

October 2025

East Providence

Safe Streets and Roads for All Safety Action Plan



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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
BCA	Baseline Crash Analysis
CRF	Crash Reduction Factor
DOT	U.S. Department of Transportation
ETC	Equitable Transportation Community
FARS	Fatal Analysis Reporting System
FHWA	Federal Highway Administration
FI	Fatal and All Injury
FSI	Fatal and Serious Injury
HIN	High-Injury Network
HRN	High-Risk Network
HSIP	Highway Safety Improvement Program
MPO	Metropolitan Planning Organization
RIDOT	Rhode Island Department of Transportation
RIDSP	Rhode Island Department of Administration Division of Statewide Planning
RIPTA	Rhode Island Public Transit Authority
SAP	Safety Action Plan
SHSP	Strategic Highway Safety Plan
SS4A	Safe Streets and Roads for All
STIP	Statewide Transportation Improvement Program
VRU	Vulnerable Road User

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A Technical Working Group comprised of local and statewide stakeholders guided the plan development and collaborated to develop a complementary Statewide Safety Action Plan. The Technical Working Group was guided by RIPTA and members included:

- RI Division of Statewide Planning
- RI Department of Transportation
- RI Department of Health
- Grow Smart RI
- RI Transit Riders
- RI Bicycle Coalition
- Governor’s Commission on Disabilities
- Bike Newport
- RI Community Action Association
- RI League of Cities and Towns
- Community Care Alliance
- RI Commerce

We recognize the impact crashes have had on the East Providence community and acknowledge our collective responsibility to make our roads safer for all users. Thank you to the City departments, boards, and statewide partners that helped guide this plan, and individual community members whose input is reflected throughout this document.

East Providence Safety Action Plan Contributing Departments, Agencies, and Committees

- East Providence Mayor
- East Providence City Council
- East Providence Planning & Economic Development
- East Providence Engineering Division
- East Providence Police Department
- East Providence Fire Department
- East Providence Senior Center
- East Providence School District
- East Providence Health Equity Zone



Executive Summary

SS4A Overview

The Rhode Island Public Transit Authority (RIPTA) secured U.S. Department of Transportation (DOT) Safe Streets and Roads for All (SS4A) funding in 2022 to support the state and 31 participating municipalities in planning for roadway safety improvements that will prevent injuries and save lives. With the SS4A grant award and other existing statewide efforts through the Rhode Island Division of Statewide Planning (RIDSP) and the Rhode Island Department of Transportation (RIDOT), the state is focusing on improving safety on all roadways for all roadway users.

East Providence created this municipal Safety Action Plan (SAP) to effectively implement a tangible version of the Safe Streets for All mission, guided by the Safe System Approach. The adoption of this Safety Action Plan marks an ongoing effort in East Providence to develop a shared culture of safety and identify data-driven and community-informed priority projects, programs, and policies.

The East Providence Safety Action Plan includes comprehensive analysis of available data, public engagement, high-risk area identification, safety improvement recommendations, and a commitment to progress and transparency. The plan positions East Providence for further federal implementation funding and underscores key safety needs that could support other local, regional, and state planning initiatives.

East Providence's SAP was a one-year process, commencing in the spring of 2024, that included community input, safety analysis, policy discussions, and identification of priority locations and projects.

Project Components

This SAP is structured around the standard SS4A Action Plan Components (DOT 2022).

Leadership Commitment and Goal Setting

East Providence commits to creating a safer, more accessible transportation network for all road users. The primary goal of this SAP is to achieve zero roadway fatalities and serious injuries by 2045 and reduce fatal and serious injury crashes by 75 percent by 2030.

Planning Structure

The City of East Providence's City Planning and Economic Department staff will continue to serve as the plan's primary champions, convening other City departments, coordinating with local committees and boards, and partnering with RIDOT to assess and implement safety improvements. Staff will also be responsible for evaluating the post-implementation success of safety treatments and periodically updating this Safety Action Plan to keep current with safety trends in the community.

Safety Analysis

The safety analysis uses historical data to identify key crash trends and the contributing factors that have led to fatal and serious injury crashes on a high-injury network. This analysis is based on 5 years of crash data covering the years 2019 to 2023. When combined with other geographic datasets, this information helps identify the types of infrastructure, behavior, and contexts that have the greatest impact on safety outcomes. The findings of the safety analyses informed the policy, infrastructure, and programming recommendations included in this plan.

Single vehicle crashes account for over 60 percent of FSI crashes in East Providence, significantly higher than other crash types. State roads have the highest number of motor vehicle FSI crashes (23) despite having only 38 miles of roadway compared to 170 miles of local roads.

Engagement and Collaboration

Stakeholder engagement and collaboration elevate the diverse perspectives and insights of members of the East Providence community, identify risks not apparent in the data, and build consensus for proposed solutions. Engagement began early in the planning process and continued at key junctures throughout the SAP development, actively involving stakeholders and the public as part of the decision-making process. The final plan includes recommendations informed by stakeholder feedback and the local context, which are critical for project implementation to take place.

Primary concerns from East Providence residents included excessive vehicle speeds and the need for better road design to support improvements for people walking and overall walkability. Many residents also requested more bicycle infrastructure and connectivity through the City. Given the current construction of both I-195 and Henderson Bridge, residents also shared complaints and issues around roadway congestion and confusion due to new roadway patterns; they recognized that, as construction comes to an end, some of these more specific concerns will be alleviated.

Equity Considerations

This plan recognizes that, nationally, people with low incomes, communities of color, people with limited vehicle access, people with limited English proficiency, people with disabilities, and others have historically been most impacted by traffic-related injuries. In East Providence, 25 percent of residents live in disadvantaged Census block groups as defined by the DOT Equitable Transportation Community (ETC) dataset. These areas bear a disproportionate safety burden, as 32 percent of the all modes high-injury network is located in these communities. Care should be taken to understand the impact changes to the transportation system in East Providence might have on these disadvantaged communities – both within East Providence and in other bordering cities and towns.

Policy and Process Changes

An action plan outlines the specific steps and strategies to address the safety challenges and goals in East Providence explored throughout this plan. Recommended policies and processes, as well as infrastructure-based projects, are articulated to meet the plan's goals and objectives, using a Safe System Approach.

Strategy and Project Selection

A basic screening system was developed to begin to focus the Safety Action Plan on a list of project locations informed by the Baseline Crash Analysis, risk analysis, and community feedback. The screening criteria prioritized locations with historical crashes, locations with elevated levels of future crash risk, and locations near schools, along RIPTA bus routes, or in historically disadvantaged communities. Based on the findings of this screening process, and feedback from community engagement and the core project team, project locations were developed and countermeasures suggested based on existing crash trends and future crash risks.

Progress and Transparency

East Providence is committed to transparently making steady progress toward implementing this Safety Action Plan. In addition to publishing the final Safety Action Plan online, the City is committed to tracking

key safety performance metrics, particularly to evaluate the post-implementation success of safety countermeasures. Led by East Providence’s City Planning and Economic Department staff, in partnership with other local safety champions, the City will continue to build the organizational capacity and identify all available funding sources to implement safety-related projects. When project complexity dictates longer implementation timelines, opportunities for shorter-term quick-build solutions will be explored.

Conclusion

By prioritizing analysis, engagement, and action planning, this adopted Safety Action Plan will assist East Providence in planning for City road projects, advocating for changes on RIDOT roads, incorporating safe systems thinking in all project developments, and creating competitive proposals for existing and future funding opportunities.

Summary of Recommended Projects

A summary list of projects developed and illustrated in this plan is added provided in Table 1.

Table 1. Summary of Recommended Projects

Project Number	Recommended Project Name	Countermeasure	Project Duration
1	South Broadway (Waterman/Taunton Avenue to Veterans Memorial Parkway)	Crosswalk visibility enhancements, curb extensions and bulbouts, landscape planting areas, median barriers, and protected bike lanes.	Short-term to Medium-term
2	Taunton Avenue (Valley Street to City border)	Crosswalk visibility enhancements, medians and pedestrian refuge islands, pedestrian crossing signs, curb extensions and bulb-outs, planting areas, and bike lanes.	Medium-term to Long-term
3	Waterman Avenue (North Broadway to Pawtucket Avenue)	Crosswalk markings, curb ramps, and pedestrian refuge island or curb extensions	Medium-term to Long-term
4	Pawtucket Avenue (Brightridge Avenue to Mountain Avenue)	Traffic calming measures, road diet, or other options like driveway consolidation	Short-term to Medium-term
5	Warren (Follett Street to Pawtucket Avenue)	Removal of on-street parking and installation of a center turn lane and/or landscaped median; crosswalks and curb extensions	Short-term to Medium-term
6	Wampanoag Trail (Pawtucket Avenue to East Shore Expressway)	Close slip-lanes, narrow vehicle lane widths, improve clarity of on/off ramps at Expressway, and install bike lanes.	Medium-term
7	North Broadway (Taunton/Waterman Avenue to Greenwood Avenue)	Intersection daylighting with curb extensions, reduced turn radii at intersections, recommended intersection redesign and/or closure of slip lanes, pedestrian crossing signs, and bike lanes.	Short-term to Medium-term
8	Intersection of Willett Avenue and Crescent View Avenue	Intersection redesign and elimination of slip lanes	Long-term
9	Bullocks Point Avenue (Crescent View Avenue to Adams Avenue)	High-viz crosswalks, completion of sidewalk gaps, and installation of curb extensions or bulb-outs with planted trees	Short-term to Medium-term
10	Warren Avenue (Valley Street to Ninth Street)	Curb extensions and added stop and signal controls at intersections with poor visibility. Installation of bike lanes.	Short-term

Project Number	Recommended Project Name	Countermeasure	Project Duration
11	Newport Avenue (Pawtucket Avenue to City border)	Road diet feasibility study, hi-viz crosswalks, slip lane removal, and pedestrian refuge island installation	Medium-term
12	Wampanoag Trail (Mink Street to Forbes Street)	Bus stop pull-offs, and intersection redesign with crossings and accommodations for people walking, rolling, or biking, or pedestrian/bicyclist bridge or tunnel	Medium-term to Long-term
13	Pawtucket Avenue (Bullocks Point Avenue to Wheeler Avenue)	Road diet feasibility study, hi-viz crosswalks	Medium-term
14	Intersection of Newman Avenue and Pawtucket Avenue	Tightening turning radii, medians, or slip lane removal	Short-term to Medium-term
15	Forbes Street (Wampanoag Trail to Willett Avenue)	Bike facilities	Short-term to Medium-term
16	Veterans Memorial Parkway (northern intersection with 1st Street to southern intersection with 2nd Street)	Crosswalks (potentially with flashing beacons) and intersection redesigns	Medium-term

Introduction

Meeting the Challenge

Through the U.S. Department of Transportation (DOT), the Safe Streets and Roads for All (SS4A) Program provides funding for communities to plan and implement improvements that will prevent injuries and save lives. In 2023, Rhode Island and 31 participating municipalities, including East Providence, were awarded SS4A funding to develop comprehensive Safety Action Plans (SAPs).

This SAP provides strategies to enhance roadway safety and prevent death and serious injuries for drivers, people walking or rolling, cyclists, and public transit users in East Providence. East Providence intends to use this SAP to inform local and RIDOT projects, and as a support when considering applying for implementation grants under the SS4A Program and other funding opportunities.

This SAP analyzes overall crash patterns utilizing a two-pronged approach: a baseline crash analysis (BCA) and a systemic safety analysis. The BCA identifies and assesses hot spots where crashes have occurred, and a systemic safety analysis (FHWA 2013) identifies common risk factors that contribute to crashes across the entire transportation network. This combined approach, based on recent crash history and systemic risk factors, allows East Providence to identify a High-Injury Network (HIN), and develop effective context-specific solutions. By integrating these two approaches, East Providence can effectively balance reactive measures that address historical crash locations with proactive measures to prevent crashes in similar contexts. This SAP is structured around the standard SS4A Action Plan Components (DOT 2022), listed below:

- Leadership Commitment and Goal Setting
- Planning Structure
- Safety Analysis
- Engagement and Collaboration
- Equity Considerations
- Policy and Process Changes
- Strategy and Project Selections
- Progress and Transparency

The SAP details actionable strategies that complement SS4A goals to eliminate fatal and serious injury crashes. It includes individual projects, safety countermeasure opportunities, and recommended policy changes to address safety and mobility challenges in an equitable and sustainable way.

Safe System Approach

The national transportation community has adopted a Safe System Approach to identify and reduce risks found in the transportation system (DOT 2025). This approach expands beyond traditional crash analysis to create a safety net of systemic strategies within six pillars that prevent potential crashes from having fatal or serious injury outcomes. All materials and project guidelines in this SAP are grounded in the principles of a Safe System Approach (Figure 1). A Safe System Approach acknowledges the inevitability of human error and proactively designs infrastructure to both reduce the likelihood of those mistakes occurring and minimize crash severity when a mistake does occur.



Source: DOT 2025

Figure 1. Safe System Approach Infographic

Principles of a Safe System Approach

Death and Serious Injuries are Unacceptable. The approach focuses on elimination of crashes that result in serious injury or death.

Humans Make Mistakes. People will unfortunately make mistakes or choices that lead to crashes of all types. This approach tries to anticipate the mistakes/choices that may be made to limit the number of serious crashes.

Humans Are Vulnerable. Human bodies have a threshold of injury during a crash before it results in death. It is of paramount importance to create a transportation system that accounts for human vulnerabilities in its design.

Responsibility is Shared. All stakeholders are vital to mitigating crash fatalities and injuries.

Safety is Proactive. Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards.

Redundancy is Crucial. Reducing risks requires that all aspects of transportation have an opportunity for improvement.

A Safe System Approach provides a framework for identifying and prioritizing projects. Therefore, East Providence focused this SAP on:

- Addressing the causes and context for fatal and serious injury crashes throughout the community,
- Prioritizing systemic change over individual behavioral change, and
- Prioritizing system-wide risk mitigation over the causes of individual crashes.

By integrating these factors into this SAP’s recommendations and priorities, East Providence will achieve a balance between reactive strategies that tackle issues leading to fatal and serious injury crashes and proactive strategies that address system risks before such crashes occur.

Municipal Background

The City of East Providence has an estimated population of 47,000 as of the 2020 Census. The city is run by a mayor and five elected members of the city council. The mayor serves as the chief executive officer. East Providence is located across the Seekonk River and east of Providence, Rhode Island. Other bordering towns include Pawtucket to the north and Seekonk, Massachusetts, to the east. East Providence blends residential neighborhoods with commercial corridors, industrial areas, and scenic waterfronts. It is proximate to the major city of Providence, but residents in East Providence are majority car-centric (2019 American Community Survey reported that approximately 85 percent of residents drive alone to work, 3 percent use transit, 1 percent walk, and less than 1 percent bike).

Recognizing the need for more balanced and safer transportation options, East Providence is actively developing a citywide Bicycle and Pedestrian Master Plan. This initiative, supported by the Rhode Island Division of Statewide Planning, aims to enhance multimodal connectivity by recommending the addition of bike lanes, crosswalks, sidewalks, bus shelters, and other safety improvements. While the city has not yet adopted a formal Complete Streets policy, these efforts reflect a commitment to creating more walkable and bike-friendly environments. In addition to East Providence's annual repair of state and local roads and sidewalks, these upcoming plans indicate the support for more transportation planning for all modes, aiming to reduce reliance on single-occupancy vehicles and promote safer, more accessible streets for all residents.

Project Timeline

East Providence's SAP was a one-year process, commencing in spring 2024, that included community input, safety analysis, policy discussions, and identification of priority locations and projects.

Throughout the project, the consultant team met regularly with staff at East Providence's Planning and Economic Development Department to coordinate the timeline and review findings and deliverables. Other municipal stakeholders were also engaged, with particular emphasis early in the process, to help shape the Action Plan approach and review analysis findings.

Safety is a Shared Commitment

The successful implementation of road safety projects in Rhode Island requires effective coordination between municipalities, RIPTA, and RIDOT, particularly where roadway networks span both local and state jurisdictions. While municipalities focus on local needs, RIDOT must balance these with broader systemwide improvements across the state. RIDOT is aligned with the SS4A Program in both its current participation in developing the parallel Statewide Safety Action Plan and its recent development of roadway safety plans that advance the SS4A underlying mission of Vision Zero.

Several key RIDOT plans establish the framework for project prioritization, selection, and funding:

- Strategic Highway Safety Plan (SHSP)
- Highway Safety Improvement Program (HSIP)
- Statewide Transportation Improvement Program (STIP)
- Bicycle Mobility Plan
- Rhode Island Vulnerable Road User (VRU) Safety Assessment

The VRU Safety Assessment outlines RIDOT's collaborative approach with municipalities.

“RIDOT works with municipalities to identify and mitigate crash issues on locally maintained roadways. RIDOT has developed a process for local agencies to request a safety improvement with the intent for local agencies to perform the ‘planning’ step from the HSIP process. RIDOT will then determine if the improvement is eligible for HSIP funds and distribute the funds needed to the local agencies so they can administer the construction of the improvements.”

In addition, the following language is included in the most recent SHSP:

“RIDOT is not eligible for (the SS4A) competitive grant program: however, RIDOT can support cities, towns, tribal government and the MPO which are eligible...The success of the SHSP is dependent on implementation at the local level. SS4A will fund a wide array of activities addressing the priority safety concerns in Rhode Island.”

RIDOT’s participation in the Statewide Safety Action Plan, as well as its acknowledgements in previous plans as noted above, show its commitment to work with municipalities to advance local and regional safety priorities across all roadway jurisdictions.

1. Leadership Commitment and Goal Setting

1.1 Safety Action Plan Goals

East Providence is committed to achieving significant reductions in roadway fatalities and serious injuries.

This Safety Action Plan reflects a shared commitment to creating a safer, more accessible transportation network for all road users. The primary goals of this SAP are to:

- Achieve zero roadway fatalities and serious injuries by 2045
- Reduce fatal and serious injury crashes by 75 percent by 2035
- Reduce fatal and serious injury crashes on roadways under the city’s jurisdiction by 50 percent by 2030

1.2 Related Community Goals

This plan recognizes that transportation safety is interconnected with East Providence’s broader priorities, such as mobility, accessibility, environmental resilience, and social equity.

Through background plans, stakeholder coordination, and public input, seven key goals emerged to guide this initiative as detailed in Table 2.

Table 2. Related Community Goals and Safe System Pillars

Goal	Safe Speeds	Safe Streets	Safe People	Post-Crash Care	Safe Vehicles
Goal #1: Reduce speeding and unsafe driver behavior	X	X	X	–	–
Goal #2: Enhance safety and accessibility for people walking	–	X	–	X	–
Goal #3: Create safer and more connected streets	–	X	–	–	–
Goal #4: Expand and improve multimodal options	X	X	–	–	–
Goal #5: Strengthen community engagement and equity in transportation safety	–	X	X	X	–

X = Yes
 – = No

Together, these goals create a framework for implementing safety improvements that reflect both community priorities and technical analysis. Each goal will be supported by measurable objectives that will guide policy changes, infrastructure projects, and safety planning strategies over the coming years.

1.3 Leadership Commitment

East Providence’s commitment to achieving safe roads for all roadway users is described in the resolution adopted by the City Council and corresponding letters of support for this SAP, which are each included in Appendix A.

2. Planning Structure

A SAP requires a methodical approach built on proven strategic planning principles. Every strategic plan, regardless of the goals, must address four fundamental questions:

- Where are we now?
- Where do we want to go?
- How do we get there?
- How do we measure our success?

These questions provide a logical progression from understanding current challenges through implementation and evaluation, ensuring a comprehensive approach to road safety improvements. To answer these questions, this SAP followed a structured process:

1. **Assessment and Data Collection:** Gather crash data and identify high-risk areas and trends
2. **Goal Setting and Prioritization:** Engage stakeholders and develop data-driven priorities
3. **Risk Assessment and Countermeasure Application:** Identify contributing factors and select evidence-based countermeasures
4. **Action Plan Development:** Include projects, priorities, implementation guidelines, and evaluation strategies to monitor progress

2.1 Implementation and Organizational Structure

Throughout the plan's development phase, the project team served as the primary advisory committee. The project team includes representatives from the City Planning and Economic Department, Engineering Division, and Police Department. This group provided essential perspectives through regular input sessions and offered critical review and feedback throughout the planning process.

Moving forward, the same project team will maintain responsibility for implementing the SAP's recommendations. This allows for continuity of oversight while establishing accountability for implementation. The implementation structure includes several key components.

First, the project team will serve as the central coordinating body, responsible for overseeing the execution of safety initiatives and maintaining alignment with the plan's objectives. They will facilitate communication between stakeholders and track progress across various projects and programs.

Second, the project team will monitor and evaluate outcomes after implementation through measures such as:

- Anecdotal field observations
- Speed studies
- Activity of people walking, rolling, or biking
- Crash data analysis

Additionally, the project team will maintain responsibility for periodic plan updates and adjustments based on implementation experiences and emerging safety needs. This adaptive management approach ensures the SAP can respond to changing conditions and new safety challenges as they arise.

This organizational structure provides clear lines of responsibility while maintaining the flexibility needed to address safety challenges across East Providence’s transportation network.

3. Safety Analysis

3.1 Analysis Overview

The safety analysis uses data to identify key crash patterns, trends, and contributing factors to fatal and serious injury crashes in East Providence. This analysis is based on 5 years of crash data (2019 to 2023) collected by law enforcement agencies using the State of Rhode Island Uniform Crash Report form. When coupled with roadway conditions and land use, this information identifies the types of infrastructure, behavior, and contexts that impact safety most. These insights inform the policy, infrastructure, and programming improvements described in Chapter 6.

The three safety analyses covered in this section include:

- **Baseline Crash Analysis (BCA):** The BCA describes recent crash trends, key crash types and factors, and overall patterns in fatal and serious injury crashes over the past 5 years.
- **High-Risk Network (HRN):** The HRN identifies locations at high risk for fatal and serious injury crashes based on a statewide systemic safety analysis. It highlights combinations of design features, land use contexts, equity metrics, and other factors linked to greater risk for future severe crashes. This especially supports the systemic implementation of low-cost safety treatments.
- **High Injury Network (HIN):** The HIN is a map that identifies the roads in East Providence with the highest concentration of fatal and serious injury crashes combined with the roads with the highest risk for future fatal and serious injury crashes.

Why focus on fatal and serious injury crashes?

A Safe System Approach recognizes that humans make mistakes on the roadway and prioritizes eliminating crashes that result in death and serious injuries. To support this goal, the safety analysis focuses on crash patterns and factors for fatal and serious injury crashes where possible. For people more vulnerable to injury in crashes (e.g., people walking or rolling, people bicycling), additional crash severities may be included to help reveal crash patterns.

Why look at 5 years of crash data?

Crashes can fluctuate naturally from year-to-year based on road conditions, community circumstances, and more. A 5-year study period effectively balances changes in safety over time while capturing overall trends. The result is a safety analysis that is comprehensive and supports long-term decision making.

The key findings of the safety analysis for East Providence are:

- While people who walk and bike are involved in only 2 percent of all crashes, they account for 30 percent of all fatal and serious injury crashes, showing a severe disproportion in crash severity for vulnerable users.
- East Providence ranks high for pedestrian safety issues - Third in fatalities and serious injuries and sixth in fatalities and all injuries among 40 Rhode Island communities for pedestrian crashes. The city was ninth in overall number of FSI crashes involving pedestrians.
- Pedestrian crashes have particularly high severity rates; 22 percent of crashes involving people walking resulted in a fatality or serious injury (5 fatalities and 12 serious injuries out of 78 total crashes).

- While state roads make up a small fraction of total road miles compared to local roads, they see a disproportionate number of motor vehicle crashes. However, more motorcycle, bicycle and pedestrian crashes occur on local roads.

3.2 Baseline Crash Analysis

The BCA summarizes historical crashes within East Providence and pinpoints the regional and local factors that contribute to the most frequent and severe crashes. It also identifies locations most affected by fatal and serious injury crashes.

The BCA answers questions like:

- How has crash frequency changed in recent years?
- How do crash patterns vary by road users' modes of travel?
- What types of behaviors and environmental factors are most prevalent among severe crashes?
- How do safety outcomes correlate with equity factors such as poverty or transportation access?
- What roadway and environmental attributes influence safety outcomes?
- Which roadways and areas had the highest concentration of severe crashes over recent years?

Key Safety Analysis Acronyms

KABCO: The severity of crashes is assigned based on the most severely injured person involved in the crash. Injuries are evaluated by law enforcement officers on a five-level KABCO scale, where:

K = Fatal Injury

A = Incapacitating (i.e., Serious) Injury

B = Non-Incapacitating Injury

C = Possible Injury

O = No Injury.

FSI: Fatal and Serious Injury. Refers to any crash that results in at least one person being fatally or seriously injured.

FI: Fatal and All Injury. Refers to any crash that results in at least one person being injured.

VRU: Vulnerable Road User. Non-motorists (i.e., people walking, rolling, riding bikes or scooters, but not those riding mopeds or motorcycles).

3.2.1 Baseline Crash Analysis Findings

Crash frequencies by severity using the KABCO scale are shown in Table 3. During the 5-year study period, a total of 7,893 crashes were reported in East Providence, with 63 crashes resulting in a fatal or serious injury (FSI) and 1,427 crashes involving at least one injury (FI). The number of crashes by mode and by year are shown in Table 3.

Table 3. Study Area Crashes by Severity and Mode (2019 to 2023)

Severity	Motor Vehicle		Motorcycle		Bicyclist		Pedestrian	
	#	%	#	%	#	%	#	%
K	12	0.2%	0	0.0%	0	0.0%	5	6.4%
A	26	0.3%	6	7.6%	2	3.2%	12	15.4%
B	108	1.4%	17	21.5%	16	25.8%	12	15.4%
C	1,114	14.5%	22	27.8%	32	51.6%	43	55.1%
O	6,414	83.6%	34	43.0%	12	19.4%	6	7.7%
FSI Total	38	0.5%	6	7.6%	2	3.2%	17	21.8%
FI Total	1,260	16.4%	45	57.0%	50	80.6%	72	92.3%
Grand Total	7,674	100%	79	100%	62	100%	78	100%

Crashes impacted all roadway users in East Providence, with less than 1 percent of all crashes including people walking. Of the crashes involving people walking, over 21 percent resulted in a fatality or serious injury (Figure 2).

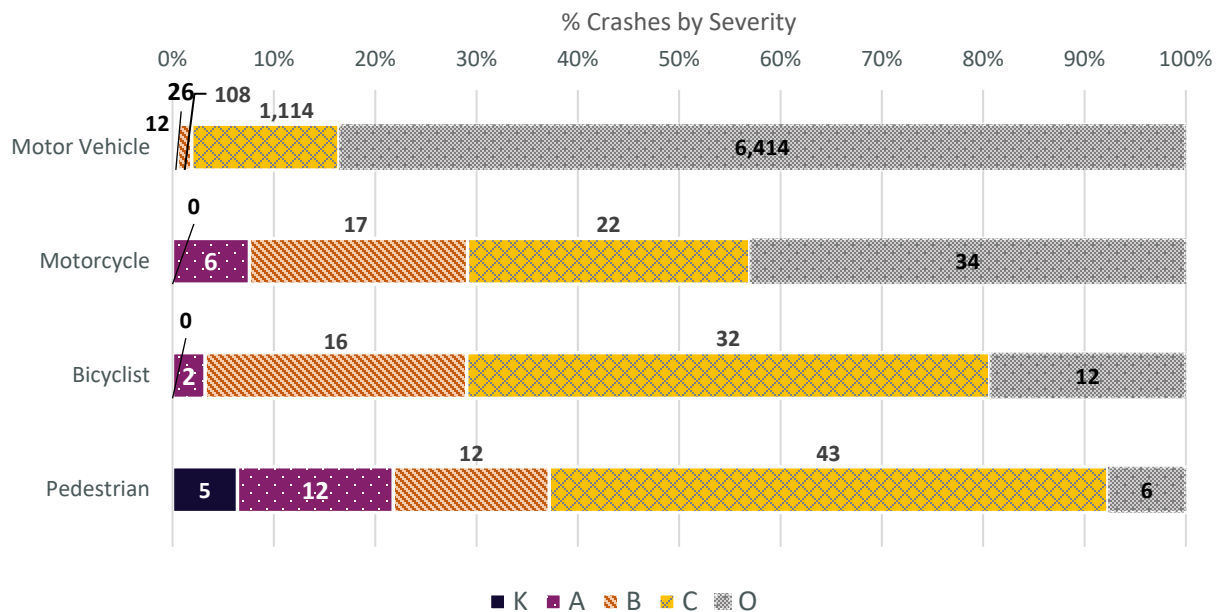


Figure 2. Crash Severity Share by Mode (2019 to 2023)

When normalized for population and compared to statewide rates, East Providence’s crash rates for people walking (both FSI and FI) rank high among other municipalities in the state. East Providence has the third highest FSI crash rate in the state after Providence and Smithfield and the sixth highest FI crash rate.

Table 4. Crashes per 10,000 Residents Compared to Statewide Average Crashes per 10,000 Residents by Mode (2019 to 2023)

Municipality	Motor Vehicle Crash Rate		Motorcycle Crash Rate		Bicycle Crash Rate		Pedestrian Crash Rate		All Modes Crash Rate	
	FSI	FI	FSI	FI	FSI	FI	FSI	FI	FSI	FI
East Providence	8.11	268.8	1.28	9.6	0.43	10.7	3.6	15.4	13.4	304.4
Statewide	9.5	279.4	3.3	12.9	0.5	7.6	2.5	16.5	15.8	316.4
Municipal Rank	27	11	33	27	18	7	3	6	27	11

Across the 5-year study period, FSI crashes for all modes have been fairly constant, while FSI crashes of vulnerable road users varied, with years 2019 and 2022 seeing the highest number of crashes (eight and six, respectively) (Figure 3).

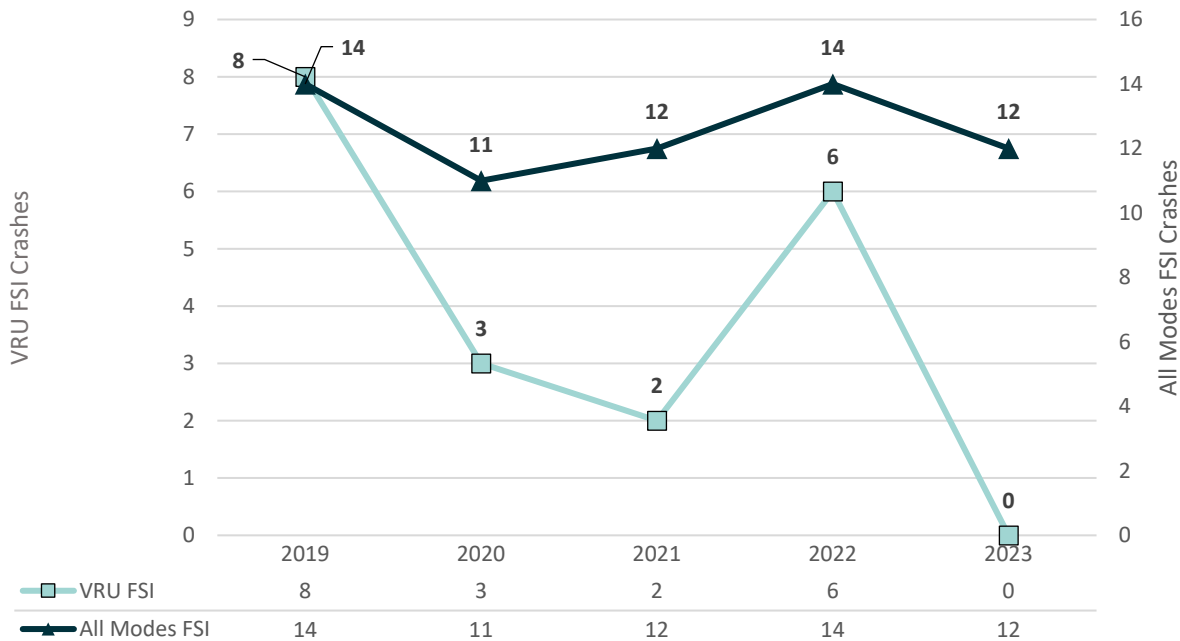


Figure 3. Study Area FSI Crashes by Year by Mode Category (2019 to 2023)

State roads have the highest number of motor vehicle FSI crashes (23) despite having only 38 miles of roadway compared to 170 miles of local roads. Local roads see the highest number of FSI crashes for people walking (8) and biking (2), suggesting different risk patterns for vulnerable users on local roadways. Interstate highways show relatively few FSI crashes (3 motor vehicle, 1 person walking) despite high traffic volumes (Figure 4).

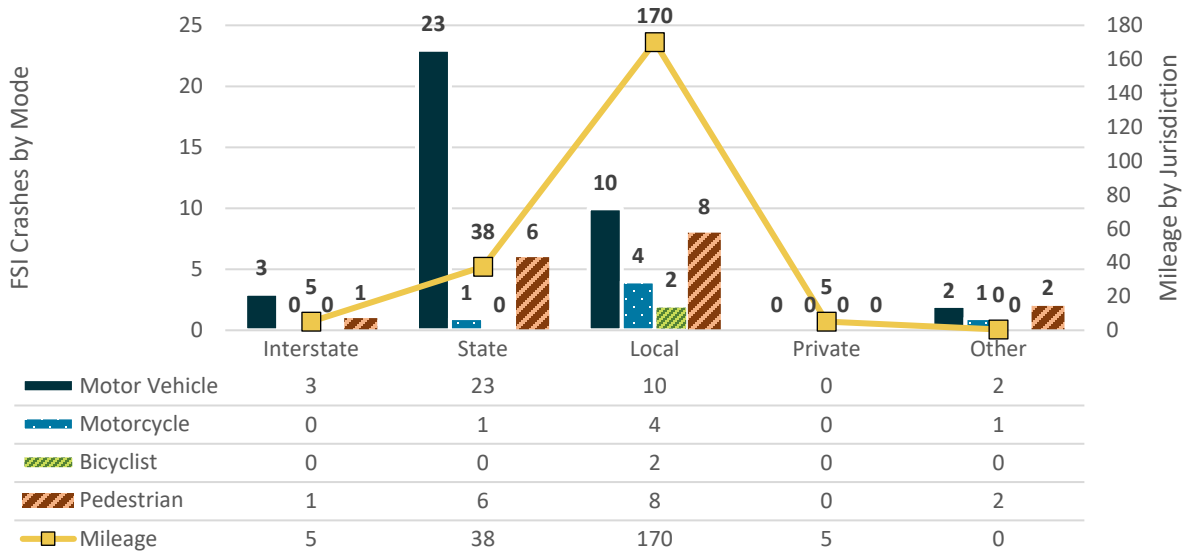


Figure 4. FSI Crashes by Mode by Roadway Jurisdiction (2019 to 2023)

Beyond the location and types of roadway users involved, understanding the manner of collision and contributing factors for a crash inform what safety solutions may prevent similar crashes from occurring in the future. Single vehicle crashes account for 65 percent of FSI crashes, significantly higher than other crash types. Angle and rear-end collisions are the next most common types for FSI crashes, though at much lower rates (around 15 percent and 8 percent, respectively) (Figure 5). Operating under the influence and unrestrained drivers show notably higher severity rates compared to other contributing factors (Figure 6).

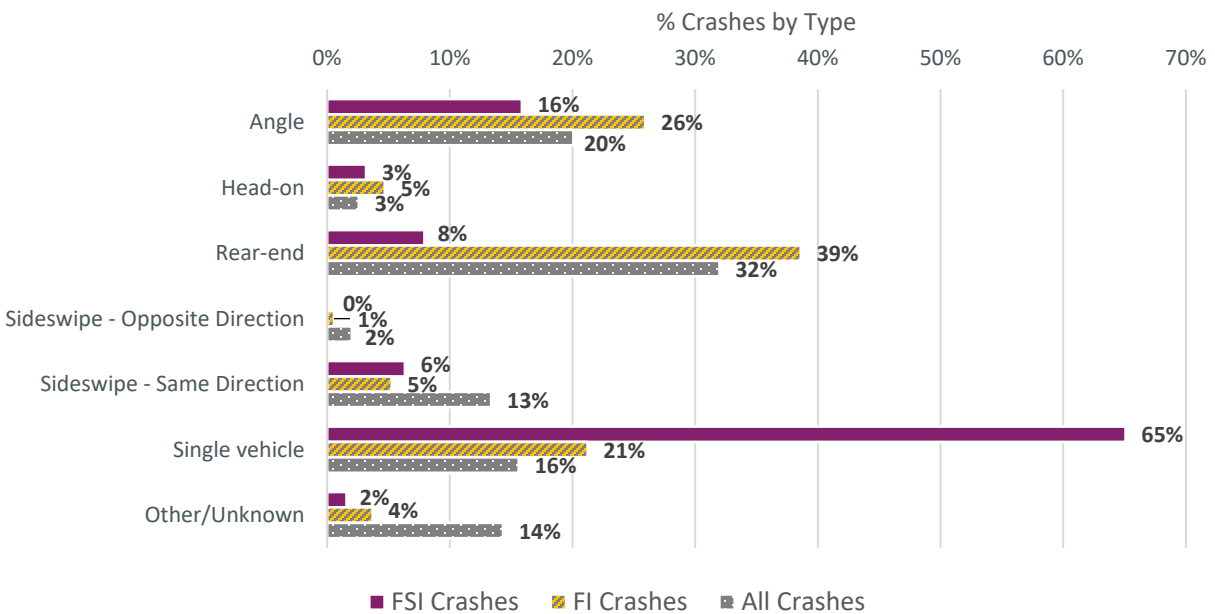


Figure 5. Manner of Collision by Crash Severity Level (2019 to 2023)

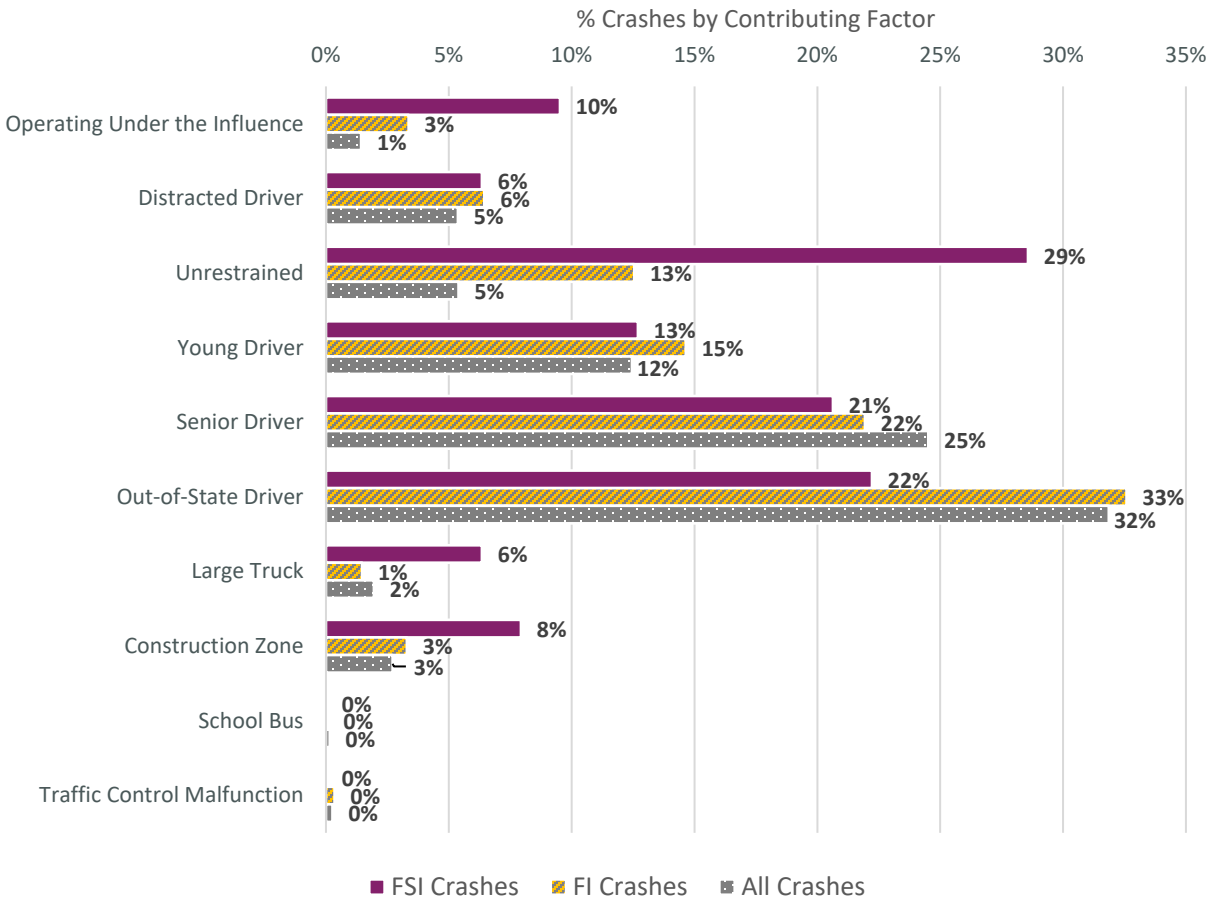


Figure 6. Crashes by Contributing Factor and Severity Level (2019 to 2023)

While daylight conditions account for most FSI crashes across all modes, crashes involving people walking show a notably higher proportion in dark conditions (8 daylight versus 8 dark conditions combined). Dark-lit conditions (like areas with street lighting) account for more crashes than dark-unlit areas, particularly for people driving (14 versus 0) and walking (6 versus 2). This may indicate that street lighting alone may not be sufficient to prevent serious crashes (Figure 7).

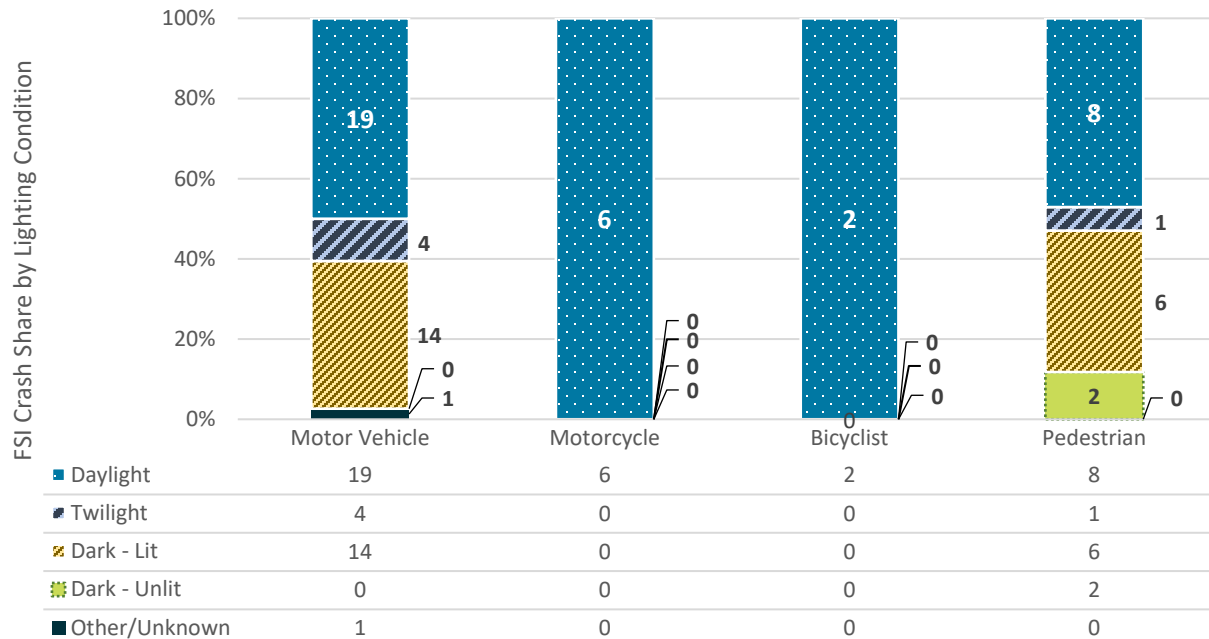


Figure 7. FSI Crash Share by Lighting Condition (2019 to 2023)

Each crash is more than a statistic; they represent a real-life impact for the individuals involved and the East Providence community. Males are overrepresented in FSI crashes, accounting for 81 percent of all FSI injuries (Figure 8). Young adults aged 25 to 34 have the highest number of FSI injuries (15), followed by those aged 55 to 64 (11). Age groups 15 to 24 and 25 to 34 show disproportionately high FSI rates relative to their population size (Figure 9).

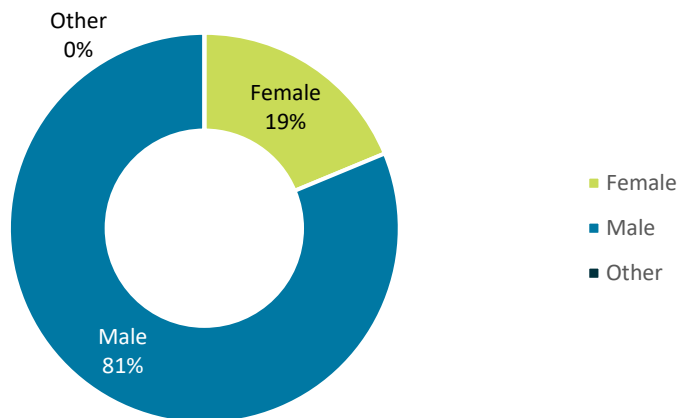


Figure 8. FSI Crashes by Gender, All Users (2019 to 2023)

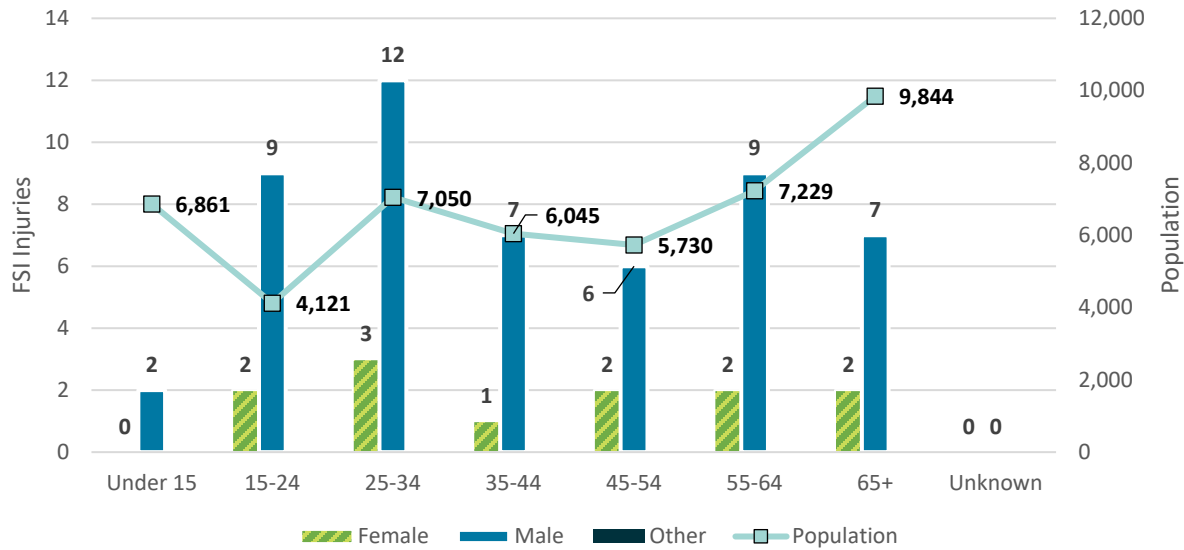


Figure 9. FSI Crashes by Age Group and Gender (2019 to 2023)

The locations with the highest incidence of historical crashes in East Providence were identified and are shown in the heatmaps on Figure 10 through Figure 13. An emphasis was placed on roadways with historical FSI crashes.

RIPTA Safe Streets and Roads for All FSI ALL MODES CRASH HEATMAP - EAST PROVIDENCE

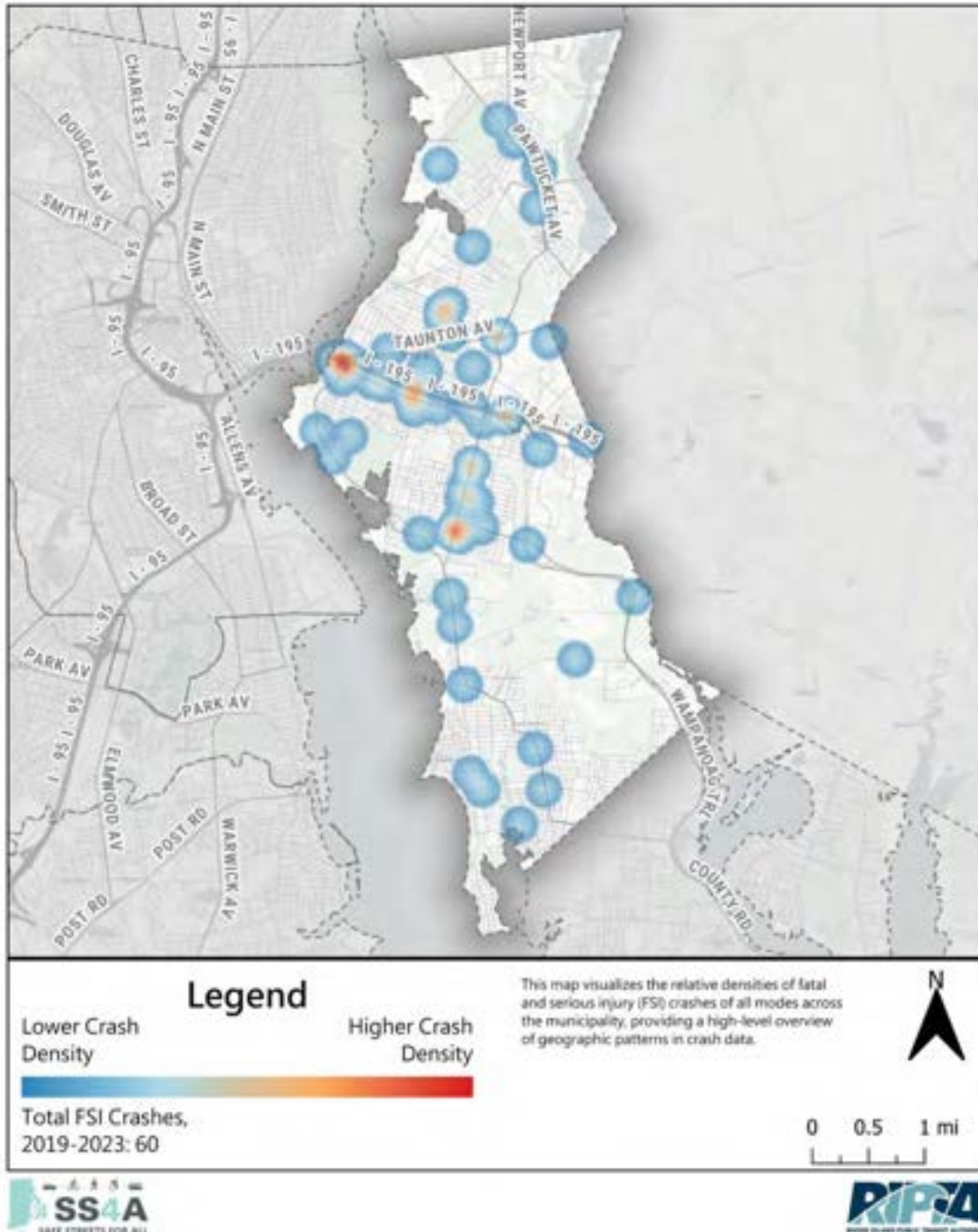


Figure 10. FSI All Modes Crash Heatmap (2019 to 2023)

RIPTA Safe Streets and Roads for All FI ALL MODES CRASH HEATMAP - EAST PROVIDENCE

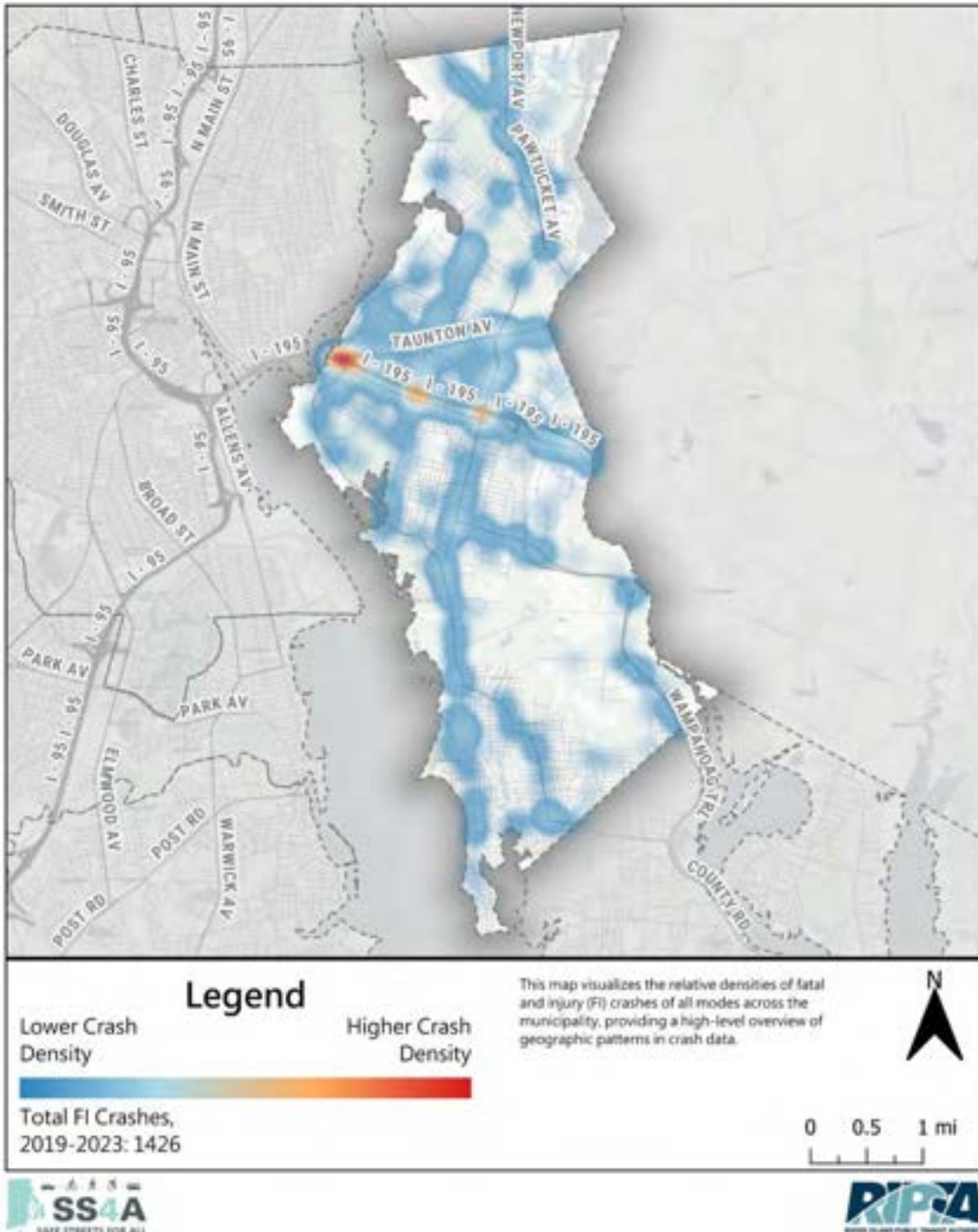


Figure 11. FI All Modes Crash Heatmap (2019 to 2023)

RIPTA Safe Streets and Roads for All VRU FSI CRASH HEATMAP - EAST PROVIDENCE

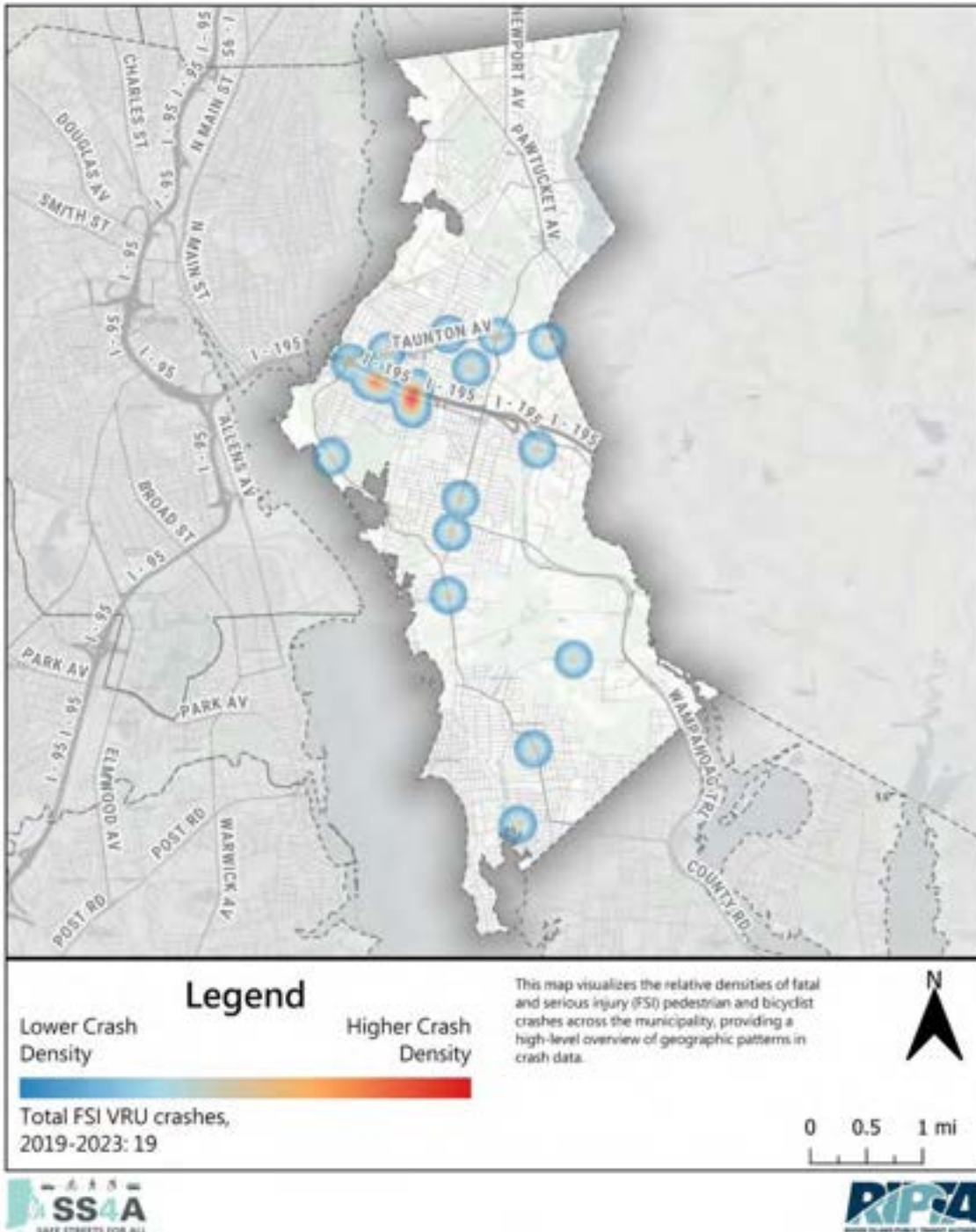


Figure 12. VRU FSI Crash Heatmap (2019 to 2023)

RIPTA Safe Streets and Roads for All VRU FI CRASH HEATMAP - EAST PROVIDENCE

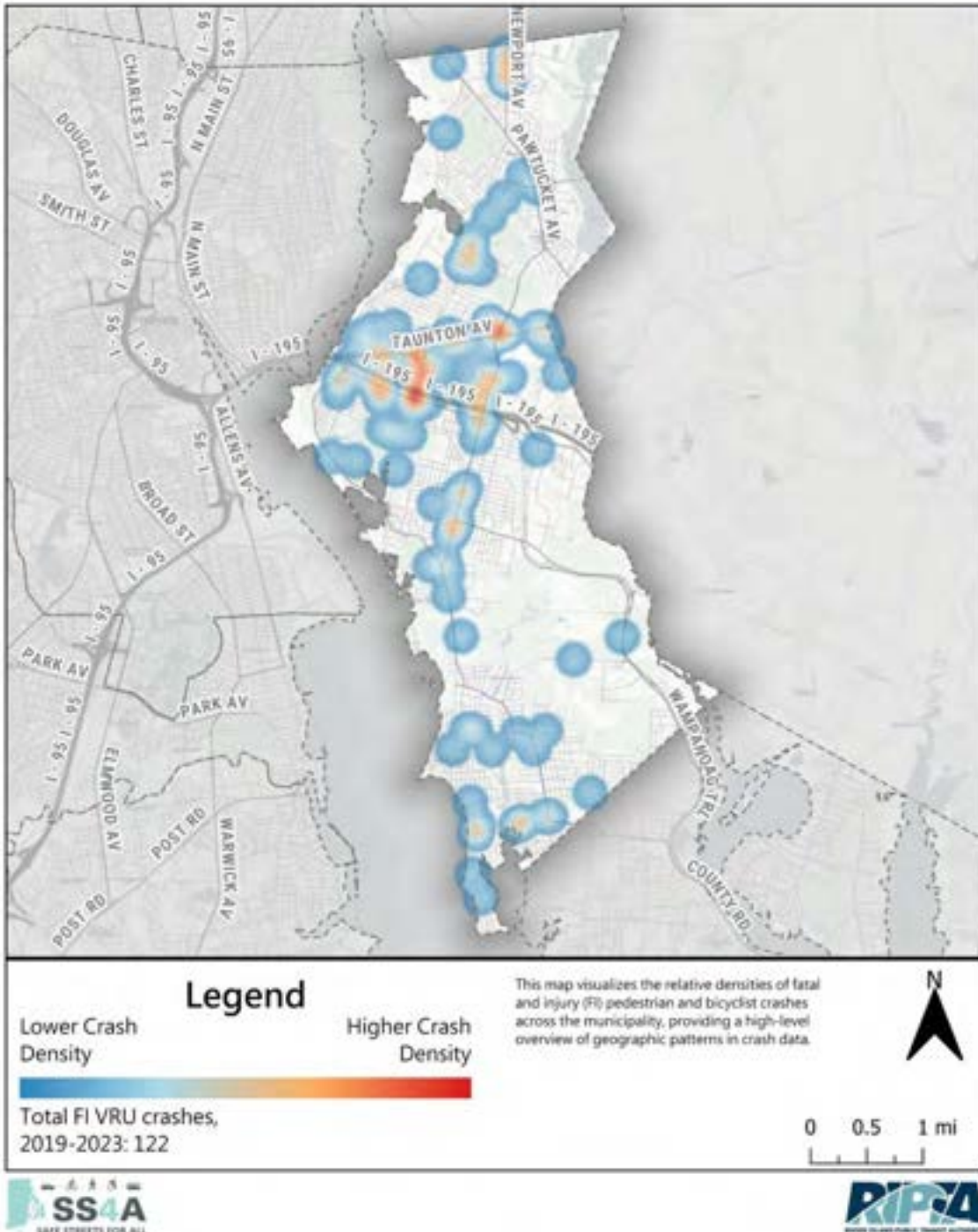


Figure 13. VRU FI Crash Heatmap (2019 to 2023)

3.3 High-Risk Network

While the BCA is critical in determining the frequency and types of crashes that occurred in East Providence, that analysis offers a reactive view of roadway safety. By contrast, a High-Risk Network (HRN) promotes opportunities to proactively improve traffic safety by identifying the types of roads and land use contexts that correlate with more severe crashes.

East Providence’s HRN is informed by a statewide analysis of the context in which FSI crashes occurred. Identifying these statewide risk factors helps to highlight where crashes may be expected in the future, even if recent crashes have not occurred.

Table 5 illustrates the common risk factors considered in assessing risk for future crashes. These factors include roadway characteristics, land use trends, and demographic data. Separate analyses were conducted for urban, suburban, and rural areas to understand risk factors impacting all roadway users and those specifically impacting people walking, rolling, or biking (VRU modes). VRU modes were not modeled for rural areas due to a small sample size of crashes.

For each land use context and mode, risk models distinguish between relatively high and low risk roadways, assigning each segment a risk tier of Critical, High, Medium, Low, or Minimal. Higher risk tiers reflect a greater average risk for future crashes on that road.

Table 5. Evaluated Risk Factors

Screening Factor	Description
Roadway Jurisdiction	State, Local, or Other (Unknown or Private)
Lane Configuration	Two-lane, Multilane
Traffic Volume Range (Average Annual Daily Traffic)	0 – 1,000, 1,000 – 10,000, 10,000+
Proximity to a School	Within ¼ Mile, Not Within ¼ Mile
Proximity to a Public Park	Within ¼ Mile, Not Within ¼ Mile
Percentage of Population with Income Below 2x of the Poverty Level	Under 20%, 20-40%, Over 40%
Percentage of Households with Zero Vehicles	Below 10%, 10-20%, Over 20%
Percentage of Population Aged 65 or Older	Below 10%, 10-20%, Over 20%
Percentage of Population Aged Below 18	Below 10%, 10-20%, Over 20%

3.3.1 Analysis Findings

Several key risk factors identified statewide, broken out by mode and land use context, are shown in Table 6 and Table 7, listed in order of importance in evaluating risk. Each roadway in East Providence was then evaluated against these risk factors. The results of this facility profile analysis is shown in Table 8 and Table 9, which outlines the share of East Providence’s roadways that are considered critical, high, medium, low, or minimal crash risk. For all roadway users, about 22 percent of the city’s roadways were considered to have a heightened level of risk (meaning the road segments’ evaluation showed a critical, high, or medium risk), while for VRU users (people walking, rolling, or biking), close to 24 percent of roads have a heightened level of risk.

Table 6. Statewide All Modes Risk Factors by Adjacent Land Use Context

Urban	Suburban	Rural
<ul style="list-style-type: none"> Traffic Volume Range (AADT) % Zero Vehicle Households Roadway Jurisdiction % Population Below 2x Poverty Level Within 1/4 Mile of School 	<ul style="list-style-type: none"> Roadway Jurisdiction Traffic Volume Range (AADT) Within 1/4 Mile of School Lane Configuration % Zero Vehicle Households % Population Below 18 	<ul style="list-style-type: none"> Traffic Volume Range (AADT) Roadway Jurisdiction % Population Below 2x Poverty Level

Table 7. Statewide Vulnerable Modes Risk Factors by Adjacent Land Use Context

Urban	Suburban
<ul style="list-style-type: none"> % Zero Vehicle Households Traffic Volume Range (AADT) % Population Below 18 Within 1/4 Mile of School % Population Below 2x Poverty Level Within 1/4 Mile of Public Park 	<ul style="list-style-type: none"> Traffic Volume Range (AADT) % Zero Vehicle Households Within 1/4 Mile of School Roadway Jurisdiction Within 1/4 Mile of Public Park % Population Below 18 % Population Below 2x Poverty Level

Table 8. Facility Profile Analysis Results for East Providence (All Modes)

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	36.47	3.8	139.4	1.8%	5.0%
High	27.95	28.3	790.1	13.5%	28.1%
Medium	28.78	14.0	404.2	6.7%	14.4%
Low	18.04	42.4	764.7	20.2%	27.2%
Minimal	5.86	121.0	709.7	57.8%	25.3%

Table 9. Facility Profile Analysis Results for East Providence (VRU Modes)

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	2.98	3.7	11.0	1.8%	3.3%
High	3.50	15.5	54.4	7.5%	16.4%
Medium	1.86	24.6	45.6	11.9%	13.7%
Low	1.95	71.3	139.4	34.6%	42.0%
Minimal	0.89	91.2	81.6	44.2%	24.6%

By identifying roadways featuring these risk factors, East Providence will be better equipped to implement context-appropriate solutions. The HRN is especially valuable in communities like East Providence that have infrequent severe crashes or crashes that do not concentrate in specific locations. The HRN is also useful when studying crashes involving people walking, rolling, or riding bicycles and in more rural areas with less vehicle traffic. This is because the HRN analysis isolates areas with a high risk for crashes due to their underlying risk factors as opposed to crash volumes. Both the BCA and the HRN are important tools and can influence the overall strategy for choosing priorities and making investments.

3.4 High-Injury Network

The final component of the safety analysis is the creation of the High-Injury Network (HIN), which evaluates roadways based on the findings of both the BCA and the HRN analysis. By combining these two analyses into one final network, the HIN communicates a holistic assessment of the need for intervention, based on both a reactive, crash-based scoring system, and a proactive, risk-based scoring system. Each roadway segment falls into one of three categories:

- **Reactive:** Segments that appear on the BCA maps, based on a top 15 percent crash score for the given mode and land use context in East Providence.
- **Proactive:** Segments that appear in the top risk tiers in East Providence.
- **Reactive and Proactive:** Segments that satisfy both the reactive and proactive categories.

The HIN is a powerful tool that identifies the road segments with the highest concentration of the most severe crashes in each community as well as locations with heightened risk for these crashes in the future. Locations highlighted on the HIN can help guide targeted safety investments and improve safety outcomes by identifying locations with the greatest potential benefits from safety improvements.

For East Providence, two separate HINs were created, one that encompasses historical crash hotspots and future crash risk for all roadway users, and another that evaluates historical crash hotspots and future crash risk only for people walking, rolling, and biking. Each respective HIN map includes each of the three categories above. A combined map, which visualizes roads that fall within the HIN for either or both mode groups, was also created.

3.4.1 High-Injury Network Maps

The HIN segments, identified in the maps in Figure 14 through Figure 16, represent the roadways in East Providence with the highest historical concentrations of the most severe crashes or with the highest risk for future crashes. Key roadways on East Providence's All Modes HIN include North and South Broadway, Veterans Memorial Parkway, Warren Avenue, Wampanoag Trail, Pawtucket Avenue (north of Wampanoag Trail), Newport Avenue, Massasoit Avenue, Waterman Avenue, and Taunton Avenue. The VRU-specific HIN network includes most of the streets already on the All Modes network, with the addition of all of Forbes Street and Crescent View Avenue.

3.4.2 Analysis Findings

The All Modes HIN represents 54 miles (25 percent) of roadways, capturing 58 FSI (92 percent of total) and 1,199 FI (84 percent of total) crashes. The VRU Modes HIN represents 38 miles (17 percent) of roadways, capturing 17 FSI (89 percent of total) and 91 FI (75 percent of total) crashes involving people walking, rolling, or biking.

3.5 Summary

Each analytical tool presented in this chapter helps define the existing crash trends and future crash risks in East Providence. The findings from the crash analysis directly informed the plan's goals, recommendations, and selection of project locations and countermeasures.

RIPTA Safe Streets and Roads for All HIGH INJURY NETWORK MAP ALL MODES - EAST PROVIDENCE

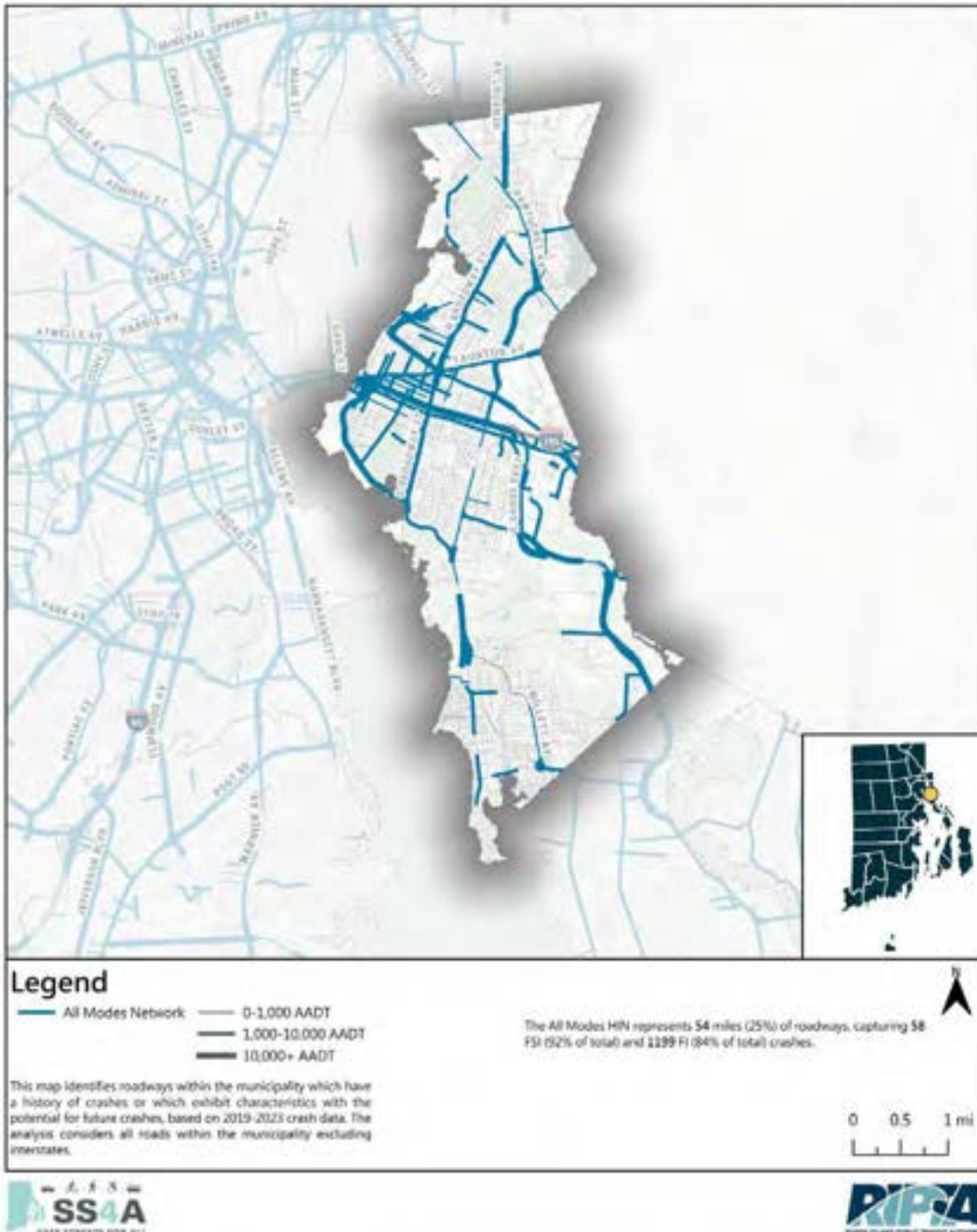


Figure 14. High-Injury Network Map – All Modes

RIPTA Safe Streets and Roads for All HIGH INJURY NETWORK MAP VRU MODES - EAST PROVIDENCE

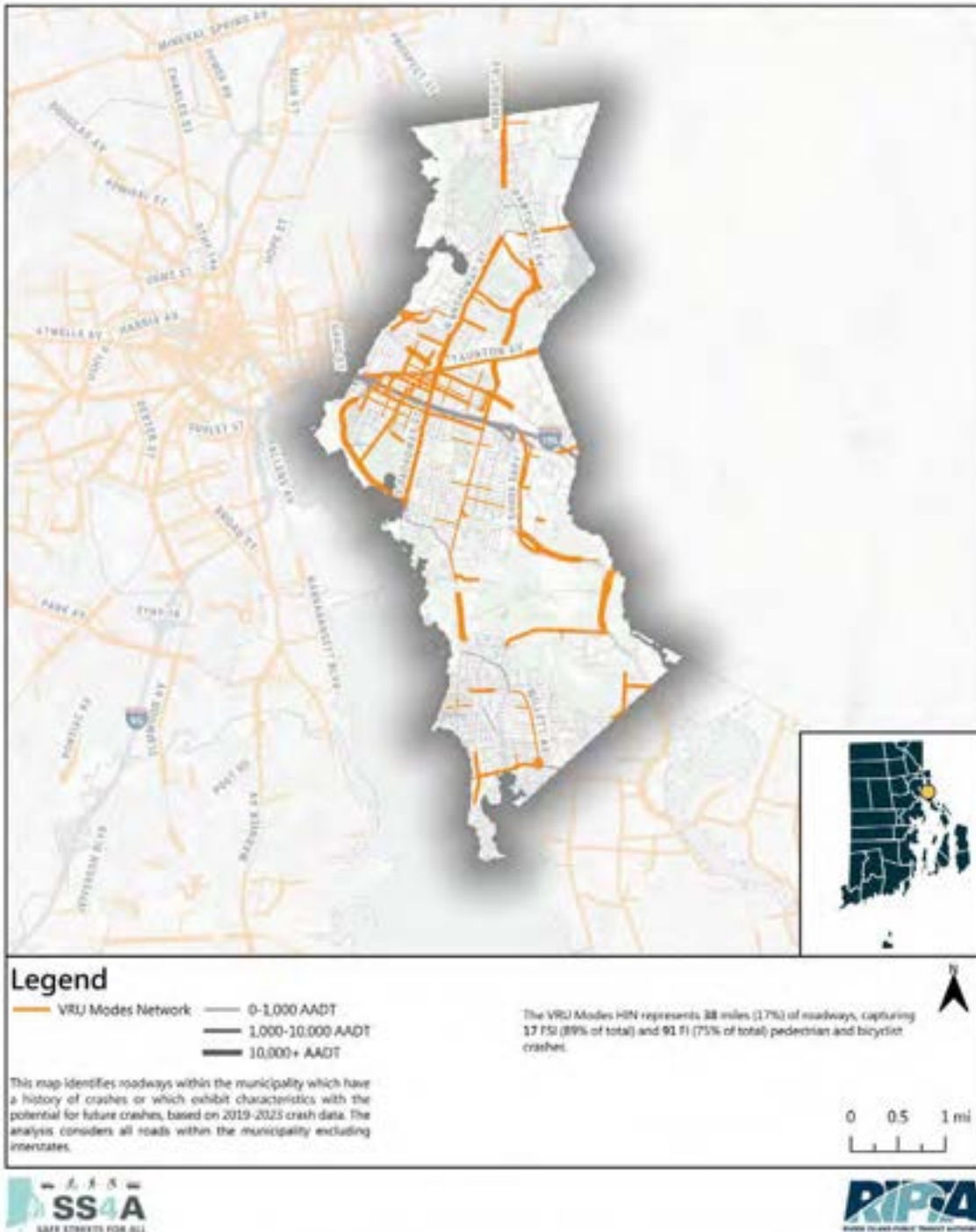


Figure 15. High-Injury Network Map –VRU Modes

RIPTA Safe Streets and Roads for All HIGH INJURY NETWORK MAP - EAST PROVIDENCE

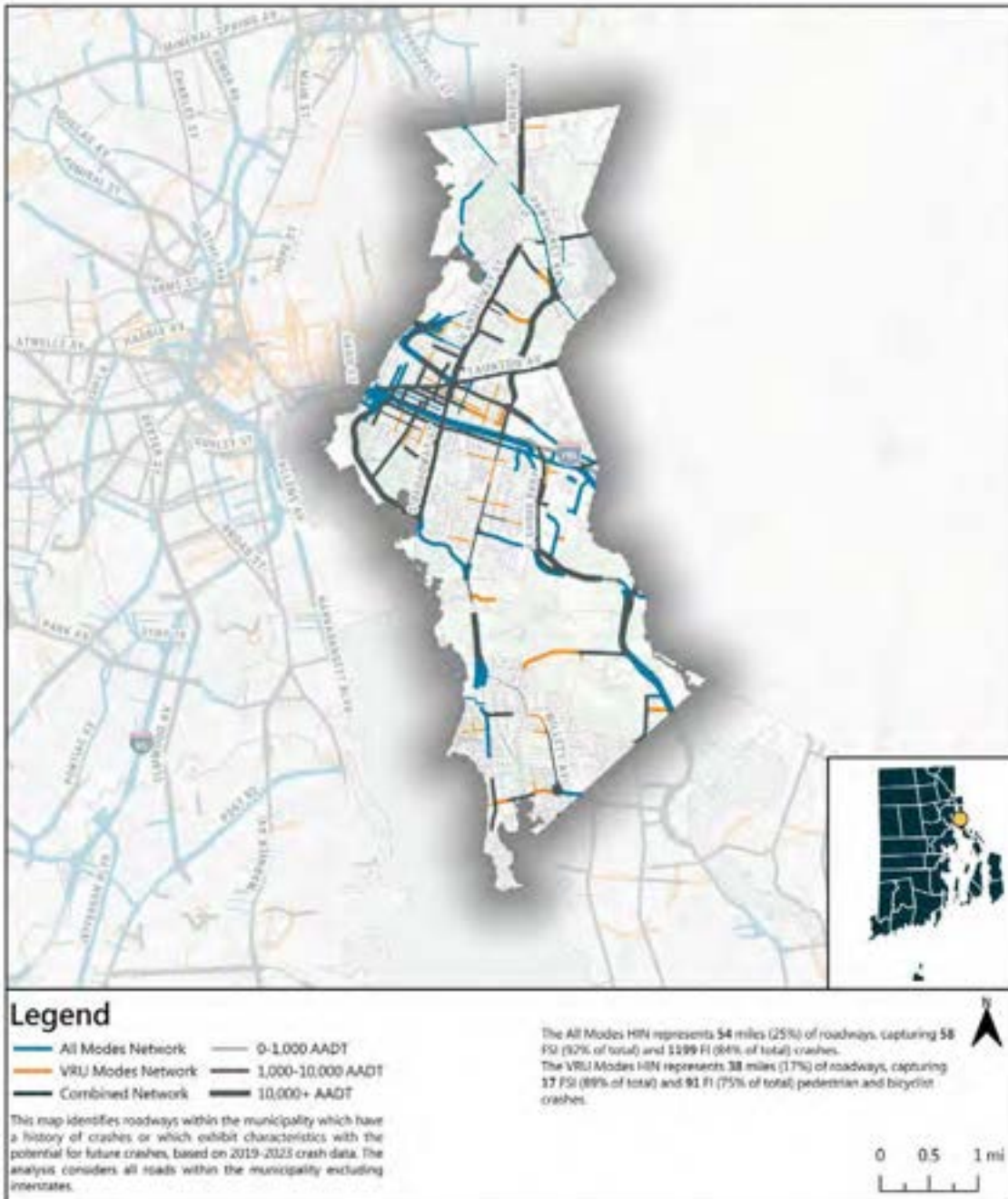


Figure 16. High-Injury Network Map – Combined All Modes and VRU Modes

4. Engagement and Collaboration

The SAP relied heavily on stakeholder and public engagement to uplift the perspectives and insights of the East Providence community and inform this plan’s analysis and recommendations. The engagement strategy focused on gathering input from the general community and with key community stakeholders to identify prioritized needs and concerns and to build support for potential solutions.

Through a combination of stakeholder meetings, pop-up events, online and paper surveys, online mapping, and strategic outreach activities, we collected valuable feedback helped shape the plan’s analysis, priorities, and recommendations. This engagement approach allows the SAP to address both data-driven safety concerns and community-identified priorities.

4.1 Stakeholder Engagement

4.1.1 Stakeholder Identification

The consultant team worked with City of East Providence staff to establish a network of key stakeholders to inform the project. These stakeholders represented various organizations and groups that deal with roadway safety in varying capacities.

The stakeholders were divided into several categories that dictated their level of involvement in the plan and its development.

- **Working Group:** These stakeholders met regularly with the consultant team to stay updated on the project’s progress. Working group members met for project team meetings, which were scheduled on a bi-weekly basis. These partners will also be critical to project implementation.
- **Key Stakeholder:** These stakeholders were interviewed in one-on-one meetings and, where relevant, invited to join project team meetings during key points of the SAP development, where new data, findings, or recommendations were discussed. Key stakeholders may be involved in discrete actions to help implement plan recommendations.
- **Stakeholder:** Stakeholders were kept up to date with project information through the Town staff. These stakeholders have connections with the community, and as the plan moves into implementation, they can be brought in as partners in implementation or future steps of engagement and communication.

Table 10. Stakeholder Contact Information

Name	Organization	Type of Involvement
Keith Brynes, Director	City of East Providence, Planning and Economic Development	Working Group Member
James Moran (Jim), Chief Economic Planner	City of East Providence, Planning and Economic Development	Working Group Member
Erik Skadberg, City Engineer	City of East Providence, Engineering Division	Working Group Member
Mark Cadoret, Patrol Commander	East Providence Police Department	Working Group Member
Mayor Roberto DaSilva	East Providence Mayor	Key Stakeholder
Robert P. Rodericks, President At-Large	East Providence City Council	Key Stakeholder / Stakeholder
Frank Rego, Vice President	East Providence Ward 1 City Council	Key Stakeholder / Stakeholder

Name	Organization	Type of Involvement
Anna M. Sousa, City Council Member	East Providence Ward 2 City Council	Key Stakeholder / Stakeholder
Frank Fogarty, City Council Member	East Providence Ward 3 City Council	Key Stakeholder / Stakeholder
Rick Lawson, City Council Member	East Providence Ward 4 City Council	Key Stakeholder / Stakeholder
Captain John H. Potvin, Director of Emergency Medical Services	East Providence Fire Department	Key Stakeholder
Laura Jones, Director	East Providence Senior Center	Key Stakeholder
Stacey Messier, Project Coordinator	School District, Project AWARE	Key Stakeholder
Alyssa Gleason, Director	East Providence Health Equity Zone (HEZ)	Key Stakeholder
Michelle Perry, Librarian	East Providence Weaver Library	Stakeholder

4.1.2 Working Group Meetings

Team meetings with the working group took place regularly to discuss ongoing projects, challenges, and gather informed feedback related to the SAP. These discussions focused on identifying key areas of concern, potential safety improvements, and community priorities. This input helped shape the plan’s direction and recommendations.

4.1.3 Stakeholder Meetings

Stakeholder meetings were conducted with key stakeholders to gather input for the SAP. These meetings took place virtually.

- East Providence Weaver Library Coordination Meeting, July 3, 2024
- East Providence Senior Center Director Meeting, July 12, 2024
- East Providence School District Project AWARE Director Meeting, July 15, 2024
- East Providence HEZ Director Meeting, October 18, 2024
- Meeting with Mayor, October 23, 2024
- City Council Member Meeting, November 22, 2024

4.1.4 Key Stakeholder Feedback

Stakeholder meetings shed light on various safety issues occurring in East Providence. Stakeholders identified several corridors they perceived as having frequent crashes or incidents:

- **Taunton Avenue:** High pedestrian traffic area with frequent crashes, especially involving seniors crossing the street.
- **Pawtucket Avenue and Waterman Avenue Intersection:** Common area for crashes and a major concern for the Senior Center.
- **Wampanoag Trail:** Largest corridor for crashes due to it being a high-speed road.
- **Henderson Bridge Rotary:** Spike in crashes this year due to ongoing construction and lane restrictions.

Stakeholders raised speeding as a major issue, as well as the need for stronger enforcement of speed limits:

- There are widespread speeding issues throughout the city, especially on residential streets.
- Cautiously interested in expanding the use of speed cameras beyond school zones to keep speeds at the speed limit.
- Community is curious to find data that will support the effectiveness of increased enforcement.

Stakeholders said that pedestrian infrastructure improvements were needed to support people walking; specifically:

- Concerns about lack of crosswalks
- Concerns about drivers not yielding to people walking
- Need for better street design measures to slow traffic
- Desire for improved lighting, especially on state-owned roads

Stakeholders requested continued outreach and coordination with vulnerable user groups, such as senior adults and students, to increase road safety awareness and support these groups; specifically:

- The senior population often relies on transportation assistance because they try to avoid driving. Seniors have more limited mobility, but senior adults who walk have been involved in several crashes near the Taunton Avenue and Waterman Avenue intersection. Safer accommodations and greater transportation options are needed for this group.
- Interest in greater collaboration with the school district and community organizations like East Bay Community Action to reach families and students

4.2 Public Engagement

4.2.1 Engagement Methods

Community engagement focused on introducing the SAP and listening to learn about the community's goals, needs, concerns, and priorities for the plan. The primary goals of the engagement were to build trust between the municipality and residents, boost information sharing, and support community-building. Efforts included both virtual and in-person outreach activities.

East Providence employed various methods to engage the public, including:

An online statewide website and community survey. The website included information on all 32 municipalities involved in the SS4A project. An online survey was also hosted on the project website and was open between June 21, 2024, and October 18, 2024. Survey questions were organized into three main categories:

- Respondents' Roles with the Community
- Demographics and Travel Patterns
- Existing Safety Condition and Needs

The survey was made available in nine languages: Spanish; Portuguese; Haitian Creole; Chinese (Cantonese and Mandarin); Khmer; French; Italian; Lao; and Arabic and was broadly distributed across the City of East Providence's website, social media accounts, and local newsletters. In addition, QR code links to the online survey were distributed at in-person events on flyers and business cards. The online survey collected respondents' zip code, which enabled the team to track the number of respondents per community.

Community-oriented pop-up events hosted in publicly accessible locations where residents, visitors, and employees congregated naturally to take advantage of attendance.

At each stop, the team offered a poster and take-away business cards with a QR code that linked to the community survey and presented a set of interactive poster boards with key questions for the community.

In East Providence, these boards solicited feedback from participants about street safety concerns and priorities. A large-scale map of the town was used so that participants could indicate where they had concerns or wanted improvements on their roads.

Pop-up events occurred at the locations listed below. The engagement teams talked to an estimated 80 community members during these events.

- Senior Center Focus Group: August 19, 2024, from 10:45 AM to 11:45 AM
- Weaver Library Pop-Up: August 19, 2024, from 4 PM to 7 PM
- Riverside Square Bike Path and Crescent Park Pop-up: August 20, 2024, from 3 PM to 6 PM
- Weaver Library Block Party: August 26, 2024, from 5 PM to 7 PM



Figure 17. Tabling Activity at the Weaver Library Block Party

Flyer distribution to promote the community survey and SS4A website at the following locations:

- Borealis
- Seven Stars
- Riverside Library
- Bike Path board by Warren Avenue
- Café Zara
- City Hall
- Weaver Library

4.2.2 Survey Results Overview

A survey was developed to solicit input from the public during the public engagement process. Although most respondents filled out the survey online, paper copies were made available to community members at the East Providence Senior Center and upon request at other pop-up events. The survey included questions about travel patterns, important destinations in the community, safety concerns, and infrastructure improvement strategies. An open-ended section allowed respondents to provide thoughts, comments, or questions about the SAP.

In total, 135 responses were collected from people that identified as part of the East Providence community. Almost all of those respondents (130 out of 135) were East Providence residents (remaining respondents were municipal employees, students, or other). Key findings from these survey responses are discussed below.

4.2.3 Respondent Characteristics and Travel Patterns

Most respondents (89 percent) felt that roadway safety is an important issue in Rhode Island. Additionally, 72 percent of respondents ranked the SS4A project as “5 – extremely important” on a scale from 1 to 5. Across all communities, only 64 percent respondents said the plan was extremely important.

Most respondents (94 percent) indicated that they have access to a personal vehicle. Respondents without access to a vehicle cited affordability as the main reason they do not. Driving is by far the most common mode of travel among respondents, with 90 percent of respondents driving daily/almost daily or a few times per week. Figure 19 shows a breakdown of travel frequency by mode for all respondents. Walking or using a personal mobility device was the next most utilized mode (56 percent used at least a few times per month). Ten percent of respondents bike or use a scooter (or electric version) daily or almost daily, while 7 percent ride a few times a week. The majority of respondents (56 percent) reported that they never ride transit.

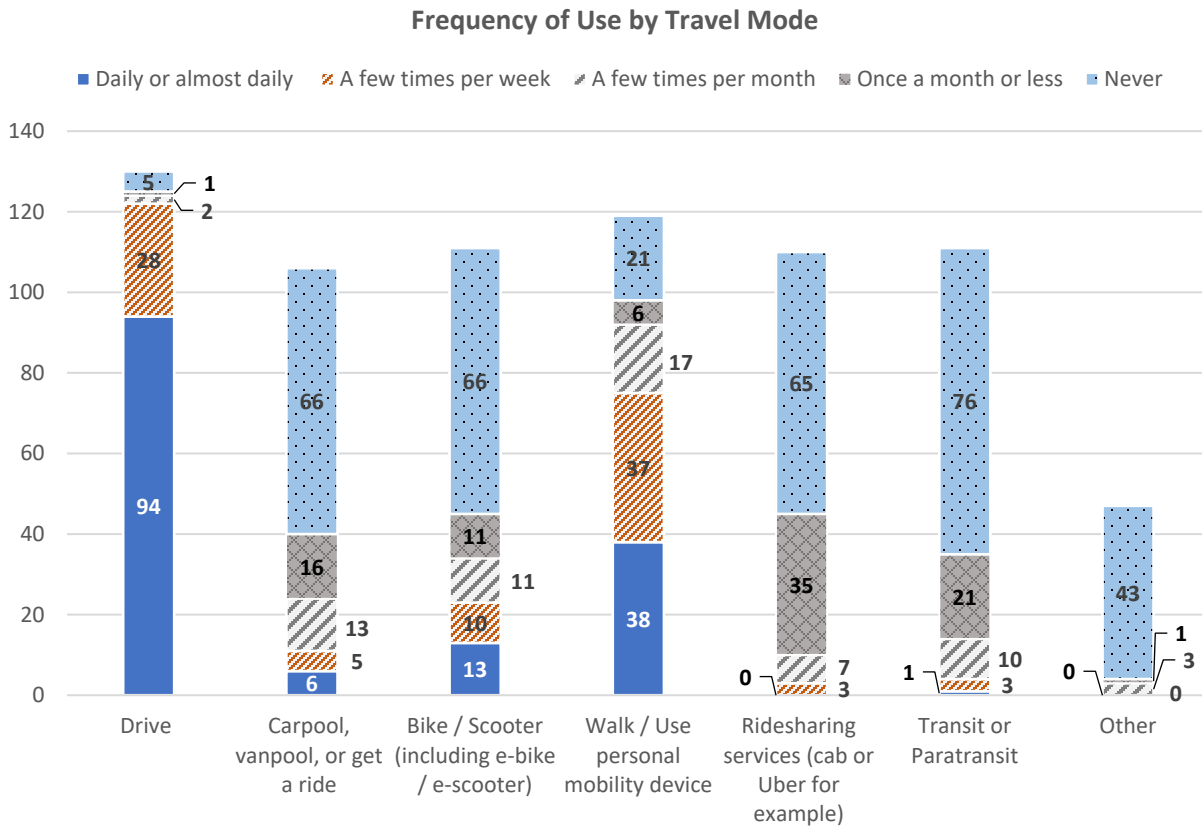


Figure 18. Survey Responses: Primary Modes of Transportation in East Providence

4.2.4 Respondent Street Safety Concerns and Priorities

The survey asked respondents to select their top three preferred safety and comfort improvements for different modes of travel. **Across all improvements, “smoother pavement conditions and fewer potholes” was by far the most popular and was selected by 100 out of 134 people who answered the question.** Figure 20, Figure 21, and Figure 22 show all improvements by mode, ranked by the percentage of respondents that selected each.

4.2.4.1 Safety and Comfort Improvements for Drivers

To improve safety and comfort for people driving, “smoother pavement conditions and fewer potholes” was selected by 74 percent of respondents. More visible lane strips and other pavement markings and better drainage were also chosen by over 50 respondents.

What safety and comfort improvements would you like to see for drivers?

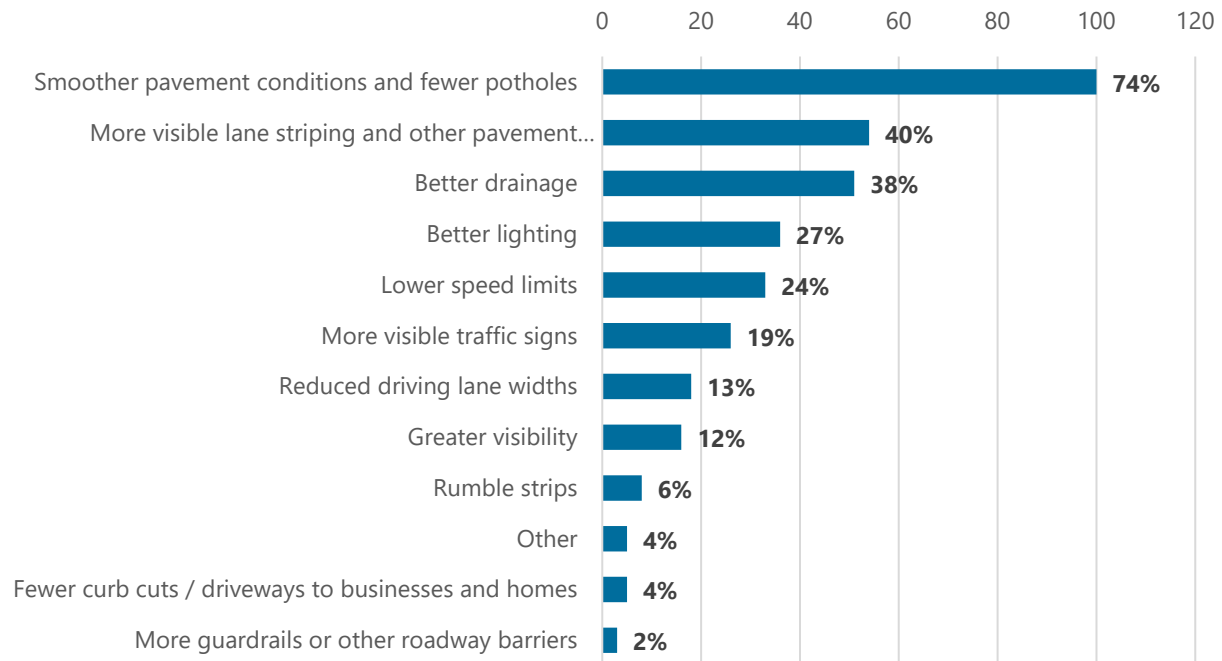


Figure 19. Survey Responses: Safety Improvements for Drivers

4.2.4.2 Safety and Comfort Improvements for Pedestrians and Cyclists

“A more complete sidewalk network” was the only improvement for people walking and biking that was selected by more than 50 percent of respondents (51 percent). When isolating responses from those that reported more frequent walking and biking, two improvements received votes by over half of the respondents: “safer ways to cross the street” (55 percent) and “a more complete sidewalk network” (52 percent).

What safety and comfort improvements would you like to see for pedestrians and bicyclists?

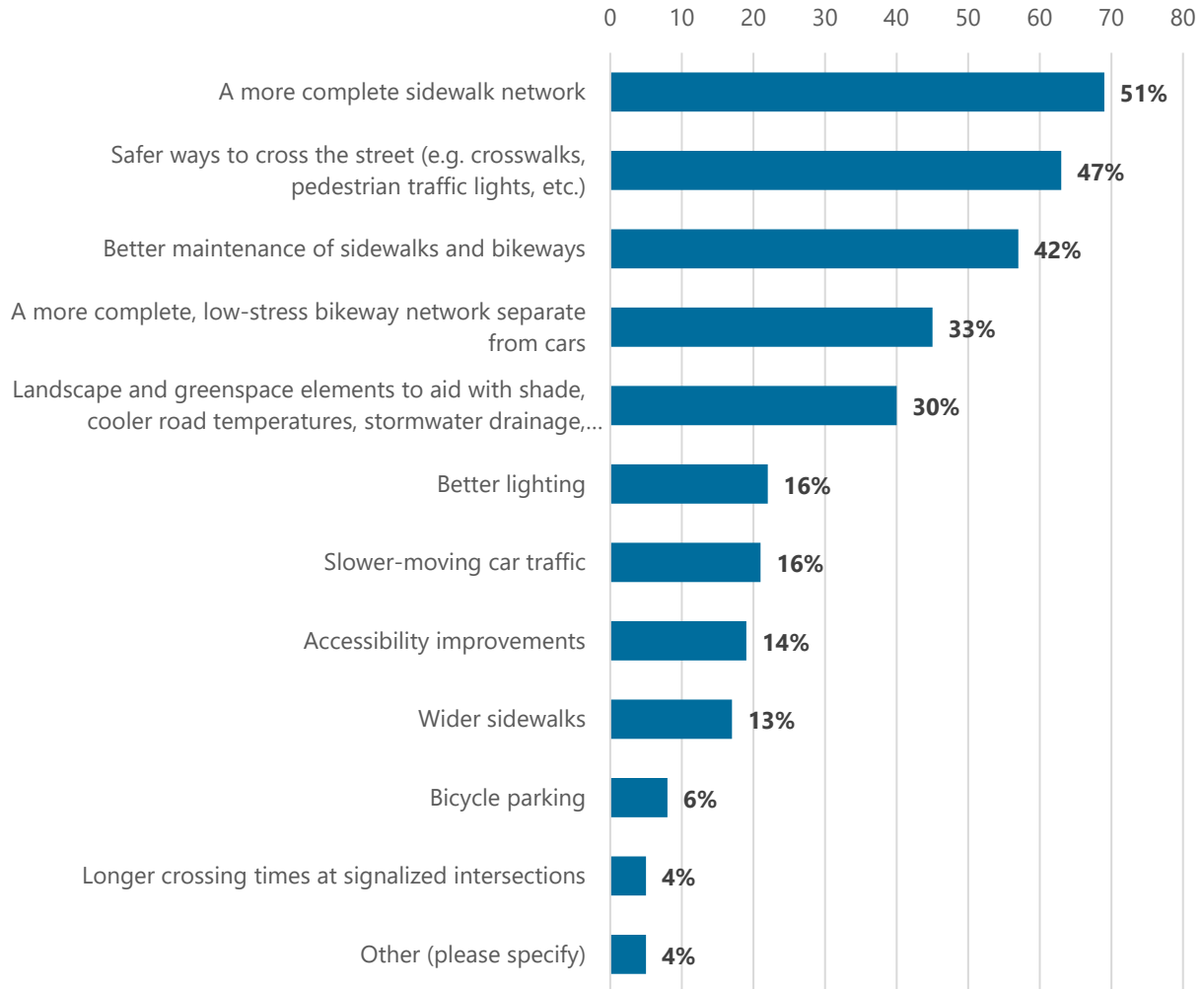


Figure 20. Survey Response: Safety Improvements for Pedestrians and Cyclists

4.2.4.3 Safety and Comfort Improvements for Transit Riders

“More shelters and/or seating at transit stops” was the top preferred improvement for people riding transit or paratransit, receiving votes from 53 percent of all respondents (20 more votes than any other improvement). Survey respondents that more frequently take transit also selected “more frequent service” as a top preferred improvement.

What safety and comfort improvements would you like to see for transit and paratransit riders?

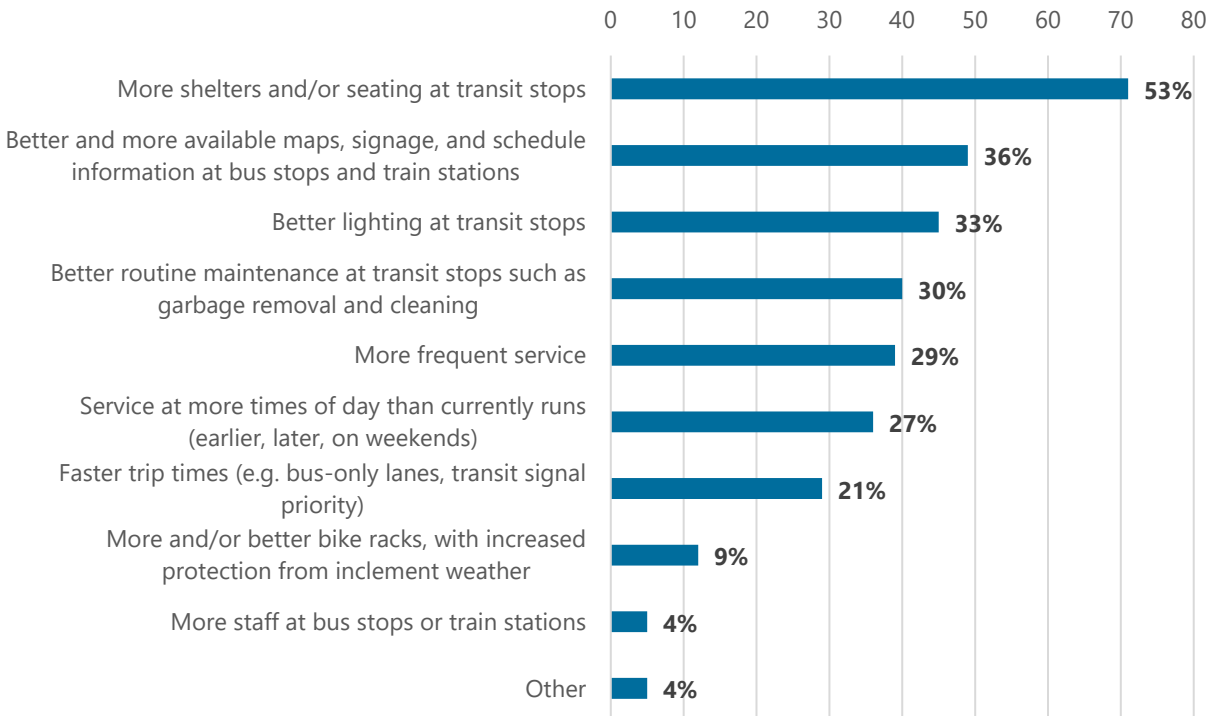


Figure 21. Survey Responses: Safety and Comfort Improvements for Transit Riders

4.2.4.4 Respondent Sentiment on Education or Behavioral Safety Programs

The survey also solicited input on five different education or behavioral programs. “Education to reduce distracted driving” and “more enforcement of traffic laws” were supported by over half of respondents with 52 percent and 51 percent of votes, respectively. Other programs were of some interest but not selected by the majority of respondents, including more speed management, including setting appropriate speed limits (37 percent); and education to reduce impaired roadway users (29 percent).

4.2.5 Community Pop-up Event Feedback

Main themes and concerns raised during the public open house and community events include reduced crashes, connected sidewalks, and safer drivers.

Negligent driver behavior including speeding, not yielding to people walking, and drivers texting or watching their phones while driving was noted as a safety concern. Speeding by vehicles was noted as a leading concern, and residents noted that there was a lack of enforcement.

Individuals indicated that they wanted safe streets for a variety of reasons. Parents expressed concerns around their children walking to school. Along with children, the community also noted that streets needed to be safe, particularly for elderly and handicapped individuals. Children enjoy walking or riding their bikes around town and want to continue doing so without safety concerns. Residents noted sidewalks were not only disconnected, but in poor condition. Having connected sidewalks was a leading

priority for the community, many noting that the current sidewalk infrastructure made walking unsafe in some areas.

"There needs to be a clear commitment to safety over vehicular efficiency The safety of our most vulnerable users (people walking, biking, transit riders, those with disabilities) need to be front and center)." – Anonymous East Providence Survey Respondent

4.2.6 Location-based Feedback

Both the online survey and the in-person engagement events provided opportunities for community members to provide location-based feedback related to safety issues and opportunities. Feedback gathered from both these outlets was synthesized into a composite map, with comments categorized into six primary themes: education/enforcement, general safety, intersections, multimodal transportation, roads, and speeding (Figure 23). Areas with a high concentration of comments and feedback are highlighted and discussed below:

- **Henderson Bridge area:** The Henderson Bridge area drew a high volume of multimodal transportation-related comments and the need for improved connectivity and safety for people walking, rolling, or biking.
- **City Center neighborhood:** Multimodal concerns extended beyond the bridge area throughout the City Center neighborhood, particularly along South Broadway and Veterans Memorial Parkway. These comments emphasized challenges with safely accessing the bike path, including the need for protected bike infrastructure on 1st Street and better access to the bike path farther south (respondents noted that there is currently no way to cross Veterans Memorial Parkway to reach the bike path from the abutting residential neighborhood, as it creates a barrier for residents). Other comments mentioned the need to reduce speeds on residential roads, as well as continuing efforts to improve sidewalks to ensure safety for all users.
- **Riverside neighborhood:** A concentration of speeding-related concerns emerged in the Riverside neighborhood, particularly along Willett Avenue, Turner Avenue, and Bullocks Point Avenue. Additionally, multimodal transportation concerns were observed farther south on Bullocks Point Avenue and along Willett Avenue near Forbes Street. Comments along Bullocks Point Avenue noted pedestrian-related concerns including lack of amenities for people walking and drivers traveling at aggressively high speeds. This is particularly important because this is a key corridor for RIPTA bus stops and community amenities such as the library, church, residential buildings, restaurants, and other local businesses.
- **Rumford neighborhood:** In the Rumford neighborhood, there was a clustering of comments at the intersection of Pawtucket Avenue and Greenwood Avenue for categories including speeding, multimodal transportation, and roads. Similar to the Riverside neighborhood, respondents noted issues around pedestrian safety such as lack of amenities for people walking including sidewalks and crosswalks, and a need for slowing down cars to enhance safety for both people who drive and walk.

These community concerns ranged from speeding enforcement to enhancing multimodal accessibility and road conditions. The input collected informed data analysis, the project prioritization approach, and development of recommendations.

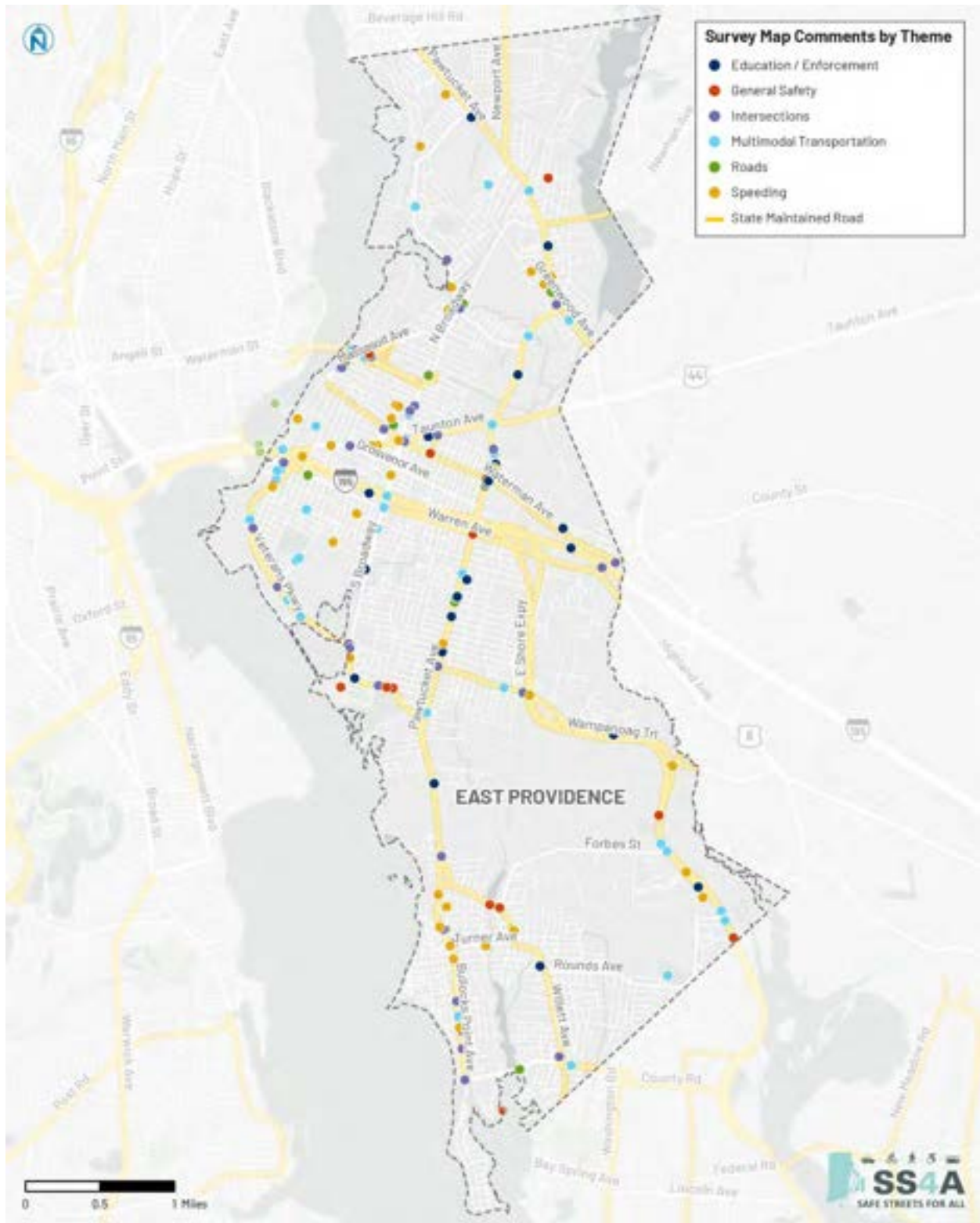


Figure 22. Map of Location-based Survey Comments by Theme

4.3 Key Themes and Priorities

The following key themes and priorities from stakeholder and public engagement emerged:

- Reduce driver speeding and unsafe driving behavior.
- Complete sidewalk gaps.
- Provide crosswalks and protection for people walking at high-population and destination centers, such as near and around the Waterman Avenue and Taunton Avenue intersections.
- Enhance access to the East Bay Bike Trail for residents of nearby neighborhoods (Veterans Memorial Parkway is a clear barrier to access currently).
- Utilize unused, wide roadway shoulders to create bike lanes and expand bike connectivity across the city.
- Add crosswalks to key commercial corridors to help people walking and riding the bus cross streets.
- Add sidewalks or bike lanes to streets where there are known high activities of families and people walking and biking.

For additional details and records from the public engagement process, refer to Appendix C and Appendix D.

5. Equity Considerations

5.1 Defining Equity

This plan recognizes that people with low incomes, communities of color, people with limited vehicle access, people with limited English proficiency, people with disabilities, and others have historically been underserved in previous planning efforts. Because these communities are often disproportionately impacted by crashes, equity analyses were conducted to inform engagement and assess proposed projects.

In line with guidance from FHWA and best practices, the analysis and recommended strategies, projects, and policies in this plan aim to meet the needs of rural areas, economically disadvantaged communities, historically underserved residents, and vulnerable roadway users. Acknowledging the needs of these varied groups, East Providence includes strategies that encourage the fair sharing of resources, address external costs, serve mobility-disadvantaged travelers, and enhance overall affordability and economic opportunity while protecting the safety of all travelers.

5.2 Equity Considerations in East Providence

East Providence's SAP seeks — through engagement, data evaluation, and project prioritization efforts — to understand the greatest barriers and safety challenges underserved community members face. Special efforts were made to reach out to stakeholders and members of the public with diverse perspectives and from disadvantaged groups to better understand their needs and priorities. For example, multiple engagement platforms and languages were used, including a survey and online map, pop-up events, public meetings, community-centered focus groups, and advisory committees.

The DOT Equitable Transportation Community (ETC) dataset helped identify the locations of disadvantaged communities and contributing factors. These factors include categories such as income, health, transportation access, environmental and land use conditions, housing and workforce development issues, among others. There are 47,012 people living in East Providence and 11,867 people living in disadvantaged Census block groups, representing 25 percent of the community. The Census block groups designated as disadvantaged communities include 440070101024, 440070105011, 440070106001, 440070106002, 440070106003, 440070106004, 440070104003, 440070104004, 440070102004, and 440070102006.

The DOT ETC metrics evaluate communities' burdens across 57 individual indicators, which are organized under five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. Census block groups are designated as National ETC communities if their total score across all five components is in the 65th percentile or greater. This comparison is a valuable tool for transportation-related work, given that the focus of the indicators is on finding communities that are burdened by transportation and thus would benefit from investments to address the underlying disadvantages that they face.

Table 11 represents the frequency and percentages of crashes that occur in East Providence block groups with higher disadvantages according to the DOT ETC. Of the 63 total FSI crashes in the municipality, 13 FSI crashes (21 percent) were within block groups that would be referred to as disadvantaged. Eighty-six

percent of all FSI crashes (54) were within block groups that score high in environmental indicators, which include factors such as ozone level, diesel level, and proximity to site with potential pollution (Table 11).

Table 11. All Mode FSI Crashes by ETC Metrics (2019 to 2023)

Disadvantage Status	Threshold	Climate		Environment		Health		Social		Transportation		Overall	
		#	%	#	%	#	%	#	%	#	%	#	%
Disadvantaged Block Groups	Over 65%	26	41%	54	86%	11	17%	24	38%	10	16%	13	21%

The Census block groups that are considered disadvantaged are often located near major state roads and arterials, such as Wampanoag Trail, Pawtucket Avenue, Bullocks Point Avenue, Veterans Memorial Parkway, and I-195 (Figure 24).

5.3 Key Equity Findings in East Providence

In East Providence, 24.8 percent of roadway miles are within disadvantaged communities, yet 31.5 percent of the all modes HIN and 29.9 percent of the VRU modes HIN are within these communities.

5.4 How Equity will Impact Roadway Safety Planning and Implementation

Making our streets safer for all roadway users is at the heart of this Safety Action Plan. Opportunities to increase transit options; infrastructure for people walking, rolling, or biking; and reduced commute times and transportation costs may help remedy existing transportation inequities. Projects in disadvantaged areas address safety needs where transportation challenges are felt most deeply, and that may offer the most benefit to communities experiencing transportation disadvantages. In addition to the analysis above, equity was also a consideration used to develop the project selection matrix described in Chapter 7 to ensure that safety projects in burdened communities were elevated.

Additionally, in September 2024 the Rhode Island Division of Statewide Planning developed the Rhode Island Social Equity Data Platform. This tool will continue to be used to incorporate equity principles into policies, plans, and practices being implemented across the state.

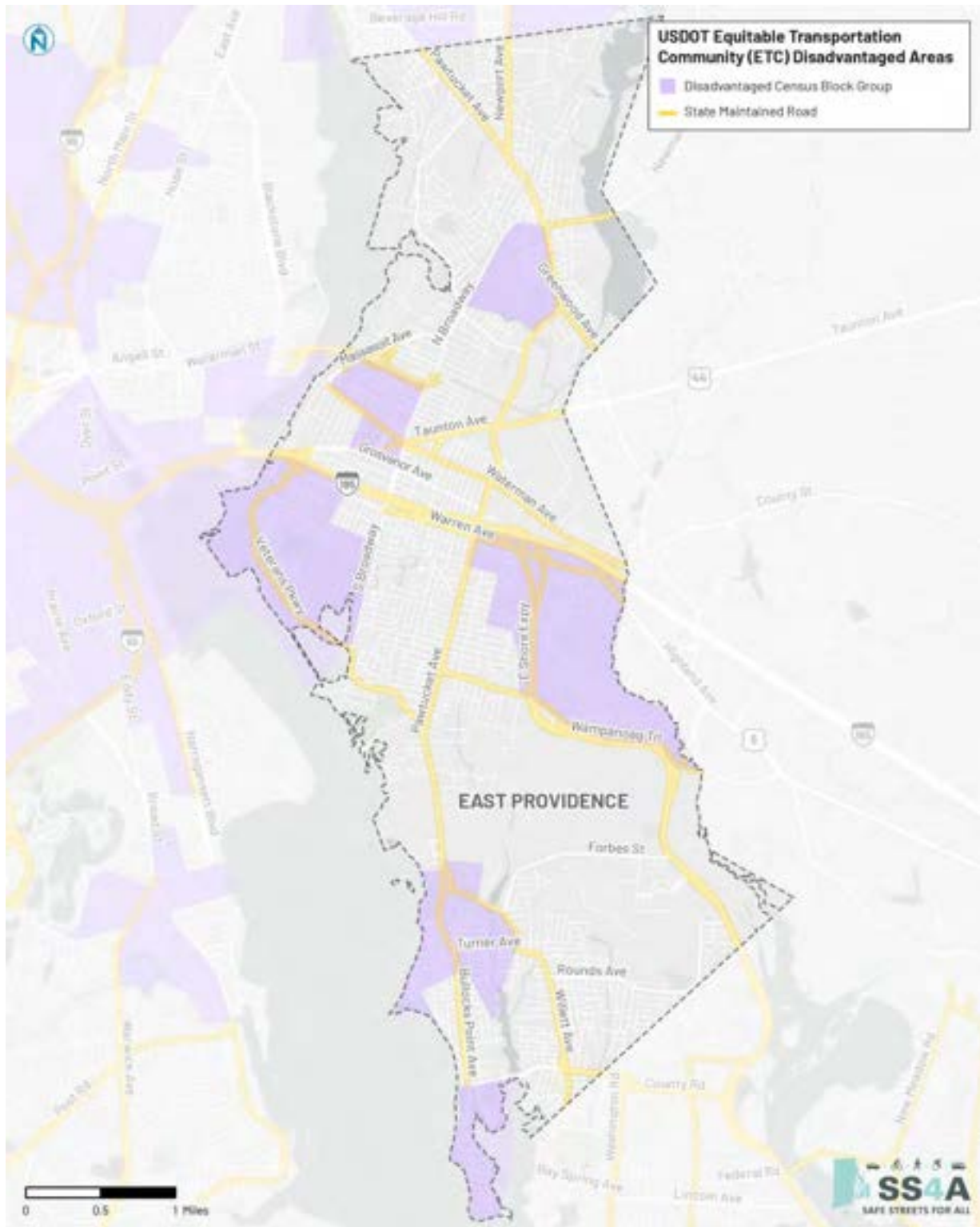


Figure 23. Block Groups within East Providence Qualifying as Equitable Transportation Community

6. Policy and Process Changes

6.1 Existing Plan and Policy Review Findings

This section assesses current policies, plans, guidelines, and/or standards (e.g., manuals) to identify opportunities to improve how processes prioritize transportation safety.

The City of East Providence is finalizing its update to the Comprehensive Plan. The final draft lays out a strategic vision for the city's future development over the next 20 years and establishes an official policy framework to guide land use decisions and ensure consistency between the city's vision and public/private investments. The plan highlights the importance of developing strategies to improve transportation safety and access for non-automobile modes of transportation given their aging population. It cites several policies to improve facilities for people walking, rolling, or biking and to encourage use of these modes through safe travel education. The plan also mentions the benefits of Complete Streets design and its ability to help prioritize future projects. The Final Draft is available online at <https://eastprovidenceri.gov/community>.

A Citywide Bicycle and Pedestrian Plan is currently in development. The project is funded by the City of East Providence and the Rhode Island Division of Statewide Planning, with the intent to fulfill goals and objectives of the State of Rhode Island Long Range Transportation Plan and guide bicycle and pedestrian planning for the city.

6.2 A Safe System Approach to Policy and Processes

Policy, process, and programmatic changes can improve roadway safety. East Providence explored evidence-based, high-impact approaches aligned with the five pillars of a Safe System Approach. In tandem with infrastructure-based approaches, these safety interventions will provide system redundancy and promote safety as a shared responsibility.

6.3 Key Policy, Process, and Program Recommendations

The following policy, process, and program changes are recommended for East Providence. For each safe system pillar, recommendations are organized within planning objectives, which are measurable goals to help reach the eventual target of zero fatal and serious injury crashes. Each row includes the recommendation, the recommendation type, the responsible parties, and the implementation timeline.

Where applicable the tables describe whether implementation requires the adoption of revised or new policies, guidelines, and/or standards. Each row includes the recommendation, the recommendation type, the potential partners and responsible parties, and whether it's a more critical safety priority in the town because it was identified during engagement, analysis, and the planning process.

Table 12. Safe People Policy, Process, and Program Recommendations

Safe People: Humans make mistakes and are vulnerable. Education, marketing, and programming can help build a culture of shared responsibility and encourage safe, responsible driving and behavior by people who use our roads.

Objectives and Recommendations	Recommendation Type (Program, Policy, Process, Plan)	Potential Partners and Responsible Parties	Critical Town Need
A. Educate residents on roadway safety best practices			
a. Develop a public education campaign on the harms of distracted driving and speeding vehicles	Program	Health Equity Zone, Engineering Division, Police Department	Yes
b. Educate young adults and children on safety practices for walking, rolling, and biking	Program	Health Equity Zone, Schools	No
B. Support safe travel for school children through design and programmatic efforts			
a. Connect neighborhoods to schools with low stress ways for people walking, rolling, or biking.	Policy	Engineering Division, Planning & Economic Development	Yes
b. Institutionalize coordination between transportation initiatives, community advocacy groups, and school administrators	Process	Health Equity Zone, Engineering Division, Police Department, Planning & Economic Development	No
C. Integrate safety into land use and private development permitting			
a. Include multimodal transportation analysis in permit review	Process	Planning & Economic Development	No
b. Where possible, site affordable housing and larger market-rate apartment buildings near transit.	Policy	Planning & Economic Development	No
c. Promote placemaking and safety improvements during development reviews.	Policy	Planning & Economic Development	Yes
d. Better connect housing, medical, and social services to existing infrastructure for people who walk and take transit.	Policy	Planning & Economic Development	No

Table 13. Safe Roads Policy, Process, and Program Recommendations

Safe Roads: Our roads should be designed to accommodate human mistakes and minimize the chance of fatal or severe injuries when mistakes do occur.

Objectives and Recommendations	Recommendation Type (Program, Policy, Process, Plan)	Potential Partners and Responsible Parties	Critical Town Need
Revise policies, procedures, and processes to embed roadway safety data, community input, and collaborative coordination (also see Post Crash Care)			
Explicitly identify safety as a primary factor in road design and requirements	Policy	Engineering Division	Yes
Institute a maximum crosswalk spacing policy/standard	Policy	Engineering Division	No
Revise the current citizen complaint system to support community members in noting places of concern that may or may not be high injury locations	Process	Engineering Division	No
Use quick build strategies to install safety countermeasures			
Use centerline hardening and turn wedges to slow turning cars	Program	Engineering Division	No
Include delineators and bollards as routine solutions for safety issues	Program	Engineering Division	No
Upgrade crosswalks to high viz designs	Program	Engineering Division	Yes
Install curb extensions at pedestrian crossings to improve visibility, especially for streets with on-street parking.	Program	Engineering Division	Yes
Where wide shoulders exist and are not required, formalize bicycle lanes and where possible, install vertical separation between the bicycle lanes and vehicle lanes	Policy, Program	Engineering Division	No
Expand and Improve Multimodal Transportation Options			
Create a dedicated annual funding source for sidewalk improvements and a prioritization plan	Policy	Engineering Division	No
Identify a planned low-stress bikeway network and begin implementation	Policy, Process	Engineering Division, Planning & Economic Development	Yes
Install pedestrian scale lighting at high crash VRU locations	Policy	Engineering Division	No
Implement pedestrian safety improvements for people walking access high-use transit stops.	Program	Engineering Division	No
Create a program to regularly remark pedestrian crosswalks.	Program	Engineering Division	Yes

Table 14. Safe Vehicles Policy, Process, and Program Recommendations

Safe Vehicles: Our vehicles should be designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.

Objectives and Recommendations	Recommendation Type (Program, Policy, Process, Plan)	Potential Partners and Responsible Parties	Critical Town Need
Support safer transit			
Create and deliver training documents for RIPTA operators including standard operating procedures for incident documentation and reporting of right-of-way issues	Program, Policy	RIPTA	No
Incorporate traffic safety into regular RIPTA operator meetings	Program, Policy	RIPTA	No
Review and revise fleet procurement rules			
Establish requirements for safety technology in city vehicles	Policy	Mayor's Office	Yes

Table 15. Safe Speeds Policy, Process, and Program Recommendations

Safe Speeds: Roadway users should travel at safe speeds, which reduces impact forces when collisions do occur and provides additional time to perceive and react to the roadway environment.

Objectives and Recommendations	Recommendation Type (Program, Policy, Process, Plan)	Potential Partners and Responsible Parties	Critical Town Need
Make policy, legislative, and design changes for safer speeds			
Design for slower speeds with narrower lanes, road diets, and intersection treatments that reduce vehicle speeds	Policy	Engineering Division, Planning & Economic Development	Yes
Implement 25 mph speed limits on major streets in urbanized areas and on high pedestrian injury corridors.	Policy	Engineering Division, Planning & Economic Development	No
Reduce 35 mph speed limit to 30 mph.	Policy	Engineering Division, Planning & Economic Development	No
Enforce speed using automated technologies.	Program	Police Department	No

Table 16. Post-Crash Care Policy, Process, and Program Recommendations

Post Crash Care: First responder should be able to quickly and safely stabilize and transport those injured in crashes. After a crash, safety stakeholders in the community should evaluate the causes of the crash and develop strategies to prevent similar crashes in the future.

Objectives and Recommendations	Recommendation Type (Program, Policy, Process, Plan)	Potential Partners and Responsible Parties	Critical Town Need
Revise policies, procedures, and processes to embed roadway safety data, community input, and collaborative coordination (also see Safe Roads)			
Establish a regular working meeting including police dept and municipal planning staff to discuss crash trends and enforcement or operations changes to address them.	Process	Engineering Division, Planning & Economic Development, Police Department	Yes
Integrate the HIN into the workflow for data collection, funding, and design of rehabilitation and complete streets projects.	Policy, Process	Engineering Division, Planning & Economic Development, Police Department	No

7. Action Plan

In concert with the goals established in Chapter 1 and the proposed policy and process changes outlined in Chapter 6, the Safety Action Plan outlines specific infrastructure projects to address safety challenges in East Providence.

7.1 Project Location Screening and Selection

A basic screening system was developed to begin to focus the Safety Action Plan on a list of project locations informed by the BCA, the risk analysis, and community engagement. The screening criteria prioritized locations with historical crashes, locations with elevated levels of future crash risk, and locations near schools, along RIPTA bus routes, or in historically disadvantaged communities.

Corridors that met many of these criteria were then reviewed by municipal staff to further refine a list of potential project locations. In some cases, for locations where crashes were concentrated at intersections, the project location was converted to an intersection-based extent. Where appropriate, nearby segments were combined into larger project extents, either where multiple segments had high screening scores or where the eventual treatment would be less impactful without the inclusion of additional roadway.

7.2 Project Prioritization

Figure 25 shows the locations of priority locations where safety countermeasures are recommended in East Providence based on the screening process.

Additional contextual information and safety countermeasure recommendations for select projects are provided in Section 7.5. Project locations with detailed recommendations are typically those with the highest concentrations of historical crashes—especially FSI crashes. In many cases, streets controlled by RIDOT have the highest concentration of crashes and were flagged as needing safety improvements by both members of the public and city staff. For RIDOT-maintained roads, East Providence does not have direct control over future street design changes, but should partner with RIDOT to assess and install safety improvements.

All projects on state roadways require coordination with RIDOT, and all changes to traffic control devices on state roadways need to be approved by the State Traffic Commission (STC). All projects should be compared against the STIP to review opportunities for efficiency or to evaluate potential conflicts with other planned projects.

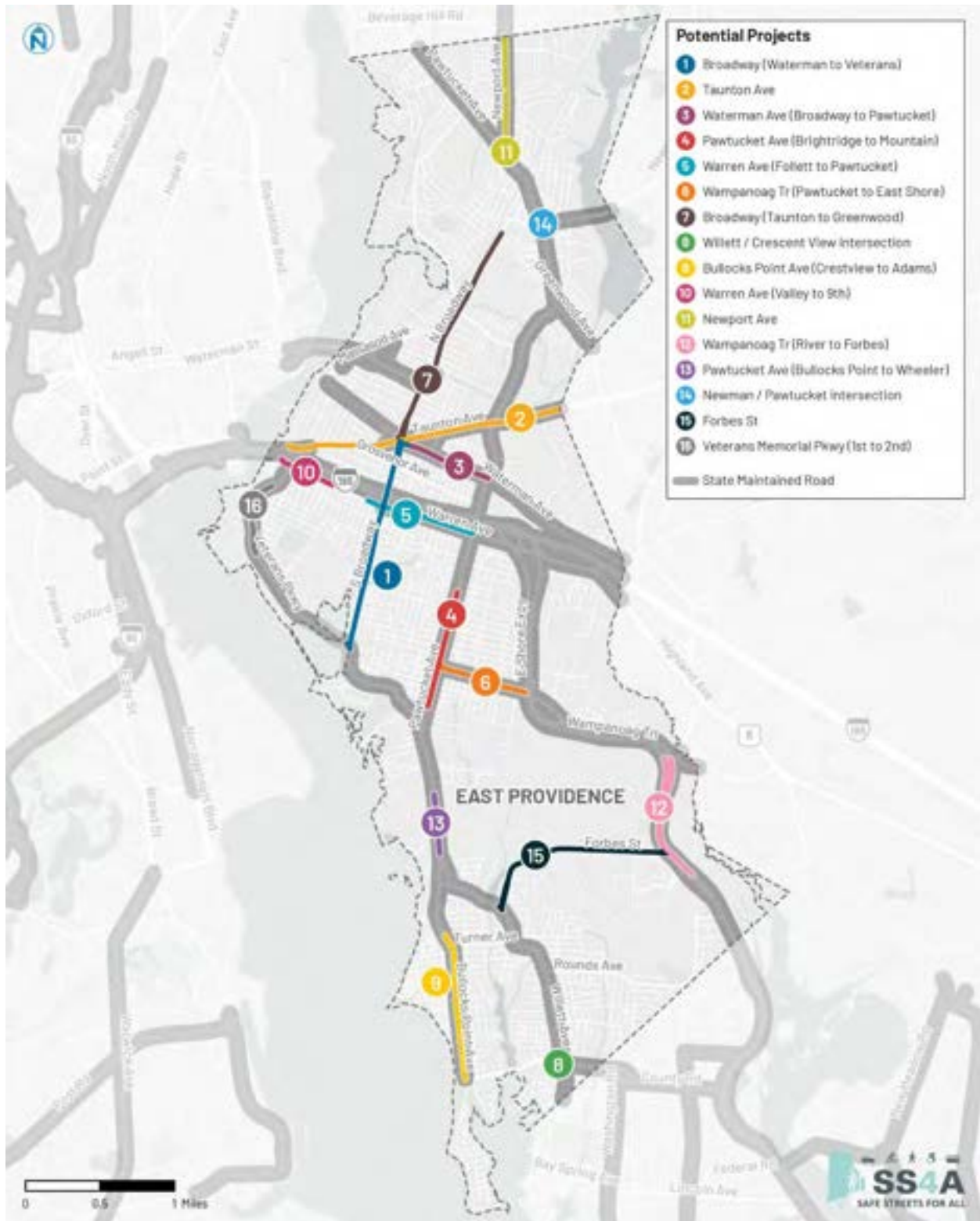


Figure 24. Priority Project Locations Map

7.3 Countermeasure Toolkit and Selection

FHWA launched the Proven Safety Countermeasures Initiative in 2008 to reduce traffic-related fatalities and injuries through data-driven, standardized safety treatments. The initiative recognizes 28 countermeasures targeting key safety areas of speed management, intersection safety, roadway departures, and non-motorist safety. Some countermeasures are crosscutting, addressing multiple safety areas.

The initial 28 countermeasures served as a foundation for developing a broader toolkit of 77 countermeasures, with demonstrated roadway safety benefits. These countermeasures incorporate resources from FHWA, state and local governments, the National Association of City Transportation Officials (NACTO), and engineering experience from fatal crash investigations and roadway safety projects (FHWA 2016a, 2016b, 2021, 2024b; Maryland Department of Transportation 2020, 2023; NACTO 2020, 2025; Nashville Department of Transportation 2022).

To help stakeholders quickly identify and apply the most effective and context-appropriate safety solutions, each countermeasure was categorized by targeted crash type, implementation timeframe, land use context, crash reduction factor (CRF), and estimated per-unit cost range. A full list of the countermeasures and a summary of these categories is provided in Appendix E.

7.3.1 Countermeasure Types

Consistent with the Proven Safety Countermeasures Initiative, four main countermeasure types were identified. They include:

- Intersection Safety Countermeasures
- General Segment Safety (Including roadway departures) Countermeasures
- Non-Motorized Safety Countermeasures
- Speed Safety Countermeasures

Many countermeasures are categorized as meeting several of these countermeasure types.

7.3.2 Targeted Safety Issues

To see the greatest safety benefit, select countermeasures should be selected that respond to the crash trends and risks at a given location. Crashes in the toolkit were classified by the underlying crash types and contributing factors they seek to mitigate. Among others, these categories include crashes involving people outside motor vehicles, angle crashes, intersection crashes, rear-end crashes, speed-related crashes, and roadway departure crashes.

Not every countermeasure is equally effective at reducing crashes. A CRF estimates the expected percentage reduction in crashes after implementing a particular countermeasure, based on research in other locations where the treatment has previously been implemented. For this plan, CRFs were collected from national or state research organizations such as FHWA, the National Cooperative Highway Research Program (NCHRP), and various state DOTs.

Some countermeasures are more appropriate or easier to implement depending on the adjacent land use context. Each countermeasure was assigned the appropriate land use and development intensity where it may be considered most effective. Some countermeasures may be suitable for implementation in any land use context or development intensity.

Each countermeasure in the toolkit also includes information estimating the time and budget needed for implementation.

Each project location presents its own set of unique constraints and potential challenges to implementation. The information provided about each countermeasure in the toolkit should not substitute for the need for site-specific designs and engineering judgement before a countermeasure is implemented.

7.4 Summary of Project Recommendations

The projects identified on Figure 25 would further support enhanced street safety in East Providence. Table 17 provides a summary of the key issues observed in these locations, along with initial direction for potential safety improvements. Detailed project sheets are available for all priority projects in Appendix F; sheets feature context about the street and crash history, as well as commonly cited issues (as collected during engagement). Where noted in the table, detailed project sheets also include recommended project goals, safety countermeasures, and an illustrated concept plan. More information is provided in the following section.

Table 17. Project Locations

Project #	Project Name	Key Issues	Potential Recommendations
1	S Broadway (Waterman Avenue to Veterans Memorial Parkway)	Poor visibility of people walking, wide vehicle lanes encourage speeding. Areas near the interstate and ramps are congested.	Crosswalk visibility enhancements, curb extensions, landscape planting areas, median barriers, and consideration for bike lanes. Detailed recommendations are available in project sheet in Appendix F.
2	Taunton Avenue (Valley Street to City/State line)	Speeding is a key issue for this corridor. Intersections are dangerous with speeding and lack of accommodations for people walking, rolling, or biking.	Crosswalk visibility enhancements, medians and pedestrian refuge islands, pedestrian crossing signs, curb extensions, planting areas, and bike lanes. Detailed recommendations are available in project sheet in Appendix F.
3	Waterman Avenue (Broadway to Pawtucket Avenue)	Speeding controls needed for safety of people who drive and walk. Low on-street parking utilization results in wide roadway for speeding vehicles.	Crosswalk markings, curb ramps, and pedestrian refuge island or curb extensions at all major and minor intersections to help reduce speeding. Detailed recommendations are available in project sheet in Appendix F.

Project #	Project Name	Key Issues	Potential Recommendations
4	Pawtucket Avenue (Brightridge Avenue to Mountain Avenue)	High number of FSI crashes along this 0.7-mile roadway (11.8% of all FSI crashes in the city). Fatalities and serious injuries impacted people who drive, walk, and ride a motorcycle.	Traffic calming measures should be implemented. If current/projected vehicle volume does not support road diet, then enforcement may be a key option for this corridor. Other recommendations include driveway consolidation to eliminate the many conflict points that occur due to vehicles turning into and out of business entries/exits. Detailed recommendations are available in project sheet in Appendix F.
5	Warren Avenue (Follett Street to Pawtucket Avenue)	Speeding is reported as an issue along this roadway. One fatality of a person walking occurred here.	Recommendations include added crosswalks and curb extensions to help with access for people walking and traffic calming. Detailed recommendations are available in project sheet in Appendix F.
6	Wampanoag Trail (Pawtucket Avenue to East Shore Expressway)	Unsafe on/off ramps near East-West Expressway, lack of accommodations for people walking, rolling, or biking.	Close slip-lanes, reduce corner curb radii, narrow vehicle lane widths, improve clarity of on/off ramps at Expressway, and install bike lanes and median. Detailed recommendations are available in project sheet in Appendix F.
7	North Broadway (Taunton Avenue/Waterman Avenue to Greenwood Avenue)	Speeding and wide vehicle lanes create an unsafe environment for people walking, rolling, or biking.	Intersection daylighting with curb extensions, reduced turn radii at intersections, intersection redesign and/or closure of slip lanes, pedestrian crossing signs, and consideration for bike lanes in certain sections of the roadway. Detailed recommendations are available in project sheet in Appendix F.
8	Intersection of Willett Avenue and Crescent View Avenue	This road is an oversized roundabout and encourages speeding.	Current RIDOT plans propose to redesign the intersection with additional traffic signage and controls and a road diet for Willett Avenue east of the Crescent View Avenue intersection.
9	Bullocks Point Avenue (Crescent View Avenue to Adams Avenue)	Speeding is prevalent here, and some sections lack sidewalks on both sides of the street.	Traffic calming recommendations include high-viz crosswalks, completion of sidewalk gaps, and installation of curb extensions or tree planting zones to break up the currently continuous on-street parking lane.

Project #	Project Name	Key Issues	Potential Recommendations
10	Warren Avenue (Valley Street to Ninth Street)	Traffic calming is needed for this commercial corridor with both local and regional traffic. Accommodations for crossing of the bike trail also currently unsafe.	Curb extensions, traffic control device studies. Installation of bike lanes and improved visibility at crossings. Detailed recommendations are available in project sheet in Appendix F.
11	Newport Avenue (Pawtucket Avenue to city border)	Four-lane, undivided roadway with no access for people biking. Speeding is prevalent in this largely commercial area.	With an AADT of 13,000, a 4 to 3 road diet should be studied for feasibility. Pedestrian crossings parallel to Newport should be well-marked with high-viz markings. Slip lane at Narragansett Park Drive should be removed. Install a pedestrian refuge island on Roger Williams Avenue at the intersection with Newport Avenue to reduce roadway space. Detailed recommendations are available in project sheet in Appendix F.
12	Wampanoag Trail (Mink Street to Forbes Street)	This road segment is a high crash area with a lack of accommodations and access for people walking. RIPTA riders have voiced access challenges and issues accessing bus travelling northbound.	Potential recommendations include formalizing bus stop pull-offs and incorporating crossings for people walking, rolling, or biking by (1) redesigning intersections at Mink Street and Parkway and Forbes Street and Parkway into a roundabout with accommodations for people walking, rolling, or biking, (2) constructing a pedestrian/bicyclist bridge or tunnel to cross the parkway at Forbes. Look to Bicycle and Pedestrian Master Plan for guidance.
13	Pawtucket Avenue (Bullocks Point Avenue to Wheeler Avenue)	Unsafe conditions with multiple crashes at high-traffic generating locations.	Study AADT to determine potential for a 4 to 3 road diet. Pedestrian crossings parallel to Pawtucket Avenue should be well-marked with high-viz markings. Detailed recommendations are available in project sheet in Appendix F.
14	Intersection of Newman Avenue and Pawtucket Avenue	Intersection is very wide and promotes unsafe speeding through intersection. The large turning radii and long pedestrian crossings make the environment less safe and/or comfortable for people walking.	Recommendations include installing pedestrian refuge island and/or striped markings to reduce the crossing widths. A high-viz crosswalk or raised crosswalk should be added to the intersection across Ferris Avenue, and additional signage should be considered to support vehicle travel. Detailed recommendations are available in project sheet in Appendix F.

Project #	Project Name	Key Issues	Potential Recommendations
15	Forbes Street (Wampanoag Trail to Willett Avenue)	People walking and people biking are present along this roadway, but there are no accommodations for people biking/cycling. Sidewalks are missing on the east side of Forbes Street between Yuro Street and Wampanoag Trail. Sidewalks are also overgrown and in disrepair in the central section east of Riverside Middle School. Speeding also an issue on this roadway.	Explore the opportunity for a buffered bike lane on both sides of the street (or, alternatively, a two-way protected bike lane on the north side of Forbes Street on the eastern section). Detailed recommendations are available in project sheet in Appendix F.
16	Veterans Memorial Parkway (northern intersection with 1st Street to southern intersection with 2nd Street)	The parkway poses a barrier to nearby residents needing access to the East Bay Bike Trail.	Recommendations include adding formal crosswalks (potentially with flashing beacons) at several key intersections, such as 1st Street (near Teofilo Braga Way), Mercer Street (near the bike path parking lot), and Hamilton Street. General safety for vehicles as well as people walking, rolling, or biking may be improved with intersection redesigns. A roundabout will be installed at Lyon Street and the parkway as part of a new development. If designed correctly, safety and access for people walking, rolling, or biking can be improved with roundabout designs.

Many roads within the high-injury network in East Providence carry similar attributes and characteristics. A systemic approach to addressing these issue roads could be used to reduce crashes across the town. For these roads, Table 18 lists representative roads within a category, common road attributes, and recommended safety countermeasure strategies for improving roadway safety at these locations.

Table 18. Systemic Recommendations for East Providence

Road Type and Representative Roads	Common Characteristics and Safety Issues	Recommended Safety Countermeasures
Suburban Roads Bullocks Point Avenue, Willett Avenue (north of Crescent View Avenue), South Broadway	Two-lane road, wide shoulders for non-designated uses with under-utilized parking and narrow/unbuffered sidewalks	Daylighting and curb extensions for planters or trees, high-visibility crosswalks with pedestrian crossing signage in areas with bus stops or more frequent pedestrian activity, and protected or buffered bike lanes where on-street parking isn't needed.

7.4.1 Key Project Recommendations

The project sheets that provide recommended project goals, safety countermeasures, and a illustrated concept plan are based on an analysis of the historical crash data, a scan of the environmental context, and best practices. The planning-level recommendations are for planning purposes only, and additional design will be needed to advance and implement these recommendations. The city may implement changes as

part of a holistic street redesign project, or as smaller, incremental improvements over time. **Appendix F contains the project sheets with instructions on how to utilize the information in the appendix.**

7.5 Project Prioritization Matrix

The 16 projects shown in Figure 25 and Table 17 were evaluated across a variety of factors to help identify projects that should be prioritized. These factors include proximity to schools, planned projects, and bus stops, as well as location of historical crashes, among other key criteria. Table 19 presents the prioritization matrix.

Table 19. East Providence Safety Action Plan Project Prioritization Matrix

Criteria	Project 1 South Broadway (Waterman/ Taunton Avenue to Veterans Memorial Parkway)	Project 2 Taunton Avenue (Valley Street to City border)	Project 3 Waterman Avenue (North Broadway to Pawtucket Avenue)	Project 4 Pawtucket Avenue (Brightridge Avenue to Mountain Avenue)	Project 5 Warren Street (Follett Street to Pawtucket Avenue)	Project 6 Wampanoag Trail (Pawtucket Avenue to East Shore Expressway)	Project 7 North Broadway (Taunton/ Waterman Avenue to Greenwood Avenue)	Project 8 Intersection of Willett Avenue and Crescent View Avenue	Project 9 Bullocks Point Avenue (Crestview to Adams Avenue)	Project 10 Warren Street (Valley Street to Ninth Street)	Project 11 Newport Avenue (Greenwood Avenue to City border)	Project 12 Wampanoag Trail (Mink Street to Forbes Street)	Project 13 Pawtucket Avenue (Bullocks Point Avenue to Wheeler Avenue)	Project 14 Intersection of Newman Avenue and Pawtucket Avenue	Project 15 Forbes Street (Wampanoag Trail to Willett Avenue)	Project 16 Veterans Memorial Parkway (northern intersection with 1st Street to southern intersection with 2nd Street)
Safety																
Is this project location the site of a fatal or serious injury crash within the five-year study period?	X	X	X	X	X	X	X	-	X	X	-	X	X	X	X	X
Is this project location a hotspot for historical crashes?	X	X	-	-	X	-	X	-	-	X	-	-	-	-	-	-
Is this project location a hotspot for historical crashes involving people walking, rolling, or biking?	X	-	-	-	X	-	-	-	-	X	-	-	-	-	-	-
Was this project location identified by the systemic safety analysis as a high-risk area?	X	X	X	X	X	X	X	-	-	X	-	X	X	-	-	X
Was this project location identified by the systemic safety analysis as a high-risk area for people walking, rolling, or biking?	X	X	X	-	-	X	X	-	-	-	-	X	X	-	X	X
Has this project location previously been identified in road safety audit or similar safety study?	Yes	Yes	Yes	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local Context																
Is this project location along a RIPTA bus route?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
Is this project location part of the existing or planned bicycle and/or pedestrian network?	X	-	-	-	X	X	X	-	X	X	-	-	-	-	-	X
Is this project location within 1/4 mile of a school?	-	X	X	X	X	X	X	-	-	-	-	-	-	-	X	-
Are there other anchor institutions or key community assets nearby to this project location?	X	X	X	-	-	-	-	-	-	X	-	-	-	-	-	-
Is the project location in a USDOT-defined burdened area (i.e., Areas of Persistent Poverty)?	-	-	-	-	-	-	-	-	X	X	-	-	-	X	-	X
Was this project location identified as a priority through the community outreach process?	-	-	-	-	-	-	-	-	-	X	-	X	X	-	-	-
Project Characteristics																
Is the project consistent with the locally adopted comprehensive plan and/or local modal priorities?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Is this project located on a municipally maintained road?	X	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-

Criteria	Project 1 South Broadway (Waterman/ Taunton Avenue to Veterans Memorial Parkway)	Project 2 Taunton Avenue (Valley Street to City border)	Project 3 Waterman Avenue (North Broadway to Pawtucket Avenue)	Project 4 Pawtucket Avenue (Brightridge Avenue to Mountain Avenue)	Project 5 Warren Street (Follett Street to Pawtucket Avenue)	Project 6 Wampanoag Trail (Pawtucket Avenue to East Shore Expressway)	Project 7 North Broadway (Taunton/ Waterman Avenue to Greenwood Avenue)	Project 8 Intersection of Willett Avenue and Crescent View Avenue	Project 9 Bullocks Point Avenue (Crestview to Adams Avenue)	Project 10 Warren Street (Valley Street to Ninth Street)	Project 11 Newport Avenue (Greenwood Avenue to City border)	Project 12 Wampanoag Trail (Mink Street to Forbes Street)	Project 13 Pawtucket Avenue (Bullocks Point Avenue to Wheeler Avenue)	Project 14 Intersection of Newman Avenue and Pawtucket Avenue	Project 15 Forbes Street (Wampanoag Trail to Willett Avenue)	Project 16 Veterans Memorial Parkway (northern intersection with 1st Street to southern intersection with 2nd Street)
Will this project reduce conflicts between vehicles and people walking, rolling, or biking?	X	-	-	-	-	-	X	X	X	X	-	X	-	-	-	-
Will this project encourage drivers to operate at safe speeds?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Does the project align with a Safe Routes to School plan or other local transportation safety initiative?	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Does the project have co-benefits to other documented planning goals (economic development, resiliency, etc.)?	X	X	X	-	X	-	X	X	-	-	-	X	-	-	-	-
Feasibility																
Does the project already have the endorsement of relevant local boards and/or commissions?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Is project part of STIP/CIP or a local funding priority?	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	No	No	No	No	No
Can the project be implemented using existing local resources?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Have grants, loans, or other funding opportunities been identified to support project implementation?	For a portion	No	For a portion	No	For a portion	No	For a portion	No	No	No	No	No	No	No	No	No
Can the project be implemented in the short term (First five years after plan completion)?	-	-	-	X	X	X	X	-	X	X	-	-	X	X	X	-
If not feasible in the short term, can the project be implemented in the mid-term (Less than ten years after plan completion)?	X	X	X	-	-	-	X	X	-	-	X	-	-	-	-	X
Total	16 / 24	14 / 24	12 / 24	8 / 24	13 / 24	9 / 24	15 / 24	7 / 24	8 / 24	14 / 24	5 / 24	9 / 24	8 / 24	6 / 24	7 / 24	8 / 24

X=The proposed project fully meets the criteria
 -=The proposed project does not meet the criteria.

8. Progress and Transparency

This planning process began in March 2024, involving more than 6 months of community and stakeholder engagement in 2024. East Providence’s Safety Action Plan was published in summer 2025.

Throughout this planning process, the project team established processes and tools to measure progress and provide transparency for residents and stakeholders, methods of which apply to both the SAP’s development and for future implementation.

Bi-weekly team meetings between municipal and consulting team representatives tracked progress and kept stakeholders informed in the early stages of the project, and then the meetings moved to a monthly cadence as the work shifted internally to the consultants’ development of recommendations based on the HIN. Regular touchpoints with community leadership ensured their involvement in all major decisions. The project team also provided quarterly and annual progress reports in accordance with FHWA requirements for the SS4A grant.

To uphold progress and transparency throughout implementation, East Providence commits to the following ongoing measures:

- **Progress Measures**
 - **Annual Reporting:** Assess progress toward reducing roadway fatalities and serious injuries through annual public reports that are accessible to all.
 - **Outcome Data:** Provide relevant data that measures the impact of implemented strategies, ensuring a data-driven approach to track improvements over time.
- **Transparency Measures**
 - **Public Posting:** Publish the action plan online, ensuring residents, stakeholders, and other interested parties can access this SAP’s details, including all regular updates.
 - **Ongoing Communication:** Maintain open communication with the community and stakeholders through updates, city hall meetings, and engagement sessions to foster transparency and build trust.
 - **Regular City Council Updates:** Keep the City Council informed on activities and progress so that they can share updates at public meetings.

These progress and transparency measures provide a framework for ongoing accountability as the SAP is implemented. Each report will document activities and progress since the previous reporting period, directly tying updates to the recommendations, priority projects, and strategies outlined in Chapter 7. Tracking progress in this way bolsters continued project success, building on previous activities and reporting.

8.1 Key Reporting Metrics

Table 20 details key reporting metrics the Town of East Providence may consider using to track progress against its SAP goals.

Table 20. Key Reporting Metrics

Metric	Source
Number of traffic-related fatalities <ul style="list-style-type: none"> ▪ Pedestrian fatalities ▪ Cyclist fatalities ▪ Motor vehicle fatalities ▪ Motorcycle/moped fatalities 	Fatal Analysis Reporting System (FARS) or Local Police Data
Number and percentage of fatal and serious injury crashes involving youth (younger than 18)	Fatal Analysis Reporting System (FARS) or Local Police Data
Number and percentage of fatal and serious injury crashes involving older adults (65 and older)	Fatal Analysis Reporting System (FARS) or Local Police Data
Commute mode share for walking, bicycling, and transit	U.S. Census Bureau, American Community Survey
Number of people participating in safety-related education campaigns each year	Town Staff
Number of traffic studies conducted on High-Injury Network locations	Town Staff
Number of High-Injury Network locations improved	Town Staff
Number of pedestrian crossing improvements implemented	Town Staff
Lineal feet of sidewalks implemented	Town Staff
Lineal feet of bikeways implemented	Town Staff
Number of traffic calming projects implemented	Town Staff
Number of miles of streets with reduced speed limits	Town Staff

8.2 Summary of Key Timeline and Actions

The tables in Chapter 7 provide a detailed action plan to address each of the Safe System Approach pillars. As East Providence advances its safety goals, key initial activities include:

Short-Term (0 to 2 years post SAP adoption):

- Further prioritize projects, policies, and procedures for implementation
- Among priority projects, confirm whether additional planning studies or preliminary design are the next step toward implementation
- Identify long-term capital corridors that could benefit from short-term quick-build solutions
- Conduct a preliminary review of available funding sources (federal, state, local, grants)
- Coordinate with RIDOT on projects, policies, or procedures that would impact state-maintained roads or would require funding through the STIP
- Coordinate with City Council on plan implementation timeline, policies, and procedures to adopt for safer roads, and linkages with the STIP, Comprehensive Plan, and Bicycle and Pedestrian Plan priorities
- Identify safety champions and evaluate organizational capacity for establishing metric tracking and analysis, regular reporting, ongoing community engagement and promotion of plan, and for project management and delivery

Medium-Term (2 to 5 years post SAP adoption):

- Refresh SAP with updated crash data, public engagement, and emerging safety trends
- Coordinate with City Council on plan implementation timeline, policies, and procedures to adopt for safer roads, and linkages with the STIP, Comprehensive Plan, and Bicycle and Pedestrian Plan priorities
- Finalize project funding sources and secure competitive grants, as needed

- Advance projects through design, permitting, and procurement
- Implement quick-build or smaller capital construction projects
- Report post-implementation findings and refine projects in other locations based on findings

Long-Term (5+ years post SAP adoption):

- Refresh SAP with updated crash data, public engagement, and emerging safety trends
- Coordinate with City Council on plan implementation timeline, policies and procedures to adopt for safer roads, and linkages with the STIP, Comprehensive Plan, and Bicycle and Pedestrian Plan priorities
- Finalize project funding sources and secure competitive grants, as needed
- Advance projects through design, permitting, and procurement
- Implement larger capital construction projects or projects along RIDOT roadways
- Report post-implementation findings and refine projects in other locations based on findings

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Appendix A: Resolution, Letters of Support, and Self Certification



June 24, 2025

The Honorable Sean Duffy
U.S. Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

Subject: Letter of Support for 2025 Safe Streets and Roads for All (SS4A) Grant Application

Dear Secretary Duffy,

The Rhode Island Public Transit Authority (RIPTA) wishes to express our strong support for safety action planning initiatives across the State of Rhode Island. Over the past year, we have guided the development of municipal and statewide Safety Action Plans to address safety concerns for all road users, and we believe that the proactive road safety measures in this plan are crucial to foster a secure and thriving environment for all residents.

Rhode Island reported 295 fatalities and thousands more serious injuries from 2018-2022. Reducing and eliminating fatal and serious injuries is a critical step to improving Rhode Islanders' health and the state's economic vitality. The Safety Action Plan addresses this effort by:

- Assessing crashes and crash risks on our roadways
- Actively involving residents, local businesses, and relevant stakeholders
- Prioritizing actionable steps to address these issues through infrastructure and policy
- Collaborating with law enforcement and emergency response agencies, including through partnerships, training programs, and other tools and protocols

RIPTA is eager to support better connections to key destinations, such as improving bus stop access across the state or providing safer pedestrian crossings. We therefore put our full support behind this plan and our communities' efforts to improve the lives of all residents through these safe streets initiatives.

We look forward to collaborating closely with municipal and statewide partners to implement effective roadway safety measures.

Sincerely,

A handwritten signature in blue ink, appearing to read "C. Durand", is written over a light blue horizontal line.

Christopher Durand
RIPTA Chief Executive Officer



Department of Administration
DIVISION OF STATEWIDE PLANNING
235 Promenade Street, Suite 230
Providence, RI 02908



Office: (401) 222-7901
Email: DOA.Planning@doa.ri.gov

June 25, 2025

Subject: Letter of Support for Safety Action Planning

Dear Review Committee:

We wish to express our strong support for safety action planning initiatives across the State of Rhode Island. With the 177,000 reported crashes from 2019-2023, and 20% resulting in injuries or fatalities, reducing and moving towards eliminating fatal and serious injuries is critical to Rhode Islander's health and well-being and the state's economic vitality. As a committed advocate for community well-being, we believe that proactive safety measures are crucial for fostering a secure and thriving environment for our residents.

Over the past year, we have served on the Technical Working Group in support the development of municipal and statewide Safety Action Plans. The Safety Action Plans address safety by:

- Actively involving residents, local businesses, and relevant stakeholders
- Assessing crashes and risk on our roadways
- Prioritizing actionable steps to address these issues through infrastructure and policy
- Collaborating with law enforcement and emergency response agencies, including partnerships, training programs, and other tools and protocols

Simultaneously Rhode Island Division of Statewide Planning has conducted complementary efforts to improve roadway safety for all users. We are currently working on creating a Rhode Island Complete Streets Plan & Design Guide that will help advance the incorporation of complete streets elements into transportation projects at the state and municipal level. Additionally, the long-range transportation plan update that is currently being drafted includes an increased focus on transportation safety after findings from community engagement highlighted this priority for our region.

Rhode Island Division of Statewide Planning is driven to promote the health, safety, and well-being of all Rhode Island residents, and we recognize that healthy streets lead to a healthier community. We therefore put our full support behind this plan and our communities' efforts to improve the lives of all residents by planning for and implementing solutions through safe streets initiatives.

We look forward to collaborating closely with municipal and statewide partners to implement effective roadway safety measures.

Sincerely,

Meredith E. Brady
Associate Director



Department of Health

Three Capitol Hill
Providence, RI 02908-5097

TTY: 711
www.health.ri.gov

Subject: Letter of Support for Safety Action Planning

Dear Review Committee:

We wish to express our strong support for safety action planning initiatives across the State of Rhode Island. With the 177,000 reported crashes from 2019-2023, and 20% resulting in injuries or fatalities, reducing and moving towards eliminating fatal and serious injuries is critical to Rhode Islander's health and well-being and the state's economic vitality. As a committed advocate for community well-being, we believe that proactive safety measures are crucial for fostering a secure and thriving environment for our residents.

Over the past year, we have served on the Technical Working Group in support the development of municipal and statewide Safety Action Plans. The Safety Action Plans address safety by:

- Actively involving residents, local businesses, and relevant stakeholders
- Assessing crashes and risk on our roadways
- Prioritizing actionable steps to address these issues through infrastructure and policy
- Collaborating with law enforcement and emergency response agencies, including partnerships, training programs, and other tools and protocols

Rhode Island Department of Health (RIDOH) consistently promotes public health initiatives that improve public safety and public health across Rhode Island. We therefore put our full support behind this plan and our communities' efforts to improve the lives of all residents by planning for and implementing solutions through safe streets initiatives.

We look forward to collaborating closely with municipal and statewide partners to implement effective roadway safety measures.

Sincerely,

A handwritten signature in black ink that reads "Jerome M. Larkin".

Dr. Jerome Larkin

Director of RI Department of Health



State of Rhode Island

4 | A Self-Certification Eligibility Worksheet

All applicants should follow the instructions in the NOFO to correctly apply for a grant. See the [SS4A website](#) for more information.

Table 1 of the [SS4A NOFO](#) describes [seven components of an Action Plan](#), which correspond to the questions in this worksheet. Applicants should use this worksheet to determine whether their existing plan(s) contains the required components to be considered an eligible Action Plan for SS4A.

This worksheet is required for all SS4A **Implementation Grant** applications and any **Planning and Demonstration Grant applications to conduct Supplemental Planning/Demonstration Activities only**. Please complete the form in its entirety, do not adjust the formatting or headings of the worksheet, and upload the completed PDF with your application.

Eligibility

An Action Plan is considered eligible for an SS4A application for an Implementation Grant or a Planning and Demonstration Grant to conduct Supplemental Planning/Demonstration Activities if the following two conditions are met:

- You can answer "YES" to Questions **3, 6, and 8** in this worksheet; *and*
- You can answer "YES" to **at least three of the five remaining** Questions, **1, 2, 4, 5, and 7**.

If both conditions are not met, an applicant is still eligible to apply for a Planning and Demonstration Grant to fund the creation of a new Action Plan or updates to an existing Action Plan to meet SS4A requirements.

Applicant Information

Lead Applicant: _____

UEI: _____

Action Plan Documents

In the table below, list the relevant Action Plan and any additional plans or documents that you reference in this form. **Up to three plans or documents may be included**. Please provide a hyperlink to any documents available online or indicate that the Action Plan or other documents will be uploaded in Valid Eval as part of your application. Note that, to be considered an eligible Action Plan for SS4A, the plan(s) coverage must be broader than just a corridor, neighborhood, or specific location.

Document Title	Link	Date of Most Recent Update



Action Plan Components

For each question below, answer "YES" or "NO." If "YES," list the relevant plan(s) or supporting documentation that address the condition and the specific page number(s) in each document that corroborates your response. This form provides space to reference multiple plans, but please list only the most relevant document(s).

1. Leadership Commitment and Goal Setting

Are **BOTH** of the following true?

- A high-ranking official and/or governing body in the jurisdiction publicly committed to an eventual goal of zero roadway fatalities and serious injuries; and
- The commitment includes either setting a target date to reach zero OR setting one or more targets to achieve a reduction in roadway fatalities and serious injuries by a specific date.

YES

NO

Note: This may include a resolution, policy, ordinance, executive order, or other official announcement from a high-ranking official and the official adoption of a plan that includes the commitment by a legislative body.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)

2. Planning Structure

To develop the Action Plan, was a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring?

YES

NO

Note: This should include a description of the membership of the group and what role they play in the development, implementation, and monitoring of the Action Plan.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)



3. Safety Analysis

Does the Action Plan include **ALL** of the following?

- Analysis of existing conditions and historical trends to provide a baseline level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region;
- Analysis of the location(s) of crashes, the severity, contributing factors, and crash types;
- Analysis of systemic and specific safety needs, as needed (e.g., high-risk road features or specific safety needs of relevant road users); and,
- A geospatial identification (geographic or locational data using maps) of higher risk locations.

YES

NO

Note: Availability and level of detail of safety data may vary greatly by location. The [Fatality and Injury Reporting System Tool \(FIRST\)](#) provides county- and city-level data. When available, local data should be used to supplement nationally available data sets.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)

4. Engagement and Collaboration

Did development of the Action Plan include **ALL** of the following activities?

- Engagement with the public and relevant stakeholders, including the private sector and community groups;
- Incorporation of information received from the engagement and collaboration into the plan; and
- Coordination that included inter- and intra-governmental cooperation and collaboration, as appropriate.

YES

NO

Note: This should include a description of public meetings, participation in public and private events, and proactive meetings with stakeholders.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)



5. Policy and Process Changes

Are **BOTH** of the following true?

- The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety; and
- The plan discusses implementation through the adoption of revised or new policies, guidelines, and/or standards.

YES

NO

Note: This may include existing and/or recommended Complete Streets policy, guidelines for community engagement and collaboration, policy for prioritizing areas of greatest need, local laws (e.g., speed limit), design guidelines, and other policies and processes that prioritize safety.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)

6. Strategy and Project Selections

Does the plan identify a comprehensive set of projects and strategies to address the safety problems in the Action Plan, with information about time ranges when projects and strategies will be deployed, and an explanation of project prioritization criteria?

YES

NO

Note: This should include one or more lists of community-wide multi-modal and multi-disciplinary projects that respond to safety problems and reflect community input and a description of how your community will prioritize projects in the future.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)



7. Progress and Transparency

Does the plan include **BOTH** of the following?

- A description of how progress will be measured over time that includes, at a minimum, outcome data.
- The plan is posted publicly online.

YES

NO

Note: This should include a progress reporting structure and list of proposed metrics.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)

8. Action Plan Date

Was at least one of your plans finalized and/or last updated between 2020 and June 26, 2025?

YES

NO

Note: Updates may include major revisions, updates to the data used for analysis, status updates, or the addition of supplemental planning documents, including but not limited to an ADA Transition Plan, one or more Road Safety Audits conducted in high-crash locations, or a Vulnerable Road User Plan.

If "YES," please list your most recent document, date of finalization, and page number(s) that corroborate your response.

Document Title	Date of Most Recent Update	Page Number(s)



Appendix B: Safety Analysis Methods

Safety Analysis Methods

Safe Streets and Roads for All

June 2025



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Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
DOT	U.S. Department of Transportation
FI	Fatal and Injury
FSI	Fatal and Serious Injury
HIN	High-Injury Network
HPMS	Highway Performance Monitoring System
RIDOT	Rhode Island Department of Transportation
RIPTA	Rhode Island Public Transit Authority
SS4A	Safe Streets and Roads for All
USGS	U.S. Geological Survey
VRU	Vulnerable Road User

1. Introduction

This document provides an overview of the technical approaches used to perform the key data analyses in support of the Rhode Island Public Transit Authority (RIPTA) Safe Streets and Roads for All (SS4A) municipal safety action plans. Draft analysis methods were determined collectively with AECOM and RIPTA at the onset and were executed and refined over the course of the project, responding to changing data, timelines, and project needs. Results of analyses are detailed in the main body of municipal safety action planning documents.

2. Analysis Data

Key datasets from Rhode Island Department of Transportation (RIDOT), U.S. Department of Transportation (USDOT), and others provided the basis for all safety analyses. These are summarized in Table 1.

Table 1. Key Datasets

Category	Dataset	Source	Version	Description	Application
Safety	Historical Crash Data	RIDOT	2016-2023	Crash, vehicle, person tables	Underlying crash dataset for entire project
Infrastructure	Roadway Inventory	RI E911 Centerlines	2016	Roadway network for Rhode Island	Underlying roadway network and attributes for entire project
Operational	Functional Classification	RI E911 Centerlines	2016	Roadway functional classification	Functional classification used for baseline crash analysis
	Motor Vehicle Volume (primary)	Highway Performance Monitoring System (HPMS)	2023	Rhode Island HPMS dataset	Roadway volumes for baseline crash and risk-based analysis
	Motor Vehicle Volume (secondary)	Replica	2023	Modeled Average Annual Daily Traffic (AADT) values	Roadway volumes for baseline crash and risk-based analysis
	Ownership	HPMS	2023	Rhode Island HPMS dataset	Roadway ownership for baseline crash and risk-based analysis
Land Use	Land Cover	U.S. Geological Survey (USGS)	2021	Land cover as categorized by USGS	Used to delineate urban, suburban, and rural context based on density of development
Demographics	U.S. Census Demographic Data	U.S. Census Bureau	2022, 5-year estimates	Various demographic attributes by census block group	Comparative values in baseline crash analysis, and inputs to risk-based analysis
	Justice40 Equitable Transportation Communities Data	U.S. Department of Transportation	v1.0	Dataset that assesses transportation-burdened communities across multiple categories	Equity dataset for baseline crash analysis

2.1 Land Use Context

Given the nuances involved in defining land use context and the impact of these distinctions on safety performance, the project team used the National Land Cover Database from the U.S. Geological Survey (USGS) to produce project-specific definitions for urban, suburban, and rural context areas. To produce context-sensitive analyses and inform interpretation of results, crashes and roadway networks were assigned a land use context definition. The data's 0.5-mile tiles were analyzed to determine relative coverage of various development densities, identifying medium- and high-intensity development areas and calculating an urban percentage metric. Based on this, each 0.5-mile tile was categorized as rural, suburban, or urban when the urban percentage metric is between 0 percent and 15 percent, 15 percent and 50 percent, or 50 percent and 100 percent, respectively.

This analysis identifies urban cores in and around Providence, Warwick, Newport, and more, which are surrounded by strips of suburban areas. The resulting context-area definition assignments were validated based on internal review, comparison to similar context area studies in the United States, and local knowledge. The context results were also tested during later analysis stages to ensure the distinctions served to further understanding of existing conditions.

Roadway segments often intersect with multiple context areas; in these instances, spatial relationships served to determine the context assignment: the context area category with the largest overlap was assigned to the roadway segment, as shown on Figure 1. Crashes were assigned to the context area category with which the crash point intersects.

2.2 Crash Geocoding

Rhode Island crash data were geocoded to improve location accuracy and ensure consistency, addressing issues in the original data caused by imprecise coordinates and incomplete datasets. Crashes were categorized by location type—address-based, intersection-based, or intersection-offset—and processed using standardized methods to achieve reliable spatial positioning. In the original data, approximately 69 percent of crashes were geolocated using latitude and longitude information, though some crash locations proved to be unreliable. After the re-geocoding process, approximately 89 percent of crashes were successfully geolocated and provided a reliable foundation for later analyses.

The geocoding effort enabled a more precise understanding of where crashes occur, allowing detailed analysis and serving to better inform the decision-making processes inherent to transportation safety planning. By ensuring accurate location data, the project helps to identify high-risk areas, assess trends, and develop targeted interventions to improve roadway safety as part of the Safe Streets Action Plan.

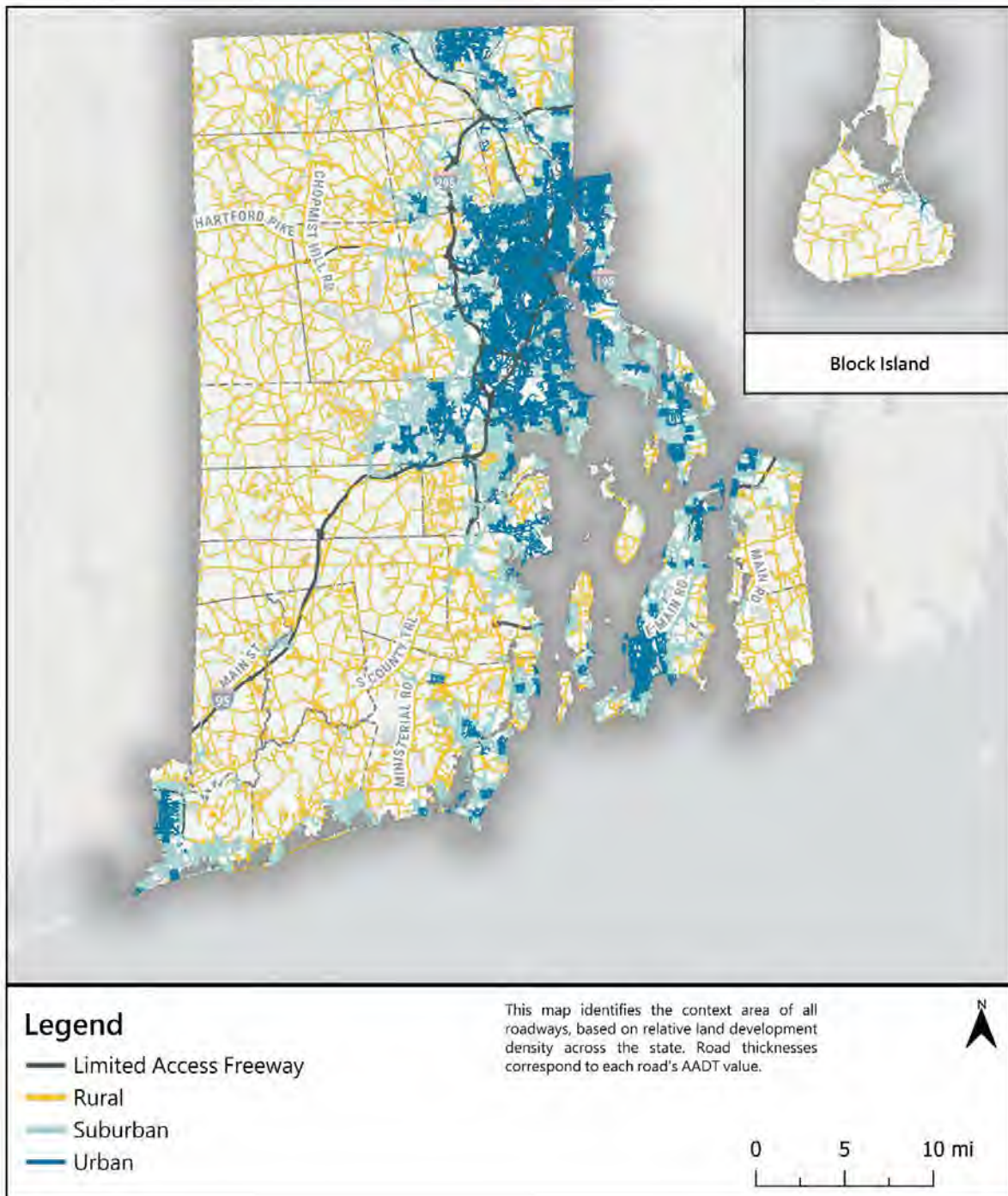


Figure 1. Context Area Assignment on Roadway Network

3. Crash Density Heatmaps

The crash density heatmaps represent the concentrations of crashes in the 2019 through 2023 study period at the municipal and statewide levels. Standard QGIS symbology was used to depict areas of high relative density within each municipality; a search radius of 1,000 feet produced meaningful insights that were also legible on the maps. The crash density heatmaps provide context on crash distribution in future analyses and preserve the anonymity of the crash data. Crash density heatmaps are available for all modes of crashes with severities of fatal and serious injury (FSI) and fatal and injury (FI), as well as for vulnerable road user (VRU) crashes with severities of FSI and FI.

4. Baseline Crash Analysis Exhibits

The baseline crash analysis is the starting point for all downstream analyses, providing an overview of study area-wide safety performance characteristics during the 2019 through 2023 study period. This analysis evaluates historical crash data, summarizing it using several different crash data attributes, such as crash mode, causation, temporal patterns, and more. The results are captured in spreadsheet files. Within each municipality’s spreadsheet file, a tab provides an overview of the content, with additional analysis results tabs that feature multiple tables and figures on a selection of analysis topics. These results are summarized in Table 2, listing the topic areas covered, the key crash and other data attributes analyzed under each topic, and the data sources used for the analyses.

Table 2. Baseline Crash Analysis Exhibits Content Overview

Topic Area	Crash Attributes	Other Data	Data Sources
Z. Statewide Comparison	Severity, Mode, Municipality	Municipal Population	RIDOT municipal boundaries
A. Crash Trends	Severity, Mode, Year	—	RIDOT crash data
B. Crash Mode	Severity, Mode	—	RIDOT crash data
C. Crash Causation	Severity, Mode, Manner of Impact, Contributing Factors	—	RIDOT crash data
D. Roadway Characteristics	Severity, Mode, Roadway Jurisdiction, Relation to Junction, Roadway Type, Traffic Volume	—	RIDOT crash data, HPMS, Replica
E. Temporal Patterns	Severity, Mode, Month of Year, Day of Week, Time of Day	—	RIDOT crash data
F. Vehicle Characteristics	Severity, Mode, Vehicle Registration State	—	RIDOT crash data
G. Environmental Characteristics	Severity, Mode, Lighting Condition, Weather Condition, Road Surface Condition, Land Use Context	—	RIDOT crash data
H. Demographics	Severity, Mode, Road User Age, Road User Gender	Population by Age and Gender	RIDOT crash data, U.S. Census Demographic Data
I. Equity	Severity, Mode, Justice40 Equity Metric Scores (Climate, Environmental, Health, Social, Transportation, Overall)	—	RIDOT crash data, Justice 40 Equitable Transportation Communities Data

5. Baseline Crash Analysis Maps

The baseline crash analysis maps are the result of a reactive, crash density-based analysis of roadways. This analysis, based on a modified sliding window analysis approach, smooths crash data across corridors, clearly depicting roadway network segments with relatively high densities of crashes during the 2019 through 2023 study period, with a particular emphasis on high severity crashes. This is achieved through a sequence of analysis steps:

- Roadway segmentation
- Crash assignment and segment scoring
- Percentile ranking and selection
- Post-processing of minor roads

Crashes from the 2019 through 2023 study period were successfully geolocated and assigned to a roadway location. The analysis was conducted first across all crash modes, namely motor vehicles, motorcycles, bicyclists, and pedestrians, and then repeated for exclusively VRUs, including all crashes that involved at least one pedestrian or bicyclist.

5.1 Roadway Segmentation

First, all roadways across the state of Rhode Island were segmented to achieve consistent segment lengths within each context area of urban, suburban, rural, and access-controlled freeways. This was done by first dissolving all roadway geometries by street name, municipality, and context area. These corridors were then segmented using standard lengths, which differed depending on the context area, summarized in Table 3, to produce context-sensitive results during later analysis steps.

Table 3. Roadway Re-segmentation Lengths by Context Area

Context Area	Segment Length	Purpose
Urban	0.25 mile	Short segments reflect the dynamic, dense environments of urban areas
Suburban	0.50 mile	Medium segments reflect the hybrid context of suburban areas
Rural	1.00 mile	Long segments reflect the sparse networks of rural areas and effectively capture sparse crash patterns
Access-Controlled Freeways	1.00 mile	Long segments capture crash patterns along high-speed freeways

5.2 Crash Assignment and Segment Scoring

Once roadways were segmented, all study period crashes were assigned to roadway segments. To capture patterns that continued through intersections, and to account for inaccuracies in exact crash geolocations, each crash was assigned to all segments within 100 feet of the crash’s geocoded location. To focus the analysis on patterns of high severity crashes, crashes were assigned a score based on the highest severity injury in the crash. Both fatal (K) and incapacitating injury (A) crashes were assigned a score of 3, minor injury (B) crashes were assigned a score of 2, and possible injury (C) crashes were assigned a score of 1, while property damage only (O) crashes were excluded from the analysis. This scoring is summarized in Table 4.

Table 4. Crash Severity Scores

Severity Level	Description	Score
K	Fatal	3
A	Incapacitating Injury	3
B	Minor Injury	2
C	Possible Injury	1
O	Property Damage Only	0

To generalize patterns of discrete crash locations across continuous roadway corridors, the project team applied a modified sliding window analysis, smoothing data across adjacent segments. This approach distributed the score associated with each crash between the segment the crash was assigned to as well as two segments on either side. The relative portion of the crash score assigned to each segment varies by its distance from the center segment and decreases linearly. This creates a pyramid-shaped distribution of each crash’s score across up to five adjacent segments, as visualized in Figure 2. These distributed crash scores were then totaled and used as the final crash score for the given segment.

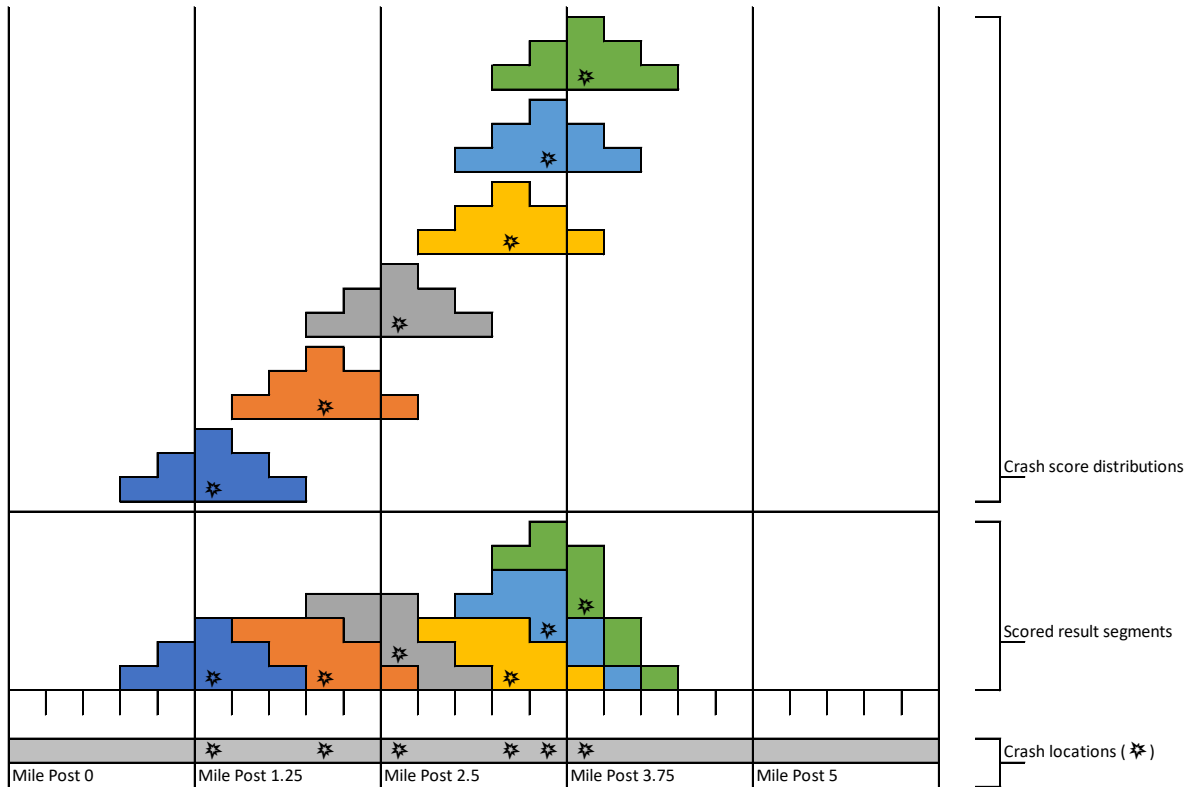


Figure 2. Sliding Window Analysis and Crash Distribution Schematic

5.3 Percentile Ranking and Selection

Once the sliding window analysis process was complete, the results were analyzed based on distributed crash scores to identify the top scoring roadway segments based on the distributed crash scores within each municipality. A percentile ranking was computed for each segment within each context area and each

municipality, then the top 15 percent of all roads were selected, as visualized in Figure 3. Breaking the ranking process out by municipality and context area ensures that every municipality is compared only against itself to determine the final target roadways, rather than comparing roadways in different context areas. Approximately 15 percent of each municipality’s roadway network was selected as the final target roads, including 15 percent within each context area where adequate crash data exist (e.g., municipal networks in a context with zero crashes resulted in no target roads).

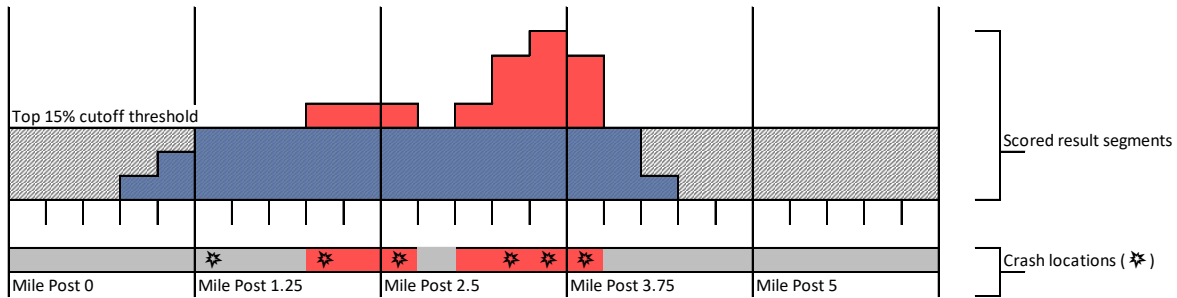


Figure 3. Percentile Ranking of Distributed Crash Scores

5.4 Post-Processing of Minor Roads

Because a crash is assigned to all roadway segments within 100 feet of the crash point, minor streets that branch off from major corridors tend to receive higher scores than they would otherwise, due to the high number of severe crashes at intersections with the major corridor. These minor streets can be removed from the target networks to make the major corridor the focus of the recommendations and treatments. For this reason, a post-processing step was added to remove minor streets that scored in the top 85th percentile due to intersection clusters of severe crashes. This process was not performed in municipalities with fewer than 10 crashes involving VRUs.

6. Risk-Based Analysis

This section documents the methodology and results of the risk-based network analysis process conducted to supplement the baseline crash analysis and mapping process outlined above. This systemic analysis builds on the reactive, crash-based approach to identify roadway facilities with the greatest potential for safety improvements by identifying combinations of roadway attributes that are associated with high frequencies of severe crashes. The results of this analysis, combined with the baseline crash analysis mapping results, produced the final high-injury network.

6.1 Systemic Screening Factors

One of the key outcomes of the systemic safety analysis process is the identification of roadway facility attributes that correlate with high crash frequency. These attributes are also known as systemic screening factors. Combinations of these factors can help flag roadway facility profiles associated with high crash frequencies. Notably, the presence of these factors does not necessarily indicate a causal relationship, nor that individual factors must be the target of treatments. For example, though the presence of nearby VRU generators may be a factor that correlates with elevated VRU crash frequencies, this does not mean that

these generators should be removed. Instead, facilities near such generators may require additional support through safety investments.

Screening factors and roadway facility profiles should be studied from a practical and policy-driven perspective to determine what components may be reasonable targets of safety improvements and which should be viewed primarily as non-causal correlations.

Table 5 includes all roadway segment attributes that were identified as candidate factors for consideration in the analysis. Factors considered in the final analysis were limited by data quality and availability.

Table 5. Systemic Screening Factors Analyzed

Screening Factor	Description
Roadway Jurisdiction	State, Local, or Other (Unknown or Private)
Lane Configuration	Two-lane, Multilane
Traffic Volume Range (Average Annual Daily Traffic)	0 – 1,000, 1,000 – 10,000, 10,000+
Proximity to a School	Within 0.25 Mile, Not Within 0.25 Mile
Proximity to a Public Park	Within 0.25 Mile, Not Within 0.25 Mile
Percent of Population with Income Below 2x of the Poverty Level	Under 20%, 20-40%, Over 40%
Percent of Households with Zero Vehicles	Below 10%, 10-20%, Over 20%
Percent of Population Aged 65 or Older	Below 10%, 10-20%, Over 20%
Percent of Population Aged Below 18	Below 10%, 10-20%, Over 20%

6.2 Analysis Process

As with the baseline crash analysis, the systemic analysis focused on the study period of 2019 through 2023. The target study roadway facilities include public roadways in the state of Rhode Island, excluding access-controlled freeways and related ramps. The analysis used the same crash scoring system as the baseline crash analysis, as summarized in Table 4.

The systemic analysis screening process is based on a decision tree machine learning algorithm in which each factor is screened individually to determine whether it can distinguish between locations with relatively high or low average crash densities per mile. For categorical factors such as roadway jurisdiction, the algorithm considers each unique classification individually. The algorithm screens all factors recursively to identify the most correlated, mutually exclusive sets of risk factors, resulting in several decision tree leaves, known in this analysis as facility profiles. Figure 4 illustrates the decision tree algorithm where multiple correlated factors define a facility profile.

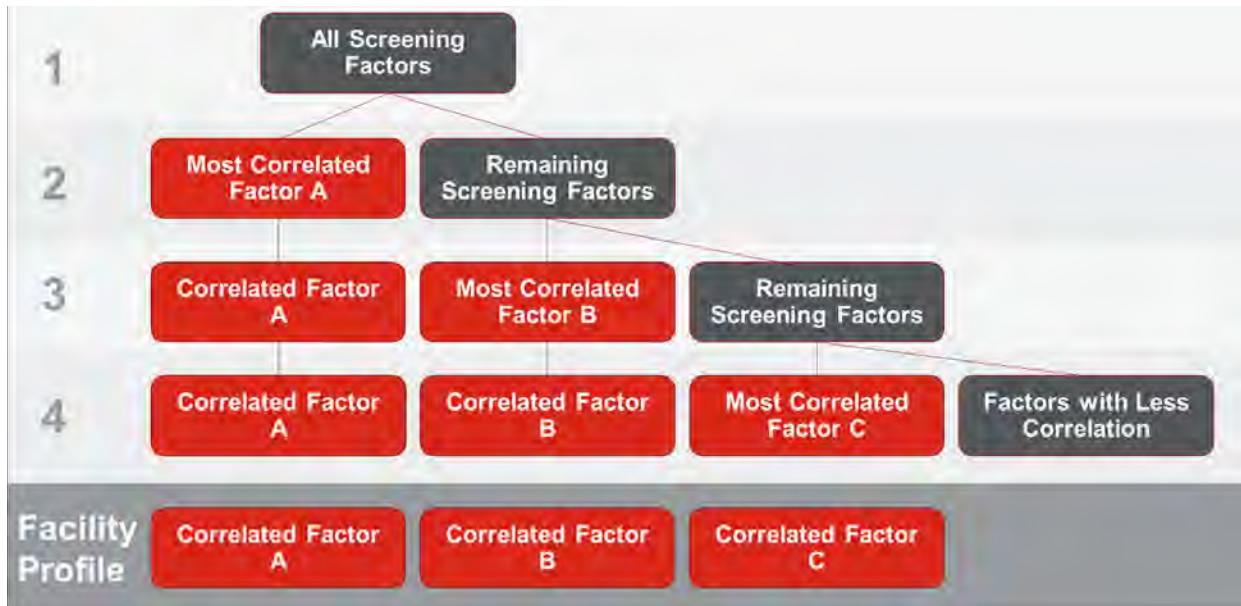


Figure 4. Illustration of the Decision Tree Process for Screening Combinations of Crash Risk Factors

6.3 Analysis Results

The following pages include risk-based analysis results, which are organized by context classification, first by all modes, and then by VRUs. Tables and figures outline the unique risk factors and priority rankings associated with each facility profile. Each subsection provides definitions of unique facility profiles identified by the analysis and their associated risk factors and statewide crash score and mileage metrics associated with these profiles. Profiles are grouped into five tiers, including Critical, High, Medium, Low, and Minimal, highlighting the facilities that are associated with the highest to lowest risk for severe crashes based on combinations of risk factors. Based on these profiles and their tiers, the project team was able to identify which roadway segments were associated with high levels of crash risk for each mode.

6.3.1 All Modes – Urban Context

This section presents risk-based facility profile analysis models for crashes of all modes on all roadways within an urban context in Rhode Island, excluding access-controlled freeways and ramps. The analysis was conducted using severity-weighted fatal and injury crashes.

Table 6. All Modes Facility Profile Tier Definitions, Urban Context

Facility Profile Tier	Traffic Volume Range (AADT)	% Zero Vehicle Households	Roadway Jurisdiction	% Population Below 2x Poverty Level	Within 0.25 Mile of School
Critical	10,000+	Over 20%	Non-State	—	—
High	1,000+	10-20%	—	Over 40%	—
	10,000+	Over 20%	State	—	—
	1,000-10,000	Over 20%	—	—	—
Medium	10,000+	Under 20%	—	Under 40%	—
	1,000+	Under 10%	—	Over 40%	—
	0-1,000	—	—	Over 40%	Yes
Low	1,000-10,000	Under 20%	—	Under 40%	—
	0-1,000	—	—	Over 40%	No
Minimal	0-1,000	—	—	Below 40%	—

Table 7. All Modes Facility Profile Tier Metrics, Urban Context

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	95.69	34.9	3,336.0	1.4%	7.4%
High	51.51	244.0	12,570.0	9.5%	27.9%
Medium	27.64	428.9	11,852.0	16.7%	26.3%
Low	16.54	470.5	7,784.0	18.4%	17.3%
Minimal	6.91	1,382.7	9,560.0	54.0%	21.2%

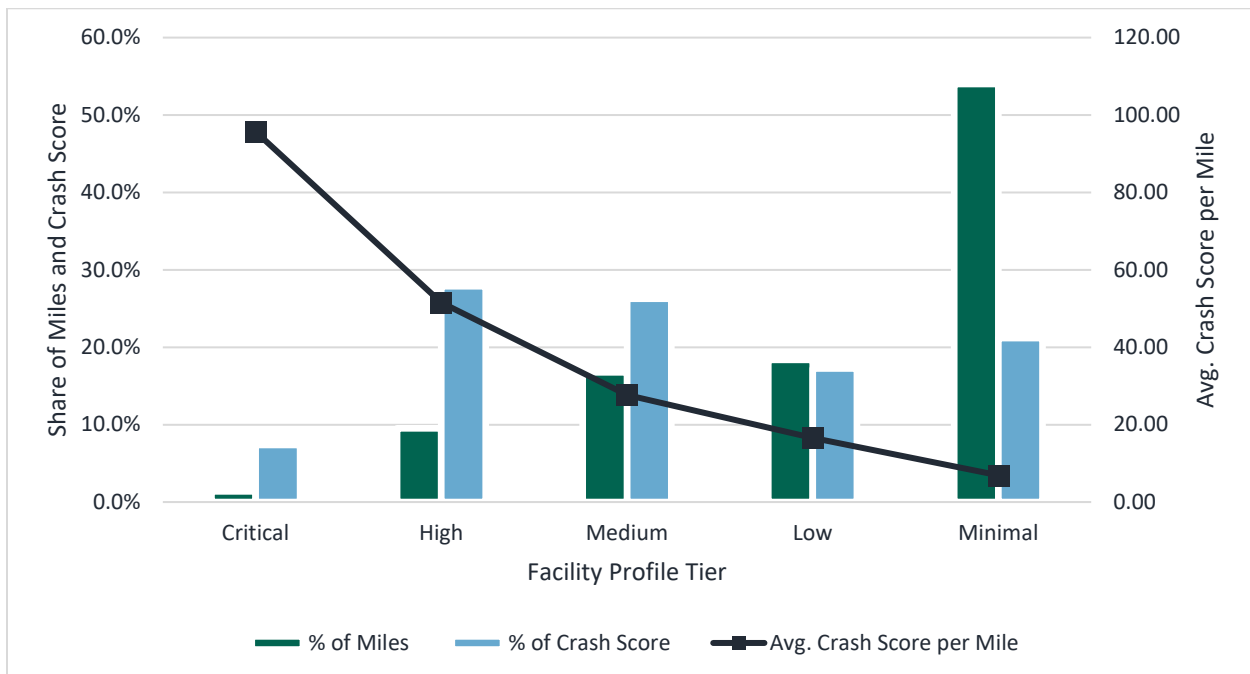


Figure 5. All Modes Facility Profile Tier Summary, Urban Context

6.3.2 All Modes – Suburban Context

This section presents risk-based facility profile analysis models for crashes of all modes on all roadways within a suburban context in Rhode Island, excluding access-controlled freeways and ramps. The analysis was conducted using severity-weighted fatal and injury crashes.

Table 8. All Modes Facility Profile Tier Definitions, Suburban Context

Facility Profile Tier	Roadway Jurisdiction	Traffic Volume Range (AADT)	Within 1/4 Mile of School	Lane Configuration	% Zero Vehicle Households	% Population Below 18
Critical	State	10,000+	Yes	—	—	—
	State	10,000+	No	Multilane	—	—
High	State	10,000+	No	Two-lane	—	—
	State	0-10,000	—	—	Over 10%	—
Medium	State	0-10,000	—	—	Under 10%	—
	Non-State	1,000+	—	—	Over 10%	—
	Non-State	1,000+	—	—	Under 10%	Under 20%
Low	Non-State	1,000+	—	—	Under 10%	Over 20%
Minimal	Non-State	0-1,000	—	—	—	Over 10%
	Non-State	0-1,000	—	—	—	Under 10%

Table 9. All Modes Facility Profile Tier Metrics, Suburban Context

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	19.89	69.0	1,372.0	3.7%	16.3%
High	14.14	134.8	1,906.0	7.3%	22.7%
Medium	8.47	264.8	2,243.0	14.3%	26.7%
Low	5.37	114.7	616.0	6.2%	7.3%
Minimal	1.78	1,270.2	2,265.0	68.5%	27.0%

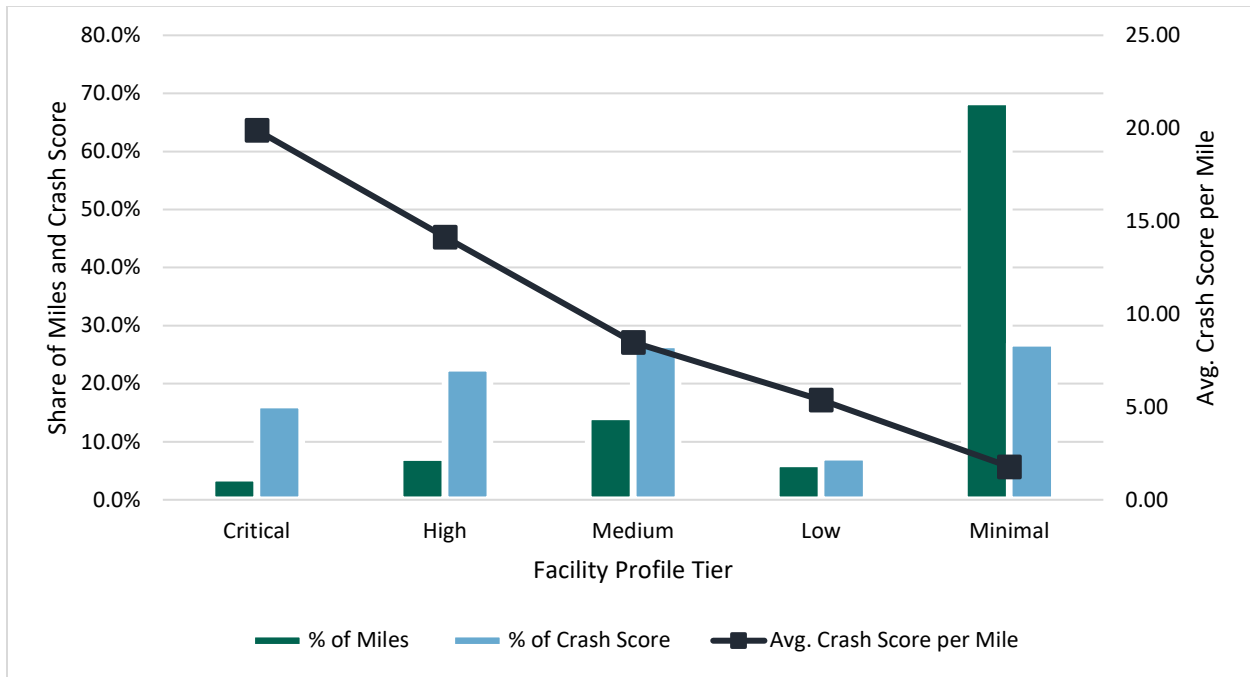


Figure 6. All Modes Facility Profile Tier Summary, Suburban Context

6.3.3 All Modes – Rural Context

This section presents risk-based facility profile analysis models for crashes of all modes on all roadways within a rural context in Rhode Island, excluding access-controlled freeways and ramps. The analysis was conducted using severity-weighted fatal and injury crashes.

Table 10. All Modes Facility Profile Tier Definitions, Rural Context

Facility Profile Tier	Traffic Volume Range (AADT)	Roadway Jurisdiction	% Population Below 2x Poverty Level
Critical	10,000+	—	—
High	0-10,000	State	Over 20%
Medium	0-10,000	State	Under 20%
Low	1,000-10,000	Non-State	—
Minimal	0-1,000	Non-State	—

Table 11. All Modes Facility Profile Tier Metrics, Rural Context

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	15.18	65.1	988.0	3.0%	20.1%
High	5.19	136.3	707.0	6.2%	14.4%
Medium	4.26	293.0	1,247.0	13.4%	25.4%
Low	3.02	181.0	546.0	8.3%	11.1%
Minimal	0.94	1,512.1	1,422.0	69.1%	29.0%

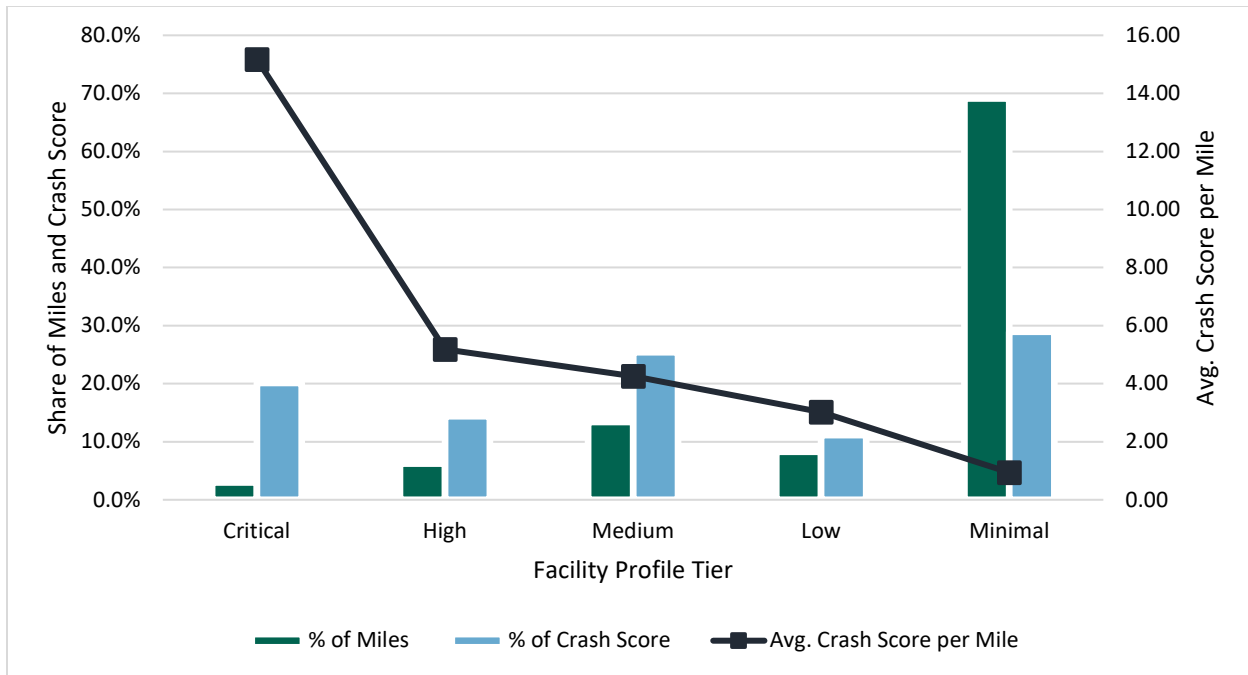


Figure 7. All Modes Facility Profile Tier Summary, Rural Context

6.3.4 Vulnerable Road User Modes – Urban Context

This section presents risk-based facility profile analysis models for crashes of VRU modes on all roadways within an urban context in Rhode Island, excluding access-controlled freeways and ramps. The analysis was conducted using severity-weighted fatal and injury crashes.

Table 12. Vulnerable Road User Modes Facility Profile Tier Definitions, Urban Context

Facility Profile Tier	% Zero Vehicle Households	Traffic Volume Range (AADT)	% Population Below 18	Within 0.25 Mile of School	% Population Below 2x Poverty Level	Within 0.25 Mile of Public Park
Critical	Over 20%	1,000+	Below 10%	—	—	—
High	Over 20%	1,000+	Over 10%	Yes	—	—
	10-20%	1,000+	—	—	Over 40%	—
Medium	Over 20%	0-1,000	—	—	—	Yes
	Over 20%	1,000+	Over 10%	No	—	—
Low	Under 10%	1,000+	—	—	Over 40%	—
	Under 20%	0-1,000	—	—	Over 40%	—
	Under 20%	1,000+	—	—	Under 40%	—
	Over 20%	0-1,000	—	—	—	No
Minimal	Under 20%	0-1,000	—	—	Under 40%	—

Table 13. Vulnerable Road User Modes Facility Profile Tier Metrics, Urban Context

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	13.52	37.4	506.0	1.5%	9.0%
High	8.13	167.5	1,361.0	6.6%	24.3%
Medium	4.41	228.1	1,006.0	8.9%	18.0%
Low	2.19	875.7	1,917.0	34.3%	34.3%
Minimal	0.65	1,241.7	803.0	48.7%	14.4%

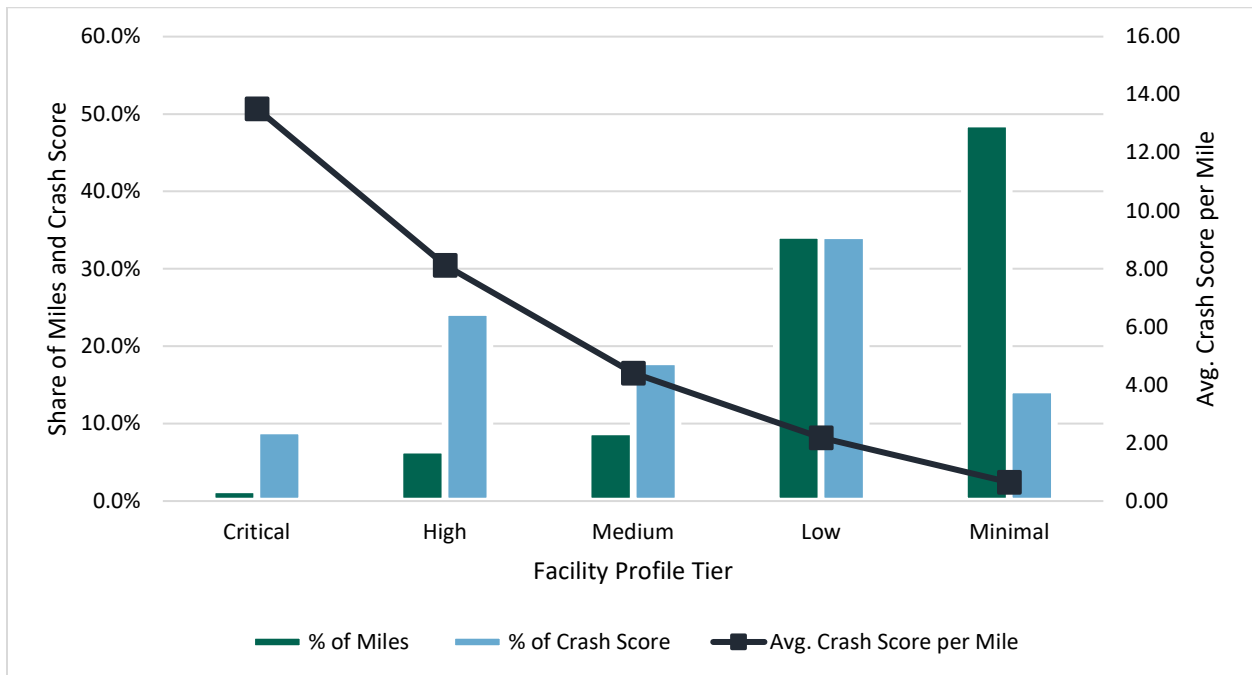


Figure 8. Vulnerable Road User Modes Facility Profile Tier Summary, Urban Context

6.3.5 Vulnerable Road User Modes – Suburban Context

This section presents risk-based facility profile analysis models for crashes of VRU modes on all roadways within a suburban context in Rhode Island, excluding access-controlled freeways and ramps. The analysis was conducted using severity-weighted fatal and injury crashes.

Table 14. Vulnerable Road User Modes Facility Profile Tier Definitions, Suburban Context

Facility Profile Tier	Traffic Volume Range (AADT)	% Zero Vehicle Households	Within 0.25 Mile of School	Roadway Jurisdiction	Within 0.25 Mile of Public Park	% Population Below 18	% Population Below 2x Poverty Level
Critical	1,000+	Over 20%	—	—	—	—	—
High	1,000+	Under 20%	Yes	Non-Local	—	—	—
	1,000+	Under 20%	No	—	Yes	—	—
Medium	1,000+	Under 20%	Yes	Local	—	—	—
	1,000+	Under 20%	No	—	No	—	—
Low	0-1,000	Over 10%	No	—	—	Over 10%	—
	0-1,000	Under 10%	—	—	—	Over 10%	Under 20%
Minimal	0-1,000	Over 10%	Yes	—	—	Over 10%	—
	0-1,000	Under 10%	—	—	—	Over 10%	Over 20%
	0-1,000	—	—	—	—	Under 10%	—

Table 15. Vulnerable Road User Modes Facility Profile Tier Metrics, Suburban Context

Facility Profile Tier	Average Crash Score per Mile	Miles	Crash Score	Miles Share	Crash Score Share
Critical	1.23	20.3	25.0	1.1%	5.3%
High	0.78	133.9	105.0	7.3%	22.2%
Medium	0.38	397.6	149.0	21.6%	31.6%
Low	0.19	835.7	161.0	45.5%	34.1%
Minimal	0.07	451.0	32.0	24.5%	6.8%

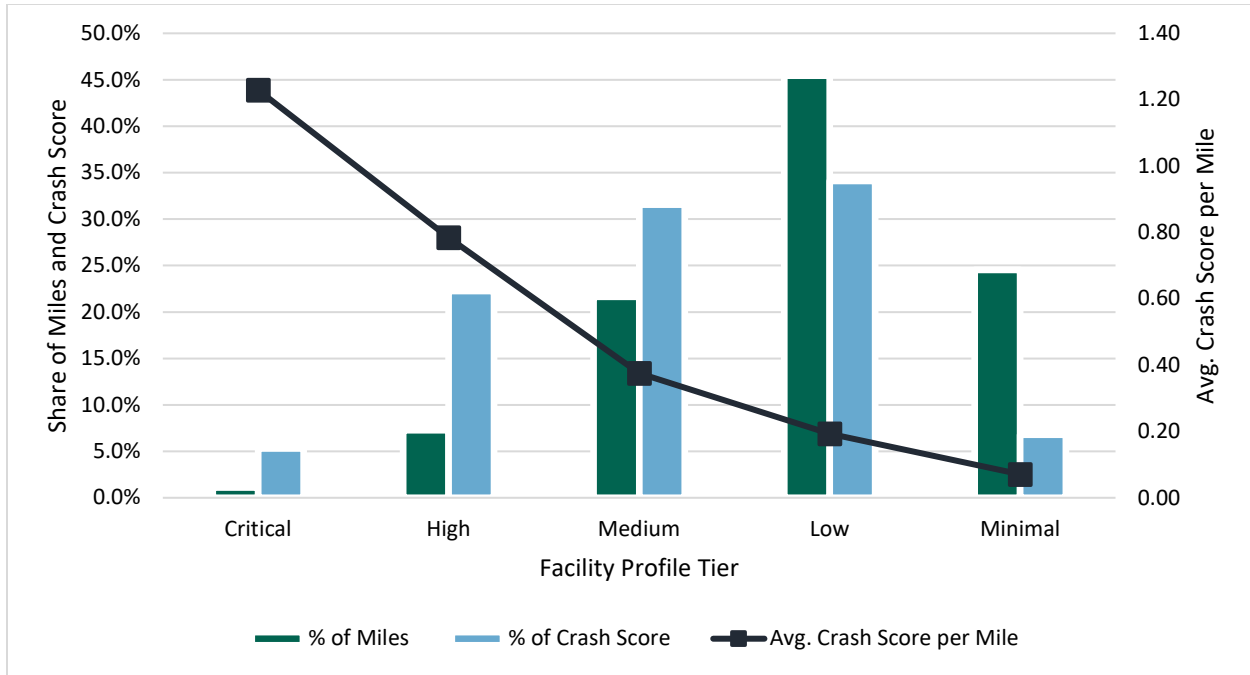


Figure 9. Vulnerable Road User Modes Facility Profile Tier Summary, Suburban Context

6.4 Top Tier Identification

Typically, Critical, High, and Medium risk tiers are automatically included in the development of an HIN. However, due to the varying mileage of different tiers of roads within each municipality, analysis results for each were reviewed individually to identify the number of tiers to include in each municipality’s HIN. The review aimed to capture approximately 10 percent to 20 percent of each municipality’s mileage within the top selected tiers, for both all modes and VRU modes models. The selection of risk tiers per model by municipality is summarized in Table 16.

Table 16. Top Risk Tiers by Municipality and Mode Group

Municipality	Selected All Mode Tiers	Selected VRU Mode Tiers
Barrington	Critical, High, Medium	Critical, High, Medium
Bristol	Critical, High	Critical, High, Medium
Burrillville	Critical, High	Critical, High, Medium
Central Falls	Critical	Critical
Charlestown	Critical, High	Critical, High, Medium
Coventry	Critical, High, Medium	Critical, High, Medium
Cranston	Critical, High	Critical, High, Medium
Cumberland	Critical, High, Medium	Critical, High, Medium
East Greenwich	Critical, High, Medium	Critical, High, Medium
East Providence	Critical, High	Critical, High
Exeter	Critical, High, Medium	Critical, High, Medium
Foster	Critical, High, Medium	Critical, High, Medium
Glocester	Critical, High, Medium	Critical, High, Medium
Hopkinton	Critical, High, Medium	Critical, High, Medium
Jamestown	Critical, High, Medium	Critical, High, Medium
Johnston	Critical, High, Medium	Critical, High, Medium

Municipality	Selected All Mode Tiers	Selected VRU Mode Tiers
Lincoln	Critical, High	Critical, High, Medium
Little Compton	Critical, High, Medium	Critical, High, Medium
Middletown	Critical, High, Medium	Critical, High, Medium
Narragansett	Critical, High, Medium	Critical, High, Medium
New Shoreham	Critical, High	Critical, High, Medium
Newport	Critical, High, Medium	Critical, High
North Kingstown	Critical, High, Medium	Critical, High, Medium
North Providence	Critical, High	Critical, High, Medium
North Smithfield	Critical, High	Critical, High, Medium
Pawtucket	Critical, High	Critical, High
Portsmouth	Critical, High, Medium	Critical, High, Medium
Providence	Critical	Critical
Richmond	Critical, High, Medium	Critical, High, Medium
Scituate	Critical, High	Critical, High, Medium
Smithfield	Critical, High, Medium	Critical, High, Medium
South Kingstown	Critical, High	Critical, High, Medium
Tiverton	Critical, High, Medium	Critical, High, Medium
Warren	Critical, High, Medium	Critical, High
Warwick	Critical, High, Medium	Critical, High, Medium
West Greenwich	Critical, High, Medium	Critical, High, Medium
West Warwick	Critical, High, Medium	Critical, High, Medium
Westerly	Critical, High, Medium	Critical, High, Medium
Woonsocket	Critical	Critical

7. High-Injury Network

The final component of the safety analysis is the creation of the HIN, which combines the results of both the sliding window analysis and the risk analysis. The HIN uses the same segmentation as the sliding window analysis, with 0.25-mile segments for urban roads, 0.5-mile segments for suburban roads, and 1.0-mile segments for rural roads and access-controlled freeways. By combining the two analyses into one final roadway layer, the HIN communicates a holistic assessment of the need for intervention, based on final crash scores and risk tiers of each segment.

Final designation of inclusion in the HIN depends on the results of the baseline crash analysis and risk-based analysis for both all modes and VRU modes analyses. Each roadway segment falls into one of four categories:

- **Reactive:** Segments that appear on the baseline crash analysis maps based on a top 15 percent crash score for the given mode and municipality.
- **Proactive:** Segments that appear in the top risk tiers for the given mode and municipality.
- **Reactive and Proactive:** Segments that satisfy both the reactive and proactive categories.
- **None:** Segments that satisfy neither the reactive nor proactive categories.

These designations were made for both the all modes and VRU modes analyses, resulting in a set of HIN maps for each municipality. Maps were developed for both the all modes and VRU modes results, as well as a combination of both in a single map.

8. Disclaimer

The information contained in this document is for planning purposes and should not be used for the final design of any project. All results, recommendations, concept drawings, cost opinions, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein. Geographic and mapping information presented in this document is for informational purposes only, and is not suitable for legal, engineering, or surveying purposes. Data products presented herein are based on information collected at the time of preparation. AECOM and Toole Design Group, LLC make no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations and conclusions derived therefrom.

Appendix C: Public Engagement Materials

SAFE STREETS FOR ALL!

Please share your thoughts about transportation safety by completing this survey!

¡Por favor, comparta sus opiniones sobre la seguridad en el transporte completando esta encuesta!

Por favor, compartilhe sua opinião sobre segurança no transporte respondendo a esta pesquisa!

Tanpri pataje panse w sou sekirite transpò lè w ranpli sondaj sa a!

请填写本调查问卷，
分享您对交通安全的看法！

សូមចែករំលែកគំនិតរបស់អ្នកអំពីសុវត្ថិភាព
ដឹកជញ្ជូនដោយបំពេញការស្ទង់មតិនេះ!

Veillez partager vos réflexions sur la sécurité des transports en répondant à ce sondage!

Condividi le tue opinioni sulla sicurezza dei trasporti completando questo sondaggio!

กรุณาแบ่งปันความคิดของคุณเกี่ยวกับความปลอดภัยในการขนส่งโดยทำแบบสำรวจนี้!

ກະລຸນາແບ່ງປັນຄວາມຄິດຂອງທ່ານກ່ຽວກັບຄວາມປອດໄພໃນການຂົນສົ່ງໂດຍການເຮັດສຳຫຼວດນີ້!

يُرجى مشاركة رأيك حول سلامة النقل من خلال استكمال هذا الاستطلاع!



<https://tinyurl.com/4xtzk6ct>





Rhode Island Public Transit Authority Safe Streets for All Survey (English)

Safety continues to be a concern for all travel modes in Rhode Island. Through the Federal Highway Administration (FHWA) Safe Streets for All (SS4A) program, the Rhode Island Public Transit Authority (RIPTA) secured funding to support the state and participating municipalities in planning for roadway infrastructure improvements that will prevent injuries and save lives. The SS4A planning project will be accomplished by creating municipal Safety Action Plans (SAPs) for 32 participating communities and a statewide Safety Action Plan. Please help the study team to identify areas of safety concern, where successful improvements have been made, and to understand the preferences of Rhode Islanders on effective safety improvement methods. The survey should take around 5-10 minutes to complete. Thank you for sharing your time and thoughts.

Please enter the zip code where you live.

The value must be a number

I am responding as... Select one.

- Rhode Island resident
- Municipal employee
- State employee
- Other type of employee
- Member or representative of a local or regional advocacy organization (please type in the organization)
- Member or representative of a statewide advocacy organization (please type in the organization)
- Student
- Visitor
- Other (please specify)
- Other

Do you feel that roadway safety is an important issue in Rhode Island?

- Yes
- No
- Maybe
- Other

On a scale of 1 (not important) to 5 (extremely important), how important do you think this roadway safety project is?

1	2	3	4	5
---	---	---	---	---

On the map, please share locations by dropping a marker where you have noticed or experienced transportation safety issues (for example, locations with no sidewalks or excessive vehicle speeds).

Click on the map to drop a marker (Then tap "OK" at the top if using a mobile device)

Scroll down to add your comment.

Scroll back up and click the + button above to continue adding locations.

What makes this location a safety concern?

Do you have any other comments or ideas about improving transportation safety here?

Please identify a recent (within the last 5 years) safety improvement.

What safety and comfort improvements would you like to see for drivers? Please select up to 3 responses.

Please select at most 3 options.

- More visible lane striping and other pavement markings
- More visible traffic signs
- Lower speed limits
- Reduced driving lane widths
- More guardrails or other roadway barriers
- Smoother pavement conditions and fewer potholes
- Fewer curb cuts / driveways to businesses and homes
- Better lighting
- Rumble strips
- Greater visibility
- Better drainage
- Other (please specify)
- Other

What safety and comfort improvements would you like to see for pedestrians and bicyclists? Please select up to 3 responses.

Please select at most 3 options.

- A more complete sidewalk network
- Wider sidewalks
- Safer ways to cross the street (e.g. crosswalks, pedestrian traffic lights, etc.)
- Longer crossing times at signalized intersections
- Better maintenance of sidewalks and bikeways
- A more complete, low-stress bikeway network separate from cars
- Bicycle parking
- Slower-moving car traffic
- Better lighting
- Accessibility improvements
- Landscape and greenspace elements to aid with shade, cooler road temperatures, stormwater drainage, and/or barriers from traffic
- Other (please specify)
- Other

What safety and comfort improvements would you like to see for transit and paratransit riders? Please select up to 3 responses.

Please select at most 3 options.

- Better and more available maps, signage, and schedule information at bus stops and train stations
- More shelters and/or seating at transit stops
- Better lighting at transit stops
- More staff at bus stops or train stations
- Better routine maintenance at transit stops such as garbage removal and cleaning
- More and/or better bike racks, with increased protection from inclement weather
- More frequent service
- Service at more times of day than currently runs (earlier, later, on weekends)
- Faster trip times (e.g. bus-only lanes, transit signal priority)
- Other (please specify)
- Other

Which of the following behavioral programs do you think would have the greatest impact on improving road safety? Select all that apply.

- Education to reduce impaired roadway users
- Education to reduce distracted driving
- Education to increase address behaviors to increase safety for roadway users
- More speed management (e.g. appropriate speed limits)
- More enforcement of traffic laws
- Other (please specify)
- Other

Do you own or regularly have access to a personal vehicle?

Yes

No

Why don't you have access to a personal vehicle? Select all that apply.

Cars are too expensive.

Cars are a hassle.

I enjoy walking, bicycling, and/or taking transit and can get where I need to go with those modes.

I choose not to own a personal vehicle for environmental reasons.

I do not have a driver's license

Other (please specify)

Other

Please check all the ways you travel and the frequency that you travel by that mode
(Please select all that apply).

	Daily or almost daily	A few times per week	A few times per month	Once a month or less	Never
Drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carpool, vanpool, or get a ride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bike / Scooter (including e- bike / e- scooter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walk / Use personal mobility device	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ridesharing services (cab or Uber for example)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transit or Paratransit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are some reasons you currently choose to take walk or bike? Select all that apply.

- It is faster than other transportation options
- It is more convenient
- It is less expensive than other options
- It is good exercise / for health reasons
- I walk or bike for environmental reasons
- I do not have access to a car
- I enjoy it
- Other (please specify)
- Other

What are some reasons you currently choose to take transit? Select all that apply.

- It is faster than other transportation options
- It is more convenient
- It is less expensive than other options
- I take transit for environmental reasons
- I do not have access to a car
- I enjoy it
- Other (please specify)
- Other

Do you have any other comments or concerns about transportation safety?

Please input your email if you are interested in receiving project updates.

This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.



Safe Streets for All

East Providence – share your thoughts with us in-person!

The City of East Providence is a participating community in the Safe Streets and Roads for All (SS4A) program. **A Safety Action Plan will be developed for the City, which will establish guidelines to implement safer streets and prepare East Providence with approaches to safety and mobility challenges – for all modes of transportation.**



We'll be at the following locations in August:

East Providence Senior Center

610 Waterman Ave
Monday August 19
10:45am – 11:45am

Weaver Library Block Party

41 Grove Ave
Monday August 19
4:00pm – 7:00pm

East Bay Bike Path at Riverside Square

Bike Path near Lincoln Ave
Tuesday August 20
3:00pm – 6:00pm

Can't make it to a pop-up event? You can fill out our online survey and learn more about the project by scanning the QR code with your phone's camera, or by visiting tinyurl.com/4xtzk6ct



Street Safety Concerns

What are your top safety concerns in East Providence?

Put a **sticky dot** into the column that corresponds with your level of concern for each issue.



	MINOR CONCERN	MODERATE CONCERN	MAJOR CONCERN
ROAD CONDITIONS			
Poor pavement condition or sidewalk condition			
Wide streets that encourage speeding or are difficult to cross			
Lack of crosswalks resulting in people having to walk a long way to cross the street at a crosswalk			
Challenges around safely getting to transit or waiting for transit			
Harassment of people of color by police or other people on the street			
DRIVER BEHAVIOR			
People driving too fast			
People driving while intoxicated or impaired by something else			
Drivers driving while texting or otherwise watching phone			
Drivers not yielding to pedestrians in crosswalks			
CURB			
Large vehicles on the road			
Cut-through traffic on residential streets			
Ride-hail cars (e.g., Lyft and Uber) waiting or picking up in crosswalks			
Double Parking which blocks visibility and access to the curb			
Difficulty seeing people trying to cross at crosswalks			
BIKES + PEDESTRIANS			
People crossing the street midblock			
People walking while texting or otherwise watching phone			
People riding bikes or scooters on the sidewalks			
People who bike don't follow the traffic rules			
People who walk don't follow the traffic rules			

What do Safe Streets Mean to You?

Help us shape the East Providence Safety Action Plan!

Write your response on a sticky note and add it to the poster.

Safe Streets are important to me because ...

Las calles seguras son importantes para mí porque ...

Ruas seguras são importantes para mim porque ...

Share Your Safety Priorities

Vote for your top 4 priorities for East Providence

Put **FOUR STICKY DOTS** next to the **TOP FOUR GOALS** you want to vote for.

GOAL	VOTE
Slowing vehicle speeds	
Reducing drunk driving	
Getting kids to school safely	
Getting to my destination in a predictable amount of time	
Having connected, low-stress bike lanes and trails	
Having connected sidewalks and places to walk	
Reducing fatal and severe crashes	

Do you have other priorities you would like to tell us about?

Write your response on a sticky note and add it below!

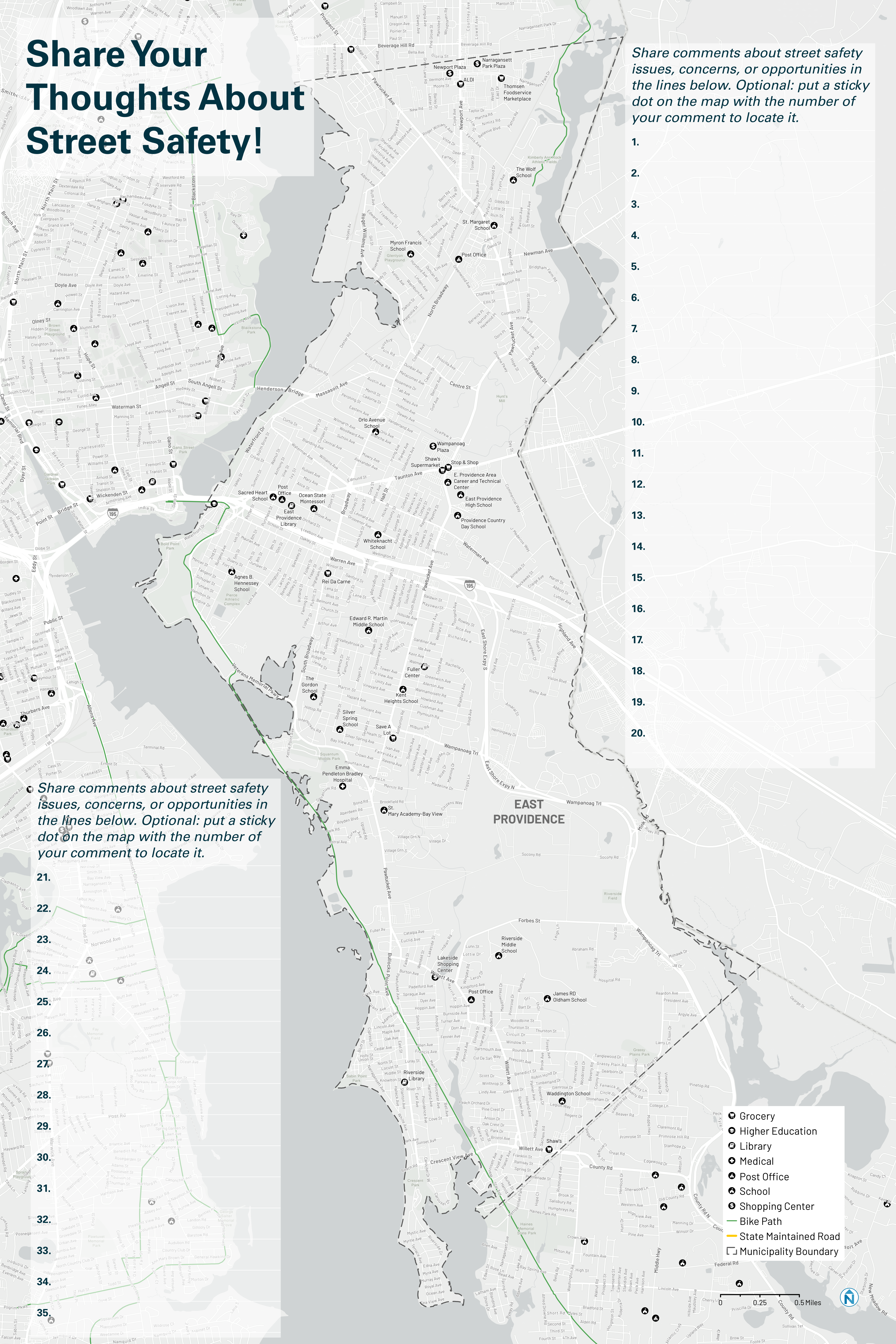
Share Your Thoughts About Street Safety!

Share comments about street safety issues, concerns, or opportunities in the lines below. Optional: put a sticky dot on the map with the number of your comment to locate it.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

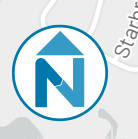
Share comments about street safety issues, concerns, or opportunities in the lines below. Optional: put a sticky dot on the map with the number of your comment to locate it.

- 21.
- 22.
- 23.
- 24.
- 25.
- 26.
- 27.
- 28.
- 29.
- 30.
- 31.
- 32.
- 33.
- 34.
- 35.



- Grocery
- Higher Education
- Library
- Medical
- Post Office
- School
- Shopping Center
- Bike Path
- State Maintained Road
- Municipality Boundary

0 0.25 0.5 Miles



Appendix D: Public Engagement Summary and Stakeholder List

East Providence

Safe Streets and Roads for All Engagement Summary Report

December 2024



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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
BCA	Baseline Crash Analysis
DOT	U.S. Department of Transportation
FHWA	Federal Highway Administration
HIN	High-Injury Network
HRN	High-Risk Network
RIDOT	Rhode Island Department of Transportation
RIPTA	Rhode Island Public Transit Authority
SAP	Safety Action Plan
SS4A	Safe Streets and Roads for All Program

1. Introduction

East Providence’s Safety Action Plan (SAP) is informed by stakeholder and community engagement activities, and the feedback gathered through various avenues will be used to help inform the plan analysis and recommendations.

This report summarizes the engagement efforts conducted as part of the East Providence Safe Streets for All Safety Action Plan development process. The engagement activities were designed to understand perspectives from the community, identify safety concerns and priority locations, and collect feedback on proposed safety improvements from stakeholders and the general public. This feedback will be used along with the technical analysis of crash patterns and high injury network to develop potential safety projects and strategies for the SAP.



2. Stakeholder Engagement

2.1 Stakeholder Identification

The consultant team worked with City of East Providence staff to establish a network of key stakeholders to be involved in the project’s process. These stakeholders represented various organizations and groups that deal with roadway safety in varying capacities.:

The stakeholders were divided into several categories that dictated their future level of involvement in the plan and its development.

- Working Group: These stakeholders met regularly with the consultant team to stay updated on the project’s progress. Working group members met for ‘Project Team Meetings’ which were scheduled on a bi-weekly basis.
- Key Stakeholder: These stakeholders were interviewed in one-on-one meetings and, where relevant, invited to join Project Team meetings during key points of the project, where new data, findings, or recommendations were discussed.
- Stakeholder: These stakeholders were kept up-to-date with project information through the Town staff.

Table 1. Stakeholder Contact Information

Name	Organization	Type of Involvement
Keith Brynes, Director of Planning & Economic Development	City of East Providence, Planning and Economic Development	Working Group Member
James Moran (Jim), Chief Economic Planner	City of East Providence, Planning and Economic Development	Working Group Member
Erik Skadberg, City Engineer	City of East Providence, Engineering Division	Working Group Member
Mark Cadoret, Patrol Commander	East Providence Police Department	Working Group Member
Mayor Roberto DaSilva	East Providence Mayor	Key Stakeholder
City Council Members <ul style="list-style-type: none"> ▪ CM President Robert P. Rodericks (At-Large) ▪ CM VP Frank Rego (Ward 1) ▪ CM Anna M. Sousa (Ward 2) ▪ CM Frank Fogarty (Ward 3) ▪ CM Rick Lawson (Ward 4) 	East Providence City Council	Key Stakeholders / Stakeholders
Captain John H. Potvin, Director of Emergency Medical Services	East Providence Fire Department	Key Stakeholder
Laure Jones, Director	East Providence Senior Center	Key Stakeholder
Stacey Messier, Project Coordinator	School District, Project AWARE	Key Stakeholder
Alyssa Gleason, Director	East Providence Health Equity Zone (HEZ)	Key Stakeholder
Michelle Perry, Librarian	East Providence Weaver Library	Stakeholder

2.2 Stakeholder Meetings

Project Team meetings took place regularly to discuss ongoing projects, challenges, and to gather informed feedback related to the SAP. These discussions focus on identifying key areas of concern,

potential safety improvements, and community priorities. The goal is to use this input to help shape the plan's direction and recommendations. The group is slated to continue meeting regularly throughout the remainder of the project.

Stakeholder meetings were conducted with 'Key Stakeholders' to gather input for the SAP. These meetings took place virtually.

- **East Providence Weaver Library meeting, July 3, 2024:** The consultant team met with Michelle Perry, a librarian of the Weaver Library to coordinate logistics for the pop-up engagement events to be located there and during the planned block party.
- **East Providence Senior Center Meeting, July 12, 2024:** The consultant team met with Laura Jones to help inform the best approach for engaging with seniors of East Providence. She also noted several challenges with traffic safety in and around the senior center, including challenges with drivers stopping at crosswalks and general congestion and unsafe behaviors at the intersection of Waterman and Pawtucket.
- **East Providence School District Meeting, July 15, 2024:** The consultant team met with Stacey Messier (Project AWARE Director). Discussion highlighting mental health initiatives and community partnerships to support safe and healthy schools. There was mention of a relevant traffic-calming mural project involving the operations team, who would be beneficial to include on this project. Various channels of communication are critical for robust community engagement in the city and there was emphasis on the need to provide both digital and paper copies of surveys to reach all groups within the community.
- **East Providence HEZ Meeting, October 18, 2024:** The consultant team met with Alyssa Gleason (Director of the East Providence Health Equity Zone (HEZ) & East Bay Community Action: The meeting highlighted transportation challenges faced by seniors and people with disabilities, particularly regarding public transit accessibility and safety. While bus routes are available to key destinations like food pantries and supermarkets, there are concerns about the safety of these routes, especially at night and for people with mobility challenges. Discussions included the potential for implementing door-to-door services for seniors, similar to programs in other cities, as well as recommendations for improving transit access, safe routes to school, and pedestrian infrastructure for the community's most vulnerable populations.
- **Mayor Bob DaSilva, October 23, 2024:** Discussion centered on pedestrian safety concerns, particularly along Taunton Avenue, where there have been serious crashes involving seniors. The Mayor emphasized the need for better enforcement of traffic laws, such as the expansion of speed camera use to address speeding issues in high-traffic areas. He also raised concerns about dangerous crosswalks, specifically on Taunton Avenue near Burger King, and suggested relocating crosswalks to improve visibility and safety. Additionally, there was a focus on the importance of improved street design, such as adding crosswalk bump-outs (i.e. curb extensions) and improving lighting on state roads.
- **City Council Member Meetings:** City staff sent out invitations for 1-on-1 meetings with city council members. To date, the team has met with one council member. Future engagement with the city council includes a potential briefing on the project's progress and analysis.
- **Ward 4 Representative, Councilman Rick Lawson, November 22, 2024:** As the representative of the Riverside neighborhood, important safety issues include speeding and pedestrian safety. The councilman was in support of traffic calming to reduce vehicle speeds and complete streets efforts that would add bicycle and pedestrian infrastructure to roadways. He requested that the plan

recommendations focus mainly on street design improvements over programmatic or policy changes which he felt may not be as effective in the Rhode Island context.

2.3 Key Stakeholder Feedback

Stakeholder meetings shed light on various safety issues occurring in East Providence.:

- Several locations in the City were identified as corridors with frequent crashes or incidents:
 - Taunton Avenue: High pedestrian traffic area with frequent crashes, especially involving seniors crossing the street
 - Pawtucket Ave & Waterman Ave Intersection: Common area for crashes and a major concern for the Senior Center
 - Wampanoag Trail: Largest corridor for crashes, due to it being a high-speed road
 - Henderson Bridge Rotary: Spike in crashes this year due to ongoing construction and lane restrictions
- Speeding was raised as a major issue, and the need for stronger enforcement of speed limits was emphasized:
 - Widespread speeding issues throughout the city, especially on residential streets
 - Cautiously interested in expanding use of speed cameras beyond school zones to keep speeds at the speed limit
 - Community is curious to find data that will support the effectiveness of increased enforcement
- Pedestrian infrastructure improvements are needed to support walking:
 - Concerns about lack of crosswalks
 - Concerns about drivers not yielding to pedestrians
 - Need for better street design measures to slow traffic
 - Desire for improved lighting, especially on state-owned roads
- Continued outreach and coordination with vulnerable user groups, such as senior adults and students can increase road safety awareness and support these groups:
 - The senior population often relies on transportation assistance, because they try to avoid driving. Seniors have more limited mobility, but senior adult pedestrians have been involved in several crashes near the Taunton and Waterman intersection. Safer accommodations and greater transportation options are needed for this group.
 - Interest in greater collaboration with the school district and community organizations like East Bay Community Action (EBCA) to reach families and students

3. Public Engagement

3.1 Engagement Methods

The first phase of the community engagement focused on introducing the SAP and listening to learn about the community's goals, needs, concerns, and priorities for the plan. The primary goals of the engagement were to build trust between the municipality and residents, boost information sharing, and support

community-building. This phase included a series of outreach activities, both virtual and in-person. At in-person pop-up events, the team had quick engagement exercises activities that encouraged quick input on key questions while also sharing links to the project website and community survey for additional information and/or opportunities to provide feedback.

East Providence employed various methods to engage the public, including:

An Online PlanEngage Statewide Project Website and Community Survey. The website included information on all 32 municipalities involved in the SS4A project. An online survey was also hosted on the project website and was open between June 21st, 2024 to October 18th, 2024. Survey questions were organized into three main categories:

- Respondents' Roles with the Community;
- Demographics and Travel Patterns; and
- Existing Safety Condition & Needs.

The survey was made available in nine languages: Spanish; Portuguese; Haitian Creole; Chinese (Cantonese and Mandarin); Khmer; French; Italian; Lao; and Arabic and was broadly distributed across the Town of Warren's website, social media accounts, and local newsletters. In addition, QR code links to the online survey were distributed at in-person events on flyers and business cards. The online survey collected respondents' zip code which enabled the team to track the number of respondents per community.

Community-oriented pop-up events hosted in publicly-accessible locations where residents, visitors, and employees congregated naturally to take advantage of attendance.

At each stop, the team offered a poster and take-away business cards with a QR code that linked to the community survey and presented a set of interactive poster boards with key questions for the community.

In East Providence, these boards solicited feedback from participants about street safety concerns and priorities. A large-scale map of the town was used so that participants could indicate where they had concerns or wanted improvements on their roads.

Pop-up events occurred at the locations listed below. The engagement teams talked to an estimated 80 community members during these events.

- Senior Center Focus Group – August 19th, 2024 from 10:45am to 11:45am
- Weaver Library Pop-Up – August 19th, 2024 from 4pm to 7pm
- Riverside Square Bike Path & Crescent Park Pop-up – August 20th, 2024 from 3pm to 6pm
- Weaver Library Block Party – August 26th, 2024 from 5pm to 7pm

Flyer distribution to promote the community survey and PlanEngage website for the Safe Streets 4 All website at the following locations:

- Borealis
- Seven Stars
- Riverside Library
- Bike Path board by Warren Ave
- Café Zara
- City Hall
- Weaver Library

3.2 Survey Results

The online survey was developed to solicit input from the public during the public engagement process. Although most respondents filled out the survey online, paper copies were made available to community members at the East Providence Senior Center – and upon request at other pop-up events. The survey included questions about travel patterns, important destinations in the community, safety concerns, and infrastructure improvement strategies. An open-ended section allowed respondents to provide thoughts, comments, or questions about the SAP.

The survey was open between June 21st, 2024 to October 18th, 2024. In total, 135 responses were collected from people that identified as part of the East Providence community. Almost all of those respondents (130 out of 135) were East Providence residents (remaining respondents were municipal employees, students, or other). Key findings from these survey responses are discussed below.

3.2.1 Respondent Characteristics and Travel Patterns

Most respondents (89%) felt that roadway safety is an important issue in Rhode Island. Additionally, 72% of respondents ranked the SS4A project as “5 – extremely important” on a scale from 1 to 5. Across all communities, only 64% respondents said the plan was extremely important.

Driving is by far the most common mode of travel among respondents, with 90% of respondents driving daily/almost daily or a few times per week. Figure 2 shows a breakdown of travel frequency by mode for all respondents.

- Walking or using a personal mobility device was the next most utilized mode (56% used at least a few times per month).
- Ten percent of respondents bike or use a scooter (or electric version) daily or almost daily, while 7% ride a few times a week.
- The majority of respondents (56%) reported that they never ride transit.

Most respondents (94%) indicated that they have access to a personal vehicle. Respondents without access to a vehicle cited affordability as the main reason they do not.

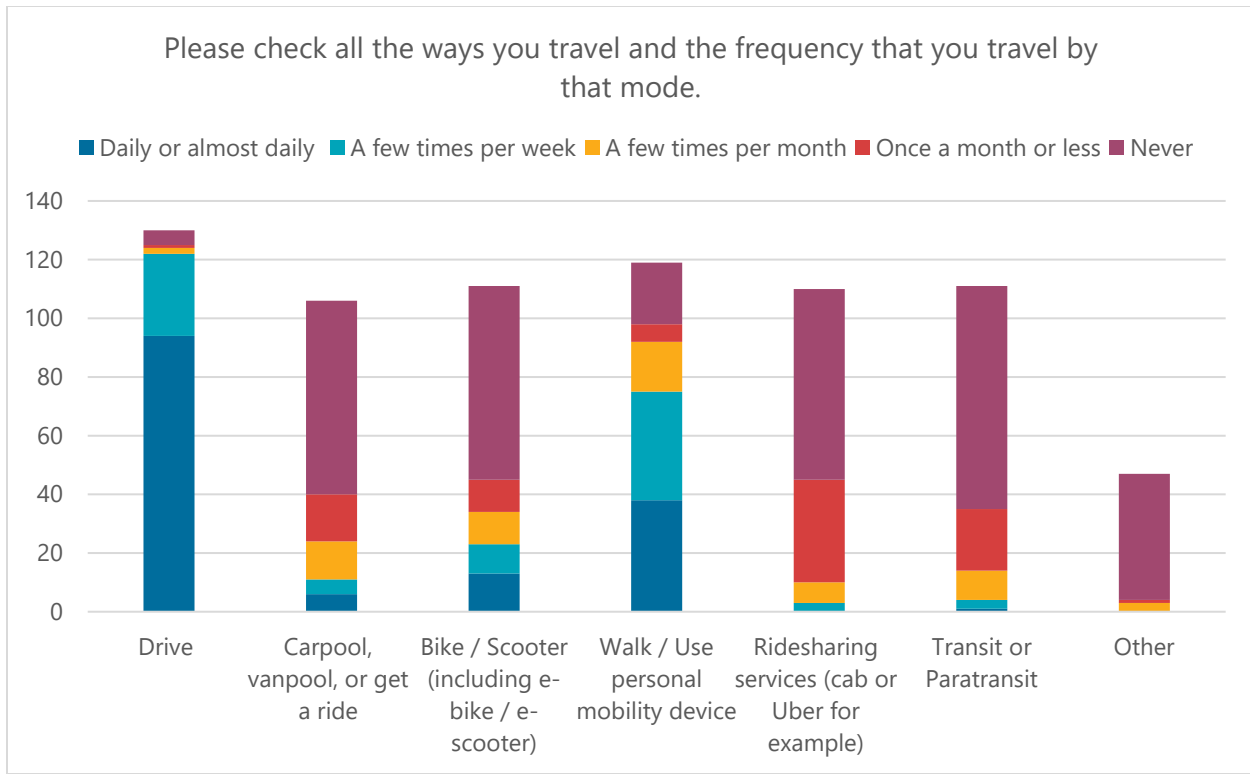


Figure 1. Online Survey Responses on Frequency of Travel by Mode

3.2.2 Respondent Street Safety Concerns and Priorities

The survey asked respondents to select their top three preferred safety and comfort improvements for different modes of travel. Across all improvements, “smoother pavement conditions and fewer potholes” was by far the most popular and was selected by 100 out of 134 people who answered the question. Figure 3, Figure 4, and Figure 5 show all improvements by mode, ranked by the percentage of respondents that selected each.

- To improve safety and comfort for people driving, “smoother pavement conditions and fewer potholes” was selected by 74% of respondents. More visible lane strips and other pavement markings and better drainage was also chosen by over 50 respondents.
- “A more complete sidewalk network” was the only improvement for people walking and biking that was selected by more than 50% of respondents (51%). When isolating responses from those that reported more frequent walking and biking, two improvements received votes by over half of the respondents: “safer ways to cross the street” (55%) and “a more complete sidewalk network (52%).
- “More shelters and/or seating at transit stops” was the top preferred improvement for people riding transit or paratransit, receiving votes from 53% of all respondents (20 more votes than any other improvement). Survey respondents that more frequently take transit also selected “more frequent service” as a top preferred improvement.

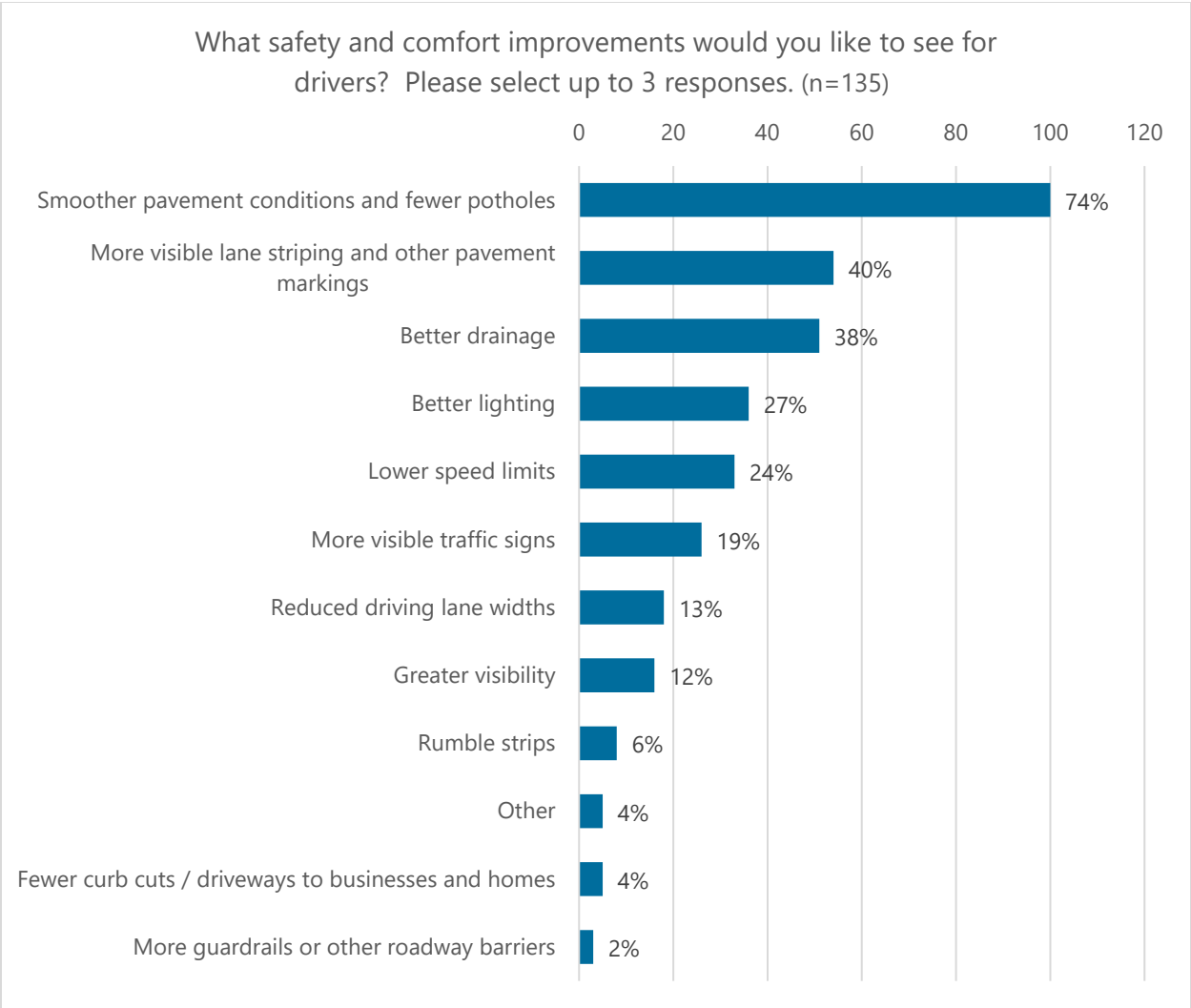


Figure 2. Online Survey Responses on Preferred Improvements for People Driving

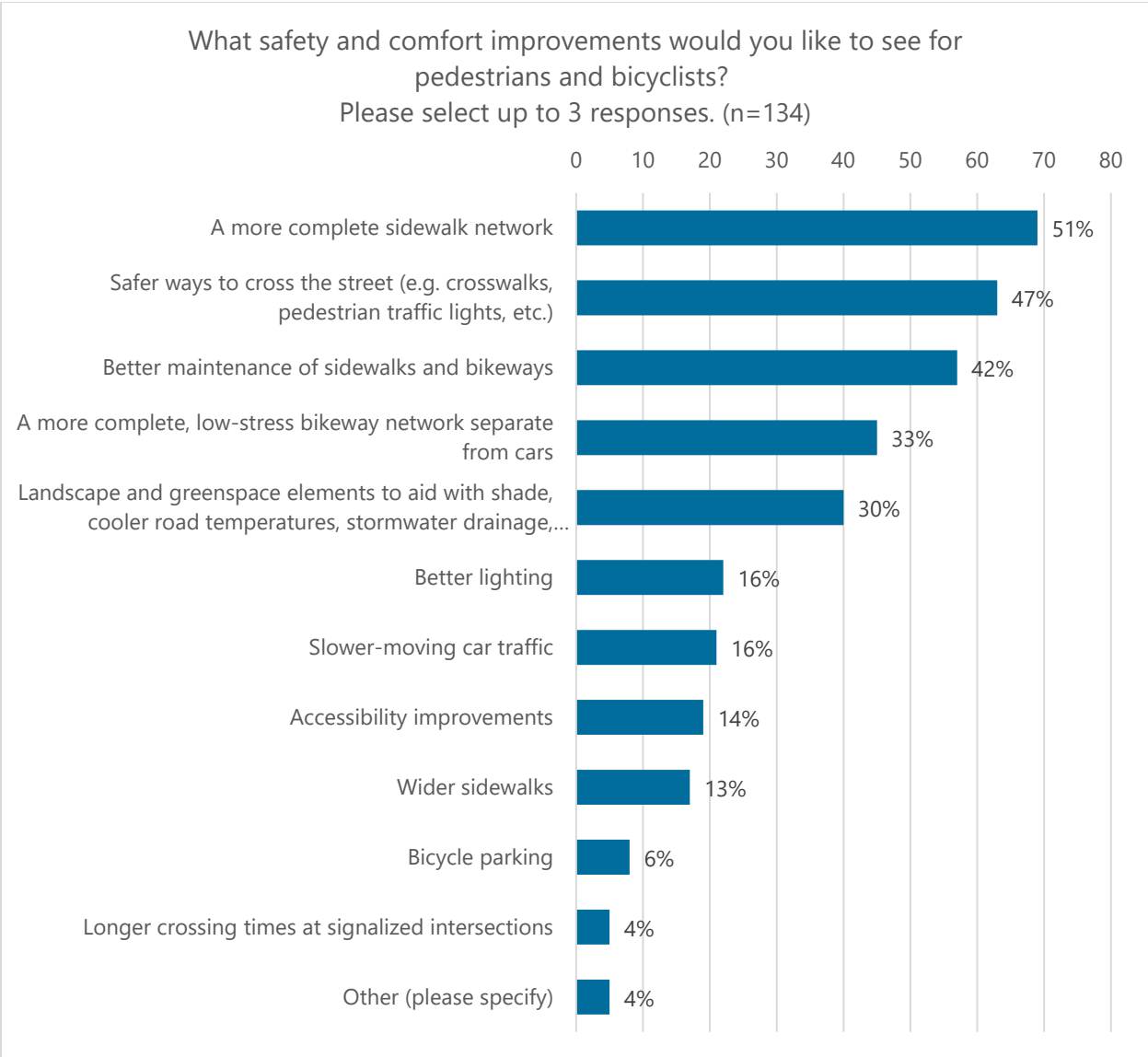


Figure 3. Online Survey Responses on Preferred Improvements for People Walking and Biking

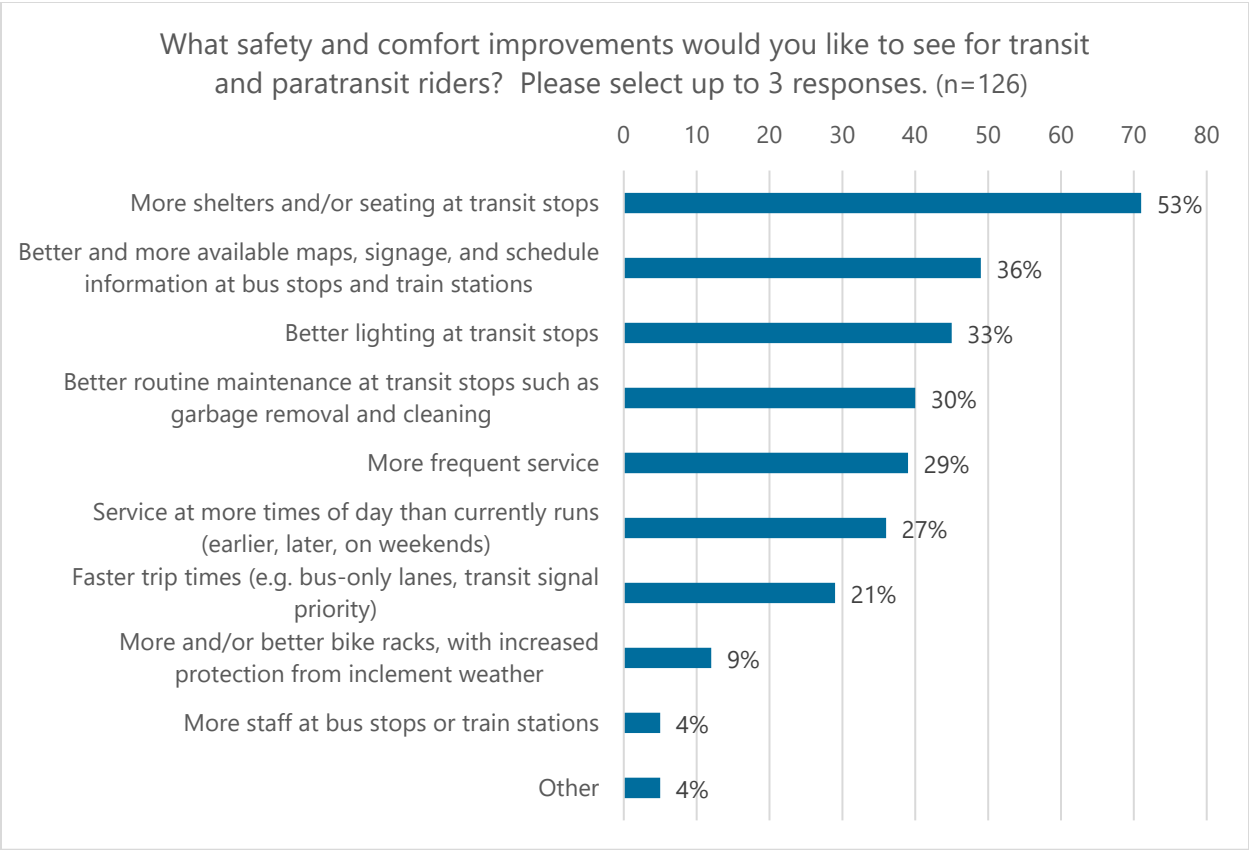


Figure 4. Online Survey Responses on Preferred improvements for People Riding Transit or Using Paratransit

The survey also solicited input on five different education or behavioral programs. “Education to reduce distracted driving and “more enforcement of traffic laws” was supported by over half of respondents with 52% and 51% of votes respectively. Other programs were of some interest but not selected by the majority of respondents, including: more speed management, including setting appropriate speed limits (37%); and education to reduce impaired roadway users (29%).

Forty-two surveys included open-ended comments covering a wide range of themes, as shown in Figure 6. The most common themes mentioned was bike/ped infrastructure. Safety in general was mentioned in over half the open-ended comments, while driver behavior, roadway infrastructure, and public transit was mentioned in over ten comments each.

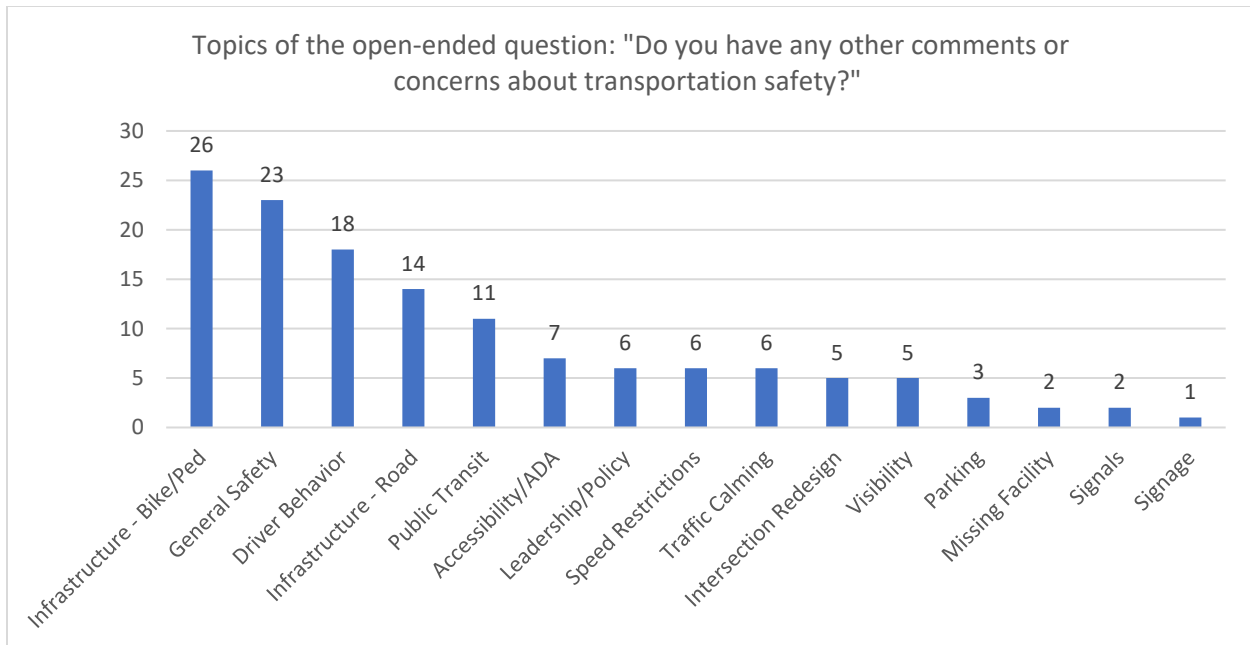


Figure 5. Online Survey Responses to Open-Ended Comment

"There needs to be a clear commitment to safety over vehicular efficiency The safety of our most vulnerable users (people walking, biking, transit riders, those with disabilities) need to be front and center)." – Anonymous East Providence Survey Respondent

3.3 Community Pop-up Event Feedback

Main themes and concerns raised during the public open house and community events include:

- Individuals indicated that they wanted safe streets for a variety of reasons.
 - Parents expressed concerns around their children walking to school. Along with children, the community also noted that streets needed to be safe particularly for elderly and handicapped individuals.
 - Children enjoy walking or riding their bikes around town and wanted to continue doing so without safety concerns.
- Having connected sidewalks was a leading priority for the community, many noting that the current sidewalk infrastructure made walking unsafe in some areas.
 - Residents noted sidewalks were not only disconnected, but in poor condition.
- Negligent driver behavior including speeding, not yielding to pedestrians, and drivers texting or watching their phones while driving was noted as a safety concern.
 - Speeding by vehicles were noted as a leading concern, and residents noted that there was a lack of enforcement.

3.4 Location-based Community Feedback

Both the online survey and the in-person engagement events provided opportunities for community members to provide location-based feedback related to safety issues and opportunities. Feedback gathered from both these outlets were synthesized into a composite map, with comments categorized into six primary themes: education/enforcement, general safety, intersections, multimodal transportation, roads, and speeding (see Figure 7). Areas with a high concentration of comments and feedback are highlighted and discussed below:

- **Henderson Bridge area:** The Henderson Bridge area drew a high volume of multimodal transportation-related comments and the need for improved connectivity and safety for bicyclists and pedestrians.
- **City Center neighborhood:** Multimodal concerns extended beyond the bridge area throughout the City Center neighborhood, particularly along South Broadway and Veterans Memorial Parkway. These comments emphasized challenges with safely accessing the bike path, including the need for protected bike infrastructure on 1st Street and better access to the bike path further south (respondents noted that there is currently no way to cross Veterans Memorial Parkway to reach the bike path from the abutting residential neighborhood, as it creates a barrier for residents). Other comments mentioned the need to reduce speeds on residential roads, as well as continuing efforts to improve sidewalks to ensure safety for all users.
- **Riverside neighborhood:** A concentration of speeding-related concerns emerged in the Riverside neighborhood, particularly along Willett Avenue, Turner Avenue, and Bullocks Point Avenue. Additionally, multimodal transportation concerns were observed further south on Bullocks Point Avenue and along Willett Avenue near Forbes Street. Comments along Bullocks Point Ave noted pedestrian-related concerns including lack of pedestrian amenities and drivers traveling at aggressively high speeds. This is particularly important because this is a key corridor for RIPTA bus stops and community amenities such as the library, church, residential buildings, restaurants, and other local businesses.
- **Rumford neighborhood:** In the Rumford neighborhood, there was a clustering of comments at the intersection of Pawtucket Avenue and Greenwood Avenue for categories including speeding, multimodal transportation, and roads. Similar to the Riverside neighborhood, respondents noted issues around pedestrian safety such as lack of pedestrian amenities including sidewalks and crosswalks, and a need for slowing down cars to enhance both driver and pedestrian safety.

These findings highlight critical areas for targeted improvements to address community concerns, ranging from speeding enforcement to enhancing multimodal accessibility and road conditions.

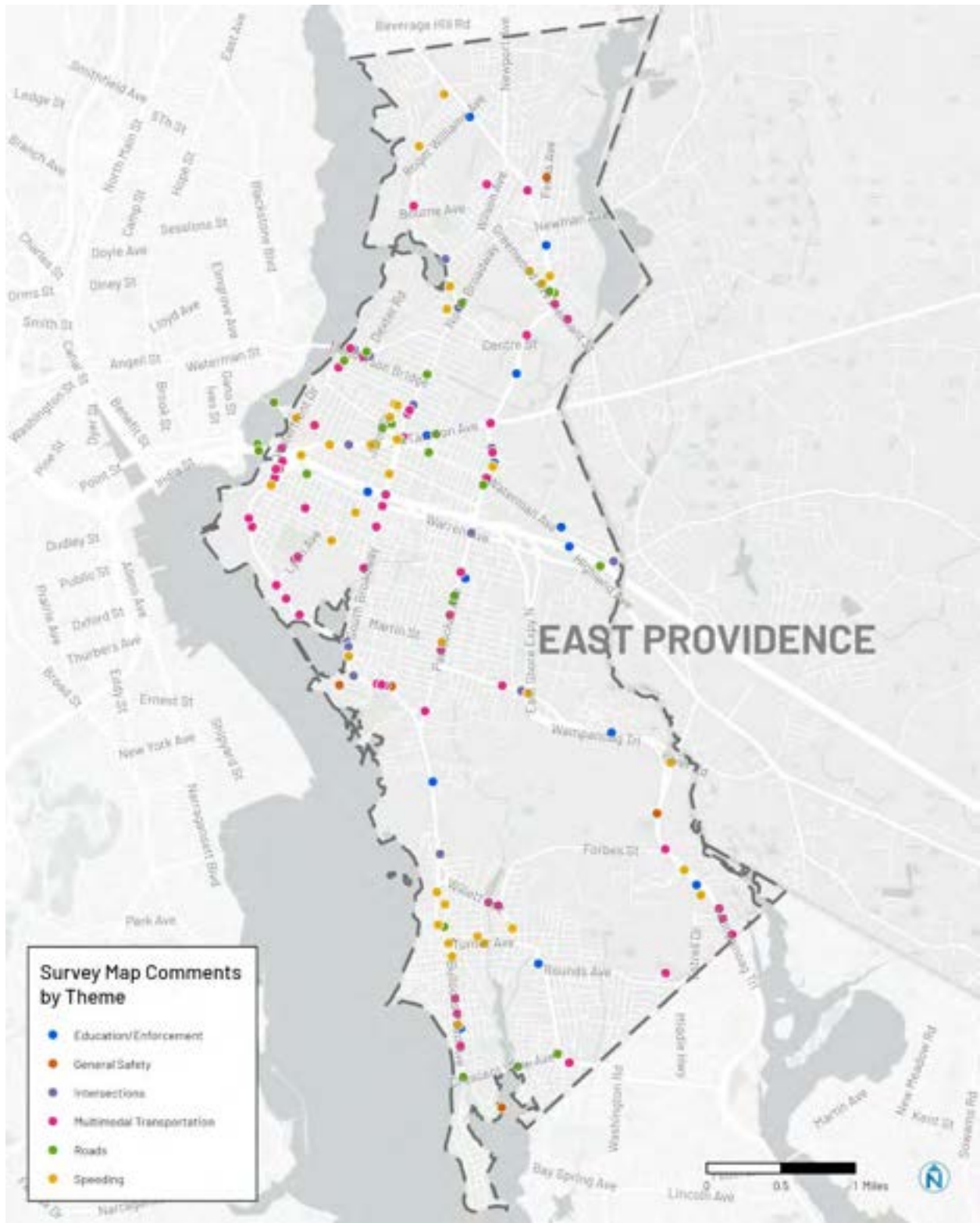


Figure 6. Map of Location-based Survey Comments by Theme

4. Key Themes and Priorities

Based on the stakeholder and public engagement efforts, the following key themes and priorities emerged:

- Need for reduction in driver speeding and unsafe driving behavior
- Need for increased pedestrian infrastructure
- Need for increased crosswalks and pedestrian protection measures at high-population and destination centers, such as near and around the Waterman and Taunton intersections.

5. Next Steps

This engagement summary will inform the development of the SAP in the following ways:

- Reinforce crash analysis findings where residents also noted concerns
- Inform crash analysis findings where current improvements may help to reduce crashes
- Identify stakeholders for future engagement during recommendation development or plan implementation
- Identify key locations for additional scrutiny, observation, or analysis due to community concerns

Appendix E: Countermeasures Toolkit

Countermeasure Toolkit

Safe Streets and Roads for All

June 2025



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4. Speed Management Countermeasures.....	39

1. Intersection Countermeasures



DRAFT

1 Advance Dilemma Zone Detection

Technology that detects vehicles approaching an intersection at unsafe speeds and adjusts signal timing to prevent sudden stops or red-light entries.

Advance Dilemma Zone Detection

Targeted Crash Type and/or Behavior
Traffic safety, failure to stop at red traffic signal lights

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 3: Manage Conflicts in Time

Applicable Context Zone
Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
8.2% (All); 43.6% (Angle)

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999

Estimated Cost:
Site and need specific each intersection

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?doc=4854>

2 Advanced Stop/Yield Markings

Markings set back from crosswalks to guide vehicles on where to stop or yield. They reduce multiple threat crashes resulting from having multiple travel lanes in the same direction by improving visibility for both drivers and pedestrians.

Advanced Stop/Yield Markings
Photo courtesy of Free Range Stock
www.freerangestock.com

Targeted Crash Type and/or Behavior
Failure to stop crashes; failure to yield crashes; pedestrian and bicycle-related crashes

Facility Type
Intersection

Timeframe
Short-Term

Design Hierarchy Tier
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
90%

Fatality/Injury
96%

Property Damage Only
100%

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999

Estimated Cost:
New Markings, Signs & Posts: \$500-\$1,000 per unit

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?doc=9070>

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3 Concrete Curb Extensions

Extending curbs into the roadway at intersections narrows the road, shortens crossing distances, and tightens turning radii, improving pedestrian safety by enhancing visibility and slowing traffic.

Concrete Curb Extension
Original photo taken in field.

Targeted Crash Type and/or Behavior
Speed-related crashes;
pedestrian-related crashes;
angle crashes

Facility Type
Intersection Street

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core Urban Center Town Center Suburban Activity Center

High Level Safety Benefit (CRF) - Total
35%

Fatality/Injury NA
Property Damage Only NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: >\$150,000 per unit

Source: <https://menlopark.gov/files/sharedassets/public/v3/public-works/documents/transportation/transportation-projects/menlopark/czap-countermeasuretoolkit.pdf>

4 Cross Traffic Does Not Stop - Adding Signage for Awareness

Signs placed at stop-controlled intersections to alert drivers that cross-traffic does not stop, reducing the risk of collisions due to misinterpretation of traffic flow.

Cross Traffic Does Not Stop Sign
Photo courtesy of Wikimedia Commons, <https://commons.wikimedia.org/>

Targeted Crash Type and/or Behavior
Unsignalized intersection safety

Facility Type
Intersection

Timeframe
Short-Term

Design Hierarchy Tier
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Suburban Activity Center Suburban Rural

High Level Safety Benefit (CRF) - Total
NA

Fatality/Injury NA
Property Damage Only NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$500-\$1,000 per intersection

Source: NA

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5 Daylighting and Intersection Parking Restrictions

Restricting parking near intersections improves sightlines, enhancing safety for drivers and pedestrians.

Daylighting Intersection Parking Restrictions
Photo courtesy of Winstok Creative/Adobe Stock

Targeted Crash Type and/or Behavior
Angle crashes; pedestrian-related crashes

Facility Type
Intersection

Timeframe
Short-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center

High Level Safety Benefit (CRF) - Total
11%

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$2,000-\$20,000 per intersection

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?docid=161>

6 Dedicated Left and Right Turn at Intersections

Dedicated lanes for left and right-turns help organize traffic flow and reduce conflicts between turning vehicles and other road users.

Dedicated Left and Right Turn at Intersections
Photo courtesy of Vitakrit/istock photo

Targeted Crash Type and/or Behavior
Rear end crashes; angle crashes

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center

High Level Safety Benefit (CRF) - Total
14%

Fatality/Injury
23%

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999 to \$120,000 to \$499,999 per intersection
Tier 2: \$150,000 - \$499,999

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?docid=285>

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7 Displaced Left-Turn Intersection (DLT) or Continuous Flow Intersection (CFI)

Intersection design that relocates the left-turn movements from the main intersection to an upstream signalized crossover intersection. This eliminates the left-turn signal phase at the main intersection and allows execution of the left-turn simultaneously with the through traffic at the main intersection.

Targeted Crash Type and/or Behavior
Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type
Intersection

Timeframe
Long-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 3: Manage Conflicts in Time

Applicable Context Zone
Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
TBD

Fatality/Injury
TBD

Property Damage Only
TBD

Cost
Cost Tier Level (1-3):
Tier 3: >\$500,000

Estimated Cost: \$3-5M per intersection

Source: FHWA, FHWA-SA-14-088 <https://safety.fhwa.dot.gov/intersection/crossover/theses/1408.pdf>

8 Diverging Diamond Interchange (DDI)

Intersection design that eliminates the need for left-turns across opposing traffic by creating crossovers that transition traffic from the right side of the road to the left side and back again. DDIs are best utilized in locations with high volumes of left-turns.

Targeted Crash Type and/or Behavior
Left-turn crashes at intersections; lack of pedestrian and bicyclists separated facilities

Facility Type
Intersection

Timeframe
Long-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts

Applicable Context Zone
Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
14.2%

Fatality/Injury
44.2%

Property Damage Only
8.0%

Cost
Cost Tier Level (1-3):
Tier 3: >\$500,000

Estimated Cost: \$2,000,000-\$10,000,000 per interchange

Source: CIV Clearinghouse <https://civclearinghouse.fhwa.dot.gov/detail.php?docid=15762>

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9 Intersection Lighting and Illumination

Improved intersection lighting increases visibility during low-light conditions. Adequate illumination reduces crash rates by helping drivers and pedestrians see each other more clearly.



Intersection Lighting/Illumination
Photo courtesy of Peter de Kivitt/Kobbe Stock

Targeted Crash Type and/or Behavior
Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type

Intersection

Timeframe
 Short-Term

Design Hierarchy Tier
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
 Urban Core  Urban Center  Town Center  Suburban Activity Center  Suburban  Rural

High Level Safety Benefit (CRF) - Total
32.6% (Angle); 43.8% (Vehicle/Pedestrian)

Fatality/Injury NA **Property Damage Only** NA


Cost
Cost Tier Level (1-3):
Tier 1:  <\$149,999

Estimated Cost: \$2,000-\$4,000 per unit

Source: CMF Clearinghouse; CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=2376>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=2377>


10 Intersection Realignment


Intersections realigned to improve sightlines, enhance predictability, and reduce conflict points to elevate safety.









Intersection Realignment
Photo courtesy of DeighFreearge Stock

Targeted Crash Type and/or Behavior
Rear-end crashes; angle crashes; pedestrian-related crashes

Facility Type

Intersection




Timeframe
 Long-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
 Urban Core  Urban Center  Town Center  Suburban Activity Center  Suburban  Rural

High Level Safety Benefit (CRF) - Total
NA

Fatality/Injury NA **Property Damage Only** NA

Cost
Cost Tier Level (1-3):
Tier 1:  <\$149,999 to  \$100,000-\$2.5M per intersection
Tier 3:  >\$500,000

Source: https://cmfclearinghouse.fhwa.dot.gov/study_detail.php?stid=585

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11 Intersection Signal Coordination

A timing system that synchronizes traffic signals along a corridor or within a network of intersections, helping to reduce stop-and-go traffic, improve flow, and enhance safety by reducing vehicle conflicts.



Intersection Signal Coordination
Photo courtesy of Max Safeniki/Adobe Stock

Targeted Crash Type and/or Behavior

Rear-end crashes; angle crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

62%

Fatality/Injury

NA

Property Damage Only

59%

Cost

Cost Tier Level (1-3):
Tier 1: < \$149,999

Estimated Cost
\$2,000 per phase or \$10,000-\$85,000 per signal

Source: <https://cmfoleamrhouse.fhwa.dot.gov/detail.php?facid=9859>; <https://cmfoleamrhouse.fhwa.dot.gov/detail.php?facid=9861>

12 Intersection Stop Ahead or Yield Ahead Warning Signs

Regulatory signs placed at intersections to control vehicle movements reduce conflicts and provide clear guidance for yielding or stopping, thereby minimizing crash risks.



Intersection Stop Ahead Warning Sign
Photo courtesy of Carlos Santa Maria/Adobe Stock

Targeted Crash Type and/or Behavior

Failure to stop crashes; failure to yield crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

27%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
Tier 1: < \$149,999

Estimated Cost
\$500 - \$1,000 per intersection

Source: <https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop>

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13 LED Bordered Stop Sign

Stop signs with LED lights along the edge that flash continuously to increase visibility, especially in low-light or high-speed areas.



LED Bordered Stop Sign
Photo courtesy of knelson29/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

9.1%

Fatality/Injury

9.4%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$500-\$1,500 per unit

Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=6051>
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=6052>

14 No Turn On Red

Prohibited right-turns on red at intersections reduce conflicts with pedestrians and other motorists.



No Turn on Red Sign
Photo courtesy of ml/Adobe Stock

Targeted Crash Type and/or Behavior

Angle crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

3%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$200-\$3,500 per unit

Source: https://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwa180411ref

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15 Overhead Flashing Beacon Signal

Flashing beacons positioned above the roadway to warn of hazards or intersections, increasing visibility and alerting drivers to potential conflicts.



Overhead Flashing Beacon Signal
Photo courtesy of Christine Kuffel Creative Commons

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

10.2%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost

\$10,000 - \$150,000 per unit

Source: <https://highways.dot.gov/files/17664/dot.gov/files/FHWA-HRT-05-044.pdf>

16 Radar Activated Flashing Border Stop Signs

Stop signs that flash when a vehicle approaches too quickly, warning drivers to slow down in time to stop safely.



Radar Activated Flashing Border Stop Sign
Photo courtesy of kneard20/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

41.1% (Angle Crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$1,500-\$2,500 per unit

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4074>

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17 Reduced Left-Turn Conflict

Design adjustments, such as restricted or modified left-turn lanes and signals, installed to reduce the risk of collisions between turning vehicles and oncoming traffic or pedestrians.



Reduced Left-Turn Conflict
Photo courtesy of Hans Haase/Wikimedia Creative Commons

Targeted Crash Type and/or Behavior

Angle crashes; rear-end crashes; head-on crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

54% - RCLT;
63% - Unsignalized RCLT;
30% - MUT

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2:

Tier 3: > \$500,000

Estimated Cost

\$100,000-\$2.5M per intersection

Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/reduced-left-turn-conflict-intersections>

18 Reflective Backplates/LED Borders

Backplates added to signal heads with reflective material or LED borders to enhance signal visibility and increase driver awareness and compliance, especially in low light conditions.



Reflective Signal Backplate
Photo courtesy of Tracy Elford/Peixot

Targeted Crash Type and/or Behavior

Intersection crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

15%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost

\$8,000 - \$12,000 per unit

Source: FHWA, <https://safety.fhwa.dot.gov/provencountermeasures/backplate.cfm#pc-footnote>

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19 Roundabouts

Roundabouts are circular intersections where traffic flows counterclockwise around a central island, reducing speeds and greatly reducing many severe crash types, including head-on, rear-end, and angle crashes by reducing crossing conflict points.



Roundabout
Photo courtesy of Caven Images/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Intersection

Timeframe



Long-Term

Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

58-67%

Fatality/Injury

78-82%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 3: >\$500,000

Estimated Cost:
\$500,000
-\$2.5M site and location specific

Source: FHWA

<https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>

20 Signal Ahead Signs

Signs placed in advance of traffic signals to warn drivers of an upcoming signal, giving them time to adjust speed and reducing rear-end collisions.



Signal Ahead Sign
Photo courtesy of Jeffery/Adobe Stock

Targeted Crash Type and/or Behavior

Failure to stop at signalized intersections

Facility Type



Intersection Street

Timeframe



Short-Term

Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

10-27%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: <\$149,999

Estimated Cost:
\$500-\$1,000 per intersection

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop>

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21 Turbo Roundabouts

The turbo roundabout operates like a standard roundabout but features distinct geometry and traffic controls, effectively reducing lane-change conflicts and addressing crash types common in traditional multilane roundabouts.



Turbo Roundabout
Photo courtesy of Iiq/Wikimedia Creative Commons

Targeted Crash Type and/or Behavior

Speed-related crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

76%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 3: >\$500,000

Estimated Cost:

\$2M-\$5M Site/project specific

Source: <https://safety.fhwa.dot.gov/intersection/roundabouts/fhwa20079.pdf>

22 Vegetation Control Near Intersections

Vegetation control around intersections to ensure clear sightlines for drivers and pedestrians, reducing the risk of crashes due to obstructed views.



Vegetation near Intersection
Photo courtesy of ostrom/Adobe Stock

Targeted Crash Type and/or Behavior

Angle crashes; failure to yield crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: <\$149,999

Estimated Cost:

\$100-\$600 per acre

Source: https://safety.fhwa.dot.gov/local_rural/training/fhwa07018/vegetation/1108.pdf

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23 Yellow Change Interval



Extended or decreased yellow light durations to reduce red-light violations and enhance safety at signalized intersections.



Yellow Change Interval
Photo courtesy of LuisRodez Stock

Targeted Crash Type and/or Behavior

Intersection crashes; failure to yield crashes; rear-end crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

8-14%

Fatality/Injury

12%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$25,000 - \$50,000 per intersection

Source: FHWA
<https://highways.dot.gov/safety/proven-safety-countermeasures/yellow-change-intervals>

2. General Segment Elements Countermeasures



General Segment Elements Countermeasures



DRAFT

24 Automated De-icing or Auto-Generated Messages on DMS Signs Based on Nearby Weather Stations

Weather data from nearby stations used to activate de-icing mechanisms on roadways or to display dynamic message signs (DMS) alerting drivers to road conditions, such as ice or snow, enhancing safety by preemptively managing hazardous conditions.



Automated Message on DMS Sign
Photo courtesy of spiritofamerica/Adobe Stock

Targeted Crash Type and/or Behavior Road condition safety	Applicable Context Zone Town Center Suburban Activity Center Suburban Rural
Facility Type Street	High Level Safety Benefit (CRF) - Total NA
Timeframe Long-Term	Fatality/Injury NA
Design Hierarchy Tier Tier 4: Increase Attentiveness and Awareness	Property Damage Only NA
	Cost Cost Tier Level (1-3): Tier 2: \$150,000 - \$499,999 Estimated Cost: \$150,000-\$200,00 per installation

Source: NA

25 Center Left-Turn Lane

Center turn lanes enable left-turns from both directions, improving predictability, and keeping turning vehicles out of through traffic to reduce congestion and rear-end collision risks.



Center Left-Turn Lane
Photo courtesy of Chameck.org/Flickr Creative Commons

Targeted Crash Type and/or Behavior Speed-related crashes	Applicable Context Zone Town Center Suburban Activity Center Suburban Rural
Facility Type Street	High Level Safety Benefit (CRF) - Total 36%
Timeframe Mid-Term to Long-Term	Fatality/Injury 34.8%
Design Hierarchy Tier Tier 1: Remove Severe Conflicts	Property Damage Only NA
	Cost Cost Tier Level (1-3): Tier 1: <\$149,999 Tier 3: >\$500,000 Estimated Cost: \$125,000-\$1M per mile

Source: FHWA, <http://www.fhwa.dot.gov/publications/research/safety/08046/index.cfm>

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26 Corridor Access Management

Strategies to control access to major roads to improve safety by managing access points along corridors, which minimizes conflict points, reduces potential crashes, and enhances flow.



Corridor Access Management
Photo courtesy of Song_about_summer/Adobe Stock

Targeted Crash Type and/or Behavior

Rear end crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

11% (A, B, C)



Property Damage Only

5%



Cost

Cost Tier Level (1-3):

Tier 1: $\\$<math>< \\$149,999</math>



Tier 2: $\\$<math>< \\$500,000</math>



Estimated Cost:

$\\$50,000$-$\\$500,000$ per unit

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?text=586>

27 Led Lighting Fixture Upgrades

Replacement of traditional lights with LEDs for better roadway illumination, enhanced visibility and reduced energy costs.



LED Lighting Fixture
Photo courtesy of Peter de Kievit/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear end crashes; pedestrian-related crashes

Facility Type



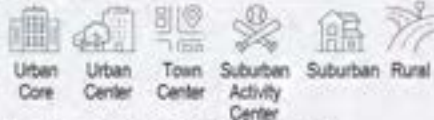
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

28%-nighttime injury crashes; 42%-nighttime injury pedestrian crashes at intersections



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: $\\$<math>< \\$149,999</math>



Estimated Cost:

$\\$2,500$-$\\$3,000$ per unit, assume fewer than 50 new units

Source: FHWA: <https://safety.fhwa.dot.gov/countermeasures/lighting.cfm>



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28 Lighting (Additional Continuous Roadway Corridor Lighting)

Additional lighting fixtures along roads to improve visibility for both drivers and pedestrians, particularly in high-use areas.



Continuous Corridor Lighting
Photo courtesy of iStock/Adobe Stock

Targeted Crash Type and/or Behavior
Nighttime crashes; roadway departure crashes; pedestrian-related crashes

Facility Type
Street

Timeframe
Long-Term

Design Hierarchy Tier
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
21%

Fatality/Injury
27%

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 2: \$150,000 - \$499,999
Tier 3: >\$500,000
Estimated Cost: \$1,000 per unit, assumed over 150 new units

Source: https://safety.fhwa.dot.gov/ped_bike/foos_solve/ped_ttppec/crash

29 Living Snow Fence

Rows of vegetation planted along roadways to reduce snow drifting onto roads, improving visibility and road safety in snowy regions.



Living Snow Fence
Photo courtesy of Ilya Yurkin/Pixabay

Targeted Crash Type and/or Behavior
Road condition safety and visibility

Facility Type
Street

Timeframe
Mid-Term to Long-Term

Design Hierarchy Tier
Tier 3: Manage Conflicts in Time

Applicable Context Zone
Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
11%

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: <\$149,999
Estimated Cost: \$5,000 per mile

Source: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=189>; CMF Clearinghouse

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30 Local Road Safety Plans

Community-specific plans designed to address unique traffic safety challenges through tailored interventions along specific roadways.



Photo courtesy of troyphoto/Adobe Stock

Targeted Crash Type and/or Behavior

Roadway departure crashes, intersection crashes; pedestrian and bicycle-related crashes; driver behavior concerns

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 3: Manage Conflicts in Time
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

17%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 1: ① < \$149,999
- Tier 2: ②③
- Tier 3: ③④⑤ > \$500,000

Estimated Cost:

\$10,000 - \$1M+ per unit
Cost Specific to location and needs

Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/local-road-safety-plans>

31 Longitudinal Rumble Strips

Raised strips along road edges or centerlines that create noise and vibrations when driven over, alerting drivers who may be veering out of lanes.



Longitudinal Rumble Strips
Photo courtesy of MarekPhotoDesign/Adobe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes; head-on crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

Centerline rumble strips (44-64%-) head-on fatal and injury crashes; Shoulder Rumble strips (13-51%) - single vehicle, run-off-road fatal and injury crashes

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 1: ① < \$149,999
- Tier 2: ②③
- Tier 3: ③④⑤

Estimated Cost:

\$500 - \$8,000 per mile

Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/longitudinal-rumble-strips-end-strips-two-lane-roads>



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32 Median Barriers

Physical barriers in the center of multi-lane roads that prevent head-on collisions by separating opposing traffic flows. Barriers may be rigid (concrete), semi-rigid (guardrail) or flexible (high tension cable) based on roadway context.



Median Barriers
Photo courtesy of Kenneth Sponser/Adobe Stock

Targeted Crash Type and/or Behavior

Head-on crashes, opposite-direction sideswipe crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

86%

Fatality/Injury

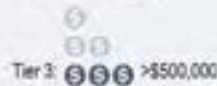
88%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):



Estimated Cost
\$500,000 per mile

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?ccid=874>

33 Pavement Friction Management

Increased pavement friction, especially in high-risk areas like curves or intersections. Techniques include high-friction surface treatments to reduce skidding and enhance control during adverse weather.



Pavement Friction Management
Photo courtesy of Artificion/Adobe Stock

Targeted Crash Type and/or Behavior

Roadway departure crashes, intersection crashes, pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

20%

Fatality/Injury

63%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):



Estimated Cost
\$20-\$30 per sq. yard

Source: FHWA: https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/walkways_brochure.pdf



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34 Road Safety Audit

Formal examination of the safety performance of an existing or future road segment or intersection by an independent team to identify potential safety concerns and recommend improvements.



Road Safety Audit

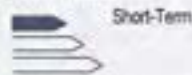
Targeted Crash Type and/or Behavior

Rear-end crashes, angle crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 3: Manage Conflicts in Time
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

10-60%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost

\$25,000-\$50,000 per specific needs

Source: FHWA <https://highways.dot.gov/safety/proven-safety-countermeasures/road-safety-audit>

35 Roadside Design at Curves

Enhanced roadside environment near curves with features like clear zones, barriers, or improved signage to reduce risks of road departure crashes.



Roadside Design at Curves
Photo courtesy of sumcong/kobbe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

27%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999 to

Estimated Cost

Site and need specific

Tier 3: >\$500,000

Source: FHWA <https://safety.fhwa.dot.gov/provencountermeasures/fhwasa180291ch4.cfm>



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36 Safety Edge

A sloped pavement edge applied during road construction or resurfacing, allowing vehicles that drift off the road to return safely by reducing the risk of tire scrubbing against a vertical edge.



Safety Edge
Photo courtesy of Ferry/Adobe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes

Facility Type



Street

Timeframe



Long-Term

Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



Suburban



Rural

High Level Safety Benefit (CRF) - Total

21%-Run-off road crashes; 19%- Head-On crashes

Fatality/Injury

11%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$2,000-\$5,000 per mile



Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/safetyedgesm>

37 Vegetation Management Along Corridors (Countywide Spray Program to Supplement Mowing)

Targeted use of herbicides in areas where mowing alone isn't sufficient to manage vegetation, helping to keep sightlines clear along rural or suburban roads.



Countywide Spray Program
Photo courtesy of Kristina Blichin/Adobe Stock

Targeted Crash Type and/or Behavior

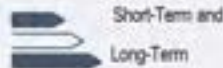
Run-off road crashes; wildlife collisions

Facility Type



Street

Timeframe



Short-Term and

Long-Term

Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Suburban



Rural

High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Estimated Cost:

\$100-\$600 per acre



Source: https://safety.fhwa.dot.gov/local_rural/training/fhwasa07018/vegetation/1108.pdf



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38 Wide Shoulder Area (Gravel or Paved But Not Combination)



A wide shoulder area provides a safe space for vehicles to pull over, emergency stops, or non-motorized use. Using a consistent material, either gravel or paved, prevents uneven surfaces that could affect vehicle control when exiting or re-entering the roadway.



Wide Shoulder Area
Photo courtesy of PixiAdobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

49%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost
Tier 1: ① < \$149,999 to	\$5,000-
Tier 2: ②③ \$150,000 - \$499,999	\$150,000 per mile

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=7758>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=7757>

3. Bike-Pedestrian Countermeasures



Bike-Pedestrian Countermeasures



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39 Bicycle Boxes

Pavement marking boxes placed at intersections allow cyclists to wait in front of vehicles during red lights, reducing conflicts and giving cyclists a head start when the light turns green.

Photo courtesy of IdoFlickr Creative Commons

Targeted Crash Type and/or Behavior
Bicycle-related intersection crashes

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
15% (Pedestrian, Bicycle)

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$15 per square foot

Source: <https://menlopark.gov/files/sharedassets/public/v3/public-works/documents/transportation/transportation-projects/menloparktap-countermeasuretoolbox.pdf>

40 Bicycle Signals

Dedicated traffic signals for cyclists to provide safe and efficient movement through intersections.

Photo courtesy of Adam L. Capola/Flickr Creative Commons

Targeted Crash Type and/or Behavior
Bicycle-related intersection crashes

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 3: Manage Conflicts in Time

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
87.5%

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 2: \$150,000 - \$499,999
Estimated Cost: \$250,000 per four-leg intersection (Includes APS/CPS)

Source: NACTO. <https://nacto.org/case-study/bicycle-signal-at-russell-boulevard-at-sycamore-line-divisio/>

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41 Bike/Pedestrian Signal Concurrence



Coordinating pedestrian and cyclist signals/phases to provide adequate crossing time.



Bike/Ped Signal Concurrence Sign
Photo courtesy of Isaac Mitchell/Pexels Public Domain

Targeted Crash Type and/or Behavior

Bicycle-pedestrian-related intersection crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost:

Signal time adjustment
\$2,000 - \$5,000 per phase

Source: NA

42 Bus Stop Extensions or Safety Improvements



Extending bus stop zones (increasing pedestrian space) improves access and safety for transit riders, pedestrians, and bicyclists while boarding or exiting buses.



Bus Stop Extensions/Safety Improvements
Photo courtesy of Austin Transportation and Public Works/Flickr Public Domain

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Street Intersection

Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

50%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2: \$150,000 - \$499,999



Estimated Cost:

\$35,000-
\$50,000 site
and location
specific

Source: http://pedbikesafe.org/PEDSAFE/casestudies_detail.cfm?CM_NUM=5&CS_NUM=53

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43 Crosswalk Visibility Enhancements including Pavement Marking Striping and Signing



High-visibility markings, such as ladder or zebra patterns, increasing the visibility of crosswalks, alerting drivers to potential pedestrian crossings.



Crosswalk Visibility Enhancements

Targeted Crash Type and/or Behavior
Pedestrian-related crashes

Facility Type
Intersection

Timeframe
Short-Term

Design Hierarchy Tier
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
19%


Fatality/Injury
NA

Property Damage Only
NA


Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$500-\$15,000 per crossing

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?docid=4124>

44 Curb Ramps and Sidewalk Utility Coordination



Ramps provide smooth, safe transitions between sidewalks and crosswalks, benefiting pedestrians with mobility aids. Coordinating utilities on sidewalks maintains clear walk zones and proper delineation.



Curb Ramps/Sidewalk Utility Coordination
Photo courtesy of ikevior29/Adobe Stock

Targeted Crash Type and/or Behavior
Pedestrian-related crashes

Facility Type
Intersection

Timeframe
Med-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts

Applicable Context Zone
Urban Core, Urban Center, Town Center, Suburban Activity Center, Suburban, Rural

High Level Safety Benefit (CRF) - Total
NA

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$500 - \$10,000 per square foot

Source: NA

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45 Hardened Centerlines



Physical barriers in the centerline of a road discourage vehicles from crossing into opposing lanes, reducing head-on collision risks, and slowing driver turning movements by delineating tighter turning radii.



Hardened Centerline
Photo courtesy of Portland Bureau of Transportation/
Creative Commons

Targeted Crash Type and/or Behavior

Speed-related crashes at intersections; angle crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

67%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost:

\$500-\$5,000 per leg of the intersection

Source: DMF Clearinghouse

<https://dmfclearinghouse.fhwa.dot.gov/detail.php?facid=1682>

46 In-Street Pedestrian Crossing Signs (R1-6 or R1-6a)



Signs placed at pedestrian crossings to increase driver awareness and encourage yielding to pedestrian.



In-street Pedestrian Crossing Sign
Photo courtesy of kangrubs/Kobbe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

18%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost:

\$500-\$1,000 per unit

Source: DMF Clearinghouse

<https://dmfclearinghouse.fhwa.dot.gov/detail.php?facid=9022>

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47 Leading Pedestrian Intervals (LPI)



Leading Pedestrian Interval
Photo courtesy of methaphumi/Adobe Stock

Traffic signal strategy that gives pedestrians and bicyclists a head start at crosswalks before vehicles receive a green light, improving their visibility and reducing conflicts with turning vehicles.

Targeted Crash Type and/or Behavior
Pedestrian-related crashes;
Bicycle-related crashes

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 3: Manage Conflicts in Time

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
13%

Fatality/Injury
14%

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$2,000-\$100,000 per phase or signal (APS/CPS may be needed)

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9818>

48 Medians and Refuge Crossing Islands



Crossing Island
Joop Ivanovic/Uspash

Raised barriers in the middle of the road provide pedestrian refuge, allowing them to cross one direction of traffic at a time.

Targeted Crash Type and/or Behavior
Pedestrian-related crashes

Facility Type
Street, Intersection

Timeframe
Long-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
46-56% (pedestrian crashes)

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Tier 3: >\$500,000
Estimated Cost: \$50,000 - \$500,000 per unit

Source: <https://highways.dot.gov/safety/proven-safety-countermeasures/medians-and-pedestrian-refuge-islands-urban-and-suburban-areas>

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49 Mid-Block Curb Extensions or Bulb Outs



Curb extensions, or "bulb-outs," narrow the roadway, shorten pedestrian crossings, slow vehicles and improve pedestrian visibility at intersections.



Intersection/Mid-block Curb Extension/ Bulb-out
Photo courtesy of Richard Drids/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian-related crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

35%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ < \$149,999	\$5,000
Tier 2: \$\$ \$150,000 - \$499,999	-\$150,000 per unit

Source: NA

50 New or Wider Buffers Between Types of Traffic User Modes



Increased separation between vehicle and pedestrian spaces or bike lanes enhances safety by minimizing conflicts.



New/Wider Buffers Between Traffic/ User Types
Photo courtesy of alpegorikabe Stock

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

50-56% (bicycle crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ < \$149,999	\$5,000 - \$30,000 per mile
Tier 3: \$\$\$ > \$500,000	

Source: FHWA: <https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-23-025.pdf>

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51 On-Street Parking



Strategically placed parking along streets helps create a buffer for pedestrians and manage traffic speeds.



On-Street Parking
Photo courtesy of Kirk Fisher/Kobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; sideswipe crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

52%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost:

\$5,000-\$10,000 per parking space

Source: DMF Clearinghouse
<https://onclearinghouse.fhwa.dot.gov/detail.php?facid=8253>

52 Passive Pedestrian Detection



Automatic pedestrian detection at intersections or crosswalks without requiring a push button. Using sensors, cameras, or thermal imaging, the system detects when a pedestrian is waiting to cross, triggering the pedestrian signal phase accordingly.



Passive Pedestrian Detection
Photo courtesy of Greg Sorenson/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

22% (pedestrian)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999



Estimated Cost:

\$2,000-\$10,000 per unit

Source: <http://www.pedbikesafe.org/pedsafe/>

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53 Paved Safety or Shared Use Shoulders



Paved shoulder areas provide a separate space for bicyclists and pedestrians. It also provides space for vehicles to recover, reducing roadway departure crashes and space for vehicles needing to pull over.



Paved Shoulder
Photo courtesy of BakerAdobe Stock

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

71% (pedestrian)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
 Tier 1: < \$149,999
 Tier 2: \$150,000 - \$499,999
 Tier 3: > \$500,000

Estimated Cost:
 \$100,000 - \$500,000 per mile

Source: FHWA, https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/walkways_brochure.pdf

54 Pedestrian Hybrid Beacons (PHB)



Traffic control devices activated by pedestrians at mid-block crossings or unsignalized intersections. The unique PHB red lights flash to alert drivers and provides a safe crossing interval for pedestrians.



Pedestrian Hybrid Beacon (PHB)
Photo courtesy of Austin Transportation and Public Works/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

29%

Fatality/Injury

15%

Property Damage Only

NA

Cost


Cost Tier Level (1-3):
 Tier 1: < \$149,999
 Tier 2: \$150,000 - \$499,999
 Tier 3: > \$500,000

Estimated Cost:
 \$125,000 - \$250,000 per unit

Source: DMF Clearinghouse, <https://dmfclearinghouse.fhwa.dot.gov/detail.php?docid=2311>

DRAFT

55 Pedestrian Warning Crossing Signage (W11-1, 2, etc.)



Warning signs that alert drivers to upcoming pedestrian crossings or other conditions, improving driver awareness and reducing collision risks.

Targeted Crash Type and/or Behavior
Pedestrian-related crashes; animal-related crashes; intersection-related crashes; curve-related crashes; school zone crashes

Facility Type
Street Intersection

Timeframe
Short-Term

Design Hierarchy Tier
Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attention and Awareness

Applicable Context Zone
Urban Core Urban Center Town Center Suburban Activity Center Suburban Rural

High Level Safety Benefit (CRF) - Total
12.1%

Fatality/Injury 18.6% **Property Damage Only** NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$500-\$1,000 per unit

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8892>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8893>

56 Pedestrian-Scale Lighting



Lighting positioned to illuminate sidewalks and crosswalks, specifically enhancing pedestrian visibility at night.

Targeted Crash Type and/or Behavior
Pedestrian-related crashes

Facility Type
Street

Timeframe
Mid-Term Long-Term

Design Hierarchy Tier
Tier 4: Increase Attention and Awareness

Applicable Context Zone
Urban Core Urban Center Town Center Suburban Activity Center

High Level Safety Benefit (CRF) - Total
60%

Fatality/Injury NA **Property Damage Only** NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999 to \$2,500-\$4,000 per unit
Tier 3: > \$500,000

Source: http://www.pedbikeinfo.org/pedsafe/caestudies_detail.cfm?CM_NUM=88CS_NUM=86

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57 Protected Crossing Phase/Pedestrian Scramble

Dedicated signal phase that halts all vehicle movement to allow pedestrians to cross in all directions simultaneously, reducing conflicts with turning vehicles.

Targeted Crash Type and/or Behavior
Pedestrian-related crashes

Facility Type
Intersection

Timeframe
Mid-Term

Design Hierarchy Tier
Tier 3: Manage Conflicts in Time
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
51%

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Estimated Cost: \$50,000-\$100,000 per unit

Source: CMF Clearinghouse
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4117>

58 Protected Intersection

Intersection designs that separate cyclists, pedestrians, and motor vehicles using physical barriers or islands to reduce collision risks, particularly between turning vehicles and vulnerable road users.

Targeted Crash Type and/or Behavior
Bicycle-related intersection crashes

Facility Type
Intersection

Timeframe
Mid-Term to Long-Term

Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
Urban Core, Urban Center, Town Center

High Level Safety Benefit (CRF) - Total
NA

Fatality/Injury
NA

Property Damage Only
NA

Cost
Cost Tier Level (1-3):
Tier 1: < \$149,999
Tier 3: > \$500,000
Estimated Cost: \$50,000-250,000+ per intersection

Source: <https://www.arlingtonva.us/Government/Programs/Transportation/Vision-Zero/Tool-Kit-and-Guidelines/Multimodal-Safety-Engineering-Toolbox-Web-Format/Protected-Intersections>

DRAFT

59 Public Plazas or Parklets



Street space repurposed into pedestrian-friendly areas such as plazas or small parks (parklets), often in urban settings, to enhance public space while improving delineation for driving lanes.



Public Plaza/Parklet
Photo courtesy of Seattle DOT PhotosFlickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes, angle crashes, rear-end crashes; speed-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3)	Estimated Cost:
Tier 1:	< \$149,999 to \$20,000-
Tier 2:	\$150,000 - \$499,999 \$150,000 per unit

Source: <https://hact.org/publication/urban-street-design-guide/interim-design-strategies/parklets/>

60 Raised Crosswalk



A Raised Crosswalk is an elevated pedestrian crossing designed to slow vehicle speeds, improve visibility of pedestrians, and enhance safety by aligning the crossing with the sidewalk level. It acts as a traffic calming measure.



Raised Crosswalk
Photo courtesy of Arnold Reinhold/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

46% (pedestrian crashes)

Fatality/Injury

46%

Property Damage Only

NA

Cost

Cost Tier Level (1-3)	Estimated Cost:
Tier 1:	< \$149,999 \$5,000-\$30,000 per unit

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?locid=138>

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61 Rectangular Rapid Flashing Beacons (RRFB)

Flashing beacons activated by pedestrians at unsignalized crosswalks to alert drivers of pedestrian presence, increasing crossing visibility and safety.



Flashing Rectangular Beacon
Photo courtesy of Seattle Lars Justine/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

47.4% (pedestrian)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ < \$149,999



Estimated Cost:

\$10,000 - \$100,000 per unit

Source: OMF Clearinghouse: <https://omfclearinghouse.fwa.dot.gov/detail.php?fact=824>

62 Restripe Crosswalks and Stop Bars

Crosswalks and stop bars repainted to improve visibility and encourage drivers to be aware of pedestrian crossing areas and where to stop.



Restripe crosswalks/stop bars
Photo courtesy of Mario Cuadros/Pexels

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

8.3%-18.9%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ < \$149,999



Estimated Cost:

\$1,000-\$5,000 per unit

Source: OMF Clearinghouse: <https://omfclearinghouse.fwa.dot.gov/detail.php?fact=865>

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63 Separated Bicycle Lanes



Physically separated bicycle lanes prevent interactions with motor vehicles, improving safety for cyclists by reducing collision risks.



Separated Bicycle Lane

Targeted Crash Type and/or Behavior

Bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

30-49%; 53%-Bicycle/Vehicle crashes

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ < \$149,999
 Tier 2: \$\$ \$150,000 - \$499,999
 Tier 3: \$\$\$ > \$500,000

Estimated Cost:
 \$50,000-\$500,000 per mile

Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes>

64 Shorter Signal Cycle Length



Reduced cycle length to decrease pedestrian and bicyclist wait times, making it safer and more efficient for pedestrians to cross intersections, and ultimately reducing non-intersection pedestrian crossings.



Shorter Signal Cycle Length
 Photo courtesy of Ryan Smith/Flickr

Targeted Crash Type and/or Behavior

Bicycle and pedestrian-related intersection crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

37%

Fatality/Injury

12%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ < \$149,999
 Tier 2: \$\$ \$150,000 - \$499,999
 Tier 3: \$\$\$ > \$500,000

Estimated Cost:
 \$30,000 to \$250,000 per intersection (if new signal required to add APS/CPS)

Source: CCMF Clearinghouse, <https://confclearinghouse.fhwa.dot.gov/detail.php?docid=383>

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65 Sidewalks and Shared-Use Paths



Designated pathways for pedestrians or multiple users (e.g., cyclists and pedestrians), often separated from traffic to provide safe travel alternatives for non-motorized users.



Sidewalks/Shared-Use Path
Photo courtesy of Phil Champion/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

Sidewalks (85-89%) - Pedestrians; Paved Shoulders (71%) - Pedestrian crashes

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2: \$150,000 - \$499,999

Tier 3: > \$500,000

Estimated Cost:

\$100,000-\$4.5M per mile

Source: FHWA, https://highways.dot.gov/sites/fhwa.dot.gov/files/Volways_502.pdf

66 Transverse Striping and Curb Extensions Using Flex-Posts or Bollards



Transverse striping and flex posts used to change the dimensions of driving lanes within the right-of-way. Typical applications include temporary islands, median extensions, chicanes, tightened intersection turning radii, and buffers between different user types.



Transverse Striping and Flex-Post/Bollard Curb Extensions
Photo courtesy of Ticky Sherkikote Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; pedestrian-related crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

36% (A,B,C)

Property Damage Only

28%

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2: \$150,000 - \$499,999

Tier 3: > \$500,000

Estimated Cost:

\$500 - \$5,000 per unit

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?docid=138>

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67 Turning Vehicles Yield to Pedestrians Signage



Signs (MUTCD R10-15) remind drivers to yield to pedestrians when turning at intersections, enhancing safety by reducing conflicts between vehicles and crossing pedestrians.



Turning Vehicles Yield to Pedestrians
Photo courtesy of elvis901/Kate Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Intersection

Timeframe



Short-Term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

25% (Pedestrian crashes)

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ < \$149,999



Estimated Cost:

\$500 - \$2,000 per unit (overhead/mast-mounted signs will cost more)

Source: <https://onfleetinghouse.fhwa.dot.gov/detail.php?fbid=9017>

4. Speed Management Countermeasures



Speed Management Countermeasures



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68
Appropriate Speed Limits for All Road Users
🚗

Speed limits that reflect road type, surrounding environment/land use, and traffic volume help manage driving speeds, reduce crash severity, and accommodate all road users safely.



Appropriate Speed Limits for All Road Users
Photo courtesy of anayasi/Adobe Stock

Targeted Crash Type and/or Behavior
Speed-related crashes

Facility Type
Street

Timeframe
Med-Term

Design Hierarchy Tier
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone

Urban Core Urban Center Town Center Suburban Activity Center Suburban Rural

High Level Safety Benefit (CRF) - Total
NA

Fatality/Injury **Property Damage Only**

26% NA

Cost

Cost Tier Level (1-3):
Tier 1: \$ < \$149,999


Estimated Cost:
New signs & posts
\$500 - \$1,500 per unit

Source: <https://safety.fhwa.dot.gov/provercountermeasures/appropriate-speed-limits.cfm>

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69
Chicanes
🚗

Alternating curb extensions or other design features along a road create a winding pattern, slowing traffic by encouraging drivers to reduce speed.



*Chicanes
Photo courtesy of Zigmund/Adobe Stock*

<p>Targeted Crash Type and/or Behavior</p> <p>Speed-related crashes</p>	<p>Applicable Context Zone</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div> Urban Core</div> <div> Urban Center</div> <div> Town Center</div> <div> Suburban Activity Center</div> </div>	
<p>Facility Type</p> <p> Street</p>	<p>High Level Safety Benefit (CRF) - Total</p> <p>NA</p>	<p>Fatality/Injury</p> <p>NA</p>
<p>Timeframe</p> <p> Mid-Term</p>	<p>Property Damage Only</p> <p>NA</p>	<p>Cost</p> <p>Cost Tier Level (1-3):</p> <p>Tier 1: < \$149,999</p> <p>Tier 2: \$150,000 - \$499,999</p> <p></p> <p>Estimated Cost: \$10,000-\$50,000 per unit, assume multiple units installed</p>
<p>Design Hierarchy Tier</p> <p>Tier 2: Reduce Vehicle Speeds</p>		

Source: NA

70
Horizontal Curve Delineation incl. Chevron Signs (Optional Radar Activated Flashing Border)
🚗

Visual cues and markings that enhance the visibility of curved road sections, guiding drivers safely through these areas. Chevron-shaped signs marking curves, often with radar-activated flashing features, to alert drivers to reduce speed in advance of sharp turns.



*Horizontal Curves/Chevron Signing
Photo courtesy of Sutrini/Adobe Stock*

<p>Targeted Crash Type and/or Behavior</p> <p>Roadway departure crashes</p>	<p>Applicable Context Zone</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div> Suburban</div> <div> Rural</div> </div>	
<p>Facility Type</p> <p> Street</p>	<p>High Level Safety Benefit (CRF) - Total</p> <p>35%-44%</p>	<p>Fatality/Injury</p> <p>15%-60%</p>
<p>Timeframe</p> <p> Short-Term</p>	<p>Property Damage Only</p> <p>NA</p>	<p>Cost</p> <p>Cost Tier Level (1-3):</p> <p>Tier 1: < \$149,999</p> <p></p> <p></p> <p>Estimated Cost: Static signs \$500-\$1,000 per unit, radar-activated flashing signs \$2,500-\$8,000 per unit, pavement markings \$10,000 per mile</p>
<p>Design Hierarchy Tier</p> <p>Tier 4: Increase Attentiveness and Awareness</p>		

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=10362>
FHWA: https://safety.fhwa.dot.gov/provencountermeasures/enhanced_delineation.cfm#psc-footele

DRAFT

71 Road Diet or Lane Reallocation



Reconfiguration of travel lanes, often converting a four-lane road to two through lanes and a center left-turn lane, which calms traffic, improves safety, and creates space for bike lanes or wider sidewalks.



Road Diet
Photo courtesy of Complete StreetsFlickr

Targeted Crash Type and/or Behavior

Speed-related crashes; rear-end crashes; sideswipe crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

19-47%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier	Estimated Cost
Tier 2:	\$150,000 - \$499,999 to \$150,000 - \$1M per mile
Tier 3:	>\$500,000

Source: FHWA, <https://highways.dot.gov/safety/proven-safety-countermeasures/road-diet-roadway-reconfiguration>

72 Speed Cushion or Speed Hump (<5K AADT)



Raised sections of pavement used on low-speed roads (usually <5,000 annual average daily traffic) to slow vehicles and improve safety in residential or pedestrian-heavy areas.



Speed Hump
Photo courtesy of Richard Dridal/Wikimedia Commons

Targeted Crash Type and/or Behavior

Speed-related crashes; intersection crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier	Estimated Cost
Tier 1:	< \$149,999
Tier 2:	\$1,000 - \$10,000 per unit
Tier 3:	

Source: <https://necto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-cushion/>

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73 Speed Safety Cameras/Radar Speed Detection

Cameras or radar systems that monitor vehicle speeds, helping to enforce speed limits and reduce speeding-related crashes by deterring violations.



Speed Safety Cameras
Photo courtesy of Andrei Armiagov/Adobe Stock

Targeted Crash Type and/or Behavior
Speed-related crashes

Facility Type
 Street

Timeframe
 Mid-Term

Design Hierarchy Tier
Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
 Urban Core
 Urban Center
 Town Center
 Suburban Activity Center
 Suburban
 Rural

High Level Safety Benefit (CRF) - Total
54%

Fatality/Injury 48% **Property Damage Only** NA

Cost
 Cost Tier Level (1-3):
 Tier 1: < \$149,999 to \$100,000 -
 Tier 2: \$150,000 - \$499,999 \$350,000 per unit

Source: FHWA, https://highways.dot.gov/sites/fhwa.dot.gov/files/Speed%20Safety%20Cameras_508.pdf

74 Transverse Rumble Strips (Rubber, Plastic, or Milled-In)

Strips running across the roadway (typically before intersections or stop signs) to alert drivers with sound and vibration, helping to reduce speeds and increase awareness. Strips can either be traditional rumble strip grooves in pavement or installed raised rubber or plastic strips.



Transverse Rumble Strips
Photo courtesy of trainman111/Adobe Stock

Targeted Crash Type and/or Behavior
Nighttime crashes; speed-related crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type
 Street Intersection

Timeframe
 Short-Term

Design Hierarchy Tier
Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone
 Suburban Activity Center
 Suburban
 Rural

High Level Safety Benefit (CRF) - Total
13%

Fatality/Injury 29% **Property Damage Only** 14%

Cost
 Cost Tier Level (1-3):
 Tier 1: < \$149,999 \$2,000 - \$3,000 per unit

Source: CMF Clearinghouse, <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid/9048>

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75 Variable Speed Limits



Speed limits that adjust based on real-time road conditions (e.g., weather, traffic volume), enhancing safety by reducing speed differentials between vehicles.



Variable Speed Limits
Photo courtesy of Mindatara/Flickr

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attention and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

51%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2: \$150,000 - \$500,000

Tier 3: > \$500,000

Estimated Cost:

\$50,000 - \$500,000 per unit

Source: FHWA: <https://highways.dot.gov/safety/proven-safety-countermeasures/variable-speed-limits>

76 Wider Edge Lines



Wider white edge lines improve lane visibility and support lane-keeping, particularly in low-light or adverse weather conditions.



Wider Edge Lines
Photo courtesy of lens Arda/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type



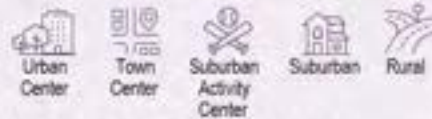
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attention and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

37%

Fatality/Injury

42%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: < \$149,999

Tier 2: \$150,000 - \$500,000

Tier 3: > \$500,000

Estimated Cost:

\$1,500 - \$2,500 per mile

Source: FHWA: <https://onlinelibrary.wiley.com/doi/10.1111/j.1533-8064.2014.00317.x>

Appendix F: Project Cut Sheets



Project Sheets Overview

The images at right show an example project sheet. Each project in the appendix has its own project sheet with additional context about the project area, crash history, goals for safety improvements, and potential safety countermeasures.

Many of these factors are also discussed in the larger local context in the Safety Action Plan under the safety analysis, equity, and engagement chapters.

The historic crash heat maps shown on these project sheets visualize the relative densities of fatal and serious injury (FSI) crashes of all modes across the municipality, providing an overview of geographic patterns in crash data from 2019 to 2023. They include crashes that occurred on interstates. Crashes that did not result in a fatality or serious injury are not represented in the heat maps.

PAGE 1 An overview of the project location, street characteristics, and a heat map of historic crashes.



PAGE 2 Summary of historic crash statistics, corridor demographics, public input, and planned projects.



PAGE 3 Project area safety goals and a summary of recommended safety countermeasures.



PAGE 4 Project area diagram with potential locations for safety countermeasures.



S Broadway

East Providence | Project #1

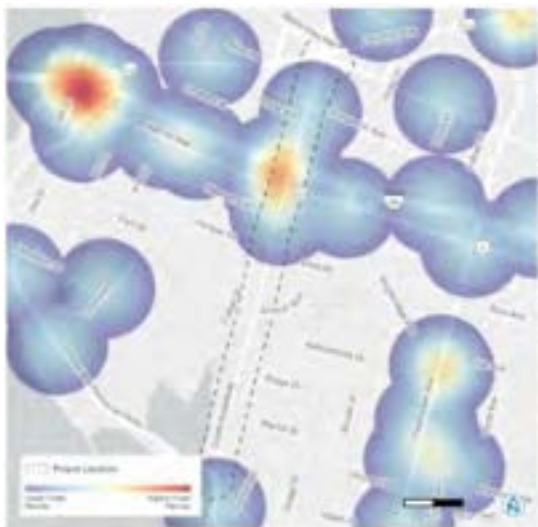
From Veterans Memorial Parkway to Waterman/Taunton

S Broadway is a key north-south street in East Providence. In its southern section near the Veterans Memorial Parkway, the road is lower density residential, but further north through Center City and near the intersection with Warren Ave and highway ramps of I-195, the land uses become more mixed and denser. Over five percent of all crashes in the city occurred within this 1.4 mile roadway segment, as well as over 5% of FSI crashes.

Key Information

Owner City of East Providence	Travel Lanes 2 lane, Two-way, 14 ft wide vehicle lanes. Turning lanes present at intersection with Warren Ave as well as I-195.
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 11,400-16,400 AADT	Quality of Sidewalk Condition Fair
Corridor Length 1.8 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service Two Routes, 32, 61x
Typical Street Width Curb-to-curb: 35 feet; Right-of-way: 50-55 feet	Additional Key Features Wide shoulders infrequently used for on-street parking.

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0.8%	99.2%	100%
Motor Vehicle Crashes	33%	95%	95%
Bicycle Involved Crashes	33%	1%	2%
Pedestrian Involved Crashes	33%	1%	1%
Motorcycle Involved Crashes	0%	2%	2%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	67%	73%	73%
Dark – Lighted	33%	22%	22%
Dark – Not Lighted	0%	1%	1%
Unknown Lighting	0%	1%	1%
Twilight	0%	3%	3%

Road Condition Factor	FSI	Non FSI	All
Dry	67%	85%	85%
Unknown	0%	1%	1%
Wet	33%	12%	12%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	31%	31%
Head-On Crashes	0%	5%	5%
Unknown Manner of Collision	0%	8%	8%
Rear End Crashes	0%	30%	29%
Sideswipe Opposite Direction Crashes	0%	1%	1%
Sideswipe Same Direction Crashes	0%	14%	13%
Single Vehicle Crashes	100%	12%	12%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: Critical VRU Modes: Critical
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tracts 44007010200, 44007010400, 44007010502	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	13.5%

Block Group Statistics ³	Percentile
Block Groups 440070102002, 440070102003, 440070102004, 440070104001, 440070104002, 440070104003, 440070104005, 440070105021	
Transportation Insecurity	38.7%
Environmental Burden	87.0%
Health Vulnerability	15.8%
Social Vulnerability	66.1%
Climate Risk Burden	55.4%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Request to add traffic control to reduce speeding while bridge is under construction.
- Request to improve pedestrian safety; one comment noted need for more improved pedestrian visibility and clear, maintained sidewalks.
- Multiple requests to add protected or un-protected bike lanes.
- Requests to improve intersection at Veterans Memorial Parkway.

Previously Proposed Planned Improvements to Project Area

The City of East Providence is currently in the process of finalizing its grant agreement with USDOT for a SS4A Supplemental Action Plan for the “Six Corners” intersection – the intersection of Taunton Avenue, Waterman Avenue, and Broadway. The project will focus on enhancing safety for pedestrians, cyclists, drivers, and users of RIPTA’s transit system at this intersection and the immediate area. The SS4A funding is essential to fully address the complex nature of the issues at this intersection.

Goals for S Broadway

Safety improvements on this roadway are most necessary in the central section, near the intersections with Warren Avenue and I-195 ramps, where both pedestrians and bicyclists have been involved in injury, serious injury, and fatal crashes. But overall, this road is a key north-south collector through the City and should be improved to enhance multimodal connectivity. To enhance safety on S Broadway, this project aims to:

- Improve pedestrian safety
- Increase bicycle connectivity
- Reduce vehicle speeds
- Reduce driver confusion near congested areas

Safety Countermeasures for S Broadway

Since this road intersects with a state road (Warren Avenue) and has access ramps to I-195, the City should coordinate with RIDOT on implementing any adjacent recommendations as noted below.

Key safety countermeasures include:

- Crosswalk visibility enhancements
- Curb extensions* at intersections
- Landscape planting areas
- Median barriers
- Protected bike lanes
- Formalize vehicle lanes with improved road striping

*More permanent applications of curb extensions should not be installed in such a way to prevent potential for future implementation of north-south bike lanes along this corridor. Review locations with proposed curb extensions for drainage, parking, and shoulder bike lane impacts.

As an interim improvement, remove on-street parking on east side of Southbound ramp. Keep parking on west side and add bump-outs and planters.

Install high-viz crosswalk to cross Freeborn Ave.

Add curb extension at side street (Oakley) to shorten crossing.

Install flex posts to tighten curb radii at intersection at Warren and improve pedestrian safety/visibility.

Remark vehicle and parking lanes. Install low-cost curb extensions with flex posts at crosswalks and mark crosswalks with high-viz markings.

Study feasibility of protected bike lanes between Veterans Memorial Parkway to Mauran Ave/Laura St. Road width is 34' south of Laura St and has an underutilized shoulder. Bike lanes could help slow vehicle speeds by narrowing roadway.

Study potential to extend a bike lane on north side of Veterans Memorial Parkway.

Study potential for intersection redesign such as a roundabout).

Intersection to be studied further under dedicated SS4A Supplemental Study

As an interim improvement, add temporary planters or barriers to on-street shoulder/parking lane along ramp road access ramp (to narrow roadway, slow speeds).

- Narrow vehicle lanes and expand sidewalk and/or consider elimination of second Northbound Left turn lane.
- Trim vegetation along sidewalk south of highway overpass to improve pedestrian access.
- Improve visibility of traffic signal from location under highway.
- Add pedestrian scale lighting for safety and security under highway overpass.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Sidewalk missing on east side of road south of Martin Street. Mark high-viz crosswalk at Martin St or install sidewalk.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments

Taunton Avenue

East Providence | Project #2

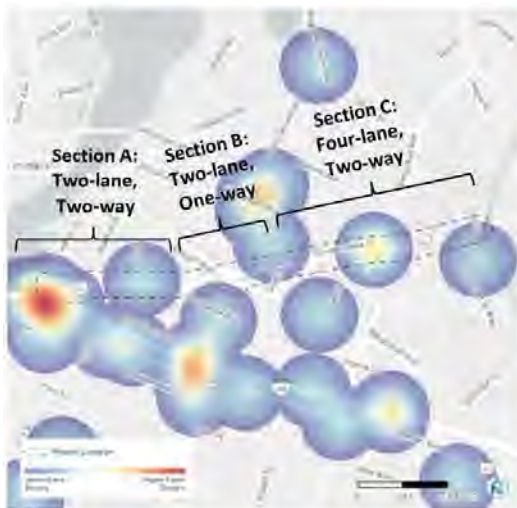
From Valley Street to City/State boundary

Taunton Avenue (SR-44) is a key arterial that runs east-west through the City with its core at the “Six Corners” intersection. The road has many commercial uses: the western half has more local, pedestrian-scaled businesses while the eastern half has many larger trip generating businesses. 8.7% of all crashes and 3.4% of all FSI crashes in the City occurred on this road segment.

Key Information

Owner State & City of East Providence; Locally-maintained portion is west of John Street.	Travel Lanes Varies: (A) 2 lane, Two-way, 14 ft wide vehicle lanes; (B) 2 lane, One-way, 14 ft wide vehicle lanes; (c) 4 lane, Two-way roadway, 11 ft wide vehicle lanes. Turning lanes present at intersections
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 8,900-17,350 AADT	Quality of Sidewalk Condition Good to Fair; Sidewalk is adjacent to roadway
Corridor Length 1.9 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph (west of Broadway); 30 mph elsewhere	Existing Transit Service 4 Routes on corridor (up to 3 on specific segments), Route 33, 34, 35, 78; 30-40 minutes
Typical Street Width Curb-to-curb: 43-45 feet; Right-of-way: varies	Additional Key Features Under-utilized parking lane, many slip lanes at intersections that facilitate high speeds

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0.3%	99.7%	100%
Motor Vehicle Crashes	0%	98%	98%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	50%	1%	1%
Motorcycle Involved Crashes	50%	1%	1%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	50%	79%	79%
Dark – Lighted	50%	16%	16%
Dark – Not Lighted	0%	1%	1%
Unknown Lighting	0%	1%	1%
Twilight	0%	3%	3%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	84%	84%
Unknown	0%	1%	1%
Wet	0%	13%	13%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	20%	20%
Head-On Crashes	0%	2%	2%
Unknown Manner of Collision	0%	9%	9%
Rear End Crashes	0%	40%	40%
Sideswipe Opposite Direction Crashes	0%	1%	1%
Sideswipe Same Direction Crashes	0%	16%	16%
Single Vehicle Crashes	100%	11%	11%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: Critical VRU Modes: Critical
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tracts 44007010200, 44007010300	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	13.5%

Block Group Statistics ³	Percentile
Block Groups 440070102002, 440070102003, 440070102004, 440070102005, 440070103001, 440070103002	
Transportation Insecurity	34.0%
Environmental Burden	95.3%
Health Vulnerability	16.8%
Social Vulnerability	67.3%
Climate Risk Burden	55.7%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- General request to improve pedestrian safety; need for more and shorter pedestrian crossings
- Many intersections feel unsafe; cars drive too fast and make illegal turns.
- Request to reduce vehicle speeds by narrowing travel lanes and eliminating slip lanes.
- Taunton two-way, two-lane section has drivers aggressive toward people walking and biking.
- Taunton & Waterman intersection is an issue for commuters, since there are “no good ways” to bike through the area even though many services and resources are concentrated there.

Previously Proposed Planned Improvements to Project Area

- The City of East Providence is currently in the process of finalizing its grant agreement with USDOT for a SS4A Supplemental Action Plan for the “Six Corners” intersection – the intersection of Taunton Avenue, Waterman Avenue, and Broadway. The project will focus on enhancing safety for pedestrians, cyclists, drivers, and users of RIPTA’s transit system at this intersection and the immediate area. The SS4A funding is essential to fully address the complex nature of the issues at this intersection.
- STIP project 9546 with funding years 2026-2029 will repave and improve wheelchair ramps on Taunton Ave from Summit St to Pawtucket Ave.
- 350 Taunton Avenue is a new affordable housing project that will revitalize a 3-acre site to a mixed-use residential. The project will add sidewalk and streetscape improvements, as well as bump-out tree wells along Taunton.
- RIDOT is undergoing a full replacement of the Westbound portion of the I-195 Washington Bridge. The Westbound span was closed due to safety concerns and once the bridge reconstruction is complete, Taunton Avenue will likely see a reduction in traffic volumes, as more drivers will remain on I-195.
- STIP project 1323 includes resurfacing, sidewalk replacement and handicapped ramp installation from Pawtucket Ave to the state line.



Goals for Taunton Avenue

To enhance safety, this project aims to:

- Reduce speeds
- Improve pedestrian safety
- Improve pedestrian connectivity and access

Safety Countermeasures for Taunton Avenue

Given the complexity of the “Six Corners” intersection, the recommended safety countermeasures below do not address the area within the limits of the intersection (from Russell & Taunton to North Broadway/Waterman & Taunton). Following the completion of the East Providence Pedestrian and Bicycle Master plan and the supplemental “Six Corners” intersection analysis and recommendations, the City should determine a final approach to bicycle travel along Taunton – both east and west of the Six Corners intersection. Bicycle lanes can help achieve project goals listed above for Taunton Avenue. Since this is a state road, the City should coordinate with RIDOT on implementing the recommendations as noted below.

Key safety countermeasures include:

- Crosswalk visibility enhancements
- Medians and pedestrian refuge islands
- Pedestrian crossing signs
- Curb extensions* and Intersection bulb-outs
- Landscape planting areas
- Median barriers
- Bike lanes**

* Review location with proposed curb extensions for drainage, parking, and bike lane impacts.

**Subject to STC approval.



Reconfigure intersection at Summit to simplify travel movements.

Consider implementing bump-out tree wells periodically to implement traffic calming (Valley to John).

Add curb extensions at crosswalks between Alice and Anthony to reduce pedestrian crossing distance and prevent vehicles from parking in crosswalk and/or blocking visibility.

Intersection to be studied further under dedicated SS4A Supplemental Study

Consider implementing bump-out tree wells periodically to implement traffic calming.

Expand pedestrian median farther south to crosswalk, narrow vehicle lanes, and consider addition of pedestrian crosswalk signs.

Narrow vehicle slip lanes at NE and SW corners of intersection at Pawtucket.

Redesign intersection at John. Option 1: reduce roadway width near John and Whelden by installing curb extension on south side of Taunton and elongate existing center median with center line barriers. Option 2: return to a four-way intersection with traffic signal and close Whelden access to Taunton.

Study roadway between Broadway and Pawtucket for road diet. Current AADT is 17,000 and within range of feasibility for road diet following Washington Bridge reconstruction.

- Existing Features**
- Bus Stops
 - Existing Trails and Bicycle Facilities
 - Traffic Signal
- Recommendation Types**
- Pedestrian Improvements
 - Bicycle Facility Improvements
 - Intersection Redesign
 - Upgrade Signage and Markings
 - Traffic Calming
 - Other Treatments

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.



Waterman Avenue

East Providence | Project 3

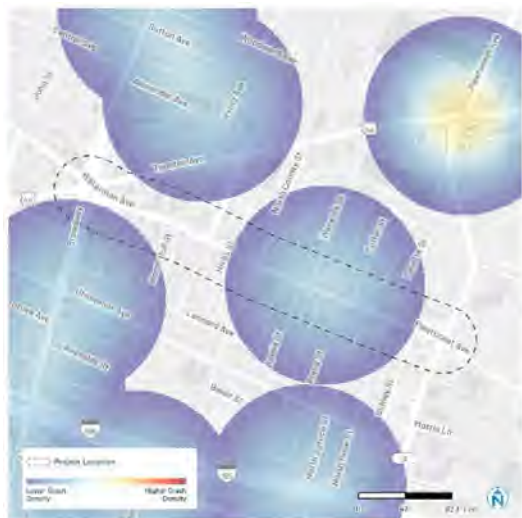
From Broadway to Pawtucket Avenue

Waterman Avenue is a major east-west corridor through the center of East Providence, carrying both local and regional traffic. Between Broadway and Pawtucket, this road segment accounts for 2.5% of all municipality crashes, and 1.7% of all municipality FSI crashes.

Key Information

Owner RIDOT	Travel Lanes Varies: (A) 2 lane, One-way, 12 ft wide vehicle lanes (Broadway to Hall Street); (B) 2 lane, Two-way, 12 ft wide vehicle lanes; (Hall Street to Pawtucket Ave)
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 5,600-12,950 AADT	Quality of Sidewalk Condition Good, adjacent to vehicle lanes
Corridor Length 0.63 miles	Existing Bicycle Facilities or Designation None
Posted Speed 30 mph	Existing Transit Service 3 Routes, Route 33, 35, 78
Typical Street Width Curb-to-curb: 40 feet; Right-of-way: 56 feet	Additional Key Features Mostly underutilized shoulder lanes (8 ft wide); mixed-use corridor with businesses and single and multi-family residences

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0.6%	99.4%	100%
Motor Vehicle Crashes	0%	98%	98%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	100%	1%	1%
Motorcycle Involved Crashes	0%	1%	1%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	79%	79%
Dark – Lighted	100%	16%	17%
Dark – Not Lighted	0%	1%	1%
Unknown Lighting	0%	0%	0%
Twilight	0%	4%	4%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	81%	81%
Unknown	0%	1%	1%
Wet	0%	17%	17%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	28%	28%
Head-On Crashes	0%	2%	2%
Unknown Manner of Collision	0%	8%	8%
Rear End Crashes	0%	41%	41%
Sideswipe Opposite Direction Crashes	0%	0%	0%
Sideswipe Same Direction Crashes	0%	10%	10%
Single Vehicle Crashes	100%	11%	12%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: High VRU Modes: Critical
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tract #	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	11.5%

Block Group Statistics ³	Percentile
Block Group #	
Transportation Insecurity	34.2%
Environmental Burden	82.7%
Health Vulnerability	19.4%
Social Vulnerability	71.1%
Climate Risk Burden	66.5%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor:

- One comment was added to the Waterman and Hall Street intersection, stating that the slip lanes are dangerous.
- A handful of comments were located at the intersection of Waterman and Pawtucket:
 - Multiple comments raised concerns about the safety for vehicles turning left from northbound Pawtucket to Waterman (requests included a left-turn arrow and/or a dedicated lane)
 - One comment requested elimination of the right turn slip lane from Waterman eastbound to Pawtucket and advance warning for the lane to be a right-turn only.
 - One commenter said the intersection is especially challenging after the high school lets out.

Previous Proposed Planned Improvements to Project Area

- A Pedestrian and Bicycle Master Plan is currently underway for the City of East Providence. This plan will provide a proposed plan for pedestrian and bicycle improvements citywide. This corridor is not identified as a part of the bicycle network, but the plan suggests bike lanes as an option for the segment east of the Six Corners Intersection; a road diet could be implemented west of the intersection, then bike lanes may be possible for continuation.
- The City of East Providence is currently in the process of finalizing its grant agreement with USDOT for a SS4A Supplemental Action Plan for the “Six Corners” intersection – the intersection of Taunton Avenue, Waterman Avenue, and Broadway. The project will focus on enhancing safety for pedestrians, cyclists, drivers, and users of RIPTA’s transit system at this intersection and the immediate area. The SS4A funding is essential to fully address the complex nature of the issues at this intersection.
- STIP project 9546 with funding years 2026-2029 will repave Taunton Avenue and the one-way, eastbound section of Waterman Avenue between Broadway and Hall Street, as well as improve wheelchair ramps.
- STIP Project 1325 includes the replacement of the traffic signal at Waterman & Pawtucket Ave. and installation of a left turn lane at Waterman.
- RIDOT is undergoing a full replacement of the Westbound portion of the I-195 Washington Bridge. The Westbound span was closed due to safety concerns and once the bridge reconstruction is complete, Taunton Avenue will likely see a reduction in traffic volumes, as more drivers will remain on I-195.

Goals for Waterman Avenue

To enhance safety on Waterman Avenue, this project aims to:

- Improve pedestrian level of comfort and safety
- Manage vehicle speeds
- Improve safety for bicycle travel on the corridor

Safety Countermeasures for Waterman Avenue

Given the complexity of the “Six Corners” intersection, the recommended safety countermeasures below do not address the more complex changes and improvements that could occur along Waterman between Broadway and Hall Street. Following the completion of the East Providence Pedestrian and Bicycle Master plan and the supplemental “Six Corners” intersection analysis and recommendations, the City should determine a final approach to bicycle travel along Waterman, however bicycle lanes can help achieve project goals listed for Waterman Avenue, namely traffic calming. Since this is a state road, the City should coordinate with RIDOT on implementing the recommendations as noted below.

Key potential safety countermeasures include:

- Addition of crosswalks**
- Crosswalk visibility enhancements
- Installation of curb ramps – at new and existing crosswalks
- Pedestrian crossing signs
- Curb extensions, where appropriate*
- Bike lanes**
- Intersection redesign at Waterman & Pawtucket Avenues

*Review locations with proposed curb extensions for drainage, parking, and shoulder bike lane impacts.

**Subject to STC approval.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

**Section A:
Two-lane, One-way**

**Section B:
Two-lane, Two-way**

Intersection to be studied further under dedicated SS4A Supplemental Study

Study feasibility of a bike lane given the low utilization of the shoulder lane and the importance of this east-west connector. If bike lanes are not added, then curb extensions at all intersections are recommended to narrow roadways and shorten crossing distance at newly proposed and existing crosswalks.

Study intersection of Hall St with slip lanes during SS4A Supplemental Study.

No marked crosswalk on this roadway for 0.3 miles (between North Country Rd and Pawtucket Ave. Study locations for marked crosswalks: add high-visibility crosswalks with advance pedestrian crossing signs. (Key locations of need include: Appian Way/Martello St and Swan St/Raymond St.

Study intersection to (1) determine new signal phases that would provide a dedicated left-turn signal, and (2) assess potential for intersection realignment to add a center turn lanes and improve pedestrian safety at slip lanes. STIP Project 1325 includes the replacement of the traffic signal at Waterman Ave & Pawtucket Ave. and installation of a left turn lane at Waterman.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments



Pawtucket Avenue

East Providence | Project 4

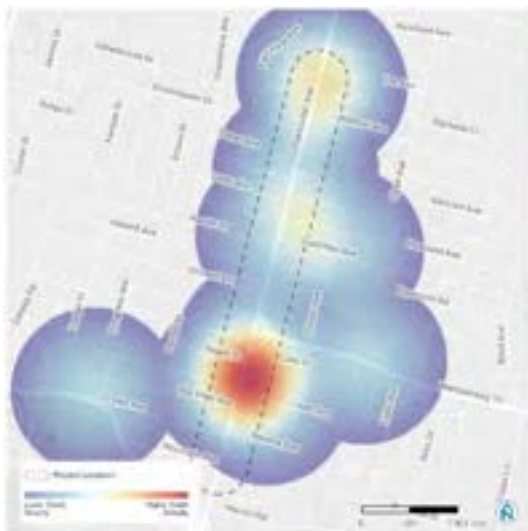
From Brightridge Avenue to Mountain Avenue

Pawtucket Avenue is a major north-south corridor through the center of East Providence, carrying both local and regional traffic. Between Brightridge Avenue and Mountain Avenue, this corridor segment accounts for 2.3% of all municipality crashes, but 11.9% of all municipality FSI crashes with vehicle drivers, pedestrians, and motorcyclists affected.

Key Information

Owner RIDOT,	Travel Lanes 4 lanes, Typical Width: 11 feet, Two-way
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 12,450-18,650 AADT	Quality of Sidewalk Condition Fair to Poor, adjacent to vehicle lanes and lacking ramps
Corridor Length 0.78 miles	Existing Bicycle Facilities or Designation None
Posted Speed 30 mph	Existing Transit Service 2 Routes, Route 32, 33
Typical Street Width Curb-to-curb: 42-44 feet; Right-of-way: 60 feet	Additional Key Features Four-lane, undivided road; mixed-use corridor with businesses and single and multi-family residences

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	4.2%	95.8%	100%
Motor Vehicle Crashes	57%	97%	95%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	29%	2%	3%
Motorcycle Involved Crashes	14%	1%	1%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	79%	79%
Dark – Lighted	100%	16%	17%
Dark – Not Lighted	0%	1%	1%
Unknown Lighting	0%	0%	0%
Twilight	0%	4%	4%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	81%	81%
Unknown	0%	1%	1%
Wet	0%	17%	17%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	28%	28%
Head-On Crashes	0%	2%	2%
Unknown Manner of Collision	0%	8%	8%
Rear End Crashes	0%	41%	41%
Sideswipe Opposite Direction Crashes	0%	0%	0%
Sideswipe Same Direction Crashes	0%	10%	10%
Single Vehicle Crashes	100%	11%	12%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: Low VRU Modes: Low
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tract #	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	7.77%

Block Group Statistics ³	Percentile
Block Group #	
Transportation Insecurity	21.9%
Environmental Burden	77.1%
Health Vulnerability	56.9%
Social Vulnerability	30.9%
Climate Risk Burden	63.1%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor:

- Several commenters requested the prioritization of STIP #9525 which is the repaving of Pawtucket and replacement of sidewalks.
- One commenter voiced the need for connected sidewalks between Bradley Hospital on Veteran’s Memorial Parkway and the Walgreens.
- Commenters requested consideration of a road diet and addition of bike lanes on the route.
- Additional comment about the poor condition of sidewalks and lack of maintenance of adjacent vegetation.

Previous Proposed Planned Improvements to Project Area

- STIP project 9525 with funding years 2028-2031 will repave and replace sidewalks on Pawtucket Ave between Veteran’s Memorial Parkway and Warren Ave. Some additional funding and an engineering study may be required to determine the feasibility of a road diet.
- As part of the City’s speed enforcement program, speed cameras will be installed at 2680 Pawtucket Avenue (north of Howland Avenue).

Goals for Pawtucket Avenue

To enhance safety on Pawtucket Avenue, this project aims to:

- Reduce all injury crashes and crashes resulting in fatal and serious injuries – for all modes.
- Improve pedestrian level of comfort and safety
- Manage vehicle speeds

Safety Countermeasures for Pawtucket Avenue

Since this is a state road, the City should coordinate with RIDOT on implementing the recommendations as noted below.

Key potential safety countermeasures include:

- Addition of crosswalks
- Installation of curb ramps at new crosswalks
- Curb extensions on side streets
- Centerline hardening and/or installation of center medians/pedestrian refuges
- Corridor study for a road diet/roadway conversion from four to three vehicle lanes
- Intersection study/redesign

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Study feasibility of roadway conversion from four travel lanes to three lanes (two travel lanes, one center median, and bike lanes in each direction). Road diets help with traffic calming, reduce vehicle turning conflicts, and enhance complete streets connectivity.

Study feasibility of centerline hardening or center median/pedestrian refuge on Pawtucket between Vineyard Ave and Plymouth Rd to prevent vehicles from travelling through intersection from Cushman Ave to Martin St. Consider addition of curb extensions on Martin St.

Extend sidewalks along Heath Street and add a high-visibility crosswalk across Pawtucket Avenue at Heath for safe, convenient access to the Sav-A-Lot

Close Eastbound right turn slip lane and create right turn lane at T intersection

Study feasibility of centerline hardening or center median/pedestrian refuge on Pawtucket between Heath St and Bay View Ave to prevent vehicles from travelling through intersection from Silver Spring Ave to Ivan Ave. Two traffic fatalities at this location.

Add high-visibility crosswalk and curb ramps across Pawtucket near Bay View/Fairfield. Add crosswalk across side streets and curb extensions to the crossing at Bay View.

Throughout corridor: Where feasible, add high-visibility crosswalks across side streets/parallel to Pawtucket and install ADA-compliant curb ramps.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments



Warren Avenue

East Providence | Project 5

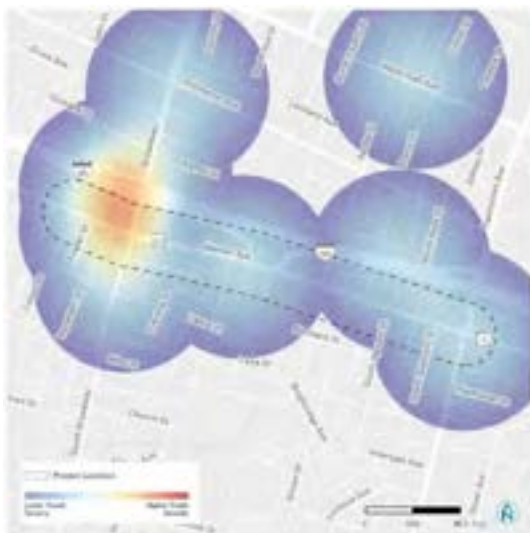
From Follett Street to Pawtucket Avenue

Warren Avenue is an important east-west corridor that runs through the heart of East Providence. The roadway is located just south of I-195, and this segment includes access ramps on and off the highway. This segment contains 4.3% of all injury crashes in the City and 5% of all FSI crashes in the City.

Key Information

Owner City of East Providence & RIDOT	Travel Lanes 2 lanes, Typical Width: 12 feet, Two-way
High Injury Network Status Reactive and Proactive HIN	Median No Median, Turn lane between Donnelly St and Brightridge Ave
Estimated Traffic Volume 5,500-13,300 AADT	Quality of Sidewalk Condition Fair, adjacent to vehicle lanes with mix of concrete and asphalt surfacing
Corridor Length 0.73 miles	Existing Bicycle Facilities or Designation None
Posted Speed 30 mph	Existing Transit Service 3 Routes, Route 32, 34, 61x
Typical Street Width Curb-to-curb: 44 feet; Right-of-way: 60 feet	Additional Key Features Shoulder lanes for on-street parking

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	1%	99%	100%
Motor Vehicle Crashes	67%	97%	97%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	33%	1%	1%
Motorcycle Involved Crashes	0%	2%	2%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	67%	71%	71%
Dark – Lighted	33%	23%	23%
Dark – Not Lighted	0%	0%	0%
Unknown Lighting	0%	1%	1%
Twilight	0%	5%	5%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	86%	87%
Unknown	0%	0%	0%
Wet	0%	12%	12%
Wintery	0%	1%	1%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	26%	26%
Head-On Crashes	0%	3%	3%
Unknown Manner of Collision	0%	16%	16%
Rear End Crashes	0%	35%	34%
Sideswipe Opposite Direction Crashes	0%	2%	2%
Sideswipe Same Direction Crashes	33%	11%	11%
Single Vehicle Crashes	67%	7%	8%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: High VRU Modes: Medium
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tract #	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	15.3%

Block Group Statistics ³	Percentile
Block Group #	
Transportation Insecurity	8.26%
Environmental Burden	75.7%
Health Vulnerability	50.3%
Social Vulnerability	44.1%
Climate Risk Burden	74.7%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor:

- A commenter requested a leading pedestrian interval signal at the intersection of Warren and Pawtucket Avenue, to allow pedestrians to cross in advance of vehicles turning.
- A commenter emphasized the need to keep the intersection clear for pedestrians, people in wheelchairs, and people pushing strollers.

Previous Proposed Planned Improvements to Project Area

- STIP project 9532 with funding years 2030-2031 will repave and replace sidewalks on Warren Ave between Broadway and Pawtucket Ave. Some additional funding may be required.

Goals for Warren Avenue

To enhance safety on Warren Avenue, this project aims to:

- Improve pedestrian safety and level of comfort
- Manage traffic patterns

Safety Countermeasures for Warren Avenue

Since portions of this segment is a state-owned road with a bus route, the City should coordinate with RIDOT and RIPTA. Key potential safety countermeasures include:

- Curb extensions*
- Widened sidewalks
- Pedestrian refuge islands
- Reduced curb radii
- Intersection study

* Review location with proposed curb extensions for drainage, parking, and bike lane impacts.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Conduct intersection and corridor study and consider creating a left-turn lane for left-turning/northbound vehicles.

Study utilization of on-street parking. The roadway could benefit from combination of curb extensions, widened sidewalks, and/or center median (across corridor).

Reduce curb radii with pavement markings and/or flex posts at highway on/off ramps

Add crosswalks and, if possible, pedestrian refuge at Brightridge Ave, across from bus stop.

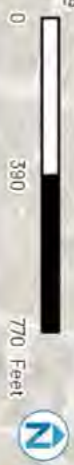
Add more high-visibility crosswalks across Warren Ave, recommended locations include Rose St and Woodland Ave/Abby St

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments



Wampanoag Trail

East Providence | Project #6

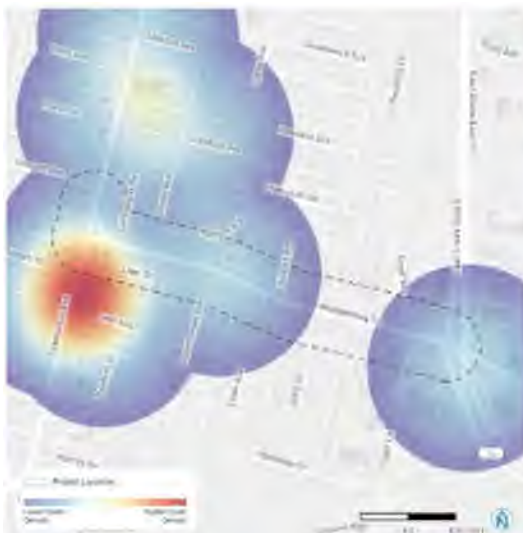
From Pawtucket Avenue to East Shore Expressway

This section of the Wampanoag Trail is a two-lane connector/arterial with low vehicle volume, and accounts for 1.4% of all crashes and 1.7% of FSI crashes in the municipality. Land uses include single family residential and commercial/light industrial businesses. As an east-west corridor through the center of town, road design features should be implemented to maintain safe speeds.

Key Information

Owner RIDOT	Travel Lanes 2 lanes, Typical Width: 12 feet, Two-way
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 7,800-8,850 AADT	Quality of Sidewalk Condition Good, but adjacent to roadways
Corridor Length 0.7 miles	Existing Bicycle Facilities or Designation None
Posted Speed 30 mph	Existing Transit Service 1 Route, Route 32
Typical Street Width Curb-to-curb: 40 feet; Right-of-way: 50-52 feet	Additional Key Features Western terminus of Wampanoag Trail, which in other sections operates as a limited access expressway

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	1%	99%	100%
Motor Vehicle Crashes	100%	97%	97%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	0%	1%	1%
Motorcycle Involved Crashes	0%	2%	2%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	100%	82%	82%
Dark – Lighted	0%	10%	10%
Dark – Not Lighted	0%	3%	3%
Unknown Lighting	0%	0%	0%
Twilight	0%	5%	5%

Road Condition Factor	FSI	Non FSI	All
Dry	0%	83%	82%
Unknown	0%	0%	0%
Wet	100%	15%	16%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	29%	29%
Head-On Crashes	100%	2%	3%
Unknown Manner of Collision	0%	10%	10%
Rear End Crashes	0%	38%	38%
Sideswipe Opposite Direction Crashes	0%	2%	2%
Sideswipe Same Direction Crashes	0%	6%	6%
Single Vehicle Crashes	0%	12%	12%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: High VRU Modes: High
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tracts 44007010501, 44007010502	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	12.3%

Block Group Statistics ³	Percentile
Block Groups 440070105011, 440070105013, 440070105022, 440070105023	
Transportation Insecurity	29.1%
Environmental Burden	69.3%
Health Vulnerability	61.3%
Social Vulnerability	48.9%
Climate Risk Burden	55.1%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Concerns about safety at intersection with Pawtucket due to “dangerous” merge.
- Request to reconfigure East-West Expressway on/off-ramps into a roundabout
- Request for a bike lane
- Request for a westbound bus stop near Garden Drive

Previously Proposed Planned Improvements to Project Area

- None.

Goals for Wampanoag Trail

To enhance safety, this project aims to:

- Narrow the width of vehicle lanes.
- Create safe accommodations for all modes of travel.
- Reduce vehicle speeding
- Improve on/off ramps at East Shore Expressway by eliminating excess paving for vehicles.
- Expand bike network

Safety Countermeasures for Wampanoag Trail

Since this is a state-owned road with a bus route, the City should coordinate with RIDOT and RIPTA. Key safety countermeasures include:

- Curb extensions
- Reduce turn radii
- Driveway consolidation
- Replacement of striped shoulders with bike lanes



Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments

Close Eastbound right turn slip lane and create right turn lane at T intersection

Consider adding bus stop to westbound Route 32 service at Garden Drive

Add crosswalk to align with bus stop locations

Coordinate with property owner to close driveway on north side of Wampanoag

Reduce vehicle lanes to 11' width.

Install 5' un-protected bike lanes on each side of street. Study potential to continue bike lane east of East Shore Expressway ramps to Amara Street with a 3' buffer or protection with curbs or flex posts. Subject to STC approval.

Short-term: Reduce turning radii at on/off ramps with pavement markings and/or rubber mountable curbs - and stripe high-viz crosswalks.
 Long-term: Reconfigure on/off ramps and redesign into a roundabout with pedestrian and bicycle crossings.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

N Broadway

East Providence | Project #7

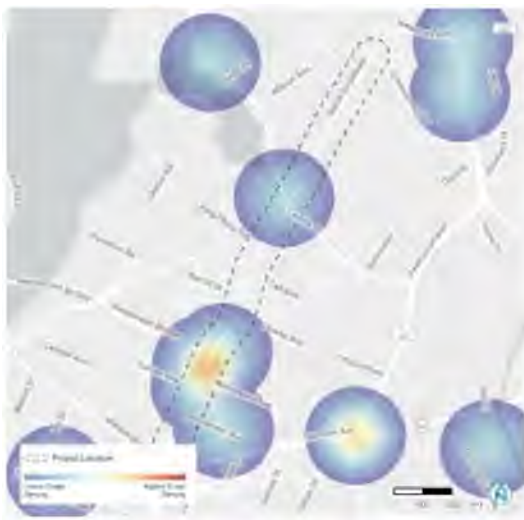
From Taunton/Waterman to Greenwood

N Broadway is a key corridor that runs through East Providence, from the central part of the city north into Rumford. At several key intersections along this section, slip lanes with large radii encourage high vehicle turning speeds and create an unsafe environment for pedestrians. Around 3.5% of all crashes and 3.4% all FSI crashes within the City occurred along this roadway segment.

Key Information

Owner City of East Providence	Travel Lanes Varies: Two-way, Two-lane & Two-way, Three-lane
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 9,800-17,350 AADT	Quality of Sidewalk Condition Fair, lack of ADA curb ramps in many locations
Corridor Length 1.8 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service Two routes, 35, 61x
Typical Street Width Curb-to-curb: 41 feet; Right-of-way: 54 feet	Additional Key Features Wide, underutilized shoulders

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0.8%	99.2%	100%
Motor Vehicle Crashes	50%	97%	96%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	0%	1%	1%
Motorcycle Involved Crashes	50%	1%	1%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	100%	72%	73%
Dark – Lighted	0%	19%	18%
Dark – Not Lighted	0%	3%	3%
Unknown Lighting	0%	3%	3%
Twilight	0%	3%	3%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	80%	80%
Unknown	0%	1%	1%
Wet	0%	16%	16%
Wintery	0%	3%	3%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	50%	23%	23%
Head-On Crashes	0%	2%	2%
Unknown Manner of Collision	0%	7%	7%
Rear End Crashes	0%	44%	43%
Sideswipe Opposite Direction Crashes	0%	1%	1%
Sideswipe Same Direction Crashes	0%	10%	9%
Single Vehicle Crashes	50%	13%	14%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: Critical VRU Modes: High
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tracts 44007010101, 44007010102, 44007010200, 44007010300	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	0.80%

Block Group Statistics ³	Percentile
Block Groups 440070101013, 440070101022, 440070101024, 440070102001, 440070102002, 440070102004, 440070102006, 440070103001, 440070103002	
Transportation Insecurity	40.1%
Environmental Burden	96.4%
Health Vulnerability	12.9%
Social Vulnerability	56.3%
Climate Risk Burden	50.4%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Request to improve daylighting and add signalized pedestrian crossings.
- Request to consider reworking the on and off ramps from Henderson Parkway onto N Broadway.
- Request for improving traffic signal and permissive turning movements at Centre and N Broadway due to unsafe driving and lack of dedicated turning signals.
- Multiple requests to add dedicated bike facilities.

Previously Proposed Planned Improvements to Project Area

- The City of East Providence is currently in the process of finalizing its grant agreement with USDOT for a SS4A Supplemental Action Plan for the “Six Corners” intersection – the intersection of Taunton Avenue, Waterman Avenue, and Broadway. The project will focus on enhancing safety for pedestrians, cyclists, drivers, and users of RIPTA’s transit system at this intersection and the immediate area. The SS4A funding is essential to fully address the complex nature of the issues at this intersection.
- The intersection of N Broadway and Henderson Expressway is currently undergoing redesign and will be reconfigured to an at-grade three-leg roundabout. The state is doing the design work, and federal funds are intended for use to construct the design.

Goals for N Broadway

To enhance safety, this project aims to:

- Reduce speeds
- Improve pedestrian safety
- Expand the bicycle network

Safety Countermeasures for N Broadway

Since this is a state road, the City should coordinate with RIDOT on implementing the recommendations as noted below.

Key safety countermeasures include:

- Reduced turn radii at intersections
- Curb extensions*
- Intersection redesign
- Signal upgrades for protected left turns
- Closure of slip lanes
- Pedestrian crossing signs
- Protected bike lanes for enhanced bike network connectivity

*Review locations with proposed curb extensions for drainage, parking, and shoulder bike lane impacts.

EAST PROVIDENCE | PROJECT #7 | N BROADWAY POTENTIAL SAFETY IMPROVEMENTS

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Consider realigning intersection and updating traffic signal patterns to remove permissive left turns. Consider realignment of Centre Street with N Broadway to remove one of the roadway legs.

Consider reducing curb radii at NW corner of intersection and/or expanding pedestrian median at Massasoit Ave

Study potential to provide a safe, protected bike connection along N Broadway between Woodward Ave and Dewey Ave, as this is a key N-S road network connection.

Consider opportunities to improve school safety:

- Install raised crosswalk at Woodward
- Extend center median at Blanche crosswalk to provide pedestrian refuge
- Add school speed limit signs approaching Blanche

Study potential for protected bike lane on Centre Street for improved connectivity into neighborhoods

Consider bike connection along Dewey Avenue to establish a E-W bike network connection from N Broadway to Pawtucket Avenue.

At-grade roundabout design underway by state with federal funding to construct. Design should include adequate shoulder space that could be converted to a protected bike lane. As an interim condition (i.e., before a recommended full redesign of on/off ramps, close slip lane or tighten curb radii.

Curb extensions as daylighting to reduce speeding and improve pedestrian visibility.

Intersection to be studied further under dedicated SS4A Supplemental Study

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments



Willett Avenue & Crescent View Avenue

East Providence | Project #8

The junction of Willett Avenue & Crescent View Avenue in East Providence is a complex traffic circle configuration with multiple conflict points, traversing mostly commercial areas with some residential elements. This 0.14-mile segment accounts for 1.1% of all crashes and 0% of all FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes 1-2 lanes, Typical Width: 15 feet, One-way
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 4,950 – 8,150 AADT	Quality of Sidewalk Condition Fair
Corridor Length 0.14 miles	Existing Bicycle Facilities or Designation None
Posted Speed 35 mph	Existing Transit Service Route 33
Typical Street Width Curb-to-curb: 36 feet; Right-of-way: 57 feet	Additional Key Features Traffic circle configuration

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0%	100%	100%
Motor Vehicle Crashes	0%	97%	97%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	0%	1%	1%
Motorcycle Involved Crashes	0%	0%	0%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	77%	77%
Dark – Lighted	0%	15%	15%
Dark – Not Lighted	0%	1%	1%
Unknown Lighting	0%	3%	3%
Twilight	0%	4%	4%

Road Condition Factor	FSI	Non FSI	All
Dry	0%	83%	83%
Unknown	0%	0%	0%
Wet	0%	15%	15%
Wintery	0%	1%	1%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	31%	31%
Head-On Crashes	0%	1%	1%
Unknown Manner of Collision	0%	12%	12%
Rear End Crashes	0%	40%	40%
Sideswipe Opposite Direction Crashes	0%	3%	3%
Sideswipe Same Direction Crashes	0%	3%	3%
Single Vehicle Crashes	0%	12%	12%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Medium
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010702	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	0.8%

Block Group Statistics ³	Percentile
Block Groups 440070107023, 440070107024	
Transportation Insecurity	26.8%
Environmental Burden	64.2%
Health Vulnerability	10.7%
Social Vulnerability	25.0%
Climate Risk Burden	34.8%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Speeding is prevalent in this part of the Riverside neighborhood.
- Willett Avenue corridor specifically noted for pedestrian safety concerns and speeding issues
- Need for pedestrian amenities along Willett Avenue to improve safety.
- Aggressive driving in this area.

Previous Proposed Planned Improvements to Project Area

- STIP Project 1298 includes repaving Willett Avenue through the Crescent View Ave intersection and sidewalk rehabilitation. Willett Ave is under construction.

Bullocks Point Avenue

East Providence | Project #9

From Crescent View Avenue to Adams Avenue

Bullocks Point Avenue Street, from Crescent View Avenue to Adams Avenue, is a mixed-use corridor in East Providence with moderate traffic volumes. This 1-mile segment accounts for 1.1% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner City of East Providence	Travel Lanes Two lanes, Typical Width: 12 feet, Two-way
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 7,800 – 10,600 AADT	Quality of Sidewalk Condition Poor
Corridor Length 0.98 Miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service Route 33
Typical Street Width Curb-to-curb: 47 feet; Right-of-way: 59 feet	Additional Key Features Traverses Riverside neighborhood center and library

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	1%	99%	100%
Motor Vehicle Crashes	100%	92%	92%
Bicycle Involved Crashes	0%	4%	4%
Pedestrian Involved Crashes	0%	1%	1%
Motorcycle Involved Crashes	0%	3%	3%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	100%	70%	71%
Dark – Lighted	0%	23%	23%
Dark – Not Lighted	0%	4%	4%
Unknown Lighting	0%	0%	0%
Twilight	0%	3%	3%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	79%	79%
Unknown	0%	0%	0%
Wet	0%	18%	18%
Wintery	0%	3%	3%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	23%	23%
Head-On Crashes	0%	4%	4%
Unknown Manner of Collision	0%	18%	18%
Rear End Crashes	0%	23%	23%
Sideswipe Opposite Direction Crashes	0%	1%	1%
Sideswipe Same Direction Crashes	0%	8%	8%
Single Vehicle Crashes	100%	22%	23%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Low
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010600	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	8.4%

Block Group Statistics ³	Percentile
Block Groups 440070106001, 440070106002, 440070106003, 440070106004, 440070106005, 440070106006	
Transportation Insecurity	28.7%
Environmental Burden	64.6%
Health Vulnerability	88.6%
Social Vulnerability	39.2%
Climate Risk Burden	75.3%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Speeding issues
- Pedestrian safety issues such as lack of crossing opportunities and access to transit stops
- Poor condition of existing sidewalks
- Concerns about accessing local businesses, library, church, and other destinations on foot

Previous Proposed Planned Improvements to Project Area

RIDOT's STIP 1298 (Crescent View Ave to Veterans Mem. Pkwy) scheduled for 2022-2026, involves roadway resurfacing, sidewalk replacement, handicapped ramps, and potential stormwater drainage improvements.

Warren Avenue

East Providence | Project #10

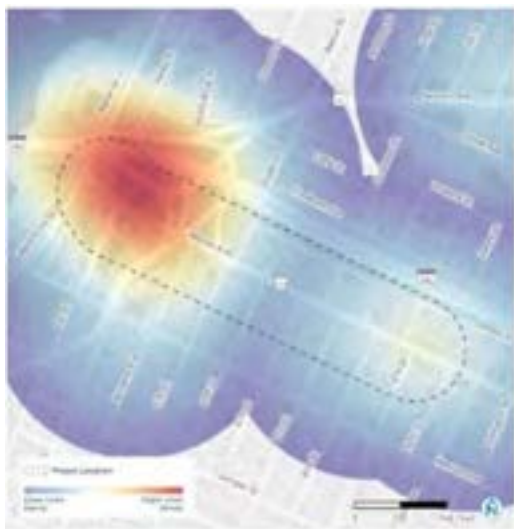
From Valley Street to 9th Street

Warren Avenue is a commercial corridor that runs through the center of East Providence in the Watchemoket Square Historic District. The road runs east-west and parallel to I-195. Low density residential streets surround this commercial-focused roadway. Approximately 1% of all crashes in the City occurred within this project segment, while 3.4% of all FSI crashes in the City occurred here.

Key Information

Owner City of East Providence	Travel Lanes 2 lanes, Typical Width: 12 feet, Two-way
High Injury Network Status Reactive and Proactive HIN	Median No Median, Paved Median, Landscaped Median
Estimated Traffic Volume 3,750-6,400 AADT	Quality of Sidewalk Condition Good
Corridor Length 0.4 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service 2 Routes, Route 32, 34
Typical Street Width Curb-to-curb: 40 feet; Right-of-way: 60 feet	Additional Key Features On-street parking and brick-stamped pavement crosswalks

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	3%	97%	100%
Motor Vehicle Crashes	50%	98%	97%
Bicycle Involved Crashes	0%	2%	2%
Pedestrian Involved Crashes	50%	0%	2%
Motorcycle Involved Crashes	0%	0%	0%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	50%	72%	71%
Dark – Lighted	50%	17%	18%
Dark – Not Lighted	0%	3%	3%
Unknown Lighting	0%	8%	8%
Twilight	0%	0%	0%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	73%	74%
Unknown	0%	6%	6%
Wet	0%	16%	15%
Wintery	0%	5%	5%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	31%	30%
Head-On Crashes	0%	3%	3%
Unknown Manner of Collision	0%	19%	18%
Rear End Crashes	0%	16%	15%
Sideswipe Opposite Direction Crashes	0%	2%	2%
Sideswipe Same Direction Crashes	0%	11%	11%
Single Vehicle Crashes	100%	19%	21%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	All Modes: High VRU Modes: Medium
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010400	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	5.85%

Block Group Statistics ³	Percentile
Block Groups 440070104003, 440070104004	
Transportation Insecurity	76.3%
Environmental Burden	80.5%
Health Vulnerability	19.3%
Social Vulnerability	69.2%
Climate Risk Burden	68.4%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Support to make people crossing on East Bay Bike Path more visible.
- Measures to improve visibility for vehicles turning onto Warren (one suggestion included removing on-street parking).
- Incorporating traffic calming to improve bike travel.

Previously Proposed Planned Improvements to Project Area

- Main Street Rhode Island grant funding was awarded to the City of East Providence for Warren Avenue between Waterfront Drive and Lyon Avenue (one block east and west beyond this project's extents). The project "will include sidewalk improvements; new crosswalks, installation of street trees, trash receptacles, benches, and period lighting".
- The corridor will be resurfaced and coordinated as part of the City's capital paving program and Rhode Island Energy's recent gas line work.

Goals for Warren Avenue

Despite low volume and overall low number of crashes, the serious injury crashes to vulnerable road users raises concerns. To enhance safety, this project aims to:

- Improve visibility of all road users by improving sight lines.
- Create safe accommodations for all modes
- Reduce speeding

Safety Countermeasures for Warren Avenue

The main goals of the recommended safety countermeasures are to support street crossings with slower speeds and improved visibility. Key safety countermeasures include:

- Curb extensions*
- Pedestrian crosswalks and daylighting
- Additional stop and signal controls
- Expanded sidewalks

*Review locations with proposed curb extensions for drainage, parking, and shoulder bike lane impacts.



Add raised crosswalk to East Bay Bike Trail crossing.

Add pedestrian crossing with curb extension or daylighting at 5th, 6th, and 8th Streets.

Consider supplementing higher volume crosswalks with safety countermeasures such as flashing beacons.

Evaluate intersection at I-195 EB exit ramp for traffic control device.

Expand sidewalk on north side of Warren into unused shoulder to reduce road width.

Implement daylighting at existing crosswalks: prohibit parking on north side with flex posts or more permanently with curb extensions.

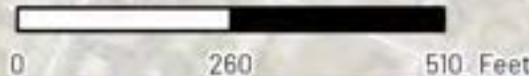
Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments



Newport Avenue

East Providence | Project #11

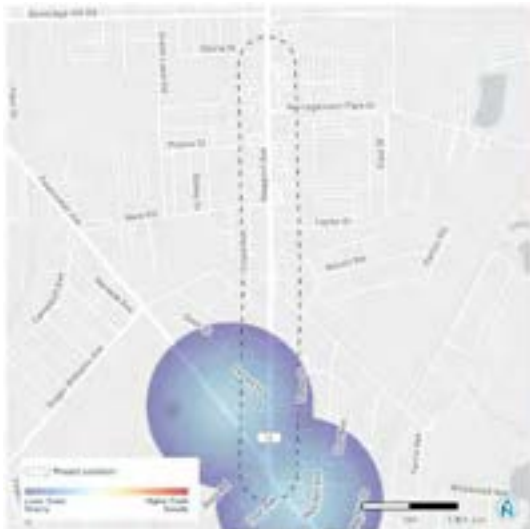
From Pawtucket Avenue to City Line

Newport Avenue, from Pawtucket Avenue to the northern city boundary bordering the City of Pawtucket, is a commercial corridor in East Providence. This 0.8-mile segment accounts for 2.8% of all crashes and no FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes Four lanes, Typical Width: 9 feet, Two-way
High Injury Network Status Reactive HIN	Median No Median, Paved Median, Landscaped Median
Estimated Traffic Volume 13,750 – 16,900 AADT	Quality of Sidewalk Condition Fair
Corridor Length 0.8 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service Two Routes: 35, 78
Typical Street Width Curb-to-curb: 38 feet; Right-of-way: 58 feet	Additional Key Features Primarily commercial corridor

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	0%	100%	100%
Motor Vehicle Crashes	0%	96%	96%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	0%	2%	2%
Motorcycle Involved Crashes	0%	2%	2%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	79%	79%
Dark – Lighted	0%	16%	16%
Dark – Not Lighted	0%	0%	0%
Unknown Lighting	0%	1%	1%
Twilight	0%	5%	5%

Road Condition Factor	FSI	Non FSI	All
Dry	0%	85%	85%
Unknown	0%	1%	1%
Wet	0%	13%	13%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	31%	31%
Head-On Crashes	0%	4%	4%
Unknown Manner of Collision	0%	9%	9%
Rear End Crashes	0%	24%	24%
Sideswipe Opposite Direction Crashes	0%	2%	2%
Sideswipe Same Direction Crashes	0%	17%	17%
Single Vehicle Crashes	0%	14%	14%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Medium
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tracts 44007010101, 44007010102	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	5.9%

Block Group Statistics ³	Percentile
Block Groups 440070101011, 440070101012, 440070101021	
Transportation Insecurity	10.3%
Environmental Burden	78.5%
Health Vulnerability	18.4%
Social Vulnerability	60.6%
Climate Risk Burden	66.4%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Speeding and aggressive driving behaviors
- Pedestrian crossing difficulties, especially near commercial areas
- Sidewalk gaps noted as a safety concern for pedestrians
- Desire for better transit amenities at bus stops

Previous Proposed Planned Improvements to Project Area

RIDOT's 10-year STIP includes Project 1375 on Newport Ave from Pawtucket Ave to Federal St scheduled for 2028-2031, which will involve roadway resurfacing, limited sidewalk replacement, and handicapped ramp installation.

Goals for Newport Avenue

To enhance safety on Newport Avenue, this project aims to:

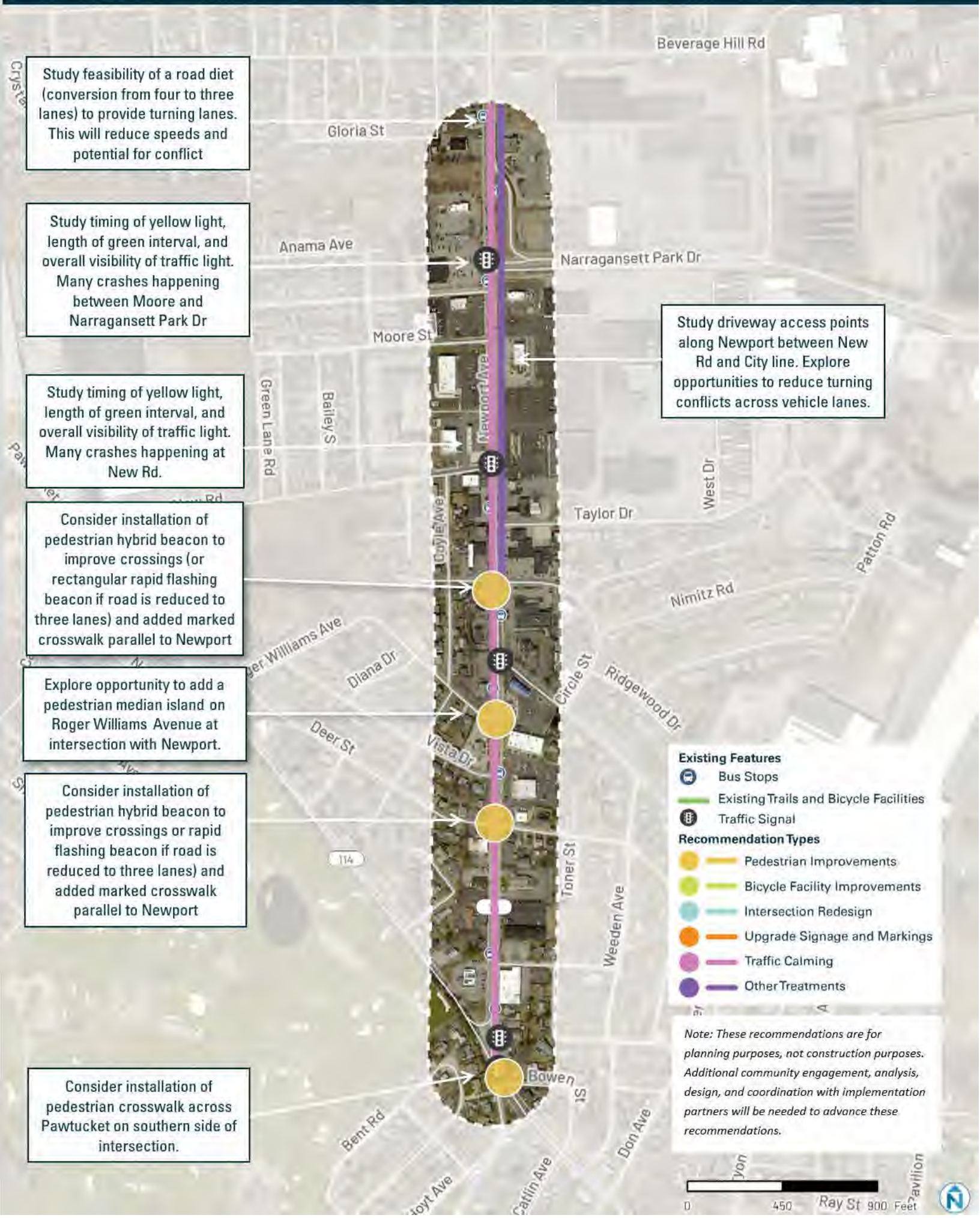
- Reduce conflict opportunities for vehicles and other transportation modes
- Reduce speeding
- Improve pedestrian crossings

Safety Countermeasures for Newport Avenue

This is a state-owned road and any changes would need to be led by RIDOT and under their guidance. However, in general, this road needs consideration for a road diet or safety study to more seriously resolve the many crashes occurring here, which overall hinders pedestrian travel and connectivity.

Key safety countermeasures include:

- Study potential for a road diet to create dedicated left and right turn lanes at intersections
- Reduce driveway and access points along the corridor
- Reduce turn radii at intersections
- Install more pedestrian crosswalks and signage



Study feasibility of a road diet (conversion from four to three lanes) to provide turning lanes. This will reduce speeds and potential for conflict

Study timing of yellow light, length of green interval, and overall visibility of traffic light. Many crashes happening between Moore and Narragansett Park Dr

Study timing of yellow light, length of green interval, and overall visibility of traffic light. Many crashes happening at New Rd.

Consider installation of pedestrian hybrid beacon to improve crossings (or rectangular rapid flashing beacon if road is reduced to three lanes) and added marked crosswalk parallel to Newport

Explore opportunity to add a pedestrian median island on Roger Williams Avenue at intersection with Newport.

Consider installation of pedestrian hybrid beacon to improve crossings or rapid flashing beacon if road is reduced to three lanes) and added marked crosswalk parallel to Newport

Consider installation of pedestrian crosswalk across Pawtucket on southern side of intersection.

Study driveway access points along Newport between New Rd and City line. Explore opportunities to reduce turning conflicts across vehicle lanes.

- Existing Features**
- Bus Stops
 - Existing Trails and Bicycle Facilities
 - Traffic Signal
- Recommendation Types**
- Pedestrian Improvements
 - Bicycle Facility Improvements
 - Intersection Redesign
 - Upgrade Signage and Markings
 - Traffic Calming
 - Other Treatments

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Wampanoag Trail

East Providence | Project #12

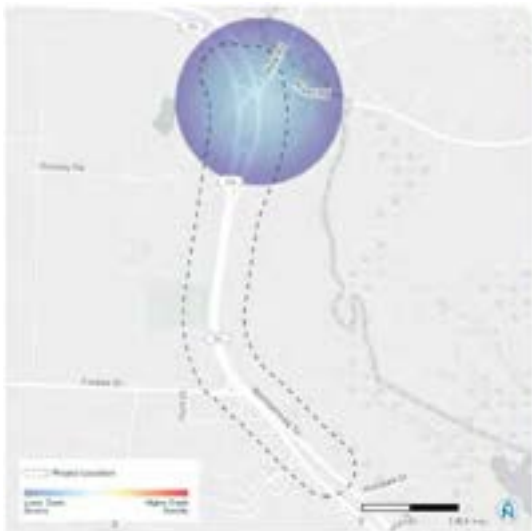
From Mink Street to Forbes Street

Wampanoag Trail, from Mink Street to Forbes Street, is a high-speed arterial in East Providence. This 1.5-mile segment accounts for 1.5% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes Four lanes, Typical Width: 12 feet, Two-way
High Injury Network Status Reactive and Proactive HIN	Median Landscaped Median
Estimated Traffic Volume 12,800 – 15,700 AADT	Quality of Sidewalk Condition None
Corridor Length 1.48 Miles	Existing Bicycle Facilities or Designation None
Posted Speed 45 mph	Existing Transit Service Routes 32, 60, 61x
Typical Street Width Curb-to-curb: 36 feet; Right-of-way: 116 feet	Additional Key Features Arterial with no bicycle or pedestrian infrastructure

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	1%	99%	100%
Motor Vehicle Crashes	100%	97%	97%
Bicycle Involved Crashes	0%	1%	1%
Pedestrian Involved Crashes	0%	0%	0%
Motorcycle Involved Crashes	0%	2%	2%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	64%	64%
Dark – Lighted	100%	22%	23%
Dark – Not Lighted	0%	5%	5%
Unknown Lighting	0%	3%	3%
Twilight	0%	6%	6%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	78%	78%
Unknown	0%	1%	1%
Wet	0%	15%	15%
Wintery	0%	6%	6%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	12%	12%
Head-On Crashes	0%	0%	0%
Unknown Manner of Collision	0%	5%	5%
Rear End Crashes	0%	45%	44%
Sideswipe Opposite Direction Crashes	0%	1%	1%
Sideswipe Same Direction Crashes	0%	9%	9%
Single Vehicle Crashes	100%	29%	29%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	High
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tracts 44007010501, 44007010502	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	1.5%

Block Group Statistics ³	Percentile
Block Groups 440070105011, 440070105023	
Transportation Insecurity	33.7%
Environmental Burden	60.2%
Health Vulnerability	12.6%
Social Vulnerability	72.9%
Climate Risk Burden	22.7%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- A lot of crashes occur on this corridor and especially at the intersection with Mink Street.
- Lack of bicycle and pedestrian infrastructure makes it difficult to access nearby residential neighborhoods.
- Speeding is prevalent.
- Corridor creates a barrier between neighborhoods due to limited safe crossing opportunities

Previous Proposed Planned Improvements to Project Area

- This segment is currently under study by RIDOT based on requests from the City.

Pawtucket Avenue

East Providence | Project #13

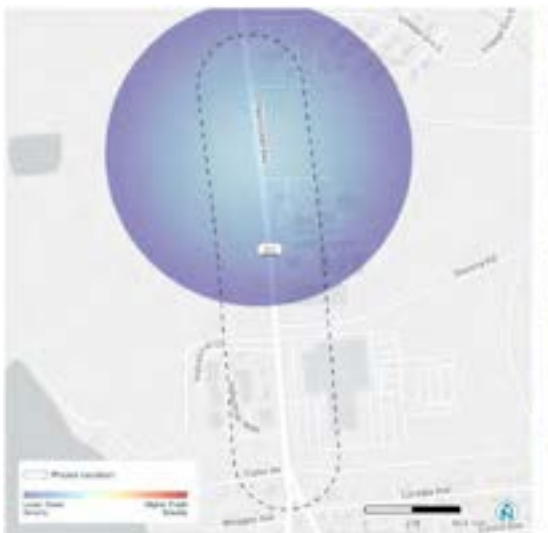
From Bullocks Point Avenue to Wheeler Avenue

Pawtucket Avenue Street, from Bullocks Point Avenue to Wheeler Avenue, is a four-lane corridor in East Providence with heavy traffic volumes. This 0.4-mile segment accounts for 0.7% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes Four lanes, Typical Width: 11 feet, Two-way
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 21,700 AADT	Quality of Sidewalk Condition Fair
Corridor Length 0.40 Miles	Existing Bicycle Facilities or Designation None
Posted Speed 35 mph	Existing Transit Service One Routes: 33
Typical Street Width Curb-to-curb: 44 feet; Right-of-way: 62 feet	Additional Key Features Commercial areas sparsely distributed along this section of the roadway

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	2%	98%	100%
Motor Vehicle Crashes	100%	100%	100%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	0%	0%	0%
Motorcycle Involved Crashes	0%	0%	0%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	76%	75%
Dark – Lighted	100%	22%	23%
Dark – Not Lighted	0%	2%	2%
Unknown Lighting	0%	0%	0%
Twilight	0%	0%	0%

Road Condition Factor	FSI	Non FSI	All
Dry	0%	82%	81%
Unknown	0%	2%	2%
Wet	100%	14%	15%
Wintery	0%	2%	2%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	31%	31%
Head-On Crashes	0%	2%	2%
Unknown Manner of Collision	0%	10%	10%
Rear End Crashes	0%	25%	25%
Sideswipe Opposite Direction Crashes	0%	2%	2%
Sideswipe Same Direction Crashes	0%	18%	17%
Single Vehicle Crashes	100%	12%	13%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	High
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010502	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	1.4%

Block Group Statistics ³	Percentile
Block Group 440070105024	
Transportation Insecurity	27.7%
Environmental Burden	68.7%
Health Vulnerability	10.8%
Social Vulnerability	44.2%
Climate Risk Burden	23.7%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Frequent crashes and speeding
- Poor pedestrian infrastructure with inadequate crossings
- Difficult left turns from side streets onto Pawtucket Avenue

Previous Proposed Planned Improvements to Project Area

RIDOT's STIP includes Project 1298 for Pawtucket Ave scheduled for 2022-2026, which involves roadway resurfacing, limited sidewalk replacement, handicapped ramp installation, and potential stormwater drainage improvements.

Goals for Pawtucket Avenue

To enhance safety on Pawtucket Avenue, this project aims to:

- Slow speeds
- Clarify vehicle movements
- Enhance multimodal travel
- Support pedestrian travel

Safety Countermeasures for Pawtucket Avenue

Pawtucket Avenue should be studied for a road diet to help manage vehicle speeds, increase multimodal travel and safety, and resolve vehicle conflicts. Coordination with the state should occur, given that RIDOT owns/manages this portion of Pawtucket Avenue. Key safety countermeasures include:

- Road diet with bike lanes
- High-visibility crosswalks parallel to the roadway
- Rectangular rapid-flashing beacon to support crossing the roadway near bus stops and activity centers.

Study feasibility of roadway conversion from four travel lanes to three lanes (two travel lanes, one center median, and bike lanes in each direction). Road diets help with traffic calming, reduce vehicle turning conflicts, and enhance complete streets connectivity.

Study potential for rectangular rapid-flashing beacon to support crossing across Pawtucket near this bus stop pair.

Throughout corridor:
Where feasible, add high-visibility crosswalks across side streets/parallel to Pawtucket and install ADA-compliant curb ramps.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments

Newman Avenue & Pawtucket Avenue

East Providence | Project #14

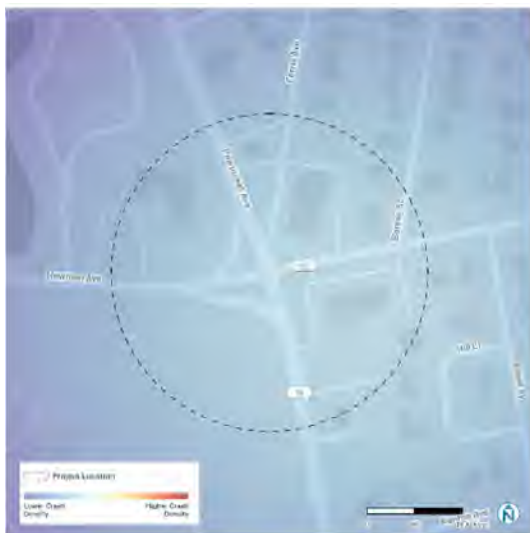
Intersection

The intersection of Newman Avenue and Pawtucket Avenue in East Providence is a high traffic junction connecting major corridors. This intersection accounts for 1% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes Pawtucket Ave: 4 lanes, Two-way, no turn lanes at intersection. Newman Ave: 2 lanes, Two-way, with turn lanes at intersection. Ferris Ave: 1 lane, One-way.
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 7100 - 14750 AADT	Quality of Sidewalk Condition Fair
Corridor Length Intersection	Existing Bicycle Facilities or Designation None
Posted Speed Newman: 30>25 mph (E>W; Pawtucket: 35>30 mph (S>N);	Existing Transit Service Route 78
Typical Street Width Road way width varies	Additional Key Features Commercial area with high turning movements

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	1%	99%	100%
Motor Vehicle Crashes	100%	99%	99%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	0%	1%	1%
Motorcycle Involved Crashes	0%	0%	0%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	100%	81%	81%
Dark – Lighted	0%	18%	17%
Dark – Not Lighted	0%	0%	0%
Unknown Lighting	0%	0%	0%
Twilight	0%	1%	1%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	91%	91%
Unknown	0%	0%	0%
Wet	0%	9%	9%
Wintery	0%	0%	0%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	10%	10%
Head-On Crashes	0%	3%	3%
Unknown Manner of Collision	0%	13%	13%
Rear End Crashes	100%	54%	55%
Sideswipe Opposite Direction Crashes	0%	4%	4%
Sideswipe Same Direction Crashes	0%	12%	12%
Single Vehicle Crashes	0%	3%	3%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Low
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010102	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	10.1%

Block Group Statistics ³	Percentile
Block Group 440070101024	
Transportation Insecurity	76.7%
Environmental Burden	94.6%
Health Vulnerability	19.1%
Social Vulnerability	81.0%
Climate Risk Burden	27.3%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Pawtucket Avenue was specifically identified as a corridor with frequent crashes, particularly at major intersections.
- Drivers don't yield to pedestrians at intersections along Pawtucket Avenue.
- Need for improved pedestrian infrastructure.
- Need for traffic calming on both of these corridors.

Previous Proposed Planned Improvements to Project Area

- None

Goals for the intersection of Newman Avenue & Pawtucket Avenue

To enhance safety at the intersection of Newman Avenue & Pawtucket Avenue, this project aims to:

- Reduce pedestrian crossing distances
- Increase visibility of pedestrians at crosswalks
- Clarify vehicle movements

Safety Countermeasures for the intersection of Newman Avenue & Pawtucket Avenue

These roadways are both state-owned, and thus improvements should be led/coordinated by RIDOT.

Key safety countermeasures include:

- Pedestrian refuge islands
- Rapid flashing beacons at minor crosswalk locations
- Improved signage for vehicle movements

Consider installing a pedestrian refuge island to help shorten the crosswalk across Pawtucket.

Consider installing a pedestrian refuge island or striped markings at intersection. Concurrently, install a sign for drivers turning right onto Newman from southbound Pawtucket to yield to drivers.

Consider installing a crosswalk or raised crosswalk across Ferris Avenue to support pedestrian travel northbound along Pawtucket Avenue.

Consider adding a sign indicating: "Right Lane for Straight Traffic, Right Turns on Ferris, or Right Turns on Newman. Left Lane for Straight Traffic."

Consider rapid flashing beacons and pedestrian median to improve safety at crosswalk.

Consider reducing speed limit on Pawtucket from 35 mph to 30 mph prior to the intersection. Add sign in advance of intersection.

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments

Forbes Street

East Providence | Project #15

Wampanoag Trail to Willett Avenue

Forbes Street, from Wampanoag Trail to Willett Avenue, is a two-lane corridor in East Providence traversing mostly residential neighborhoods. This 1.6-mile segment accounts for 0.5% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner City of East Providence	Travel Lanes Two lanes, Typical Width: 13 feet, Two-way
High Injury Network Status Reactive HIN	Median No Median
Estimated Traffic Volume 2,050 – 4,050 AADT	Quality of Sidewalk Condition Poor
Corridor Length 1.6 miles	Existing Bicycle Facilities or Designation None
Posted Speed 25 mph	Existing Transit Service None
Typical Street Width Curb-to-curb: 36 feet; Right-of-way: 62 feet	Additional Key Features Painted shoulders

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	3%	97%	100%
Motor Vehicle Crashes	0%	97%	94%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	100%	0%	3%
Motorcycle Involved Crashes	0%	3%	3%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	100%	67%	68%
Dark – Lighted	0%	12%	12%
Dark – Not Lighted	0%	9%	9%
Unknown Lighting	0%	0%	0%
Twilight	0%	12%	12%

Road Condition Factor	FSI	Non FSI	All
Dry	0%	82%	79%
Unknown	0%	3%	3%
Wet	100%	12%	15%
Wintery	0%	3%	3%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	15%	15%
Head-On Crashes	0%	0%	0%
Unknown Manner of Collision	0%	12%	12%
Rear End Crashes	0%	27%	26%
Sideswipe Opposite Direction Crashes	0%	3%	3%
Sideswipe Same Direction Crashes	0%	6%	6%
Single Vehicle Crashes	100%	36%	38%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Medium
Located within ¼ mile of school	Yes

Census Tract Statistics	Value
Census Tract 44007010502, 44007010600, 44007010701	
Area of Persistent Poverty ¹	No
Percent Zero Vehicle Households ²	2.7%

Block Group Statistics ³	Percentile
Block Group 440070105023, 440070106002, 440070107011	
Transportation Insecurity	34.2%
Environmental Burden	57.0%
Health Vulnerability	17.9%
Social Vulnerability	66.7%
Climate Risk Burden	23.4%

¹ USDOT Grant Project Location Verification Map

² U.S. Census 2023 ACS 5-Year Estimates, Table S0802

³ Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- Concerns about pedestrian safety and lack of crossing opportunities, especially for children traveling to the middle school on foot
- Speeding
- Limited visibility at night due to inadequate street lighting
- Lack of dedicated bicycle facilities

Previous Proposed Planned Improvements to Project Area

No previous proposed or planned improvements to this corridor.

Goals for Forbes Street

To enhance safety on Forbes Street, this project aims to:

- Slow vehicle speeds
- Improve pedestrian and bicycle connectivity and access
- Improve pedestrian crossings
- Improve lighting

Safety Countermeasures for Forbes Street

Forbes Street is a key east-west connector for the City, and it is a missed opportunity for better connectivity for people walking and biking. This is a City-owned road, and with low-cost interventions, vehicle speeds can be better managed and a safe space for biking and walking can be made.

Key safety countermeasures include:

- Buffered bike lanes
- Sidewalk improvements
- Crosswalks
- Lighting
- Pedestrian signage



Consider addition of raised crosswalk and/or rapid flashing beacon for crosswalk across Forbes near Riverside

Consider improved lighting conditions along Forbes between Riverside Middle School entrance and Lehigh Road and/or centerline reflectors. Visibility improvements most needed at the roadway turns.

Study feasibility of closing sidewalk gaps on north side of Forbes Street or provide well-marked crosswalks at either end of where sidewalk terminates

Consider addition of speed bumps west of Lehigh Lane and east of Hospital Rd to maintain slow speeds near areas of potential turning vehicles

Consider options to slow vehicle speeds travelling from Willett to Forbes Street. Reduce turning radii at intersection OR convert intersection to a signalized T-intersection.

Consider installing 5' bike lane with 2-3' buffer by reducing vehicle lanes to 10-11'. Curb-to-curb distance can currently accommodate.

Study best approach to integrate bike lanes at Forbes Street's termination with Wampanoag Trail. This may require a pedestrian and bicycle crosswalk across Forbes near Yuro Street

Note: These recommendations are for planning purposes, not construction purposes. Additional community engagement, analysis, design, and coordination with implementation partners will be needed to advance these recommendations.

Existing Features

- Bus Stops
- Existing Trails and Bicycle Facilities
- Traffic Signal

Recommendation Types

- Pedestrian Improvements
- Bicycle Facility Improvements
- Intersection Redesign
- Upgrade Signage and Markings
- Traffic Calming
- Other Treatments

Veterans Memorial Parkway

East Providence | Project #16

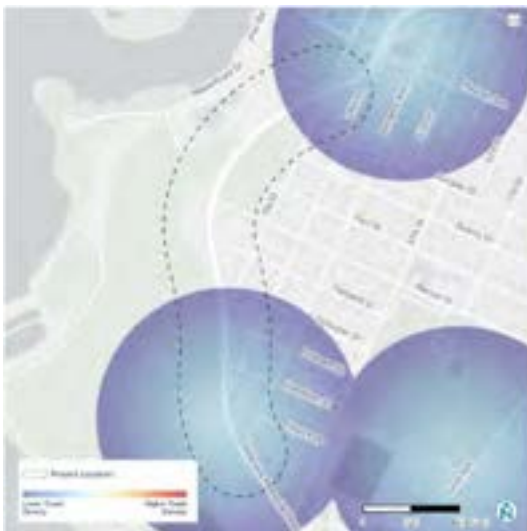
From northern intersection with First Street to southern intersection Second Street

Veterans Memorial Parkway, from First Street (northern intersection) to Second Street (southern intersection), is a two-lane corridor along the waterfront in East Providence with the East Bay Bike Path running parallel. This 0.5-mile segment accounts for 0.4% of all crashes and 1.7% of all FSI crashes in East Providence.

Key Information

Owner RIDOT	Travel Lanes Two lanes, Typical Width: 13 feet, Two-way
High Injury Network Status Reactive and Proactive HIN	Median No Median
Estimated Traffic Volume 15,500 AADT	Quality of Sidewalk Condition Pedestrian access via East Bay Bike Path
Corridor Length 0.52 Miles	Existing Bicycle Facilities or Designation East Bay Bike Path
Posted Speed 40 mph	Existing Transit Service None
Typical Street Width Curb-to-curb: 40 feet;	Additional Key Features Painted shoulders

Historic Crashes Heat Map (2019-2023)



Historic Crash Statistics Summary

(2019-2023)

Crashes by Mode	FSI	Non FSI	All
All Crashes	4%	96%	100%
Motor Vehicle Crashes	100%	100%	100%
Bicycle Involved Crashes	0%	0%	0%
Pedestrian Involved Crashes	0%	0%	0%
Motorcycle Involved Crashes	0%	0%	0%

Crash Contributing Factors

Time of Day Factor	FSI	Non FSI	All
Daylight	0%	77%	74%
Dark – Lighted	100%	12%	15%
Dark – Not Lighted	0%	8%	7%
Unknown Lighting	0%	4%	4%
Twilight	0%	0%	0%

Road Condition Factor	FSI	Non FSI	All
Dry	100%	85%	85%
Unknown	0%	0%	0%
Wet	0%	8%	7%
Wintery	0%	8%	7%

Crash Types

Manner of Collision	FSI	Non FSI	All
Angle Crashes	0%	15%	15%
Head-On Crashes	0%	4%	4%
Unknown Manner of Collision	0%	4%	4%
Rear End Crashes	0%	35%	33%
Sideswipe Opposite Direction Crashes	0%	4%	4%
Sideswipe Same Direction Crashes	0%	4%	4%
Single Vehicle Crashes	100%	35%	37%

Corridor Facts

Location Statistics	Status
Corridor Crash Risk Rating	Critical
Located within ¼ mile of school	No

Census Tract Statistics	Value
Census Tract 44007010400	
Area of Persistent Poverty ¹	Yes
Percent Zero Vehicle Households ²	17.3%

Block Group Statistics ³	Percentile
Block Groups 440070104003, 440070104004	
Transportation Insecurity	79.8%
Environmental Burden	90.2%
Health Vulnerability	19.3%
Social Vulnerability	66.4%
Climate Risk Burden	26.6%

1 USDOT Grant Project Location Verification Map

2 U.S. Census 2023 ACS 5-Year Estimates, Table S0802

3 Adaptation of USDOT Equitable Transportation Community (ETC) Explorer Methodology

Community Input

Input from community members provided additional context about safety concerns on this corridor, including:

- High vehicle speeds
- Limited crossing opportunities between neighboring residential areas and the bike path
- Poor lighting conditions
- Challenging access management at intersecting streets

Previous Proposed Planned Improvements to Project Area

Repaving planned from I-195 to Pawtucket Ave.

-