

Vulnerable Road Users Safety: What Cities Can Do To Make Things Better?

Transportation Research Board Webinar

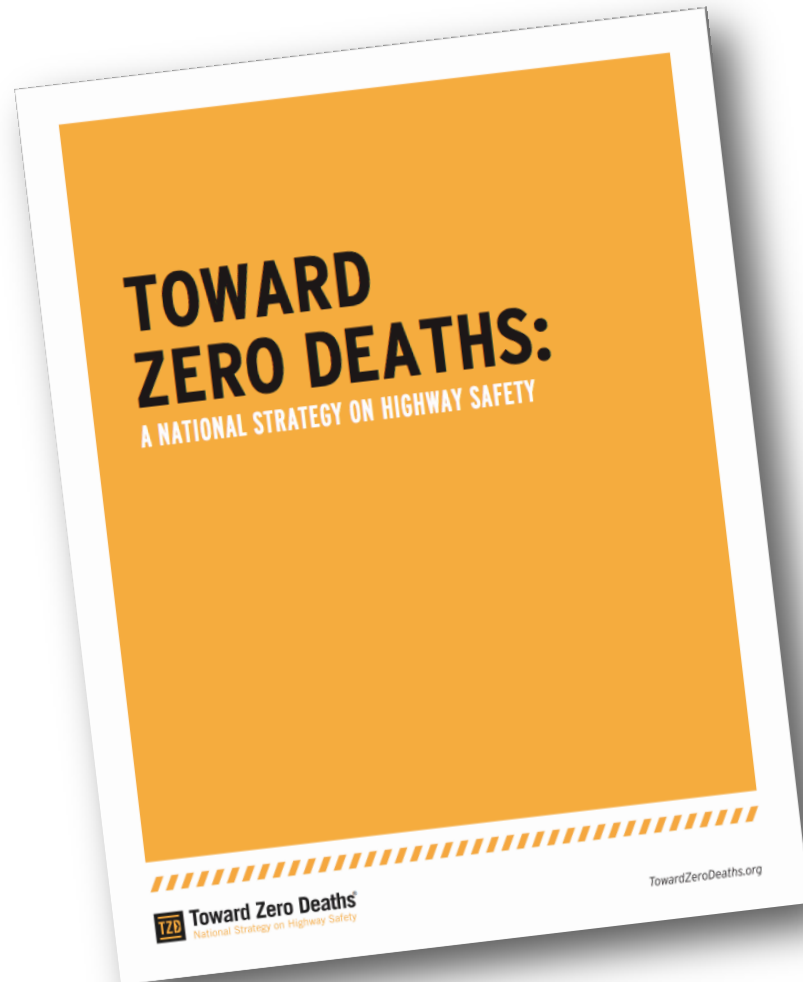
September 27, 2016

Robert Hull, Cambridge Systematics, Inc.

The Issue Today

- NHTSA 2015 estimates:
 - Pedalcyclist fatalities - 13% increase
 - Pedestrian fatalities - 10% increase
 - Motorcyclist - 9% increase

Toward Zero Deaths



Vision: A highway system free of fatalities, changing the nation's culture to the point where even one traffic-related death is unacceptable

TZD Emphasis Areas

Drivers and Passengers



Vulnerable Users



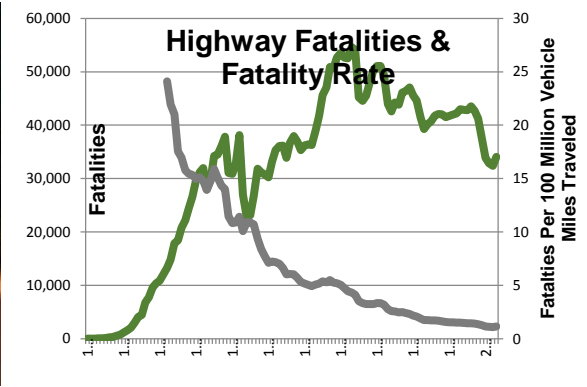
Vehicles



Infrastructure



Emergency Medical Services



Safety Management

Safer Vulnerable Users

Safer Vulnerable Users

- Pedestrians
- Bicyclists (or pedalcyclists, including all wheeled and pedal-powered vehicles)
- Motorcyclists
- Individuals whose work takes place on the roadway
 - Construction and maintenance workers
 - Emergency medical and incident responders
 - Law enforcement personnel

Pedestrians

Pedestrian Safety Strategies

- Enact and enforce traffic laws applicable to motor vehicle operators and vulnerable users that improve pedestrian safety
- Implement pedestrian awareness programs targeting pedestrian visibility and impaired walking
- Implement education programs for school-age pedestrians aimed at eliminating pedestrian fatalities
- Coordinate with private sector establishments serving alcohol to eliminate impaired walking
- Consider pedestrians with disabilities in the design of pedestrian facilities

Pedestrian Safety Strategies

- Implement infrastructure/roadway improvements to support speed management to reduce risk of pedestrian fatalities
- Implement infrastructure/roadway improvements to reduce factors contributing to crashes with pedestrians
- Improve traffic control devices to reduce risk of pedestrian fatalities
- Develop and use new design guides and guidelines to reduce risk of pedestrian fatalities
- Promote vehicle designs and technologies that lower risk for pedestrian fatalities in motor vehicle crashes

Bicyclists

Bicyclist Safety Strategies

- Enact and enforce traffic laws applicable to motor vehicle operators and vulnerable users that improve bicycle safety
- Raise driver awareness of proper behaviors around bicyclists
- Enact and enforce bicycle helmet laws that apply to cyclists of all ages
- Implement infrastructure/roadway improvements to reduce factors contributing to crashes with bicyclists
- Improve roadway and intersection design to reduce risk of bicyclist fatalities
- Improve traffic control devices to reduce risk of bicyclist fatalities

Bicyclist Safety Strategies

- Develop and use new design guidelines to reduce risk of bicyclist fatalities
- Educate and enforce traffic laws applicable to bicyclists.
- Enact and enforce laws, and deploy educational efforts to curtail distracted bicyclist riders and motor vehicle operators
- Implement driver education to raise awareness of and behaviors around bicyclist traffic
- Implement targeted education programs for school-age bicyclists to reduce risk of bicyclist fatalities

Bicyclist Safety Strategies

- Implement infrastructure/roadway improvements to support speed management to reduce risk of bicyclist fatalities
- Implement infrastructure/roadway improvements to reduce conflicts with bicyclists

Utah

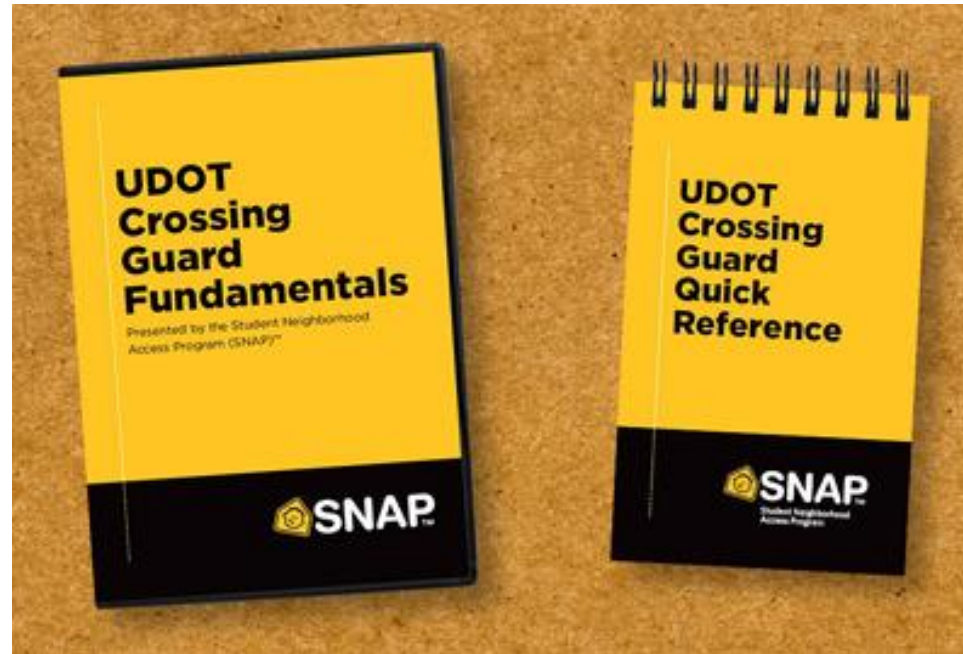
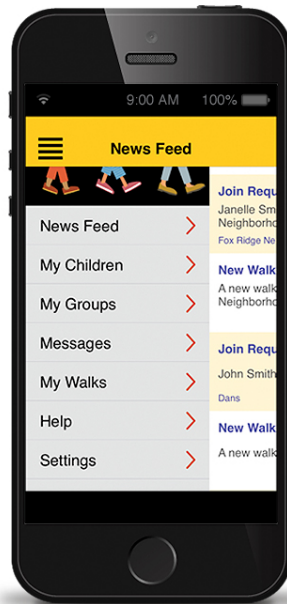
Noteworthy Example

TZD National Strategy

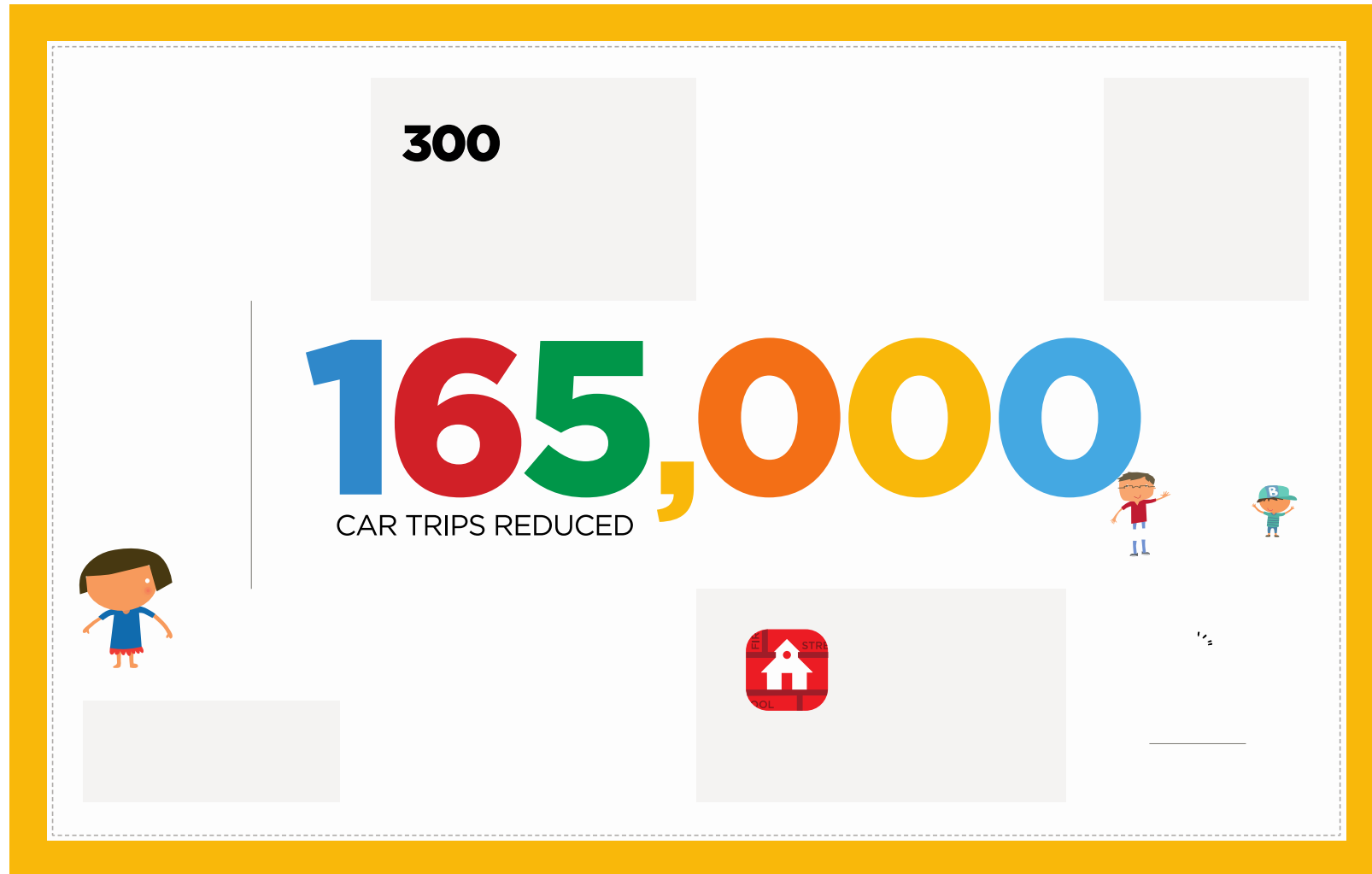
- Implement education programs for school-age children to eliminating pedestrian fatalities and to reduce risk of bicyclist fatalities

Utah Department of Transportation

Student Neighborhood Access Program



Utah - Measurable results



Courtesy: Utah Department of Transportation

Noteworthy Example

TZD National Strategy

- Improve traffic control devices to reduce risk of pedestrian fatalities

Utah Department of Transportation

UDOT Launches New Technology Making Crosswalks Safer for Students, Crossing Guards

*UDOT first in the nation to arm local school crossing guards with tool
to enable longer “walk” time during peak hours*

September 14, 2016

Noteworthy Example

TZD National Strategy

- Implement infrastructure/roadway improvements to reduce factors contributing to crashes with bicyclists

Salt Lake City, Utah

Pedestrian and Bicycle Master Plan – Vision Statement

Walking and bicycling in Salt Lake City will be safe, convenient, comfortable, and viable transportation options that connect people to places, foster recreational and economic development opportunities, improve personal health and the environment, and elevate quality of life.

Salt Lake City, Utah -

Pedestrian and Bicycle Master Plan

- Expand walking and bicycling networks to enhance connectivity across barriers such as freeways, rail lines, waterways, and disconnected street networks.

Moving Forward

- Plan
 - Create the vision and take action
- Innovate
 - Think outside the box
- Implement
 - Toward Zero Deaths: National Strategy on Highway Safety

Save Lives.

Thank you

Robert Hull

Cambridge Systematics

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IT'S ROAD SAFETY, NOT ROCKET SCIENCE

Philadelphia's Pedestrian Safety Education and Enforcement Program

Ema Yamamoto

City of Philadelphia



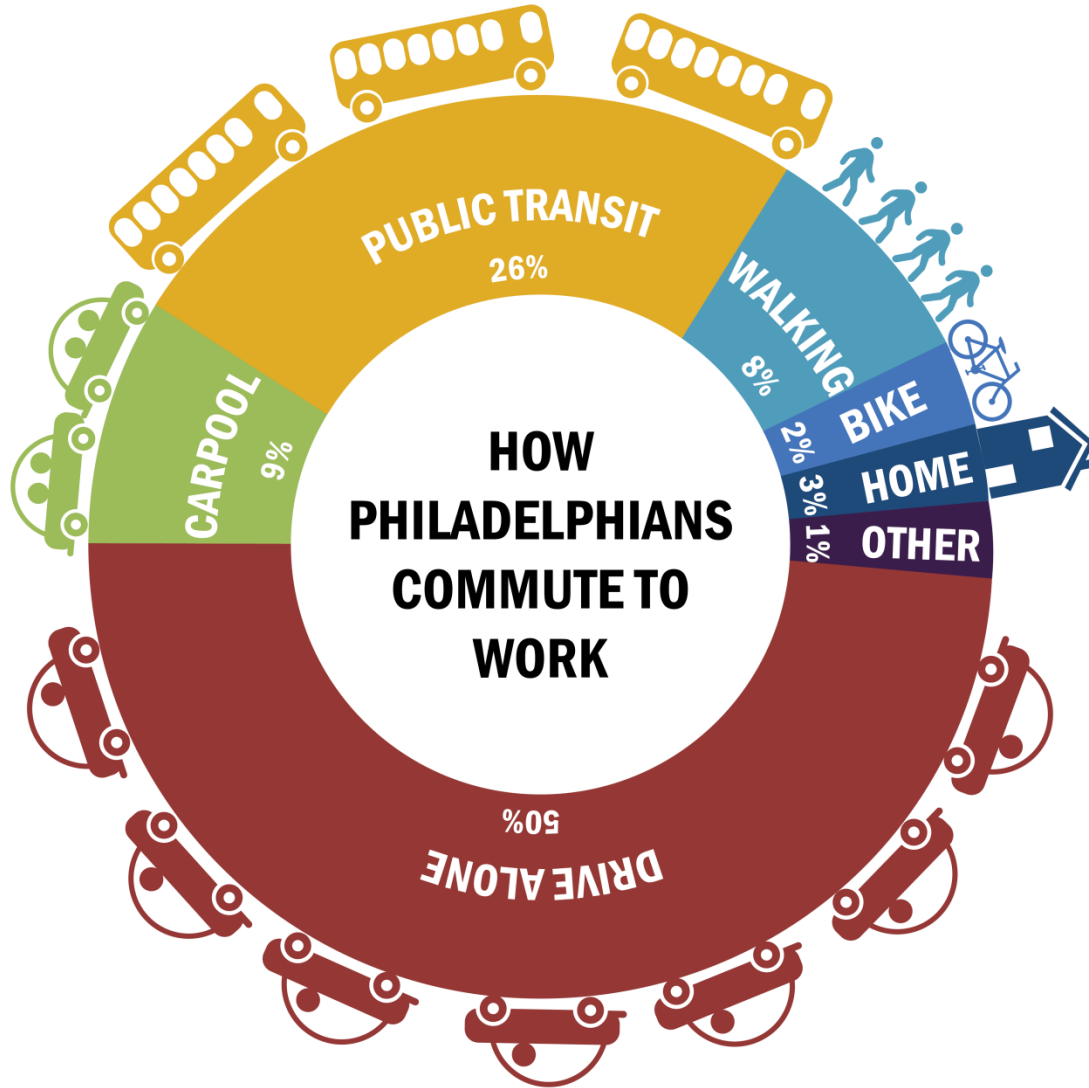
INTRODUCTION

- Home of Benjamin Franklin, the Liberty Bell, and the cheesesteak!
- Philadelphia is the 5th largest city in the country with 1.5 million residents



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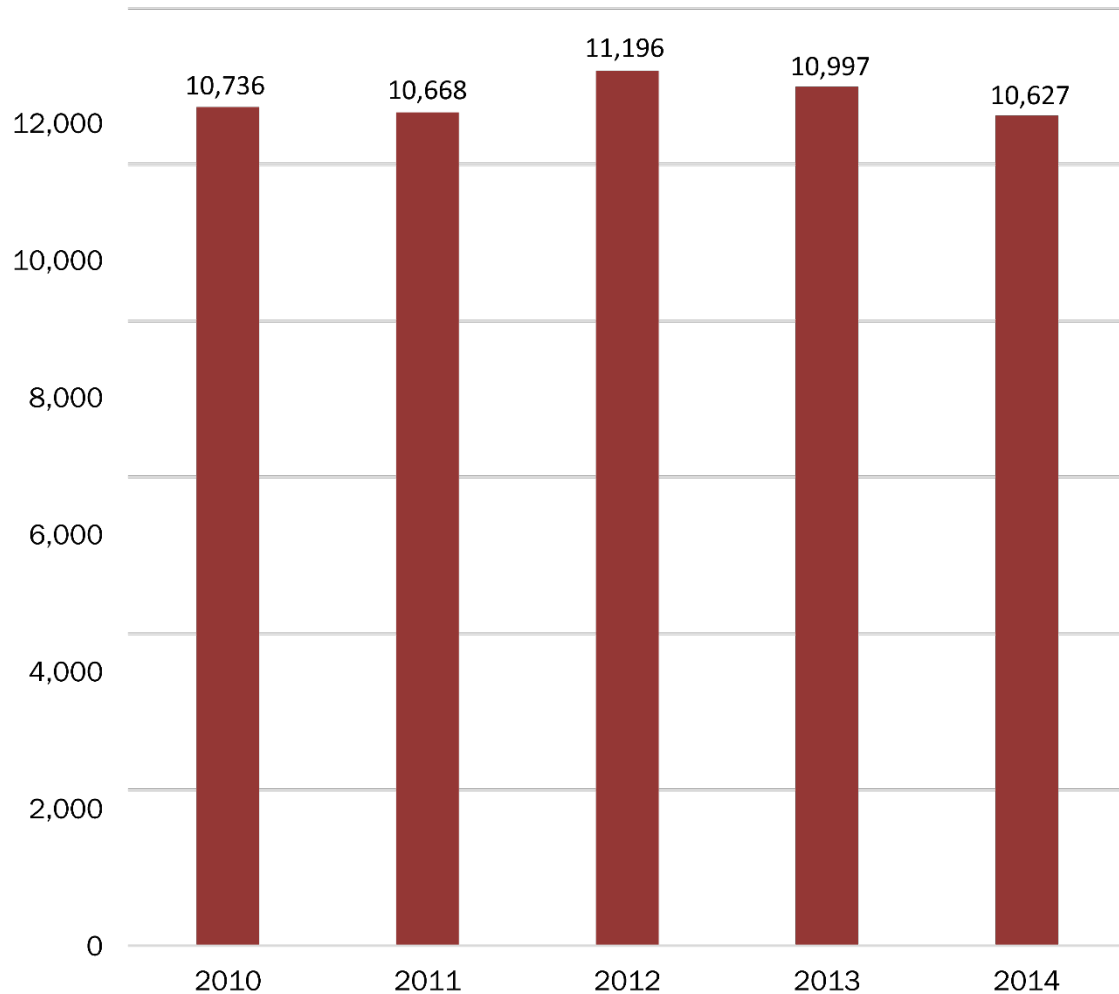
- Philadelphia is multimodal city



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INTRODUCTION | STATISTICS

NUMBER OF CRASHES



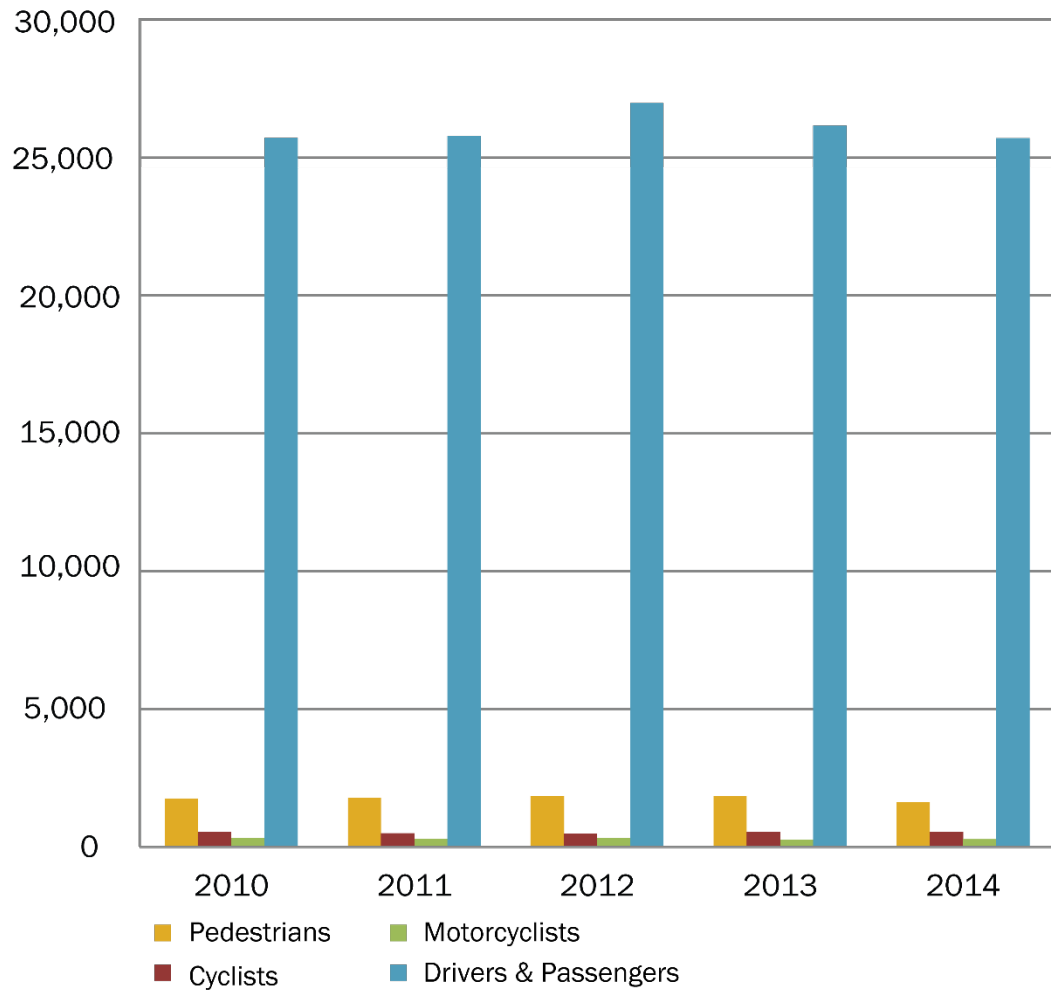
Source: PennDOT Crash Data, 2010-2014

- Philadelphia is multimodal city
- Since 2010, over 10,600 crashes have occurred every year

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INTRODUCTION | STATISTICS

NUMBER OF PEOPLE INVOLVED IN CRASHES BY MODE



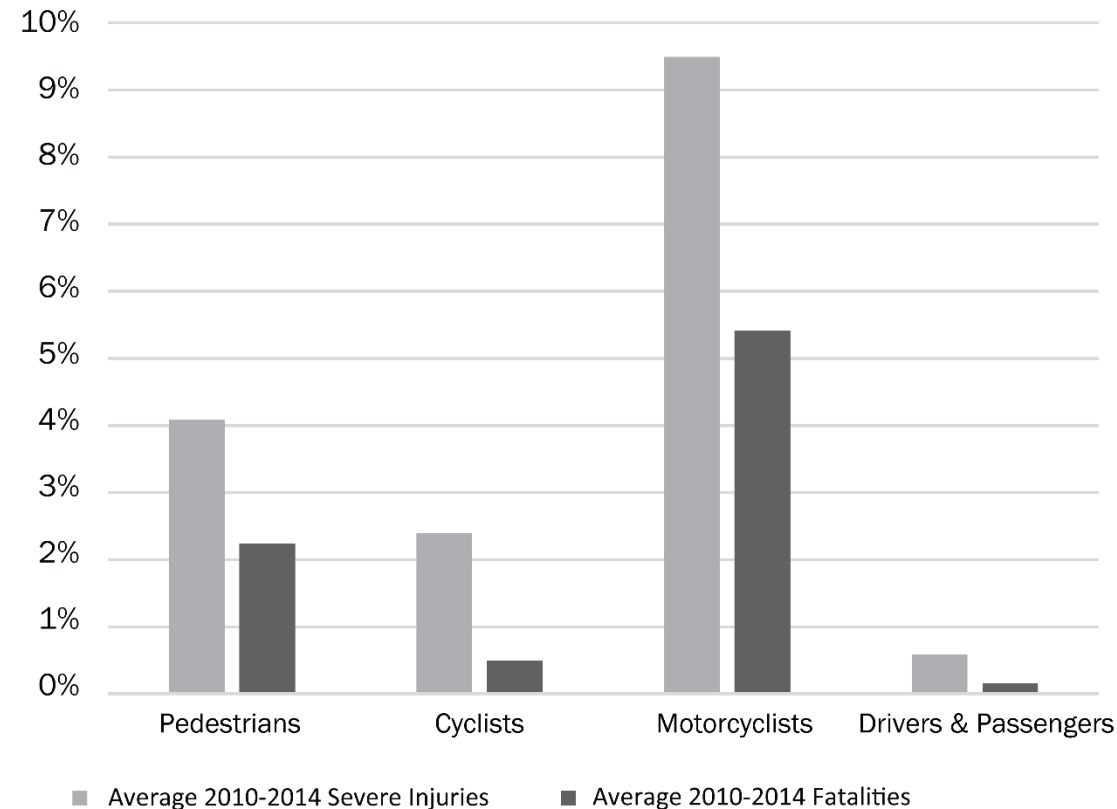
Source: PennDOT Crash Data, 2010-2014

- Philadelphia is multimodal city
- Since 2010, over 10,600 crashes have occurred every year
- While drivers and passengers make up the majority of people involved in crashes...

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INTRODUCTION | STATISTICS

PERCENT OF PEOPLE INVOLVED IN CRASHES BY MODE WHO WERE SEVERELY INJURED OR DIED AS A RESULT, 2010-2014



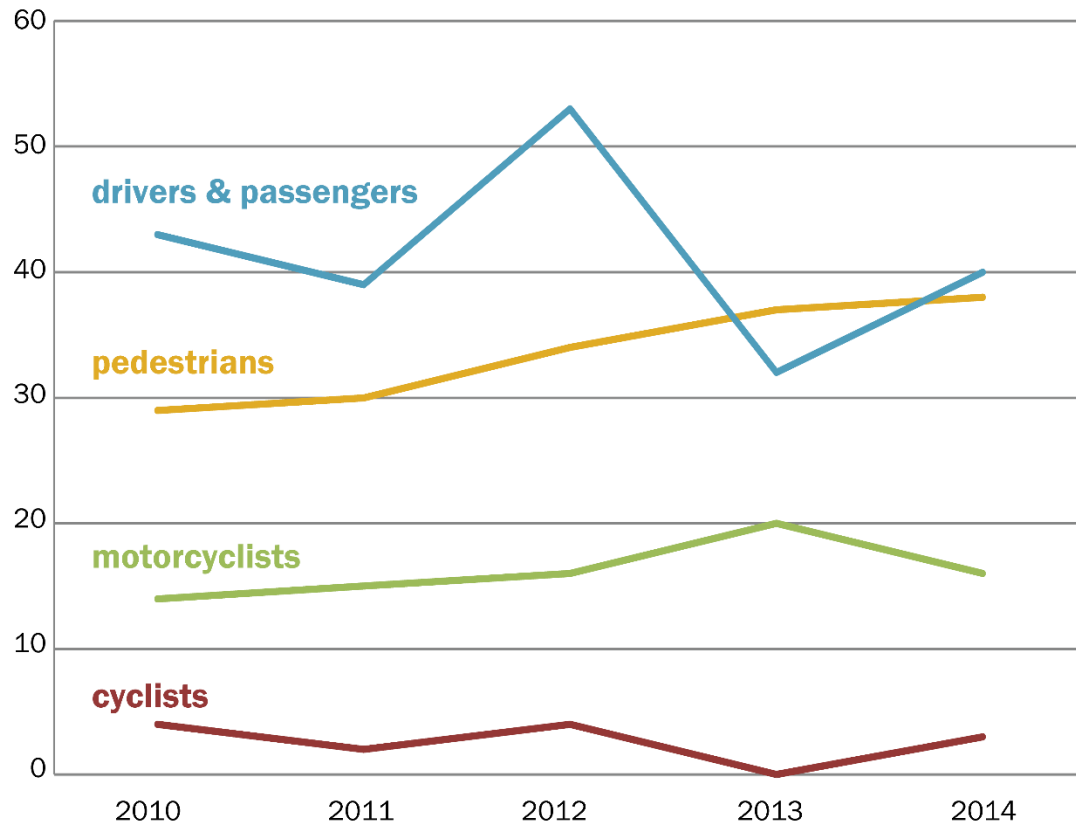
Source: PennDOT Crash Data, 2010-2014

- Philadelphia is multimodal city
- Since 2010, over 10,600 crashes have occurred every year
- While drivers and passengers make up the majority of people involved in crashes...
- Other modes are more likely to be severely injured or killed if involved in a crash

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INTRODUCTION | STATISTICS

TRAFFIC FATALITIES BY MODE



Source: PennDOT Crash Data, 2010-2014

- Philadelphia is multimodal city
- Since 2010, over 10,600 crashes have occurred every year
- While drivers and passengers make up the majority of people involved in crashes...
- Other modes are more likely to be severely injured or killed if involved in a crash
- We have seen pedestrian fatalities continue to rise every year since 2010

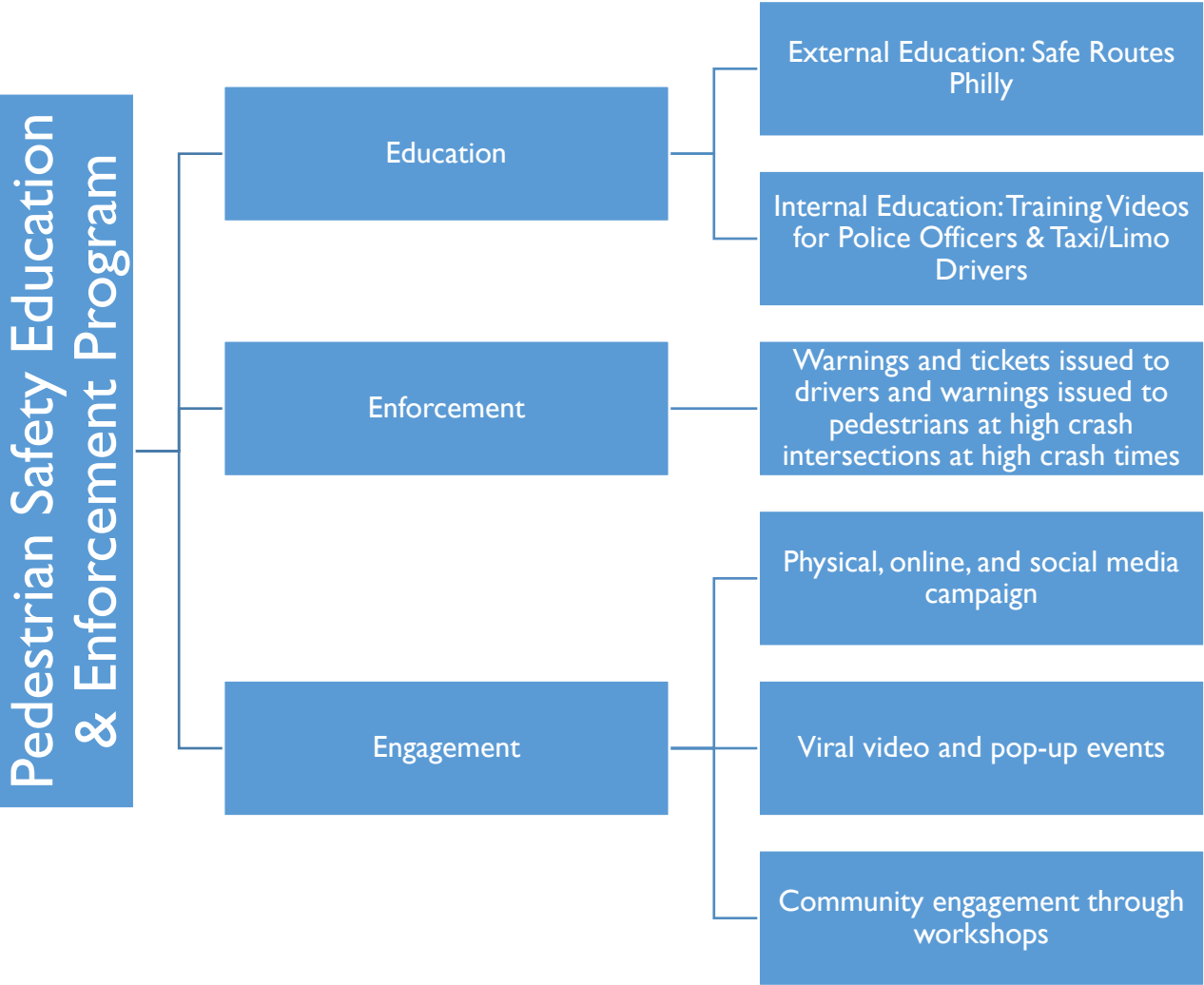
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PROGRAM OVERVIEW



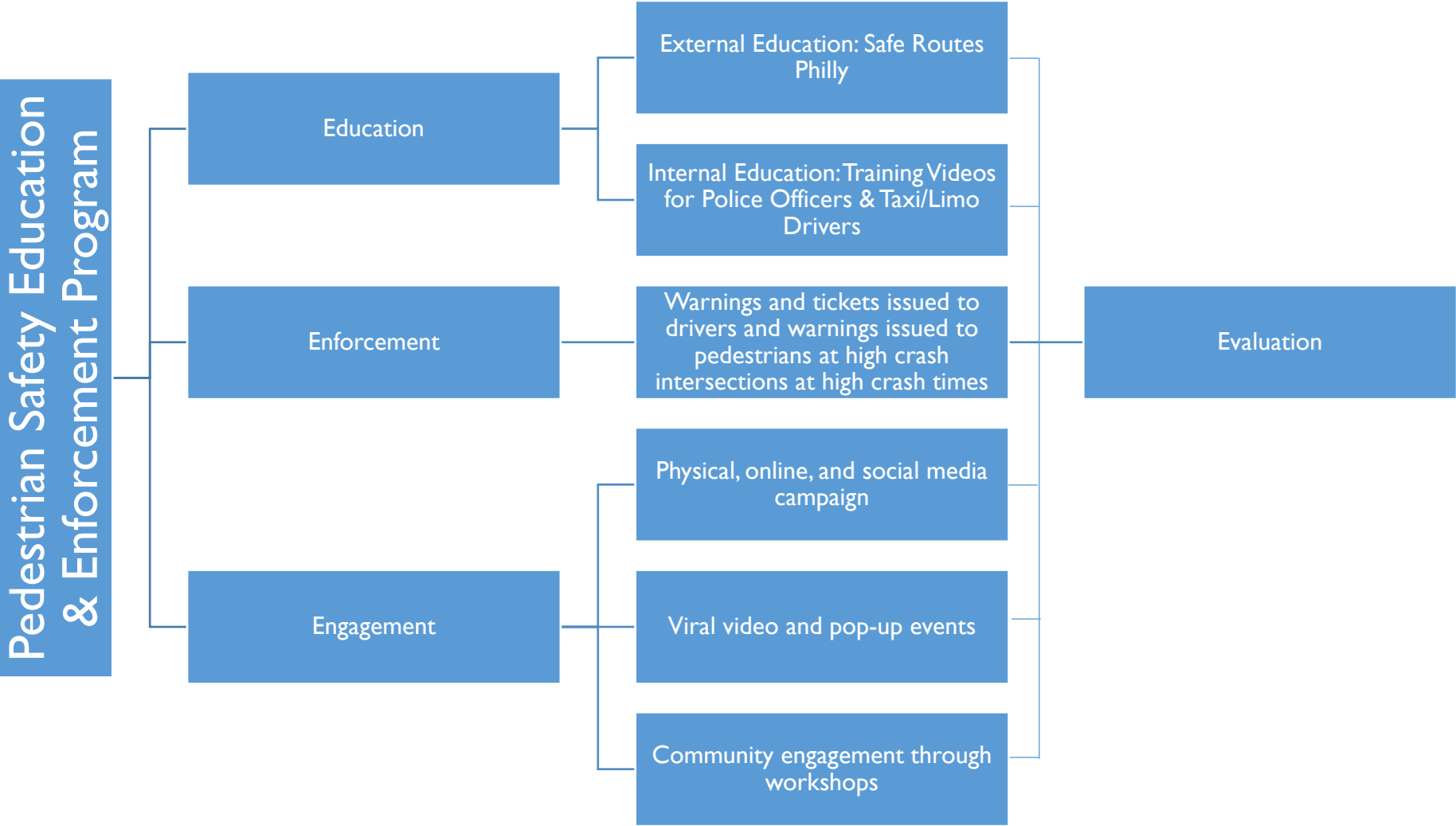
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PROGRAM OVERVIEW



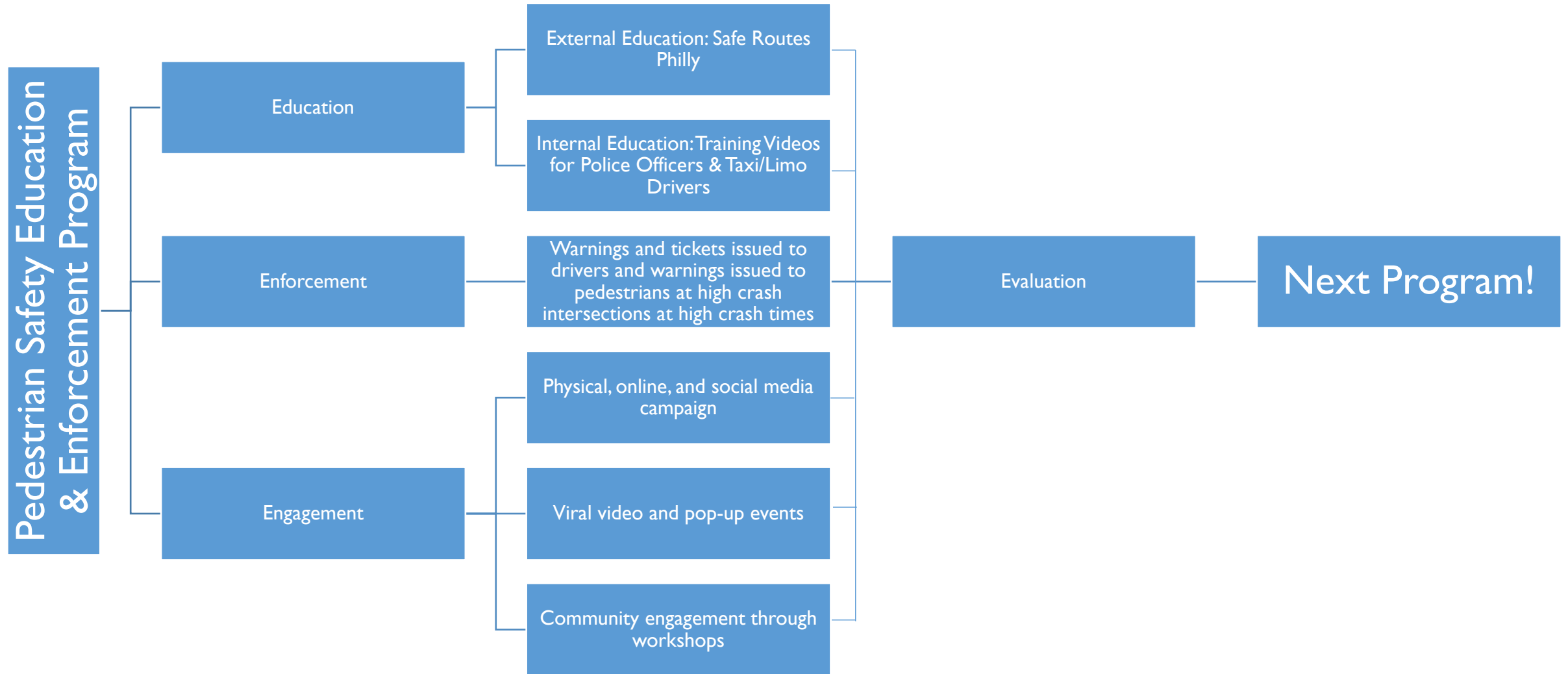
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PROGRAM OVERVIEW



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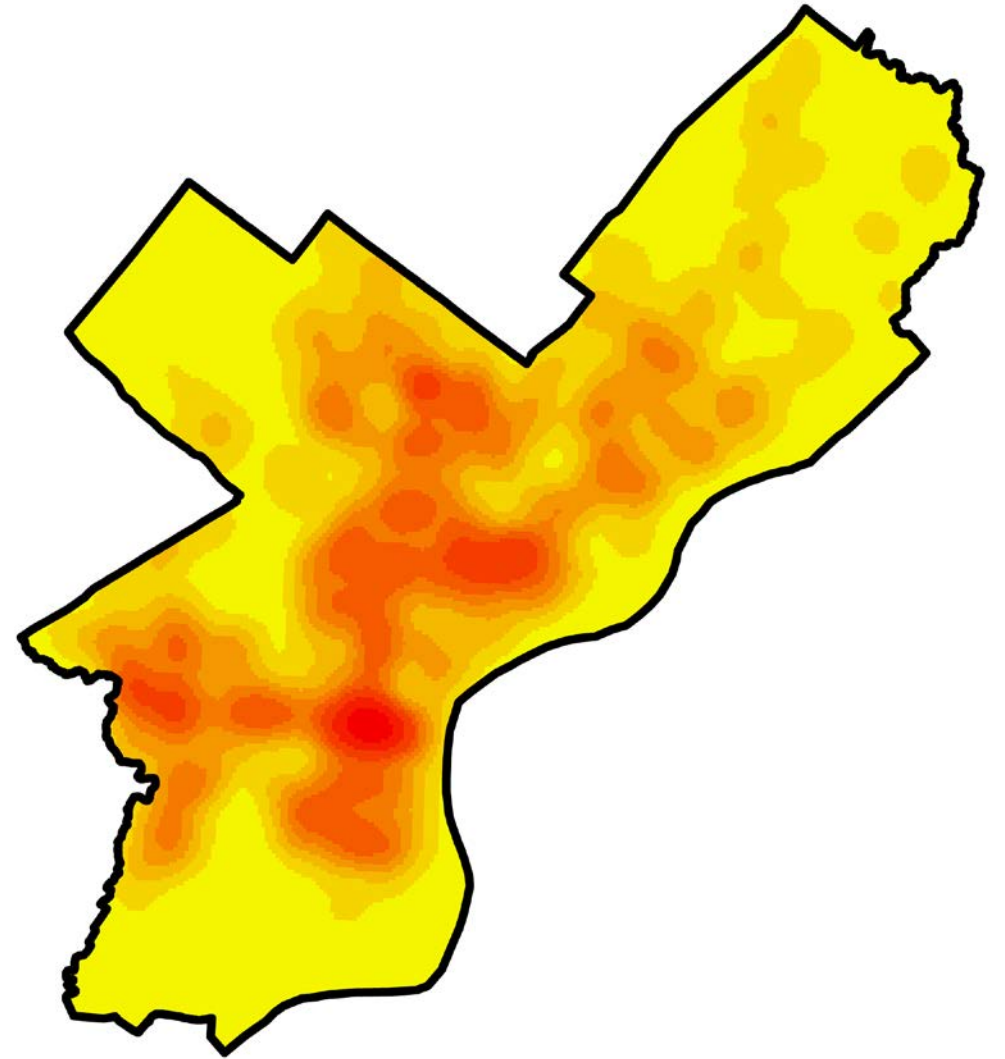
PROGRAM OVERVIEW



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CORRIDOR SELECTION

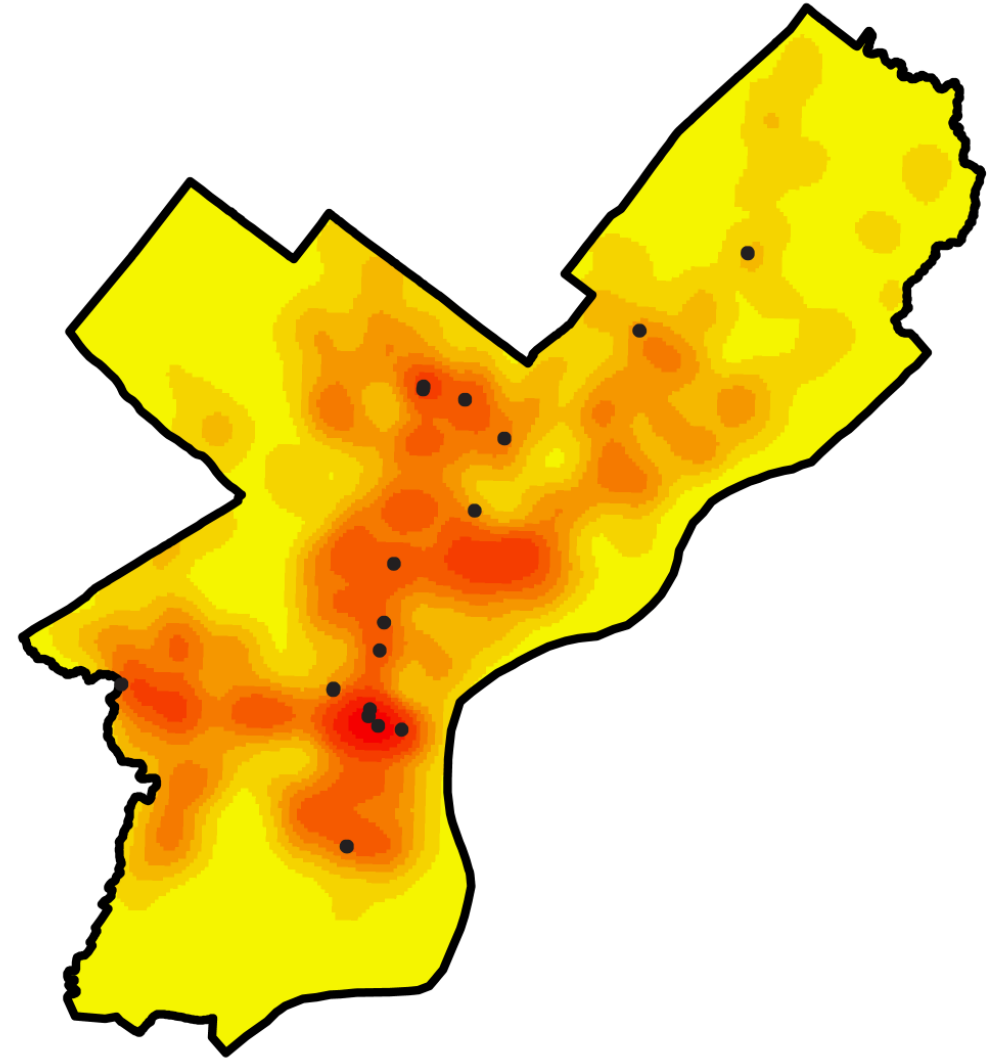
- Mapped the locations of pedestrians involved in crashes



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CORRIDOR SELECTION

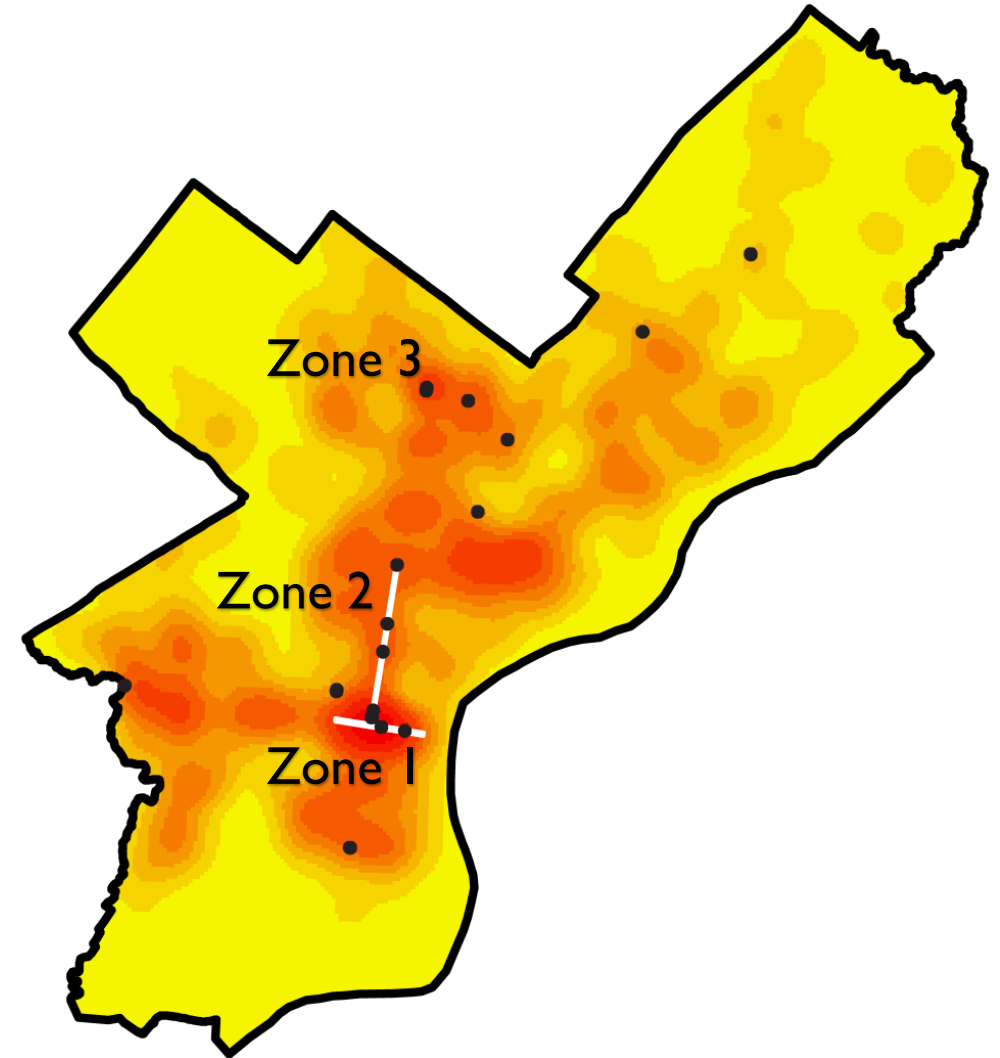
- Mapped the locations of pedestrians involved in crashes
- Mapped the intersections of the highest number of pedestrians involved in crashes



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CORRIDOR SELECTION

- Mapped the locations of pedestrians involved in crashes
- Mapped the intersections of the highest number of pedestrians involved in crashes
- Created focus zones (or corridors) for enforcement and engagement around the issue of pedestrian safety




APPROACH #1: ENFORCEMENT



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APPROACH #1: ENFORCEMENT



CITY OF PHILADELPHIA POLICE
WRITTEN WARNING

Offense: _____ Date: _____ Time: _____ am/pm


PEDESTRIAN
☐ Crossing against signal
☐ Midblock crossing
☐ Darting into traffic
☐ Distracted walking

DRIVER
☐ Distracted driving
☐ Improper/careless turn
☐ Red light/Stop sign running


☐ Illegal/careless backing
☐ Illegal U-Turn


Officer Name: _____

Nearest Intersection: _____



CITY OF PHILADELPHIA POLICE
WRITTEN WARNING


DRIVERS,
Drive now. Text later.
PAY ATTENTION.


PEDESTRIANS,
Walk now. Text later.
PICK YOUR HEAD UP.

*This is not a real ticket, but it could've been.
Reckless driving & careless walking
is subject to a fine.*

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NOT ROCKET SCIENCE



DID YOU KNOW

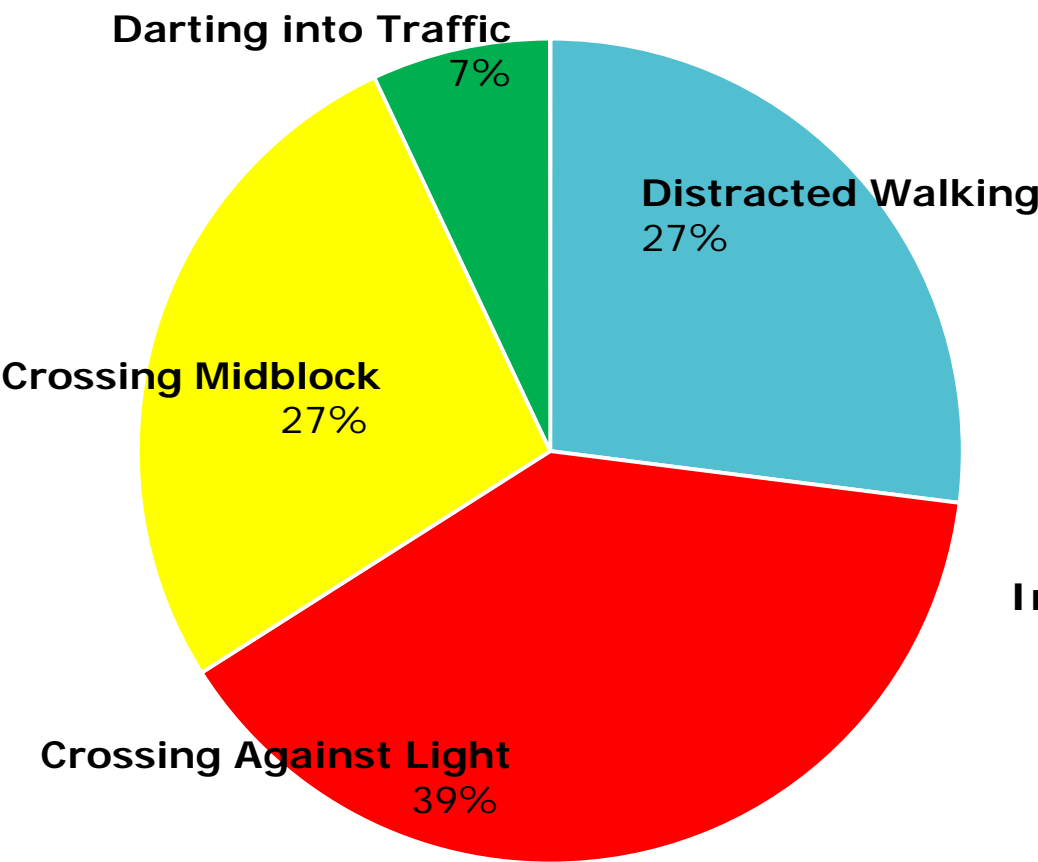
A car hits a pedestrian
IN PHILADELPHIA
ONCE EVERY
FIVE
HOURS

SHARE THE ROAD.
RESPECT THE SIGNS.
SURVIVE.

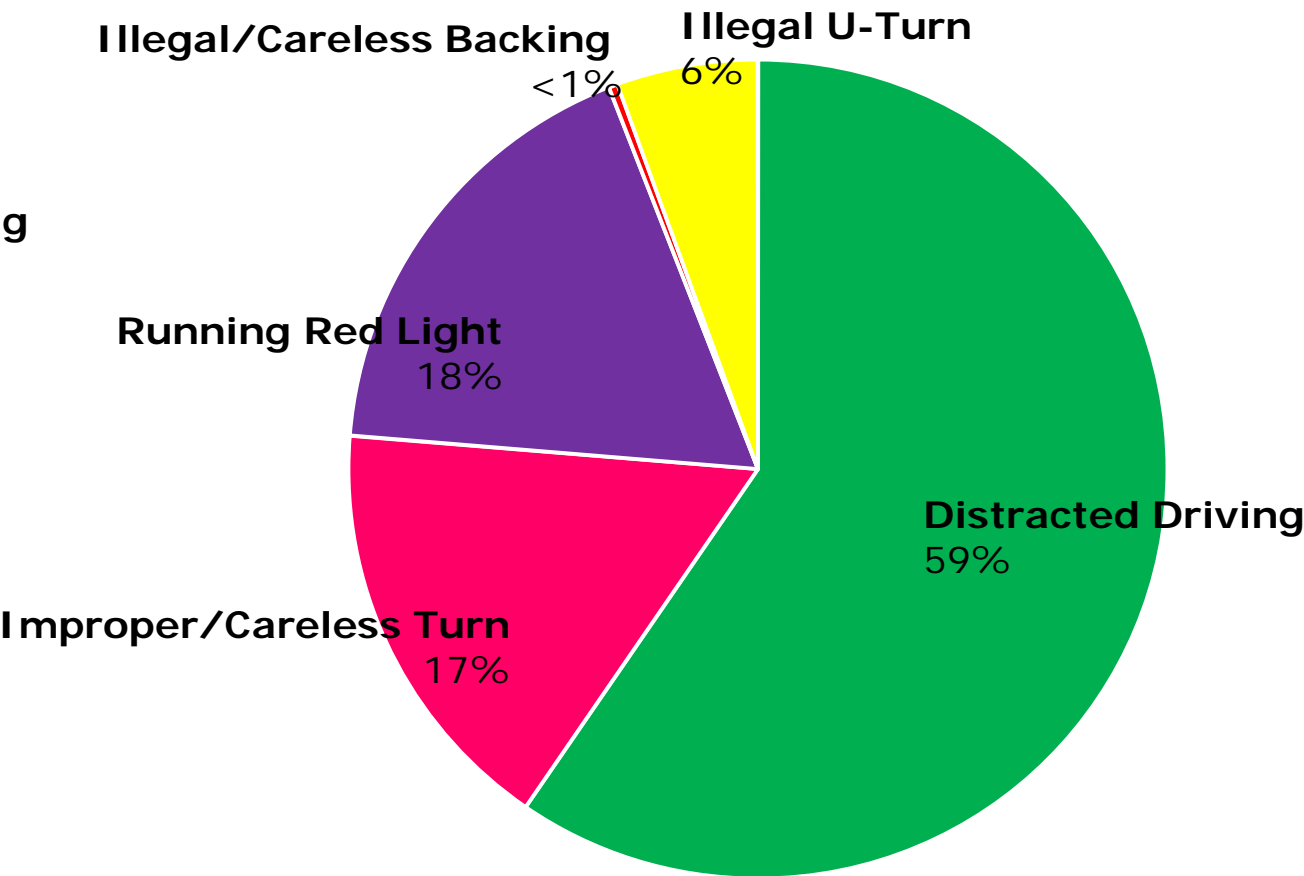
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APPROACH #1: ENFORCEMENT

PEDESTRIAN WARNINGS



DRIVER TICKETS/ WARNINGS



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APPROACH #1: ENFORCEMENT

ENFORCEMENT LESSONS LEARNED

- Anticipate challenges
- Make reporting as easy as possible
- Identify a champion

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APPROACH #2: ENGAGEMENT

- Transit, online, and social media buys
- Advertising guidance:
 - Humorous “Philly” tone
 - Connect safety messaging with high pedestrian crash locations
- Target audience:
 - Individuals 18-35 years old
 - Drivers and pedestrians



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APPROACH #2: ENGAGEMENT



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APPROACH #2: ENGAGEMENT

TRANSIT MEDIA:

- 2 advertising runs – spring and fall (match with high crash months)
- Units purchased:
 - 3 full wraps
 - 48 transit shelters
 - 50 backs of buses
 - 600 bus, trolley, and subway cards
- Approximate number of impressions: 47.9 million



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APPROACH #2: ENGAGEMENT

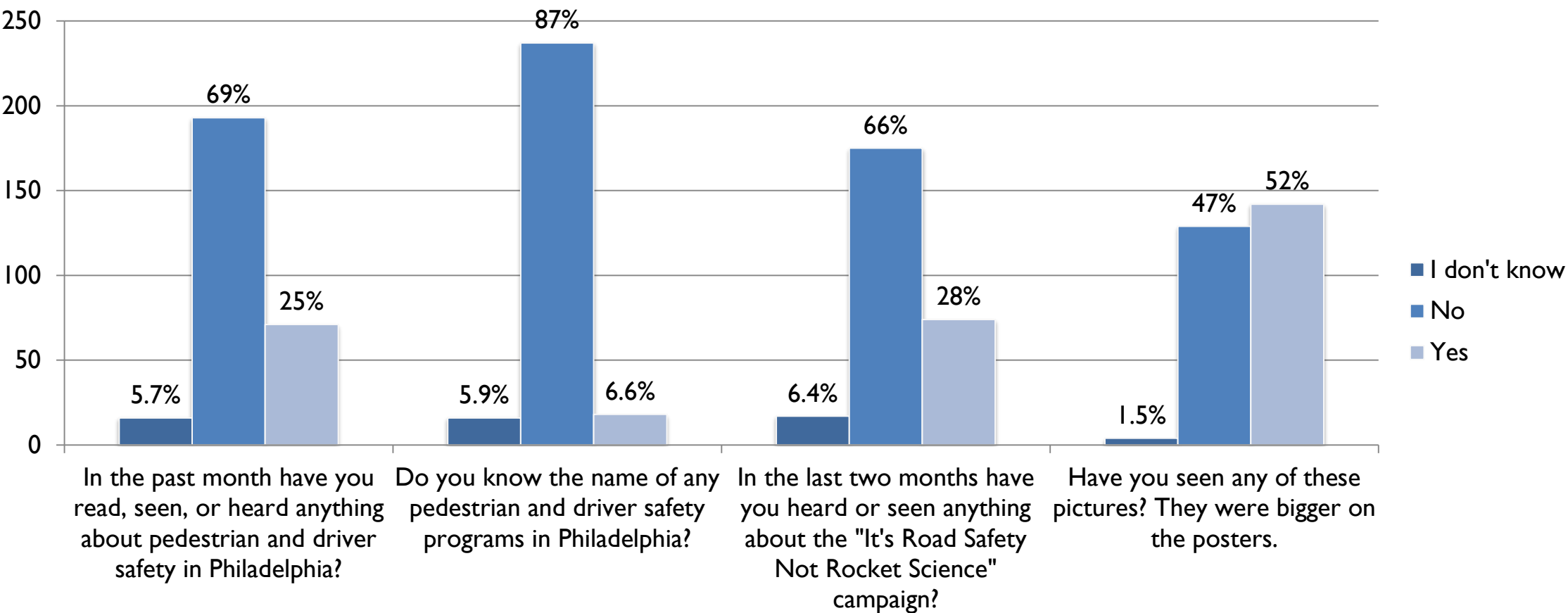
ONLINE MEDIA:

- 2 advertising runs – spring and fall (match with high crash months)
- Units purchased:
 - Geo-fenced media
 - Millennial media
 - Pandora
 - Paid media on social media
- Approximate number of impressions: 8.5 million



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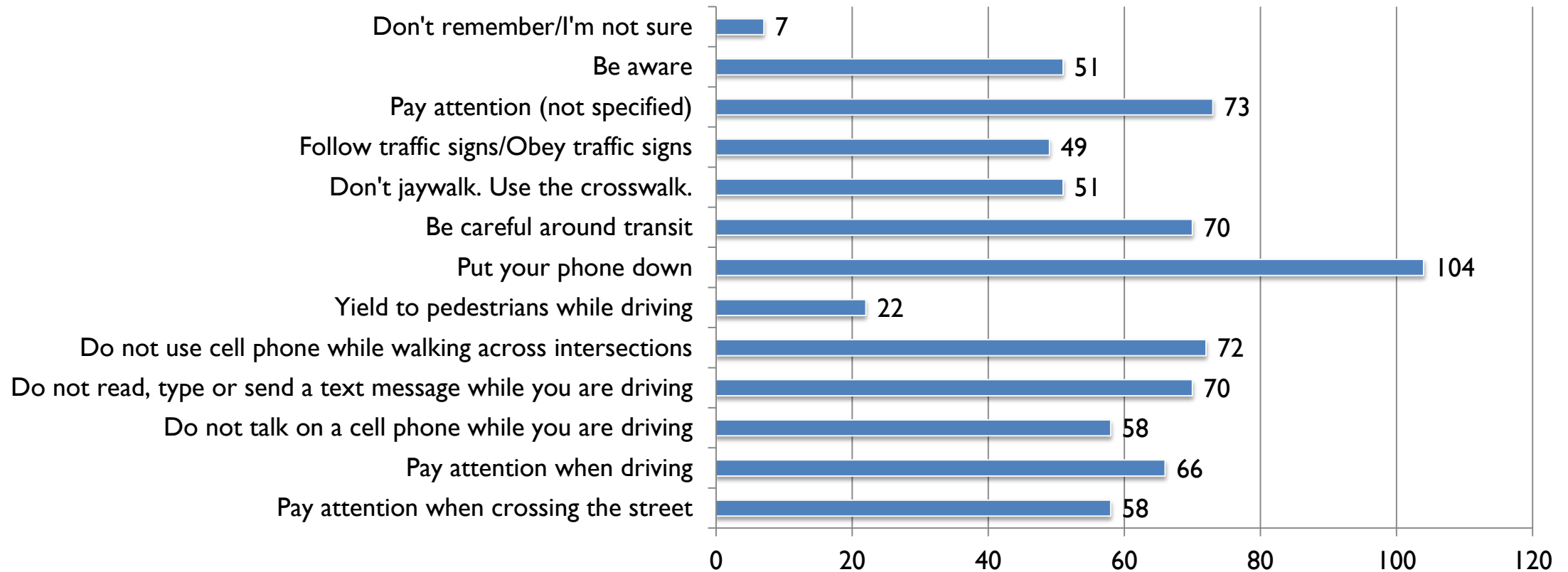
• Interim Evaluation Results:



APPROACH #2: ENGAGEMENT

• Interim Evaluation Results:

MAIN MESSAGE OF CAMPAIGN:



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APPROACH #2: ENGAGEMENT

ENGAGEMENT LESSONS LEARNED

- Establish focus group for public safety media campaigns
- Spread out public activations/events to encourage more peaks in engagement
- Reach more people

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APPROACH #3: SAFE ROUTES PHILLY



Safe Routes Philly promotes walking and biking as a safe, fun, and active form of transportation in Philadelphia's elementary schools.

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APPROACH #3: SAFE ROUTES PHILLY



YEAR ONE (2014 – 2015 School Year)

- 43 PE teachers received curriculum training
- 15 schools participated in October Walk to School Day
- 4 schools participated in May Walk/Bike to School Day
- 3 schools implemented a Walking School Bus program
- 3 schools received walkability audits
- **4,683 students received pedestrian safety instruction**

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APPROACH #3: SAFE ROUTES PHILLY



YEAR TWO (September 2015 - April 2016)

- 24 PE teachers received curriculum training
- 13 schools participated in October Walk to School Day
- 12 schools participated in May Walk/Bike to School Day
- 2 schools implemented a Walking School Bus program
- 2 schools implemented monthly Walk to School Days
- 3 schools received walkability audits
- 37 teachers have expressed intent to teach Safe Routes curriculum
- *Final number of students taught expected in June*

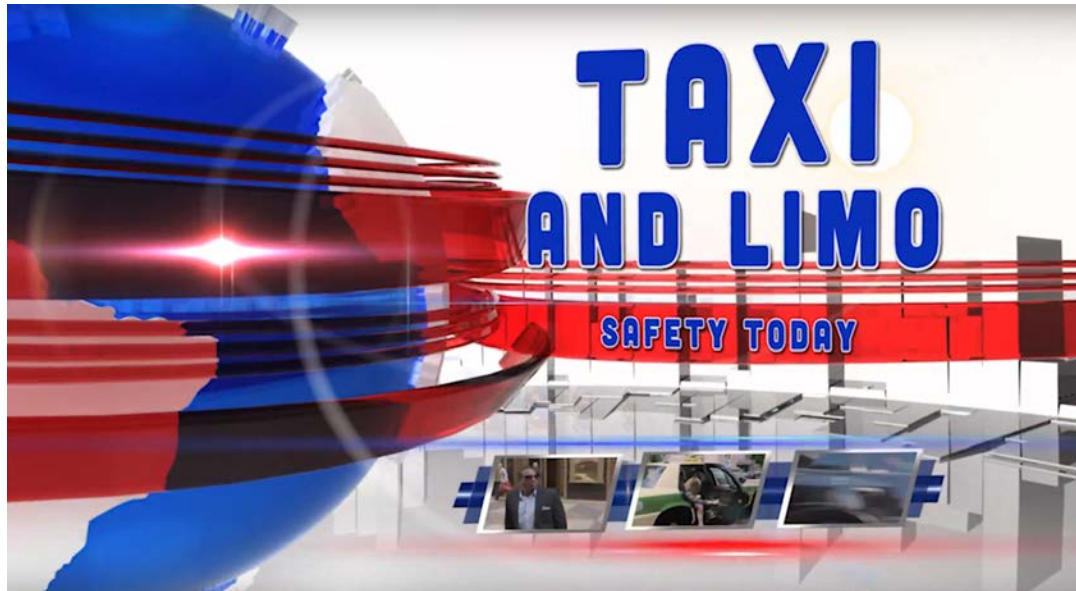
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SAFE ROUTES PHILLY LESSONS LEARNED

- Leverage existing walkability audits
- Connect with peer cities
- Celebrate your local champions
- Get the message into the communities

APPROACH #4: TRAINING VIDEOS

TRAINING VIDEOS



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APPROACH #4: TRAINING VIDEOS

POLICE TRAINING VIDEO EVALUATION KEY FINDINGS

- Officers from PPD-Program enforcement districts were more likely to answer knowledge questions **correctly** than officers in other districts.
- Officers from PPD-Program enforcement districts self-reported that they are **more likely** to cite a motorist for failing to yield to a pedestrian than officers in other districts.
- Attitudes toward traffic safety enforcement changed between officers who have served on the force **less than 5 years** and officers who have served on the force **more than 5 years**.

APPROACH #4: TRAINING VIDEOS

TRAINING VIDEO & EVALUATION LESSONS LEARNED

- Make the most of production
- Be flexible
- Go electronic, if at all possible

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WHAT'S NEXT?

- Since 2010, 24 walkability audits have been conducted.

Safe Routes to School Infrastructure Plan



GW Childs Elementary School
School District of Philadelphia, Philadelphia County, PA

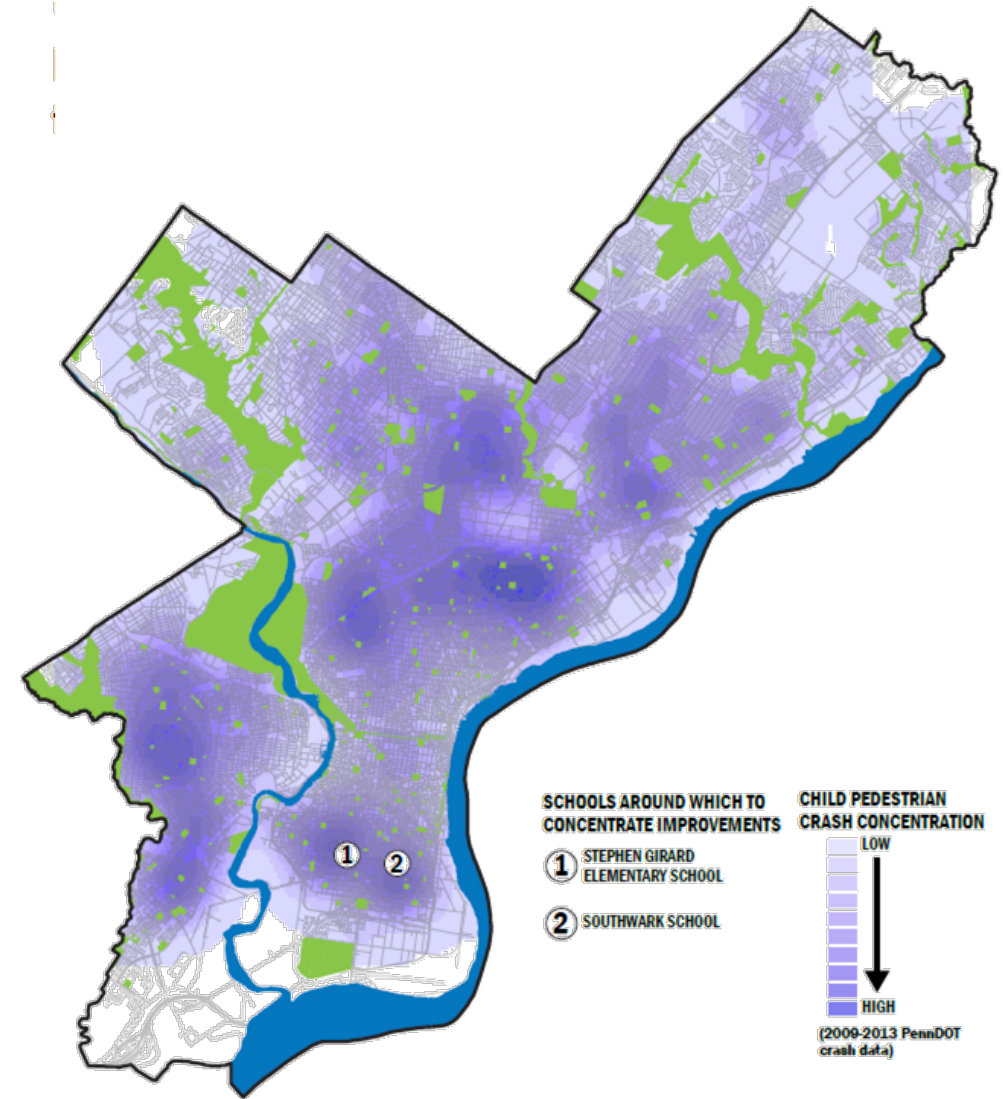


School District of Philadelphia

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WHAT'S NEXT?

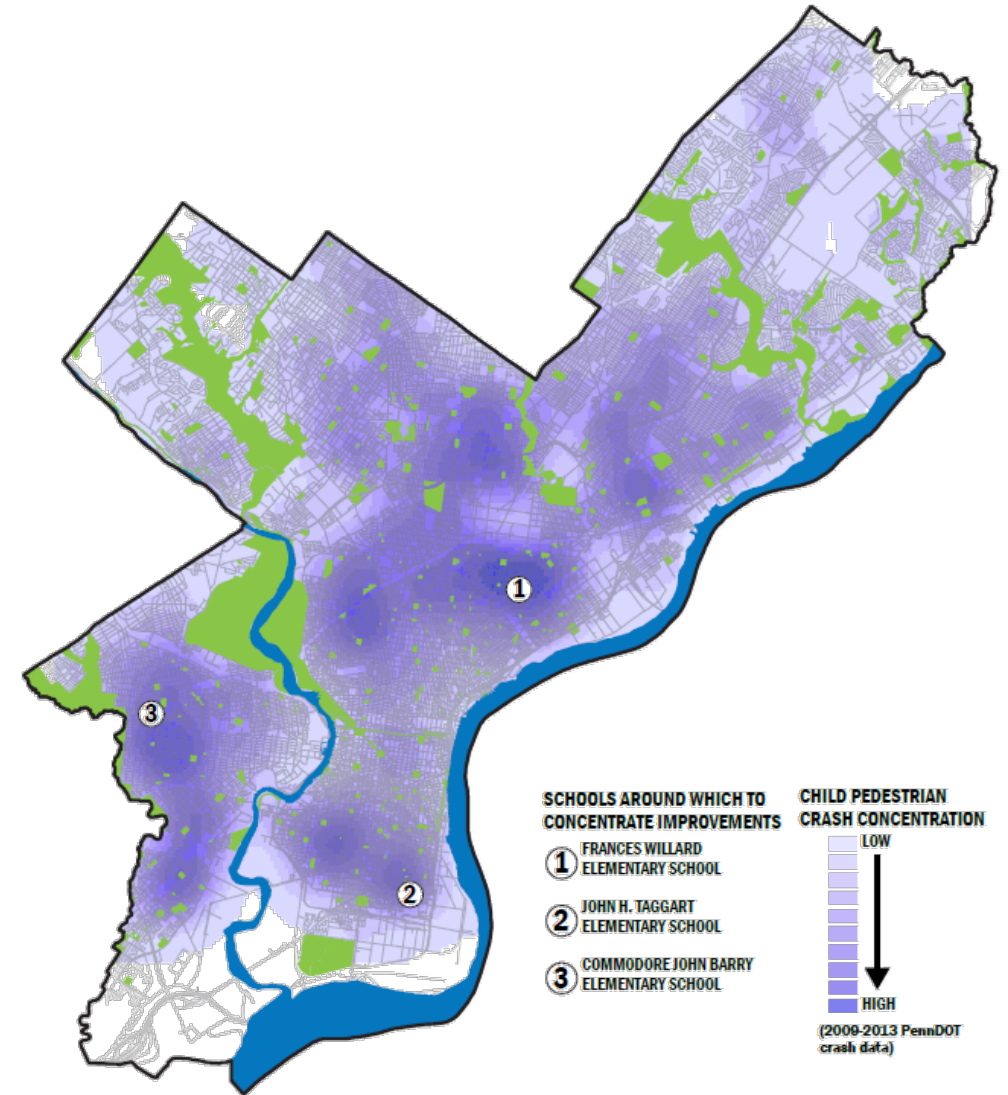
- Since 2010, 24 walkability audits have been conducted.
- Two walkability audits selected for implementation (TAP 2016 funding):
 1. Stephen Girard School (South Philly)
 2. Southwark School (South Philly)



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WHAT'S NEXT?

- Since 2010, 24 walkability audits have been conducted.
- Two walkability audits selected for implementation (TAP 2016 funding):
 1. Stephen Girard School (South Philly)
 2. Southwark School (South Philly)
- Pending application to implement three more walkability audits (MFT PennDOT):
 1. Frances Willard Elementary (Kensington)
 2. John H. Taggart Elementary (South Philly)
 3. Commodore John Barry Elementary (West Philly)



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LESSONS LEARNED

- Corridor based approach in allowing for flexibility in program design and for piloting programs
- While corridor based programs can have benefits, there are also programs which are better not to be corridor based
- Design your program based on data
- If you have evaluators out doing intercept interviews, make sure that they ask questions about perception (not just questions about your program) – always be thinking about the next step
- Communications are hard!

Thank you!

Ema Yamamoto

City of Philadelphia



Through Vision Zero SF we commit to working together to prioritize street safety and eliminate traffic deaths in San Francisco by 2024

ENGINEERING ZERO DEATHS IN SAN FRANCISCO

CHAVA KRONENBERG, PEDESTRIAN PROGRAM MANAGER
SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY
SEPTEMBER 27, 2016

An aerial photograph of a city street intersection. A white bus is moving diagonally across the frame from the bottom left towards the center. Several cars are visible: a white pickup truck, a dark blue sedan, a silver SUV, and a yellow and white taxi. The street has white lane markings. A dark blue semi-transparent banner is overlaid across the middle of the image, containing white text. The background shows a mix of asphalt and brick-paved areas.

ZERO TRAFFIC DEATHS IN SAN FRANCISCO BY 2024

VISION ZERO: COMMITTING TO ACTION

EDUCATION

ENFORCEMENT

ENGINEERING

EVALUATION & MONITORING

POLICY



SFMTA
Municipal
Transportation
Agency



TRAFFIC FATALITIES 2015

31 people were killed in traffic collisions:

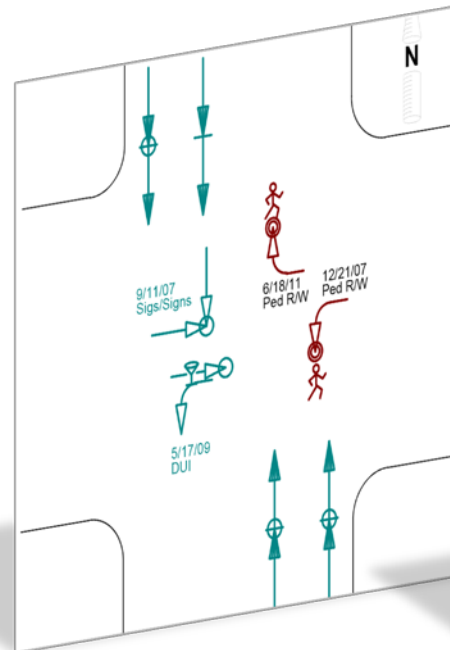
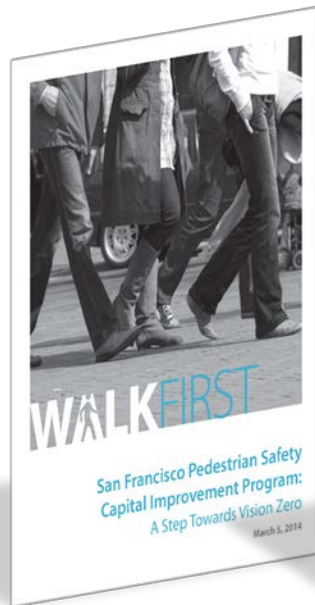
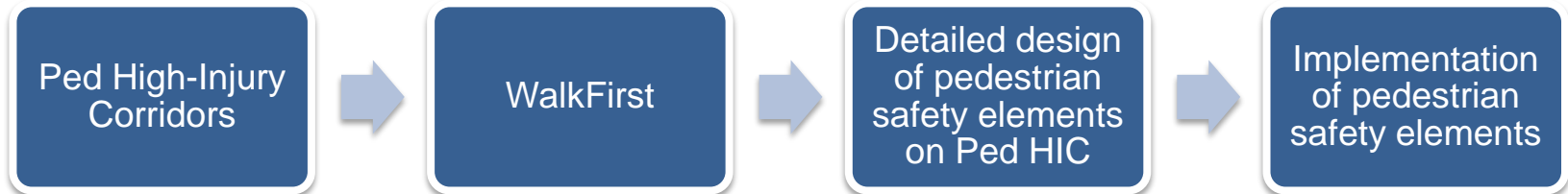
- 20 people walking
- 6 people riding a motorcycle
- 4 people biking
- 1 person driving

The top 3 causes were driver behavior:

1. Failure to yield to pedestrian (29%)
2. Speeding (26%)
3. Red light running (13%)



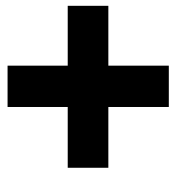
ENGINEERING PEDESTRIAN SAFETY



DATA COLLECTION & ANALYSIS

Environmental Data

Infrastructure
Transportation
Community
Business
Demographics
Land Use
Health
Education
...

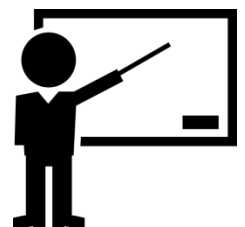
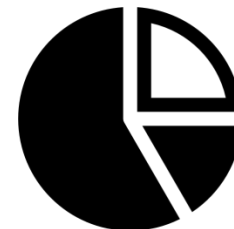
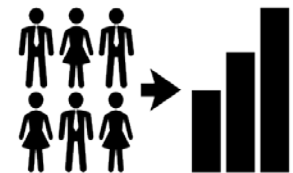
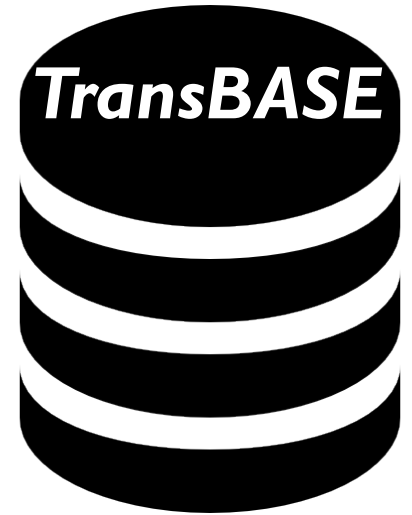


Injury Data

Time
Severity
Age
Gender
Movement
Collision Factors
Sobriety
Code Violation
...



TransBASE



HIGH INJURY NETWORK

12% of street miles*

Severe/Fatal Injuries:

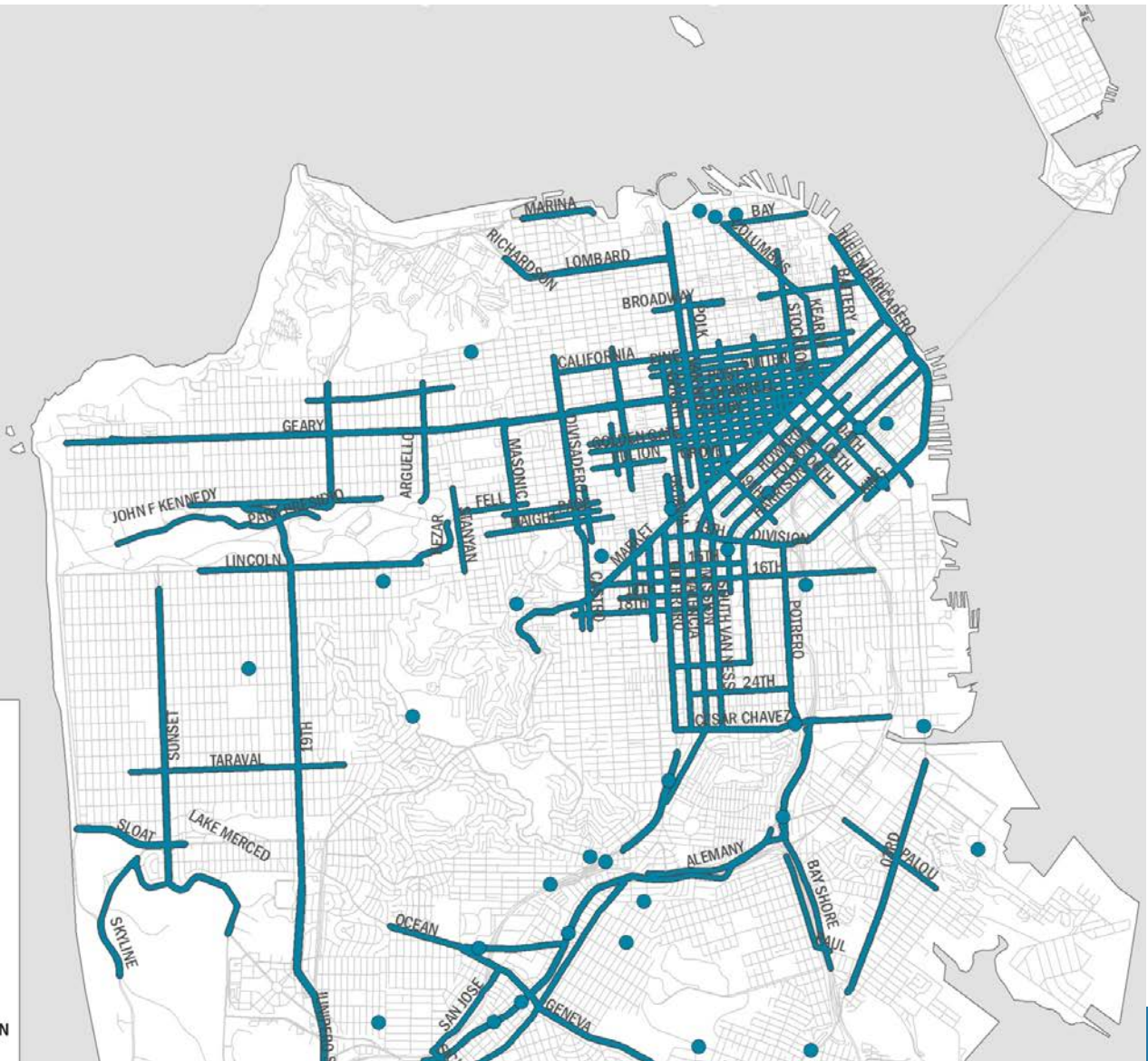
70% People in Vehicles

76% People on Motorcycles

72% People Walking

74% People Riding Bikes

* non-freeway



● Vision Zero High Injury Intersection

— Vision Zero High Injury Network

Freeways (grade separated) and their associated injuries are not represented.



Source: SFDPH 2014; Statewide Integrated Traffic Records System (SWITRS) 2008-2012

City and County of San Francisco Department of Public Health: Environmental Health Program on Health, Equity, and Sustainability - www.sfpbes.org

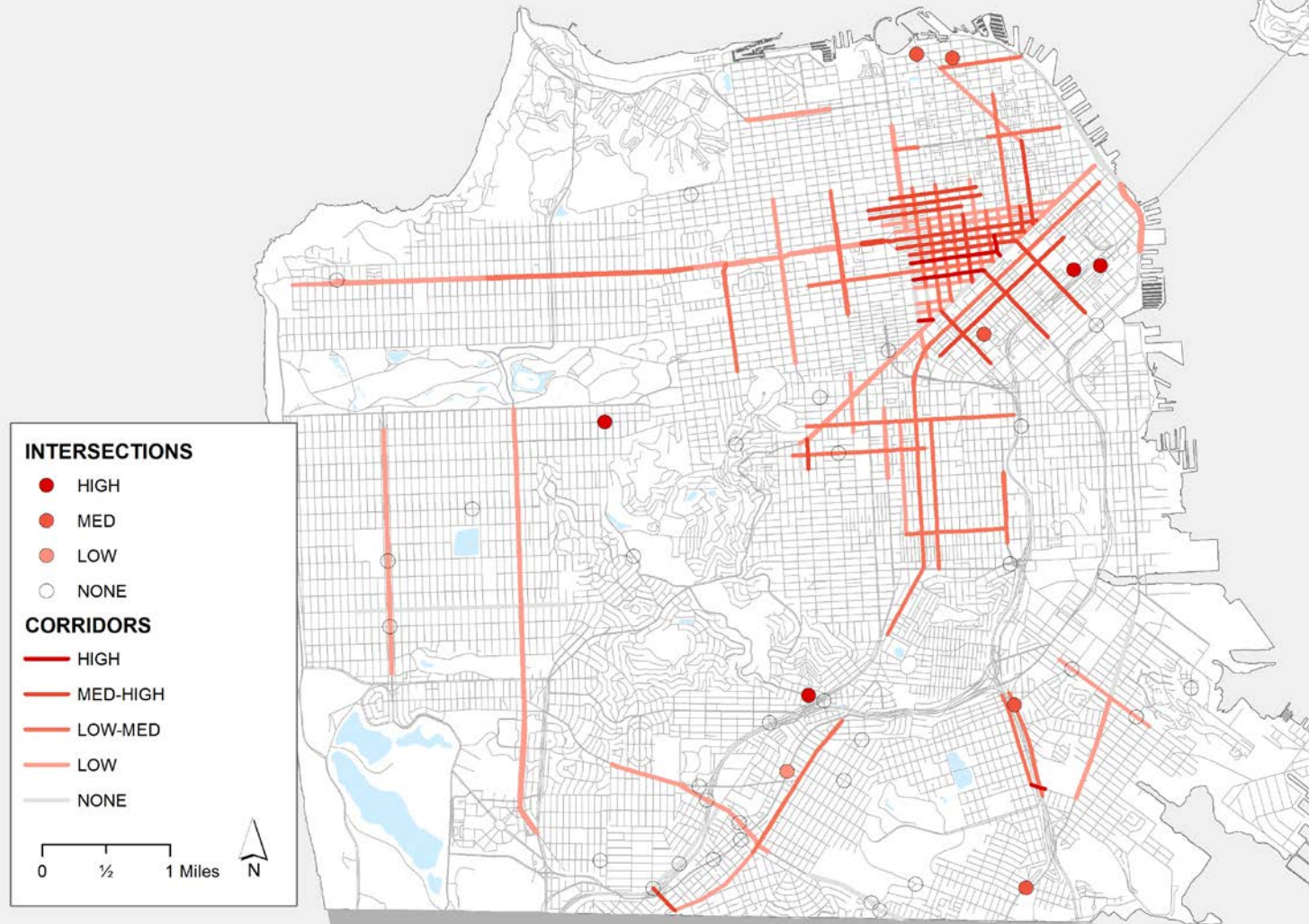


COLLISION PROFILES

[illegible]

WALKFIRST COLLISION PROFILES

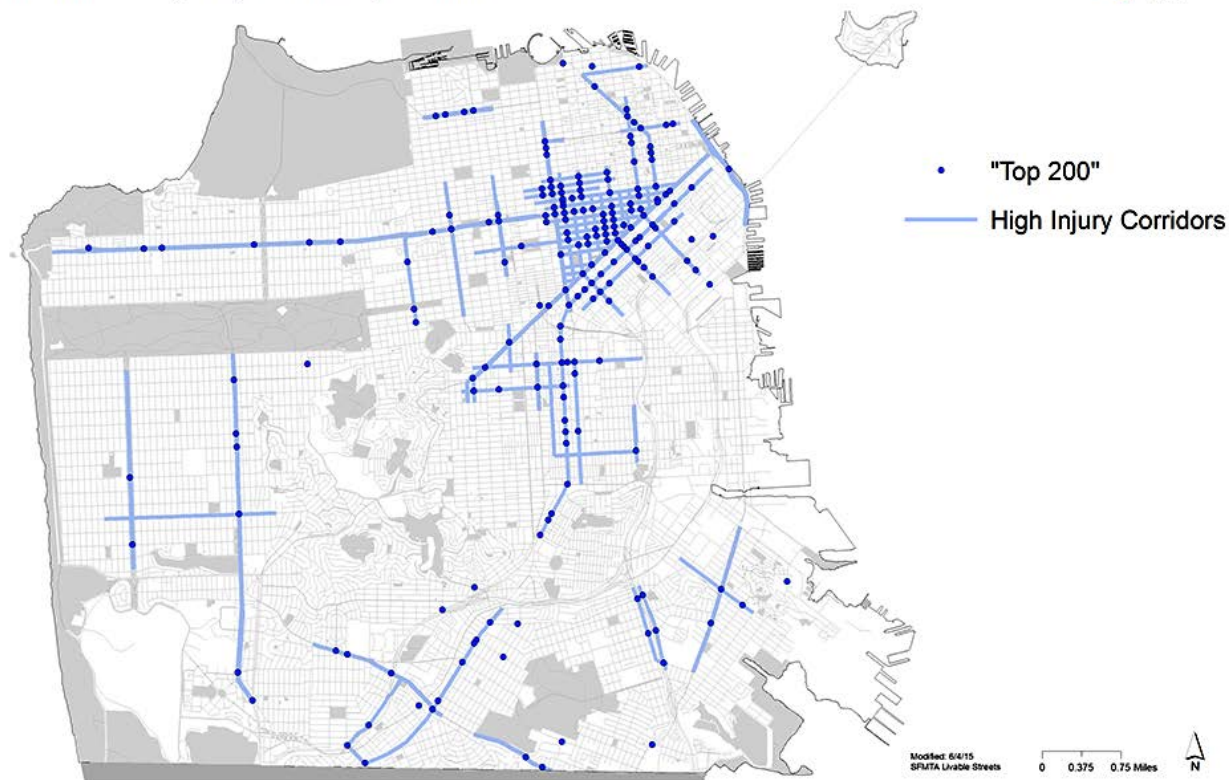
LEFT TURNS AT SIGNALIZED INTERSECTION Collision Profile Matches



DATA-DRIVEN IMPLEMENTATION

- Delivering corridor-wide safety improvements
- Delivering intersection-specific safety improvements

Pedestrian Safety - Highest Priority Locations



QUICK & EFFECTIVE: MORE BETTER FASTER

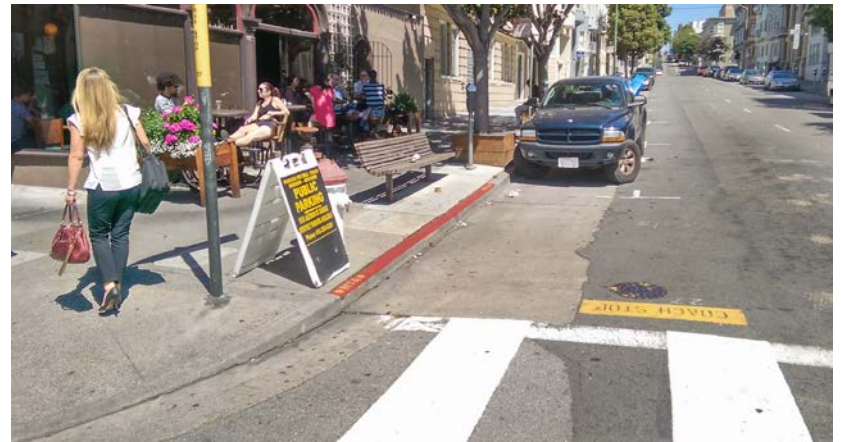


More countermeasures such as high visibility (continental) crosswalks, covering all parts of the City's High Injury Corridors

Better standards that allow us to implement proven countermeasures where they are needed, like the new ped head start (LPI) policy

Faster implementation of long-term projects by implementing near term improvements on major arterials

QUICK & EFFECTIVE COUNTERMEASURES



LEADING PEDESTRIAN INTERVALS (LPI)









- ENGINEERING PEDESTRIAN SAFETY

- 1
7







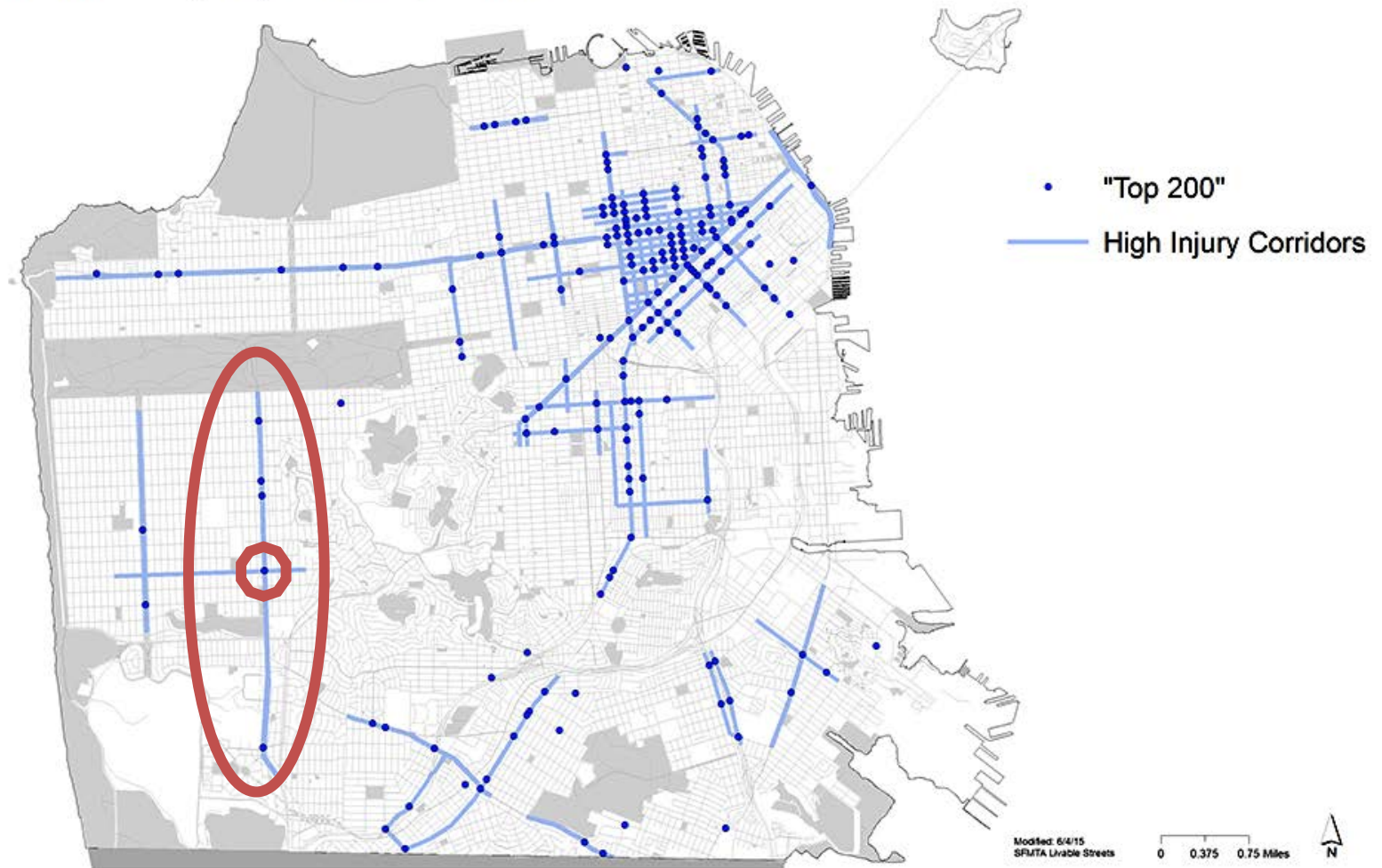


CORRIDOR APPROACH



Data-Driven Implementation Example: 19th Avenue

Pedestrian Safety - Highest Priority Locations



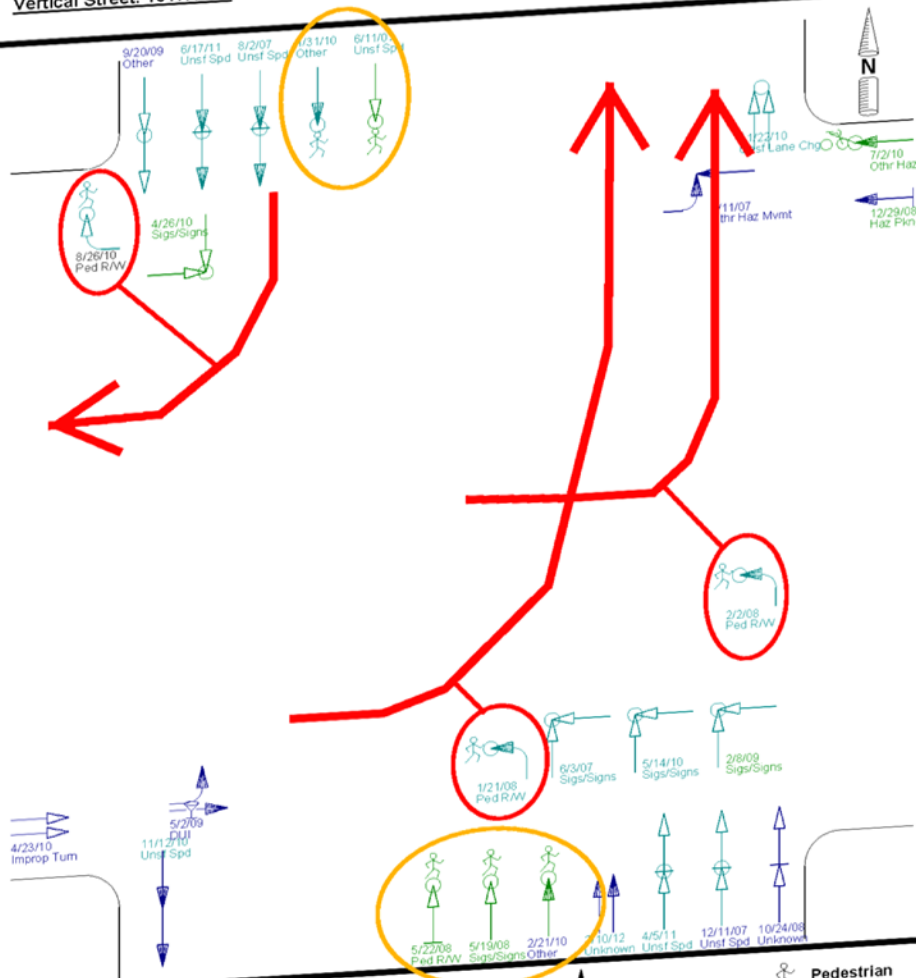
Collision Diagram

From: 4/1/2007 To: 3/31/2012

Date Prepared: 9/9/2014

Horizontal Street: TARAVAL ST

Vertical Street: 19TH AVE

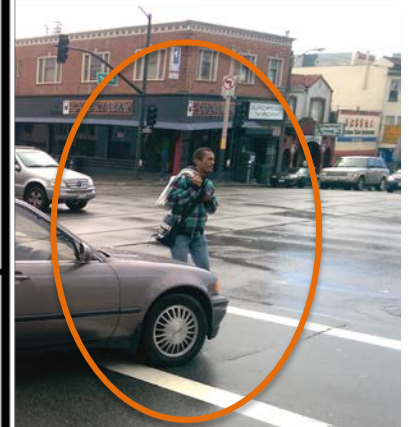


Number of Collisions

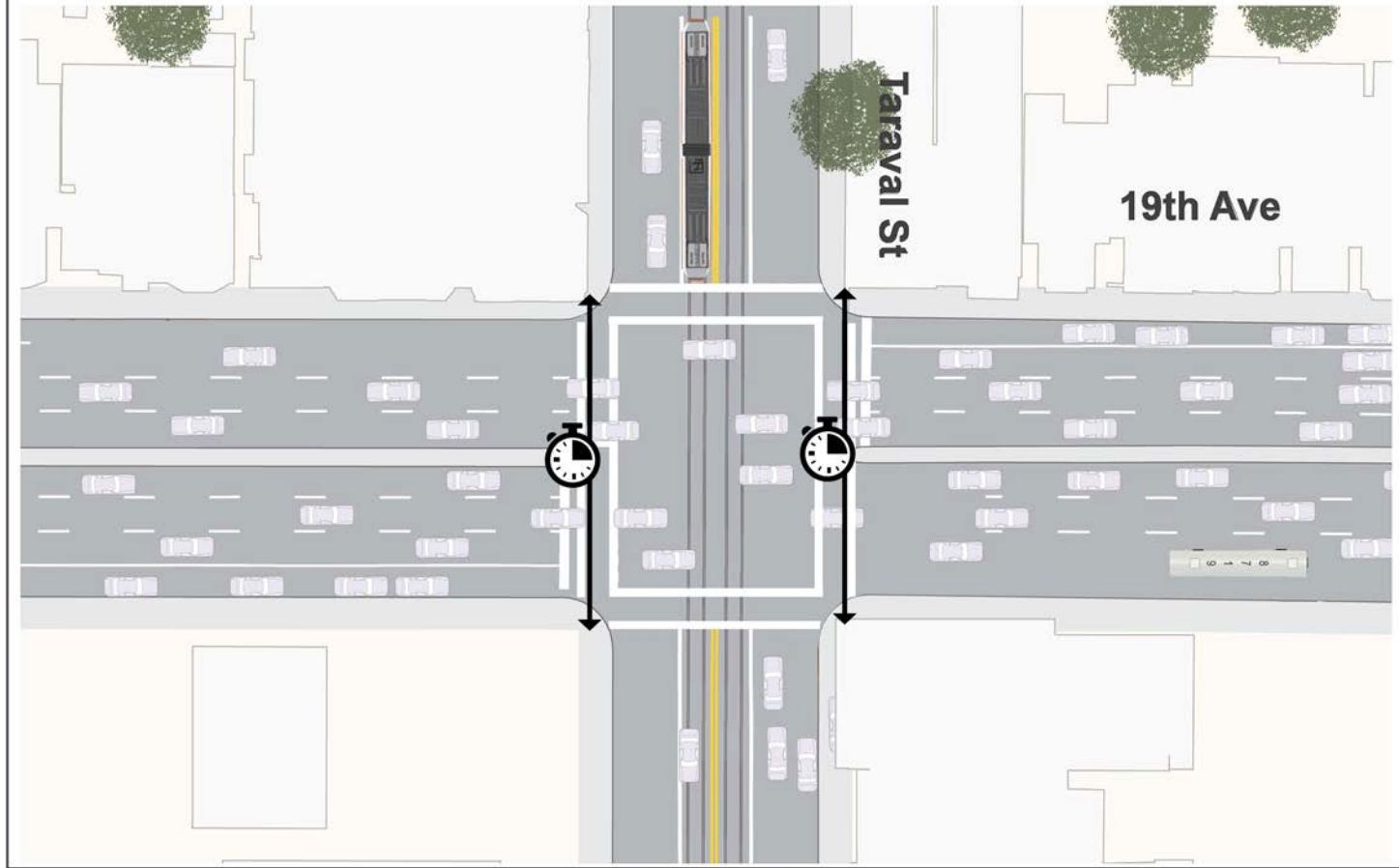
<u>7</u>	Property Damage Only
<u>19</u>	Injury Collisions
<u>0</u>	Fatal Collisions
<u>26</u>	Total Collisions

Legend

	Moving Vehicle		Right Turn		Pedestrian
	Stopped Vehicle		Left Turn		Fixed Object
	Backing Vehicle		Sideswipe		Bicycle
	Ran Off Road		Day		DUI
	Movement Unknown		Night		Injury
					Fatal

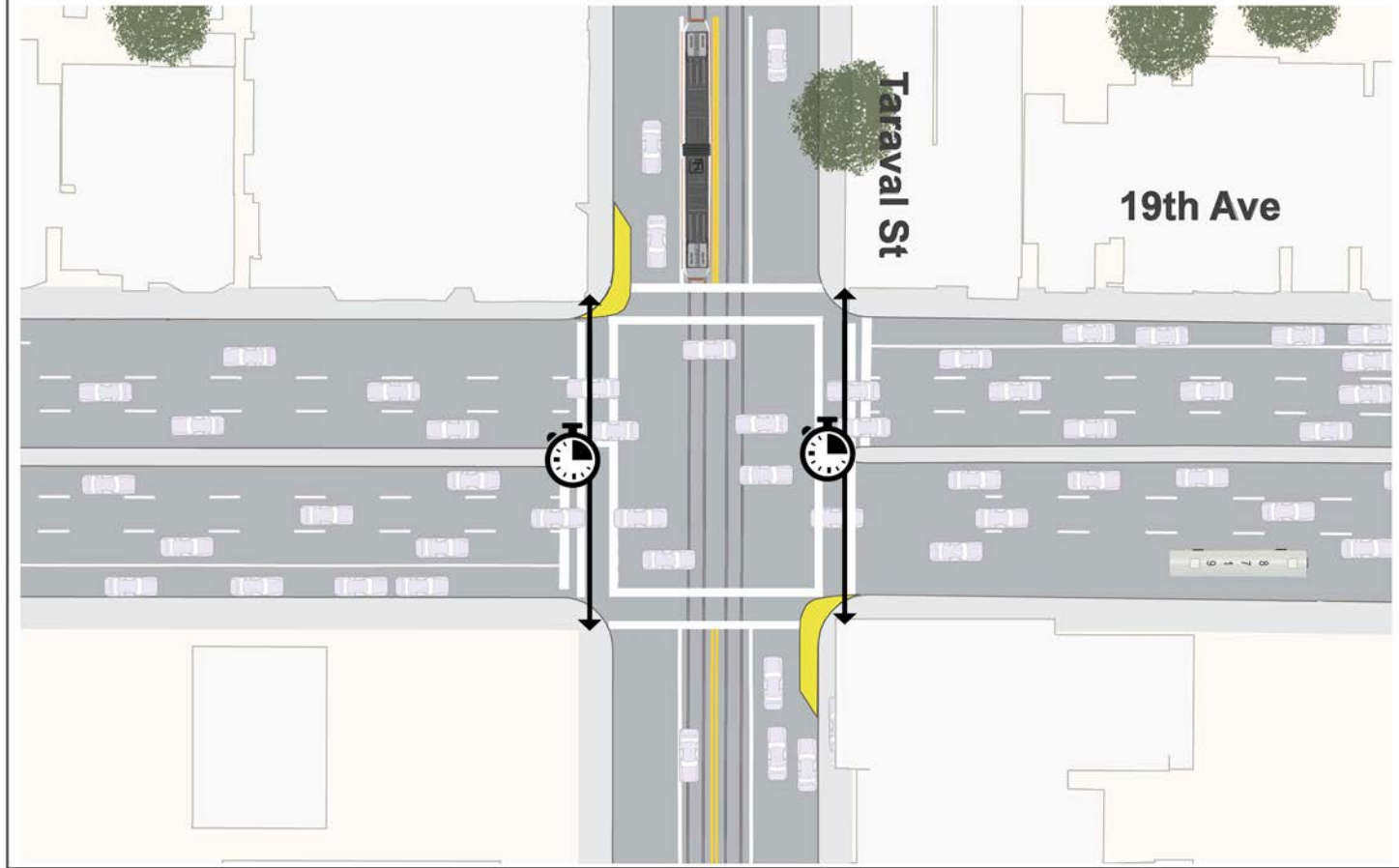


19th Ave at Taraval



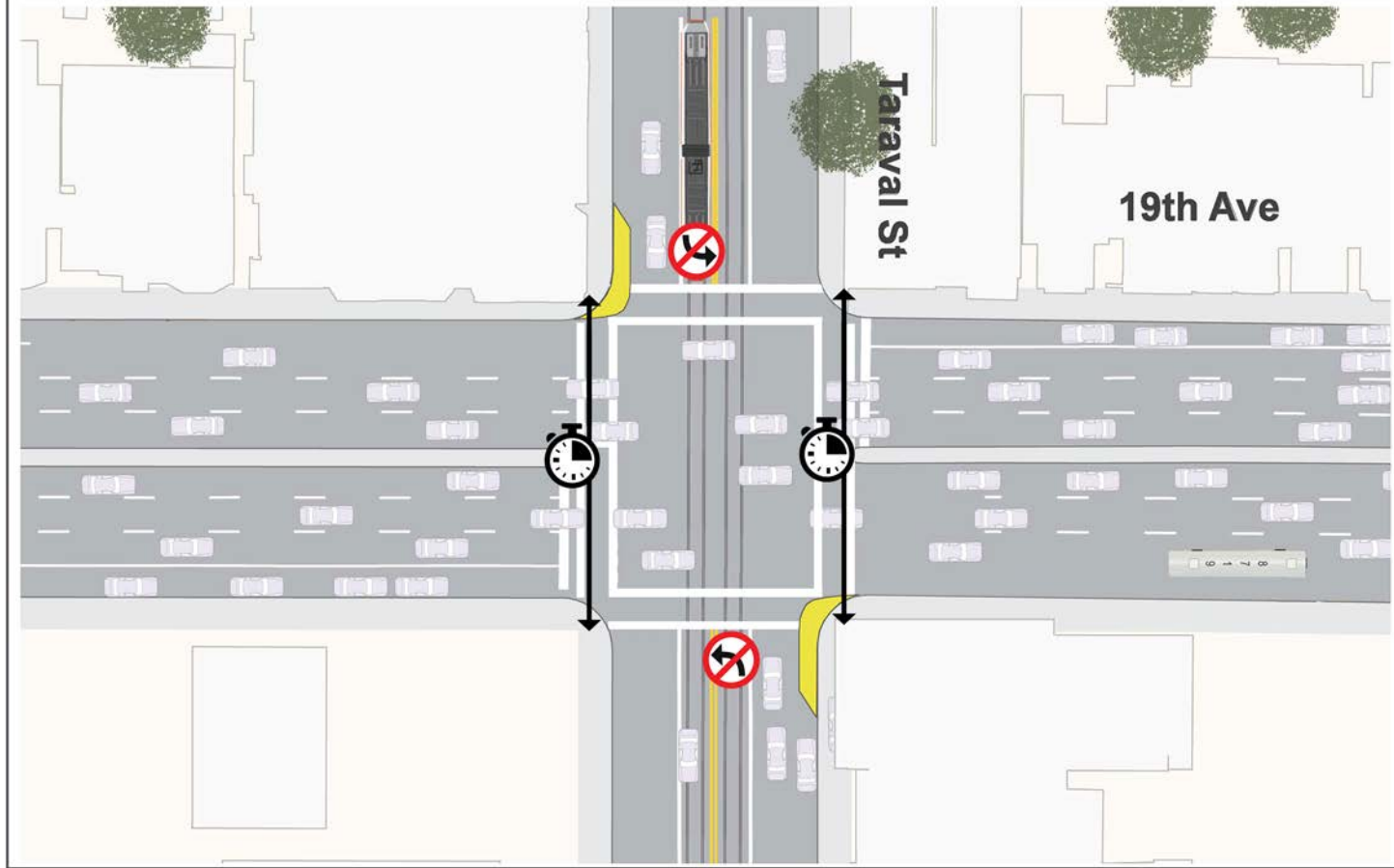
← North to Golden Gate Park

19th Ave at Taraval



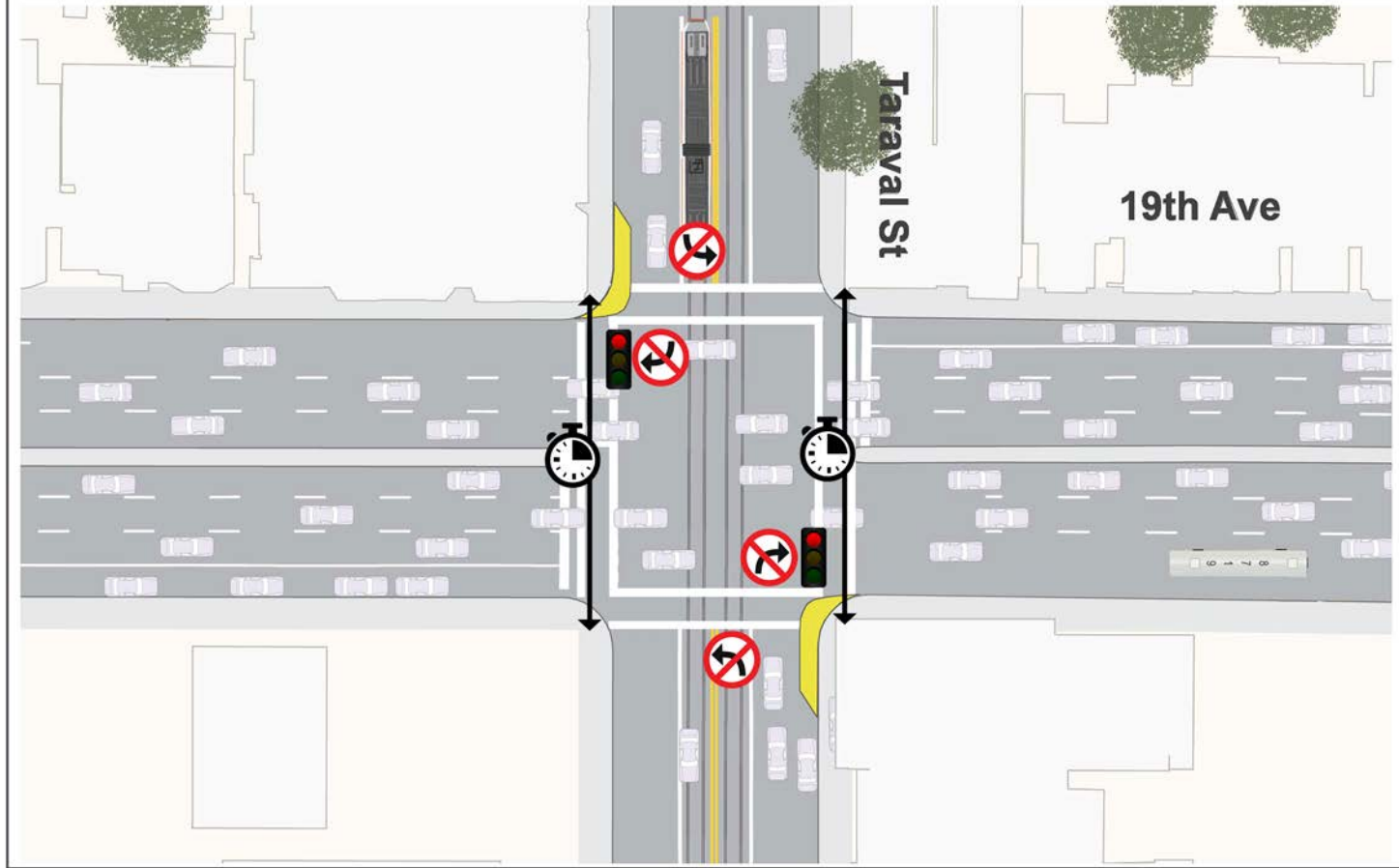
← North to Golden Gate Park

19th Ave at Taraval



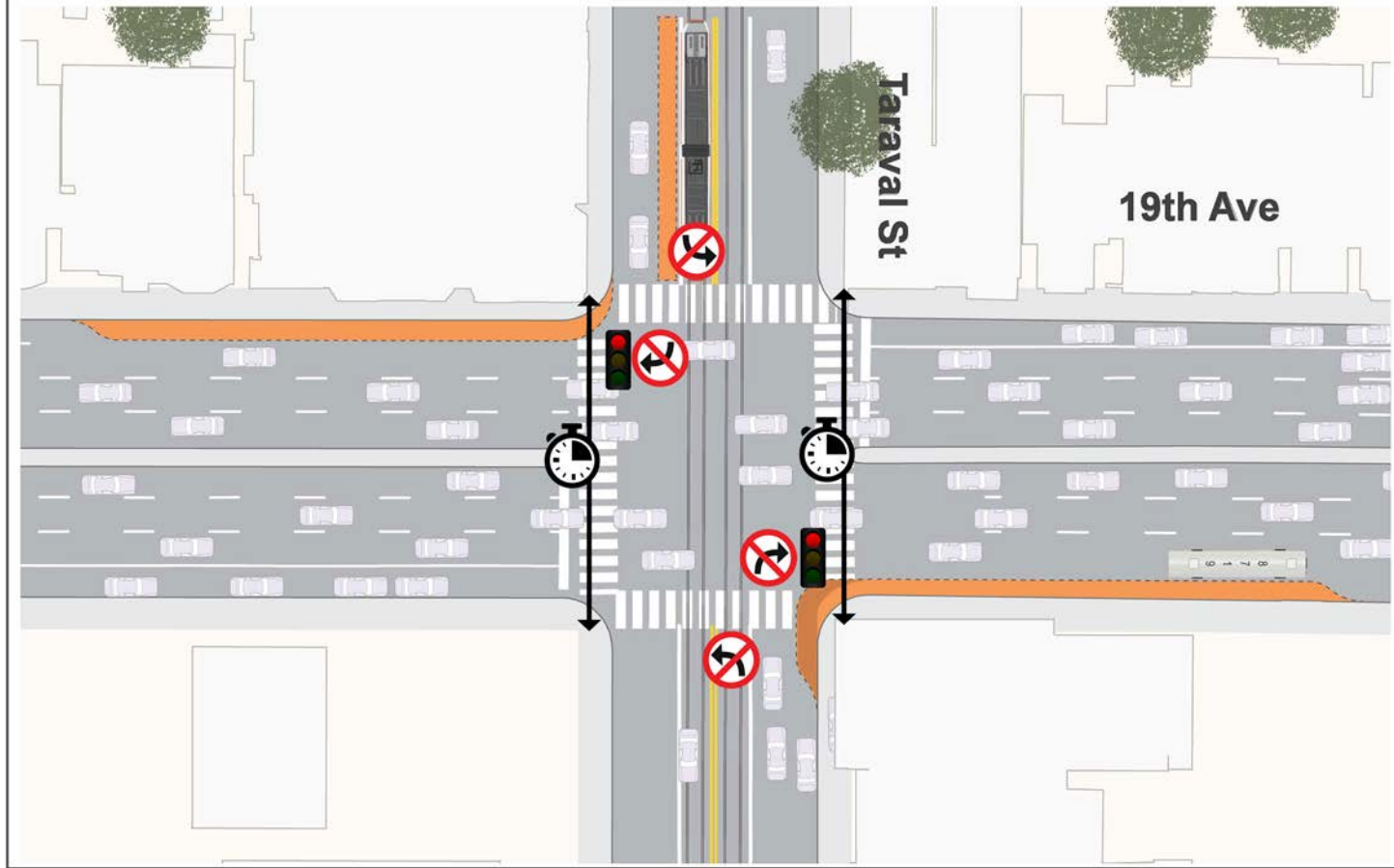
← North to Golden Gate Park

19th Ave at Taraval



← North to Golden Gate Park

19th Ave at Taraval



← North to Golden Gate Park

BEYOND ENGINEERING

Education

- “It Stops Here” Campaign
- Anti-Speeding Campaign
- Vision Zero Awareness on radio
- Large Vehicle, Taxi and Passenger Driver Training Program

Enforcement

- 34% of total citations issued for Focus on the Five Violations
- 93% charge rate for prosecution of vehicle manslaughter

Evaluation

- Transportation-related Injury Surveillance System
- Evaluation of “It Stops Here” Campaign

Policy

- Automated Speed Enforcement

VISION ZERO IMPACT

- **Proactive approach** for improving streets for safety
 - Layered approach for street improvements
- **Defensible recommendations** to save lives
- Focused interventions in **highest need locations**
 - Opportunity to tackle long-neglected streets
- **Shared information** through TransBASE
- Improved **data reporting** from SFPD
- **Coalition for safety** improvements from transportation and community advocates
- Change in **media attitudes** towards traffic deaths



THANK YOU

Q & A

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