



# Safer Streets

# 2018

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# INTRODUCTION

Atlanta's Transportation Plan is the access strategy for Atlanta City Design. The Plan is divided into a concise final report and a series of detailed technical appendices. The final report summarizes Atlanta's Transportation Plan in an easily digestible manner using infographics, maps, and images and is intended for the general public and elected officials. The technical memorandums are intended for planners, City staff, and implementation partners that require a higher level of detail.

As part of Atlanta's Transportation Plan, this technical appendix focuses on transportation safety, with a focus on the most vulnerable users. This technical memorandum documents existing safety conditions, identifies needs, and recommends policies and projects to increase safety for everyone using Atlanta's transportation system. Finally, this document presents a series of recommendations and short-term action items to implement a comprehensive safer streets policy.

## BACKGROUND

Street safety for all users – motorists, transit riders, pedestrians, and bicyclists – is an integral part of Atlanta's Transportation Plan. Because of its interdisciplinary nature, several other components of Atlanta's Transportation Plan contain elements of the safer streets recommendations and several departments will need to work together on implementation of the data collection, analysis, project development, and evaluation.

This vision for safer streets in Atlanta is based on the premise that no loss of life is acceptable. To achieve this, transportation systems must be designed to reduce the number of crashes and crash severity when they do occur. Components of the transportation system, such as roadway design and intelligent transportation systems, along with vehicle safety features such as connected and autonomous vehicles, all play a role in improving the safety of streets. To eliminate traffic fatalities and reduce serious injuries, the City will use a data-driven approach based on proven safety approaches, sometimes called “the Five Es.”<sup>1</sup>

- Education – teach pedestrians, bicyclists, and drivers about safety
- Enforcement – work with local law enforcement to issue citations at dangerous locations targeted at reducing dangerous behaviors
- Engineering – create safe infrastructure for all users through design, operation, and maintenance
- Evaluation – monitor strategies to confirm if they are working, or if adjustments are needed to meet goals and objectives

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<sup>1</sup> Another “E” that is often cited is Encouragement for people to walk and bicycle.

- Emergency Medical Services – when crashes occur, a quick response can save lives, the likelihood of preventing death is highest in the first hour after a traumatic injury

## NATIONAL, STATE, AND REGIONAL CONTEXT

Several jurisdictions and agencies including the Federal government, the State of Georgia, the Atlanta Regional Commission (ARC), and the City work together to provide a safe transportation system in Atlanta. Each of these entities have varying roles and responsibilities regarding transportation safety. The following section provides an overview of plans and programs at the federal, state, and regional levels that underpin transportation safety in Atlanta.

### Highway Safety Improvement Program

At the federal level, the Highway Safety Improvement Program (HSIP) funds safety projects and is intended to significantly reduce traffic fatalities and serious injuries on all public roads. This program was reauthorized as part of the Fixing America's Surface Transportation Act (FAST Act), which was signed into law in 2015. Approximately \$11.6 billion in transportation safety funding is authorized by the FAST Act covering the fiscal years 2016 through 2020. To access these safety funds, states are required to adopt a Strategic Highway Safety Plan (SHSP) and State Highway Safety Improvement Program (SHSIP). The State of Georgia has an SHSP and an SHSIP, which are discussed in the following paragraphs.

### Georgia Strategic Highway Safety Plan

The 2015 Governor's Strategic Highway Safety Plan articulates Georgia's vision for roadway safety: Every Life Counts – Strive for Zero Deaths and Injuries on Georgia Roads. Supporting the vision are 13 core performance measures and goals, with each having a measurable performance target and associated date for achieving the target. The vision, goals, performance measures, and targets form the basis of a data driven approach to develop and execute engineering, education, enforcement, and emergency medical services strategies to reduce the number of traffic fatalities and serious injuries. As such, the City's approach based on "the Five Es" aligns with the SHSP and will contribute to achieving statewide goals and objectives.

### Georgia State Highway Safety Improvement Program

In Georgia, the Governor's Office of Highway Safety (GOHS) produces the Highway Safety Plan (HSP) each year. The HSP is a programmatic guide for the implementation of the SHSP that is directly aligned with the priorities and strategies in the SHSP and serves as the HSIP for Georgia. Additionally, the HSP is an application for federal grant funding from the National Highway Traffic Safety (NHTSA).

## ATLANTA'S TRANSPORTATION PLAN

The HSP is a data driven plan that uses crash data, safety belt use rates, and other information to focus planned projects on areas of the greatest need. The HSP includes monitoring and evaluation of traffic safety activities using performance measures, targets, and objectives.

### **The Atlanta Region's Plan**

During development of Atlanta Region's Plan, ARC staff performed a detailed review of Georgia Electronic Accident Reporting System (GEARS) data. Crash hotspots around the Atlanta region were identified and several short-term projects in the Atlanta Region's Plan Transportation Element are intended to improve safety for drivers, passengers, transit riders, bicyclists, and pedestrians. Additionally, projects where the primary intent may not be safety improvements generally include elements that address safety issues within the project footprint.

# BEST PRACTICES

**Vision Zero** is a comprehensive strategy to eliminate traffic deaths through safer street design for all modes of travel. The strategy recognizes the systemic nature of road safety and sees most traffic fatalities as preventable. At its core, the mission of Vision Zero is that mobility should never come at the cost of a human life.

The strategy aims to eliminate traffic related fatalities through a multidisciplinary approach, including policy, engineering/design, education and enforcement. For many years, road safety was focused largely on failure of the individual user and his or her behavior. Vision Zero reverses this model, focusing instead on the failure of the transportation *system* in ensuring the safety of its users. Thus, it aims to improve safety for all users (but particularly the most vulnerable) through larger, systemic overhauls in the way streets operate. The interdisciplinary nature of Vision Zero stresses the importance of traffic safety as not just a law enforcement and engineering issue, but equally as a public health and social equity concern. Vision Zero differs from traditional if-then, cost-benefit, and gradient approaches to traffic safety by setting a high bar from the beginning – that even one traffic death is unacceptable.

The term originally comes from Sweden, where Vision Zero was launched as a national policy initiative by the country's Parliament. Although it did not hit its intended ten-year goal of zero deaths, Sweden's program has met with substantial success since the program's launch in 1997. To date, the number of traffic-related fatalities in Sweden has decreased by more than 40%.<sup>2</sup> Due to an aggressive Vision Zero program, Sweden now has one of the lowest traffic fatality rates in the world.

Given the program's success in Sweden and around the world, more than 25 American cities<sup>3</sup> have pledged to adopt Vision Zero as a model for improving road safety. Using a data-driven approach, Vision Zero focuses on identifying the following factors at an aggregate scale:

- Where crashes occur
- Under which surrounding contexts
- Who was involved

## NATIONAL TRENDS

According to the Centers for Disease Control, motor vehicle crashes are the leading cause of death for teenagers in the U.S<sup>4</sup>., and in the top 15 leading causes of death overall.<sup>5</sup> In 2016 alone, an estimated 40,000 people died from motor vehicle crashes in the United States. According to the National Safety Council, this figure represents a 14% increase since 2014 and

<sup>2</sup> Lie, A. Swedish Road Administration. *Government Status Report, Sweden*. Retrieved May 2017 from <https://www-nrd.nhtsa.dot.gov/pdf/esv/esv21/09-0595.pdf>

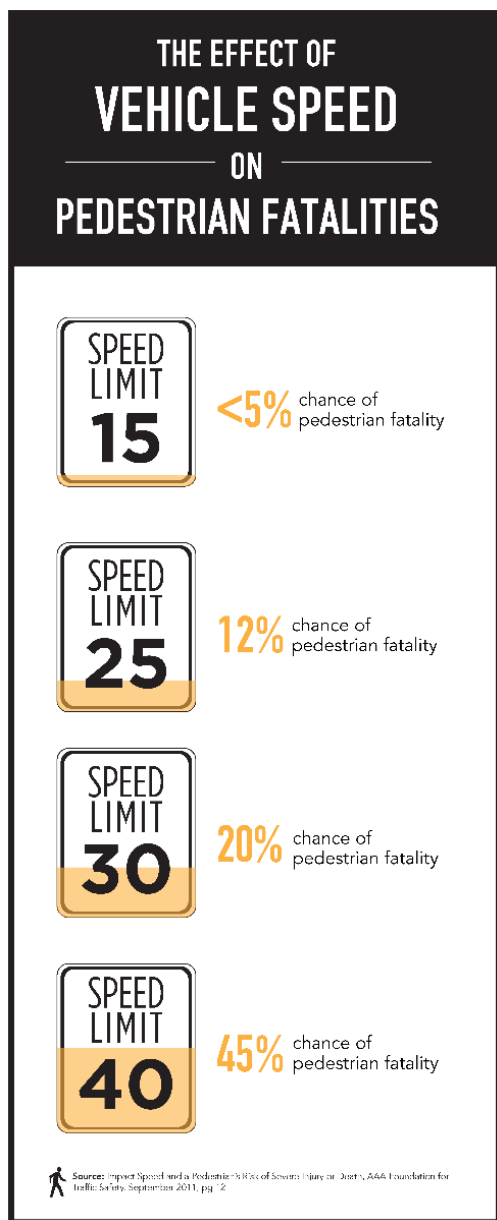
<sup>3</sup> Shahum, L (1 Feb 2017) *Moving From Vision to Action*. Vision Zero Network. Retrieved May 2017 from <http://visionzeronetwork.org/moving-from-vision-to-action-what-will-it-take-to-reach-vision-zero/>

<sup>4</sup> Centers for Disease Control and Prevention. (2015) Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention Retrieved May 2017 from [https://www.cdc.gov/motorvehiclesafety/teen\\_drivers/teendrivers\\_factsheet.html](https://www.cdc.gov/motorvehiclesafety/teen_drivers/teendrivers_factsheet.html)

<sup>5</sup> NHTSA (August 2016) *Traffic Safety Facts Research Note* "2015 Motor Vehicle Crashes: Overview" Retrieved May 2017 from <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812318>

the highest year on record in nine years.<sup>6</sup> At the local level, the top five cities for traffic fatalities include Los Angeles, New York City, Houston, Chicago and San Antonio.

**FIGURE 1: VEHICLE SPEED AND PEDESTRIAN FATALITIES**



Fatalities are caused by a number of reasons, including speeding, driver impairment (i.e. alcohol, narcotics, and drowsiness), distracted driving (i.e. cell phone use and texting), lack of seat belt use, and aggression, as well as environmental factors such as roadway design, weather, traffic conditions, and speed limits. According to a 2015 report from the National Highway Traffic Safety Administration, the number of fatalities involving an alcohol-impaired driver rose 3.2% from 2014 to 2015. Speeding related fatalities rose 3%, and distraction-affected fatalities rose the highest at 8.8%.<sup>7</sup> Broken down by mode, bicycle, SUV, and pedestrian fatalities grew the fastest from 2014 to 2015. For example, while overall fatalities increased by 7.2%, bicyclist deaths grew by 12.2% and pedestrian deaths grew by 9.5%. This resulted in an increase in the proportion of people killed “outside the vehicle” (including motorcyclists, pedestrians, bicyclists and others) from 1996 to 2015. Conversely, the proportion of people killed “inside the vehicle” (passengers in cars trucks, buses and other vehicles) declined in the same period.

## Speeding and Failure to Yield

Two key components of Vision Zero are reducing speeding and failure to yield. In the United States, many roads were originally designed to maximize motor vehicle speed at the expense of the safety of other road users. It is well known, however, that driver speed has an adverse effect on likelihood of victim survival in the event of a crash. As shown on Figure 1, vehicles traveling at 45 miles per hour have a higher likelihood of pedestrian death than vehicles traveling at lesser speeds.<sup>8</sup> One reason for this is that a driver’s peripheral vision greatly reduces with higher speeds.<sup>9</sup> Another reason revolves around reaction time: driving on streets designed for maximum speeds of 40 miles per hour requires a longer stopping distance to be able to yield to a person crossing at a crosswalk, which puts pedestrians at a severe risk of

<sup>6</sup> National Safety Council (15 Feb 2017) *Motor Vehicle Deaths in 2016 Estimated to Be Highest in Nine Years*. Retrieved May 2017 from <http://www.nsc.org/Connect/NSCNewsReleases/Lists/Posts/Post.aspx?ID=180>

<sup>7</sup> NHTSA (August 2016) “2015 Motor Vehicle Crashes: Overview” *Traffic Safety Facts Research Note* Retrieved May 2017 from <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812318>

<sup>8</sup> Tefft, B. (September 2011) AAA Foundation for Traffic Safety “Impact Speed and a Pedestrian’s Risk of Severe Injury or Death” Retrieved May 2017 from <https://www.aaafoundation.org/sites/default/files/2011PedestrianRiskVsSpeed.pdf>

<sup>9</sup> A. Bartmann, W. Spijkers and M. Hess (1991) “Street Environment, Driving Speed and Field of Vision” *Vision in Vehicles III*. As cited in NACTO Urban Street Design Guide retrieved in May 2017 from <https://nacto.org/publication/urban-street-design-guide/design-controls/design-speed/>

death (Figure 2). The speed at which any roadway is designed for (*design speed*) greatly impacts its risk for pedestrian injury. In response to this research, some cities have challenged conventional engineering standards and have worked to redesign streets for lower speeds. Some approaches to tackle speeding that cities across the country have implemented include:

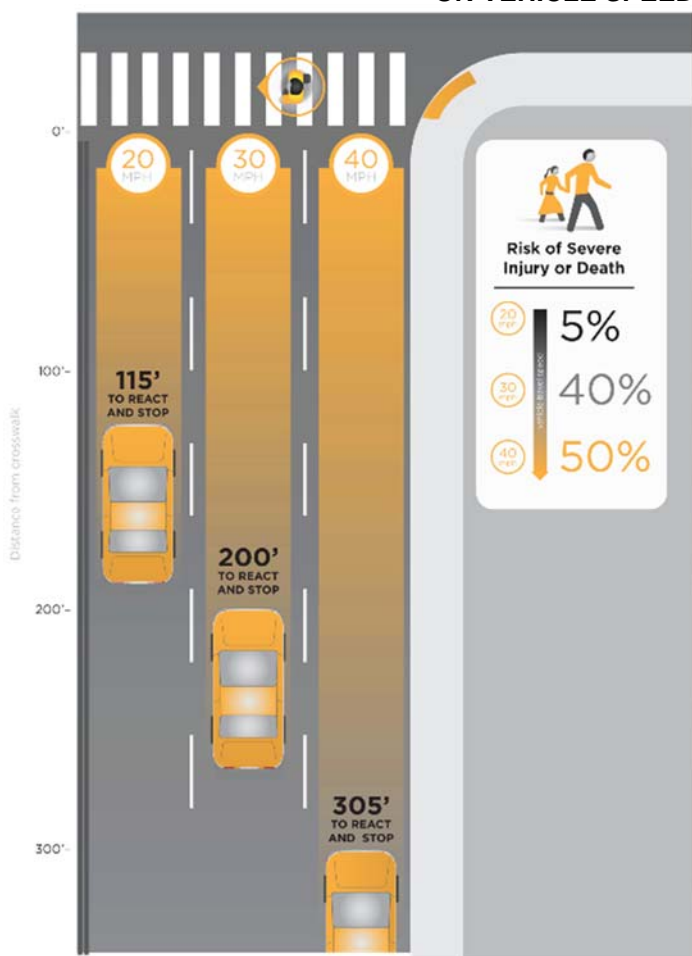
- **Capital Improvements:** narrowing lane widths, implementing road diets, shortening crossing distances, making crosswalks more visible, and installing pedestrian and bicycle friendly infrastructure such as refuge islands, street trees, planted medians, bump-outs, curb extensions, speed humps/tables, protected bicycle lanes and automatic countdown signals with pedestrian advances
- **Increased Traffic Enforcement:** red light cameras, radar detection, and increased fines for speeding and failure to yield
- **Speed Limits:** Lowering the default speed limit within a city to 15 or 20 miles per hour
- **Education:** Public safety education and awareness campaigns

Research from the American Automobile Association indicates that speeding also has varying effects on pedestrians based on age and sex, with the elderly, children and males at higher risk of severe injury or death. For example, analysis in Los Angeles found that while older adults are 11% of the population, they account for 26% of pedestrian fatalities. In many cities, the majority of pedestrian and bicyclists fatal crashes involved a male driver.

## Safe Routes to School

The elderly are not the only people who are especially vulnerable to traffic fatality. Children are the most likely populations to be injured or killed due to a crash, particularly among children aged five to fourteen. Despite being users of the road, the built environment is “rarely developed with considerations for their needs” (World Health Organization, 1). As children generally walk slower and are harder to see, the risk of a driver hitting a child increases, particularly when speeding.

**FIGURE 2: DRIVER REACTION TIMES BASED ON VEHICLE SPEED**



Source: Table 3-3 AASHTO Greenbook, 2011)



## ATLANTA'S TRANSPORTATION PLAN

This is particularly a concern for North American cities, as traffic safety does not necessarily correlate with income. High-income countries in the Americas, such as the United States and Canada, actually had higher child road traffic injury mortality rates than some low- and middle-income countries<sup>10</sup>.

As can be seen from the above statistics, transportation safety for children and vulnerable populations is especially paramount given their higher risk of death. As children spend more than half of their day at school, Vision Zero advocates for providing Safe Routes to School to ensure that children and parents feel comfortable and safe walking and biking their children to school. Safe Routes to School can take the form of continuous sidewalk networks, low stress bicycle trails, clear signage, lower speed limits in school zones, high visibility crosswalks with pedestrian count down signals, the availability of on-site crossing guards, adequate lighting, easy access to bus stops, and programs to help encourage active transportation for families of all ages.

Safe Routes to School is a component of Vision Zero. Both Los Angeles and Seattle have released Vision Zero Action Plans that include policies and projects to improve the safety of streets and sidewalks near schools. The City of Los Angeles's action plan allocates almost \$23 million to fund construction of safety improvements around nine schools, planning efforts to improve infrastructure at 41 other schools, and for educational safety campaigns. Seattle's vision zero action plan recommends specific, short-term actions centered on education, encouragement, engineering, enforcement, evaluation, and empowerment. Investments are prioritized by ranking all public and most private schools in Seattle based on where collisions involving bicyclists and pedestrians have occurred, race and ethnicity of students at each school, and how inviting the streets around each school are for walking and bicycling.

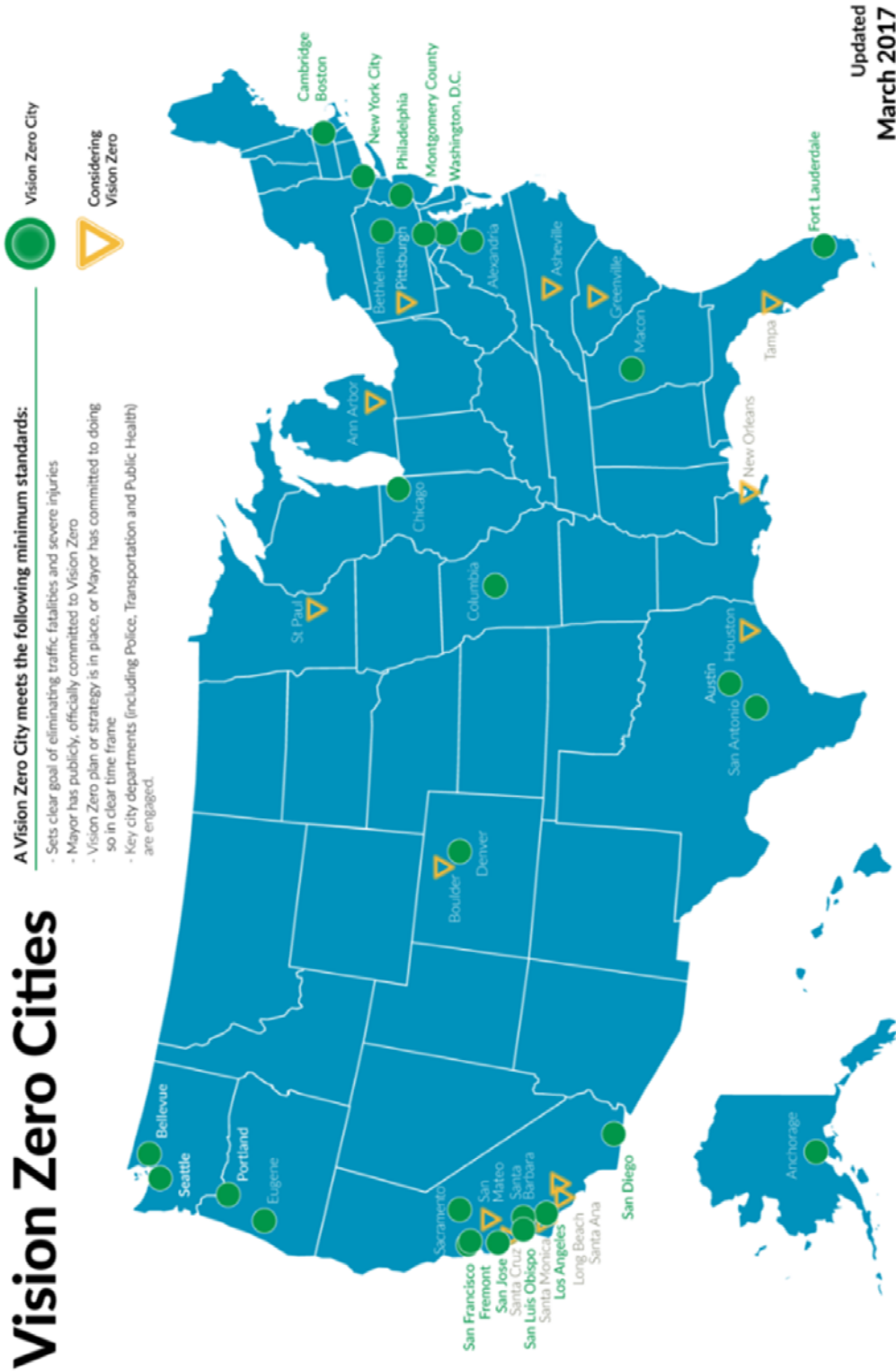
## CITIES TAKE ACTION

Vision zero is an approach being led by cities responding to local conditions and crash factors. To unite these efforts and share ideas, the Vision Zero Network formed as a peer-to-peer collaboration resource for cities, local police and public health officials. Ten cities were initially selected to participate, and of these San Francisco, Los Angeles, New York, Portland and Seattle have adopted legislation or formal policy as a demonstrated commitment to improving road safety. The Vision Zero Network has now grown to 25 cities that have adopted the Vision Zero model and these cities are shown in Figure 3.

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<sup>10</sup> World Health Organization and UNICEF. (2005) "Children and Road Traffic Injury" World Report on Child Injury Prevention. Retrieved May 2017 from [http://www.who.int/violence\\_injury\\_prevention/child/injury/world\\_report/Road\\_traffic\\_injuries\\_english.pdf](http://www.who.int/violence_injury_prevention/child/injury/world_report/Road_traffic_injuries_english.pdf)

FIGURE 3: VISION ZERO CITIES<sup>11</sup>



To be considered a Vision Zero city, the consortium advocates that cities, at a minimum:

- Set a clear goal of eliminating traffic-related deaths and injuries.
- Have the Mayor publicly commit to the Vision Zero initiative.
- Adopt a plan or strategy to improve road safety for all users in a specified period.
- Engage multiple city departments in the process (ex: Mayor's Office, Police/Public Safety, Department of Transportation, and Public Health).

## Los Angeles, CA

In 2015, 44% of persons killed or severely injured in traffic collisions in Los Angeles involved a person walking or biking<sup>12</sup>. Having the highest traffic fatality rate among large cities in the United States, the City of Los Angeles launched an aggressive Vision Zero campaign in 2015 with the goal of eliminating traffic-related deaths by 2025. As an interim measure, the City launched its Vision Zero Action Plan in January 2017 with a goal of reducing traffic-related deaths by 20% in 2017. It also directed the launch of an interagency Vision Zero Task Force, led by City agencies in conjunction with the Los Angeles County Department of Public Health.

The Los Angeles Vision Zero Action Plan used historical crash data to identify locations with the highest concentrations of fatal and severed injury collisions. It found that children, the elderly, pedestrians and bicyclists have the greatest risk for fatal and serious injury collisions. The City also found that the majority of severe and fatal collisions were occurring on select, major streets and were caused by preventable driver behaviors (such as speeding or failure to yield). Called the *High-Injury Network*, this analysis was combined with several indicators—including severity, vulnerability, and social equity—to create a list of 40 “Priority Corridors” for targeted intervention. Hence, the prioritization methodology used these 40 corridors to begin a series of physical design interventions and safety countermeasures to begin addressing key concerns. Some examples of countermeasures include:

- Installing leading pedestrian intervals at signalized intersections with known left turn conflicts
- Installing protected bicycle lanes along corridors with high rates of bicycle-vehicle conflicts
- Increasing enforcement in areas with high rates of dangerous driving behavior

Ultimately, the Plan also calls for the physical redesign of key roadways, incorporating features such as high-visibility crosswalks, curb extensions, and pedestrian islands. Some of these improvements are already seeing results:

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<sup>11</sup> Source: Vision Zero Network, March 2017 <http://visionzeronetwork.org/resources/vision-zero-cities/>

<sup>12</sup> City of Los Angeles Mayor's Office (24 August 2015) “Mayor Garcetti Signs “Vision Zero” Executive Directive to End Traffic Deaths in LA” Retrieved May 2017 from <https://www.lamayor.org/mayor-garcetti-signs-vision-zero-executive-directive-end-traffic-deaths-la>

## ATLANTA'S TRANSPORTATION PLAN

- Installing a high visibility pedestrian scramble at the intersection near Hollywood reduced pedestrian collisions by 35%
- Installing bicycle lanes and narrowing travel lanes has resulted zero bicycle deaths along Virgil Avenue.
- Retrofitting 22 intersections with leading pedestrian intervals has resulted in up to 60% reduction in vehicle conflicts with pedestrians

In addition to retrofits and new designs, the Plan also recognizes the need for maintenance, repair and upgrading of aging traffic infrastructure such as signals and speed surveys. Lastly, changing culture and policy is equally as important. The City plans to invest \$2 million educational campaigns in collaboration with area partners, while simultaneously strengthening legislation relating to speed enforcement. The Los Angeles Vision Zero effort is groundbreaking because of its comprehensive, data-driven and inclusive approach to traffic safety.

## New York, NY

In 2014, New York City was one of the first American cities to adopt a large scale, comprehensive Vision Zero program. A joint initiative between the New York Police Department, Department of Transportation, Department of Education, Department of Health and the Taxi and Limousine Commission, the goal is to reduce the number of traffic fatalities by 50% by 2025. As the second leading American city for traffic fatalities, New York's Vision Zero Action Plan clearly articulates its mission to create safer streets. Vision Zero in the City of New York acknowledges there is no acceptable level of death and injury on city streets; traffic deaths and injuries are not accidents but crashes that can be prevented; and the public should be expected to participate in helping bring about culture change.

According to the City's Vision Zero Action Plan, the program's components are four-fold:

- Public dialogue and education
- Law enforcement
- Street design
- State and local legislation

Implementation of the Action Plan has resulted in a wide range of initiatives including: public awareness campaigns, targeted outreach to community groups, a city-wide speed limit reduction to 25 miles per hour, the creation of slow zones and shared streets, neighborhood programming such as 'Summer Streets', numerous intersection redesigns and public plazas, increased use of speed and red light cameras, enforcement of misdemeanors like speeding and failing to yield, faster repair of broken traffic signals, and shortening crossing distances for people with disabilities.

New York's Vision Zero program has met with resounding success. For example, at locations where NYC DOT made significant design or engineering changes to a street or intersection,

fatalities decreased by 34%. Since program launch, total traffic related fatalities have also decreased from 293 in 2013<sup>13</sup> to 229 in 2016.<sup>14</sup>

### Chicago, IL

The City of Chicago launched its Vision Zero program in September of 2016 with the goal of eliminating all traffic deaths by 2026. While the overall program has a ten-year horizon, the City also plans to release a smaller, three-year action plan with a goal of reducing traffic deaths by 20% and serious injuries by 35% by 2020. Chicago's program is largely data driven, and sees traffic safety as primarily a public health and social equity issue. Although the City will implement the program city-wide, Chicago's Vision Zero program plans to "concentrate infrastructure, education and enforcement efforts on neighborhoods disproportionately affected by traffic violence", particularly in neighborhoods west of downtown and some in the South Side.<sup>15</sup> To lessen the risk of unfair targeting or racial profiling, the City plans to work with community leaders to devise a list of appropriate strategies that will resonate most with residents.

The Vision Zero Action Plan is a partnership between the City's Office of the Mayor, Department of Transportation, Department of Public Health, Fire Department, Police Department, Chicago Transit Authority, Department of Business Affairs and Consumer Protection, Department of Fleet and Facility Management, Department of Innovation and Technology, and the Office of Emergency Management and Communication. Like New York and Los Angeles, Chicago is part of the Vision Zero Focus Cities, a national consortium of ten agencies designed to help cities commit to Vision Zero and share best practices.

In 2016 alone, the Chicago Department of Transportation (CDOT) added 25 miles of bicycle lane and redesigned 100 intersections, including a major Safe Routes to School project which installed ten pedestrian refuge islands along a busy corridor with ten schools located within a half-mile of high crash areas.<sup>16</sup> Targeted enforcement was also done during the summer festival season.

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<sup>13</sup> Fitzsimmons, Emma G. (1 Jan 2015) "New York City's Pedestrian Fatalities Lowest on Record in 2014" *The New York Times*. Retrieved May 2017 from [https://www.nytimes.com/2015/01/02/nyregion/new-york-pedestrian-deaths-are-lowest-on-record.html?\\_r=0](https://www.nytimes.com/2015/01/02/nyregion/new-york-pedestrian-deaths-are-lowest-on-record.html?_r=0).

<sup>14</sup> Fitzsimmons, Emma G. (10 Jan 2017) "New York Traffic Deaths Dip Again. It's Not Enough, Mayor's Critics Say." *The New York Times*. Retrieved May 2017 from <https://www.nytimes.com/2017/01/10/nyregion/new-york-traffic-deaths-vision-zero.html>

<sup>15</sup> Greenfield, J. (15 March 2017) "The City Releases More Details About the Upcoming Vision Zero Action Plan" *Streetsblog Chicago*. Retrieved May 2017 from <http://chi.streetsblog.org/2017/03/15/the-city-releases-more-details-about-the-upcoming-vision-zero-plan/>

<sup>16</sup> Claffey, M. and Hofer, S. Office of the Mayor. "Mayor Emanuel Launches Vision Zero Chicago Initiative to Eliminate Traffic Fatalities and Serious Injuries Across the City". Press Release (6 September 2016). Retrieved May 2017 from [https://www.cityofchicago.org/city/en/depts/cdot/provdrs/traffic\\_signals\\_andstreetlights/news/2016/september/mayor-emanuel-launches-vision-zero-chicago-initiative-to-elimina.html](https://www.cityofchicago.org/city/en/depts/cdot/provdrs/traffic_signals_andstreetlights/news/2016/september/mayor-emanuel-launches-vision-zero-chicago-initiative-to-elimina.html)

# EXISTING CONDITIONS

Safety is a top concern in the City of Atlanta. The City has a higher rate of crashes than its peer cities and exceeds the nationwide collision death rates for total and pedestrian crashes, as shown in Figure 4.

**FIGURE 4: COLLISION DEATH RATES PER 100,000 POPULATION (2015)**

| Area           | Total Crashes | Pedestrian Crashes |
|----------------|---------------|--------------------|
| United States  | 10.90         | 1.67               |
| Georgia        | 14.00         | 1.89               |
| <b>Atlanta</b> | <b>12.50</b>  | <b>3.23</b>        |
| Chicago        | 4.45          | 1.69               |
| Seattle        | 3.80          | 1.02               |
| Washington, DC | 3.42          | 1.93               |

Source: National Highway Traffic Safety Administration: Traffic Safety Facts 2015

## ALL CRASHES

An analysis of crashes involving all types of transportation modes was performed to identify areas within the City of Atlanta with a disproportionately high number of crashes. This analysis is intended to serve as a starting point for identifying the location of traffic safety areas of concern. The results can serve as the start of a data-driven approach to make informed decisions that identify and prioritize safety improvement projects.

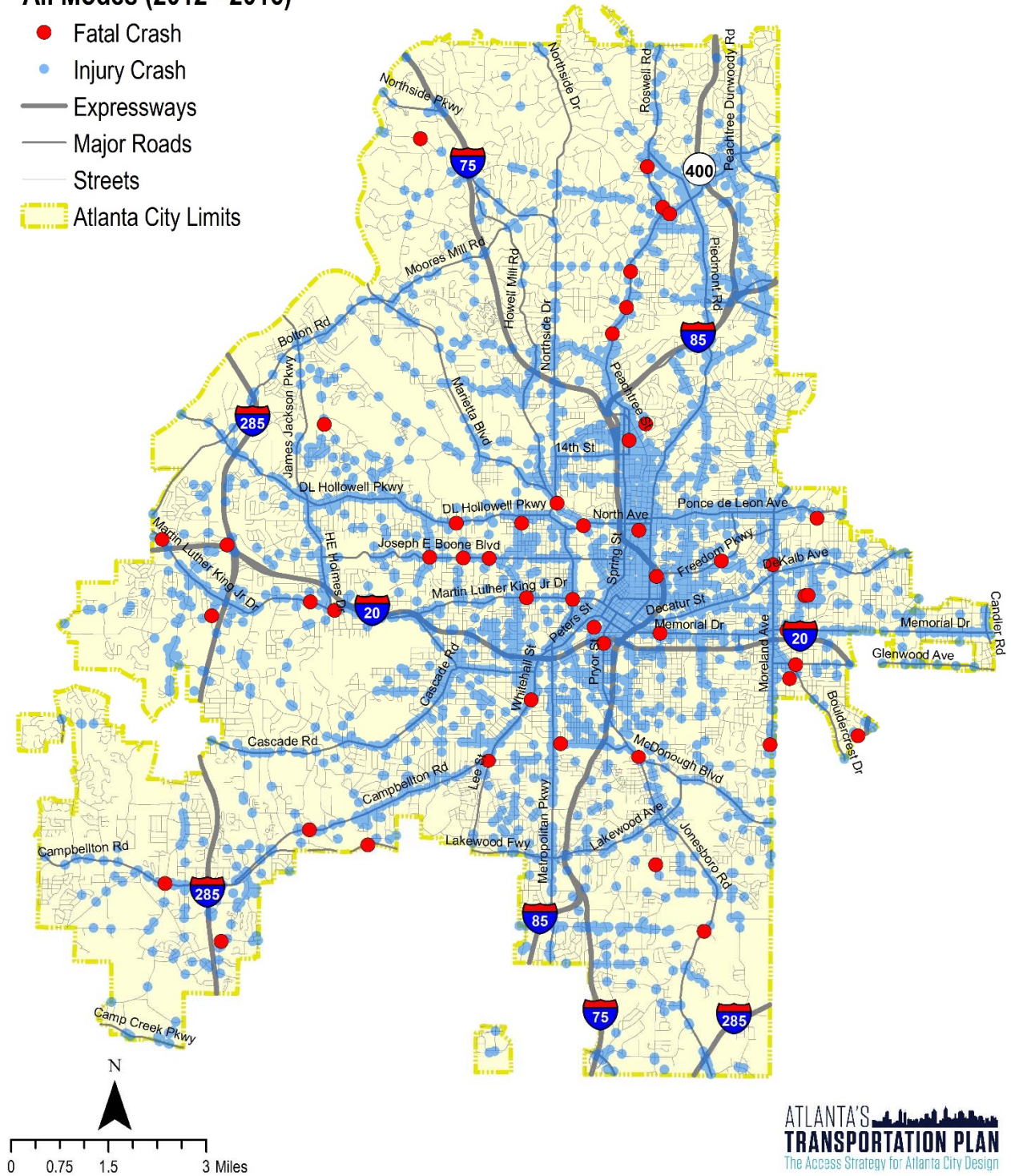
Figure 5 shows crashes on the City of Atlanta's roadway network categorized as fatal and injury. The map and analysis exclude crashes on interstate freeways. Visually, the Downtown and Midtown commercial core areas and several major roads stand out with a high number of crashes. These areas are characterized by high traffic volumes traveling at high speeds along with higher density development, which can increase the number of potential conflicts between vehicles, bicycles, and pedestrians.

FIGURE 5: FATAL AND INJURY CRASHES, ALL MODES (2012 - 2016)

Fatal and Injury Crashes

All Modes (2012 - 2016)

- Fatal Crash
- Injury Crash
- Expressways
- Major Roads
- Streets
- ▭ Atlanta City Limits



Note: Crashes on interstates are not included in the analysis; interstates are shown on the map for orientation purposes only.

## BICYCLE CRASHES

An analysis of crashes involving bicyclists was performed to identify areas within the City where additional bicycle safety improvements may need to be considered. Isolating areas with a high number of bicycle crashes is important, because bicyclists are not protected by a vehicle and safety features such as airbags. In the event of a crash, people on a bicycle are more vulnerable to injury and death than people traveling in a car.

The most recent data identifying bicycle crashes is 2010 through 2014, which is different than the 2012 – 2016 time periods for all modes and pedestrian crashes. While bicycle fatalities from 2012 – 2016 are included in the all modes data set, they are not flagged as involving bicyclists.

Figure 6 shows crashes involving bicyclists on the City of Atlanta's roadway network. Visually, the west side of the City of Atlanta, Downtown and Midtown commercial core, and Decatur Street/DeKalb Avenue stand out with a high number of crash events. These areas are characterized by high vehicle traffic volumes as well as high development densities, which can increase the number of potential conflicts between vehicles, bicycles, and pedestrians.

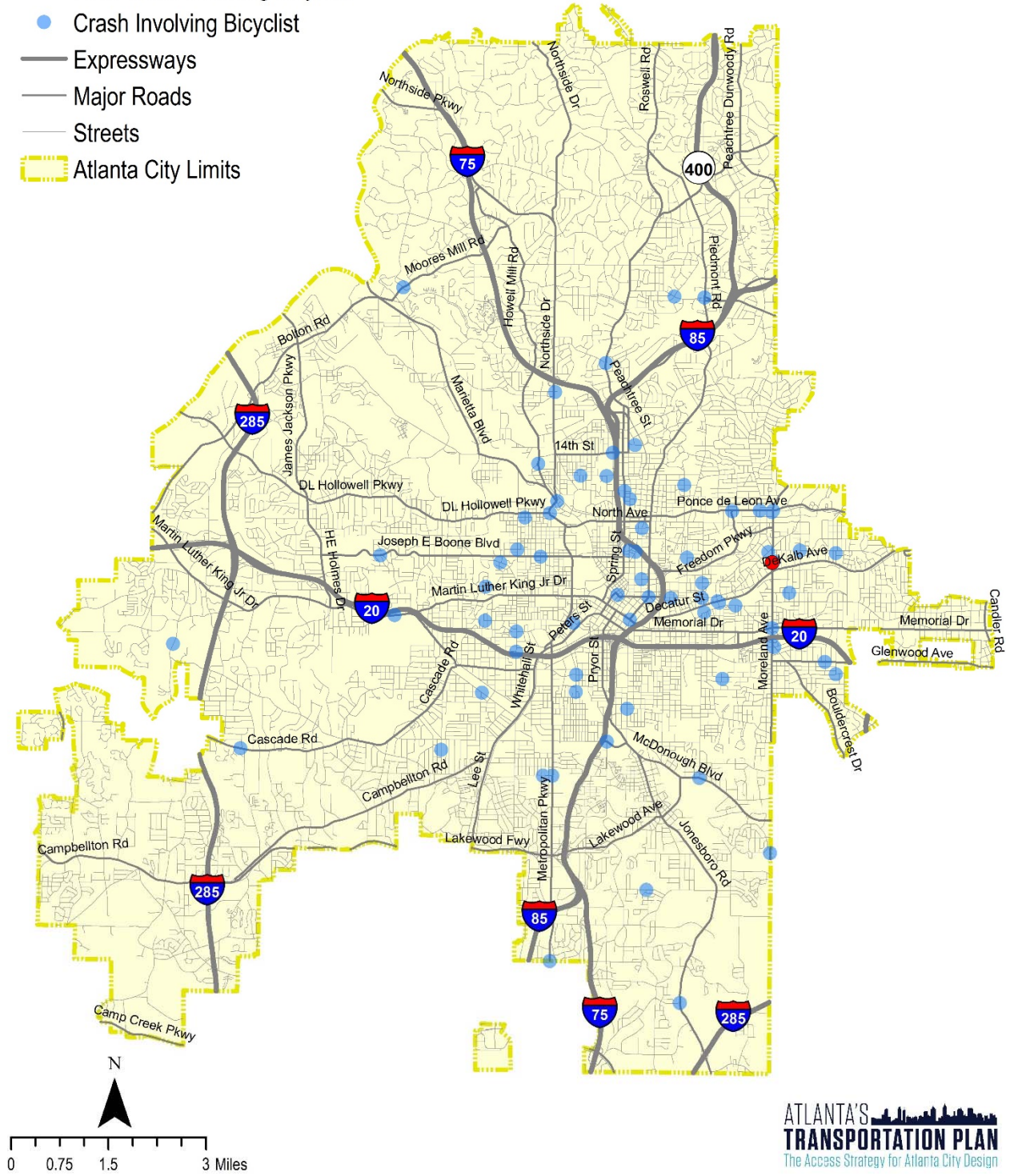


# ATLANTA'S TRANSPORTATION PLAN

**FIGURE 6: BICYCLE CRASHES (2010 - 2014)**

## Bicycle Crashes (2010 - 2014)

- Fatal Crash Involving Bicyclist
- Crash Involving Bicyclist
- Expressways
- Major Roads
- Streets
- ▭ Atlanta City Limits



*Note: Crashes on interstates are not included in the analysis; interstates are shown on the map for orientation purposes only.*

## PEDESTRIAN CRASHES

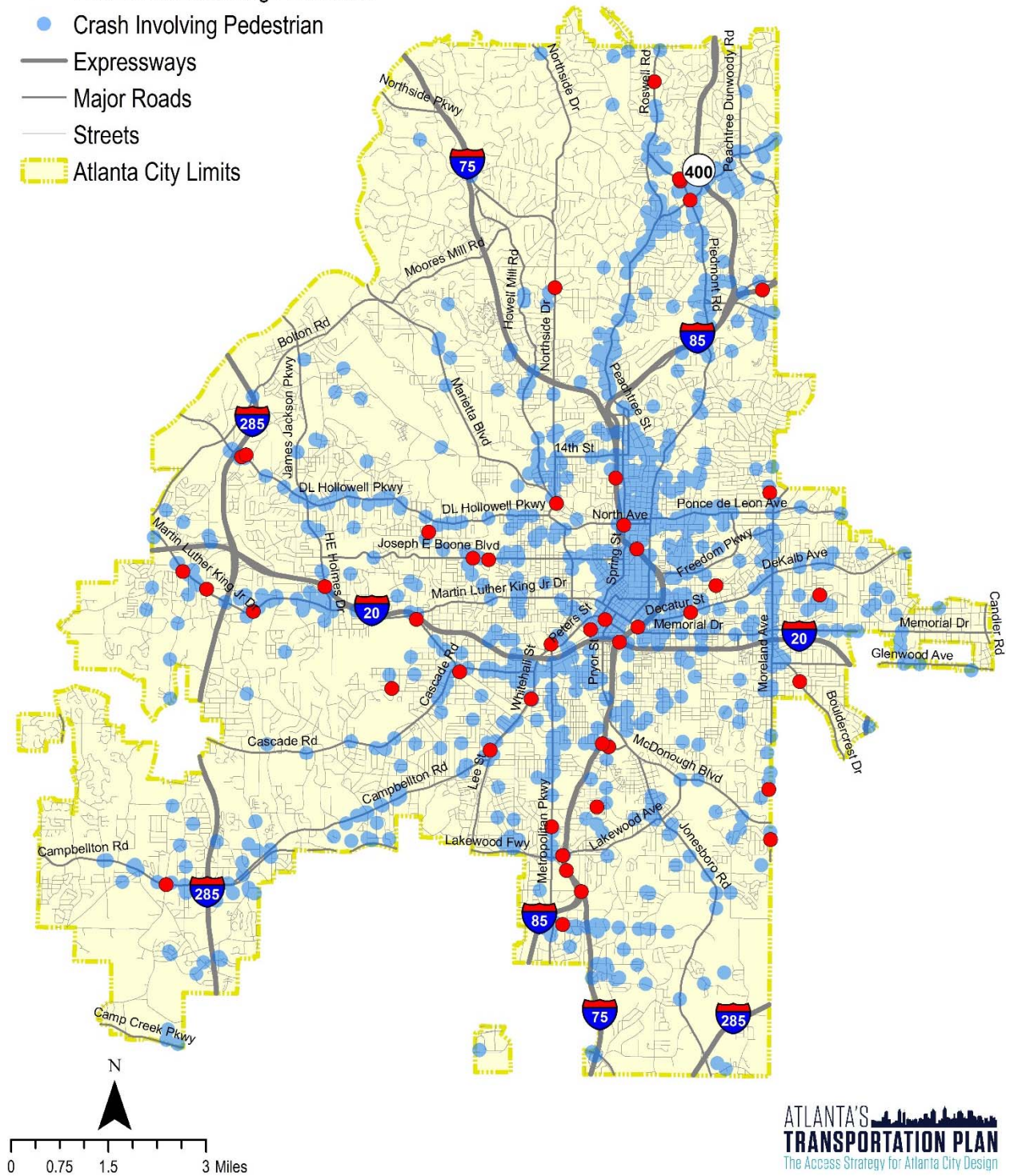
Pedestrian crashes are an important component of ensuring street safety for all users, especially those who are most vulnerable. Pedestrians travel at much slower speeds than people bicycling or driving and are not protected by a car and its safety features. In the event of a crash, a pedestrian like a bicyclist, is more vulnerable to injury and death than automobile drivers and passengers. This analysis is intended to serve as a starting point for identifying traffic safety issues and will serve as a foundation to make informed decisions that identify and prioritize safety improvement projects.

An analysis of crashes involving pedestrians was performed to identify areas within the City of Atlanta with a high number of crashes. Figure 7 shows crashes involving pedestrians on the City of Atlanta's roadway network. Visually, most major arterial streets where there are higher vehicle speeds stand out with a high number of crash events.

FIGURE 7: PEDESTRIAN CRASHES (2012 - 2016)

**Pedestrian Crashes (2012 - 2016)**

- Fatal Crash Involving Pedestrian
- Crash Involving Pedestrian
- Expressways
- Major Roads
- Streets
- ▭ Atlanta City Limits



*Note: Crashes on interstates are not included in the analysis; interstates are shown on the map for orientation purposes only.*

# HIGH INJURY NETWORK

The City of Atlanta covers approximately 134 square miles and includes 1,988 centerline miles of roads. To identify patterns in fatal and injury crashes over this vast area, a high injury network was developed. The methodology used to define the high injury network was based on fatal and injury crashes as well as measures of social equity described in detail later in this section. Measures of social equity were included in the high injury network definition because areas with lower social equity measures generally correlate with communities that have traditionally been underinvested in or underserved and where there are higher rates of transit, walking, and bicycling. Because these areas may have received less investment in the past, opportunities to quickly reduce fatal and injury crashes through infrastructure improvements may be higher there than in other areas of the City.

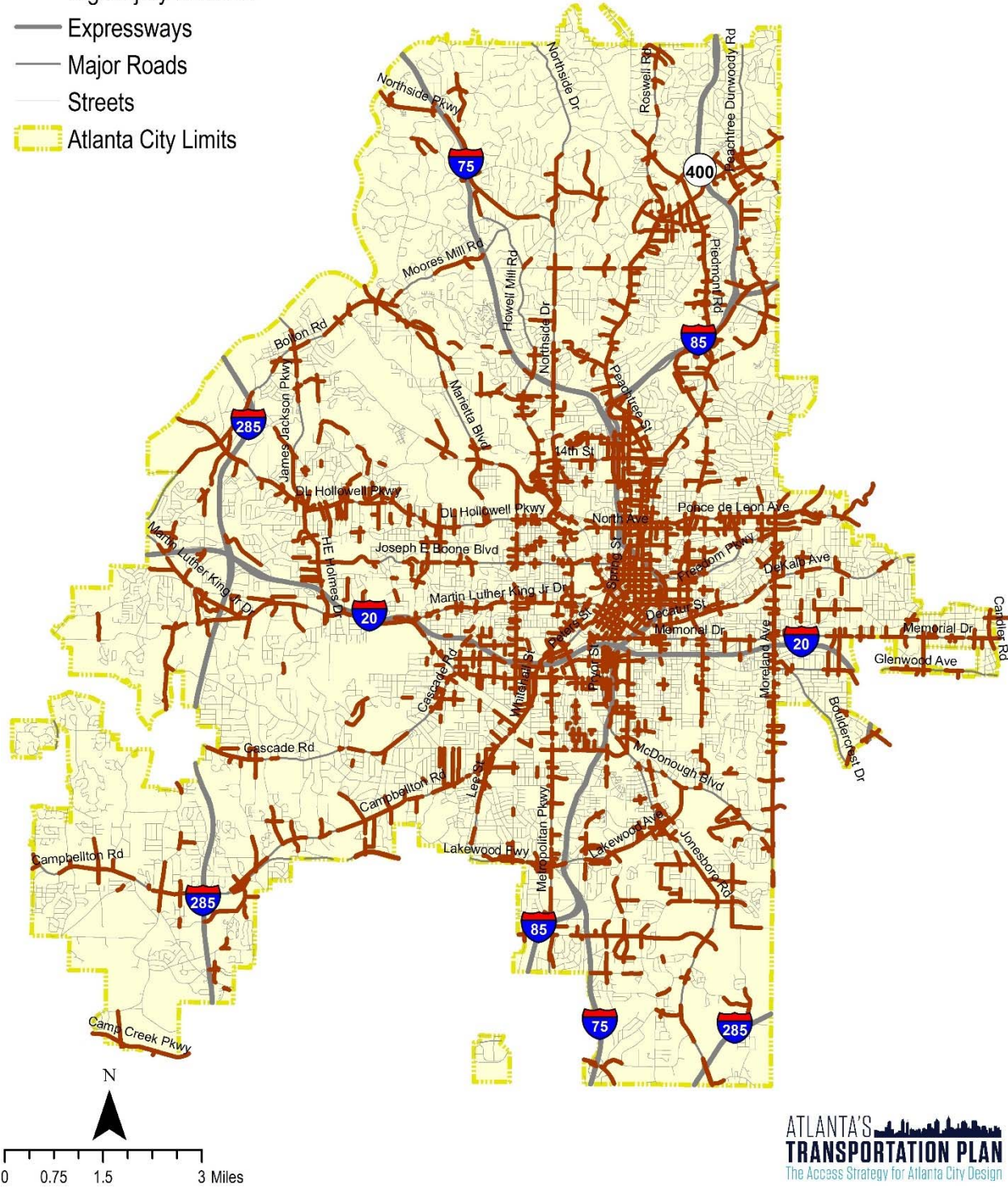
Fatal and injury crashes are concentrated on the high injury network. Although the high injury network accounts for about 5.5% of the City's roadway network by centerline miles, 71.4% of fatalities and 42.1% of injuries occurred on it from 2012 to 2016. Because the great majority of fatalities occur on this network, along with just under half of all injuries, focusing improvement efforts on the high injury network can have a disproportionately high impact in reducing fatalities and injuries. As progress is made over time, new crash data will need to be used to update the high injury network. Figure 8 shows the high injury network.

# ATLANTA'S TRANSPORTATION PLAN

FIGURE 8: HIGH INJURY NETWORK (2012 – 2016)

## High Injury Network

- High Injury Network
- Expressways
- Major Roads
- Streets
- Atlanta City Limits



Note: Crashes on interstates are not depicted on this map, the interstates are included for orientation purposes only.

## ATLANTA'S TRANSPORTATION PLAN

Intersections with a high number of fatalities, injuries, and social equity concerns were identified, because crashes often occur when turning vehicles conflict with each other, pedestrians, or bicyclists. Figure 11 shows the high injury intersections. The high injury intersections are generally located along the high injury network. Several key corridors matching the high injury network stand out on Figure 11:

- Campbellton Road from the Atlanta City Limits to Lee Street
- University Avenue from Metropolitan Parkway to McDonough Boulevard
- Martin Luther King Junior Boulevard from I-20 west of I-285 to Northside Drive
- Joseph E. Boone from New Jersey Avenue to Spring Street
- Donald Lee Hollowell Parkway from Atlanta City Limits to Northside Drive
- North Avenue from Northside Drive to Glen Iris Drive
- Hamilton E. Holmes Parkway/James Jackson Drive from Martin Luthier King Junior Boulevard to Gun Club Drive
- Metropolitan Parkway from Cleveland Avenue to Peters Street
- Northside Drive from Greensferry Avenue to 14<sup>th</sup> Street

Prioritizing improvement efforts on high injury intersections can have a large impact on quickly reducing traffic fatalities and injuries. Figure 9 shows the top ten high injury intersections while Figure 10 shows the top high injury intersections involving at least one pedestrian crash. Cleveland Avenue at Metropolitan Parkway and Hamilton E. Holmes Dr. at Joseph E. Boone Blvd. are the only intersections that shows up in both tables.

**FIGURE 9: TOP 10 HIGH INJURY INTERSECTIONS (2012 – 2016)**

| Intersection Location                            | High Injury Intersection Score |
|--|--------------------------------|
| Cleveland Avenue at Metropolitan Parkway         | 73.6                           |
| Northside Drive at Marietta Street               | 68                             |
| Campbellton Road at Barge Road                   | 59                             |
| Metropolitan Parkway at University Avenue        | 57                             |
| Ponce De Leon Avenue at Clifton Road             | 53                             |
| Piedmont Road at Peachtree Road                  | 50                             |
| Hamilton E. Holmes Drive at Joseph E. Boone Blvd | 49                             |
| Cleveland Avenue at Macon Drive                  | 49                             |
| Cleveland Avenue at Jonesboro Road               | 49                             |
| Peachtree Road at Peachtree Battle Avenue        | 48                             |

ATLANTA'S TRANSPORTATION PLAN

**FIGURE 10: TOP 10 HIGH INJURY PEDESTRIAN INTERSECTIONS (2012 - 2016)**

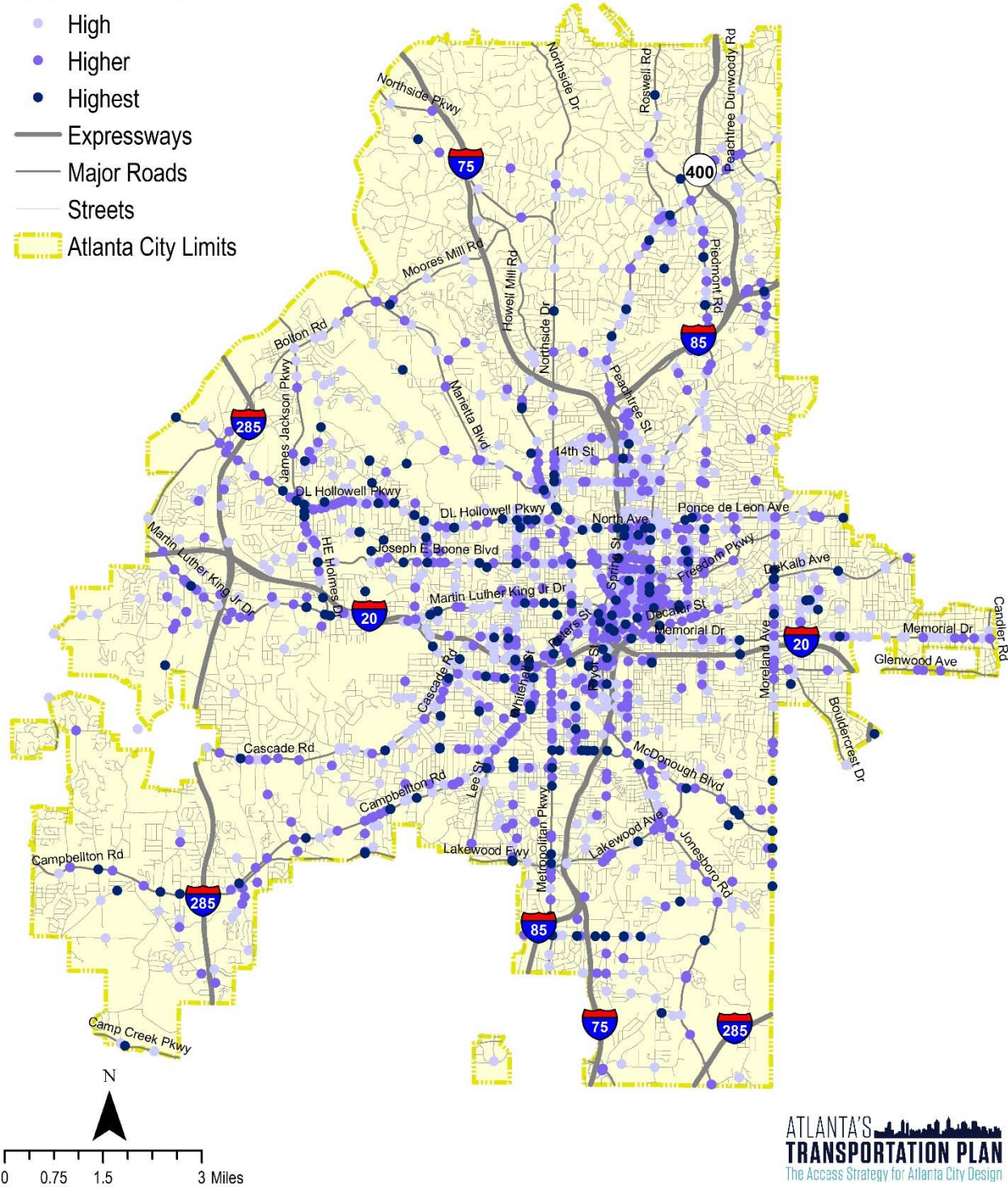
| Location  | High Injury Intersection Score |
|---|--------------------------------|
| Cleveland Avenue at Metropolitan Parkway          | 73.6                           |
| Hamilton E. Holmes Drive at Joseph E. Boone Blvd. | 49                             |
| Williams Street at Ivan Allen Blvd.               | 31                             |
| Peachtree Road at Pharr Road                      | 26                             |
| Peachtree Street at Collier Road                  | 25                             |
| Peachtree Street at Martin Luther King Jr. Drive  | 20.6                           |
| Clifton Street at Memorial Drive                  | 16                             |
| McDonough Blvd at Moreland Drive                  | 15.3                           |
| Memorial Drive at Peachtree Road                  | 15                             |
| 4 <sup>th</sup> Street at Spring Street           | 11                             |

FIGURE 11: HIGH INJURY INTERSECTIONS (2012 - 2016)

High Injury Intersections

Intersection Score

- High
- Higher
- Highest
- Expressways
- Major Roads
- Streets
- ▭ Atlanta City Limits



Note: Crashes on interstates are not depicted on this map, the interstates are included for orientation purposes only.



## Methodology to Define the High Injury Network

Both the high injury network and intersections were identified using a similar methodology. For the high injury network, GIS software was used to sum up number of fatalities and injuries within 25 feet of each roadway segment. The total fatalities and injuries were then spatially joined to the roadway segment. Next, if the roadway segment fell within an equitable target area, a score of one through three was assigned. Otherwise an equitable target area score of zero was used. The purpose of using equitable target areas was to provide a slight increase in priority to communities that have traditionally been underinvested in. Because the purpose of developing the high injury network and high injury intersections is to identify areas where fatalities and injuries can be reduced quickly, including areas that may have received less investment in the past is important because they have the potential for new projects to quickly increase safety. The equitable target areas and score assignments are described in more detail below. Finally, the following equation was then used to calculate a score for each segment:

$$\text{Number of Fatalities} * 5 + \text{Number of Injuries} + \text{Equitable Target Area Score} / 3 = \text{Segment Score}$$

For the high injury intersections, fatalities and injuries for all crashes within 75 feet of each intersection were summed using GIS software. Next, an equitable target area was assigned, like the high injury network methodology above. Finally, the following equation was used to calculate an intersection score:

$$\text{Number of Fatalities} * 5 + \text{Number of Injuries} + \text{Equitable Target Area Score} / 3 = \text{Intersection Score}$$

For the segment and intersection scores, the number of fatalities was multiplied by 5 to reflect the higher severity of fatal crashes. The raw number of injuries for an intersection or segment was used to emphasize areas with higher numbers of injuries. To prioritize areas with higher concentrations of the most vulnerable populations, an equitable target area score was used.

### EQUITABLE TARGET AREAS

The Atlanta Regional Commission (ARC) developed an equitable target areas (ETA) index based on poverty and the distribution of senior citizens and minorities. For each census tract in the region, an ETA score of one to four was calculated, with one representing a high concentration of persons in poverty, minorities, and/or senior citizens, and four a non-equitable target area. Figure 12 shows the boundaries and status of ETAs within the City of Atlanta.

For this analysis, the following ETA scoring methodology was used:

- Very High ETA: 3
- High ETA: 2
- Medium ETA: 1
- Non-ETA: 0



# ROADWAY FATALITIES

According to the National Highway Traffic Safety Administration (NHTSA), 243 fatalities occurred on Atlanta roadways between 2011 and 2015. The majority of these were occupants in motor vehicles (68%), but a further 30% were pedestrians. In comparison, pedestrian fatalities account for 15% of all fatalities nationwide or 13% of all fatalities in Georgia. Over one-third of all fatalities (34%) occurred on interstates in Atlanta (I-75, I-85, and I-20), and half occurred on the City's local roads. Deeper analysis of the data provided by the Fatality Analysis Reporting System (FARS) led to the following insights into Atlanta's fatal crashes during the five-year period between 2011 and 2015:

- 78% of non-interstate fatalities occurred on two-way, undivided streets.
- 57% of all fatalities occurred on roads with a posted speed limit of 35 mph or lower.
  - On roads with a posted speed limit of 35 mph or lower, 37% of all fatalities occurred on roads posted at 35 mph, with 10% of all fatalities on roads posted at 30 mph, and 10% occurring on roads posted at 25 mph.
  - Excluding interstates, 35% of fatalities on roads with a posted speed limit of 35 mph or lower resulted from a collision with a motor vehicle<sup>17</sup> as opposed to 46% of fatalities on roads posted as 40 mph or higher.
- Two-fifths (40%) of all fatalities occurred on local road crashes not involving a drunk driver.
  - 55% of these fatalities (22% of overall fatalities) resulted from nighttime crashes.
- Just under half (49%) of all fatalities resulted from motor vehicle crashes not involving a drunk driver or pedestrian.
  - 18% of these fatalities (9% of overall fatalities) occurred at local intersections.
  - 20% of these fatalities (10% of overall fatalities) resulted from crashes between two or more motor vehicles in areas with a speed limit 35 mph or lower.
- 23% of fatalities involved a drunk driver.
  - Less than 1% of vehicle miles travelled were driven drunk<sup>18</sup>, indicating drunk driving has a disproportionately high impact on fatalities
  - 80% of fatalities involving a drunk driver occurred at night, compared to 56% of fatalities without a drunk driver during that same time of day.
  - A larger proportion of fatalities involving a drunk driver occurred away from an intersection (73%) than those without a drunk driver involved (64%).

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<sup>17</sup> The 65% of fatalities not attributed to collision with a motor vehicle include collisions with fixed objects (e.g. bridges, buildings, concrete traffic barriers, guardrails, trees, utility poles) and crashes coded as collision with pedestrian.

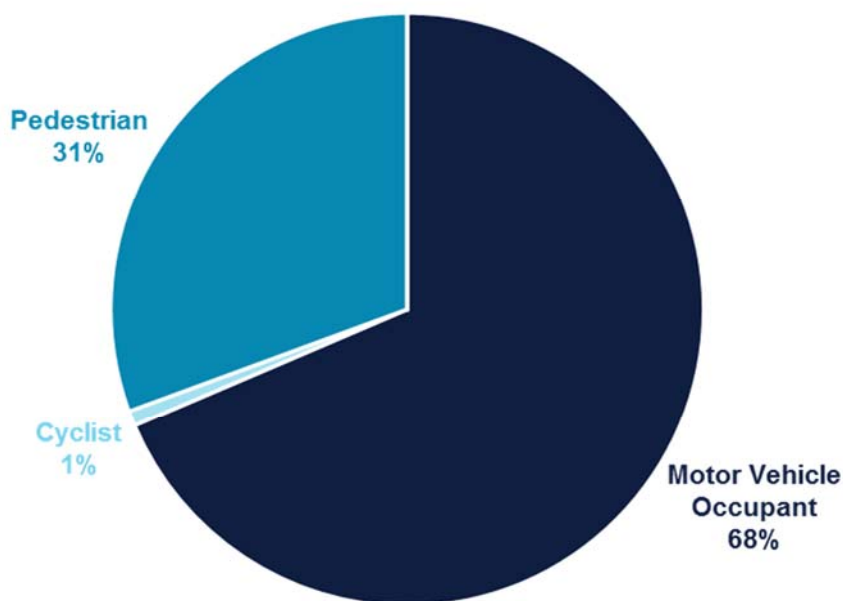
<sup>18</sup> How Drunk are U.S. Drivers? Measuring the Extent, Risks and Costs of Drunk Driving. Miller, Ted and Spicer, Rebecca. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3400188/> Accessed 11/10/2017

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- 45% of fatalities involving a drunk driver involved another motor vehicle as opposed to only 34% of fatalities not involving a drunk driver.
- 11% of pedestrian fatalities involved a drunk driver, while only 4% involved an intoxicated pedestrian.
  - 45% of pedestrian fatalities occurred on Interstates<sup>19</sup> or principal arterials.
  - 55% of pedestrian and bicycle fatalities occurred on roads with a posted speed limit of 35 mph or lower.
  - 11% of all fatalities in Atlanta were pedestrians from crashes on local roads during nighttime conditions.

These observations indicate there is a need to address pedestrian fatalities, crashes involving drunk drivers, crashes occurring at night, reductions in speed, and design of intersections and roadway segments. These observations were the basis for infrastructure and programmatic recommendations to improve the overall safety of Atlanta's roadways.

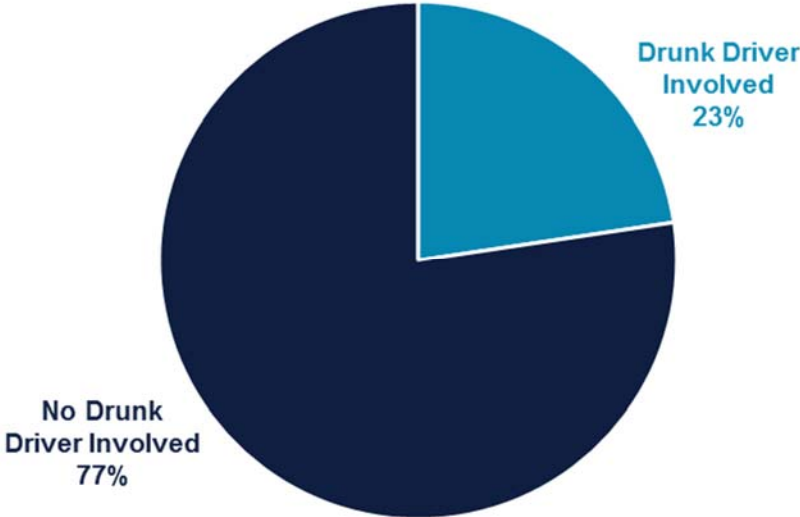
**FIGURE 13: ATLANTA ROADWAY FATALITIES BY PERSON TYPE**



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<sup>19</sup> While pedestrians are prohibited on interstates, and facilities are not provided, pedestrians do access ramps and interstates occasionally.

FIGURE 14: ATLANTA ROADWAY FATALITIES INVOLVING AT LEAST ONE DRUNK DRIVER



# RECOMMENDATIONS

Atlanta's Transportation Plan recommends the City of Atlanta develop a Safer Streets Policy and Action Plan to guide resources towards safety improvements at high crash locations. The following general process should be used to develop the plan and for accomplishing the specific strategy recommendations. The action plan should follow the guiding principles below:

1. Data-driven – identify areas for improving data collection and use existing and improved data to identify locations, behaviors, and design features that are related to fatal and injury crashes.
2. Accountable – set quantifiable objectives and measure performance against them, communicate results to partners and the public regularly
3. Partnerships – build support for the safer streets action plan among City Staff, City Council, the Mayor, partner agencies, community organizations, and citizens.
4. Equitable – use the high injury network and high injury intersections as a starting point for addressing traffic fatalities and injuries among vulnerable populations.

## PERFORMANCE METRICS

1. Reduce traffic deaths to zero by 2030
2. Reduce injuries by half by 2030

## SPECIFIC STRATEGY RECOMMENDATIONS

- a) Address pedestrian safety issues
  - i) Identify pedestrian facility improvement projects targeted toward reducing crashes at the top 10 high injury intersections with pedestrian crashes.
  - ii) Enhance data collection to identify pedestrian issues and areas of need.
  - iii) Identify potential funding to address safety issues.
- b) Manage travel speeds
  - i) Identify traffic calming improvements to reduce speeds
  - ii) Implement reduced speed zones and increase enforcement.
  - iii) Set and communicate safe speed limits.
  - iv) Deploy enforcement and education campaigns.
- c) Identify and pursue opportunities to enhance design policies
  - i) Modify policies, regulations, and laws to prioritize safety measures.

## ATLANTA'S TRANSPORTATION PLAN

- ii) Enhance methodology to guide street design and incorporate elements such as traffic calming as well as pedestrian and bicycle improvements.
- iii) Improve coordination between implementation and enforcement agencies to address roadway safety.
- iv) Audit traffic safety programs.
- d) Improve the quality and transparency of crash data
  - i) Identify data quality issues and approaches to address these concerns.
  - ii) Publish geospatial crash data.
  - iii) Develop progress reports.
- e) Address drunk driving
  - i) Continue to work with enforcement and education partners on programs to reduce instances of drunk driving.
- f) Improve collaboration with safety partners
  - i) Form a safety task force to meet on a periodic basis to review progress on safety initiatives in Atlanta. Potential partners include:
    - (1) Department of Planning Office of Mobility
    - (2) Department of Public Works Office of Transportation
    - (3) Police Department
    - (4) Mayor's Office
    - (5) City Council
    - (6) Georgia Department of Transportation
    - (7) Safe Routes to School
    - (8) Community partners, such as, Atlanta Bicycle Coalition, Pedestrians Educating Drivers on Safety
  - ii) Identify equity programs to address significant community roadway safety challenges, using the equitable target areas shown on Figure 12 as a starting point.

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