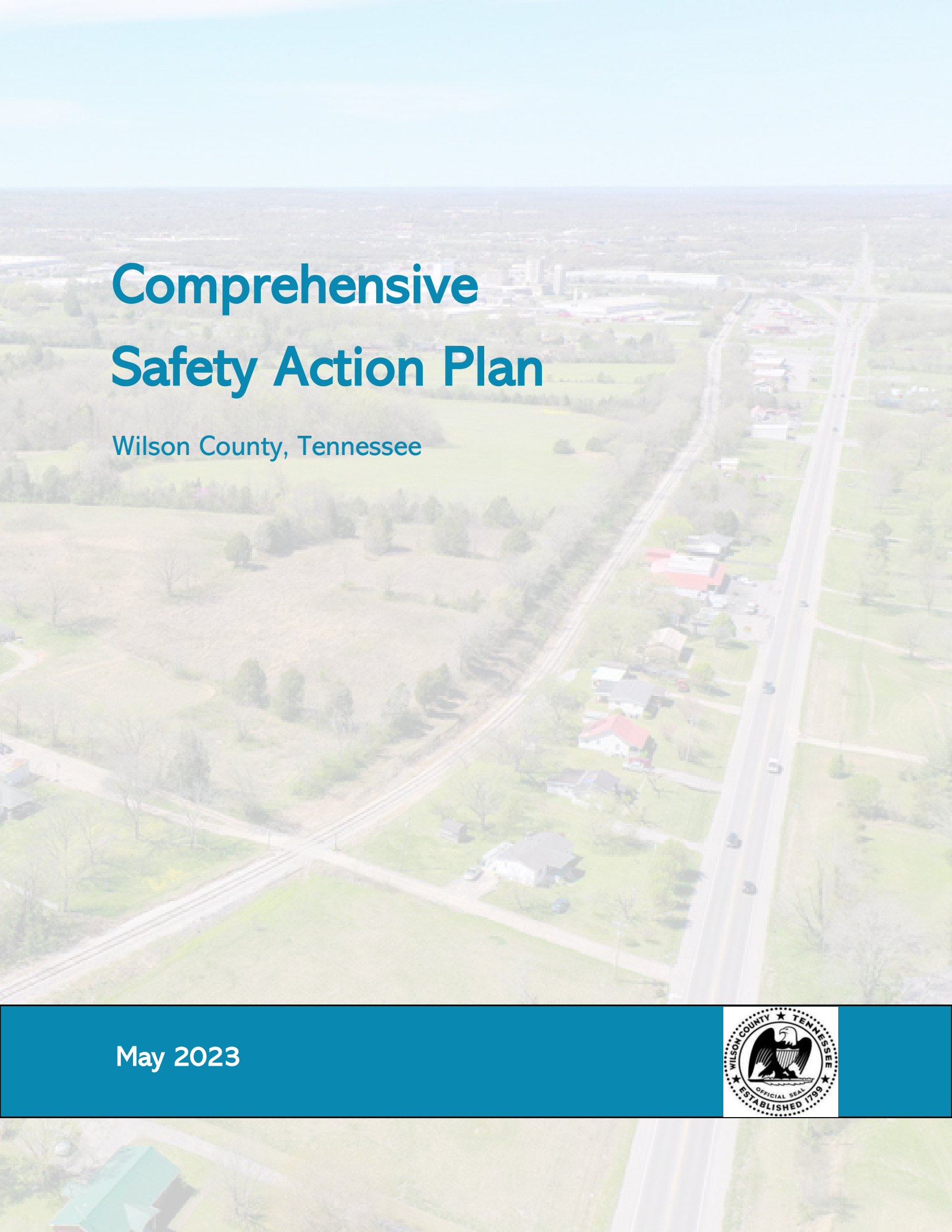


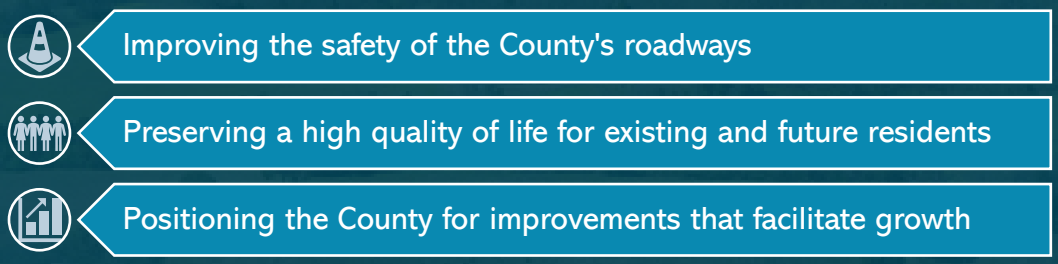
Comprehensive Safety Action Plan

Wilson County, Tennessee

May 2023

Executive Summary

In the past five years, there have been approximately 6,800 vehicular crashes in the unincorporated portion of Wilson County. As a high-growth area in Middle Tennessee, Wilson County has continued to see an upward trend in vehicular crashes, increasing traffic volumes on its rural roadways, and development pressure from a growing economy over the past decade. With this in mind, the Wilson County Road Commission embarked on the development of this Comprehensive Safety Action Plan. The plan is founded on three key goals –



To accomplish these goals, the Comprehensive Safety Action Plan is rooted in data-driven processes as well as the engagement of the public, a project steering committee, and funding partners. An exploratory analysis of historic crash data and contributing factors resulted in the designation of a High Injury Network. This network includes 78 miles of State-owned roadways and 56 miles of County-owned roadways and captures locations that account for approximately 65% of the County's fatalities and serious injuries over the past five years.

In tandem with the data analysis, an online survey was conducted to discern the types of improvements desired by the County's residents as well as how they thought safety projects should be prioritized. The input from this survey combined with site visits and a review of crash characteristics was used to identify and prioritize various safety solutions for the 134-mile High Injury Network. In addition, a review of existing policies, processes, and plans culminated in a list of 15 high-level strategies that the County can explore to improve safety more holistically in the unincorporated areas.

With a prioritized set of capital improvements and strategic recommendations, this plan positions Wilson County to start working with the community, its staff, and stakeholders to improve safety of the transportation system for years to come.

Acknowledgements

Wilson County Mayor

Wilson County Road Commission

Wilson County Highway Department

Tennessee Department of Transportation

Greater Nashville Regional Council

Federal Highway Administration

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Overview

Wilson County is located directly east of Metro Nashville-Davidson County and is home to the incorporated areas of Lebanon, Mount Juliet, and Watertown. Over the past 20 years, Wilson County has seen continued growth and development, benefiting from the national popularity of the Middle Tennessee region. While much of this growth has been concentrated in the incorporated areas of the County, the unincorporated area still holds approximately 47% of the County's population. To position itself for future growth and improve the quality of life for its existing residents and visitors, the County has committed to eliminating fatalities and serious injuries on its roadway network by 2045.

This commitment represents a significant step in changing the culture surrounding roadway safety as it reflects a shift to a Safe Systems Approach. The Safe Systems Approach is part of the U.S. Department of Transportation's comprehensive National Roadway Safety Strategy to significantly reduce fatalities and serious injuries on the nation's roadways. The underlying principles of the Safe Systems Approach are that people make mistakes and are physically vulnerable, deaths and serious injuries are unacceptable, responsibility for preventing these tragedies needs to be both shared and proactive, and that increased redundancy in the infrastructure can create additional layers of protection. With these assumptions in mind, the following five objectives, which are depicted in Figure 1, are the pillars of any safe system:

- Safe Road Users - Encourage safe, responsible driving and behavior by people who use our roads and create conditions that prioritize their ability to reach their destination unharmed.
- Safe Vehicles - Expand the availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.
- Safe Speeds - Promote safer speeds in all roadway environments through a combination of thoughtful, equitable, context-appropriate roadway design, appropriate speed-limit setting, targeted education, outreach campaigns, and enforcement.
- Safe Roads - Design roadway environments to mitigate human mistakes and account for injury tolerances, to encourage safer behaviors, and to facilitate safe travel by the most vulnerable users.
- Post-Crash Care - Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.

The principles and pillars of the Safe System Approach are shown in Figure 1.

Figure 1. Elements of the Safe Systems Approach

To move towards a safe system and achieve its goal of eliminating fatalities and serious injuries on the roadway system, Wilson County has taken a first step of developing this Comprehensive Safety Action Plan (CSAP) with key components as outlined in the Bipartisan Infrastructure Law's (BIL) Safe Streets for All (SS4A) grant program. While other efforts have been completed to document safety issues from a statewide and regional perspective, this plan builds on these efforts to develop a more localized methodology for identifying safety issues specifically in the unincorporated portions of Wilson County. Furthermore, this CSAP documents feasible strategies and improvements for mitigating those issues.

Engagement

The Wilson County Road Commission is committed to working with its local, regional, and state partners to address safety issues in the unincorporated areas. The Commission served as the overall project steering committee, which helped guide the development of the CSAP and will ultimately take the lead in its implementation. Members of the committee included the following:

- **Randall Hutto** – Mayor, Chairman of the Road Commission, Member of Nashville Area MPO Executive Board, and former School Administrator
- **Bobby Franklin** – County Commissioner, Road Commission, former City Manager, Vice Chair Planning & Zoning Committee
- **Terry Scruggs** – County Commissioner, Road Commission, Law Enforcement Committee, employed by Emergency Management
- **Chad Barnard** – County Commissioner, Road Commission, Education Committee, Emergency Management Committee, Law Enforcement Committee
- **Chris Dowell** – County Commissioner, Road Commission, former Fire Chief, Education Committee, Law Enforcement Committee

Steering Committee Meetings

Committee involvement occurred throughout CSAP development, with significant input collected at strategic decision points. The committee met first in December 2022. The purpose of this meeting was to discuss the CSAP plan requirements and the SS4A program more broadly with committee members, describe the tenants of the Safe Systems Approach, review the primary components of the CSAP and schedule for completion, and discuss preliminary findings from the data analysis. The outcome of this meeting was consensus on the approach to identifying the High Injury Network and stakeholder buy in on the purpose of developing the CSAP.

The second committee meeting occurred in January 2023. The purpose of this meeting was to solidify the approach to public involvement for the CSAP. Specifically, the steering committee reviewed the wording for an online survey, discussed distribution methods, and determined how the input would be used.

The third steering committee meeting occurred in March 2023. At this meeting, results from the public input period were shared with committee members. The public input was used to establish the weights associated with performance criteria for prioritizing safety needs on the High Injury Network.

In addition to the steering committee, the CSAP effort also included outreach to other agencies that play a role in any of the five safe systems objectives. These included the following:

- Wilson County Highway Department
- Greater Nashville Regional Council / Nashville Area MPO
- TDOT Project Safety Office
- FHWA

This outreach centered mostly around collecting input on safety issues in the unincorporated County, discussing data availability, current policies and procedures that impact roadway safety, and mechanisms for funding and project implementation.

Public Input

The CSAP included an online survey to gather input from Wilson County residents. This survey was posted on the County's website and steering committee members were asked to share it on their websites and social media accounts. In total, the survey received 285 responses over the course of a month. As shown in Figure 2, approximately 41% of survey respondents live in the unincorporated areas of Wilson County and 57% live in one of the County's incorporated areas. Figure 3 depicts the relatively well distributed ages of survey respondents.

Figure 2. Survey Respondent Participation

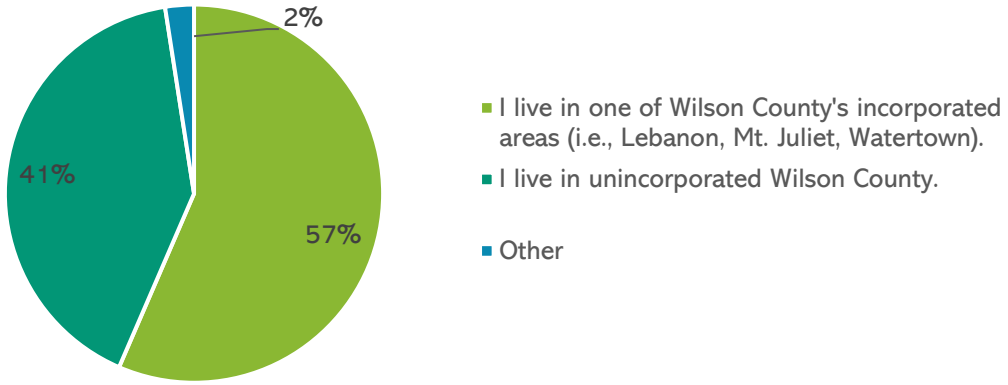
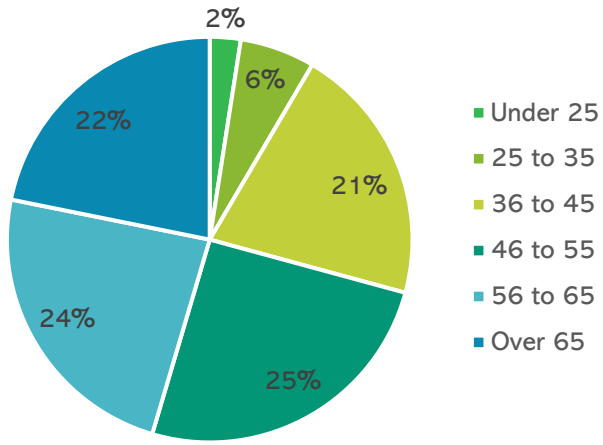
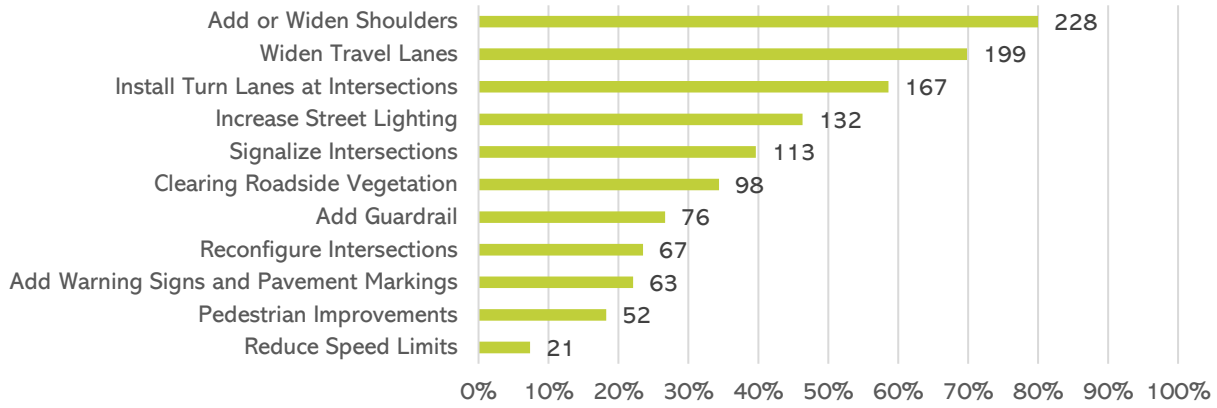


Figure 3. Survey Respondent Age Distribution



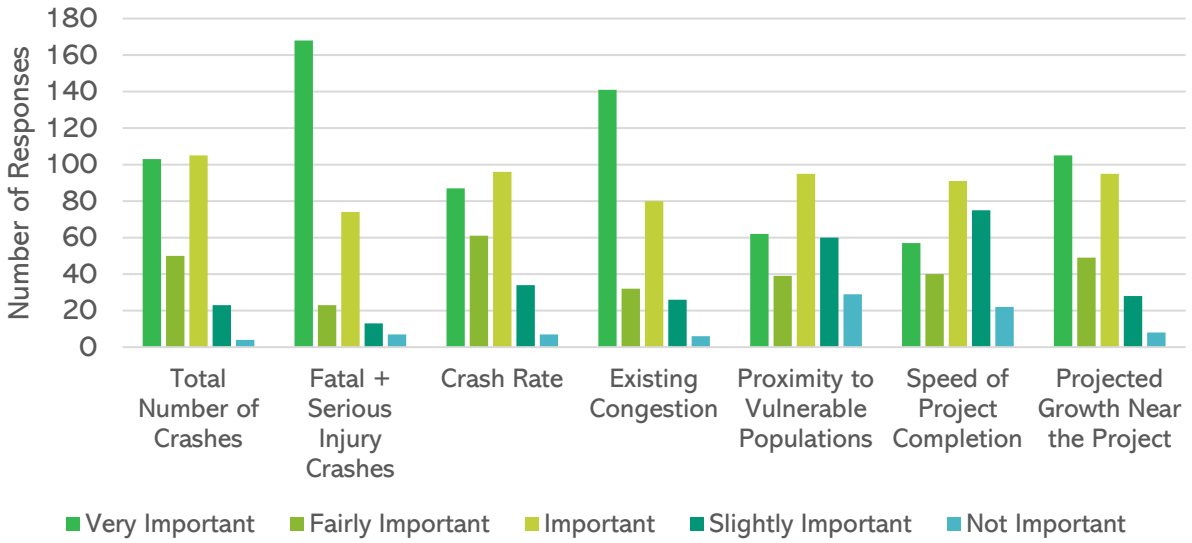
Residents were first asked to provide input on the types of safety projects they thought were most needed in the County. More specifically, the question asked participants to select their top five choices for various safety-related projects in the County. Figure 4 highlights the number and percent of respondents who chose the various project types as one of their top five. As shown, adding or widening shoulders is the project type selected by the most people followed by widening travel lanes and then installing turn lanes at intersections. Reducing speed limits and pedestrian improvements were selected the least.

Figure 4. Preferred Safety Projects



Participants were then asked how the safety projects stemming from the CSAP process should be prioritized. As shown in Figure 5, respondents consider the number of severe crashes to be the most important criteria followed by the existing level of roadway congestion, projected growth near the project, and the total number of crashes.

Figure 5. Relative Importance of Project Prioritization Criteria



In addition, public input from other ongoing planning efforts in the area was reviewed with a specific focus on safety. The Greater Nashville Regional Council (GNRC) was in the process of working alongside Wilson County government to update the County's Comprehensive Plan. As a guiding document for land use and development, the Comprehensive Plan update has included a substantial public input process. At the time of the CSAP development, four public meetings had been held at various locations across the county where meeting attendees were able to pinpoint their concerns on a map. A review of these comments highlighted the following transportation- and safety-related issues in the unincorporated areas:

- Concern over the transportation impacts of new school sitings near Cairo Bend Road and Double Log Cabin Road
- Posey Hill Road challenges;
- Need for more enforcement on Central Pike;
- Truck traffic on Central Pike;
- Lone Oak Road needs improvement;
- Traffic signal at I-840 and Stewarts Ferry Pike;
- Need for better drainage on Cedar Grove Road; and
- General concerns over industrial development and truck traffic on county roads in the Gladeville area.

These comments as well as the input collected via the online survey were used in the development of recommendations for safety improvements in Wilson County.

Safety Analysis

At its core, the CSAP is grounded in the analysis of crash data to develop informed safety solutions in unincorporated Wilson County. The CSAP analysis utilizes geocoded crash data from TITAN, or Tennessee's Integrated Traffic Analysis Network, for a 5-year period spanning 2017-2021. TITAN is a comprehensive database managed by the Department of Safety & Homeland Security that facilitates the collection and management of all traffic safety related data in the state across law enforcement agencies.

Existing Crash Analysis

There have been over 19,000 crashes in all of Wilson County over the past 5 years. Approximately 65% of those occurred within municipal boundaries, meaning that over 6,800 crashes occurred in the unincorporated areas in that same period. Figure 6 highlights the trends in crashes by year and by severity in unincorporated Wilson County. Though the total number of crashes has varied year to year, there is a slightly increasing trend observable over the 5-year period. On average, about 1,300 crashes occurred each year. More specifically, over the 5-year period, there were 58 fatal crashes, equating to approximately 12 deaths in the County on average each year, and there were 193 crashes that resulted in a serious injury. The remaining 6,611 crashes in the 5-year period resulted in either a minor injury or property damage only.

Figure 6. Crashes by Severity in Wilson County

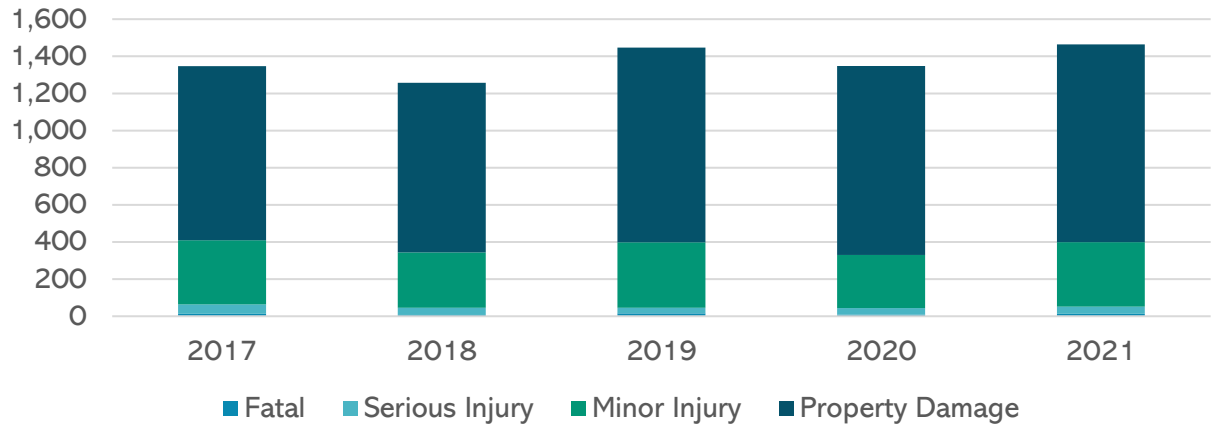


Figure 7 depicts crash frequencies in the County and shows that those areas and facilities with greater degrees of exposure (i.e., higher population densities and traffic volumes) have higher numbers of crashes as expected. Figure 8 depicts the density of fatal and serious injury crashes. As shown, concentrations of fatal and serious injury crashes are not necessarily centered around those areas with greater population density but are generally correlated with high-volume roadway facilities.

Figure 7. Crash Density in Unincorporated Wilson County

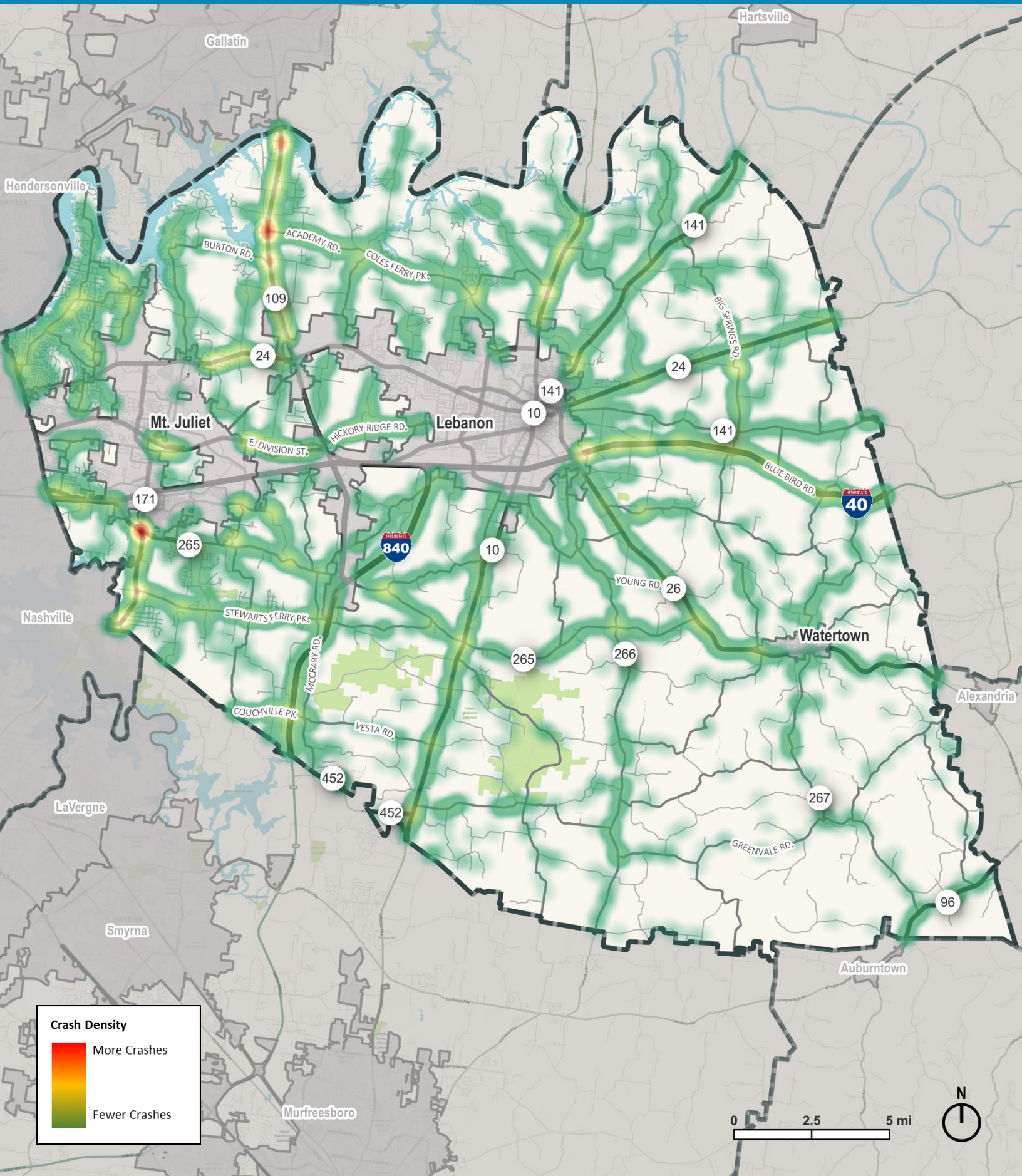
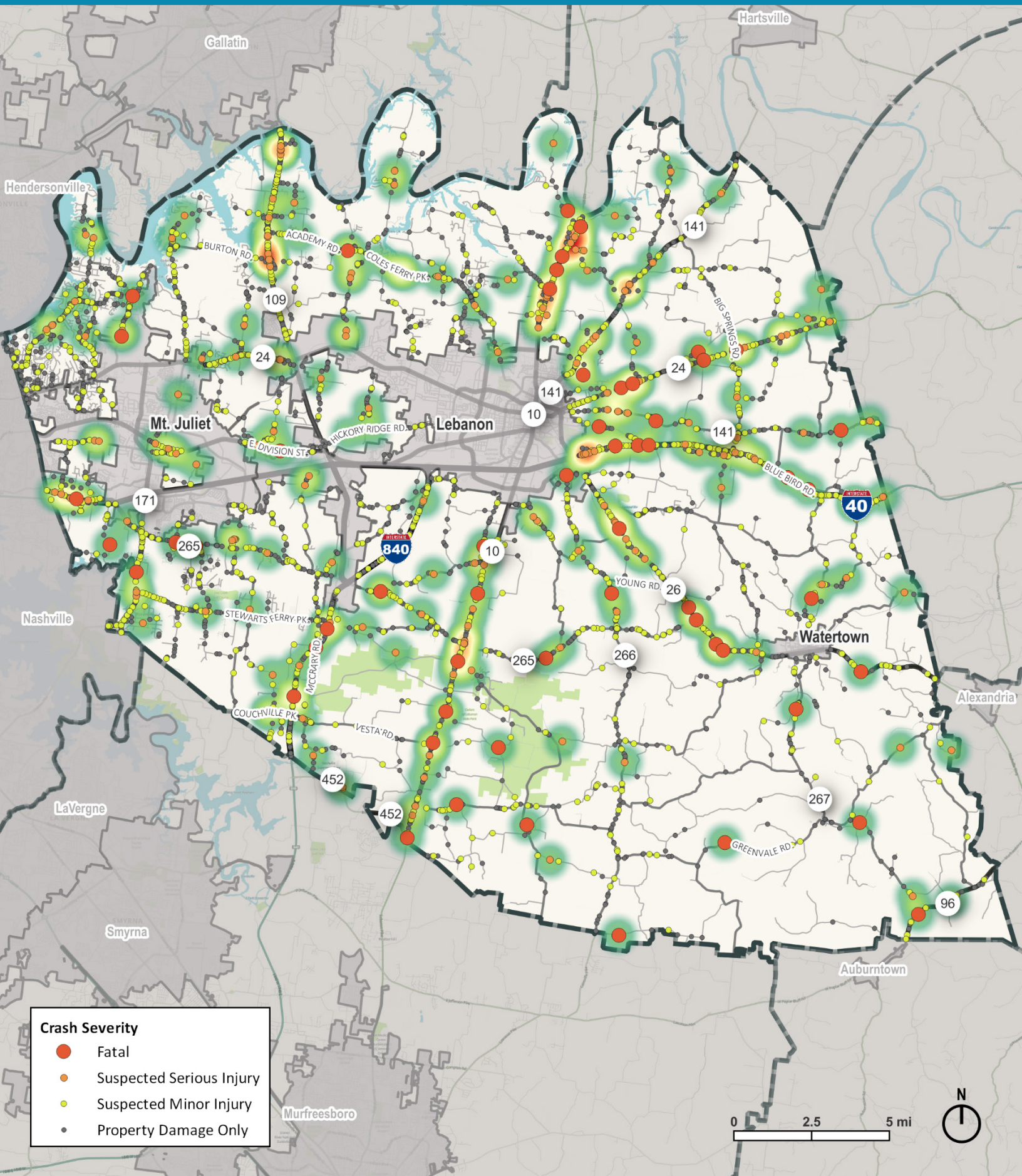


Figure 8. Density of Fatal and Serious Injury Crashes



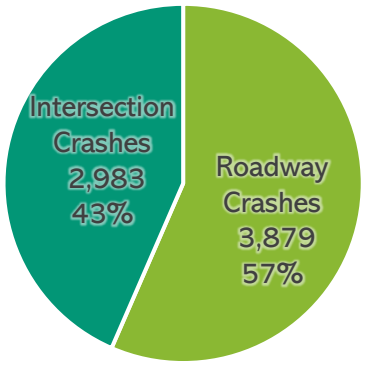
When looking at the relative distribution of crashes by facility ownership, specifically fatal and serious injury crashes, there is significant disparity between crash frequency and centerline miles. As shown in Table 1, State-owned roadways such as interstates and state routes account for only 18% of the centerline mileage in the unincorporated areas but approximately half of all crashes and half of the fatalities and serious injuries. This is most likely due to the relative degree of exposure for drivers on those facilities, which comprise most of the county's multi-lane, high-speed, and high-volume roadways.

Table 1. Crashes by Roadway Facility and Ownership

Facility Type	Centerline Miles	Total Crashes	Fatalities + Serious Injuries
Interstates	21 (2%)	671 (10%)	24 (10%)
State Routes	150 (16%)	2,774 (40%)	113 (45%)
County Roads	755 (82%)	3,417 (50%)	114 (45%)

The density of crashes depicted in Figure 7 and the density of fatalities and serious injuries depicted in Figure 8 suggested the notion that in some cases, safety issues may be present along entire corridors while in other cases safety issues are seemingly concentrated around intersecting roadways. This led to an exploratory analysis into the different crash characteristics for those crashes that occurred along a roadway corridor and those that occurred within 500 feet of an intersection. Of the 6,862 crashes that occurred in the unincorporated areas of Wilson County, 2,983 occurred at an intersection with the remaining 3,879 occurring along a corridor. Approximately 40% of fatalities and serious injuries occur at intersections while the remaining 60% occur along corridors.

Figure 9. Distribution of Corridor and Intersection Crashes



A more detailed look at the intersection crashes revealed that 93% of all intersection crashes occurred at unsignalized locations. The majority of these unsignalized intersections (88%) have free-flowing major street traffic and minor-street stop control. In relation to severity, these intersection locations are more likely to result in angle and head-on collisions, which have an increased risk of a fatality or serious injury. When compared to other intersection control types, minor-street stop-controlled intersections represent approximately 94% of the fatal and serious injury crashes (95) that occur at intersections. They represent approximately 38% of all fatal and serious injury crashes in the County from 2017-2021. It is important to note that even though a significant majority of crashes occur under minor-street stop conditions, the relative distribution of crashes is commensurate with the number of intersections with that same control type. Crash concentrations at minor-street stop-controlled intersections are shown in Figure 12.

A more detailed look at the roadway corridor crashes revealed that 67% of the crashes along roadway segments (2,579) did not involve another vehicle. There are approximately 150 fatal and serious injury crashes that occur along a corridor, of which 104 involved only a single vehicle. The most severe crashes were often associated with vehicles hitting objects outside the travel way such as fences, mailboxes, utility poles, trees, guardrails, and roadside ditches. Interestingly, approximately 18% (458 crashes) involved drivers hitting deer or other animals though these crashes typically resulted in property damage only. Concentrations of single-vehicle collisions along roadway corridors are shown in Figure 13.

Figure 10. Control Type for Intersection Crashes

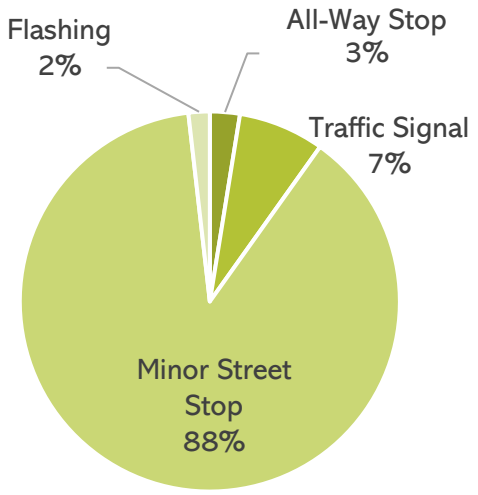


Figure 11. Manner of Collision for Roadway Crashes

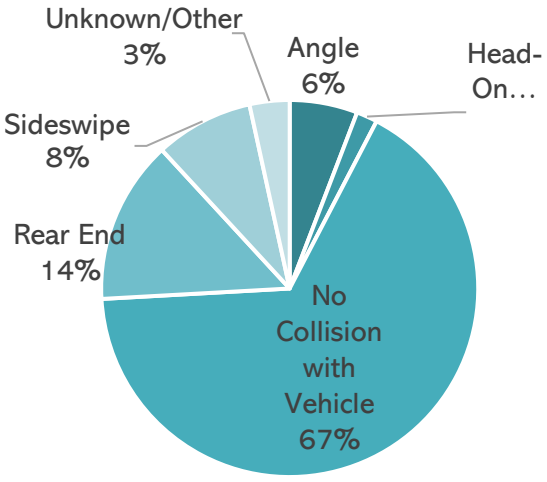


Figure 12. Concentrations of Minor-Street Stop-Controlled Intersection Crashes

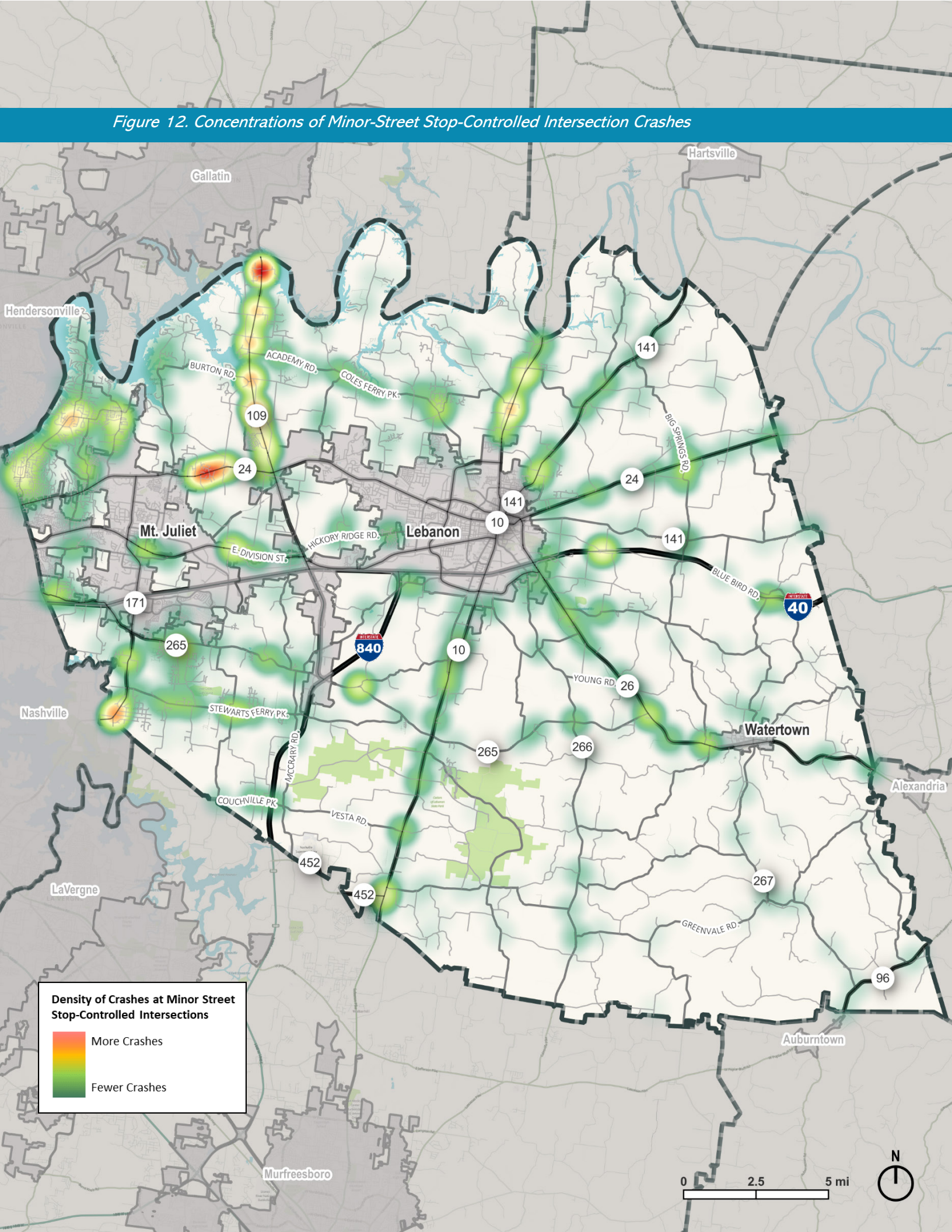
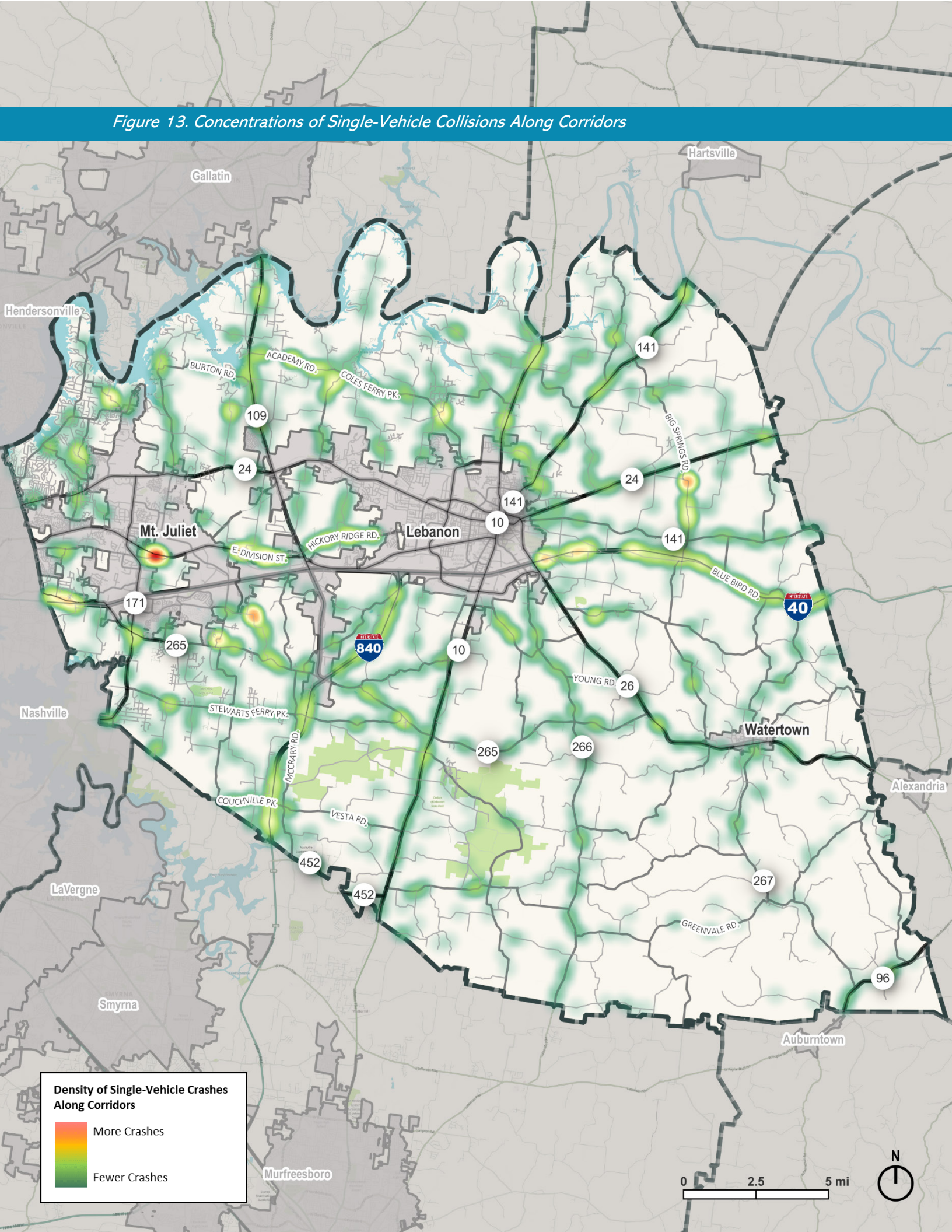


Figure 13. Concentrations of Single-Vehicle Collisions Along Corridors



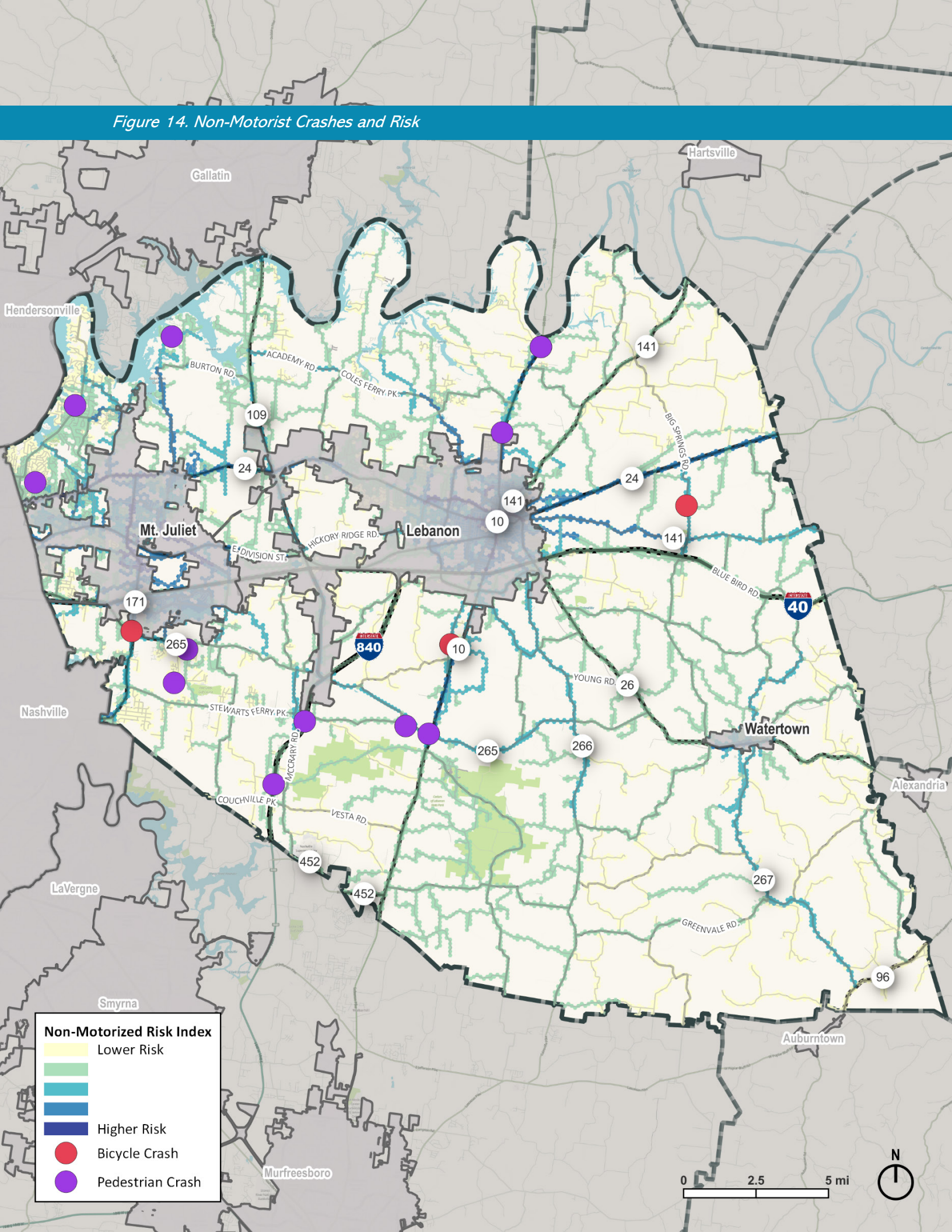
Pedestrians and cyclists are some of the most vulnerable roadway users as they have a much higher risk of serious injury or death in any collision with a vehicle. Understanding this increased vulnerability, the crash analysis also examined the vehicular crashes involving people walking and biking. In total, there were 12 crashes involving a pedestrian and three crashes involving a bicyclist within the 5-year study period. Of these 15 crashes, eight of them resulted in a fatality or serious injury. Six of the crashes occurred on State-owned facilities and nine occurred on County-owned facilities.

Compared to the number of vehicular crashes in unincorporated Wilson County, the number of crashes involving pedestrians and cyclists is extremely small, representing only 0.2% of the total crashes. This small data sample makes it difficult to draw conclusions about existing safety issues for those pedestrians and cyclists using the roadway network. As this is a common issue with analyzing non-motorist safety, the Greater Nashville Regional Council (GNRC) developed a non-motorized risk index for roadways in Wilson County and the broader region. This model assigns a relative level of risk for those walking and biking based on roadway characteristics and proximity to non-motorized trip generators. The relationship of 11 different variables to non-motorized crash frequency is translated into a relative level of risk for all roadways. In general, roadways with higher risk for non-motorist crashes have the following characteristics:

- 3- or 4-lane cross sections;
- Posted speeds between 25 and 40 mph;
- Functionally classified as collectors or arterials;
- Within 500 feet of an intersection, bus stop, sidewalk, or bike facility;
- Within one mile of a school; and/or
- Daily traffic volumes between 10,000 and 50,000 vehicles per day.

This dataset is overlaid with the pedestrian and bicycle crashes in the County from 2027-2021 in Figure 14. As shown, the historic bicycle and pedestrian crashes occurred on facilities with varying levels of risk based on this model. Interestingly, many of the pedestrian crashes occurred in or near residential developments on low-risk local streets, and none of the crash locations have sidewalks. The bike crashes are scattered geographically but are all located on roadways with moderate risk levels.

Figure 14. Non-Motorist Crashes and Risk



The bullets below highlight some of the key findings from the analysis of crash data spanning 2017-2021 within unincorporated Wilson County.

- Approximately 55% of fatalities and serious injuries occur on interstates and state routes, which only account for 18% of centerline miles.
- Angle, head-on, and single vehicle collisions represent ~70% of all crashes in the County but ~90% of all fatalities and serious injuries.
- Fatal and serious injury crashes are nearly evenly split between intersections (60%) and corridors (40%).
- Intersection crashes mostly occur under minor-street stop conditions and are more likely to result in angle and head-on collisions. Corridor crashes are mostly single-vehicle collisions where vehicles hit objects outside the travel way.
- Pedestrian crashes happened most often in or near residential developments on facilities with no sidewalks.

High Injury Network

To guide investment decisions, a High Injury Network was defined for unincorporated areas of Wilson County. The process for identifying the High Injury Network was two-fold. First, the High Injury Network reflects roadways that have a demonstrated history of fatal and serious injury crashes. With that in mind, the High Injury Network includes all roadways with more than one fatality. Second, the High Injury Network includes roadways that have significantly higher than average densities of those 'high-risk' crash types most often responsible for fatalities and serious injuries (i.e., head-on, angle, and single-vehicle collisions). The second criterion is based on the notion that, even if no fatality or serious injury occurred in the study timeframe, these facilities could have characteristics that may increase the potential for severe crashes and those should be proactively evaluated for improvements. To that end, roadway segments with more than 13 'high-risk' crashes per miles were included in the High Injury Network as well.

All roadways in the unincorporated areas were evaluated for inclusion in the High Injury Network regardless of ownership. After applying the criteria above, the High Injury Network includes 42 roadways segments and 12 spot locations. In total, this represents 134 miles of roadways, which equates to approximately 14% of centerline miles in the County and accounts for approximately 65% of all fatalities and serious injuries. Approximately 78 miles are State-owned facilities, and the remaining 56 miles are County-owned facilities. The High Injury Network is depicted in Figure 15 with more detailed descriptions presented in Table 2. The High Injury Network was the foundation for identifying strategies and project recommendations to reduce the number of fatalities and serious injuries in Wilson County.

Figure 15. High Injury Network

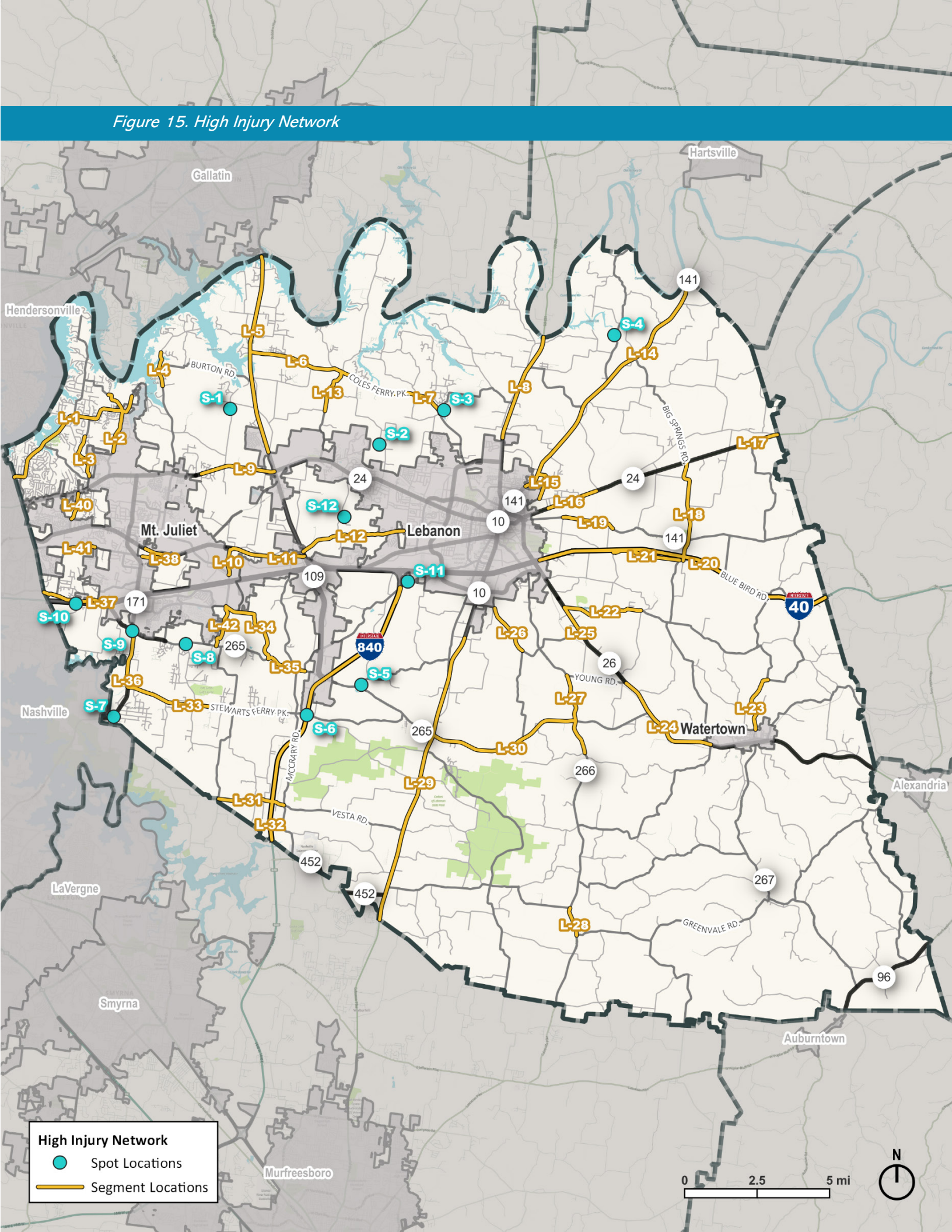


Table 2. High Injury Network Locations

Map ID	Location	Total Crashes	Fatalities + Serious Injuries	High Risk Crashes
L-1	Saundersville Road from Wilson/Davidson County Line to Kings Road	156	4	113
L-2	Nonaville Road from Singing Springs Road to Sports Road	86	2	70
L-3	N. Greenhill Road from Mt. Juliet City Limits to Hidden Ridge Circle	49	1	39
L-4	Benders Ferry Road from Gilley Road to Benton Harbor Boulevard	22	1	19
L-5	SR 109 from Lebanon City Limits to Wilson/Sumner County Line	625	13	221
L-6	Academy Road from SR 109 to Coles Ferry Pike	98	3	71
L-7	Coles Ferry Pike from Academy Road to Trice Road	85	5	64
L-8	SR 10 from Lebanon City Limits to Wilson/Sumner County Line	186	13	99
L-9	SR 24 from Beckwith Road to SR 109	137	3	52
L-10	Beckwith Road from Golden Bear Gateway to E. Division Street	23	0	14
L-11	E. Division Street from Beckwith Road to SR 109	95	2	82
L-12	Hickory Ridge Road from SR 109 to Lebanon City Limits	87	2	75
L-13	Cairo Bend Road from Smith Road to Coles Ferry Pike	31	2	30
L-14	SR 141 from Lebanon City Limits to Wilson/Trousdale County Line	176	10	118
L-15	Lovers Lane from Rome Pike to SR 141	10	2	16
L-16	SR 24 from Tribble Lane to Spring Creek Road	33	5	19
L-17	SR 24 from Swindell Hollow Road to Wilson/Smith County Line	26	1	20
L-18	Big Springs Road from SR 24 to I-40	109	4	96
L-19	SR 141 from Peyton Road to Bethany Lane	15	4	12
L-20	I-40 from Lebanon City Limits to Wilson/Smith County Line	461	16	213
L-21	Bluebird Road from Locust Grove Road to Linwood Road	22	2	19
L-22	Poplar Hill Road from SR 26 to Shop Springs Road	45	0	36
L-23	S. Commerce Road from Watertown City Limits to Bell Road	20	2	15
L-24	SR 26 from Watertown City Limits to Young Road	117	7	72

Map ID	Location	Total Crashes	Fatalities + Serious Injuries	High Risk Crashes
L-25	SR 26 from Lindsley Road to Poplar Hill Road	22	3	16
L-26	Tater Peeler Road from Lebanon City Limits to Tater Peeler Road	26	2	26
L-27	SR 266 from Greenwood Road to Burnt House Road	41	2	26
L-28	SR 266 from Salem Road to Greenvale Road	17	0	17
L-29	SR 10 from Hobbs Lane to Wilson/Rutherford County Line	254	17	185
L-30	SR 265 from SR 10 to SR 266	44	3	47
L-31	Vesta Road from Fellowship Road to McCreary Road	68	3	51
L-32	I-840 from Lebanon City Limits to Wilson/Rutherford County Line	207	8	137
L-33	Stewarts Ferry Pike from SR 171 to Shelley Drive	153	2	110
L-34	Posey Hill Road from SR 265 to Beckwith Road	77	0	64
L-35	SR 265 from Posey Hill Road to Franklin Road	43	0	38
L-36	SR 171 from Stewarts Ferry Pike to SR 265	87	1	65
L-37	SR 265 from Wilson/Davidson County Line to Adams Lane	65	5	64
L-38	Old Lebanon Dirt Road from E. Division Street to Mt. Juliet City Limits	30	1	20
L-39	E. Division Street from Clemmons Road to Old Lebanon Dirt Road	48	2	38
L-40	Greenhill Road from Mt. Juliet City Limits to SR 24	25	0	18
L-41	Old Lebanon Dirt Road from Chandler Radford Road to Kelsey Glenn Drive	20	2	16
L-42	Beckwith Road from SR 265 to Posey Hill Road	48	2	34
S-1	Cooks Road south of Northern Road	11	0	11
S-2	Horn Springs Road south of Plantation Boulevard	7	0	6
S-3	Cedar Grove Road east of Coles Ferry Pike	19	0	19
S-4	Beasleys Bend Road south of Locks Road	8	0	7
S-5	Intersection of SR 265 and Oak Grove Road	35	2	27
S-6	I-840 and Stewarts Ferry Pike Interchange	5	1	4

Map ID	Location	Total Crashes	Fatalities + Serious Injuries	High Risk Crashes
S-7	Intersection of SR 171 and S. Mount Juliet Road	29	0	13
S-8	Intersection of SR 265 and Logue Road	10	1	6
S-9	Intersection of SR 265 and SR 171	90	0	39
S-10	John Hager Road north of Hill Dale Drive	10	0	10
S-11	Intersection of Franklin Road and Eddins Road	10	0	9
S-12	Palmer Road north of Hickory Ridge Road	8	1	8

Equity Considerations

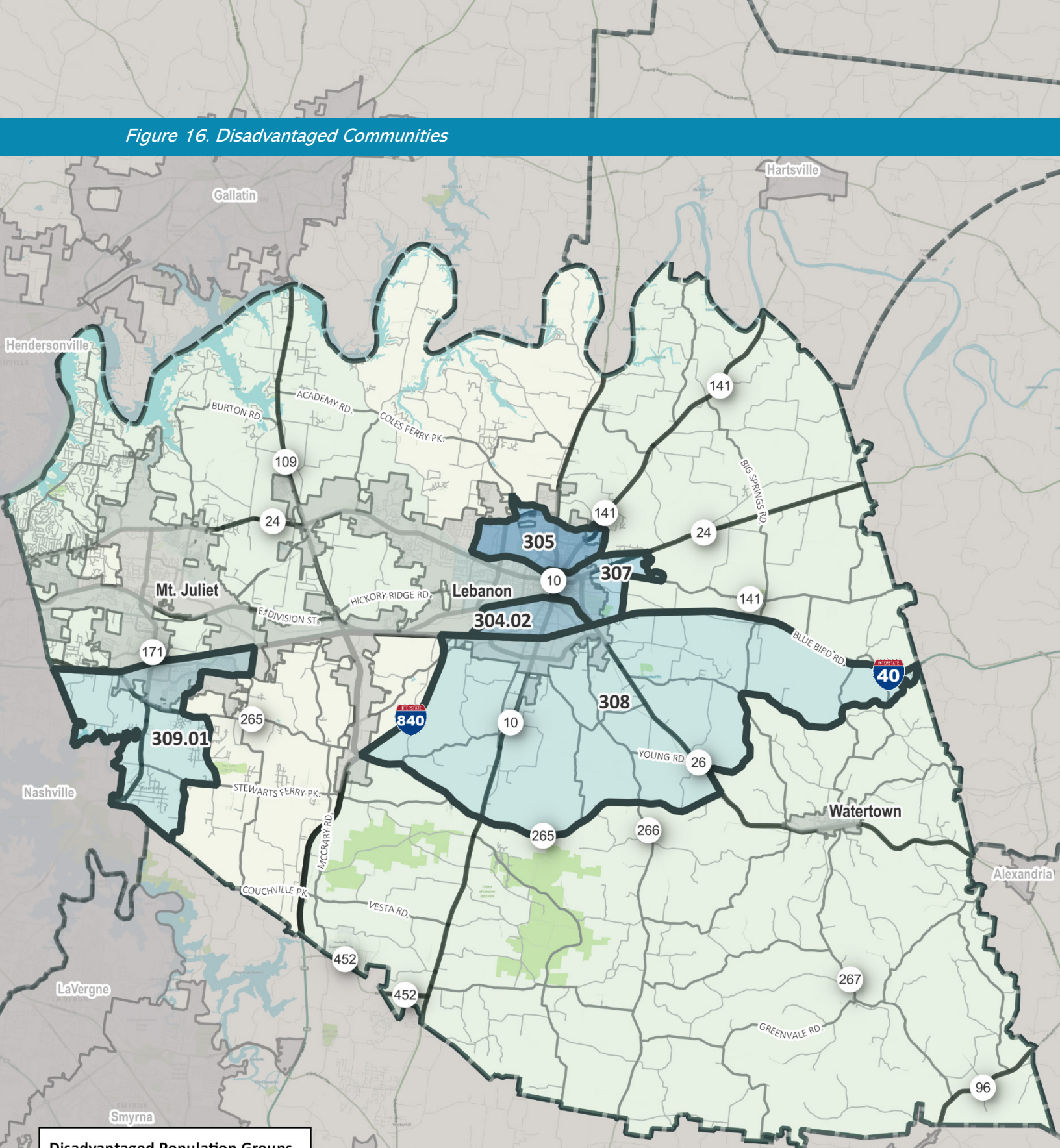
Transportation investments across the country have not historically benefited all population groups equally or equitably. As such, key components of the SS4A program and this CSAP include acknowledging and analyzing relationships between roadway safety issues and concentrations of vulnerable populations, targeted engagement of those traditionally underserved groups, and an initial evaluation of how vulnerable populations may be impacted by proposed safety improvements resulting from this plan.

As a first step in developing the CSAP, Census tract level data for all of Wilson County was sourced from the SS4A Underserved Communities online tool, which was developed as part of the Justice40 Initiative. This tool utilizes the American Community Survey (ACS) 5-Year Estimates from 2015-2019 to identify tracts that exceed the 50th percentile across at least four of the six indictors described below:

- **Transportation Access Disadvantage** identifies communities and places that spend more, in time and money, to get where they need to go.
- **Health Disadvantage** identifies communities based on variables associated with adverse health outcomes, disability, as well as environmental exposures.
- **Environmental Disadvantage** identifies communities with disproportionate pollution burden and inferior environmental quality.
- **Economic Disadvantage** identifies areas and populations with high poverty, low wealth, lack of local jobs, low homeownership, low educational attainment, and high inequality.
- **Resilience Disadvantage** identifies communities vulnerable to hazards caused by climate change.
- **Equity Disadvantage** identifies communities with a high percentile of persons (age 5+) who have a lower proficiency in English.

As shown in Figure 16, there are five Census tracts that meet this definition of a highly disadvantaged area in Wilson County, all of which are located at least partially within the municipal limits of Mt. Juliet or Lebanon. Based on this data, 26% of Wilson County's total population of 136,666 resides in a disadvantaged Census tract. Figure 16 includes a table that highlights the specific disadvantages of each tract based on the above definitions.

Figure 16. Disadvantaged Communities



Disadvantaged Population Groups

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- Highly Disadvantaged Areas

Census Tract	Transportation Disadvantage	Health Disadvantage	Economic Disadvantage	Equity Disadvantage	Resiliency Disadvantage	Environmental Disadvantage	Total Disadvantage
304.02	✓	✓	✓	✓		✓	5
309.01	✓			✓	✓	✓	4
305	✓	✓	✓	✓	✓	✓	6
307	✓	✓	✓	✓		✓	5
308	✓	✓	✓		✓		4

0 2.5 5 mi

N

In addition, data on Wilson County's vulnerable population groups was sourced from the Greater Nashville Regional Council's analysis on Degrees of Vulnerability for its 13-county region. Using data from the same ACS 5-Year Estimates from 2015-2019, GNRC curated block group level data for 13 socioeconomic and demographic variables and identified each block group as being well below, below, at, above, or well above the regional averages for characteristics such as households in poverty, minority populations, senior and youth populations, disabled, unemployment, and others. Based on the proportion of all 13 populations compared to the regional average, all block groups were classified with a ranked degree of vulnerability. This data was used to supplement to the SS4A disadvantaged population data as it provides a more granular and regionally specific look at vulnerable populations in Wilson County. Figure 17 shows the relative degree of vulnerability of Wilson County block groups overlaid with the five Census tracts identified by the Justice40 Initiative as highly disadvantaged areas.

In total, there are 18 block groups with above average or well above average degrees of vulnerability in all of Wilson County, 10 of which are wholly or mostly located in the unincorporated areas. As shown, the County's most vulnerable populations are concentrated in and around Mt. Juliet and Lebanon as well as in the southeast portion of the unincorporated area. In these areas, the variables contributing most to the higher degrees of vulnerability include relatively high concentrations of senior and youth populations. As such, the age of occupants involved in crashes during the study period was collected in the data analysis. Of the 6,862 crashes occurring in the unincorporated portions of the County, 782 crashes (11.4%) involved a driver over the age of 65 and 933 crashes (13.6%) involved a driver under the age of 18. For comparison, those Wilson County residents over the age of 65 and between the ages of 15 and 19 represent approximately 15.6% and 6.4% of the total population, respectively, according to Census data. As it relates to crash severity, these drivers are responsible for 38 of the County's 251 fatalities and serious injuries.

The High Injury Network was examined in relation to these equity-related data sources to examine any potential correlations with historically disadvantaged and vulnerable population groups and identified safety issues. As shown in Figure 18, a majority of the High Injury Network locations (34 of 54) intersect a potentially vulnerable or disadvantaged area in Wilson County. Based on these findings, equity considerations were accounted for in the prioritization of safety needs on the High Injury Network.

Figure 17. Degrees of Vulnerability for Wilson County Block Groups

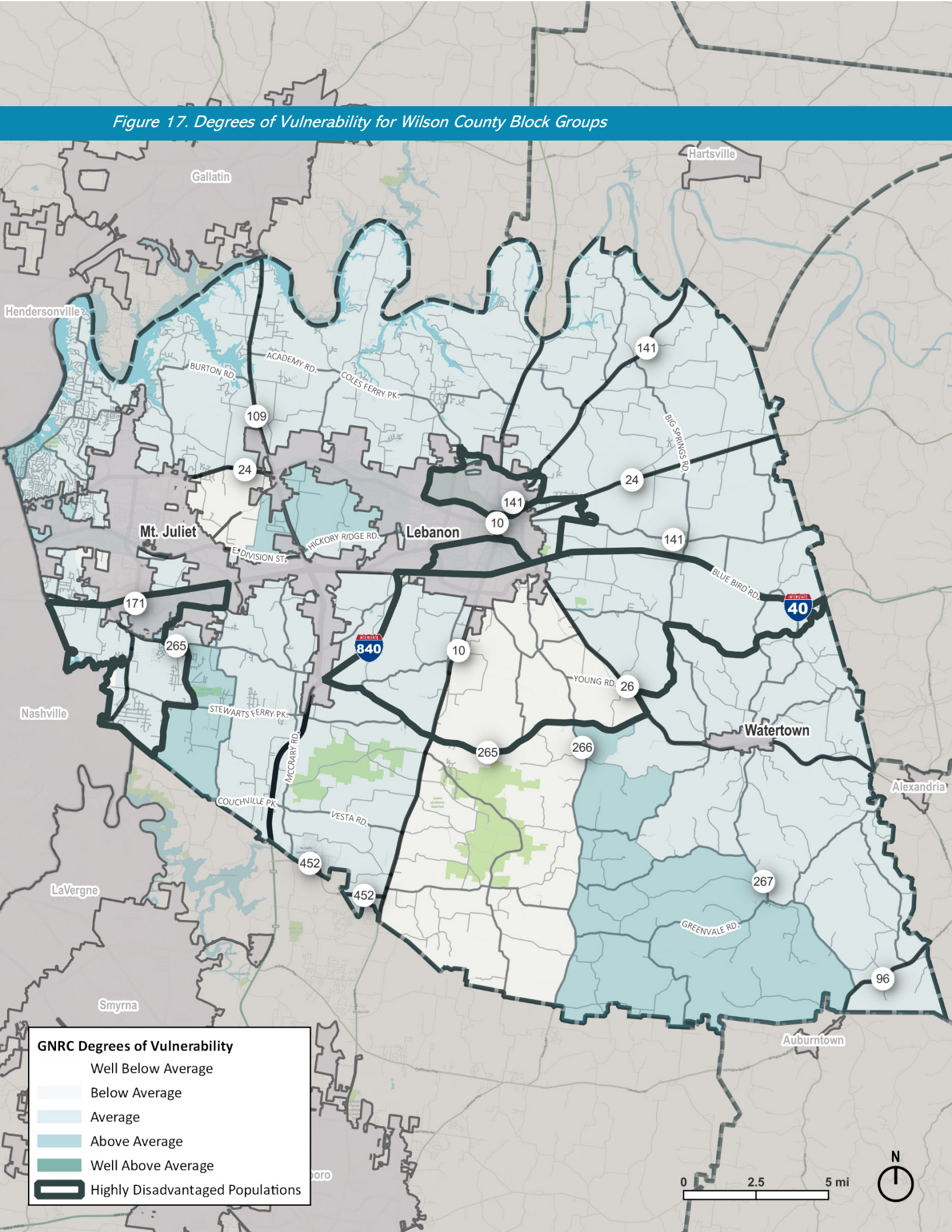
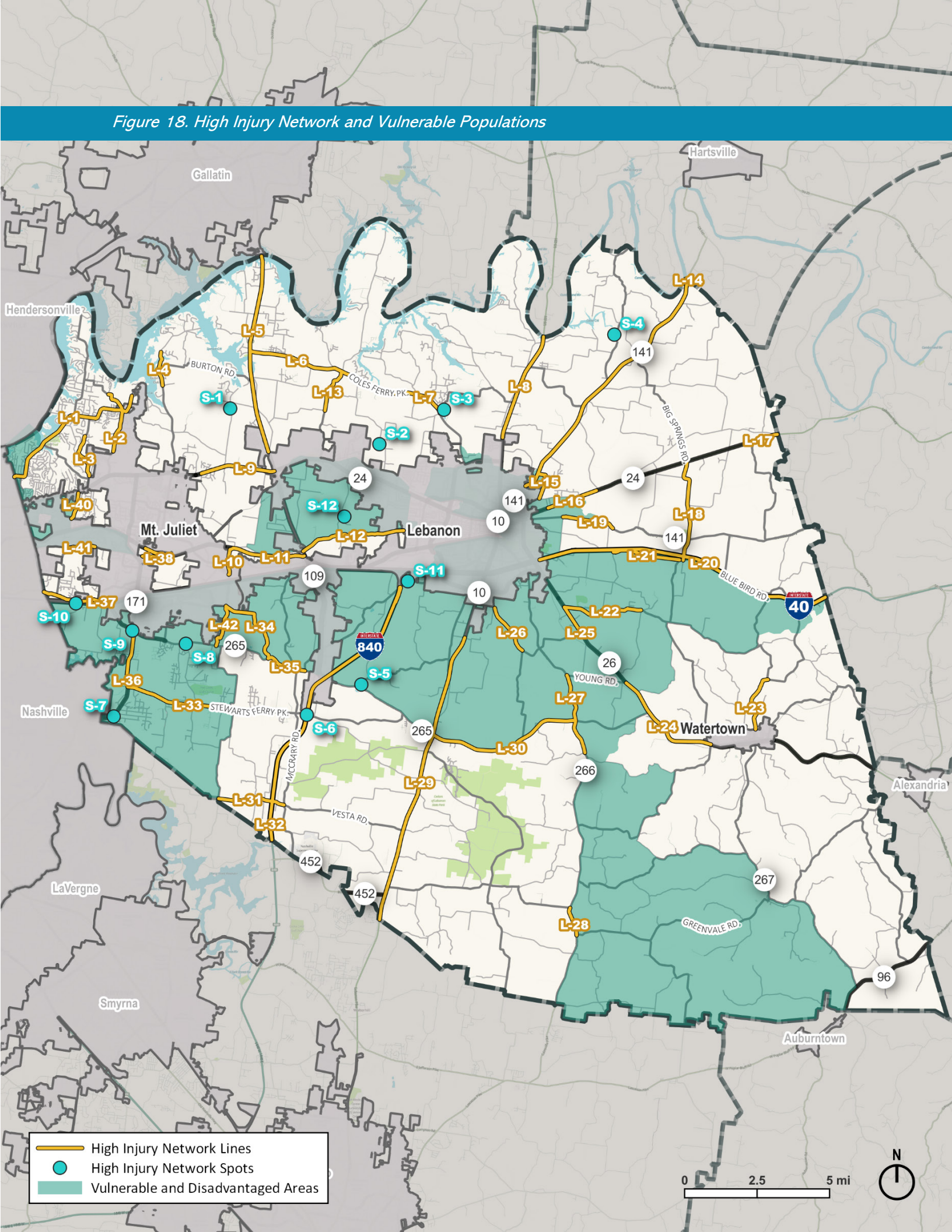


Figure 18. High Injury Network and Vulnerable Populations



Plan, Policy, and Process Review

There are many agencies involved in providing for the safety of the Wilson County transportation system and its users. The CSAP steering committee complemented by additional outreach to partner agencies provided a forum for understanding the existing plans, policies, and processes that impact roadway safety in Wilson County. Table 3 summarizes the findings from these discussions as well as research conducted, which revolved around the existing systems in place to address existing roadway safety issues and ensure future safeguards for users of the system. Table 3 is organized to highlight the past and current efforts, the responsible agencies, a brief description of relevancy of the plans, policies, and processes to the CSAP, and a general assessment of the contents, strengths, and weaknesses.

Most of the planning efforts conducted to date are important because they incorporate safety considerations into the analysis of roadway users, transportation trends, system deficiencies, and prioritized needs. The statewide plans largely focus on the safety of Tennessee's overall transportation system and are relevant in that they include progress reports on federally mandated performance measures (e.g., fatalities, fatality rates, etc.), monitor progress and expenditures on behavioral safety programs, and track implementation of safety projects with federal funds. They have little bearing on the Wilson County CSAP specifically except that they cast a vision for how federal and state funding programs will be used to address specific, statewide safety issues. The regional plans developed by GNRC provide a more refined look at the 7-county MPO planning area that includes Wilson County. In addition to significant data analysis related to roadway safety, inclusion of capital safety projects in the regional plans is the first step towards allocation of federal and state funds and eventual implementation of many large-scale transportation improvements.

At the local level, Wilson County has few planning documents with significant safety components. The collaborative bicycle and pedestrian plan does, however, provide a solid foundation for improving safety of non-motorized users with both infrastructure recommendations and policy guidance. Mostly, Wilson County relies on its development approval processes and policies (e.g., subdivision regulations, zoning ordinances, etc.) for ensuring that roadway designs meet the safety needs of the users.

Although not specific to a particular plan, policy, or process, discussions with the CSAP steering committee and other stakeholders resulted in the following key takeaways:

- The County Highway Department is responsible for fielding inquiries on roadway safety and maintenance from residents. If a complaint is filed on a County-owned roadway, the Highway Department will issue a work order to address the issue, and all other complaints are directed to the appropriate agency. As comments are received, staff log the complaints and track the associated work orders.

- Roadway maintenance activities in the County are scheduled in a 5-year plan based on available funding with the relative need/priority for repaving determined by field observations.
- In tandem with routine maintenance, the County Highway Department will evaluate the need for some safety-related improvements such as widening edge lines, but there is no formal process for evaluating those needs routinely or uniformly.
- The most significant barrier to making safety improvements on County roadways is funding.
- Approximately five years ago, the County made the decision to require turn lanes and deceleration lanes for all incoming development proposals with more than 50 residential lots. This requirement is imposed without any technical analysis as traffic impact studies are not typically required even though they are allowed for in the subdivision regulations.
- The County has an informal policy of not acquiring property, whether by condemnation or purchase, to make roadway improvements. This creates a significant barrier to the County's ability to make any upgrades that would require additional width (e.g., widening travel lanes, widening shoulders, etc.).
- There are intentionally few traffic signals located in the unincorporated areas as the County has limited funding and technical staff to maintain the signals once constructed and operational.
- There is significant concern about freight traffic on County roads, specifically in the Gladeville community near the I-840 interchanges and distribution facilities.
- There is growing concern regarding the County's ability to maintain or improve the transportation system particularly as developments continue to get approval without improving the roadway cross section, capacity, or safety.
- Wilson County currently collects an adequate facilities tax with incoming building permit applications for new residential developments. This tax was most recently increased in 2019 from $3,000 to $5,000 per residential unit. Two-thirds of the funds are used for existing debt service and one-third is used to fund short term capital projects.

Table 3. Review of Safety-Related Plans, Policies, and Processes

Existing Plans, Policies, Processes	Responsible Agency	Relevancy	Assessment
Strategic Highway Safety Plan (SHSP)	TDOT	Identifies safety-related issues that result in fatalities and serious injuries and provides strategies to mitigate those issues with data-driven and collaborative approaches	▪ SHSP aligns with Vision Zero goal of eliminating roadway fatalities but remains focused on '4E' approach instead of the Safe System Approach. ▪ Significant collaboration with other State, regional, and advocacy agencies creates buy in, but little involvement of local governments. ▪ Safety emphasis areas are tied to federally required tracking of safety performance measures, which helps link statewide trends to allocation of safety funds. ▪ High-level strategies are aligned with emphasis areas with responsible agencies and ways to measure progress in subsequent SHSP updates. ▪ While proposed safety strategies are very high-level and typically assigned to state agencies for implementation, SHSP outlines resulting safety-related programs available for local governments.
Highway Safety Improvement Program (HSIP) Annual Report	TDOT Project Safety Office	In order to maintain funding eligibility, identifies program eligibility and progress being made toward advancing State's safety goals through expenditure of federal HSIP dollars	▪ All state-led initiatives funded through the HSIP are outlined with qualifying criteria for the various efforts. ▪ Safety performance measure data, targets, and assessment of SHSP alignment are provided in detail.
Highway Safety Plan Annual Report	Tennessee Highway Safety Office	Identifies previous year's activities and progress towards safety performance targets	▪ Identifies areas for improvement where safety targets are not met and funding allocations to agencies assisting with related programs.

Existing Plans, Policies, Processes	Responsible Agency	Relevancy	Assessment
Nashville Area MPO Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP)	GNRC	Federally required documents that are routinely updated and outline trends in transportation safety, assesses performance measure attainment, and programs federal funds for transportation projects in the 7-county planning area	▪ Input from the public and stakeholders is directly tied to the prioritization of projects. ▪ Municipal and County governments influence project programming through the Transportation Policy Board and RTP/TIP approval processes. ▪ Local governments can submit projects of any size for consideration in federal, state, and local funding programs. ▪ Prioritization of federally funded projects and programs incorporates historic roadway, bicycle, and pedestrian safety and focuses on significant impacts to safety performance measures. ▪ RTP takes a holistic assessment of the system that ties safety issues to land use, roadway operations, infrastructure conditions, equity, etc. and provides regional comparisons of safety performance.
Mt. Juliet, Lebanon, Wilson County Bicycle & Pedestrian Master Plan	Wilson County Planning Department	Completed in 2002, includes recommendations for improvements to the non-motorized network in all of Wilson County	▪ The recommended bicycle and pedestrian network includes mostly off-road facilities, which improves safety for those non-motorized system users. ▪ Would benefit from an update and more inclusion of on-road bike and pedestrian facilities. ▪ Draft language is provided for a future County's sidewalk ordinance, which would require new residential and commercial developments to construct sidewalks. ▪ Design standards for on-road and off-road pedestrian and bikeway facilities are provided for future use by the County and its municipalities. These standards conform to engineering guidelines and emphasize safety of non-motorized roadway users.

Existing Plans, Policies, Processes	Responsible Agency	Relevancy	Assessment
Wilson County Subdivision Regulations	Wilson County Planning Department	Determines transportation infrastructure to be included with new developments	▪ Construction of a center turn lane and acceleration/deceleration lanes are required where developments access the road system by intersection and exceed 50 residential lots. ▪ Desired cross sections and rights-of-way are outlined based on roadway functional classification. ▪ Safety-related features of roadway design are spelled out including, horizontal and vertical curvature tolerances, centerline offsets for intersection approaches, signage, etc. ▪ Requirement for sidewalk installations on one side or both sides of arterial streets in the vicinity of schools and in other locations where the planning commission considers them needed. ▪ Standard sidewalk widths of 4 feet, 5 feet, and 10 feet are required in single-family, multi-family, and commercial developments, respectively. ▪ Letter of credit/bonds are allowed for a 1-year period if the Planning Commission determines that development-necessitated improvements cannot be made at the time of plat approval (i.e., fee in lieu is allowed).
Wilson County Standard Road and Drainage Specifications	Wilson County Road Commission	Outlines design and material specifications to ensure safety of new streets	▪ Standard cross sections and ROW are included based on functional class and land use context. ▪ Specifications require that developers maintain roadways and related elements (e.g., signs, drainage structures, etc.) for a 2-year period after construction is complete.

Existing Plans, Policies, Processes	Responsible Agency	Relevancy	Assessment
Wilson County Major Thoroughfare Plan	Wilson County Planning Department	Updated in 2018, links existing and future land use with transportation network	▪ Desired cross sections and ROW are enumerated based on functional class. ▪ Cross sections only describe the general elements (e.g., travel lanes, shoulders, turn lanes, etc.) but do not provide more detail (e.g., width, non-motorized facility type, etc.). ▪ No consideration is given to various land use contexts throughout the County.

Strategy and Project Recommendations

The analysis of crash data in Wilson County showed that safety issues exist along 42 corridors and 12 spot locations as defined through the development of the High Injury Network. Furthermore, the review of the statewide, regional, and local plans showed that there are few significant capital projects planned to address safety concerns in these locations and that there are existing gaps in the policy framework that could help address safety issues more broadly. As such, a primary goal of the CSAP was to develop strategic policy recommendations that could help Wilson County take a more proactive approach to achieving its commitment to zero deaths and serious injuries on the roadway network and identify a series of infrastructure improvements that would address many of the safety issues observed in the trends analysis.

Strategic Recommendations

As a first step in identifying appropriate projects and strategies to address safety, a toolbox of countermeasures specifically applicable to rural roadway safety was compiled and is included in Appendix D. The toolbox organizes physical safety improvements and policies by the five objectives in the Safe System Approach – safe users, safe vehicles, safe roads, safe speeds, and post-crash care – and documents the crash reduction potential where applicable. This toolbox served as the foundation for making recommendations on the High Injury Network. The second step of analysis was further analyzing crash data associated with the High Injury Network locations in tandem with a desktop review of aerial imagery and street views using Google Earth. Based on this review of the High Injury Network, the following can be discerned:

- Many of the County's roadways have minimal shoulders with most facilities having no paved width outside the edge line. Moreover, many of the more rural roadway cross sections include limited right-of-way, which often results in minimal clear zones and obstructions (e.g., trees, mailboxes, utility poles, etc.) located close to traveling vehicles.
- Combinations of vertical and horizontal curvature often limit sight distance along roadway segments and at intersections. In addition, dense vegetation along the roadside also contributes to this safety issues in many locations.
- Many locations in the High Injury Network occur in horizontal curves, which often include advanced warning signs, chevron alignment signs, and guardrail. In-field observations indicate many of these signs are worn and there is evidence of vehicles hitting them.
- Posted speeds vary on County-owned portions of the High Injury Network though it is generally feasible to drive above the posted speed on many of these roadways.
- There is little to no lighting on rural roadways with the majority of existing lighting occurring at a few major intersections with State Routes.
- Many of the County roadways on the High Injury Network are parallel to major State facilities and could potentially be serving as alternative routes during congested peak hours. Examples

include Stewarts Ferry Pike, Old Lebanon Dirt Road, E. Division Street, Saundersville Road, and Hickory Ridge Road.

- County roads often do not include deceleration lanes at major unsignalized intersections.
- State Routes on the High Injury network include a variety of cross sections, but most are 2-lane roadways. The primary exception is SR 109, which consists of two travel lanes in each direction and a center two-way left-turn lane for much of its length in the unincorporated County.
- Interstates have the highest number of crashes due to increased exposure. A significant proportion of the crashes are typically associated with congested conditions (e.g., rear-end crash types) and do not often result in fatalities or serious injuries. Historic traffic volumes data shows continued growth on the Interstates, which could result in increased exposure on these facilities.

Based on these findings, strategic recommendations for the Wilson County roadway network were developed and are presented in Table 4. These recommended strategies were identified specifically for the unincorporated portions of Wilson County based on the data analysis presented in this plan. Table 4 includes the 15 strategic recommendations with a general description, the applicable pillar in the Safe System Approach, implementing and partner agencies (with a lead agency in bolded text), and a general timeframe for implementation. The implementation timeframes were developed in coordination with the CSAP steering committee based on anticipated cost and coordination needed with partner agencies.

Table 4. Strategic Recommendations for Wilson County

Recommendation	Description	Safe System	Agency Involvement	Implementation Timeframe
Create a County Safety Committee	Work with County and partner agencies to create a committee/working group to oversee, guide, and coordinate implementation of CSAP recommendations.	All	**Wilson County Road Commission**	Short-Term (<1 year)
Champion a Vision Zero Education and Awareness Campaign	Launch an educational and marketing campaign to raise public and stakeholder awareness of Vision Zero principles, goals, and initiatives specific to Wilson County.	All	**Wilson County Safety Committee**	Mid-Term (1-3 years)
Evaluate Incident Management Protocols	Work with TDOT, TDSHS, Wilson County Police, and EMS to ensure protocols used during traffic incidents are coordinated and communicated efficiently among all agencies.	Post-Crash Care	**Wilson County Safety Committee** Wilson County Sherriff's Office TN Department of Safety and Homeland Security TN Department of Transportation	Mid-Term (1-3 years)
Enhance Crash Data Collection	Work with partner agencies to improve data collection following crashes. This includes assessing the usability of crash reporting tools, applicability of data collected, need for additional crash variables, and tracking of injury status post-crash.	Post-Crash Care	**Wilson County Safety Committee** Wilson County Sherriff's Office Local Hospitals Wilson County Health Department TN Department of Safety and Homeland Security TN Department of Transportation	Mid-Term (1-3 years)
Create Transparent Safety Data Tracking and Information	Create a page on the County's website dedicated to communicating information on roadway safety for residents. At a minimum, it should be used to disperse information on the CSAP, provide access to crash data and trends (directly or via another agency website), communicate progress on safety projects, and provide opportunity for residents to report safety issues.	All	**Wilson County Government** Wilson County Safety Committee Wilson County Road Commission Wilson County Highway Department	Short-Term (<1 year)

Recommendation	Description	Safe System	Agency Involvement	Implementation Timeframe
Create Comprehensive Speed Evaluation Program	Develop a program to systematically collect traffic speed data and re-evaluate posted and default speed limits on County roadways.	Safe Speeds	**Wilson County Highway Department** TN Department of Transportation Wilson County Sherriff's Office	Mid-Term (1-3 years)
Implement Traffic Calming Devices	Based on speed evaluation program outcomes, implement appropriate traffic calming devices on County roadways (e.g., radar feedback signs, revised striping, intersection treatments, etc.)	Safe Speeds Safe Roads Safe Users	**Wilson County Highway Department** Wilson County Schools	Long-Term (3+ years)
Conduct Targeted Enforcement	Work with local law enforcement to identify priority times and locations for traffic enforcement to reduce instances of dangerous driver behavior including speeding, aggressive driving, impaired driving, running stop signs, etc.	Safe Speeds Safe Users	**Wilson County Sherriff's Office** TN Department of Safety and Homeland Security Tennessee Highway Patrol	Ongoing
Improve Access Management on Multi- Lane Arterials	Work with partner agencies to evaluate potential for improved access management on multi-lane arterials. Special emphasis should be given to working with TDOT on evaluating SR 109 for closure of private driveways, construction of center medians, turn lane restrictions, signalization, etc. as a way to mitigate high incidences of crashes at intersections along the corridor.	Safe Roads	**TN Department of Transportation** Wilson County Government Wilson County Highway Department	Long-Term (3+ years)
Conduct Road Safety Audits on State Corridors	Work with TDOT to evaluate State-owned facilities on the High Injury Network for potential safety improvements through the RSAR process.	Safe Roads	**TN Department of Transportation** Wilson County Highway Department	Ongoing
Improve Safety Through Routine Maintenance	As County roadways are up for routine paving and maintenance, evaluate the need and opportunity for enhanced safety features. This could include improved shoulders, enhanced pavement markings, improved sign retro reflectivity, etc.	Safe Roads	**Wilson County Highway Department**	Ongoing

Recommendation	Description	Safe System	Agency Involvement	Implementation Timeframe
Evaluate Existing Horizontal and Vertical Curvature Issues	Beginning with the High Injury Network, conduct in-field investigations of locations with known horizontal and vertical curvature. These investigations would evaluate the presence, spacing, visibility, and performance of existing signage and would result in recommendations for improvements where needed (e.g., improved curve delineation with advanced warning signs, sequential flashing chevrons, reflective strips on signposts, pavement markings, rumble strips, guardrail, high friction pavements, centerline markers, etc.).	Safe Roads Safe Speeds	**Wilson County Highway Department** TN Department of Transportation	Short-Term (<1 year)
Evaluate Signage at Unsignalized Intersections	For all unsignalized intersections along the High Injury Network, evaluate the visibility and usefulness of existing signage. This evaluation should first emphasize minor-street stop-controlled intersections and then all-way stop intersections. Following the evaluation, identify opportunities to improve signage to achieve compliance with traffic control, increase driver information, improve nighttime visibility, etc. and determine need for supplemental intersection features (e.g., transverse rumble strips, flashing beacons, lighting, improved sight distance, etc.).	Safe Roads Safe Speeds Safe Users	**Wilson County Highway Department** TN Department of Transportation	Mid-Term (1-3 years)

Recommendation	Description	Safe System	Agency Involvement	Implementation Timeframe
Create Program for Systematic Shoulder Widening	Beginning with the High Injury Network, create systematic program for evaluating the need for improved shoulders on County roads with the goal of reducing roadway departure crashes. Based on this evaluation, improving shoulder widths should be prioritized based on existing width, ROW limitations, roadway departure crashes, and opportunity to align with other capital and maintenance activities.	Safe Roads	**Wilson County Highway Department** TN Department of Transportation	Long-Term (3+ years)
Evaluate Development Review Practices and Requirements	Review the existing County guidelines on requirements for new developments to ensure that safety-related improvements can be required with incoming proposals. Based on this review and the CSAP, ensure that provision of deceleration lanes, appropriate bicycle and pedestrian infrastructure, and safety-related signage is required for developments located along the High Injury Network. In addition, review the recommended design guidelines for County roads to ensure adequate ROW dedications for future roadway improvements related to safety.	Safe Roads	**Wilson County Planning Department** Wilson County Highway Department	Short-Term (<1 year)

Prioritization of Safety Needs

In addition to the larger strategies specified in Table 4, project-level solutions were identified for each of the High Injury Network locations. Various examples of safety improvements were presented to the public in a visual preference survey to first understand the types of solutions residents felt were most needed in the unincorporated areas. Based on that input as well as a review of crash data and aerial imagery, a general solution was identified for each of the 54 locations. The types of solutions explored included the following:

- Adding signs and/or pavement markings
- Adding guardrail
- Reducing posted speed limits
- Clearing vegetation and/or clear zone maintenance
- Signalizing intersections
- Increasing street lighting and/or sign retroreflectivity
- Adding turn lanes at intersections
- Widening shoulders
- Widening travel lanes
- Reconfiguring intersections
- Enhancing pedestrian accommodations

Once project-specific recommendations were finalized, the need for these solutions along the High Injury Network was scored according to the metrics and associated weights outlined in Table 5. The metrics were selected to underscore the historic crash patterns observed in the County, prioritize improvements that would benefit more vulnerable populations, and help the County prioritize limited capital funding. The weights associated with each metric were determined through the aforementioned public input process.

Table 5. Prioritization Criteria and Weights

Prioritization Criteria	Metrics	Maximum Point Allocation
Safety	Total Crashes	15%
	Fatal and Serious Injury Crashes	20%
	Crash Rate	15%
Congestion	Volume-to-Capacity Ratio	15%
Equity	Proximity to Vulnerable Populations	10%
Feasibility	Implementation Timeframe	10%
Growth and Development	Population and Employment Growth	15%

Table 6, which is sorted by the total points received in the prioritization, includes the list of general project recommendations for all High Injury Network locations along with the assumed implementation timeframe. The latter was based on coordination with the CSAP steering committee, project scope, planning level costs, availability of ROW, alignment with other capital and maintenance activities, and anticipated need for coordination with other entities. In total, there are 25 short-term, 12 mid-term, and 17 long-term improvements recommended. Detailed scoring of all High Injury Network locations and detailed information on the scoring criteria are included in Appendix E.

The list of improvements at the 54 High Injury Network locations is both extensive and high-level. This list serves as a starting point for addressing safety issues along the most dangerous portions of the State- and County-owned roadway network. With a goal of implementation, however, this list was further refined to identify top improvement locations for Wilson County to prioritize for funding. The 10 highest scoring County-owned facilities according to the prioritization of the High Injury Network Locations were selected as the priority locations.

For each of the priority locations, detailed crash data was used to understand patterns in driver behavior and to recommend capital improvements that would address the observed issues. In addition, field reviews of the locations were conducted as needed. A summary of the more detailed recommendations for each priority location is included in Appendix F.

Table 6. General Recommendations for Wilson County's High Injury Network

HIN ID	Location and Termini	General Recommendations	Prioritization Score	Implementation Timeframe
L-8	SR 10 from Lebanon City Limits to Wilson/Sumner County Line	Add signs and/or pavement markings	90	Short-Term (< 1 year)
L-5	SR 109 from Lebanon City Limits to Wilson/Sumner County Line	Add turn lanes at intersections	85	Mid-Term (1-3 years)
L-9	SR 24 from Beckwith Road to SR 109	Increase street lighting and/or sign retroreflectivity	75	Mid-Term (1-3 years)
L-29	SR 10 from Hobbs Lane to Wilson/Rutherford County Line	Reconfigure intersections	67	Long-Term (3-5 years)
L-37	SR 265 from Wilson/Davidson County Line to Adams Lane	Widen shoulders	65	Long-Term (3-5 years)
S-8	Intersection of SR 265 and Logue Road	Add signs and/or pavement markings	64	Short-Term (< 1 year)
L-14	SR 141 from Lebanon City Limits to Wilson/Trousdale County Line	Add turn lanes at intersections	63	Mid-Term (1-3 years)
L-31	Vesta Road from Fellowship Road to McCreary Road	Widen travel lanes	62	Long-Term (3-5 years)
L-11	E. Division Street from Beckwith Road to SR 109	Add guardrail	60	Short-Term (< 1 year)
L-2	Nonaville Road from Singing Springs Road to Sports Road	Add signs and/or pavement markings	58	Short-Term (< 1 year)
L-18*	Big Springs Road from SR 24 to I-40	Add signs and/or pavement markings	57	Short-Term (< 1 year)
L-19	SR 141 from Peyton Road to Bethany Lane	Add signs and/or pavement markings	57	Short-Term (< 1 year)
L-32	I-840 from Lebanon City Limits to Wilson/Rutherford County Line	Widen shoulders	57	Long-Term (3-5 years)
L-1	Saundersville Road from Wilson/Davidson County Line to Kings Road	Increase street lighting and/or sign retroreflectivity	55	Mid-Term (1-3 years)
L-3	N. Greenhill Road from Mt. Juliet City Limits to Hidden Ridge Circle	Add turn lanes at intersections	55	Mid-Term (1-3 years)

**Note: The County Highway Department has a project planned to resurface and widen the shoulders on Big Springs Road.*

HIN ID	Location and Termini	General Recommendations	Prioritization Score	Implementation Timeframe
L-6	Academy Road from SR 109 to Coles Ferry Pike	Increase street lighting and/or sign retroreflectivity	52	Mid-Term (1-3 years)
L-16	SR 24 from Tribble Lane to Spring Creek Road	Add signs and/or pavement markings	52	Short-Term (< 1 year)
L-20	I-40 from Lebanon City Limits to Wilson/Smith County Line	Widen shoulders	52	Long-Term (3-5 years)
L-26	Tater Peeler Road from Lebanon City Limits to Tater Peeler Road	Clearing vegetation/clear zone maintenance	52	Short-Term (< 1 year)
L-33	Stewarts Ferry Pike from SR 171 to Shelley Drive	Widen travel lanes	52	Long-Term (3-5 years)
L-42	Beckwith Road from SR 265 to Posey Hill Road	Add signs and/or pavement markings	52	Short-Term (< 1 year)
L-39	E. Division Street from Clemmons Road to Old Lebanon Dirt Road	Add signs and/or pavement markings	50	Short-Term (< 1 year)
L-36	SR 171 from Stewarts Ferry Pike to SR 265	Widen travel lanes	47	Long-Term (3-5 years)
S-7	Intersection of SR 171 and S. Mount Juliet Road	Reduce posted speed	47	Mid-Term (1-3 years)
S-12	Palmer Road north of Hickory Ridge Road	Clearing vegetation/clear zone maintenance	47	Short-Term (< 1 year)
L-7	Coles Ferry Pike from Academy Road to Trice Road	Increase street lighting and/or sign retroreflectivity	45	Mid-Term (1-3 years)
L-34	Posey Hill Road from SR 265 to Beckwith Road	Add signs and/or pavement markings	45	Short-Term (< 1 year)
L-21	Bluebird Road from Locust Grove Road to Linwood Road	Reduce posted speed	44	Short-Term (< 1 year)
L-24	SR 26 from Watertown City Limits to Young Road	Widen shoulders	44	Long-Term (3-5 years)
L-30	SR 265 from SR 10 to SR 266	Widen shoulders	44	Long-Term (3-5 years)
S-6	I-840 and Stewarts Ferry Pike Interchange	Signalize intersection	44	Mid-Term (1-3 years)

HIN ID	Location and Termini	General Recommendations	Prioritization Score	Implementation Timeframe
L-41	Old Lebanon Dirt Road from Chandler Radford Road to Kelsey Glenn Drive	Add signs and/or pavement markings	42	Short-Term (< 1 year)
L-12	Hickory Ridge Road from SR 109 to Lebanon City Limits	Widen shoulders	40	Long-Term (3-5 years)
S-9	Intersection of SR 265 and SR 171	Add turn lanes at intersection	40	Mid-Term (1-3 years)
L-13	Cairo Bend Road from Smith Road to Coles Ferry Pike	Add signs and/or pavement markings	39	Short-Term (< 1 year)
L-17	SR 24 from Swindell Hollow Road to Wilson/Smith County Line	Reconfigure intersections	39	Long-Term (3-5 years)
L-25	SR 26 from Lindsley Road to Poplar Hill Road	Add signs and/or pavement markings	39	Short-Term (< 1 year)
L-27	SR 266 from Greenwood Road to Burnt House Road	Reconfigure intersections	39	Long-Term (3-5 years)
S-1	Cooks Road south of Northern Road	Add signs and/or pavement markings	39	Short-Term (< 1 year)
S-2	Horn Springs Road south of Plantation Boulevard	Increase street lighting and/or sign retroreflectivity	39	Short-Term (< 1 year)
S-4	Beasleys Bend Road south of Locks Road	Add signs and/or pavement markings	39	Short-Term (< 1 year)
S-5	Intersection of SR 265 and Oak Grove Road	Reconfigure intersection	39	Long-Term (3-5 years)
S-11	Intersection of Franklin Road and Eddins Road	Add signs and/or pavement markings	39	Short-Term (< 1 year)
L-15	Lovers Lane from Rome Pike to SR 141	Add signs and/or pavement markings	37	Short-Term (< 1 year)
L-22	Poplar Hill Road from SR 26 to Shop Springs Road	Add signs and/or pavement markings	37	Short-Term (< 1 year)
L-23	S. Commerce Road from Watertown City Limits to Bell Road	Add signs and/or pavement markings	37	Short-Term (< 1 year)
L-28	SR 266 from Salem Road to Greenvale Road	Add guardrail	37	Short-Term (< 1 year)

HIN ID	Location and Termini	General Recommendations	Prioritization Score	Implementation Timeframe
L-4	Benders Ferry Road from Gilley Road to Benton Harbor Boulevard	Reduce posted speed	34	Short-Term (< 1 year)
L-38	Old Lebanon Dirt Road from E. Division Street to Mt. Juliet City Limits	Widen shoulders	34	Long-Term (3-5 years)
S-10	John Hager Road north of Hill Dale Drive	Increase street lighting and/or sign retroreflectivity	34	Mid-Term (1-3 years)
S-3	Cedar Grove Road east of Coles Ferry Pike	Widen shoulders	31	Long-Term (3-5 years)
L-35	SR 265 from Posey Hill Road to Franklin Road	Add turn lanes at intersections	30	Mid-Term (1-3 years)
L-40	Greenhill Road from Mt. Juliet City Limits to SR 24	Widen shoulders	29	Long-Term (3-5 years)
L-10	Beckwith Road from Golden Bear Gateway to E. Division Street	Reconfigure intersections	21	Long-Term (3-5 years)

Both project and strategy recommendations were evaluated for potential equity impacts, namely any negative impacts of the recommendations that may disproportionately impact vulnerable population groups. Based on the types of recommendations made as part of this CSAP, there are potential impacts that could be perceived as negative including, but not limited to:

- Acquisition of private right-of-way to widen existing roadways and/or address other safety issues;
- Increased traffic volumes and/or speeds as a result of traffic calming features on adjacent streets;
- Additional police presence and citations for traffic violations;
- Increased travel times due to access restrictions; and
- Installation of roadway signs along private property frontage.

In total, 21 of the total 54 High Injury Network locations overlap with a disadvantaged Census tract according to the Justice40 Initiative's methodology. That number decreases when comparing the High Injury Network to GNRC's vulnerable population groups in Wilson County, which primarily include residents under age 18 and over age 65. According to the Justice40 Initiative methodology, the disadvantaged Census tracts located mostly in the unincorporated areas consist of populations that generally have longer travel times, higher likelihoods of adverse health conditions, inferior environmental quality, high levels of economic inequity, concentrations of people who do not speak English very well, and/or higher risks for climate-related hazards. Based on the potentially negative impacts described above, it is not anticipated that implementation of the safety projects in this plan will negatively impact those vulnerable and/or disadvantaged population groups disproportionately.

Implementation and Measuring Progress

The Wilson County CSAP represents a significant step towards addressing safety issues in the unincorporated area. With a combination of both strategy and infrastructure recommendations, this plan provides the County with a roadmap for mitigating historic safety issues and proactively tackling other hazardous roadway conditions. Moving forward, a critical piece of this plan is outlining the methods by which these recommendations can be implemented.

Coordination and Funding

There are two main ingredients for successful implementation of the CSAP strategies and projects. The first is coordination with agency partners and the second is funding. Many of the recommendations, whether capital projects or strategies, require at least some coordination with partner agencies and in many cases, require active participation from them. For this reason, a short-term strategy recommendation is for the creation of a safety committee/working group. This group would consist of representatives from various County, regional, and State agencies directly involved with or impacted by the CSAP recommendations. Following the endorsement of the CSAP, this committee would be tasked with pursuing funding for infrastructure improvements, coordinating with external stakeholders, and continually monitoring progress on CSAP implementation.

Federal, State, and local funding can be used for safety-related infrastructure improvements. Each of these sources has different eligibility, match, and expenditure requirements that may impact their usability. The primary sources of funding in Tennessee, specifically for potential pursuit by Wilson County, are highlighted below. In general, the federal HSIP, SS4A, and STBG programs are a significant share of available revenue sources to fund safety projects on roadways. Projects focused more on safety of non-motorized users could utilize funds from the federal STBG program or through the State-administered and competitive TAP and MMAG processes.

- **Safe Street 4 All (SS4A) Implementation Grants** – Upon approval of the CSAP, Wilson County will be an eligible applicant for the federal SS4A implementation grants, which focus on projects and strategies that directly support the National Roadway Safety Strategy goals. Based on Census designations, Wilson County is considered rural and thereby would be eligible for a competitive grant between $3 and $30 million. It is important to note that local governments are responsible for a 20% funding match for any grants received, none of which can be sourced from other federal funding programs. Implementation grant funds received through SS4A program must be spent within 5 years.
- **Highway Safety Improvement Program (HSIP)** – HSIP dollars are a federal funding source that flows through TDOT to regions and local municipalities. The purpose of this program is to achieve a significant reduction in fatalities and serious injuries on all public roads. HSIP activities are managed through TDOT's Strategic Transportation Investments Division, specifically the Project Safety Office, and include the Roadway Safety Audits, Local Road

Safety Initiatives, Wrong Way Safety Initiatives, Ramp Queue Program, Pedestrian Road Safety Initiatives, and Spot Safety Program. Of note, there is an allowance for funding specific non-infrastructure activities and behavioral safety projects, such as education and enforcement campaigns, through the program. Project eligibility in these State-led programs is determined based on urban/rural location and crash history.

- **Surface Transportation Block Group (STBG)** – The STBG program is a core Federal-aid program that provides flexible funding to States and local agencies for a number of project types, including safety, that preserve and improve performance on the public road system. As part of the Nashville Area MPO, expenditure of STBG dollars in Wilson County is dictated by the MPO planning process whereby candidate projects are submitted for inclusion in the Regional Transportation Plan for eventual funding through the Transportation Improvement Program. Non-federal match for STBG funds is typically 20% though some project types can be funded with an increased share of federal dollars, including some safety-related project types.
- **Transportation Alternatives Program (TAP)** – While sourced with Federal dollars, TAP funding is allocated by the State as a set-aside of the STBG program. Cities and counties are eligible to receive TAP dollars for projects, mostly related to bicycle and pedestrian infrastructure, through a competitive grant process that prioritizes safety of non-motorized roadway users. Of note is that any Wilson County projects funded with TAP dollars would require endorsement by the Nashville Area MPO. A 20% local match is required for any TAP funds.
- **Multimodal Access Grant (MMAG)** – The MMAG program is a competitive grant program funded with all State dollars to support the transportation needs of pedestrians, bicyclists, and transit users through infrastructure projects. Eligible projects address existing gaps in the non-motorized network along State Routes and can be used for infrastructure to improve safety for pedestrians and cyclists including sidewalks, pedestrian crossing improvements, shared use paths, bike lanes, pedestrian lighting, ADA-compliant street elements, and others. Maximum award amounts vary year to year based on the budget but are typically around $1 million with a 10% local match requirement.

In addition to the federal and state safety programs listed above, the County has local funding sources that can be used to implement safety projects. Funded mostly through property taxes, the annual budget for Highway Capital Projects fund in Wilson County is approximately $2 million, which is almost exclusively used for supplies and materials and does not cover specific Capital Projects that vary from year to year. The Highway and Public Works fund is also sourced from property taxes but also includes revenues received from the State through fuel taxes. With an annual budget of approximately $9 million, these dollars cover administration, employee salaries and benefits, capital outlays, supplies and materials, contracted services, and other items necessary to manage the highway and bridge system in the County.

Continued Evaluation Methods

The County's commitment to eliminating deaths and serious injuries on the roadway network will not occur overnight. Achieving this long-term goal will require consistent pursuit of funding for project implementation, reassessment of crash patterns, evaluation project and program effectiveness, and maintained accountability to the public and stakeholders. To that end, Wilson County is committed to transparency in reporting the progress made in implementing this plan and measuring impacts of these initiatives.

As a critical first step, this plan will be posted on the County's website, capitalizing on the publicity garnered to date from the CSAP development. Each year, the County will provide an update on the progress made towards improving roadway safety in the unincorporated County. A combination of qualitative and quantitative metrics could include the following and should be updated as resources allow and as applicable:

- Number of meetings held with partner agencies on safety improvements;
- Number of public educational campaigns;
- Number of crashes countywide and on the High Injury Network;
- Number of fatal and serious injury crashes countywide and on the High Injury Network;
- Crash reduction before/after project implementation;
- Dollars spent on safety improvements;
- Centerline miles of roadway meeting current County design standards;
- Efficacy of speed limit reductions;
- Miles of reconstruction or restriping that includes safety features on the High Injury Network;
- Number of safety-related complaints received and addressed;
- Miles of sidewalk constructed;
- Number of Road Safety Audits conducted;
- Number of signs installed with additional retroreflectivity improvements; and/or
- Number of safety-focused traffic citations.

Based on the outcomes of each annual assessment, Wilson County will evaluate the need for future CSAP updates. The need for updates could be triggered by changing crash patterns, significant growth, implementation of capital projects and strategies, and/or changes in funding availability.

Appendices

Appendix A – Wilson County Letter of Resolution

Appendix B – Steering Committee Meeting Materials and Stakeholder Notes

Appendix C – Public Survey and Results

Appendix D – Countermeasure Toolbox

Appendix E –Recommendations and Prioritization of High Injury Network Locations

Appendix F – Detailed Recommendations for Priority Locations

Appendix A

Wilson County Letter of Resolution

Appendix B

Steering Committee Meeting Materials and Stakeholder Notes

Wilson County Safety Action Plan

Committee Meeting #1
December 2, 2022

Agenda

01 Introduction

02 Safety Action Plans

03 Project Scope and Schedule

04 Preliminary Findings

05 Next Steps

01 Introductions

COLLIER ENGINEERING CO., INC.

BURCH TRANSPORTATION

3

02 Safety Action Plans

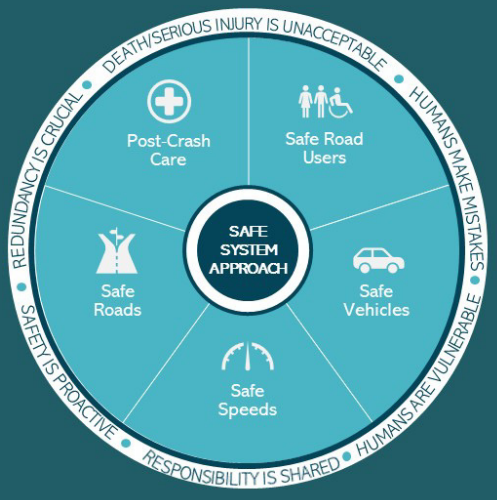
The National Highway Traffic Safety Administration estimated **~43,000 people died** in motor vehicle traffic crashes in 2021, a 10.5% increase from the ~38,800 fatalities in 2020.

This is the highest number of fatalities since 2005 and the largest annual percentage increase since 1946.

4

02 Safety Action Plans

To combat this trend, the U.S. Department of Transportation developed a comprehensive National Roadway Safety Strategy, which adopts the safe system approach.



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02 Safety Action Plans

The Bipartisan Infrastructure Law established the new Safe Streets and Roads for All (SS4A) program that provides more than $5 billion in discretionary grants over the next 5 years to prevent deaths and serious injuries on the nation's roadways.

SS4A

Development of Comprehensive Safety Action Plans

Implementing Safety Projects and Strategies

6

02 Safety Action Plans

The Federal requirements for CSAPs include:

- **Official public commitment** to an eventual goal of zero roadway fatalities and serious injuries;
- **Steering committee** charged with CSAP oversight, development, implementation, and monitoring;
- Crash analysis **focused on fatalities and serious injuries**;
- Analysis of all roadways **without regard for ownership**;
- Identification of a **High Injury Network**;
- **Robust engagement** with the public and relevant stakeholders; and
- **Consideration of equity** in the proposed projects and strategies.

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03 Project Scope and Schedule

8

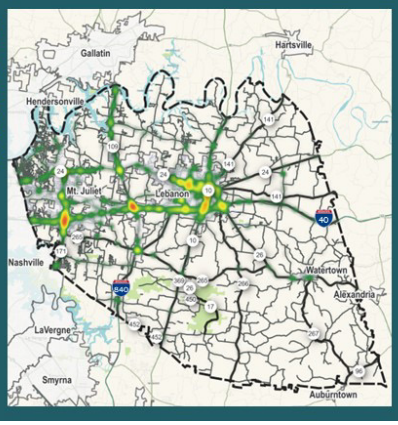
03 Project Scope and Schedule

9

04 Preliminary Findings

Crash data was pulled for a 5-year period spanning 2017-2021.

ALL CRASHES



UNINCORPORATED AREA CRASHES

10

04 Preliminary Findings

There have been over 19,000 crashes in all of Wilson County over the past 5 years. Approximately 65% of those occurred within municipal boundaries, meaning that over 6,800 crashes occurred in the unincorporated areas in that same time period.

11

04 Preliminary Findings

- About 70-75% of all County crashes result in property damage only.
- About 25-30% of all County crashes result in minor or serious injuries.
- About 12 fatalities occur in the County each year on average.

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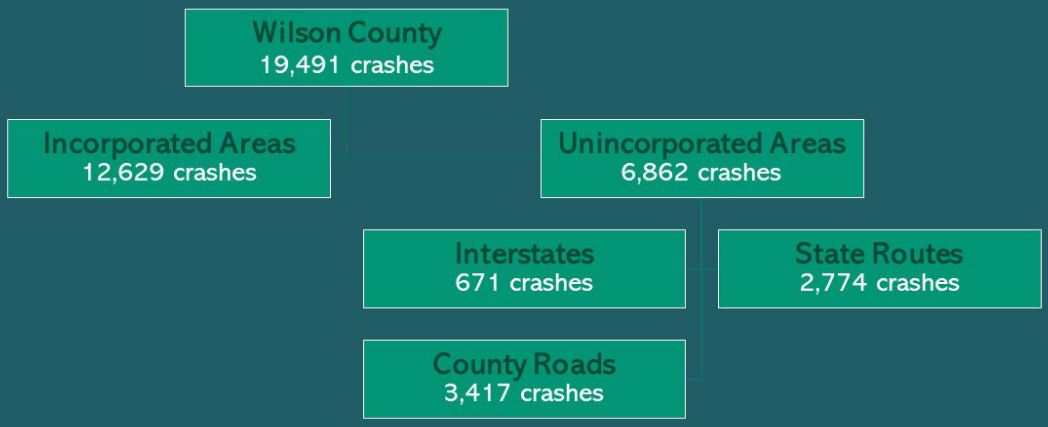
04 Preliminary Findings



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04 Preliminary Findings

When looking at the relative distribution of crashes by facility ownership, specifically fatal and serious injury crashes, there is significant disparity between crash frequency and centerline miles due to the relative degree of exposure.

Facility Type	Centerline Miles	Total Crashes	Fatalities + Serious Injuries
Interstates	21 (2%)	671 (10%)	24 (10%)
State Routes	150 (16%)	2,774 (40%)	113 (45%)
County Roads	755 (82%)	3,417 (50%)	114 (45%)

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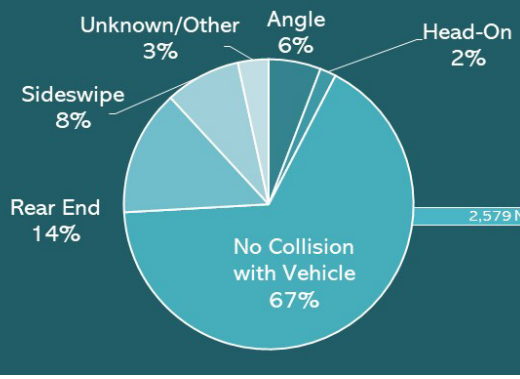
04 Preliminary Findings

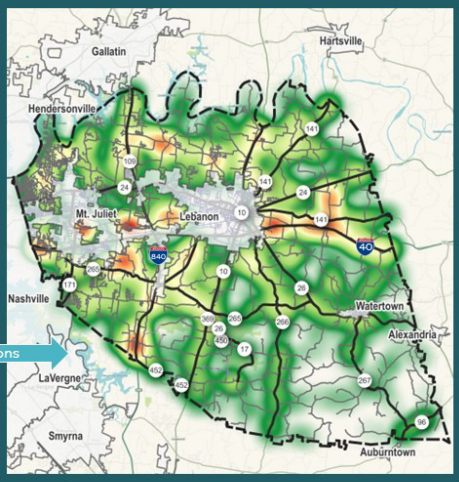
Unincorporated Areas
6,862 crashes

Along a Corridor
3,879 crashes

At an Intersection
2,983 crashes



2,579 Non-Vehicle Collisions



04 Preliminary Findings

Unincorporated Areas
6,862 crashes

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3,879 crashes

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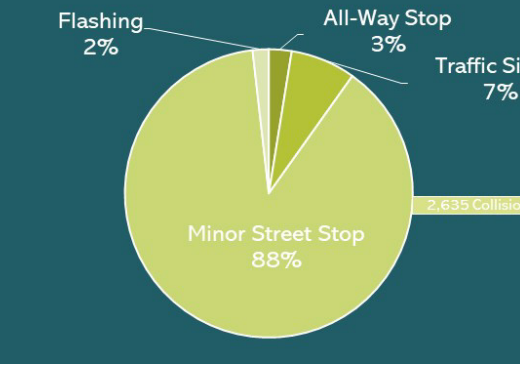
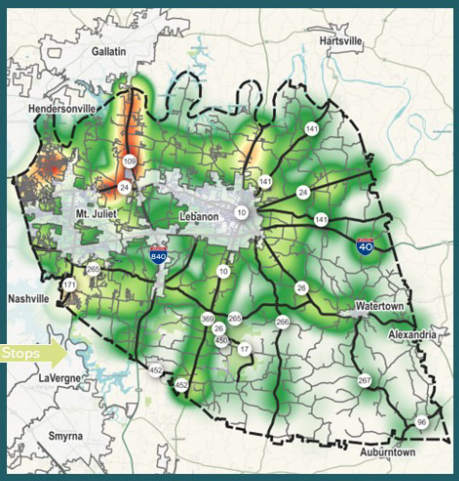


2,635 Collisions at Minor-Street Stops



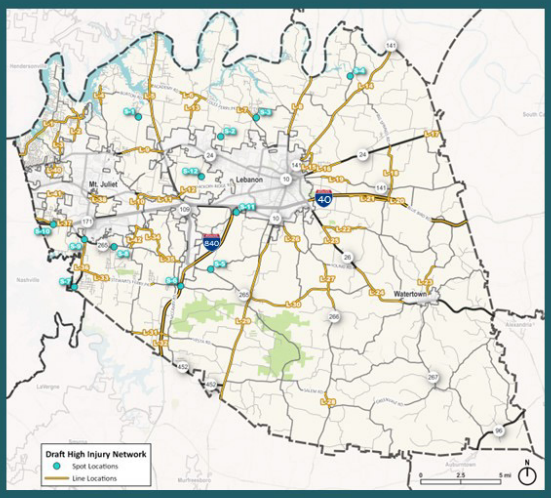
04 Preliminary Findings

- Approximately 55% of fatalities and serious injuries occur on Interstates and State Routes, which only account for 18% of centerline miles.
- Angle, head-on, and non-vehicle collisions represent ~70% of all crashes in the County but ~90% of all fatalities and serious injuries.
- Fatal and serious injury crashes are nearly evenly split between intersections (60%) and corridors (40%). Intersection crashes mostly occur under minor-street stop conditions and more often result in angle and head-on collisions. Corridor crashes are mostly single-vehicle collisions where vehicles hit objects outside the travel way.

17

04 Preliminary Findings

After analyzing the crash data, we developed a High Injury Network (HIN) for roadways in unincorporated Wilson County. The HIN reflects 42 roadway segments and 12 spot locations that have a demonstrated fatal and serious injury crash history and have potential for future safety issues.



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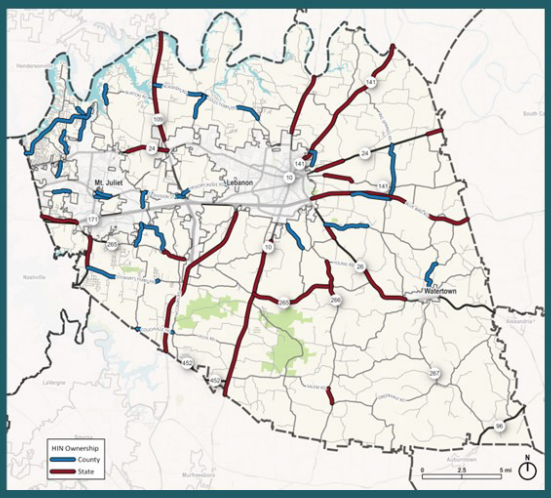
04 Preliminary Findings

The Draft HIN represents 134 miles of roadways. Approximately 78 miles of the HIN are State-owned facilities, and the remaining 56 miles are County-owned facilities. Key County-owned roadways on the HIN include:

- Stewarts Ferry Pike
- Old Lebanon Dirt Road
- Beckwith Road
- Hickory Ridge Road
- Benders Ferry Road
- Academy Road
- Coles Ferry Pike
- Bluebird Road
- Big Springs Road
- Tater Peeler Road



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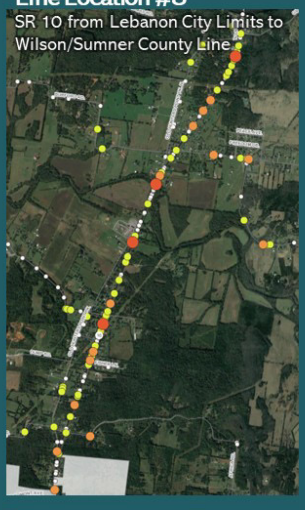
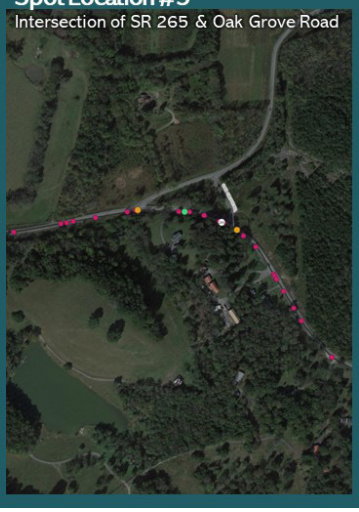
04 Preliminary Findings

Line Location #8
SR 10 from Lebanon City Limits to Wilson/Sumner County Line



Spot Location #5
Intersection of SR 265 & Oak Grove Road



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05 Next Steps

Finalize HIN

Develop Countermeasure Toolbox

Review Current Policies

Develop and Prioritize Solutions

Involve the Public and Committee

21

Thank you!

Tony.Atiyeh@collierengineering.com
KaylaFerguson@burchtransportation.com

Wilson County Safety Action Plan

Committee Meeting #2
March 3, 2023

Agenda

01 Progress Update

02 Public Input Findings

03 Prioritization of Needs

04 Strategic Recommendations

05 Next Steps

2

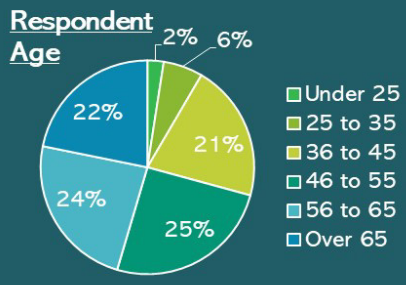
01 Progress Update

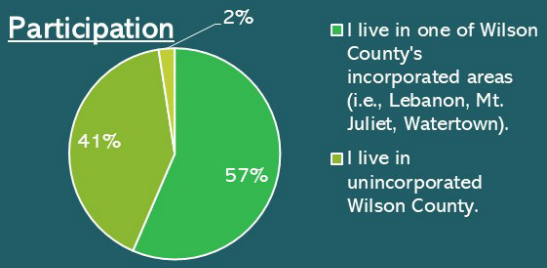
- Completed the public involvement period
- Developed high-level solutions for all 54 High Injury Network locations
- Prioritized general solutions with weighted criteria
- Continued drafting the plan document

3

02 Public Input Findings

A 5-question public survey was made available online from January 23rd – February 28th and was publicized using the Mayor's newsletter, at Commission meetings, on the radio, on the local WCTV, and in the newspaper. In total, 285 people responded.





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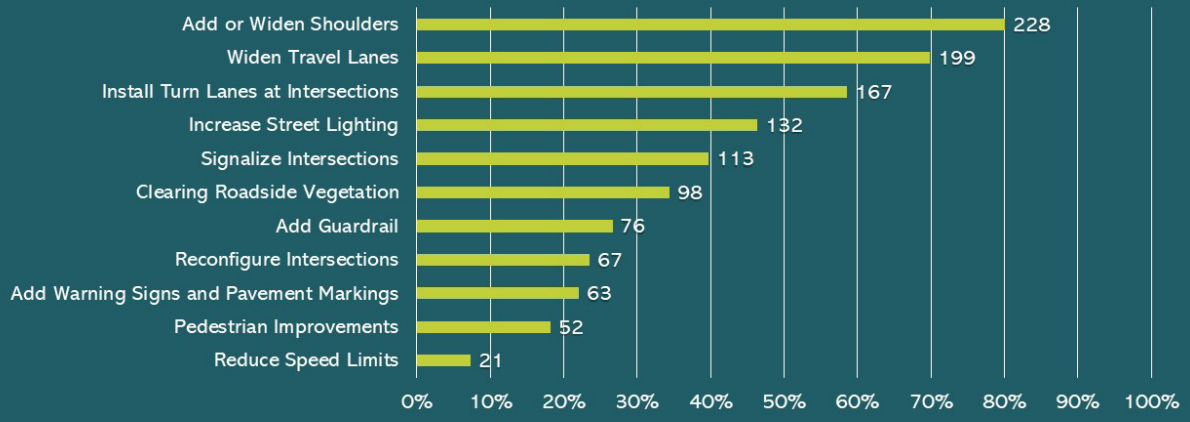
02 Public Input Findings



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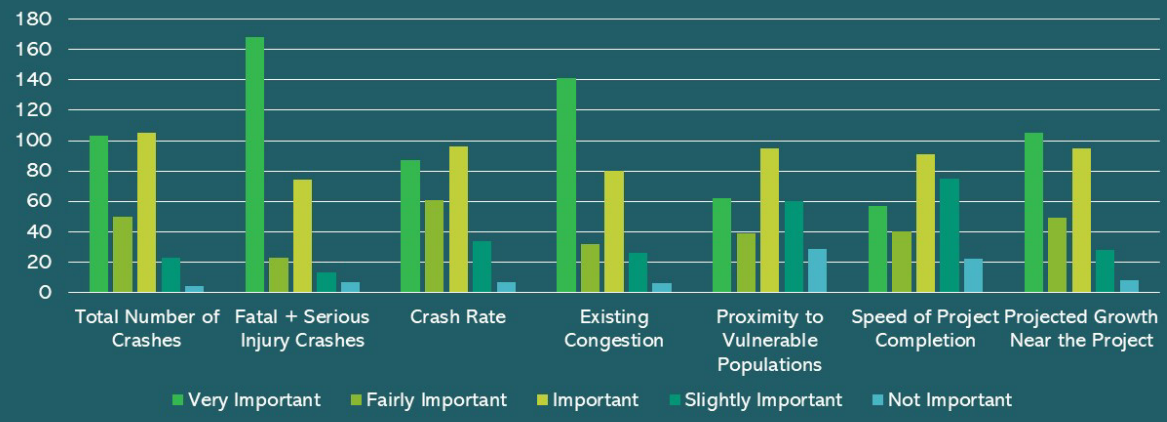
02 Public Input Findings



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03 Project Prioritization

We used the relative importance expressed by residents to develop a weighting scheme for these criteria. We applied these weights to each location on the High Injury Network to determine which locations should be top priorities for investment.

Criteria	Weight
Total Number of Crashes	15%
Fatal + Serious Injury Crashes	20%
Crash Rate	15%
Existing Roadway Congestion	15%
Proximity to Vulnerable Populations	10%
Speed of Project Completion	10%
Projected Growth Near the Project	15%

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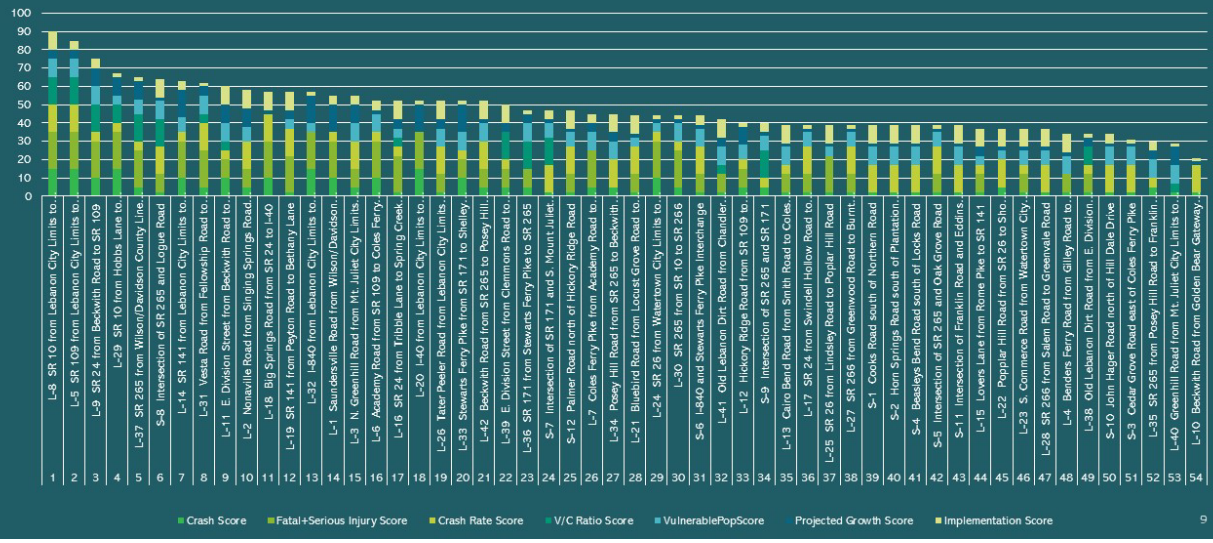
03 Prioritization of Needs

Developed Countermeasure Toolbox → Reviewed Crash Data → Reviewed Field Characteristics → Identified General Solutions → Prioritize the Needs

8

03 Prioritization of Needs



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04 Strategic Recommendations

Federal requirements of the SS4A program dictate that a combination of project and strategy recommendations be included as outcomes of this plan process. Based on crash characteristics and review of other local plans, we developed a list of 15 strategies for the County to pursue.

- Create a County Safety Committee
- Champion a Vision Zero Education Campaign
- Evaluate Incident Management Protocols
- Enhance Crash Data Collection
- Create Transparent Safety Data Tracking/Info
- Comprehensive Speed Evaluation Program
- Implement Traffic Calming Devices
- Conduct Targeted Enforcement
- Improve Access Management on Multi-lane Arterials
- Conduct Road Safety Audits
- Improve Safety Through Routine Maintenance
- Evaluate Existing Roadway Curvature Issues
- Evaluate Signage at Unsignalized Intersections
- Create Program for Systematic Shoulder Widening
- Evaluate Development Review Practices

10

05 Next Steps

11

05 Next Steps

- Finalize draft plan document (March)
- Initiate Commission and FHWA review (April)
- Formally adopt plan with Vison Zero resolution (May)

12

Thank you!

KaylaFerguson@burchtransportation.com
Tony.Atiyeh@collierengineering.com

Stakeholder: Nashville Area MPO/Greater Nashville Regional Council
Date: December 15, 2022
Attendees: Max Baker, Sean Pfalzer, Daniel Capparella, Ashleigh Glascock, Kayla Ferguson, Jeff Hammond

RTP Process/Prioritization

- There will be projects from the Wilson County CSAP that would be significantly sized and therefore require federal funding through the MPO process.
- In terms of project selection in the MPO's RTP/TIP, there will be a call for projects from member jurisdictions followed by a staff review and data-driven prioritization process. The weights of prioritization criteria, which includes numerous safety metrics, will be determined through the public input process. The process has historically looked favorably on projects that have support from both locals and TDOT.
- Currently the MPO's RTP is focused primarily on capital projects with defined scopes, termini, etc. However, this can result in a piecemealed approach to transportation projects particularly ones related to safety. There could be an opportunity for the RTP to include a larger programmatic type of safety project in the RTP, for example bundling multiple intersections together for safety improvements instead of applying for just one.
- If the MPO wanted to set aside dollars specifically for a safety program, it would have to be pulled from their Local STBG allocation since TDOT does not suballocate HSIP funds. Instead, TDOT provides the MPO with projects to put in the RTP/TIP that utilize HSIP funds.
- It is unclear from a stakeholders' perspective how RSAR projects are selected for analysis/funding by TDOT. There may be future opportunities to explore partnering on larger-scale safety improvements using a combination of HSIP dollars and MPO funds.

Data & Coordination

- The MPO has developed a High-Risk Index for bike/ped safety analysis that is based on roadway characteristics contributing to unsafe walking and biking conditions. This could be applicable in unincorporated areas like Wilson County to backfill safety analysis where there are few non-motorized crashes.
- The Governor's Highway Safety Office is currently updating their statewide plan with recommendations for education and enforcement.
- GNRC has been assisting Wilson County Planning with an update of their Comprehensive Plan. It has currently been placed on hold while Mt. Juliet updates its UGB to capture areas south of I-40 in the Gladeville area. GNRC has mostly been assisting with the land use components and there aren't many transportation components coming out of this effort. However, there were four public meetings held in the first phase of the project and GNRC can provide the comments made by residents that are transportation- and safety-related.

Stakeholder: Wilson County Government
Date: December 22, 2022
Attendees: Mayor Randall Hutto, Kayla Ferguson

Overall CSAP Process

- The ultimate goal for the Wilson County CSAP is to develop a list of recommended improvements that the County can use to chip away at with federal, state, or local revenues. This will be a two-step process.
    - First, general improvement types will be identified for the 54 High Injury Network locations, which total 134 miles of roadway. Examples of these capital projects could include widening travel lanes or shoulders, signalizing intersections, adding signage and pavement markings, etc.
    - Second, high-level policy and program strategies will also be documented. These will focus on programs that incorporate more holistic improvements to the County's roadway system, not just the High Injury Network, as well as improvements to the County's existing procedures. Examples of these recommendations could include evaluating development approval practices, education and enforcement campaigns, safety committee formation, etc.
- To help meet federal requirements for public input into the plan, an online survey will be distributed for residents to identify types of safety improvements they think are needed in the County as well as how those improvements should be prioritized for implementation.
- Following the public input period, the Road Commission will review draft improvements for the 54 High Injury Locations as well as a ranked list of high priority locations. These high priority locations will be roadway corridors or spots where conceptual plans for safety improvements will be developed.
- The shortlist of high priority improvements will serve as a starting point for future funding pursuits by the County through federal grants, state funding programs, and local budgets.
    - The Safe Streets 4 All (SS4A) implementation grants do have some requirements that the County should be aware of. Namely, the implementation grants for rural areas are intended to fund projects with a cost between $3 and $30 million, must be spent in five years, and require a 20% local match that cannot be sourced from other federal funds.
    - If the County is successful in the pursuit of an implementation grant, they would likely work to procure consultant services for the preliminary engineering, design, right of way, and construction of the improvements. FHWA would administer the grant funds and would reimburse the County for dollars expended.

Existing Issues and Concerns

- The public input process for the CSAP will rely mostly on input from the aforementioned survey. To supplement that process, other sources of public feedback on safety issues will be

collected including public participation from the ongoing Comprehensive Plan Update, maintenance and safety complaints received by the Highway Department, and resident concerns collected by the Mayor and County Commissioners.

- Comments received to date by County staff are generally related to issues in the western portions of the County. More specifically, areas west of SR 109 north of I-40 and areas west of US 231 south of I-40 continue to see considerable growth in both people and jobs which has led to resident frustration with the existing County's road system. Input provided by Wilson County residents on the existing roads generally falls into three main categories:
    - Rural Roadway Designs – Residents have expressed concern regarding the growing amount of truck traffic on County roads. Specifically, these concerns appear to be centered around the inability for residents to pass trucks (as well as other large vehicles) in both directions of travel. Like other rural areas, many of the Wilson County roadways are designed with narrow lane widths and minimal or no shoulders, which can make mixing commercial and passenger traffic uncomfortable at best and unsafe at worst.
    - Congestion and Connectivity – As with other high growth areas, residents in the County are concerned about growing traffic volumes as well as the increasing difficulty to generally get from their trip origin to destination.
    - Development Pressures – Residents have observed the continued approval of multiple developments in the unincorporated areas with access onto County roads. Based on the County's current development approval guidelines, minimal off-site improvements are made with incoming development. Residents are concerned that the existing transportation system cannot sustain the growth without significant improvement.
- There are a number of existing policies and practices within the County that have resulted in disinvestment in the rural roadway system. These will be further analyzed as part of the CSAP policy review and will feed the strategic recommendations.
    - Within the unincorporated County, the transportation impacts of private development proposals are not evaluated prior to approval. Approximately five years ago, the County removed the requirement for development Traffic Impact Studies (TIS) in lieu of simply requiring turn lanes and deceleration lanes for all developments with more than 50 residential lots. While this change has likely made development review easier on County staff, it does not account for development impacts that may extend beyond a site access, particularly for larger scale developments.
    - The County's current Major Thoroughfare Plan (MTP) was completed in 2018 as part of a Comprehensive Plan update. Currently, the MTP only outlines the desired right of way widths and general cross section elements for roadways based solely on their functional classification, which is depicted in the Transportation Plan map. As the County continues to grow, this will likely become an over-simplified way of determining the needed infrastructure. The Comprehensive Plan is currently being

updated to incorporate new and updated data, which is necessary for a high-growth county like Wilson. The logical next step would be to update the MTP based on the future land vision and potential modifications to the zoning of properties in the unincorporated areas. The intention of the MTP update would be to link the desired land uses to the transportation infrastructure needed to support that vision. The MTP would include analysis of roadway capacity for existing and future conditions, capitalize on the safety analysis conducted as part of the CSAP, and evaluate the need for new road connections. The result would be a list of capital improvements needed to support future growth complemented by estimated costs. In addition, desired cross sections for County roads could also be included and would be based on how a given roadway functions, its current mix of traffic (passenger versus freight vehicles), the areas/land uses it serves, and the need for multimodal infrastructure.

- The County currently has a policy that it will not acquire property, whether by acquisition or condemnation, for roadway improvements. While not codified, this informal policy has been retained for 25+ years and has prevented the County from making any substantial improvements to its roadway system that would necessitate extra width (e.g., widening shoulders, widening travel lanes, etc.).
- The CSAP process will provide a list of candidate roadway improvements for the County to implement. Implementing these improvements will be costly and will require a combination of Federal, State, and local funds. Larger scale projects will likely require federal funding, which comes to the County through TDOT and the MPO process and/or competitive grants. However, most of these funding sources require a local contribution to the project costs. These local matches are percentage based so as the total project cost increases, so does the required local funding.

Stakeholder: TDOT Project Safety Office
Date: January 10, 2023
Attendees: Brandon Darks, Kayla Ferguson, Jeff Hammond

CSAP Process

- TDOT was involved with the development of the Kingsport Local Road Safety Plan, which was one of the first Safety Action Plans in the State. Beyond that effort, TDOT's Project Safety Office has been involved with at least 9 other safety plans, mostly in a supporting role by providing crash data for analyses.
- As it relates to crash data, TDOT is working to link the TITAN crash report data to the ETRIMS database so all the information can be found in one location. TDOT is currently in the process of evaluating the policy for what information needs to be redacted from crash reports before they are made publicly available.

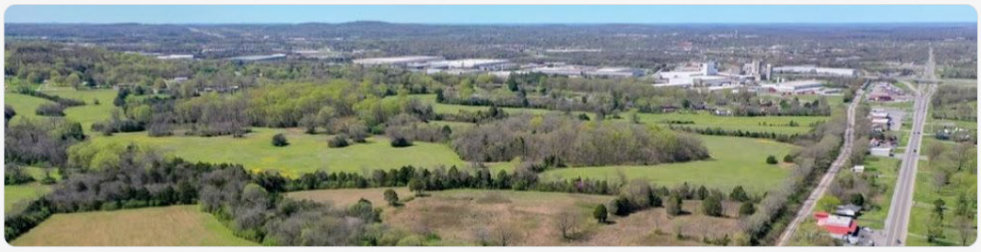
TDOT's Safety Projects and Funding

- A High Injury Network has been identified in Wilson County for the CSAP and includes a number of State-owned facilities.
- There are a some active safety projects in Wilson County, and TDOT can provide a list of those projects and their status.
- TDOT's Project Safety Office specifically deals with the expenditure of HSIP dollars, which fund Roadway Safety Audits, Local Road Safety Initiatives, Wrong Way Safety Initiatives, Ramp Queue Program, Pedestrian Road Safety Initiatives, and the Spot Safety Program.
    - Of note, the High Risk Rural Program has now been lumped into the LRSI program, but Wilson County is not eligible for the LRSI program since it's within an MPO planning area.
    - The Wrong Way Safety Initiative is mostly a statewide signing program, with nothing specific to Wilson County.
- Most of the RSAR projects are 'no-plans' projects that don't require full design (e.g., signing and striping projects). The largest safety projects coming out of this program would be ramp queue or signalization projects that cost a maximum of ~$2.5-3 million.
- Approximately $8 million of HSIP dollars goes to resurfacing each year. These resurfacing projects can be used to make one-time safety improvements, mostly in rural counties with little local funding, to install rumble strips, snow plowable pavement markers, and widening centerlines and edge lines to the 6" standard.
- HSIP projects are taking about 2 years on average to implement based on increased costs and increased utility coordination.
- TDOT has money and projects ready to implement but there are often delays associated with getting the local match for HSIP dollars. Most HSIP safety projects are 100% federally funded, but local contributions can still help a project move forward faster. TDOT is typically looking for a 50/50 match on construction for larger projects.

- When evaluating locations with reported safety issues, TDOT evaluates the crash rate for comparison to statewide averages. If it meets the statewide criteria, it's then evaluated at the County level to look at the potential for similar safety issues in the vicinity of the local request.

Appendix C

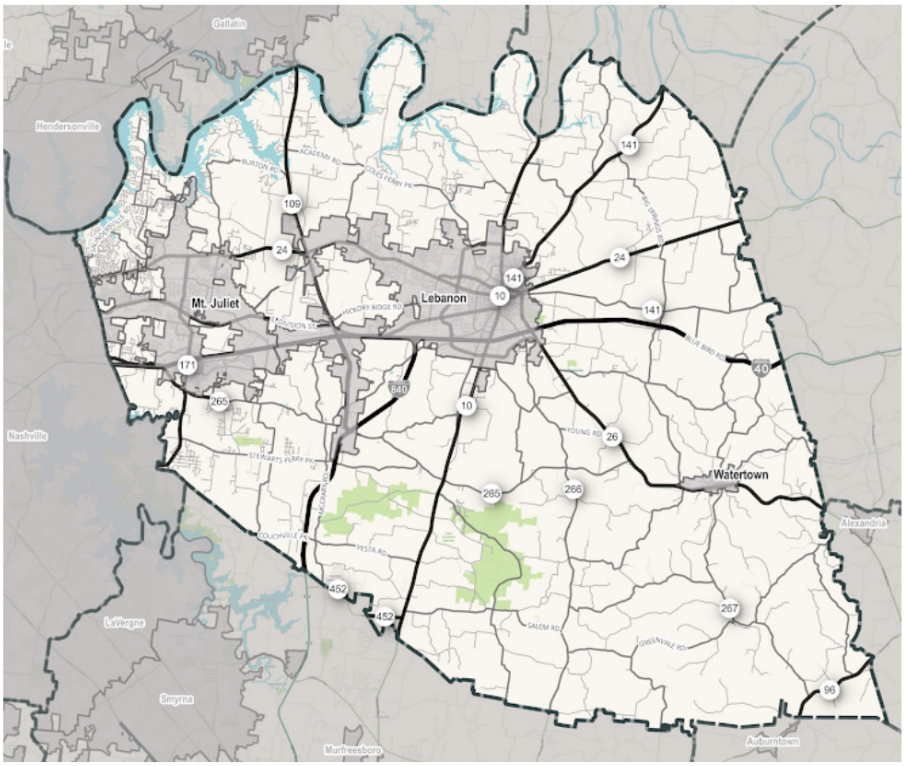
Public Survey and Results



Wilson County
Comprehensive Safety Action Plan

Wilson County is developing a plan to address roadway safety in unincorporated area of Wilson County, shown in the map below. This 5-minute survey collects input from residents on the types of projects that should be considered and how proposed recommendations should be prioritized for both State and County roadways in the study area. Thank you in advance for your participation!

Study Area



Next

Clear form

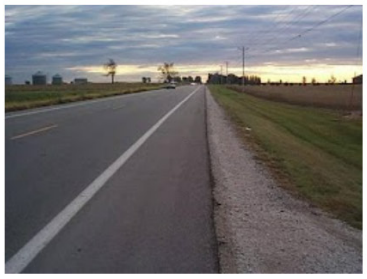
Types of Safety Improvements

This plan will identify a set of recommended safety projects in Wilson County. The projects will be focused on roadways that have an increased likelihood of fatalities and serious injuries based on historic crash data. While the recommendations will be based on observed crash patterns and engineering judgment, the following question provides a baseline for desired project types in the unincorporated County.

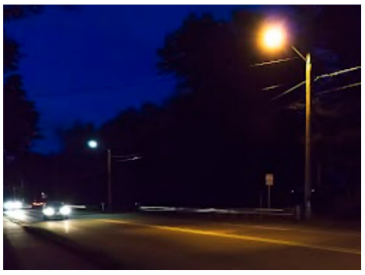
Please select up to 5 types of safety projects that you think are most needed on Wilson County's roads. *

☐ Reconfigure Intersections

☐ Add Warning Signs and Pavement Markings



☐ Add or Widen Shoulders



☐ Increase Street Lighting

☐ Add Guardrail

☐ Widen Travel Lanes

☐ Signalize Intersections

☐ Reduce Speed Limits

☐ Install Turn Lanes at Intersections

☐ Pedestrian Improvements

☐ Clearing Roadside Vegetation

Back Next Clear form

Prioritizing Safety Improvements

With limited funding available we need to prioritize projects that are most important to residents. The question below will be used to determine the relative importance of various data-driven criteria. More information on how these metrics are defined can be found here.

When considering how we should prioritize safety projects in Wilson County, please indicate how important the following criteria are to you. *

	Not Important	Slightly Important	Important	Fairly Important	Very Important
Total Number of Crashes	○	○	○	○	○
Fatal + Serious Injury Crashes	○	○	○	○	○
Crash Rate	○	○	○	○	○
Existing Roadway Congestion	○	○	○	○	○
Proximity to Vulnerable Populations	○	○	○	○	○
Speed of Project Completion	○	○	○	○	○
Projected Growth Near the Project	○	○	○	○	○

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Demographics

So that we can gauge the participation from all residents and geographies, please consider answering the following questions. They are all optional and only help us ensure this plan reflects the desires of all Wilson County residents.

Which of the following best describes your participation in this survey?

- ○ I live in one of Wilson County's incorporated areas (i.e., Lebanon, Mt. Juliet, Watertown).
- ○ I live in unincorporated Wilson County.
- ○ I live outside of Wilson County but frequently travel here for work, school, recreation, etc.
- ○ Other: _____

Which category includes your age?

- ○ Under 25
- ○ 25 to 35
- ○ 36 to 45
- ○ 46 to 55
- ○ 56 to 65
- ○ Over 65

How would you describe your gender identity?

- ○ Female
- ○ Male
- ○ Prefer not to say
- ○ Other: _____

Back Next Clear form

Safety issues have been identified along the roadway network in Wilson County using a set of data-driven criteria. To prioritize projects that address those issues, each location will be scored based on resident input on relative importance of the following metrics.

Total Number of Crashes

This metric is defined by the total number of all crashes involving a vehicle at a given location, tabulated over a 5-year period spanning 2017-2021. Locations with more crashes will be prioritized.

Number of Fatal and Serious Injury Crashes

This metric is defined by the number of crashes resulting in a fatality or serious injury at a given location, tabulated over a 5-year period spanning 2017-2021. Locations with more severe crashes will be prioritized.

Crash Rate

This metric is defined as the number of crashes that occur at a single location proportional to the traffic volume at that location. Crash data is tabulated over a 5-year period spanning 2017-2021. Traffic volumes are generally sourced from the Tennessee Department of Transportation and supplemented with additional traffic counts as needed. Locations with higher crash rates will be prioritized.

Existing Roadway Congestion

This metric is defined as the existing volume-to-capacity ratio (v/c ratio), which is related to driver delays and indicates a relative level of roadway congestion. The data is sourced from the Nashville Area MPO's most recent travel demand model. Locations with higher v/c ratios will be prioritized.

Proximity to Vulnerable Populations

This metric is defined as the number of vulnerable population groups adjacent to the safety location. Vulnerable population groups are defined by the Greater Nashville Regional Council and can be found here. Locations with project solutions that are less likely to impact vulnerable populations will be prioritized.

Speed of Project Completion

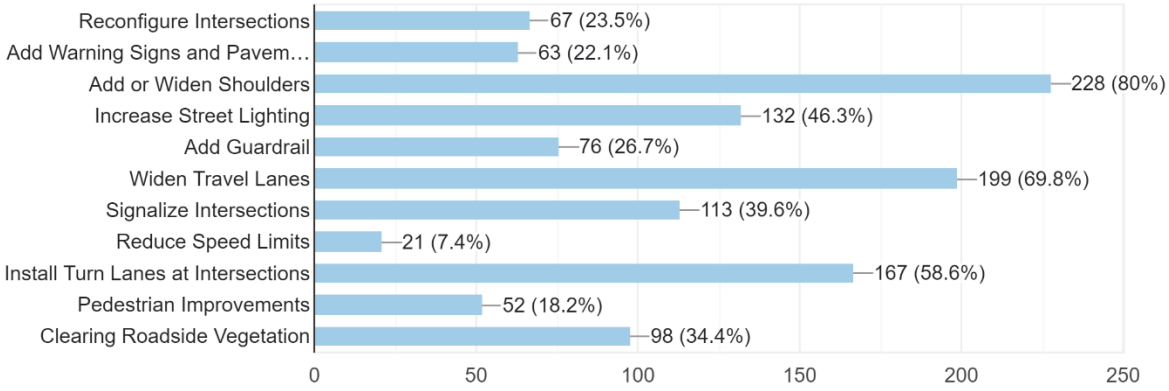
This metric is defined as the relative timeframe for implementing a safety project in the specific location. This is based on the scope of the project solutions, need for acquiring property, and relative cost of the improvement. Locations that have quickly implementable solutions will be prioritized.

Projected Growth Near the Project

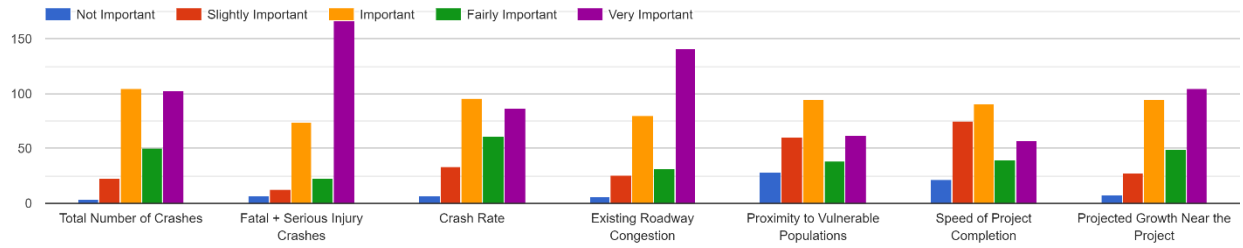
This metric is defined as the relative amount of growth in population and jobs expected near a given location. Data is sourced from the Nashville Area MPO's 2045 growth projections found here. Locations expected to see higher growth over the next 20+ years will be prioritized.

Please select up to 5 types of safety projects that you think are most needed on Wilson County's roads.

285 responses



When considering how we should prioritize safety projects in Wilson County, please indicate how important the following criteria are to you.

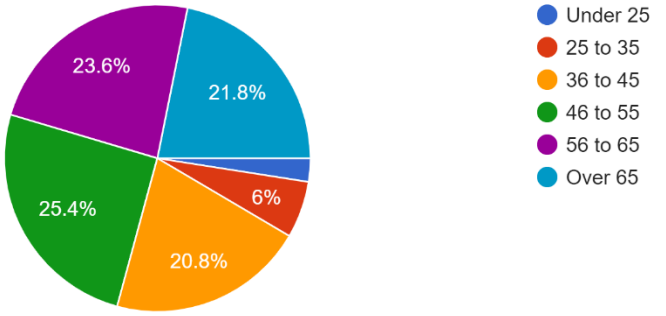


Which of the following best describes your participation in this survey?

285 responses

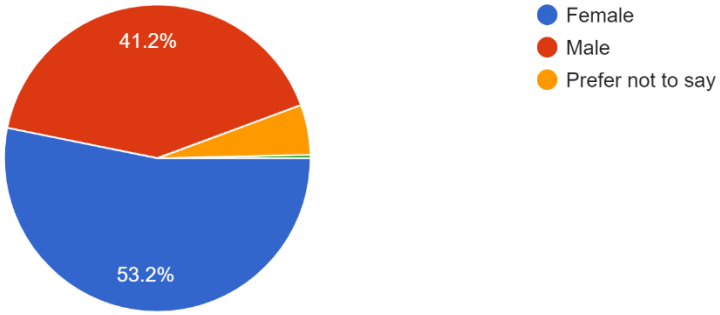
Which category includes your age?

284 responses



How would you describe your gender identity?

284 responses



Appendix D

Countermeasure Toolbox

Safe System Element	Goal	Improvement Type	General Recommendations	Crash Reduction Potential
Safe People	Encourage safe, responsible behavior by people who use our roads and create conditions that prioritize their ability to reach their destination unharmed.	Program/Policy/Study	Increased, high visibility enforcement of risky driver behaviors (e.g., drinking, seat belt usage, distracted driving, speeding)	N/A
			Additional driver training, local awareness/educational campaigns, including those related to bike/ped safety, motorcyclist safety, bike helmet usage, seat belt usage, child restraints, speeding, etc.	N/A
			Implement Safe Routes to School programs that help to create safe walking/biking environments for school age children	CMF = 0.839
		Project/Infrastructure	Enhance visibility of crosswalks and pedestrians with signage, lighting, and other physical modifications	N/A

Safe System Element	Goal	Improvement Type	General Recommendations	Crash Reduction Potential
Safe Roads	Design roadway environments to mitigate human mistakes and account for injury tolerances, to encourage safer behaviors, and to facilitate safe travel by the most vulnerable users.	Program/Policy/Study	Evaluate practice/frequency of clear zone maintenance	N/A
			Evaluate design standards to ensure future roadway construction includes traversable roadside slopes	N/A
			Conduct road safety audits on HIN	N/A
			Evaluate retroreflectivity of pavement markings	N/A
		Project/Infrastructure	Increased pavement friction treatments	CMF = 0.76
			Install guardrail	CMF = 0.43
			Install traverse rumble strips at intersection crosswalks	CMF = 0.76
			Widen edgeline and centerline markings and install edgeline rumble strips	CMF = 0.74
			Widen edgeline and centerline markings and install shoulder rumble strips	CMF = 0.74
			Replace existing sign supports with breakaway features as maintenance occurs	N/A
			Slope flattening where feasible in horizontal curves	CMF = 0.92
			Widen shoulders	CMF = 0.77 (<5 feet) CMF = 0.38 (>= 5 feet)
			Install transverse rumble strips on stop-controlled approaches in rural areas	CMF = 0.71
			Implement systematic intersection treatments (e.g., advanced warning signs, front and back retro reflectivity, flashers, etc.)	CMF = 0.96 (signalized)
			Install flashing beacons at stop-controlled intersections	CMF = 0.95
			Install safety edge treatment with lane widening	CMF = 0.51
			Add intersection lighting	CMF = 0.79
			Evaluate intersection sight distance at high crash locations/intersections	N/A

Safe System Element	Goal	Improvement Type	General Recommendations	Crash Reduction Potential
Safe Vehicles	Expand the availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.	Program/Policy/Study	Support laws and policies for installation of ignition interlocks for convicted DUI offenders	N/A
			Support implementation of safety-related technologies (e.g., V2I infrastructure) with local regulations and policies	N/A
			Require all new purchases of County-owned vehicles to be equipped with backup cameras at a minimum, with a preference to also include other assisted driving features	N/A
		Project/Infrastructure	Improve the existing bicycle and pedestrian network, as appropriate, with facilities that provide for safer use of those modes	N/A

Safe System Element	Goal	Improvement Type	General Recommendations	Crash Reduction Potential
Safe Speeds	Promote safer speeds in all roadway environments through a combination of thoughtful, context-appropriate roadway design, targeted education and outreach campaigns, and enforcement.	Program/Policy/Study	Evaluate posted speed limits of County highways for potential reductions	N/A
			Study need for traffic calming on 'local collectors'	N/A
			Identify priority times and locations for traffic enforcement and establish enforcement benchmarks	N/A
		Project/Infrastructure	Install radar speed feedback installations	CMF = 0.93
			Install raised pavement markers and transverse rumble strips on horizontal curve approaches	CMF = 0.94
			Improve horizontal curve delineation with advance signs, horizontal arrows, sequential flashing chevrons, and fluorescent yellow sheeting on existing signs	CMF = 0.73
			Improve sign and pavement marking retro reflectivity, and lighting for nighttime visibility	CMF = 0.91 (stop signs) CMF = 0.72 (pavement markings)

Safe System Element	Goal	Improvement Type	General Recommendations	Crash Reduction Potential
Post-Crash Care	Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.	Program/Policy/Study	Ensure adequate roadway connectivity with new development proposals	N/A
			Form a committee comprised of first responders to determine transportation-related issues with accessing emergency care	N/A
			Organize educational campaigns or materials to reinforce existing laws related to incident management and safety (e.g., move over laws)	N/A
			Require first responders to participate in FHWA Traffic Incident Management Responder training	N/A
			Work with local police and hospitals to ensure accurate tracking of post-crash care statistics	N/A
		Project/Infrastructure	Work with first responders to determine needs for incident management or assistance	N/A

Appendix E

Recommendations and Prioritization of High Injury Network Locations

Detailed Scoring Mechanism

Prioritization Criteria	Metrics	Definition	Maximum Points	Breakdown	Point Allocation
Safety (40 Points)	Total Vehicular Crashes	This metric is defined by the total number of all crashes involving a vehicle at a given location, tabulated over a 5-year period spanning 2017-2021.	15	Below 50th Percentile	2
				50th to 75th Percentile	5
				75th to 90th Percentile	10
				Above 90th Percentile	15
	Fatal + Serious Injury Crashes	This metric is defined by the number of crashes resulting in a fatality or serious injury at a given location, tabulated over a 5-year period spanning 2017-2021.	20	Below 50th Percentile	10
				Above 50th Percentile	20
	Crash Rate	This metric is defined as the number of crashes that occur at a single location proportional to the traffic volume at that location. Crash data is tabulated over a 5-year period spanning 2017-2021. Traffic volumes are generally sourced from the Tennessee Department of Transportation and supplemented with additional traffic counts as needed.	15	Above Average	5
				Significantly Above Average	15
Traffic Congestion (25 Points)	Existing Volume-to-Capacity Ratio	This metric is defined as the existing volume-to-capacity ratio (v/c ratio), which is related to driver delays and indicates a relative level of roadway congestion. The data is sourced from the Nashville Area MPO's most recent travel demand model.	15	LOS C or Better	0
				LOS D (v/c ratio between 0.7-0.85)	5
				LOS E (v/c ratio between 0.85-1.00)	10
				LOS F (v/c ratio greater than 1.00)	15
Equity (10 Points)	Proximity to Vulnerable Population Groups	This metric is defined as the number of vulnerable population groups adjacent to the safety location. Vulnerable population groups are defined by the Greater Nashville Regional Council and can be found here.	10	Below 50th Percentile	10
				50th to 75th Percentile	8
				75th to 90th Percentile	5
				Above 90th Percentile	0
Feasibility (10 Points)	Implementation Timeframe	This metric is defined as the relative timeframe for implementing a safety project in the specific location. This is based on the scope of the project solutions, need for acquiring property, and relative cost of the improvement.	10	Short-Term (< 1 year)	10
				Mid-Term (1-3 years)	5
				Long-Term (3-5 years)	2
Growth and Development (15 Points)	Projected Growth in Population + Jobs	This metric is defined as the relative amount of growth in population and jobs expected near a given location. Data is sourced from the Nashville Area MPO's 2045 growth projections found here.	15	Below 50th Percentile	2
				50th to 75th Percentile	5
				75th to 90th Percentile	10
				Above 90th Percentile	15

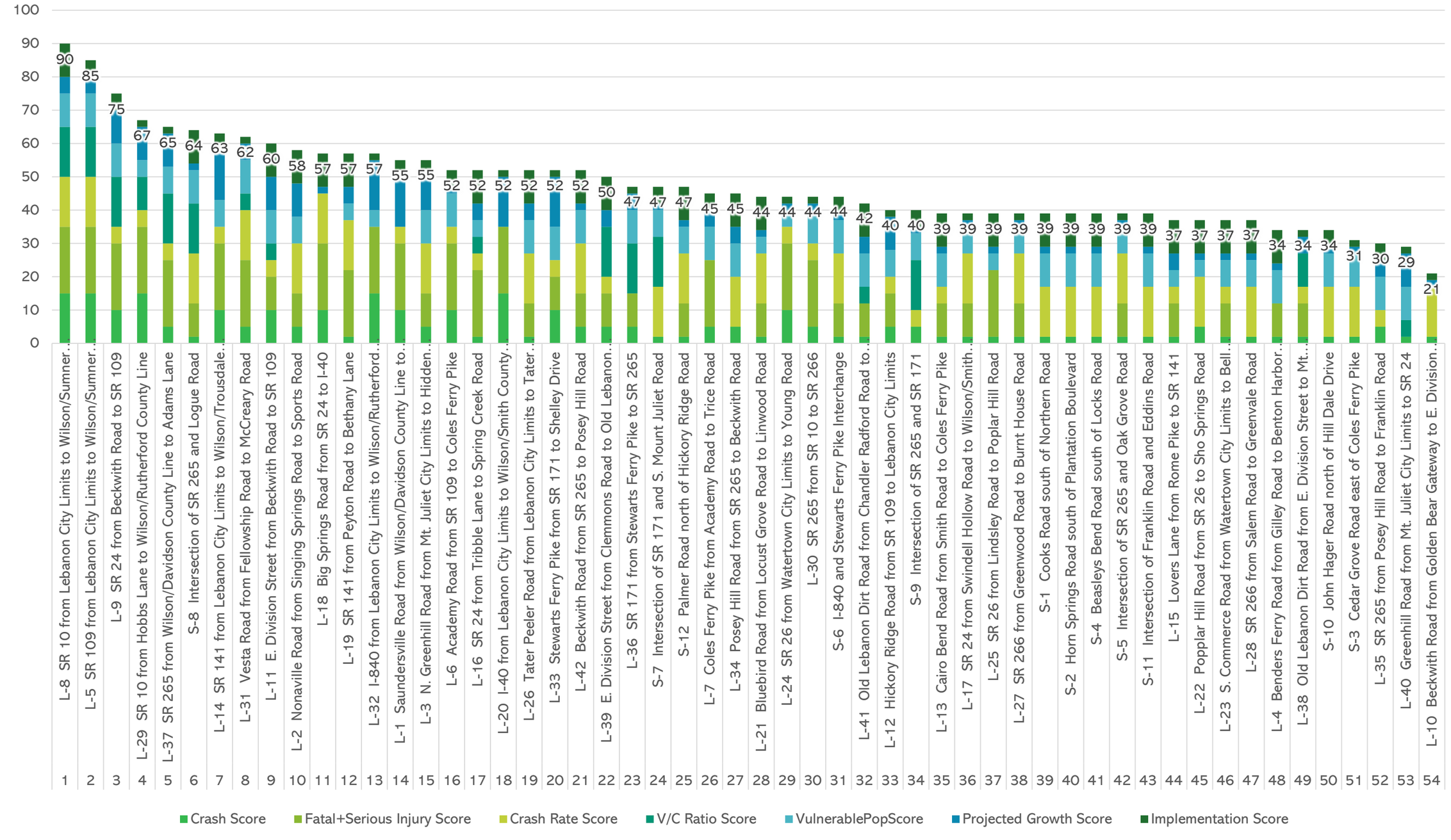
High Injury Network Scoring Results

Map ID	Location	General Recommendations	Total Crashes	Fatalities + Serious Injuries	Crash Rate + Assessment	PM Peak V/C Ratio	Vulnerable Population Groups	Projected Growth	Implementation Timeframe	Prioritization Score
L-1	Saundersville Road from Wilson/Davidson County Line to Kings Road	Increase street lighting	156	4	2.73 Above Average	0.393	11	10,395	Mid-Term (1-3 years)	**55**
L-2	Nonaville Road from Singing Springs Road to Sports Road	Add signs and pavement markings	86	2	5.61 Significantly Above Average	0.421	4	8,296	Short-Term (< 1 year)	**58**
L-3	N. Greenhill Road from Mt. Juliet City Limits to Hidden Ridge Circle	Add turn lanes at intersections	49	1	15.94 Significantly Above Average	0.525	2	8,940	Mid-Term (1-3 years)	**55**
L-4	Benders Ferry Road from Gilley Road to Benton Harbor Boulevard	Reduce Posted Speed	22	1	1.91 Below Average	0.513	2	3,081	Short-Term (< 1 year)	**34**
L-5	SR 109 from Lebanon City Limits to Wilson/Sumner County Line	Add turn lanes at intersections	625	13	2.25 Significantly Above Average	1.505	3	5,688	Mid-Term (1-3 years)	**85**
L-6	Academy Road from SR 109 to Coles Ferry Pike	Increase street lighting	98	3	4.23 Above Average	0.675	1	4,105	Mid-Term (1-3 years)	**52**
L-7	Coles Ferry Pike from Academy Road to Trice Road	Increase street lighting	85	5	1.78 Below Average	0.395	1	6,143	Mid-Term (1-3 years)	**45**
L-8	SR 10 from Lebanon City Limits to Wilson/Sumner County Line	Add signs and pavement markings	186	13	3.42 Significantly Above Average	1.143	1	7,171	Short-Term (< 1 year)	**90**
L-9	SR 24 from Beckwith Road to SR 109	Increase street lighting	137	3	1.94 Above Average	1.013	2	7,966	Mid-Term (1-3 years)	**75**
L-10	Beckwith Road from Golden Bear Gateway to E. Division Street	Reconfigure intersections	23	0	6.13 Significantly Above Average	0.554	11	4,640	Long-Term (3-5 years)	**21**
L-11	E. Division Street from Beckwith Road to SR 109	Add guardrail	95	2	4.77 Above Average	0.762	2	8,191	Short-Term (< 1 year)	**60**
L-12	Hickory Ridge Road from SR 109 to Lebanon City Limits	Widen shoulders	87	2	4.89 Above Average	0.341	5	9,994	Long-Term (3-5 years)	**40**
L-13	Cairo Bend Road from Smith Road to Coles Ferry Pike	Add signs and pavement markings	31	2	3.42 Above Average	0.533	1	3,441	Short-Term (< 1 year)	**39**
L-14	SR 141 from Lebanon City Limits to Wilson/Trousdale County Line	Add turn lanes at intersections	176	10	1.56 Above Average	0.342	4	12,168	Mid-Term (1-3 years)	**63**
L-15	Lovers Lane from Rome Pike to SR 141	Add signs and pavement markings	10	2	4.88 Above Average	0.197	8	6,626	Short-Term (< 1 year)	**37**
L-16	SR 24 from Tribble Lane to Spring Creek Road	Add signs and pavement markings	33	5	1.59 Above Average	0.809	6	6,036	Short-Term (< 1 year)	**52**
L-17	SR 24 from Swindell Hollow Road to Wilson/Smith County Line	Reconfigure intersections	26	1	3.43 Significantly Above Average	0.284	4	947	Long-Term (3-5 years)	**39**

Map ID	Location	General Recommendations	Total Crashes	Fatalities + Serious Injuries	Crash Rate + Assessment	PM Peak V/C Ratio	Vulnerable Population Groups	Projected Growth	Implementation Timeframe	Prioritization Score
L-18	Big Springs Road from SR 24 to I-40	Add signs and pavement markings	109	4	7.09 Significantly Above Average	0.448	11	4,149	Short-Term (< 1 year)	57
L-19	SR 141 from Peyton Road to Bethany Lane	Add signs and pavement markings	15	4	3.58 Significantly Above Average	0.098	8	6,923	Short-Term (< 1 year)	57
L-20	I-40 from Lebanon City Limits to Wilson/Smith County Line	Widen shoulders	461	16	0.52 Below Average	0.571	15	12,262	Long-Term (3-5 years)	52
L-21	Bluebird Road from Locust Grove Road to Linwood Road	Reduce Posted Speed	22	2	16.20 Significantly Above Average	0.083	7	3,600	Short-Term (< 1 year)	44
L-22	Poplar Hill Road from SR 26 to Shop Springs Road	Add signs and pavement markings	45	0	6.7 Significantly Above Average	0.071	7	3,196	Short-Term (< 1 year)	37
L-23	S. Commerce Road from Watertown City Limits to Bell Road	Add signs and pavement markings	20	2	4.18 Above Average	0.038	4	4,938	Short-Term (< 1 year)	37
L-24	SR 26 from Watertown City Limits to Young Road	Widen shoulders	117	7	1.6 Above Average	0.579	6	4,702	Long-Term (3-5 years)	44
L-25	SR 26 from Lindsley Road to Poplar Hill Road	Add signs and pavement markings	22	3	1.11 Below Average	0.646	8	1,385	Short-Term (< 1 year)	39
L-26	Tater Peeler Road from Lebanon City Limits to Tater Peeler Road	Clearing vegetation	26	2	5.22 Significantly Above Average	0.233	1	7,262	Short-Term (< 1 year)	52
L-27	SR 266 from Greenwood Road to Burnt House Road	Reconfigure intersections	41	2	3.44 Significantly Above Average	0.601	5	2,339	Long-Term (3-5 years)	39
L-28	SR 266 from Salem Road to Greenvale Road	Add guardrail	17	0	6.44 Significantly Above Average	0.635	4	2,420	Short-Term (< 1 year)	37
L-29	SR 10 from Hobbs Lane to Wilson/Rutherford County Line	Reconfigure intersections	254	17	1.75 Above Average	0.895	6	7,941	Long-Term (3-5 years)	67
L-30	SR 265 from SR 10 to SR 266	Widen shoulders	44	3	2.17 Above Average	0.142	2	3,871	Long-Term (3-5 years)	44
L-31	Vesta Road from Fellowship Road to McCreary Road	Widen travel lanes	68	3	9.98 Significantly Above Average	0.803	3	6,913	Long-Term (3-5 years)	62
L-32	I-840 from Lebanon City Limits to Wilson/Rutherford County Line	Widen shoulders	207	8	0.34 Below Average	0.578	6	15,378	Long-Term (3-5 years)	57
L-33	Stewarts Ferry Pike from SR 171 to Shelley Drive	Widen travel lanes	153	2	2.61 Above Average	0.699	3	10,102	Long-Term (3-5 years)	52
L-34	Posey Hill Road from SR 265 to Beckwith Road	Add signs and pavement markings	77	0	7.01 Significantly Above Average	0.570	1	5,700	Short-Term (< 1 year)	45
L-35	SR 265 from Posey Hill Road to Franklin Road	Add turn lanes at intersections	43	0	4.62 Average	0.590	2	6,480	Mid-Term (1-3 years)	30
L-36	SR 171 from Stewarts Ferry Pike to SR 265	Widen travel lanes	87	1	1.23 Below Average	1.332	3	6,753	Long-Term (3-5 years)	47
L-37	SR 265 from Wilson/Davidson County Line to Adams Lane	Widen shoulders	65	5	2.57 Above Average	1.023	5	7,554	Long-Term (3-5 years)	65

Map ID	Location	General Recommendations	Total Crashes	Fatalities + Serious Injuries	Crash Rate + Assessment	PM Peak V/C Ratio	Vulnerable Population Groups	Projected Growth	Implementation Timeframe	Prioritization Score
L-38	Old Lebanon Dirt Road from E. Division Street to Mt. Juliet City Limits	Widen shoulders	30	1	3.58 Above Average	0.876	9	6,824	Long-Term (3-5 years)	**34**
L-39	E. Division Street from Clemmons Road to Old Lebanon Dirt Road	Add signs and pavement markings	48	2	4.66 Above Average	1.023	9	6,901	Short-Term (< 1 year)	**50**
L-40	Greenhill Road from Mt. Juliet City Limits to SR 24	Widen shoulders	25	0	2.47 Below Average	0.707	2	7,484	Long-Term (3-5 years)	**29**
L-41	Old Lebanon Dirt Road from Chandler Radford Road to Kelsey Glenn Drive	Add signs and pavement markings	20	2	2.25 Below Average	0.812	3	6,130	Short-Term (< 1 year)	**42**
L-42	Beckwith Road from SR 265 to Posey Hill Road	Add signs and pavement markings	48	2	6.09 Significantly Above Average	0.541	1	4,957	Short-Term (< 1 year)	**52**
S-1	Cooks Road south of Northern Road	Add signs and pavement markings	11	0	41.26 Significantly Above Average	0.000	3	1,277	Short-Term (< 1 year)	**39**
S-2	Horn Springs Road south of Plantation Boulevard	Add signs and pavement markings	7	0	3.77 Significantly Above Average	0.315	2	2,479	Short-Term (< 1 year)	**39**
S-3	Cedar Grove Road east of Coles Ferry Pike	Widen shoulders	19	0	31.64 Significantly Above Average	0.469	0	2,636	Long-Term (3-5 years)	**31**
S-4	Beasleys Bend Road south of Locks Road	Add signs and pavement markings	8	0	7.28 Above Average	0.173	1	1,326	Short-Term (< 1 year)	**39**
S-5	Intersection of SR 265 and Oak Grove Road	Reconfigure intersections	35	2	5.5 Significantly Above Average	0.362	4	1,414	Long-Term (3-5 years)	**39**
S-6	I-840 and Stewarts Ferry Pike Interchange	Signalize intersections	5	1	0.89 Significantly Above Average	0.290	2	5,650	Mid-Term (1-3 years)	**44**
S-7	Intersection of SR 171 and S. Mount Juliet Road	Increase street lighting	29	0	0.96 Significantly Above Average	1.227	4	1,962	Mid-Term (1-3 years)	**47**
S-8	Intersection of SR 265 and Logue Road	Add signs and pavement markings	10	1	0.65 Above Average	1.003	2	4,522	Short-Term (< 1 year)	**64**
S-9	Intersection of SR 265 and SR 171	Add turn lanes at intersections	90	0	0.91 Above Average	1.347	5	4,436	Mid-Term (1-3 years)	**40**
S-10	John Hager Road north of Hill Dale Drive	Increase street lighting	10	0	9.56 Significantly Above Average	0.000	3	3,551	Mid-Term (1-3 years)	**34**
S-11	Intersection of Franklin Road and Eddins Road	Add signs and pavement markings	10	0	2.67 Significantly Above Average	0.292	3	1,610	Short-Term (< 1 year)	**39**
S-12	Palmer Road north of Hickory Ridge Road	Clearing vegetation	8	1	5.23 Significantly Above Average	0.455	4	2,782	Short-Term (< 1 year)	**47**

Resulting Distribution of Scores



Appendix F

Detailed Recommendations for Priority Locations

Saundersville Road from Wilson/Davidson County Line to Kings Road (5.8 miles)
Add lighting and flashing beacons at intersections
Add reflectors to sign posts and guardrail
Add advanced warning signs in curves and at intersections
Improve intersection sight distance and remove clear zone hazards
Selectively widen shoulders and travel lanes where needed

Nonaville Road from Singing Springs Road to Sports Road (2.3 miles)
Add lighting and flashing beacons at intersections
Add reflectors to sign posts and guardrail
Add advanced warning signs in curves and at intersections
Realign some horizontal curves
Selectively widen shoulders and travel lanes where needed

Academy Road from SR 109 to Coles Ferry Pike (3.0 miles)
Add signage, pavement markings, and flashing beacons at intersections
Add reflectors to sign posts and guardrail
Add advanced warning signs in curves and at intersections
Improve intersection and vertical sight distance
Remove clear zone hazards at driveways
Selectively widen shoulders and travel lanes where needed

E. Division Street from Beckwith Road to SR 109 (2.5 miles)
Add guardrail with reflectors
Add signage and pavement markings at intersections and in horizontal curves
Selectively widen shoulders and travel lanes where needed
Improve access at Martha Leeville Road intersection
Reconfigure intersection at Beckwith Road/Quarry Road

N. Greenhill Road from Mt. Juliet City Limits to Hidden Ridge Circle (1.6 miles)
Add signage, pavement markings, and flashing beacons at intersections
Add reflectors to sign posts and guardrail
Improve intersection sight distance and remove clear zone hazards
Selectively widen shoulders and travel lanes where needed
Add turn lanes at intersections

Big Springs Road from SR 24 to I-40 (3.6 miles)
Add signage, pavement markings, and lighting at intersections
Add advanced warning signs in horizontal curves
Flatten ditch/embankment side slopes
Realign switchback horizontal curves
Selectively widen shoulders and travel lanes where needed

Tater Peeler Road from Lebanon City Limits to Tater Peeler Road (1.8 miles)
Clear vegetation and remove clear zone hazards
Add signage and pavement markings at intersections and in horizontal curves
Selectively widen shoulders and travel lanes where needed

Beckwith Road from SR 265 to Posey Hill Road (1.6 miles)
Realign switchback horizontal curves
Add signage, pavement markings, and guardrail in horizontal curves

Stewarts Ferry Pike from SR 171 to Shelley Drive (4.6 miles)
Widen corridor to three 12-foot travel lanes and shoulders
Add signage, pavement markings, and lighting at intersections
Add advanced warning signs at intersections
Improve intersection sight distance and clear vegetation

Vesta Road from Fellowship Road to McCreary Road (2.3 miles)
Widen travel lanes and shoulders
Realign intersections to accommodate truck traffic and add capacity where needed
Add signage, pavement markings, and flashing beacons at intersections
Remove clear zone hazards at driveways