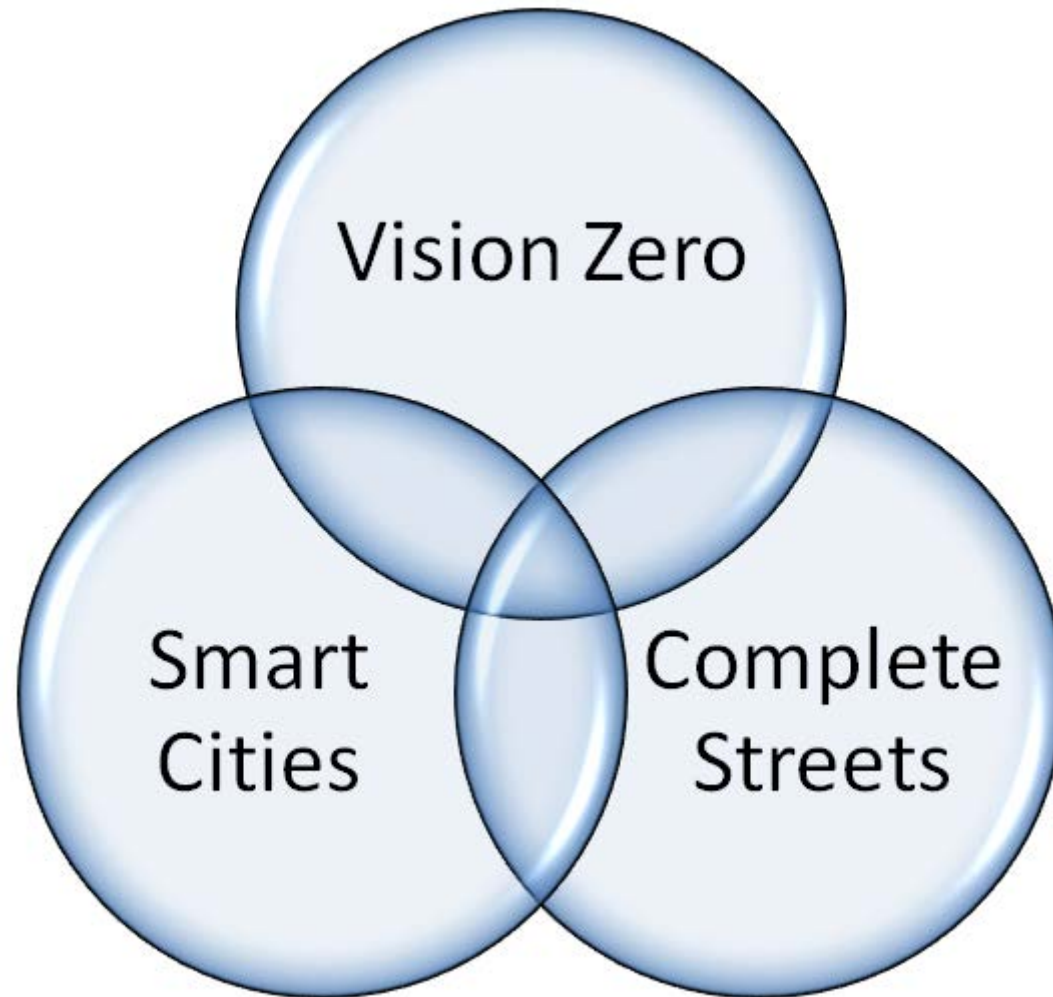




Richmond Region Complete Streets Implementation Project

Jakob Helmboldt
Michael B. Sawyer, PE
June 25, 2019

City's Transportation Emphasis



What is Vision Zero?

- How many traffic fatalities occur in the United States each year?
- What is a good goal for the United States?
- What is a good goal for your family?
- Shouldn't that be the goal for everyone?
- Changing our built environment + shifting our safety culture.

What is Vision Zero?

- The Vision Zero is the Swedish approach to transportation safety thinking.
- It can be summarized in one sentence:
- **No injuries or loss of life is acceptable.**

Towards Zero Deaths – Virginia's Plan



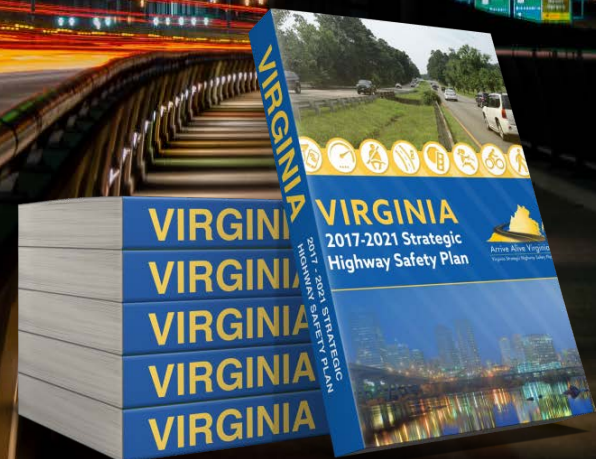
MOVING VA TOWARD ZERO DEATHS

HOME ARRIVE ALIVE ▾ SAFETY TIPS ▾ RESOURCES

MOVING VIRGINIA TOWARD ZERO ROADWAY DEATHS

LEARN HOW YOU CAN MAKE A DIFFERENCE ▸

Arrive Alive Virginia
Virginia Strategic Highway Safety Plan

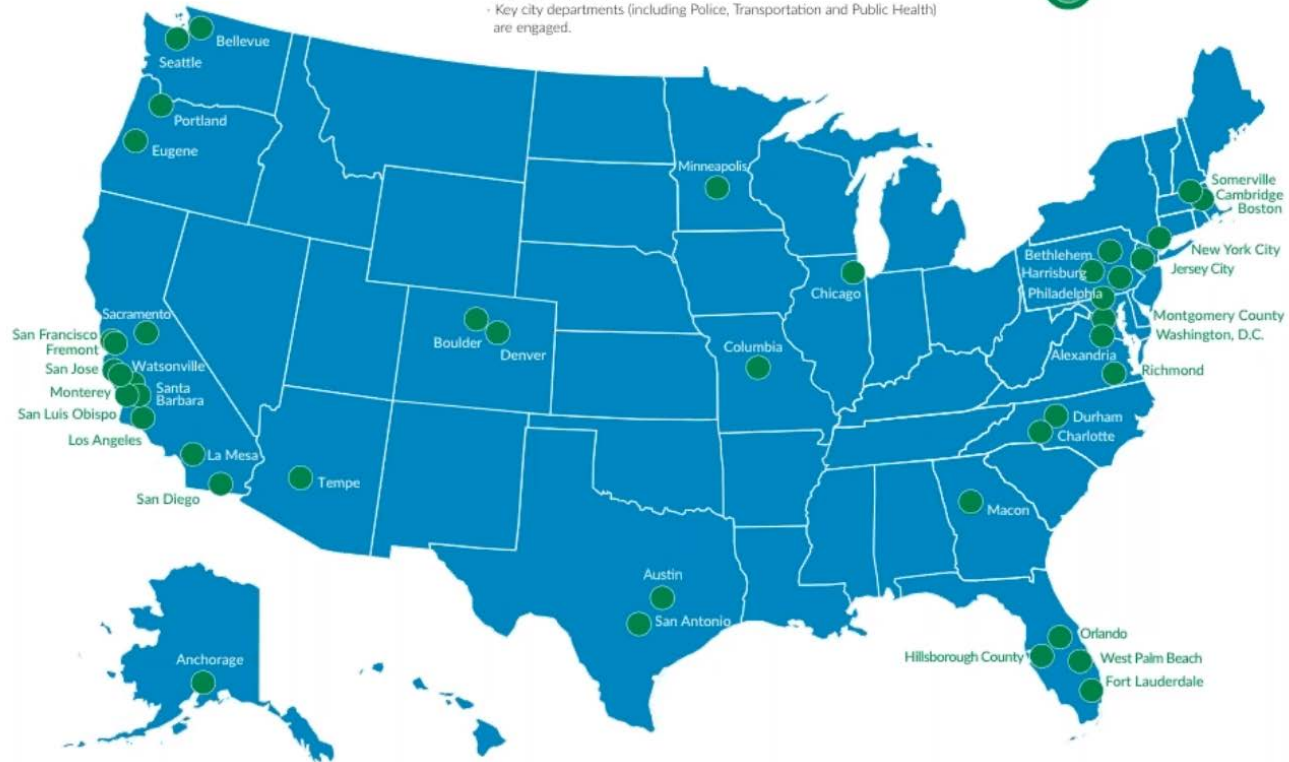


Vision Zero Cities in the United States

Vision Zero Cities

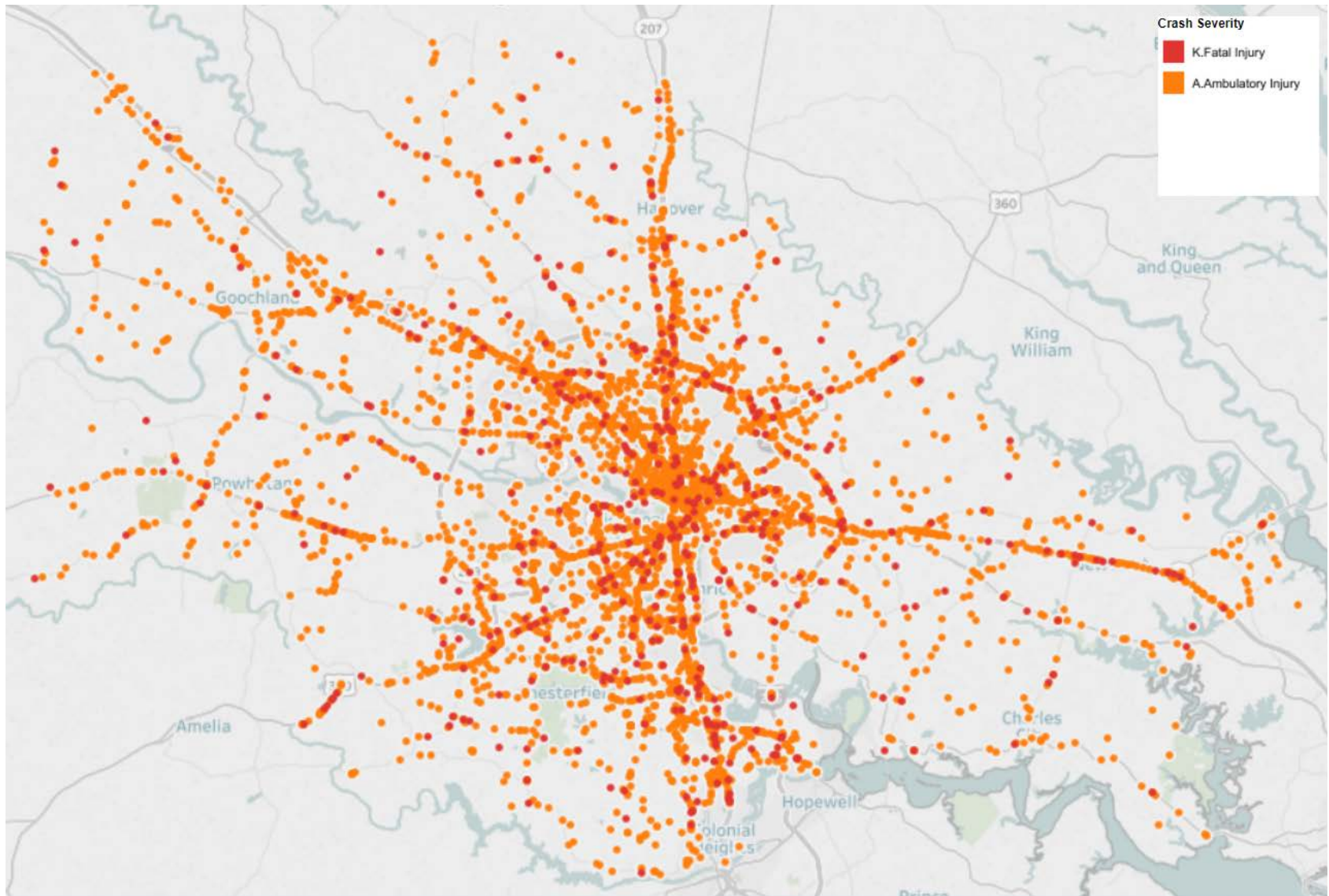
A Vision Zero City meets the following minimum standards:

- Sets clear goal of eliminating traffic fatalities and severe injuries
- Mayor has publicly, officially committed to Vision Zero
- Vision Zero plan or strategy is in place, or Mayor has committed to doing so in clear time frame
- Key city departments (including Police, Transportation and Public Health) are engaged.



VISION 4=RO NETWORK

Why is Vision Zero important?



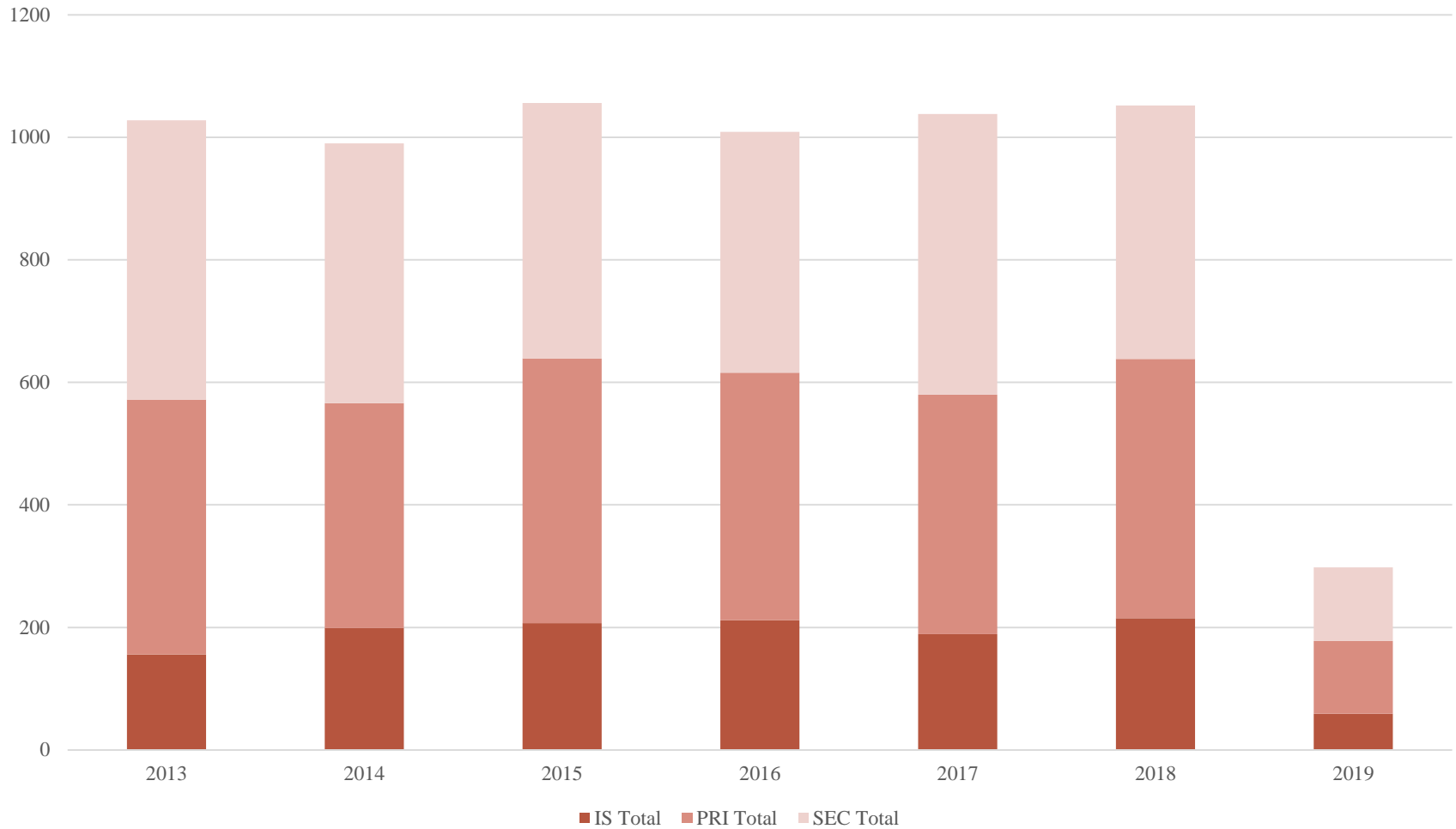
Since 2013...

- 5,010 Severe Crashes in the Region (112,499 total)
 - 533 people killed in traffic related deaths
 - 97 people were walking
 - 5,534 people suffer incapacitating injuries
 - 412 people were walking
- Three Recommendations for RRTPO Members:
 1. Create a Regional Vision Zero Task Force
 2. Lead the shift in our transportation safety culture
 3. Fund the changes to our built environment to support the safety of all transportation users



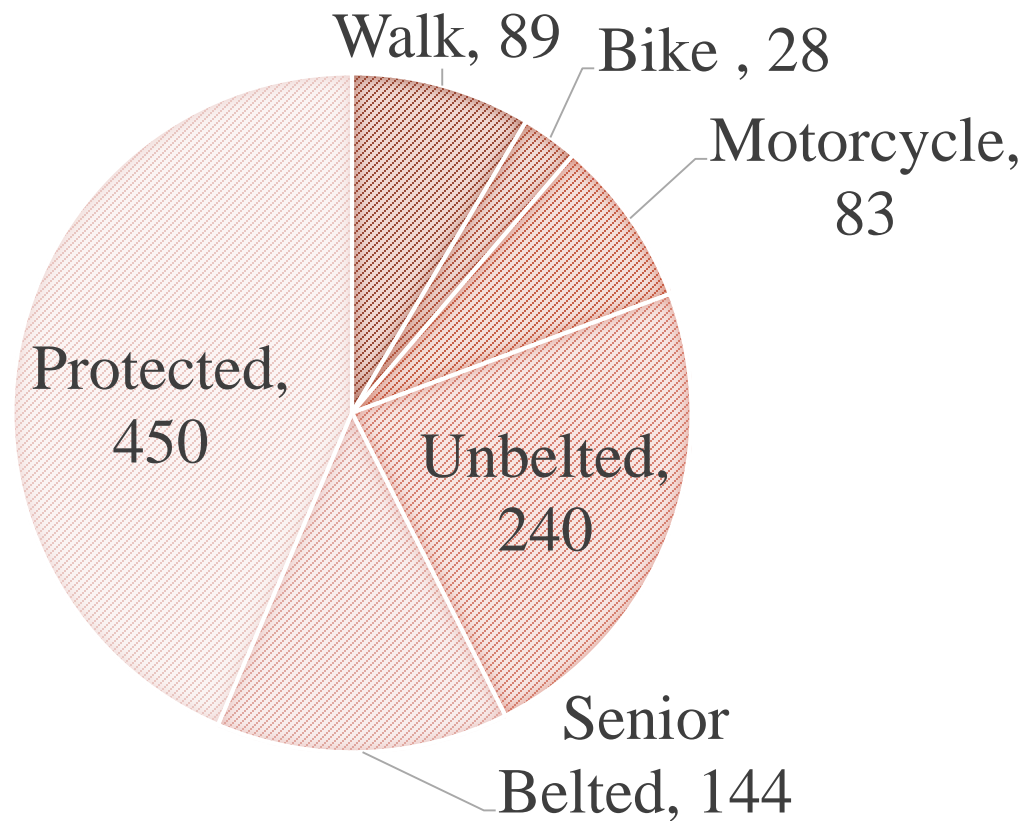
Why is Vision Zero Important?

Death and Serious Injury by System in Richmond Region

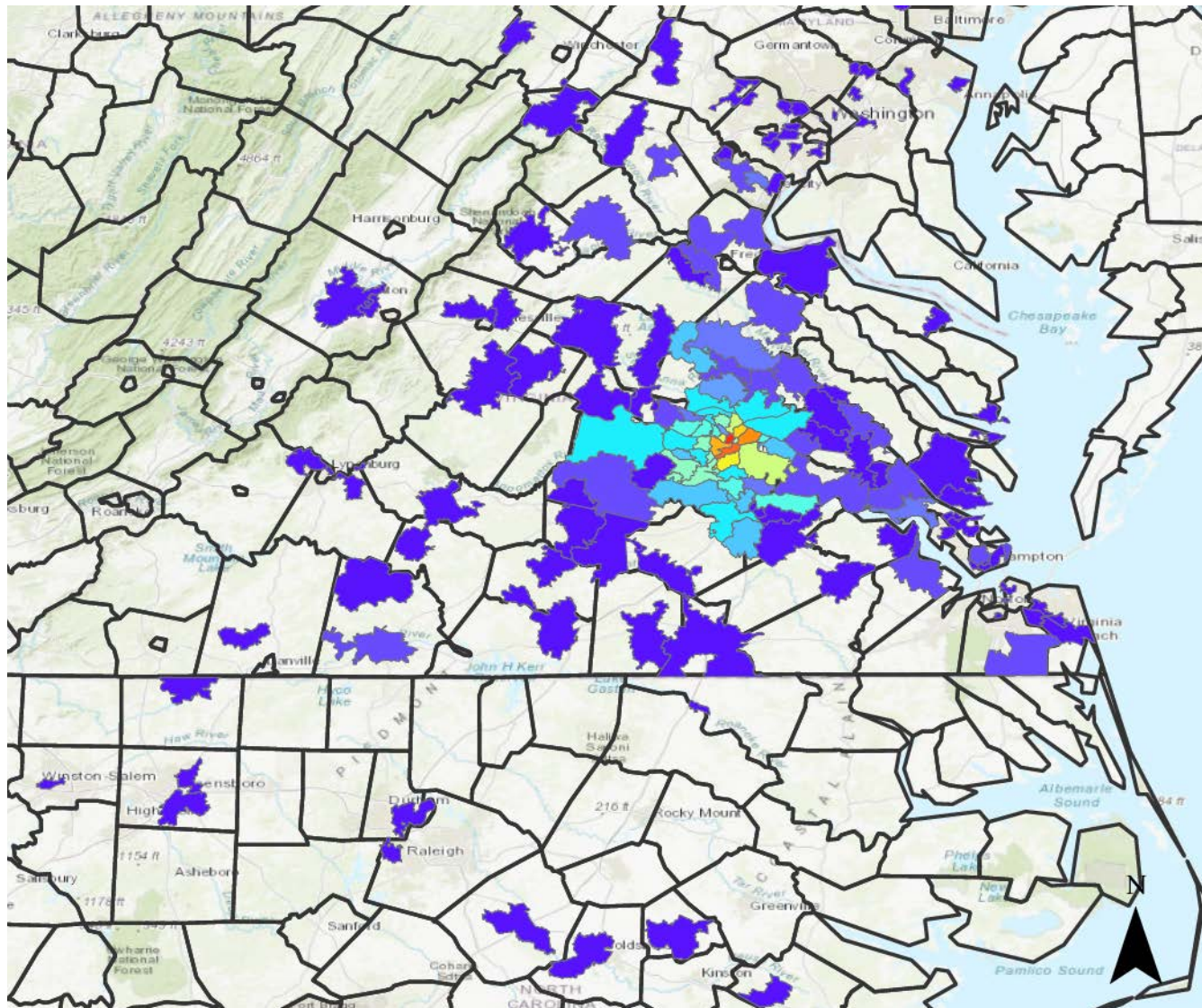


Why is Vision Zero important?

THREE YEAR ANNUAL AVERAGE DEATH AND SERIOUS INJURY IN RICHMOND REGION



Zip Codes with Severe Crashes in Richmond



Twelve Steps to Vision Zero

- STEP 1: Establish Safe and Healthy Streets Commission
- STEP 2: Adopt a Vision Zero Resolution
- STEP 3: Sign a Vision Zero Pledge
- STEP 4: Issue a Safe and Healthy Streets Challenge
- STEP 5: Adopt Vision Zero Action Plan
- STEP 6: Establish a Vision Zero Task Force
- STEP 7: Establish Year One Priorities and Metrics
- STEP 8: Engage community leaders
- STEP 9: Shift the safety culture
- STEP 10: Vision Zero as DNA
- STEP 11: Focus on resources
- STEP 12: Keep your head up



STEP 1: Establish a Safety Commission



Next Meeting:
Wednesday July 17, 2019 at 2PM
Main Library

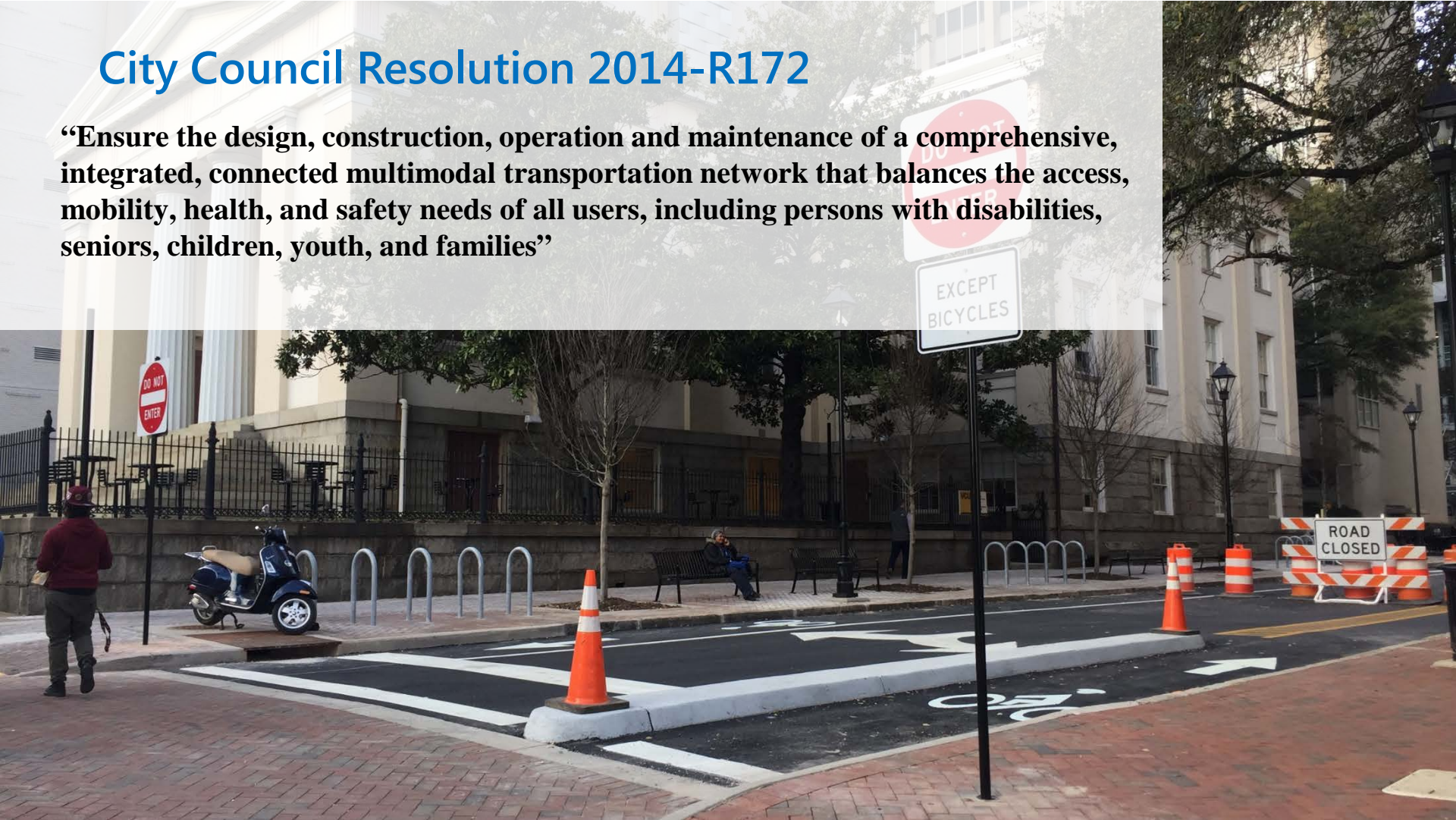
STEP 2: Adopt City Council Resolutions

- City Council adopted Resolution 2014-R172 in October 2014 for Complete Streets
- City Council adopted Resolution 2016-R011 in March 2016 for Vision Zero
 - Goal of reducing traffic fatalities and serious injuries in road traffic to zero by the year 2030



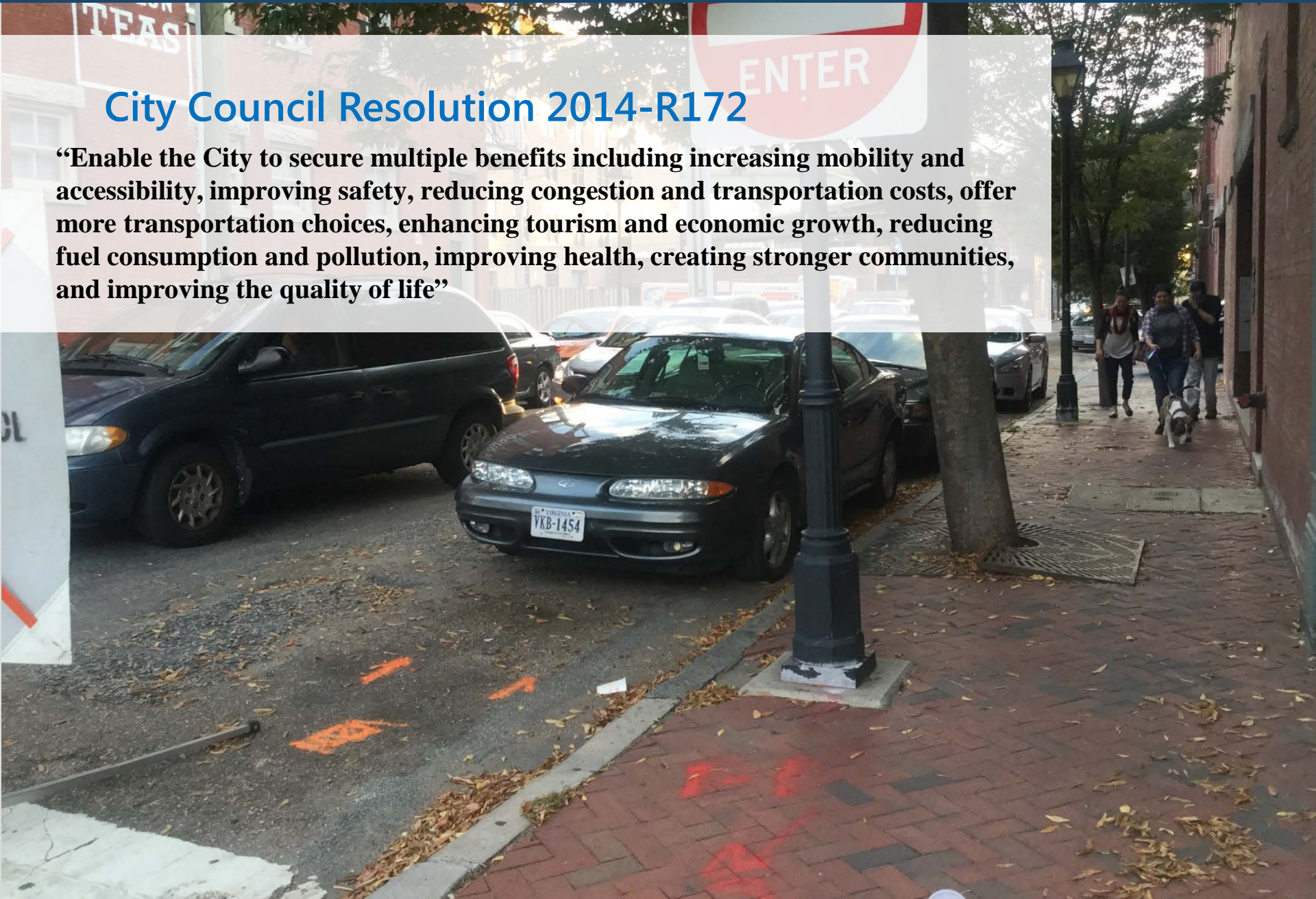
City Council Resolution 2014-R172

“Ensure the design, construction, operation and maintenance of a comprehensive, integrated, connected multimodal transportation network that balances the access, mobility, health, and safety needs of all users, including persons with disabilities, seniors, children, youth, and families”



City Council Resolution 2014-R172

“Enable the City to secure multiple benefits including increasing mobility and accessibility, improving safety, reducing congestion and transportation costs, offer more transportation choices, enhancing tourism and economic growth, reducing fuel consumption and pollution, improving health, creating stronger communities, and improving the quality of life”



STEP 3: Our Vision Zero Pledge

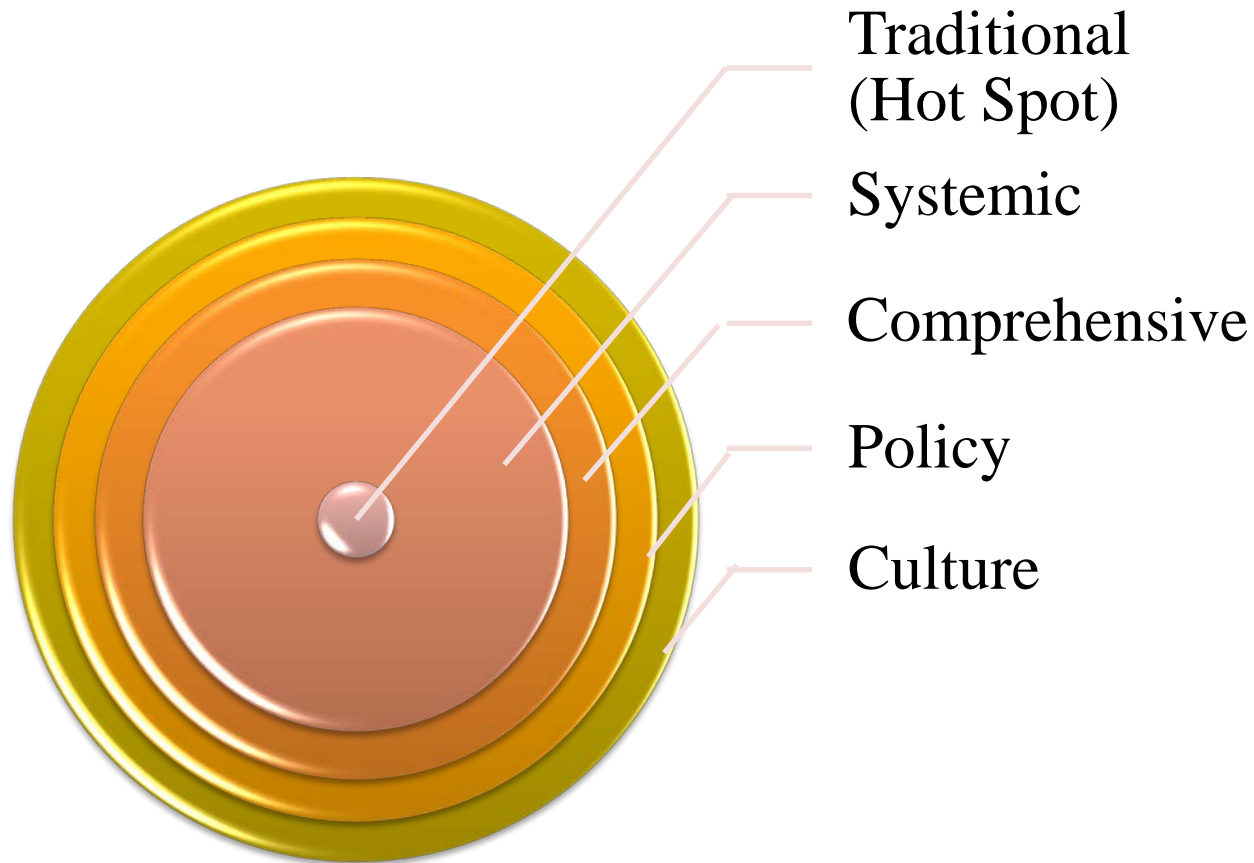


Source: RTD

Vision Zero Pledge includes Complete Streets

- “We recognize changes to land use patterns and street designs will take time and resources, but will continue this pursuit as opportunities and resources allow.”

A Vision Zero Pledge affects Workplace Culture

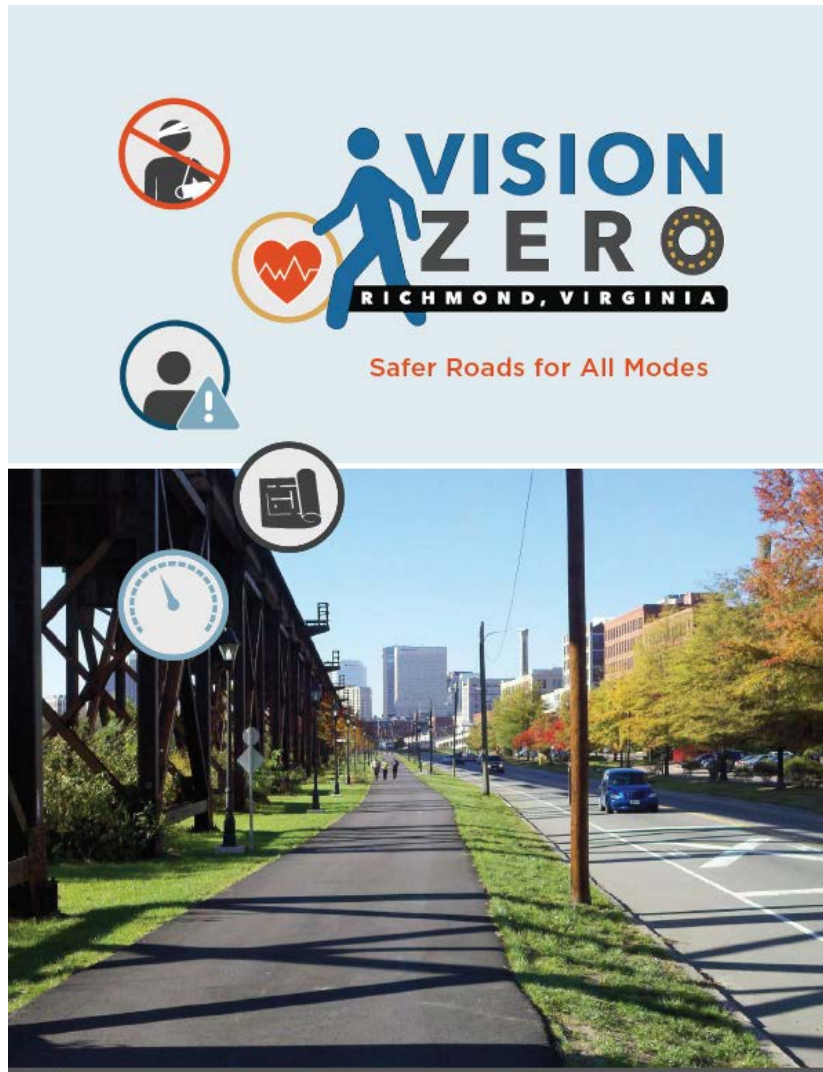


STEP 4: Safe & Healthy Streets Challenge

- Mayor Levar M. Stoney issued The Challenge (2017)
- Five things one can do...
 - Share the road
 - Obey speed limits
 - Buckle in
 - Avoid distractions
 - Drive sober
- If we did, it would not be **SO BAD...**

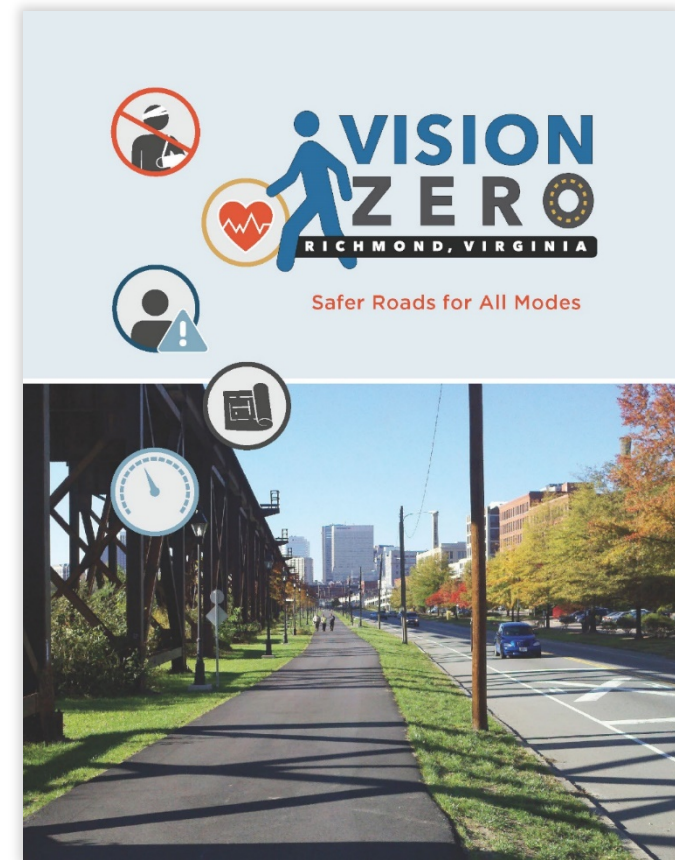


STEP 5: Our Vision Zero Action Plan



Vision Zero Action Plan

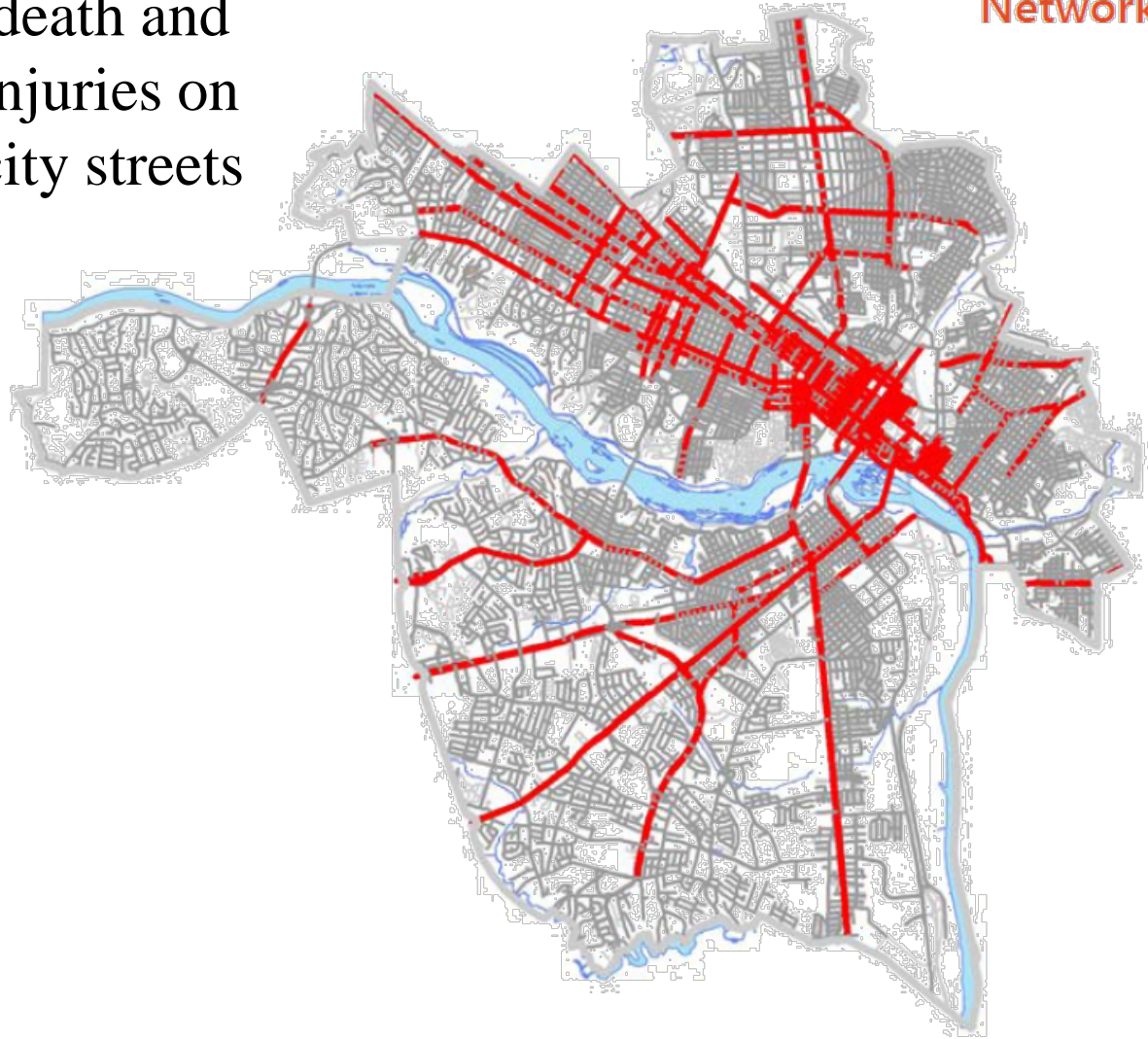
- Richmond's vision – support mobility and safety
 - Traffic deaths and severe injuries are acknowledged to be preventable.
 - Human life and health are prioritized within all aspects of transportation systems.
 - Human error is inevitable and transportation systems should account for this.
 - Safety work should begin with systems-level changes and follow with influencing individual behavior.
 - Speed is recognized and prioritized as the fundamental factor in crash severity.



High Injury Street Network

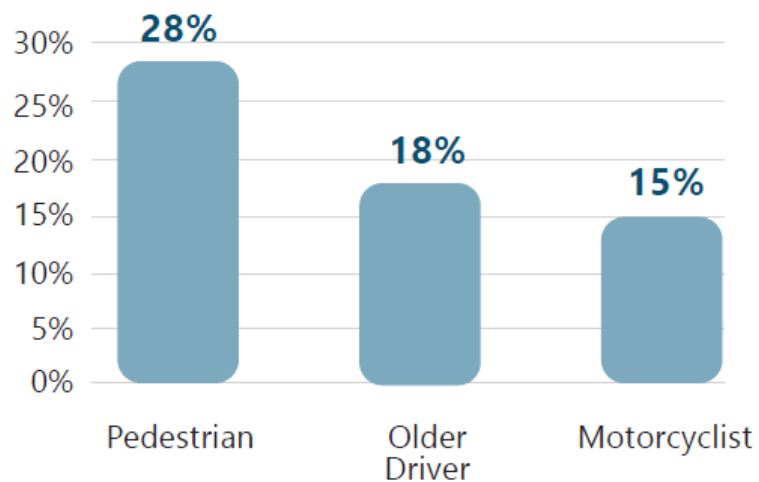
58% of death and serious injuries on 16% of city streets

Richmond High Injury Street Network Map

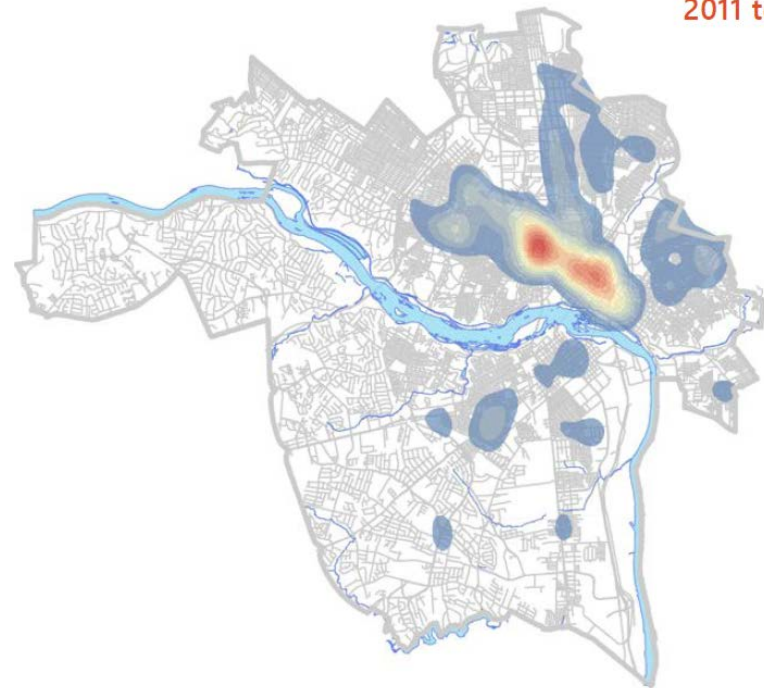


Pedestrian Crashes 2011 to 2016

Fatalities by Type of Road User



Pedestrian Crashes 2011 to 2016



STEP 6: Vision Zero Task Force & Coordinator

- Strong Mayor / CAO vs. City Manager
- Implementation takes place in the executive branch
- Creates a multi-disciplinary team of involved departments, offices, and authorities led by a Vision Zero Coordinator
- Responsible for reporting progress and metrics to Safe and Healthy Streets Commission, City Council, and the Mayor's Office
- VZ Coordinator engages community, non-profit, institutional, private sector, regional, state and federal level resources



STEP 6: Vision Zero Task Force

Department Leaders

Avula, Danny – Richmond Community Health Department	Jones, Korita B. – Human Resources
Baskerville, Robert G. – Department of Social Services	Lawus, Denise – Housing and Community Development
Brown, Jay A. - Budget	Nolan, James S. – Office of Press Secretary
Burrell, Betty J. - Procurement Services	Olinger, Mark A. – Planning and Development Review
Bustamante, Daniel – Office of Multicultural Affairs	Peters, Christie C. – Animal Care and Control
Carter, Melvin D. - Fire	Reid, Lenora G. - DCAO of Finance and Administration
Dunlap, Douglas C. – DCAO of Community Development	Steidel, Robert C. – DCAO of Operations
Durham, Alfred - Police	Summers, Donald R. – Department of Public Works – Capital Projects
Farr, Calvin D. – Department of Public Utilities	Todd, Charles G. – Department of Information Technology
Ferrara, Jane C. – Department of Economic Development	Vincent, Bobby – Department of Public Works
Firestine, Scott R. – Richmond Public Library	Wack, John B. - Finance
Foster, Patricia R. – Minority Business Development	Willoughby, Stephen M. – Department of Emergency Communications
Frelke, Christopher E. – Department of Parks and Recreation	Mitchell, Charles – Greater Richmond Transit Company
Giles, Shunda T. – Department of Social Services	Simmons, Theresa – Richmond Metropolitan Transportation Authority
Gordon, Reginald E. – Office of Community Wealth Building	Decker, Chip – Richmond Ambulance Authority



STEP 7: Yearly Priorities and Metrics

Vision Zero Production Metrics					
No.	Action	Category	Lead Organization	Metric	Status
I-1	Hire Vision Zero Coordinator to promote continual collaboration and manage implementation and evaluation of the plan across agencies and organizations	Legislative and Budget	CAO	Hire or appoint VZ Coordinator	Complete. Mike Sawyer assigned.
I-2	Establish a multi-department task force to review data and ongoing Vision Zero performance and determine strategies for improvement	Executive	CAO / VZ Coordinator	Meeting Scheduled Quarterly.	Complete.
I-3	Assign a representative to participate in the Richmond Regional TPO and COV transportation safety meetings	Executive	CAO / VZ Coordinator	representative designated and active	Complete. Mike Sawyer assigned
I-4	Perform an evaluation of current design speeds on the high injury street network, considering context, and explore ways to make physical engineering changes.	Executive	DPW	Evaluate 135 centerline miles. 93% locations received.	In progress. VDOT partnership.
I-5	Implement safety treatments on the high injury network	Executive	DPW	# safety treatments on HISN	In progress.
I-6	Conduct strategic, multi-modal high visibility enforcement campaigns with educational components that are designed to reach all users of the transportation system.	Cultural	RPD, NPO, SHSC, VZC	# of campaigns by dangerous behavior (OP, DUI, Ped, and Speed)	In progress.
I-7	Provide a parity of transportation choices for all users through a complete streets approach which allows for multiple modes to make the same trip safely.	Executive	DPW	# lane miles of bike infrastructure	In progress. 8.5 miles implemented with 18 miles designed.
I-8	Provide safe access to transit stops on HISN partnering with GRTC.		GRTC / DPW	# accessibility treatments on HISN	In progress.
I-9	Provide up-to-date and accessible data about traffic safety on the City website	Cultural	RPD OPS DIT	safety dashboard operational	In progress. DPW prototypes.
I-10	Establish a permanent, dedicated funding source for Vision Zero Implementation and coordination.	Legislative and Budget	City Council	\$	FY20 Budget Process
I-11	Identify and evaluate advanced tools and techniques to reduce speeding, such as automated enforcement, and where necessary, work with the General Assembly to expand local authority on the ability to use these tools.	Legislative and Budget	RPD	# of Enforcement Tools Deployed; Automated Enforcement Bill	FY20 Budget Process FY19 General Assembly
I-12	Encourage the passage of a primary seat belt law for all vehicle occupants	Legislative and Budget	SHSC / VZ Coordinator	Law adopted	FY19 General Assembly

TASK FORCE ADOPTED 10/4/2018



STEP 8: Engage Community Leaders

- Start with WHY
 - 2,700 injuries and 13 deaths on city streets annually;
- Provide the WHAT
 - Worked with Richmond District Health Department on messaging;
 - Leadership Talking Points launched;
- Suggest HOW
 - Public engagement speeches
 - Community meetings
 - Neighborhood Newsletters
 - Attend safety calendar press events



Action to Coordinate Outreach

- **II-15 Coordinate a transportation safety calendar** to promote safety messaging and high visibility enforcement.
 - APRIL People who work in our roads
 - MAY People who bike
 - JUNE People who ride motorcycles
 - JULY People who drive impaired
 - AUGUST People who are new drivers
 - SEPTEMBER People who transport children

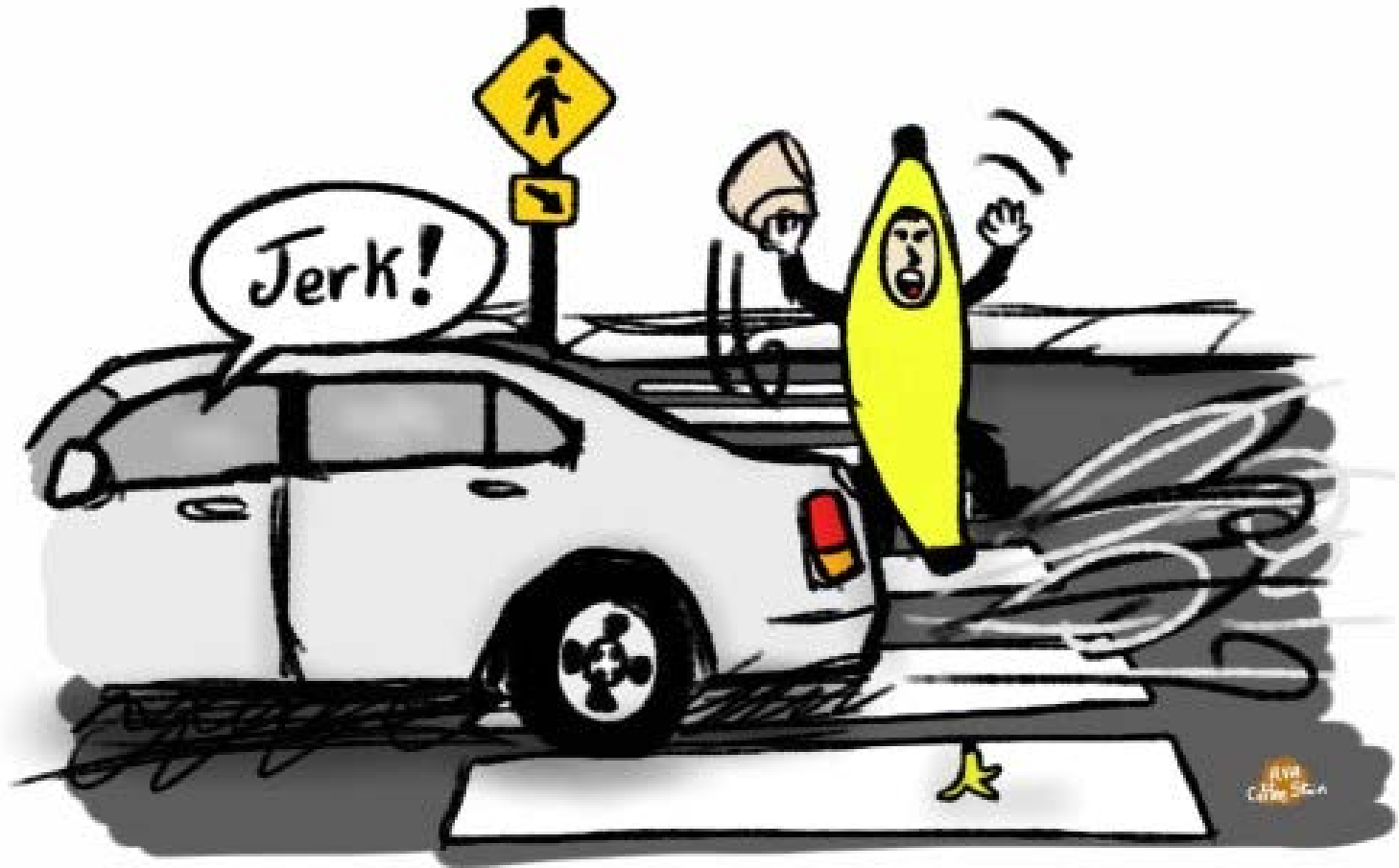


STEP 9: Shift the Safety Culture

- Focus on culture:
 - Family
 - Neighborhood
 - Community
 - School / Workplace / Places of Worship
- Sustain outreach efforts through elected officials, thought leaders, community leaders
- Elevate the conversation to “people talking to people”
- Ask interesting questions



How do we change our safety culture?



Source: RVA Coffee Stain

Key Legislation – Commonwealth of Virginia

- Primary Seat Belt Law for all occupants
- Photo Speed Enforcement Law for schools, parks, and work zones
- Handheld Ban on all electronic devices
- Contributory versus comparative negligence
- Clarifying the law for people who cross streets



Safety Culture is complex and multi-faceted

- It is the collection the following present in a community:
 - shared values,
 - attitudes,
 - beliefs,
 - behaviors,
 - rules,
 - policies, and
 - laws

Read this book...



Careful!

Steve Casner

The surprising science behind everyday
calamities – and how you can avoid them

VCU Brand Center and Vision Zero



VCU Brandcenter

WhoisEdwin.com – Ghost Hunters

LATEST EDWIN SIGHTINGS

DAY 1 • CITY CENTER

After a long night in the lab, several of us personally witnessed Edwin after we crossed 8th Street to get to the parking garage. We were in such a hurry we crossed the street in the middle of the block instead of walking to the crosswalk, and BOOM. The executive director claims she heard someone whisper “FRIENDS?” in her ear.



DAY 2 • VCU MONROE PARK

Kelsey, a VCU freshman, sent us this picture of an astounding paranormal entity. We believe it to be Edwin because it seems to follow someone who is walking in the crosswalk when it is not safe to walk. She snapped it at Belvidere and Broad in between classes.



VCU Brandcenter



Edwin's Story

EDWIN'S STORY

Edwin Thomas was born on August 21, 1997. He's the loneliest ghost in Richmond and has been dead for a few years now. He was killed while crossing the street in the downtown Richmond area. Nobody knows for sure what he was doing in his final moments, but legend has it that he was looking at his phone (and not at his surroundings) when a car hit him.

Edwin was raised in NOVA, but he decided to move to Richmond because he liked the eeriness of it. One of his favorite pastimes was walking around Hollywood Cemetery. He used to sit by the tombstones and draw for hours. He also wrote poetry. He was huge fan of Edgar Allan Poe. Some say he wanted to be an artist, but was too shy to show any of his artistry with anyone.

Without his family, friends, or his phone, he's forced to find new friends who can join him in the afterlife. He now spends his time trying to get people to jaywalk, stare at their phones as they cross the street, and will do anything he can to ensure people don't take ownership of their own safety.

People say that Death told him he could pick anywhere he wanted to haunt. He chose a few specific spots around Richmond because he knows these parts lack certain infrastructure or they're densely populated:

- VCU area
- Downtown
- Church Hill
- Manchester
- Chamberlayne

While the mystery remains as to when Edwin will completely cross over and leave Richmond for good, one thing is for sure—his presence has taken a toll on pedestrian deaths and injuries. In 2017 there were over 150 traffic-related deaths or serious injuries in the city streets of Richmond.

To help ward off Edwin, you could follow some superstitions and get a cold iron or hang a horseshoe. But we want the community to get involved, so we're asking for the community's help. So here are some links with information on what you can do to help:

Vision Zero



Top Ways to Avoid Edwin

TOP WAYS TO AVOID EDWIN

1. Don't cross the street at any other place besides the crosswalk.
 2. Don't cross the street while the hand is red.
 3. Look both ways before you cross the street.
 4. Don't cross the street while looking at your phone.
 5. Don't assume cars will stop for you because you think you have the right of way, regardless if you do or don't.
 6. Don't assume you have the right of way just because you're a pedestrian.
 7. Don't walk into oncoming traffic.
 8. Don't walk across the interstate.
 9. Don't jam on some headphones while crossing the street.
 10. Don't cross in an area that is not well-lit.
 11. Look both ways.
 12. Don't cross diagonally.
 13. Don't cross the bike lane without looking.
-

BONUS: Don't cross the street while super drunk!



Edwin isn't real. BUT This is real...

EDWIN ISN'T REAL.
BUT THIS IS REAL.

10

people died while jaywalking in Richmond last year.

THAT'S A HIGHER RATE THAN:



Pedestrian deaths per 100,000 people - [Source](#)

[Read what RVA is doing about it](#)

[Keep reading about Edwin \(Close\)](#)



Speed versus Height



Falls versus Motor Vehicle Crashes

- Average Annual Deaths and Serious Injuries in City of Richmond:
 - 423 from unintentional falls
 - 199 Slipping, Tripping, and Stumbling
 - 41 Stairs or Steps
 - 12 From Ladder
 - 241 from motor vehicle crashes

10 Leading Causes of Non-Fatal Injuries

National Estimates of the 10 Leading Causes of Nonfatal Injuries Treated in Hospital Emergency Departments, United States - 2017

Rank	Age Groups										Total
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Unintentional Fall 120,007	Unintentional Fall 699,107	Unintentional Fall 530,390	Unintentional Struck By/Against 451,267	Unintentional Struck By/Against 755,114	Unintentional Fall 647,408	Unintentional Fall 623,997	Unintentional Fall 828,731	Unintentional Fall 1,047,959	Unintentional Fall 2,970,720	Unintentional Fall 8,591,683
2	Unintentional Struck By/Against 23,356	Unintentional Struck By/Against 254,793	Unintentional Struck By/Against 323,525	Unintentional Fall 451,183	Unintentional Fall 671,408	Unintentional MV-Occupant 579,446	Unintentional Other Specified 436,726	Unintentional Other Specified 473,983	Unintentional Other Specified 356,187	Unintentional Struck By/Against 312,954	Unintentional Struck By/Against 3,685,012
3	Unintentional Other Bite/Sting 13,505	Unintentional Other Bite/Sting 139,941	Unintentional Other Bite/Sting 107,577	Unintentional Overexertion 222,433	Unintentional MV-Occupant 595,092	Unintentional Struck By/Against 528,104	Unintentional Struck By/Against 396,695	Unintentional Overexertion 362,246	Unintentional Struck By/Against 278,211	Unintentional Overexertion 227,817	Unintentional Overexertion 2,569,850
4	Unintentional Other Specified 9,737	Unintentional Foreign Body 121,422	Unintentional Cut/Pierce 88,488	Unintentional Cut/Pierce 99,249	Unintentional Overexertion 493,072	Unintentional Other Specified 517,628	Unintentional Overexertion 395,791	Unintentional Struck By/Against 360,767	Unintentional Overexertion 258,488	Unintentional MV-Occupant 215,666	Unintentional MV-Occupant 2,500,353
5	Unintentional Foreign Body 8,618	Unintentional Cut/Pierce 60,421	Unintentional Overexertion 65,413	Unintentional Unknown/Unspecified 67,107	Unintentional Cut/Pierce 345,982	Unintentional Overexertion 482,430	Unintentional MV-Occupant 381,110	Unintentional Poisoning 337,444	Unintentional MV-Occupant 249,192	Unintentional Cut/Pierce 162,819	Unintentional Other Specified 2,365,891
6	Unintentional Inhalation/Suffocation 8,518	Unintentional Overexertion 58,727	Unintentional MV-Occupant 53,791	Unintentional MV-Occupant 64,349	Unintentional Other Specified 331,389	Unintentional Poisoning 401,819	Unintentional Poisoning 321,267	Unintentional MV-Occupant 331,388	Unintentional Poisoning 245,289	Unintentional Other Specified 143,563	Unintentional Cut/Pierce 1,823,358
7	Unintentional Fire/Bum 7,567	Unintentional Other Specified 47,348	Unintentional Foreign Body 52,756	Unintentional Other Bite/Sting 57,014	Other Assault* Struck By/Against 312,205	Unintentional Cut/Pierce 372,787	Unintentional Cut/Pierce 269,865	Unintentional Cut/Pierce 235,597	Unintentional Cut/Pierce 184,284	Unintentional Poisoning 137,849	Unintentional Poisoning 1,755,044
8	Unintentional Unknown/Unspecified 4,618	Unintentional Fire/Burn 41,066	Unintentional Pedal Cyclist 39,388	Other Assault* Struck By/Against 54,366	Unintentional Poisoning 246,611	Other Assault* Struck By/Against 355,927	Other Assault* Struck By/Against 212,483	Other Assault* Struck By/Against 171,022	Unintentional Other Bite/Sting 115,933	Unintentional Other Bite/Sting 116,191	Other Assault* Struck By/Against 1,142,580
9	Unintentional Cut/Pierce 3,844	Unintentional Unknown/Unspecified 38,207	Unintentional Dog Bite 33,586	Unintentional Pedal Cyclist 49,283	Unintentional Other Bite/Sting 147,861	Unintentional Other Bite/Sting 176,855	Unintentional Other Bite/Sting 131,323	Unintentional Other Bite/Sting 135,907	Other Assault* Struck By/Against 95,550	Unintentional Unknown/Unspecified 96,304	Unintentional Other Bite/Sting 1,142,130
10	Unintentional Poisoning 3,459	Unintentional Poisoning 37,493	Unintentional Unknown/Unspecified 32,336	Unintentional Other Transport 40,876	Unintentional Unknown/Unspecified 122,980	Unintentional Unknown/Unspecified 120,116	Unintentional Unknown/Unspecified 98,759	Unintentional Unknown/Unspecified 95,913	Unintentional Unknown/Unspecified 78,898	Unintentional Other Transport 79,829	Unintentional Unknown/Unspecified 755,567

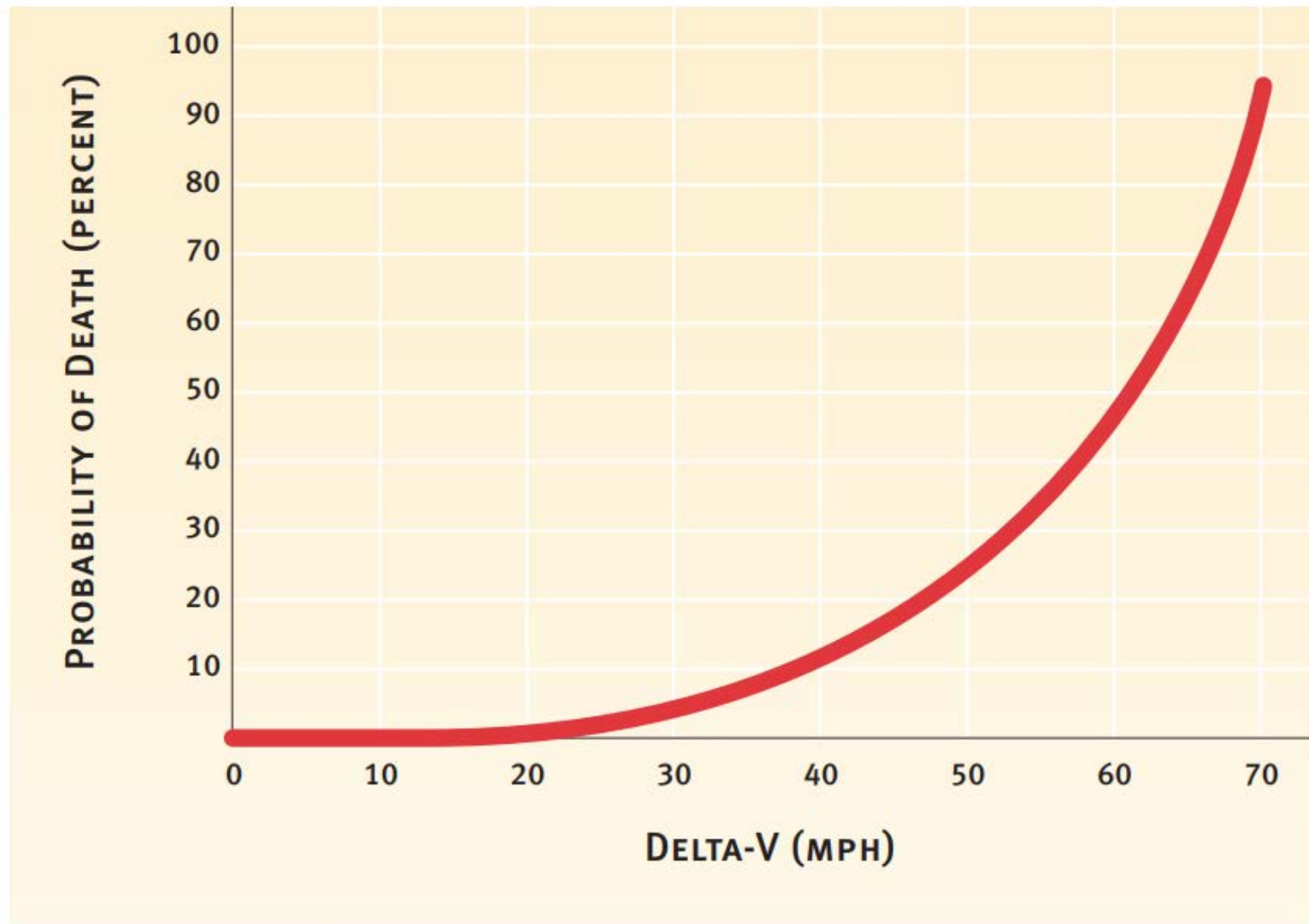
But my vehicle has FIVE Stars



5-Star Safety Ratings

More Stars. Safer Cars.

Speed and Severity



Death + Serious Injuries for belted at 40MPH



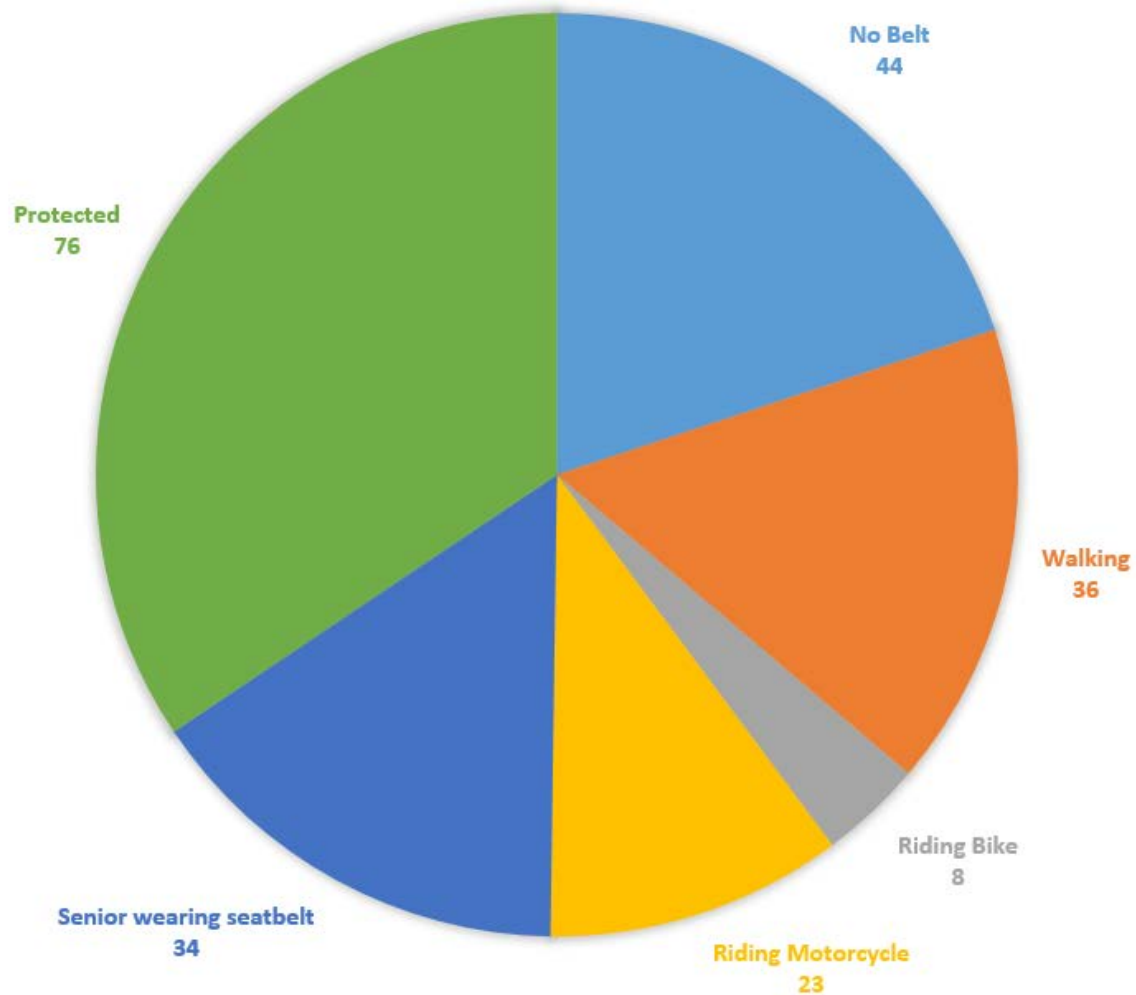
Same impact – Different Age



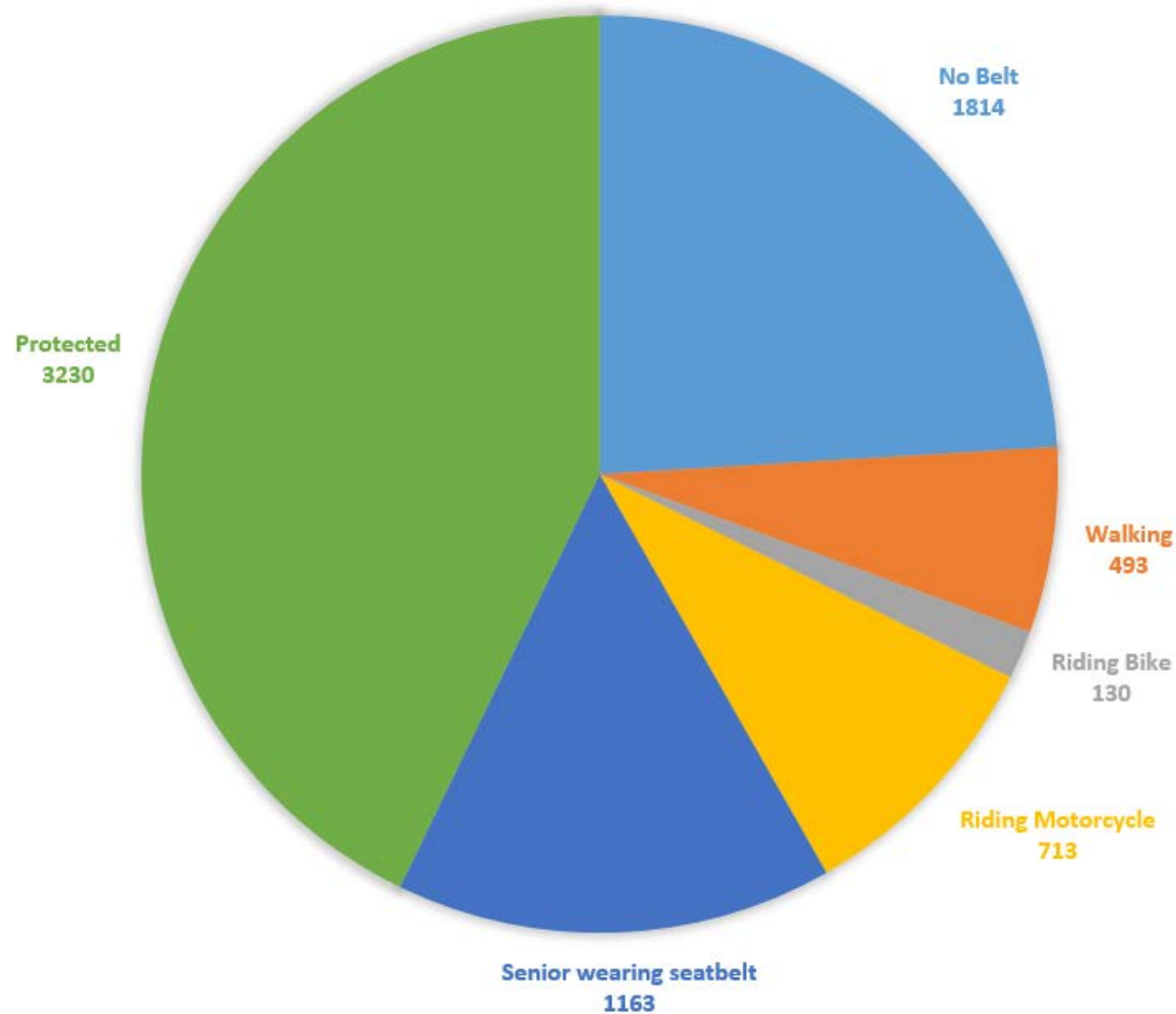
What do these have in common?

- Unbelted daughter in a motor vehicle
- Son crossing street to go to school
- Mother riding motorcycle
- Dad riding bicycle
- Grandmother jogging
- Grandfather buckled in back seat at 40MPH
- Dog running out front door
- Deer crossing to the park

Who is vulnerable on city streets?

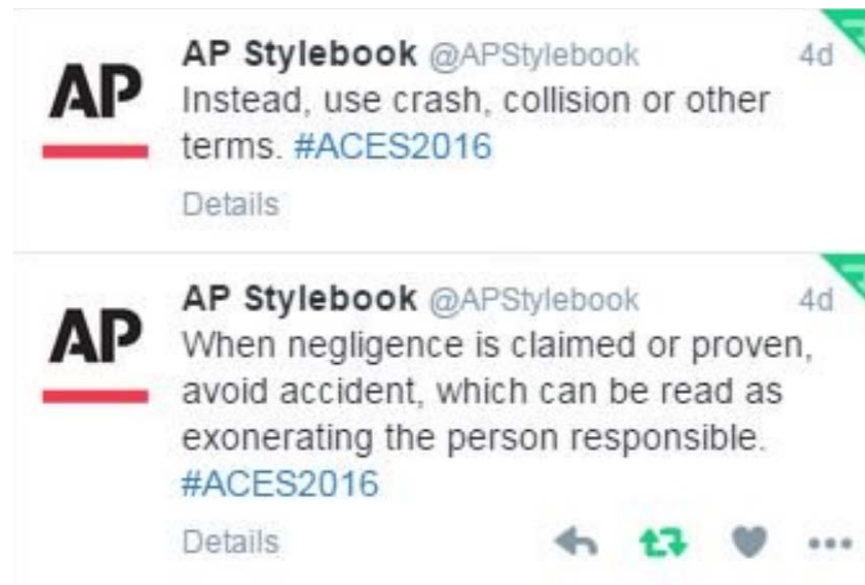


Who is vulnerable on Virginia's roads?



Vision Zero Language is important...

- **II-19 Develop standard language regarding VZ** for use by all partners when interacting with the media and the public.





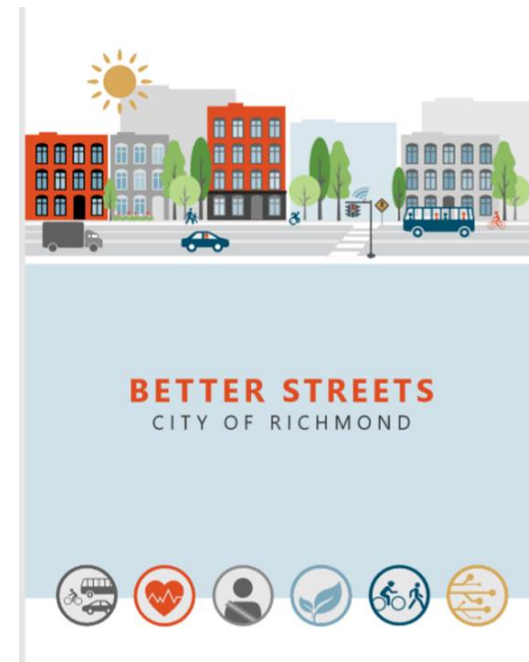
Safety Culture – Twitterverse – @000RVA

- Established September 1st, 2017
- Retweet existing safety messages
- Goals
 - See how many messages are out there related to shifting our safety culture
 - Describe what Vision Zero is about and what normal people can do to improve
 - Encourage peer groups to challenge each other
- Approximately 7,000+ messages from experts
- Over 400,000+ impressions



STEP 10: Vision Zero as DNA

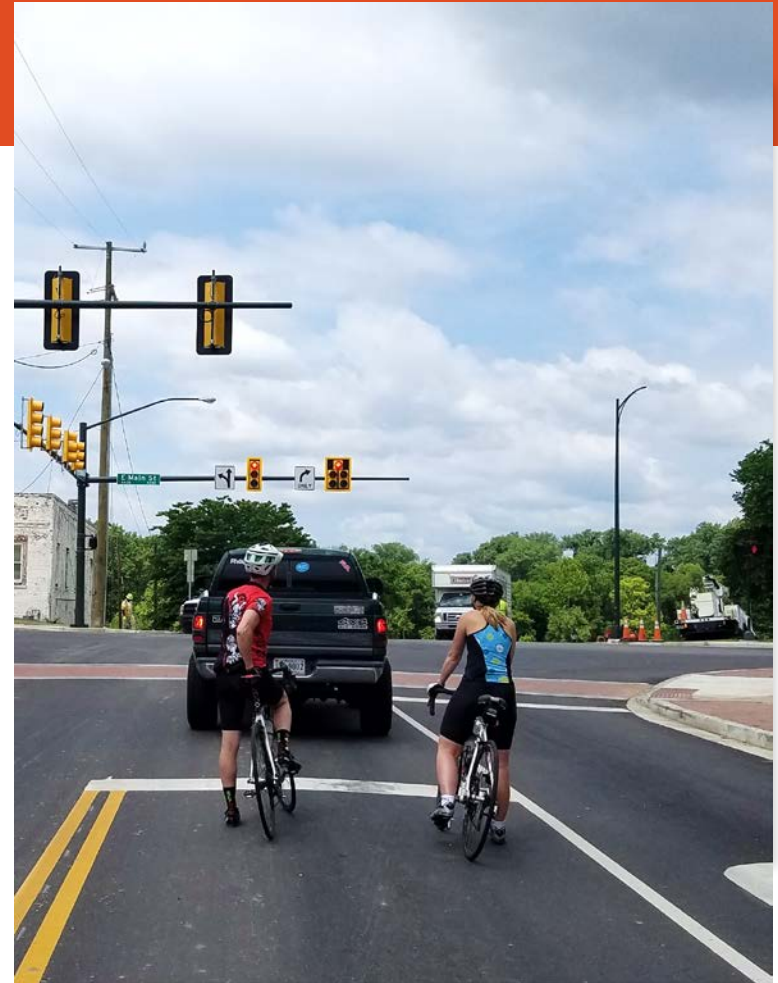
- Partnerships
- Health in all Policies
 - City Master Plan
 - Better Streets Manual
 - Traffic Signal Operations
 - Bike Infrastructure
 - Pedestrian Infrastructure
 - Intersection Design
 - Typical Sections
 - New Development
 - Private Sector
 - Universities / City Owned



Complete Streets Implementation in RVA

Better Streets Overview

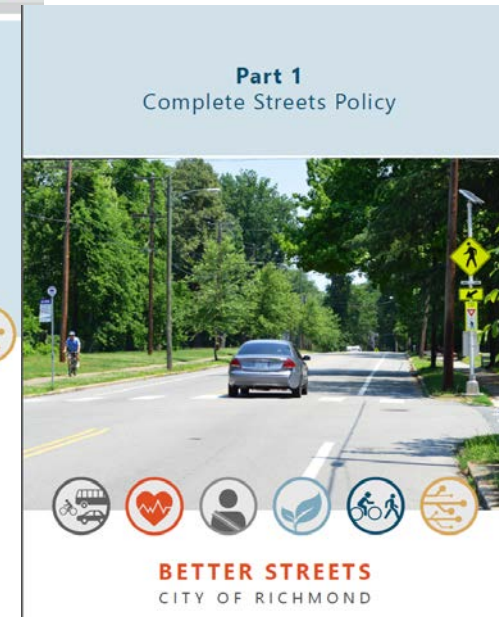
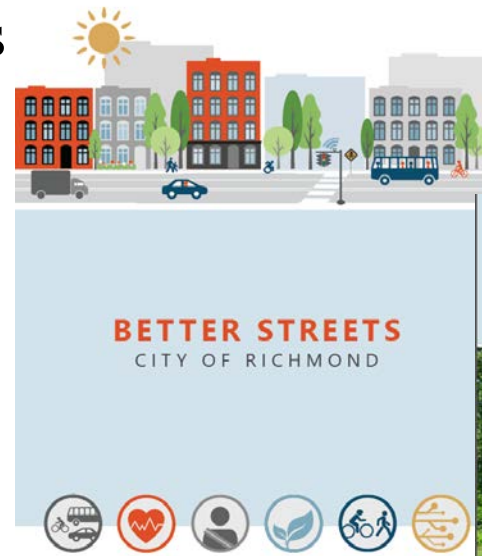
- Creating complete streets is a process not a guide
- Streets are for all users - young and old, mobility impaired, drivers, riders, walkers, bikers, utilities, business owners



Complete Streets Implementation in RVA

Better Streets Overview

- Integrating complete streets policy with City design standards and construction specifications.
 - Part 1 – Policy
 - Part 2 – Standards
 - Part 3 - Construction
- It's like a trip; plan it, map your route, travel and refer to your map when you need to.



Complete Streets Implementation in RVA

Better Streets Overview

1. Create a Vision
2. Create Typologies & Overlays
3. Define the Pedestrian Space
4. Define the Street Space
5. Intersections Principles
6. Integration of Elements

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Complete Streets Implementation in RVA

Richmond's Guiding Principals

SAFE



GREEN



ACTIVE



HEALTHY MULTIMODAL



SMART



Complete Streets Implementation in RVA

Policy Approach

- Establish Street Typologies
- Establish Overlays
- Create guidelines
- Combine policy with geometric and construction standards
- Design for multiple users

Pedestrians

Bicycles

Transit

Motor Vehicles

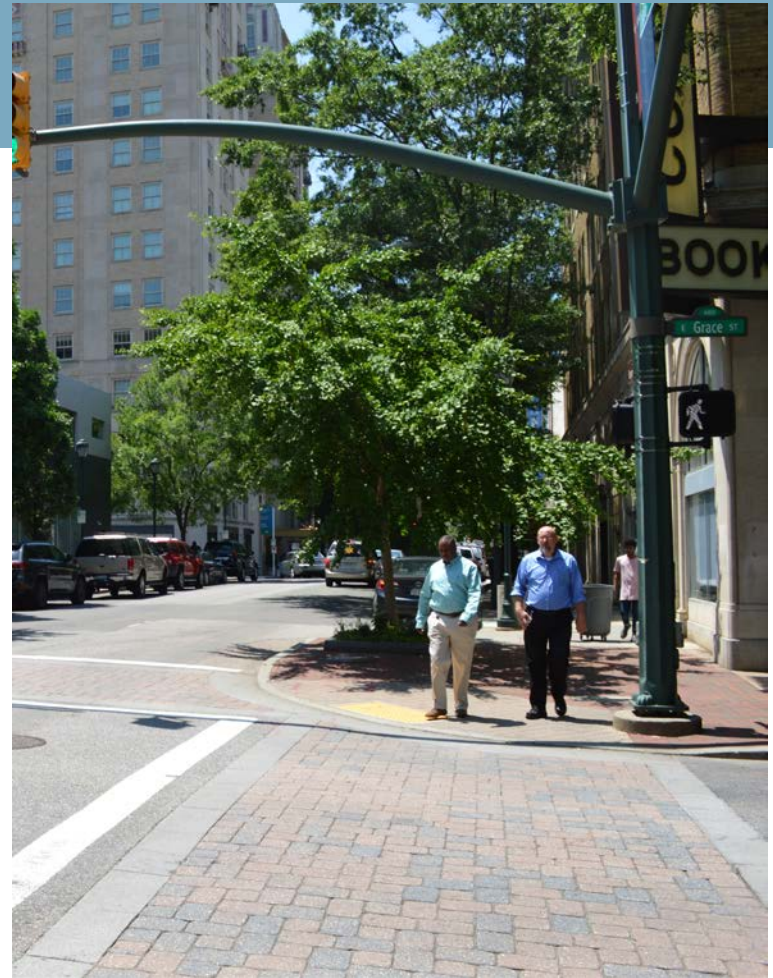


It's a Process



Multiple Users

- Pedestrians are the most vulnerable
- Balance the need for accommodations
- Consider the adjacent land uses
- Respect systems and connectivity
 - Richmond Bicycle Master Plan
 - GRTC Transit Routes
 - Richmond 300 (in progress)



Defining Streets – Contextual Typologies

Downtown

Commercial Connector

Neighborhood Connector

Neighborhood Residential

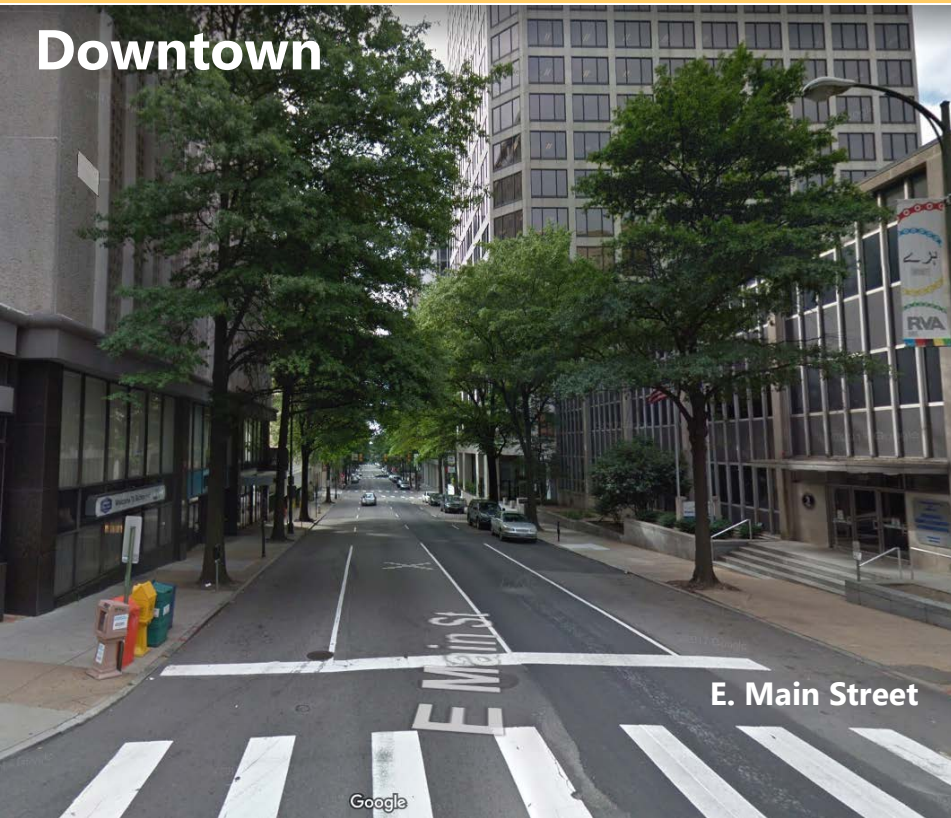
Mixed-Use

Industrial

Parkways



Downtown



E. Main Street

Commercial Connector



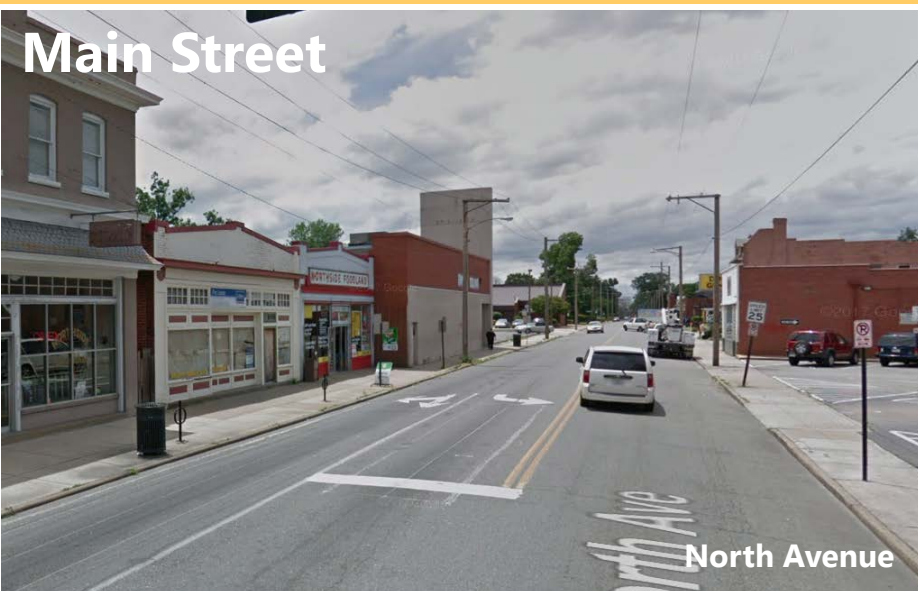
Midlothian Turnpike

Neighborhood Connector



Brook Road

Street Typologies



Main Street

North Avenue



Neighborhood Mixed Use

Summit Avenue



Neighborhood Residential

3rd Avenue



Industrial

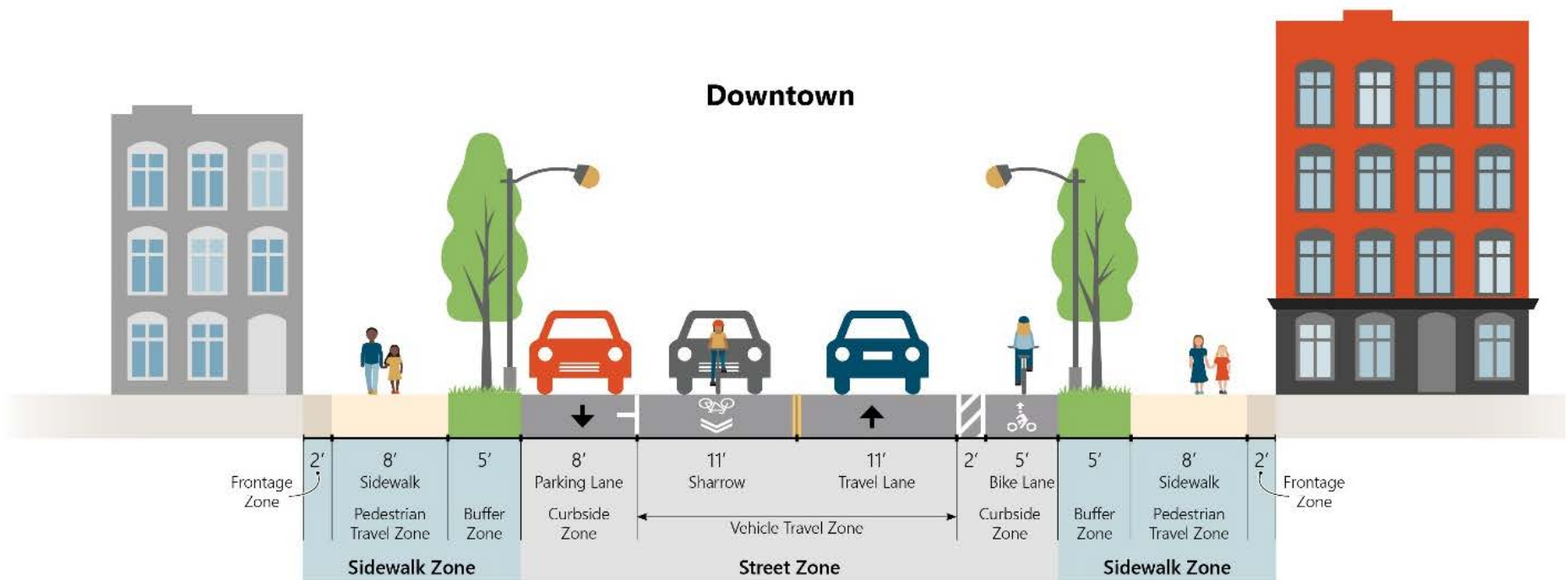
Ruffin Road



Parkways

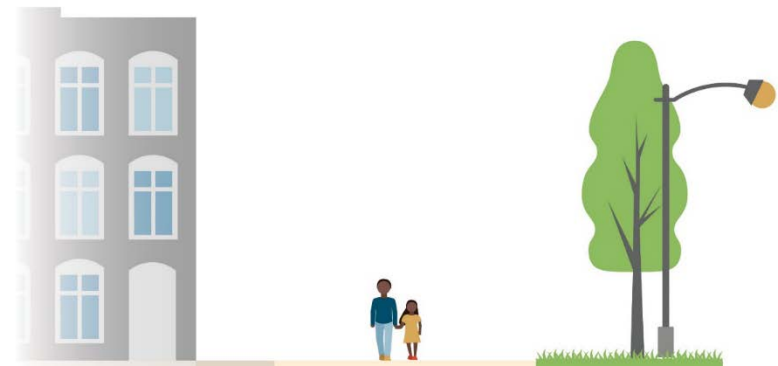
Riverside Drive

Richmond Better Streets



Street Elements

- Presents design guidelines for street elements
 - Sidewalk Zone
 - Street Zone
 - Intersections
- Prioritizes elements based on typology
- Presents preferred and minimum criteria
 - Curb radii
 - Crosswalk width
 - Lane width



	Frontage Zone (feet)	Pedestrian Zone (feet)		Buffer Zone (feet)	
		Preferred	Minimum	Preferred	Minimum
Downtown Streets	1	>8	5	5	2
Commercial Connector Streets	0.5	6	5	6	4
Neighborhood Connector Streets	0.5	>6	5	6	4
Neighborhood Residential Streets	0.5	6	5	4	4
Mixed Use Streets	1	8	5	5	2
Industrial Streets	0.5	5	5	4	4
Parkways	0.5	6	5	4	4

Integration

Balance the needs of the users within a
constrained right-of-way

Understand Context

- Land Use
- Activity
- Overlays
 - Land Use Areas (i.e. Historic Districts)
 - Vision Zero Priorities
 - School Zones
 - Transit Streets
 - Bicycle Network Streets
 - Freight Routes



Questions?

Case Studies



Case Studies

Franklin Street Separated Bike Lanes

Shockoe Valley Streets Improvements



Shockoe Valley Streets Improvements

- Smart Scale Funding
- Identified I-95/I-64 Overlap Study
- Improve traffic operations on adjacent surface streets
 - Five roundabouts
 - Complete streets



STUDY AREA



Shockoe Valley Streets Improvements



ACCESS – Improve Access into the neighborhood

SPEED – Promote Lower Vehicle Speeds

BICYCLISTS – Connect Bike Trails

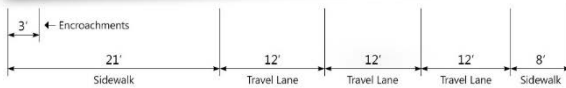
TRANSIT – Accommodate New Transit System

CONNECTIVITY

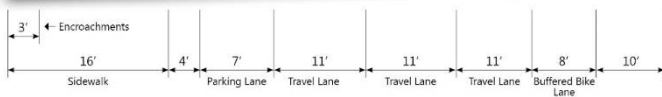


Oliver Hill Way – Venable Street to Broad Street

Existing Conditions

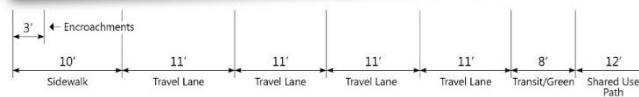


Proposed Conditions – Option 1



- Proposed Conditions - Option 1
 - Widen cross-section from 65' to 78'
 - Narrow travel lanes to 11'
 - Buffered bike lane and green space
- Proposed Conditions - Option 2
 - Widen cross-section from 65' to 74'
 - Conversion to two-way travel and narrow travel lanes to 11'
 - Wide shared use path and green space

Proposed Conditions – Option 2

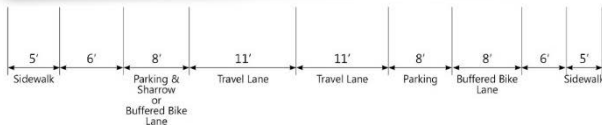


Venable Street – Oliver Hill Way to Mosby Street

Existing Conditions



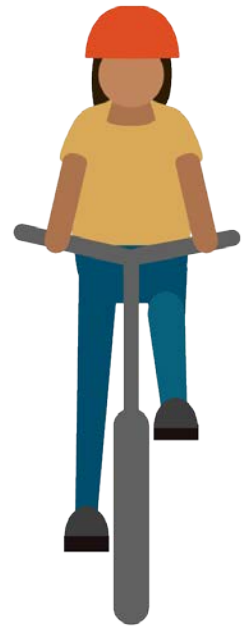
Proposed Conditions – Option 1



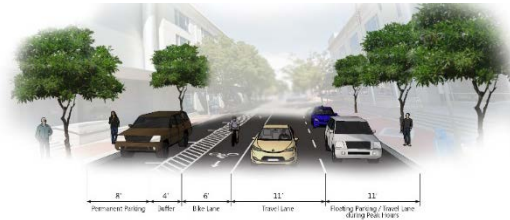
- Existing Conditions
 - Curbside parking
 - No bicycle facilities
 - Wide travel lanes
- Proposed Conditions
 - Maintains existing 68' cross-section
 - Narrow travel lanes to 11'
 - Buffered bike lane on uphill side of street
 - Floating parking lane on residential side of street
 - Downhill side of street - option for either...
 - Buffered bike lane
 - Parking lane plus sharrow in travel lane

Franklin Street Separated Bike Lanes

- Original concept: one-way bike lanes on E. Main Street & E. Franklin Street
- Multiple options considered including two-way bike lanes on E. Franklin Street
- Public input process
- Multimodal considerations
 - Bicycle
 - Transit
 - On-street parking
 - Peak hour traffic

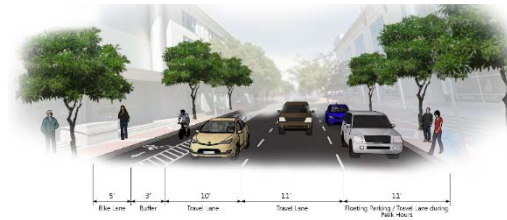


Franklin Street Separated Bike Lanes



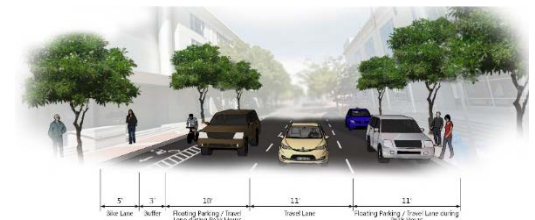
Buffered Bike Lane Next to Travel Lane

- Two peak-hour travel lanes
- One non-peak hour travel lane
- Permanent parking lane
- Parking on both sides
- Bicyclists adjacent to moving vehicles



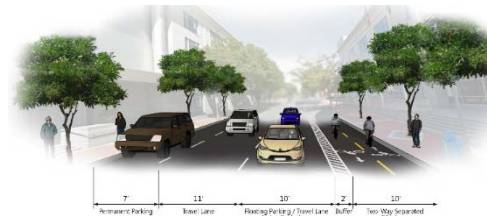
Buffered Bike Lane Next to Sidewalk

- Three peak-hour travel lanes
- Two non-peak hour travel lanes
- Loss of one parking lane
- Bicyclists buffered from moving vehicles



Parking Separated Bike Lane

- Three peak-hour travel lanes
- One non-peak hour travel lanes
- Parking on both sides
- Bicyclists buffered from parking and moving vehicles



Two-Way Separated Bike Lane

- Two peak-hour travel lanes
- One non-peak hour travel lane
- Permanent parking lane
- No impacts to Main Street
- No interaction of bicycles & buses
- Floating parking separating the bike lane

Franklin Street Separated Bike Lanes

- Selected option of two-way separated on Franklin Street
 - Comfortable bike facilities
 - Better connectivity with City bicycle system
 - Parking prohibition during peak reduced to one side
 - No transit/bike conflicts
- Change is always challenging
- Continuing education



STEP 11: Focus on Resources

- Grant writing
- Local budget process
 - Transportation Operations and Enforcement
 - Traffic Safety Assets
 - Regulatory and Warning Signs
 - Crosswalks and School Markings
 - Traffic Signal Maintenance Replacement
- Training for excellent employees
- Leverage partnerships and technology



STEP 12: Keep your head up...

