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1.0 Introduction

1.1 Definition
In an effort to reduce the number of crash-related fatalities and incapacitating injuries, Massachusetts Department of Transportation has developed a Strategic Highway Safety Plan. The mission of the Safety Plan is to “Develop, promote, implement, and evaluate data-driven, multidisciplinary strategies to maximize safety for users of the roadway system.” One of the many strategies noted in the current Safety Plan is to “conduct Road Safety Audits (RSA) at high-crash locations throughout the Commonwealth.” A Road Safety Audit, as defined by the Federal Highway Administration (FHWA) is “a formal safety performance examination of an existing or future road or intersection by an independent audit team.” Simply stated, an RSA is a relatively quick process that identifies safety improvements focused on decreasing the number and severity of roadway crashes. The safety improvements recommended typically vary from low cost measures to significant improvement projects. Many States that have employed the RSA technique and implemented the recommendations, have seen measurable decreases in the number of incapacitating and fatal crashes as a result.

1.2 When is a Road Safety Audit Required?
The Massachusetts Department of Transportation (MassDOT) Highway Division has fully embraced the RSA process and has incorporated it into its safety programs. MassDOT has provided RSA training for the District Traffic Engineers and Regional Planning Agencies, and conducted audits for locations experiencing lane departure crashes, cross-median crashes, intersections, bicycle and pedestrian, accessibility, and other high crash locations. MassDOT has incorporated the RSA process as a requirement under any of the following conditions:

1. Projects that include roadway or traffic signal improvements located within a High Crash Cluster (Vehicle, Bicycle, or Pedestrian) of the most recent available years.
2. Projects that include improvements adjacent to a High Crash Cluster or are anticipated to impact the operations of a High Crash Cluster. (ex. Increasing the traffic volumes to a high crash cluster)
3. Projects securing federal funding through the Highway Safety Improvement Program (HSIP) or are anticipated to utilize HSIP funding.

Knowing the success of an RSA, the MassDOT Safety Management Unit is encouraging MassDOT Districts and communities to conduct RSAs at the initial stage of the design process so as to help guide the design and reduce fatalities and injury crashes for locations in which safety has been noted to be a factor in determining needs for improvement.

Tips: To determine if your project is located within a high crash cluster (vehicle, bicycle, or pedestrian) visit the MassDOT Top Crash Location Mapping service. High crash clusters within the most recent posted year will require an RSA. The designer should also check previous years’ crash clusters to verify that the location has never been classified as a high crash location.

http://services.massdot.state.ma.us/maptemplate/TopCrashLocations

The designer should also verify that the location does not exceed the threshold of a high crash cluster by comparing the calculated Equivalent Property Damage Only (EPDO) to the regional maximum located in the latest Massachusetts HSIP Guidelines.

https://www.massdot.state.ma.us/Portals/8/docs/traffic/HSIP/HSIP%20Criteria%20Updates.pdf
1.3 Who Facilitates the Road Safety Audit?

The RSA should be incorporated into a project designer’s scope of work for a roadway improvement project that has identified safety concerns as one of the reasons for the improvement needs or qualifies for one of the listed conditions in Section 1.2. The intention is to have the designer of the improvement project facilitate the RSA and prepare the RSA report. As an RSA must be facilitated by an “Independent” organization, it is critical that the process be conducted early in the project stages prior to any preliminary design. Therefore it shall be required that an RSA be conducted at the following stages:

1. In relation to a MassDOT project scope, prior to the development of the 25% Design Submission documents.
2. In relation to a Massachusetts Environmental Policy Act (MEPA) filing, prior to the Environmental Impact Report (EIR) filing and prior to the Transportation Impact Assessment (TIA) report. Note that the RSA may be conducted following the Traffic Scoping Letter.

In the case where an RSA is being conducted after either of the listed stages have been completed, or MassDOT has determined that the project designer cannot be considered an independent organization, an outside consultant shall be retained to facilitate the RSA and prepare the RSA report in accordance with these guidelines.

The necessary steps to prepare, conduct and finalize a RSA are described in Section 2.0. Generally, RSAs last approximately three hours and include a pre-meeting, a field visit, and a post-field visit meeting so that an audit report can be prepared. During the pre-meeting, the team gathers to discuss the location and project, review materials and discuss general concerns of the location. The team, as a group, visits the project site and walks / drives through the area. The team then reconvenes to discuss the safety issues that were noted and to develop short and long term recommendations to ameliorate the safety concerns.
2.0 Road Safety Audit Procedure

As described in the sections below, the RSA should follow a specific procedure to obtain the most useful information possible and hold a successful RSA. The figure below illustrates the steps to completing an RSA.

2.1 Preparing Background Materials

The designer shall obtain, review and summarize the most recent pertinent available information regarding safety. This may include the following:

- Crash Data
- Traffic Volumes
- Traffic Speed Data (including regulatory speeds)
- Other Safety Concerns

Note that the crash data summaries obtained from the MassDOT Statewide database (Crash Portal) are not adequate and that the actual crash reports (including narratives and diagrams), from the police department reporting the crash data, are critical to a successful audit. The designer shall submit a request to the police department(s) within the study area (State, Local, or other). Such request should encompass an area larger than the study intersection or project limits to have more accurate data for analysis (as an example, requesting crash reports for the entire length of local roadways intersecting the study corridor). The designer shall incorporate all crashes that occur in the study or are a result of the design of the study area (for example, crashes occurring within the limit of the queue storage of an intersection).

The designer should cross-reference the provided crash reports with the Crash Portal using both a mapping method and AdHoc Query tool separately (to compile located and non-located crashes). This cross-reference will help determine that the police department has provided all relevant crash reports for the study area.

The actual crash reports shall be used to prepare collision diagrams and summaries (See Appendix F).

Details of the crash analyses must be concise since they will be used as the “before” information when an evaluation is performed on the effectiveness of the countermeasures. Other relevant information regarding the location may include, but is not limited to: traffic volumes (including pedestrians and bicycles if available), speed/citation data, available roadway plans, traffic reports, and/or signal timings and phasing information (if appropriate).

**Tips:** All information provided in the Collision Data Summary Table must match the Motor Vehicle Crash Police Report. The consultant should include pertinent information in the comments section for each crash to assist the audit team in identifying the specific cause for the crash. The MassDOT crash portal can be found at the following location: [http://mhd-aregis/crashportal/](http://mhd-aregis/crashportal/)
2.2 Assembling an Audit Team

With input and assistance from the community and/or MassDOT, the designer will select the multidisciplinary RSA team, date, time and location. The team should include (but not limited to) the following:

- Engineering (Municipal Engineering, MassDOT District Traffic and Projects)
- Enforcement (local and/or state police, depending upon jurisdiction)
- Emergency response (Police, fire, and ambulance whom respond to crashes in the project area)
- MassDOT Safety Management Unit
- Transit (MBTA, RTA, and other transit providers)
- Regional Planning Agency (RPA)
- Federal Highway Administration (Safety Engineer)
- Maintenance (Local Public Works and/or MassDOT maintenance depending upon jurisdiction)

At a minimum, the RSA team requires a representative from Engineering, Enforcement, Emergency Response and the MassDOT’s SMU (as shown in bold above). Additional members and interested parties may include the following:

- Municipal Planning Department
- MassDOT Project Manager (if applicable)
- Local Public Health Professionals
- Bicycle and Pedestrian Advocacy Groups

The designer shall contact the MassDOT Safety Management unit initially for availability. It shall be the responsibility of the designer to ensure that all required interested parties are available to attend the scheduled RSA. An email invitation should be sent to all RSA team participants and include an attachment with the RSA agenda, background materials, and prompt list. (See Appendix A for suggested text of email invite and Appendix B for a copy of a sample agenda).

**Tips:** It is best for the meetings to take place in close proximity to the project location for meeting efficiency. The designer should discuss with the City/Town officials those parties that would be appropriate to attend the meeting. The designer should also conduct research to determine if applicable advocacy groups should be invited to the RSA. This can include such groups as MassBike, WalkBoston, Mass-in-Motion, etc.

2.3 Conducting the Road Safety Audit Meeting

The RSA meeting shall be conducted in three (3) stages:
2.3.1 Pre-Audit Meeting

During the pre-audit meeting, the designer will provide handouts of all information that was provided in the invitation email. It will be the responsibility of the designer to facilitate the RSA meeting, take notes and photos, and then prepare the report in a timely manner. The RSA participants will meet (pre-audit meeting) to discuss the process and goals for the RSA. The designer will present the existing crash data and any known related planned projects to the participants in order to provide an introduction to project. The designer will then begin the conversation of what may be some of the safety issues so that participants can explain why they may be happening (as an example, if a location exhibits a high number of rear end locations from one approach, this should be suggested as an observation and solicit ideas as to why this may be occurring). General comments, safety issues and concerns will also be solicited about the subject location.

**Tips:** The intention of the RSA meeting is to solicit thoughts and ideas about issues and solutions; therefore, the designer should avoid specific design details regarding any proposed project (for example, that a signal or a re-alignment is being proposed). The designer should prepare visuals such as overall satellite imagery or mapping to assist in pointing out specific issues. Good practice in keeping a record of the safety issues discussed in the meeting is the utilization of note boards.

2.3.2 Perform Field Visit

Following the pre-audit meeting, the team will perform a field visit (audit), during which specific issues and concerns will be pointed out by the RSA team (and/or designer) and recorded by the designer. As a minimum, the designer should use the safety review prompt list (see Appendix C) as a reference to ensure that a comprehensive list of safety issues is discussed at the audit site visit. Additionally, the designer should obtain photographs of key safety issues that may be included in the final report.

**Tips:** The group should verify the issues discussed during the pre-audit meeting. The designer should also ensure that the team walks the site as a group so that all members are able to participate in the conversation. Designers are advised to bring two (2) representatives as one may act as the facilitator and one as the recorder/photographer to ensure that all information discussed during the RSA is captured for the final report.

2.3.3 Post-Audit Meeting

Following the field visit, the RSA participants will return to the meeting facility (post-audit meeting) and the designer will facilitate a group discussion, which would confirm that a complete list of safety issues had been identified during the RSA. This is followed by a discussion identifying potential countermeasures. The countermeasures may include short-term, intermediate-term, and long-term improvements and the entity responsible for each of the safety issues for the improvements will be identified. It should be noted that recommendations should be comprehensive and may include engineering, maintenance, enforcement, educational and behavioral countermeasures. In cases where recommendations are presented that do not meet federal or state guidelines, it should be discussed and detailed explanation given. If plans are already underway, the plans may be discussed and reviewed to determine whether or not the existing concerns and issues will be adequately addressed. The designer should then adjourn the meeting by describing the next steps in the process which includes the draft and final reports to be reviewed by the group.
Tips: During the post-audit meeting, the designer should confirm that each safety issue discussed previously is presented with one or many possible solutions. The designer should also stress the importance of the report review process finalizing the meeting as this is critical to ensuring a quality product.

2.4 Preparing the Road Safety Audit Report

An RSA Report, based on MassDOT’s report template (see Appendix E), will be prepared describing the Safety issues and countermeasures identified during the RSA. Countermeasures which were not discussed during the RSA may also be included, if they are found to be appropriate. Potential countermeasures which do not conform to MassDOT or FHWA standards will be noted as such in the report.

The MassDOT RSA Report Template in Microsoft Word Format can be found in Appendix E. It is also recommended that the designer review past RSA Reports for examples.

The RSA Report preparation and report review will require the following submissions:

- **Draft RSA Report**
  - Submit via email to all participants within five (5) business days from the RSA date.

- **Final Draft RSA Report**
  - Submit to MassDOT and roadway owner via email including all received comments within five (5) business days.

- **Final RSA Report**
  - Submit final accessible pdf to all recipients within five (5) business days of approval (4 MB Max).

The final RSA report must be submitted in a fully accessible PDF format with a file size no greater than 4 MB. It is suggested to use the Adobe Acrobat Professional Accessibility Checker tool for verifying that the document is accessible. This tool will provide guidance for identified issues.

A complete RSA report should clearly state the safety issues related to the subject location and describe in detail why this poses a risk to this location. An example of how to word a safety issue may be:

“The sight distance on Side Street looking north is impeded by many objects including brush, utility poles, guardrail, and the vertical curvature of the roadway. This poor sight distance appears to be a contributing factor in the number of angle crashes occurring from this approach.”

The designer should avoid vague language and broad descriptions. An example of a poorly worded safety issue description may be:

“The sight distance looking north from Side Street is inadequate and may be the cause of crashes.”

Each potential safety enhancement should then describe how it will mitigate the safety issue. The designer should recognize that this stage of the design is intended to suggest possible mitigation techniques and that multiple enhancements may be applicable to single safety issues. The report should
avoiding phrasing such as “Install Traffic Signal” but rather suggest this as a possible solution by stating “Evaluate the installation of a Traffic Signal.”

As shown in Appendix E and below, the final report should be broken out into five (5) main sections.

**Background**
The background should describe the RSA process and why the audit was conducted. This should describe that the location of the project is within a high crash cluster in the region (if applicable).

**Project Data**
This section should describe the date and location of the audit, as well as names and affiliations of the audit team members. It should also describe the process that took place and materials that were utilized and discussed during the audit.

**Project Location and Description**
This section should describe the location in detail (required descriptions vary if project includes isolated intersections or a roadway corridor. It should also include a location map of the area.

**Observations and Potential Enhancements**
This section must include all safety issues discussed during the RSA and subsequent potential enhancements. This section may be laid out with each issue described directly followed by the enhancements.

**Summary of Road Safety Audit**
The summary should provide a basic overview of the recommendations including the major key points. It should also include a complete table listing of all issues and enhancements. The table should provide a general description of the enhancement.

**Tips:** All observed safety issues must have at least one clearly stated enhancement which describes in detail how it would help to mitigate the safety issue being described. It is also helpful to highlight the crashes that are occurring due to the safety issue. More Information for preparing the Road Safety Audit report can be found in the MassDOT RSA Report Template with additional tips on formatting and editing to create a fully accessible document.
Appendix A. Recommended Email Invite
The Road Safety Audit for LOCATION is scheduled for DATE/TIME at the LOCATION COMMUNITY / MassDOT request and appreciate your attendance or the attendance of a representative from your agency/department. Your involvement in this meeting is important and will result in specific recommendations to increase the safety at this intersection. An agenda and background materials are attached for review prior to attending the meeting. The meeting participants are requested to drive / walk the intersection on their own and to document comments (on the RSA Prompt List attached) regarding the condition of the location prior to the meeting DATE. If you have additional historical information and/or reports it would be helpful for you to bring them to the meeting.

Please note: on the day of the road safety audit, we will meet first at the XXXXXX and then go to the site as a group. Please dress appropriately for safety and weather (i.e. Safety vest, hard hat, umbrella, etc) as required by your agency for a field visit and as necessary.

Please contact me by phone XXX-XXX-XXXX or email XX@XXX with any questions.

Thank you,
DESIGNER
Appendix B. Sample Agenda
## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10:00 AM</strong></td>
<td>Welcome and Introductions</td>
</tr>
<tr>
<td><strong>10:15 AM</strong></td>
<td>Review of Site Specific Material</td>
</tr>
<tr>
<td></td>
<td>- Crash, Speed &amp; Volume Summaries– provided in advance</td>
</tr>
<tr>
<td></td>
<td>- Existing Geometries and Conditions</td>
</tr>
<tr>
<td><strong>11:00 AM</strong></td>
<td>Visit the Site</td>
</tr>
<tr>
<td></td>
<td>- Drive to LOCATION</td>
</tr>
<tr>
<td></td>
<td>- As a group, identify areas for improvement</td>
</tr>
<tr>
<td><strong>11:30 AM</strong></td>
<td>Post Visit Discussion / Completion of RSA</td>
</tr>
<tr>
<td></td>
<td>- Discuss observations and finalize findings</td>
</tr>
<tr>
<td></td>
<td>- Discuss potential improvements and finalize recommendations</td>
</tr>
<tr>
<td><strong>12:00 noon</strong></td>
<td>Adjourn for the Day – but the RSA has not ended</td>
</tr>
</tbody>
</table>

### Instructions for Participants:

- Before attending the RSA on DATE, participants are encouraged to drive through the intersection and complete/consider elements on the RSA Prompt List with a focus on safety.
- All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others’ opinions are key elements to the success of the overall RSA process.
- After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.
Appendix C. Safety Review Prompt List
## GEOMETRIC DESIGN

<table>
<thead>
<tr>
<th>Issue</th>
<th>Comment</th>
</tr>
</thead>
</table>
| **A. Speed – (Design Speed; Speed Limit & Zoning; Sight Distance; Overtaking)**<br>Are there speed-related issues along the corridor? Please consider the following elements:  
  - Horizontal and vertical alignment;  
  - Posted and advisory speeds  
  - Driver compliance with speed limits  
  - Approximate sight distance  
  - Safe passing opportunities |         |
| **B. Road alignment and cross section**<br>With respect to the roadway alignment and cross-section please consider the appropriateness of the following elements:  
  - Functional class (Urban Principal Arterial)  
  - Delineation of alignment;  
  - Widths (lanes, shoulders, medians);  
  - Sight distance for access points;  
  - Cross-slopes  
  - Curbs and gutters  
  - Drainage features |         |
| **C. Intersections**<br>For intersections along the corridor please consider all potential safety issues. Some specific considerations should include the following:  
  - Intersections fit alignment (i.e. curvature)  
  - Traffic control devices alert motorists as necessary  
  - Sight distance and sight lines seem appropriate  
  - Vehicles can safely slow/stop for turns  
  - Conflict point management  
  - Adequate spacing for various vehicle types  
  - Capacity problems that result in safety problems |         |
| **D. Auxiliary lanes**<br>  
  - Do auxiliary lanes appear to be adequate?  
  - Could the taper locations and alignments be causing safety deficiencies?  
  - Are shoulder widths at merges causing safety deficiencies? |         |
### E. Clear zones and crash barriers
For the roadside the major considerations are clear zone issues and crash barriers. Consider the following:
- Do there appear to be clear zones issues?
  - Are hazards located too close the road?
  - Are side slopes acceptable?
- Are suitable crash barriers (i.e., guard rails, curbs, etc.) appropriate for minimizing crash severity?
- Barrier features: end treatments, visibility, etc.

### F. Bridges and culverts – (if necessary)
Are there specific issues related to bridges and culverts that may result in safety concerns?

### G. Pavement – (Defects, Skid Resistance, and Flooding)
- Is the pavement free of defects including excessive roughness or rutting, potholes, loose material, edge drop-offs, etc.) that could result in safety problems (for example, loss of steering control)?
- Does the pavement appear to have adequate skid resistance, particularly on curves, steep grades and approaches to intersections?
- Is the pavement free of areas where flooding or sheet flow of water could contribute to safety problems?
- In general, is the pavement quality sufficient for safe travel of heavy and oversized vehicles?

### H. Lighting (Lighting and Glare)
It is important to consider the impacts of lighting. Some specifics include the following:
- Is lighting required and, if so, has it been adequately provided?
- Are there glare issues resulting from headlights during night time operations or from sunlight?
# TRAFFIC CONTROL DEVICES

<table>
<thead>
<tr>
<th>Issue</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Signs</strong></td>
<td></td>
</tr>
<tr>
<td>Signage is a critical element in providing a safe roadway environment. Please consider the following:</td>
<td></td>
</tr>
<tr>
<td>• Are all current signs visible (consider both night and day)? Are they conspicuous and clear? Are the correct signs used for each situation?</td>
<td></td>
</tr>
<tr>
<td>• Does the retroreflectivity or illumination appear satisfactory?</td>
<td></td>
</tr>
<tr>
<td>• Are there any concerns regarding sign supports?</td>
<td></td>
</tr>
<tr>
<td><strong>J. Traffic signals</strong></td>
<td></td>
</tr>
<tr>
<td>• If present, do the traffic signals appear to be designed, installed, and operating correctly?</td>
<td></td>
</tr>
<tr>
<td>• Is the signal processing the traffic efficiently?</td>
<td></td>
</tr>
<tr>
<td>• Is the controller located in a safe position?  (where it is unlikely to be hit, but maintenance access is safe)</td>
<td></td>
</tr>
<tr>
<td>• Is there adequate sight distance to the ends of possible vehicle queues?</td>
<td></td>
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<tr>
<td><strong>K. Marking and delineation</strong></td>
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<tr>
<td>• Is the line marking and delineation:</td>
<td></td>
</tr>
<tr>
<td>— appropriate for the function of the road?</td>
<td></td>
</tr>
<tr>
<td>— consistent along the route?</td>
<td></td>
</tr>
<tr>
<td>— likely to be effective under all expected conditions? (day, night, wet, dry, fog, rising and setting sun, oncoming headlights, etc.)</td>
<td></td>
</tr>
<tr>
<td>• Are centerlines, edgelines, and lane lines provided? If not, do drivers have adequate guidance?</td>
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</tr>
</tbody>
</table>
### ROADWAY ACTIVITY

**Issue**

With respect to roadway activity please consider safety elements related to the following:

- Pedestrians
- Bicycles
- Public transportation vehicles and riders
- Emergency vehicles
- Commercial vehicles
- Slow moving vehicles

**Comment**

### ENVIRONMENTAL CONSIDERATIONS

**Issue**

Weather & Animals

From an environmental perspective it is important to consider any potential impacts. Most notably is likely to be the impacts of weather or animals, including:

- Possible effects of rain, fog, snow, ice, wind on design features.
- Has snow fall accumulation been considered in the design (storage, sight distance around snowbanks, etc.)?
- Are there any known animal travel/migration routes in surrounding areas which could affect design?
Appendix D. Agency Contact Information
# Road Safety Audit Contact Information

## MassDOT Contacts

**MassDOT District 1**  
270 Main Street  
Lenox, MA 01240  
Phone: (413) 637-5700  
Attn.: District Traffic Engineer or District Projects Engineer

**MassDOT District 2**  
811 North King Street  
Northampton, MA 01060  
Phone: (413) 582-0599  
Attn.: District Traffic Engineer or District Projects Engineer

**MassDOT District 3**  
403 Belmont Street  
Worcester, MA 01604  
Phone: (508) 929-3800  
Attn.: District Traffic Engineer or District Projects Engineer

**MassDOT Safety Management Unit**  
10 Park Plaza  
Boston, MA 02116  
Phone: (857) 368-9634  
Attn.: Lisa Schletzbaum  
E-mail: lisa.schletzbaum@state.ma.us

**MassDOT District 4**  
519 Appleton Street  
Arlington, MA 02476  
Phone: (781) 641-8300  
Attn.: District Traffic Engineer or District Projects Engineer

**MassDOT District 5**  
1000 County Street  
Taunton, MA 02780  
Phone: (508) 824-6633  
Attn.: District Traffic Engineer or District Projects Engineer

**MassDOT District 6**  
185 Kneeland Street  
Boston, MA 02111  
Phone: (857) 368-6100  
Attn.: District Traffic Engineer or District Projects Engineer
<table>
<thead>
<tr>
<th>RPA Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Berkshire Regional Planning Commission</strong></td>
</tr>
<tr>
<td>1 Fenn Street, Suite 201</td>
</tr>
<tr>
<td>Pittsfield, MA 01201</td>
</tr>
<tr>
<td>Phone: (413) 442-1521</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td><strong>Cape Cod Commission</strong></td>
</tr>
<tr>
<td>3225 Main Street</td>
</tr>
<tr>
<td>P.O. Box 226</td>
</tr>
<tr>
<td>Barnstable, MA 02630</td>
</tr>
<tr>
<td>Phone: (508) 362-3828</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:trans@capecodcommission.org">trans@capecodcommission.org</a></td>
</tr>
<tr>
<td><strong>Central Massachusetts Regional Planning Commission</strong></td>
</tr>
<tr>
<td>2 Washington Square, 2nd Floor</td>
</tr>
<tr>
<td>Worcester, MA 01604</td>
</tr>
<tr>
<td>Phone: (508) 756-7717</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td><strong>Franklin Regional Council of Governments</strong></td>
</tr>
<tr>
<td>425 Main Street</td>
</tr>
<tr>
<td>Greenfield, MA 01301</td>
</tr>
<tr>
<td>Phone: (413) 774-3167</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:info@frCog.org">info@frCog.org</a></td>
</tr>
<tr>
<td><strong>Martha's Vineyard Commission</strong></td>
</tr>
<tr>
<td>33 New York Avenue</td>
</tr>
<tr>
<td>P.O. Box 1447</td>
</tr>
<tr>
<td>Oak Bluffs, MA 02557</td>
</tr>
<tr>
<td>Phone: (508) 693-3453</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:info@mvcommission.org">info@mvcommission.org</a></td>
</tr>
<tr>
<td><strong>Merrimack Valley Planning Commission</strong></td>
</tr>
<tr>
<td>160 Main Street</td>
</tr>
<tr>
<td>Haverhill, MA 01830</td>
</tr>
<tr>
<td>Phone: (978) 374-0519</td>
</tr>
<tr>
<td>Attn.: Transportation Manager</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:info@mvpc.org">info@mvpc.org</a></td>
</tr>
</tbody>
</table>
RPA Contacts, continued

Southeastern Regional Planning and Economic Development
88 Broadway
Taunton, MA 02780
Phone: (508) 824-1367
Attn.: Transportation Manager
E-mail: info@srpedd.org
Appendix E. RSA Report Template

See the following location for a Microsoft Word Version of this template

https://www.massdot.state.ma.us/highway/Departments/TrafficandSafetyEngineering/HighwaySafety.aspx
ROAD SAFETY AUDIT

Audit Location
Municipality of XX
Date

Prepared For: MassDOT

On Behalf Of: Client

Prepared By: Company
Address

Insert Logo Here
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Background

Briefly describe why the audit was conducted.

Project Data

Provide the date and location of the audit, as well as the names and affiliations of the audit team members. Briefly describe the RSA process and what background materials were reviewed.

Table 1: Participating Audit Team Members

<table>
<thead>
<tr>
<th>Audit Team Member</th>
<th>Agency/Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Project Location and Description

Briefly describe the audit site.

For a roadway corridor, include the length of audit roadway corridor, its end points, the jurisdictions and functional classifications of all roadways, and any regulatory speed limits on the roadways.

For intersections, include the intersecting roadways, the jurisdictions and functional classifications of each roadway, and the regulatory speed limits on each roadway.

Provide a locus map in the project description section.

Include any historical information or other pertinent information (if conceptual or design plans have been developed, discuss the circumstances and, if possible, provide a plan in the Appendix) that may be relevant to safety enhancements or final recommendations.
Figure 1: Locus Map
Audit Observations and Potential Safety Enhancements

Identify the different safety issues and possible potential safety enhancements discussed during the audit. For each safety issue, state what the issue is, identify the location of the issue, and provide a complete description of the issue. Provide pictures and/or figures to illustrate each issue. List in detail the possible safety enhancements for each issue as discussed.

Summary of Road Safety Audit

List each safety issue and potential safety enhancement discussed during the audit. For each safety issue, describe the potential safety enhancement, its potential safety payoff, the estimated time frame for completion, the estimated construction cost, and the responsible agency. If there are conceptual or design plans in progress for this location, identify the potential safety enhancements that have been incorporated into the design. If there are issues with the plans, as designed, this should be noted as well.

Safety payoff estimates are subjective and may be based on the relative percent of crashes that may be reduced by the enhancement based on known and documented crash reduction factors, if available, or estimated crash reduction based on a stated source.

<table>
<thead>
<tr>
<th>Table 2: Estimated Time Frame and Costs Breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-Term</td>
</tr>
<tr>
<td>Mid-Term</td>
</tr>
<tr>
<td>Long-Term</td>
</tr>
</tbody>
</table>
Table 3: Potential Safety Enhancement Summary

<table>
<thead>
<tr>
<th>Safety Issue</th>
<th>Potential Safety Enhancement</th>
<th>Safety Payoff</th>
<th>Time Frame</th>
<th>Cost</th>
<th>Responsible Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
Appendix A. RSA Meeting Agenda
Appendix B. RSA Audit Team Contact List
### Participating Audit Team Members

**Date:** January 1, 2014  
**Location:** Anytown, MA

<table>
<thead>
<tr>
<th>Audit Team Members</th>
<th>Agency/Affiliation</th>
<th>Email Address</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Agency</td>
<td>Email</td>
<td>xxx-xxx-xxxx</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C. Detailed Crash Data
Appendix D. Additional Information
Appendix F. Sample Crash Data Summary
### Crash Data Summary Table

Main Street at Main Road, Municipality, MA  
Month YEAR - Month YEAR

<table>
<thead>
<tr>
<th>Crash Ref #</th>
<th>Crash Date</th>
<th>Crash Time</th>
<th>Manner of Collision</th>
<th>Light Condition</th>
<th>Weather Condition</th>
<th>Road Surface</th>
<th>Driver Contributing Code</th>
<th>Ages</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/2/11</td>
<td>2:35 PM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Wet</td>
<td>Failed to yield right of way</td>
<td>60</td>
<td>NB Vehicle ran red light and struck vehicle travelling EB</td>
</tr>
<tr>
<td>2</td>
<td>1/7/11</td>
<td>10:30 PM</td>
<td>Angle</td>
<td>Dawn</td>
<td>Snow</td>
<td>Dry</td>
<td>Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner</td>
<td>36</td>
<td>SB Vehicle was unable to stop due to conditions and struck side of other SB Vehicle</td>
</tr>
<tr>
<td>3</td>
<td>3/16/11</td>
<td>9:18 AM</td>
<td>Sideswipe, same direction</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Wet</td>
<td>Vehicle attempted to take illegal right hand turn from left turn only lane and struck vehicle travelling NB</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6/7/11</td>
<td>11:06 AM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Failed to yield right of way</td>
<td>46</td>
<td>Vehicle stopped at a red light and was struck from behind</td>
</tr>
<tr>
<td>5</td>
<td>8/2/11</td>
<td>7:04 PM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Inattention</td>
<td>47</td>
<td>Vehicle stopped in traffic on bridge was struck from behind</td>
</tr>
<tr>
<td>6</td>
<td>3/1/12</td>
<td>7:03 PM</td>
<td>Single Vehicle Crash</td>
<td>Dark - lighted roadway</td>
<td>Snow</td>
<td>Snow</td>
<td>No Improper Driving</td>
<td>25</td>
<td>NB vehicle lost control and struck bridge barrier and traffic post</td>
</tr>
<tr>
<td>7</td>
<td>3/2/12</td>
<td>3:02 AM</td>
<td>Single Vehicle Crash</td>
<td>Dark - lighted roadway</td>
<td>Snow</td>
<td>Ice</td>
<td>Unknown</td>
<td>unk</td>
<td>Hit and Run driver struck Utility Box</td>
</tr>
<tr>
<td>8</td>
<td>3/25/12</td>
<td>5:20 PM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Failed to yield right of way</td>
<td>50</td>
<td>WB vehicle turning left failed to clear the right of way and crossed in front of vehicle travelling EB</td>
</tr>
<tr>
<td>9</td>
<td>3/30/12</td>
<td>3:50 PM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Unknown</td>
<td>28</td>
<td>EB vehicle turning left failed to clear the right of way and crossed in front of vehicle travelling WB</td>
</tr>
<tr>
<td>10</td>
<td>6/14/12</td>
<td>5:29 PM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>No Improper Driving</td>
<td>39</td>
<td>Emergency Response vehicle travelling EB thru red signal was struck by vehicle travelling NB thru a green signal failing to yield to emergency vehicle with lights and sirens activated</td>
</tr>
<tr>
<td>11</td>
<td>6/23/12</td>
<td>9:42 PM</td>
<td>Angle</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Unknown</td>
<td>33</td>
<td>Vehicle travelling WB struck vehicle waiting to turn left from Roosevelt travelling SB</td>
</tr>
<tr>
<td>12</td>
<td>6/14/12</td>
<td>10:39 AM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Dry</td>
<td>Failed to yield right of way</td>
<td>27</td>
<td>Vehicle travelling EB turned right on red onto Roosevelt and struck vehicle travelling WB on green arrow turning left onto Roosevelt</td>
</tr>
<tr>
<td>13</td>
<td>6/29/12</td>
<td>2:12 AM</td>
<td>Rear-end</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Unknown</td>
<td>56</td>
<td>Vehicle travelling EB stopped at a red light and was struck from behind</td>
</tr>
<tr>
<td>14</td>
<td>8/30/12</td>
<td>8:21 PM</td>
<td>Angle</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Other improper action</td>
<td>unk</td>
<td>Vehicle travelling WB attempted to turn left SB and struck EB vehicle: Hit and Run</td>
</tr>
<tr>
<td>15</td>
<td>9/18/12</td>
<td>1:35 PM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Wet</td>
<td>Operating defective equipment</td>
<td>20</td>
<td>Vehicle travelling EB stopped at a red light and was struck from behind. Driver stated failure of braking system</td>
</tr>
<tr>
<td>16</td>
<td>10/27/12</td>
<td>9:46 PM</td>
<td>Rear-end</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Inattention</td>
<td>44</td>
<td>Vehicles were stopped at red light when a third vehicle attempting to change lanes into outside lane struck the rear causing chain reaction</td>
</tr>
<tr>
<td>17</td>
<td>10/30/12</td>
<td>7:38 AM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Wet</td>
<td>Driving too fast for conditions</td>
<td>20</td>
<td>Vehicle travelling SB stopped at a red light and was struck from behind</td>
</tr>
<tr>
<td>18</td>
<td>2/26/13</td>
<td>3:06 PM</td>
<td>Head on</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Unknown</td>
<td>21</td>
<td>Vehicle travelling EB attempted to turn left NB and was stopped for pedestrian crossing and was then unavoidably struck by vehicle travelling WB</td>
</tr>
<tr>
<td>19</td>
<td>4/4/14</td>
<td>4:40 PM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Cloudy</td>
<td>Dry</td>
<td>Inattention</td>
<td>19</td>
<td>Vehicle travelling EB attempted to turn left NB and was struck from behind</td>
</tr>
<tr>
<td>20</td>
<td>4/21/14</td>
<td>11:09 PM</td>
<td>Rear-end</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Unknown</td>
<td>unk</td>
<td>Vehicle travelling EB attempted to turn left NB and was struck by vehicle travelling WB</td>
</tr>
<tr>
<td>21</td>
<td>4/22/14</td>
<td>6:56 PM</td>
<td>Daylight</td>
<td>Clear</td>
<td>Wet</td>
<td>No Improper Driving</td>
<td>19</td>
<td>Vehicle travelling EB attempted to turn left NB was yielding to WB traffic and was struck from behind</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>5/2/14</td>
<td>12:57 PM</td>
<td>Angle</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Made an improper turn</td>
<td>26</td>
<td>Vehicle travelling EB attempted to turn left NB and was struck by vehicle travelling WB</td>
</tr>
<tr>
<td>23</td>
<td>7/3/14</td>
<td>3:52 PM</td>
<td>Sideswipe, same direction</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>Failed to yield right of way</td>
<td>31</td>
<td>Motorcycle waiting to turn left was passed by a vehicle which attempted to go around the motorcycle and make the left causing the motorcycle to sideswipe as they both attempted to make the left turn</td>
</tr>
<tr>
<td>24</td>
<td>7/30/14</td>
<td>4:10 PM</td>
<td>Rear-end</td>
<td>Daylight</td>
<td>Clear</td>
<td>Dry</td>
<td>No Improper Driving</td>
<td>59</td>
<td>Vehicle travelling WB was waiting at red light and began to inch forward when it was struck from behind. Driver stated sun glare issues</td>
</tr>
<tr>
<td>25</td>
<td>10/9/14</td>
<td>6:58 PM</td>
<td>Head on</td>
<td>Dark - lighted roadway</td>
<td>Clear</td>
<td>Dry</td>
<td>Failed to yield right of way</td>
<td>19</td>
<td>Vehicle travelling EB attempted to turn left NB and struck vehicle travelling WB failing to clear right of way</td>
</tr>
</tbody>
</table>

*Courtesy Crash - A term used to describe a crash that occurs subsequent to a non-involved mainline driver who gives the right of way, contrary to the rules of the road, to another driver.*
Appendix G. References

*Massachusetts Traffic Safety Toolbox*, Massachusetts Highway Department,
www.mhd.state.ma.us/safetytoolbox.


