



SAFE STREETS & ROADS FOR ALL (SS4A) **SAFETY ACTION PLAN**

March 2026

Prepared by:





SAFE STREETS & ROADS FOR ALL (SS4A) **SAFETY ACTION PLAN**

Disclaimer: This correspondence and the information contained herein is prepared solely for the purpose of identifying, evaluating, and planning safety improvements on public roads which may be implemented utilizing federal aid highway funds; and is therefore exempt from discovery or admission into evidence pursuant to 23 U.S.C. 407

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1.0 Introduction

The City of Laurel, MS was awarded a Safe Streets and Roads for All (SS4A) grant to develop a Safety Action Plan (SAP) for the city following the requirements found in the SS4A Grant Program through the US Department of Transportation. This SAP will be used to prioritize safety improvements and justify investment decisions. It will also be used to communicate with stakeholders and access funding opportunities.

The Purpose and Goal of the SAP is outlined below:

Purpose

- Meet federal requirements
- Prioritize safety improvements
- Justify investment decisions
- Communicate with stakeholders
- Access funding opportunities

Goal

- To develop a holistic, well-defined strategy to prevent roadway fatalities and serious injuries

1.1 Demographic Profile

Situated in Jones County in southeastern Mississippi, Laurel is a city with a growing cultural and tourism presence¹. As of the most recent 2023 5-Year Estimates American Community Survey (ACS) data, the city boasts a diverse population of 29,865 characterized by a mix of age groups, ethnic backgrounds, and household compositions.

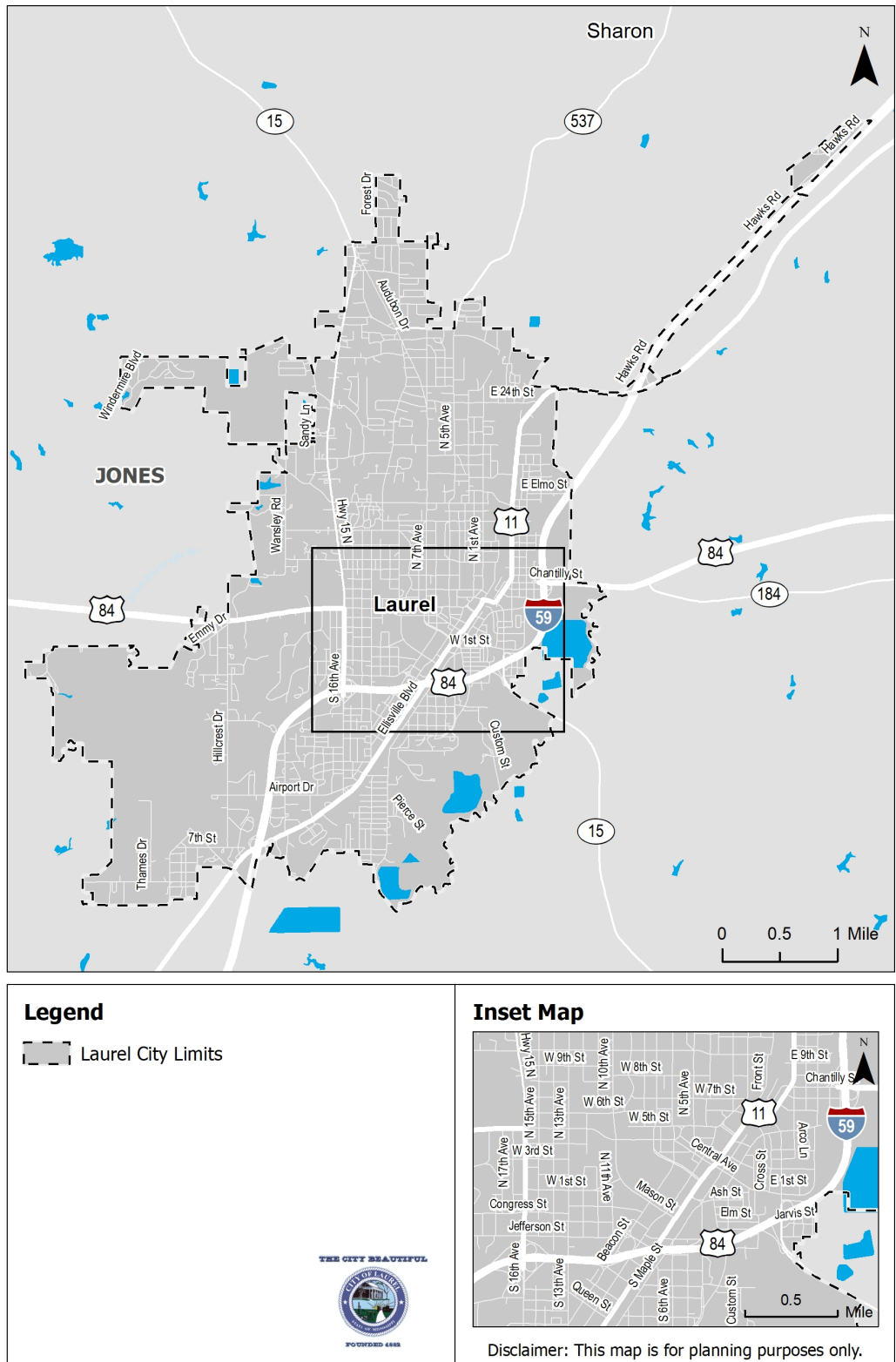
While the SS4A Safety Action Plan identifies transportation safety needs throughout the entire City, it also considers the needs of any area identified as an underserved community. These communities are identified by the United States Department of Transportation (USDOT) on their SS4A Underserved Communities Tool. According to this tool, the City of Laurel contains underserved communities.

This section analyzes the existing demographic makeup of the City of Laurel. The study area for this Safety Action Plan is defined as the area within the Laurel city limits as shown in **Figure 1.1**.

¹ <https://visitjones.com/>

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Figure 1.1: Study Area/Laurel City Limits



Source: Neel-Schaffer

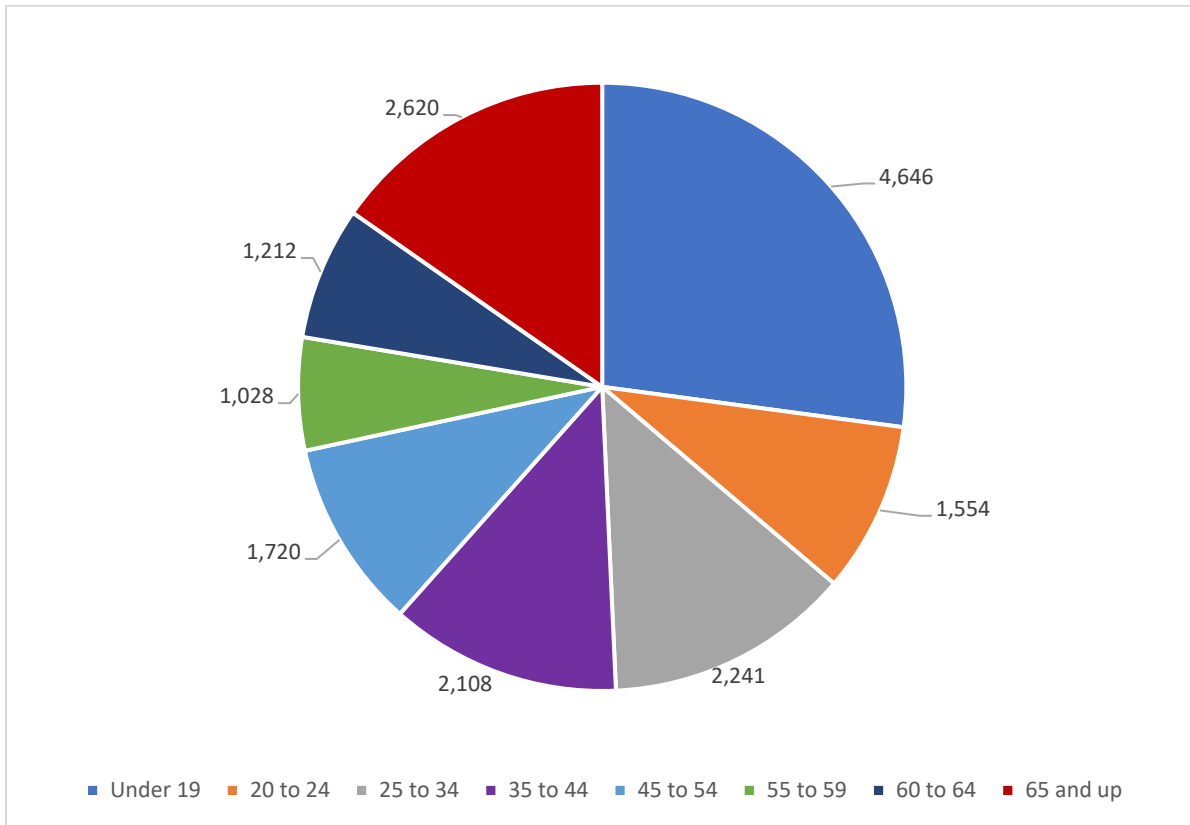
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Age/Race

Figure 1.2 displays the age breakdowns within the city while **Figure 1.3** shows the City's mix of racial backgrounds.

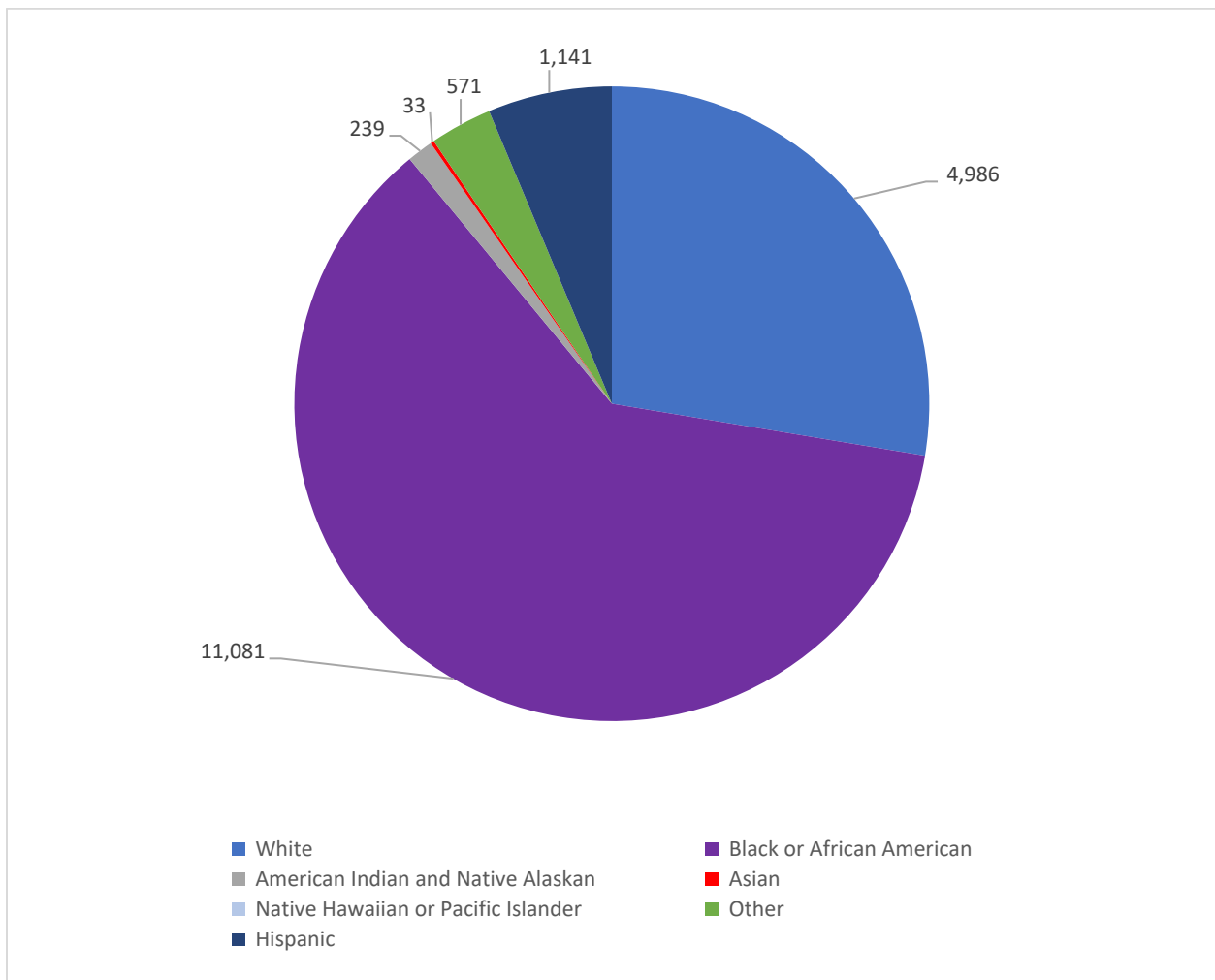
Figure 1.2: Population by Age



Source: ACS 5-Year Estimates, 2023

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Figure 1.3: Population by Race



Source: ACS 5-Year Estimates, 2023

Existing Travel Patterns

While commuting patterns are only a portion of the total travel within the City, they can provide insight into overall travel patterns. According to the 2023 ACS 5-Year Estimates, the average commute time for employees within the city is less than 18 minutes.

These commuting trends can also offer insights into possible equality imbalances in accessing transportation and job opportunities within the City. Most commuters drove alone to work (87%) while approximately 7% of commuters carpooled as shown in **Table 1.1**. Public transportation was not used as a means of commuting.

This option could be challenging for residents with driving restrictions or without access to a vehicle such as low-income persons who depend more on public transit or shared

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transportation alternatives. Recognizing the causes of differences in travel patterns can be vital for equality analysis, since it can guide efforts to create a safer, inclusive, accessible transportation system for all users.

Table 1.1: Commuting Modes within Laurel

Commute Mode	Percent of Commuters
Drive Alone	87%
Carpool	7%
Public Transportation	0%
Walk	2%
Work at Home	4%
Other	0%

Source: ACS 5-Year Estimates, 2023

2.0 Leadership Commitment and Goal Setting

2.1 Leadership Commitment

The Safe Streets and Roads for All program requires a formal **Leadership Commitment and Goal Setting** statement as part of its Comprehensive Safety Action Plans. This statement acts as an official public commitment from a high-ranking governing body to eliminate roadway fatalities and serious injuries. Laurel's Leadership Commitment is below.



The City of Laurel
Mississippi

Johnny Magee
Mayor

Leadership Commitment

Ensuring safe, accessible, and desirable transportation in the region is central to Laurel's mission. It is important to the city that residents and workers in Laurel can use a transportation system designed to accommodate all users safely, regardless of age and ability. Safety will be incorporated as part of the entire transportation network and ultimately achieve our long-term safety goal of zero fatalities and serious injuries by Year 2050.

As mayor of Laurel, my colleagues and I are deeply concerned about transportation safety within the city. From 2019-2023 our region had 83 fatal and suspected serious injury crashes. Additionally, there were 8 fatal and suspected serious injury crashes involving pedestrians and bicyclists. These incidents are tragedies for the victims, their families, and their friends, and they have profound, devastating impacts in our communities.

Fatal and serious injury traffic crashes are preventable, and Laurel is committed to making transportation safer for residents and visitors within the region. The Safe Streets for All (SS4A) Safety Action Plan is an important first step toward ending these avoidable deaths and injuries. As a data-driven, comprehensive, and actionable approach, the Safety Action Plan is designed to improve safety throughout the entire transportation network and achieve our long-term safety goal of zero fatalities and serious injuries by Year 2050.

Everyone should be able to travel safely, no matter where they live, how old they are, or how they get around. Reaching our goal of safer streets in Laurel depends on strong partnerships with local agencies and active involvement from our community. Every resident plays a role in making our roads safer.

Laurel prioritizes safety through planning, studies, and strategic investments. Yet serious crashes continue to rise, taking lives and moving us in the wrong direction.

The Safety Action Plan offers a broader, more coordinated approach to improving transportation safety. While it is only one step in our ongoing work, it will help reduce severe crashes and build the foundation for achieving zero roadway fatalities and serious injuries.

Thank you for your interest in safety within the City of Laurel, and please do not hesitate to contact us if you have questions or suggestions.

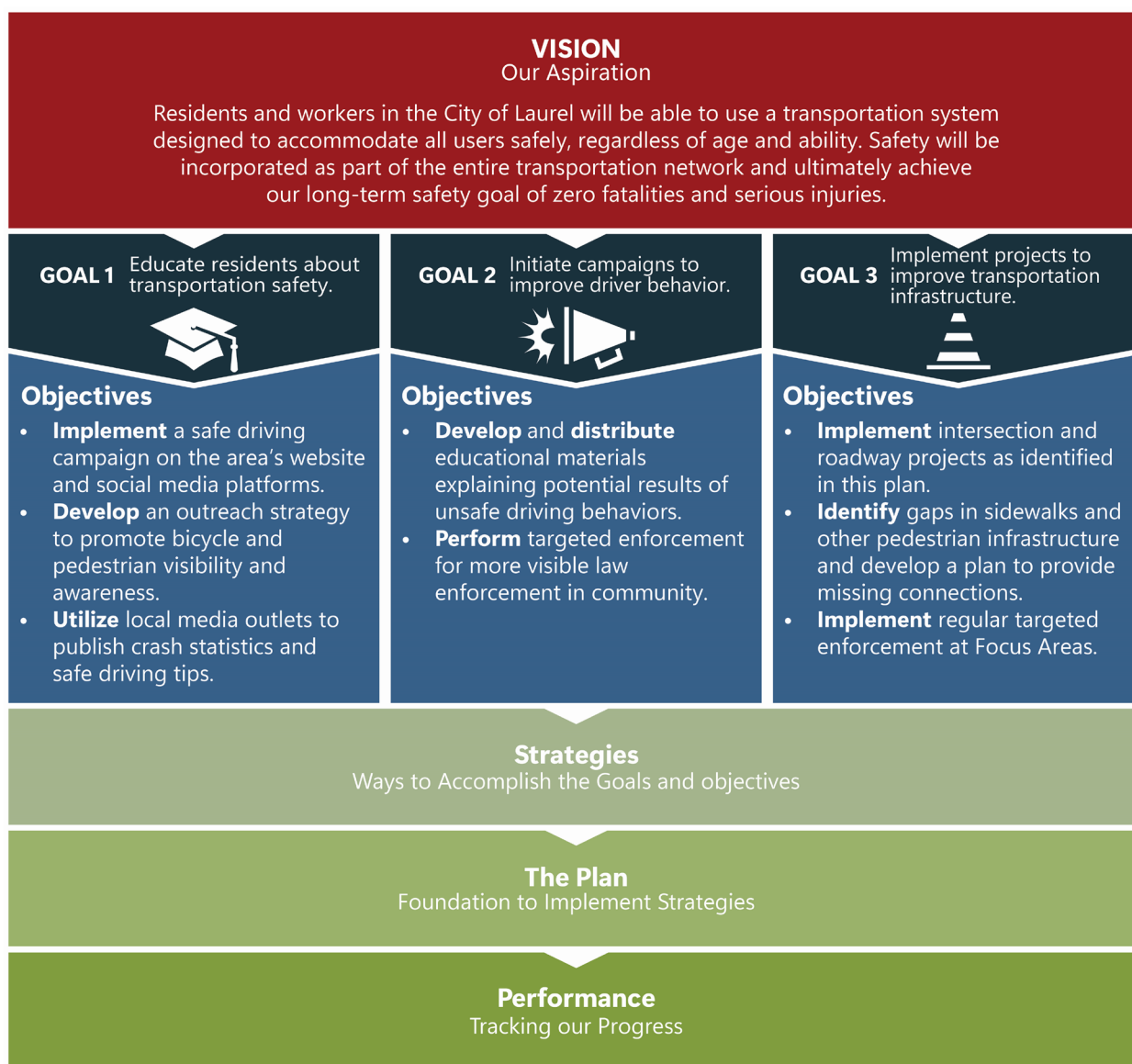
Yours very truly,

Johnny Magee, Mayor

P. O. Box 647 / Laurel, MS 39441 / Phone (601) 428-6401 / Fax (601) 428-6403

2.2 Goal Setting

Steering committee and stakeholder input were used to develop a vision statement, goals, and objectives to guide the development of the Safety Action Plan. The vision statement describes the transportation safety status that the city strives to achieve. It is supported by three (3) goals, each with corresponding objectives that clarify and expand upon the goal statement. These activity-based objectives are used to identify specific projects and strategies that help the city achieve its stated goals. These elements form the strategic framework of the plan (**Figure 2.1**).



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Table 2.1: Safety Action Plan Performance Measures

Performance Measure	Goal	Objective
Percent Reduction in the Number of Fatal Crashes	Goal 1	Implement a safe driving campaign on the city of Laurel's website and social media platforms.
	Goal 1	Utilize local media outlets to publish crash statistics and safe driving tips.
	Goal 2	Develop and distribute educational materials explaining potential results of unsafe driving behaviors.
	Goal 2	Perform targeted enforcement for distracted driving, speeding, and red light running.
	Goal 3	Implement intersection and roadway projects as identified in this plan.
	Goal 3	Implement regular targeted enforcement.
Percent Reduction in the Number of Serious Injury Crashes	Goal 1	Implement a safe driving campaign on the city's website and social media platforms.
	Goal 1	Utilize local media outlets to publish crash statistics and safe driving tips.
	Goal 2	Develop and distribute educational materials explaining potential results of unsafe driving behaviors.
	Goal 2	Perform targeted enforcement for distracted driving, speeding, and red light running.
	Goal 3	Implement intersection and roadway projects as identified in this plan.
	Goal 3	Implement regular targeted enforcement.
Percent Reduction in the Number of Non-Motorized Fatal Crashes	Goal 1	Implement a safe driving campaign on the city of Laurel's website and social media platforms.
	Goal 1	Develop an outreach strategy to promote bicycle and pedestrian visibility and awareness.
	Goal 2	Develop and distribute educational materials explaining potential results of unsafe driving behaviors.
	Goal 3	Implement intersection and roadway projects as identified in this plan.
	Goal 3	Identify gaps in sidewalks and other pedestrian infrastructure and develop a plan to provide missing connections.
	Goal 3	Implement regular targeted enforcement.
Percent Reduction in the Number of Non-Motorized Serious Injury Crashes	Goal 1	Implement a safe driving campaign on the city of Laurel's website and social media platforms.
	Goal 1	Develop an outreach strategy to promote bicycle and pedestrian visibility and awareness.
	Goal 2	Develop and distribute educational materials explaining potential results of unsafe driving behaviors.
	Goal 3	Implement intersection and roadway projects as identified in this plan.
	Goal 3	Identify gaps in sidewalks and other pedestrian infrastructure and develop a plan to provide missing connections.
	Goal 3	Implement regular targeted enforcement.

3.0 Existing Conditions and Safety Analysis

3.1 Policy and Process Changes

Access Management

Access Management regulations are necessary in managing state highway systems and local roadway systems. These regulations promote safe and efficient movements for vehicles entering and exiting sites onto state or local roadway systems. Coordination between state and local access regulations is a vital component of ensuring efficient and safe operations between state-maintained highways and city-maintained roadways. Access management techniques should include:

- **Access Spacing:** increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors.
- **Driveway Spacing:** Fewer driveways spaced further apart allow for more orderly merging of traffic and presents fewer challenges to drivers.
- **Safe Turning Lanes:** dedicated left- and right-turn, indirect left-turns and U-turns (or J-Turns), and roundabouts keep through-traffic flowing. Roundabouts represent an opportunity to reduce an intersection with many conflict points or a severe crash history (T-bone crashes) to one that operates with fewer conflict points and less severe crashes (sideswipes) if they occur.
- **Median Treatments:** two-way left-turn lanes (TWLTL) and non-traversable raised medians are examples of some of the most effective means to regulate access and reduce crashes.
- **Right-of-Way Management:** as it pertains to R/W reservation for future widening, good sight distance, access location, and other access-related issues.

The City of Laurel has subdivision regulations to manage access within the City. The City aims to balance the needs of residents and businesses for access to their properties with broader goals of safety and efficiency on the city's roadways. These policies are implemented through permit procedures, construction standards, and ongoing traffic management initiatives, often in coordination with MDOT. Mississippi Department of Transportation (MDOT) has published the Access Management Manual – Version 2.0 (February 2022). This manual highlights the importance of access management to control the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to roadways for the purpose of maintaining the overall safety of the transportation system, to minimize congestion, and minimize number of crashes. The goal of the manual is to provide efficient traffic flow due to the increase in traffic experienced from new developments and to ensure the existing systems

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capacity will not be adversely impacted by the new development. MDOT's access management policy/program includes functional roadway classification, geometric design criteria, and traffic engineering analysis.

Complete Streets

The U.S. Department of Transportation describes Complete Streets as streets that are designed and operated to enable and support safe mobility for all users. This includes the consideration of multiple forms of transportation including roadways, sidewalks, bicycle paths, or public forms of transportation. Complete Street policies can be set at state, regional, and local levels and are usually supported using roadway design guidelines.

Mississippi Department of Transportation (MDOT) has published a fact sheet pertaining to the "Complete Streets" policy. The Mississippi SRTS State Network Complete Streets Fact Sheet encourages local, regional, or state level agencies to adopt a complete streets policy to ensure the design and implementation of safe and convenient transportation systems to everyone including pedestrians, bicyclists, drivers, and transit users. The sheet highlights safety, health, quality of life, access, and fiscal responsibility components that all play a major role in creating a cohesive transportation system outlined by the complete streets policy. It is encouraged that both local and state departments adopt this policy to ensure a cohesive transportation system for all users.

The City of Laurel does not have an adopted Complete Streets Policy.

Requirements for Sidewalks in Subdivision Regulations

Development of subdivisions within a community should include the implementation of pedestrian facilities to promote connectivity and safety in the development. This warrants well thought out standards and regulations for planning to encourage the production of cohesive sidewalk networks within the proposed subdivisions as well as to existing networks.

Laurel has established design standards and procedures regarding sidewalks in Appendix II of the Subdivision codes, Ordinance 1011-1984, Section 501. The city requires that all sidewalks be at minimum width of at least 4 feet wide and be constructed on both sides of all arterials and collector streets within subdivisions.

Mississippi Department of Transportation (MDOT) mentions certain criteria for sidewalk placement during various types of roadway projects in their published Roadway Design Manual (2020). The manual does not specifically have a section dedicated to the design of sidewalks; however, it is mentioned throughout the manual. MDOT also provides links to the most current ADA standards for pedestrian facilities on their website for ease of access to design professionals and the public.

Work Zone Management/Requirements of Traffic Management Plans

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The Mississippi Department of Transportation (MDOT) has a variety of standard traffic control plans and require them to be designed and enforced on any state-maintained roadway. MDOT has a blog site called “drive smart” and as part of the blog there is an informational piece on the importance of work zone safety. This blog gives an overview of some historic crash data pertaining to work zone incidents. While this blog is informational, it is recommended to implement some policies and procedures at the state level to ensure coordination between state and local agencies.

Emergency Response Time Goals vs. Actual

A crucial part of emergency response is the time that it takes for emergency responders to reach the call they are responding to. During the review of City of Laurel’s policies and procedures there was no information given about emergency response times regarding goal times they would like to meet or historical actual times of emergency responders to arrive on scene. It is encouraged that all emergency responders including the fire department, police department, and EMS, coordinate to identify deficiencies in response time and develop strategies/policies to improve efficiency, which can provide life-saving techniques in many instances.

Corridor Management Agreements are a tool that can be used to improve safety along a given corridor within the city. Corridor Management Agreements (CMA’s) are a policy result of the National Governor’s Association, Center for Best Practices Policy Academy on Shaping a New Approach to Transportation Safety and Lane Use Planning. CMA’s have been utilized in many states across the country to help maintain the integrity of a given roadway, while ensuring all parties with asset involvement are working together to promote the same concepts for access management, safety, land-use, engineering, and planning.

Involvement from multiple municipalities, adjoining cities, counties, state DOT officials, local school representatives, etc. can ensure that constant communication and the sharing of plans and knowledge will increase the free flow of traffic and enhance safety for all roadway users. While a CMA is often organized between neighboring jurisdictions that share a roadway, this approach can also work for a roadway within the city’s own limits. Having periodical meetings with applicable city staff to discuss plans and roadway safety improvements creates a commitment to the long-term integrity of the corridor and places safety at the forefront.

Major corridors within Laurel, MS include US 84 (W 5th Street), US 11, MS 15, and MS 537.

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Traffic Calming combines a variety of techniques that can be utilized by the city to adjust driver behavior and make roads safer for both motorists and non-motorists. The idea of traffic calming came about due to the overwhelming need to slow vehicular speeds when moving through both neighborhood and commercial areas. The slower the speed, the more compatible an area is to more vulnerable users of the road. While there are many methods that can be implemented to calm traffic, a few examples are listed below:



Source: National Association of City Transportation Officials

Example of traffic calming measures

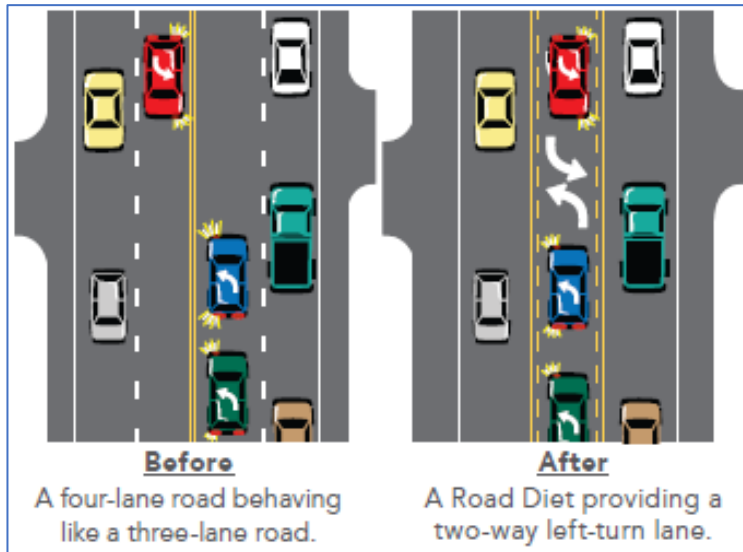
- Adding speed humps, raised crosswalks, or other raised pavement areas to decrease speed.
- Narrowing of travel lanes (discussed in more detail below) that creates a sense of “closeness” to the other vehicle which results in slower movement.
- Adding texture such as brick or concrete pavers to the roadway to increase vibration in the vehicle.
- On-street parking which requires vehicles to be vigilant.
- Roundabout or traffic circle
- Street trees act as a visual barrier between drivers and pedestrians and have been shown to reduce stress in driver behavior.

Road Diets, or Road Reconfigurations, can be a low-cost safety strategy to reduce travel speeds, while allowing more room for non-motorized users. Traditionally, the most common form of a road diet removes a lane in either direction (on a four-lane undivided roadway) and creates a two-way left turn lane. By doing so reduces the number of rear-end collisions and creates enhanced traffic flow. Other types of reconfigurations include reducing travel lanes to incorporate bike lanes, medians, sidewalks, landscaping, and/or bus-only lanes. While road diets are not appropriate for roadways with high average daily traffic (ADT),

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there are many local and state routes that could use this configuration, which would greatly benefit the safety of the community.



Source: FHWA

FHWA recommends the following thresholds as a guideline to road diets on four-lane roadways regarding ADT.

Less than 10,000 ADT: Good candidate for a road diet in most cases. Capacity most likely not impacted.

10,000-15,000 ADT: Good candidate for a road diet in many cases. Further intersection analysis should be considered.

15,000-20,000 ADT: Good

candidate for a road diet in some instances. However, capacity

may be impacted. Further corridor analysis should be considered.

Greater than 20,000 ADT: A feasibility study should be completed to determine if a good candidate.

When an appropriate location is identified as a candidate for a road diet, the restriping of lanes that coincides with a planned resurfacing can lead to a low-cost safety improvement for the city and residents. Temporary restriping can be part of a demonstration grant under the SS4A program.

Traffic Impact Policy requires developers to create a Traffic Impact Study when a new or redevelopment occurs. Typically, the study is an assessment which helps to determine expected traffic and the safety implications of the development, thus resulting in needed improvements such as an additional turn lane, signalized intersection, etc. However, many local and state requirements do not consider the number of pedestrian and bicycle trips within the area which can lead to unsafe conditions for non-motorized users. Below is a group of strategies, both large and small, that could lead to better safety outcomes within these studies.

- Consider improving bicycle/pedestrian access and/or bicycle/pedestrian circulation as part of roadway, intersection, and/or site plan improvements.
- Encourage officials to visit the site for first-hand knowledge of active bicyclists and pedestrians, focusing on nearby destinations such as job centers, recreation, entertainment, etc.

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- Depending on the location, require a speed study to be completed and not rely solely on the posted speed limit.

Contact the local bicycle/pedestrian advocacy group to receive feedback on development plans.

Existing Plans

STATEWIDE TRANSPORTATION IMPROVEMENT PLAN (STIP)

Plan Overview

The Statewide Transportation Improvement Plan (STIP) serves as the framework for the development of the State of Mississippi's transportation system. It is a four-year listing of planned transportation improvement activities and expenditures in Mississippi. It includes federally funded and non-federally funded projects that are of regional significance. It is typically updated every two years.

Goals and Objectives

In accordance with the U.S. Code of Federal Regulations, Title 23, Part 450 and the Intermodal Surface Transportation Efficiency Act (ISTEA), and the Bipartisan Infrastructure Law, the following regulations identify the planning factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility options available to people and for freight.
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth, housing, and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient systems management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
10. Enhance travel and tourism.

Key Findings

The following are key findings that are mentioned in the reviewed documents and are relevant to transportation safety:

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1. An urbanized area is defined as an area with a population greater than 50,000. There are four urbanized areas in Mississippi that are part of by Metropolitan Planning Organizations and governed by Policy Boards. The MPOs include the Jackson Metropolitan Planning Organization, Gulf Coast Metropolitan Planning Organization, and Memphis Metropolitan Planning Organization which governs the northwest portion of Marshall County.
2. MDOT focuses on four key program areas when prioritizing construction opportunities and investments on the State's transportation system. These areas include system preservation, bridge replacement, highway safety improvement program, and highway capacity.
3. State DOTs and MPOs are required to establish targets for safety, pavement condition, bridge condition, NHS travel time reliability, freight reliability, traffic congestion, and total emissions reduction. These targets are measured as annual targets, 2-year targets, and 4-year targets. The highest targets of these metrics are for system performance with 2-year and 4-year expectations of 93% for reliability of interstate routes and 85% for non-interstate routes.
4. This STIP was developed in consideration of the Mississippi Unified Long-Range Transportation Infrastructure Plan (MULTI Plan) and the approved Transportation Asset Management Plan (TAMP) by allocating the maximum available funding to interstate maintenance, preservation of non-interstate NHS and State-maintained pavement, bridges, and safety projects. The least amount of funds was allocated for congestion mitigation and air quality, and freight programs.
5. The STIP lists a *Grouped Project* in the *Statewide* section titled *Programmed Project Cost Contingency*. This group provides a balance of reserve funds that allows for adjustments in costs as estimates are refined. Funds will be moved in and out of this group as needed to prevent MDOT from having to remove projects from the STIP because of project cost overruns, the addition of new projects, or if an anticipated funding source is not received.
6. MDOT maintains approximately 30,000 lane-miles of roadway statewide. This includes close to 3,500 lane-miles of interstate highway, over 8,200 lane-miles of U.S. Highway, over 16,000 lane-miles of State Routes, and nearly 2,000 miles of ramps, frontage roads, and auxiliary lanes.

Recommendations for Transportation Safety

The following are recommendations for improved collaboration among the City of Laurel, MPOs, and MDOT to address safety analysis, project development, and implementation more effectively throughout the city:

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1. Reduce the need for Federal funds to be expended on emergency repair and reconstruction activities. The plan suggests raising roadways and bridges, replacing undersized culverts, installing brush deflectors, providing pier protection, and relocating roadways as mitigation efforts for emergency repairs.
2. The plan suggests routine maintenance and investment in the preservation of Mississippi's surface transportation system to make the system last longer and save the cost of reconstruction. Funding for maintenance should be budgeted annually.
3. Combine construction projects across agencies in order to share transportation safety funds. The plan mentions projects with no significant environmental impacts or those requiring minimal right-of-way can be grouped together.

MISSISSIPPI STRATEGIC HIGHWAY SAFETY PLAN (2024)

Plan Overview

The 2024 Strategic Highway Safety Plan focuses on five of the most prevalent emphasis areas that contribute to deaths and suspected serious injuries. These are (1) unbelted occupants, (2) lane departures, (3) impaired driving, (4) intersections, and (5) young drivers. This plan outlines how Mississippi will reach zero by 2050 using the Toward Zero Deaths (TZD) strategy, which calls for stakeholders to work together and champion the aim of reducing road deaths to zero. The vision of this plan is a highway system free of deaths through a sustained decline in transportation-related deaths and injuries.

Goals and Objectives

The plan includes 19 objectives as follows:

- a. Strengthen enforcement to maximize safety belt use and its life-saving benefits.
- b. Strengthen public acceptance and community reinforcement of safety belt use.
- c. Improve road design to reduce the risk of lane departure crashes.
- d. Address curve-related lane departure crashes.
- e. Address speed-related lane departure crashes.
- f. Use enforcement to increase compliance for safe driving.
- g. Use intersection design to reduce the risk of crashes.
- h. Use enforcement to increase compliance for safe driving. *(This objective is listed twice).*
- i. Strengthen novice driver safety through adopting phased safety provisions as younger drivers gain driving experience and skills.
- j. Strengthen accessibility to driver education classes during the novice driver's learning permit phase.
- k. Strengthen traffic safety culture and its enforcement to improve driver safety.
- l. Strengthen impaired and drugged driving laws to deter driving impaired.

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- m. Strengthen enforcement to promote DUI deterrence, detection, and arrest.
- n. Strengthen penalties/sanctions and monitoring of substance-involved offenders.
- o. Reduce excessive and underage drinking.
- p. Identify champions and promote policy changes within the Mississippi legislature.
- q. Explore processes and collaboration ideas to make traffic safety efforts more effective.
- r. Identify older drivers for increased risk of crash and strengthen licensing practices to extend driving while enhancing safety.
- s. Equip older drivers to plan for and adopt safe driving practices.

Key Findings

The following are key findings that are mentioned in the reviewed documents and are relevant to transportation safety:

1. The plan states that in 2022, 703 people died on Mississippi roads compared to 10 years prior in 2012 with 582 deaths. The plan states these numbers highlight the potential that exists for reducing deaths and serious injuries on Mississippi roads.
2. SHSP implementation will help shift the perceived social acceptance of high-risk behavior such as texting while driving to one that peers perceive as unacceptable, as well as help increase perceived social pressure to comply with traffic safety laws and practices.
3. 93 percent of all crashes are due in part to driver error, risk-taking, and/or lapses in attention.
4. Three pillars are the foundation for real change that makes a difference in saving lives. These are (1) data for a better understanding of what stands in the way of safer roads, (2) engagement of diverse stakeholder groups, and (3) proven safety strategies that are tailored to address Mississippi's key road safety issues.
5. Developing an SHSP involves both data-driven and human-centered approaches. Data analysis identifies crash locations, quantifies possible causes, and helps in determining infrastructure improvements and other measures that can help reduce deaths and serious injuries on public roads.
6. Mississippi tapped five states to learn more about what worked well for them. These were states with recently updated SHSPs and/or a network of rural four-lane highways. They were Florida, Iowa, Louisiana, Minnesota, and Missouri.
7. Mississippi's total crash deaths declined from 772 in 2021 to 703 in 2022 but remain slightly higher than pre-pandemic numbers. Serious injuries declined slightly from 3,663 in 2020 to 3,423 in 2022.
8. The 2024 SHSP data analysis covered three years from 2020 to 2022.
9. The report includes objectives and strategies for emphasis areas including unbelted occupants, lane departures, intersections, young drivers, impaired driving, older drivers,

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and older pedestrians. The SHSP does not list unlicensed drivers as an emphasis area, but instead includes strategies in related emphasis areas to support reducing the number of unlicensed drivers in the state.

10. Lane departures make up 63 percent of all rural fatal and serious injury crashes in Mississippi.

Recommendations for Transportation Safety

The following are recommendations for improved collaboration among the City of Laurel, MPOs, and MDOT to address safety analysis, project development, and implementation more effectively throughout the city:

1. The plan suggests involving leaders, partners, and champions in directing and coordinating efforts, plus commitment from key state agencies, local law enforcement and health agencies, and private sector organizations.
2. Provide educational opportunities for community stakeholders to understand their role in promoting transportation safety. The plan suggests providing ongoing education that aligns with statewide messaging and outreach.
3. Engage as many community stakeholders as possible in safety strategies. The plan mentions encouraging networking among safety summit participants through coordinated seating assignments and small group activities.
4. The plan mentions integrating seat belt and DUI high-visibility enforcement checkpoints and saturation patrols with emphasis on rural communities.
5. The plan suggests using data to focus attention on the emphasis areas that will make the most impact in preventing crash-related deaths and serious injuries.

MISSISSIPPI HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

Plan Overview

The Mississippi Highway Safety Improvement Program is a comprehensive strategy aimed at reducing fatalities and serious injuries on public roads through various safety projects and initiatives.

Goals and Objectives

The goal of this plan is to reduce or eliminate roadway fatalities and serious injuries.

Key Findings

The following are key findings that are mentioned in the reviewed documents and are relevant to transportation safety:

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1. Increased focus on systemic safety improvements, such as cable barriers and edge line delineation enhancements. Community input highlights the need for improved enforcement and education
2. Emphasis on Federal Highway Administration's Proven Safety Countermeasures, including roundabouts and RCUT locations.
3. The HSIP has prioritized projects that align with the Strategic Highway Safety Plan (SHSP).

Recommendations for Transportation Safety

1. Implement traffic calming measures in identified high-risk areas.
2. Enhance pedestrian infrastructure to improve safety.
3. Develop educational campaigns to raise awareness about road safety.
4. Strengthen enforcement of traffic laws to deter unsafe behaviors.

MISSISSIPPI'S 2045 UNIFIED LONG-RANGE TRANSPORTATION INFRASTRUCTURE PLAN (MULTIPLAN 2045) (2020)

Plan Overview

MULTIPLAN 2045 is Mississippi's Unified Long-Range Transportation Infrastructure Plan for 2045. It is an actionable plan highlighting unmet funding needs compared to available resources. By comparing strategies based on transportation system impacts and how they address systemwide goals, MULTIPLAN 2045 provides a plan of action for the State of Mississippi.

Goals and Objectives

Transportation investment in Mississippi is guided by three overarching program category themes: Preservation, Modernization, and Expansion. The following are the seven statewide transportation goals established by MDOT:

1. Establish effective transportation partnerships and collaborations while increasing awareness of the benefits and needs of the intermodal system.
2. Provide reliable funding and financing options for the transportation system and allocate funds efficiently.
3. Ensure a safe transportation network for all users.
4. The expansion and modernization of the transportation network should be mindful of its effect on the environment and attempt to mitigate the impacts.
5. Preserve and maintain existing transportation infrastructure.
6. Improve connectivity and travel of residents, commerce, and industry.
7. Invest in strategic transportation improvements to support the State's economy and competitiveness.

Key Findings

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The following are key findings that are mentioned in the reviewed documents and are relevant to transportation safety.

1. From 2012 to 2017, Mississippi vehicle miles traveled grew by 1.1 percent on average annually, and most employees chose to commute by driving alone in a private vehicle.
2. In Mississippi, rates of commuters taking public transit, bicycling, walking, and working from home are lower than national averages, however rates of carpooling in Mississippi are higher.
3. Around \$8.50 out of every \$10 spent on transportation in Mississippi supports the construction program that maintains the State of Mississippi's road and bridge system. Also, there are 1600 bridges in poor condition in Mississippi of which MDOT is responsible for maintaining one out of every 10 of those structures. By 2045, 66 percent of the existing bridges will be over 50 years old.
4. Transportation revenue in Mississippi is projected to decline due to gas tax not indexed to inflation, increase in vehicle fuel efficiency, increased adoption of electric vehicles, lack of growth in vehicle miles traveled, and reduced federal funding share.
5. Federal funding represents about half of the state's total funding. The majority of federal funding is derived from the federal motor vehicle fuel tax and the state fuel tax.
6. Key industry stakeholders and transportation leadership indicated urbanization and trade dynamics will likely be the economic trends that have the largest impact on demand for the State's transportation system.
7. Mississippi's 2500-mile rail system is operated by five Class 1 railroads.
8. Mississippi's most significant transportation challenges over the next 25 years are aging and deteriorating roads and bridges, finding money to maintain and improve the transportation system, and safe travel.

Recommendations for Transportation Safety

The following are recommendations for improved collaboration among the City of Laurel, MPOs, and MDOT to address safety analysis, project development, and implementation more effectively throughout the city:

1. Collaborate across agencies to disperse transportation funds for roadway and bridge projects, and prioritize projects based on needs and funding sources.
2. Accommodate freight demand, as this is closely tied to the economy and tonnage is projected to increase by 62 percent by 2045. Investing in deepwater ports, intermodal facilities, air cargo facilities, rail lines, and highways can increase global trade.
3. The plan mentions creating sufficient evacuation routes and resilient systems to deter the deterioration of infrastructure such as bridge damage and dam failures caused by hazards.

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4. Re-evaluate gas tax revenue as vehicles become more fuel efficient and less reliable on gasoline through electric vehicles and alternative fuels.

MISSISSIPPI STATEWIDE FREIGHT PLAN (2022)

Plan Overview

The 2022 Mississippi statewide freight plan identifies needs, trends, and projected freight movements to set the stage for the plan goals, strategies, list of projects, and freight investment plan.

Goals and Objectives

The purpose of the Mississippi statewide freight plan is to assess the condition and performance of the freight network, understand the role of freight within broader transportation and economic development initiatives, and develop strategies to address freight needs within Mississippi.

Mississippi's statewide freight plan goals are to:

- a. Promote a safe and secure multimodal freight network.
- b. Maintain infrastructure crucial to multimodal freight movement in a state of good repair.
- c. Improve reliability and reduce congestion barriers to freight mobility.
- d. Maximize the impact of the freight network on the productivity and economic competitiveness of the state.
- e. Support the resiliency of the freight network while equitably minimizing adverse impacts of freight operations on communities and the environment.
Building external and freight industry partnerships and efficiently maximize freight investments.

Key Findings

The following are key findings that are mentioned in the reviewed documents and are relevant to transportation safety.

1. In addition to roadways and bridges, truck parking facilities and transportation system (ITS) devices are critical elements of the highway network.
2. Congestion and mobility on the highway freight network are measured in terms of truck travel time reliability (TTTR).
3. Class 1 rail makes up around 65 percent of the rail mileage in the state.
4. One in every four direct jobs in the state belongs to freight intensive industries. These industries contribute 36 percent of wage earnings and more than one-quarter of annual GDP.

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5. Trucks are generally the main mode used for automotive manufacturing, so issues surrounding facilitating the automotive manufacturing supply chain include addressing bottlenecks and reliability along major highway corridors.
6. Key freight needs and challenges related to military installations include poor pavement conditions on roadways near military installations, vertical clearance issues, and risk of natural and manmade disasters.
7. The Mississippi highway freight system's needs are to improve truck safety, truck parking, truck bottlenecks, highway infrastructure conditions, challenges on freight intermodal connectors, vertical clearances, and at-grade crossing safety.

Recommendations for Transportation Safety

The following are recommendations for improved collaboration among the City of Laurel, MPOs, and MDOT to address safety analysis, project development, and implementation more effectively throughout the city:

1. Initiate automated road safety assessments, crash frequency studies, and Hot Spot identification.
2. Encourage development of Local Road Safety Plans.
3. Leverage technical support via MDOT's Circuit Rider outreach for signage, striping, and signage improvements.
4. Implement a data driven, before-and-after crash monitoring process for any safety intervention.

3.2 Crash Analysis

The crash analysis is informed by a historical crash analysis within Laurel, MS. Historical crash data from January 1, 2019, through December 31, 2023, was reviewed to evaluate patterns and trends within the crash data in terms of crash types, crash locations, contributing circumstances, and temporal trends. A total of 3,898 crashes were reported within the study area over the five-year period evaluated, and the following analysis focuses on 83 of those crashes that resulted in fatalities and/or serious injuries.

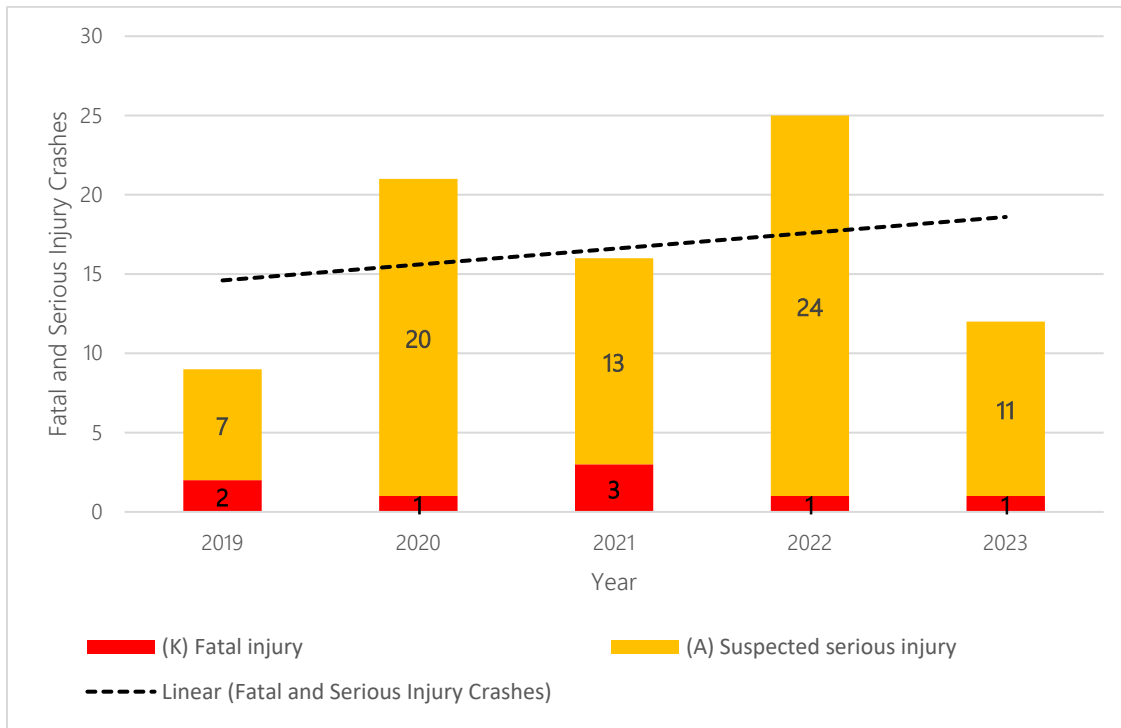
Within the study area, there were **8 fatal crashes and 75 serious injury crashes** reported during the five-year analysis period. **Figure 3.1** presents the fatal and serious crashes reported by year within Laurel, MS.

The number of "suspected serious injury" crashes significantly increased from September 2019 onwards due to a revised definition of what constitutes a serious injury. The new definition broadens the category of "suspected serious injury" crashes to include injuries such as severe lacerations, significant blood loss, broken or distorted extremities, crush injuries, significant burns, unconsciousness, paralysis, and/or suspected skull, chest, or abdominal injuries (excluding bruises or minor lacerations). In contrast, Mississippi's previous criteria required severe injuries to be life-threatening. Consequently, the new definition results in an uptick in serious injuries reported when comparing data before and after the definition change. The definition was changed to conform with the new criteria definitions set forth in the National Highway Traffic Safety Administration's Model Minimum Uniform Crash Criteria (MMUCC), 4th edition.

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Figure 3.1: Fatal and Suspected Serious Injury Crashes by Year



Source: Mississippi Department of Transportation (MDOT)

Crash Types and Summaries

The most common crash types among the fatal and serious injury crashes reported in the five-year analysis period were **angle (24.1%)**, **left turn same roadway (14.5%)**, **run off road (12% - right)**, **rear end slow or stop (9.6%)**, and **sideswipe (9.6%)**. Table 3.1 presents the fatal and serious injury crashes reported during the five-year analysis window by crash type.

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Table 3.1: Fatal and Suspected Serious Injury Crashes by Crash Type and Year

Crash Type	Year					Total (%)
	2019	2020	2021	2022	2023	
<i>Angle</i>	3	4	6	4	3	20 (24.1%)
<i>Left turn same roadway</i>	1	3	1	4	3	12 (14.5%)
<i>Run off Road - Right</i>	2	2	1	3	2	10 (12%)
<i>Rear end slow or stop</i>	0	3	2	2	1	8 (9.6%)
<i>Sideswipe</i>	0	3	1	3	1	8 (9.6%)
<i>Pedestrian</i>	2	1	0	4	0	7 (8.4%)
<i>Run off Road - Left</i>	1	1	1	2	1	6 (7.2%)
<i>Head on</i>	0	0	1	1	0	2 (2.4%)
<i>Parked vehicle</i>	0	1	0	1	0	2 (2.4%)
<i>Rear end turn</i>	0	2	0	0	0	2 (2.4%)
<i>Run off Road - Straight</i>	0	1	0	0	1	2 (2.4%)
<i>Bicycle</i>	0	0	1	0	0	1 (1.2%)
<i>Other</i>	0	0	0	1	0	1 (1.2%)
<i>Overturn</i>	0	0	1	0	0	1 (1.2%)
<i>Train</i>	0	0	1	0	0	1 (1.2%)
TOTAL	9	21	16	25	12	83 (100.0%)

Source: MDOT

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Environmental Circumstances

The environmental circumstances contributing to crashes can be helpful in determining potential areas for improvement within the roadway network. Environmental circumstances such as lighting and weather/surface conditions were evaluated for the 83 fatal and serious injury crashes reported in the study region for 2019 through 2023.

Approximately 31 percent (31%) of fatal and severe injury crashes were identified as 'dark-lighted', indicating that there was intersection lighting present at the time of the crash may not be adequate. Approximately 22% (21.7) of fatal and serious injury crashes reported in the region occurred with wet surface conditions. **Table 3.2** presents the contributing circumstances as reported during the five-year analysis period.

Table 3.2: Fatal and Suspected Serious Injury Crashes by Contributing Circumstances

Light Conditions	Year					Total
	2019	2020	2021	2022	2023	
<i>Daylight</i>	5	12	8	16	9	50 (60.2%)
<i>Dark - lighted</i>	4	7	5	8	2	26 (31.3%)
<i>Dark - not lighted</i>	0	2	1	1	0	4 (4.8%)
<i>Dawn/dusk</i>	0	0	1	0	1	2 (2.4%)
<i>Dark - unknown lighting</i>	0	0	1	0	0	1 (1.3%)
TOTAL	9	21	16	25	12	83 (100.0%)
Surface Conditions	Year					Total
	2019	2020	2021	2022	2023	
<i>Dry</i>	9	13	11	22	10	65 (78.3%)
<i>Wet</i>	0	8	5	3	2	18 (21.7%)
TOTAL	9	21	16	25	12	68 (100.0%)

Source: MDT

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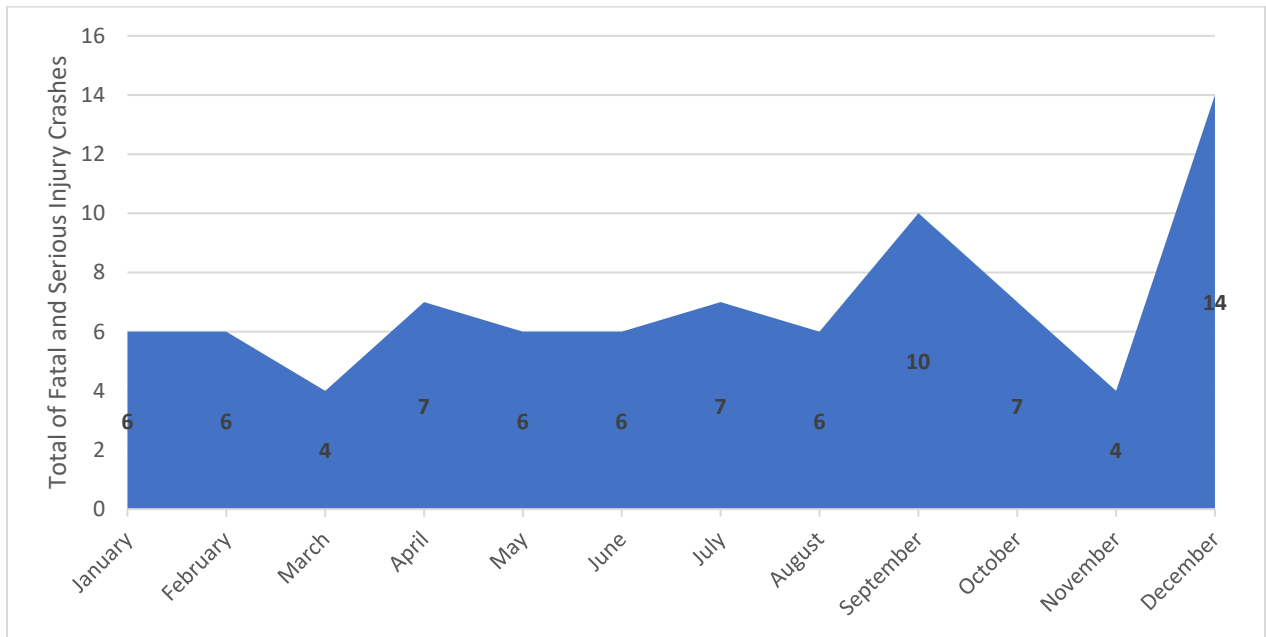
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Temporal Patterns

The 83 reported fatal and serious injury crashes in the study region were also evaluated for temporal patterns. Crashes were compared by month of the year, day of the week, and hour of the day.

Figure 3.2 illustrates the monthly trends in crashes across Laurel, MS. December and September were the most common times of year for crashes. In contrast, March and November have historically seen fewer crashes compared to the rest of the year.

Figure 3.2: Fatal and Suspected Serious Injury Crashes by Month, 2019 – 2023



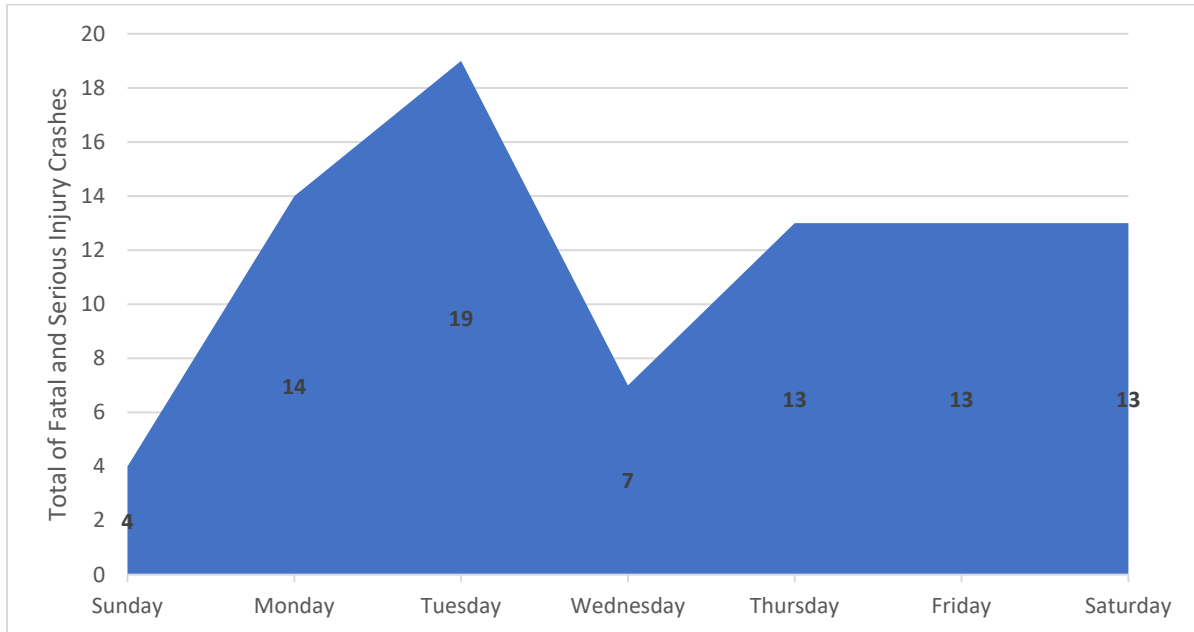
Source: MDOT

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Figure 3.3 presents the number of fatal and severe crashes that occurred within the study region for each day of the week. The data indicates that, in general, more crashes occur on Mondays and Tuesdays with fewer crashes occurring on Sundays and Wednesdays.

Figure 3.3: Fatal and Suspected Serious Injury Crashes by Day of Week, 2019 – 2023



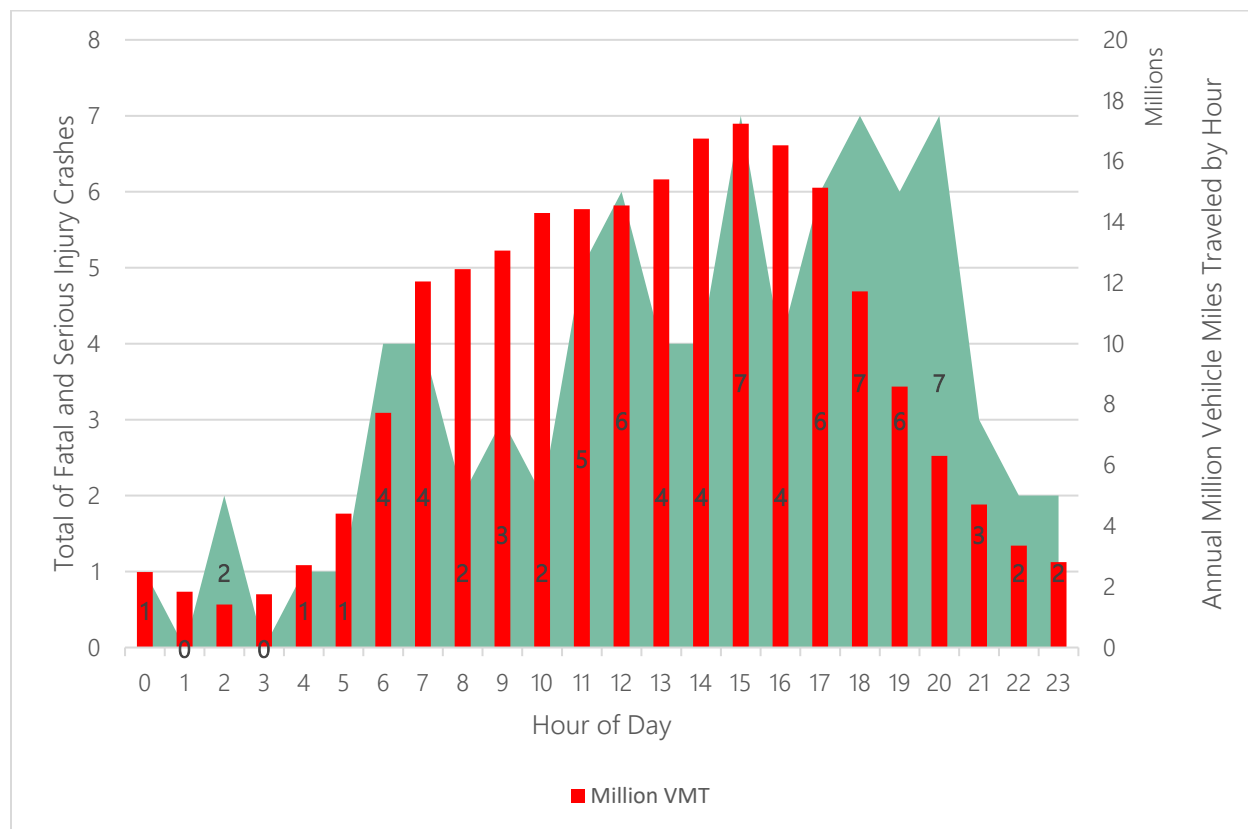
Source: MDOT

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Figure 3.4 presents the number of crashes that occur per hour of the day. More crashes tend to occur in the late afternoon and early evening hours of the day. The 3 p.m. to 4 p.m. and 5 p.m. to 9 p.m. intervals saw the highest crash occurrence.

Figure 3.4: Fatal and Suspected Serious Injury Crashes by Time of Day, 2019 – 2023



Source: MDOT

DUI Related Crashes

Of the 83 reported fatal and serious injury crashes in Laurel MS, 5 crashes – approximately six percent of the fatal and serious injury crashes – were DUI involved crashes. **Table 3.3** summarizes the DUI involvement in fatal and serious injury crashes.

Table 3.3: DUI Involved Crashes, 2019 – 2023

DUI Involvement	Year					Total
	2019	2020	2021	2022	2023	
Yes	1	1	1	1	1	5 (6%)
No	8	20	14	23	11	76 (92%)
Unknown	0	0	1	1	0	2 (2%)
TOTAL	9	21	16	25	12	83 (100%)

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Source: MDOT

Pedestrian and Bicycle Crash Summary

During the five-year analysis period, there were seven (7) pedestrian crashes and one (1) bicycle crash. Of the pedestrian-involved crashes, three (3) resulted in fatal injury, four (4) resulted in suspected serious injuries, or approximately eight (8) percent of the fatal and serious injury crashes. Of the bicycle-involved crashes, one (1) resulted in serious injuries, or approximately one (1) percent of the fatal and serious injury crashes. One pedestrian serious injury crash was attributed to the involvement of alcohol.

Three (3) pedestrian suspected serious injury crashes occurred under daylight conditions, with two (2) under dark-lighted conditions and one (1) under dark-not lighted conditions. One (1) bicycle crash occurred under dark, not-lighted conditions. One pedestrian crash occurred with wet surface conditions while no bicycle crashes occurred with wet surface conditions. The small sample size of crashes limits the meaningfulness of this analysis.

3.3 High Injury Network

The High-Injury Network (HIN) analysis identifies locations with historical safety concerns to guide local investments in infrastructure and safety programming. Two separate HINs were developed: one focused on all roadway users and the other on vulnerable road users (bicyclists and pedestrians).

Each HIN consists of roadway segments and intersections that experience a high frequency of fatal and serious injury crashes. HIN maps are shown in **Figures 3.5 and 3.6**.

Table 3.4 and **Table 3.5** display the top focus areas for segments and intersections, respectively.

Segment Analysis

The segment analysis identified the top 20 segments in Laurel, MS with the highest frequency of fatal and serious injury crashes. The following process was used to determine those segments:

- Segments with at least one fatal and/or serious injury crash were sorted based on the number of fatal and/or serious injury crashes.
- While maintaining the order of fatal and serious injury crash frequencies, segments were then sorted based on the number of total injury crashes (this included all injury classifications).
- Segments were then sorted based on the total number of crashes, while maintaining the order established in the prior steps.

Intersection Analysis

The intersections analysis identified the 20 intersections for Laurel, MS that had at least one (1) fatal and serious injury crash from 2019 to 2023, using the same process discussed for segment crashes.

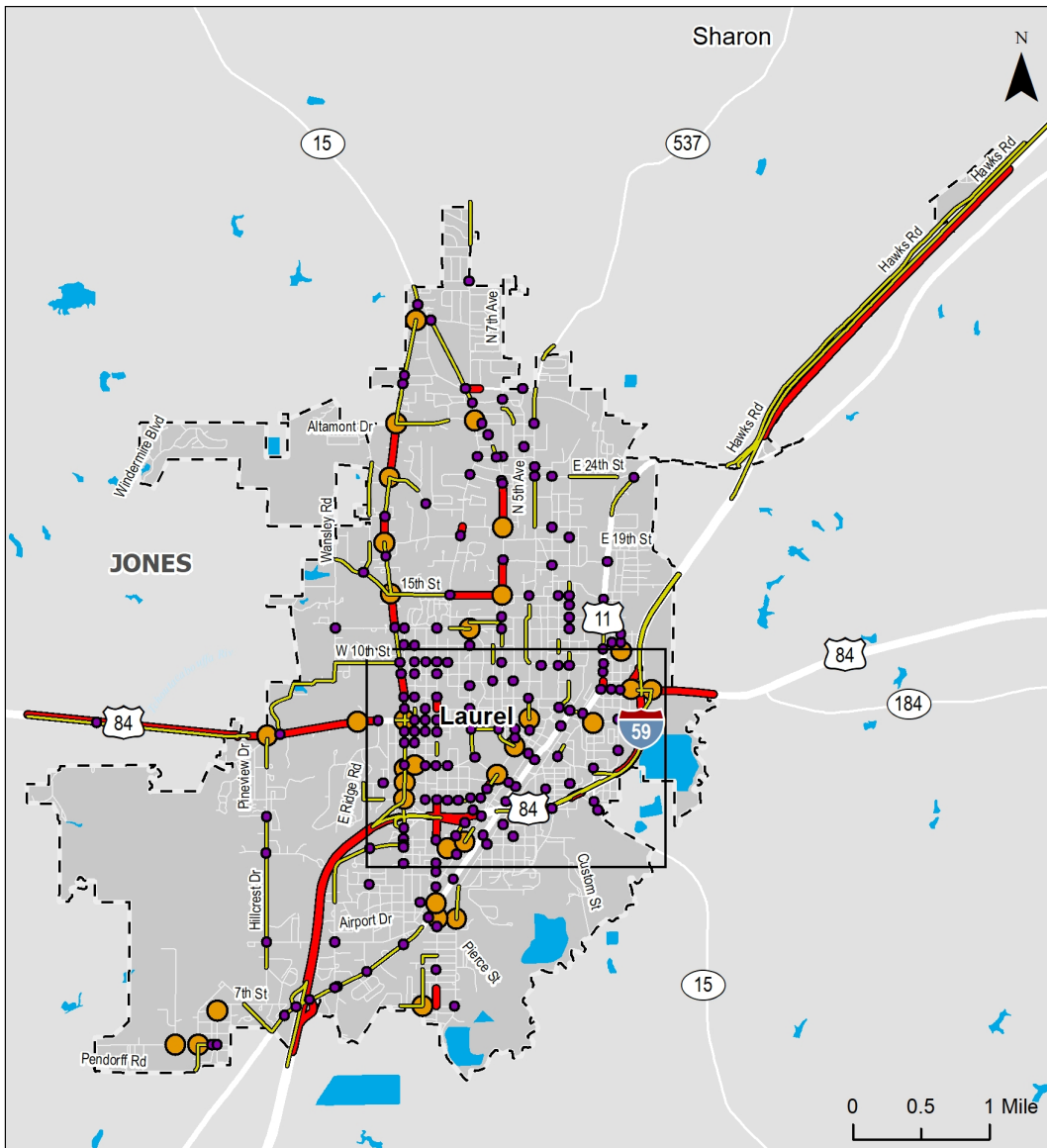
Vulnerable Road Users HIN

The vulnerable road users HIN consists of segments and intersections that experienced bicycle and pedestrian fatal and serious injury crashes within the study area from 2019 to 2023. Only segments and intersections that experienced at least one (1) fatal or serious injury vulnerable road user crash were considered.

Table 3.6 displays the segment focus areas for the vulnerable users HIN, while **Table 3.7** displays the intersection focus areas for the vulnerable users HIN.

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Figure 3.5: Laurel, MS High Injury Network – All Crashes

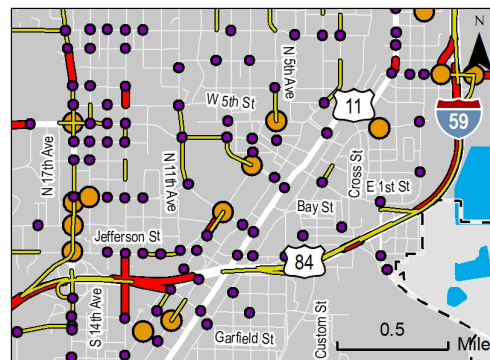


Legend

- Intersections with Fatal and Serious Injury Crashes
- Intersections with Minor and Moderate Injury Crashes
- Segments with Fatal and Serious Injury Crashes
- Segments with Minor and Moderate Injury Crashes
- Laurel City Limits



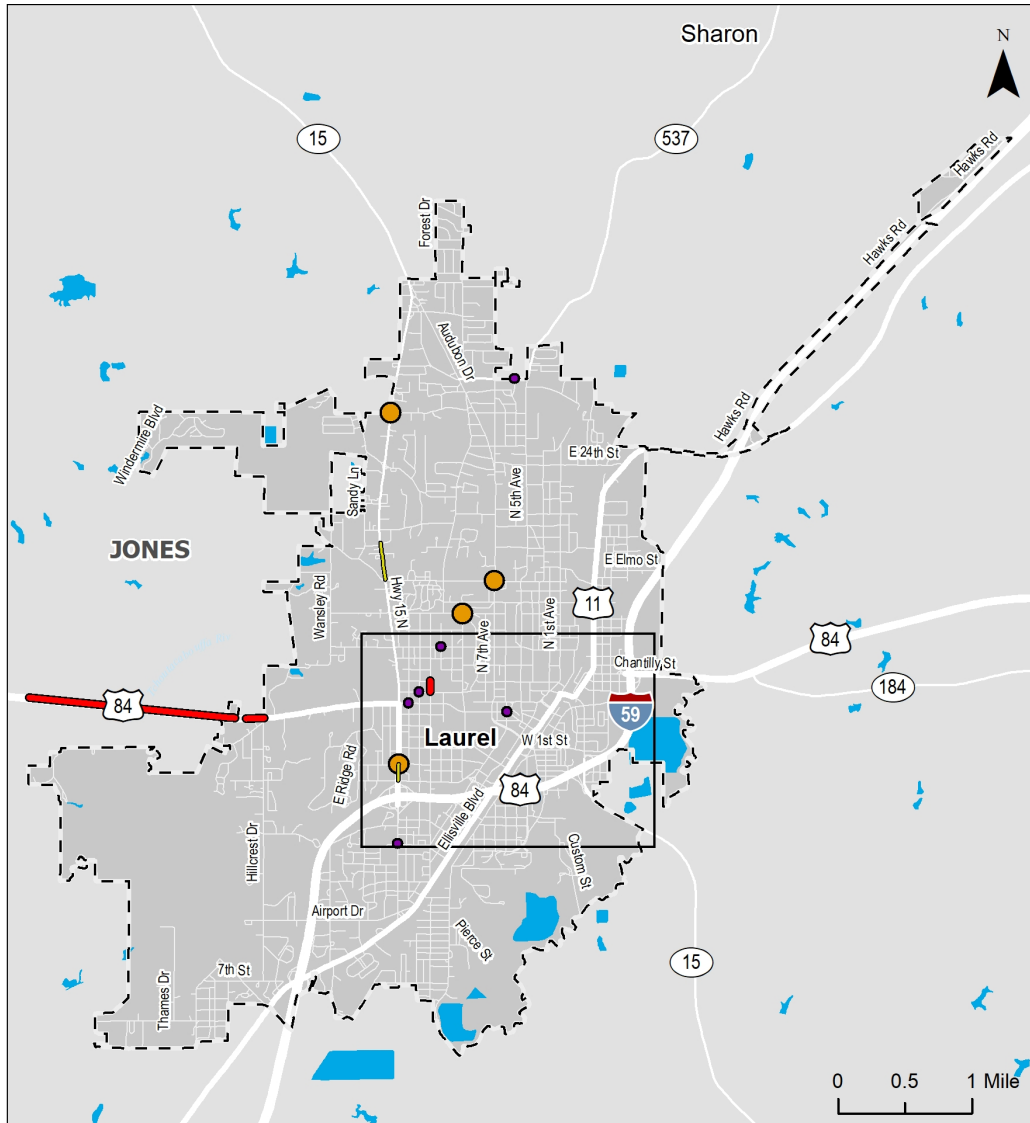
Inset Map



Disclaimer: This map is for planning purposes only.

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Figure 3.6: Laurel, MS High Injury Network – Non-Motorized Users (Bicycle and Pedestrian)

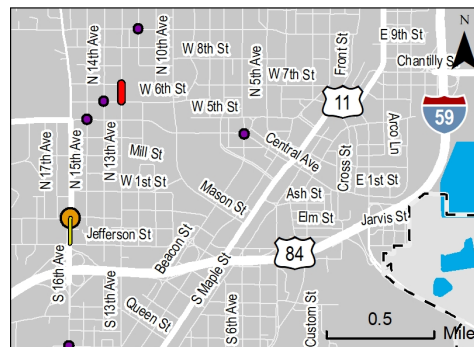


Legend

- Intersections with Non-Motorized Fatal and Serious Injury Crashes
- Intersections with Non-Motorized Minor and Moderate Injury Crashes
- Segments with Non-Motorized Fatal and Serious Injury Crashes
- Segments with Non-Motorized Minor and Moderate Injury Crashes
- Laurel City Limits



Inset Map



Disclaimer: This map is for planning purposes only.

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Table 3.4: Top Fatal and Serious Injury Segments in Laurel, MS 2019-2023

Rank	Roadway	From	To	Location	Functional Classification	ADT	Length (mi)	Fatal Crashes	Serious Injury Crashes
1	MS 15	West 12th Street	West 15th Street	Urban	Principal Arterial	21,617	0.25	0	2
2	MS 15	West 20th Street	Gilbreath Drive	Urban	Principal Arterial	15,352	0.19	0	2
3	I-59 NB	Begin of City Limits	Begin of US 11 Off Ramp	Urban	Interstate	21,950	0.20	0	2
4	MS 15	Old Amy Road	Parker Drive	Urban	Principal Arterial	12,585	0.40	0	2
5	US 84/MS 28	Wansley Road	Country Club Drive	Urban	Minor Arterial	14,091	0.73	0	2
6	I-59 SB	End of US 84/MS 15 On Ramp	Begin of US 11 Off Ramp	Urban	Interstate	22,552	1.30	0	1
7	I-59 NB	On Ramp from US 11	Begin of US 84/MS 15 Off Ramp	Urban	Interstate	22,135	1.52	1	0
8	I-59 SB	End of US 84 On Ramp	Begin of South Cook Avenue Off Ramp	Urban	Interstate	20,721	0.72	0	1
9	US 84	I-59 Off Ramp	End of City Limits	Urban	Principal Arterial	13,111	0.46	0	1
10	MS 15	West 7th Street	West 9th Street	Urban	Principal Arterial	24,443	0.17	0	1
11	I-59 SB	Leontyne Price Boulevard End of On Ramp	Begin of US 84/MS 15 Off Ramp	Urban	Interstate	22,799	0.36	0	1
12	I-59 NB	Begin US 11 Off Ramp	End of NB On Ramp	Urban	Interstate	20,417	0.12	0	1
13	I-59 NB	Begin of US 84/MS 15 Off Ramp	End of US 84/MS 15 On Ramp	Urban	Interstate	16,360	0.18	0	1
14	I-59 NB Off Ramp	I-59	US 11	Urban	Interstate	1,048	0.23	0	1
15	I-59 NB	End of Masonite Drive On Ramp	Begin of US 84/MS 15 Off Ramp	Urban	Interstate	22,190	0.09	1	0
16	I-59 NB	End of US 11 On Ramp	End of City Limits	Urban	Interstate	13,295	2.66	0	1
17	I-59 SB Off Ramp	I-59	US 84	Urban	Interstate	647	0.18	0	1
18	US 84/MS 28 WB	0.22 Miles West of Hillcrest Drive	End of City Limits	Urban	Minor Arterial	7,146	1.54	0	1
19	North 7th Avenue	West 15 Street	West 18th Street	Urban	Minor arterial	2,782	0.26	0	1
20	US 11	Harrison Boulevard	South 13th Avenue	Urban	Principal Arterial	3,398	0.11	0	1

Source: MDOT

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Table 3.5: Top Fatal and Serious Injury Intersections in Laurel, MS 2019-2023

Rank	Roadway	At	Location	Functional Classification	Entering ADT	Fatal Crashes	Serious Injury Crashes
1	MS 15	West 15th Street/Flynt Road	Urban	Principal Arterial	22,006	0	3
2	North 15th Avenue	West 1st Street	Urban	Minor Arterial	1,088	0	3
3	US 84/MS 15	Jefferson Street	Urban	Interstate	26,482	0	2
4	MS 15	Old Amy Road	Urban	Principal Arterial	14,502	0	2
5	MS 15	West 20th Street	Urban	Principal Arterial	16,236	0	2
6	MS 15	Bush Dairy Road	Urban	Principal Arterial	11,215	1	1
7	Leontyne Price Boulevard	Queen Street	Urban	Major Collector	1,012	0	2
8	North 7th Avenue	west 15th Street	Urban	Minor Arterial	5,315	0	2
9	South 13th Avenue	Lee Street	Urban	Principal Arterial	1,583	0	2
10	US 84/MS 28	MS 15	Urban	Principal Arterial	35,384	0	1
11	US 84/MS 15	Congress Street	Urban	Principal Arterial	24,583	1	0
12	US 84	I-59 NB Off Ramp	Urban	Interstate	13,889	0	1
13	Leontyne Price Boulevard	Mason Street	Urban	Minor Arterial	6,259	0	1
14	MS 15	Parker Drive	Urban	Principal Arterial	12,905	0	1
15	US 84/MS 28	Hillcrest Drive	Urban	Minor Arterial	16,061	0	1
16	Industrial Boulevard	Avenue A	Urban	Local	3,096	0	1
17	US 84	I-59 SB Off Ramp	Urban	Interstate	7,066	0	1
18	US 84/MS 15	West 1st Street	Urban	Principal Arterial	24,579	0	1
19	Industrial Boulevard	Thames Drive	Urban	Local	2,092	0	1
20	Leontyne Price Boulevard	Carroll Gartin Boulevard	Urban	Minor Arterial	3,508	0	1

Source: MDOT

Table 3.6: Top Fatal and Serious Injury Vulnerable User Crash Segments in Laurel, MS 2019 - 2023

Rank	Roadway	From	To	Location	Functional Classification	ADT	Length (mi)	Fatal Crashes	Serious Injury Crashes
1	US 84/MS 28 WB	0.22 Miles West	End of City Limits	Urban	Minor Arterial	7,146	1.54	0	1
2	US 84/MS 28	0.14 Miles West	Hillcrest Drive	Urban	Minor Arterial	14,823	0.14	1	0
3	North 13th Avenue	West 6th Street	West 7th Street	Urban	Major Collector	1,091	0.08	0	1

Source: MDOT

Table 3.7: Top Fatal and Serious Injury Vulnerable User Crash Intersections in Laurel, MS 2019 - 2023

Rank	Roadway	At	Location	Functional Classification	Entering ADT	Fatal Crashes	Serious Injury Crashes
1	US 84/MS 15	Congress Street	Urban	Principal Arterial	24,583	1	0
2	North 10th Avenue	West 12th Street	Urban	Minor Arterial	1710	1	0
3	North 7th Avenue	west 15th Street	Urban	Minor Arterial	5,315	0	2
4	MS 15	Parker Drive	Urban	Principal Arterial	12,905	0	1

Source: MDOT

4.0 Underserved Communities

The SS4A Notice of Funding Opportunity defines an Underserved Community consistent with the definition of an Area of Persistent Poverty in the Infrastructure Investment and Jobs Act as follows:

1. Any county or equivalent jurisdiction in which, during the 30-year period, lived in poverty, as measured by
 - The 1990 decennial Census
 - The 2000 decennial Census, and
 - The most recent annual small area income and poverty estimate of the Bureau of the Census
2. Any Census tract with a poverty rate of not less than 20 percent, as measured by the 5-year data series available from the American Community Survey of the Bureau of the Census for the period of 2014 through 2018, and
3. Any territory or possession of the United States

Underserved communities within Laurel are highlighted in the image below. As can be seen in the image, the majority of Laurel is considered an underserved community.

More resources for underserved communities can be found at:

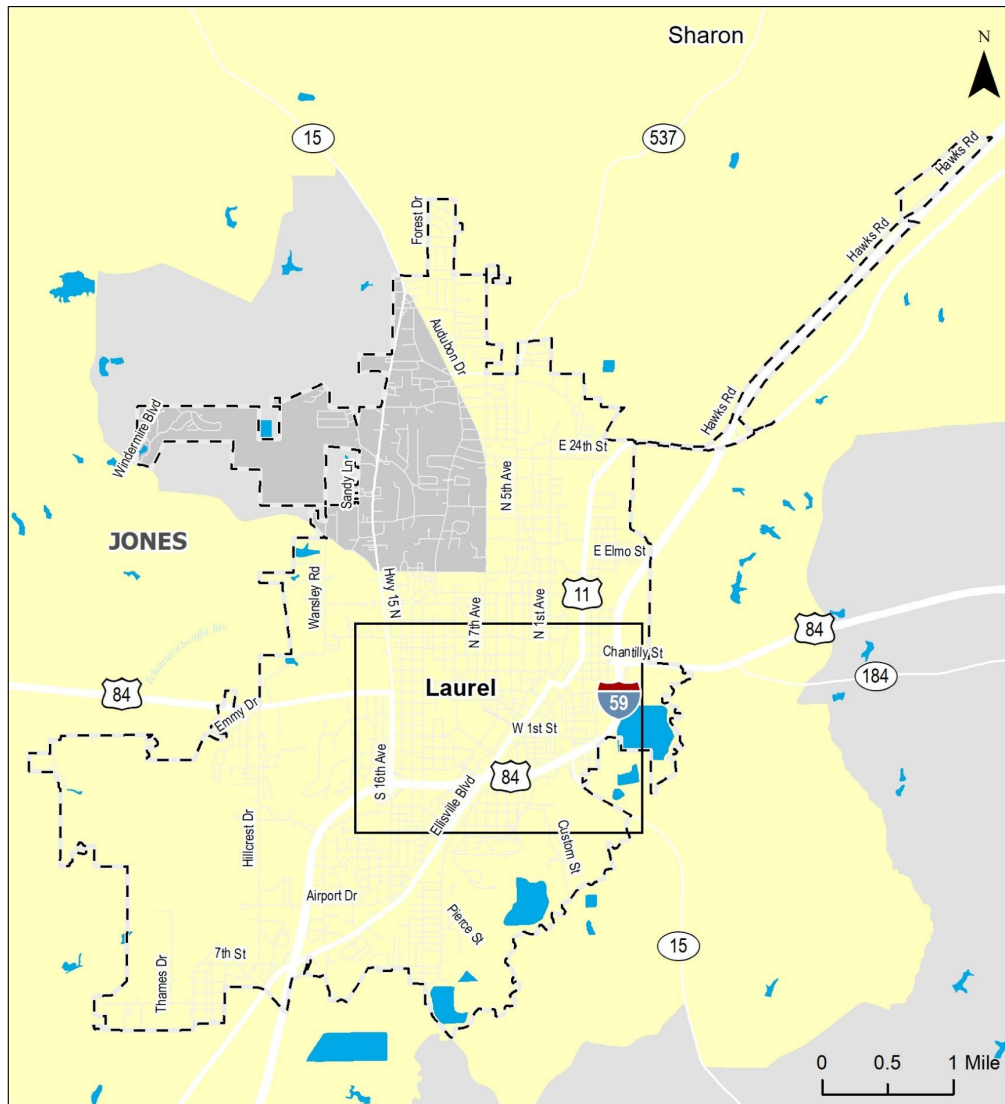
<https://www.census.gov/library/publications/2023/acs/acs-51.html>

<https://www.transportation.gov/grants/mpdg-areas-persistent-poverty-and-historically-disadvantaged-communities>

<https://www.transportation.gov/BUILDgrants/location-designations>

Safe Streets & Roads for All (SS4A) Safety Action Plan

Figure 4.1: Underserved Communities



Legend

- Underserved Communities*
- Laurel City Limits

*Data Source: SS4A Underserved Communities Tool
(Accessed 06/24/25)



Inset Map



Disclaimer: This map is for planning purposes only.

5.0 Engagement and Collaboration

5.1 Planning Structure

The SS4A Safety Action Plan was developed collaboratively with Laurel residents and stakeholders and, as such, is holistic in nature. Collaboration was achieved through various proactive public involvement activities based on best practices recommended by the Federal Highway Administration and tailored to meet the needs of the people.

During plan development, Laurel officials encouraged input not only from stakeholder groups, organizations, and individuals who routinely participate in the City’s planning initiatives, but also from diverse groups of people in marginalized and often underrepresented communities. The following underrepresented communities within Laurel were considered when outreach activities were developed:

- Persons 65 years of age or older
- Households without a vehicle
- Minority populations
- Low-income populations
- Persons with disabilities

A general timeline of outreach activities is provided below.

Table 5.5.1: Outreach Activities Timeline

Phase	Date	Focus/Activity
VISIONING: Listen and Learn	March/June 2025	MetroQuest Survey Website Steering Committee/Stakeholder meetings Electronic notifications Engagement events
REVIEW: Draft Plan	March 2026	Draft plan review and comment Steering Committee/Stakeholder meetings Electronic notifications
FINAL PLAN	March 2026	Laurel SS4A Safety Action Plan completed and made available for public information

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Steering Committee

A Steering Committee, comprised of Laurel local elected officials and other stakeholders, helped guide study development by bringing to the table knowledge of local roadways, pedestrian and biking needs, and safety issues. Each member provided valuable insights that helped shape the study process.

Steering Committee members were:

- Johnny Magee – Laurel Mayor
- Tim Barksdale – Laurel Parks and Recreation
- Tony Wheat – Laurel Director of Public Works
- Liquita Wilson – Laurel Safety Coordinator
- Sandra Hadley - Laurel Superintendent of Inspection Department

5.1 Communications

The public involvement activities for the Safety Action Plan were conducted in two phases. Detailed information about each phase is provided below.

1. VISIONING PHASE – Listen and Learn

Goal:

- Introduce the proposed Laurel Safety Action Plan study
- Gather feedback to help identify an overall vision, goals and transportation safety concerns from the community

2. REVIEW PHASE – Review Draft Safety Action Plan

Goal:

- Present recommendations in the form of a draft Safety Action Plan
- Provide opportunities for public comment before plan finalization

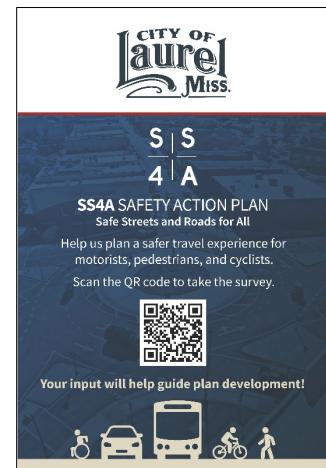
Safe Streets & Roads for All (SS4A) Safety Action Plan

Laurel city officials developed a strong visual identity that supported recognition and credibility of engagement opportunities during both phases of outreach. This branding was carried throughout all engagement materials and served to quickly identify the easy-to-understand information developed for both electronic and hard copy distribution.

Notification via email was an important part of outreach. Emails containing Safety Action Plan information were sent to city stakeholders and other interested individuals. Key stakeholders included elected and non-elected officials, public agencies, community leaders, and advocates for bicycle and pedestrian facilities. The emails were timed to coincide with significant milestones and served to inform and provide helpful information on ways to be engaged.

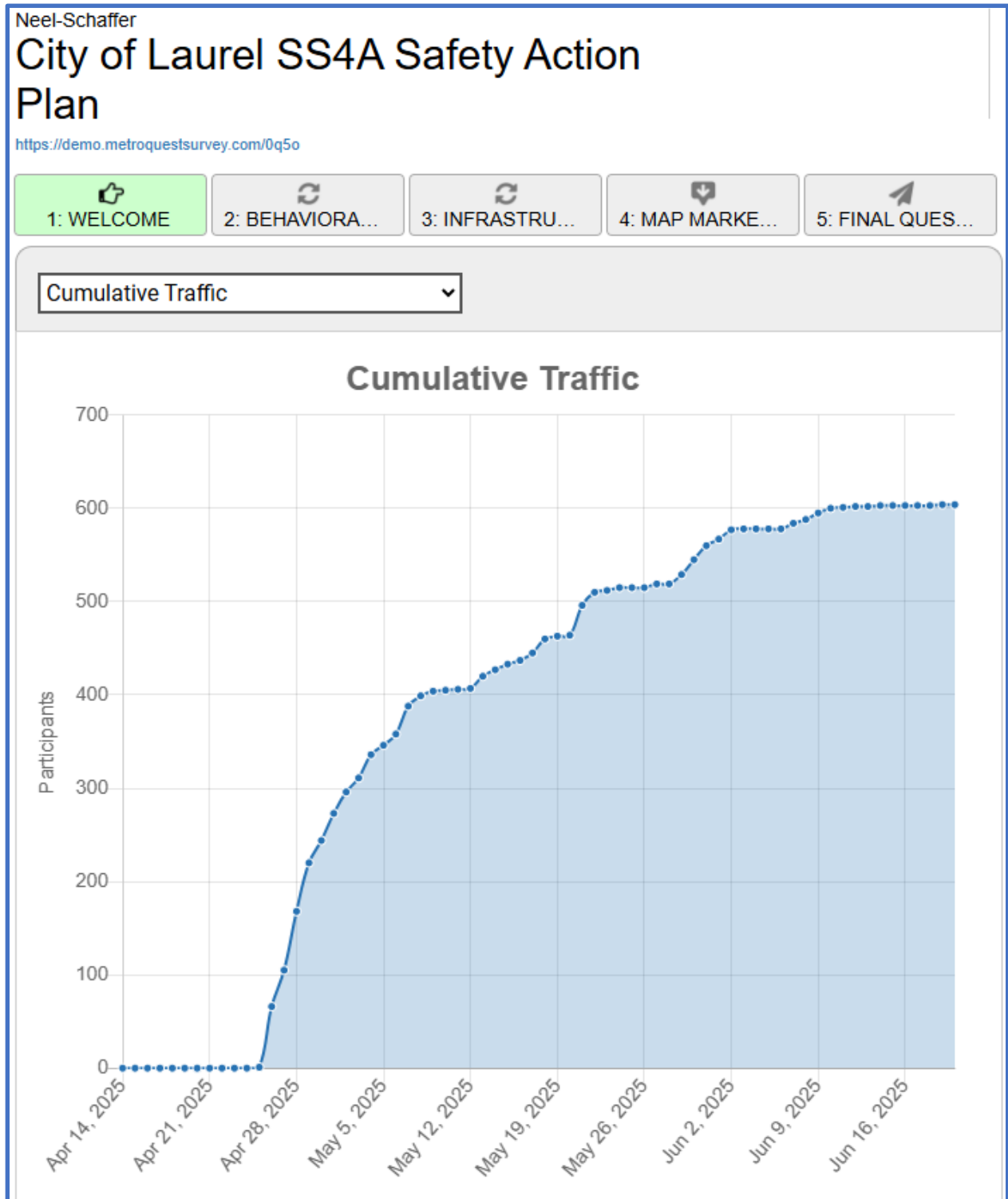
City officials created the following landing page associated with Laurel’s website: [Maps and Plans - Laurel, MS](#). This page was available throughout the study process and contained information about the Safety Action Plan’s purpose and need. Access to an online survey was also provided on the city’s landing page.

Results from the online survey are presented below:



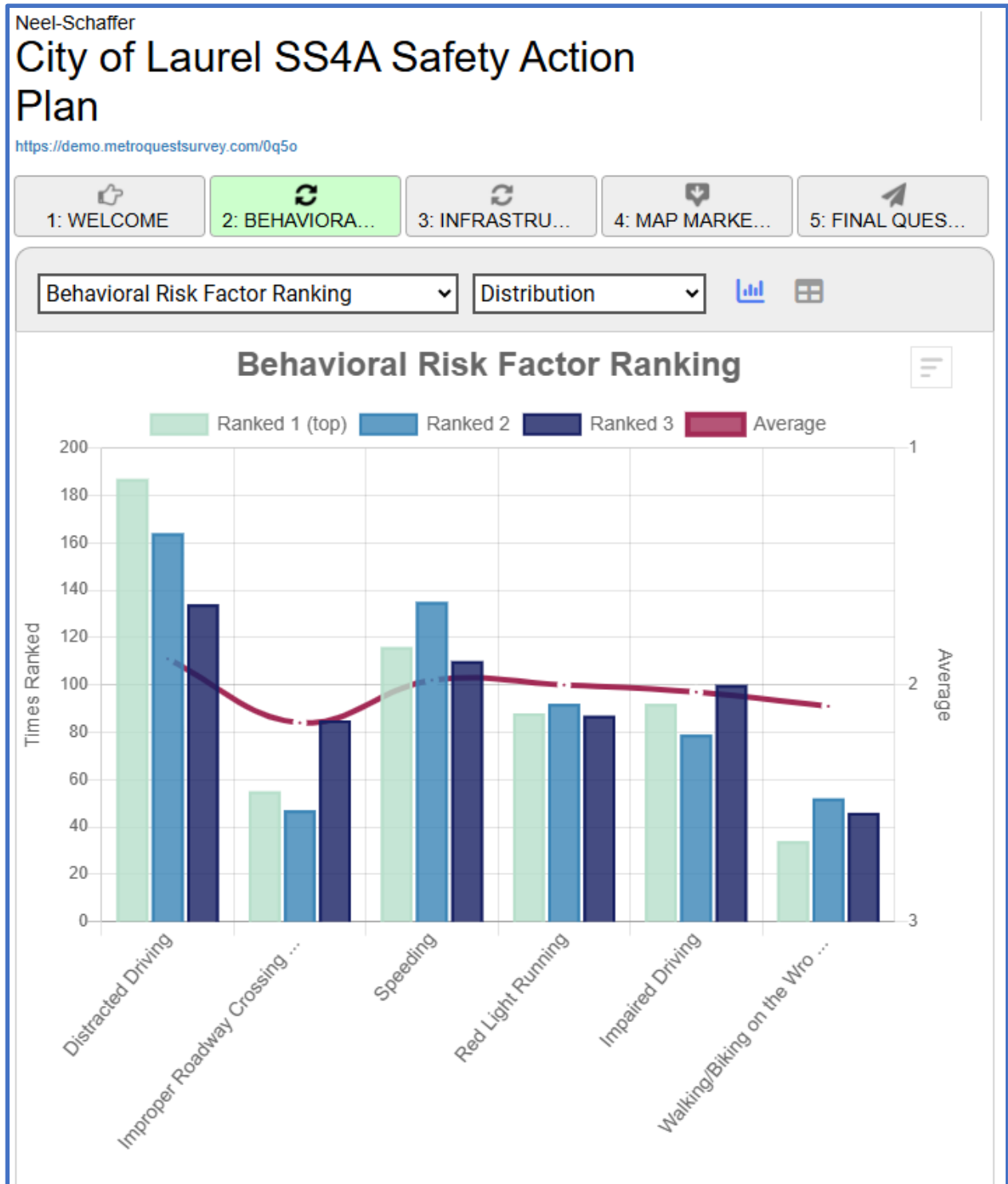
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Figure 5.1: Number of Total Survey Participants



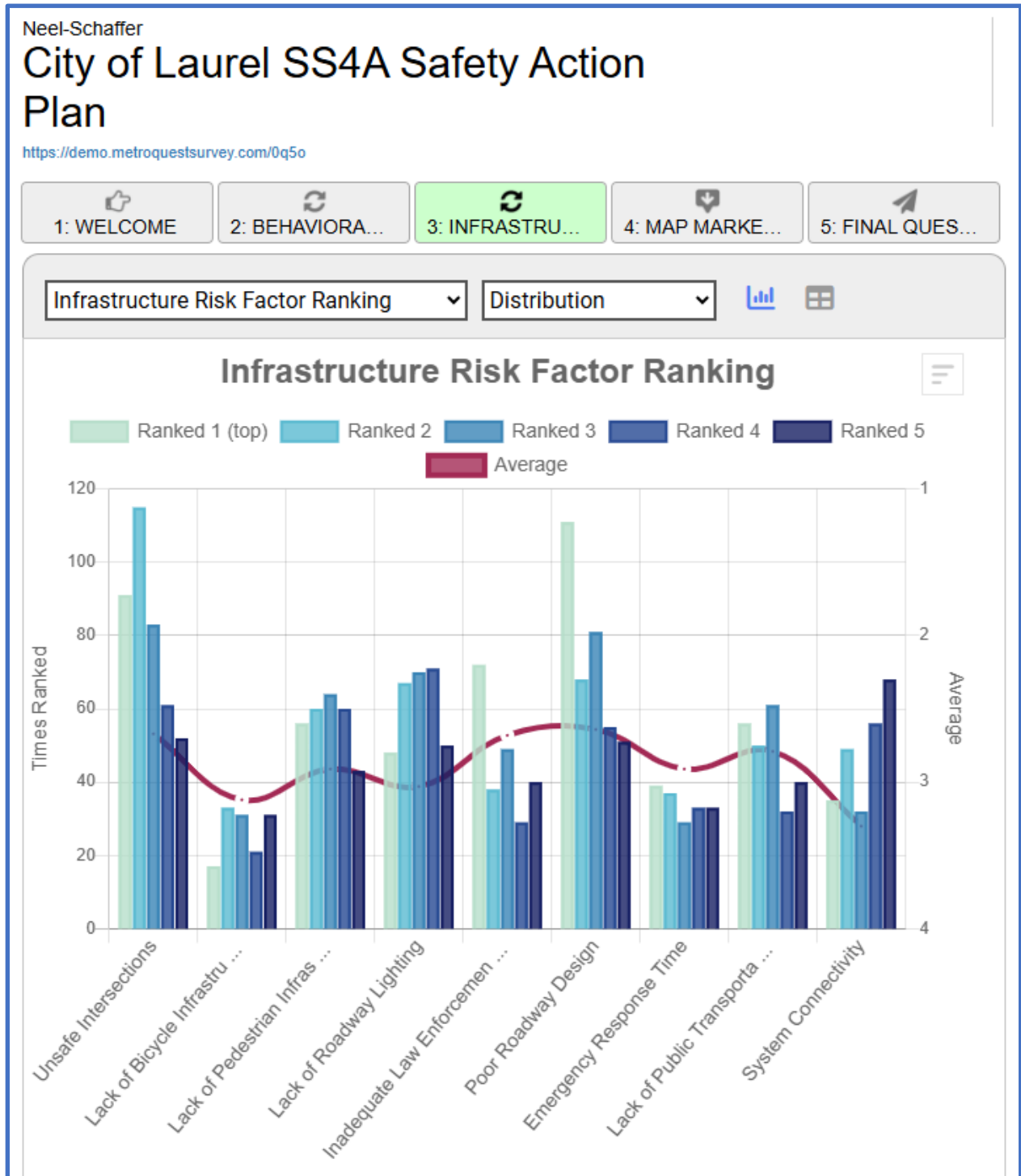
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Figure 5.2: Behavioral Risk Factor Ranking



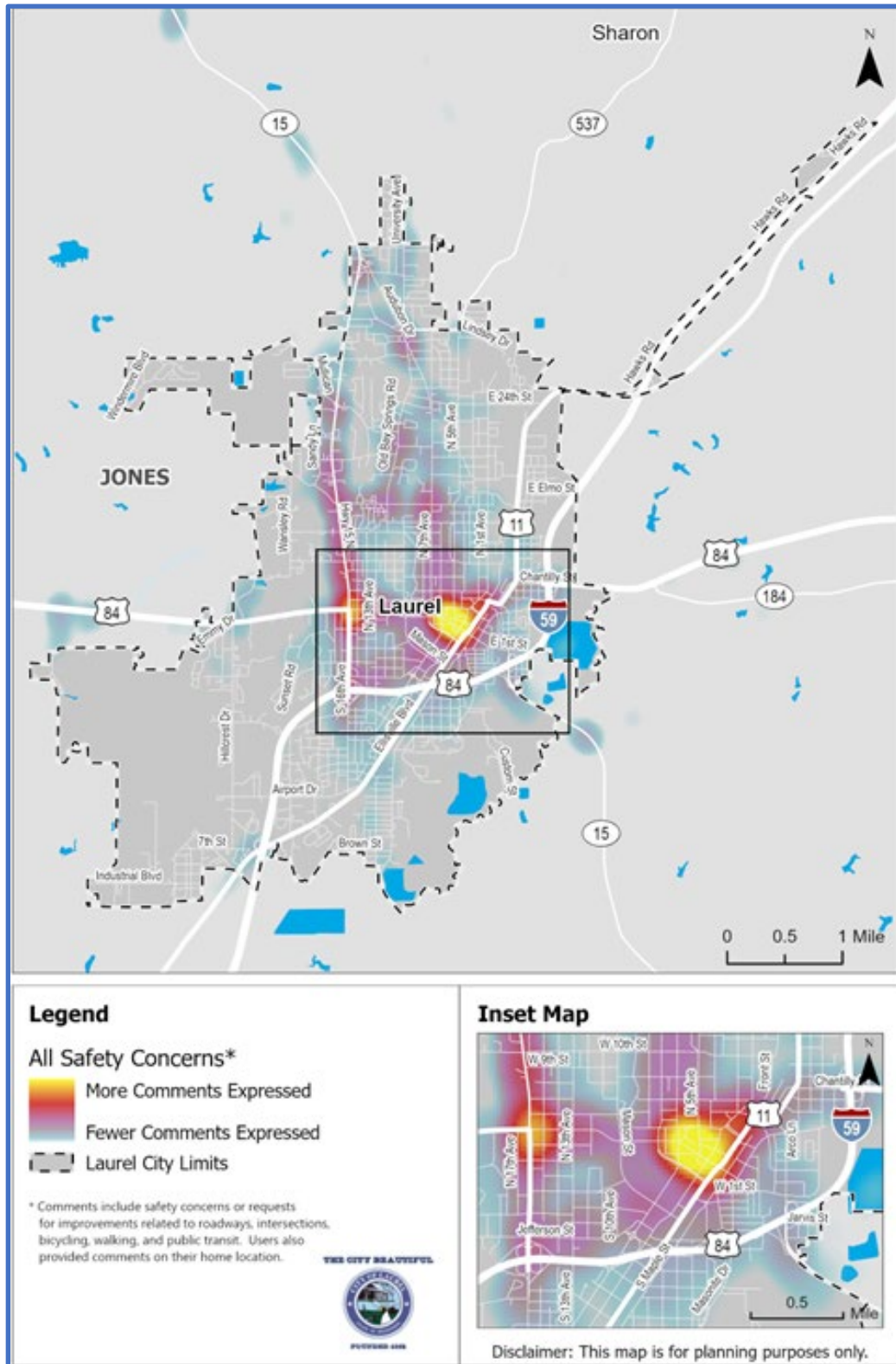
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Figure 5.3: Infrastructure Risk Factor Ranking



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Figure 5.4: Online Survey All Safety Concerns Heat Map



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Social Media

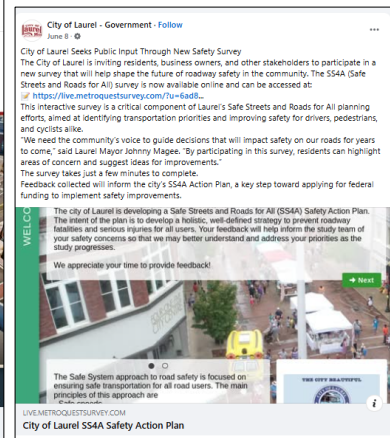
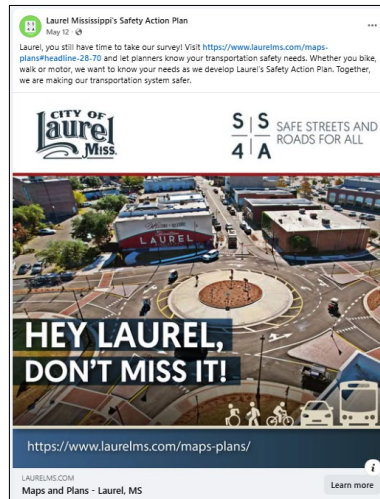
The City of Laurel utilized social media to help ensure all people were provided with opportunities to learn about and participate in the Safety Action Plan study. Posts were made on the City's Facebook platform in conjunction with "boosted" or paid advertising posts made by the consultant team.

When the boosted ads were placed, special efforts were made to include underrepresented communities. This was accomplished by utilizing geo-fencing. Geo-fencing targets specific segments of the population based on demographics. Segments targeted for this project included gender, age, race, and income, as well as those with specific transportation-related interests, such as biking.

The first three boosted posts, sent on April 25, May 12, and May 29, 2025, coincided with key milestones within the Visioning Phase. They served to introduce the study and invite people to take the Safety Action Plan survey. Each post contained the project

webpage URL where more information could be found. The three ads received a total of 53,007 views, which generated 29,167 interactions and 1,696 link clicks.

The last phase was the review phase which allowed interested parties to review and comment on the draft Safety Action Plan.



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Text Messaging

Text message marketing is a powerful way to target smart phone owners. It is helpful in engaging diverse groups of individuals from within a given area. On April 28, 2025, smart phone owners with an annual income of \$50,000 or less were targeted and received the following text message:

Hey Laurel! We'd like to hear your transportation safety concerns. Take our short survey & help guide plans for improving the city's streets and roads! <https://metroquestsurvey.com/6ad8>



The text message reached 4,707 individuals and generated 344 clicks on the MetroQuest survey link.

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In-Person Engagement Events

The City of Laurel participated in two in-person engagement events. Interested individuals were provided opportunities to gain understanding of the study, ask questions, and give input that would assist in the development of the Safety Action Plan. People were encouraged to participate by accessing the online survey.

Laurel's Crawfest | April 26, 2025

The Laurel Crawfest provided an excellent opportunity for one-on-one interactions with interested individuals about Laurel's Safety Action Plan study. The outreach team provided a quick explanation of the purpose of the study and invited people to be engaged by scanning a Quick Response (QR) code with their smart phone to take the MetroQuest online survey. The QR code was printed on business cards that people could take with them and pass along to others. Approximately 300 business cards were received by the public.



Live in Laurel | May 17, 2025

During the Live in Laurel event, an estimated 250 business cards were given to event attendees and placed within area businesses.



6.0 Strategy and Project Selections

6.1 Safe System Approach

The FHWA² states that:

“Reaching zero deaths requires the implementation of a Safe System approach, which was founded on the principles that humans make mistakes and that human bodies have limited ability to tolerate crash impacts. In a Safe System, those mistakes should never lead to death. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake leads to a crash, the impact on the human body doesn’t result in a fatality or serious injury. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity.

There are six principles that form the basis of the Safe System approach: deaths and serious injuries are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial.”

Safe System Elements

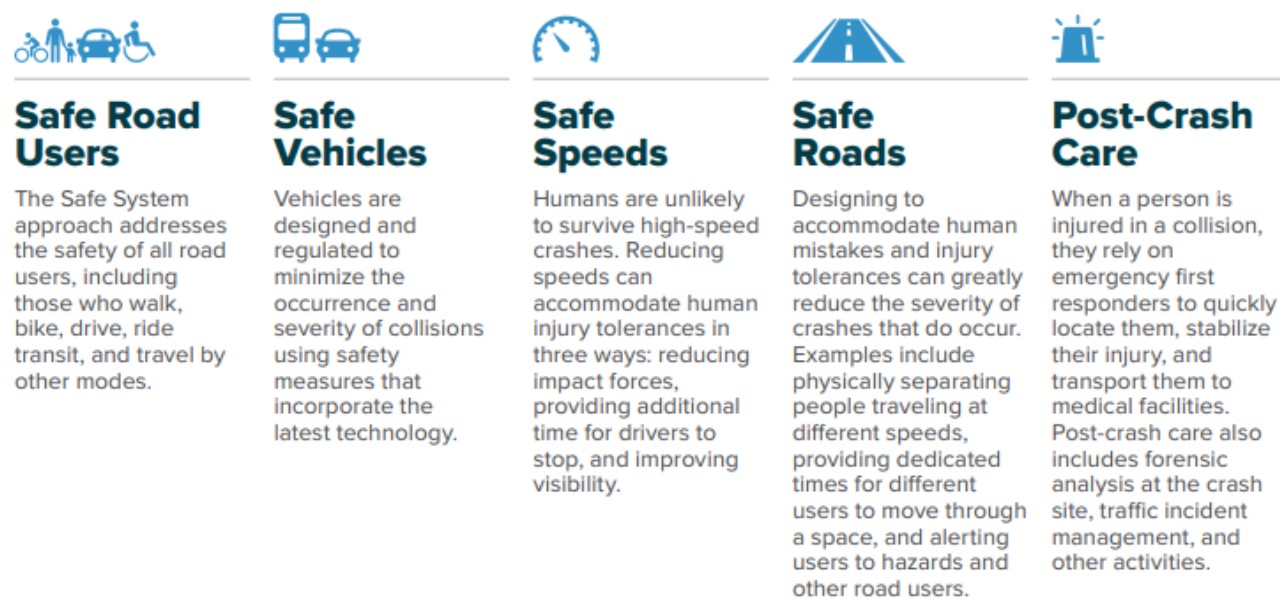
The FHWA defines five (5) elements that comprise a Safe System Approach. These are safe roads, safe people, safe speeds, safe vehicles, and post-crash care. These can be seen in **Figure 6.1**.



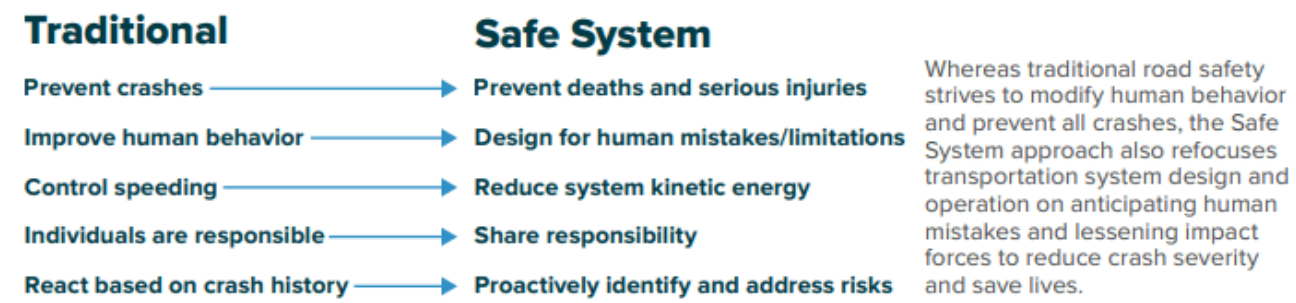
² [Zero Deaths and Safe System | FHWA \(dot.gov\)](https://www.fhwa.dot.gov/safety/zero-deaths-and-safe-system/)

Safe Streets & Roads for All (SS4A) Safety Action Plan

Figure 6.1: Safe System Approach Elements



THE SAFE SYSTEM APPROACH VS. TRADITIONAL ROAD SAFETY PRACTICES



Source: FHWA

6.2 Proposed Local Infrastructure Projects

Project Location Development

A preliminary list of safety project locations was developed for several modes of transportation. The list included:

- Projects requested through public outreach comments
- Projects requested by the City of Laurel
- Projects identified based on the results of the technical crash analysis
- Projects identified in existing plans

The proposed project locations are displayed with the results of the project prioritization process (Section 6.3) in **Table 6.2**. Short-term projects are 0-3 years while mid-term projects are 4-6 years. None of the projects were considered long-term (more than 6 years).

Estimating Project Costs

Order of magnitude cost estimates for potential safety projects, in 2023 dollars, were estimated using average unit cost from various projects bid from 2022-2023. It should be noted that:

- Quantities are based on typical conditions for each improvement type.
- Costs associated with the purchasing of right-of-way, utility relocations, and engineering fees were estimated based on a percentage of the total construction cost.
- An additional contingency amount, 20 percent, was added to the overall improvement cost to account for unexpected costs that arise with projects.

The typical cost estimates for various types of improvements are shown in **Table 6.1**.

6.3 Project Prioritization

Safety projects were prioritized by a variety of factors. **Table 6.2** shows the criteria and weights that were utilized to prioritize the identified projects. This methodology is intended to support the previously stated goals and objectives and was developed using input received during Phase 1 of the public outreach.

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Table 6.1: Typical Project Costs

Improvement Type	Unit	Unit Cost
Single Lane Roundabout*	Each	\$2,900,000
Left Turn Lane*	Each	\$665,000
Right Turn Lane*	Each	\$225,000
Rumble Strip (Centerline)	Mile	\$2,100
Rumble Strip (Shoulder)	Mile	\$1,125
Advance Warning Signs	Sq. Ft	\$40
Advance Warning Signs	Each	\$350
5' Sidewalk (Concrete)	Mile	\$500,000
5' Sidewalk (Asphalt)	Mile	\$250,000
10' Multiuse Path (Concrete)	Mile	\$1,000,000
10' Multiuse Path (Asphalt)	Mile	\$500,000
Bike Lane (Striping Only)	Mile	\$10,000
Bike Lane (New Pavement - Concrete) *	Mile	\$1,000,000
Bike Lane (New Pavement - Asphalt) *	Mile	\$950,000
12' Lane (Concrete)*	Mile	\$4,600,000
12' Lane (Asphalt)*	Mile	\$3,100,000
Pavement Patching	Sq. Yd	\$70
Pavement Markings	Sq. Ft	\$2
8' Shoulder (Asphalt)*	Mile	\$2,100,000
8' Shoulder (Concrete)*	Mile	\$3,100,000
Cross Walk (Striping)	Each	\$1,500
Raised Median	Sq. Yd	\$215
Traffic Signal (Re-Timing)	Intersection	\$5,000
Traffic Signal Installation	Intersection	\$200,000
Intersection Lighting	Each	\$25,000
ADA Curb Ramp	Each	\$5,000
2" Asphalt Milling/Overlay - 2 Lane Road	Mile	\$400,000

*Includes Engineering, ROW, and Utility Relocation

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Table 6.2: Project Prioritization Criteria

Criterion	Rationale	Measure	Scoring Scale (Points Possible)					
			0	5	10	15	20	
Crash Severity	Prioritize projects that will address fatalities and serious injuries.	Total number of fatal and serious injuries over a 5-year period.	No fatal or serious injury crashes	1 or 2 serious injury crashes	1 fatal crash OR 3 fatal and serious injury crashes	2 fatal crashes OR 4 fatal and serious injury crashes	3 or more fatal crashes OR 5 or more fatal and serious injury crashes	20
Multimodal	Prioritize projects that address safety concerns involving more than one mode of travel.	Total number of non-motorized fatal and serious injuries over a 5-year period.	No fatal or serious injury non-motorized crashes	N/A	1 serious injury non-motorized crash	2 or More serious injury non-motorized crashes	1 or More fatal non-motorized crashes	20
Focus Areas	Prioritize projects that will address high crash frequency locations.	Annual crash frequency.	Fewer than 5 annual crashes	5 >= annual crashes <20	20 >= annual crashes <30	30 or more annual crashes		15
Underserved Communities	Prioritize projects that benefit underserved communities	Project is located in an underserved community as identified in the SS4A Underserved Communities Tool	Location is not located within an underserved community	N/A	Location is located within an Underserved Community	N/A		10
Infrastructure	Prioritize projects that affect concerns regarding infrastructure.	Project has potential to address the ranked infrastructure concerns expressed during public outreach.	Project does not address higher tier infrastructure concerns.	Project improves roadway lighting OR increases law enforcement presence OR adds system connectivity	Project redesigns roadways OR improves intersections OR adds pedestrian infrastructure			10
Local-City Priority	Prioritize projects that support local and city concerns	Projects identified by public and city input and ranked for priority	Project had a combined score of low	Project had a combined score of medium-low	Project had a combined score of medium	Project had a combined score of high or medium-high		10
Public Concerns	Prioritize projects that the general public has proposed.	Project was derived from, or seconded by, public input.	Project not derived from public input.	Project derived from public input.	Project came from general public AND is on a Top 10 Focus Area.			10
								95

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Table 6.3: Top Location Prioritization Scores

ID	Type	Source	Roadway Name	From/At	To	Improvement	Length (mi)	Cost	Timeframe	Local Priority	Total Prioritization Score	Local-City Priority	Crash Severity Score	Multimodal Score	Focus Areas Score	Equity Score	Infrastructure Score	Public Concerns Score	Existing Plans
I-BP-02	Intersection-Bike/Ped	Technical Analysis	North 10th Avenue	West 12th Street	-	1. Pedestrian facility improvements (crosswalks, RRFB)	-	\$26,000	Short	High	65	10	10	20	0	10	10	0	5
I-O-10	Intersection-overall	Technical Analysis	US 84/MS 28	MS 15	-	1. Intersection safety study	-	\$50,000	Short	High	55	15	5	0	10	10	10	0	5
I-O-11	Intersection-overall	Technical Analysis	US 84/MS 15	Congress Street	-	MDOT has a project at this location	-		Short	Low	55	0	10	20	5	10	10	0	0
I-BP-01	Intersection-Bike/Ped	Technical Analysis	US 84/MS 15	Congress Street	-	MDOT has a project at this location	-		Short	Low	55	0	10	20	5	10	10	0	0
I-BP-03	Intersection-Bike/Ped	Technical Analysis	North 7th Avenue	west 15th Street	-	1. Improve sight distance 2. Pedestrian facility improvement (crosswalks, sidewalks)	-	\$88,000	Short	High	55	15	5	10	5	10	10	0	0
S-BP-02	Segment-Bike/Ped	Technical Analysis	US 84/MS 28	0.14 Miles West of Hillcrest Drive	Hillcrest Drive	1. Safety study	0.14	\$50,000	Short	Low	50	0	10	20	0	10	10	0	0
I-O-01	Intersection-overall	Technical Analysis	MS 15	West 15th Street/Flynt Road	-	1. Repaint pavement markings 2. Driveway relocation	-	\$9,000	Short	High	50	15	10	0	5	10	10	0	0
I-O-08	Intersection-overall	Technical Analysis	North 7th Avenue	west 15th Street	-	1. Improve sight distance 2. Pedestrian facility improvement (crosswalks, sidewalks)	-	\$26,000	Short	Medium	50	10	5	10	5	10	10	0	0
S-O-01	Segment-Overall	Technical Analysis	MS 15	West 12th Street	West 15th Street	1. Safety study 2. Raised Median	0.25	\$539,125	Medium	High	45	15	5	0	5	10	10	0	0
S-O-02	Segment-Overall	Technical Analysis	MS 15	West 20th Street	Gilbreath Drive	1. Raised Median	0.19	\$376,250	Medium	High	45	15	5	0	5	10	10	0	0
S-O-18	Segment-Overall	Technical Analysis	US 84/MS 28 WB	0.22 Miles West of Hillcrest Drive	End of City Limits	1. Improve lighting at median openings	1.54	\$75,000	Short	Medium	45	10	5	10	0	10	10	0	0
S-BP-01	Segment-Bike/Ped	Technical Analysis	US 84/MS 28 WB	0.22 Miles West of Hillcrest Drive	End of City Limits	1. Improve lighting at median openings	1.54	\$75,000	Short	Medium	45	10	5	10	0	10	10	0	0
S-BP-03	Segment-Bike/Ped	Technical Analysis	North 13th Avenue	West 6th Street	West 7th Street	1. Add bike lane (Striping only) 2. Improve lighting	0.08	\$25,600	Short	High	45	10	5	10	0	10	10	0	0
I-O-03	Intersection-overall	Technical Analysis	US 84/MS 15	Jefferson Street	-	1. Improve lighting 2. Repaint pavement markings 3. Intersection safety study	-	\$152,000	Short	Medium	45	10	5	0	10	10	10	0	0
S-O-09	Segment-Overall	Technical Analysis	US 84	I-59 Off Ramp	End of City Limits	1. Improve lighting	0.46	\$200,000	Short	Medium	40	10	5	0	5	10	10	0	0

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ID	Type	Source	Roadway Name	From/At	To	Improvement	Length (mi)	Cost	Timeframe	Local Priority	Total Prioritization Score	Local-City Priority	Crash Severity Score	Multimodal Score	Focus Areas Score	Equity Score	Infrastructure Score	Public Concerns Score	Existing Plans
S-O-10	Segment-Overall	Technical Analysis	MS 15	West 7th Street	West 9th Street	1. Safety study	0.17	\$50,000	Short	High	40	15	5	0	0	10	10	0	0
I-O-09	Intersection-overall	Technical Analysis	South 13th Avenue	Lee Street	-	1. Pavement markings	-	\$800	Short	High	40	10	5	0	5	10	10	0	0
I-BP-04	Intersection-Bike/Ped	Technical Analysis	MS 15	Parker Drive	-	1. Pedestrian facility improvement. 2. Safety study	-	\$50,000	Short	High	40	10	5	10	5	0	10	0	0
S-O-05	Segment-Overall	Technical Analysis	US 84/MS 28	Wansley Road	Country Club Drive	1. Improve lighting	0.73	\$200,000	Short	High	35	10	5	0	0	10	10	0	0
S-O-19	Segment-Overall	Technical Analysis	North 7th Avenue	West 15 Street	West 18th Street	1. Safety study	0.26	\$50,000	Short	Low	35	10	5	0	0	10	10	0	0
I-O-02	Intersection-overall	Technical Analysis	North 15th Avenue	West 1st Street	-	1. Improve lighting 2. Repaint pavement markings 3. Doubled-up (left and right), oversized advance intersection warning signs on through approach 4. Retro reflective doubled-up (left and right), oversized Stop signs.	-	\$104,200	Short	Low	35	0	10	0	5	10	10	0	0
I-O-06	Intersection-overall	Technical Analysis	MS 15	Bush Dairy Road	-	1. Pavement markings	-	\$1,600	Short	Medium	35	10	10	0	5	0	10	0	0
I-O-12	Intersection-overall	Technical Analysis	US 84	I-59 NB Off Ramp	-	1. Safety study 2. Modify channelized island (right turn)	-	\$50,000	Short	Medium	35	10	5	0	0	10	10	0	0
I-O-13	Intersection-overall	Technical Analysis	Leontyne Price Boulevard	Mason Street	-	1. Safety study	-	\$50,000	Short	Low	35	5	5	0	5	10	10	0	0
I-O-17	Intersection-overall	Technical Analysis	US 84	I-59 SB Off Ramp	-	1. Driveway relocation/consolidation	-	\$5,000	Short	High	35	10	5	0	0	10	10	0	0
I-O-18	Intersection-overall	Technical Analysis	US 84/MS 15	West 1st Street	-	1. Install stop sign	-	\$200	Short	High	35	10	5	0	0	10	10	0	0
S-O-03	Segment-Overall	Technical Analysis	I-59 NB	Begin of City Limits	Begin of US 11 Off Ramp	-	0.20	-	-	High	30	10	5	0	5	10	0	0	0
S-O-04	Segment-Overall	Technical Analysis	MS 15	Old Amy Road	Parker Drive	1. Repaint pavement marking	0.40	\$3,200	Short	High	30	15	5	0	0	0	10	0	0
S-O-07	Segment-Overall	Technical Analysis	I-59 NB	On Ramp from US 11	Begin of US 84/MS 15 Off Ramp	-	1.52	-	-	Medium	30	5	10	0	5	10	0	0	0
I-O-04	Intersection-overall	Technical Analysis	MS 15	Old Amy Road	-	1. Channelize island for right turn lane modification 2. Provide channelization lines	-	\$3,200	Short	Medium	30	10	5	0	5	0	10	0	0
I-O-05	Intersection-overall	Technical Analysis	MS 15	West 20th Street	-	1. Pavement markings	-	\$1,600	Short	Medium	30	10	5	0	5	0	10	0	0

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ID	Type	Source	Roadway Name	From/At	To	Improvement	Length (mi)	Cost	Timeframe	Local Priority	Total Prioritization Score	Local-City Priority	Crash Severity Score	Multimodal Score	Focus Areas Score	Equity Score	Infrastructure Score	Public Concerns Score	Existing Plans
I-O-07	Intersection-overall	Technical Analysis	Leontyne Price Boulevard	Queen Street	-	1. Convert to all way stop-controlled intersections	-	\$7,500	Short	Medium	30	5	5	0	0	10	10	0	0
I-O-14	Intersection-overall	Technical Analysis	MS 15	Parker Drive	-	1. Pedestrian facility improvement. 2. Safety study	-	\$50,000	Short	Low	30	0	5	10	5	0	10	0	0
S-O-06	Segment-Overall	Technical Analysis	I-59 SB	End of US 84/MS 15 On Ramp	Begin of US 11 Off Ramp	-	1.30	-	-	Medium	25	5	5	0	5	10	0	0	0
S-O-08	Segment-Overall	Technical Analysis	I-59 SB	End of US 84 On Ramp	Begin of South Cook Avenue Off Ramp	-	0.72	-	-	Medium	25	10	5	0	0	10	0	0	0
S-O-11	Segment-Overall	Technical Analysis	I-59 SB	Leontyne Price Boulevard End of On Ramp	Begin of US 84/MS 15 Off Ramp	-	0.36	-	-	Medium	25	10	5	0	0	10	0	0	0
S-O-17	Segment-Overall	Technical Analysis	I-59 SB Off Ramp	I-59	US 84	-	0.18	-	-	Low	25	0	5	0	0	10	10	0	0
S-O-20	Segment-Overall	Technical Analysis	US 11	Harrison Boulevard	South 13th Avenue	1. Safety study	0.11	\$50,000	Short	Low	25	0	5	0	0	10	10	0	0
I-O-15	Intersection-overall	Technical Analysis	US 84/MS 28	Hillcrest Drive	-	1. Safety study 2. Repaint pavement markings 3. Modify channelized island (right turn)	-	\$51,200	Short	Low	25	0	5	0	0	10	10	0	0
I-O-16	Intersection-overall	Technical Analysis	Industrial Boulevard	Avenue A	-	1. Safety study	-	\$50,000	Short	Low	25	0	5	0	0	10	10	0	0
I-O-19	Intersection-overall	Technical Analysis	Industrial Boulevard	Thames Drive	-	1. Improvement was done on 2024	-	\$0	Short	Low	25	0	5	0	0	10	10	0	0
I-O-20	Intersection-overall	Technical Analysis	Leontyne Price Boulevard	Carroll Gartin Boulevard	-	1. Safety study	-	\$50,000	Short	Low	25	0	5	0	0	10	10	0	0
S-O-15	Segment-Overall	Technical Analysis	I-59 NB	End of Masonite Drive On Ramp	Begin of US 84/MS 15 Off Ramp	-	0.09	-	-	Low	20	0	10	0	0	10	0	0	0
S-O-16	Segment-Overall	Technical Analysis	I-59 NB	End of US 11 On Ramp	End of City Limits	-	2.66	-	-	Medium	20	5	5	0	0	10	0	0	0
S-O-12	Segment-Overall	Technical Analysis	I-59 NB	Begin US 11 Off Ramp	End of NB On Ramp	-	0.12	-	-	Low	15	0	5	0	0	10	0	0	0
S-O-13	Segment-Overall	Technical Analysis	I-59 NB	Begin of US 84/MS 15 Off Ramp	End of US 84/MS 15 On Ramp	-	0.18	-	-	Low	15	0	5	0	0	10	0	0	0
S-O-14	Segment-Overall	Technical Analysis	I-59 NB Off Ramp	I-59	US 11	-	0.23	-	-	Low	15	0	5	0	0	10	0	0	0

6.4 Countermeasure Toolbox

Table 6.4 displays a toolbox of countermeasures that can be used to improve safety within the City of Laurel. A safety study should be conducted at a location to determine which countermeasures are appropriate for the type and severity of crashes experienced at that location. Some countermeasures may be inappropriate at one site yet be the best choice for another site. At times, multiple countermeasures may be necessary. Countermeasures displayed in ***bold italics*** color in **Table 6.4** benefit vulnerable users and underserved communities.

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Table 6.4: Countermeasure Toolbox

Safety Concern	Countermeasure	Pros	Cons
Speeding	<i>Select appropriate speed limits</i>	<ul style="list-style-type: none"> • <i>Low cost</i> • <i>Reduce crash severities</i> • <i>Safer for all roadway users</i> <ul style="list-style-type: none"> • <i>Traffic calming</i> 	<ul style="list-style-type: none"> • <i>Opposition from regular roadway users</i> • <i>Excess violations issued if not implemented properly</i>
	Install speed cameras	<ul style="list-style-type: none"> • Significant reduction in crashes and severities • Increase driver attentiveness 	<ul style="list-style-type: none"> • Opposition from regular roadway users • Needs additional monitoring and enforcement • May encourage improved behavior only where enforcement exists
	Implement variable speed limits	<ul style="list-style-type: none"> • Significant reduction in all crashes and severities • Allow drivers to react to ongoing situations • Assist in maintaining speed and flow during congestion periods, incidents, work zones, and inclement weather 	<ul style="list-style-type: none"> • Inconsistent speeds could create confusion for drivers • Requires additional monitoring, equipment, and maintenance
	<i>Implement pedestrian safety zones</i>	<ul style="list-style-type: none"> • <i>Target full range of pedestrian crash problems</i> • <i>Shown effective in reducing crashes and injuries</i> 	<ul style="list-style-type: none"> • <i>Requires up-front analysis and planning, tailoring, and implementation</i> • <i>Long time to implement</i>
Improve vulnerable roadway users (bicyclist and pedestrian) safety	<i>Add bicycle lanes</i>	<ul style="list-style-type: none"> • <i>Reduce bicycle related crashes</i> 	<ul style="list-style-type: none"> • <i>Requires additional right-of-way</i>
	<i>Implement crosswalk visibility enhancements</i>	<ul style="list-style-type: none"> • <i>Increase pedestrian safety</i> • <i>Encourage pedestrians to cross at designated locations</i> 	<ul style="list-style-type: none"> • <i>Not ideal on high-speed roadways (greater than 45 MPH)</i> • <i>Lighting options are costly</i>

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Safety Concern	Countermeasure	Pros	Cons
	<i>Retime signals to provide a leading pedestrian interval</i>	<ul style="list-style-type: none"> • <i>Low Cost</i> • <i>Increased likelihood of motorists yielding to pedestrians</i> • <i>Enhanced safety for pedestrians with disabilities</i> 	<ul style="list-style-type: none"> • <i>Additional delays for vehicles</i>
	<i>Add medians and pedestrian refuge islands</i>	<ul style="list-style-type: none"> • <i>Safer pedestrian crossings</i> 	<ul style="list-style-type: none"> • <i>Median must be at least four feet wide</i> • <i>Hard to implement at intersections</i>
	<i>Install pedestrian hybrid beacons</i>	<ul style="list-style-type: none"> • <i>Safer pedestrian crossing option on high-volume, high-speed roadways</i> 	<ul style="list-style-type: none"> • <i>Costly</i> • <i>Additional delays/stops for vehicles</i>
	<i>Install Rectangular Rapid Flashing Beacons (RRFB)</i>	<ul style="list-style-type: none"> • <i>Safer pedestrian crossing</i> • <i>Promote motorist yielding to pedestrians</i> • <i>Cheaper than traffic signals</i> 	<ul style="list-style-type: none"> • <i>Not recommended for higher speed roadways (>45 MPH)</i>
	<i>Road Diets</i>	<ul style="list-style-type: none"> • <i>Low Cost</i> • <i>Reduction in lanes allows for additional bicycle and pedestrian features through Complete Streets.</i> <ul style="list-style-type: none"> • <i>Traffic calming</i> 	<ul style="list-style-type: none"> • <i>Not effective on high volume roadways (ADT <20,000)</i> • <i>Roadway capacity reduction</i> • <i>Additional right-of-way required</i>
	<i>Add walkways</i>	<ul style="list-style-type: none"> • <i>Separate pedestrians from the roadway</i> 	<ul style="list-style-type: none"> • <i>Comparatively high cost</i>
Roadway departure	Enhanced delineation for horizontal curves	<ul style="list-style-type: none"> • <i>Low cost</i> • <i>Reduce night-time crashes</i> • <i>Reduce head-on, run-off-road, and sideswipe crashes.</i> • <i>Reduce fatal and injury crashes</i> 	<ul style="list-style-type: none"> • <i>None</i>

Safety Action Plan

Safety Concern	Countermeasure	Pros	Cons
	Longitudinal rumble strips or stripes	<ul style="list-style-type: none"> Center Line Rumble Strips reduce head-on crashes Shoulder Rumble Strips reduce run-off-road crashes Relatively low cost 	<ul style="list-style-type: none"> Noise concerns
	Median barriers	<ul style="list-style-type: none"> Reduce head-on and cross-median crashes 	<ul style="list-style-type: none"> Cost-effectiveness analysis required
	Roadside design improvements at curves	<ul style="list-style-type: none"> Adequate clear zone reduces fixed object crashes Flatten side slopes reduce single-vehicle crashes 	<ul style="list-style-type: none"> Not all options are cost effective
	Safety edge	<ul style="list-style-type: none"> Low Cost Reduce run-off-road and head-on crashes Reduce crash severity 	<ul style="list-style-type: none"> Typically constructed only during overlay projects
	Wider edge lines	<ul style="list-style-type: none"> Increase the visibility of curves Low Cost Reduce roadway departure crashes 	<ul style="list-style-type: none"> None
Intersections	Signal backplates with retroreflective borders	<ul style="list-style-type: none"> Increase the visibility of traffic signals Low cost 	<ul style="list-style-type: none"> Need to consider structural limitations due to wind loads Additional cost to retrofit existing signals without the backplates
	<i>Corridor Access Management -</i>	<ul style="list-style-type: none"> <i>Enhance safety for all modes of transportation</i> <i>Reduce congestion along the corridor</i> <i>Fewer access point reduces overall crashes with all users</i> 	<ul style="list-style-type: none"> <i>Consolidation of driveways typically experiences opposition from business</i>

Safe Streets & Roads for All (SS4A)

Safety Action Plan

Safety Concern	Countermeasure	Pros	Cons
	Dedicated turn lanes at intersections	<ul style="list-style-type: none"> Address left-turn and rear-end crashes Provides deceleration lane Opposing left turns with positive offset increases visibility 	<ul style="list-style-type: none"> Additional ROW required Left turns with zero or negative offset result in turning vehicles blocking line of sight
	Reduced left-turn conflict intersections	<ul style="list-style-type: none"> Reduce conflict points Increase traffic flow on the mainline 	<ul style="list-style-type: none"> Minor movements must travel longer distance
	Install roundabout	<ul style="list-style-type: none"> Reduces total conflict points Lowers vehicle speeds resulting in a high reduction in injury/fatal crashes. 	<ul style="list-style-type: none"> High cost
	Low-Cost countermeasures - Signing, pavement markings, remove sight obstructions	<ul style="list-style-type: none"> Low cost Reduction in injury/fatal crashes 	<ul style="list-style-type: none"> None
	<i>Yellow change intervals</i>	<ul style="list-style-type: none"> <i>Improves intersection safety</i> <i>Reduces red light running violations</i> <i>Reduces fatal crashes</i> <i>Provides pedestrians additional time to cross intersections</i> 	<ul style="list-style-type: none"> <i>None</i>
Crosscutting (other safety focus areas)	<i>Add/Improve lighting</i>	<ul style="list-style-type: none"> <i>Reduces night-time crashes</i> <i>Reduces pedestrian crashes</i> 	<ul style="list-style-type: none"> <i>Installation and increased maintenance costs</i>
	<i>Local Road Safety Plans</i>	<ul style="list-style-type: none"> <i>An effective strategy to increase safety for all users</i> <i>Collaboration of local stakeholders</i> 	<ul style="list-style-type: none"> <i>None</i>

Safe Streets & Roads for All (SS4A)

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Safety Concern	Countermeasure	Pros	Cons
	Pavement friction management	<ul style="list-style-type: none"> Reduce roadway departure crashes at horizontal curves <ul style="list-style-type: none"> Reduces crashes at intersection approaches and interchange ramps 	<ul style="list-style-type: none"> None
	<i>Road Safety Audit</i>	<ul style="list-style-type: none"> <i>Early identification and mitigation of safety issues</i> 	<ul style="list-style-type: none"> <i>None</i>
Distracted driving	Graduated Driver Licensing	<ul style="list-style-type: none"> Reduce teenage driver crashes and injuries <ul style="list-style-type: none"> Low cost 	<ul style="list-style-type: none"> Requires several months to implement After implementation, 1-2 years before all provisionally licensed drivers are subject to new restrictions
	High visibility cell phone enforcement	<ul style="list-style-type: none"> Reduction in cell phone usage while driving 	<ul style="list-style-type: none"> Effect of HVE campaigns on crashes is not certain HVE campaigns are expensive Enforcement of cell phone use is challenging
Impaired driving	License revocation and suspension	<ul style="list-style-type: none"> Recent study suggests that policy reduces fatal crash involvement by 5 percent or 800 lives Drivers are less likely to repeat offense 	<ul style="list-style-type: none"> Requires funds to design, implement, and operate
	Publicized sobriety checkpoints	<ul style="list-style-type: none"> Analysis shows that checkpoints reduce alcohol related crashes by 17 percent and all crashes by 10-15 percent Public generally supports 	<ul style="list-style-type: none"> Can be costly if paid media is used

Safety Action Plan

Safety Concern	Countermeasure	Pros	Cons
	High visibility saturation patrols	<ul style="list-style-type: none">• More research is needed, but saturation patrols can be effective in reducing alcohol related fatal crashes	<ul style="list-style-type: none">• Can be costly if paid media is used

6.5 Project Recommendations

In addition to the potential projects recommended in the prioritization table, Laurel has several multimodal initiatives they would like to pursue to improve safety within the city. The study team identified **previously planned projects** that are planned to be let for construction soon. These projects include:

- **The Downtown Laurel Improvements**, which include the addition of a two-way left-turn lane, sidewalks, and access management improvement along Sawmill Road (West 5th Street) from just west of US 84 to just west of the roundabout at 6th Avenue.
- **West 12th Street from North 16th Avenue to North 7th Avenue** is the location for a future roadway project that will include sidewalks and pedestrian crossings.
- **North 10th Avenue** is planned to have sidewalks near Laurel High School.
- The section of **West 5th Street north of Sawmill Road** will have sidewalks.

Based on the safety analysis performed during this study, collaboration with stakeholders, and to build upon the planned projects listed above, the study team recommends several corridors for enhancements:

- **10th Street from US 84 to N 1st Avenue**
- **10th Avenue from Sawmill Road to W 12th Street**
- **7th Avenue from Sawmill Road to W 15th Street**
- **Grandview Drive near Laurel Middle School and Maddox School**

6.5.1 W 10th Street from US 84 to N 1st Avenue

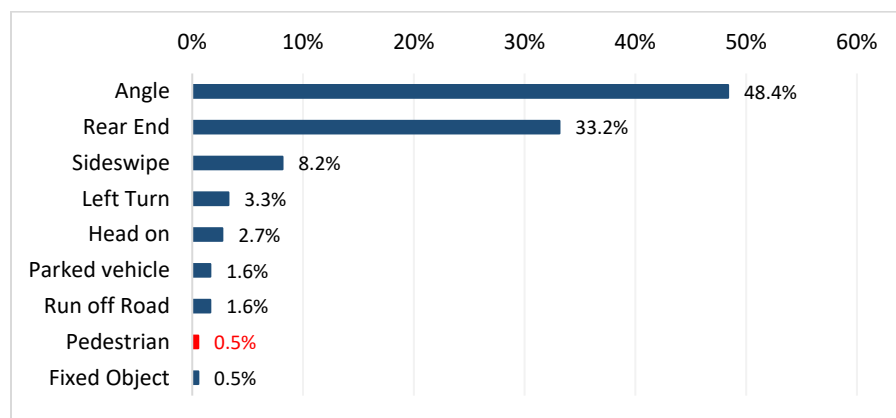
The 10th Street corridor from US 84 to N 1st Avenue is a 1.23-mile corridor that had 184 crashes over the study period (2019-2023). Most crashes were angle or rear end crashes, which can suggest intersection related crashes or speed/distracted driving. Efforts should be made to enforce speed along the corridor and provide pedestrian crossings, where appropriate (US 84, restripe N 15th Avenue, N 14th Avenue, N 13th Avenue, N 10th Avenue, N 7th Avenue. Additionally, a partial sidewalk exists on the north/south side of W 10th Street. Efforts should be made to have one continuous sidewalk with pedestrian crossings where sidewalk changes sides of the road.

Approximate Construction Cost: \$540,000

Table 6.5: Crash Types Along W 10th Street Corridor

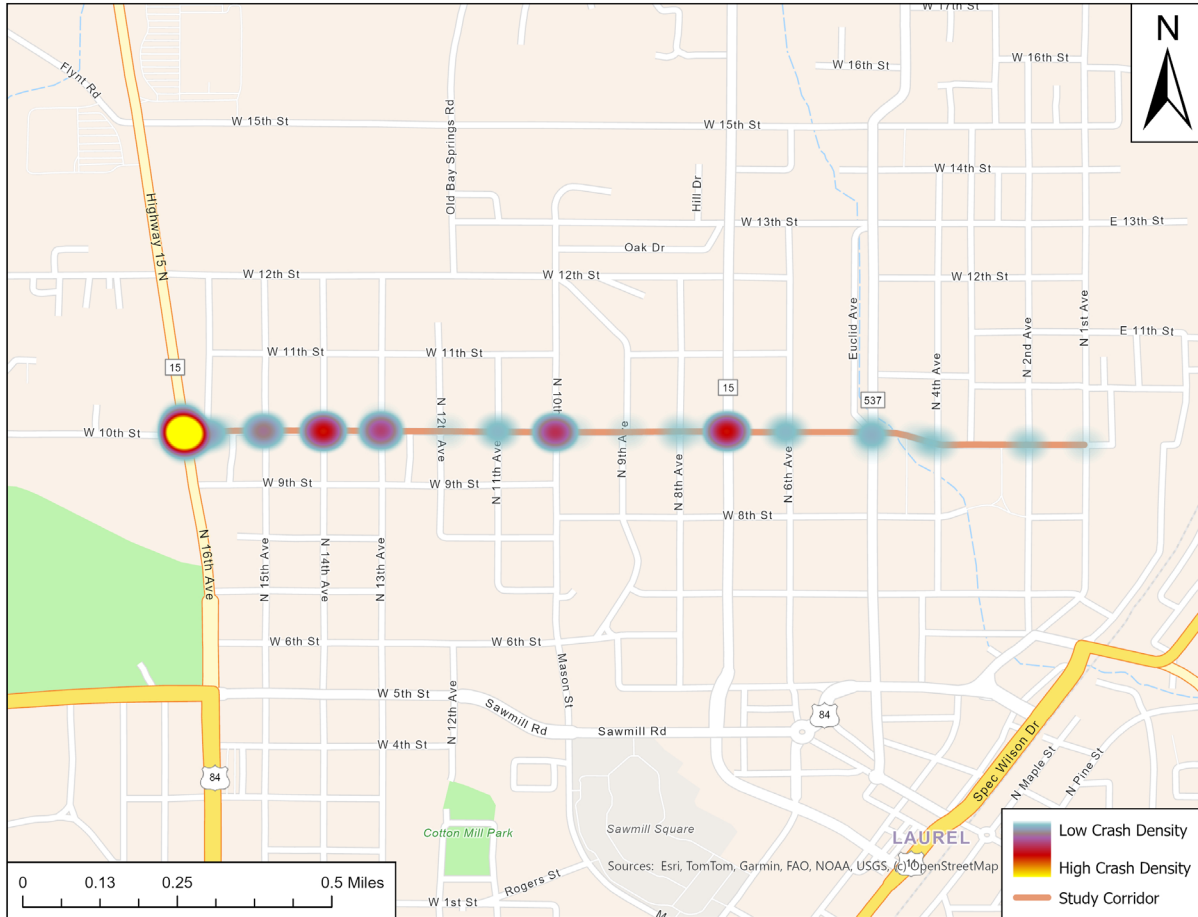
Crash Severity	Count	Percentage	Count (%)
Total Crash	184	100%	184 (100%)
(K) Fatal Crash	0	0.0%	0
(A) Suspected serious injury	0	0.0%	0
(B) Suspected minor injury	10	5.4%	10 (5.4%)
(C) Possible injury	33	17.9%	33 (17.9%)
(O) Property damage only	141	76.6%	141 (76.6%)

Figure 6.2: Crash Types Along W 10th Street Corridor



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Figure 6.3: Heat Map of Crash Density Along W 10th Street Corridor



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Figure 6.4: W 10th Street east of N 11th Avenue



6.5.2 10th Avenue from Sawmill Road to W 12th Street

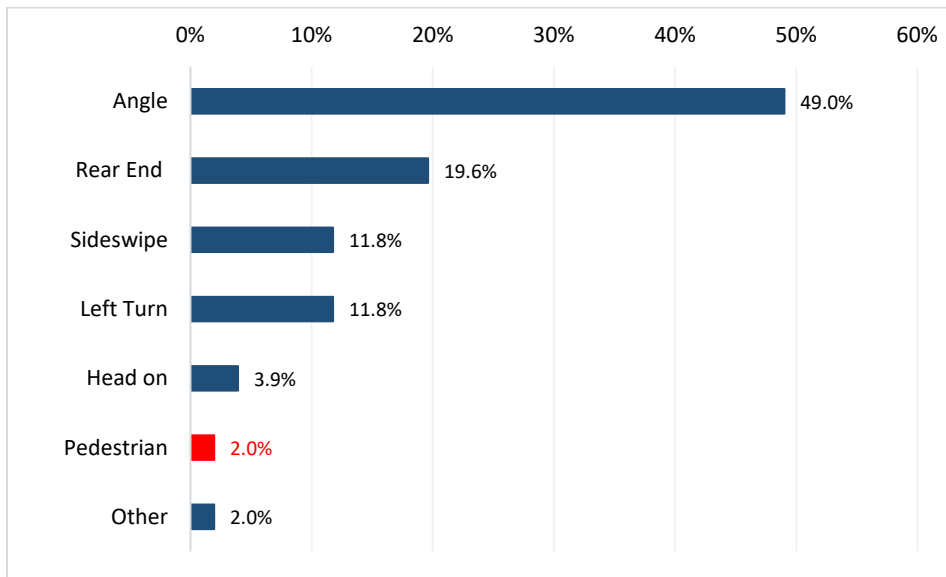
10th Avenue is an important north-south corridor serving the Central Business District and the Tri-Park District. It is 0.75 miles and connects W 12th Street and Sawmill Road, both of which have planned roadway and pedestrian accommodation improvements. It also serves Laurel High School, Daphne Park, single family neighborhoods. During the 5-year study period, there were 51 total crashes along the corridor including one fatality and 12th Street. The sidewalk should be improved/constructed along the entire corridor with crossings at W 10th Street, W 8th Street, N 12th Avenue, 7th Street, 6th Street, and W 5th Street (Sawmill Road).

Approximate Construction Cost: \$495,000

Table 6.6: Crash Severity on 10th Avenue Corridor

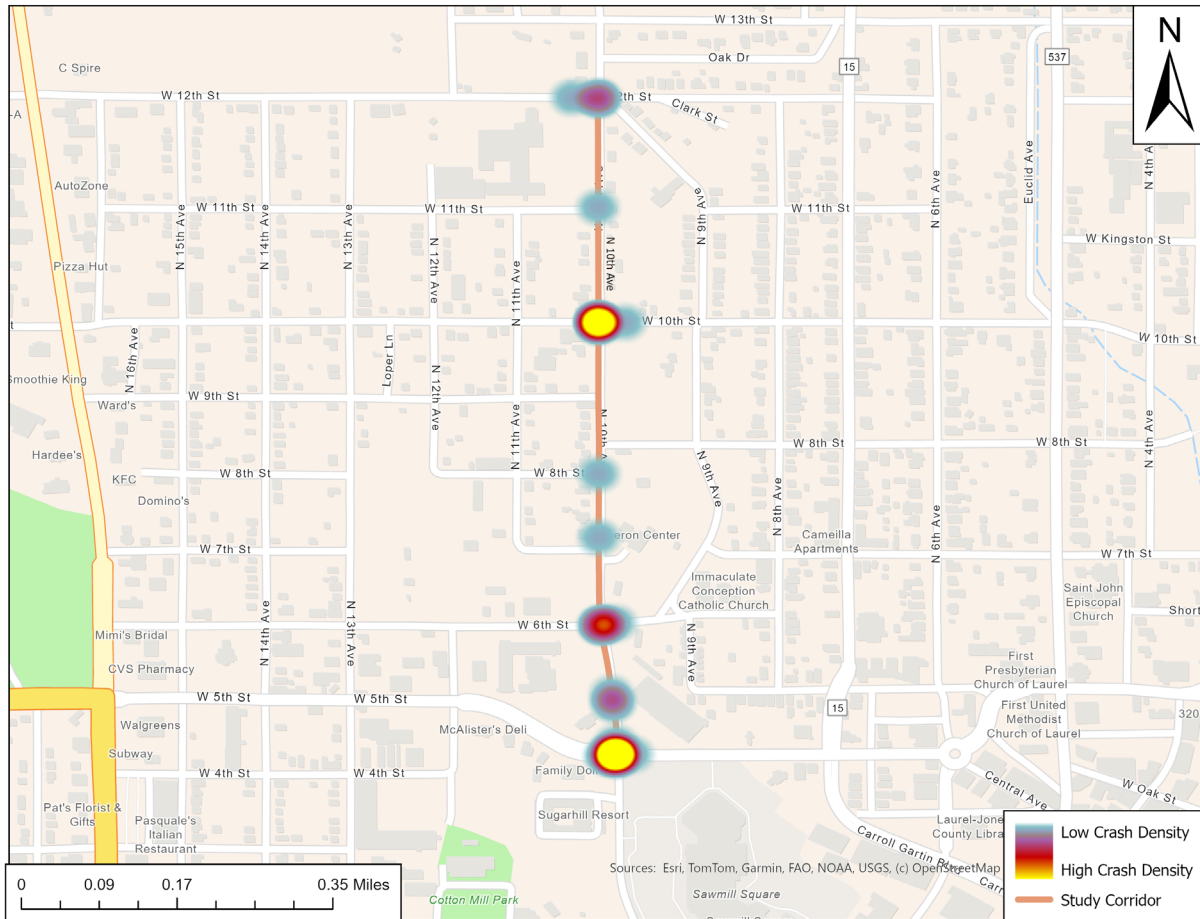
Crash Severity	Count	Percentage	Count (%)
Total Crash	51	100%	51 (100%)
(K) Fatal injury	1	2.0%	1 (2%)
(B) Suspected minor injury	1	2.0%	1 (2%)
(C) Possible injury	6	11.8%	6 (11.8%)
(O) Property damage only	43	84.3%	43 (84.3%)

Figure 6.5: Crash Type Along 10th Avenue Corridor



Safe Streets & Roads for All (SS4A) Safety Action Plan

Figure 6.6: Heat Map of Crash Density Along 10th Avenue Corridor



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Figure 6.7: N 10th Avenue at W 10th Street



6.5.3 Grandview Drive Near Laurel Middle School and Maddox School

The percentage of pedestrian crashes was much higher in this location than the other corridors discussed here. It is important that students near the middle school have highly visible pedestrian accommodations directly adjacent to the school as students access the surrounding single-family neighborhoods. There are three minor injury intersections around Laurel Middle School. Additionally, Grandview Drive is on the High Injury Network as a segment with numerous minor/moderate injury crashes. Potential modifications to improve safety in this area include:

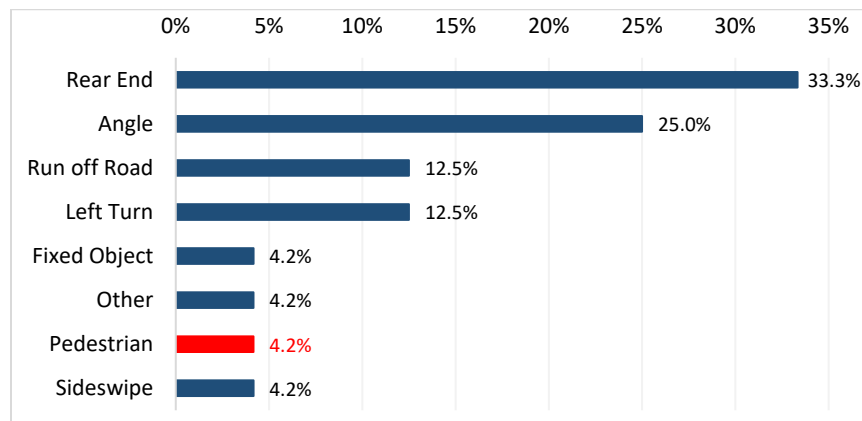
- Install a pedestrian signal and pedestrian crossing at S 16th Avenue,
- Install pedestrian crossings in front of school on Grandview Drive and restripe all crossings around school
- Improve sidewalk connectivity for Laurel Middle School and at crossing of 19th Avenue and Ferrell Street

Approximate Construction Cost: \$200,000

Table 6.7: Crash Severity Around Laurel Middle School

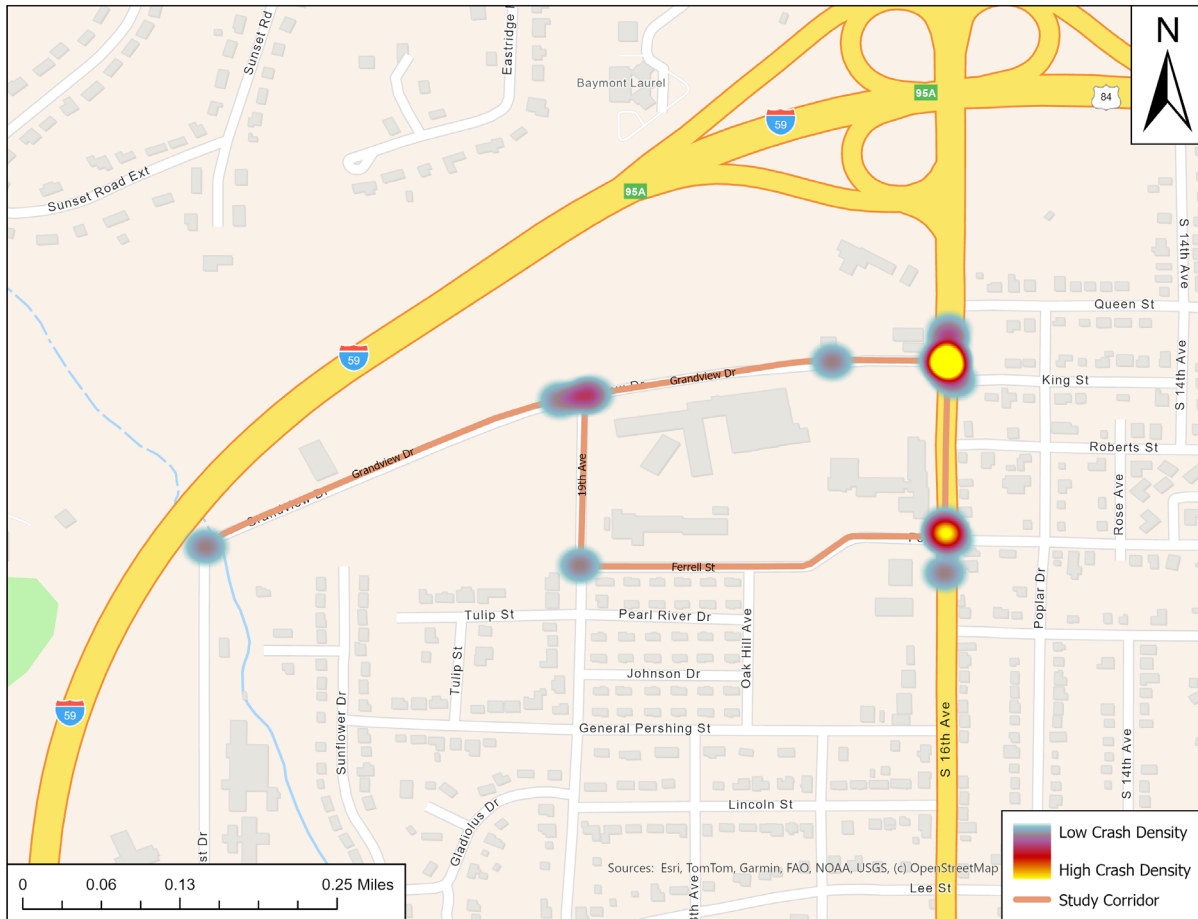
Crash Severity	Count	Percentage	Count (%)
Total Crash	24	100%	24 (100%)
(K) Fatal injury	0	0.0%	0 (0)
(A) Suspected serious injury	0	0.0%	0 (0%)
(B) Suspected minor injury	4	16.7%	4 (16.7%)
(C) Possible injury	6	25.0%	6 (25%)
(O) Property damage only	14	58.3%	14 (58.3%)

Figure 6.8: Types of Crashes Around Laurel Middle School



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Figure 6.9: Heat Map of Crash Density Near Laurel Middle School on Grandview Drive



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Figure 6.10: Grandview Drive and S 16th Avenue near Laurel Middle School



6.5.4 N 7th Avenue from Sawmill Road to W 15th Street

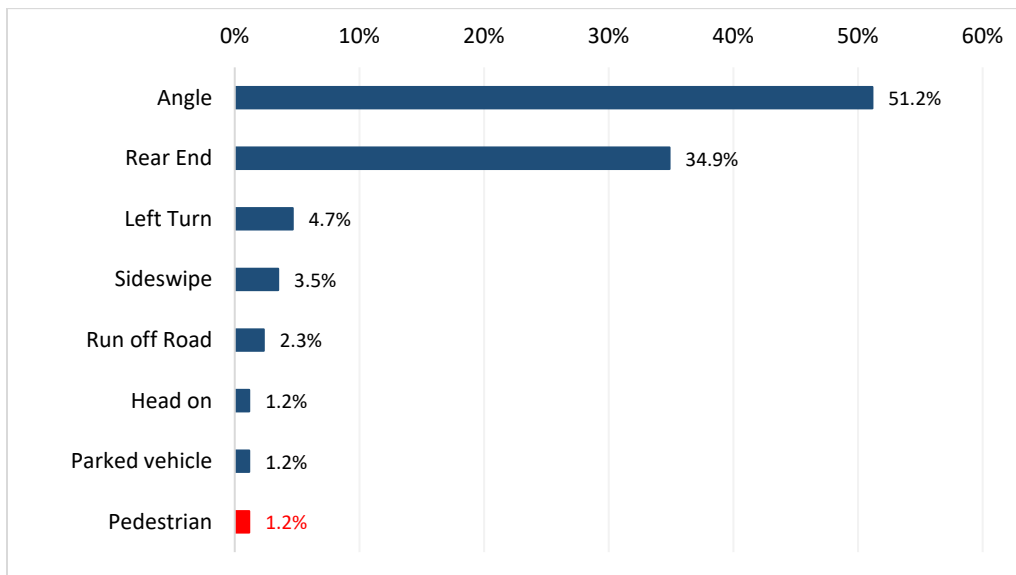
The N 7th Avenue corridor is 0.82 miles and contained 86 crashes between 2019 and 2023, and included one intersection with two serious injury crashes (N 7th Avenue and W 15th Street). Additionally, there were three intersections on the High Injury Network with minor/moderate injury crashes. To complement the planned projects in the Tri-Park District, it is recommended that the sidewalk system along the corridor be updated and it is recommended that pedestrian crossings be added at W 10th Street and W 11th Street.

Approximate Construction Cost: \$380,000

Table 6.8: Crash Severity Along N 7th Avenue Corridor

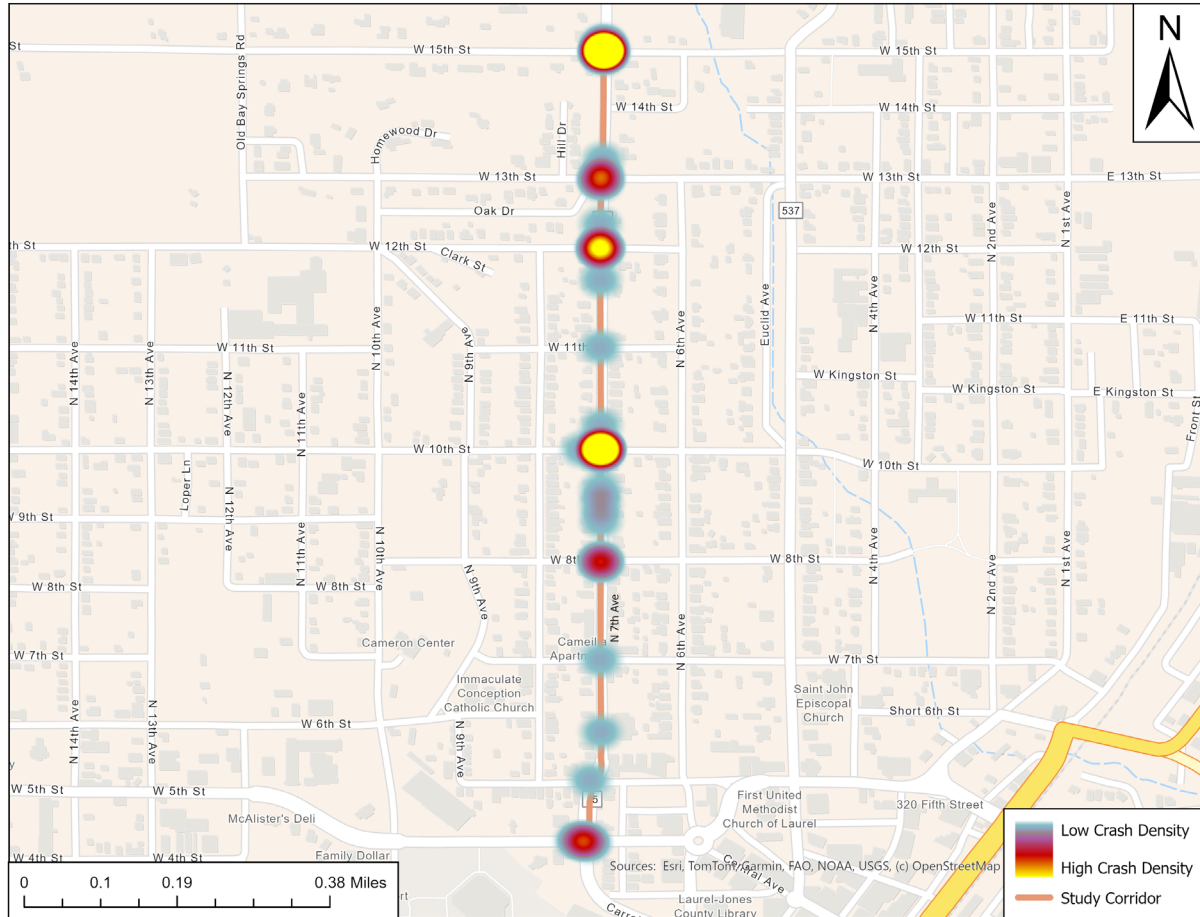
Crash Severity	Count	Percentage	Count (%)
Total Crash	86	100%	86 (100%)
(K) Fatal injury	0	0.0%	0 (0)
(A) Suspected serious injury	2	2.3%	2 (2.3%)
(B) Suspected minor injury	9	10.5%	9 (10.5%)
(C) Possible injury	14	16.3%	14 (16.3%)
(O) Property damage only	61	70.9%	61 (70.9%)

Figure 6.11: Crash Types Along N 7th Avenue Corridor



Safe Streets & Roads for All (SS4A) Safety Action Plan

Figure 6.12: Heat Map of Crash Density Along N 7th Avenue Corridor



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Figure 6.13: North 7th Avenue Corridor and W 10th Street



7.0 Progress and Transparency

The Safety Action Plan serves as a living document that provides a variety of high-level strategies and location-specific safety projects. The plan can be used in coordination with partner agencies and long-range planning efforts. This chapter describes the future actions needed to keep this living document current and relevant to the City's needs.

7.1 Advocacy

The Steering Committee should meet annually to discuss Safety Action Plan recommendations, projects, and strategies. These meetings should incorporate:

- Public concerns and comments
- Additional safety projects that have recently been identified
- Grant application opportunities
- Ongoing strategy implementation

Additionally, input obtained during public outreach efforts for transportation planning or public commenting on transportation projects should be discussed during Steering Committee meetings.

7.2 Data Maintenance

The City of Laurel should update the crash data associated with the Safety Action Plan each year. Data to be included should include:

- Number of fatalities and comparison to state average ([Fatality Analysis Reporting System \(FARS\) | NHTSA](#))
- Rate of fatalities (per 100,000 people) compared to state average ([Fatality Analysis Reporting System \(FARS\) | NHTSA](#) and [American Community Survey Data](#))
- Number of serious injuries compared to state average (MDOT crash data)
- Rate of serious injuries within the study area compared to the state average

7.3 Plan Implementation

Activities that the city can take to implement the plan include:

- Coordination with partner agencies for data collection, public outreach, and analysis
- Discuss funding opportunities with partner agencies and pursue grant funds when available
- Use a data-driven process to select projects and strategies

7.4 Transparency & Reporting

Regular documentation and reporting on the plan's implementation progress is necessary for its success. Documentation should be prepared and reported for funding opportunities, Steering Committee meetings, public outreach, and other appropriate activities.