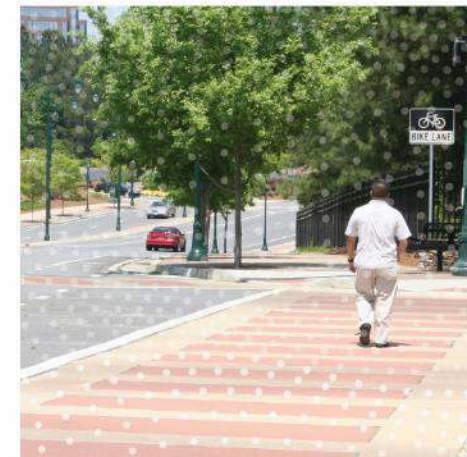
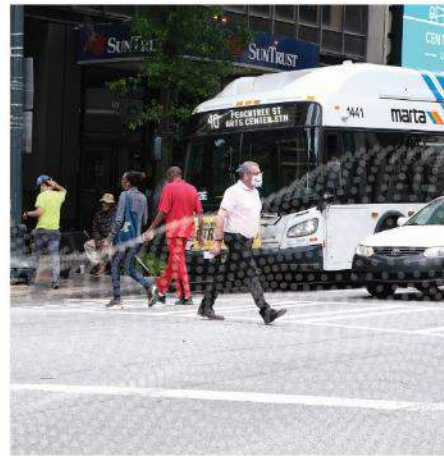


GEORGIA PLANNING ASSOCIATION
FALL CONFERENCE

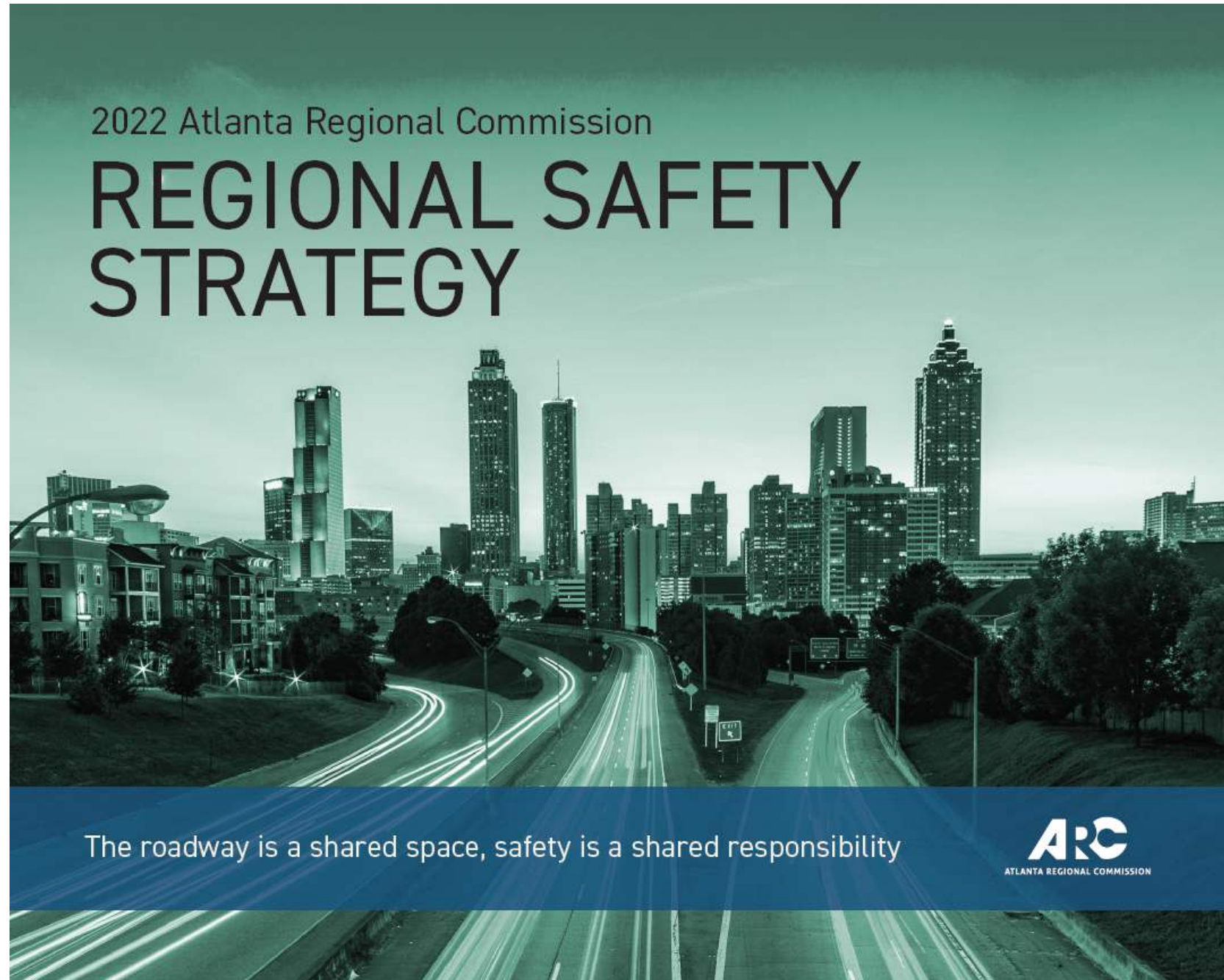
Let's Talk About Safety! ARC's Regional Safety Strategy

September 15, 2022



Agenda

- What is the RSS?
- What are the Safety Issues in the Atlanta Region?
- Stakeholder Engagement
- What are the Solutions?
- Moving Toward Zero



2022 Atlanta Regional Commission

REGIONAL SAFETY STRATEGY

The roadway is a shared space, safety is a shared responsibility

Panelists



Byron Rushing
ARC



Frank Gross, PhD,
PE
VHB



Kristine Hansen-Dederick,
AICP
Sycamore Consulting



Regan Hammond, AICP
VHB



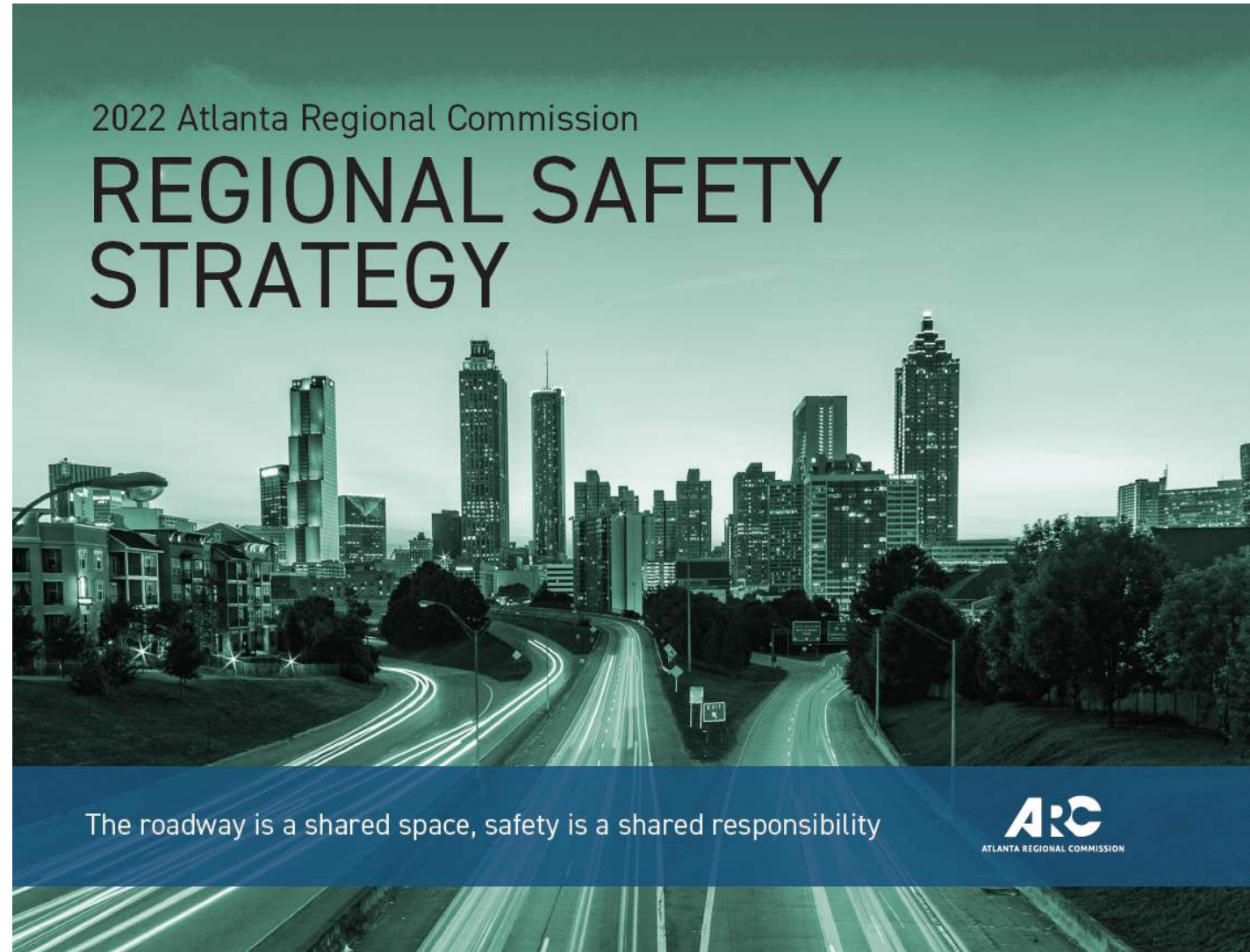
Let's get warmed up!

**What does transportation safety
mean to you?**



What is the Regional Safety Strategy?

- Regional safety action plan to help ARC and its partners proactively achieve safety goals and build a safe transportation system for all users in the Atlanta region
 - Advances safety in a unified way
 - Shifts towards more proactive approach, rather than reacting to past trends
 - Address rising severe crash trends and maximize impact of increased funding



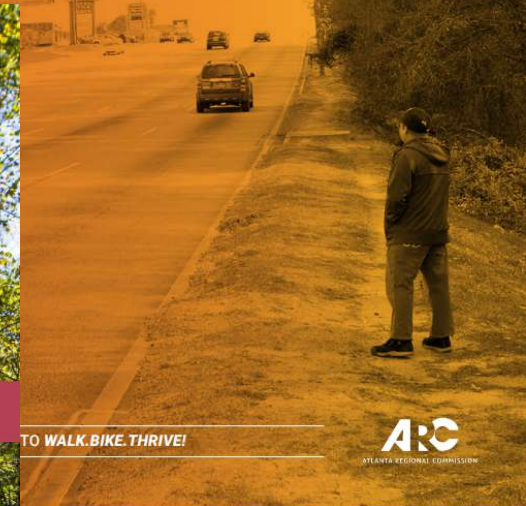
What is the Regional Safety Strategy?

- Builds upon strategies in ARC plans such as “The Atlanta Region’s Plan – Regional Transportation Plan” and “Safe Streets for Walking and Bicycling”



SAFE STREETS FOR WALKING & BICYCLING:

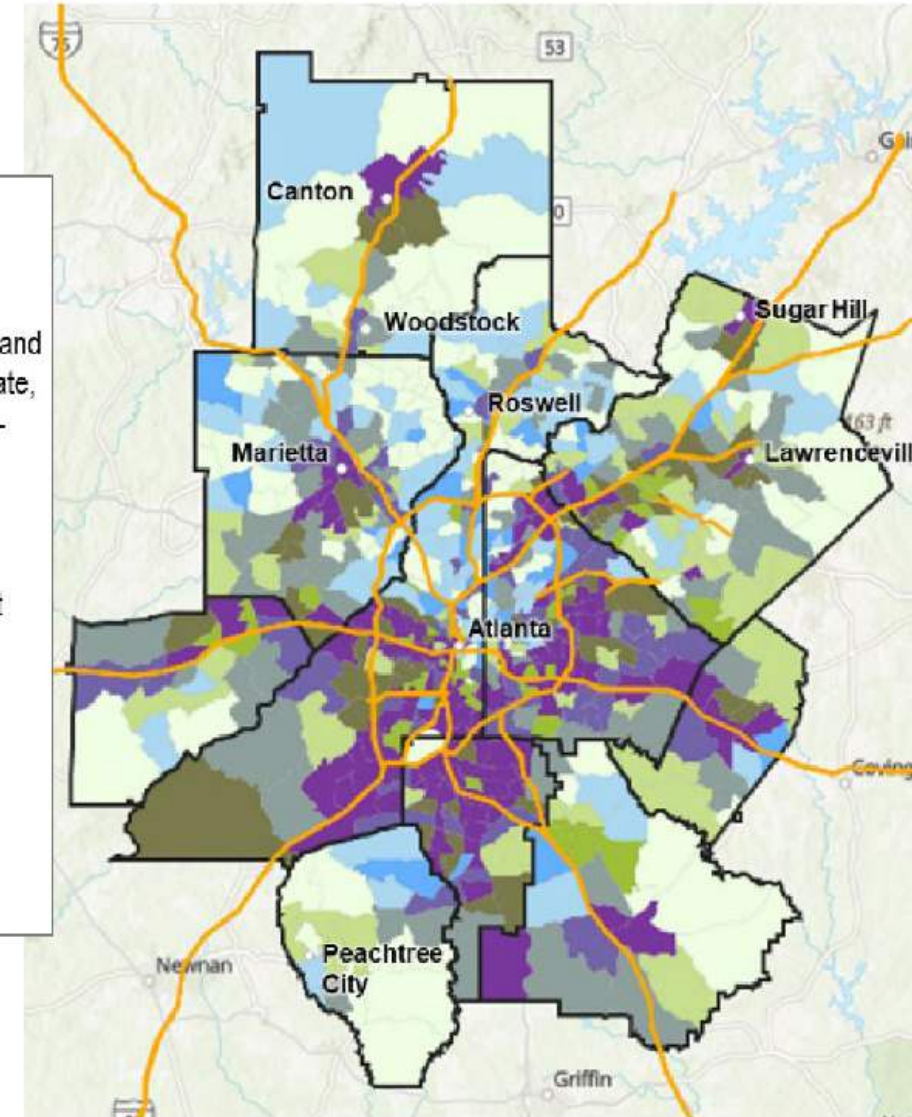
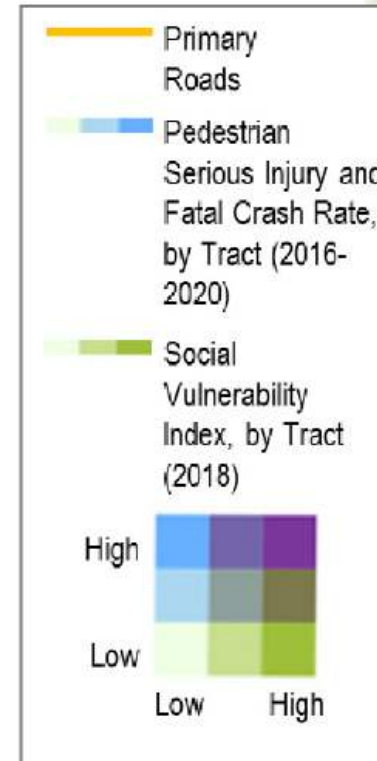
A regional action plan for reducing traffic fatalities in metropolitan Atlanta



Economic & Equity Foundations

- Deaths and serious injuries in the region have a measurable economic impact.
 - Average cost of just one fatal crash in the region is over \$16 million
 - \$9.6 billion in annual economic losses in the region
- Deaths and serious injuries are not equitable across the region
 - Low-income residents, minorities, children, disabled persons, and the elderly are disproportionately impacted

Overall Social Vulnerability



Governor's Office of Highway Safety,
2022

How was the RSS developed?

■ Literature and Data Review

- Understand and reflect on existing policies and practices
- Summarize noteworthy national practices
- Identify socioeconomic and demographic variables related to safety

■ Stakeholder & Public Engagement

- Regional surveys
- Transportation safety workshop
- Stakeholder interviews
- Citizen focus groups

■ Data Analysis

- Identify focus crash types with higher proportion of deaths and serious injuries
- Identify focus facility types and risk factors associated with focus crash types
- Identify priority risk areas and inform development of proactive solutions

■ Safe Street Visualizations

- Illustrate common high-risk scenarios
- Illustrate options to reduce risk of death and serious injury for all road users



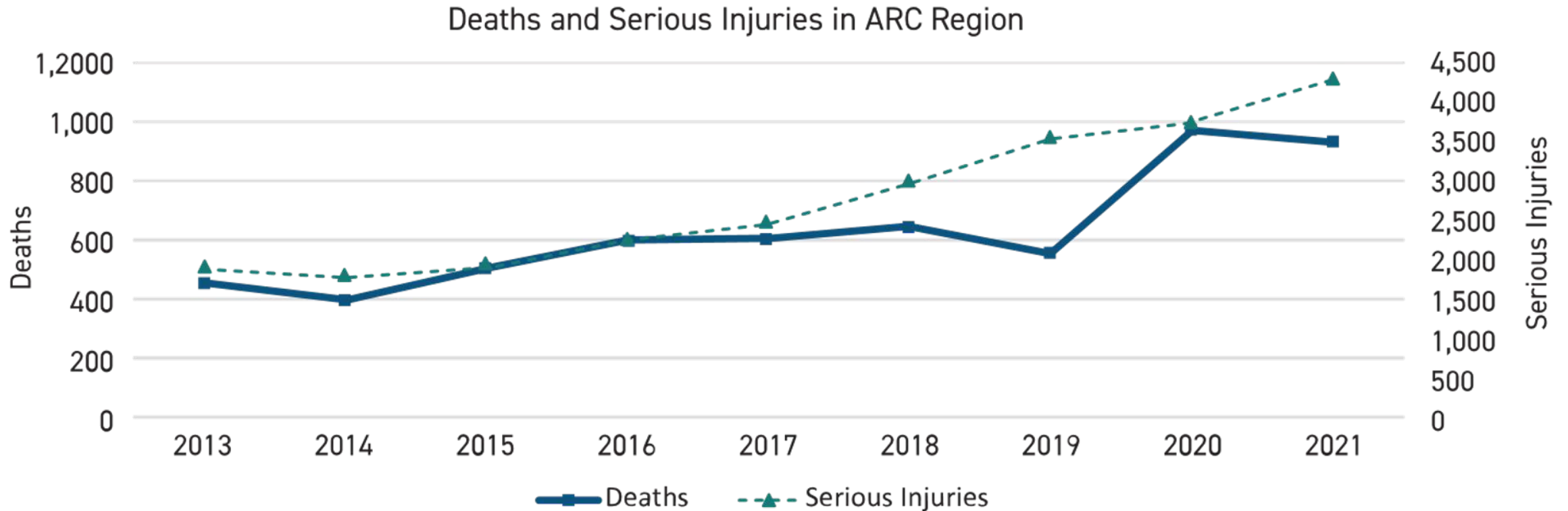
How many total crashes per year does the Atlanta region see?

How many people are seriously injured in these crashes?

How many of these are fatal crashes?



What are the Regional Safety Issues?



- There are 230,000+ total crashes in the Atlanta region every year! Roughly 600 people die and more than 3,000 people are seriously injured.

The goal is **ZERO deaths** and **serious injuries** on public roads in the Atlanta region.

What are the Regional Safety Issues?

- **Focus crash types:** what crash types are most prevalent in severe crashes?
- **Focus facility types:** where are severe crashes most prevalent?
- **Risk factors:** what characteristics are over-represented in severe crashes?

THE NUMBERS

Deaths (per year)* / Serious Injuries (per year)**



Intersection Risk Factors

Risk Factors	Values Associated with Increased Risk
Functional class	Urban other principal arterials Urban minor arterials Urban major collectors
Ownership	GDOT
Operating speed	35+ mph on arterial streets 30+ mph on collector and local roads
Observed speed	Larger differences between speed limit and average observed speed
Community context	Lower intensity development
Traffic control	Signalized intersections on principal arterials Uncontrolled or unsignalized intersections on minor arterials and major collectors



Roadway Departure Risk Factor

Risk Factors	Values Associated with Increased Risk
Functional class	Urban interstates Rural minor arterials Rural major collectors
Ownership	GDOT
Traffic volume	5,000 – 15,000 vehicles per day
Posted Speed	45+ mph on arterial streets 35+ mph on collector roads
Community context	Rural areas and lower intensity development



Pedestrian Risk Factors

Risk Factors	Values Associated with Increased Risk
Functional class	Urban other principal arterials Urban minor arterials
Ownership	GDOT
Traffic volume	9,000+ vehicles per day
Number of lanes	4+ lanes
Posted speed	35+ mph
Community context	Urbanized areas, high population densities, higher intensity development, and high frequency bus service
Socioeconomic status	Lower average income, higher proportion of population that represents minority and non-white race and ethnicity
Environmental justice score	7+

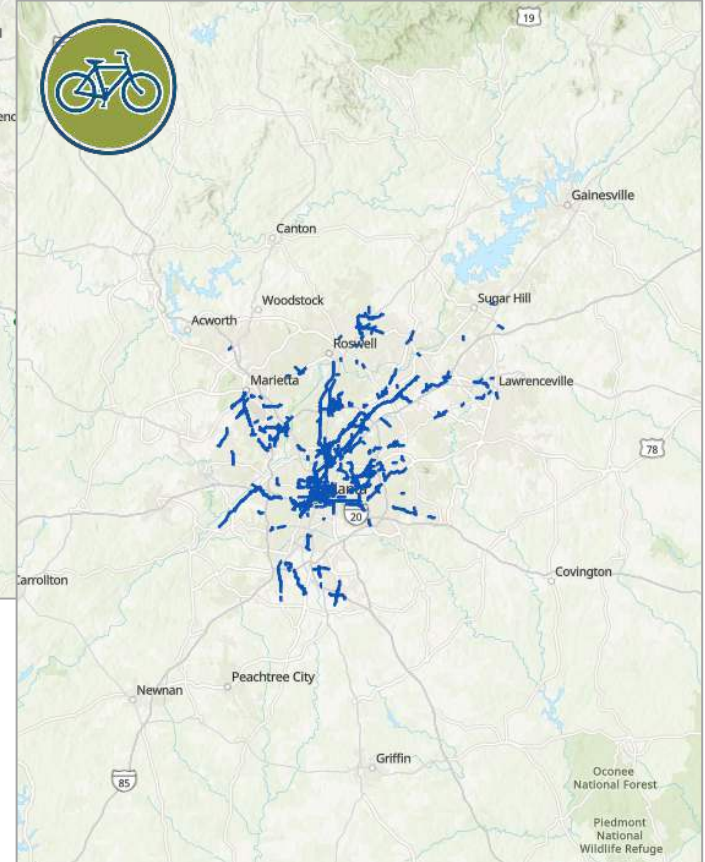
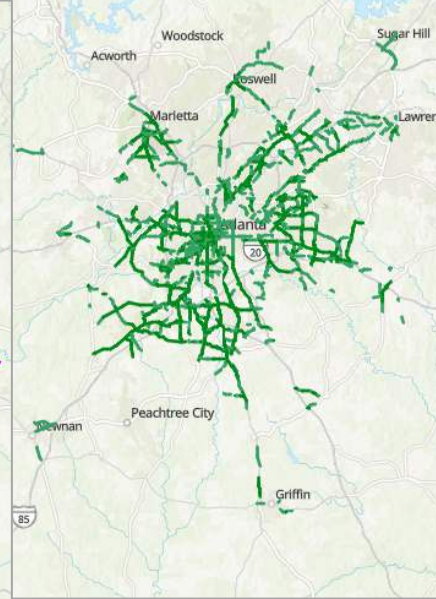
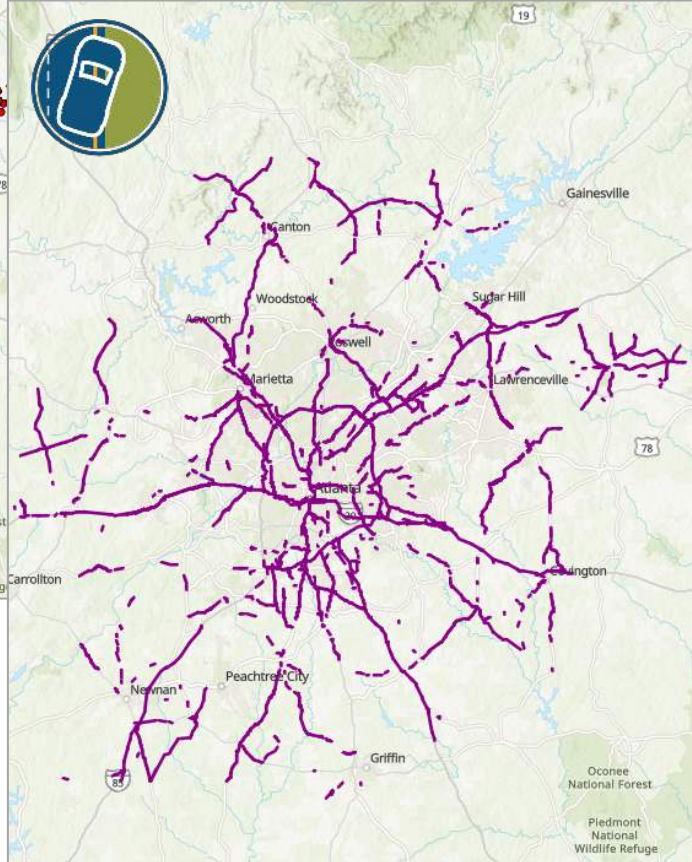
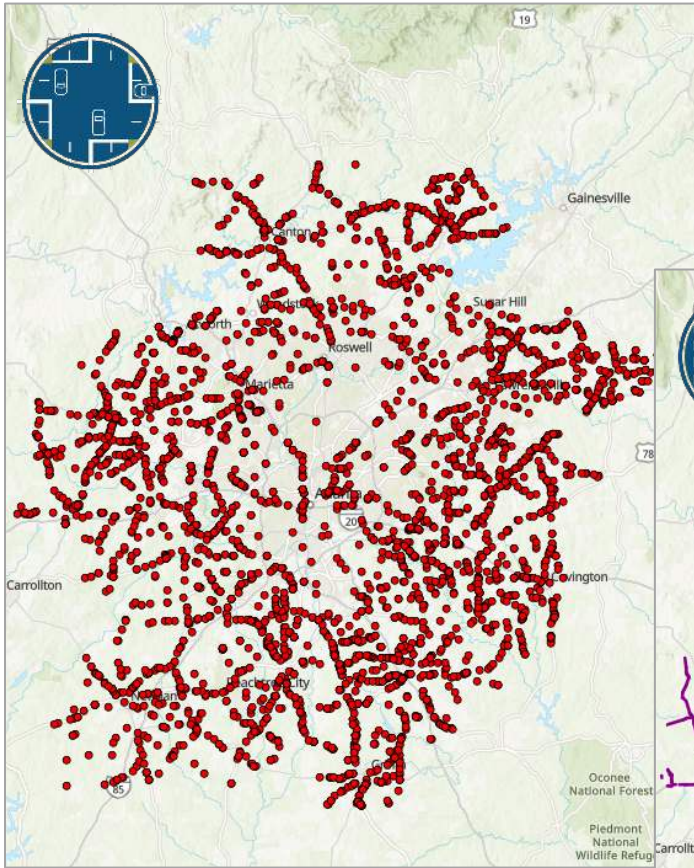


Bicycle Risk Factors

Risk Factors	Values Associated with Increased Risk
Functional class	Urban minor arterials Urban major collectors
Ownership	City County
Traffic volume	20,000+ vehicles per day for GDOT arterials (does not apply to city and county roads)
Number of lanes	2-lane city and county roads 2- or 4-lane GDOT arterials
Community context	Urbanized areas, high population and employment densities, higher intensity development, and high frequency bus service
Socioeconomic status	Bottom 20% of median household incomes and higher median incomes, particularly in tracts with a high population density
Induced demand	Presence of multi-use paths or marked bike lanes

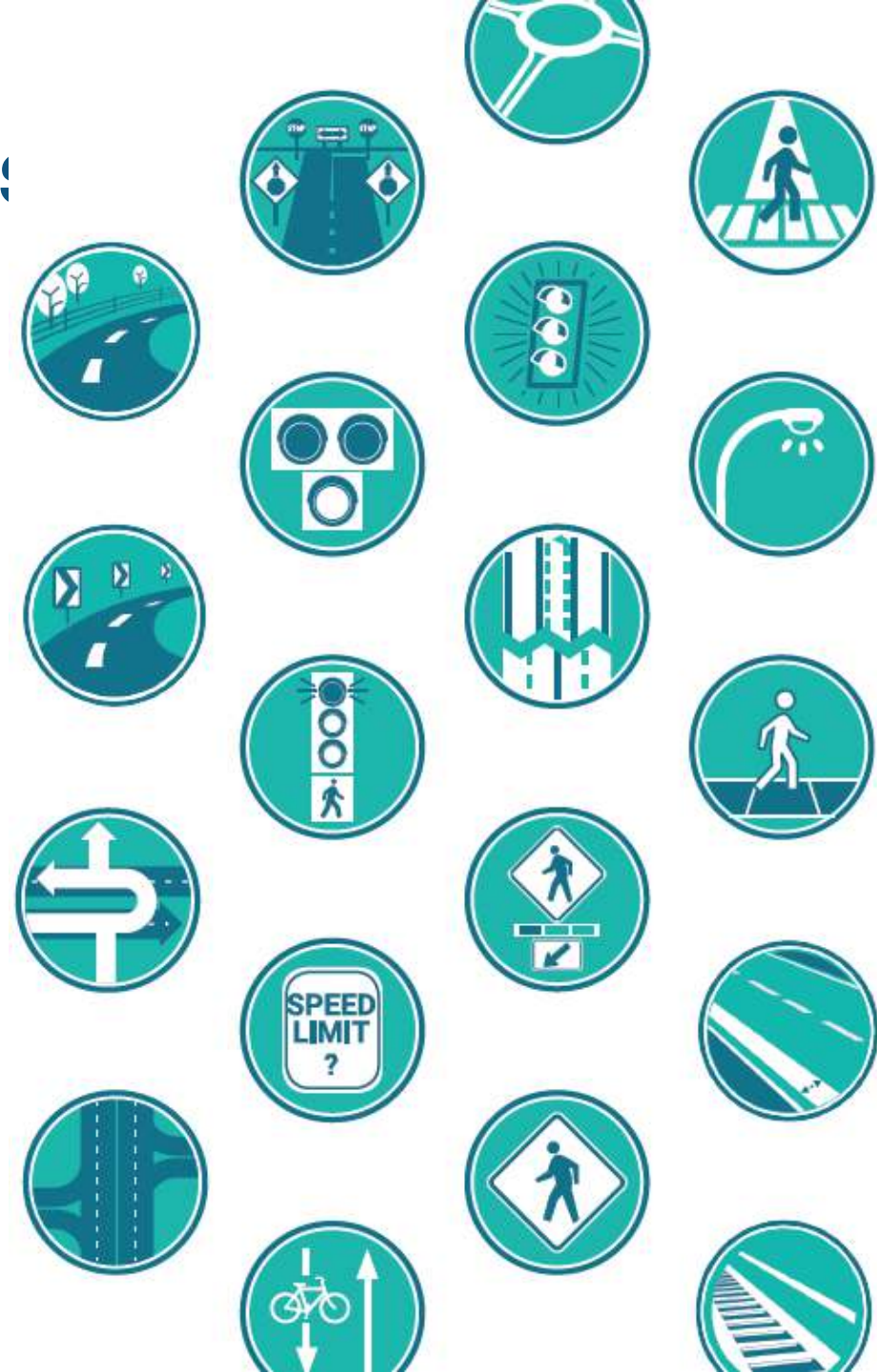


Where are the Regional Safety Issues?



Proven Safety Countermeasures

- ARC promotes FHWA's Proven Safety Countermeasures to enhance safety for all road users
- Local agencies can:
 - Implement proven safety countermeasures to address site-specific safety issues
 - Incorporate proven safety countermeasures in projects to proactively address systemic safety issues
- Keys to countermeasure selection:
 - Target underlying crash patterns and risk factors
 - Recognize diverse issues and unique community needs
 - Consider equity and community feedback



Proven Safety Countermeasures

INTERSECTIONS



Backplates with Reflective Borders



Corridor Access Management



Left- and Right-Turn Lanes at Two-Way Stop-Controlled Intersections



Reduced Left-Turn Conflict Intersections



Roundabouts



Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections



Yellow Change Intervals

Proven Safety Countermeasures

ROADWAY DEPARTURE



Wider Edge Lines



Enhanced Delineation for Horizontal Curves



Longitudinal Rumble Strips and Stripes



SafetyEdgeSM



Roadside Design Improvements at Curves



Median Barriers

NEW

Indicates new countermeasures added to FHWA's Proven Countermeasures Initiative (PSCI)

Proven Safety Countermeasures

PEDESTRIAN/BICYCLIST



Crosswalk Visibility Enhancements



Bicycle Lanes



Rectangular Rapid Flashing Beacons



Leading Pedestrian Interval



Medians and Pedestrian Refuge Islands in Urban and Suburban Areas



Pedestrian Hybrid Beacons



Road Diets (Roadway Reconfiguration)



Walkways

NEW

Indicates new countermeasures added to FHWA's Proven Countermeasures Initiative (PSCI)

Proven Safety Countermeasures

SPEED MANAGEMENT



Speed Safety Cameras



Variable Speed Limits



Appropriate Speed Limits for All Road Users

CROSSCUTTING



Pavement Friction Management



Lighting



Local Road Safety Plans



Road Safety Audits

NEW

Indicates new countermeasures added to FHWA's Proven Countermeasures Initiative (PSCI)

What successes have your communities had in implementing proven countermeasures to address safety issues?



Engagement Approach



***REGIONAL
PERSPECTI
VE***



COMMITTEE
PRESENTATION
S



ONLINE
SURVEYS



SAFETY
SOLUTIONS
WORKSHOP



TARGETED
INTERVIEWS



CITIZEN
FOCUS
GROUPS

Key Takeaways

Safety & mobility, competing or complimentary?

Context is key

Equity is not inherent in countermeasures

Education is essential

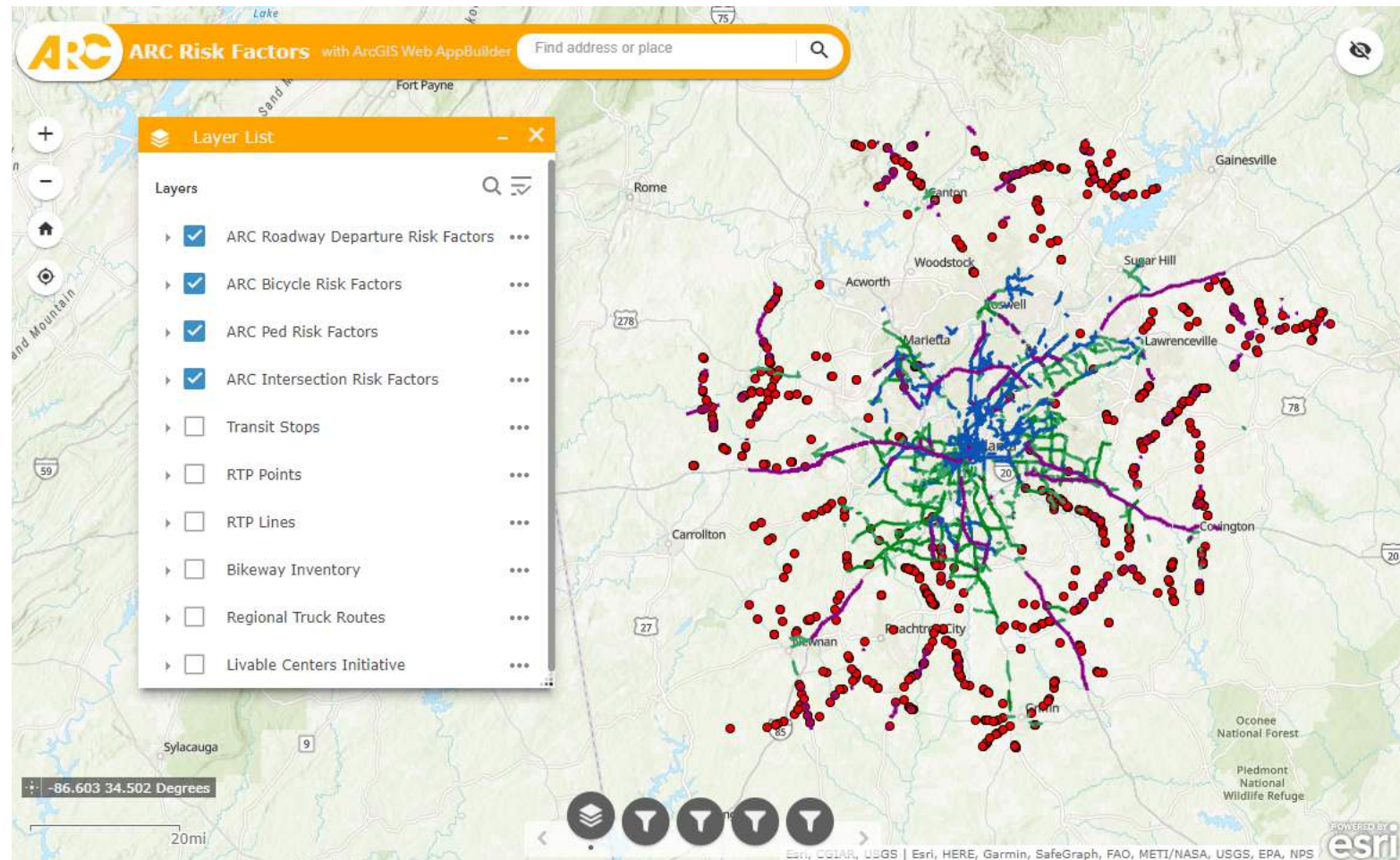
Funding & process are major challenges

Coordination is needed among practitioners, public, and policy makers

ARC's role: provide guidance, data and technical expertise, advocacy

Outreach as Input: How we used it.

- Set the tone for the RSS
- Fleshed out the role of the ARC
- Insight into gaps
- Connected dots in resources
- Ground truth-ed draft recommendations



**How are your communities
engaging the public and
stakeholders in addressing safety
issues?**



What are the Solutions?

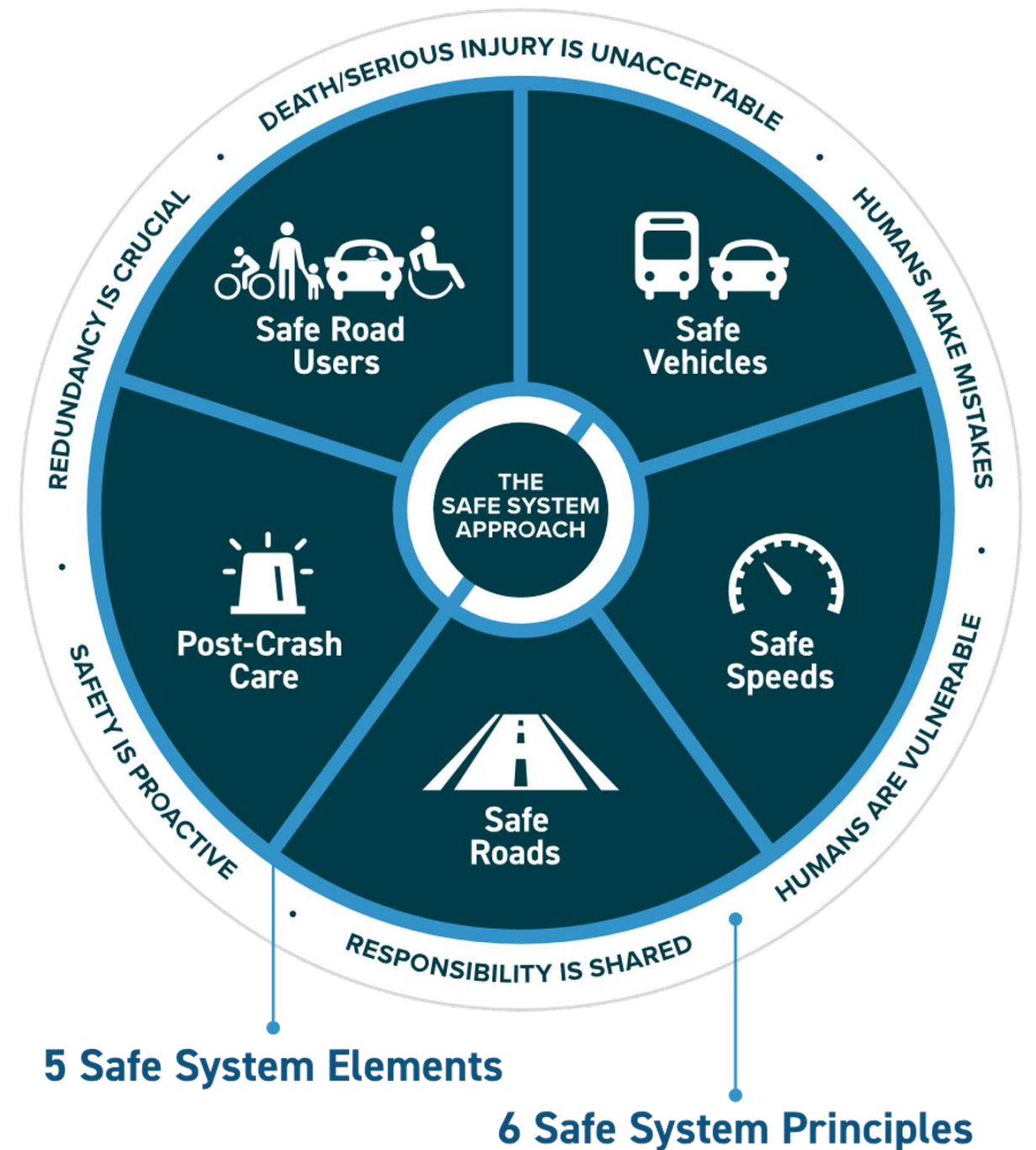
To advance safety in the Region:

- Adopt a Safe System approach
- Focus on fatal and serious injury crashes
- Employ a proactive, data-informed approach
- Implement proven safety countermeasures

ARC is committed to eliminating deaths and serious injuries in the Atlanta region through a regional safety approach that is proactive, data-informed, and community-based. Implementing the RSS will help achieve the vision of **safe, accessible, and convenient** travel in the Atlanta region for all road users, especially the most vulnerable road users.

Safe System Approach

1. Death/Serious Injury is Unacceptable
2. Humans Make Mistakes
3. Humans Are Vulnerable
4. Responsibility is Shared
5. Redundancy is Crucial
6. Safety is Proactive



Roadway Safety Management Process

A comprehensive approach to safety includes both reactive and proactive components

- **Site-specific (crash-based) is reactive**
 - Addresses sites based on crashes
 - Crash history
 - Predicted future crashes
- **Systemic (risk-based) is proactive**
 - Addresses sites based on risk factors
 - Roadway characteristics
 - Community context



PLANNING

Identify problems: collect, manage, and analyze data to identify opportunities to improve safety.

Develop countermeasures: develop targeted strategies to address crash contributing factors.

Prioritize projects: develop a balanced portfolio of projects that maximizes return on investment.



IMPLEMENTATION

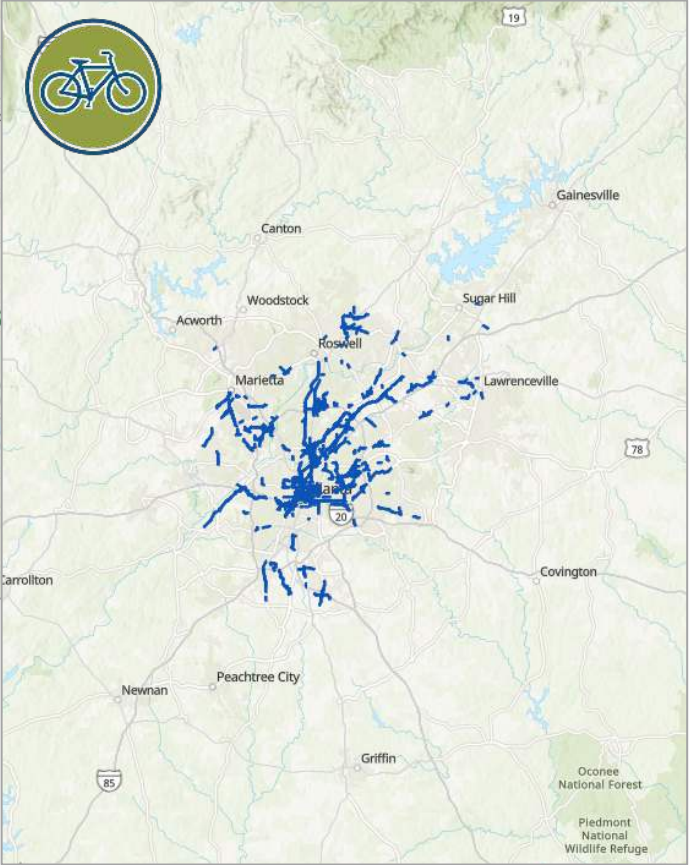
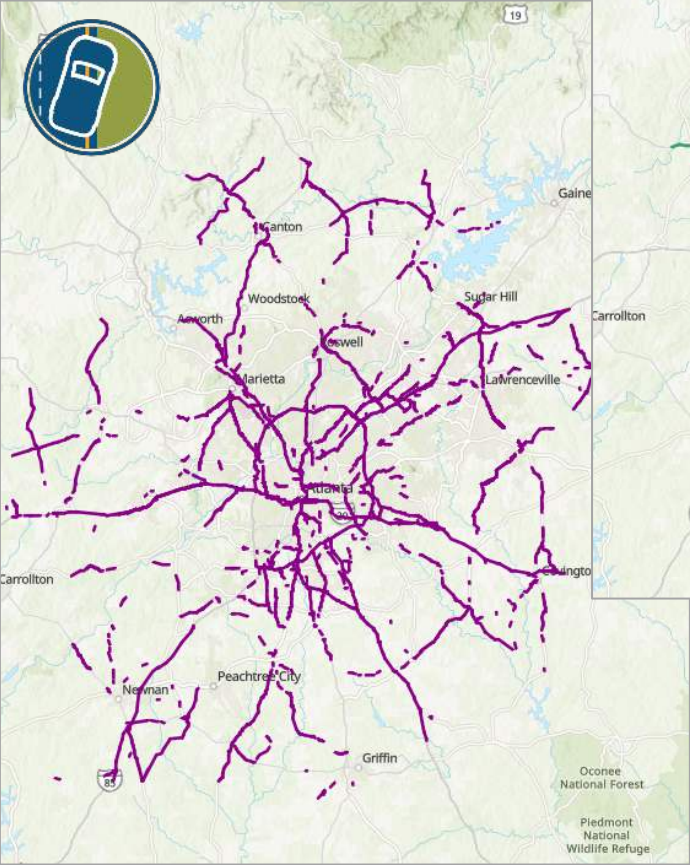
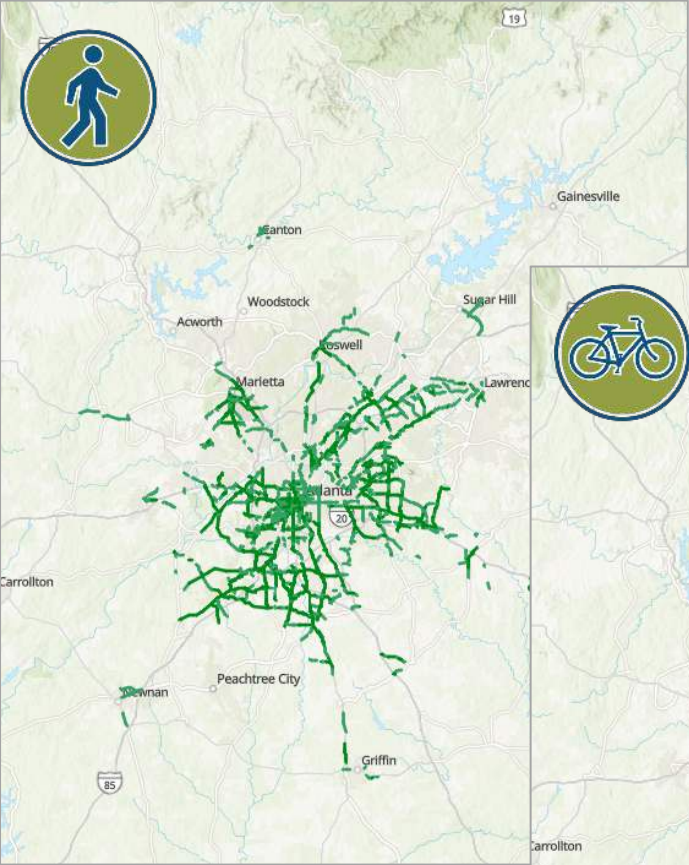
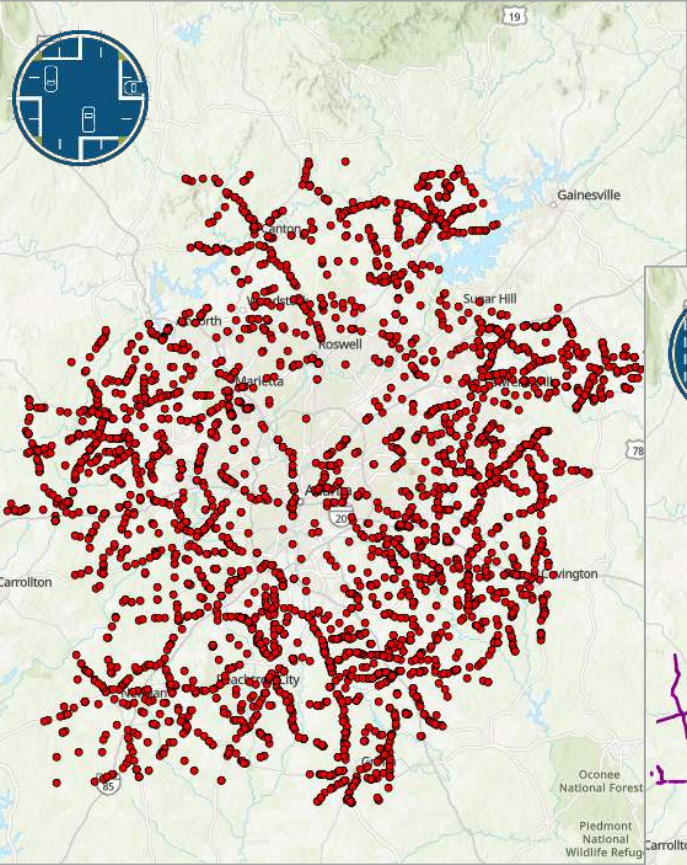
Implement safety projects: design projects, identify funding sources, allocate resources, program projects, and develop a plan to evaluate investments.



EVALUATION

Estimate effectiveness of projects and programs: perform project-, countermeasure-, and program-level evaluations to understand the safety performance and cost-effectiveness of investments and to inform future decisions.

Proactive Data-Informed Risk Assessment



Putting it All Together

- **High-risk** scenarios
 - Used risk factors to identify specific locations
 - Created generic visualization of high-risk scenarios
- **Low-risk** scenarios
 - Identified proven safety countermeasures
 - Focus on select countermeasures in each scenario



SCENARIO 1 HIGHER RISK



Intersection sight deficiencies

High speeds entering a sharp curve

I wish there was a sidewalk.

Whose turn is it to go?

Potential turning movement conflicts

SCENARIO 1 LOWER RISK

AFTER 



SCENARIO 2 HIGHER RISK



Pedestrians must cross five lanes of traffic

Whoa, these cars are really close!

Gee, it's hard to make a left turn.

High posted speed limit

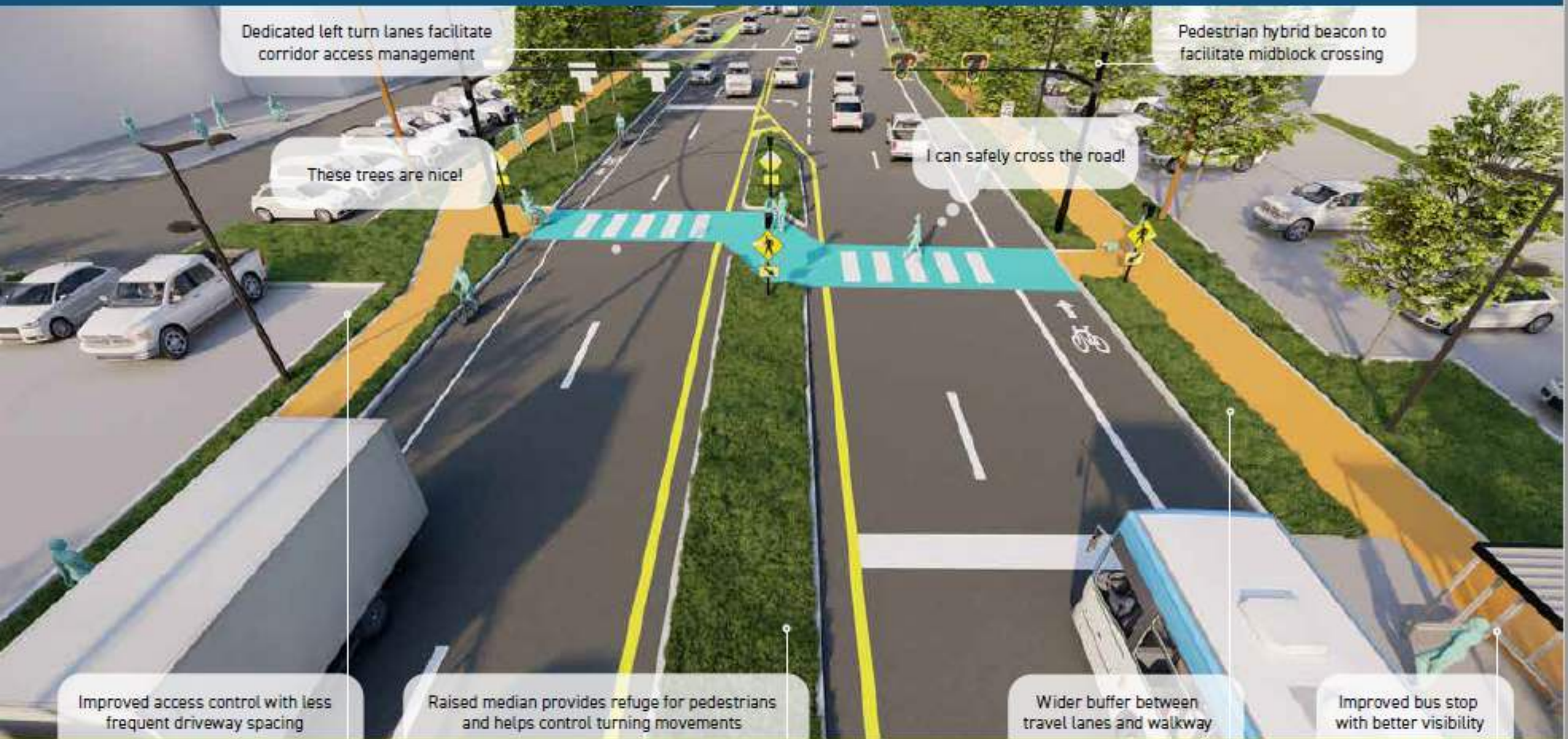
Where can I cross?

Moderate/high traffic volume

Frequent bus service on high-speed, undivided road

SCENARIO 2 LOWER RISK

AFTER 



SCENARIO 3 HIGHER RISK



Driveways not clearly defined

Frequent bus service

Retail establishments are destinations which generate activity

That truck is blocking the sidewalk.

I wish there was a bike lane.

No buffer between sidewalk and travel lanes

Wide roadway

High speed, moderate traffic volumes

Lack of dedicated bicycle facilities

SCENARIO 3 LOWER RISK

AFTER 



Multi-use path

Improved bus stop enhances rider comfort

Clear delineation of driveways and pedestrian crossings across driveways

I love the shade!

This bike lane is great!

Wider buffer between multi-use path and travel lanes

Fewer travel lanes

Protected bike lane reduces conflicts between drivers and cyclists

SCENARIO 4 HIGHER RISK

No lighting reduces safety for drivers and non-motorized travelers

Vegetation near the road makes it difficult to see through the curve

High posted speed limit

It's hard to see people walking along the road!

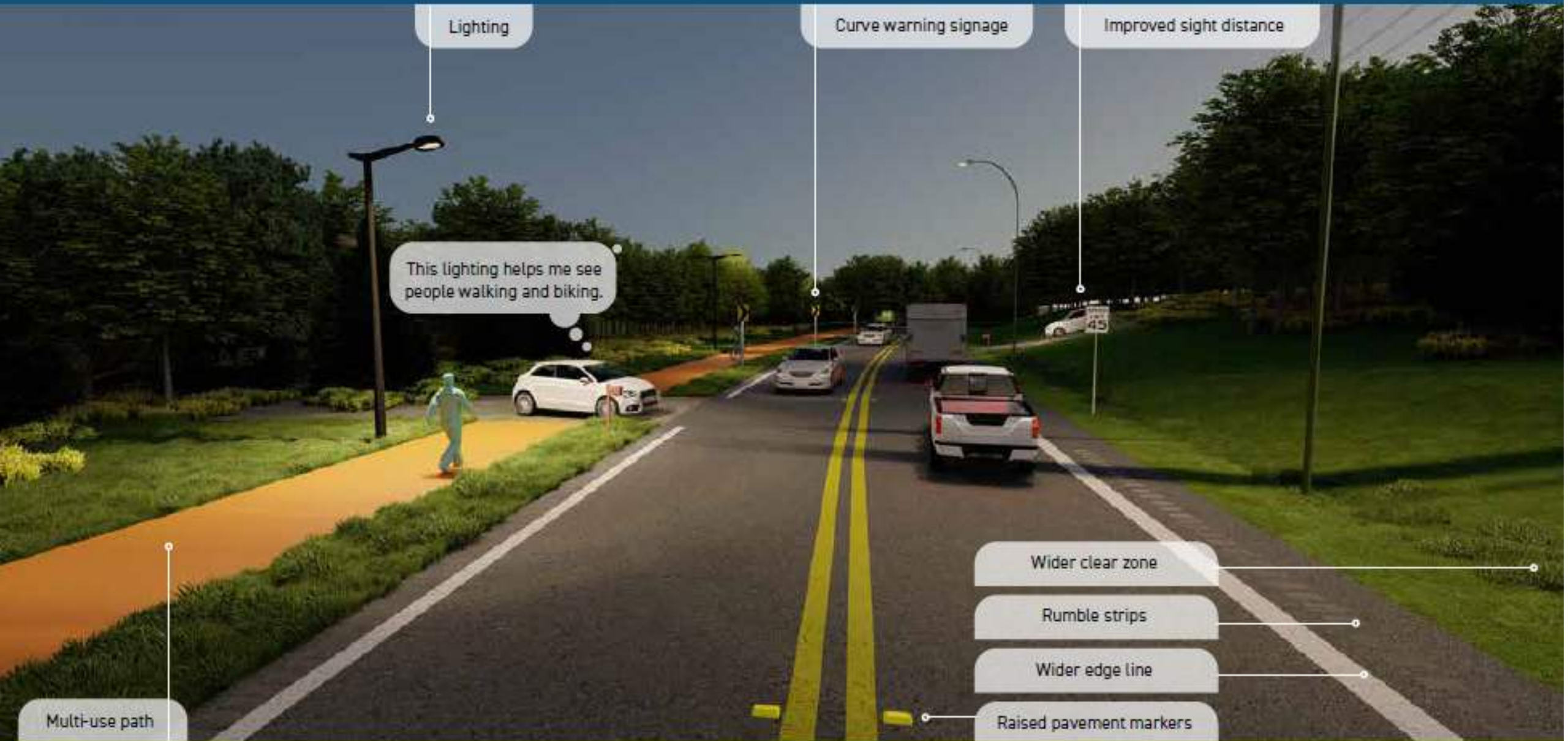
Worn pavement and markings

Vegetation encroaches on roadway



SCENARIO 4 LOWER RISK

AFTER 



Lighting

This lighting helps me see people walking and biking.

Curve warning signage

Improved sight distance

Multi-use path

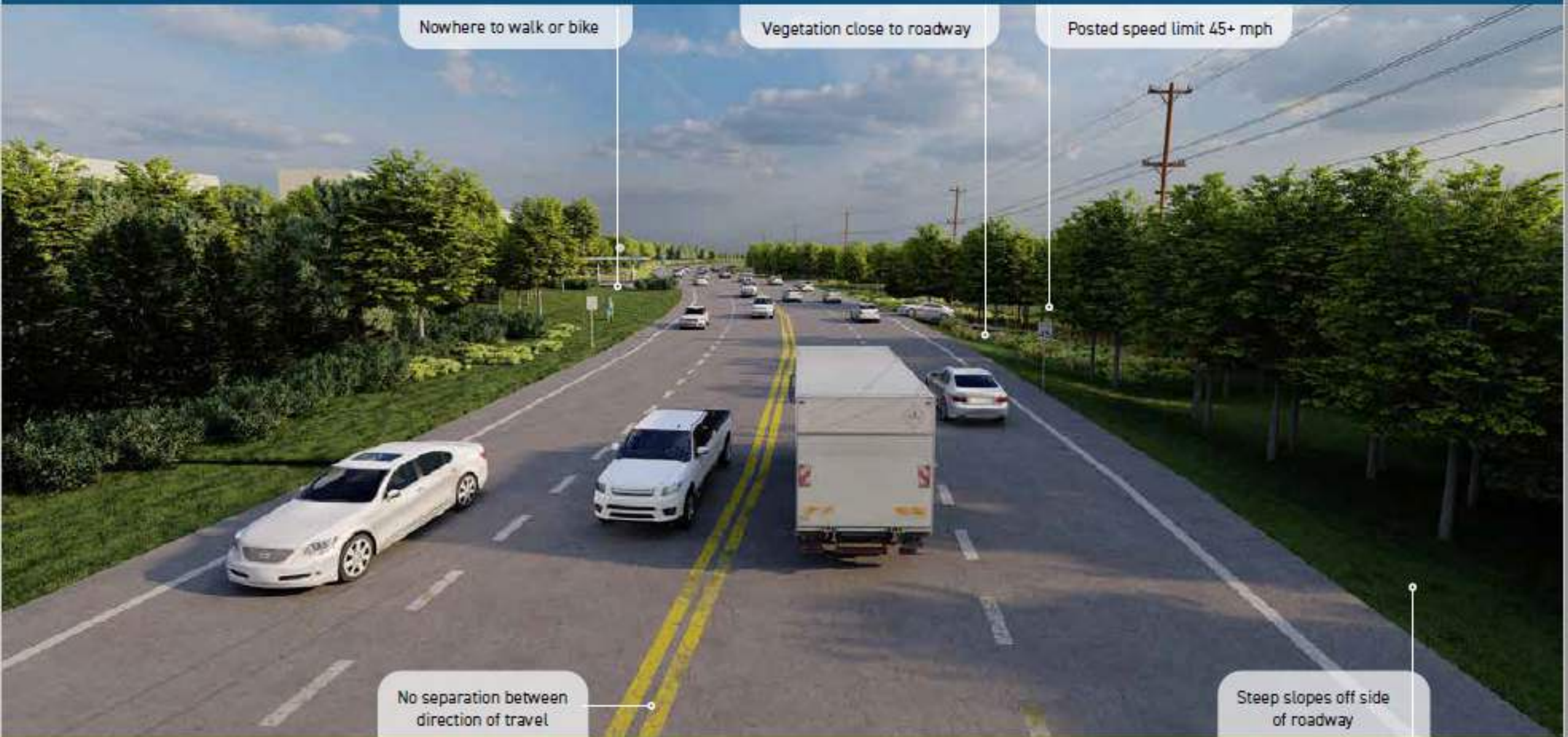
Wider clear zone

Rumble strips

Wider edge line

Raised pavement markers

SCENARIO 5 HIGHER RISK



Nowhere to walk or bike

Vegetation close to roadway

Posted speed limit 45+ mph

No separation between direction of travel

Steep slopes off side of roadway

SCENARIO 5 LOWER RISK

AFTER



Pedestrian-scale lighting

U-Turn access reduces left-turn conflict

Improved sight distance

Guardrail reduces run off-road crashes

What a great place to walk.

Multi-use path

Median separation

Raised pavement markers



SCENARIO 6 HIGHER RISK



Continuous turn lane can lead to improper maneuvers

It's hard to see to make a turn!

Where's the sidewalk?

Overgrown vegetation

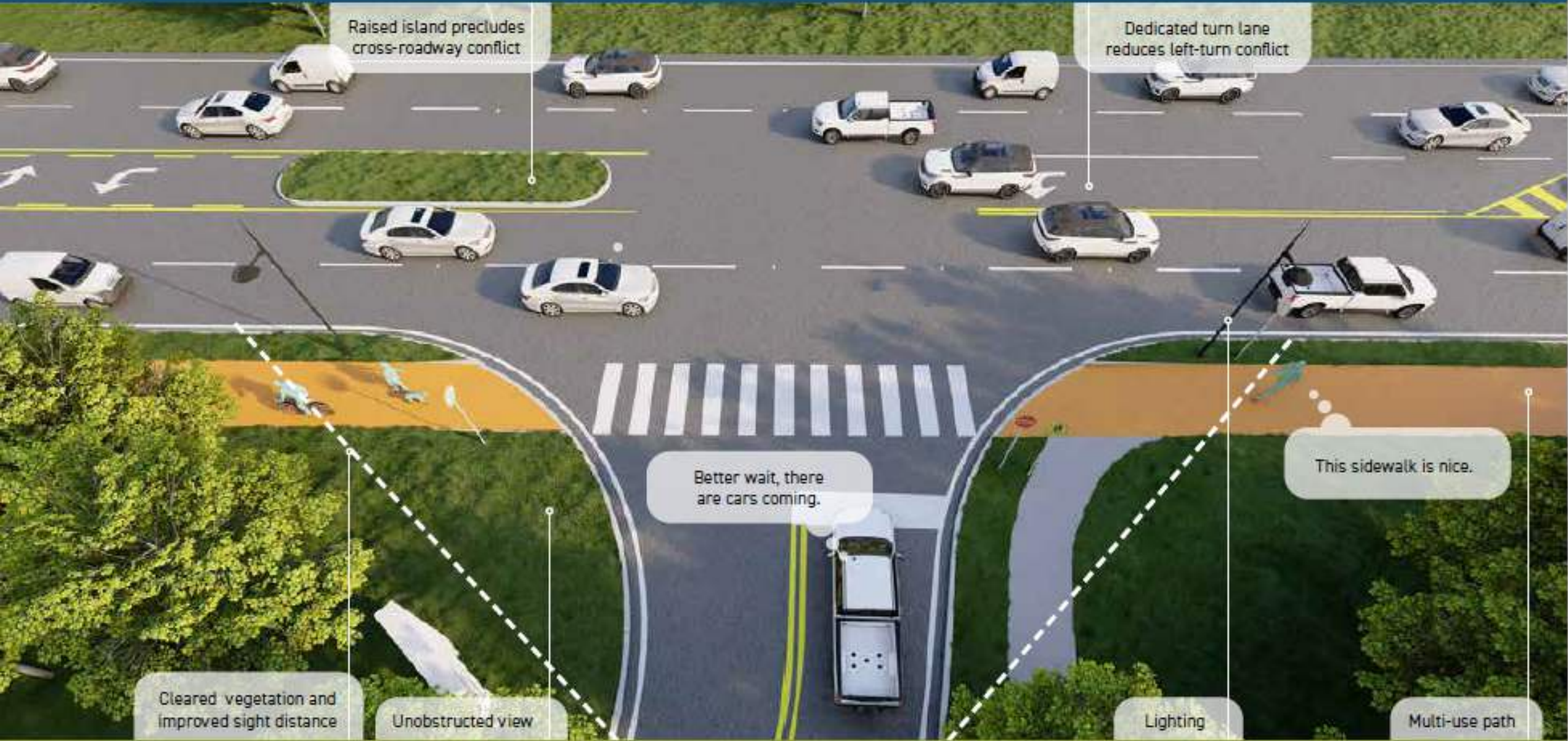
Fixed objects near road obstruct view

No dedicated place to walk or bike

Lack of lighting

SCENARIO 6 LOWER RISK

AFTER 



Raised island precludes cross-roadway conflict

Dedicated turn lane reduces left-turn conflict

Better wait, there are cars coming.

This sidewalk is nice.

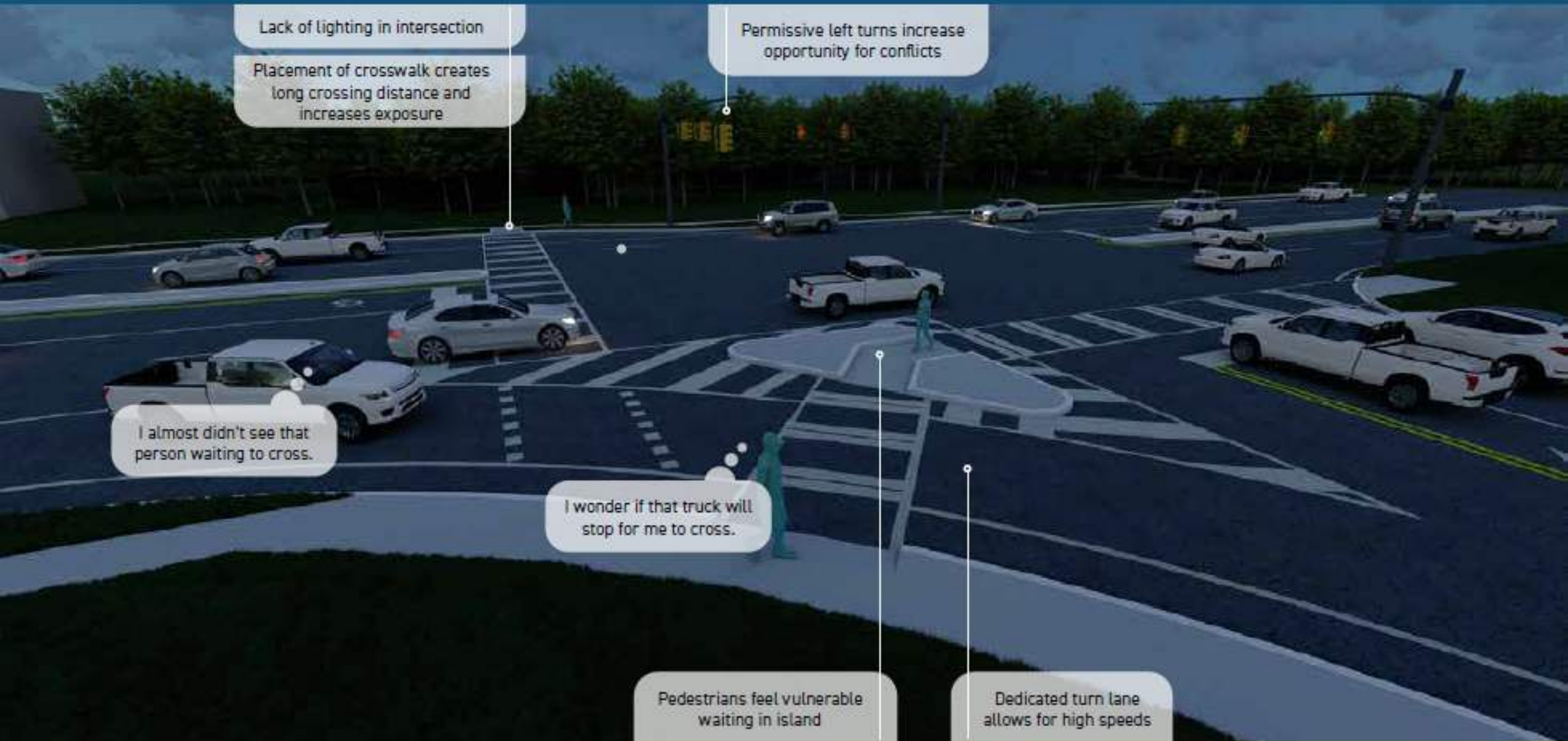
Cleared vegetation and improved sight distance

Unobstructed view

Lighting

Multi-use path

SCENARIO 7 HIGHER RISK



Lack of lighting in intersection

Placement of crosswalk creates long crossing distance and increases exposure

Permissive left turns increase opportunity for conflicts

I almost didn't see that person waiting to cross.

I wonder if that truck will stop for me to cross.

Pedestrians feel vulnerable waiting in island

Dedicated turn lane allows for high speeds

SCENARIO 7 LOWER RISK

AFTER



Lighting

Flashing yellow arrow

These lights make it easier to see pedestrians.

It's nice that I get a head start before cars.

Turning traffic controlled by stop bar and signal

Shortened crossing distance with median for refuge

Leading pedestrian interval allows pedestrians to establish their presence

Multi-use path

What are some challenges you've faced when trying to tackle safety issues in your communities?



Changing our Processes and Practices

Traditional approach

Prevent crashes
Improve human behavior
Control speeding
Individuals are responsible
React based on crash history



Safe System approach

Prevent death and serious injuries
Design for human mistakes/limitations
Reduce system kinetic energy
Share responsibility
Proactively identify and address risks

Regional Focus vs. Local Focus

Regional components serve as coordinated approach for ARC and partners to:

- Shift to proactive approach
- Develop regional goals/plans
- Establish/monitor safety performance targets
- Evaluate/prioritize projects
- Allocate funds



Local components serve as guidance for local agencies to:

- Improve safety in their communities
- Integrate safety in project planning and development
- Identify safety issues proactively
- Address safety issues with proven safety countermeasures
- Prioritize projects and strategies for funding and implementation

Moving Toward Zero

ARC will adopt a 5% reduction goal each year for all safety targets.

To advance the RSS:

- Use RSS to inform plans and programs
- Improve funding flexibility
- Enhance safety data capabilities
- Enhance safety analysis capabilities
- Solicit stakeholder feedback
- Update RSS



A comprehensive, data-informed approach.

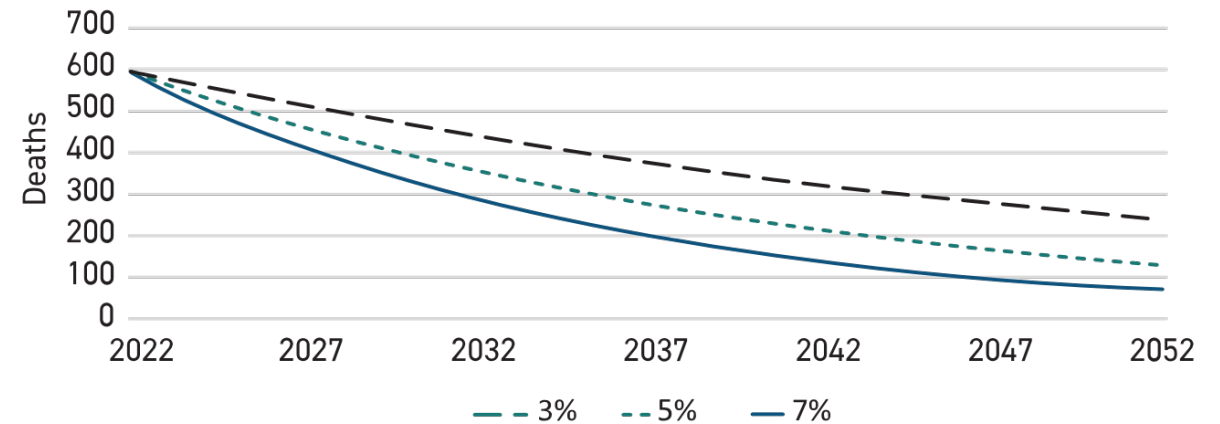


Steady incremental investments guided by Safe System principles.



Targeted and coordinated efforts from all safety stakeholders throughout the region.

Vision Zero Projections: Deaths



The road is a **shared space**; safety is a **shared responsibility**.

Intentional, targeted, and coordinated action is needed to move toward zero deaths and serious injuries.

Aligned with Federal & State Priorities

- The Bipartisan Infrastructure Law (BIL) established the new **Safe Streets and Roads for All** (SS4A) discretionary program with \$5 billion in appropriated funds over the next 5 years to fund regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.
- GDOT goal to Put Georgians' Safety First through innovation & technology



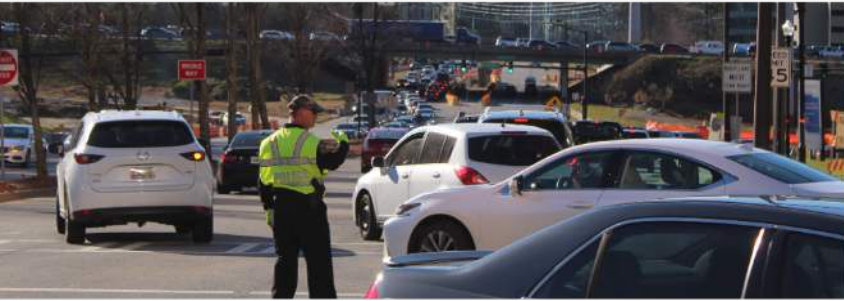
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Questions



Questions



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