Vision Zero

Reducing traffic-related deaths through planning + implementation

> *At the core of Vision Zero efforts is the conviction that no one should be killed or seriously injured on streets. It recognizes that humans make mistakes, but that those mistakes should not cost them their lives.*

-Achieving Vision Zero in Practice,
E. Guseman, M. Manzella, & L. Scofield[1]

What is Vision Zero?

Simply put, it is the vision of zero traffic deaths and serious injuries. The movement has its roots in Sweden, but has been helped re-frame transportation planning and infrastructure investment worldwide since it's development in the 1990s.

The development of a Vision Zero plan has long been a recommendation of the City's adopted plans, included in *Walk Bike Columbia* (2015), the *Walkable 29203 Pedestrian Master Plan* (2017), and the City's comprehensive plan, *Columbia Compass* (2020). The South Carolina Department of Public Safety (SCDPS) also has a strategic highway safety plan that is updated regularly that also dovetails with the goal of reducing crashes across our state's transportation network.

History of Traffic Safety

Even before the advent of motor vehicles, street users have been seriously injured or killed while transiting the right-of-way. In his 2015 paper[2], historian Peter Norton proposed four paradigm shifts in how residents and policy makers have approached traffic safety in the United States. Public outcry tied to the increased danger to vulnerable users from motor vehicles led to the initial **Safety First** approach (1900-1920), where public opinion and resulting policies expected drivers to take responsibility and practice "a higher standard of care." From the 1920s - 1960s, the paradigm shifted to **Control**, and the concept of the "Three Es" was introduced - **e**ngineering, **e**ducation, and **e**nforcement. The desired outcome of each E was to control behaviors - and particular emphasis was given to controlling pedestrian behaviors, such as jaywalking.

As the car culture and access to personal vehicles expanded along with suburbia, the 1960s - 1980s saw a paradigm shift to **Crashworthiness**, which sought technological solutions to the safety issues at hand. The focus honed in on making vehicles safer for those who drive them - but paid little attention to other, more vulnerable users, mainly pedestrians.

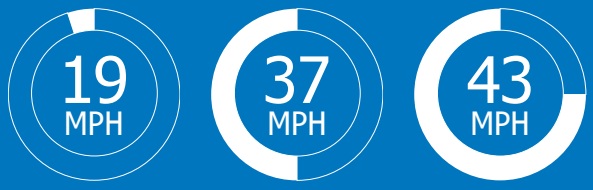
Norton identified a fourth and final paradigm of **Responsibility**, which began in the 1980s and continued as the predominant paradigm through the publication of his work in 2015. Here, individual responsibility was coupled with an expanded focus on education and enforcement.

Tackling Terms

Vulnerable users are those who utilize the right-of-way while not protected by a vehicular exoskeleton. Pedestrians, bicyclists, and transit users must interface within a system generally designed to move vehicular traffic swiftly.

Increasing vehicular speeds may save seconds for drivers, it also vastly heightens the risk of fatality for vulnerable road users when they are hit by a vehicle.

PEDESTRIAN FATALITIES[5]
A pedestrian struck by a vehicle traveling:



has a ***5%*** *RISK OF DEATH*

has a ***50%*** *RISK OF DEATH*

has a ***75%*** *RISK OF DEATH*

This document is a summary of the data and analysis presented in the American Planning Association's Planning Advisory Service Memo No. 18, "Achieving Vision Zero in Practice", written by Elias Guseman, AICP, Michael Manzella, AICP, and Lyndsey Scofield, AICP, PMP.

Vision Zero + The Safe System Approach: A New Paradigm

Roadway fatality numbers can be numbing in their scale, but behind each of the lives lost, there are people - individuals with stories, families, friends, and communities - and that is why, to quote Lorraine Martin, President + CEO of the National Safety Council:

> *"Zero is the only acceptable number of traffic deaths. It's that simple."* [3]

To that end, the USDOT has adopted the Safe System Approach, which shifts the conventional safety approach to both acknowledge human mistakes and vulnerability, and call for the design of a redundant system which protects everyone. The principles of the safe systems approach, which can be seen circling the diagram to the right, are defined as follows[4]:

Death and Serious Injuries are Unacceptable
A Safe System Approach prioritizes the elimination of crashes that result in death and serious injuries.

Humans Make Mistakes
People will inevitably make mistakes and decisions that can lead or contribute to crashes, but the transportation system can be designed and operated to accommodate certain types and levels of human mistakes, and avoid death and serious injuries when a crash occurs.

Humans Are Vulnerable
Human bodies have physical limits for tolerating crash forces before death or serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates physical human vulnerabilities.

The principles and objectives of the Safe System Approach are summarized in the above USDOT graphic.

Responsibility is Shared
All stakeholders—including government at all levels, industry, non-profit/advocacy, researchers, and the general public—are vital to preventing fatalities and serious injuries on our roadways.

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

Redundancy is Crucial
Reducing risks requires that all parts of the transportation system be strengthened, so that if one part fails, the other parts still protect people.

Did you know?

Speed limits have been traditionally calculated *after* a roadway is constructed - based on the "85th percentile rule" - the speed that 85% of the people are driving at or under. As described **in this video from the Wall Street Journal**, this rule can cause speed to drive design - triggering the removal of physical infrastructure in streetscapes that can actually encourage slower speeds, such as narrow lanes and tree-lined boulevards. This perpetuates a cycle - where streetscapes are revised in a way that actually triggers drivers to increase speed further, thereby continuing to decrease safety for all users.

The objectives of the Safe System Approach also represent a paradigm shift, bringing together a wider range of stakeholders when addressing roadway safety. While our local efforts may not be able to address the **safer vehicles** component in the same way that federal regulators can, we can certainly address the bulk of these objectives.

By encouraging **safer people**, we aren't just focusing on education and outreach, but also creating the physical conditions that prioritize safety for all users.

Designing for **safer roads** includes creating an environment that helps mitigate for human mistakes, encourages safer behaviors, and protects the most vulnerable users. This goes hand in hand with promoting **safer speeds** through appropriate road design and speed limit setting. The promotion of safer speeds also includes targeted education, outreach campaigns, and enforcement.

By bringing **post crash care** into the safety conversation, there is a commitment to work with emergency services personnel not just on ensuring emergency vehicle access, but also creating a safe working environment for first responders, and preventing secondary crashes through traffic incident management practices.

> *"Zero is the only acceptable number of traffic deaths. It's that simple. The only way to achieve this goal is by working together, as part of the holistic Safe System Approach. Our voice becomes so much stronger when we gather to strategize and implement ways to make our roads safe... we can - and must - continue working together to eliminate roadway deaths.* ***Lives depend on it.***"

-Lorraine Martin,
President and CEO of the National Safety Council,
Chair of the Road to Zero Coalition[10]

The Challenge of Traffic Violence

Traffic fatalities are on the rise, after years of slow but steady decline. In 2021, 42,939 lives were lost on our roadways nationwide - the largest number of fatalities since 2005[6].

Nationally and locally, these losses are born by black and brown people. While nationwide this segment of our population is more likely to rely on walking or public transportation and less likely to have access to a public vehicle, they still suffer disproportionately when the data is aggregated for distance traveled.

- Black and Hispanic men are 2X more likely to be killed while walking (or wheeling) than white men, and 4X more likely to be killed than the general population.[7]
- Black pedestrians were > 2X more likely, for each mile walked, to be struck and killed by a vehicle as white pedestrians.[8]
- Black cyclists were 4.5X more likely per mile to be struck and killed by a vehicle.[9]

What is happening in Columbia to make our streets safer?

City staff, including planners, engineers, CPD, parks and recreation, and public works, continue to work collaboratively together, and with partner agencies and community stakeholders, towards safer streets in Columbia. We are excited to be a recipient of a USDOT Safe Streets and Roads for All Planning Grant!

We've laid some important groundwork in recent years:

- The *Walk Bike Columbia Pedestrian + Bicycle Master Plan* was adopted in 2015 after a robust public planning process, and makes comprehensive recommendations for programs, policies, and projects.
- The *Walkable 29203 Pedestrian Master Plan* (adopted by the City in 2017), led by SCDHEC in collaboration with the City and Richland County, works to address inequities in healthy food access and pedestrian accommodations in the 29203 zip code.

- We've been conducting annual Pedestrian + Bicyclist Counts at targeted locations throughout Columbia with the help of volunteers since 2014. We analyze the data, provide the feedback we receive to relevant departments and agencies, and utilize/share the data and analysis to inform infrastructure planning.
- Transformative + collaborative projects continue to change our streetscape! These include Foundation Square and the Greene Street bridge, extensions of the Vista Greenway (past and planned), improvements to Calhoun Street inclusive of bike facilities and a road diet, the installation of buffered bike lanes along River Drive with SCDOT resurfacing, a whole-scale rebuild of Main Street (Pendleton - Blossom), plans for Assembly Street, extension of the Millwood striping plan with resurfacing, and SCDOT road safety assessments + coming projects along Millwood, Gervais, and Assembly. The Planning & Development Services Fiscal Year Reports are a great way to stay up-to-date on recent projects!
- SCDOT adopted DD28, a complete streets policy directive, in 2021 - supporting the recommendations of adopted local plans (Walk Bike Columbia is included) and the inclusion of multimodal improvements in planned projects.

Safe Streets and Roads For All (SS4A) Grant Program

The SS4A grant awarded to the City of Columbia will help the City develop an action plan. This public planning process will build upon prior efforts, and, when complete, will make infrastructure recommendations included in the plan eligible to apply for SS4A implementation grant funding.

Action planning efforts must contain specific components to meet SS4A standards, including setting an ambitious target for the reduction of roadway fatalities and serious injuries by a certain date, with a goal of getting to Vision Zero.

We're excited to move forward with this public planning process! Make sure to stay in the loop by signing up for our e-newsletters:

- Columbia Compass, which includes updates on planning and implementation efforts related to the City's comprehensive plan
- Walk Bike Columbia, which is a bonus newsletter tied to the Columbia Compass list, includes occassional additional updates specific to multimodal transportation planning and infrastructure in the Midlands

References & Resources

1 Manzella, M., Guseman, E., & Scofield, L. (2023). Achieving Vision Zero in Practice. *Planning Advisory Service Memo*. American Planning Association.
2 Norton, P. (2015). Four Paradigms: Traffic Safety in the Twentieth-Century United States. *Technology and Culture*, 56(2), 319-34.
3 U.S. Department of Transportation. (2023, November 29). Safe Streets and Roads for All (SS4A) Community of Practice Kick-off Meeting Recording.
4 U.S. Department of Transportation. (2025, August 25). *Safe System Approach Flyer.* Retrieved from U.S. Department of Transportation: https://highways.dot.gov/safety/zero-deaths
5 Hussain, Q., Feng, H., Grzebieta, R., Brijs, T., & Oliver, J. (2019, August). The Relationship Between Impact Speed and the Probability of Pedestrian Fatality During a Vehicle-Pedestrian Crash: A Systematic Review and Meta-Analysis. *Accident Analysis & Prevention*(129), 241-49.
6 As referenced in #3, above.
7 Schmitt, A. (2020). *Right of Way, Race, Class, and the Silent Epidemic of Pedestrian Deaths in America*. Island Press.
8 Susaneck, A. (2023, April 26). American Road Deaths Show An Alarming Racial Gap. *New York Times*.
9 Ibid.
10 As referenced in #3, above.
11 Ibid.

"Safe Streets is about providing the highest and best use of a public asset. Much like parks provide a variety of activities, streets should provide a variety of safe transportation options."

-Leslie Meehan,
Deputy Commissioner for Population Health,
Tennessee Department of Health[11]

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