

# Dallas Vision Zero Action Plan

## Crash and Survey Data Analysis

FINAL  
Spring 2022



# Presentation Outline

- The State of Traffic Safety in Dallas
- Crash Data Analysis Overview
- Severe Crashes in Dallas:
  - Who
  - Where
  - When
  - How
  - Why
- Comparing Police Reports with Hospital Data
- Survey Results
- Focus Areas for Vision Zero Dallas
  - Topic Focus Areas
  - Geographic Focus Areas
  - Systemic Safety Analysis

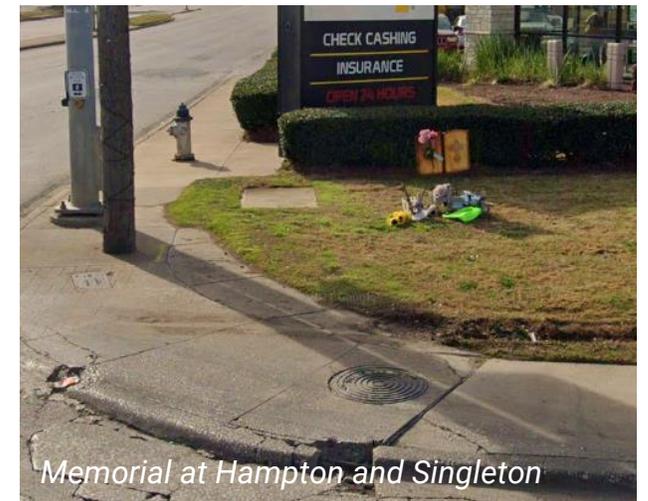
# The State of Traffic Safety in Dallas

**Dallas has the second highest traffic fatality rate among the 15 most populous cities in the U.S.**

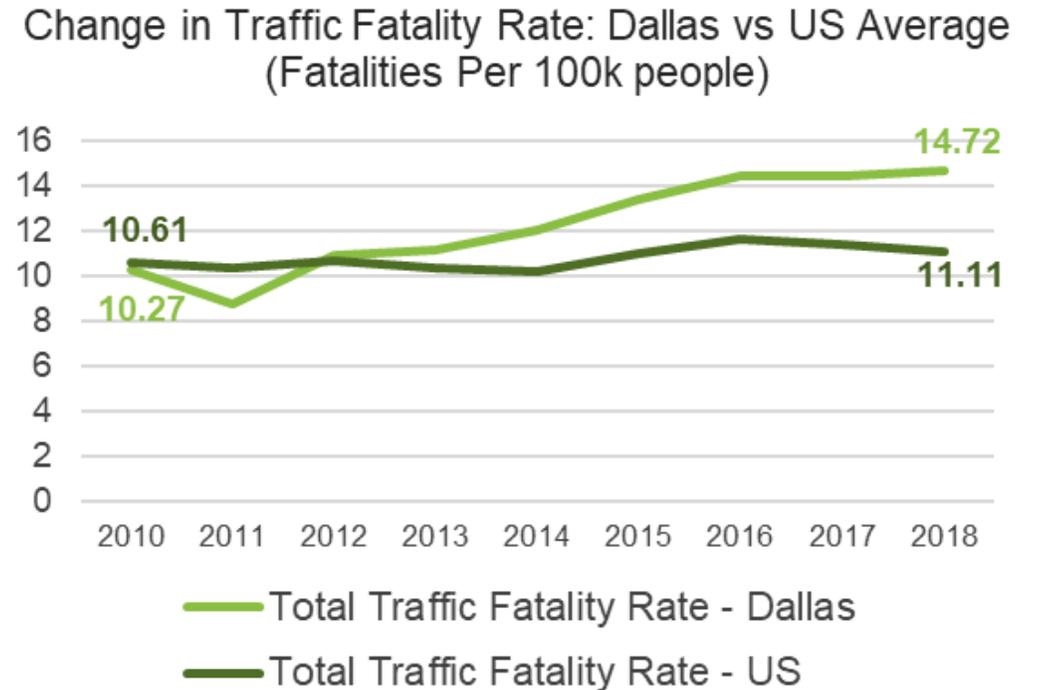
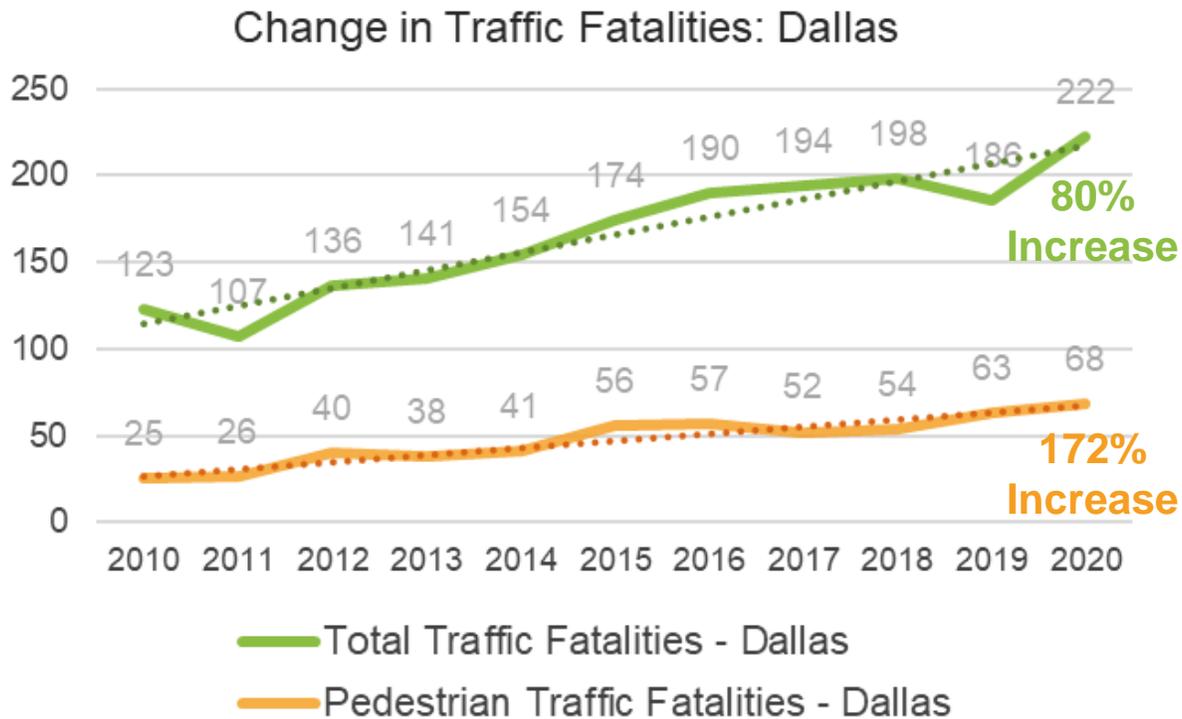
(Traffic deaths per 100,000 people; 5-year average rate from 2015-2019)

*A traffic fatality is 1.27 times more likely to occur in Dallas than in Fort Worth.*

1. Jacksonville, FL	15.79	9. Los Angeles, CA	6.71
<b>2. Dallas, TX</b>	<b>14.11</b>	10. San Diego, CA	6.34
3. Phoenix, AZ	13.71	11. Philadelphia, PA	6.09
4. Fort Worth, TX	10.84	12. San Jose, CA	6.00
5. San Antonio, TX	10.53	13. Chicago, IL	4.90
6. Houston, TX	10.07	14. San Francisco, CA	3.52
7. Austin, TX	9.08	15. New York, NY	2.56
8. Columbus, OH	7.02	National Rate	11.22



# The State of Traffic Safety in Dallas



**What we are currently doing to make transportation in Dallas safe is not working.**



Source: TxDOT, Crash Records Information System, 2019-2020; National Highway Traffic Safety Administration, Annual Traffic Safety Facts, 2010-2018

# CRASH DATA ANALYSIS OVERVIEW

# Data Analysis is the Vision Zero Foundation

According to Vision Zero Network:

- Vision Zero is a data-driven approach, and gathering, analyzing, utilizing and sharing both formal crash data and community input to understand traffic safety priorities is fundamental.
- The data should answer questions like:
  - Are injury crashes more likely to occur in certain locations? At certain times of day?
  - Are some demographics and road users over-represented in severe crashes? If so, who? Where?
  - What crash factors are prominent? (Examples: high speeds, left turns, or lack of sidewalks and bike lanes)
- The analysis should lead to the development of a High Injury Network that geographically identifies locations where investments in safety are most urgent.

# Dallas Vision Zero Action Plan

**Vision Zero Action Plan (VZAP):** a course of action for how the we will meet the Vision Zero goal. Scope of work:

WE  
ARE  
HERE

1. **Public and stakeholder engagement:** Task Force, public survey and interactive comment map, public meetings, etc.
2. **Crash data analysis** and identification of focus areas (locations and topics).
3. **Review of best practices** related to engineering, enforcement, education, evaluation, equity.
4. **Assessment of existing policies, programs, practices.**
5. **Draft Recommendations:** formulate strategies and policies, and create an implementation plan with department/agency buy-in.
6. **Prepare the Vision Zero Action Plan.**

# Sources Referenced for Crash Data Analysis

Key sources that were reviewed before and during the completion of the crash data analysis included:

- 2015-2019 American Community Survey (U.S. Census)
- City of Los Angeles. (2016). *Crash Data Analysis Report*.
- City of Seattle. (2016). *Bicycle and Pedestrian Safety Analysis*.
- National Highway Traffic Safety Administration. *Annual Traffic Safety Facts*.
- New York City. (2010). *The New York City Pedestrian Safety Study & Action Plan*.
- New York City's Pedestrian Safety Action Plans for each borough (2015).
- North Central Texas Council of Governments. (2021). *Regional Pedestrian Safety Action Plan*.
- Proulx, F. & Sanders, R. (2018). *High injury networks – Why, when, and how to use them: A case study*.
- Texas Department of Transportation. (2019). *Texas Strategic Highway Safety Plan*.
- Texas Department of Transportation. (2020). *Dallas District Four-Year Safety Plan*.
- Texas A&M Transportation Institute. (2019). *Understanding Dallas District Pedestrian Safety Issues*. Prepared for the Dallas District of the Texas Department of Transportation.
- The Institute for Road Safety Research. *SWOV Fact Sheet: The relation between speed and crashes*.
- U.S. Department of Transportation, Federal Highway Administration. *Systemic Safety Project Selection Tool, and Quick Start Guide Systemic Safety Analysis*.
- U.S. Department of Transportation, Federal Highway Administration. Office of Safety. Retrieved from <https://safety.fhwa.dot.gov/>.
- Vision Zero Network. (2017). *Vision, Strategies, Action: Guidelines for an Effective Vision Zero Action Plan*.

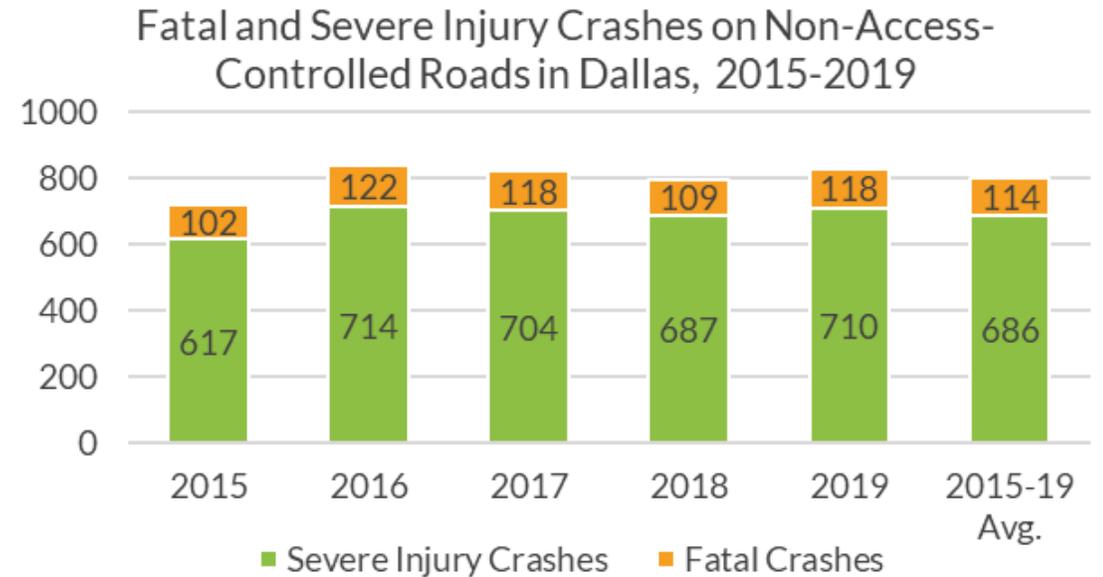
# Crash Data Used in the Analysis

- The crash records were retrieved from the Texas Department of Transportation (TxDOT) Crash Records Information System (CRIS). The source of the data is police reports, which all police departments in Texas submit to TxDOT.
- The following filters were applied to extract the crash data used in the analysis:
  1. Crashes located in the City of Dallas.
  2. Crashes that were not on limited-access roadways (e.g., non-interstate roadways).
    - It was decided not to include limited-access roadways in the analysis because there is less of an impact the City of Dallas can have on improving the safety of these facilities.
    - Limited access roadways” are defined by TxDOT as roads that have limited or no access to adjacent property, use of grade-separated interchanges, and prohibit of some modes like pedestrians.
  3. Crashes that occurred from 2015 through 2019.
  4. Crashes in which the “Injury Severity” in the crash report was listed as Killed or Incapacitating. (Throughout this presentation, referred to as Killed or Severe Injury crashes or Severe crashes.)

# Crash Data Used in the Analysis (cont.)

- Of the 131,997 reported crashes that occurred on non-access-controlled roadways in the City of Dallas between 2015 and 2019, 4,001 (3%) resulted in a fatality or severe injury.

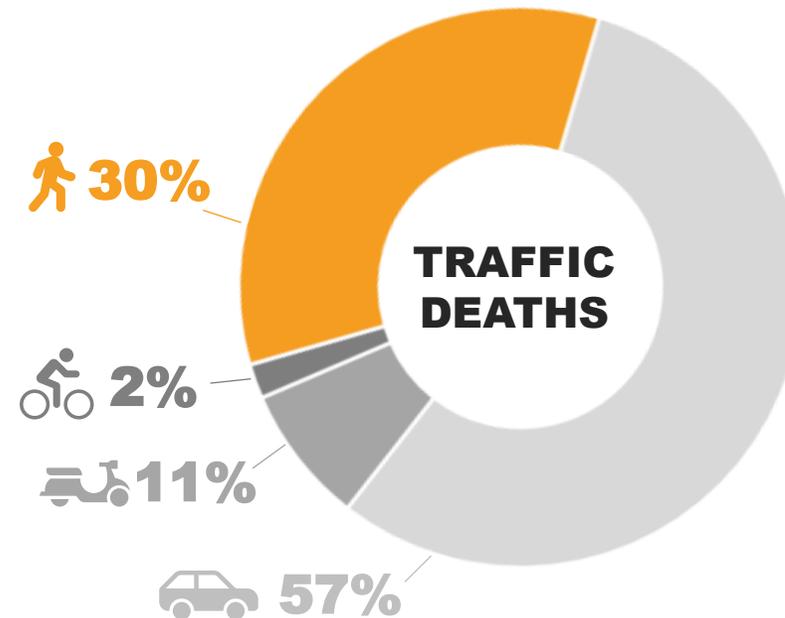
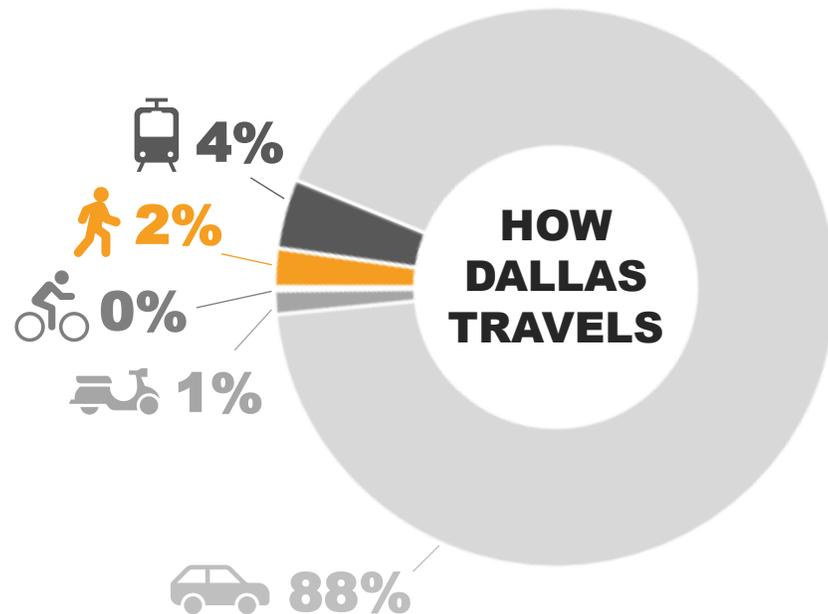
2015-2019 Crashes in Dallas	Crashes	People
Total Crashes	184,447	485,855
Total Crashes - on non-access-controlled roads	131,997	339,245
Fatal Crashes - Total	890	956
Fatal Crashes - on non-access-controlled roads	569	614
Severe Injury Crashes - Total	4,478	5,395
Severe Injury Crashes - on non-access-controlled roads	3,432	4,122



# SEVERE CRASHES IN DALLAS: WHO, WHERE, WHEN, HOW, AND WHY

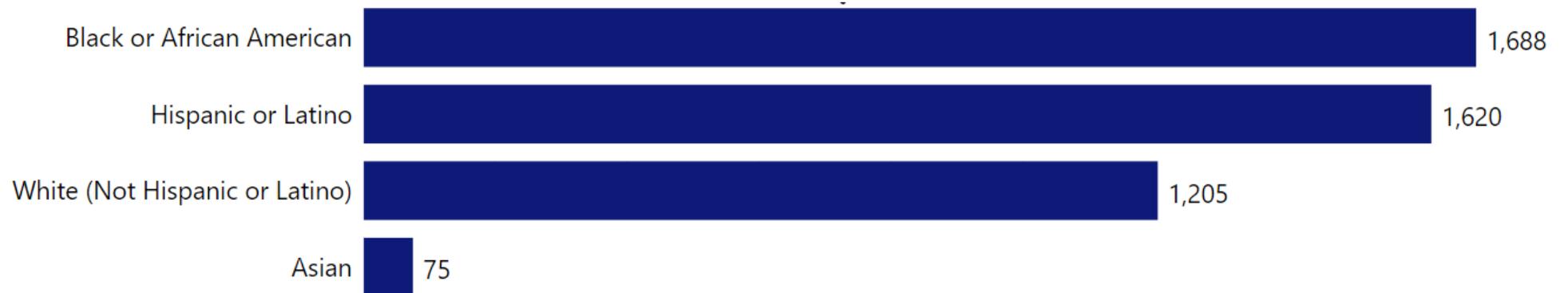
# WHO is Involved in Severe Crashes

- **Pedestrians:** Looking at how people travel in Dallas, pedestrians are significantly overrepresented in fatal and severe injury crashes.



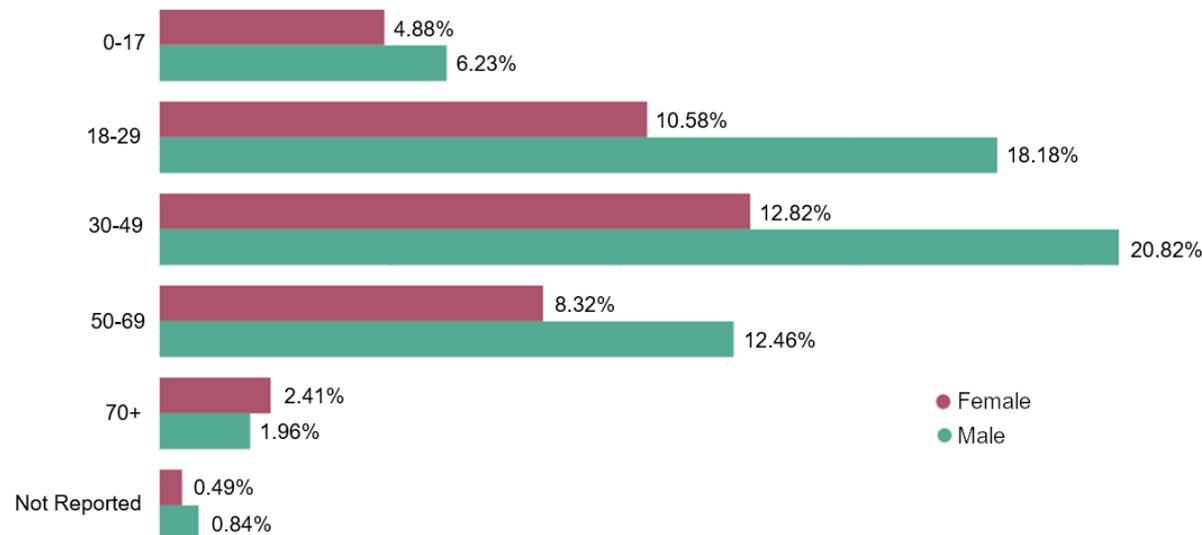
# WHO is Involved in Severe Crashes (cont.)

- **Black and African American People:** Looking at the race/ethnicity of people involved in severe crashes, people identifying as Black or African American are most likely to be involved in severe crashes (37%), despite only accounting for 24% of the City's population (2019 ACS 5-Year Estimates).
  - People identifying as Hispanic/Latino or White are underrepresented in severe crashes compared to their share of the population.



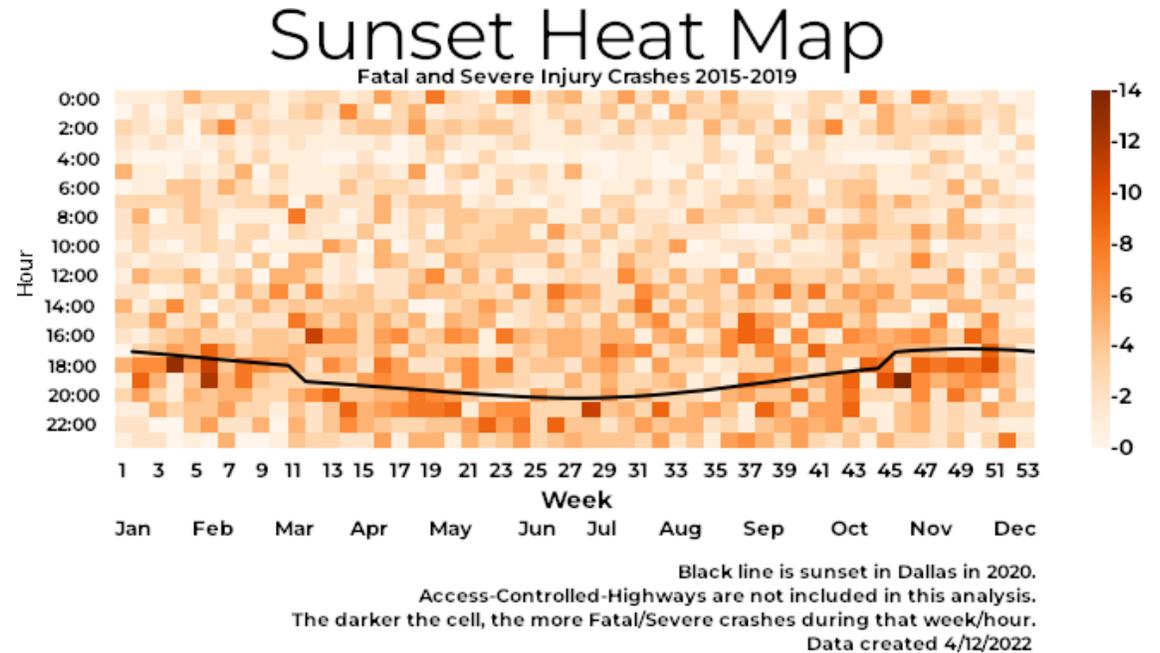
# WHO is Involved in Severe Crashes (cont.)

- **Men:** Males accounted for 61% of fatalities and severe injuries.
- **People Aged 30-49:** The people in the 30-49 age group account for the highest percentage cohort of fatal and severe injuries for both genders. However, children and older adults face higher risks when involved in crashes.



# WHEN Do Severe Crashes Occur

- **Just After Sunset:** More severe and fatal injuries occur between sunset and midnight than any other part of the day, with the highest density of severe crashes occurring from 6:00 pm to 9:00 pm.
- There is a spike in crashes in late fall and early spring.
- However, in police reports lighting was not reported to be an issue. 51% of severe crashes occurred when it was light outside.



# WHERE Do Severe Crashes Occur

The **High Injury Network (HIN)** identifies streets where a disproportionate number of severe crashes have occurred.

- Segments and intersections in the network were identified by weighting the type and severity of crashes and referencing their location relative to other crashes.
- We looked at different methodologies and thresholds (% streets vs. % severe crashes) to select our recommended threshold for the All-Modes HIN (7% of streets that account for over 60% of severe crashes)
- The HIN is intended to identify locations where investments in safety are most urgent, and to help allocate resources to locations that need it most.

# WHERE Do Severe Crashes Occur (cont.)

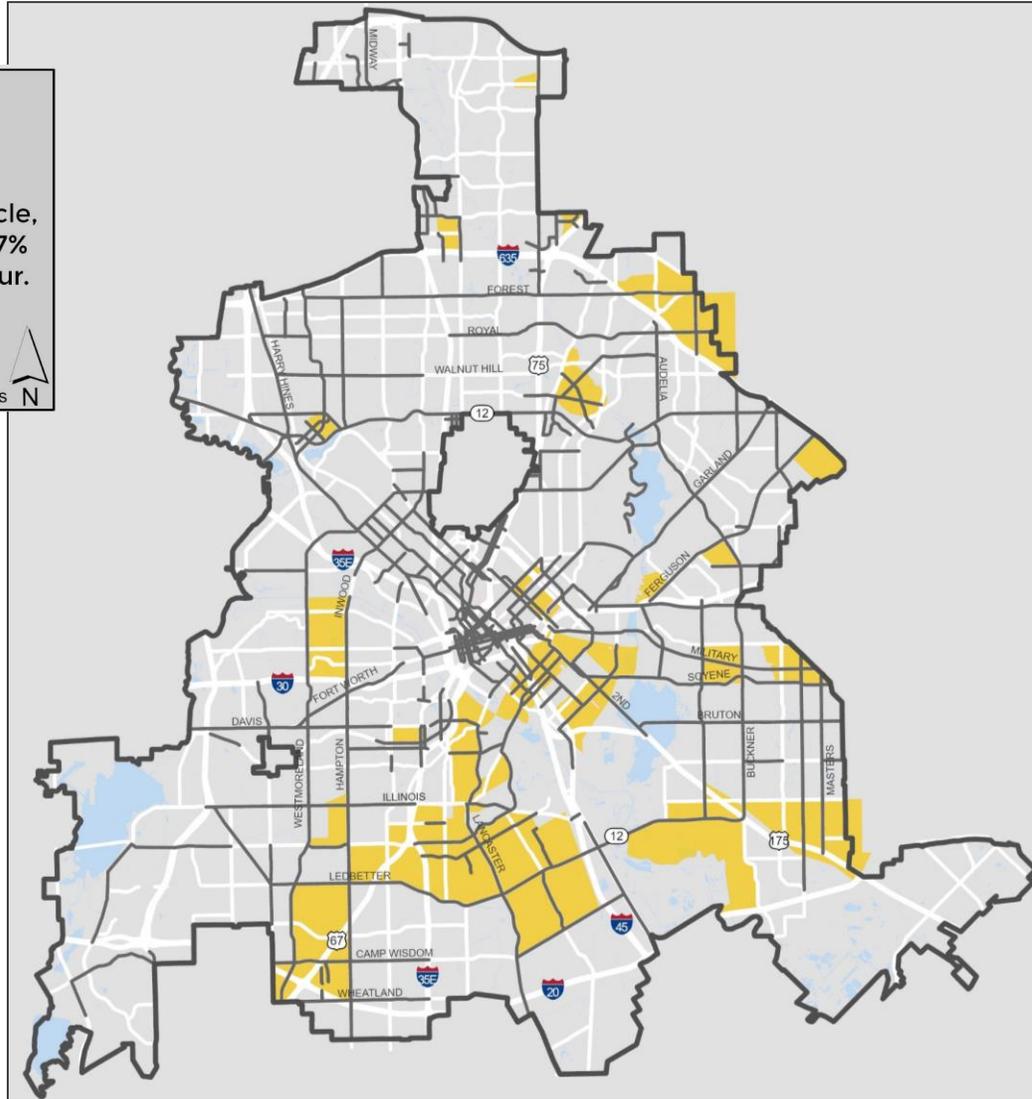
**High Injury Network**  
All Modes

The High Injury Network is a compilation of the top streets for fatal and severe motor vehicle, pedestrian, and bicycle crashes. It shows the 7% of streets on which 62% of severe crashes occur.

 Equity Focus Areas

 High Injury Network

0 0.25 0.5 Miles N



# WHERE Do Severe Crashes Occur (cont.)

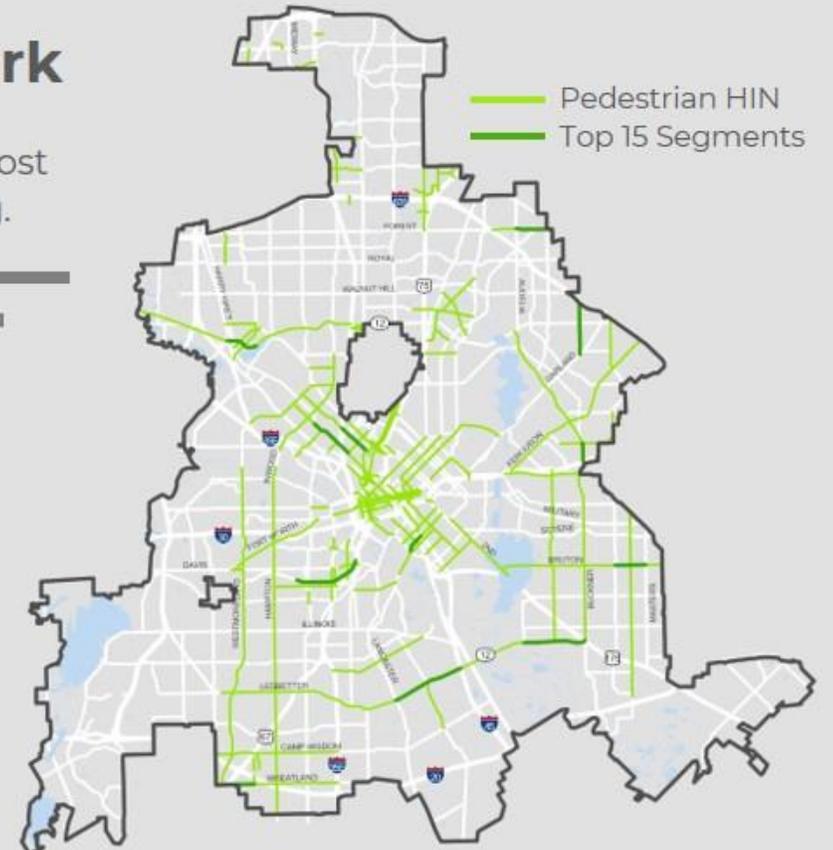
The All-Modes HIN is the combination of three mode-specific HINs.

## Pedestrian High Injury Network

Top 15 roadway segments on which people were most likely to be killed or seriously injured while driving.



Number of Fatal and Severe Injury Crashes



The Pedestrian High Injury Network shows the 4% of streets on which 59% of severe pedestrian crashes occurred.

# WHERE Do Severe Crashes Occur (cont.)

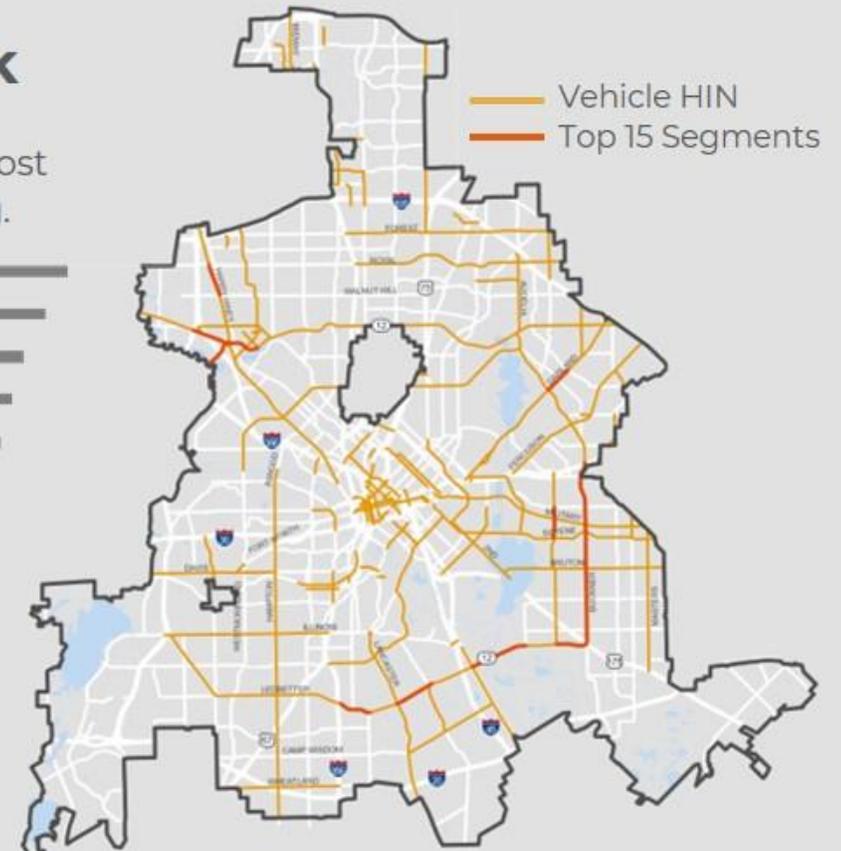
The All-Modes HIN is the combination of three mode-specific HINs.

## Vehicle High Injury Network

Top 15 roadway segments on which people were most likely to be killed or seriously injured while driving.



— Number of Fatal and Severe Injury Crashes

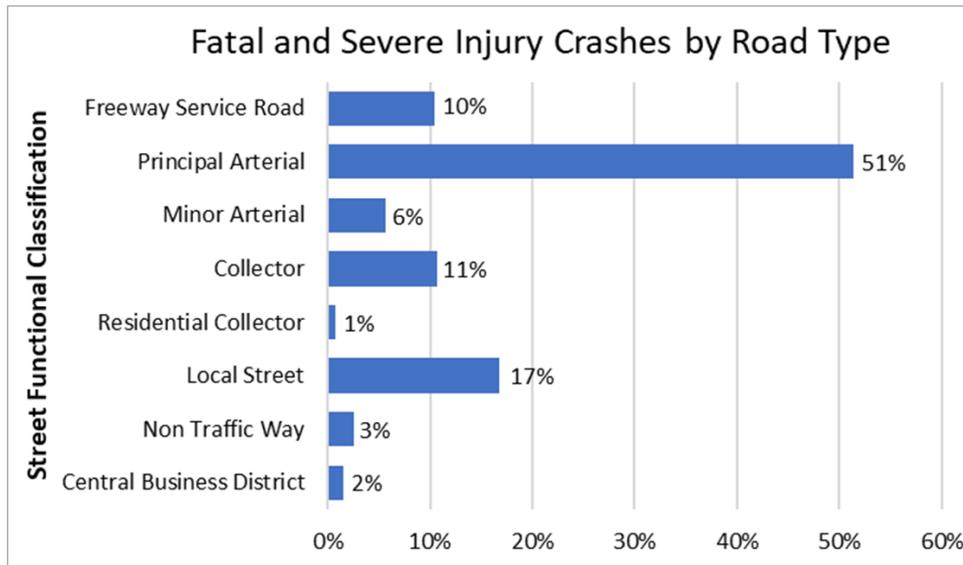


The Vehicle High Injury Network shows the 4% of streets on which 59% of severe crashes occurred that only involved motor vehicles.



# WHERE Do Severe Crashes Occur (cont.)

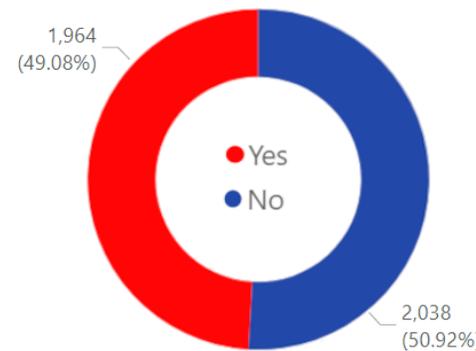
- **Principal Arterial Roads:** More than half of all severe crashes occurred on principal arterial roads.



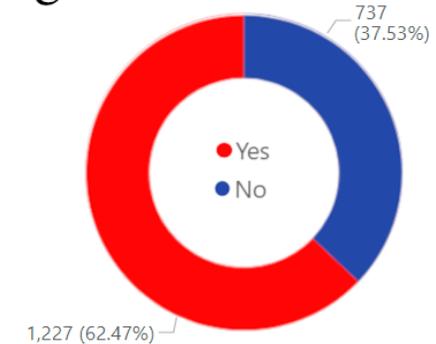
- **Intersections and Mid-block:** 51% of severe crashes occurred at mid-block locations (non-intersections), and 49% at intersections.

- Of the crashes at intersections, 62% were at locations with a traffic signal (30% of total severe crashes)

Intersection Related



Signalized Intersection

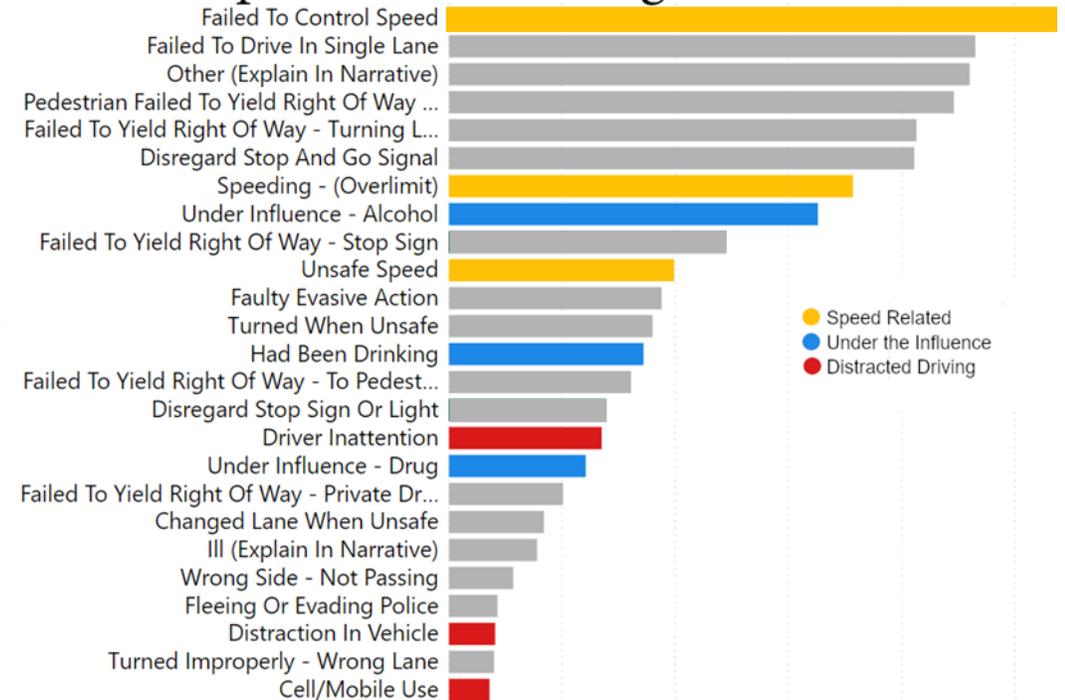


# HOW Do Severe Crashes Occur

Severe crashes are often caused by multiple contributing factors. The following behaviors were found in the highest percentage of severe crashes.

1. **Speeding Related** (Failed to Control Speed, Speeding Over Limit, or Unsafe Speed): 27%
2. **Driving Under the Influence** (Drugs, Alcohol, or Had Been Drinking): 14%
3. **Failure to drive in a single lane:** 12%
4. **Pedestrian failure to yield the right of way to vehicles:** 11%
5. **Failure to yield when turning left:** 10%
6. **Running a red light:** 10%

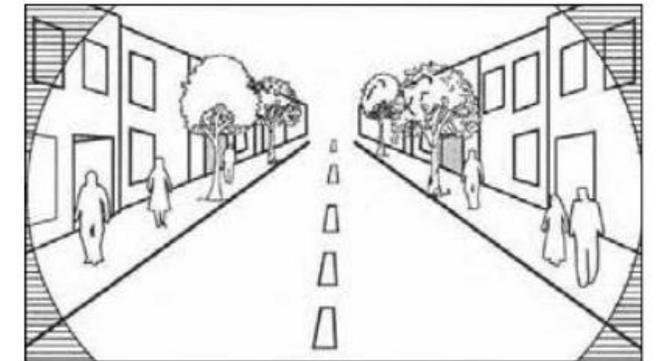
## Top 25 Contributing Factors



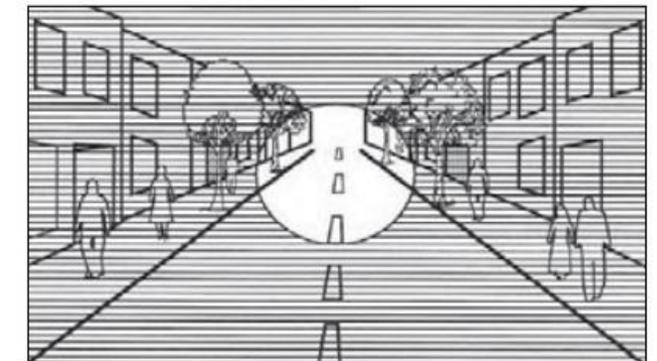
# WHY Are Crashes Severe

## Traveling at Higher Speeds

The higher the speed, the more likely a crash will occur and the more severe it will be. Injury severity also increases when there is greater mass difference between the vehicles and when vulnerable road users (pedestrians, bicyclists, motorcyclists) are involved.



Field of vision at 15 MPH



Field of vision at 30 to 40 MPH

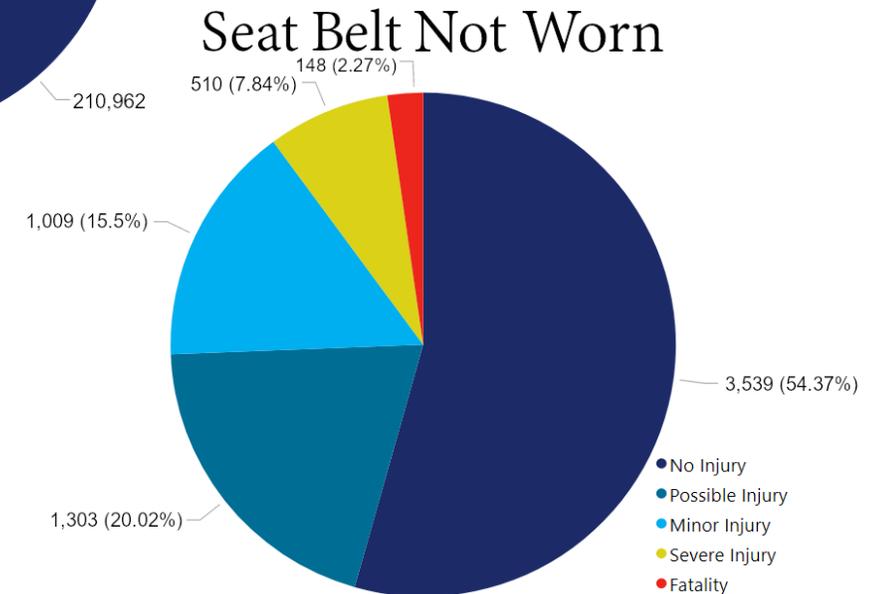
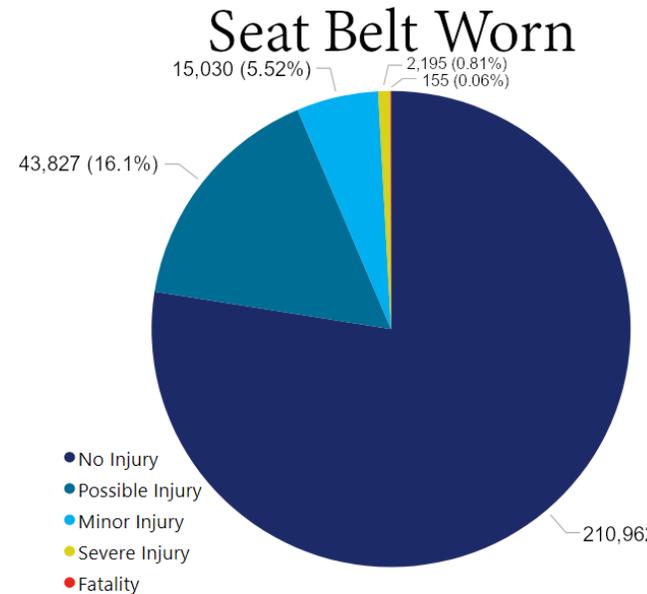
Source: City of Seattle

Source: The Institute for Road Safety Research. SWOV Fact Sheet: The relation between speed and crashes.

# WHY Are Crashes Severe (cont.)

## Not Using Proper Restraints

- Severity also increases when protection is lacking.
- When people do not wear a seatbelt, they increase their chance of death from less than 1% to over 10%!
- 658 (14%) of the 4,736 people that were killed or severely injured were not wearing a seat belt (or 16% of fatal and severe injury crashes)



# FOCUS AREAS FOR THE VISION ZERO ACTION PLAN

# Focus Areas for Vision Zero Dallas

- Seven factors in which to focus engineering, enforcement, and education efforts on were identified through the crash data analysis and public survey, with additional review and input from the Vision Zero Task Force.
  1. **Pedestrian-Involved Crashes** (30% of crashes)
  2. **Speeding/Unsafe Travel Speeds** (27% of crashes)
  3. **Not Using Proper Restraints** (e.g., Seat Belt, Car Seat) (16% of crashes)
  4. **Under the Influence** (14% of crashes)
  5. **Left-Turn Crashes** (10% of crashes)
  6. **Red Light Running** (10% of crashes)
  7. **Distracted Driving** (only 5% in the crash data, but a top priority in the public survey)