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# Transportation Security

**2011**

REGIONAL TRANSPORTATION PLAN

# 14 Transportation Security

Transportation security issues and protecting the transportation system from threats and disruptions is an important topic. The attacks on the World Trade Center in September 2001 and Hurricane Katrina in September 2005 each demonstrated the vulnerability of our transportation system in different but important ways. These events also highlighted the need for coordinated emergency planning and management to deal with such disasters. It is essential to have emergency management infrastructure systems in place in advance of disasters to best handle emergency response. It is also essential to take steps to protect our transportation infrastructure itself from potential security threats.

Transportation security is also a key component of the Massachusetts long-range state transportation plan, A Framework for Thinking – A Plan for Action (2006). One of the eight guiding principles of the state plan is that “the transportation system of the Commonwealth of Massachusetts shall be secure, with all modes and users protected against external threats.”

In Franklin County, many of the planning efforts related to the region’s transportation security are relatively recent, having begun within the last five to ten years. There has been some attention paid to the need for planning for evacuations in the face of an emergency – such as flooding, a hazardous spill, etc.; however, these planning efforts have been stepped up significantly in recent times. There has also been a new focus on increasing the security of transportation facilities themselves. This chapter provides a summary of the transportation security activities currently occurring within the Franklin County region and makes recommendations for future transportation security planning.

## Emergency Planning Activities

To date, emergency planning activities in Franklin County have focused on general emergency preparedness and training, and on the coordination between towns and agencies in response to a disaster. There has been a large emphasis on training, improving emergency communications infrastructure, and evacuation planning.

Two major committees working on emergency planning in Franklin County are the Franklin County Regional Emergency Planning Committee and the Western Regional Homeland Security Advisory Council.

## **Franklin County Regional Emergency Planning Committee**

The Franklin County Regional Emergency Planning Committee (REPC) was established in 2000, at the request of Franklin County towns. The REPC is staffed by the FRCOG, and the REPC has a broad membership, including public safety officials, health professionals, industry executives, local government workers, and other community members. The initial focus of the Emergency Planning Committee was to assist all municipalities in the county in meeting federal and state mandates for emergency planning. The federal Emergency Planning and Community Right to Know Act (EPCRA), passed in 1986, requires communities to develop emergency planning under a local Emergency Planning Committee, and to maintain data on hazardous materials. Massachusetts General Law (Chapter 21E) and Executive Order 242 also require planning by communities for emergencies. The focus of the REPC has now been expanded to address all areas of emergency preparedness in the region.

The FRCOG and the REPC sponsor and provide workshops for emergency response staff and local community leaders in the region to meet local and state training requirements regarding emergency incident management and hazardous materials handling and spills. The REPC also oversees the formation of volunteer Community Emergency Response Teams (CERTs), and training for the CERT teams. CERT team members have a wide variety of general and technical skills. A group of residents that have received the CERT training has formed the

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Franklin County Community Emergency Response Team. A related group is the Franklin County Medical Reserve Corps (MRC), a team of volunteers with experience and expertise in health care and related fields. The Franklin County CERT and MRC teams can provide important support to first responders during a critical incident, and can also assist with non-emergency projects that improve the health and safety of a community. Both the CERT and MRC programs are part of the federal Citizens Corps initiative, which is funded through the Department of Homeland Security's Office of State and Local Government Coordination and Preparedness.

In December 2008, CERT and MRC provided over 250 volunteer hours of support during a severe ice storm to aid in shelter operations and emergency communication in the Towns of Heath, Warwick, Shelburne, Conway, and Gardner.

In 2009, the REPC secured \$83,500 from the Western Region Homeland Security Advisory Committee to fund four regional exercises on the following topics: Moore Dam Flooding, Mass Casualty, Hazardous Material Evacuation, and Tactical Communications.

### **Western Region Homeland Security Advisory Council**

The Western Region Homeland Security Advisory Council (WRHSAC) was created in 2004 with the charge of improving the region's ability to respond to large-scale emergency incidents or disasters (WRHSAC web site: [www.wrhsac.org](http://www.wrhsac.org)). The WRHSAC covers the 101 cities and towns in Franklin, Berkshire, Hampden, and Hampshire Counties, and is one of five similar councils in Massachusetts, each one covering a different part of the state. The fifteen original members of the WRHSAC were appointed by former Governor Mitt Romney. Subsequent members are appointed by the Massachusetts Executive Office of Public Safety (EOPS). WRHSAC's voting members represent regional transit, fire services, law enforcement, emergency medical services, public works, corrections, public health, hospitals, emergency management, and public safety communications.

There are also ex-officio members from the Massachusetts Emergency Management Agency (MEMA), from the EOPS, which oversees the council, and from the FRCOG. The FRCOG serves as the fiduciary, the financial agent for the council. Funding for the council's activities comes from the federal Department of Homeland Security's Office of State and Local Government Coordination and Preparedness.

The Western Region Homeland Security Advisory Council works with the regional planning agencies in each region, and a variety of state agencies. The six primary goals of the council, as listed on the council's web site, are:

- Identify threats and vulnerabilities within the region;
- Plan regionally to protect critical infrastructure and key assets;
- Train first responders and local officials;
- Improve interoperability
- Gather and share information between communities and agencies; and
- Conduct multi-jurisdictional exercises for large-scale incident management<sup>1</sup>.

In 2004, the WRHSAC prepared the Western Massachusetts Regional Homeland Security Plan. This plan, which is submitted to the Massachusetts Executive Office of Public Safety (EOPS) is updated annually, and describes the WRHSAC's proposed investments and projects for each year. The FRCOG and the other regional planning agencies that are part of the WRHSAC, the Berkshire Regional Planning Commission and the Pioneer Valley Planning Commission, have been working to develop tools to strengthen the region's response to large-scale natural and man-made disasters. These tools include the following: a regional mutual aid agreement to facilitate the sharing of resources among towns; information on priority critical infrastructure; and evacuation planning for special needs populations.

Since 2009, the WRHSAC has been involved with the statewide interoperability Executive Committee. The WRHSAC coordinated the purchase and

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<sup>1</sup> Western Region Homeland Security Advisory Council Website. [www.wrhsac.org](http://www.wrhsac.org)



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information to improve roadway safety and efficiency. ITS can also enhance transportation security by helping to minimize disruptions to the transportation network due to accidents, congestion, and other issues, and by facilitating the diversion of traffic and the evacuation of residents, if necessary, when an emergency occurs.

The Regional Traveler Information Center (RTIC), a cooperative project of the University of Massachusetts at Amherst (UMass) and MassDOT, collects, analyzes, and disseminates traffic and public transportation information for use by state and local agencies, private entities, and the general public. One element of the RTIC's operations has included the installation and maintenance of cameras along Route 116 in Deerfield and Sunderland, and along Route 9 in Hadley and Northampton to help monitor current traffic conditions. The camera views are accessible from the internet ([www.masstraveler.com/webcams.html](http://www.masstraveler.com/webcams.html)) and provide real-time information on traffic flows. Additional camera locations are being evaluated for potential installations in other areas of Franklin County in the future.

Other useful ITS technologies include weather sensors and variable message signs. MassDOT has installed weather sensors along Route 2 and is planning them for other corridors in the region. The weather sensors provide data on temperature and current roadway surface conditions. The weather sensor data is used by MassDOT staff, but is not yet available to the general public or town highway superintendents. Variable message signs have been installed by MassDOT along the Route 2 corridor and along I-91 just south of Franklin County. Numerous mobile message signs are also used throughout Western Massachusetts. These signs provide important messages to residents regarding traffic conditions and construction schedules, and they could be used to help direct traffic in an emergency.



**View from a Regional Traveler Information Center (RTIC) camera located on Route 116 at Route 47, in Sunderland**

The Massachusetts Broadband Institute (MBI) was established in 2008 by Governor Deval Patrick and the state legislature. The mission of the MBI is to bring broadband service to all Massachusetts homes, businesses and government buildings. The approach is to make strategic and targeted public investments that will lower the economic hurdles for private providers to invest in unserved or underserved areas. The MBI is a division within the Massachusetts Technology Collaborative (MTC), an economic development agency of the State. The MBI was capitalized with \$40 million of General Obligation Bonds approved by Governor Patrick.

Twenty-seven police stations have no access to the State's Criminal Justice Information System and eighty-five stations only have limited internet access. Every First Responder should have access to nationwide public safety wireless network. The MBI strategy for Western Massachusetts is to bring the middle mile backbone of the telecommunications

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• **The majority (62%) of**  
• **survey respondents**  
• **were unsure of or had**  
• **no opinion about the**  
• **status of Intelligent**  
• **Transportation**  
• **System (ITS)**  
• **improvements over**  
• **the past five years.**  
• **Approximately 21%**  
• **of respondents felt**  
• **that the ITS has**  
• **remained the same in**  
• **that time.**  
•••••

infrastructure into underserved and un-served areas, and establish connections to community anchor institutions. This strategy will create an economically viable market for private sector providers to invest in connecting to and serving homes and businesses. This segment of the network is called the last mile.  
  
The MBI has received a \$45 million grant from the American Recovery and Reinvestment Act (ARRA). The MassBroadband 123 project plans to build an open access, middle mile fiber network serving the western and north central area

of Massachusetts. The project will install 1,388 total miles of fiber and conduit. A total of 1,492 anchor institutions will be connected directly to the network. Within three miles, it will reach 95 percent of all residents, business and anchor institutions and is estimated to create approximately 2,200 jobs. The project is anticipated to be fully completed within 2.5 years. This network will provide the essential foundation for economic growth and stability to this region.

The I-91 fiber portion of the project installed 55 miles of 288-strand fiber from Connecticut to the Vermont border. This was the first segment of a regional Western Massachusetts fiber optic-ring that will bring broadband to unserved citizens in the region for years to come. The conduit will be available for lease by private telecommunication fiber providers, which will encourage and ease the expansion of telecommunications facilities throughout the Pioneer Valley and Franklin County. ITS components installed along the corridor include variable message signs, cameras, and weather sensors, all of which will help make I-91 less congested, safer and a more secure highway. In the long-term, this ITS technology can also be coordinated with current emergency response systems to enhance the region's ability to manage large-scale emergency events and facilitate evacuations if necessary.

In 2010, the MBI signed a Memorandum of Understanding (MOU) with the Department of Conservation and Recreation (DCR) to facilitate access to their fire towers. This will provide easier access to install wireless broadband systems, reduce the cost of deployment, reduce the need for new towers, and allow for faster permitting.

### **Emergency Planning for the Vermont Yankee Nuclear Plant**

The Vermont Yankee Nuclear Power Station, owned by Entergy, is located in Vernon, Vermont, just north of Franklin County. An Emergency Planning Zone (EPZ) for the facility has been established for an approximate ten-mile area around the facility, and plans have been developed for warning and protecting residents within this zone. The EPZ

includes the entire Towns of Bernardston and Leyden, and portions of the Towns of Colrain, Gill, Greenfield, Northfield, and Warwick. Residents of the EPZ are provided with written information on what to do in the event of an emergency at the nuclear power station. This information is distributed annually to residents through an emergency public information calendar produced as a public service by Vermont Yankee, the Massachusetts Emergency Management Agency (MEMA), and the Massachusetts Department of Public Health. Residents of the Emergency Planning Zone are also provided with tone-alert radios that will sound in the event of an emergency at Vermont Yankee or natural disasters (and for weekly testing). In the event of an emergency at the plant, warnings would also be issued through outdoor emergency sirens (Bernardston, Colrain, and Northfield only), broadcasts from loudspeakers on emergency vehicles, and special announcements on local Emergency Alert System radio stations.

The emergency plans for Vermont Yankee include details on what residents should do if they are instructed to evacuate or to shelter-in-place and stay where they are. All the schools and daycare centers within the Emergency Planning Zone (EPZ) have emergency plans of their own, and in the case of an emergency, school and daycare children would be moved to reception centers and host facilities outside of the EPZ. If an evacuation is necessary, information will be provided through Emergency Alert System radio stations on which evacuation routes residents should take. The wind direction may affect the recommended evacuation route, though the primary evacuation corridors include I-91, Route 2/2A, Route 63, and Route 5/10. Residents will be directed to a reception center at the Greenfield Community College main campus where assistance for evacuees will be available. Alternative reception centers serving the Emergency Planning Zone are the Bellow Falls Union High School in Bellow Falls, Vermont, and Keene State College in Keene, New Hampshire. At the reception centers, emergency workers will help evacuees receive information on other family members, and will direct people needing a place to stay to a mass care shelter that will provide meals and lodging.

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The emergency plans include provisions for assisting residents with special needs.

### **Challenges for Large-Scale Evacuations**

Consideration of the transportation network in evacuation planning is essential and due to its rural nature, there are several challenges for large-scale evacuations in Franklin County. A map is contained at the end of the chapter which shows the main evacuation routes for the region. These routes have been identified by local communities through their emergency planning processes and the creation of their Comprehensive Emergency Management Plans (CEM Plans) that all municipalities are required to develop.

The cause of any large scale emergency in Franklin County will significantly impact an evacuation. An evacuation caused by a flood, for example, will place a significant strain on the remaining available transportation network to be used in an evacuation. Additionally, as has been demonstrated in the Harriman Dam Evacuation Plan, several of the areas' critical facilities and shelters will be inundated by a flood, thus making them inaccessible. An evacuation resulting from other catastrophes and hazards may take a very different form. A hazardous spill may bisect the county and sever access to the two primary roadways in the region - Interstate 91 and Route 2. It is for this very reason that the potential impacts of several different emergency situations be evaluated for the county to identify barriers and constraints to an evacuation.

In 2009, the Federal Highway Administration (FHWA) developed a report entitled *Good Practices in Transportation Evacuation Preparedness and Response*.<sup>2</sup> The purpose of this report was to document the results of a workshop series regarding emergency planning. The workshops were organized into three phases which consist of: (1) Preparation and Activation, (2) Response, and (3) Re-entry and Return to Readiness. The preparation and activation phase refers to the stage in which emergency communication and evacuations plan

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<sup>2</sup> Good Practices in Transportation Evacuation Preparedness and Response: Results of the FHWA Workshop Series. Federal Highway Administration (FHWA), August 2009.

are developed and first notification of an emergency is received. During this stage, pre-evacuation planning occurs and an evacuation plan is implemented. Communication and activation are the key tenants of this phase. The evacuation planning efforts described herein seek to provide a foundation for development of formal evacuation plans and fall into the preparation category. Formal evacuation plans, however, will plan for all three phases, from activation of the plan to re-entry and return to readiness following an event. These three phases outline the major components of an evacuation plan and illustrate the complexity of factors which go into a safe and efficient evacuation.

A safe transportation system protects users from hazards, including hazards resulting from climate-related stresses on the system. It is expected that more extreme weather events will lead to more precipitation and flooding. It is critical that infrastructure be planned and maintained to be able to withstand a higher frequency of these events. Furthermore, such events may be more severe in the future, so a revised examination of potential flooding areas and critical infrastructure should be performed. The FRCOG has been working with the Berkshire Regional Planning Commission (BRPC), Pioneer Valley Planning Commission (PVPC), and the University of Massachusetts Transportation Center (UMTC) to prepare preliminary evacuation plans for Western Massachusetts. Most recently, two emergency scenarios were evaluated for Franklin County which consist of (1) a failure of the Harriman Dam, and (2) a four-county Hurricane evacuation.

### **Harriman Dam Failure Case Study**

The FRCOG worked in conjunction with the University of Massachusetts Transportation Center (UMTC) to develop a preliminary evacuation plan for Franklin County communities in the event of a failure of the Harriman Dam. Located in south central Vermont, Lake Harriman is a man-made lake which was created by the New England Power Company in 1932 to facilitate hydroelectric power. The lake was created by flooding 2,200 acres of surrounding farms and woodland. Via use of a

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spillway, water from the Harriman Dam feeds into the Deerfield River which traverses through Franklin County, beginning at its northeastern border with Vermont. A structural failure of the Harriman Dam would have devastating consequences for Franklin County. The purpose of this analysis was to evaluate the transportation network during an evacuation as well as to identify areas that are expected to become inundated (flooded). The UMTC performed the modeling of this scenario.

The Deerfield River traverses through several communities in the western part of the county, and it is very important to understand how adjacent communities' roadways, emergency personnel and resources may be impacted. The village centers that would be impacted include Charlemont, Shelburne Falls, Greenfield, Turners Falls, and Deerfield. By becoming familiar with the inundation areas and better understanding the limitations of the transportation network during such an event, local emergency planners can make more informed emergency planning decisions to help maximize the safety and efficiency of an evacuation.

This analysis consisted of the preliminary assessment of the impacts of a flood on the transportation network and its ability to accommodate an evacuation. The results of this analysis estimated the amount of new trips generated by the evacuation on the transportation network, an analysis of the availability of evacuation modes such as the personal automobile, assessed the expected capacity of shelters in the region, and identified critical locations in the transportation network. The resulting recommendations were identified based on the results of this analysis and are aimed at local officials and emergency personnel charged with planning for an evacuation following failure of the Harriman Dam.

A supplemental report to the Harriman Dam Failure Case Study was developed after the identification of a need for more specific recommendations for each of the towns in the inundation area. These Town Recommendations provide a closer look at each of the communities which are impacted by the flood. More specifically, a closer analysis of the critical facilities for each of the towns directly impacted by

failure of the Harriman Dam has been performed. These recommendations are to be used only as a starting point for the development of specific emergency plans in each of the towns. In addition to the supplemental report, more detailed maps were created for each of the inundated sections to help towns develop more detailed evacuation plans.

### **Four County Hurricane Evacuation Case Study**

The FRCOG worked in conjunction with the Berkshire Regional Planning Commission (BRPC), Pioneer Valley Planning Commission (PVPC), and the University of Massachusetts Transportation Center (UMTC) to evaluate an emergency scenario in which a hurricane forces a full evacuation of all four of the Western Massachusetts counties (Berkshire, Franklin, Hampshire, and Hampden). The hurricane was modeled to split the region in two, sending people to the east and west. This analysis sought to determine the impacts of a hurricane evacuation on the transportation network of Western Massachusetts.

This study was developed to help emergency planners create formal evacuation plans in the event of a hurricane. The information contained in the study will assist with critical evacuation planning decisions, such as evacuation routes and timing. Potential travel times can be relayed to the public to inform them of what routes might be significantly delayed. Some routes in the network may be underutilized. Through this methodology, the routes can be discovered and then that information can be reported to the public. Some additional implications of this research help identify alternatives to evacuation if evacuation is not possible or feasible. This may include the use of additional shelters which can be stocked with extra food, water, and beds. Buses can be diverted to serve these areas. The citizens of these counties can be notified via radio or television about the availability of extra buses or shelter space.

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### Transport of Hazardous Materials

In August 2006, the Franklin County Regional Emergency Planning Committee (REPC),<sup>3</sup> completed the creation of a Regional Hazardous Materials Emergency Plan (HMEP) with support from the Franklin Regional Council of Governments. The development of the HMEP served several purposes, including compliance with the statutory requirements that all local Emergency Planning Committees develop, exercise, and annually review a Hazardous Materials Emergency Plan. Also, no regionally focused planning tool had previously existed to describe and analyze hazardous threats in Franklin County. Third, a regional plan was needed to standardize hazardous materials release reporting, notification, and response. The creation of the HMEP was funded through a congressional earmark to the FRCOG. The HMEP is formally updated every three years, but reviewed annually. Among the HMEP's priorities is addressing the potential issues associated with the freight transport of hazardous materials and having an emergency plan for hazardous material spills. The HMEP assumes that virtually all railway and road corridors transport hazardous materials at some times, and that consequently any rail line or roadway can be a potential hazardous material spill site.

The HMEP includes an analysis of the level of hazardous material transported in the region on major roadways and on rail lines. This analysis is based on a one-time study of the level of general freight transport on rail facilities and major roadways, and the amount of freight traffic that contained hazardous materials. This study was conducted in 2003. The study estimated that approximately 13 to 15 trucks per hour traveling through the region contain hazardous materials. Most of these trucks are on Interstate 91. For rail transport, it was estimated that there are 100 to 130 train cars with hazardous materials passing through the region each day. The study also found that up to 500 rail cars were stopped at the East Deerfield Rail Yard at any given time, with 20 to 50 of them containing hazardous materials. The only known

significant transportation change since the 2007 report is the increase in ethanol transport by rail through the county. A training activity to address this topic is planned within the next year according to the Chair of the Franklin County Emergency Preparedness Committee.

### **Chemical Incident Exercises and Response**

The Franklin County Regional Emergency Planning Committee (REPC) has conducted several training exercises in the last few years for dealing with chemical spills. The most recent training was a Hazardous Material tabletop exercise held on October 22, 2009. This exercise simulated a transportation-related release and public evacuation protocol. Another upcoming training will address the increased ethanol transportation by rail in Franklin County as stated above. The REPC has been called out on nine different occasions since 2007 to assist with actual chemical incidents in Franklin County.

### *GIS Tools for Chemical Incident Response*

The FRCOG maintains hazardous material facility location maps within the region using Geographic Information Systems (GIS) and Tier II Submit software provided by the Environmental Protection Agency (EPA). Hazardous material facilities (Tier II facilities) are required by the EPA to submit their information via electronic format to the Regional Emergency Planning Committee (REPC) annually. The FRCOG is responsible for importing that data and submitting the information. The FRCOG is also responsible for creating localized maps of facilities and surrounding critical infrastructure (such as schools, hospitals and bridges) using Pictometry software. Pictometry is an aerial software program that allows users to use existing map data layers with aerial photos. Aerial photos are used to determine the exact location of each facility along with GPS coordinates. Two maps are then created, a town wide map showing all the Tier II facilities within the town and an aerial photo map of each Tier II facility. The maps also contain critical information regarding the types and quantities of the chemicals stored at the facility. The localized aerial photo map depicts the evacuation and isolation zones if a chemical release were to occur.

<sup>3</sup>The Franklin County Local Emergency Planning Committee (LEPC) was renamed the Franklin County Regional Emergency Planning Committee (REPC) in 2007.









