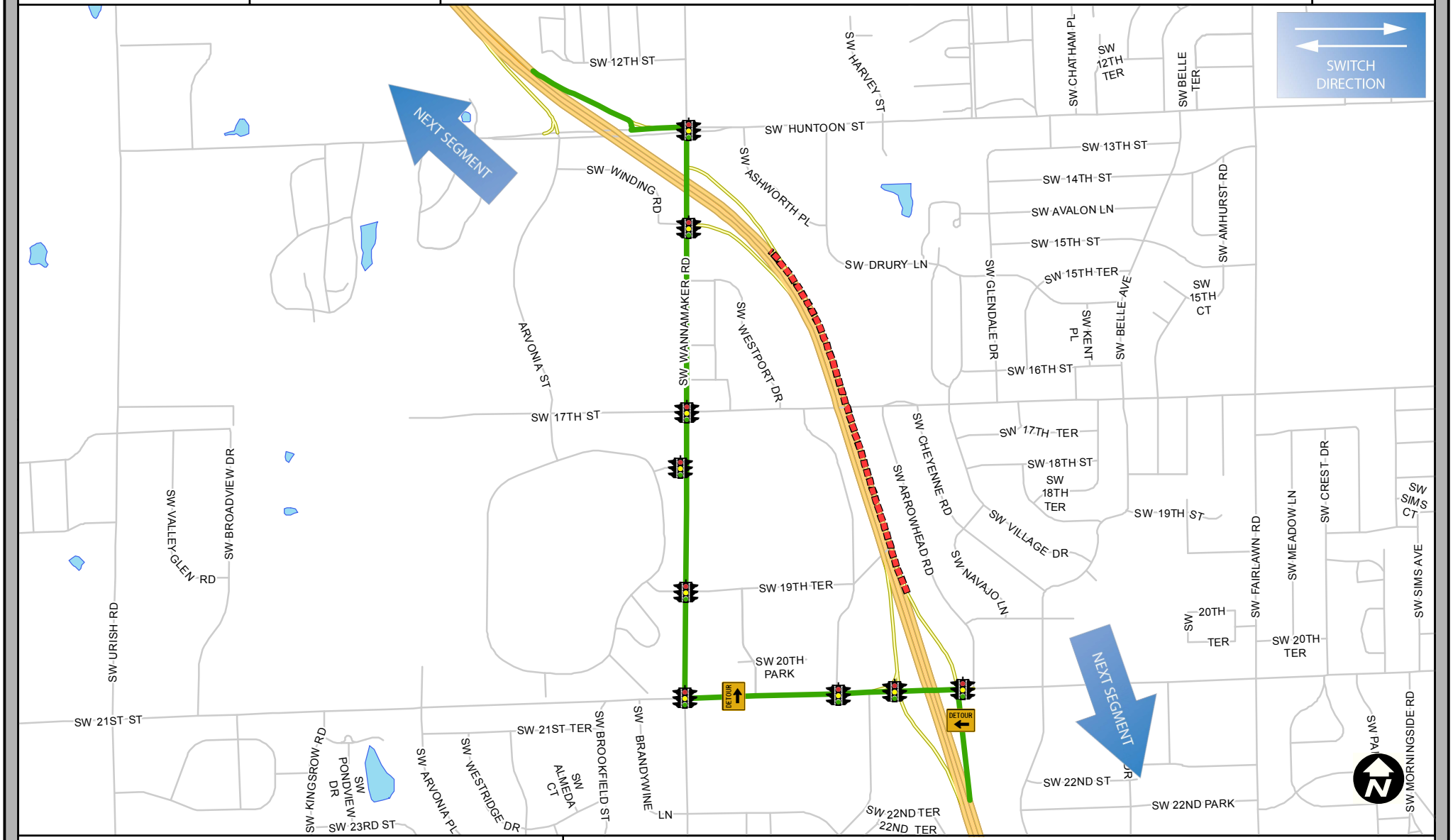
FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: 21st St. On Ramp	TO: Wannamaker Rd. Off Ramp	PLAN 470WB-06



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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FREEWAY DIVERSION	Topeka Metro	I-470 Eastbound	FROM: I-70 On Ramp	TO: Huntoon St. Off Ramp	PLAN 470EB-07

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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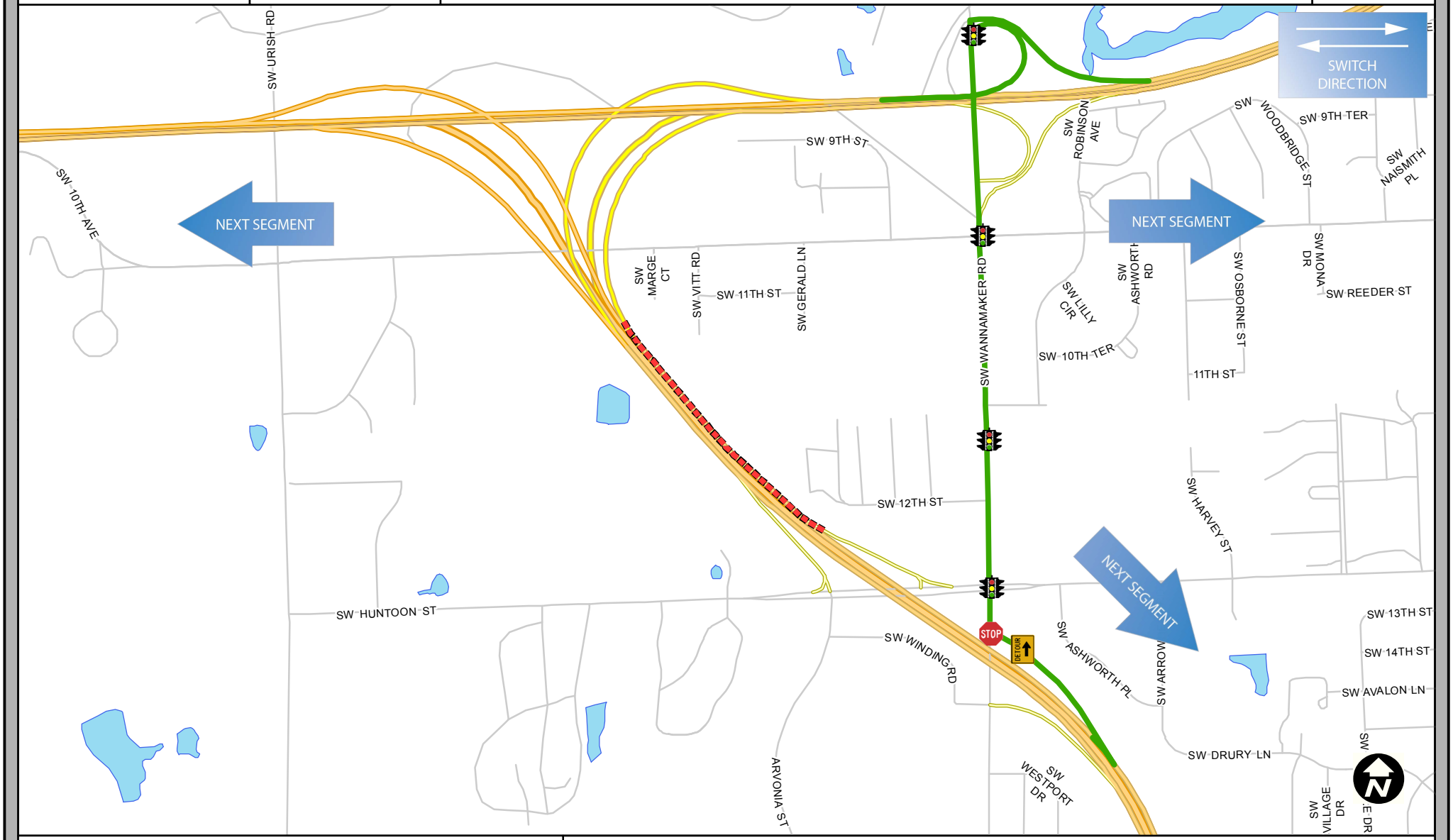
FREEWAY DIVERSION	Topeka Metro	I-470 Westbound	FROM: Huntoon St. On Ramp	TO: I-70 Off Ramp	PLAN 470WB-07



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Topeka Fire Department
AMR

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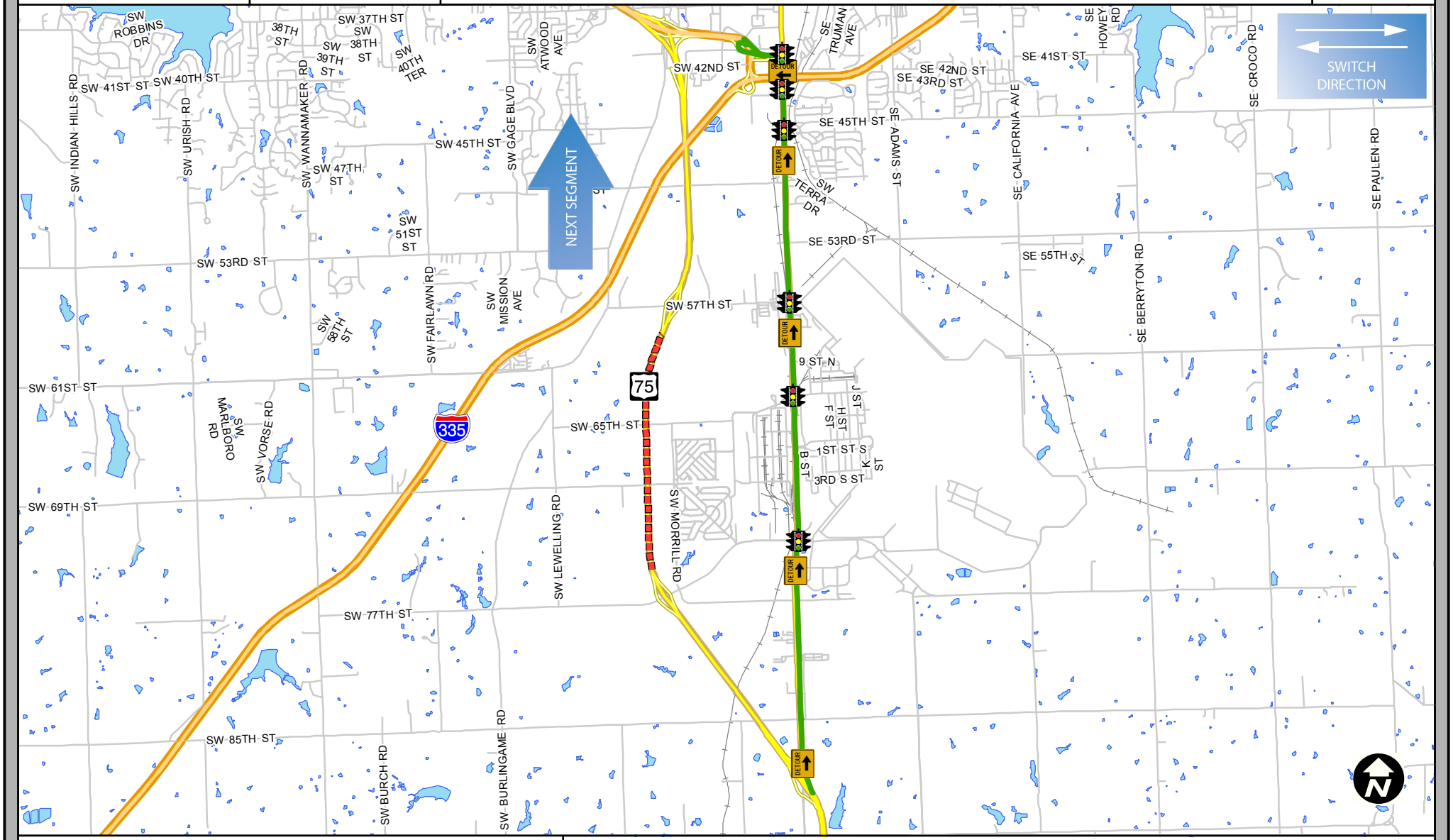
FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Northbound	TO: 77th St. On Ramp / 57th St. Off Ramp	PLAN 75NB-01



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire Department

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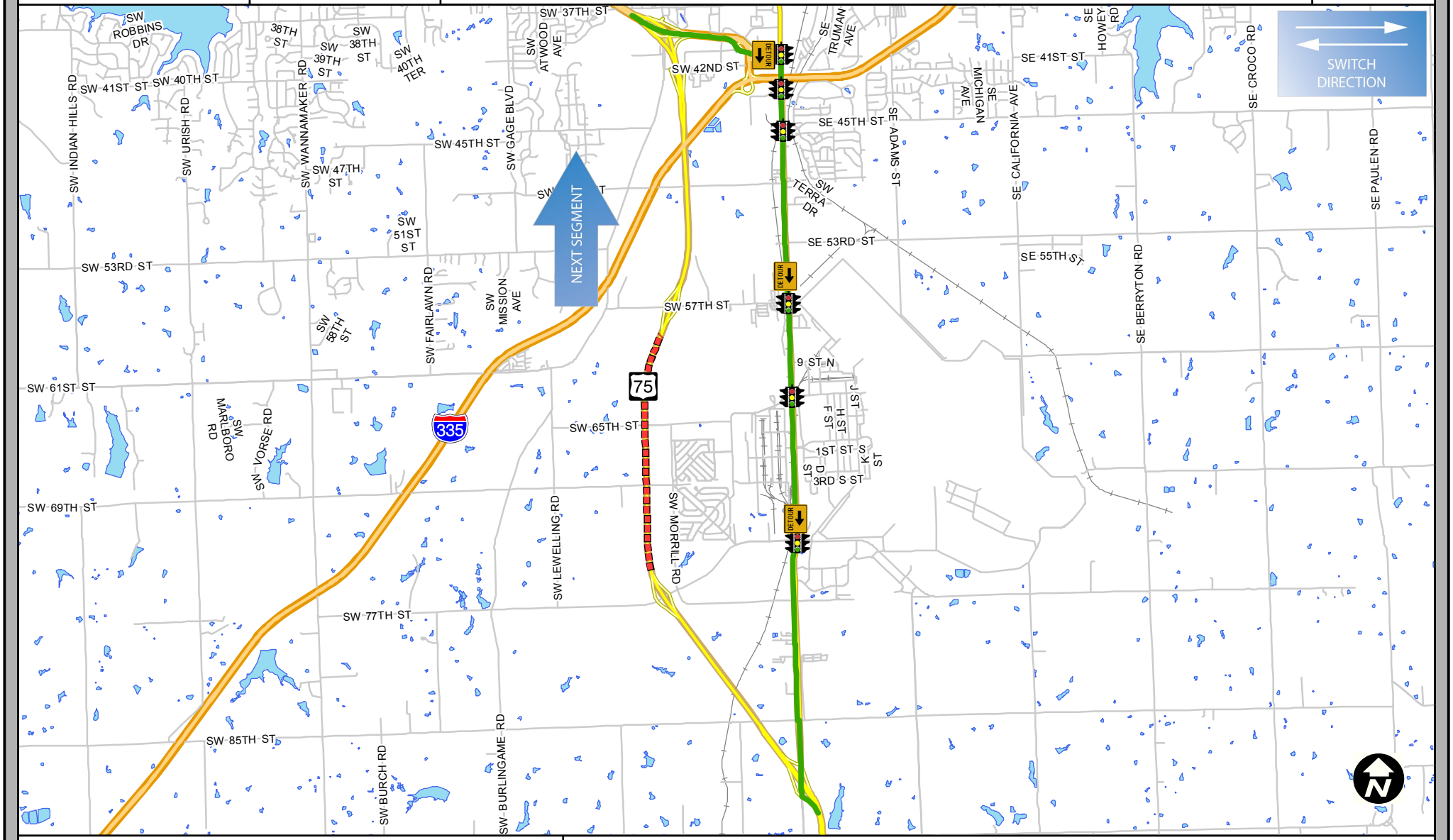
FREEWAY DIVERSION	Topeka Metro	US 75 Southbound	FROM: 57th St. On Ramp	TO: 77th St. Off Ramp	PLAN 75SB-01



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire Department

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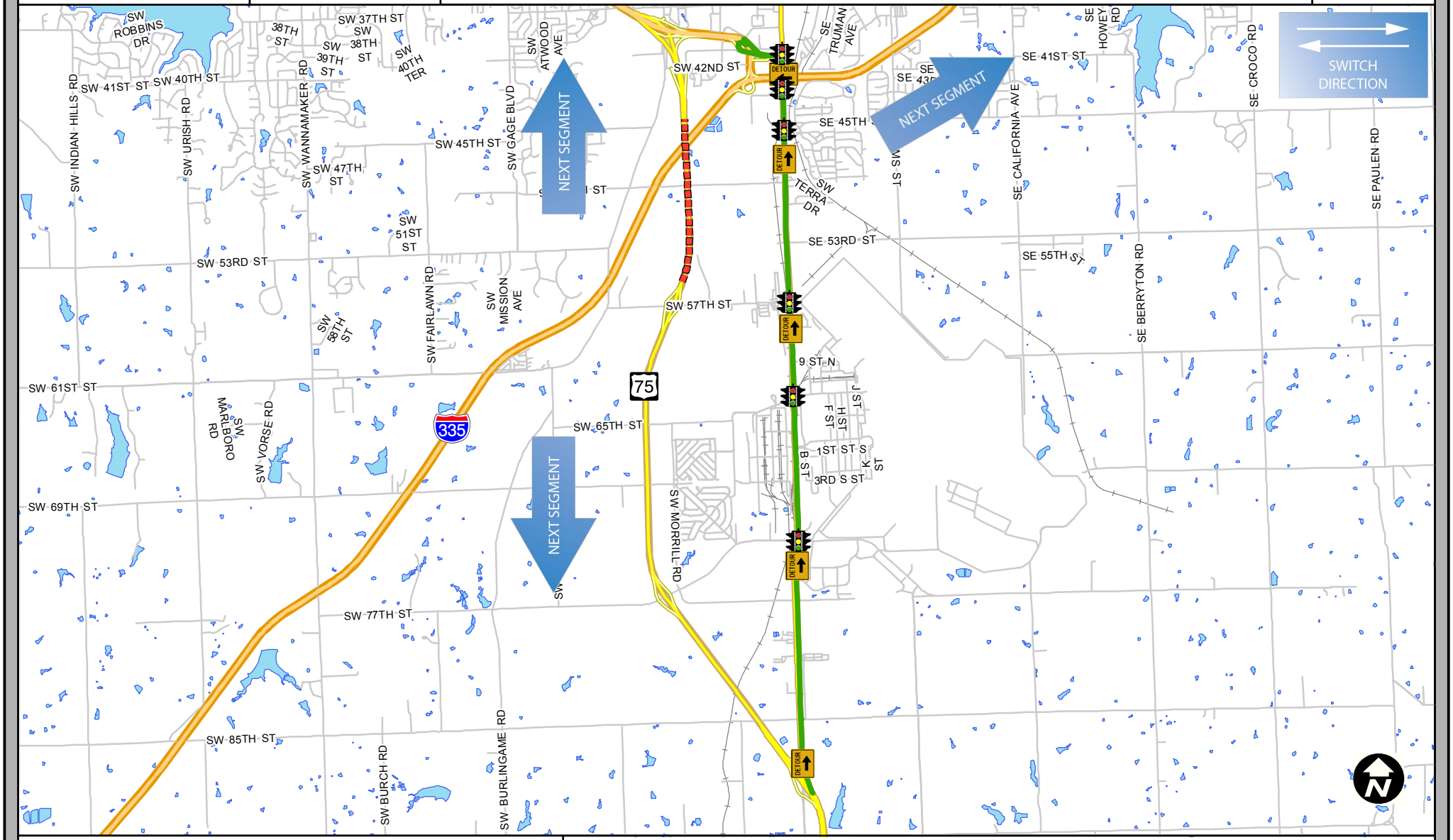
FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Northbound	TO: 57th St. On Ramp / 42nd St. Off Ramp	PLAN 75NB-02



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire Department

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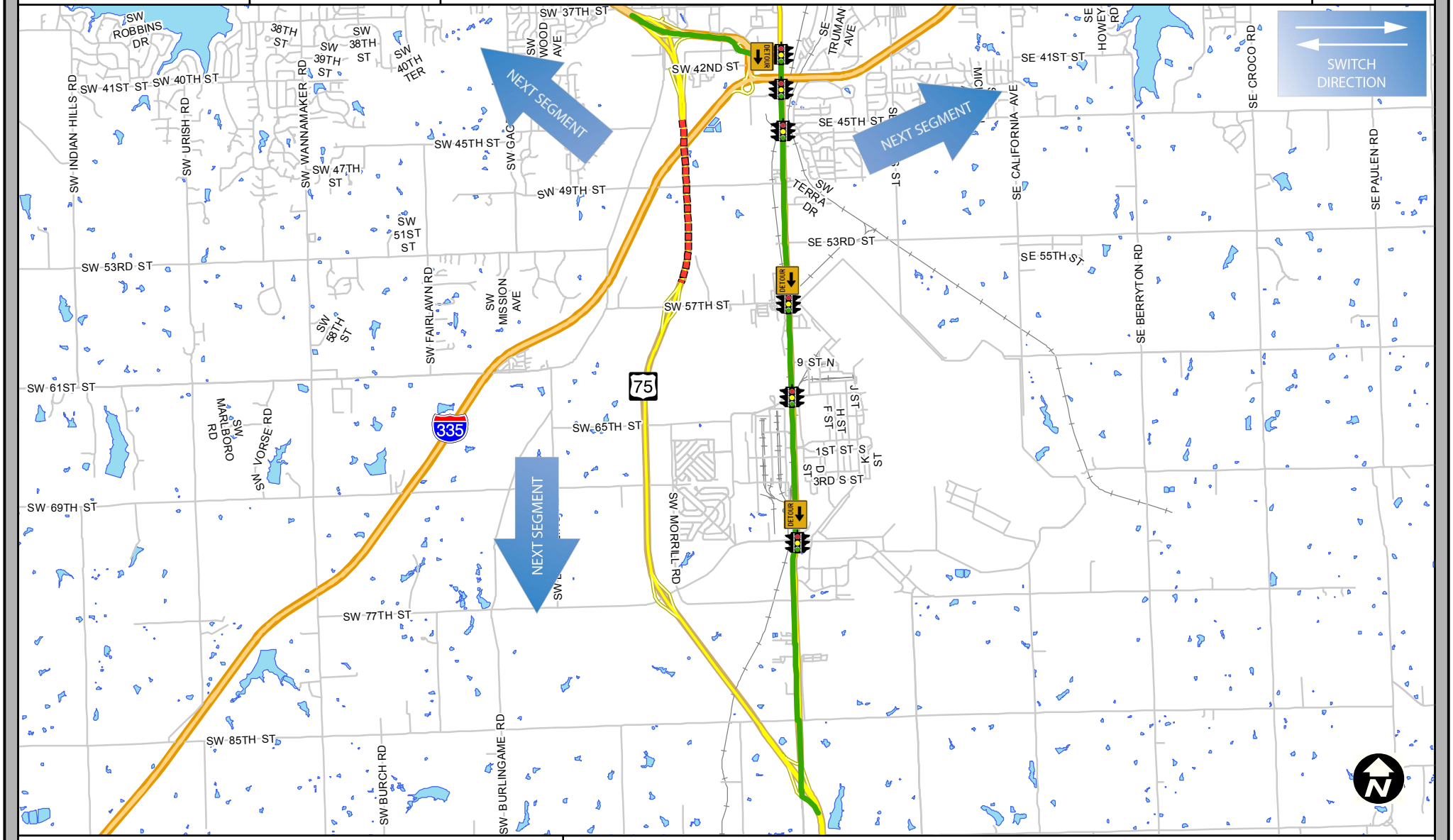
FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Southbound	TO: 42nd St. On Ramp / 57th St. Off Ramp	PLAN 75SB-02



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Shawnee Heights Fire Department

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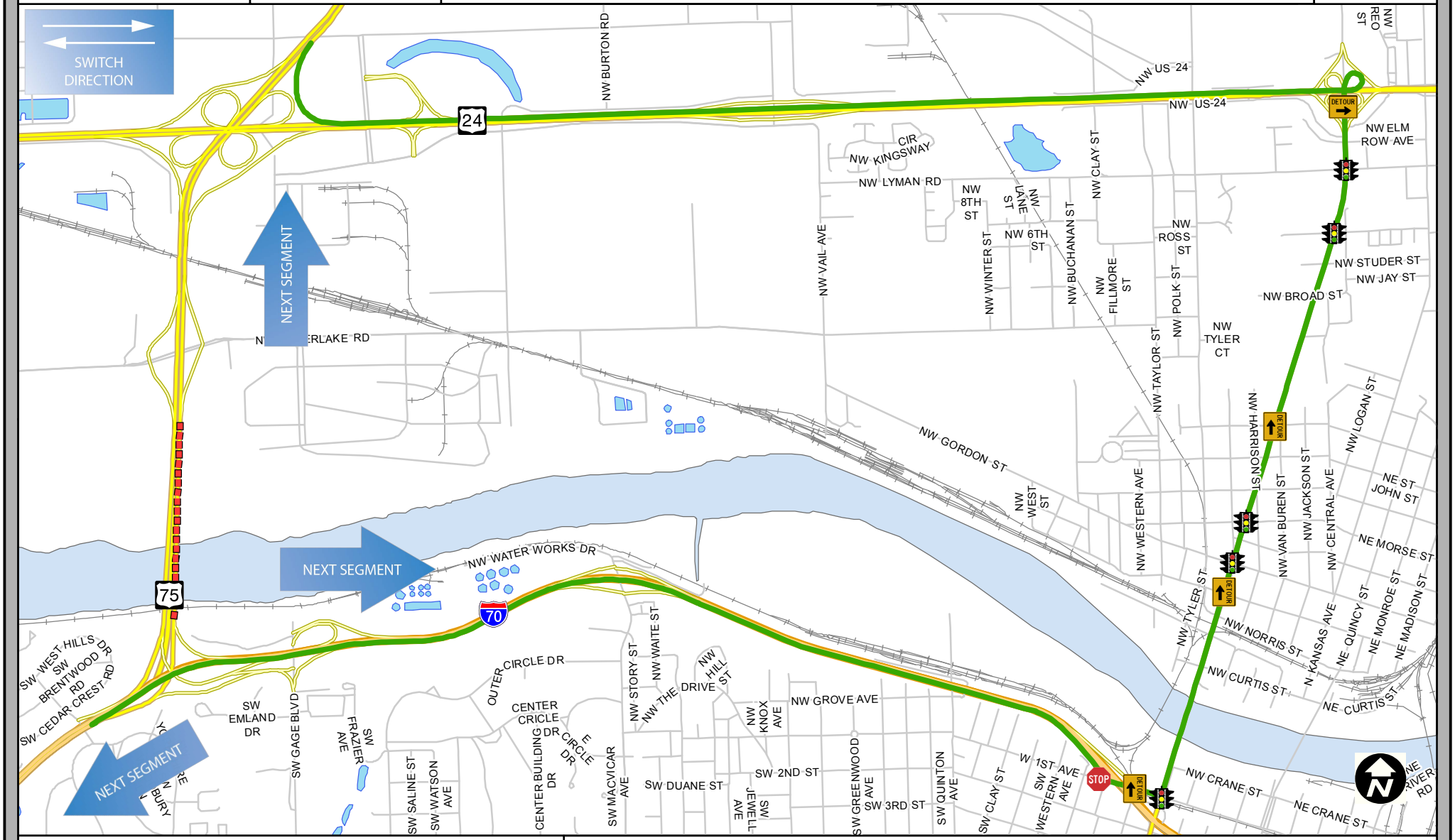
FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Northbound	TO: I-70 On Ramp	Lower Silver Lake Rd. Off Ramp	PLAN 75NB-03



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department

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FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Southbound	TO: Lower Silver Lake Rd. On Ramp	TO: I-70 Off Ramp	PLAN 75SB-03

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department

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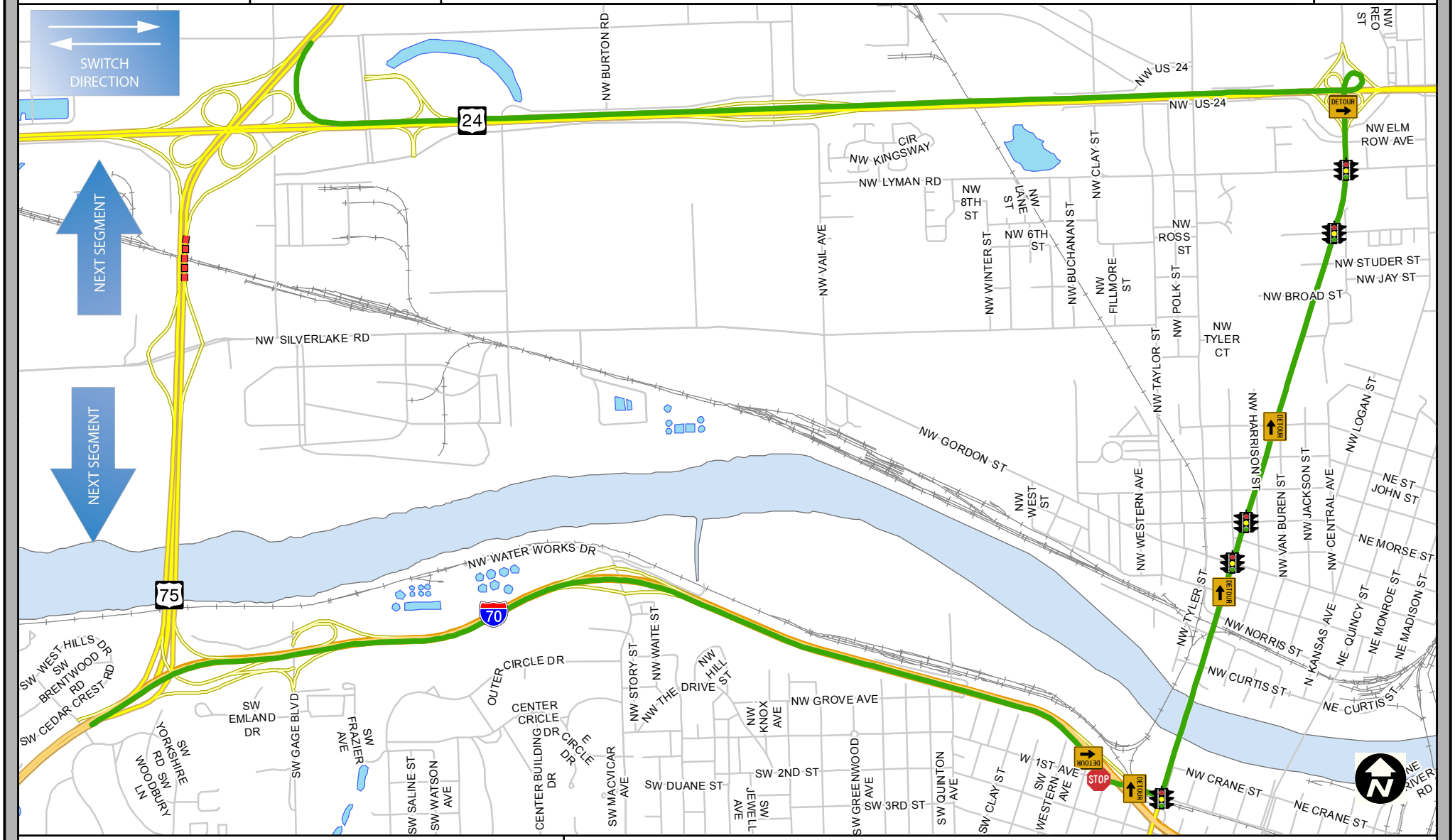
FREEWAY DIVERSION	Topeka Metro	FROM: US 75 Northbound	TO: Lower Silver Lake Rd. On Ramp / US 24 Off Ramp	PLAN 75NB-04



Legend

Closure

Alternate Route

Agencies to Notify:

- Kansas Department of Transportation
- City of Topeka
- Kansas Highway Patrol
- Topeka Police Department
- Shawnee Co. Sheriff
- Topeka Fire Department
- AMR
- Soldier Township Fire Department

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FREEWAY DIVERSION	Topeka Metro	US 75 Southbound	FROM: US 24 On Ramp	TO: Lower Silver Lake Rd. Off Ramp	PLAN 75SB-04

Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department

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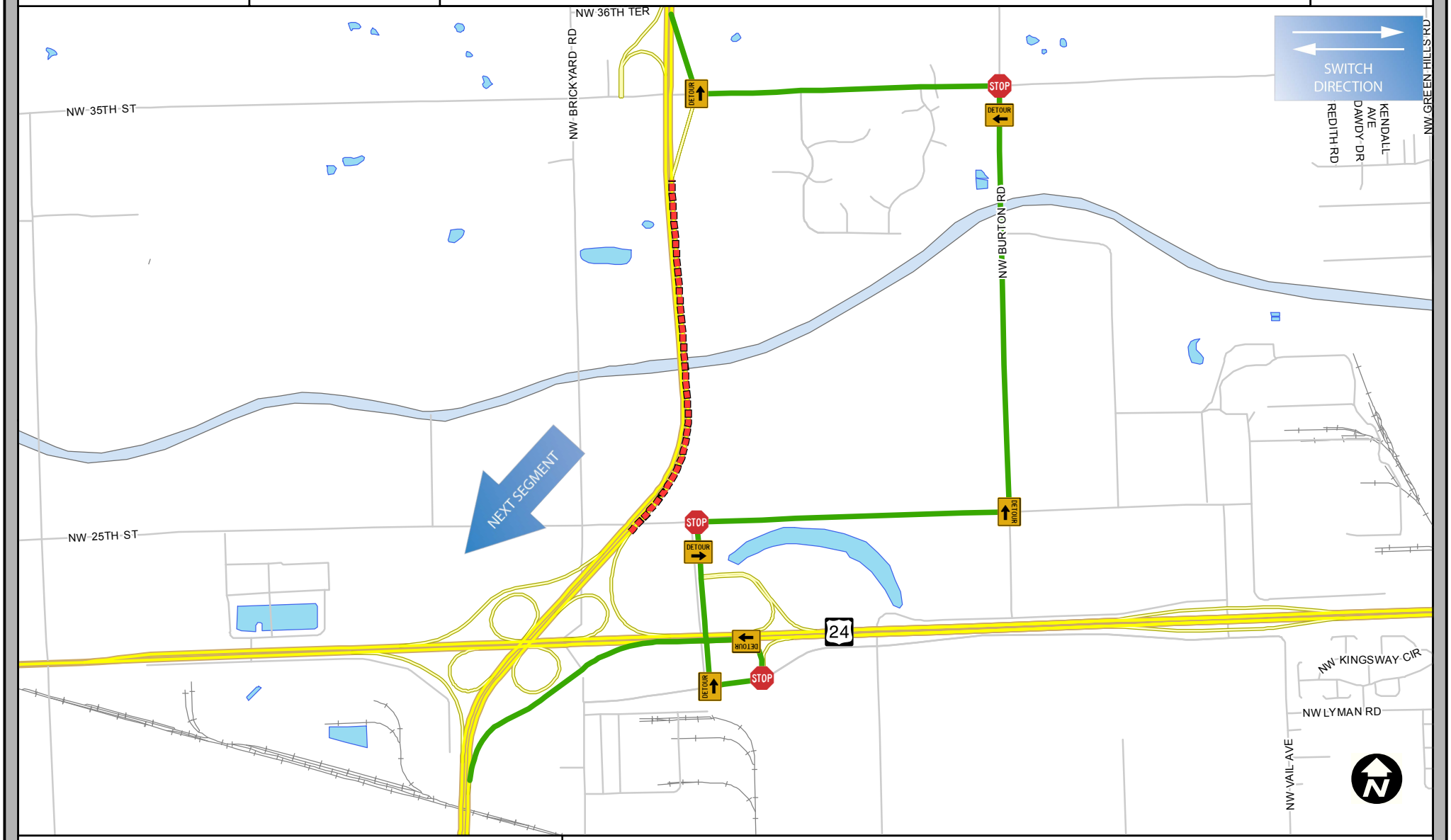
FREEWAY DIVERSION	Topeka Metro	US 75 Northbound	FROM: US 24 On Ramp	TO: 35th St. Off Ramp	PLAN 75NB-05



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department
Soldier Township Road Department

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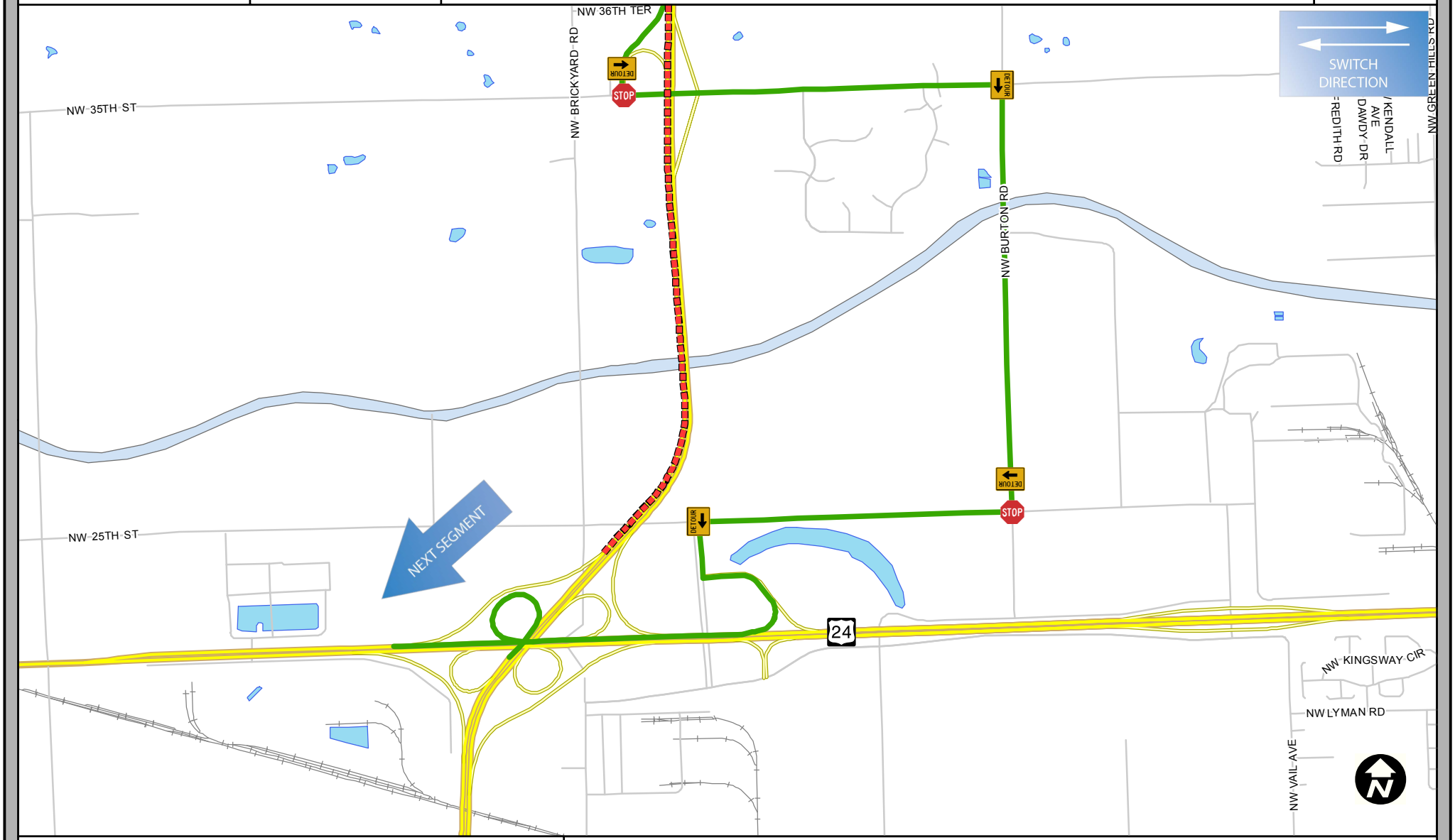
FREEWAY DIVERSION	Topeka Metro	US 75 Southbound	FROM: 35th St. Off Ramp	TO: US 24 Off Ramp	PLAN 75SB-05



Legend

Closure

Alternate Route

Agencies to Notify:

Kansas Department of Transportation
City of Topeka
Kansas Highway Patrol
Topeka Police Department
Shawnee Co. Sheriff
Topeka Fire Department
AMR
Soldier Township Fire Department
Soldier Township Road Department

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