



New Mexico DEPARTMENT OF
TRANSPORTATION
MOBILITY FOR EVERYONE

ROAD SAFETY AUDIT GUIDANCE MANUAL

.....
2024



*Resource manual and best practices
guide for road safety audit practitioners.*

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Provide a safe and efficient transportation system for the traveling public, while promoting economic development and preserving the environment of New Mexico.

VISION

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Set the standard for a safe, reliable and efficient transportation system.

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- Safety
- Accountability
- Customer Service
- Integrity
- Team Work
- Communication

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Introduction

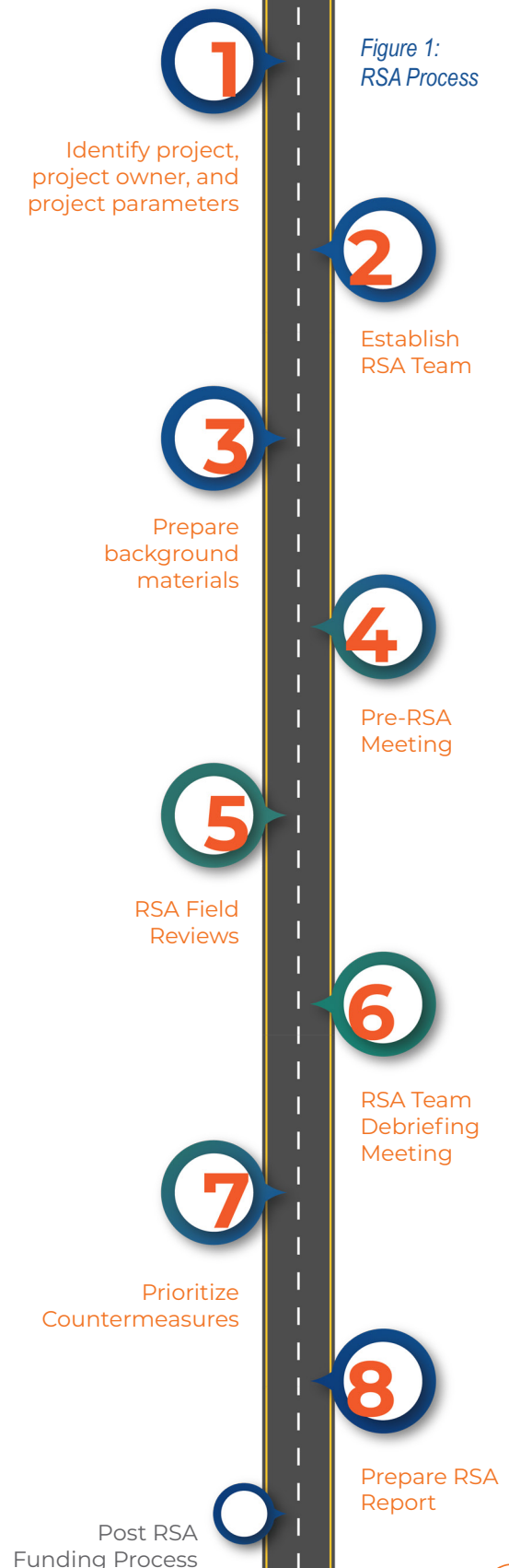
Road Safety Audits (RSAs) provide a low-cost and efficient way to address systemic locations at risk for crashes and also protect the transportation system's vulnerable users. RSAs produce an engineering report that identifies safety issues and recommends countermeasures to mitigate the safety concerns. By implementing RSAs across the transportation network, New Mexico is establishing a robust list of safety projects capable of improving safety performance. Recommended countermeasures may be eligible for Highway Safety Improvement Program (HSIP) or other transportation safety funds.

New Mexico's 2021 Strategic Highway Safety Plan (SHSP) is the statewide plan to reduce fatalities and incapacitating injuries for all users. This plan aims to provide "Safe Mobility for Everyone" and outline strategies to address the priority safety issues. One of the many strategies is to "maintain a robust Road Safety Audit program for state/local/tribal entities." RSAs are a recognized priority in the SHSP; thus, RSAs and countermeasure recommendations from completed RSAs are eligible for New Mexico's HSIP funds.

This guide provides best practices for conducting RSAs and resources for road safety audit practitioners. It is not meant to be prescriptive but provides a general process and tools to enhance the consistency of RSA reports and encourage the broader use of RSAs in New Mexico. The Appendix contains numerous RSA template documents for use throughout the process. This guidebook references the templates so the reader knows when to apply them.

What is an RSA?

An RSA is a Federal Highway Administration (FHWA)-recognized formal process of evaluating and documenting potential road safety issues and the recommended safety countermeasures benefiting all road users. FHWA defines the Road Safety Audit process as a "formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team." The FHWA RSA process can be found in the FHWA Road Safety Audit Guidelines. New Mexico RSAs mostly follow the FHWA RSA process, with one primary difference: NM RSAs generally involve the roadway owner. *Figure 1* outlines the NM RSA process used in New Mexico.



Who is the Audience for this Guidebook?

Every RSA aims to identify near-, mid-, and long-term safety improvements at a roadway intersection, segment, or along a corridor. A data-driven approach identifies locations where severe crashes are historically over-represented, or the presence of roadway risks could contribute to a crash. Once a safety priority is determined, an RSA can be initiated by a transportation agency or consultant. This guidance focuses on the following agencies: NMDOT District Offices, Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Organizations (RTPOs), Tribal/Local Public Agencies (T/LPAs), and consultants conducting RSAs for any of those agencies.

Why are RSAs Conducted?

RSAs are considered a proven safety countermeasure, meaning their effectiveness at improving safety has been confirmed through research. The RSA safety benefits include a 10-60 percent reduction in total crashes when solutions recommended in the RSA Report are implemented.

The NMDOT strongly encourages the use of RSAs because they are a proven approach to reducing severe crashes, and FHWA notes several other benefits:

- Reduced number and severity of crashes due to safer designs.
- Reduced costs resulting from early identification and mitigation of safety issues before projects are built.
- Increased opportunities to integrate multimodal safety strategies and proven safety countermeasures.
- Expanded ability to consider human factors in all facets of design.
- Increased communication and collaboration among safety stakeholders.
- Objective review by a multidisciplinary team.

Additional benefits noted by New Mexico stakeholders include:

- Identifying stand-alone safety projects or those that can be integrated into existing projects or other transportation improvements.
- Ability to access HSIP or other safety funds.
- Greater engagement and buy-in from stakeholders on safety priorities.

When are RSAs Conducted?

RSA techniques can be applied to every stage of project development. However, in New Mexico, they primarily occur on existing roadways. A post-construction or operational RSA is conducted on an existing, active road to address a demonstrated crash problem or a potential problem based on an analysis of roadway characteristics. Post-construction or operational RSAs improve the safety of existing facilities.

RSAs can also be administered during pre-construction (planning and design stages) to identify potential safety concerns before or in the early design stages. RSAs at this point in the process are not common in New Mexico but are encouraged to help guide the design and reduce severe crashes for locations where safety is a factor. For example, RSAs for systemic projects can be helpful in the pre-construction phase, so safety countermeasures are considered and incorporated into in-progress design/construction projects.

RSA Procedures

1. Identifying an RSA Project

A data-driven approach identifies locations where severe crashes are historically over-represented, or the presence of roadway risks could contribute to a crash. Once a safety priority is determined, an RSA is initiated by a transportation agency or consultant. After an existing roadway or planned facility is identified for an RSA, the NMDOT HSIP Coordinator designates an RSA Facilitator. **The RSA Facilitator is responsible for leading the following steps of the RSA Process:**



Who is the RSA Facilitator and What Do They Do?

The RSA Facilitator is typically a representative from a Metropolitan Planning Organization (MPO), Regional Transportation Planning Organization (RTPO), Tribal/Local Public Agency (T/LPA), or a consultant conducting the RSA. As mentioned above, the RSA Facilitator is responsible for leading the steps above.

2. Establish the RSA Team

The RSA Facilitator will assemble a multidisciplinary and diverse RSA Team to the maximum extent possible. An RSA Team should include a diversity of expertise, race, ethnicity, gender identity, age, and physical ability. RSA Team composition will vary depending on the study area and legal jurisdiction. NMDOT will provide suggestions and approval before finalizing the RSA Team. Examples of RSA Team members are:



Engineering

NMDOT Traffic & District Engineers, Municipal & County Traffic Engineers or Public Works Directors, Federal Highway Administration Safety Engineer, Design team representative (if RSA takes place during design stage/preconstruction)



Emergency Response

Law Enforcement, Fire, Emergency Response Services



Maintenance

Local Public Works, NMDOT Maintenance



Law Enforcement

Local police, county sheriff, and/or state law enforcement



Tribal Representatives and Leaders



Transit Providers

ABQ Ride, North Central Regional Transit District, South Central Regional Transit District, etc.



Public Health Representatives

NM Dept. of Health Regional Offices, Municipal/County Public Health Dept., Local non-profits working in public health



Planning

Local Government land use planners, NMDOT Planning, MPO's, RTPO's,

Representatives of facilities (schools, public health offices, military bases, assisted living facilities, etc.) in the RSA study area should also be invited to participate. Additionally, if an RSA is conducted in Albuquerque or another city in the Vision Zero network, a member of the municipality's Vision Zero initiative should be invited to the RSA Team.

Upon the HSIP Coordinator's approval, the RSA Facilitator will finalize the RSA team. The RSA Facilitator will formally email and invite selected individuals to the RSA Team. Members of the RSA Team participate by offering their insights during participation in the Pre-RSA Meeting, RSA Field Reviews, and RSA Team debriefing meeting.

RSA Facility Owner Involvement

FHWA RSA Guidelines explicitly state that the RSA Facilitator should be independent of the facility owner. However, representatives of the facility owner should participate, given that they have not been involved in prior decision-making regarding the study facility. The role of the facility owner is to provide background information on a given study area. Additionally, having owner participation during Field Reviews can aid in demonstrating the safety issues that are present and add another perspective to the conversation.

Stakeholder and Public Involvement

Beyond the official RSA Team, additional community involvement may be essential to a successful RSA in some study areas. Community involvement may enhance the acceptance of changes to their roadways and ensure that recommended safety countermeasures do not adversely impact the community. A list of who community stakeholders may include is provided on this page.

It is not typical for private entities to be on the RSA Team. The intent is for the Team's representatives to have jurisdictional or operational control over some aspect of the RSA study area. If developers and business owners in the area have significant impact or interest regarding the safety of the study area, exceptions can be made by the Facilitator.

Additionally, public involvement may prove valuable for RSAs near primarily residential land uses to obtain buy-in to the RSA process and gather qualitative input while preparing background materials. Soliciting feedback from the public on the recommended countermeasures allows them to participate in decisions that affect them directly.



The RSA Facility Owner will provide background info on the study area.



Public Involvement may prove valuable near primarily residential land uses.

Community stakeholders may include:

- a. Advocacy Groups
- b. Educational Institutions
- c. Local Governments
- d. Military Institutions
- e. Multifamily Housing Management
- f. Natural Resource Management
- g. Neighborhood Associations
- h. Public Health Offices
- i. Tribal Members
- j. Utility Agencies (electric, water, gas, etc.)



3. Preparing Background Materials

The RSA Facilitator is responsible for providing relevant information about the study area to the RSA Team. Preparation of background materials involves gathering and summarizing relevant transportation, traffic, and safety data regarding the study area. This data may include:

- Traffic Volumes (Historical AADTs, ADT, Peak Hours, etc.)
- Traffic Speed Profile (Mean, 50th Percentile, 85th Percentile Speeds)
- Roadway Characteristics (Posted Speed Limits, road geometry, lane configuration, traffic control devices)
- Multimodal Activity (Pedestrians, Bicycles, Transit)
- Land Uses
- Crash Data (Crash, Vehicle, and Person (Occupant) Level datasets from NM Statewide Traffic Records System)
- Uniform Crash Reports (for crashes resulting in a Fatality (severity – K) or Severe Injury (severity - A) and crashes involving pedestrians and bicycles)
- Signal Timing and Phasing Plans
- Previous Safety Efforts and Plans
- Community health plans or audits (if available)

The RSA Facilitator requests crash data from the New Mexico Statewide Traffic Records System. Depending on the study area and issues, it may be necessary for the RSA Facilitator also to request State of New Mexico Uniform Crash Reports (UCRs) for each crash to comprehend the safety issues in the study area fully. UCRs are completed by law enforcement when reporting a crash. The RSA Facilitator must request individual redacted crash reports from the New Mexico Statewide Traffic Records System. Some study areas may have a higher occurrence or number of crashes than others; thus, it may not be feasible to review every UCR. At a minimum, the RSA Facilitator will review Uniform Crash Records for crashes resulting in a Fatality (severity – K), Severe Injury (severity - A), and crashes involving pedestrians and bicycles. When determining the boundary area for crash selection, it should include all areas that may be affected by traffic operations in the immediate vicinity of the study area. The UCRs are used for these select crashes to ensure the crashes are properly located and to review the narrative for information not available within the structure of the database.

When conducting RSAs in smaller municipalities and on Tribal Lands, it may be necessary to source crash data from local law enforcement agencies, a Tribe’s respective county, the Bureau of Indian Affairs (BIA), and/or anecdotal information from residents.

The Background Materials are delivered to the RSA Team members by the RSA Facilitator before the Pre-RSA Meeting. The RSA Facilitator gathers and summarizes the crash data spatially in maps and graphically in charts. **Appendix E** contains examples of crash maps and summary charts.

At a minimum, the RSA Facilitator will review Uniform Crash Records for crashes resulting in a Fatality (severity – K), Severe Injury (severity - A), and crashes involving pedestrians and bicycles.

4. Pre-RSA Meeting

The purpose of the Pre-RSA meeting is for the RSA Team to meet and discuss the study area and background materials before conducting the Field Reviews – which should occur within a day or two of the meeting. While the meeting can be held in person or virtually, the Field Reviews must be conducted in person and on-site. The RSA Facilitator is responsible for arranging the meeting and the Field Reviews based on the availability of the RSA Team members. At the Pre-RSA meeting, the RSA Facilitator leads a discussion of the background materials and elicits input from the RSA Team about potential safety issues to look for during the field reviews.

5. RSA Field Reviews

The RSA Team performs field reviews during the during the AM, Mid-Day and PM peak travel times, as well as after sunset. The RSA Facilitator will supply a Field Review Prompt List (*see Appendix D*), clipboards, and writing instruments. The RSA Team will walk the study area as a group, verifying and documenting safety issues using the Field Review Prompt Lists. The RSA Team members document their observations with notes, photos, and/or videos that can be used for later review or during report preparation.

RSA participants must wear appropriate safety equipment and use traffic controls as required and where available. The RSA Facilitator will advise RSA Team members to bring their safety vests but will come prepared with additional vests to ensure all RSA Team members have appropriate safety equipment. The RSA Team’s presence on-site should not adversely impact roadway safety during field reviews. As such, the RSA Facilitator shall provide reasonable temporary traffic control for the conditions.

The time requirement of the Field Reviews varies depending on the size of the study area, RSA Team member availability, weather conditions, etc. Typically, RSA Facilitators should aim to complete Field Reviews over 1 or 2 days.

6. RSA Team Debriefing Meeting

Upon completing the Field Reviews, the RSA Team participates in a debriefing meeting. During this meeting, the RSA Team discusses potential safety countermeasures for the observed safety issues. The RSA Facilitator will lead a group discussion and compile a list of the safety issues identified during the Field Reviews. The RSA Team shares any notes, pictures, or videos collected during the field reviews with the RSA Facilitator.



The RSA Facilitator is responsible for arranging meetings and field reviews.



Field reviews are performed by the RSA Team during AM Peak, Mid-day, PM Peak, and after sunset.



After the Field Reviews, the RSA Facilitator will lead a group discussion and compile a list of the safety issues identified.

7. Prioritize the Countermeasures

Once the list of countermeasures is developed, the RSA Facilitator prioritizes the countermeasures based on the following considerations:

1

Countermeasures that can be implemented in the near term for a relatively low cost.

2

Countermeasures that aim to address issues resulting in severe crashes.

3

Countermeasures that address safety issues which frequently occur or are likely to occur.

Low-cost countermeasures that can be implemented quickly and mitigate the core safety issues are prioritized. A combination of countermeasures may be the best overall improvement for the site. The countermeasures should be presented in differing time frames based on the expected implementation time, short-term – generally under a year, medium-term – generally 1 to 5 years, and long-term – generally over 5 years. These time frames help to develop an implementation strategy. For example, short-term countermeasures can be implemented, and the safety performance can be reevaluated to see if medium-term or long-term recommendations

are still needed. Alternatively, short-term countermeasures could be less effective than long-term countermeasures. However, due to a lack of available funding, short-term countermeasures may be implemented to improve safety as much as possible while waiting for funding for long-term countermeasures.

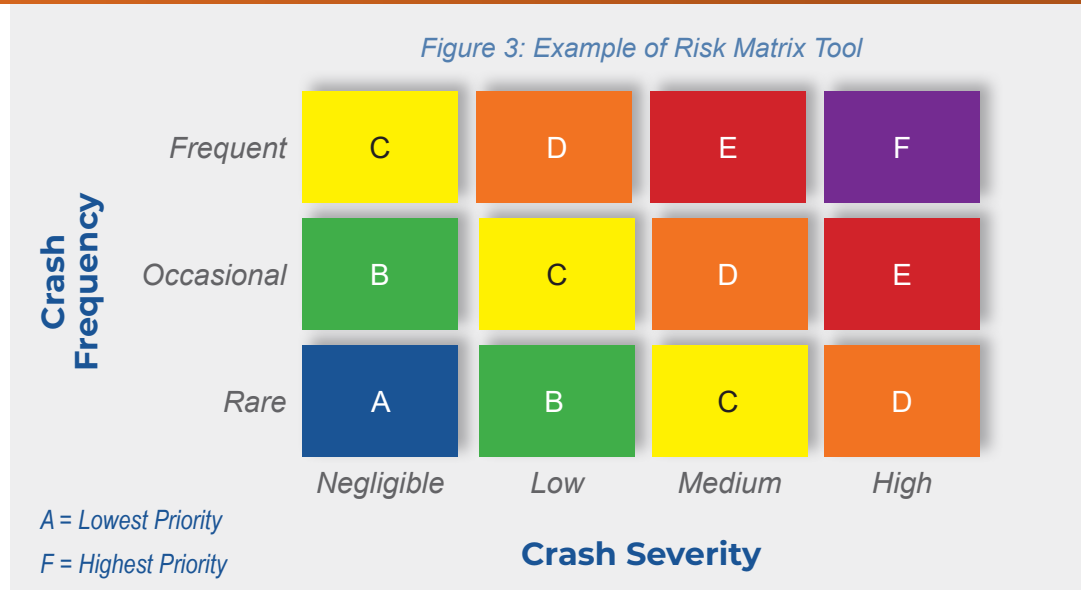
Figure 2 is an example from a previous RSA completed in New Mexico, showing the prioritization of countermeasures. For each issue, a corresponding safety countermeasure strategy is recommended. The issues are prioritized by classifying the countermeasures as short-term, medium-term, and long-term.

Figure 2: Example of Countermeasures Table

Issue Number	Issue	Location	Countermeasure	Opinion of Total Probable Cost	Time Frame
1	Signing and Striping	Along US 491	Refresh / Replace Signing and Striping	Signing: \$26.00/S.Y. Striping: \$70,000	Short-Term
2	Damaged Sidewalks	Northeast corner of Maloney Ave and northeast corner of US 491 and I-40 exit ramp	Repair / Replace Sidewalks	\$15,000.00	
3	Yield Lane Sight Distance	Northeast corner of US 491 and Aztec Avenue yield lane sight distance	Clearing and Grubbing Yield Striping	\$7,500	
4	Deteriorated Pavement Markings	I-40 EB & WB Exit Ramp at US 491	Remove Pavement Markings Refresh Pavement Markings	Unknown	
5	Damaged Fencing	Along I-40 Westbound and Maloney Ave	Repair / Extend Fencing West	Repair: \$5,000 Install: \$150,000	
6	Pedestrian Trail on the East of US 491	East side of US 491	Provide Pedestrian Trail	Unknown, Requires Study	Medium-Term
7	Pedestrians Walking on Road	US 491 above Route 66	Provide Pedestrian Access	Unknown, Requires Study	
8	High-Speed Right Turn Lane at US 491 and Aztec Ave	US 491 and Aztec Ave	Conduct Study for High-Speed Right Turn Lane	Unknown, Requires Study	
9	Roadway Lighting	Study Area	Repair / Additional Lighting	\$45,000	
10	Fencing Along I-40	Along I-40	Install Iron Fencing	\$450,000	
11	Re-Examine Signal Timing	Along US 491	Examine Signal Timing	\$4,500 / Signal	Long-Term
12	US 491 Interchange Access	US 491 Interchange	Inadequate Multi-Modal Access	Unknown, Requires Study	
13	Allison Interchange Access	Allison Rd Underpass	Inadequate Multi-Modal Access	Unknown, Requires Study	

While not available for all countermeasures, Crash Modification Factors (CMFs) aid in prioritizing countermeasures because they estimate the safety benefit and effectiveness of some countermeasures. The CMFs are available via the CMF Clearinghouse website. Each CMF has a star rating to indicate the quality or confidence in the results of the CMF research. Generally, CMFs with higher star ratings should be used.

Another strategy to help prioritize countermeasures considers the risk of the observed safety issues at the study location based on the expected frequency and severity of the safety issue. This approach involves grading and ranking each safety issue. A safety issue with the letter grade A rarely occurs with low injury severity, while issues with a grade F happen frequently and typically result in crashes with increased severity. **Figure 3** shows an example of a risk matrix tool.



An example of a safety issue ranking summary from a previous RSA completed in New Mexico is shown in **Table 1**. Countermeasures that address high-risk issues should typically be prioritized, especially those that are low-cost and can be implemented quickly.

Finding	Observation	Frequency	Severity	Risk	Grade
1	Excessive Speeds	Frequent	High	High	F
2	Property Threatened	Frequent	High	High	F
3	Non-Motorists Threatened	Frequent	High	High	F
4	Difficult for Pedestrians to Cross	Frequent	High	High	F
5	Bicyclists Feel Unsafe	Frequent	High	High	F
6	Limited Sight Distances	Occasional	High	High	E
7	Wrong Way Drivers	Occasional	High	High	E
8	Faded Pavement Markings	Frequent	Medium	High	E
9	Failure to Obey Traffic Control Devices	Occasional	High	High	E
10	Obstructed Bike Lanes and Sidewalks	Frequent	Medium	High	E
11	Multiple Conflict Points	Occasional	Medium	Moderate-High	D
12	Lack of Continuous Lighting	Occasional	Medium	Moderate	D
13	Turning from Wrong Lane	Occasional	Medium	Moderate	D
14	Old Signage	Occasional	Low	Moderate-Low	C
15	Overgrown Landscaping	Occasional	Low	Moderate-Low	C
16	Noise	Frequent	Negligible	Moderate-Low	C
17	Medians Impede Crosswalks	Rare	Low	Low	B
18	Inconsistent One Way Signing	Rare	Low	Low	B
19	Misaligned Crosswalk Ramps	Rare	Negligible	Low	A

Table 1: Example of Safety Issue Ranking Summary

There are several resources for identifying countermeasures. Some common sources are summarized below. Please note that this list is not exhaustive; other peer-reviewed documents and resources may guide with countermeasure identification.



Collection of countermeasures and strategies effective in reducing roadway fatalities and serious injuries. Transportation agencies are strongly encouraged to consider the widespread implementation of these countermeasures.



Guide to help select effective, science-based traffic safety countermeasures. It includes behavioral countermeasures that have the most evidence of effectiveness as well as those used most regularly.



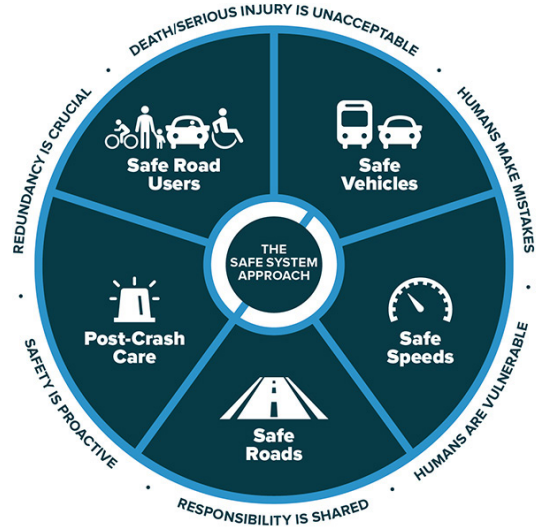
A clearinghouse of Crash Modification Factors that estimates the change in crashes expected after the implementation of a countermeasure. This central, Web-based repository of CMFs provides additional information and resources as a means to identify potential countermeasures.



The American Association of State Highway and Transportation Officials (AASHTO) developed a SHSP with 22 emphasis areas that affect highway safety. The National Cooperative Highway Research Program (NCHRP) developed a series of guides with countermeasures for each of the 22 emphasis areas.

The Safe System Approach

The United States Department of Transportation (USDOT) endorsed the Safe System Approach (SSA)⁴ as the guiding paradigm to address roadway safety. The SSA is a tool to help transportation professionals focus on safety outcomes that address safer roads, safer road users, safer speeds, post-crash care, and safer vehicles. When conducting RSAs, it is important to lead field reviews and identify countermeasures with these five elements in mind. Resources for incorporating the five elements of SSA into RSAs are currently being developed by FHWA and will be linked in a future iteration of this guidance.



Source: FHWA.

Present Proposed Safety Countermeasures to Project Owner

The RSA Facilitator will present the preliminary countermeasures to the Project Owner with the RSA Team in attendance. This presentation is an opportunity for feedback from the project owner, for the RSA Facilitator to clarify its findings and recommendations, and to ensure that recommendations are feasible to pursue. The identified safety issues and their recommended countermeasures should be specific, including their location and the safety risk they present. Visual aids can demonstrate the safety issues to the project owner.

8. Preparing the RSA Report

The RSA Facilitator will prepare an RSA Report describing the observed safety issues and recommended countermeasures identified through the RSA process. ***The RSA Report should not reflect the opinion of one individual but is a compilation of all RSA team members' insights.*** All RSA Team members should have the opportunity to review and comment on a draft report before the final report is delivered. A template for the RSA Report is provided in **Appendix E**. The RSA Report documents all relevant RSA processes, site information, analyses, observed safety issues, recommended countermeasures, and their implementation priorities. Each observed safety issue should be described in detail, including the location and the recommended safety countermeasure or countermeasures. The report will conclude with a summary table that lists all observed safety issues and recommended countermeasures.

Legal Disclaimer

It is important that a disclaimer is included in RSA Reports. A disclaimer section and language are provided in the RSA Report template in the appendix. The RSA report and recommendations are not allowed to be used against an agency in litigation. It is protected by 23 U.S.C §407 which states:

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Prepare Formal Response

The roadway facility owner is responsible for developing an action plan within 30 days of receiving the final RSA report. The action plan addresses each safety issue identified in the RSA and identifies the individual or agency responsible for implementing the countermeasure, along with a funding source and timeline for each countermeasure the agency elects to implement—Additionally, the response documents why some safety countermeasure recommendations cannot be implemented.

Identifying Safety Projects

Depending on the roadway owner's needs and potential next steps, safety countermeasures may be further organized into implementable projects. Projects may comprise countermeasures grouped by priorities, available budgets, effectiveness, implementation time frames, and/or geography.

Identifying, proposing, and estimating several safety countermeasures into implementable projects can aid agencies in programming local projects or requesting federal funding assistance. Including comprehensive engineering estimates for safety improvement projects in the RSA Report's appendix can streamline and expedite the funding process.

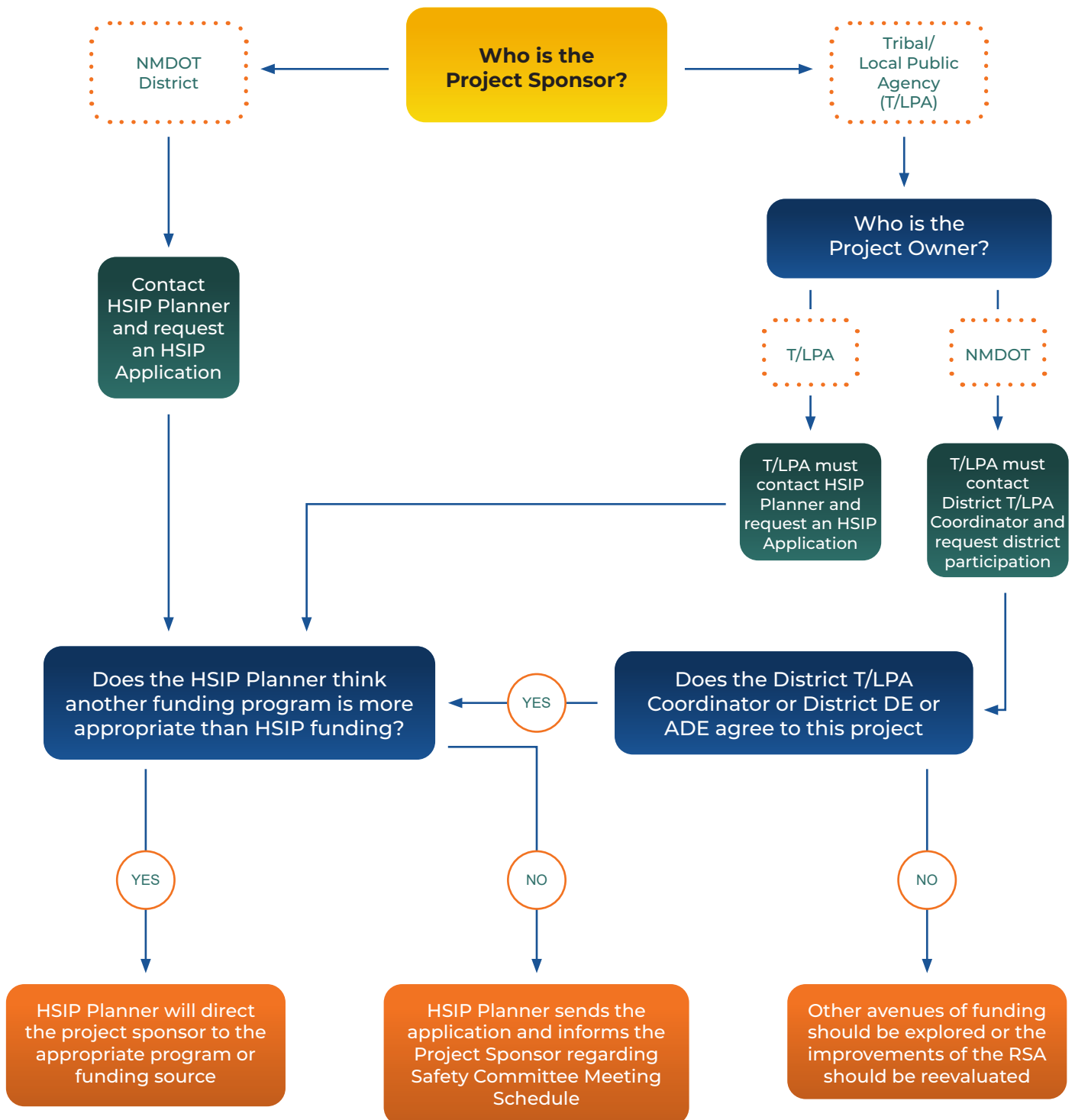
Post Funding RSA Process

Highway Safety Improvement Program (HSIP)

According to the FHWA HSIP Manual, the projects or activities most likely to reduce the number of and potential for fatalities and incapacitating injuries should be prioritized for HSIP funding. NMDOT conducted a Highway Safety Manual (HSM)-based network screening analysis of the NMDOT-maintained non-interstate rural and urban roadway network to help with location prioritization. The network screening effort identifies and ranks sites with a high potential for safety improvements based on the potential to reduce fatal and severe injury crashes.

Safety improvement projects must be consistent with the New Mexico SHSP to qualify for HSIP funding. They should correct or improve a hazardous road location or feature or address a highway safety problem. HSIP program staff monitor and oversee project selection and allocation of funds to determine where the funds can be most efficiently used to optimize safety performance. The NMDOT Safety Committee evaluates and selects applications for HSIP funding. **Figure 4** on the following page summarizes the post-RSA HSIP application process.

Post RSA HSIP Application Process



Other Funding Resources to Consider

Several alternative funding programs are available through NMDOT or FHWA for financing safety improvement projects. Several of these funding programs are summarized below in [Table 2](#). Please note that this list is not exhaustive and may not reflect the most recent federal legislation. This list is accurate as of the date of publication and through the Infrastructure Investment and Jobs Act (IIJA) / Bipartisan Infrastructure Legislation (BIL), adopted by the federal government on November 15, 2021. There may also be state funding sources for safety improvement projects.

Funding Source	Funding Description	Funding Manager
Surface Transportation Block Grant (STBG)	This funding program provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge, and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects.	NMDOT Districts
Transportation Alternatives Program (TAP)	This funding source encompasses a variety of smaller-scale active transportation projects. Calls for projects are run through the MPOs and RTPOs.	NMDOT Multimodal Planning and Programs Bureau
Recreational Trails Program (RTP)	This funding source provides funds to develop and maintain recreational trails and trail-related facilities for motorized and nonmotorized recreational trail uses. Calls for projects are run through the MPOs and RTPOs.	NMDOT Multimodal Planning and Programs Bureau
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	<p>Non-Mandatory: The CMAQ Non-Mandatory funding program provides a statewide flexible funding source to State and Tribal/ local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Calls for projects are run through the MPOs and RTPOs. Funds may be used for transportation projects or programs that reduce vehicle emissions. These projects could include bicycle and pedestrian facilities, congestion relief projects, and transit vehicle replacements.</p> <p>Mandatory: The CMAQ Mandatory funds are directly allocated to the El Paso MPO for projects in southern Doña Ana County New Mexico, which is in non-attainment for federal air quality standards. Eligible project types are the same as with the CMAQ Non-Mandatory. Calls for projects are managed by El Paso MPO.</p>	NMDOT Multimodal Planning and Programs Bureau or El Paso MPO
Safe Street and Roads for All Grant Program (SS4A)	The SS4A program helps to fund regional, local, and Tribal initiatives through grants to prevent roadway deaths and incapacitating injuries. As part of the SS4A program, local agencies can develop or update a comprehensive safety action plan (Action Plan), conduct planning, design, and development activities in support of an Action Plan, or carry out projects and strategies identified in an Action Plan (FHWA).	FHWA
Carbon Reduction Program	This program provides funds for projects designed to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on-road highway sources.	NMDOT Multimodal Planning and Programs Bureau

Table 2: Summary of Alternative Funding Programs

*SS4A funding is discretionary and will be available between 2022 and 2027. SS4A is managed directly by FHWA and applications for projects are submitted directly to FHWA. NMDOT does not manage this funding source.




APPENDIX

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- ▶ **Appendix A:** RSA Team Invitation Example
- ▶ **Appendix B:** Pre-RSA Meeting Agenda
- ▶ **Appendix C:** RSA Agenda Example
- ▶ **Appendix D:** RSA Prompt Lists
- ▶ **Appendix E:** RSA Report Template

This guide book, along with the following appendices, can be viewed and downloaded at the link below:

<https://www.dot.nm.gov/planning-research-multimodal-and-safety/planning-division/multimodal-planning-and-programs-bureau/highway-safety-improvement-program/>



APPENDIX A

RSA Team Invitation Example

RSA Team,

We invite you to participate in a Road Safety Assessment (RSA) of *[the RSA Study Corridor]* in *[Municipality]*, NM. We humbly request your attendance for Field Reviews and an RSA Field Observations Meeting on *[Month Day, Year]*, and *[Month Day, Year]*.

Field review activities will consist of several hours outside observing the pedestrian and roadway conditions. Please wear comfortable walking shoes and dress appropriately for the weather conditions. Please bring your safety vest, sunscreen, water, and note-taking materials.

Your participation in the Field Reviews and RSA Field Observation Meeting is vital to the success of the RSA. If you can't participate in all the scheduled activities, you are encouraged to participate in those your schedule will allow and/or send a representative from your agency.

Attached are an agenda for the field reviews and an information packet containing background materials on the corridor. Please review this information packet before attending the Field Reviews and RSA Team Insights Meeting.

If you have any pertinent historical information, project documents, reports, or plans, please share these with *[RSA Facilitator]*.

Thank you for your assistance with this project.

[Name – Organization, Title]

For the Field Reviews, we will convene at the location indicated in the following map at *[TIME, DATE]*, and *[TIME, DATE]*. Please dress appropriately for exploring the streetscape and the weather. Also, bring personal protective equipment, if available. The RSA Insights Meeting will be held *[virtually/at] [the ADDRESS]*.

Insert aerial of Meet-up location

- Label and highlight study corridor
 - Label meet-up location
- Include North indicator and scale



APPENDIX B

Pre-RSA Meeting Agenda Example

RSA CORRIDOR ROAD SAFETY ASSESSMENT (RSA) PRE-RSA MEETING AGENDA *MM, DD, YYYY*

1. RSA Facilitator and RSA Team Introductions
2. Project Overview
3. Review of Information Packet
 - a. Roadway Characteristics
 - b. Study Area Land Uses
 - c. Traffic Volumes
 - d. Traffic Speed Profile
 - e. Multimodal Activity
 - f. Crash Data
 - g. Crash Records
 - h. Previous Safety Efforts and Plans
4. Open Discussions

APPENDIX C

RSA Agenda Example

RSA CORRIDOR ROAD SAFETY ASSESSMENT (RSA) FIELD REVIEW AGENDA

MEETING LOCATION
MM, DD, YYYY

- **MM DD, YYYY**
 - **XX:XX AM - XX:XX AM:** AM Peak Hour Field Reviews
- **MM DD, YYYY**
 - **XX:XX AM - XX:XX PM:** Mid-Day Peak Hour Field Reviews
- **MM DD, YYYY**
 - **XX:XX AM - XX:XX PM:** PM Peak Hour Field Reviews

Activities During Peak Hour Field Reviews Comprise:

- Convening at the meet-up site
- Driving and walking the corridor as a group
- Noting, photographing, and/or recording safety issues
- Discussing issues and potential countermeasures

- **MM DD, YYYY**
 - **XX:XX PM – XX:XX PM:** PM Dark Field Reviews
 - Drive the corridor as a group
 - Note, photograph, and/or record safety issues focusing on sign reflectivity, pavement marking visibility, roadway illumination operation, etc.
- **MM DD, YYYY**
 - **XX:XX PM – XX:XX PM:** RSA Debriefing Meeting
 - Consolidate observations, insights, notes, photos, or videos from field reviews

APPENDIX D

RSA Prompt Lists

The following pages contain a prompt list with roadway elements and corresponding considerations arranged by GORE element. The listed considerations are intended to help RSA team members observe a site holistically. Please review this list prior to the Field Review.

GEOMETRY

- **Curves**
 - Are curves present along the site?
 - Is there visibility around the curve?
 - Is the speed limit around the curve appropriate?
- **Gradients/ Slopes**
 - Do roadway gradients/slopes promote unsafe vehicular movements?
- **Cross Section**
 - Is the number or width of lanes appropriate for current usage?
 - Is there a median? Does it have a safe design? Would a median be helpful?
 - Is there adequate utility clearance?
- **Clearance**
 - Are there low-clearance segments on the roadway? Are they adequately signed?
- **Sight distance**
 - Is sight obstructed at any points while driving (by bushes, buildings, etc.?)
- **Access Management**
 - How many driveways are present along the site?
 - Does the number of driveways cause for conflicts on the road or dangerous turning movements?
- **Intersection**
 - Is there enough distance for vehicles to safely slow/stop for turns?
 - Does the geometry accommodate all vehicle types?
- **Clear Zone and Crash Barriers**
 - Are hazards too close to the road?
 - Are side slopes acceptable?
 - Are there suitable crash barriers?

OPERATIONS

- **Congestion**
 - Are there points of congestion on the road segment during (non) peak traffic times?
- **Signal Operation**
 - Do the current signal timings effectively manage traffic?
 - Are clearance intervals appropriate?
 - Is there adequate sight distance to the signal heads?
- **Speed Management**
 - Does the posted speed limit along the road segment seem appropriate?

- **Queuing**
 - Is there an area where excessive queuing occurs?
- **Signage**
 - Is there too much/little signage?
 - Is the signage faded?
 - Are signs retroreflective?
 - Is there appropriate wayfinding signage?
 - Are signs visible and free of obstructions?
- **Turning Movements**
 - Are provided turn lanes appropriate for current traffic volumes?
- **Pavement Markings**
 - Are the markings retroreflective?
 - Are the road markings clear and recognizable?

ROADWAY USERS/HUMAN FACTORS

- **Motorists**
 - Are there skid marks on the pavement?
- **Bicyclists**
 - Can motorized traffic see bicyclists along the road?
 - Are there separated bicycle facilities?
 - Within the ROW, where are bicyclists riding?
- **Pedestrians**
 - Do you feel safe walking through this corridor as a pedestrian?
 - Is enough time given for pedestrians to cross the street?
 - Are there enough crossing opportunities along the corridor?
 - Are there adequate opportunities for crossings at transit stops?
 - Do the driveways create slopes too dangerous for pedestrians with mobility devices? (Are they ADA-compliant?)
- **Others** (e.g. Public transit users, motorcyclists, pedestrians with assistive devices, heavy vehicles, emergency vehicles, etc.)
 - Are these users appropriately accommodated?
- **Unique Site Context**
 - Do roadway characteristics seem appropriate in consideration of the site's unique context? i.e. adjacent land use or points of interest

ENVIRONMENT

- **Weather**
 - Does site drainage appear to be adequate?
 - Is there ponding along or at curb ramps?
 - Is sun glare an issue?
- **Lighting**
 - Is adequate lighting provided throughout the corridor?
- **Road Conditions**
 - Is the surface even and free from grooves, rutting, and potholes?
- **Animal**
 - Are there known animal travel/migration routes in the surrounding areas which could affect safety?



APPENDIX E

RSA Report Template

The following pages outline a report template that agencies may use for guidance. It should be noted that this is an example only and not comprehensive nor prescriptive.

Road Safety Assessment (RSA)
For the RSA Corridor from
Road X to Road Y
Municipality, New Mexico

Day, Month, Year

Prepared for:



Crash data Years (?)

Prepared By:

Insert Preparing Agency's Logo Here

DISCLAIMER

This report is subject to the provisions of 23 USC § 407. Any intentional or inadvertent release of this material, or any data derived from its use does not constitute a waiver of privilege pursuant to 23 USC § 407.

23 USC §407. Discovery and admission as evidence of certain reports and surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

EXECUTIVE SUMMARY

SUMMARY OF OBSERVED SAFETY ISSUES AND RECOMMENDED COUNTERMEASURES

The following table, reproduced from the end of this report, summarizes the observed safety issues and recommended countermeasures.

Observed Issue	Countermeasure	Location	Crash Reduction Factor (CRF)	Opinion of Probable Cost	Time Frame	Priority	Considerations and Trade-offs

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Appendix A: Crash Reports

INTRODUCTION

RSA PROCESS

Describe an RSA, provide the steps, RSA schedule, RSA Team member and team member organizations.

Table 1: RSA Team

<p><u>Insert list of RSA Team members and their organizations</u></p>
--

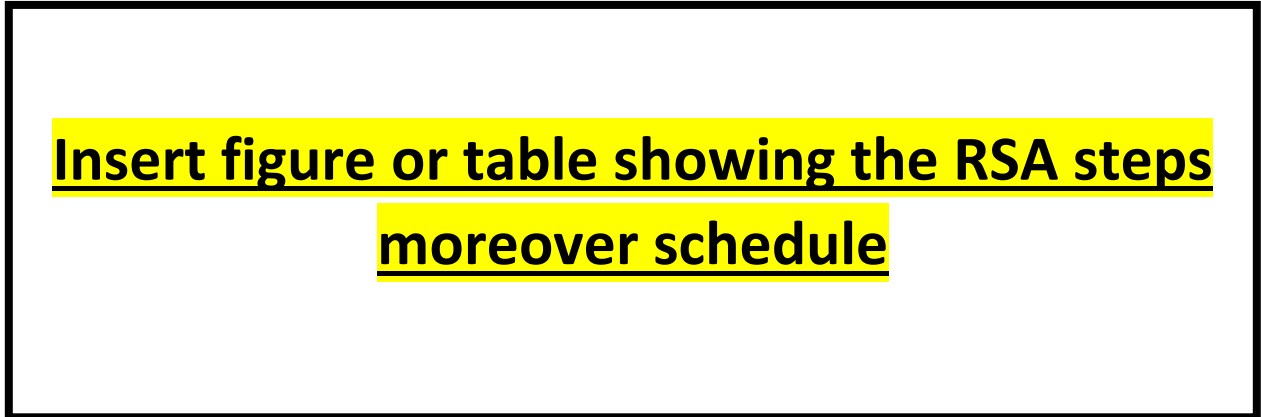


Figure 1: RSA Procedure and Schedule

PURPOSE OF RSA

Briefly introduce the need for the RSA in the study area.

RSA STUDY AREA

Briefly introduce the study site. Include:

- The length of the study corridor
- Describe the extent or boundaries of the study area

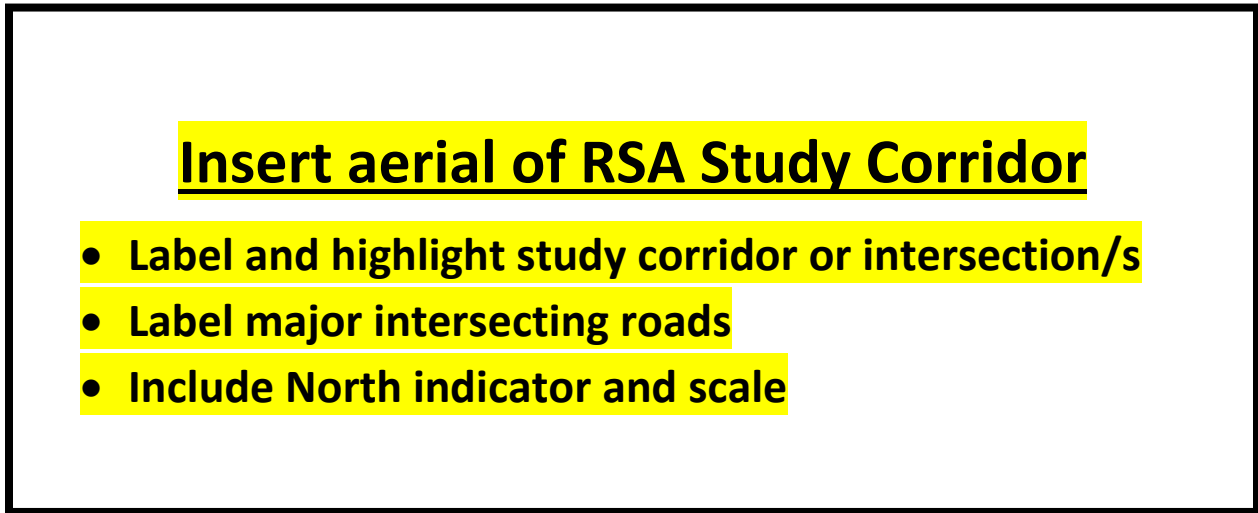


Figure 2: RSA Study Corridor

Demographics and Socioeconomic Profile

This section describes the study area’s demographic and socioeconomic characteristics. Discuss the granularity of Census Data for the study area, e.g., Census Blocks, Census Tracts, Census Designated Places, City, County, etc.

Table 2: Selected Demographic and Socioeconomic Data

	Study Area	City*	County	State
Population	xx,xxx	xx,xxx	xx,xxx	x,xxx,xxx
Median Age	xx.x	xx.x	xx.x	xx.x
Median Household Income	\$xx,xxx	\$xx,xxx	\$xx,xxx	\$xx,xxx
Poverty Rate	xx.x%	xx.x%	xx.x%	xx.x%
Employment Rate	xx.x%	xx.x%	xx.x%	xx.x%
Rate of Households Without a Vehicle	xx.x%	xx.x%	xx.x%	xx.x%
Disability Status	xx.x%	xx.x%	xx.x%	xx.x%
Hispanic or Latino	xx.x%	xx.x%	xx.x%	xx.x%

Table 3: Means of Transportation to Work, Source: 2020 ACS 5-Year Estimates

Commute Mode	Study Area	City*	County	State
Drove Alone	xx.x%	xx.x%	xx.x%	xx.x%
Carpool	xx.x%	xx.x%	xx.x%	xx.x%
Public Transportation	xx.x%	xx.x%	xx.x%	xx.x%
Walked	xx.x%	xx.x%	xx.x%	xx.x%
Bicycle	xx.x%	xx.x%	xx.x%	xx.x%
Other means	xx.x%	xx.x%	xx.x%	xx.x%
Worked from home	xx.x%	xx.x%	xx.x%	xx.x%

PREVIOUS AND CONCURRENT STUDY EFFORTS

Review and describe any historical and/or pertinent information, such as planning documents, previous or concurrent studies, and construction/development efforts that may be relevant to safety enhancements or final recommendations.

EXISTING CONDITIONS

ROADWAY CHARACTERISTICS

For roadways, include:

- Roadway jurisdictions
- Roadway functional classifications
- General roadway context (e.g. land uses, urban, suburban, rural, etc.)
- Access management:
 - Level of access along the facility (limited, full, or medium access), including driveways
 - Whether the turning movements into/from those intersections/driveways have full access or if they're limited (e.g. ½ or ¾ access)
- Posted speed limits on the roadways
- Travel directions
- Description of the typical sections/s
- Lane widths
- Pedestrian facilities
- Bicycle facilities
- Transit facilities and stops

SIGNALIZED INTERSECTIONS

For intersections, include:

- Names of the intersecting streets
- Roadway jurisdictions
- Functional classifications of each roadway

- Posted speed limits on each roadway
- Describe the lane geometry of each approach
- Pedestrian facilities
- Bicycle facilities
- Transit facilities and stops

LAND USE

Briefly discuss the Land uses within and surrounding the study area.

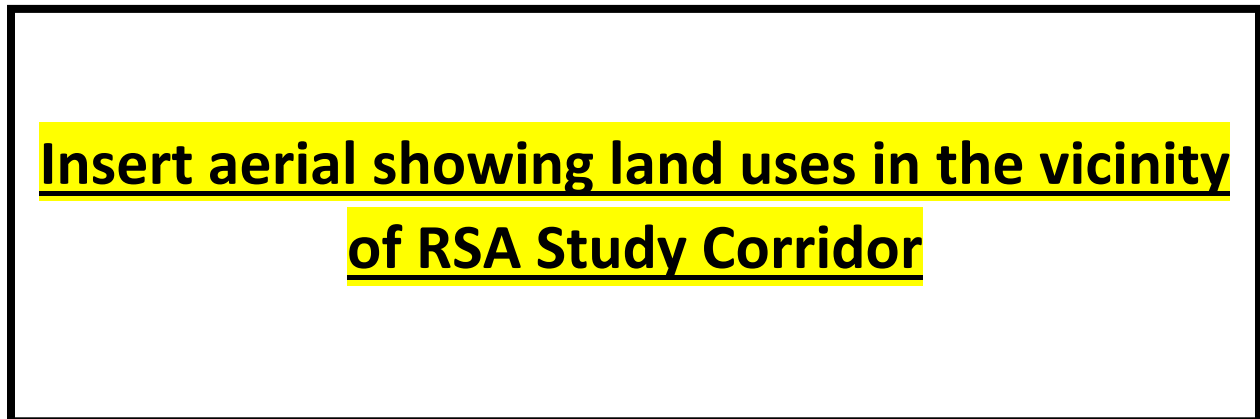


Figure 3: Study Area Land Use

TRANSIT

Discuss any transit routes, describe the stop locations, and facilities in the RSA Study Area

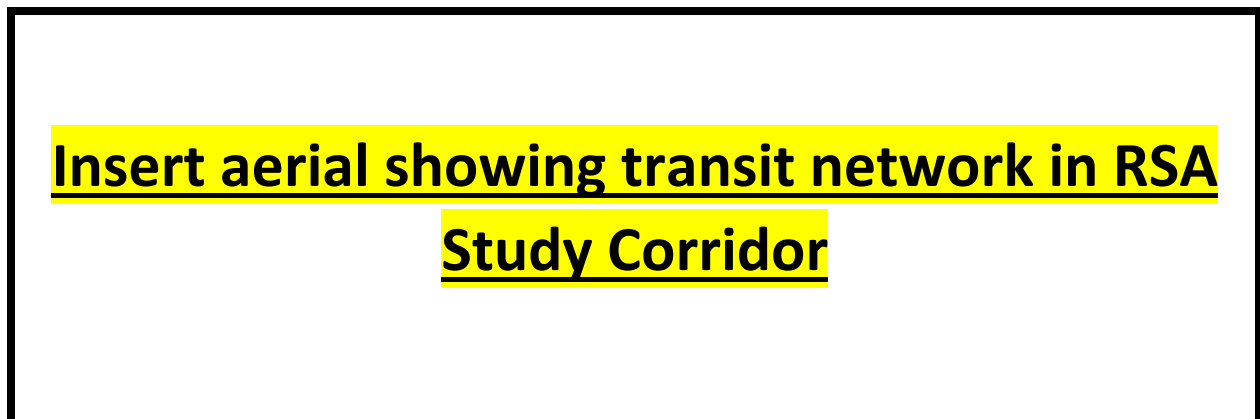


Figure 4: Transit Routes and Facilities

TRAFFIC DATA COLLECTION (IN SOME CIRCUMSTANCES, TRAFFIC DATA MAY NOT BE COLLECTED)

Discuss the data collection plan for the RSA. Include:

- Data collection methods (pneumatic tubes, video recordings, radar, etc.)
- Type of data collected (vehicle, pedestrian, and bicycle volumes, vehicle classifications, vehicle speed, turning movement counts, etc.)
- Dates of collection
- Locations of data collection devices

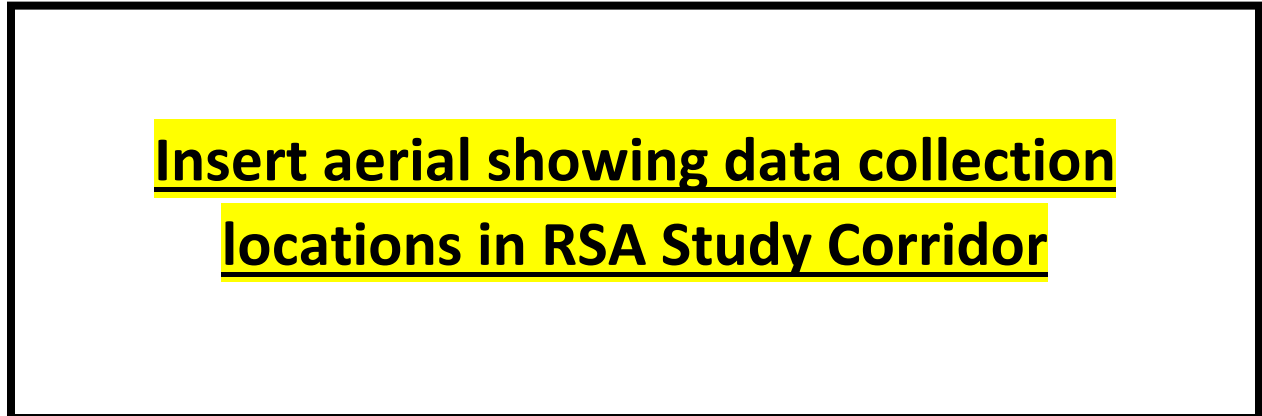


Figure 5: Data collection locations

MOTOR VEHICLE TRAFFIC DATA

Traffic volumes

Discuss vehicle counter deployment, including:

- Dates
- Times
- AM and PM Peak Hours
- Figure/s or table/s showing traffic volumes

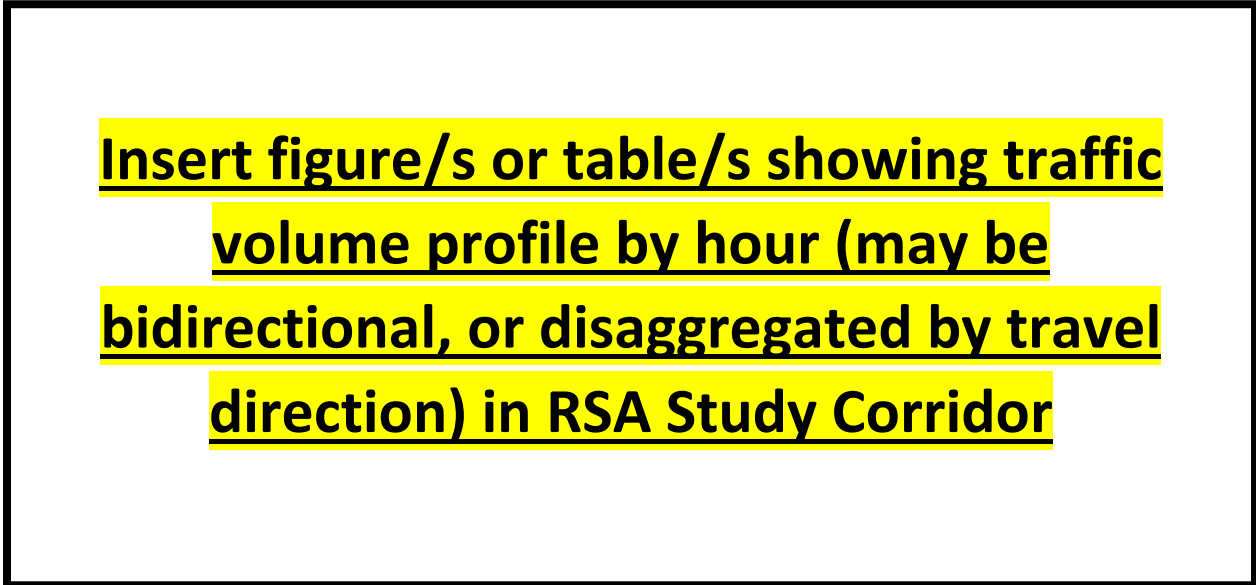


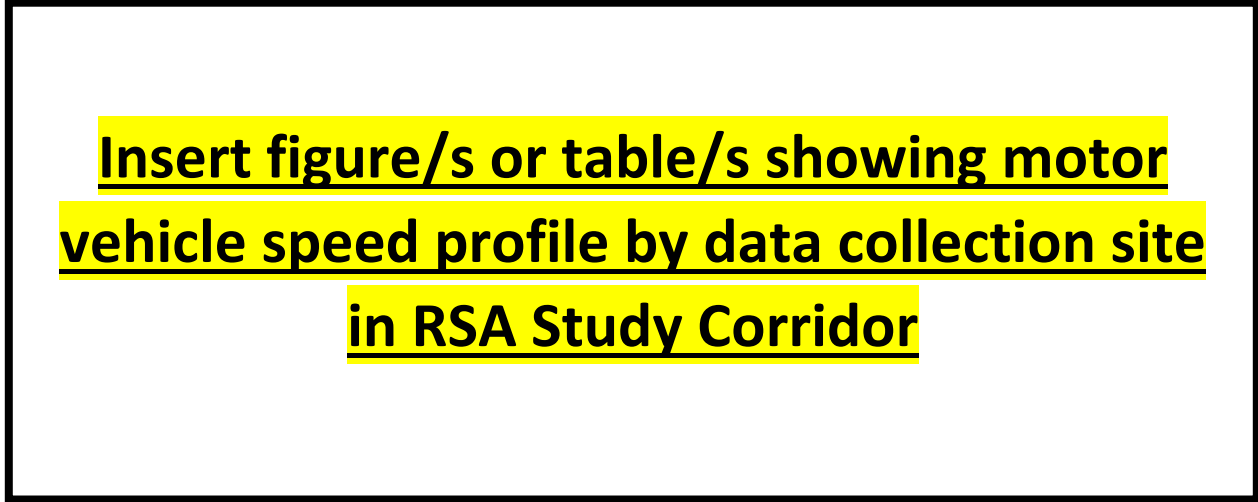
Figure 6: Vehicles per hour

Speed Profile

Discuss motor vehicle speed data, including:

- Figure or table showing the Posted Speed Limit, Average Speed, 50th Percentile Speed, and 85th Percentile Speed for each data collection site
- Interpret figure showing the speed profile

Table 4: Study corridor speed profile



Turning Movements Counts

Discuss turning movement counts by intersection, including:

- Dates
- Time of day
- Locations
- Figure/s showing intersections with TMC counts, lane geometry, and traffic volumes

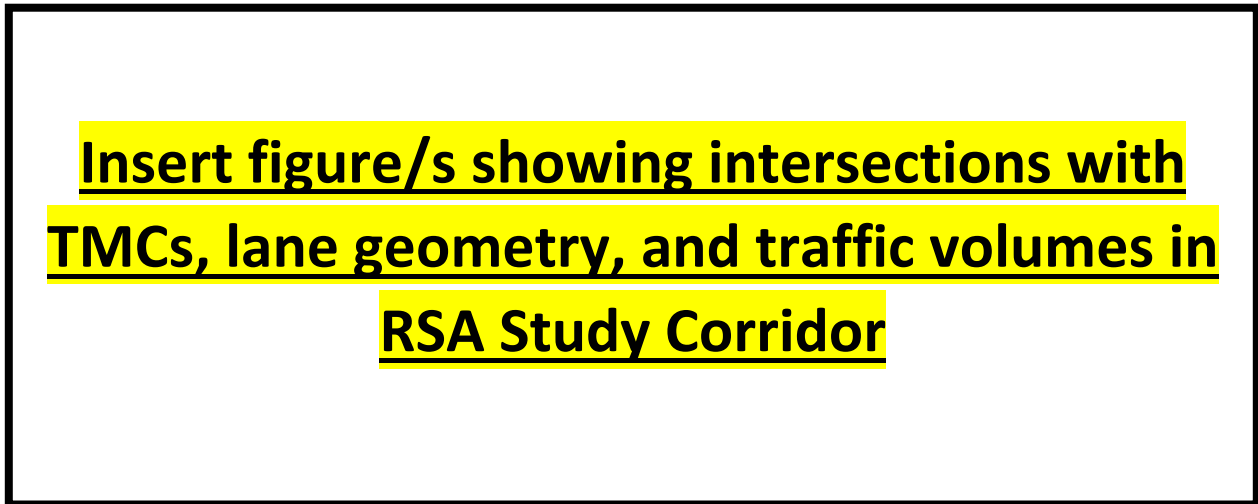


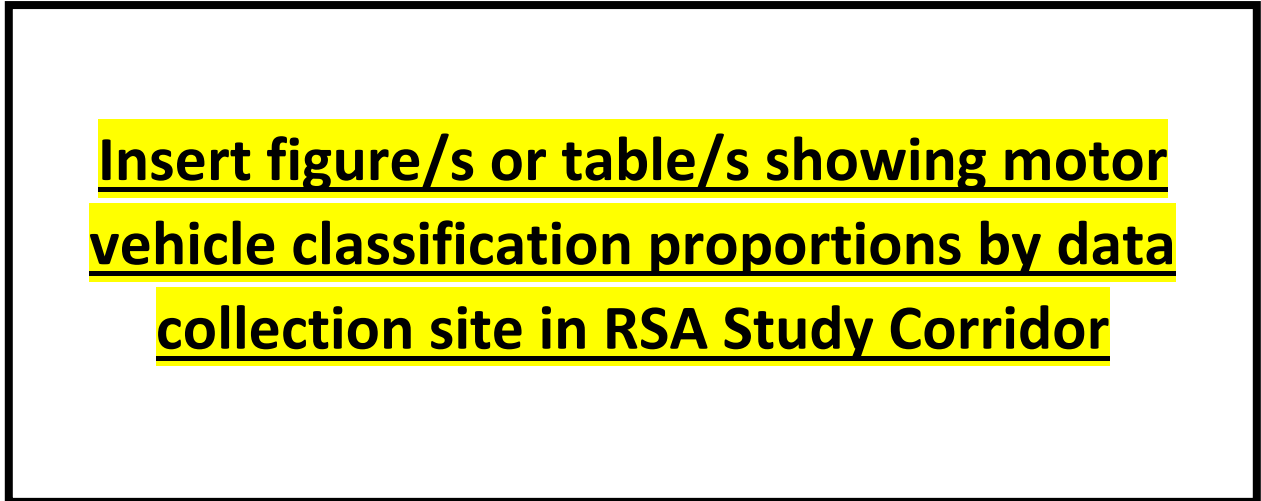
Figure 7: Turning Movement Count

Vehicle Classifications

Discuss vehicle classifications traveling in the study corridor, including:

- Figure/s or table/s showing vehicle class proportions
- Interpret vehicle classification proportion figure/s or table/s

Table 5: Vehicle classifications



PEDESTRIAN AND BICYCLE DATA

Discuss pedestrian and bicycle data, including:

- Dates
- Time of day
- Locations
- Figure/s showing intersections with pedestrian and bicycle volumes per hour
- Notable desire paths and high-use areas, including both official (e.g. crosswalks) and unofficial (e.g. desire line) paths

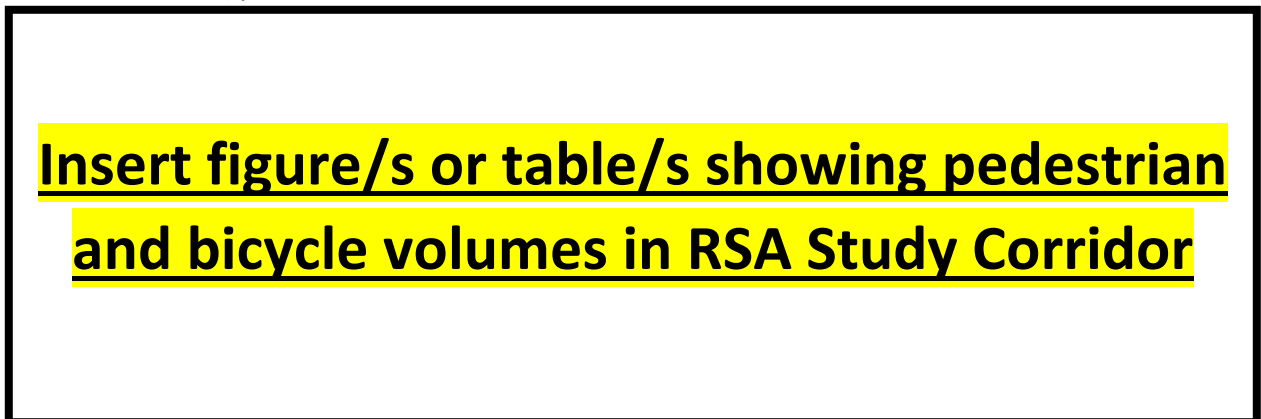


Figure 8: Pedestrian and Bicycle volumes per hour

CRASH DATA

This section should introduce the crash data and analysis. At a minimum, this section should include the following:

- Years of crash data used
- Source of crash data
- Graphic summary of crashes in RSA Study Corridor

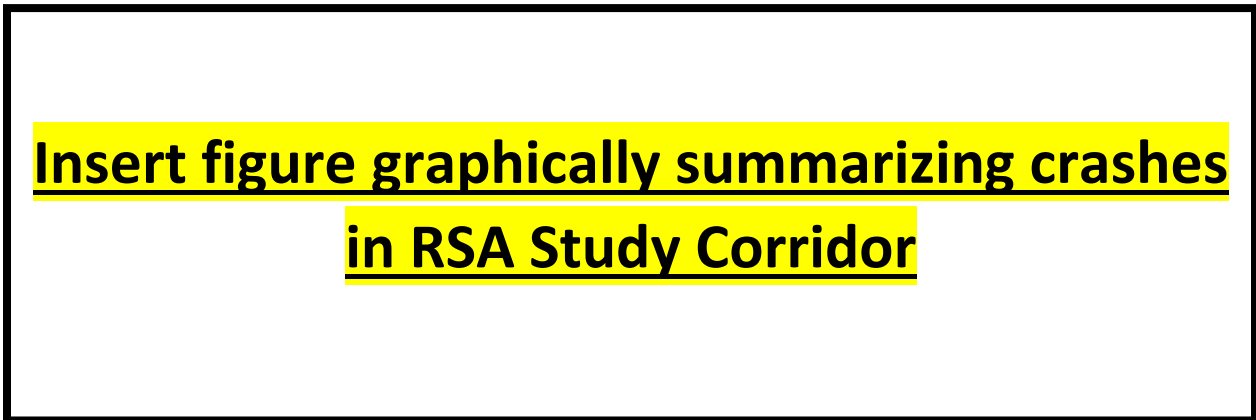


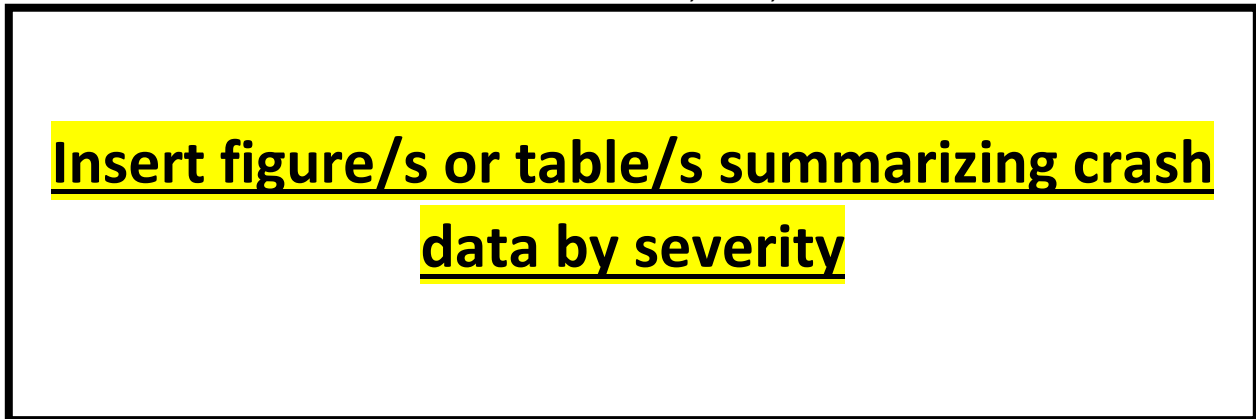
Figure 9: Crash Heat Map

CRASH DATA ANALYSIS

Severity

Summarize crashes by severity (KABCO)

Table 6: Crashes by severity



Year

Summarize crashes by year.

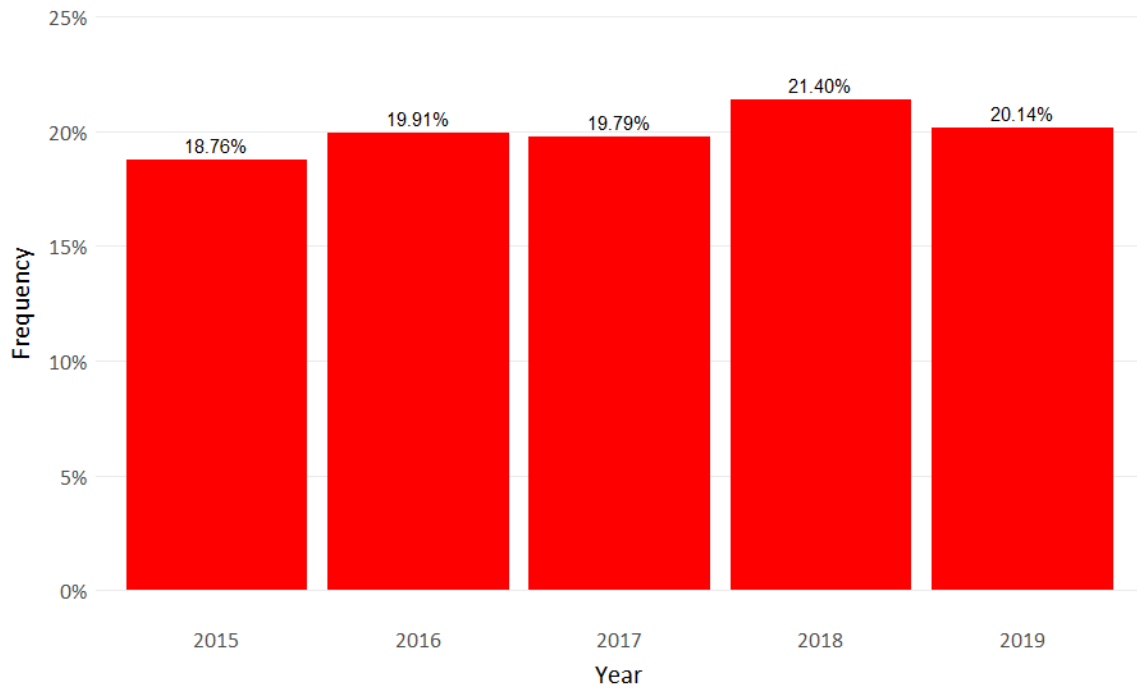


Figure 10: Crashes per year

Month

Summarize crashes by month.

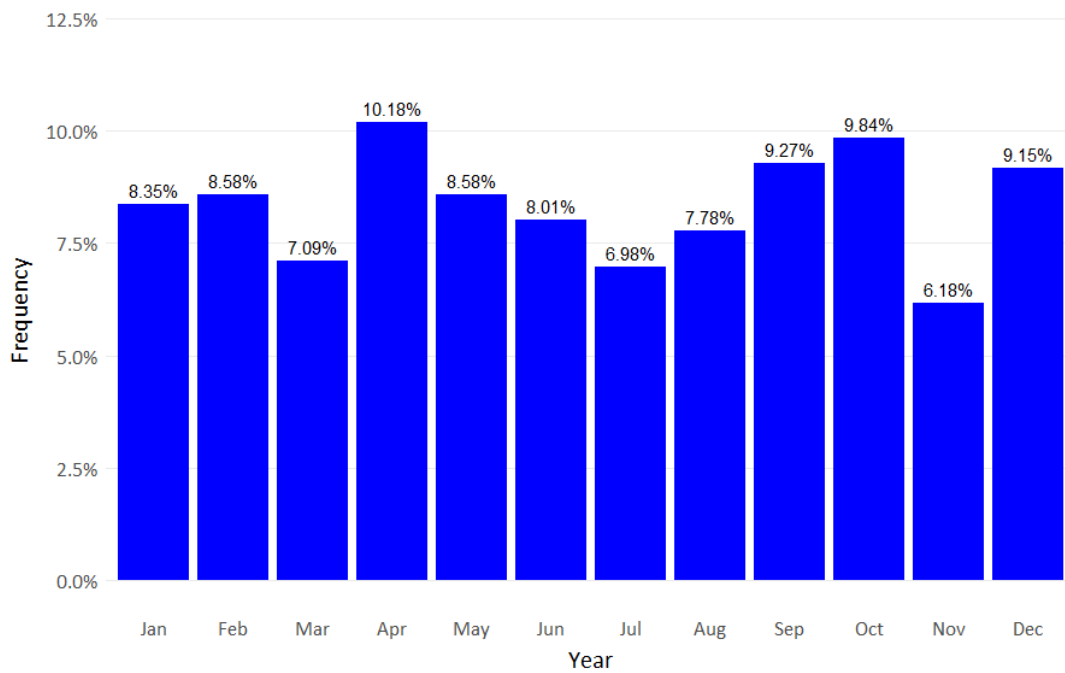


Figure 11: Crashes by month

Day of Week

Summarize crashes by day of the week.

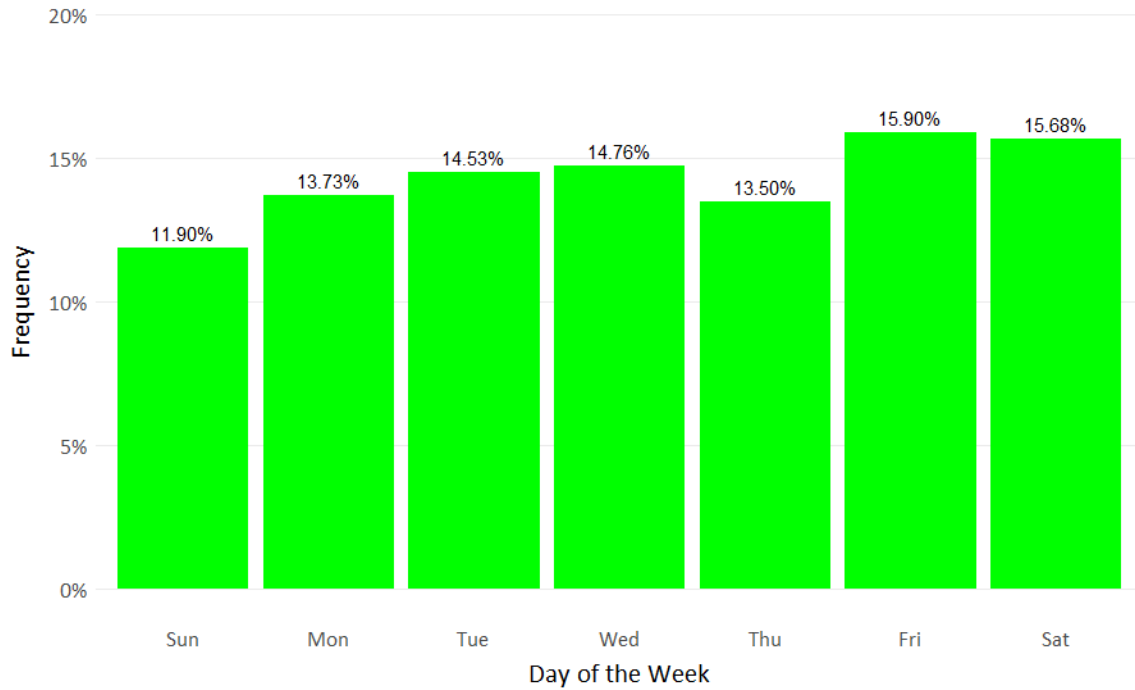


Figure 12: Crashes by day of the week

Time of Day

Summarize crashes by time of day.

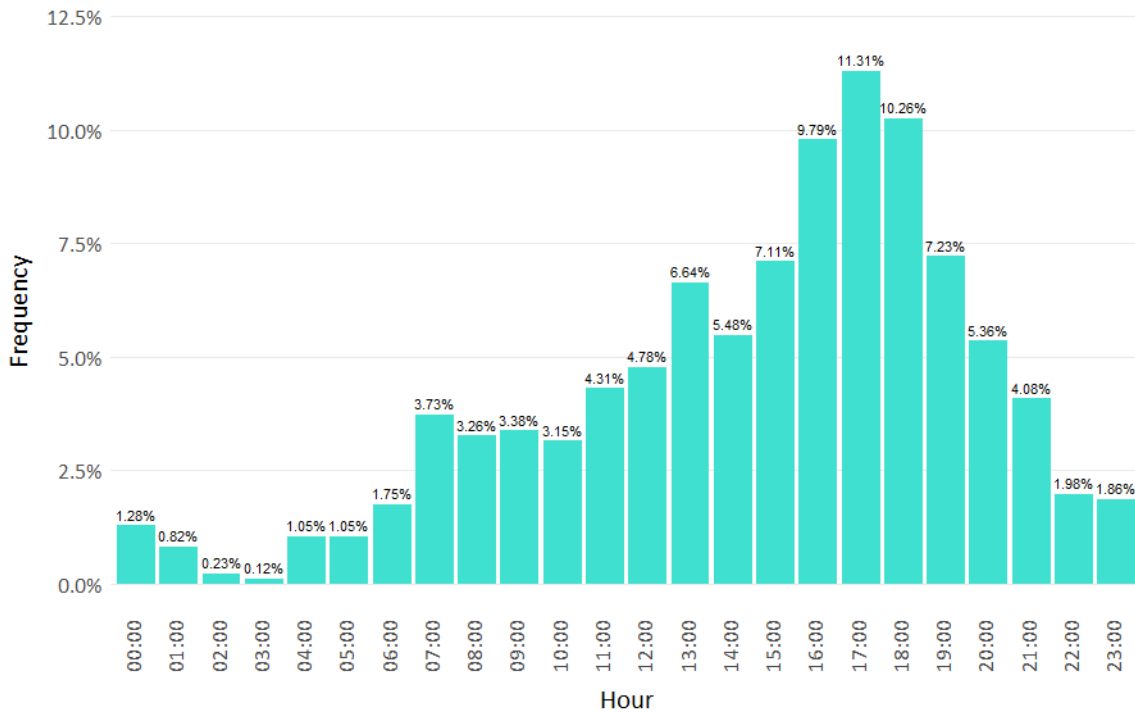


Figure 13: Crashes by the time of day

Crash Type

Summarize crashes by crash type.

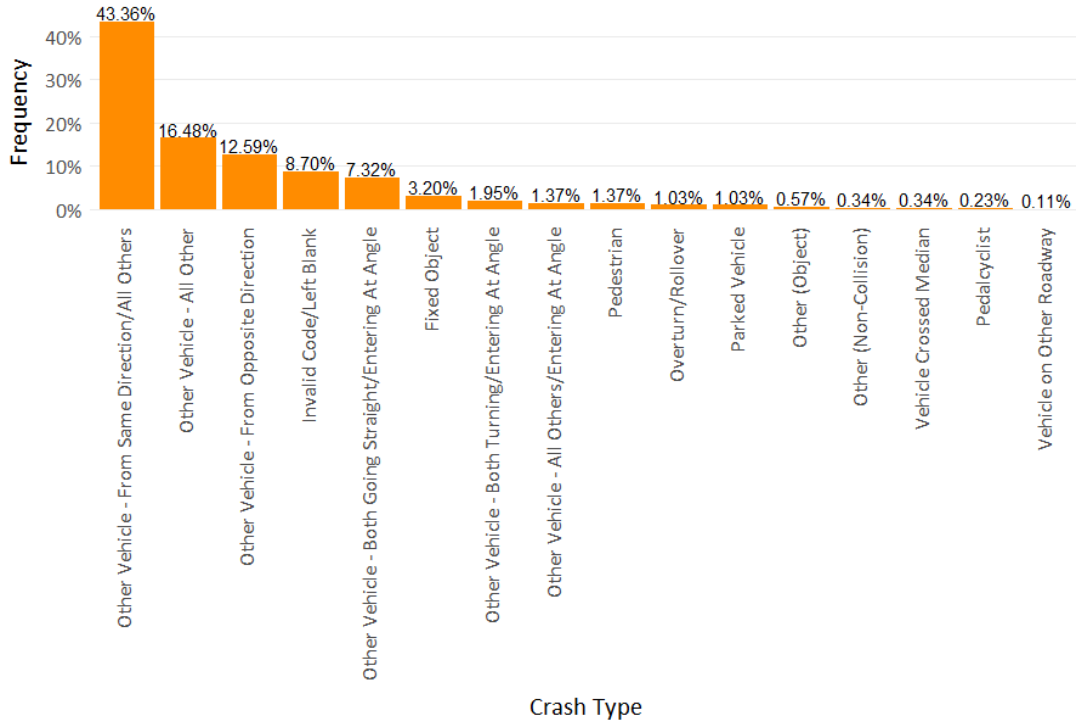


Figure 14: Crashes by crash type

Lighting Condition

Summarize crashes by lighting condition.

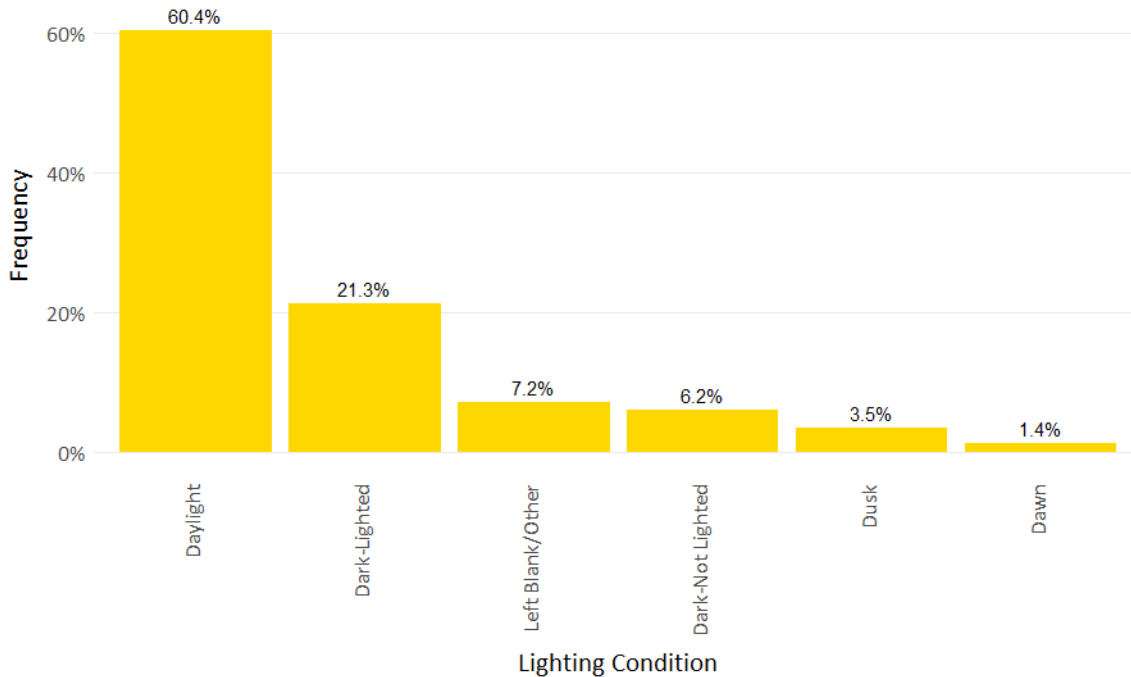


Figure 15: Crashes by lighting condition

Weather Condition

Summarize crashes by weather condition.

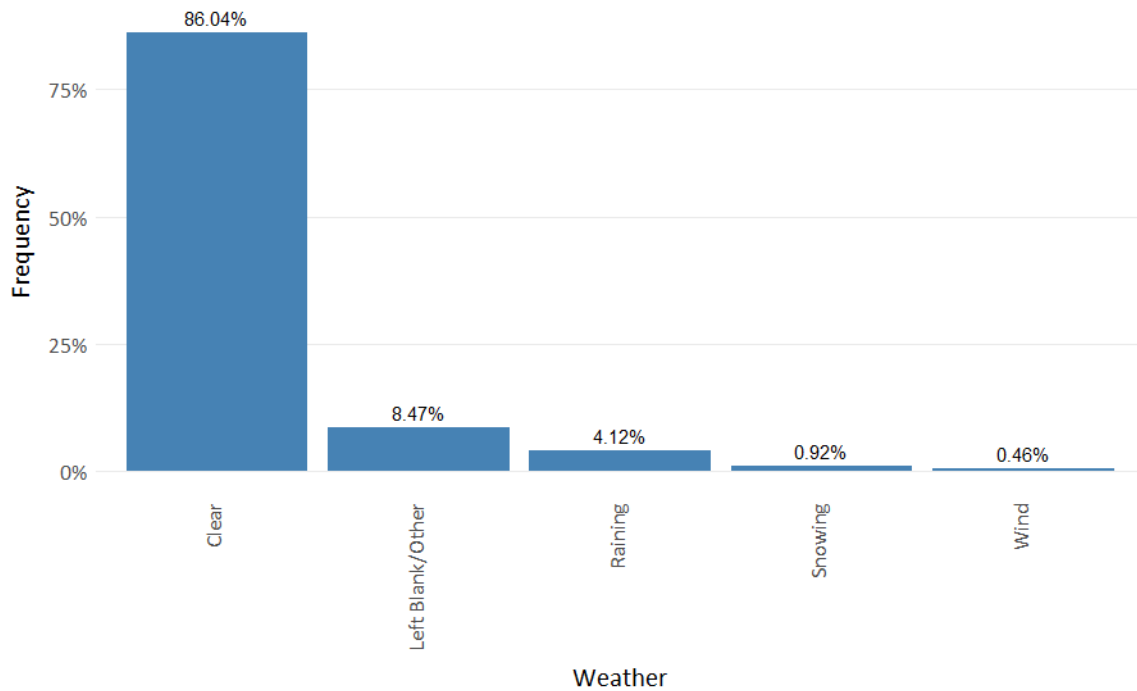


Figure 16: Crashes by weather condition

Multimodal Crashes

Summarize crashes involving pedestrians or bicycles.

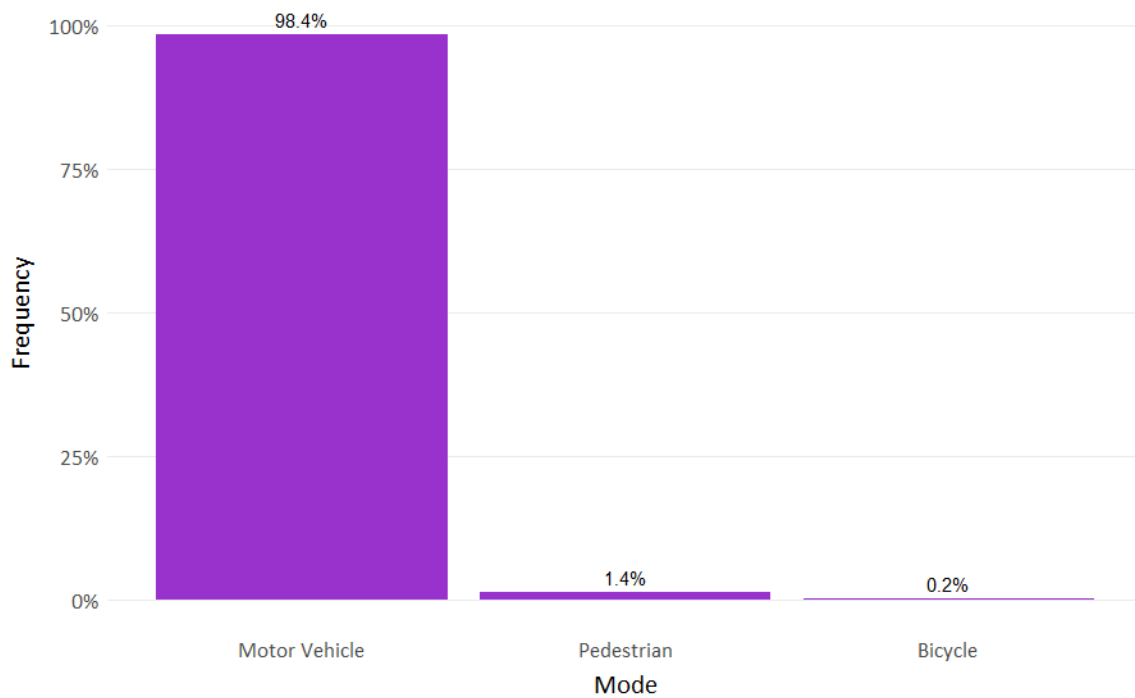


Figure 17: Crashes involving pedestrians or bicycles

Crash Reports

This section should summarize crash reports for crashes resulting in a fatality (severity – K) or Severe Injury (severity - A) and crashes involving pedestrians and bicycles and include:

- Source of crash records
- Summaries of crash narrative from the crash reports
- Summaries of quantitative crash data

FIELD REVIEWS

Summarize the RSA Field Review and Debriefing meeting schedule and procedure, including:

- Dates
- Agenda per day
- Attendees, including agencies they represent

FIELD OBSERVATIONS AND COUNTERMEASURES

This section contains the recommended safety countermeasures derived from the RSA team's observations and analysis. Include:

- List each observed safety issue, including:
 - Location
 - Description of each safety issue
- Descriptions of the recommended safety countermeasures, including:
 - Location
 - How the countermeasure addresses its respective safety issue
 - Where available, include crash reduction factors (CRF) from the Crash Modification Factor Clearinghouse or FHWA Proven Safety Countermeasures to illustrate the potential for crash reductions for each recommended safety countermeasure

CONCLUSION

Summarize the findings and recommendations of the RSA. Include:

- List each observed safety issue and recommended safety countermeasure
- Location
- Crash Reduction Factor, if available
- Estimates of safety countermeasures
- Time Frame (near-, mid-, long-term)
- Priority

Table 7: Summary of Observed Issues and Recommended Safety Countermeasures

Observed Issue	Countermeasure	Location	Crash Reduction Factor (CRF)	Opinion of Probable Cost	Time Frame	Priority