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KENTUCKY TRANSPORTATION CENTER

**BEST MANAGEMENT PRACTICES TO EXCHANGE
INFORMATION BETWEEN THE TOC AND DISTRICT OFFICES**

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BEST MANAGEMENT PRACTICES TO EXCHANGE INFORMATION BETWEEN THE TOC AND DISTRICT OFFICES

by

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16. Abstract

The objective of this study was to develop best management practices for exchange of information between the Transportation Operations Center (TOC) and the district offices and regional traffic management centers. Data collected for this study included: meetings with the Study Advisory Committee and key personnel within the Kentucky Transportation Cabinet at the central office and highway district offices; a literature review; a state website review; and telephone interviews with representatives from a few states.

Recommendations were made in the following general areas: use of CARS/511; communication between the TOC and district offices; SAFE patrol; ITS equipment; public information; incident management; detours; weather/snow & ice; coordination with regional traffic management centers; documenting complaints; and website design.

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EXECUTIVE SUMMARY

The Kentucky Transportation Cabinet (KYTC) is organized into 12 districts offices and a central office. The central office is home to the statewide Transportation Operations Center (TOC). There are also four regional traffic management centers (TMC) located in Lexington, Louisville, Northern Kentucky, and at the Cumberland Gap Tunnel. In addition, some district offices have some intelligent transportation systems (ITS) equipment such as Dynamic Message Signs (DMS) and cameras and operate in some capacity as a small TMC. Communication and coordination among all these "centers" is critical to providing accurate and timely information to motorists.

The objective of this study was to develop best management practices for exchange of information between the TOC and the district offices and regional TMCs. This report goes a step further to identify additional best practices that may improve the quality and quantity of traveler information provided by KYTC.

To understand current practices within KYTC with regard to the collection and dissemination of incident information affecting the roadway, several interviews were conducted with district and central office staff. Best practices in other states and regions were identified using a literature review, state department of transportation website review, and telephone interviews with representatives from a few transportation agencies.

Recommendations were made based on Kentucky's current practices and successful practices identified in other states or regions. Those recommendations include such topics as: use of the Condition Acquisition Reporting System (CARS)/511, communications between the TOC and district offices, SAFE patrol, ITS equipment, public information, incident management, detours, weather/snow and ice, coordination with regional TMCs, documenting complaints, and website design. Some of the key recommendations from this report include:

- Training is needed for KYTC personnel to input data into CARS
- Planned incident information should be entered into CARS by the public information officer (PIO) or other personnel at the district level
- Crash information should be entered into CARS by TOC operators
- Guidelines should be developed concerning when the district office should contact the TOC
- Shared control of ITS equipment along with better communication and coordination is needed between the TOC and regional TMCs and between the TOC and district offices
- Guidelines should be developed on how to handle incident management issues at a district level
- Improvements are needed to the website to provide more useful information to travelers

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CHAPTER ONE

INTRODUCTION

The Kentucky Transportation Cabinet has a Transportation Operations Center (TOC) located at the Cabinet's central office in Frankfort that has to communicate and coordinate with several regional traffic management centers (TMC) and highway districts throughout the state. Although there are four regional centers with dedicated staffing, most of the "centers" are actually located in district offices with limited personnel and resources. The regional centers are:

- TRIMARC – located in Louisville
- ARTIMIS – located in northern Kentucky
- Lexington Traffic Management Center
- Cumberland Gap Tunnel

The regional centers are staffed by consultants and have specific hours of operation and defined duties. There are limited resources and personnel available at many of the district offices. In order to realize the full potential of the TOC, communication practices need to be established between the TOC, the regional TMCs, and all the various small "traffic management centers" located in the highway district offices.

1.1   Background

The TOC is a multi-functional center located in the Kentucky Transportation Cabinet in Frankfort. The TOC's mission is to collect and disseminate traffic and highway incident information through various media to the traveling public in the Commonwealth. The TOC is a continuously operated unit which relies on the information exchange with the 12 highway districts to perform the following functions:

- Updating the 511 website and telephone system with current incident and construction information
- Linking to the Conditions Acquisition Reporting System (CARS) to provide traffic and weather information to travelers through kiosks located at Welcome Centers
- Monitoring live video feeds from regional centers and disseminating information through variable message boards located throughout the state
- Serving as a center for weather watches and warnings, email notification of weather conditions to stakeholders, and coordination of highway snow and ice removal

A formalized procedure for this information exchange would be beneficial and supportive of the overall mission of the TOC, as well as provide improved service to the driving public.

1.2   Objective

The objective of this study was to develop best management practices for exchange of information between the TOC and the district offices and regional TMCs.

1.3   Methodology

Data collected for this study was obtained in two steps. The first step was to document the current practices in Kentucky dealing with communication between the TOC and district offices. This information was collected through various meetings with the Study Advisory Committee and key personnel within the Kentucky Transportation Cabinet at the central office and highway district offices.

The second step was to document the practices in other states and identify best practices. This was accomplished by conducting a literature review, review of state websites, and telephone interviews with representatives from a few state Departments of Transportation.

1.4   Structure of the Report

This report is organized into four sections.

- Chapter 1 outlines the background and purpose of the project
- Chapter 2 describes the current communication practices between the TOC and district offices. Information was obtained from interviews with the TOC and each highway district
- Chapter 3 summarizes the practices in other states and regions. Information for this chapter was obtained through a review of state websites, telephone interviews with a few selected states, and a review of literature
- Chapter 4 presents best management practices for communications between the TOC and district offices and regional TMCs

CHAPTER TWO

CURRENT COMMUNICATION PRACTICES BETWEEN THE TOC AND DISTRICT OFFICES

2.1   Data Collection

Twelve interview sessions were held (one in each of the 12 highway district offices) beginning September 26, 2008 and ending December 22, 2008. The Chief District Engineer in each district office was contacted and asked to participate in the session. They were encouraged to invite anyone in the district who would routinely communicate with the TOC (such as the public information officer, incident management coordinator, etc.). An average of nine people attended the district office interviews, with a high of 13 attending in Districts 5 and 9 and a low of five attending in Districts 8 and 11. The interview sessions typically lasted between about an hour and a half to two hours and included 45 questions. The interview questions are given in Appendix A. The main purpose of the session was to better understand the current methods used by the TOC and district offices to communicate and work together. A secondary objective was to better understand different aspects of how each district is organized and operated. The interview included questions relating to district personnel and organization, information provided to the public, operation of ITS equipment, incident management, regional TMCs, communication between the TOC and district offices, snow and ice removal, CARS, press releases, and detouring traffic.

In addition to the district interview sessions, interviews were conducted with Jeff Bibb, Director of Incident Management for the Kentucky Transportation Cabinet and Nancy Albright, Director of the Division of Maintenance. The information collected during these interviews supplemented the district interview sessions by providing more insight into the TOC operations, CARS, and Cabinet's snow and ice activity.

2.2   Findings

2.2.1   Information to the Public

All districts, except Districts 7 and 11, had a public information officer (PIO) at the time of their interview. Both of those districts have an acting public information officer. Communication between district personnel and the PIO varies greatly within each district office. Many have a good working relationship and information is shared freely while other PIOs do not receive the needed information or do not receive information in a timely manner.

There are some minor discrepancies in what each district wants to communicate to the public, but in general the districts desire to notify the public of any roadway closure (whether planned or emergency), and lane blockages that affect traffic for an extended period of time. This information is typically distributed over email in the form of a press release to the media, but the phone or fax machine is used to distribute the information in a few instances. All the districts are

currently providing or will provide this information to the TOC. A few districts have expanded their distribution list to include government officials, local businesses, and emergency response agencies.

2.2.2 Operation of ITS Equipment

The type of equipment available for notifying the public varies from district to district, although all have some portable message boards. Districts 1, 2, 3, and 4 have or will have overhead dynamic message signs (DMS) and cameras that they will partially control. Districts 5, 6, 7, and 11 have regional TMCs that have DMS and cameras that can be utilized by the districts. There have been some issues between the TOC and district offices with coordination for the use of the DMS. Regional TMCs have control of the DMS in their system but do work with the TOC when needed.

Although there is general consistency concerning how the message boards and DMS are used and what is displayed, there does not seem to be any formal guidelines that are being adhered to by the district offices. Some guidelines are provided in the Traffic Operations Guidance Manual and through the Federal Highway Administration (FHWA), but they do not address all the situations which are encountered.

2.2.3 Incident Management

Information concerning traffic crashes is typically provided to the district offices when the office is requested to respond by local responders or 911 dispatchers. The district offices are not routinely notified of traffic crashes if they are not needed to provide traffic control or assist in cleanup on the scene. Notification varies from district to district and even between counties in a district depending on the relationship between the local superintendent and area responders. Most of the districts agree that the relationship with local responders does need improvement. Six of the district offices have local incident management teams in which they participate, and five districts have someone within their organization that they have identified as their incident management coordinator. None of the districts have a formal incident management plan; although District 3 has an outline for a plan and District 9 has a rough draft.

In general, the district offices do not have a strong working relationship with the SAFE patrol operators in their area. They rarely work or communicate with one another. The exceptions would be in Districts 3 and 5. Most districts noted the benefit of being able to work with the SAFE patrol and desire an improved relationship.

2.2.4 Regional Traffic Management Centers

Districts 5, 6, 7, and 11 have regional TMCs within their area. TRIMARC is located in District 5 and has a good working relationship with both the district personnel and TOC. ARTIMIS is located in District 6 and also has a good working relationship with the district personnel but seems to work somewhat less with the TOC. District 7 is home to the Lexington Traffic Management Center which works well with district personnel but does not have a strong working

relationship with the TOC. The Cumberland Gap Tunnel center is located in District 11 and tends to be more autonomous although it does have some communication and coordination with the district office and TOC.

2.2.5   Communication between the District Offices and the TOC

The TOC is typically receiving information from the districts for planned incidents from the PIO. The working relationship within the district with the PIO varies from district to district. Typically, district personnel communicate road closures and blockages to the PIO who reports this information to the TOC by emailed press releases. Updates to the information are typically provided when the PIO is made aware of the updates.

Most districts are reporting highway incidents to the TOC, although the situation in which incidents are reported and how they are reported vary greatly from district to district. Some districts are assuming that all highway incidents are reported to the TOC by the Kentucky State Police or other responding agencies.

Districts receive email notifications from the TOC regarding district snow and ice activity, highway incidents, and the highway hazard email. The email distribution list varies from district to district and many, if not all of these lists, need to be updated. The TOC communicates by phone with the district offices in some incident situations when coordination is needed.

Each district is supposed to provide the TOC with an emergency duty roster. There have been some issues with contacting the appropriate people within the district offices. District 2 uses a "floater phone" for on-call personnel. This allows the TOC to call one number any time to contact the appropriate district personnel. Communication typically occurs over cell phones, but a radio system is available and is used in some of the district offices.

2.2.6   Snow and Ice Activities

During snow and ice emergencies, personnel from the central office Division of Maintenance are available within the TOC. The person or persons communicate regularly with the district offices performing snow and ice activities. Communication occurs by email and phone on a regular basis until the snow and ice activity is complete. Most district offices are very satisfied with the current method snow and ice activities are handled through the TOC. There are a few districts which desire to receive more advanced weather information and notification of other district activity.

2.2.7   CARS / 511

None of the districts currently have any personnel entering data into CARS. They are relying on the TOC to enter this data based on press releases issued by the PIO in each district. The districts need access and training to use CARS. The TOC has been entering data into CARS based upon the press releases received from each district PIO. However, this information is

often incomplete and requires follow-up with the district office. TRIMARC and ARTIMIS have programs that allow for automatic population of incidents into CARS.

2.2.8 Detouring Traffic

When an incident closes a major roadway, the districts have different policies for setting up detour routes and providing detour route information to the TOC. They also have different methods to mark the detour route for motorists. Most districts attempt to sign or man the detour in some way but a few do not.

2.2.9 Highway Hazard Email

Information received by the TOC from the Cabinet's hotline (1-877-FOR-KYTC) is sent to each district. There is no consistent method used to document the complaint and response. The districts noted that the list of individuals in the district that receives the email should be updated. A standard method of documentation should be developed.

2.2.10 Summary of Specific Issues Noted by District Personnel

Following is a summary of specific issues obtained from district personnel relating to their communication with the TOC and other related issues.

- Appropriate training should be provided for the use of DMS and cameras in districts where they are installed
- Incident management training should be provided for responders
- TOC should monitor the National Weather Service and inform the districts of weather advisories and alerts.
- TOC should develop communication with 911 dispatchers
- Districts should be able to communicate directly with SAFE patrol operators
- Incident report email lists should be updated
- Highway hazard email lists should be updated
- Districts and TOC must understand how traffic crashes are investigated by the KSP and local police and how information can be obtained from the various police agencies
- Training must be provided for district personnel to input data into CARS
- Guidelines for when the district should provide information to the TOC should be established
- Relationships between district personnel and local responders should be developed
- Good communication should be established between appropriate district personnel and the PIO
- TOC personnel should meet with appropriate district personnel (including a tour of the TOC) to discuss their roles and how they can interact
- Information from the regional centers (TRIMARC, ARTIMIS, Lexington Traffic Management Center, and the Cumberland Gap Tunnel Center) should automatically be placed into CARS

- Incident management meetings should be held on a regular basis (such as quarterly) where district personnel can discuss issues with local responders
- Detour plans should be followed (with appropriate signing)
- TOC should receive all press releases and email from the district PIOs
- Cabinet policy for how to respond to requests by police and other incident responders for assistance (including traffic control and scene clean-up) should be developed
- Information should be provided concerning when other districts are out for snow and ice activity
- Current roads included on the 511 system should be expanded
- Accuracy of the location information (including milepoints) provided on the 511 system must be checked
- Each district should have an Incident Management Coordinator

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CHAPTER THREE

PRACTICES IN OTHER STATES AND REGIONS

3.1 Literature Review

A review of literature was conducted to determine information available which describes the status of TOCs in other states and the method of communicating information to drivers. A summary of information obtained from the literature review is provided in Appendix B. Limited detailed information was available through the literature. More detailed information was obtained through a review of state websites and telephone interviews. The remaining sections of this chapter highlight the results of those activities.

3.2 Review of State Websites

Twenty-seven state websites were reviewed to determine how they displayed information to the public. Typical information noted were the types of information provided and how it was provided. Following is a brief summary of the types of information noted. In some instances, the name of the website is given.

Alabama
The Alabama Department of Transportation website provides links to a construction bulletin and emergency road closures. The construction bulletin provides a list of projects giving the county, route, description, and estimated completion date. The emergency road closure list gives the county, route, status, location, reason, and time the information was last modified. A link is given to provide extreme weather information, specifically hurricanes. A project has been implemented on a section of I-65 providing estimated travel times to drivers via DMS.

Arizona
The Arizona Department of Transportation website has an interactive map which provides information for incidents, weather, and construction. The impact level is estimated. Real time camera images and weather sensor data are provided. The information is given statewide, by region, and by county. Active events are summarized by length (next one hour through next two weeks).

Arkansas
A phone number is given that motorists can call day and night to receive the latest information on weather-related road conditions. A recorded message with highway conditions is updated frequently during adverse weather. An interactive map displays active lane closures and width restrictions on major routes. A test report provides a listing of these locations. An interactive map also displays the latest reported weather-related road conditions on major routes during inclement weather periods with an alternative of a text report giving a tabular report of routes and conditions.

Florida (My Florida 511)
My Florida 511 is provided by the Florida Department of Transportation. Statewide maps are given which show information related to congestion, incidents, lane closures, road signs, cameras, and travel times. Personalized profiles are provided which give travel information for up to ten different routes when a driver dials 511 from a cellular or land line phone. The system recognizes the phone number and gives information for the regular routes first with the ability to then transfer to the statewide system.

Georgia (Navigator)
The website for Navigator is the Georgia Department of Transportation Intelligent Transportation System. The types of information provided include maps (Georgia, Atlanta, and Macon), incidents, construction, trip times, cameras, signs, and counters. The top five active incidents (statewide) are provided giving the type of incident, the location and description, the lanes blocked, and the expected clearance time. A construction map is provided which lists projects in various time periods (next 24 hours, next 72 hours, next week, and weekend). The locations of all changeable message signs are listed and, if applicable, the message is given. Access is provided to real-time traffic information through a personal traffic page using maps, traffic cameras, and trip times or by setting up an e-mail traffic alert notification of incidents in an individual's area.

Idaho (511 Traveler Information)
Idaho 511 provides an interactive map and information related to: crashes, alerts, difficult driving conditions, fair driving conditions, road work, permit status, traffic speed information, and major delays. The location is provided along with a description of the alert and the last update time.

Indiana (TrafficWise)
TrafficWise is the Indiana Department of Transportation's program to use ITS to relieve traffic congestion and improve safety. Links are provided for real time traffic data and live camera views of traffic conditions in the Indianapolis metropolitan area and northwest Indiana near Gary. Traffic conditions in southern Indiana are provided through a TRIMARC link.

A key element of TrafficWise is Hoosier Helpers which is a freeway patrol on the interstates in Indianapolis, near Gary, and southern Indiana near Louisville. The TMC and Hoosier Helpers are in constant communication exchanging information about motorists in need of assistance and about congestion and other traffic problems.

Illinois (Getting Around Illinois)
Getting Around Illinois is a web-based interactive mapping site provided by the Illinois Department of Transportation. The site gives the opportunity to search and display several sources of information. State maps highlight routes with construction projects and give snow and ice conditions (clear, patchy, snow or ice covered). A statewide list of road closures is provided. Specific information is given for the Chicago area. This includes a map showing congestion (using travel speeds), locations of incidents, and locations of construction. Pre-recorded road condition information is given on a toll-free number.

Iowa (511 Traveler Information)

Iowa 511 provides an interactive map and information related to crashes, alerts, difficult driving conditions, fair driving conditions, road work, permit status, traffic speed information, and major delays. The location is provided along with a description of the alert and the last update time.

Kansas/Missouri (KC Scout)

Kansas City Scout (KC Scout) is a traffic and management system addressing traffic impacts on the freeways in the bi-state (Kansas and Missouri) Kansas City metropolitan area. The system uses closed circuit television cameras, DMS, vehicle detector stations, highway advisory radio, and a dynamic website. A map is provided which gives information related to incidents, scheduled closures, emergency closures, special events, and freeway speeds. Cameras and DMS can be viewed.

Louisiana (511 Project)

Louisiana 511 provides an interactive map and information related to crashes, closures, alerts, and road work. Information given for each incident include the location, description, estimated time to completion, anticipated delays, and the date when the information was last updated.

Maryland (CHART)

CHART (Coordinated Highways Action Response Team) is a joint effort of the Maryland Department of Transportation, Maryland Transportation Authority and the Maryland State Police, in cooperation with other federal, state and local agencies. Its mission is to improve "real-time" operations of Maryland's highway system through teamwork and technology. The website provides live traffic video, real-time traffic maps, and weather. There is a statewide operations center which functions continuously. Traveler information provided include interactive mapping, incident reports, route restrictions/lane closures, live traffic cameras, local weather station data, speed sensor data, and highway message signs.

Minnesota (Minnesota Guidestar)

Minnesota Guidestar was implemented in 1991. It was initially focused on the Twin Cities metropolitan area. More recently, a network of nine Transportation Operation and Communication Centers (TOCCs) has been implemented. The goal is to establish an integrated statewide communication and transportation network serving rural and the smaller urban areas. The TOCCs are regional centers for 24-hour incident and emergency response, including cellular 911 calls, multi-agency dispatching and fleet management, interagency communications, collection and dissemination of road conditions and closures, and traffic management. An example of a current project is a computer aided dispatch (CAD)/CARS project focusing on developing an automated data exchange between the state patrol dispatch system and the statewide reporting system to increase information on 511 phone and web systems without added entry of events by dispatchers. Active, planned, and weather related closures are listed by county.

Mississippi
An interactive map is provided which gives: construction/maintenance activity, incidents, road closures, DMS messages, and images from cameras. A statewide summary of alerts is given which provides the location, traffic impact, type of work, and a map giving the location.

New York (INFORM)
The INFORM (Information for Motorists) system covers Long Island's 50-mile central corridor. Data come from 2,400 electronic sensors embedded in the roadways at half-mile intervals and closed-circuit television. Traffic information coordinators advise the appropriate police and emergency organizations of traffic incidents.

TransAlerts are short electronic messages sent by the New York Department of Transportation using the state emergency management office's NY-ALERT system. These messages are sent to subscribers informing them, in near real-time, of significant transportation-related incidents on major highways. The messages can be sent as e-mail or as test messages. Anyone can subscribe to receive the alerts. The four categories are road closure, blocked lane, disruption/unexpected delays, and other conditions. The severity levels are extreme, major, moderate, and minor.

North Carolina (Traveler Information Management System (TIMS))
Travel information is disseminated to the public through interactive maps, the 511 telephone system, highway advisory radio, and DMS. The types of information available include: traffic incidents and major closures on interstates, US routes, and state routes; weather conditions; road construction and planned road construction on interstates, US routes, and state routes; amber alerts; and links to neighboring states' 511 phone systems.

Ohio (Buckeye Traffic)
This website provides travelers with up-to-date information on road conditions, traffic, construction, and other activity affecting roadways. Information is updated frequently and comes from a variety of sources, such as pavement sensors and monitoring stations, traffic cameras, and direct input by department personnel. Information is provided for all state-maintained roads (including interstate highways, U.S. routes, and state routes) except various routes inside city limits.

Oregon (TripCheck)
An on-line statewide computer link is provided where road conditions are available by region of the state. The state is divided into nine regions. The following types of information are provided: road closures, delays, weather hazard, weather warning, snow zone, and construction. For construction work, the estimated delay is provided along with the lanes affected, comments, contact information, and the date of the last update. Road cameras can be accessed.

Pennsylvania (Traffic Information)
Statewide traveler information is provided along with links to current and planned construction. Data are provided by district along with the Philadelphia Regional Construction Advisory. The links to the traveler information are to: traffic cameras, travel advisory/news releases, interstate road conditions, current weather, and winter guides. The interstate travel advisory includes the date, location, and description.

Rhode Island (CARS 511)
The transportation management center is staffed 24 hours a day, seven days a week. Drivers can call 511 or use the TMC website to obtain traveler information. Equipment used in the process include: closed circuit video equipment, DMS, variable message signs, and highway advisory radio. The website provides users with reports for in-progress incidents, camera images, HAR recordings and scripts, and 511 updates. Links are provided to the amber alert webpage and congestion mapping. The 511 automated system can be used to obtain information for a specific city and route.

South Carolina (Getting Around in South Carolina)
The website provides travel advisories, traffic information, construction projects, weather conditions, and incident information. Interactive maps are provided to give access to road conditions, incident response, active construction projects and traffic cameras.

South Dakota
The South Dakota traffic, weather, and ski center links to real-time and interactive traffic information and traffic snapshots, including weather, road conditions, construction reports, crashes and incidents, maps, and traffic and weather cams on major US routes such as interstates, turnpikes, and parkways and high volume secondary routes.

Tennessee (TDOT SmartWay)
TDOT SmartWay is Tennessee's intelligent transportation system which uses advanced information technologies to improve the safety and operation of highways and other transportation modes. Links are provided for weather-related road conditions, construction/incidents, camera images, and message signs. Tips are provided for users to navigate the SmartWay system. Links are provided for additional traffic information in specific cities. A map of Tennessee is provided which allows a user to click on a specific county to view a list of active events (construction/incident/road conditions) in that county. For each event, the information provided includes the location, type of event (with a description and current activities), and the beginning and ending date (along with the date the information was last revised).

Texas
The Texas Department of Transportation provides a website to obtain a road condition report which shows information related to road construction and other disruptions of normal flow of traffic on the state highway system. Road conditions are provided using both text and a map. Data can be obtained by road condition (road closed, road construction, damage, other), county, or route. Future road construction and planned closures can be obtained by district, county, and route. All this information is also available by phone using a toll free number.

Virginia (Travel Virginia)
Travel Virginia links regional traveler information services together through a statewide clearinghouse. Up-to-date information are provided to the clearinghouse on current traffic and travel conditions with this data provided to regional partners who disseminate the information to the traveling public through a variety of distribution modes.

The VDOT 511Virginia.org website provides continuously updated traffic and travel information. The data from 511 can be accessed on-line, through personalized traffic information via e-mail, text pager, Blackberry, PDA, or other mobile device, or by calling 511 through a cell phone or land line. Through the 511 service, the following personalized information can be obtained: crash and incident alerts, live traffic camera images, bridge and tunnel reports, road construction information, mobile alerts when conditions change on the roads traveled most by the user, driving directions, gas-saving tips, and weather conditions.

Washington (Washington511)
Information accessible from 511 by using either the touch tone or voice recognition or the website options are: real time traffic and road incidents (including construction and maintenance); Seattle area flow data (congestion); mountain pass conditions (including weather, road conditions and restrictions); statewide emergency messages; and statewide alerts. An interactive map is given on the website which allows more detailed information to be obtained. For example, travel alerts and slowdowns can be summarized by route.

West Virginia
Travel information can be obtained through the West Virginia Department of Transportation website or through a toll-free telephone number. A road conditions report is provided by the transportation management center. This includes a list of major highway closures due to crashes and incidents. A list of driver-alert zones due to construction is provided which gives the following information: county, route, project description, length, and start date.

3.3 State Interviews

The review of various state websites provided general information concerning how states provide and present traffic information to the public. To obtain more specific information concerning their organization and communication practices, several states were contacted. The states were selected based on information obtained from the literature and website reviews and suggestions from the advisory committee.   The interview questions are included in Appendix C. Following is a summary of the telephone interviews from eleven states.

Kansas
The Kansas Department of Transportation (KDOT) is divided into six districts. These districts have control of their own DMS. Kansas does not use CARS but instead has a proprietary custom-made software package. District personnel input data related to construction, maintenance, and winter weather conditions. Crash data is entered only after personnel have been dispatched for traffic control. In some instances the crash is over before KDOT is notified.

KDOT does have a 511 phone system which recognizes both voice and touch-tone commands. Information is also provided via website. Route specific information is available through both the phone system and website. Kansas City has a system called Kansas City Scout which provides text message alerts to subscribers. To market the traveler information systems, KDOT uses news releases, public service announcements, television, radio, and web advertising.

Florida
The Florida Department of Transportation (FDOT) has eight districts which includes the Florida Turnpike. The operations function within FDOT is located within the districts. There is no central transportation operations center. Each region does or will have at least one regional TMC. In the future, the district offices will collect data and provide it to a central dissemination system for access by the public. The ITS sections in the district offices maintain control over the cameras and DMS through the regional TMCs. They determine the orientation of the cameras and the message that gets posted on the signs.

Crash data are entered by personnel at the regional TMCs based on data from cameras, sensors, and service patrol operators. Data are also obtained from the Florida Highway Patrol, but that information is not utilized unless verified. Planned construction information is collected and disseminated by the district public information office.

Florida utilized CARS in the past with their Central Florida and Statewide systems but was unsatisfied with the level of support offered by the consultant when changes were needed. Drivers can obtain information on crashes and construction projects impacting traffic thru the 511 phone system and website. Drivers can obtain some limited travel time information also. The 511 phone system does make use of voice responsive technology. In addition, FDOT provides motorists with the ability to register two phone numbers and up to 10 routes of interest. When a motorist calls the system, the system recognizes the phone number and provides information on the routes of interest. This personalized system also allows motorists to receive text messages and email alerts.

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Iowa
The Iowa Department of Transportation (Iowa DOT) is divided into six regions. It is uncertain at this time who will maintain control over DMS and cameras. Iowa DOT does utilize CARS, and data is entered from a variety of sources. The construction offices within each district are responsible for entering construction information into the system. The Highway Patrol enters winter weather information, and the 24-hour emergency management center inputs all emergency information and some maintenance information. District and maintenance personnel also enter some maintenance data.

Iowa DOT does have a 511 phone system and website. The phone system allows the caller to get specific information for routes of interest and utilize voice recognition technology. Motorists can obtain information by region or route. In the future, motorists will be able to receive information for incidents on specific routes. This program will start with Iowa DOT employees and will be expanded to the public at a later date. Motorists are made aware of these traveler information services through some media exposure and roadway signs.

Idaho
The Idaho Transportation Department (ITD) is divided into six districts. Information is transmitted via radio from district personnel to a centralized state TMC.   The state TMC maintains control over the DMS while a consultant has control over the cameras.

CARS is utilized by ITD and information is entered from either the district offices or the state TMC. Crash information is obtained when law enforcement contacts the TOC or maintenance workers are needed on scene. This data is entered by the TMC operators. ITD does intend to develop a feed to CARS from the Idaho State Police computer aided dispatch system. Construction and maintenance information is entered by district personnel.

ITD does have a 511 phone system and website to provide traveler information to the public. Information can be obtained by region and/or route. Public agencies, media, and trucking companies are able to receive detailed information on incidents on specific routes. This service will also be offered to the public soon. ITD utilizes their website, press releases, and advertising to make motorists aware of traveler information services.

Georgia
The Georgia Department of Transportation (GDOT) is organized into seven districts. All DMS and cameras (and other hardware) are controlled centrally except for equipment under the supervision of the smaller Macon TMC.

Instead of using CARS, GDOT has an Automated Traffic Management System (ATMS). The TMC inputs all crash data into this system, with the exception of the Macon center which has some responsibility for its area. Construction information comes from the project manager about 90 percent of the time. They utilize a web-based form called a Traffic Interruption Report to input information such as lane closures, dates, and times. TMC operators confirm these

activities daily and remove information on cancelled projects. Any maintenance activities involving shoulder work or lane closures are included.

GDOT has a 511 phone system and website. The phone system recognizes both voice and touch-tone commands from the caller. There is also a live operator available if the caller needs to report an incident or request assistance at the roadside. Travel information can be obtained on the web by region, interstate, and route. On the phone system, the route is needed although information is provided on commonly used segments, such as "I-75 in South Atlanta". GDOT has a service called, "My Navigator", on their website which allows a user to provide three profiles. Users can receive alerts via text messages, email, or pages based on the route, time of day, day of week, and other options. GDOT has issued about eight million alerts in five years. They are also considering a phone number recognition system for 511 that would allow a caller to receive specific information based on the caller's profile. Traveler information services are marketed through television, radio, web advertising, the 511 crew (costumed marketers), brochures, wallet cards, DMS, press releases, a launch event, transit artwork, and AAA coordination.

Minnesota
Minnesota has nine transportation regions which correspond to the highway patrol regions. Each region inputs CARS data for their area. Incidents are input by the highway patrol which is stationed at the same location in each region. A few of the regions have DMS and cameras and have control over these devices. Maintenance personnel have the capability of data input but this is not done on a regular basis.

Minnesota uses CARS and a 511 autovoice system. The state had the Twin Cities Regional Transportation Center which covers the state's major metro area. One item placed on their webpage, which obtains the most use, is a Traffic Flow map. The map gives congestion and travel time information in the metro area based on data from loop detectors. The state patrol and transportation maintenance personnel are stationed in the Transportation Center. Camera views are also provided. Surveys have found that the 511 autovoice system gets limited use.

Tennessee
There are four regions in Tennessee with each having a TMC. The first was established in Nashville in 2003 with the last to be placed in Chattanooga. The regional TMCs have a setup similar to Kentucky's TOC. The information in the urban areas can be observed from the numerous cameras in the urban areas and reported. There is a problem with obtaining incident information in rural areas. The DMS are in each of the four major urban areas and not in rural areas. Information provided on the DMS and control of the cameras are with each region.

Tennessee let a request for proposals (RFP) and First Data was selected to develop the system rather than CARS. The 511 system was developed by Vanderbilt University. An issue with the 511 system is updating the road system and insuring that there is no confusion with the routes. The routes on the system are primarily interstates along with some other major routes.

There are two types of input data (construction/maintenance and incident). Data for construction and maintenance activities are input by the regional TMC. The data could be entered by a secretary using a user-friendly drop-down screen. Only one of the four TMCs is open 24 hours. Incident information can be input by a TMC if observed by a camera or can be input by the Tennessee Highway Patrol (who has access to the system). They have requested that local police notify them of an incident but this does not always occur.

A problem which has been observed is traffic backup remaining after a scene is cleared. A change which will be made to the system is a message that the scene is cleared but the backup remains.

The 511 system has a threshold that road construction will be placed when there is a road closure. For an incident, the description includes an estimated clearance time. When this time is reached, the incident should be removed (not automatic) or the time should be changed.

Maryland; CHART (Coordinated Highways Action Response Team)
There are eight TOCs in Maryland with a CHART employee in each. Data are input in each TOC. There is also a central office for CHART. The TOC may in a district highway office or may be in a police post. Many individuals have access to the CHART system but input is limited to trained personnel.

The software used was not developed by CARS. Computer Science Corporation developed the system. Work is ongoing to develop a 511 system.

The state police investigate crashes on interstates and major routes. The state police monitor CHART but the procedure is to inform CHART employees who input the data. Estimated clearance times are not provided since sufficient information is not available.

Information is not provided to individuals for specific routes. The goal is to provide statewide information to all drivers.

Control of the DMS and cameras are given to each TOC. Individuals have various access (view only, control to change, etc.) based on their qualifications. Detailed information concerning CHART can be obtained by viewing their website and going to the "reading room." For example, annual evaluation reports are given.

Pennsylvania (Roadway Condition Reporting System) (RCRS)
Pennsylvania has a regional system and currently does not have a central office TOC. The state has 11 transportation regions and each has varying levels of a TOC (from one computer to a continuous (24/7) operation center). In three regions (those containing Pittsburgh, Philadelphia, Harrisburg) there is a 24/7 system and these regions handle the more rural regions at off-hours. During regular hours, each region is in charge of the RCRS in their area.

Up to about five years ago, each district was independent with no statewide system. After reviewing systems from several other states, Pennsylvania developed their RCRS internally.

This was part of their Traffic Statewide Operations Plan (TSOP). Each region places all the planned and incident information into the system. Most regions have either DMS or variable message signs at permanent locations and they are responsible for placing messages on these signs. Some regions also have highway advisory radio (HAR) and most have cameras with control maintained by the region.

They do not have a statewide 511 system but are working on implementing such a system. There is a hotline available to obtain conditions on interstates.

The relationship with the state police varies by region. In urban areas, an incident can be seen on a camera with information placed onto RCRS. Information is shared with police but the police cannot enter information into RCRS and they do not have access to the police CAD.

The current system applies to the interstate system with consideration of adding other roadways to the system. There are plans to increase the number of DMS and cameras to give statewide coverage.

Each region had developed an ITS plan for their region. The state uses an Incident Command System to respond to statewide emergencies such as a major snow and ice event.

Various criteria have been established for the use of RCRS. For example, an estimate completion time is input for a closure. At one hour before the estimated re-opening time, an email is sent to the person who entered the data to check on the status.

In a couple of the regional centers, email and text information can be sent to a driver who places their driving profile into the system. Various methods are being considered to deliver information to drivers.

Oregon
Oregon developed their software and is in the final phase of updating the software to better coordinate their four operation centers. They have a 511 system.

They are centralized into four operation centers scattered across the state. There are five regions and 15 districts in the state. They do not have operation centers in each district since it would be difficult to have the needed expertise in each district. The four operation centers control DMS and cameras.

Construction personnel input their data into the system. Maintenance can input their data into the system but typically report the data to the operation center that inputs the data.

The state police has two dispatch centers in the state which are located in two of their operation centers. The police CAD is automatically sent to their operation center but it must be verified by their operator before being placed in their system. Many crashes are not investigated by the state police. The information is obtained by the operation center through interaction with the police

agencies. One reason they want to be involved with the police in order to identify damage related to the roadway which is billed.

They maintain an up-to-date road condition report. In the winter, maintenance reports to their operation center five times per day at certain critical locations. They do not certainly have a method for a driver to select routes for information; their data can be obtained using wireless methods.

Virginia
Virginia is not a CARS state. They have had a contract since the start of their system in 2004 with a national private contractor (PBS&J). They have a 511 system. There are five TOCs across the state plus an emergency operations center (EOC) at the DOT in Richmond. All TOCs are open 24/7 and are in charge of their area (DMS, cameras, data input, etc.). Each TOC has a set templet to populate VATraffic for planned and unplanned incidents which is sent to the website, 511, and email.

The source of the information is the DOT, local E911, state police, safety service patrol. They are working with the local police to obtain data. Planned activities are input by the DOT. There are about 1,500 users (dispatchers) across the state who have been trained in the system. They have a filtered feed from the state police (from CAD) that is processed on the regional level and placed in the system. Periodic updates are provided with the incident closed when cleared. Estimated clearance times are not given.

They have a subscription service where an individual can receive data on predetermined routes. The next steps will be to ensure compliance with FHWA 1201 concerning real-time system management requirements.

CHAPTER FOUR

RECOMMENDATIONS FOR BEST MANAGEMENT PRACTICES

The following recommendations are made after reviewing the results obtained from the district interviews and the review of practices in other states.

Use of CARS / 511
- Provide access to and training with CARS for all district offices
- Utilize programs at the regional TMCs that automatically populate data into CARS
- Public Information Officers (PIOs) in each district should enter planned incident information into CARS
- Expand the 511 system to include more highways in Kentucky

Communication between the TOC and District Offices
- Update the Email distribution lists for each district
- Update the Emergency duty rosters for each district
- Consider using a "floater phone" system to communicate with district office personnel
- Provide training to the districts on the use of the radio system to communicate directly with the TOC
- District personnel should tour the TOC and meet with operators in order to build a better working relationship with them
- Have a meeting between the TOC and the district offices to discuss the needs and wants of the districts and how communication should occur
- TOC should promote their activities and inform the districts about the type of information they can provide
- TOC should provide highway watch information to the districts
- Provide guidelines describing when the district office should contact the TOC

SAFE Patrol
- SAFE patrol should be available to assist the district offices with traffic control and incident management
- Provide district personnel information on SAFE patrol officers in their district including names and contact information

ITS Equipment
- Provide appropriate training to allow the districts to utilize the overhead DMS
- Provide additional guidelines to the districts for use of the DMS
- Improve coordination and communication between the TOC and regional TMCs and between the TOC and the district offices to allow shared control of the DMS and cameras

- Regional TMCs, district offices, and the TOC should have a cooperative agreement to utilize ITS equipment in a manner that is beneficial to local, regional, and statewide travelers

Public Information
- District personnel should be providing incident information to the PIO in each district on a regular basis
- Public information officers in each district should input planned information into CARS
- Representative from the TOC should give a presentation at a PIO statewide meeting
- Send all press releases by the district PIO to the TOC

Incident Management
- Appoint an incident management coordinator in each highway district and start incident management teams (with the incident management coordinator in charge of the TMC in each district)
- Provide proper staffing and related training to each district
- Develop a close working relationship between the county superintendents and local responders
- Provide incident management training for local responders in each district
- Develop policy on how small spills should be handled by the districts
- Provide policy on how and when traffic control should be provided at the scene of an incident
- TOC should work with 911 centers to receive more information on highway crashes
- TOC should work with law enforcement to receive more information on highway crashes
- Send a "scene clear" update from the TOC to the district offices
- District office personnel inform the TOC when a major roadway is closed
- TOC should develop protocol to inform the district when they should be notified about an incident and the type of information needed

Detours
- Review the online detour maps in each district and make necessary updates
- Use the detour maps which have been developed
- Consider providing signing on designated detour routes to direct traffic back to the interstate or parkway

Weather / Snow & Ice
- Provide more advance weather information to the district offices
- Provide a special phone number for the district offices to call for snow and ice activity (instead of the main TOC number)
- Continue the practice of having a maintenance representative in the TOC during snow and ice events to provide communication with the districts
- Inform adjoining district personnel when other districts are out for snow and ice activity

Coordination with Regional Traffic Management Centers
- Improve the communication between the Lexington Traffic Management Center and the TOC.
- Consider adding a staffed TMC in a district in the western and/or southeastern portions of the state

Documenting Complaints
- Each district should track their findings and actions related to the Highway Hazard email

Website Recommendations
- Provide correct milepoint information on non-interstate roadways and parkways
- Expand the system to include more roadways
- Provide a table listing all the incidents by county
- Provide a method to access cameras and DMS statewide (and a connection to the regional TMCs' ITS equipment)
- Place incident and construction data from the regional TMCs on the statewide map
- Provide personalized information for specific routes

Implementation
- Establish a task force made up of representatives from the TOC, regional TMCs, and district offices (including PIOs) to establish procedures necessary to implement the recommendations

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APPENDIX A: District Interview Questions

1) Which district office personnel work or may have need to work with the TOC and what are their   specific responsibilities (with regard to communicating with the TOC)?

2) Where do these individuals fit into the organization of the district office?

 (If not identified with the previous question, identify the Public Information Officer and incident management coordinator, if one is available in that district.)

3) What types of training have been provided with regard to their work relating to the TOC?

4) What types of planned events and incidents does the district office want to provide information to the public?

5) How does the district office inform the public of planned events or incidents affecting the roadway?

6) What types of equipment or resources are available in your district to inform the public of planned events or incidents affecting the roadway?

7) If dynamic message signs are available, what policies or guidelines are being followed to ensure appropriate messages are displayed?

8) Do you have control over ITS equipment (signs, cameras, etc.) in your district? If so, please explain how this control is accessed and how it works.

9) Do district personnel have the necessary capabilities and training to use these resources?

10) How (and from whom) does the district obtain information on local planned events or incidents?

11) What type of relationship does the district have with local responders and how does communication usually occur?

12) Does your district have an incident management plan?

13) What type of relationship does the district have with the local SAFE patrol operators and how does communication usually occur?

14) If there is a regional TMC (TRIMARC, ARTIMIS, Lexington, or CGT) in this district, what type of relationship does the district have with that center and how does communication usually occur?

15) What type of planned event information is sent to the TOC from the district office?

16) Where (and from whom) does this information typically originate?

17) How do you inform the TOC of planned events?

18) How are location and duration information defined for these events? Are updates provided?

19) What type of incident information is sent to the TOC from the district office?

20) Where (and from whom) does this information typically originate?

21) How do you inform the TOC of incidents?

22) How are location and duration information defined for incidents? Are updates provided?

23) What types of weather-related activity information are sent to the TOC from the district office?

24) Where (and from whom) does this information typically come from?

25) How do you inform the TOC of weather-related activity?

26) How are location and duration information defined for weather-related activities? Are updates provided?

27) Do any district personnel input data into CARS? If so, whom?

28) If so, what type of information is put into CARS?

29) What type of training has been provided for these people (or person)? (Who has had the training?)

30) How are entries into CARS updated? (and how often)

31) Who creates press releases for the district?

32) Who receives a copy of the press releases?

33) Is detour information sent to the TOC?

34) If so, how is this information passed on to the TOC?

35) How is the detour communicated to the public at the scene?

36) Is your district familiar with the detour maps for all segments of interstates and parkways?

37) What type of information does your district receive from the TOC?

38) How does the district receive this information?

39) What information would you desire to receive from the TOC that you are currently not receiving?

40) What type of support (people, training, equipment) do you need from the TOC or central office to perform your duties?

41) How does the district respond to the highway hazard email?

42) Is there a specific person with the responsibility of handling the highway hazard emails?

43) What information does the district get from the highway hazard email?

44) How does the district document what is done in response to the email?

45) Is an update on the response to the highway hazard sent back to the TOC?

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APPENDIX B.   Review of Literature

Deeter, D.; To, H.; Zarean, M.; and Register, D.; "Rural ITS Toolbox," U.S. Department of Transportation, ITS Joint Program Office, FHWA-OP-01-130, October 2001.

This document was intended to support agencies and groups in the process of rural or statewide ITS deployment by identifying successful rural ITS projects and statewide applications from across the nation. Tools referenced are categorized on the basis of seven Rural ITS Development Tracks identified in another report. The seven tracks are: emergency services, tourism and travel information, traffic management, rural transit and mobility, crash prevention and security, operation and maintenance, and surface transportation and weather. Information designed to help planners evaluate the appropriateness of a given ITS application is provided for each tool. This information includes: needs addressed by the tool, a concise description of the tool, deployment examples, lessons learned from each deployment, benefits, implementation issues, institutional issues encountered, references, and other potential uses for the tool. For example, tools within the traffic management development track include: automated lane indication systems, closed circuit television, GIS applications, integrated signal systems, pager activation of warning beacons, route diversion systems, vehicles as traffic probes, incident management systems, parking management systems, work zone safety systems, and low cost detection.

ITS Toolbox for Rural and Small Urban Areas, New York State Department of Transportation, December 1998.

A compendium of systems, devices and strategies that can enhance safety, provide information, and make public transportation available in the small urban and rural areas in New York was developed. Tools were identified in the following eight ITS categories: incident detection, traffic management, safety, road/weather information systems, detection services, transit, traveler/tourism information, and planning/outreach. Tools under traffic management were: low-cost route diversion system, variable message signs, closed circuit television for detection, automated lane indication, GIS for traffic analysis, integrated signal system, and vehicles as traffic probes.

Minnesota Guidestar, Office of Traffic, Safety and Operations.

Minnesota's Department of Transportation and State Patrol have implemented a network of nine Transportation Operation and Communication Centers (TOCCs). The goal of these centers is to establish an integrated statewide communication and transportation operations network serving rural and the smaller urban areas outside the Twin Cities metro area. The individual TOCCs act as regional centers for 24-hour incident and emergency response, multi-agency dispatching and fleet management, interagency communications, collection and dissemination of road conditions and closures, and traffic management. Tools used to improve operator effectiveness include:

computer-aided dispatching (CAD), Condition Acquisition and Reporting System (CARS), and Road Weather Information System (RWIS).

Rural ITS User Needs, Science Applications International Corporation, June 1999.

This report summarizes the results of a Rural ITS Workshop. A goal of the workshop was to identify user needs. In the area of Traffic Management in rural areas, user needs were placed into the following five general categories: advisory information, traffic control, enforcement, economic development/environmental protection, and data sharing. The advisory information included: pre-trip and en-route directions, roadway traffic conditions, incident information, emergency evacuation routes, construction information, and natural road closures. Traffic control included: road surface dynamic warning system, work zone intrusion, work zone management, speed warning, reduced speed ahead, road closure management, seasonal delays and events, incidents, inter-agency coordination, real-time data collection, remote monitoring and maintenance, and coordinate and share information from regional TOC.

Smith, B.; "Configuration Management for Transportation Management Systems," Smart Travel Laboratory, University of Virginia, September 2003.

Configuration management (CM) facilitates orderly management of system information and changes to revise capability; improve performance, reliability, or maintainability; extend life; reduce cost; reduce risk and liability; and correct defects. This handbook provides guidance to implement CM practices for TMCs. Guiding principles for the use of CM in TMCs are: identify the context and environment in which CM is to be implemented; define procedures; conduct training so that all individuals understand their roles and responsibilities and procedures for implementing the process; assign unique identifiers; CM defines the functional, performance, and physical attributes of a system; identify baselines; each change is uniquely identified; consider the technical, support, schedule, and cost impacts of changes; and implement changes in accordance with documented direction approved by appropriate level of authority.

South Dakota Rural ITS Architecture, South Dakota Department of Transportation, Office of Research, February 2003.

The objective was to develop a single statewide regional ITS architecture to include all ITS projects in the state, including metropolitan planning organizations. The statewide ITS architecture provides a detailed view of the stakeholders, their roles and responsibilities, the ITS systems that exist or are planned, the transportation services that are or will be provided, the connections and information exchange requirements between the systems, the key functions of the systems, the standards applicable to planned deployments and the agreements needed for planned deployments.

Standards for Traffic Management Center to Center Communications, ITE/AASHTO, 2003.

This publication contains the concept of operations and requirements for center-to-center (C2C) communications between advanced traffic management system centers and other centers. The C2C communications can be used to: provide event information to other centers, provide traffic and travel data to other centers, help coordinate operations within the defined C2C network, and provide remote control of traffic control devices.

"Statewide ITS Architecture Development, A Case Study, Arizona's Rural Statewide ITS Architecture," U.S. Department of Transportation, September 1999.

The objective was to build a statewide ITS infrastructure to improve both the safety and efficiency of the state's transportation system. An emphasis was placed on rural needs since Arizona is predominately rural. Major lessons learned were: during pre-development create manageable regional coalitions, create a wide net of stakeholders, create and maintain agency and public buy-in, and utilize resources.

Statewide/Rural Intelligent Transportation Systems, 2002 Summary Report, ITS Joint Program Office, U.S. Department of Transportation, April 2004.

This report presented the results of a major nationwide data gathering effort to track the deployment of ITS technology in statewide and rural areas in the United States. A summary is given of a 2002 survey of all state departments of transportation. The scope of this summary was expanded to include medium sized cities as well as statewide/rural deployments. Data were collected in the following five areas: crash prevention and security, traffic management, operation and maintenance, surface transportation weather, and traveler and tourism information. Traffic management in rural areas included: technologies for surveillance; information dissemination; and traffic control including closed circuit television, dynamic message signs, traffic surveillance, road closure systems, route diversion systems, and TMCs. The key functions of the TMCs were: incident management, information dissemination, surveillance, and special event traffic management. Data provided by the TMC include: en-route traveler information, emergency management, disaster management coordination, network performance monitoring, environmental monitoring, and corridor management. Information disseminated by traveler information systems include: road closure, work zones, incidents, road surface, weather, detours, road restrictions, congestion, alternative routes, and closed circuit television images. Technologies used to disseminate traveler information include: internet, statewide conditions reporting system, highway advisory radio, dynamic message signs, automated telephone, e-mail, fax, television, kiosk, cellular telephone, and staffed telephone.

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APPENDIX C: State Survey

1) Does your state use CARS as a method of obtaining information to provide to the public? If not, what method is used?

2) Does your state use a 511 autovoice system? If not what method is used?

3) How is the state's transportation system divided into regions?

4) How is information provided from the various regions to the central TOC?

5) Is crash information (including updates) input by the state police agency and local police or do the police inform the state or regional TOC of crashes?

6) Who is responsible for data for planned construction activities?

7) Who maintains control over DMS and cameras?

8) Can drivers obtain data by region or route on the website or phone?

9) Are maintenance activities included?

10) How are drivers informed of the information which can be obtained?

11) Do they have a method for a driver to select routes and have information provided for incidents on those specific routes?

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