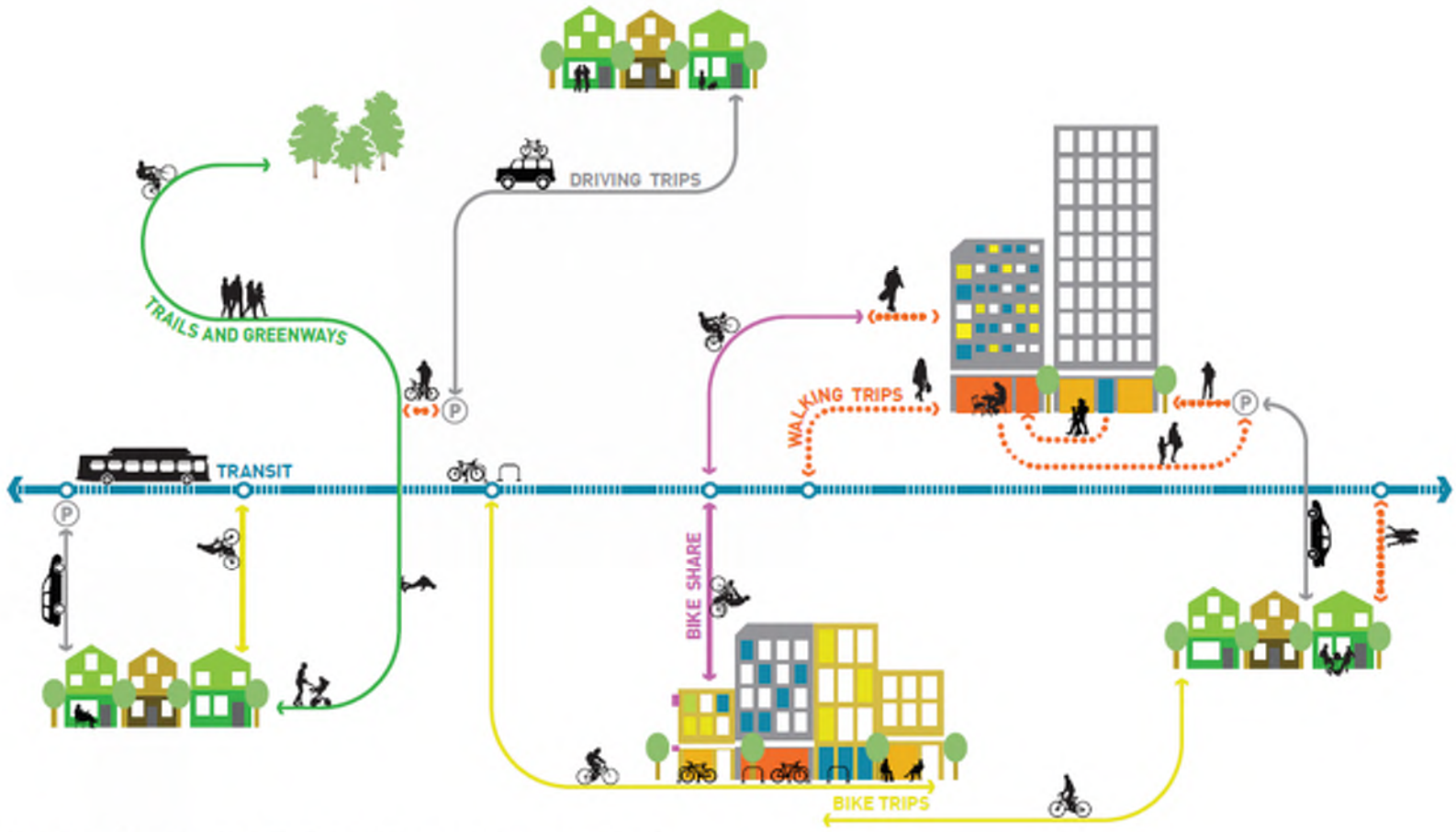
SAFE STREETS FOR WALKING & BICYCLING:

Targets & Strategies for Complete Streets

@ARCbikewalk

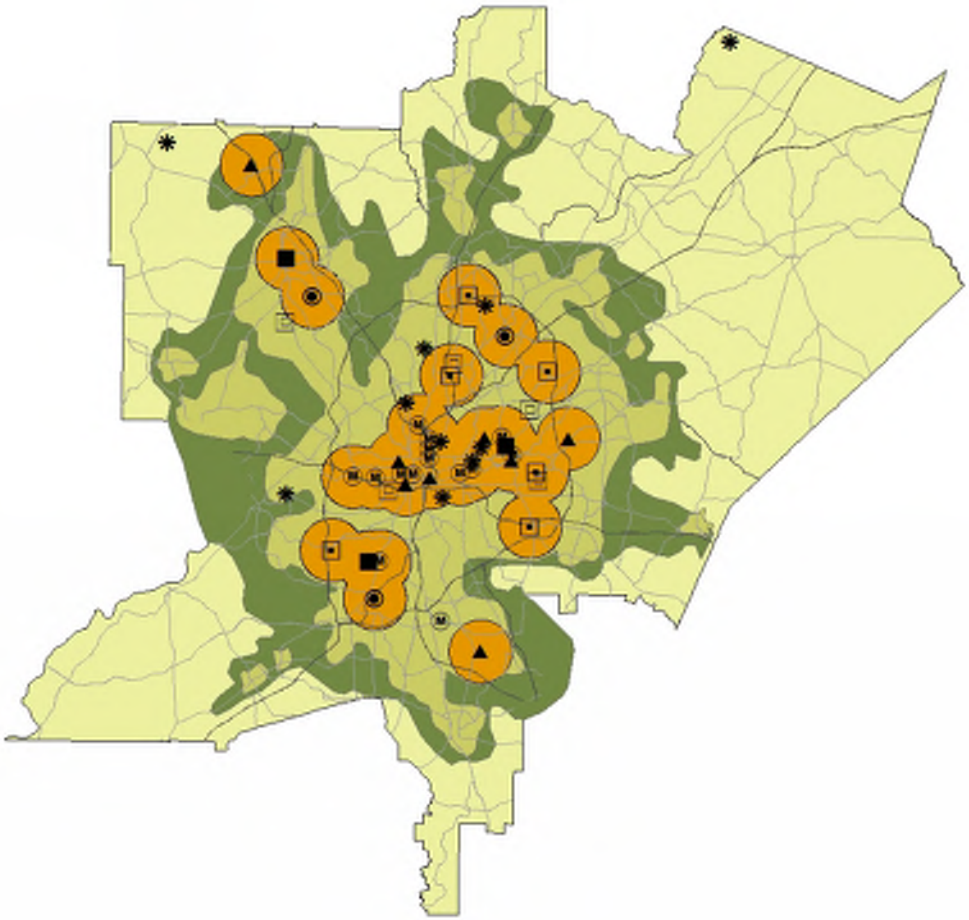
Photo:
Byron Rushing, @arcbikewalk

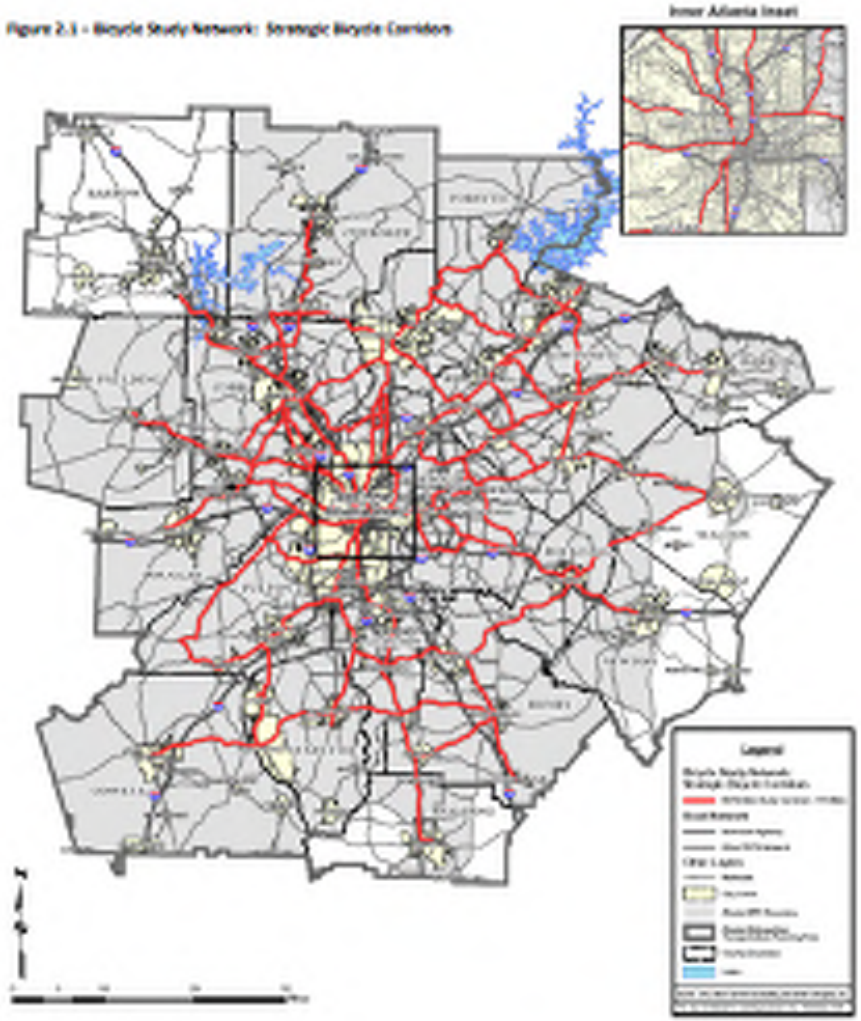
HOW DO WE BUILD A REGION WHERE IT IS EASIER & SAFER FOR EVERYONE TO WALK & BIKE?

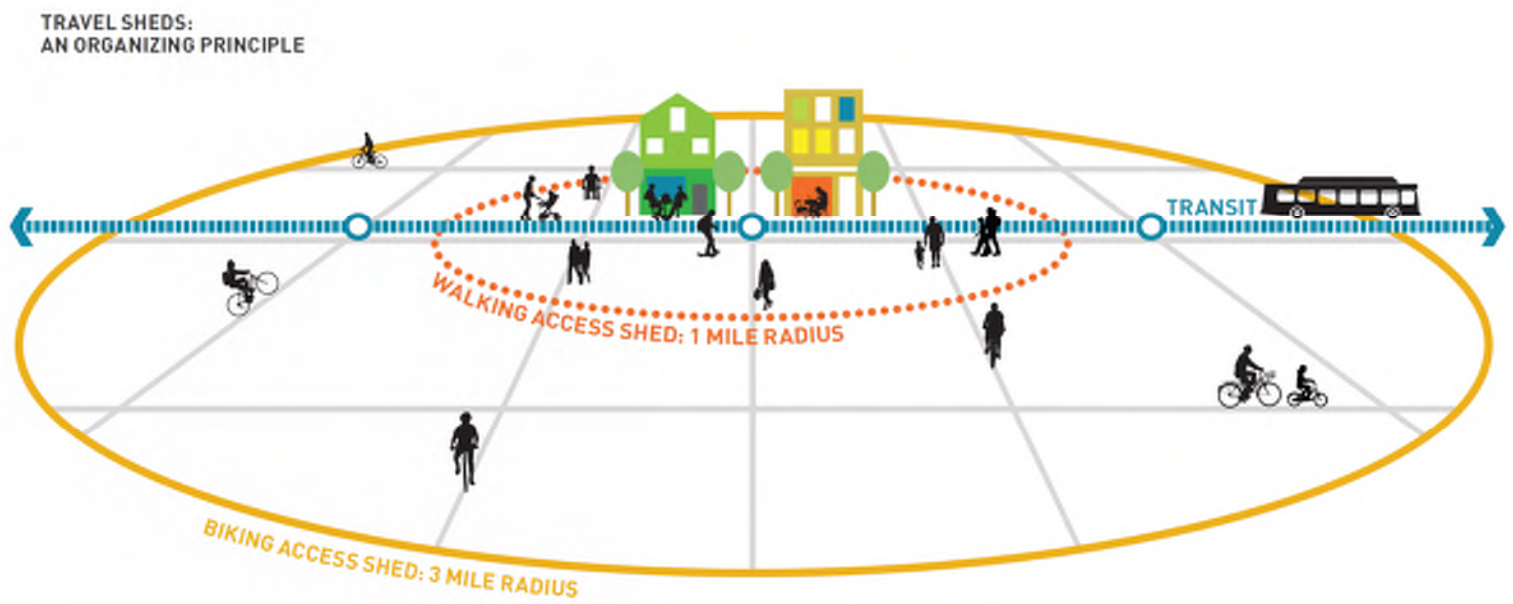


Atlanta Regional Commisison. "Walk. Bike. Thrive". 2016. www.atlantaregional.com/bikeped

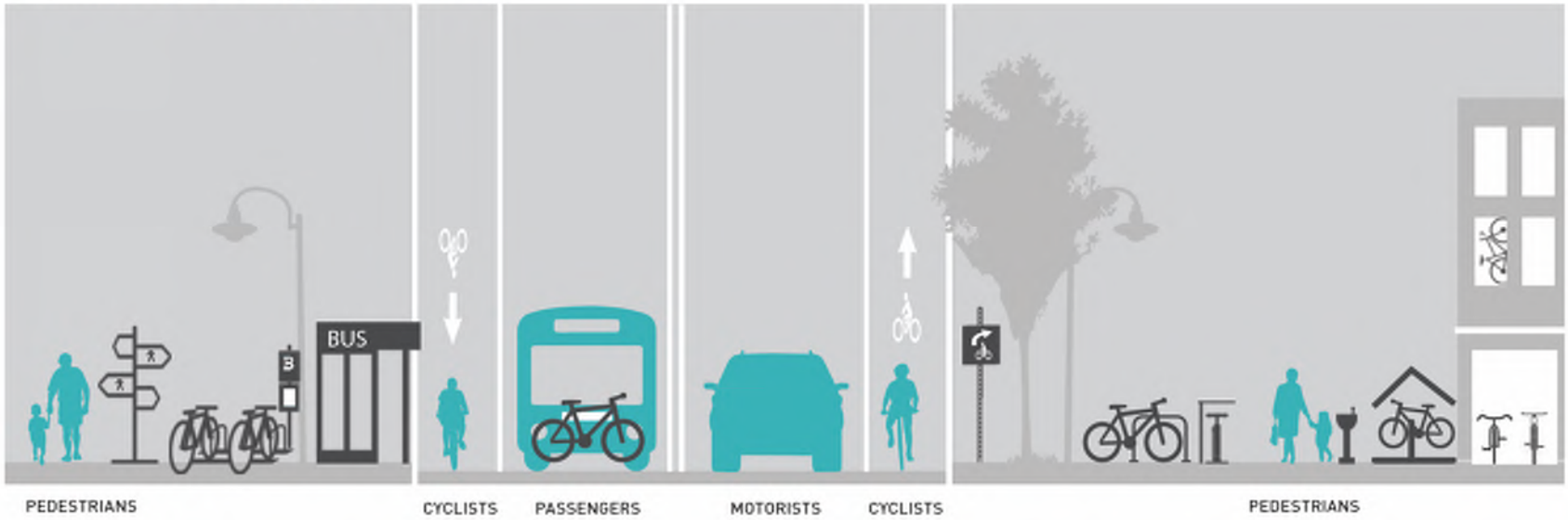
SHAPES OF BIKE PLANNING
FROM PLACES TO CORRIDORS







Complete Streets:
Opportunities for Reducing Barriers to Travel



The key elements needed for an active community are: highly mixed land uses, short connected blocks, and high-quality infrastructure for pedestrian and bicycle traffic.

Sidewalks, convenient crosswalks, bicycle lanes, quality transit service, traffic calming measures, mixed-use zoning, and connected street networks facilitate active transportation and save lives.

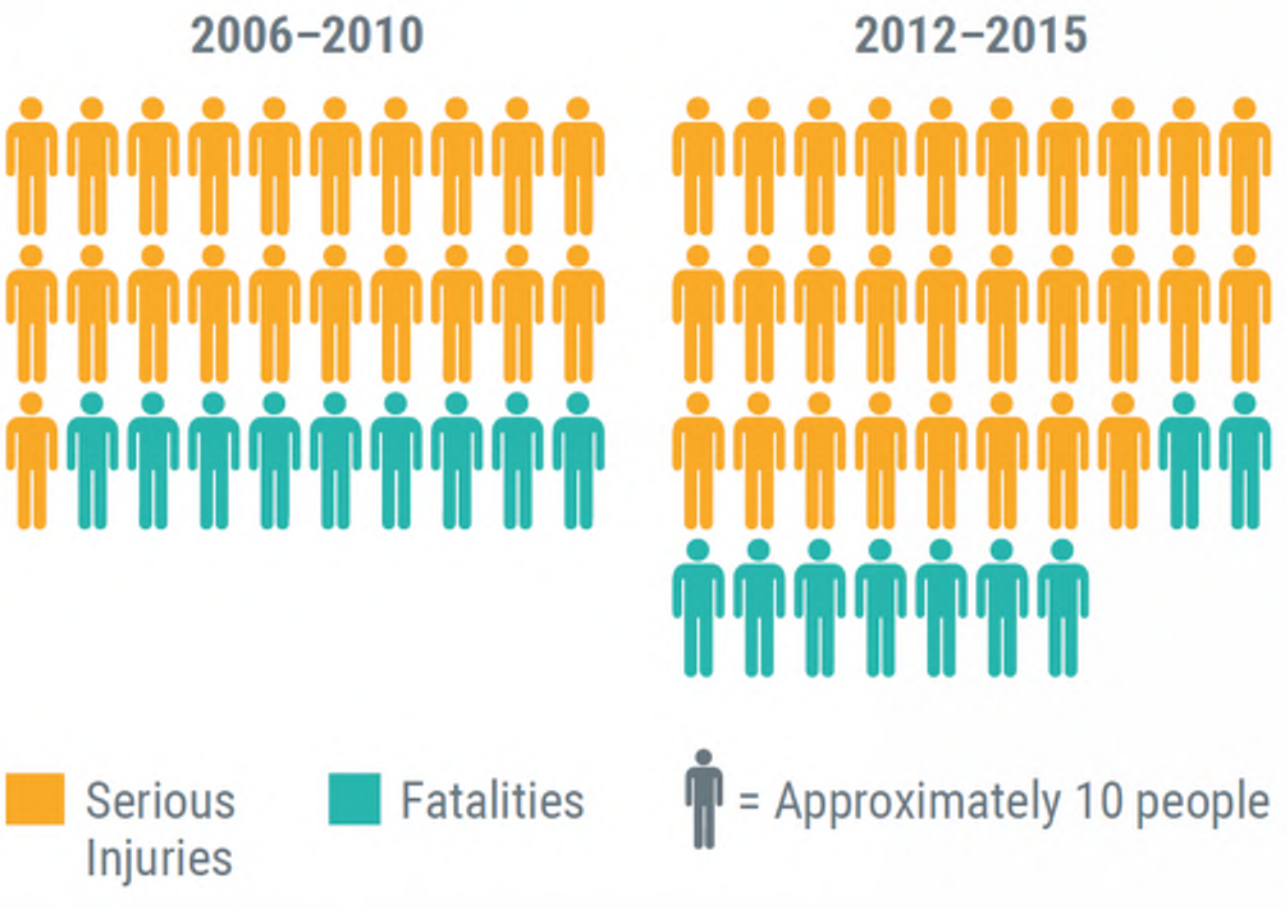
SAFETY IS FUNDAMENTAL
FEDERAL MANDATES & COMMMUNITY PERCEPTION

USDOT: “Responsibility to improve conditions and opportunities for walking and bicycling”

MPOs: “Increase the safety of the transportation system for motorized and nonmotorized users”.

ARC: “Course of action for the agency to follow in improving safety outcomes on our transportation system for all users.”

A SAFETY CRISIS FOR PEDESTRIANS
SHARP INCREASE IN INJURIES & FATALITIES



SET A TARGET
ZERO FATALITIES BY 2030

Figure 6. Projected Non-motorized Fatalities and Serious Injuries

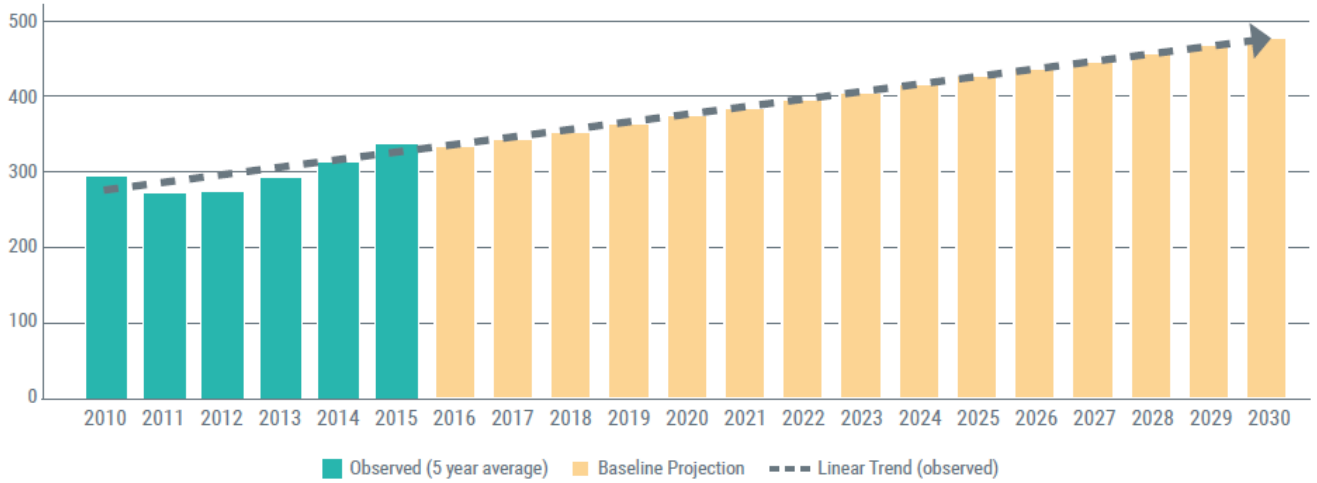
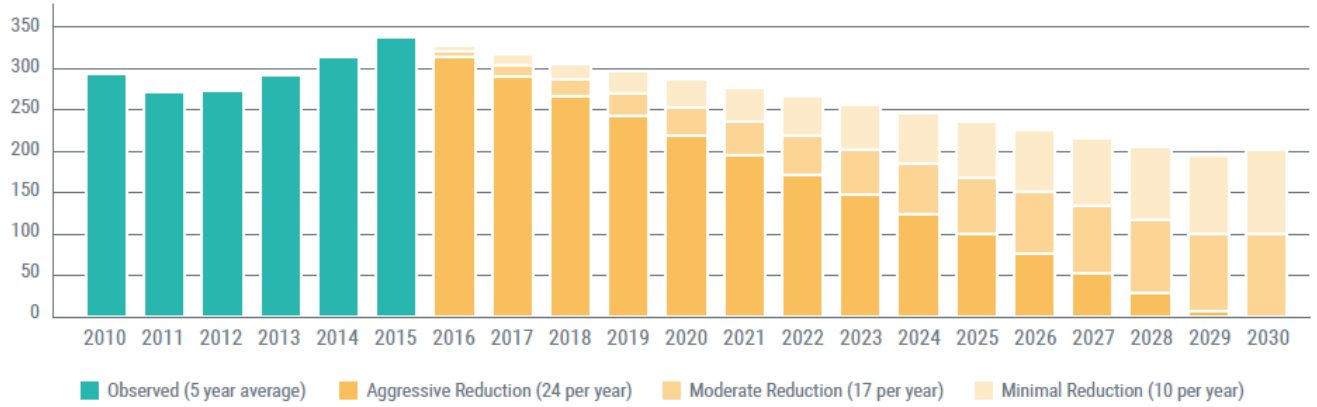
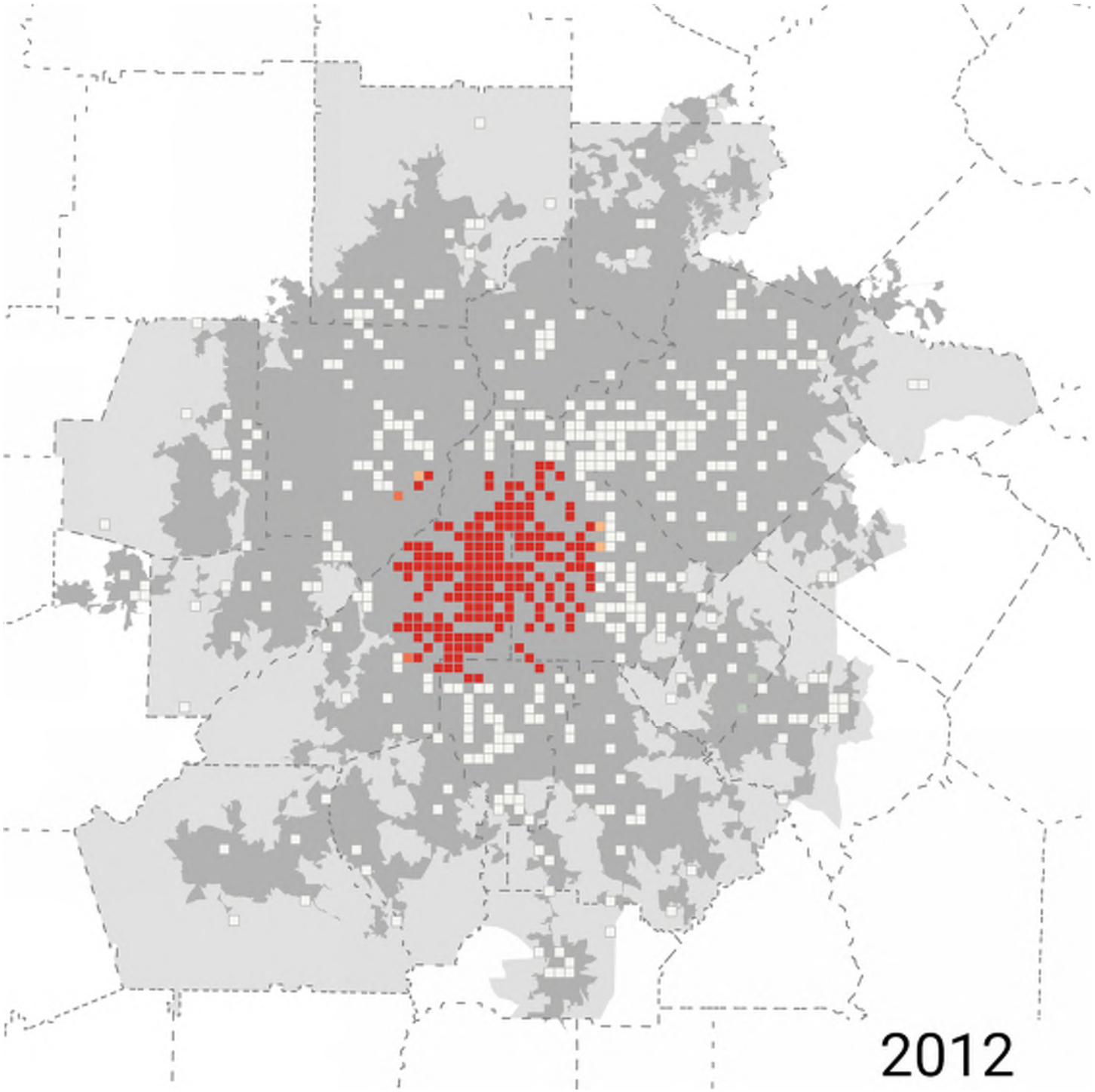


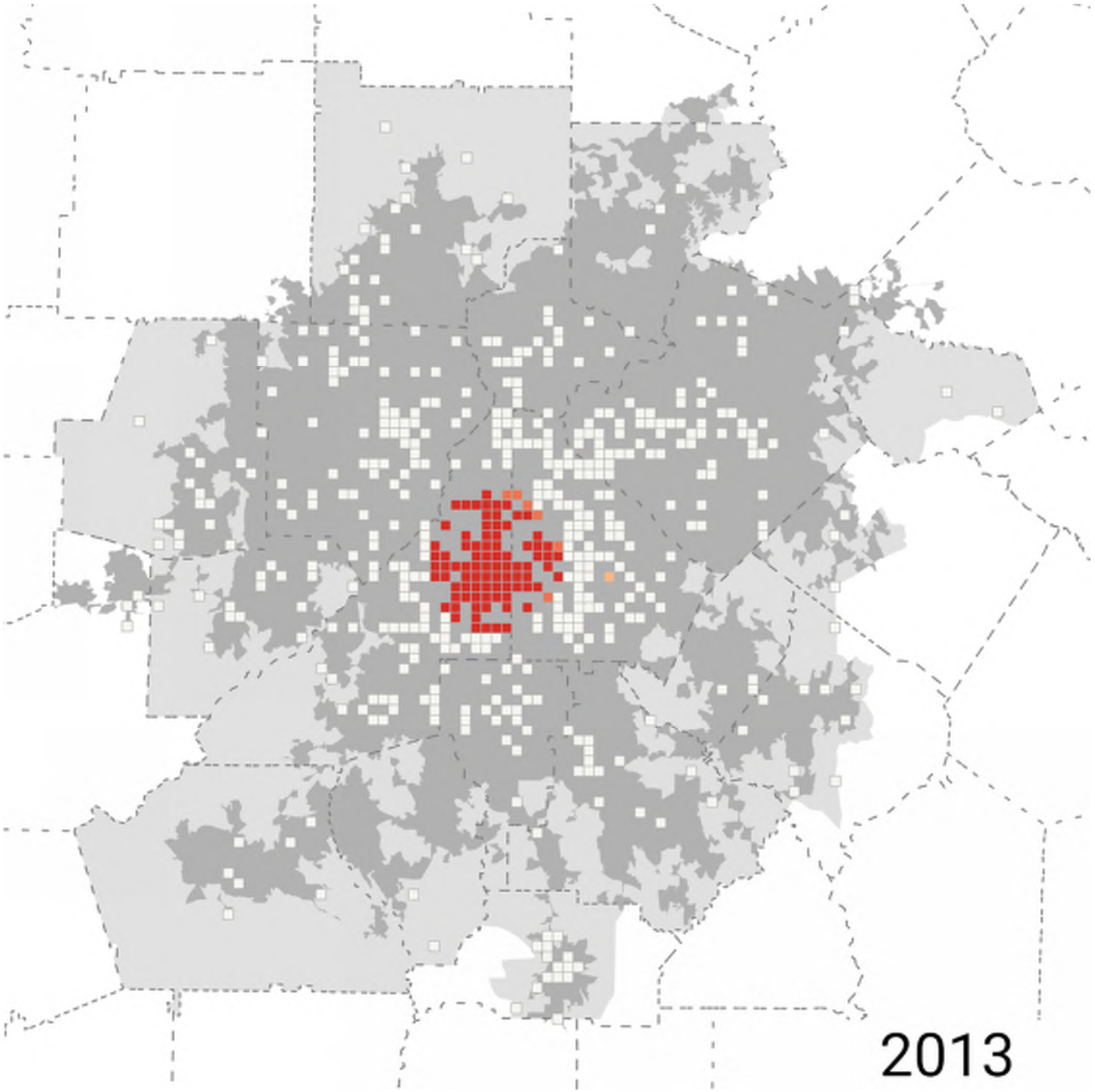
Figure 7. Non-motorized Fatalities and Serious Injuries Target Options

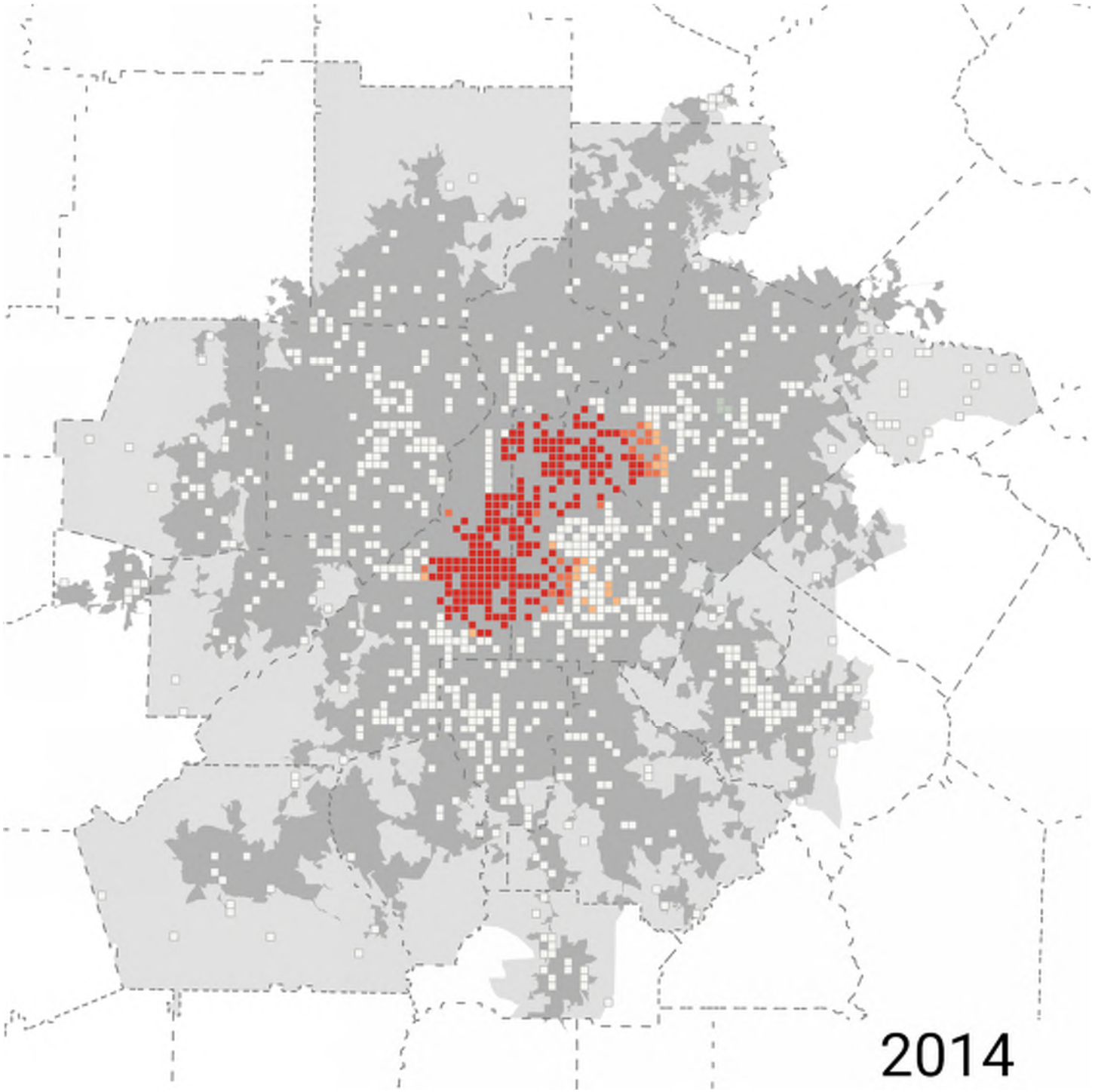


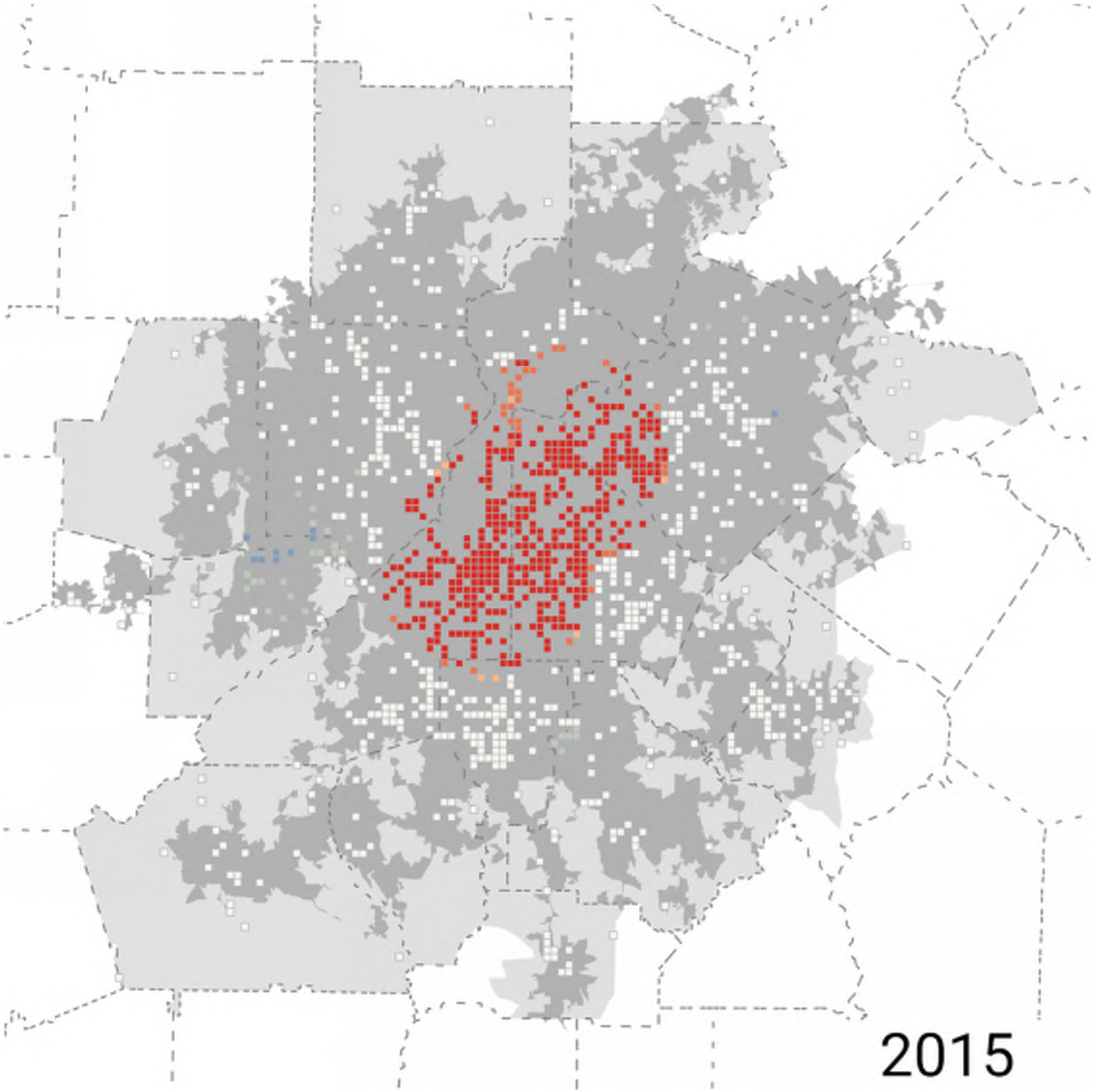
WE NEED TO CHANGE OUR APPROACH
EMBRACE "SAFE SYSTEM" PLANNING

	TRADITIONAL APPROACH	SAFE SYSTEM APPROACH
What is the problem?	Try to prevent all crashes	Prevent crashes from resulting in fatal and serious casualties
What is the appropriate goal?	Reduce the number of fatalities and serious injuries	Zero fatalities and serious injuries
What are the major planning approaches?	• Reactive to incidents • Incremental approach to reduce the problem	• Proactively target and treat risk • Systematic approach to build a safe road system
What causes the problem?	Non-compliant road users	People make mistakes and people are physically fragile/vulnerable in crashes. Varying quality and design of infrastructure and operating speeds provides inconsistent guidance to users about what is safe use behavior.
Who is ultimately responsible?	Individual road users	Shared responsibility by individuals with system designers


2012


2013


2014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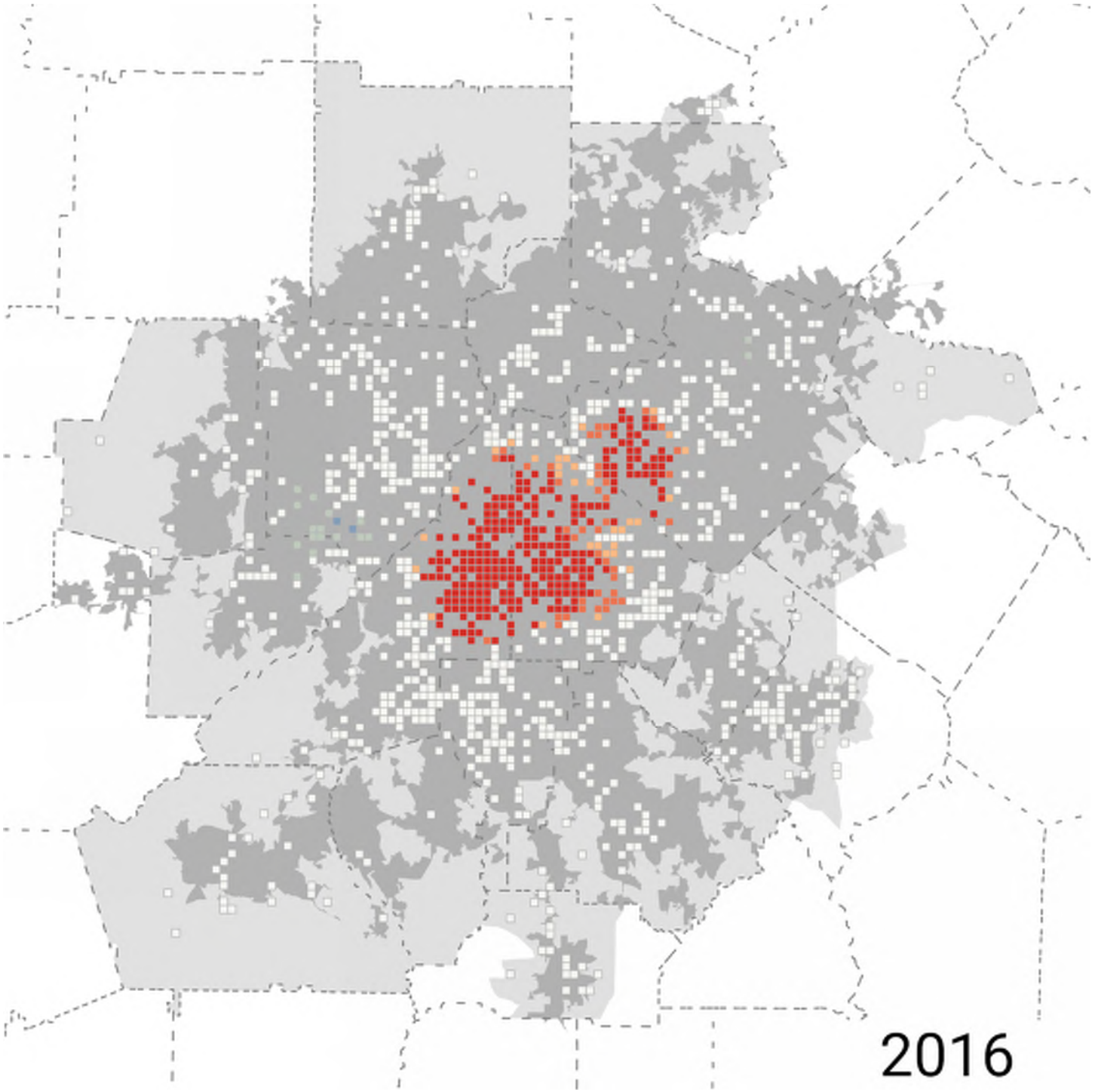
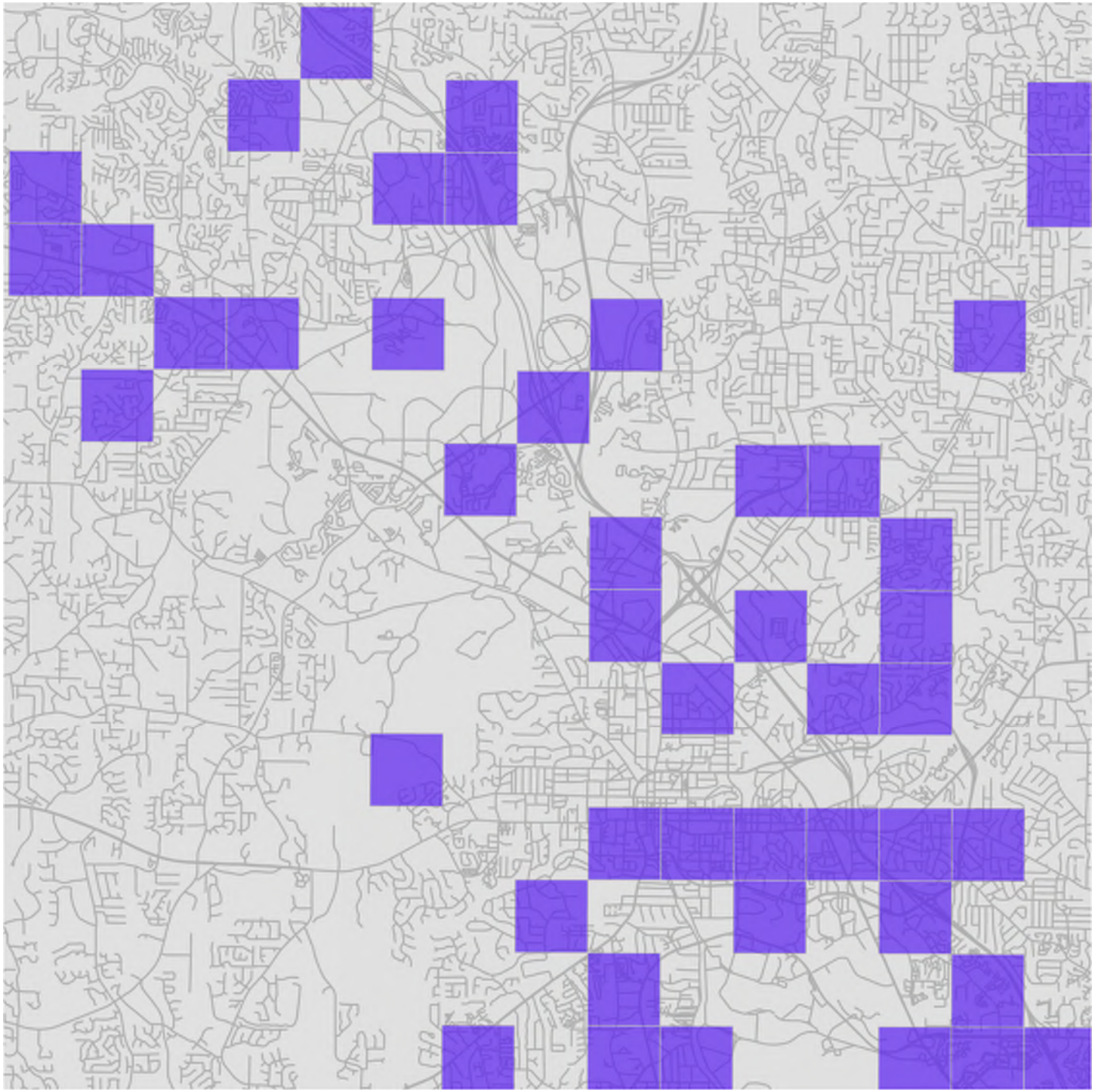
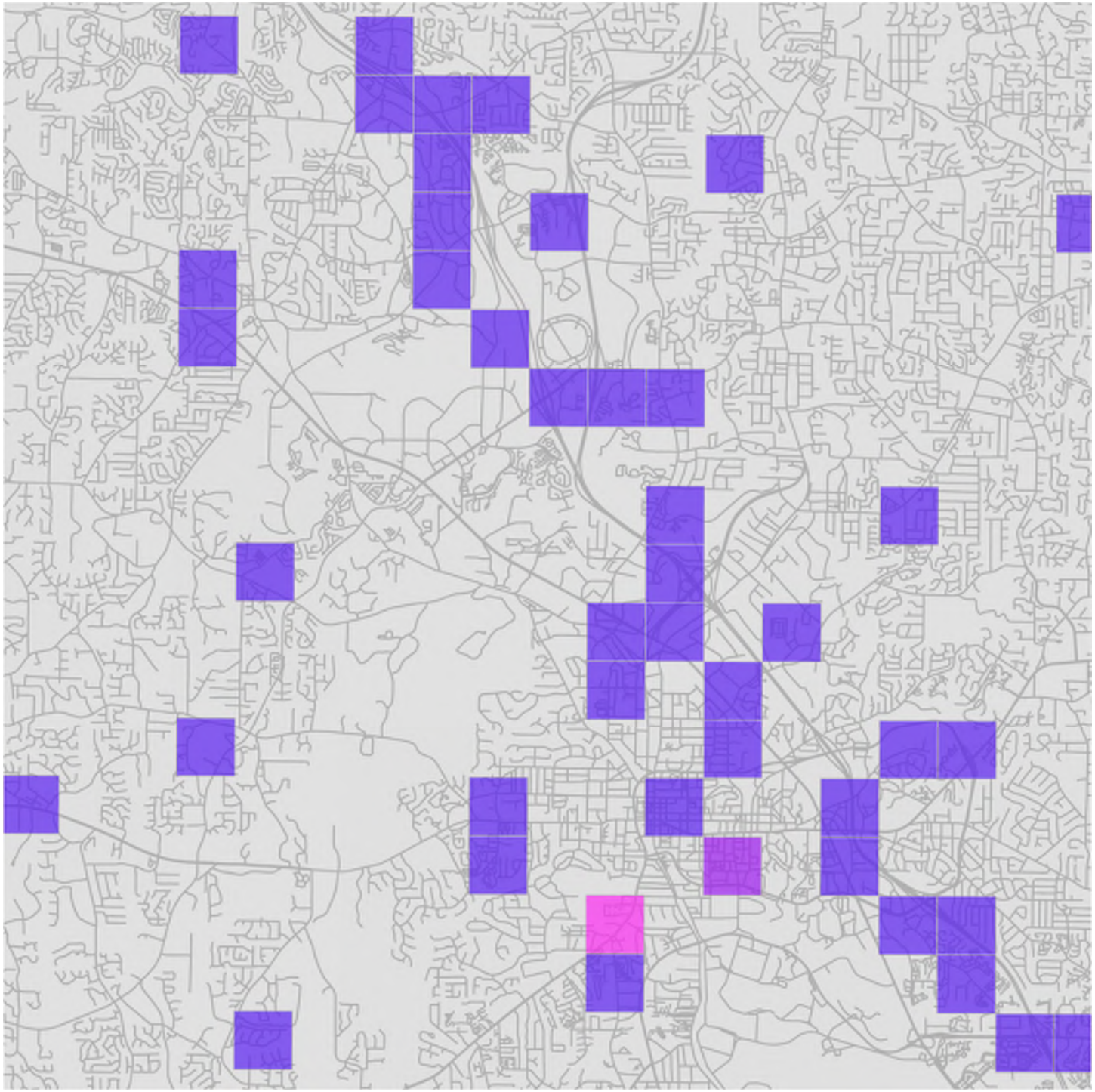
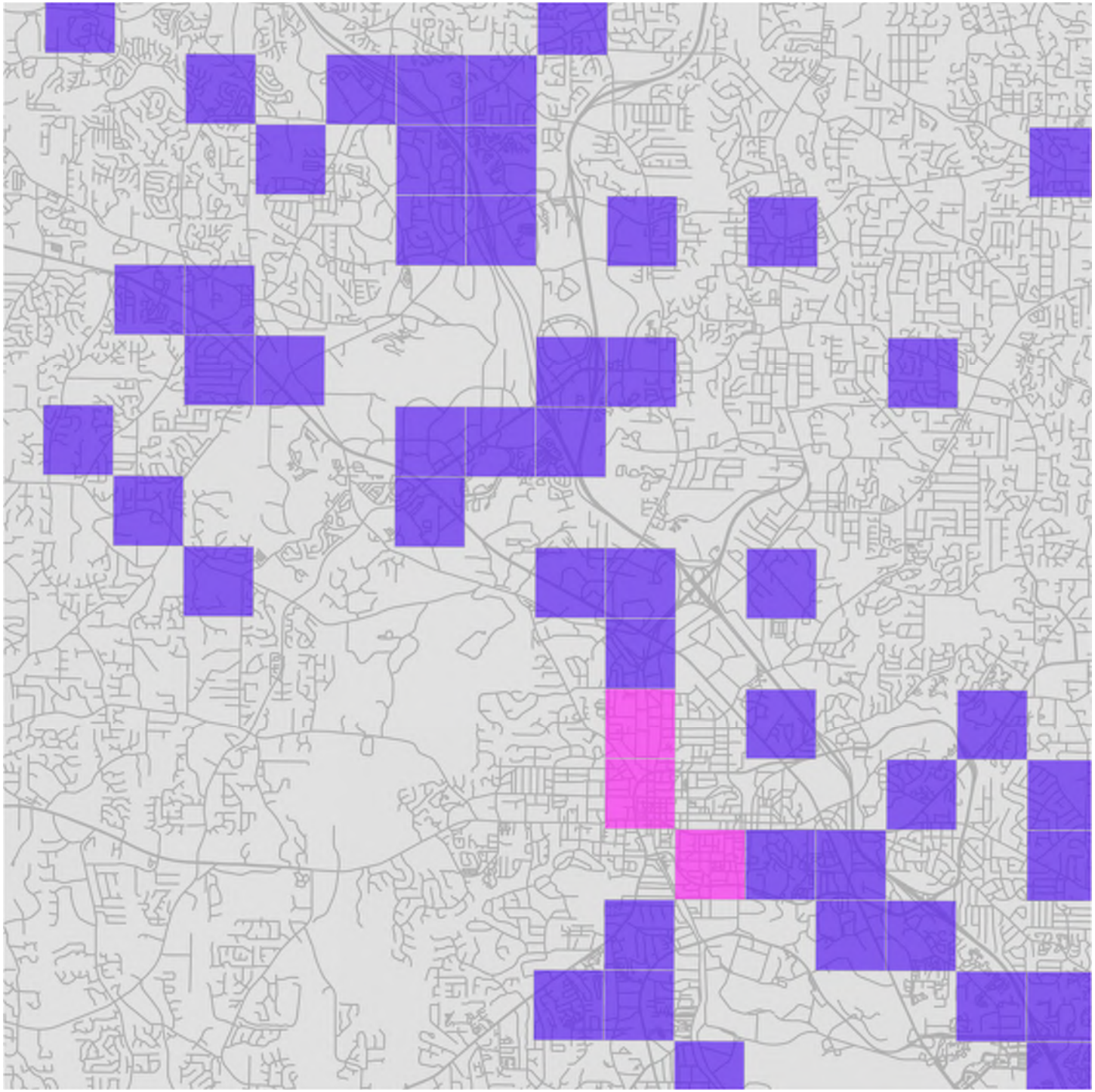

2016







Pedestrian and bicyclist fatalities are widely distributed but occur at low frequencies at any single location.

CHASING HOTSPOTS
HISTORY DOESN'T PREDICT FUTURE

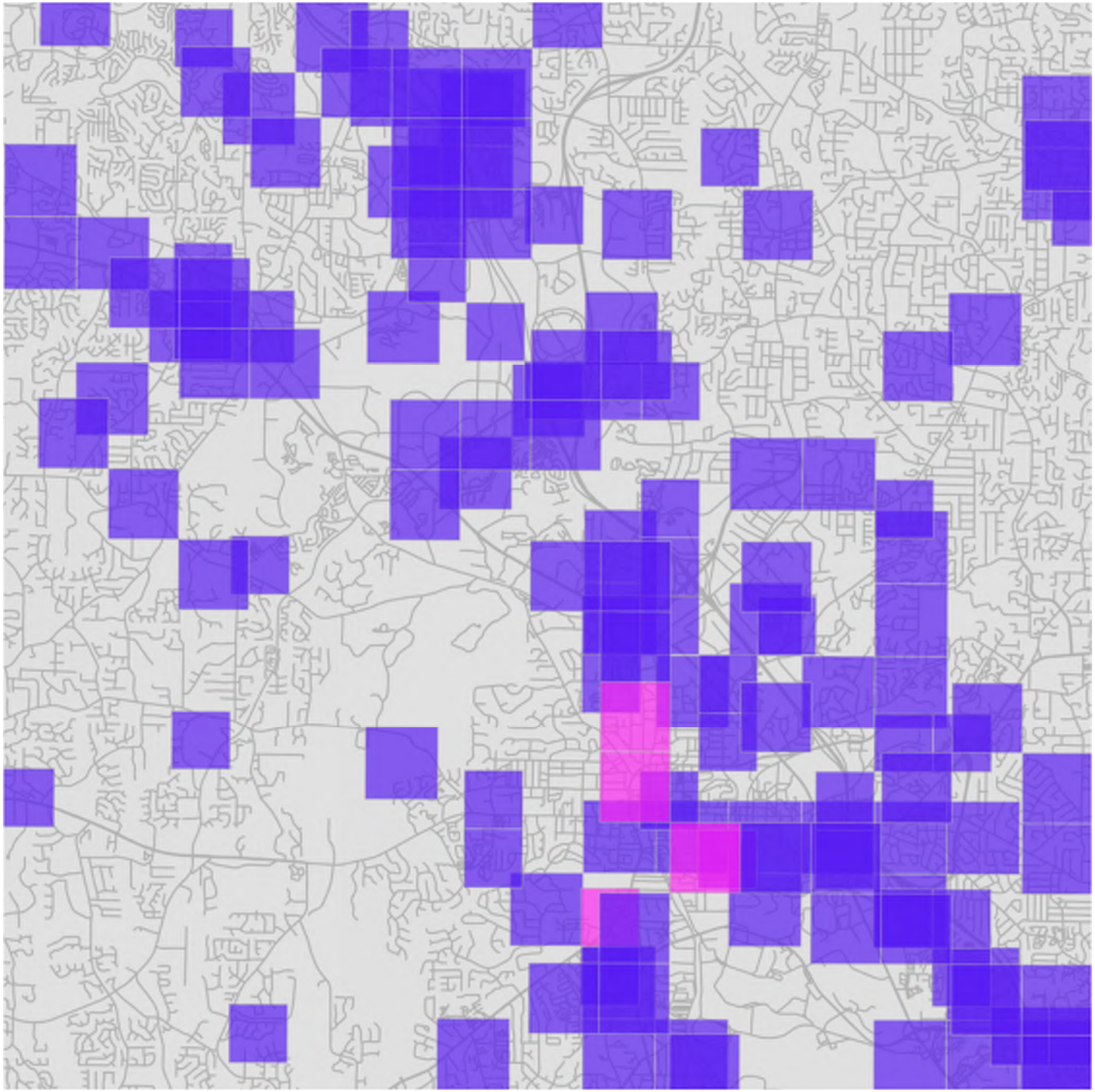
Georgia DOT Policy:

Hotspots at 10 or more crashes per half-mile of roadway

Challenges for data analysis:

- Variance of "low-frequency, wide-spread" locations
- Noise or inconsistencies in data reporting
- Lack of history doesn't isn't lack of risk at locations with similar conditions
- Retroactive approach doesn't anticipate the next location

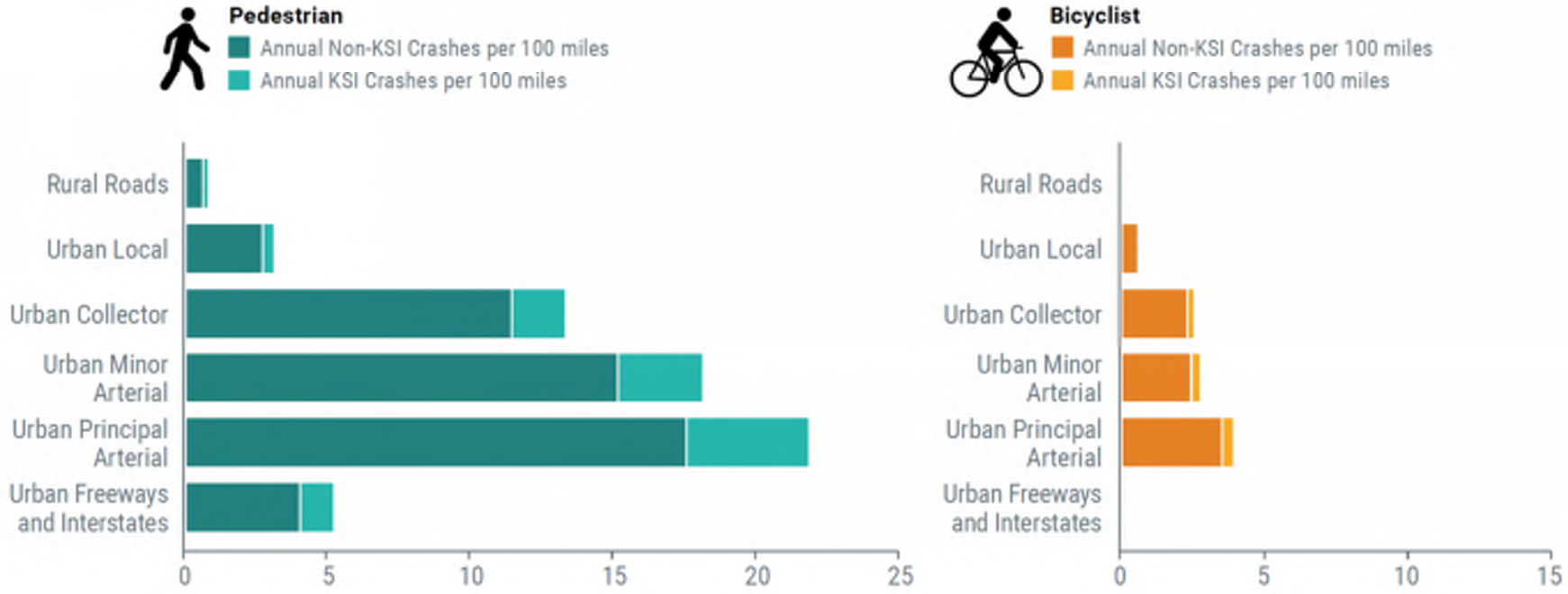
	PEDESTRIAN CRASHES			
	Hotspot threshold: 10 crashes per 1/2 mile		Hotspot threshold: 2 crashes per 1/2 mile	
	Crashes	Percentage	Crashes	Percentage
Total crashes within hotspots	1,559	21%	5,329	70%
Total crashes outside hotspots	6,008	79%	2,238	30%
Total crashes	**7,567**	**100%**	**7,567**	**100%**
KSI crashes within hotspots	160	13%	787	64%
KSI crashes outside hotspots	1,076	87%	449	36%
Total KSI crashes	**1,236**	**100%**	**1,236**	**100%**



UNDERSTANDING LOCATION FACTORS
WHAT CONTRIBUTES TO CRASHES?

Figure 11. Annual Non-KSI and KSI Pedestrian Crashes per 100 Miles by ROADWAY FUNCTIONAL CLASS

Arterial and collector streets have the highest number of pedestrian and bicyclist crashes per mile, although local streets also account for a high number of crash locations.



IDENTIFY PRIORITIES
REGIONAL RISK ASSESSMENT MAP

Speed: Well over half of pedestrian and bike crashes occur on streets with speed limits at or above 35mph

Number of Lanes: Streets with four or more lanes have a significantly higher number of crashes per mile

Lighting: Crashes after dark disproportionately result in severe outcomes, especially for pedestrians where there is no street lighting

Crosswalks: Missing or inadequate crosswalks and sidewalks leave pedestrians vulnerable to being hit.

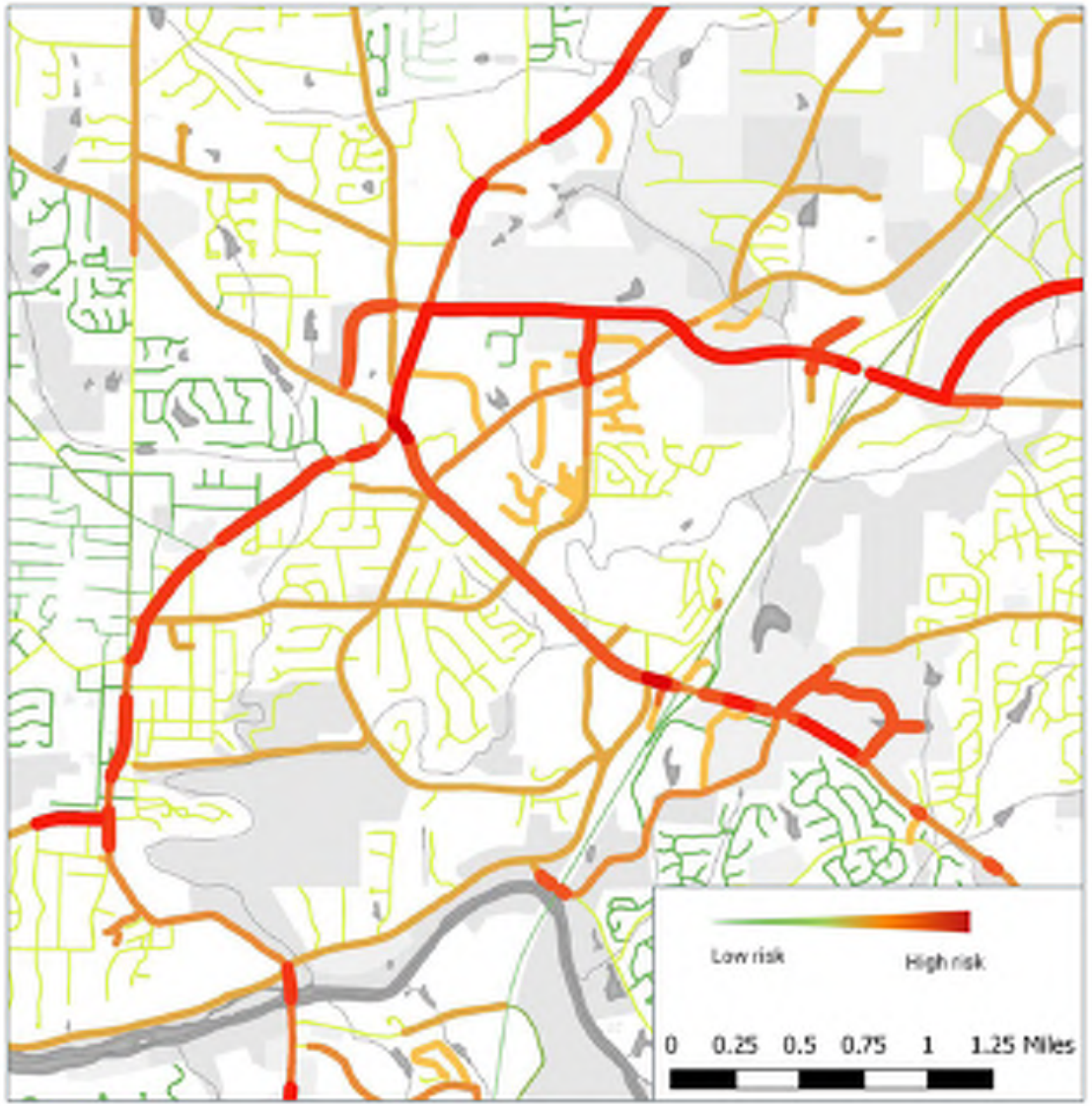
Table 7. Pedestrian and Bicycle CRASH RISK SCORES for Number of Lanes

PEDESTRIANS			
Number of Lanes	Weighted Crashes	Weighted Crash Rate per 10 miles	Crash Risk Score
1	227	4.9	0
2	7,856	2.5	0
3	720	23.3	3
4	4,976	22.8	3
5	603	58.3	5
6+	1,540	17.1	3

BICYCLES			
Number of Lanes	Weighted Crashes	Weighted Crash Rate per 10 miles	Crash Risk Score
1	51	1.1	0
2	2,007	0.7	0
3	119	3.8	3
4	902	4.1	3
5	85	8.2	5
6+	145	1.6	2

IDENTIFY PRIORITIES:
REGIONAL RISK ASSESSMENT MAP

Figure 2. Data-Driven Analysis Relating Risk Assessment & Policy Priorities



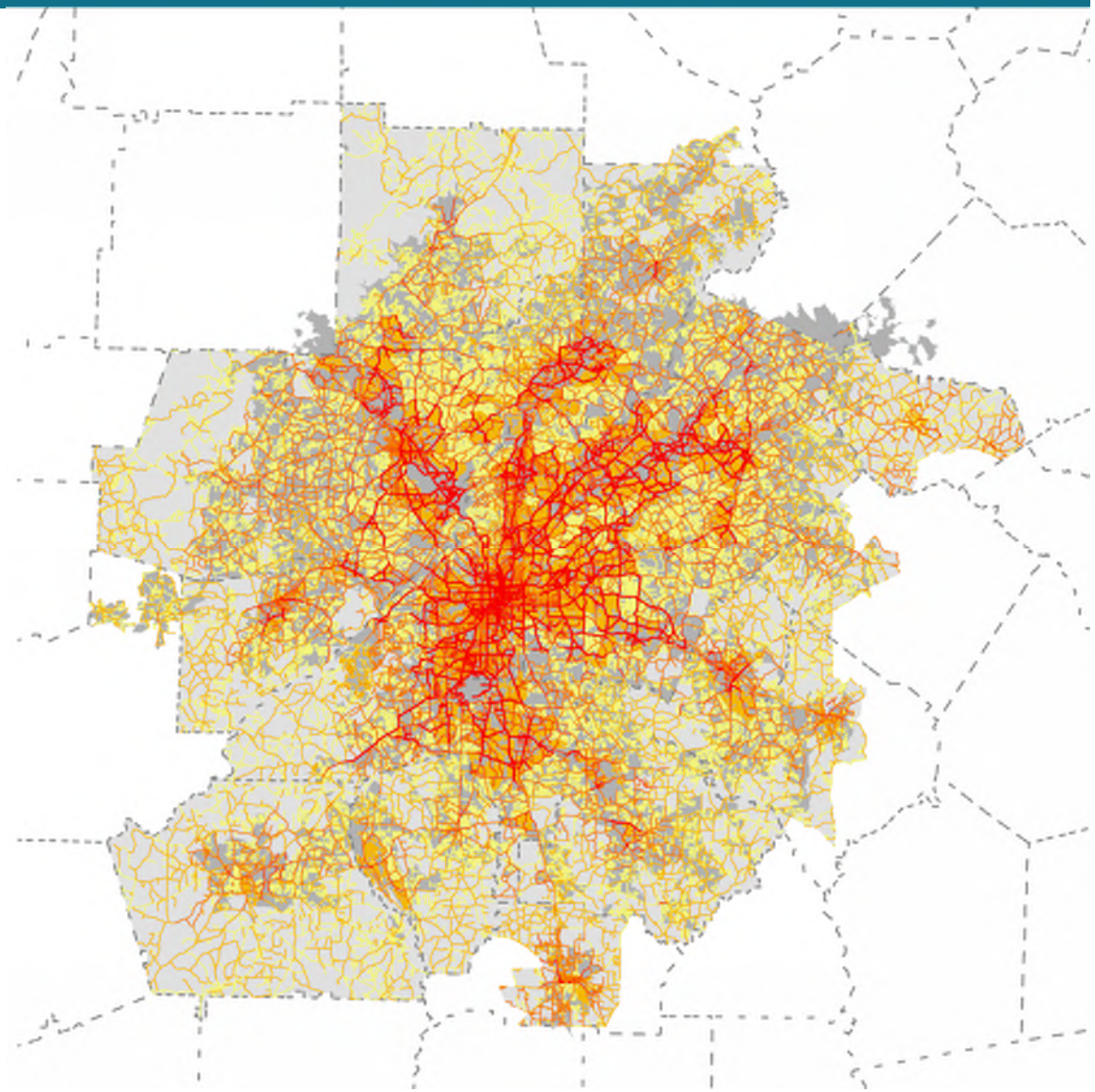
STRATEGIC APPROACHES TO SAFETY
UNDERSTAND THE DATA & PATTERNS

Eliminate High Crash Locations:

Traditional crash hotspot analysis may identify locations that have a concentration of fatal and serious crashes.

Treat High-Risk Corridors:

Systemic safety analysis identifies dangerous roadway design features and travel demand for corridors with higher transportation risks.



EVIDENCE-BASED TOOLS
PROVEN SAFETY COUNTERMEASURES

Medians and Pedestrian Crossing Islands

Pedestrian Hybrid Beacon

Road Diet

Sidewalks

Changing Speed Limits

Leading Pedestrian Interval

Rectangular Rapid Flashing Beacons

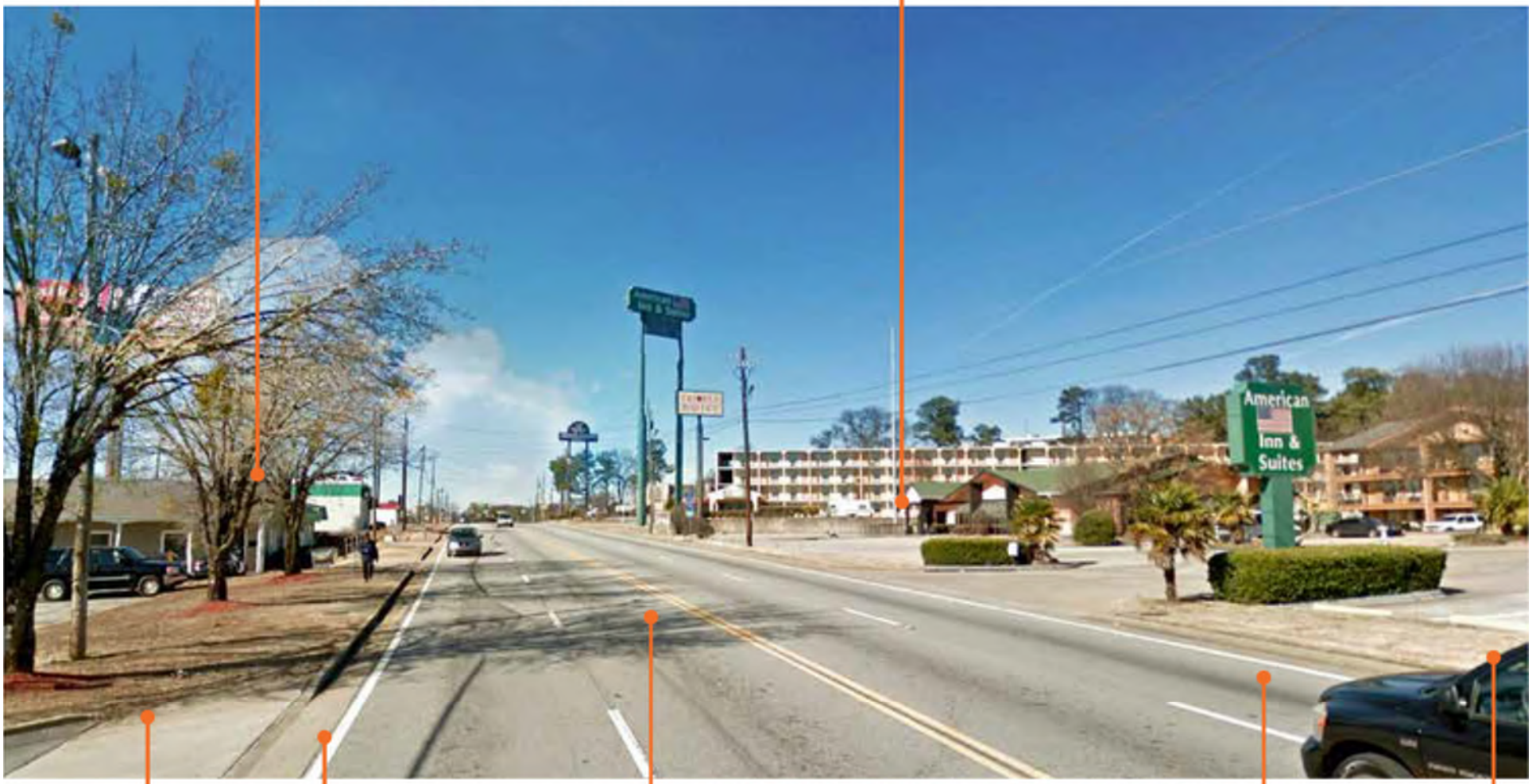
Crosswalk Visibility Enhancements

Street Lighting

Separated Bike Lanes

Neighborhood Greenway/ Bike Boulevard

Traffic Calming


NO CONNECTIONS
BETWEEN BUILDINGS, LOTS
American
Inn &
Suites
NO PEDESTRIAN REFUGE/CROSSING ISLANDS
NO BICYCLE FACILITIES
LACK OF PEDESTRIAN AMENITIES INCLUDING SIDEWALKS,
CROSSWALKS, AND PEDESTRIAN SCALED LIGHTING.

SEPARATED BIKE LANES create a safer space for bicyclists of all ages and abilities. Implementation of a bicycle facility should be conducted as an overall bicycle master plan.

STREET LEVEL LIGHTING improves visibility for all users along a corridor, but is particularly effective in high-trafficked areas.

MEDIAN AND PEDESTRIAN CROSSING ISLANDS not only reduce head-on motor vehicle collisions but provide a protected refuge at intersections and midblock crossings for pedestrians. The narrow the motorists field of vision and reduce vehicle speeds.

CONNECTING RISKS TO PLANNING
SUPPORTING CONTEXT AND IMPROVING ACCESS

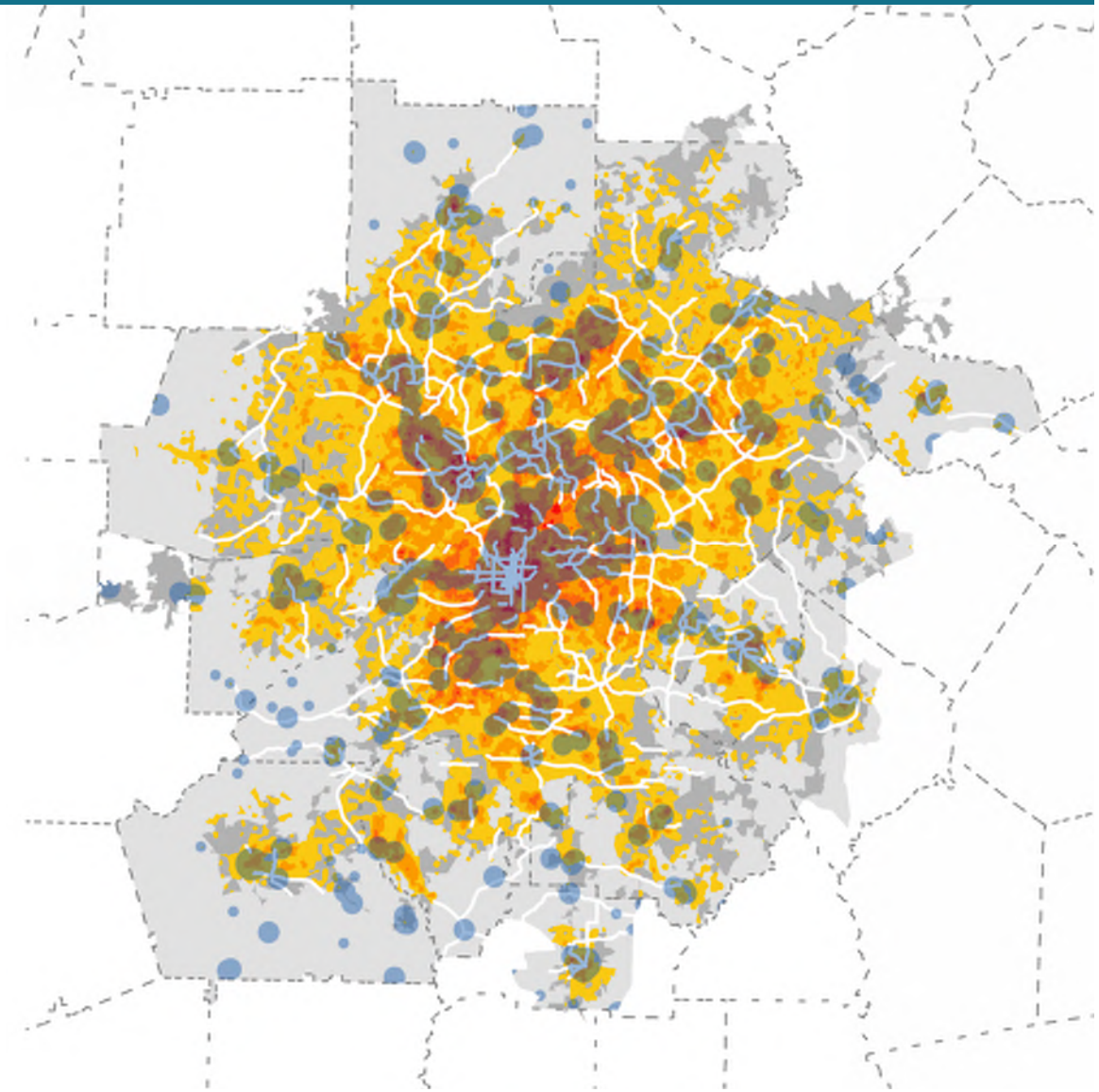
STRATEGIC REGIONAL PLANNING
CONNECTING TRANSPORTATION & LAND USE

Walkable Centers:

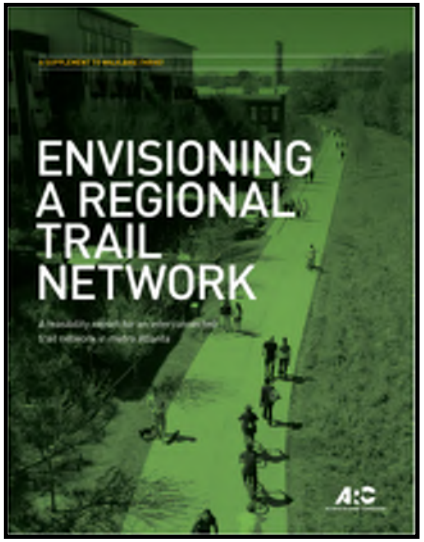
- Support existing multimodal communities.
- Support multimodal options and advance development goals in new centers.

Multi-Modal Corridors:

- Reduce risk and improve safety.
- Provide access to high-priority destinations (schools, parks, commercial areas, etc)
- Support existing or latent demand.
- Support regional transit routes.
- Make connection.



ESTABLISHING A REGIONAL VISION
WALK. BIKE. THRIVE! AND SUPPLEMENTS



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