City of West University Place Speed and Safety Study

City Council Update & Discussion: February 8, 2021

TRAFFIC ENGINEERS INC

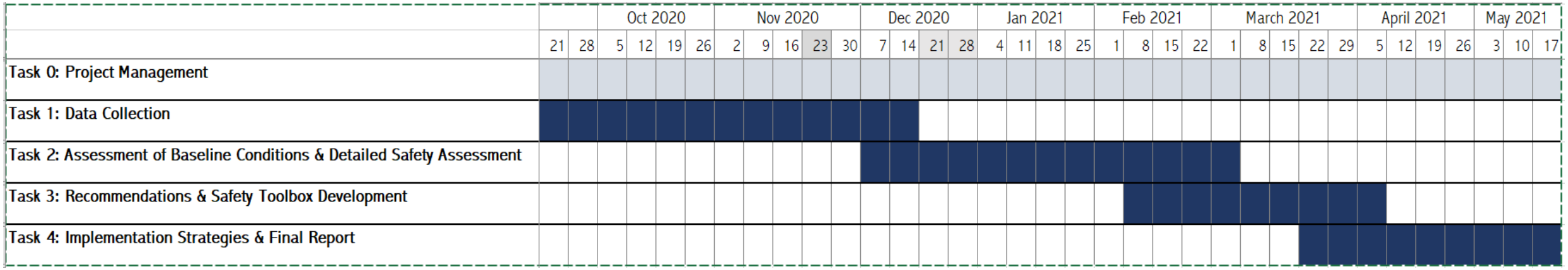
Agenda

- Plan Objectives
- Existing Conditions Overview & Insights
- The Evolution of Speed Setting on City Roadways
- Case Studies
- Next steps

Project Timeline

- Contract approved February 2020

Updated Timeline due to COVID-19 Pandemic



Plan Objectives

- To assess transportation network safety and existing speed limits on roadways within the City of West University Place
- Provide data driven recommendations on City speed limits
- Identify areas for detailed study and safety enhancements
- Capitalize on city-wide detailed data collection to develop a Safe Streets Toolbox for the City

Existing Conditions Assessment

Data Collection Overview

- Counting began in February 2020 and was paused in March 2020
- The COVID-19 pandemic, especially between March and May, had tremendous impacts on how people moved around
- Trends within **the Houston Region**:
  - Traffic volumes were down by 30% to 70% across the City, location depending
  - Traffic speeds increased
  - Traffic fatalities increased
- Counting resumed in September 2020 and continued through December 2020

The City of West University Place

LEGEND

- Civic
- Commercial
- Green Space
- Single-family Residential
- City Limits

ALL MATERIALS ARE DRAFT AND HAVE BEEN DEVELOPED FOR DISCUSSION ONLY

City Thoroughfare Plan

LEGEND

- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector

ALL MATERIALS ARE DRAFT AND HAVE BEEN DEVELOPED FOR DISCUSSION ONLY

Existing Traffic Control Devices

LEGEND

- No Traffic Control
- Northbound/Southbound Stop Controlled
- Eastbound/Westbound Stop Controlled
- All-way Stop Controlled
- Signalized Intersection

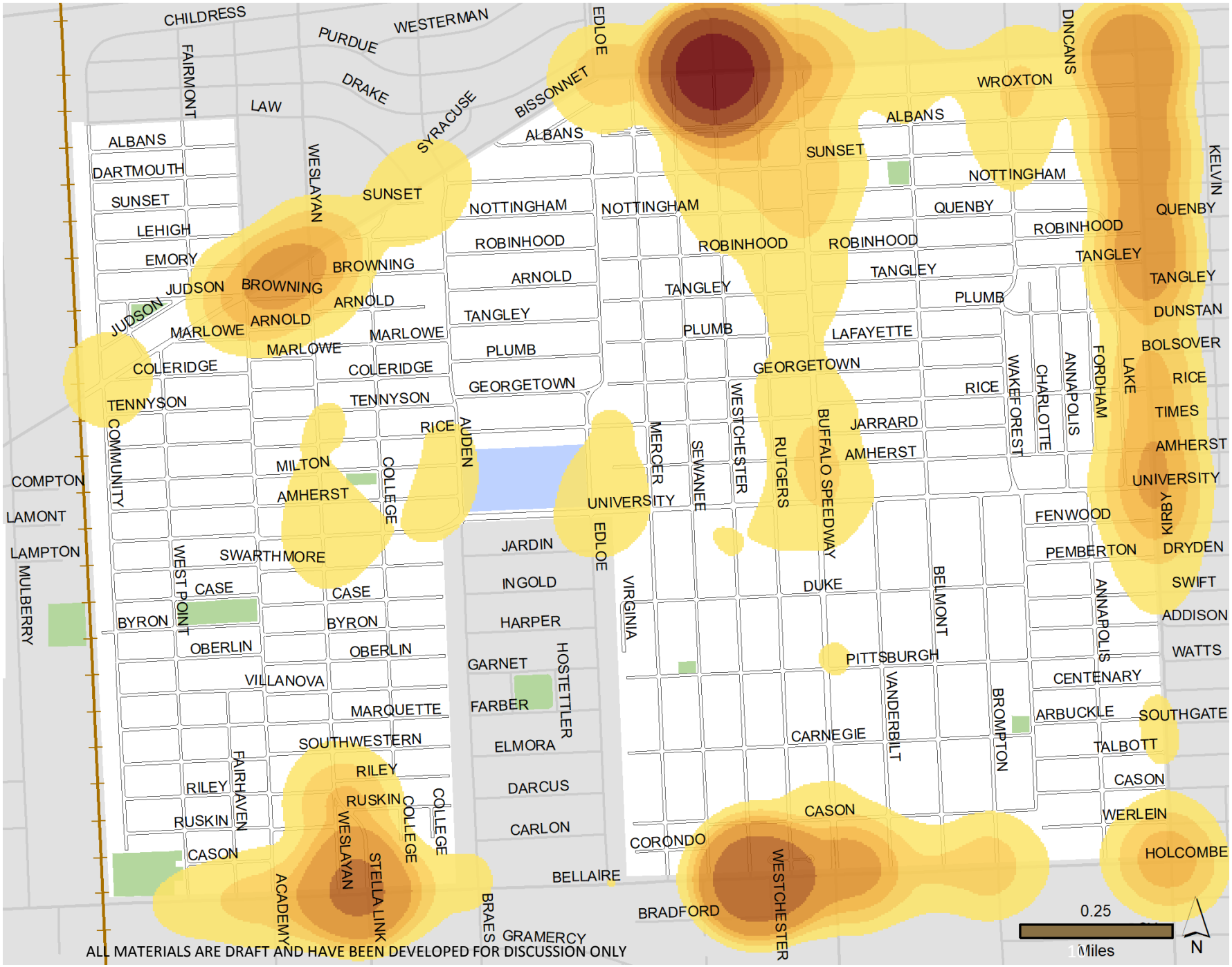
All Crashes Density

All Crashes from 2014-2019

LEGEND

More Crashes — Less Crashes

Crash Density



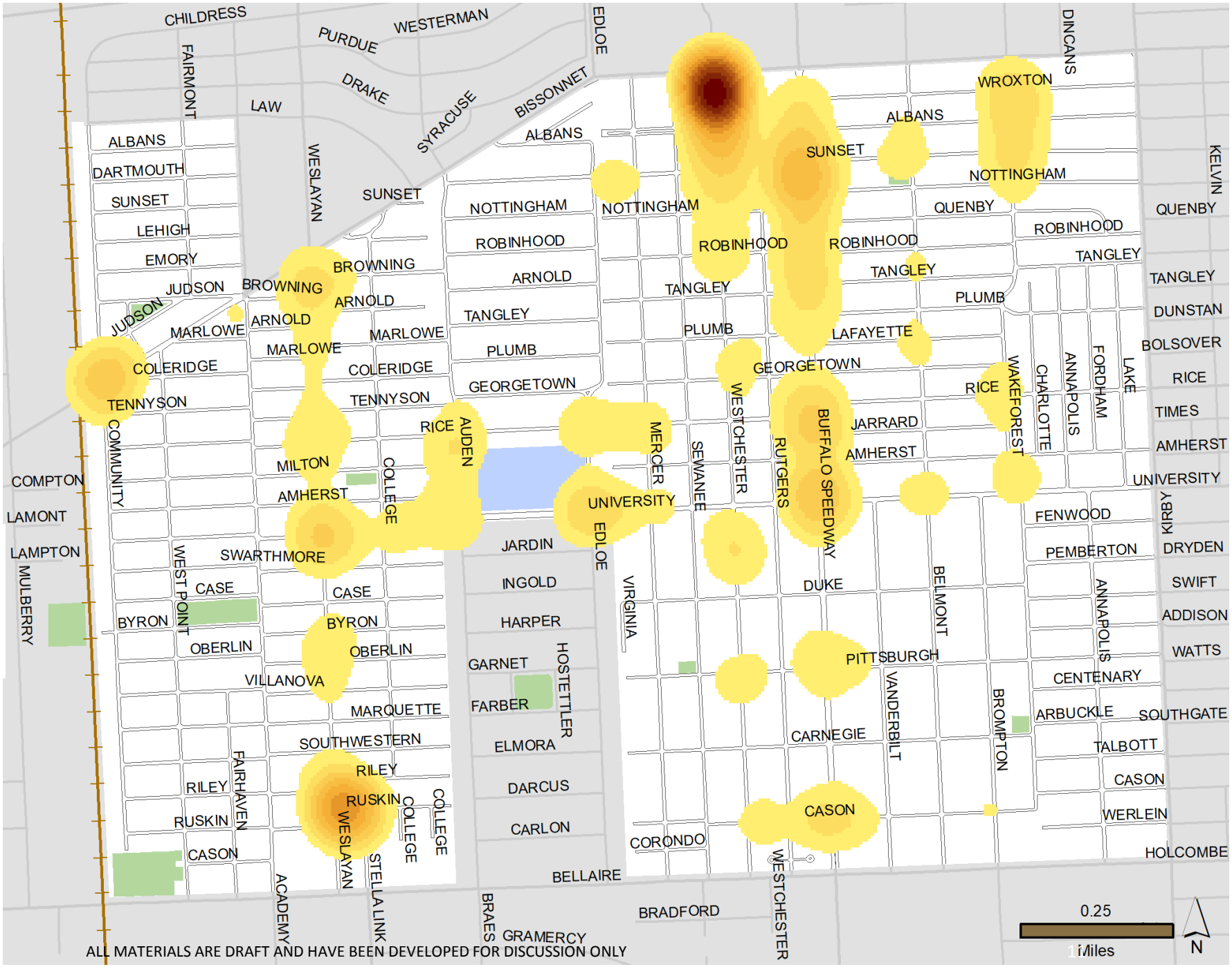
All Crashes Density
City Limits Only

All Crashes from 2014-2019

LEGEND

More Crashes — Less Crashes

Crash Density



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Pedestrian & Bicycle Crashes

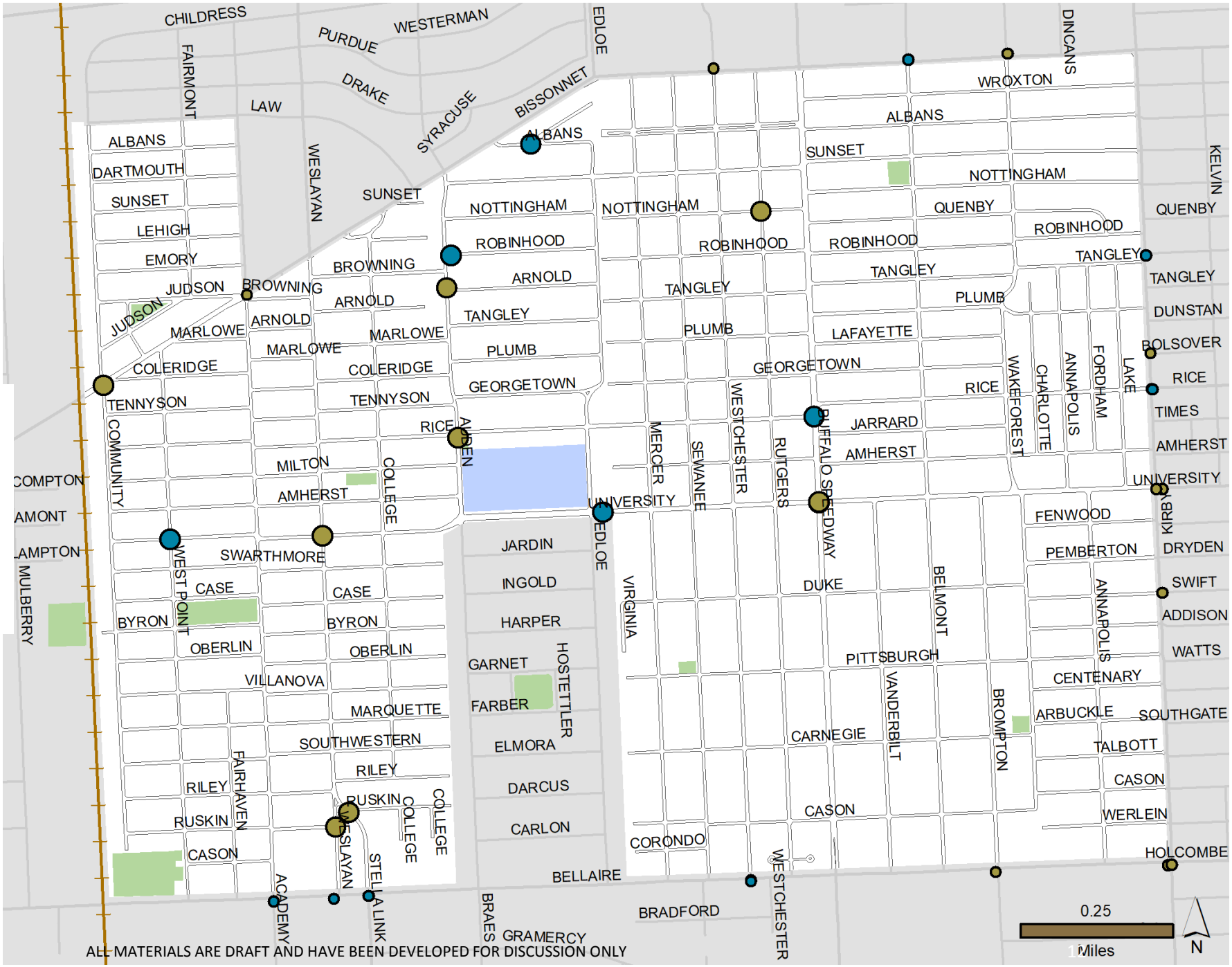
LEGEND

Within City Limits

- Crash involving person walking
- Crash involving person bicycling

Outside City Limits

- Crash involving person walking
- Crash involving person bicycling



Summary of Crash Data Collection

Within the City of West University Place

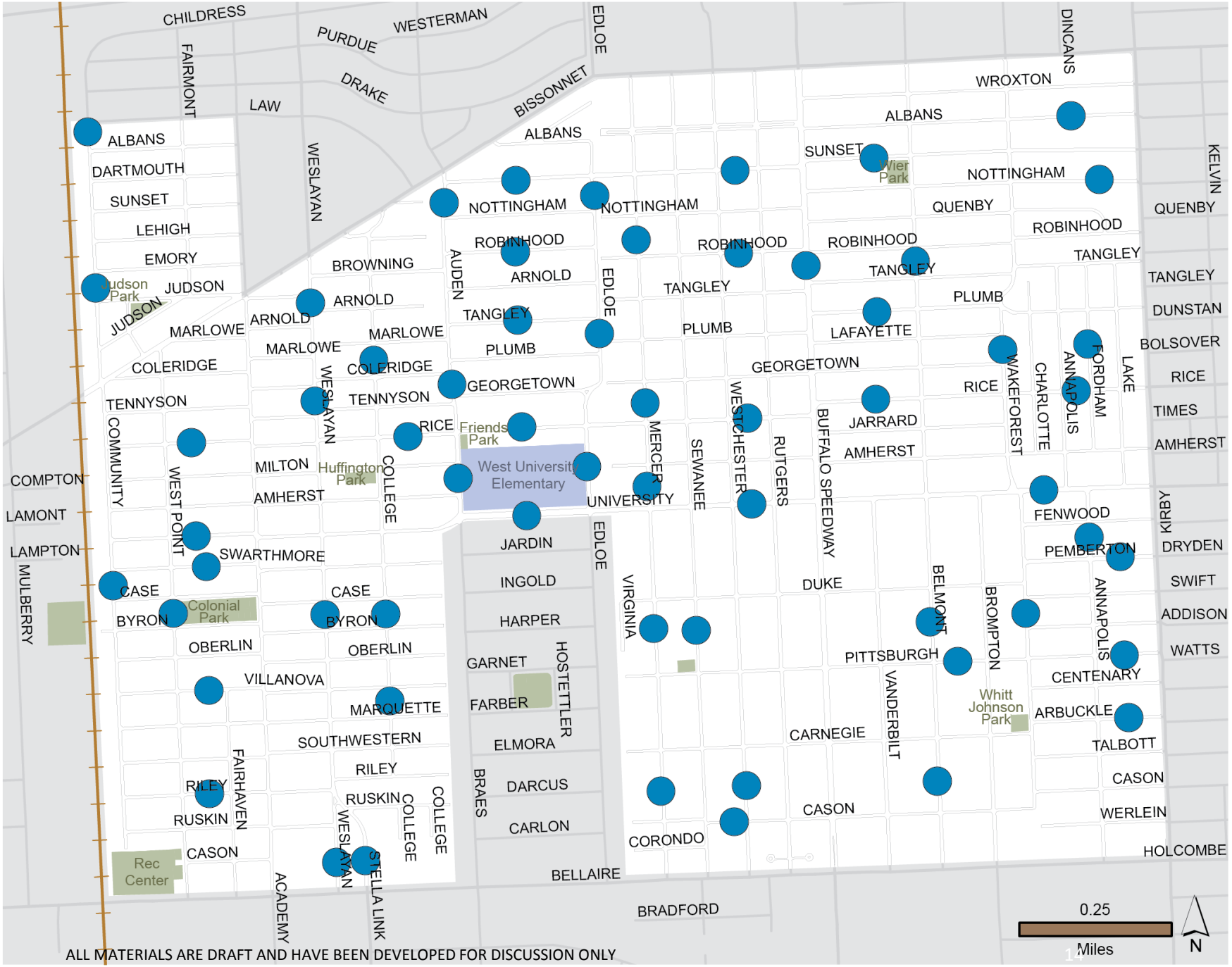
Year	Total Crashes	Incapacitating Injury	Pedestrians	Bicyclists
2019	126	1	1	1
2018	142	3	2	0
2017	139	0	3	1
2016	146	0	4	2
2015	147	1	1	2
2014	333	1	0	0
6-year Total	**1,033**	**6**	**11**	**6**

Traffic Count Data Collection

- 60 locations counted City-wide
- All locations counted for a minimum of three-days

LEGEND

Count Location



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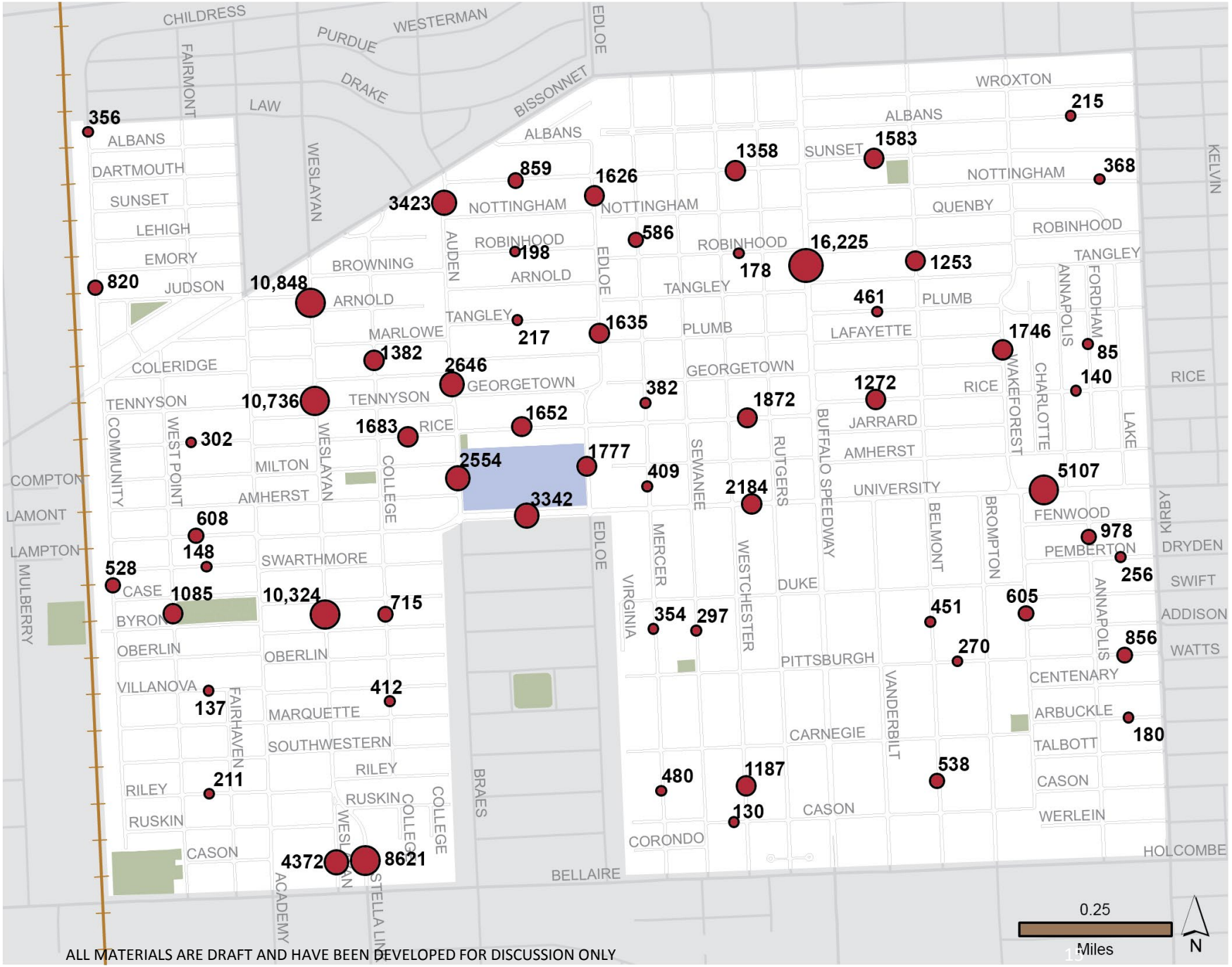
Average Daily Traffic

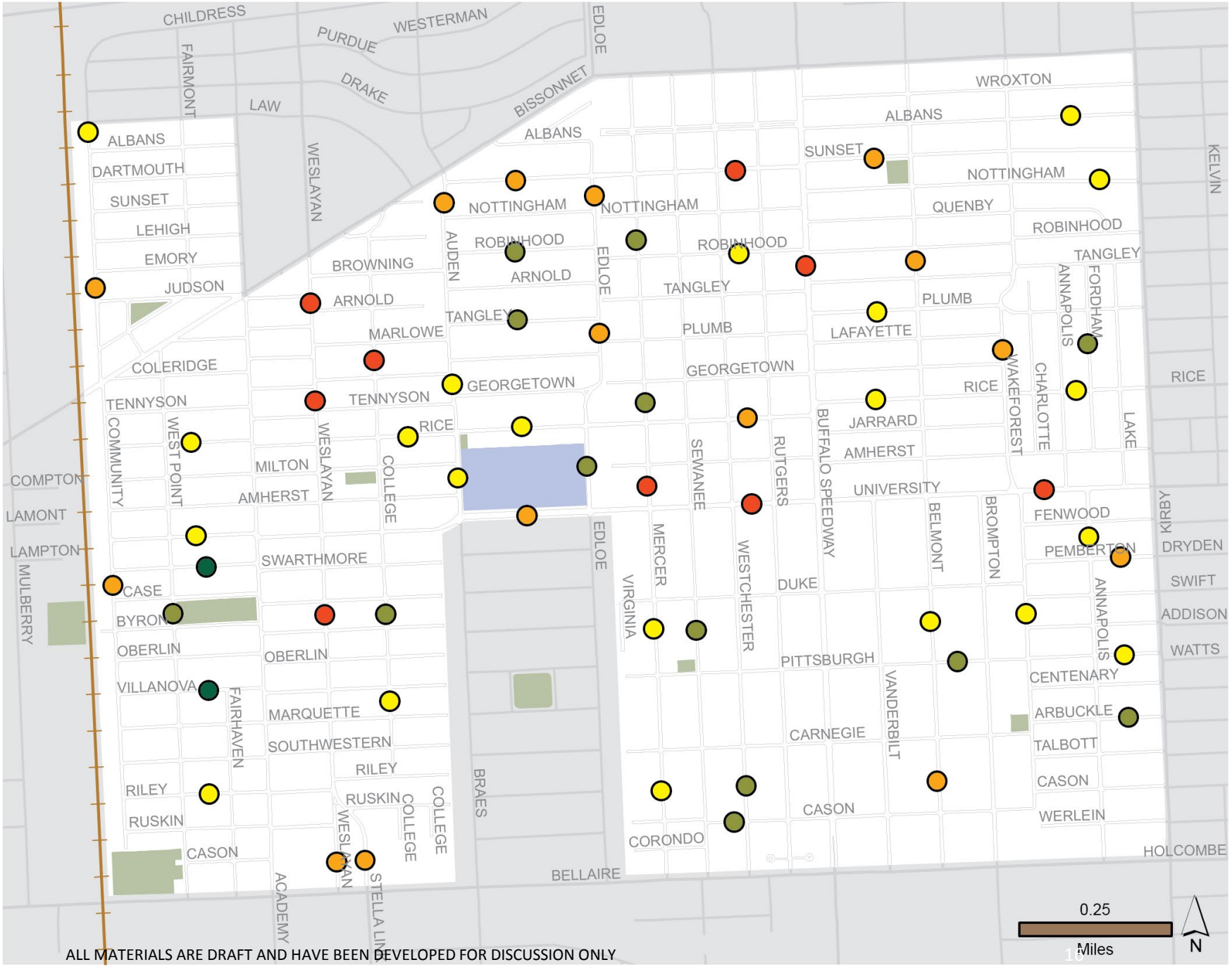


Max Daily 85th Percentile Speed

LEGEND

- 20mph - 21mph
- 21mph - 25mph
- 25mph - 28mph
- 28mph - 30mph
- 30mph+

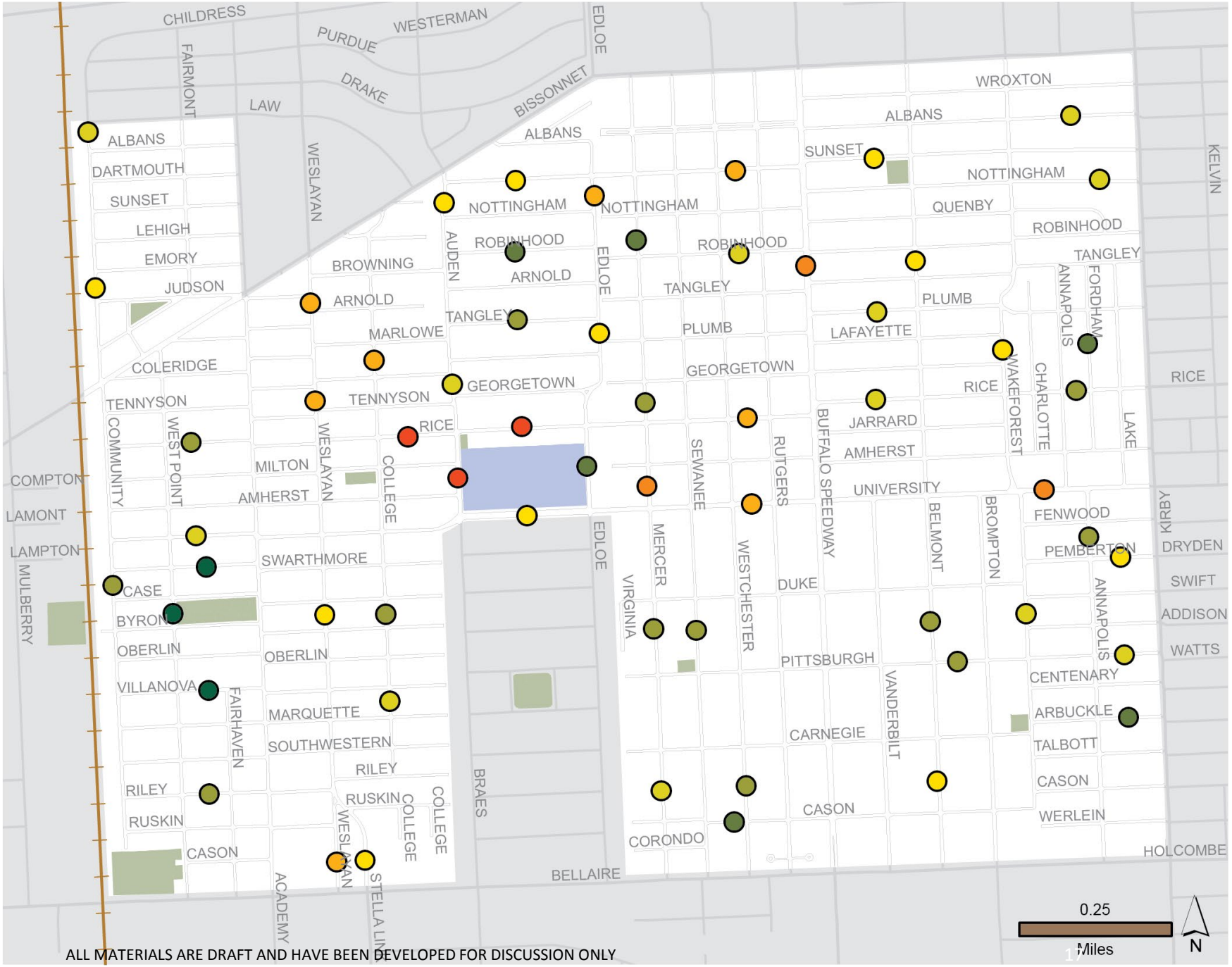
- The **85th percentile speed** is defined as, “the **speed** at or below which **85** percent of all vehicles are observed to travel”



Ratio between the 85th Percentile & Posted Speed Limit

Ratio between
85th Percentile & Posted Speed

0.6 1.0 1.4



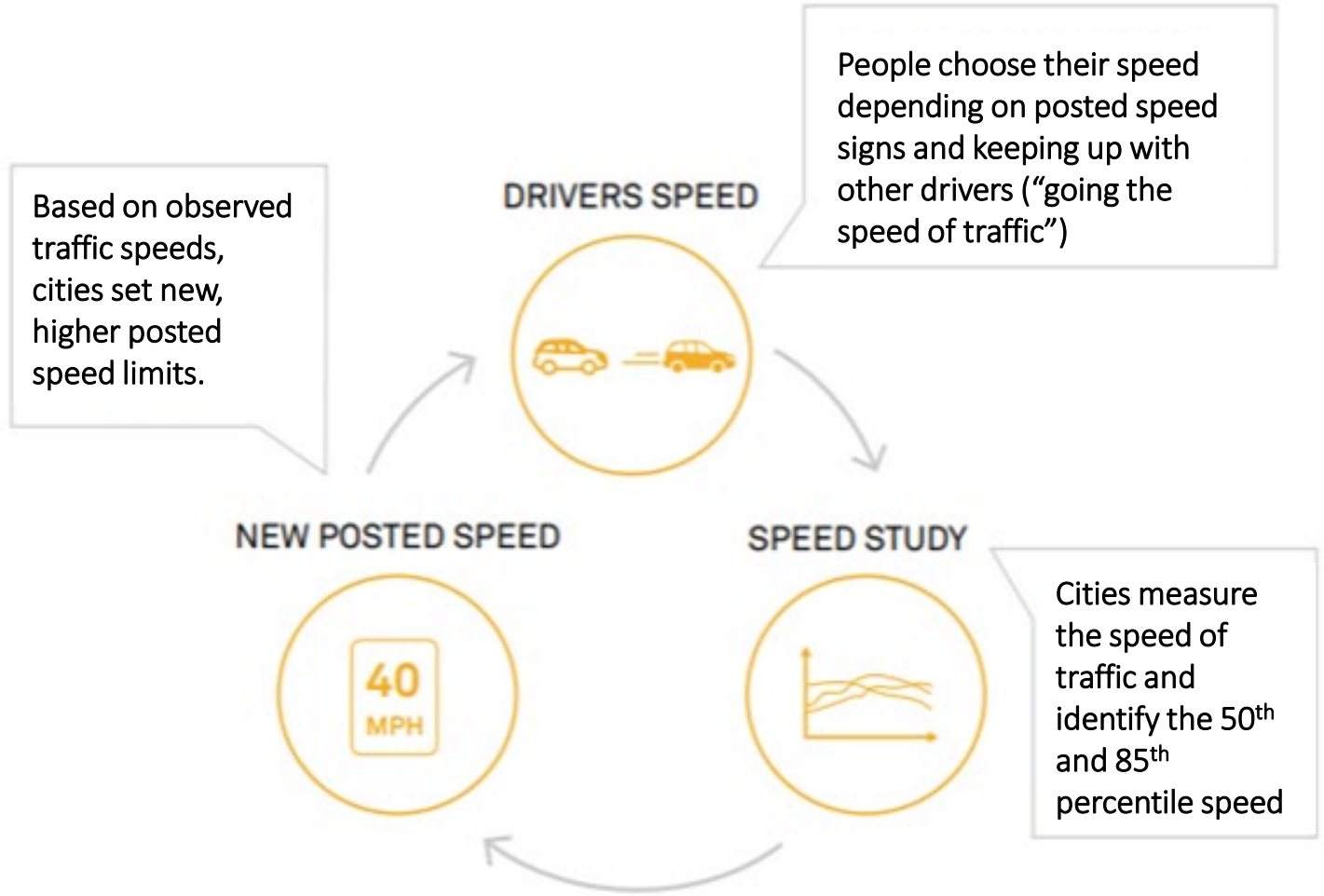
Summary of Speed Data Collection

- Speed limit compliance is greater along shorter, interior streets
- Higher speeds present along arterials and collectors
- Driving speeds appear to be correlated to roadway design and characteristics
  - Arterials and Collectors have higher speeds
  - Wider roadways have higher speeds
  - Short, neighborhood roadways with on-street parking have slower speeds

The Evolution of Speed Setting on City Roadways

Historically: Speed Setting Practices

- 85th Percentile Speed is selected for the posted limit
- Posted speed limit may be reevaluated and increased based **only** on observed existing speeds
- **This method focuses on driver behavior rather than a defined safety target** based on the context of a corridor and community need



Source: National Association of City Transportation Officials, 2020

Paradigm Shift in City Planning & Roadway Design – Vision Zero

Vision Zero *is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.*

TRADITIONAL APPROACH	NEW APPROACH
Traffic Deaths are INEVITABLE	Traffic deaths are PREVENTABLE
PERFECT human behavior	Integrate HUMAN FAILING in approach
Prevent COLLISIONS	Prevent FATAL AND SEVERE CRASHES
INDIVIDUAL responsibility	SYSTEMS approach
Saving lives is EXPENSIVE	Saving lives is NOT EXPENSIVE

Source: Vision Zero Network, 2020

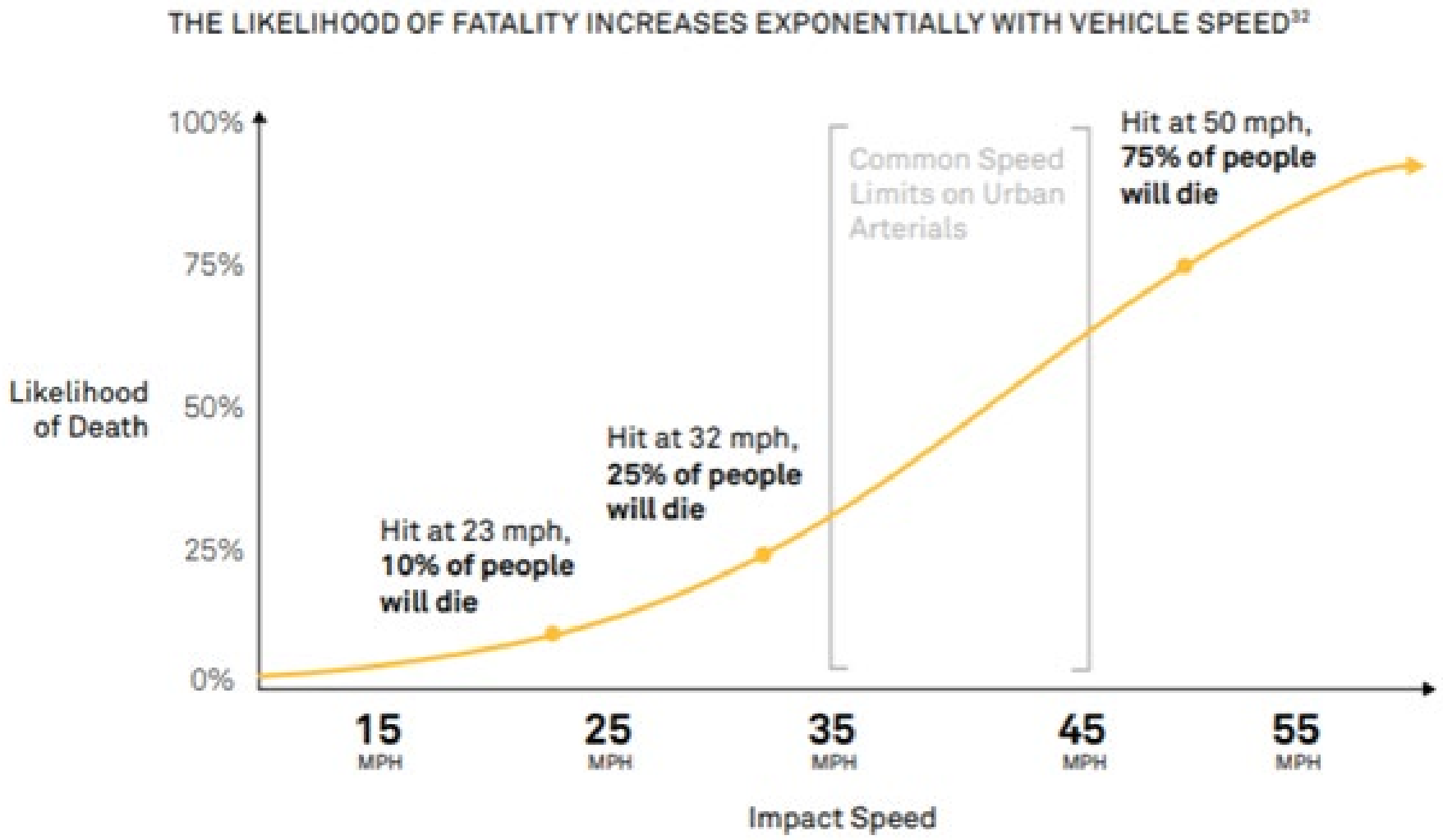
#EndTheStreakTX

Harris County VISION ZERO

HOUSTON VISION ZERO
OUR STREETS • OUR LIVES • OUR COMMITMENT

Speed & Safety

- The relationship between speed and fatalities
- The relationship between likelihood of fatality and speed is **exponential**

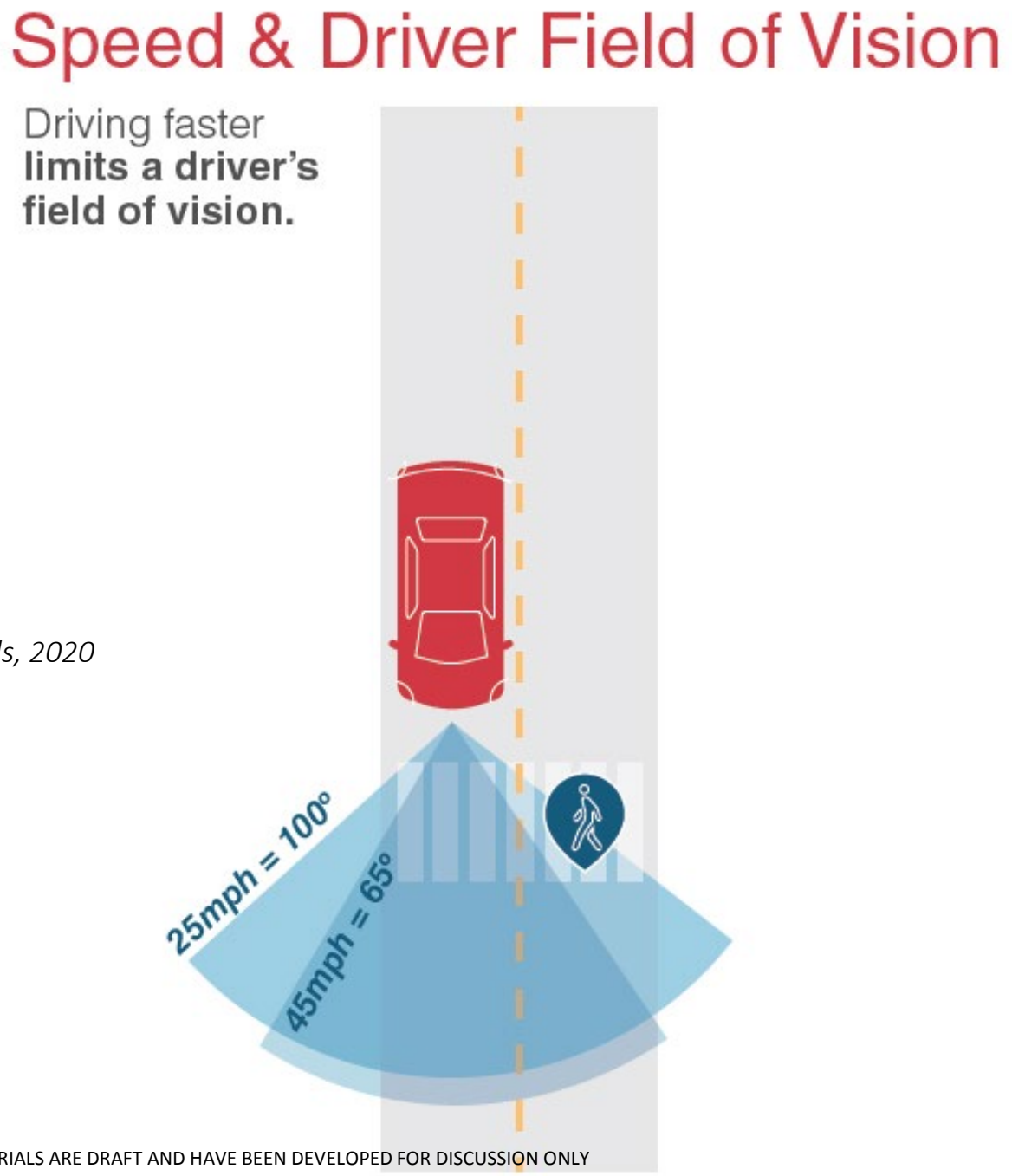


Source: National Association of City Transportation Officials, 2020

Speed & Safety

- The relationship between speed and a driver's field of vision

Source: National Association of City Transportation Officials, 2020



NACTO City Limits report: Speed limit changes have big impacts

Reducing speed limits leads to measurable declines in speeds even without enforcement or engineering changes

NACTO Recommends implementing City-wide max speed limits **less than 30mph**
Major Streets should use a **Safe Speed Stud**y to define posted speed limit

A Safe Speed Study

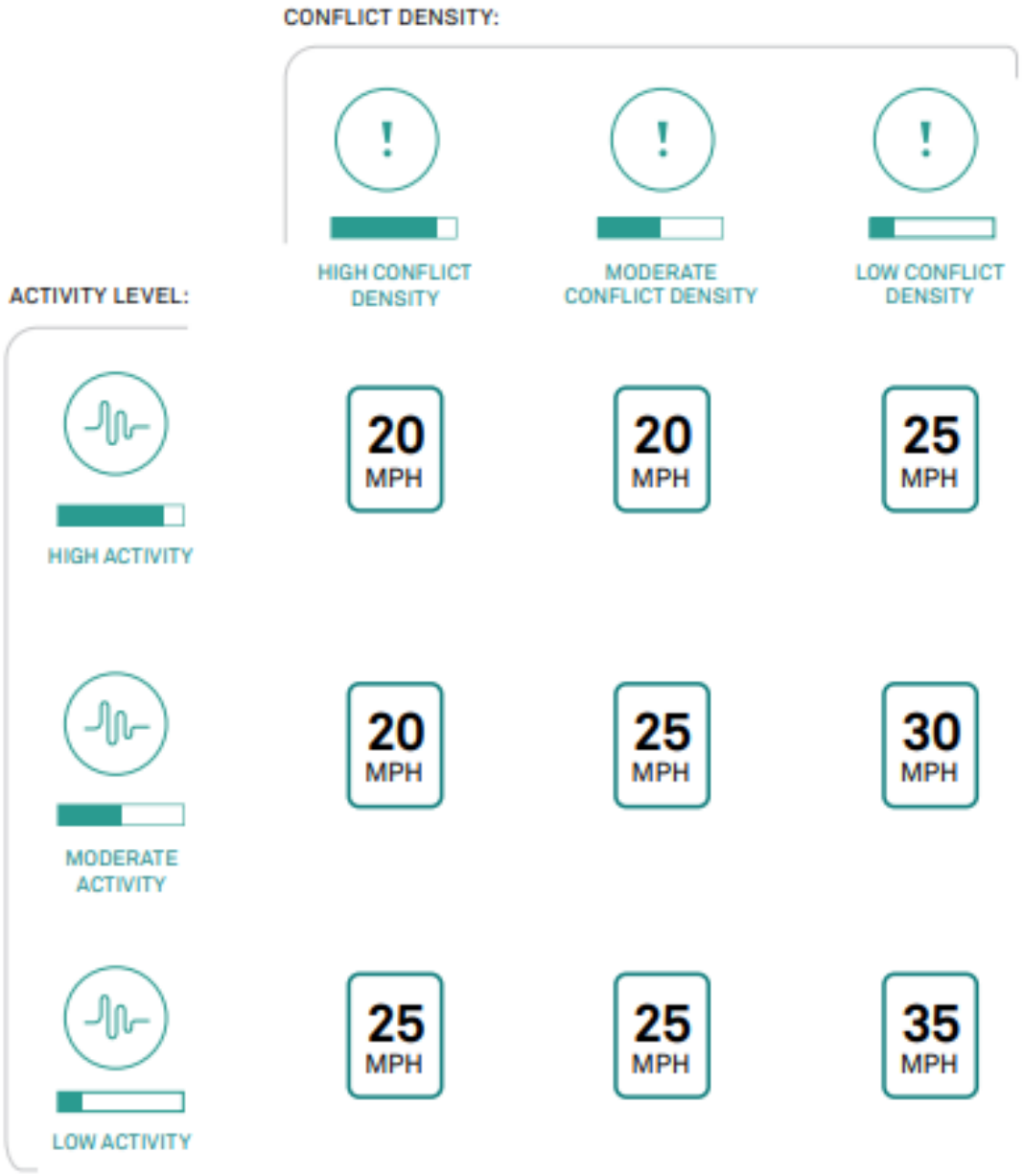
Practices for Major Streets

1. Data collection
   - Corridor conditions, speed data, and crash history
2. Analyze existing conditions
   - Review frequency of conflict and activity level using Risk Matrix
3. Determine best options for speed management
4. Conduct evaluation
   - Evaluation pre- and post-implementation data

A Safe Speed Study **must** consider:

- Area land uses
- Driveway density along roadway
- Roadway geometry
- Vehicular volumes
- Pedestrian and bicycle volumes
- Typology of a street
- Historical crash data
- Needs and expectations of the Community

Source: National Association of City Transportation Officials, 2020



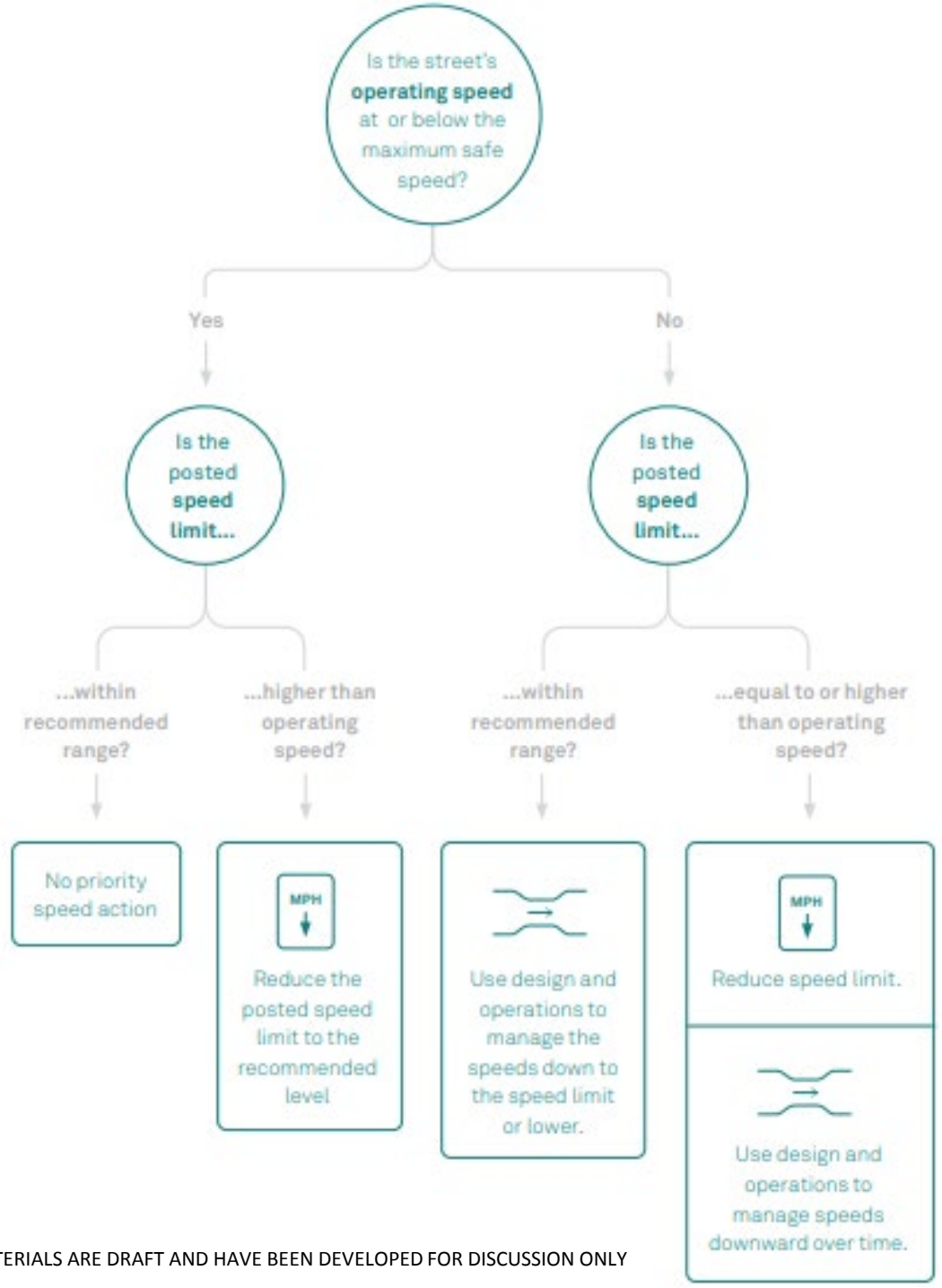
Source: National Association of City Transportation Officials, 2020

Example Risk Matrix

Conflict Density determined from modal mixing and crossing point density

Activity level is high for retail corridors, moderate for mixed use corridors, and light for low density industrial and residential

TEI to work with City staff on Risk Matrices for Major Streets within City of West University Place



Example Decision Tree for Speed Management Options

TEI to work with City staff on Risk Matrices for Major Streets within City of West University Place

Source: National Association of City Transportation Officials, 2020

Tool for Speed Management
To be explored further within the Safe Street Toolbox

- Signs and markings
- Reducing number of lanes or lane widths
- Physical raised elements
  - Raised crossings
- Arterial slowpoints
  - Curb extensions
  - Chicanes
  - Traffic Circles

Photo Examples: *Curb Extensions*

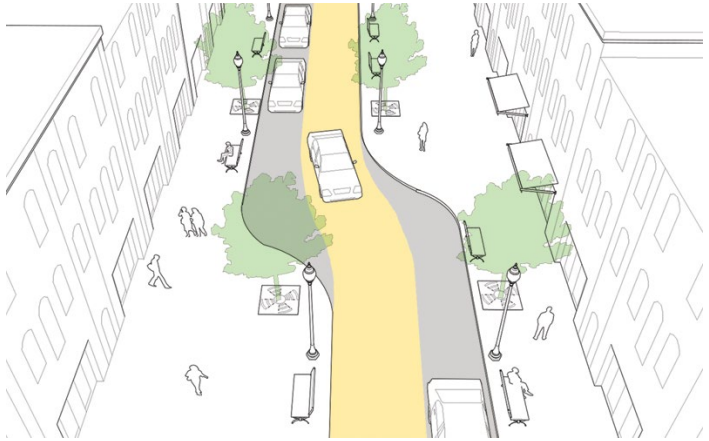


Photo Examples: *Chicanes*

Photo Examples:
Traffic Circles

Case Studies

- **Austin, Texas**
  - All residential streets of 36 feet or less in width were signed at 25 mph
  - Wider streets are individually assessed
  - Resigning is still ongoing
- **Seattle, Washington**
  - All major streets had posted speed limits reduced to 25 mph using extra signage
  - Further evaluation showed that high sign density decreased high end speeders but did not affect the mean speed
- **Portland, Oregon**
  - The City reduced residential street speed limits from 25 mph to 20 mph in 2018
  - No change in the after speed was reported but did find a decrease in higher outlier speeds

Next Steps

- Final recommendations on City-wide speed limit
- Detailed assessment of Arterials and Collectors in collaboration with City staff
- Technical Report with supporting evidence for recommendations
- Development of the Safe Street Toolbox

Discussion

Summary of Crash Data Collection
All Area Crashes

Year	Total Crashes	Fatality	Incapacitating Injury	Pedestrians	Bicyclists
2019	372	0	4	3	2
2018	343	0	9	5	1
2017	355	0	3	7	2
2016	381	0	3	7	4
2015	370	0	4	2	2
2014	333	1	6	7	5
6-year Total	**2,154**	**1**	**29**	**31**	**16**