

13

Safety & Security



2016 Regional Transportation Plan

13 Transportation Safety & Security

Transportation Safety

The safety of the transportation network can strongly impact travel patterns and behaviors as well as the health of a community. Many factors influence the safety of the transportation network including the road environment, road user, and vehicle factors. The overall goal for traffic safety is to minimize the consequences or the probability of a vehicle being involved in a hazardous situation.¹ For Franklin County, this most often results in safety treatments on existing roadways that range from routine maintenance to complete intersection redesign. The most critical components of a safe, secure, and efficient transportation network are coordination and communication among emergency personnel, law enforcement officers, and the users of the transportation network.

Guiding Policies and Programs

In 2013, MassDOT completed an update to the *Massachusetts Strategic Highway Safety Plan (SHSP)* that examined transportation safety in the Commonwealth from a variety of perspectives. The 2013 SHSP identified 15 emphasis areas, each addressing a contributing crash factor. The emphasis areas are grouped into three tiers:

- Strategic emphasis areas represent at least 10 percent of annual fatalities or severe injuries on Massachusetts roadways;
- Proactive emphasis areas represent less than 10 percent of annual fatalities or serious injuries; and
- Emerging emphasis areas focus on improvement of traffic safety and crash data systems.

Franklin County's safety efforts generally fall within the Strategic emphasis areas, particularly regarding Intersections, Lane Departures, Pedestrians, and Bicycles. These themes examine crash and injury data to determine ways to reduce infrastructure-related and user-related issues. Much of the safety-related issues in Franklin County are the result of infrastructure issues and conflicts between motorists and to a lesser extent, between motorists and pedestrians/bicyclists.

The Highway Safety Improvement Program (HSIP) is a federal transportation funding program under MAP-21 to achieve reductions in traffic fatalities and serious injuries on all public roads. For a highway safety improvement project to be eligible for HSIP funding

¹ Evans, Leonard. *Traffic Safety*, Science Service Society. Bloomfield Hills, Michigan. 2004.

through the regional Transportation Improvement Program (TIP), it must meet certain criteria:

- The candidate project must be consistent with the State SHSP and correct or improve a hazardous road location or feature or address a highway safety problem.
- The project location must originate from a comprehensive list of high crash locations. The primary sources of data are the MassDOT database (based on the RMV Crash Data System) and the High Crash Locations report. The High Crash Locations report identifies crash clusters based on weighted severity of geo-located crashes. For a crash cluster to be eligible for HSIP, the total number of “equivalent property damage only” crashes must be within the top 5 percent of all crash clusters in that region (the “equivalent property damage only” method of weighting crash severity is described in further detail later in this chapter). Regional planning agencies may also use their own edited data to more accurately rank locations within their region, as the FRCOG does with the Most Hazardous Intersections in Franklin County report.
- All HSIP project candidate locations must be evaluated with a Road Safety Audit.

Background

Traffic incidents have a direct impact on the safety of a community as well as the operations and security of the transportation network. Nationally, in 2013 alone, over 2 million people were injured in traffic-related incidents and almost 33,000 people lost their lives.² This is the equivalent of 90 people dying each day, or one life lost every 16 minutes. Fatal traffic crashes were the leading cause of death for persons aged 5 to 24.³ The national fatality rate, however, has declined by more than 25 percent since 2003. Massachusetts continues to have the lowest fatality rate (0.64 per 100 million VMT) in the country in 2012.⁴

Table 13-1 presents a summary of traffic-related fatalities for each county in Massachusetts, from 2009 to 2013. Franklin County ranks among the lowest (next to Nantucket and Dukes Counties) in the number of traffic-related fatalities per year. Over the five year period from 2009 to 2013, there were 23 traffic-related fatalities in Franklin County. Overall, this represents a 44 percent decrease compared to the five year period from 2004 to 2009, in which 41 traffic-related fatalities occurred in Franklin County. Across the state a similar trend is observed with a 48 percent decrease from the previous five-year total. The recent decline in traffic related fatalities at both the state and county levels from 2009 to 2013 denotes a positive trend that should continue to be monitored.

² National Highway Traffic Safety Administration, Traffic Safety Facts Research Note, December 2014.

³ National Center for Health Statistics, National Vital Statistics System, 2013 data.

⁴ Insurance Institute for Highway Safety, Highway Loss Data Institute, 2012 data.

Table 13-1: Traffic Related Fatalities in Massachusetts by County, 2009-2013

County	Fatalities					Total
	2009	2010	2011	2012	2013	
Barnstable County	15	17	22	26	16	96
Berkshire County	16	14	14	13	8	65
Bristol County	37	49	57	50	35	228
Dukes County	1	2	0	2	1	6
Essex County	38	31	42	45	33	189
Franklin County	1	5	5	5	7	23
Hampden County	32	34	30	36	29	161
Hampshire County	11	6	8	9	7	41
Middlesex County	64	46	56	50	37	253
Nantucket County	0	0	0	0	0	0
Norfolk County	36	34	27	43	25	165
Plymouth County	25	29	35	31	43	163
Suffolk County	21	26	24	29	22	122
Worcester County	43	54	54	44	63	258
Massachusetts	340	347	374	383	326	1770

Source: National Highway Traffic Safety Administration, U.S. Department of Transportation. Traffic Safety Facts for Massachusetts: 2009 - 2013. Fatalities (All Crashes).

The number of traffic-related pedestrian fatalities in Massachusetts increased overall in the five year period from 2009 to 2013, shown in Table 13-2. This is similar to the trend nationally over this same period.⁵ Between 2009 and 2013, the number of traffic-related deaths of pedalcyclists (bicyclists and other riders of wheeled vehicles powered solely by pedals, e.g. tricycles and unicycles) in Massachusetts was rather consistent, except for a spike in 2012. Nationally, pedalcyclist fatalities have been increasing each year since 2011.⁶

Table 13-2: Pedestrian and Cyclist Traffic Fatalities in Massachusetts, 2009-2013

Mode	Fatalities					Total
	2009	2010	2011	2012	2013	
Pedestrian	48	58	58	72	68	304
Pedalcyclist	6	6	5	15	6	38

⁵ National Highway Traffic Safety Administration, Pedestrians Traffic Safety Fact Sheets, 2009-2013.

⁶ National Highway Traffic Safety Administration, Bicyclists and Other Cyclists Traffic Safety Fact Sheets, 2009-2013.

Identification of the Most Hazardous Intersections in Franklin County

Approximately every three years the FRCOG conducts an analysis of crash data to determine high crash locations in the county. All crashes resulting in estimated property damage in excess of \$1,000, injuries, or fatalities must be reported to and recorded by police. Those involved in the crash or the investigating police officer must complete a standard report form and forward it to the Massachusetts Registry of Motor Vehicles (RMV). This data is used to create the Most Hazardous Intersection Report, which was most recently updated in 2012 and covers the crashes recorded between 2007 and 2009.

From 2007 through 2009, there were 3,454 crashes in Franklin County. The majority of these crashes occurred in Greenfield (1,003 crashes), Deerfield (442), Orange (389), and Montague (343). These towns are the most densely developed and/or most trafficked areas of the county. To determine how hazardous each intersection is, a nationally recognized measure called “Equivalent Property Damage Only” (EPDO) was applied to each crash.

EPDO assigns points to each crash based on its severity. There are three crash severity levels: “property damage only” which is assigned one point; “injury” which is assigned five points; and “fatality” which is assigned ten points. Only one category is assigned to each crash, reflecting the most serious crash level. For further analysis, the EPDO rate per Million Entering Vehicles (MEV_{EPDO}) is calculated to weigh the severity of crashes at an intersection by the volume of traffic entering the intersection. In this way, the MEV_{EPDO} reflects both the severity of crashes as well as the rate of exposure to crashes.

Using the results of the MEV_{EPDO} calculation, the top fifty most hazardous intersections were ranked and the results are contained in Tables 13-3 and 13-4 and shown on a map at the end of Chapter 5. The map shows that the vast majority of the identified hazardous intersections are located within the most heavily traveled corridors in the county. Due to a tie for 50th place, there are actually 51 intersections on the list. The town with the largest number of hazardous intersections on the list was Greenfield (16 intersections), followed by Montague (12 intersections), and Deerfield (6 intersections). Of the 51 most hazardous intersections, 23 appeared on the previous list of the top 50 most hazardous intersection in Franklin County produced from crash data from 2004 through 2006.

The most hazardous intersection in Franklin County was G Street at Eleventh Street in Turners Falls at a stop-controlled intersection. Although only three crashes were reported at this intersection within the analysis period, two resulted in injuries and the traffic volume is comparatively low, approximately 1,000 vehicles per day. This resulted in an MEV_{EPDO} of 10.05, indicating a high rate of exposure to crashes at this intersection.

Table 13-3: Most Hazardous Intersections in Franklin County, Rank 1 - 25

Rank	Town	Intersection	Number of Crashes	EPDO Total	MEV _{EPDO} Rate	MEV _{CRASH} Rate	MEV _{CRASH} Rate Comparison	MassDOT MEV _{CRASH} Rate	Type of Control
1	Montague	G St./Eleventh St.	3	11	10.05	2.73	>	0.67	Unsignalized
2	Orange	Myrtle St./Pleasant St.	4	12	5.48	1.82	>	0.67	Unsignalized
3	Montague	Route 63/North Leverett Rd.	10	27	4.36	1.62	>	0.67	Unsignalized
4	Erving	Route 63/Semb Dr./Forest St.	3	11	4.19	1.14	>	0.67	Unsignalized
5	Greenfield	Wells St./Allen St.●	8	28	3.82	1.09	>	0.67	Unsignalized
6	Orange	Route 202/Route 122	11	31	3.77	1.34	>	0.67	Unsignalized
7	Montague	Montague City Rd./Turnpike Rd.	8	24	3.37	1.12	>	0.67	Unsignalized
8	Northfield	Route 10/Gill Center Rd.	7	27	2.98	0.77	>	0.67	Unsignalized
9	Greenfield	High St./Maple St.	12	28	2.97	1.27	>	0.67	Unsignalized
10	Buckland	Route 2/Route 112 South	3	16	2.92	0.55	<	0.61	Unsignalized
11	Greenfield	I-91/Route 2 Rotary	35	95	2.76	1.02	>	0.67	Unsignalized
12	Gill	Route 2/Main Road	16	49	2.76	0.9	>	0.83	Signalized
13	Greenfield	Conway St./Devens St.	3	11	2.7	0.74	>	0.67	Unsignalized
14	Greenfield	Chapman St./Pierce St.	4	12	2.58	0.86	>	0.67	Unsignalized
15	Montague	Route 47/North Leverett Rd.	4	12	2.49	0.83	>	0.67	Unsignalized
16	Montague	L St./Third St.	7	19	2.41	0.89	>	0.67	Unsignalized
17	Greenfield	Main St./Hope St.	14	38	2.4	0.88	>	0.67	Unsignalized
18	Montague	Turnpike Rd./Walnut St.	3	11	2.36	0.64	<	0.67	Unsignalized
19	Deerfield	Route 116 (North)/Route 5&10●	20	48	2.34	0.97	>	0.83	Signalized
20	Montague	Turners Falls Rd./Swamp Rd.	3	11	2.32	0.63	<	0.67	Unsignalized
21	Deerfield	Route 5&10/North Main St.●	15	27	2.26	1.26	>	0.67	Unsignalized
22	Greenfield	Route 2A/River St.	15	43	2.19	0.76	<	0.83	Signalized
23	Orange	East Main St./Water St.	8	20	2.15	0.86	>	0.67	Unsignalized
24	Montague	Avenue A/Fifth St.	8	16	2.09	1.04	>	0.67	Unsignalized
25	Whately	Route 5&10/Christian Ln.●	4	12	2.06	0.69	>	0.67	Unsignalized

Table 13-4: Most Hazardous Intersections in Franklin County, Rank 26 - 50

Rank	Town	Intersection	Number of Crashes	EPDO Total	MEV _{EPDO} Rate	MEV _{CRASH} Rate	MEV _{CRASH} Rate Comparison	MassDOT MEV _{CRASH} Rate	Type of Control
26	Montague	Unity St./Park St./Chestnut St.	8	20	2.04	0.82	>	0.67	Unsignalized
27	Greenfield	Colrain St./Elm St.	6	15	2.04	0.82	<	0.83	Signalized
28	Erving	Route 2/Route 2A	8	20	2.01	0.62	<	0.67	Unsignalized
29	Sunderland	North Main St./Gunn Mountain Rd.	3	11	2.01	0.55	<	0.67	Unsignalized
30	Orange	South Main St./West Main St.	13	25	1.95	1.01	>	0.83	Signalized
31	Greenfield	Elm St./West St.	4	16	1.94	0.49	<	0.67	Unsignalized
32	Greenfield	Deerfield St./Cheapside St.	6	26	1.83	0.42	<	0.67	Unsignalized
33	Montague	Montague City Rd./Cabot Station Rd.	3	15	1.82	0.37	<	0.67	Unsignalized
34	Greenfield	Federal St./Maple St./Garfield St.	8	24	1.75	0.58	<	0.67	Unsignalized
35	New Salem	Route 202/Route 122	4	12	1.72	0.57	<	0.67	Unsignalized
36	Northfield	Route 10/Main St./Millers Falls Rd.	8	16	1.64	0.82	>	0.67	Unsignalized
37	Montague	Avenue A/Seventh St.	9	17	1.63	0.87	>	0.83	Signalized
38	Greenfield	Colrain Rd./College Dr.●	7	16	1.61	0.7	>	0.67	Unsignalized
39	Greenfield	Federal St./Silver St.	15	35	1.59	0.68	<	0.83	Signalized
40	Bernardston	Route 10/Turners Falls Rd.	3	15	1.57	0.31	<	0.67	Unsignalized
41	Northfield	Route 10/Parker Ave./Warwick Rd.	5	13	1.51	0.58	<	0.67	Unsignalized
42	Greenfield	Deerfield St./Meridian St.	7	19	1.48	0.54	<	0.83	Signalized
43	Deerfield	Route 116/Sugarloaf Street●	12	28	1.46	0.63	<	0.83	Signalized
44	Greenfield	Bank Row/Olive St.	4	12	1.36	0.45	<	0.67	Unsignalized
45	Deerfield	Route 116/North Hillside Rd.	4	12	1.35	0.45	<	0.67	Unsignalized
46	Montague	Unity St./Central St.	4	12	1.34	0.45	<	0.67	Unsignalized
47	Sunderland	Route 116/Route 47●	11	23	1.32	0.63	<	0.83	Signalized
48	Greenfield	Federal St./Sanderson St.	7	19	1.32	0.49	<	0.67	Unsignalized
49	Deerfield	Route 5&10&116/Elm St.	12	24	1.3	0.65	<	0.83	Signalized
T-50	Northfield	Route 10/Fort Sumner Turner Rd.	4	12	1.3	0.43	<	0.67	Unsignalized
T-50	Deerfield	Route 5/10/ Old Main St.	4	12	1.3	0.43	<	0.67	Unsignalized

It is important to recognize that Franklin County is very rural and the majority of its roadways carry lower traffic volumes than the rest of the state. Therefore, they experience a lower probability of crashes. Inclusion on the most hazardous intersection list for Franklin County does not necessarily mean that an intersection has a safety problem. To see how these intersections on the list compare to those intersections statewide, they have been compared to ratings produced by MassDOT, using the measure of crash rate per million entering vehicles (MEV_{CRASH}).

The MEV_{CRASH} rate is used by MassDOT to develop average rates for both signalized and unsignalized intersections on a regional and statewide level. These average MEV_{CRASH} rates are used by MassDOT as a threshold for determining if a particular intersection warrants a more detailed safety evaluation. The MEV_{CRASH} rate has been provided in Tables 13-3 and 13-4. A total of 26 of the identified 51 intersections have MEV_{CRASH} rates that exceed the MassDOT average crash rates. This includes the top nine intersections and 21 of the top 25 intersections. Based on this threshold, these intersections warrant a more detailed safety evaluation.

There are 26 signalized intersections in Franklin County, 11 of which appear in the top 50 most hazardous intersection list. Of these 11 signalized intersections, four have a MEV_{CRASH} rate higher than the MassDOT District average.

Road Safety Audits

The Road Safety Audit (RSA) process is a formal safety examination of an existing or future roadway or intersection by an independent, multidisciplinary team to identify potential safety issues and opportunities for safety improvements. Identified safety improvements can range from short-term, low-cost options to large scale redesign improvements. However, the majority of the improvements are focused on short and mid-term, low to mid-cost safety improvements that can elicit immediate results. The RSA process involves an audit team that typically includes representatives from State and Local agencies, such as State Transportation Officials and local Public Safety Officers.

The FRCOG, in conjunction with MassDOT and local municipalities, has performed several RSAs in Franklin County. To date, nineteen RSAs have been conducted in the communities of Deerfield, Erving, Greenfield, Shelburne, Sunderland, and Whately. The locations of these RSAs are:

- Route 2 (Mohawk Trail) / Colrain Road / Big Y Driveway, Greenfield
- Cheapside Street at Hope Street, Greenfield
- Turners Falls Road at Loomis Road, Greenfield

- Route 2 (Mohawk Trail) at Colrain Shelburne Road, Shelburne
- Route 116 (Bridge Street/Amherst Road) at Route 47 (North Main Street / South Main Street), Sunderland
- Route 2 (Mohawk Trail) at Route 2A (West Orange Road), Erving
- Route 5/10 at Cheapside Street, Greenfield
- Route 2A (Mohawk Trail) at River Street / Shelburne Road, Greenfield
- College Drive at Colrain Road, Greenfield
- Route 5/10 (Greenfield Road) at Route 116 (Conway Road), Deerfield
- Route 5/10 (Greenfield Road) at North Main Street, Deerfield
- Route 116 (Sunderland Road) at Sugarloaf Street, Deerfield
- Interstate 91 at Exit 25, Deerfield
- Conway Street at Devens Street, Greenfield
- Conway Street at Grove Street, Greenfield
- Conway Street Corridor (between Devens Street and Grove Street), Greenfield
- Wells Street at Allen Street, Greenfield
- Interstate 91 at Exit 24, Whately
- Route 5/10 at Christian Lane, Whately

Audit team members from the FRCOG, MassDOT, FHWA, and municipalities joined the RSA team leader, hired by MassDOT. For each location, the RSA team performed a review of background information such as traffic volumes, crash information, and operation concerns from local officials. After a review of background information was performed, the team visited each of the locations to analyze these issues. Each RSA concluded with the audit team developing an extensive list of challenges, issues, and potential solutions for the study area. Final recommendations were provided to audit team members by the consultant, upon completion of the report.

Safety Improvement Projects

The following section describes safety projects that are currently planned and/or designed for the region.

Intersection Improvements at Route 2A (Mohawk Trail) and Shelburne Road/River Street

The intersection of Route 2A (Mohawk Trail), Shelburne Road, and River Street) in Greenfield is a four-way signalized intersection with busy commercial driveways on two corners and an elementary school on a third corner. Listed as a MassDOT HSIP cluster for 2008-2010, 2009-2011, and 2010-2012, and appearing at #22 the Most Hazardous Intersections in Franklin County list, an RSA was conducted at this intersection in 2011. The RSA revealed

that that most prevalent crash type was rear-end crashes at the stop lines and the driveway cuts. MassDOT advertised a project to improve traffic signal equipment, phasing and timing, lane configuration, pedestrian accommodations and sight distance in 2014; construction is expected to be complete in 2015.

Intersection Improvements at Route 5/10 and Cheapside Street

Cheapside Street in Greenfield splits at the approach to Route 5/10, forming three unsignalized intersections with a large triangular island in the middle. The location was identified as a MassDOT HSIP cluster for 2008-2010, 2009-2011, and 2010-2012, and appears at #32 on the Most Hazardous Intersections in Franklin County list. An RSA conducted in 2011 recommended reconfiguring the Cheapside Street intersection to a single T-intersection or a roundabout. However, MassDOT analysis projected that traffic congestion and delay would be increased with a single T-intersection, so they instead proposed a lower cost reconfiguration of the existing intersections, with improved pavement markings, signage, and pedestrian accommodations, with the intent to study the future operations and consider a roundabout as a future improvement if necessary.

Route 2 East Safety Improvements

The Route 2 Task Force, formed in 1994, developed recommendations for the corridor, grouped into seven sections in which to concentrate the identification and implementation of specific safety improvements. They were: Athol/Phillipston, Orange, Erving Paper Mill Corner, Erving Center, Farley, Erving side and Gill/Greenfield. Since December 2006, many of the recommendations have been successfully implemented. The following is a summary of proposed projects to address the outstanding recommendations of the Task Force.



Relocated portion of Route 2 in Erving that was completed as part of the Route 2 East Safety Improvements.

Route 2 at Route 2A

The intersection of Route 2 (Mohawk Trail) and Route 2A (West Orange Road) in Erving was identified as a MassDOT HSIP cluster in 2009 and appears on the Most Hazardous

Intersections in Franklin County list at #28. An RSA conducted in 2013 revealed that safety issues at the intersection included sight distance, travel speeds, intersection geometry and signage. MassDOT is currently designing improvement to realign the intersection, providing new turn lanes and improved pavement markings and signage. The project is scheduled to be advertised in 2016; the design is at the 25% stage with a construction cost estimate of \$400,000.

Erving Center

Safety improvements in Erving Center will focus on traffic calming and safer turning movements. The improvements include improved roadway alignment, sight distance, pedestrian accommodations, and traffic calming measures. Additional public meetings will be held to review the design. The estimated cost of the project is approximately \$18 million at the 25% design stage.

Farley

Safety improvements in the Farley area of Erving focus on providing safer turning movements by redesigning several intersections, with improved sight distance and pedestrian accommodations. The design for the project will be reviewed at several public hearings. The project is in the preliminary design phase with a construction cost estimate of \$6.5 million.

Gill-Greenfield

Safety improvements in the Gill-Greenfield area will incorporate a protected turn lane (westbound) to access Barton Cove, and provide safer turning movements for the Route 2 businesses near the Avenue A/Route 2 intersection. A MassDOT project to construct these improvements is currently at the 25% design stage with a construction cost estimate of approximately \$2.5 million.

Route 2 West Safety Improvements

The multi-year Route 2 West Safety Study produced a number of recommendations to address safety issues along the 22-mile Route 2 corridor from the Greenfield Rotary west to the Charlemont/Savoy Town Line. Several of these have been implemented, including improvements at the Greenfield Rotary and the creation of a shoulder “climbing lane” westbound over Greenfield Mountain (discussed in Chapter 5). A number of recommendations have resulted in projects currently under design or development by MassDOT, including the following.

Roadway Reconstruction and Village Center Traffic Calming on Route 2, Charlemont
Currently at the 25% design stage, this project includes sidewalk reconstruction, crosswalk enhancement and gateway traffic calming treatments. The project is scheduled to be advertised in 2017, with a current cost estimate of \$5,750,000.

Intersection Improvements at Route 2 and Colrain-Shelburne Road

Identified as a MassDOT HSIP Cluster for 2008-2010, an RSA was conducted at this intersection in 2014. The intersection has limited sight distance due to its location on a hill near a curve. MassDOT has proposed a safety project to improve sight distance and intersection operation; the project is currently under design and expected to be advertised for construction in 2016. Additional recommendations from an RSA at the Big Y Plaza and Colrain Road will be reviewed to assess their feasibility with MassDOT.



Charlemont Village Center

Transportation Security

Transportation security is one of the eight planning factors required by MAP-21 to be considered by Metropolitan Planning Organizations during their planning processes. Franklin County has a robust and coordinated regional emergency preparedness effort that augments transportation safety and security concerns. This infrastructure, combined with exercises, trainings and real-world emergency response and recovery efforts in the region, contribute to planning efforts that include safety and security as cornerstones. This section provides a summary of the transportation security activities currently occurring within the Franklin County region.

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) has conducted a number of training exercises in the last few years for dealing with chemical spills. In 2004, in the first such training exercise in more than a decade, the FRCOG and the REPC conducted a full-scale training exercise at the Buckland Trolley Museum Railyard in Shelburne Falls. The exercise provided an opportunity to practice chemical spill response through a scenario of a chemical leak caused by a car crash with a rail tank car on an active rail line. The exercise was attended by responding departments from surrounding towns, the regional district (District 4) Hazardous Materials Team, and rail employees.

Since the completion of the HMEP in 2006, mock chemical spill exercises have been carried out for four Franklin County communities as part of implementing the plan. These exercises were designed to test the regional preparedness for dealing with chemical releases and the coordination of different agencies in addressing such situations and in dealing with evacuations.

From 2010 on, the REPC has annually conducted tabletop exercises, primarily focused on scenarios involving the spilling of ethanol. The Massachusetts Department of Environmental Protection found that ethanol production and transport had increased, and was expected to continue to increase, leading to the REPC prioritization of ethanol response. The REPC participated in the development of a local Ethanol Response Plan, and tested that plan in 2014. In the past year, PanAm railways and the Federal Railroad Administration provided the REPC with a safety seminar to address the concerns related to increased rail traffic and speed as passenger rail re-entered the region.

These types of preparedness activities help create a regional response that is timely and well-coordinated. Franklin County has experienced hazardous material spills in the past. In 1999, a train derailed in Charlemont and dumped an estimated 6,000 gallons of liquid latex into the Deerfield River. In September 2006, a freight train headed to the East Deerfield Railyard derailed onto its side with 20 cars carrying feed grain and vegetable oil going off the tracks. Fortunately, none of the cars ruptured. The rapid response to this derailment demonstrated successful coordination between local, regional, and state officials.

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. The WRHSAC covers the 101 cities and towns in Franklin, Berkshire, Hampden, and Hampshire Counties, and is one of five similar councils in Massachusetts. 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.

The WRHSAC works with the regional planning agencies in each region, and a variety of state agencies. The seven primary goals are:

- Improve interoperability and information sharing;
- Mass care and sheltering;
- Emergency response, recovery planning and preparedness;
- Chemical, biological, radiological, nuclear and explosive preparedness;
- Plan regionally to protect critical infrastructure and key assets;
- Train first responders and local officials; and
- Conduct multi-jurisdictional exercises for large-scale incident management.



Utility trucks repairing power lines after a damaging storm in Whately.

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) collaboratively built tools to strengthen the region's response to large-scale natural and man-made disasters. These tools include:

- A regional mutual aid agreement to facilitate the sharing of resources among towns;
- Information on priority critical infrastructure;
- Evacuation planning for special needs populations; and

- A resource guide that highlights caches of emergency supplies throughout the region that are available to communities to borrow as aids to response and recovery.

The WRHSAC coordinated the purchase and expansion of an information sharing system for police, fire, and sheriff's departments of Franklin, Hampden, Berkshire, and Hampshire Counties. Also, improvements were made to the interoperable emergency communication system for police, fire, and EMS, with upgrades in Franklin County completed in 2013. The new radio system is not yet coordinated with the radio system used by the Franklin Regional Transit Authority (FRTA) and this is an area where improved communication may be warranted.

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 (CEMPs) that all municipalities are required to develop.

The FRCOG worked 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. The project developed evacuation maps that take into account conditions that would initiate evacuation flow out of the area, and conditions that might initiate evacuation flow into the region. The maps have been distributed to each municipality in the four counties of Western Massachusetts.

Flooding and Evacuations

Flooding is a major threat to the region's roadways; as evidenced by the damage from Tropical Storm Irene in 2011. Much of the transportation network in the hilltowns of Western Franklin County was extremely compromised by the storm – there were whole sections of towns that were inaccessible due to road closures. Following the event, the FRCOG mapped the storm damage and compared the flooding to the official 100-year flood plain. Many of the impacted roads did not appear to be located in the 100-year flood plain, which means that more of the transportation network was vulnerable to flooding than previously expected. To improve future evacuation efforts, the FRCOG then examined the existing official primary, secondary, and tertiary evacuation routes that are mapped for local emergency responders, and compared them with known or likely flooding events in order to determine if alternative

evacuation routes were necessary or even possible. Maps were then created for each town showing where flooding events may impact the official evacuation routes. These maps also show potential alternative evacuation routes that the towns could use in case of road closure on the existing official routes.

Multi- Hazard Mitigation Planning

Since 2005, the FRCOG has worked with twenty-five Franklin County towns to create and update local multi-hazard mitigation plans. As of June 2015, twenty-two Franklin County towns have FEMA-approved plans that make them eligible for state and federal grant monies to fund pre- and post-disaster mitigation projects to reduce the impact of future natural and man-made disasters. Local adoption of these plans followed an extensive public participation process that included the opportunity for key stakeholders to provide input.

The Federal Emergency Management Agency (FEMA) and the Massachusetts Emergency Management Agency (MEMA) define hazard mitigation as any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards such as flooding, snow and ice storms, high winds, hurricanes, wildfires, earthquakes, tornadoes, micro-bursts, ice jams, landslides, and wildfires; and from man-made hazards such as hazardous material spills. Mitigation efforts undertaken by communities can help to minimize damage to: infrastructure (such as roads, sewers, utility transmission lines, and water supplies); buildings; and natural, cultural, and historic resources.



Conway Street in Shelburne Falls following Tropical Storm Irene in 2011

The most recent updates of the multi-hazard mitigation plans included:

- identifying the most important hazards that have a high probability of impacting each community based on historical data from national, state, and local sources;
- conducting a risk assessment to identify infrastructure and population groups at the highest risk for being damaged or injured by hazards;
- inventorying and assessing current Town hazard mitigation policies, programs, and regulations; and

- identifying and prioritizing mitigation actions in a five-year Action Plan to prevent future damage to property and loss of life.

In addition, the new plans review recent development trends and include updated maps showing critical facilities and infrastructure in each Town, such as schools, hospitals, shelters, police and fire stations, public water supplies, communication towers, dams, culverts, and areas of localized flooding (often from beaver dams). Other sections of the plans provide current information on the National Flood Insurance Program (NFIP) and potential funding sources for hazard mitigation plan implementation. Finally, the plans provide guidelines for monitoring, evaluating and updating the plan; recommendations for incorporating the plan into existing planning mechanisms; and suggestions for providing continued public involvement throughout the five-year implementation process.

Recommendations for Transportation Safety

- Support design and construction of Route 2 Safety improvements in Erving Center, Farley, and Gill/Greenfield.
- Work with MassDOT to implement safety improvements at commercial driveways along Route 2 West in Greenfield.
- Continue to be involved in the process related to the Strategic Highway Safety Plan.
- Continue to monitor high crash locations and work with MassDOT and Towns to develop recommendations to improve safety.
- Continue to conduct Road Safety Audits as necessary and appropriate and work with MassDOT and municipalities to implement safety recommendations.
- Investigate recent traffic fatalities in Franklin County for trends and opportunities for safety improvements.
- Investigate locations of serious injury bicycle and pedestrian crashes and make recommendations for improvements.

Recommendations for Transportation Security

- Continue working with the Franklin County Regional Emergency Planning Committee (REPC) and the Western Region Homeland Security Advisory Committee (WRHSAC) to expand the region's preparedness to manage emergency incidents, including those that impact the regional transportation network.
- Continue operability and management of the new radio communications system with assistance from the REPC and WRHSAC.
- Explore options for expanding the radio communication capabilities between emergency management personnel and the Franklin Regional Transit Authority.

- Assist employers and critical facilities with the creation of plans for continued operations and employee transportation in the event of an emergency in the region.
- Support regional and local planning efforts to mitigate natural hazards; and coordinate and integrate natural hazard mitigation activities as appropriate with emergency planning and operations.



Road Safety Audit (RSA) team members in the field.