

# VISION ZERO GREENSBORO



## Two-Year Action Plan

2019-2020

# Letter from the Mayor



The Mayor of Greensboro  
Nancy Vaughan

Dear friends,

The City of Greensboro is known for its sense of community, parks, arts, and rich cultural diversity. The City is known for its transportation, as well. In fact, Greensboro has been recognized by WAZE as being the most satisfying city in the United States in which to be a driver.

The accolades from WAZE are not a coincidence, but a result of years of diligent and ongoing work by the City and its longtime partner, the North Carolina Department of Transportation, to modernize and expand transportation infrastructure to keep up with the changing mobility needs of the community.

The City maintains its commitment to providing high levels of mobility, and now adds to that commitment a new focus on improved roadway and transportation safety. In 2017, a record high of 42 traffic fatalities occurred in Greensboro. These fatalities, along with serious injuries from roadway crashes, bring profound and sorrowful impacts in our community, affecting people family,

friends, neighbors, and community members from throughout the City.

Vision Zero is a framework successfully used in leading cities across the United States and internationally to improve traffic safety outcomes over time. By implementing Vision Zero Greensboro, the City recognizes that traffic fatalities and serious injuries are largely preventable. Given that fact, the City commits to an interdisciplinary and integrated Vision Zero approach to traffic safety involving infrastructure changes, enforcement, education, transportation policy, and an engaged community. The City recognizes that reducing traffic fatalities and serious injuries with a long term goal of zero traffic fatalities will take time, effort, resources, and community engagement. Let's work together to make Greensboro safer!

Sincerely,

A handwritten signature in white ink that reads "Nancy Vaughan". The signature is fluid and cursive.

Nancy Vaughan  
Mayor of Greensboro

# Table of Contents

<b>Letter from the Mayor</b> .....	<b>1</b>
<b>What is Vision Zero?</b> .....	<b>3</b>
<b>Vision Zero Greensboro Goals &amp; Objectives</b> .....	<b>7</b>
The Role of Data in Vision Zero .....	8
Serious Injury Reporting .....	11
Measuring Success .....	12
Greensboro’s High Injury Network .....	13
Developing Emphasis Areas for Vision Zero Greensboro .....	15
Speed and Keeping Drivers Alert .....	17
Roadway Departure and Protecting All Users .....	21
Protecting Vulnerable Users .....	26
Relationships Between Emphasis Areas and Contributing Factors .....	29
Putting the Plan into Action .....	33
Looking to the Future .....	35
<b>Appendix</b> .....	<b>37</b>
Action Plan Strategies .....	37
Summary of City of Greensboro Outreach .....	49
Emphasis Area Working Group Members .....	53
Partners Agencies .....	54



# What is Vision Zero?

Vision Zero is a strategy, first implemented in Sweden in the 1990s, to eliminate traffic fatalities and serious injuries. Vision Zero provides a systematic framework for forward thinking cities and States to improve safety and equity across transportation systems. Vision Zero applies a safe systems approach – a framework that emphasizes designing roads in a way to protect the users – so if a crash occurs, it would less likely result in loss of human life. Vision Zero differs from traditional transportation safety programs in its emphasis on resource distribution, equity, citizen accountability, and data driven decision making. In emphasizing resource distribution across the “four Es” of transportation safety planning – Engineering, Education, Enforcement, and Emergency Services – Vision Zero provides a comprehensive and equitable approach to safety improvement.

Greensboro joins 34 cities across the United States as a member of the Vision Zero Network. In North Carolina, Greensboro is one of six communities to adopt a Vision Zero approach. The Vision Zero approach for the State of North Carolina includes an additional E – Everyone – prioritizing personal accountability in making safe transportation choices. Using a 5 Es approach, North Carolina aims to unite engineers, educators, emergency responders, law enforcement, and the public in a cooperative effort to make North Carolina streets safe for all road users.

Each of the NC Vision Zero communities has made a commitment to understanding and reducing traffic related fatalities. To join the Vision Zero Network, a community must:

- » Establish a clear goal of eliminating traffic fatalities and severe injuries;
- » Commit publicly, on behalf of the mayor and city council to Vision Zero; and
- » Have a Vision Zero plan in place that engages with key City departments including police, transportation, and public health.

## Fundamental Principles of a Meaningful Vision Zero Commitment:

- Traffic deaths and severe injuries are preventable.
- Human life and health are prioritized within all aspects of transportation systems.
- Human error is inevitable, and transportation systems should be forgiving.
- Safety work should focus on systems level changes above influencing individual behavior.
- Speed is recognized and prioritized as the fundamental factor in crash severity.

Source: *Moving from Vision to Action: Fundamental Principles, Policies & Practices to Advance Vision Zero in the U.S.*, Vision Zero Network, 2017.  
([http://visionzeronet.org/wp-content/uploads/2017/01/MinimumElements\\_Final.pdf](http://visionzeronet.org/wp-content/uploads/2017/01/MinimumElements_Final.pdf))

In North Carolina, Greensboro is **one of six communities** to adopt a Vision Zero approach and **joins 34 cities across the United States** as a member of the Vision Zero network.

## Vision Zero in Greensboro

Greensboro had 42 traffic fatalities in 2017, a sharp increase from 25 total fatalities in 2016<sup>1</sup>. The Vision Zero Greensboro Action Plan was developed through a multistep process consisting of community stakeholder meetings, a review of relevant data, and stakeholder input identifying the greatest safety needs in the City. With measured goals and targets, the Vision Zero Greensboro Action Plan reflects the commitment of the City of Greensboro to a long-term effort to reduce traffic fatalities and serious injuries aiming for zero. Vision Zero Greensboro will coordinate with community groups, municipal organizations, and advocates to maximize the impacts of their outreach efforts, and further improve safety and equity in transportation.



April 2018 Kickoff Workshop

The development and success of the Vision Zero Greensboro Action Plan relies on the support from partners and stakeholders from across the 5 Es. The first step was to convene potential partners with similar missions to Vision Zero including transportation/public safety organizations, law enforcement, and private businesses. Next, a broader group of stakeholders convened in April 2018 at a kickoff workshop where participants created a list of concerns, opportunities, and needs in the City of Greensboro. An overview of 10 years of crash data from Greensboro, Guilford County, and North Carolina was presented. Participants discussed how the Vision Zero Action Plan will align with similar statewide and local efforts like the Long Range Transportation Plan. The workshop culminated in group discussions regarding safety concerns, priority needs, and potentially effective ways to reduce fatalities and serious injuries to move Greensboro closer to zero traffic fatalities. Stakeholders completed commitment cards expressing interest to continue working on developing the Action Plan.

<sup>1</sup>Traffic Engineering Accident Analysis System (TEAAS), 2013-2017 North Carolina Department of Transportation.

Following the initial workshop, the City of Greensboro used a data-driven approach to identify areas of need for transportation safety in the community. The data provided insight into the City's past and present issues, specifically, the leading contributing factors and crash types. The results of data analysis and stakeholder input from the first workshop revealed several key themes to improving transportation safety in Greensboro. As a result, the City of Greensboro identified three EAs that would have the greatest impact on transportation safety outcomes.



**EMPHASIS AREA #1**  
Speed and Keeping Drivers Alert



**EMPHASIS AREA #2**  
Run off the Road and Protecting All Users



**EMPHASIS AREA #3**  
Protecting Vulnerable Users

Three working groups—one for each Emphasis Area—convened three times over the course of 2018 to review additional data, and develop, prioritize, and refine strategies and objectives. Their work ultimately shaped the final Action Plan and strategies selected for the 2019 Vision Zero Greensboro effort. These strategies can be found in the *Action Plan Strategies* appendix of this document. The section explains further how the team selected the strategies to be included in the Action Plan and how the different Emphasis Areas are reflected in the strategies.

## Public Engagement Summary

The City of Greensboro used a multi-pronged approach to collect public input for Vision Zero Greensboro, including the following:

- **Syngenta Wellness Fair:** Staff shared Vision Zero Greensboro initiative with over 300 Syngenta employees at their Wellness Fair in the Summer of 2018.
- **Volvo Safety Day:** Staff shared Vision Zero Greensboro with kids and parents at the Volvo Safety Day at Greensboro Children's Museum Spring 2019, including the Vision Zero Greensboro Traffic Safety Coloring Book with kids for traffic safety education.
- **Halloween Booze It & Lose at NC A&T:** Staff participated in the Halloween Booze It & Lose event hosted by the N.C. Governor's Highway Safety Program at NC A&T in Winter 2018, sharing the Vision Zero Greensboro initiative with college students.
- **College Radio PSAs:** Shared the Vision Zero Greensboro program and transportation safety tips via college radio PSAs during Thanksgiving and Christmas in 2018. Outreach included UNCG and NC A&T campus stations.
- **International Advisory Committee (IAC) Election** Staff participated in the IAC Election events in Spring 2019. The event allowed outreach to the immigrant and refugee community in Greensboro.
- **Television Outreach:** Staff shared the Vision Zero Greensboro message through various TV interviews. Video clips were shot from stakeholders, partners, and citizens to representatively show the importance and meaning of Vision Zero Greensboro to their daily lives.

The staff also conducted surveys and canvassing at Walmart stores, Greensboro Transit Authority Depot, and online platforms. A summary of the findings are available in the *Summary of Outreach* appendix.

## Navigating the Vision Zero Greensboro Action Plan

The Vision Zero Greensboro Action Plan is organized in the following sections:

### Vision Zero Greensboro Goals and Objectives

This section outlines the primary goal for the Action Plan and the guiding objectives.

### The Role of Data in Vision Zero

This section details the crash data used in creating the Action Plan, highlights trends in the data, and introduces the High Injury Network.

### Developing Emphasis Areas

This section of the Action Plan focuses on the development of the three Emphasis Areas—Speed and Keeping Drivers Alert, Run off the Road and Protecting All Users, and Protecting Vulnerable Users—and how focusing on these areas will help Greensboro meet its goal.

### Using the Action Plan

This section provides readers with guidance on how to read and use the Action Plan Strategies tables.

### Vision Zero Greensboro Action Plan Strategies

This section lists the strategies the City of Greensboro will work to accomplish by the first two-year interim update in 2022.

### Measuring Success

This section describes the metrics the City of Greensboro will use to measure success of the Action Plan.

## Bailey Grossman-Orr 1993-2013

*Bailey Grossman-Orr was fearless, funny, and loyal. The friend you went to with your troubles.*

*In 2013, Bailey had two jobs, one at Cone Hospital and one at UPS, in an effort to move out of his parent's house. He had recently figured out he wanted to go to school to pursue a business degree.*

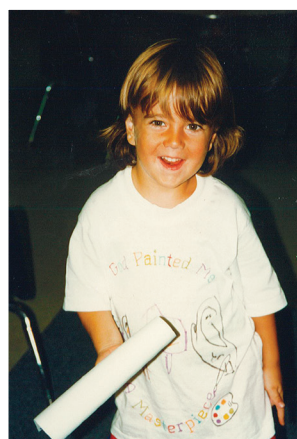
*One night on his way home driving along Freeman Mill Road, he sped up to pass a car, then lost control of his car due to overinflated tires. His car swerved to miss a pedestrian, crossed into an on-coming lane, hit another car, hit a guardrail, and then rolled.*

*He was not wearing a seatbelt.*

*The investigator told Bailey's father Vernon, "Had Bailey had his seatbelt on, he would have still had an accident, but we'd be having a very different conversation."*

*From beginning to end, the accident could not have taken more than three seconds, Vernon said. Vernon is now an advocate for traffic safety and shares Bailey's story when asked without hesitation.*

*When he shares he always leaves them with this quote - "That three seconds it takes you to fasten your seatbelt makes all the difference," Vernon said. "It takes three seconds - three seconds to click a seatbelt. There is no valid reason under the sun ever not to fasten your seatbelt."*



Bailey as a young boy



Bailey's roadside memorial

# Vision Zero Greensboro Goal and Objectives



## Goal:

The goal of Vision Zero Greensboro is to make transportation safety a top priority. Stakeholder collaboration and community engagement will be key to moving towards zero fatal and serious injury crashes by 2040.

## Objectives:

- Prevent crashes resulting in fatalities and serious injuries.
- Promote a safe systems approach to transportation in Greensboro.
- Engage partners and the public to foster a culture of safety.





# The Role of Data in Vision Zero

Vision Zero Greensboro uses data-driven processes to identify areas of need for transportation safety in local communities. The data provides insight into the City's past and present issues and guides the decisions of Greensboro's Vision Zero partners. This allows stakeholders to make informed, effective decisions about when, where, and how to allocate the community's resources.

Understanding crash causes and outcomes can be a complex process and relies on high quality data. The most readily available and reliable data sources were used during the development of the Action Plan. The analysis conducted as part of the Action Plan development should serve as a starting point and provide direction for further in-depth analysis to support the identified needs of Vision Zero Greensboro. Partners will need to continually collect, maintain, and analyze data to support implementation, evaluation, and refinement of the Action Plan. Vision Zero Greensboro will continue to engage law enforcement, North Carolina Department of Transportation (NCDOT), NC Vision Zero, and other stakeholders in improving data collection, data analysis, and data sharing. These processes will be key to ensuring equity, transparency, and the success of Vision Zero Greensboro.

## Data Trends

An examination of the transportation safety trends in North Carolina, Guilford County, and the City of Greensboro provided the framework for developing the short-term strategies for the City of Greensboro to pursue its goal of zero transportation fatalities and serious injuries. The City undertook a detailed

analysis of roadway fatalities recorded in the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS) database. North Carolina uses FARS to report its progress toward federally-mandated benchmarking of fatal and severe injuries on public roads. This detailed dataset provides comprehensive information regarding the crash location, contributing circumstances, and participants in the crash. With this data, stakeholders can answer the critical questions of who, when, where, and why for each crash.

## The Big Picture: Roadway Fatalities and Serious Injuries

Over the last decade, fatalities on North Carolina roads steeply declined between 2007 and 2011 but saw a slight increase between 2012 and 2016. This parallels a national and statewide decline in vehicle miles traveled between 2008 and 2011, and a trend of increased miles of travel since 2012. Relative to the amount of traffic on the State's roads, the rate of fatalities has remained relatively level over the last eight years and well below its peak in 2007.

**Greensboro and Guilford County** have not experienced the same relative decline in fatalities observed in the State as a whole. Despite low years in 2009 and 2011, **the annual number of fatalities have remained consistent over the last decade**, and even include **a record high of 42 roadway fatalities in Greensboro in 2017.**

## Fatal Crash Trends

North Carolina’s Strategic Highway Safety Plan (SHSP) summarizes roadway fatality data and identifies Emphasis Areas for future safety improvements. North Carolina’s 2014 plan identified nine Emphasis Areas of most concern:

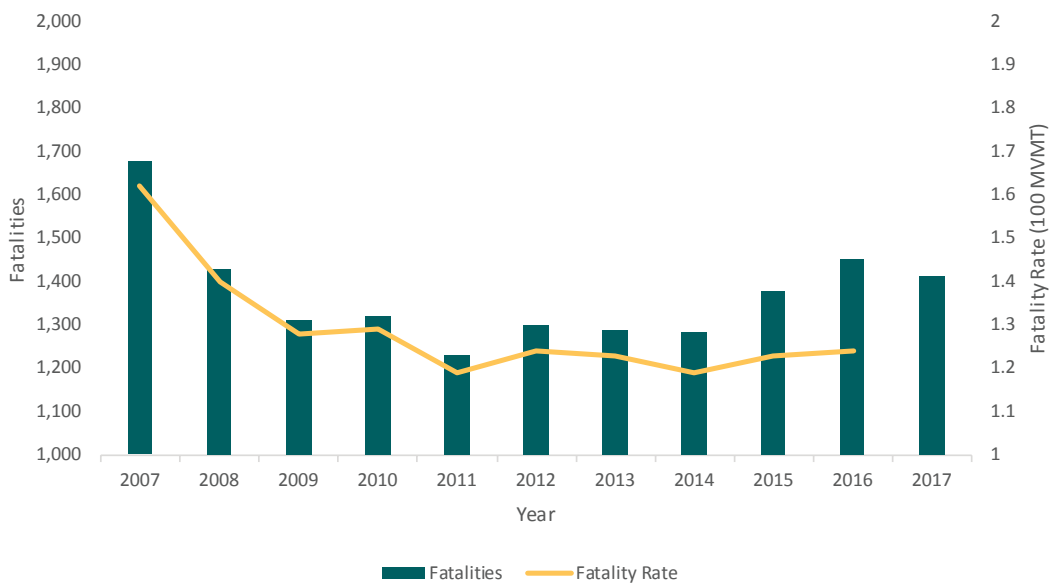
- 1 Demographic Considerations**  
(e.g., older and younger drivers)
- 2 Driving While Impaired**  
(e.g., alcohol-impaired driving)
- 3 Emerging Issues & Data**  
(e.g., quality crash, vehicle, roadway, and injury data)
- 4 Intersection Safety**
- 5 Keeping Drivers Alert**
- 6 Lane Departure**
- 7 Occupant Protection/Motorcycles**
- 8 Pedestrians and Bicyclists**
- 9 Speed**

Statewide, roadway fatalities in most Emphasis Areas rose between 2013 and 2017 corresponding with the annual trend of increasing roadway fatalities. Lane departure, speeding, and unbelted motor vehicle occupants represented the largest groups of fatalities in the State. Older driver (ages 65 and older) and intersection-related fatalities experienced sustained increases in fatalities over the five-year period.

Greensboro experiences a similar proportion of fatalities in each Emphasis Area as North Carolina, with some notable exceptions. Greensboro’s denser urban and suburban street network is more convenient for pedestrian travel and creates a greater density of intersections and driveways than more rural locations. Greensboro’s population also tends to be younger than the State as a whole. According to the U.S. Census Bureau’s American Community Survey (ACS), the median age of Greensboro’s residents is 35 while the median North Carolinian is closer to 39 years old.

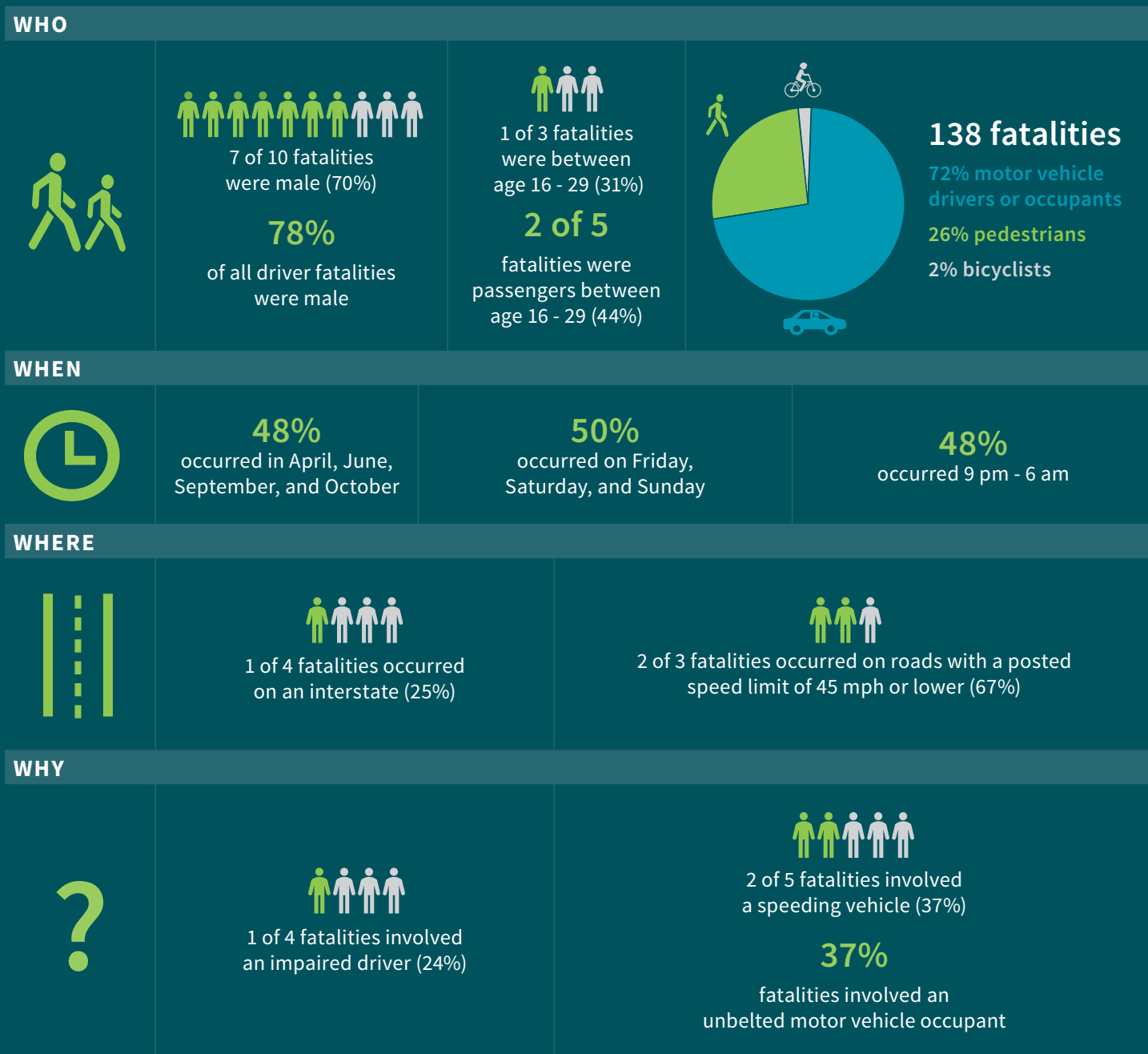
Compared to the rest of North Carolina, far fewer fatalities in Greensboro are related to a vehicle departing the roadway. However, roadway departure still represents the largest contributing factor to fatalities in the community.

North Carolina Roadway Fatalities



As an urban community, Greensboro experiences a **larger proportion** of pedestrian, intersection, and young driver-related (16 to 20 years old) fatalities than the State as a whole.

## Fatality Statistics at a Glance



# Serious Injury Reporting

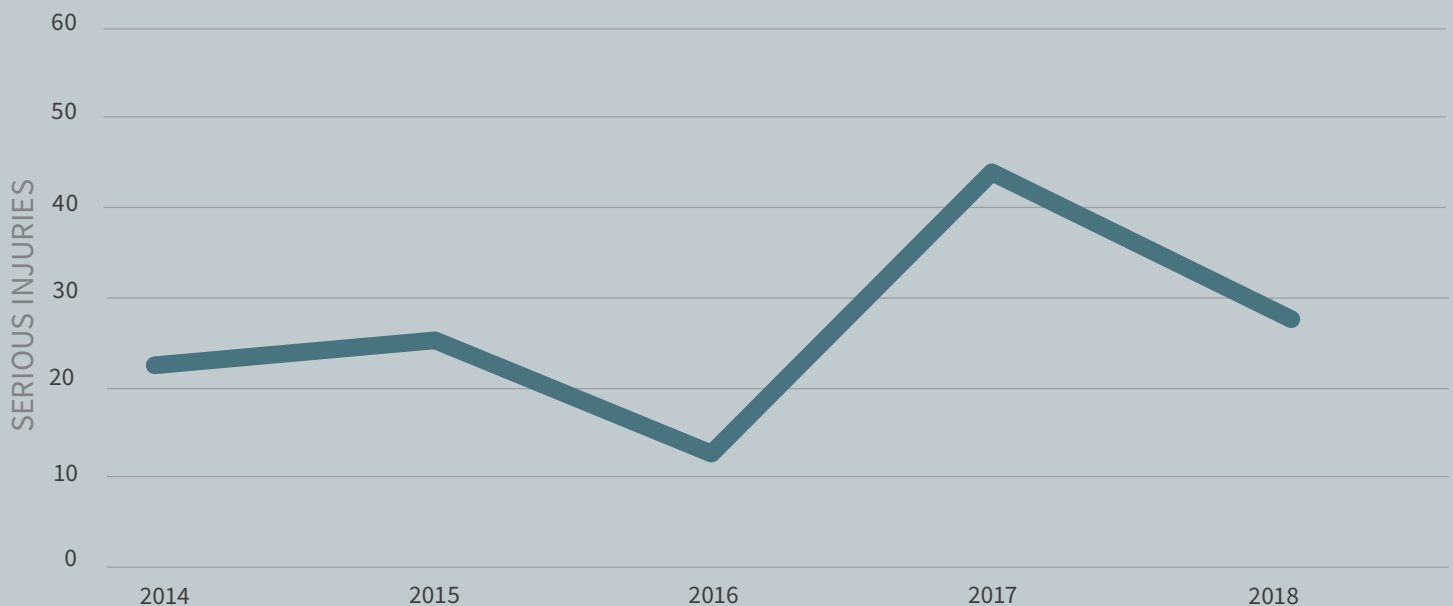
NCDOT revised the statewide definition of a serious injury in September 2016 to conform with the national standard outlined in the Model Minimum Uniform Crash Criteria (MMUCC). The new definition provides a more prescriptive list of injury types that are considered serious compared to NCDOT's pre-2016 definition.

As a result, the official number of serious injuries across North Carolina has greatly increased in recent years; however, this does not necessarily mean that more serious injuries are occurring. This change makes comparisons between data prior to September 2016 and after September 2016 unreliable. Future Vision Zero Greensboro actions plans and activities should use 2017 data as the first year for serious injury trend analysis.

A suspected serious injury is any injury other than fatal which results in one or more of the following:

- Severe laceration resulting in exposure of underlying tissues/ muscle/ organs or resulting in significant loss of blood.
- Broken or distorted extremity (arm or leg)
- Crush injuries
- Suspected skull, chest, or abdominal injury other than bruises or minor lacerations
- Significant burns (second and third degree burns over 10% or more of the body)
- Unconsciousness when taken from the crash scene
- Paralysis

## Greensboro Serious Injuries Since 2014



Source: 2014- 2018 Greensboro Department of Transportation



# Measuring Success

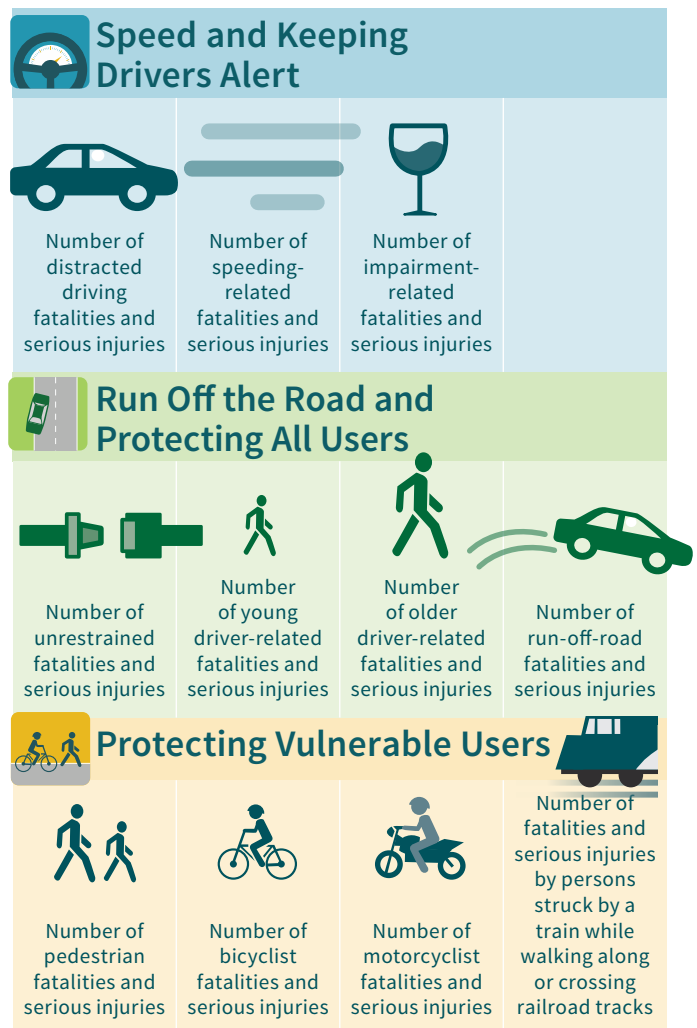
Vision Zero Greensboro’s goal is to move towards zero fatal and serious injury crashes by 2040. Achieving this goal will require tracking progress over time, and re-adjusting strategies and targets as needed. Biannual safety targets will be set and updated to measure progress and track outcomes.

Vision Zero Greensboro set safety targets based on analysis of trends and are in line with NCDOT’s Safety Performance Targets setting methodology. The goal is to reduce the measures by 50% by 2030.

- » Total fatality reduction target: reduce by 5.40% each year from 29 (2014-2018 average) to less than 15 (2026-2030 average) by December 31, 2030.
- » Fatality rate reduction target (fatalities per 100 million vehicle miles): reduce the fatality rate by 5.61% each year from 0.93 (2014-2018 average) to less than 0.46 (2026-2030 average) by December 31, 2030.
- » Total serious injury target: reduce total serious injuries by 5.82% each year from 39<sup>2</sup> (2014-2018 average) to less than 19 (2026-2030 average) by December 31, 2030.
- » Serious injury rate target (serious injuries per 100 million vehicle miles): reduce the serious injury rate by 5.61% each year from 1.23 (2014-2018 average) to less than 0.61 (2026-2030 average) by December 31, 2030.
- » Total non-motorized fatalities and serious injuries: reduce non-motorized fatalities and serious injuries by 5.9% each year from 21 (2014-2018 average) to less than 11 (2026-2030 average) by December 31, 2030.

<sup>2</sup>Due to the 2016 statewide change in reporting serious injuries, serious injury targets will be adjusted when 5 years of data under the new definition are available in 2021.

Reduction rates are based on 5-year crash data, using 2014-2018 as the baseline. Rates will be re-examined and adjusted annually when calendar year crash and vehicle miles traveled data are available. The City of Greensboro will continuously monitor data and update the Action Plan every two years. If during an interim update, the data are not following this trend, stakeholders can evaluate progress within each Emphasis Area to determine where to focus efforts. The Emphasis Area performance measures can be used as additional tracking mechanisms to monitor progress.

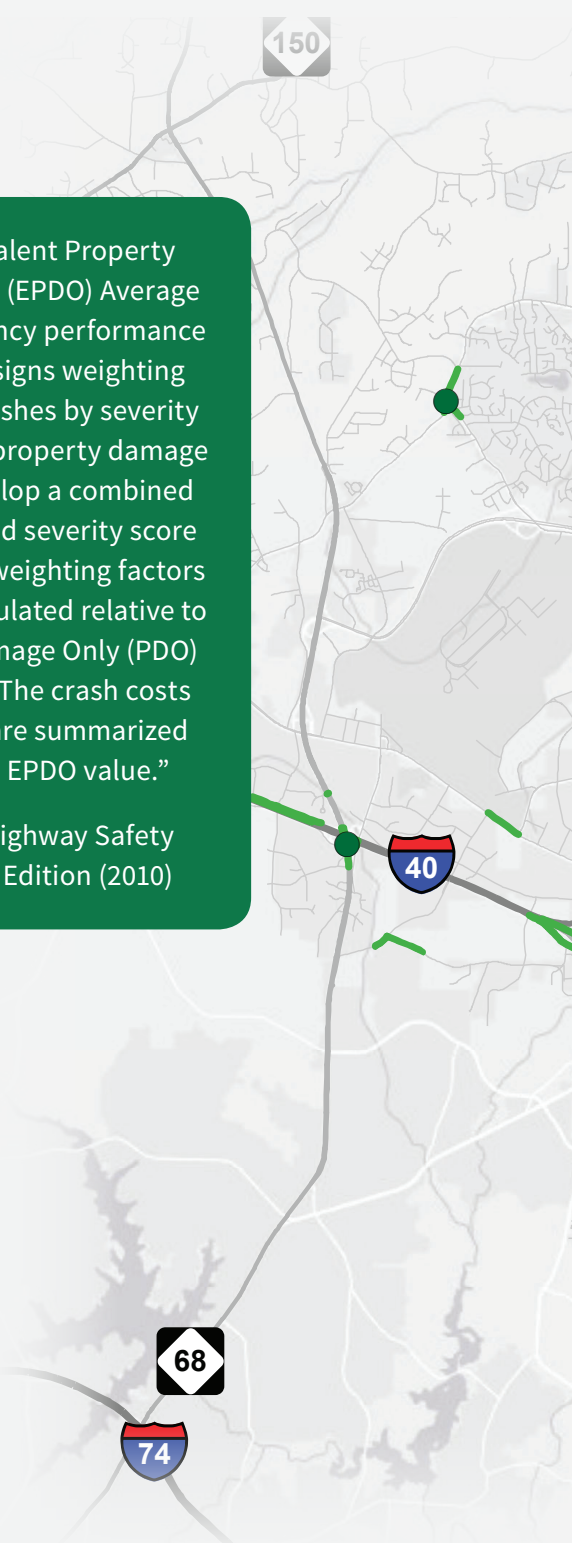


# Greensboro High Injury Network

The City of Greensboro developed a High Injury Network (HIN) to identify high priority locations throughout their roadway network based on crash severity frequency. The HIN includes roads and intersections that experienced the most fatal, severe, and evident injury crashes for all modes between 2014 and 2018 using an Equivalent Property Damage Only (EPDO) crash frequency analysis. The City provided crash data to build the network. The HIN provides a useful analytical framework that will change over time as safety trends change.

A visual representation of the Greensboro HIN is displayed in this map. The **light green lines** show the HIN segments that represent a little over 7% of the overall transportation network but account for 81% of fatal crashes and approximately 71% of serious injury crashes. The **dark green dots** represent the intersections within the network that experienced the most fatal and severe crashes; representing 9% of fatal and serious crashes. Together, the locations in the HIN represent a little over 7% of the roads in the City of Greensboro but account for 75% of all fatal and serious injury crashes.

The HIN is useful for informing and focusing the infrastructure, education, enforcement, and emergency response management elements of Vision Zero Greensboro. Investing resources on these locations has the highest potential to yield substantial improvements in roadway safety outcomes. As the community grows—and needs and priorities change—this network will change with it.



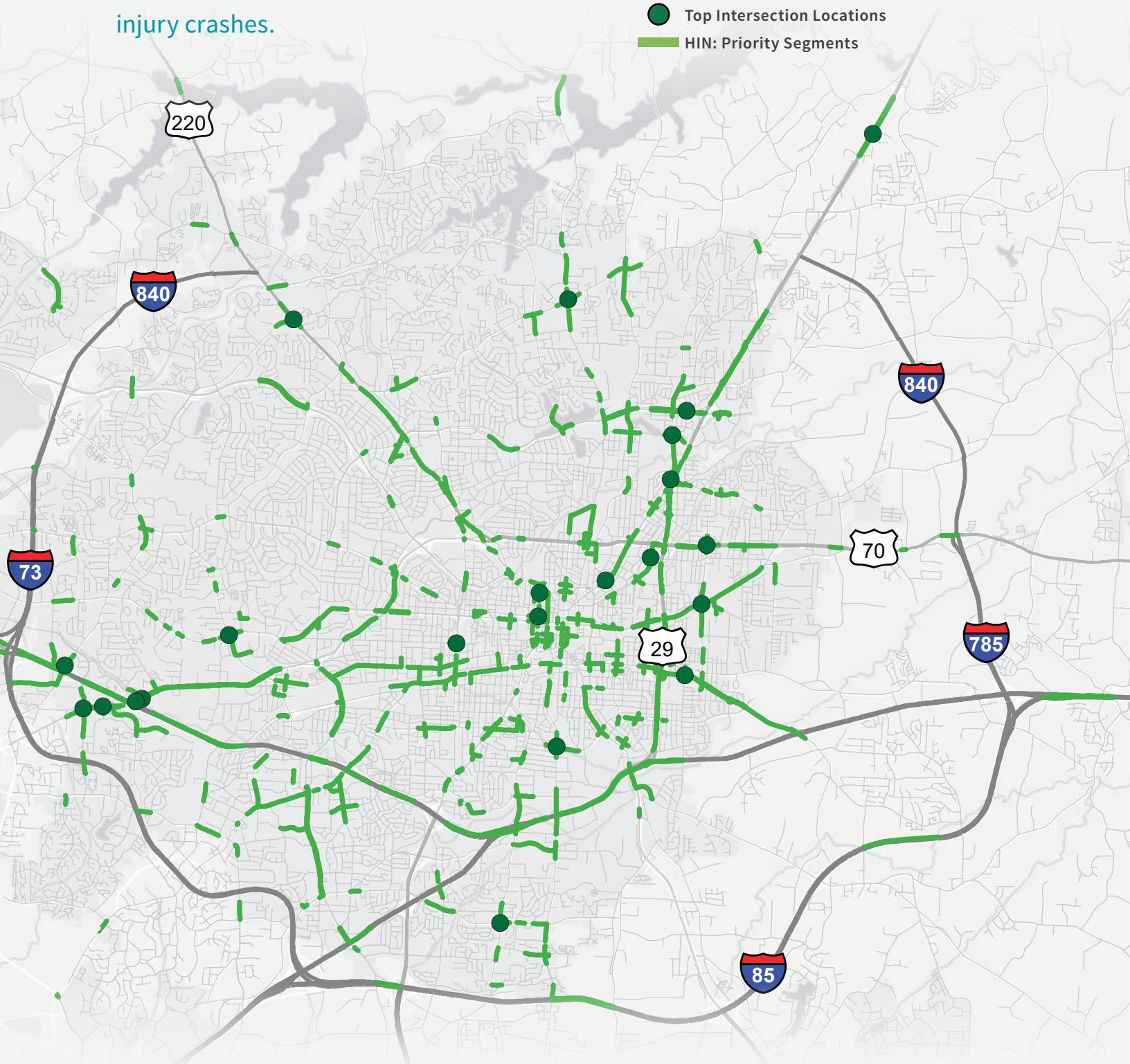
“The Equivalent Property Damage Only (EPDO) Average Crash Frequency performance measure assigns weighting factors to crashes by severity (fatal, injury, property damage only) to develop a combined frequency and severity score per site. The weighting factors are often calculated relative to Property Damage Only (PDO) crash costs. The crash costs by severity are summarized yielding an EPDO value.”

-AASHTO Highway Safety Manual 1st Edition (2010)

Together, the locations in the High Injury Network represent **a little over 7%** of the roads in the City of Greensboro but account for **75%** of all fatal and serious injury crashes.



- Top Intersection Locations
- HIN: Priority Segments



# Developing Emphasis Areas for Vision Zero Greensboro

A priority of Vision Zero is to create a safe transportation system for all users on all modes. In reviewing the fatal and serious injury crashes the data revealed the most common crash types in Greensboro. The contributing circumstances surrounding each individual crash differ according to context, and most crashes have several factors that lead to a collision. For instance, a younger inexperienced driver may depart the roadway as a result of speeding. Likewise, a driver impaired by drugs, alcohol, and/or distraction may also be susceptible to speeding and departing the roadway. Targeting a single potential cause, in these examples speeding, is insufficient to have a substantial effect on reducing fatal and serious injury crashes.

The following chart further illustrates the overlap of contributing circumstances and alignment with North Carolina's SHSP. It can be read left to right, so that each row represents an emphasis area, and each column details the overlap with other emphasis areas. For instance, 20% of roadway departure crashes occurred at an intersection, and 33% of crashes that occurred at an intersection also involved roadway departure.

City of Greensboro Fatalities by North Carolina SHSP Emphasis Area	ROADWAY DEPARTURES	INTERSECTION-RELATED	OLDER DRIVERS	YOUNG DRIVERS	IMPAIRED DRIVERS	IMPAIRED PEDESTRIAN /BICYCLIST	PEDESTRIAN	BICYCLIST	SPEED-RELATED	MOTORCYCLIST	OCCUPANT PROTECTION	% OF TOTAL FATALITIES
ROADWAY DEPARTURE		20%	17%	30%	25%	0%	3%	0%	57%	9%	42%	49%
INTERSECTION-RELATED	33%		26%	26%	17%	5%	14%	5%	36%	14%	24%	30%
OLDER DRIVERS	44%	41%		11%	7%	11%	15%	4%	19%	4%	15%	19%
YOUNG DRIVERS	78%	41%	11%		11%	0%	7%	0%	56%	7%	52%	19%
IMPAIRED DRIVERS	50%	21%	6%	9%		0%	15%	0%	56%	12%	32%	24%
IMPAIRED PEDESTRIAN/BICYCLIST	0%	18%	27%	0%	0%		91%	0%	0%	0%	0%	8%
PEDESTRIAN	6%	17%	11%	6%	14%	28%		0%	6%	0%	0%	26%
BICYCLIST	0%	67%	33%	0%	0%	0%	0%		0%	0%	0%	2%
SPEED-RELATED	75%	29%	10%	29%	37%	0%	4%	0%		6%	35%	37%
MOTORCYCLIST	43%	43%	7%	14%	29%	0%	0%	0%	21%		7%	10%
OCCUPANT PROTECTION	81%	28%	11%	39%	31%	0%	0%	0%	50%	3%		26%



For the purpose of this Action Plan, the City of Greensboro developed three Emphasis Areas that take a comprehensive approach to addressing safety issues. A 4E approach to these Emphasis Areas will move the City towards zero roadway injuries and fatalities.

### Greensboro's three Emphasis Areas are:



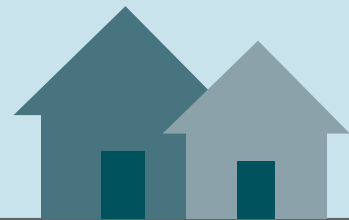
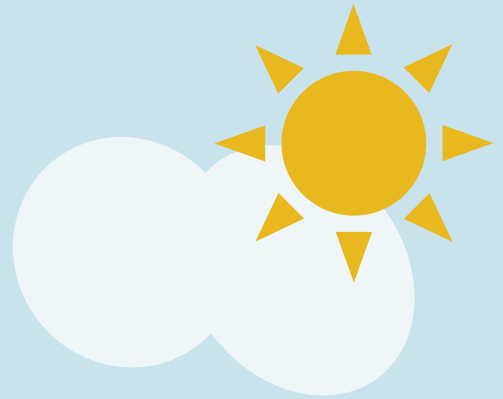
**EMPHASIS AREA #1**  
Speed and Keeping Drivers Alert



**EMPHASIS AREA #2**  
Run off the Road and Protecting All Users



**EMPHASIS AREA #3**  
Protecting Vulnerable Users





## EMPHASIS AREA #1

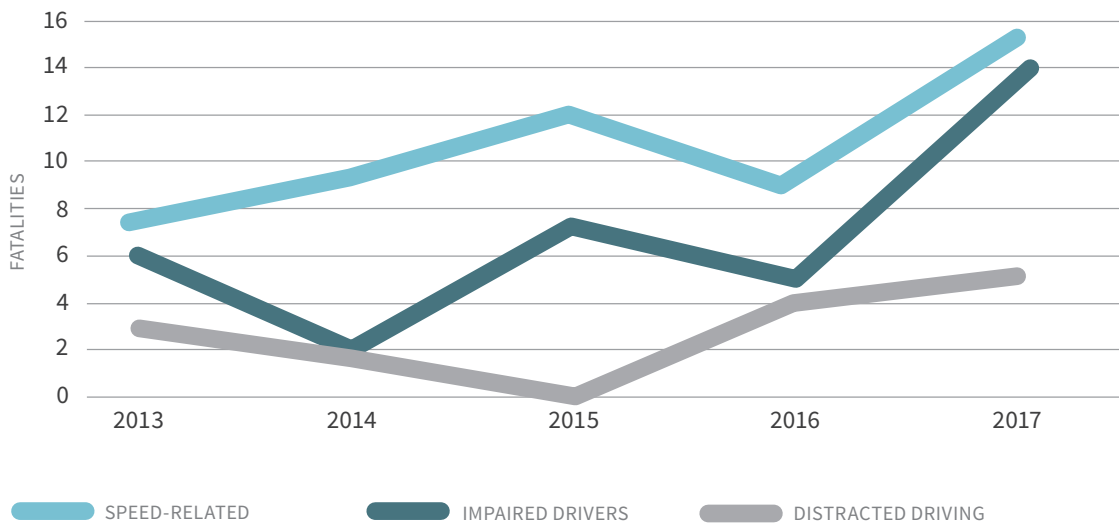
# Speed and Keeping Drivers Alert

The analysis of roadway fatalities in Greensboro revealed that speeding was one of the largest contributing factors in fatal crashes. This Emphasis Area also addresses keeping drivers alert, which includes preventing driving under the influence of drugs and alcohol and distracted driving; however the sample size for distracted driving is very small and likely underreports the magnitude of the distracted driving issue. The Speed and Keeping Drivers Alert Emphasis Area focuses on promoting a culture of safe and attentive driving.

There are nearly 30 Action Plan Strategies that address this Emphasis Area, many of which focus

on engineering and enforcement solutions. Examples include slower design speeds in more sensitive contexts, stricter state-wide regulations against distracted driving, and neighborhood traffic calming. The City will use crowd-sourced data through a partnership with WAZE to inform project identification and selection. As this partnership develops, the data derived from this near real-time, crowd-sourced platform may provide insights that traditional sources lack. These include—but may expand as the dataset develops—congestion management, speeding, and crash reporting for locations that do not typically receive consistent or priority attention.

Emphasis Area #1: Fatalities by Contributing Factor



Source: 2013-2017 Fatality Analysis Reporting System (FARS), NHTSA

# IMPAIRED DRIVER FATALITIES

2013-2017 FARS Data

34

fatalities involved an impaired driver

76%

occurred between 9 pm and 6 am

59%

occurred on Friday, Saturday, or Sunday

82%

were male

82%

were motor vehicle occupants

50%

were under the age of 30

50%

were related to a vehicle running off the road or crossing the centerline

56%

were speed-related

65%

on roadways classified as non-arterial

29%

occurred on an interstate highway

# SPEED-RELATED FATALITIES

2013-2017 FARS Data

52

fatalities were  
speed-related

56%

occurred between  
9 pm and 6 am

96%

were **motor vehicle**  
occupants

60%

occurred on **Friday,**  
**Saturday,** or  
**Sunday**

37%

involved an  
**impaired driver**

63%

involved  
a driver **under the**  
**age of 40**

73%

were **male**

75%

were related to a vehicle  
**running off the road or**  
**crossing the centerline**

US  
29

12%  
occurred on  
US 29

31%  
occurred on an  
**interstate highway**

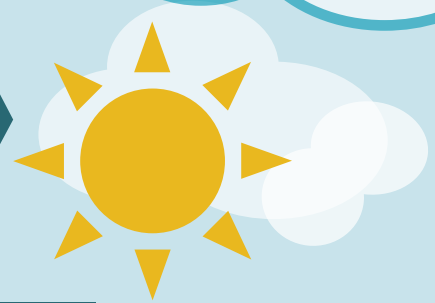
# DISTRACTED DRIVER FATALITIES

2013-2017 FARS Data

**8 out of 14**  
occurred on  
**Friday or Saturday**

**7 out of 14**  
occurred between  
**noon and 7 pm**

**14**  
fatalities involved a  
**distracted driver**



**6 out of 13**  
involved distracted drivers  
under the age of 26



**6 out of 14**  
were **speed-related**

**12 out of 14**  
were **motor vehicle occupants**



**9 out of 14**  
were **intersection-related**

**7 out of 13**  
drivers were **female**



**8 out of 14**  
occurred on  
**roadways classified as local**



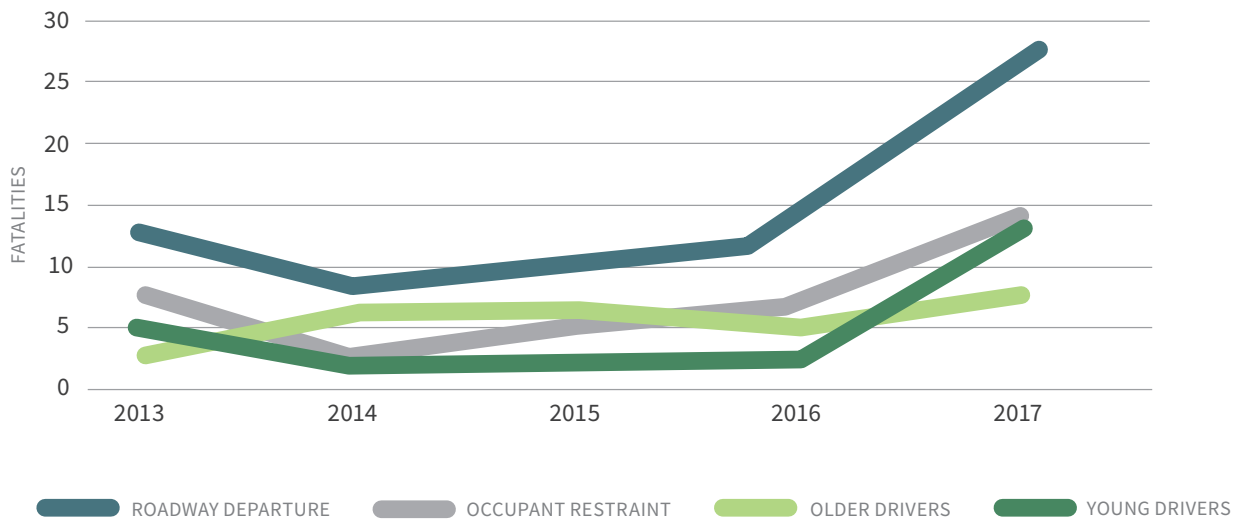
## EMPHASIS AREA #2

# Roadway Departure and Protecting All Users

The Roadway Departure and Protecting All Users Emphasis Area addresses fatal and severe crash outcomes due to a vehicle leaving its lane, unrestrained occupants, and age-related variables. The data analysis revealed that four areas—roadway departure, occupant protection, older drivers, younger drivers—are uniquely linked. Most fatalities that involved a driver under the age of 21 also involved a vehicle departing its lane, either leaving the roadway or crossing the centerline. Furthermore, most fatalities that involved an unbelted passenger also involved a vehicle leaving its travel lane. Although difficult to substantiate, roadway departure crashes are frequently linked to distracted driving (e.g., texting while driving), strengthening the connection with Emphasis Area #1.

There are over 20 Action Plan Strategies that address these crash types. Education and encouragement strategies are designed to reach specific audiences through programming and policy, emphasizing the importance of reaching all roadway users—from pre-drivers to aging adults. Engineering solutions emphasize using data to identify key locations where roadway departure crashes occur and implement effective countermeasures.

Emphasis Area #2: Fatalities by Contributing Factor



Source: 2013- 2017 Fatality Analysis Reporting System (FARS), NHTSA

# ROADWAY DEPARTURE FATALITIES

2013-2017 FARS Data

**71%**  
were **male**

**54%**  
occurred between  
**9 pm and 6 am**

**69**  
fatalities involved a vehicle  
**crossing the centerline or  
departing the roadway**

**55%**  
occurred between  
**Monday and  
Thursday**

**97%**  
were **motor vehicle  
occupants**



**35%**  
occurred on an  
**interstate highway**

**55%**  
of drivers that crossed  
the centerline or  
departed the roadway  
were **under the age  
of 40**

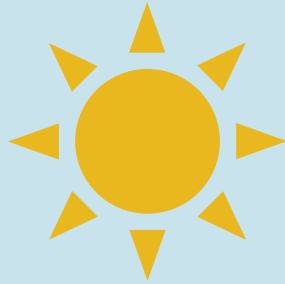
**57%**  
were **speed-related**



# FATALITIES INVOLVING OLDER DRIVERS (65+)

2013-2017 FARS Data

**70%**  
occurred between  
**10 am and 8 pm**



**27**  
fatalities involved a driver  
over the age of 65

## Guilford County Demographic Projections

US Census Bureau & NC Office of State Budget and Management.

YEAR	Population over 65
2010	<b>12.3%</b>
2019	<b>15.5%</b>
2035	<b>19.3%</b>

**41%**  
were related to a vehicle **running off the road or crossing the centerline**

**15%**  
were **pedestrians**



**4%**  
involved **bicyclists**

**41%**  
were **intersection-related**

**70%**  
occurred between  
**Monday and Thursday**

**63%**  
occurred on  
**roadways classified as local**

**63%**  
were **male**



# FATALITIES INVOLVING YOUNG DRIVERS (15-20)

2013-2017 FARS Data

**63%**  
occurred between  
**10 am and 8 pm**



**27**  
fatalities involved a driver  
between the **ages of 15 and 20**

**52%**  
involved an  
**unrestrained** motor  
vehicle occupant

**8%**  
involved **pedestrians**  
and **bicyclists**




**63%**  
occurred  
on **roadways**  
classified as **local**



**56%**  
were **speed-related**

**78%**  
were related to a  
vehicle **running off**  
**the road or crossing**  
**the centerline**

  
**72%**  
of young drivers  
involved in **fatal**  
crashes were **male**

# OCCUPANT PROTECTION FATALITIES

2013-2017 FARS Data

36

fatalities involved a **unhelmeted or unbelted motor vehicle occupant**

61%

occurred between  
9 pm and 6 am



58%

were  
under the age of 40

44%

were **female**



56%

occurred between  
**Friday and Sunday**



64%

were **drivers**

39%

involved a driver  
under the  
age of 21



81%

were related to a  
vehicle **running off  
the road or crossing  
the centerline**



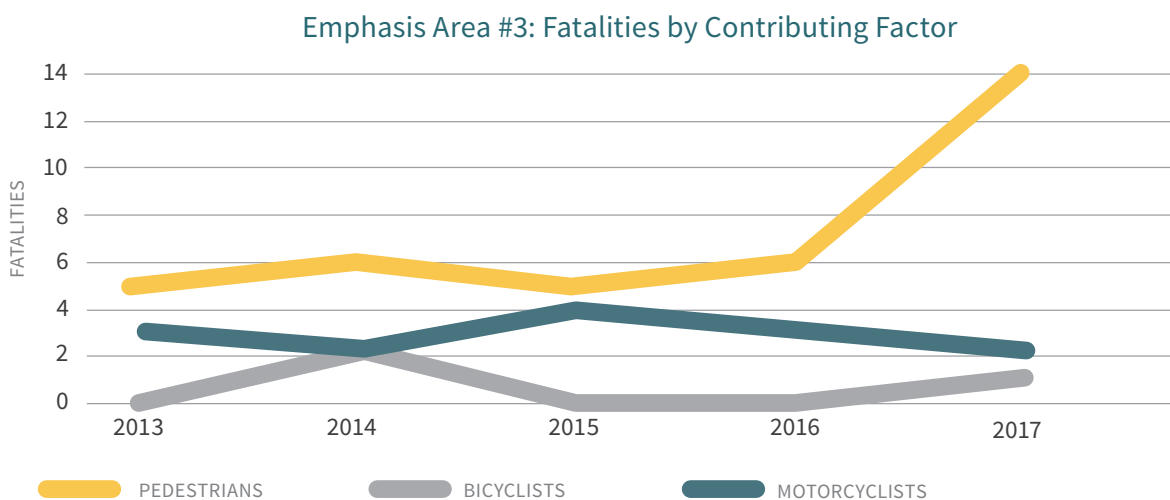


## EMPHASIS AREA #3

# Protecting Vulnerable Users

The Protecting Vulnerable Users Emphasis Area focuses on transportation system users with an increased risk for more severe injuries as a result of a crash. The City of Greensboro has an urban multimodal transportation system. Pedestrian and bicycle travel, as well as transit usage are integral components of the system. Pedestrians and bicyclists are vulnerable, as demonstrated by their over-representation in crash statistics relative to the amount of travel between modes. Additionally, motorcycle safety is a key concern given their exposure and interaction with other motor vehicles and their limited protection when involved in a crash. This Emphasis Area also addresses the issue of pedestrians killed by trains considering community design and specialized infrastructure, as well as encouragement and educational campaigns for these users and the driving public to ensure all modes can share the road.

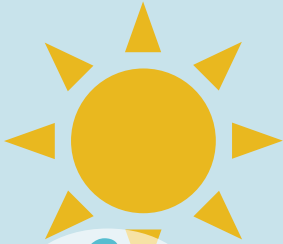
The Action Plan details nearly 30 strategies that address this Emphasis Area. Education and encouragement strategies focus on identifying solutions that encourage safe pedestrian and bicyclist behaviors, increase motor vehicle awareness of vulnerable users, and expand the reach of existing programs to larger audiences. Engineering solutions promote using data to identify areas where vulnerable users travel most frequently and securing more funding for infrastructure solutions in those areas. Furthermore, stakeholders noticed a need to engage the motorcycle community in order to develop and refine strategies to reduce motorcycle crashes.



Source: 2013-2017 Fatality Analysis Reporting System (FARS), NHTSA

# BICYCLE AND PEDESTRIAN FATALITIES

2013-2017 FARS Data



**June, July, & October**  
are the peak months

**36**  
fatalities involved a **pedestrian**

**3**  
fatalities involved a **cyclist**

**26%**  
involved an impaired **pedestrian or cyclist**



**26%**  
were **female**

**21%**  
were near an **intersection**



**49%**  
were over the **age of 40**

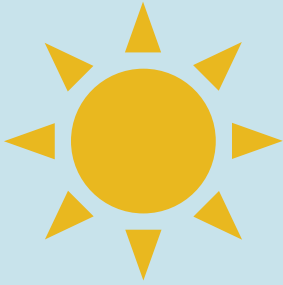


**15 total fatalities**  
were **along railroads**

**64%**  
occurred on **roadways classified as local**

# MOTORCYCLIST FATALITIES

2013-2017 FARS Data



**50%**  
occurred between  
**2 pm and 8 pm**

**14**

fatalities involved a  
**motorcyclist**

**21%**  
were  
**speed** related

**50%**  
were over the **age**  
of **40**



**43%**  
were **intersection**-related

**43%**  
were related to a  
vehicle **running off**  
the road or **crossing**  
the centerline

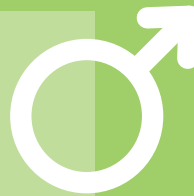


**71%**  
occurred on  
**roadways**  
classified as **local**



**79%**  
occurred between  
**Monday and**  
**Friday**

**100%**  
were **male**



**29%**  
of all rider fatalities  
also involved  
an **impaired**  
rider or **motor**  
vehicle driver



# Relationships Between Emphasis Areas and Contributing Factors

## Roadway Departure

Roadway departure was related to:

**81%** of unbelted fatalities

**78%** of young driver fatalities

**75%** of speed-related fatalities

*Despite contributing to 49% of total fatalities between 2013 and 2017.*

## Intersections

Intersections were related to:

**2 of 3** bicyclist fatalities

**43%** of motorcycle fatalities

**41%** of younger and older driver fatalities

*Despite contributing to 30% of total fatalities between 2013 and 2017.*

## Older Drivers

Older drivers were involved in:

**26%** of intersection-related fatalities

*Despite contributing to 19% of total fatalities between 2013 and 2017.*

## Young Drivers

Young drivers were involved in:

**39%** of unbelted fatalities

**30%** of roadway departure fatalities

**29%** of speed-related fatalities

*Despite contributing to 19% of total fatalities and 39% of unbelted between 2013 and 2017.*

## Impaired Drivers

Impaired drivers contributed to:

**37%** of speed-related fatalities

**29%** of motorcyclist fatalities

**31%** of unbelted fatalities

*Despite contributing to 24% of total fatalities between 2013 and 2017.*

## Speed

Speeding contributed to:

**57%** of roadway departure fatalities

**56%** of young driver and impaired driver fatalities

**50%** of unbelted fatalities

*Despite contributing to 37% of total fatalities between 2013 and 2017.*

## Occupant Protection

Unbelted occupants contributed to:

**52%** of young driver fatalities

**42%** of roadway departure fatalities

**35%** of speed-related fatalities

*Despite contributing to 26% of total fatalities between 2013 and 2017.*

## Additional Data Analysis

A deeper look at the Greensboro Police Department crash data for 2014-2017 reveals further details on the crash cause (EA 1 and EA 2 have multiple contributing causes), collision type, roadway type, and time of day the crashes are occurring. The following Greensboro Police Department (GPD) data was analyzed by Emphasis Areas. The data does not include crashes reported by universities and State Highway Patrol. While the data does not include fatal crash data, it does represent the majority of crashes occurring in Greensboro.

<b>EA1 SPEED AND KEEPING DRIVERS ALERT (EXCLUDES BICYCLE AND PEDESTRIAN RELATED CRASHES)</b>					
<b>WHY</b>		<b>NUMBER OF CRASH CAUSES</b>			
<b>CRASH CAUSE</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>TOTAL</b>
FAIL TO REDUCE SPEED	2139	2650	2788	3008	10585
EXCEEDED SAFE SPEED FOR CONDITIONS	25	31	30	18	104
FOLLOWING TOO CLOSELY	10	16	14	9	49
EXCEEDED AUTHORIZED SPEED LIMIT	4	4	3	4	15
FAIL TO YIELD RIGHT OF WAY	1443	1606	1572	1768	6389
NO CONTRIBUTING CIRCUMSTANCES	1913	1383	1391	1675	6362
INATTENTION	1185	1258	1158	1195	4796
<b>GRAND TOTAL</b>	<b>8642</b>	<b>9687</b>	<b>9758</b>	<b>10815</b>	<b>38902</b>
<b>WHAT</b>		<b>NUMBER OF CRASHES</b>			
<b>COLLISION DESCRIPTION</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>TOTAL</b>
REAR END, SLOW OR STOP	1555	1911	2051	2328	7845
ANGLE	141	165	192	163	661
RAN OFF ROAD - RIGHT	134	140	148	128	550
RAN OFF ROAD - LEFT	95	103	116	92	406
FIXED OBJECT*	62	86	70	63	281
<b>GRAND TOTAL</b>	<b>2178</b>	<b>2701</b>	<b>2835</b>	<b>3039</b>	<b>10753</b>
<b>WHERE</b>		<b>NUMBER OF CRASHES</b>			
<b>ROAD CLASSIFICATION</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>TOTAL</b>
MINOR ARTERIAL	550	649	674	745	2618
PRINCIPAL ARTERIAL OTHER	467	581	580	615	2243
NO FUNCTIONAL CLASS	442	522	522	548	2034
INTERSTATE	285	400	496	537	1718
PRINCIPAL ARTERIAL OTHER	224	299	300	311	1134
MAJOR COLLECTOR	187	220	229	254	890
LOCAL	23	30	31	27	111
MINOR COLLECTOR	0	0	3	2	5
<b>GRAND TOTAL</b>	<b>2178</b>	<b>2701</b>	<b>2835</b>	<b>3039</b>	<b>10753</b>
<b>WHEN</b>		<b>NUMBER OF CRASHES</b>			
<b>TIME OF DAY</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>TOTAL</b>
PM PEAK (3-6 PM)	611	771	906	974	3262
NIGHT (6-MIDNIGHT)	438	503	564	533	2038
AM PEAK (6-9 AM)	290	405	342	444	1481
PM OFF-PEAK (1-3 PM)	314	360	379	428	1481
AM OFF-PEAK (9AM -12 PM)	278	376	352	360	1366
MID-DAY PEAK (12-1 PM)	143	148	185	193	669
MORNING (0-6 AM)	104	138	107	107	456
<b>GRAND TOTAL</b>	<b>2178</b>	<b>2701</b>	<b>2835</b>	<b>3039</b>	<b>10753</b>

## Additional Data Analysis

### EA2 RUN OFF THE ROAD AND PROTECTING ALL USERS (EXCLUDES BICYCLE AND PEDESTRIAN RELATED CRASHES)

CRASH CAUSE	2014	2015	2016	2017	TOTAL
IMPROPER PASSING/TURNING	735	871	852	1060	3518
SWERVE/OVERCORRECTED	208	356	384	389	1337
IMPROPER LANE CHANGE	14	34	47	44	139
CROSSED CENTERLINE/GOING WRONG WAY	1	5	4	4	14
SWERVE OR AVOIDED DUE TO WIND, SPEED, ETC.	3	3	3	2	11
FAIL TO REDUCE SPEED	2139	2650	2788	3008	10585
FAIL TO YIELD RIGHT OF WAY	1443	1606	1572	1768	6389
<b>GRAND TOTAL</b>	<b>8642</b>	<b>9687</b>	<b>9758</b>	<b>10815</b>	<b>38902</b>

COLLISION DESCRIPTION	2014	2015	2016	2017	TOTAL
SIDESWIPE, SAME DIRECTION	307	411	444	547	1709
ANGLE	219	307	287	312	1125
RAN OFF ROAD - RIGHT	92	124	125	126	467
LEFT TURN, SAME ROADWAY	59	68	61	101	289
RAN OFF ROAD - LEFT	68	70	63	76	277
<b>GRAND TOTAL</b>	<b>961</b>	<b>1269</b>	<b>1290</b>	<b>1499</b>	<b>5019</b>

ROADWAY FUNCTIONAL CLASS	2014	2015	2016	2017	TOTAL
NO FUNCTIONAL CLASS	225	346	320	395	1286
MINOR ARTERIAL	237	286	301	350	1174
PRINCIPAL ARTERIAL OTHER	210	247	258	274	989
INTERSTATE	120	183	188	219	710
PRINCIPAL ARTERIAL OTHER	82	103	105	121	411
MAJOR COLLECTOR	79	90	98	123	390
LOCAL	8	14	19	17	58
MINOR COLLECTOR	0	0	1	0	1
<b>GRAND TOTAL</b>	<b>961</b>	<b>1269</b>	<b>1290</b>	<b>1499</b>	<b>5019</b>

TIME OF DAY	2014	2015	2016	2017	TOTAL
PM PEAK (3-6 PM)	229	300	316	354	1199
NIGHT (6-MIDNIGHT)	212	283	305	343	1143
AM OFF-PEAK (9AM -12 PM)	130	195	173	231	729
PM OFF-PEAK (1-3 PM)	157	147	166	186	656
AM PEAK (6-9 AM)	86	156	137	181	560
MORNING (0-6 AM)	82	94	103	116	395
MID-DAY PEAK (12-1 PM)	65	94	90	88	337
<b>GRAND TOTAL</b>	<b>961</b>	<b>1269</b>	<b>1290</b>	<b>1499</b>	<b>5019</b>



# Additional Data Analysis

## EA3 PROTECTING VULNERABLE USERS

CRASH CAUSE	2014	2015	2016	2017	TOTAL
NO CONTRIBUTING CIRCUMSTANCES	83	62	50	73	268
FAIL TO YIELD RIGHT OF WAY	49	57	41	55	202
INATTENTION	44	54	32	31	161
FAIL TO REDUCE SPEED	18	27	18	9	72
IMPROPER BACKING	8	8	14	7	37
SWERVE/OVERCORRECTED	2	7	7	9	25
DISREGARDED ROAD MARKINGS	8	10	3	2	23
<b>GRAND TOTAL</b>	<b>230</b>	<b>251</b>	<b>183</b>	<b>199</b>	<b>863</b>

COLLISION DESCRIPTION	2014	2015	2016	2017	TOTAL
PEDESTRIAN	157	166	121	133	577
PEDAL CYCLIST	24	38	16	25	103
ANGLE	15	12	14	14	55
BACKING UP	5	9	7	3	24
REAR END, SLOW OR STOP	3	5	3	3	14
<b>GRAND TOTAL</b>	<b>230</b>	<b>251</b>	<b>183</b>	<b>199</b>	<b>863</b>

ROADWAY FUNCTIONAL CLASS	2014	2015	2016	2017	TOTAL
NO FUNCTIONAL CLASSIFICATION	117	128	110	99	454
MINOR ARTERIAL	52	56	43	38	189
MAJOR COLLECTOR	22	24	15	32	93
PRINCIPAL ARTERIAL OTHER	26	27	8	22	83
INTERSTATE	6	7	3	2	18
PRINCIPAL ARTERIAL OTHER	4	6	3	3	16
LOCAL	3	3	1	3	10
<b>GRAND TOTAL</b>	<b>230</b>	<b>251</b>	<b>183</b>	<b>199</b>	<b>863</b>

TIME OF DAY	2014	2015	2016	2017	TOTAL
NIGHT (6-MIDNIGHT)	70	75	61	78	284
PM PEAK (3-6 PM)	51	57	32	44	184
PM OFF-PEAK (1-3 PM)	32	29	21	20	102
AM OFF-PEAK (9AM -12 PM)	23	32	20	22	97
MORNING (0-6 AM)	21	24	22	16	83
AM PEAK (6-9 AM)	21	16	18	15	70
MID-DAY PEAK (12-1 PM)	12	18	9	4	43
<b>GRAND TOTAL</b>	<b>230</b>	<b>251</b>	<b>183</b>	<b>199</b>	<b>863</b>



# Putting the Plan into Action

With an understanding of the issues and challenges, the next step is to put the plan into action. Stakeholders worked collaboratively to develop goals, objectives, and strategies to reach the overall goal of zero roadway fatalities and serious injuries by 2040.

The *Action Plan Strategies* appendix are organized by E—Egineering, Education and Encouragement, Enforcement, and Emergency Services—with corresponding overall goals. Big idea **objectives** were developed based on the stakeholder-identified needs and represent the general steps to achieving each E’s goal. The supporting **strategies** were developed collaboratively to detail the specific projects, programs, and policies that address roadway safety. **Responsible agencies** identify the Vision Zero partners who have the resources, knowledge, or skills to facilitate the strategy. And, as indicated by the highlighted icons, many strategies address one or more **Emphasis Areas**.

The timeline varies by strategy and is categorized as follows:

**Ongoing:** These strategies are either partially implemented or could be implemented immediately (prior to published Action Plan). In most cases, the partnerships, technology, and leadership are already in place.

**3-6 months:** These strategies may require more effort to establish some critical elements, such as scheduled meetings, volunteers, roles/responsibilities, and partnerships.

**6-12 months:** These strategies will be more time intensive to develop but should start within the first year of the two-year Action Plan. These may be dependent on new policies, working groups, outreach, or other similar efforts to be established before they can formally begin.

**1-2 years:** These strategies may need involvement beyond the stakeholders and may require new legislation, significant policy research and changes, or significant infrastructure and capital improvements to complete. A strategy may also require the participation and cooperation of third parties outside of the City and the Metropolitan Planning Organization’s (MPO) direct control.

As with the Action Plan as a whole, the information presented in the *Action Plan Strategies* appendix are intended to be flexible and change with time. Some strategies may be an ongoing process with a timeline (e.g., stakeholder engagement, public awareness) and therefore, may be retained over multiple iterations of the Action Plan. Other strategies may be implemented immediately or fully accomplished within the two-year time period of the Action Plan. Stakeholders will monitor and track progress on regular intervals and update the plan every two years.



## Vijay Purswani

1996-2016

*Vijay was a talented artist, a brilliant student, the youngest of his family. He loved graphic design and music. He was working on becoming an Eagle Scout.*

*“He was my baby. We used to call him a cuddly bear. He loved giving hugs,” said his mom, Kiran Purswani. But Vijay’s life was cut short because a friend was texting and driving.*

*On a Saturday in April, Vijay and his friends went to Raleigh for his first music competition. His mom reluctantly agreed to let him travel with a teen driver. Normally she would have brought him herself, but he was insistent.*

*“He called me around 3 o’clock and said mom, ‘We did really great. I will tell you about it when I get home,’” Kiran said.*

*The next knock at her door was a pair of State Troopers telling Kiran Vijay had been in a crash. His friend was texting while they drove on the highway. He accidentally swerved into another lane, then overcorrected. The car flipped. Vijay was thrown out the back window. The driver and another passenger, both seat-belted in the front seats, survived unharmed.*

*“I didn’t know what foolish thing that went in his head that he took the phone and started texting...They were best friends. Don’t do that to your friends. Don’t text and drive,” Kiran said.*

*The driver faced criminal charges. The prosecutor’s asked Kiran what kind of punishment he should receive.*

*“The only thing I want is my son back. That is all,” she said.*



Vijay as a young boy



A painted memorial for Vijay

# Looking to the Future

Safety needs in Greensboro will evolve over time, and the data can help understand those changing needs. As the City of Greensboro implements Vision Zero strategies to move toward zero transportation fatalities and serious injuries, the transportation system will need to accommodate even more road users than in the past. The North Carolina Office of State Budget and Management expects the Guilford County community to add nearly 100,000 residents by 2035.

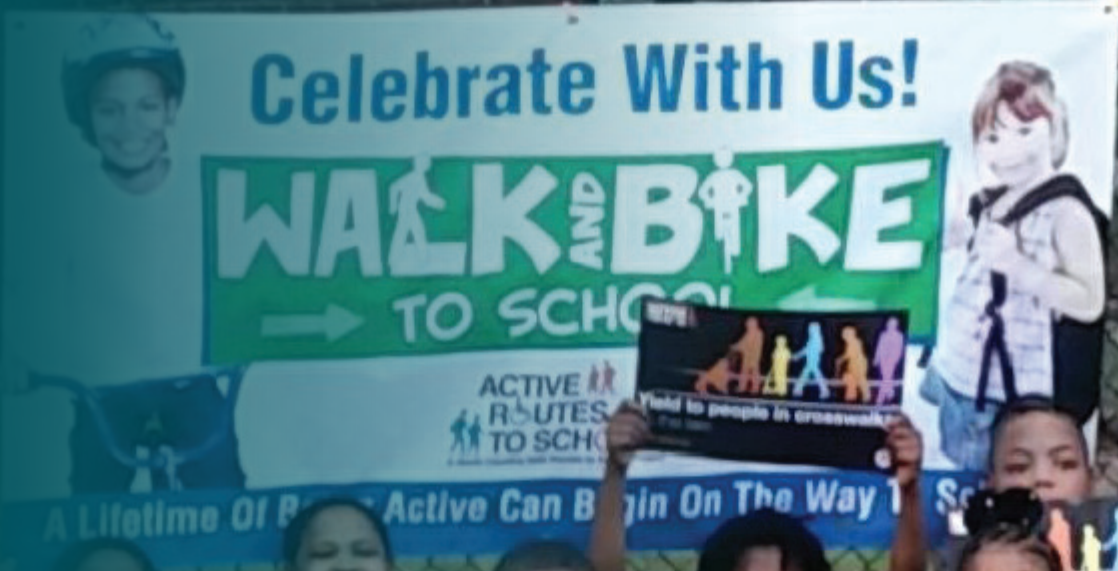
Partnerships between agencies and safety stakeholders are essential for the success of the Vision Zero Greensboro goal of zero transportation fatalities and serious injuries. These relationships will strengthen the City's ability to collect and analyze data, as well as build inter-agency cooperation that can address many of the community's needs. Continued engagement with existing and potential partners will contribute to monitoring, implementing, and updating the Action Plan.

## Keys to Success

Everyone who lives and works in Greensboro, including the City leadership, has a role to play in reducing fatal and serious crashes. Infrastructure improvements and changes in behavior are both critical components in addressing this need. From policy development to neighborhood programs, everyone can contribute to Vision Zero Greensboro.

Stakeholders can contribute to the success of the Action Plan in the following ways:

- » City departments and partners provide funding and staff to support Vision Zero Greensboro implementation.
- » City Council and City Manager Office provide political support to encourage implementation and community buy in.
- » Multi departmental collaboration on data collection and analysis, implementation efforts, community engagement, and working groups.
- » Data driven and system based approaches to safety related campaigns, programs, and policies.
- » Robust community engagement.
- » Equity for all users.



# Engineering

**GOAL**  
 Improve safety for all users with equitable infrastructure projects



EMPHASIS AREA 1







EMPHASIS AREA 2





EMPHASIS AREA 3

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 1</b> Communicate and coordinate improvements to existing policies, design standards, and planning processes.				
	Develop formal design guidelines that will expand upon the City's existing Complete Streets policy.	GDOT, City of Greensboro, Planning & Zoning, TREBIC	6-12 months	<ul style="list-style-type: none"> <li>Adopt official Complete Streets development guidelines.</li> <li>Number of programmed/implemented projects meeting Complete Streets policy.</li> <li>Mileage or number of Complete Streets projects within the HIN.</li> </ul>
	Coordinate performance measures and align countermeasures with safety plans and initiatives (e.g., NC Strategic Highway Safety Plan, NC Vision Zero, Smart City Challenge).	GDOT, City of Greensboro Planning & Zoning	6-12 months	<ul style="list-style-type: none"> <li>Crosswalk of common performance measures and countermeasures/strategies.</li> <li>Performance measures tracking.</li> </ul>
	Propose, develop, and promote bond referendum ballot initiative for the 2020 election cycle to support Vision Zero Greensboro projects and programming.	City of Greensboro	1-2 years	<ul style="list-style-type: none"> <li>Develop ballot initiative and policy text.</li> <li>Develop public communication materials that promote Vision Zero Greensboro and the bond program.</li> <li>Number of social media posts promoting programming.</li> <li>Number of outreach events.</li> </ul>

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 2</b> Prioritize data management and technology to improve safety analysis.				
	Develop a methodology for applying congestion and speed monitoring data to identify hot spot locations.	GDOT	Ongoing	<ul style="list-style-type: none"> <li>• Update and report data quarterly.</li> <li>• Update list of locations for additional law enforcement monitoring or potential land use/engineering changes.</li> </ul>
	Provide more funding for the traffic count system to expand counts for pedestrian and bicyclists at intersections throughout the City of Greensboro.	GDOT, Greensboro Urban Area MPO	1-2 years	<ul style="list-style-type: none"> <li>• Number of pedestrian and bicycle counts.</li> <li>• Number of traffic count systems (or totals) installed/collected.</li> </ul>
	Develop a data quality program plan to maintain roadway, traffic, and crash data.	GDOT, City of Greensboro, Greensboro Urban Area MPO	Ongoing	<ul style="list-style-type: none"> <li>• Establish a data quality group to support Vision Zero Greensboro data efforts.</li> <li>• Timeliness of crash report updates and analysis (e.g., months of data undigitized).</li> <li>• Schedule of data releases.</li> <li>• Number of datasets shared.</li> <li>• Maintain the HIN and update and check the data.</li> <li>• Catalog available data sources to support Vision Zero Greensboro.</li> </ul>
	Build the relationship (and database) with WAZE to receive data from WAZE and explore potential applications of those data.	GDOT	6-12 months	<ul style="list-style-type: none"> <li>• Inventory of data elements received from WAZE.</li> <li>• Inventory of data elements delivered to WAZE.</li> <li>• Schedule of data delivered/received from WAZE.</li> <li>• Timeliness (minutes, etc.) of updates delivered to the public (lane closures, etc.).</li> </ul>

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 3</b> Prioritize safe travel for bicyclists and pedestrians.				
	<p>Work with MPO or private partners to secure funding for safety and bicycle/pedestrian projects.</p>	<p><b>GDOT, NCDOT municipal bond funds, HSIP, BUILD grants</b></p>	<p><b>1-2 years</b></p>	<ul style="list-style-type: none"> <li>• Number of engagements with BiPed Advisory Committee.</li> <li>• Percent increase in funding.</li> <li>• Number of bicycle/pedestrian projects implemented.</li> </ul>
	<p>Use the results of the traffic count system and data analysis to conduct systemic bicycle and pedestrian safety analysis based on exposure, crash characteristics, and crash history to identify locations where vulnerable users travel most frequently (specific corridors, routes) and develop engineering solutions to improve safety.</p>	<p><b>GDOT, Greensboro Transit Authority (GTA), bike share, local colleges/universities, NCDOT, UNC HSRC</b></p>	<p><b>1-2 years</b></p>	<ul style="list-style-type: none"> <li>• Factsheet developed and shared with the community.</li> <li>• Number of countermeasures installed.</li> </ul>
	<p>Systematic analysis of Greensboro Transit Authority bus stops and crash locations. Include a process for increased pedestrian visibility and accessibility at transit stops.</p>	<p><b>GTA</b></p>	<p><b>1-2 years</b></p>	<ul style="list-style-type: none"> <li>• Frequency of meetings with GTA.</li> <li>• Number of countermeasures installed.</li> <li>• Number of projects identified.</li> </ul>



EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 4</b> Identify and implement infrastructure countermeasures to support Emphasis Area objectives.				
	<p>Identify facility types that may require systemic improvement and identify countermeasures that target those facility types.</p>	<p>GDOT</p>	<p>1-2 years</p>	<ul style="list-style-type: none"> <li>• Number/miles of countermeasures installed.</li> <li>• Number of intersections treated.</li> <li>• Number of countermeasures implemented.</li> </ul>
	<p>Institute a rapid response task force to review fatal and serious crashes and recommend improvements.</p>	<p>GDOT, Law Enforcement, EMS, NCDOT</p>	<p>6-12 months</p>	<ul style="list-style-type: none"> <li>• Defined meeting schedule.</li> <li>• Number of crashes investigated.</li> <li>• Timeliness of crash reviews.</li> <li>• Number of recommendations.</li> </ul>
	<p>Develop recommendation for funding neighborhood traffic calming program through Vision Zero Greensboro.</p>	<p>GDOT, Greensboro City Council</p>	<p>6-12 months</p>	<ul style="list-style-type: none"> <li>• Amount of funding secured for neighborhood traffic calming methods.</li> </ul>

# Education and Encouragement

**GOAL**  
 Increase Transportation-Related Safety Awareness & Educational Outreach



EMPHASIS AREA 1






EMPHASIS AREA 2



EMPHASIS AREA 3

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 1</b> Build partnerships with agencies, universities, advocacy groups, and private entities to support Vision Zero Greensboro efforts.				
	Engage advocacy groups, training programs, and motorcycle groups to collect more information on the motorcycle community in Greensboro to better reach the audience and address their needs.	Bike Safe NC, GPD, Local advocacy groups	3-6 months	<ul style="list-style-type: none"> <li>Number of meetings with different groups.</li> <li>Summary of meetings.</li> <li>Issues identified.</li> <li>Number of outreach methods identified and used.</li> </ul>
	Partner with community groups (e.g., Bicycling in Greensboro (BIG), Transit Alliance of the Piedmont (TAP), GTA, Collaborative Cottage Grove, multimodal transportation groups) to build a network that encourages multimodal transportation.	GDOT, land use planners, BIG, GTA, GDOT Marketing and Communications, Bike share	3-6 months	<ul style="list-style-type: none"> <li>Number of partner groups.</li> <li>Number of meetings with groups.</li> <li>Number of programs expanded to include Vision Zero Greensboro components.</li> </ul>
	Identify opportunities for local businesses to participate in Vision Zero Greensboro, such as sponsorships and outreach.	GSO	3-6 months	<ul style="list-style-type: none"> <li>Number of local businesses supporting Vision Zero Greensboro.</li> </ul>

## APPENDIX ACTION PLAN STRATEGIES

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 2</b> Develop and implement education campaigns targeted to specific age groups.				
	<p>Provide safety education and outreach to pre-driving population and parents/caregivers (e.g., Safety Town, Let's Go NC) to encourage children and adults to practice safe transportation behaviors.</p>	<p>GSO, GDOT, Guilford County Emergency Services, Law Enforcement, Safe Kids Greensboro, Greensboro TV, Guilford County Sheriff's Office (GCSO), Guilford County Public Schools, GPD, Safety Town</p>	<p>6-12 months</p>	<ul style="list-style-type: none"> <li>• Number of outreach activities.</li> <li>• Number of 30-second spots to be played in Guilford County Schools and other public spaces.</li> <li>• Number of social media posts promoting programming.</li> <li>• Number of bicycle/traffic gardens installed.</li> <li>• Number of users participating in program.</li> <li>• Number of families and children served through permanent checking stations.</li> </ul>
	<p>Engage aging populations to promote resources that support aging road users and their families (e.g., Car Fit, driver license reexamination process).</p>	<p>AAA, AARP, City of Greensboro, Law Enforcement, Faith-based institutions</p>	<p>6-12 months</p>	<ul style="list-style-type: none"> <li>• Number of older adults reached.</li> <li>• Number of participants in Car Fit.</li> <li>• Number of driver license reexaminations.</li> </ul>
<b>OBJECTIVE 3</b> Develop and implement education campaigns promoting awareness of vulnerable users.				
	<p>Investigate the effectiveness of existing programs that encourage road sharing between all users (e.g., Safe Routes to School, Watch for Me NC, NC BikeWalk, innovative solutions like crosswalk artwork) to identify which programs to continue and expand.</p>	<p>Watch for Me NC, NC Bike Walk, GDOT Marketing and Communications, Bike Share, Safety Town, GCPS</p>	<p>3-6 months</p>	<ul style="list-style-type: none"> <li>• Number of existing resources identified.</li> <li>• Number of programs created.</li> <li>• Number of events promoting safety and education.</li> <li>• Number of countermeasures installed.</li> <li>• Number of online outreach posts.</li> </ul>
	<p>Coordinate outreach materials to promote safety at rail crossings for vulnerable users.</p>	<p>GDOT Marketing and Communications</p>	<p>3-6 months</p>	<ul style="list-style-type: none"> <li>• Number of outreach materials produced and distributed.</li> </ul>

# APPENDIX ACTION PLAN STRATEGIES

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 4</b> Develop outreach materials to educate the public on Vision Zero Greensboro.				
	Identify and attend events to promote Vision Zero Greensboro and related safety programs.	City of Greensboro, Crumley Roberts	Ongoing	<ul style="list-style-type: none"> <li>List of events.</li> <li>Number of engagement activities.</li> <li>Number of persons reached.</li> </ul>
	Use traditional (radio and television) and non-traditional (Pandora, Facebook, Nextdoor) media to promote Vision Zero Greensboro.	City of Greensboro	Ongoing	<ul style="list-style-type: none"> <li>Number/type of media placements.</li> <li>Exposure data.</li> </ul>
<b>OBJECTIVE 5</b> Deploy effective community engagement efforts to create a culture of safety.				
	Create Open Streets special events that temporarily close a street and invite the community to use the street for bicycling, walking, and learning about safety.	GDOT, GPD, Safety Town, Bike Share, Watch for Me NC, Neighborhood Congress	6-12 months	<ul style="list-style-type: none"> <li>Number of events.</li> </ul>
	Establish tracking mechanism to evaluate current/ongoing outreach efforts to determine effectiveness.	GDOT Marketing and Communications	3-6 months	<ul style="list-style-type: none"> <li>Frequency of updates to tracking mechanism.</li> <li>Number of partner agencies.</li> <li>Number of events.</li> <li>Number of surveys to assess public awareness of Vision Zero Greensboro.</li> </ul>
	Use variable message boards and other signage to promote Vision Zero Greensboro and safety facts at locations identified through the High Injury Network.	Law Enforcement	3-6 months	<ul style="list-style-type: none"> <li>Number of static signs installed.</li> <li>Number of variable message board deployments/installments.</li> </ul>
	Establish a training as part of the wellness program for all city employees related to seat belt use, speed limit compliance, and other safe driving practices to set the example for citizens.	City of Greensboro	6-12 months	<ul style="list-style-type: none"> <li>Percent of employees that complete training.</li> </ul>

# APPENDIX ACTION PLAN STRATEGIES

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 6</b> Leverage technology resources to support Vision Zero Greensboro.				
	Engage the public by providing and regularly updating a Vision Zero Greensboro website.	City of Greensboro	Ongoing	<ul style="list-style-type: none"> <li>• Number of website visits.</li> </ul>
	Provide access to the HIN, planned infrastructure improvements, data, and other information related to Vision Zero Greensboro to the public via a dashboard tool.	GDOT, City of Greensboro	6-12 months	<ul style="list-style-type: none"> <li>• Number of website/page visits.</li> </ul>
<b>OBJECTIVE 7</b> Examine policies or legislation the City can enact locally at the state level to support Vision Zero Greensboro.				
	Determine the feasibility of hands free, rear seat belt, and lower speed limit policies.	City of Greensboro, City Council, Attorney	3-6 months	<ul style="list-style-type: none"> <li>• List of possible policies or legislation for consideration.</li> </ul>

# Enforcement

**GOAL**  
Expand Enforcement Efforts



EMPHASIS AREA 1







EMPHASIS AREA 2



EMPHASIS AREA 3

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 1</b> Explore the feasibility of implementing automated enforcement technologies.				
  	Review past efforts deploying automated signal enforcement and identify obstacles and solutions to implementation.	GDOT	6-12 months	<ul style="list-style-type: none"> <li>Technical memorandum outlining previous challenges and recommendations for future implementation.</li> </ul>
  	Review obstacles and develop solutions related to deploying automated speed enforcement.	GDOT, Guilford County Schools	6-12 months	<ul style="list-style-type: none"> <li>Technical memorandum outlining challenges and recommendations for future implementation.</li> </ul>
<b>OBJECTIVE 2</b> Support data driven approaches to traffic safety for all users.				
  	Use the HIN and other data sources to coordinate and evaluate efficient and equitable deployment of resources.	GDOT, Law Enforcement	1-2 years	<ul style="list-style-type: none"> <li>Number of focused enforcement activities within the HIN.</li> <li>Number of focused enforcement activities (e.g., checking stations, saturation patrols).</li> <li>Number of specific violations cited (e.g., speed, seat belt, impaired driving, red light violation).</li> </ul>

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
	<p>Review crash data elements and provide training for law enforcement to improve the quality of crash data collected at the scene (e.g., location of pedestrian when struck).</p>	<p><b>GDOT, Law Enforcement</b></p>	<p><b>1-2 years</b></p>	<ul style="list-style-type: none"> <li>• Number of meetings with GPD.</li> <li>• Number of consistent systems created.</li> <li>• Number of police departments using new system.</li> </ul>
	<p>Use StealthStat devices to collect data within the High Injury Network (e.g., traffic volume, time of day, speed).</p>	<p><b>Greensboro Police Department</b></p>	<p><b>Ongoing</b></p>	<ul style="list-style-type: none"> <li>• Number of StealthStat deployments on the High Injury Network.</li> <li>• Number of data summaries related to the High Injury Network.</li> </ul>
	<p>Use community policing methods to educate users in violation of traffic laws and reinforce safe behaviors by incentivizing safe users (e.g., Watch for Me NC, stickers for child passengers).</p>	<p><b>Law Enforcement</b></p>	<p><b>Ongoing</b></p>	<ul style="list-style-type: none"> <li>• Technical memorandum containing recommended law enforcement methods for implementation.</li> </ul>
<p><b>OBJECTIVE 3</b> Identify legislative and judicial solutions to support Vision Zero Greensboro enforcement efforts.</p>				
	<p>Explore and enforce stricter distraction laws for motorists and non-motorists at the state-level.</p>	<p><b>City Council, Law Enforcement</b></p>	<p><b>1-2 years</b></p>	<ul style="list-style-type: none"> <li>• Municipal ordinances enacted.</li> <li>• Number of warnings or citations issued.</li> </ul>
	<p>Establish a task-force (e.g., GDOT, law enforcement, City Council, judiciary) to improve accountability and increase efficiency between enforcement and adjudication.</p>	<p><b>GDOT, Law Enforcement, City Council, Judiciary, Guilford County District Attorney</b></p>	<p><b>6-12 months</b></p>	<ul style="list-style-type: none"> <li>• List of task-force members.</li> <li>• List of represented agencies.</li> <li>• Frequency of task-force meetings.</li> <li>• List of recommendations and actions of the task-force.</li> </ul>

# Emergency Services

**GOAL**  
Improve Emergency Response Processes



EMPHASIS AREA 1




EMPHASIS AREA 2



EMPHASIS AREA 3

EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 1</b> Improve emergency response time.				
  	Expand analysis of crash response data and the HIN to identify opportunities to reduce response time for all emergency response vehicles.	Law Enforcement, Guildford County Emergency Services, Greensboro Fire Department	Ongoing	<ul style="list-style-type: none"> <li>Number of locations identified.</li> <li>Percent reduction in average response time.</li> </ul>
  	Expand the signal preemption pilot program to all City emergency response vehicles.	GDOT, Guilford County Emergency Services, Greensboro Fire Department, Law Enforcement	1-2 years	<ul style="list-style-type: none"> <li>Number of priority signal locations.</li> </ul>

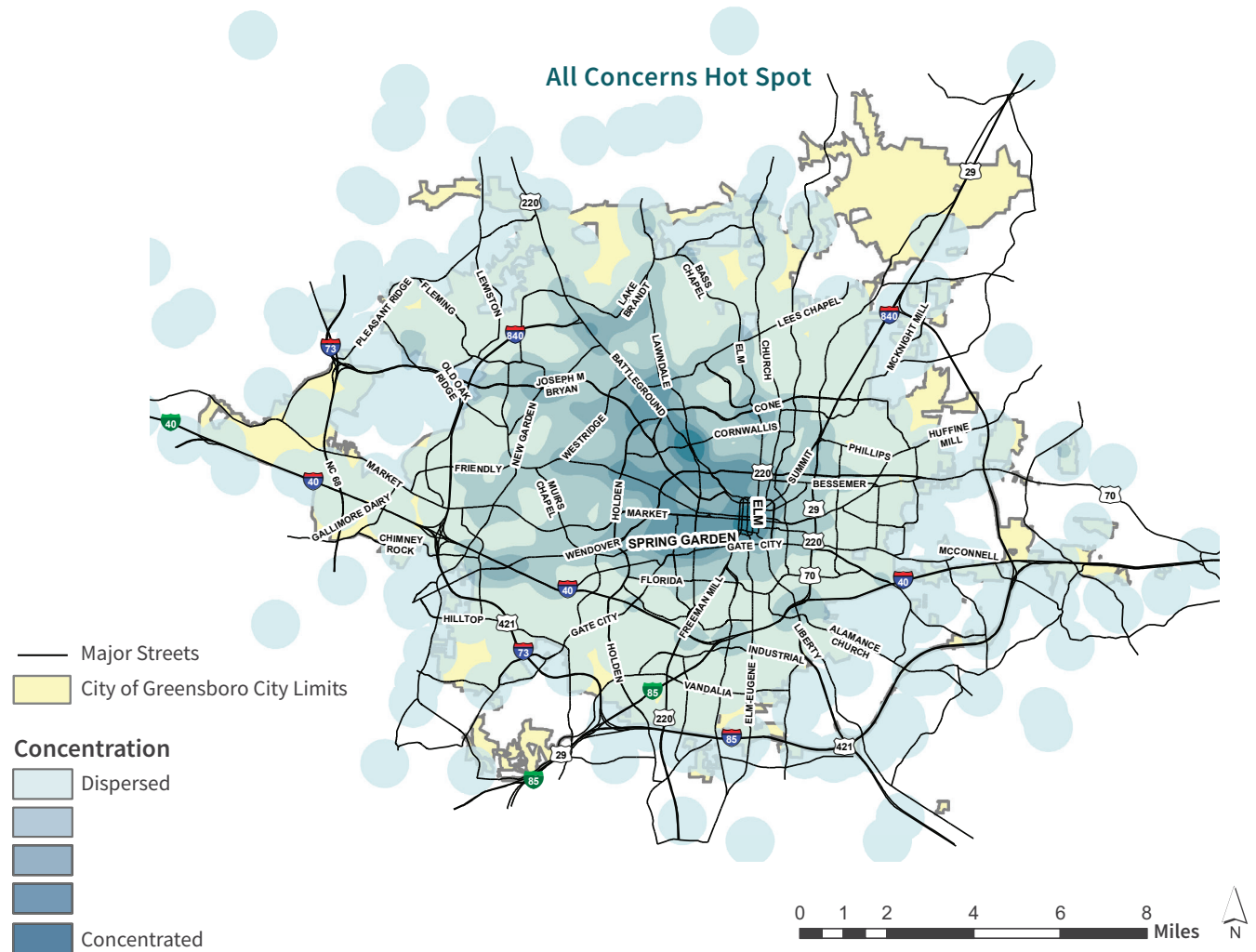


EMPHASIS AREAS	STRATEGY	RESPONSIBLE AGENCY	TIMELINE	MEASURE OF EFFECTIVENESS
<b>OBJECTIVE 2</b> Improve data collection and coordination.				
	Integrate public health and crash data to perform data linkages.	Law Enforcement, Guilford County EMS, NCDPH, Cone Health, GDOT, NC Data Linkage Project Team	1-2 years	<ul style="list-style-type: none"> <li>• Number of agencies contacted.</li> <li>• Percent of data linked.</li> </ul>
	Explore new technology improvements to data collection.	Guilford County Emergency Services, Greensboro Fire Department	6-12 months	<ul style="list-style-type: none"> <li>• List of identified improvements for consideration.</li> </ul>
<b>OBJECTIVE 3</b> Identify and adapt new technologies.				
	Explore connected and driver assist technologies to increase emergency response safety.	Law Enforcement, Guilford County Emergency Services, Greensboro Fire Department, GDOT	2+ years	<ul style="list-style-type: none"> <li>• List of identified connected and driver assist technologies for implementation.</li> </ul>
	Explore the MARVILS system and determine if it can be expanded to all emergency response services.	Law Enforcement, Guilford County Emergency Services, Greensboro Fire Department, GDOT	3-6 months	<ul style="list-style-type: none"> <li>• Percent response time improved.</li> </ul>

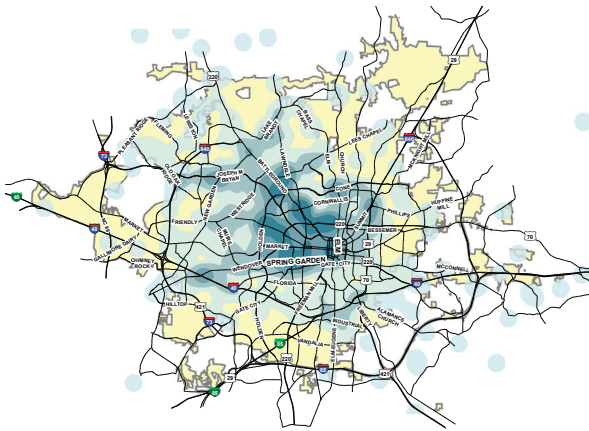
# Summary of City of Greensboro Outreach

The Department engaged citizens during the latter stages of the development of the Action Plan. Citizens used Metroquest, an online mapping tool to identify safety concerns within five categories as shown on the next page. This map represents a summary of those safety concern locations and

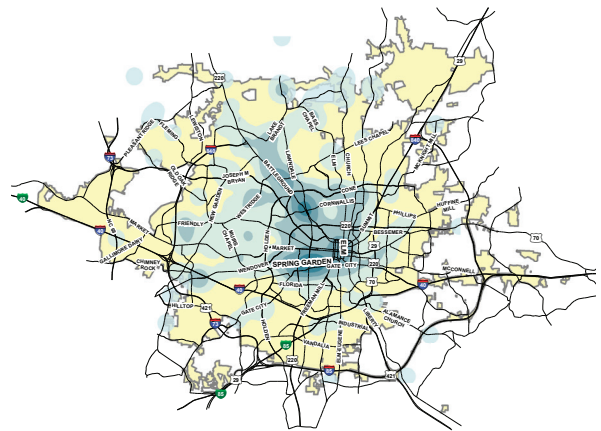
includes detailed comments regarding the concern. The map shows a high concentration of concerns identified from central Greensboro and along specific corridors. Further analysis will be required to validate and address the identified concerns.



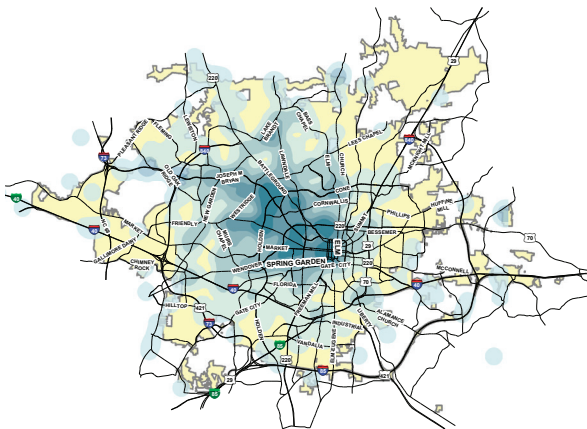
**Driver Behavior Concerns Hot Spot**



**BiPed Concerns Hot Spot**



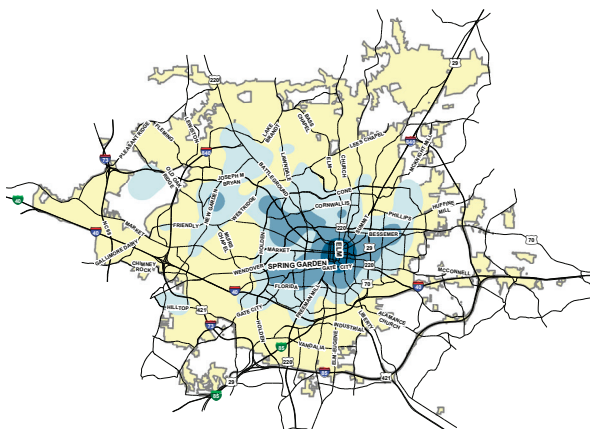
**Speed Concerns Hot Spot**



**Road Concerns Hot Spot**

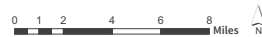


**Transit Concerns Hot Spot**

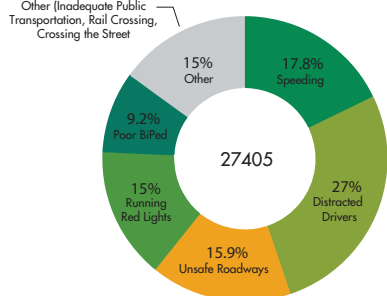
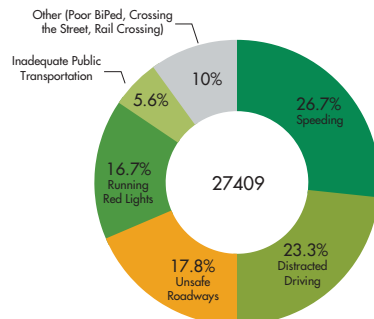
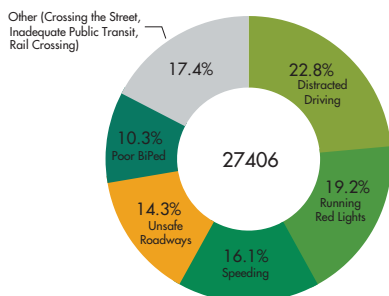
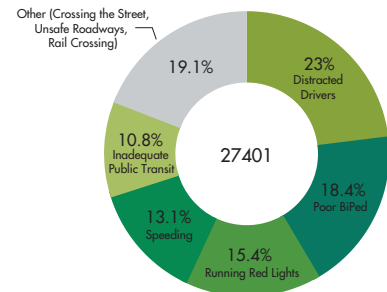
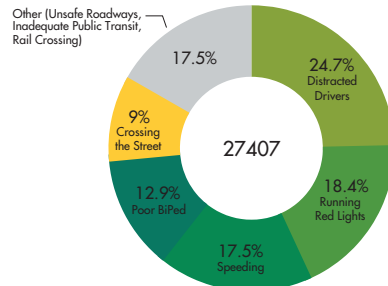
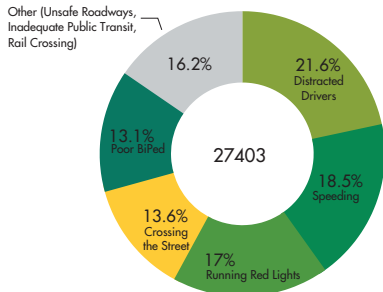
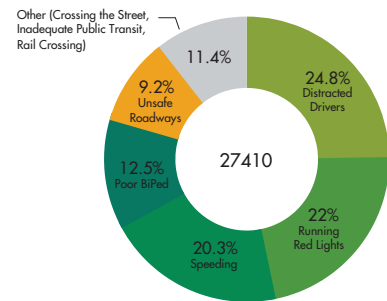
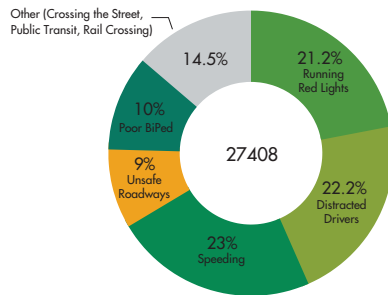
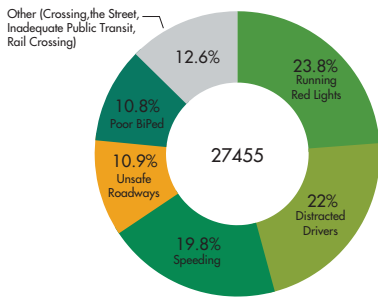
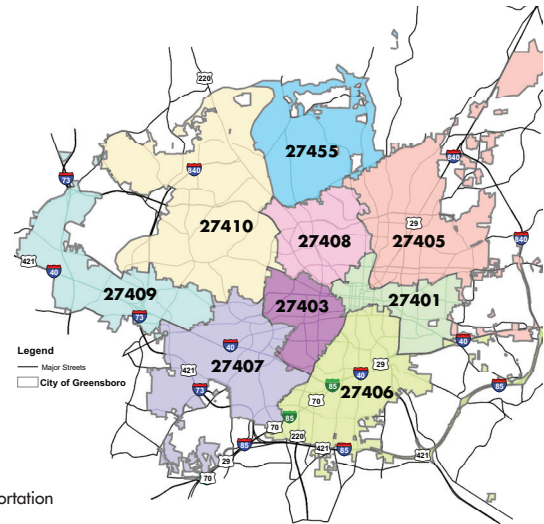
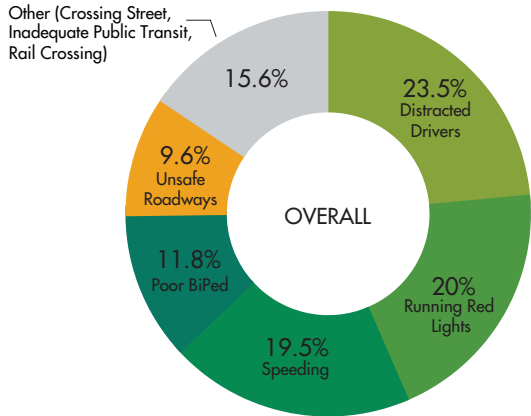


— Major Streets  
 City of Greensboro City Limits

**Concentration**  
 Dispersed  
 Concentrated



# Top Safety Concerns by Zipcode





# Emphasis Area Working Group Members

## EA1: Speed and Driver Awareness

Chris Spencer (Greensboro Department of Transportation, EA Lead)  
 Amanda Lehmert (City of Greensboro, Communications and Marketing Department)  
 Brandon Borgna (Volvo Group North America)  
 Brian Price (Greensboro Police Department)  
 Jame Aaron Cozart (Greensboro Police Department)  
 John Klopp (Klopp Insurance Agency Inc. State Farm Insurance Companies)  
 Kevin Wallace (Guilford County Sheriff's Office DWI Task Force)  
 Kiran Purswani (City of Greensboro, Information Technology)  
 Marikay Abuzuaiter (City of Greensboro, City Council)  
 Matt Schweitzer (City of Greensboro, Human Resources)  
 Ruth Heyd (Crumley Roberts)  
 Skip Yeakel (Volvo Group North America)  
 Steve Zimmerman (VIP for a VIP)

## EA2: Run off the Road and Protecting All Users

Deniece Conway (Greensboro Department of Transportation, EA Lead)  
 Aaron Austin (UNC Greensboro Police Department)  
 Andy Pottkotter (ITRE)  
 Chris Jasso (UNC Greensboro Police Department)  
 Craig McKinney (Greensboro Department of Transportation)  
 Cory Phillips (Crumley Roberts)  
 David Ertter (NCA&T University Police Department, Support Services Division)  
 Deon Carter (Greensboro Police Department)

Jeff Sovich (City of Greensboro Planning Department)  
 Mark Schulz (UNCG, Bicycling In Greensboro)  
 Miracle King (NCDOT)  
 Nedra Cox (Guilford County DHHS - Public Health)  
 Senanu Ashiabor (Intermodal Logistics Consulting, Inc.)  
 Tracy Anderson (ITRE)

## EA3: Protecting Vulnerable Users

Lydia McIntyre, (Greensboro Department of Transportation/MPO, Program Manager)  
 Yuan Zhou (Greensboro Department of Transportation/MPO, Program Coordinator)  
 Tram Truong (Greensboro Department of Transportation/MPO, EA Lead)  
 Tyler Meyer (Greensboro Department of Transportation/MPO, EA lead)  
 Elizabeth Jernigan (Greensboro Parks & Recreation)  
 Gray Johnston (Greensboro Department of Transportation/GTA)  
 Jennifer Delcourt (Active Routes to School, Region 5)  
 Joan Bass (AARP)  
 Lee Mortensen (Greensboro Farmers Market)  
 Leigha Jordan (Moses Cone Hospital)  
 Lewis Cheatham (Guilford Metro 9-1-1)  
 Mark H. Smith (Guilford County Department of Health and Human Services)  
 Mark Shepherd (Guilford Metro 9-1-1)  
 Melanie Neal (Guilford Metro 9-1-1)  
 Nicole Lindahl (Bicycling in Greensboro, Inc.)  
 Nikki Baker (UNCG)  
 Patrick Wilson (NCDOT - Division 7)

# Partner Agencies

## Businesses

Crumley Roberts  
LimeBike  
R & R Transportation, Inc.  
State Farm  
Syngenta  
VF Corporation  
Volvo

## Education Institutes

Guilford County Schools - Transportation  
Guilford Technical Community College  
Institute of Transportation Research and Education  
at North Carolina State University  
NC A&T  
NC A&T Police Department  
UNCG  
UNCG Police Department  
UNC Highway Safety Research Center

## External Government Groups

Guilford County Department of Public Health  
Guilford County Department of Social Services  
Guilford County Sheriff's Office  
Guilford 911  
N.C. Department of Insurance  
NCDOT Rail Division  
NCDOT Regional Safety  
NCDOT Workzone Traffic Control  
NC State Highway Patrol  
NC Vision Zero  
Piedmont Authority for Regional Transportation  
Safe Kids Guilford County Coalition

## Hospitals

Cone Health Trauma Unit  
Moses Cone

## Internal City Departments

Communication & Marketing  
Department of Transportation  
Engineering & Inspections  
Field Operation  
Fire Department  
Fleet Maintenance  
Greensboro Parks & Recreation  
Greensboro Transit Authority (GTA)  
Greensboro Television Network  
Human Resources- Safety  
Human Relations  
Legal  
Neighborhood Development  
Planning Department  
Police Department  
Water Resources

## Local Legislators/Government

City Council  
County Commissioners

## Non-Profits/Local Organizations

America Walks  
Bicycling in Greensboro, Inc.  
Bike Walk NC  
Bikesboro  
Greensboro Farmers Market  
Greensboro Neighborhood Congress  
MADD NC  
Safe Kids Guilford County  
Triad AARP  
TREBIC - Davenport



**VISION ZERO**  
GREENSBORO