



# Hampton Boulevard & North Shore Road Safety Study

Lochhaven Civic League Meeting  
April 8, 2025





# Welcome and Introductions

# Agenda

- Welcome and Introductions
- Project Overview and Background
- Existing Conditions Analysis
  - Safety Analysis
  - Speed Analysis
  - Traffic Operations Analysis
- Project Timeline and Next Steps
- Input and Feedback on Potential Improvements
- Other Discussion and Q&A



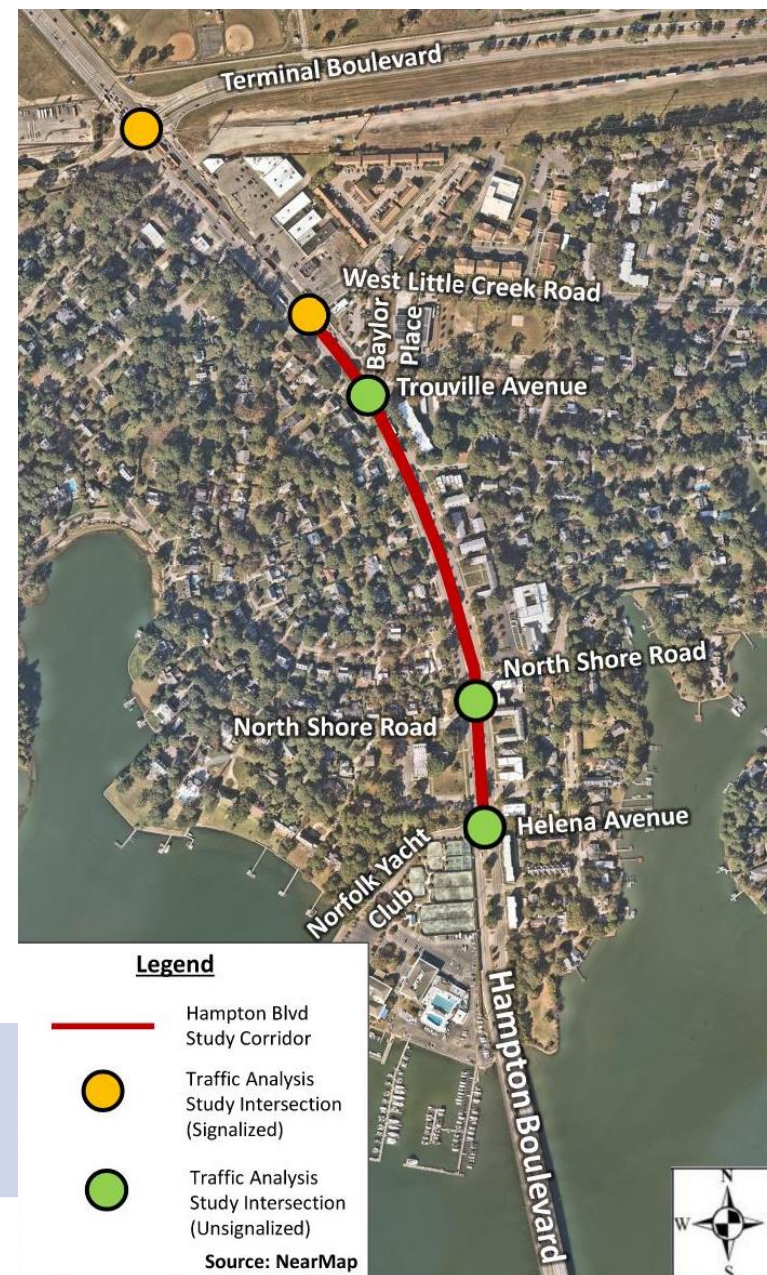
# Project Overview and Background

# Project Overview

- Study Area – Hampton Boulevard
  - From Lafayette River Bridge to Little Creek Road
- We are here because of you!
- Evaluate need for traffic signal at Hampton Blvd & North Shore Road and/or other alternatives to improve traffic operations and safety along the corridor
- Building upon recent and planned corridor improvements

## Project webpage:

[www.norfolk.gov/upperhamptonblvdsafety](http://www.norfolk.gov/upperhamptonblvdsafety)



# Project Scope

- Evaluate potential benefits and impacts of signaling the intersection of Hampton Boulevard at North Shore Road
- Identify other improvements and treatment alternatives along the Hampton Boulevard corridor to improve safety and operations
- Scope items:
  - Safety/crash analysis
  - Speed analysis
  - Traffic operations analysis
  - Signal warrant analysis
  - Planning-level cost estimates

# Project Background

## Considerations from Other Plans

- *HRTPO Hampton Boulevard Corridor Study*
  - Conducted to address the following:
    - Number of trucks using Hampton Boulevard
    - Safety/crashes
    - Excessive vehicle speeds
  - Restrictive truck hours (4 PM to 6 AM) on Hampton Boulevard shown to be effective
  - Safety countermeasures proposed for bicycle, pedestrian, speed-related, and truck-related crashes
  - Speed enforcement and traffic calming techniques also recommended
  - Road diet not considered due to resident concerns
- Recommended improvements:
  - Improve bicyclist/pedestrian visibility
  - Improve signal timing and detection
  - Install pavement markings such as transverse lines
  - Education and outreach
  - Increase enforcement
  - Traffic calming including pavement markings and landscaping

# Project Background

## Considerations from Other Plans

- *Little Creek Road at Hampton Boulevard Curve Warning Improvements*
  - Study conducted to address the following:
    - Run-off-road crashes on westbound Little Creek Road approaching Hampton Boulevard
    - Layout of intersection of Gleneagles Road at Maury Arch approaching the signal at Little Creek Road and Hampton Boulevard
  - Developed alternative concepts and cost estimates
- Concepts for the Little Creek Road curve:
  - Relocate Popeye's driveway OR install median island to separate from parking lot
  - Apply wider pavement markings
  - Install dynamic curve warning system
- Concepts for Gleneagles Road at Maury Arch:
  - Install mini roundabout, OR
  - Modify intersection to more traditional "T" configuration



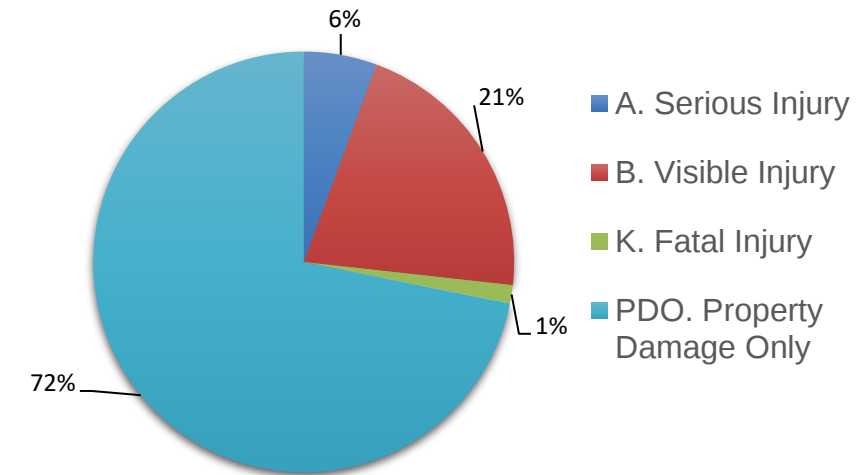
# Existing Conditions Analysis

# Crash Analysis (All Modes)

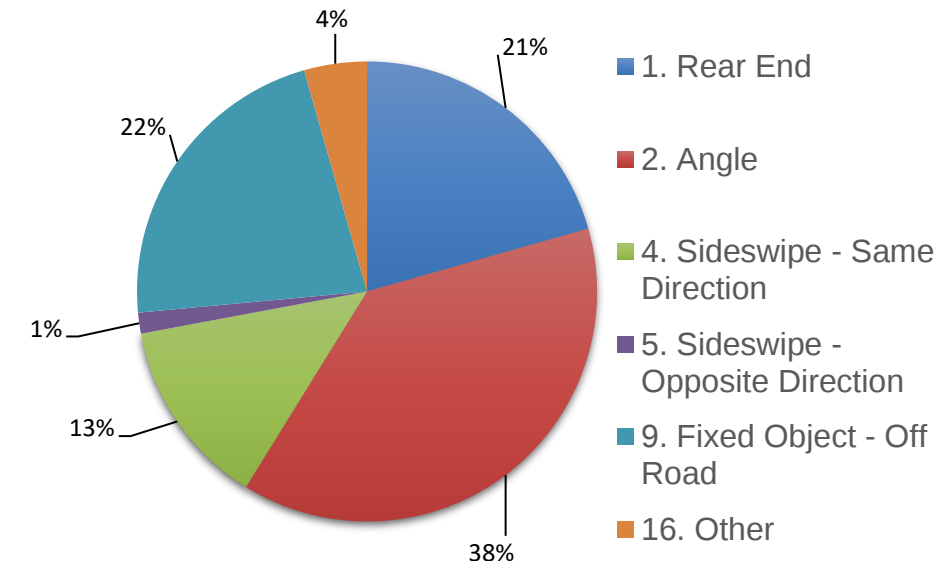
- 71 total crashes from May 1, 2019 to April 30, 2024
- 1 fatality reported in 2020
  - Occurred in the westbound direction of Little Creek Road and Hampton Boulevard\*
  - Crash involved fixed object off road (building)
- 7% of all crashes resulted in fatal or serious injury
- 5 crashes involving a heavy vehicle
- Higher instances of fixed object off road and sideswipe crashes
- 1 pedestrian crash at Little Creek Road and Hampton Boulevard

\*Separate project addressing crashes on the westbound approach of Little Creek Road & Hampton Boulevard

Crashes By Severity (71 Total)



Crashes By Collision Type (71 Total)



# Crash Heat Map (All Modes)

## May 1, 2019 to April 30, 2024

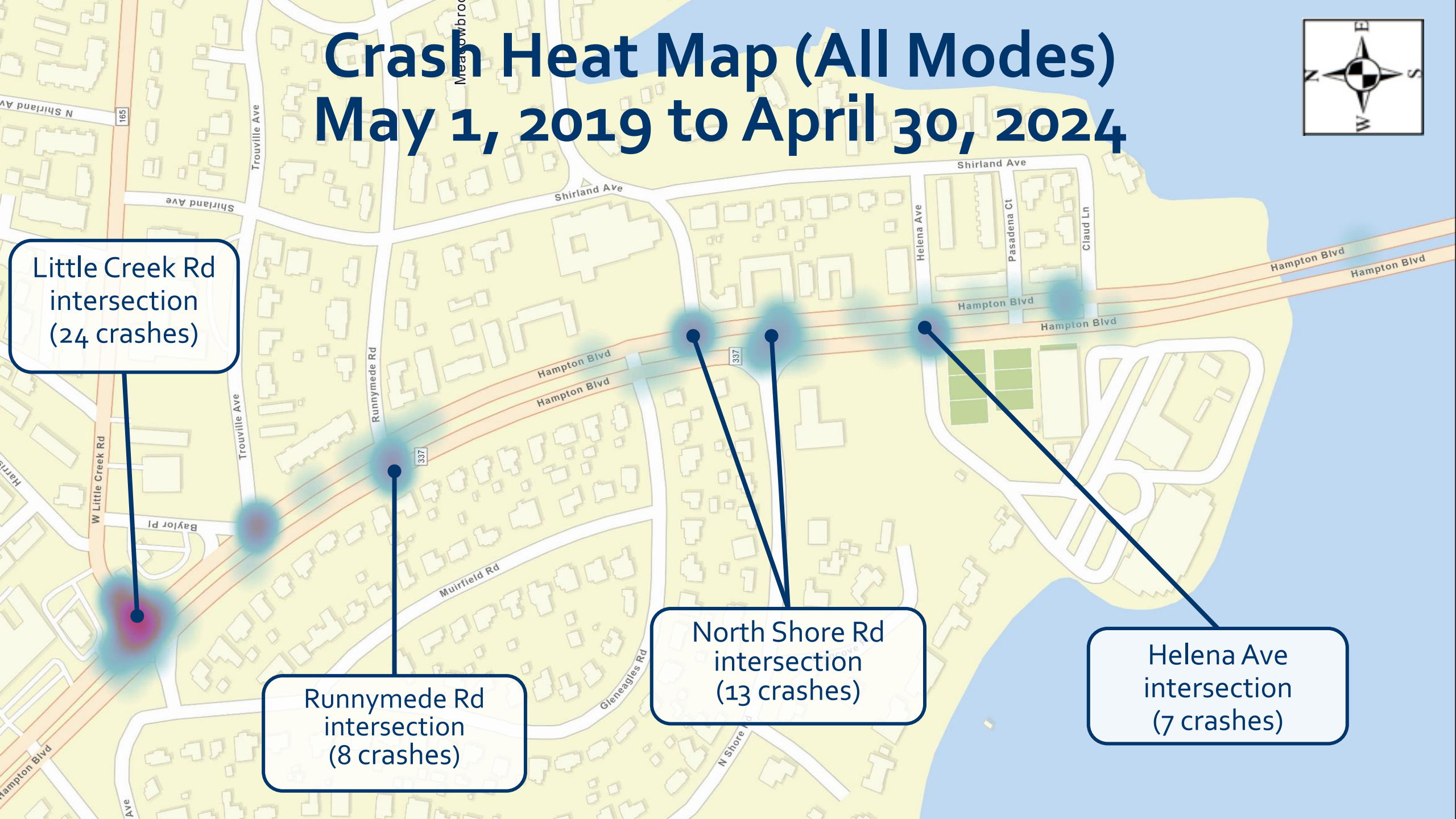


Little Creek Rd  
intersection  
(24 crashes)

Runnymede Rd  
intersection  
(8 crashes)

North Shore Rd  
intersection  
(13 crashes)

Helena Ave  
intersection  
(7 crashes)



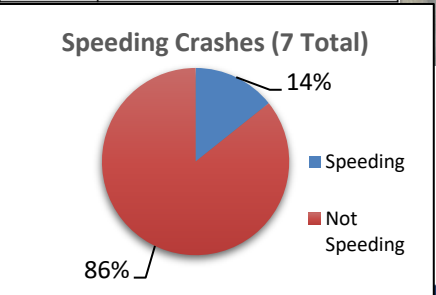
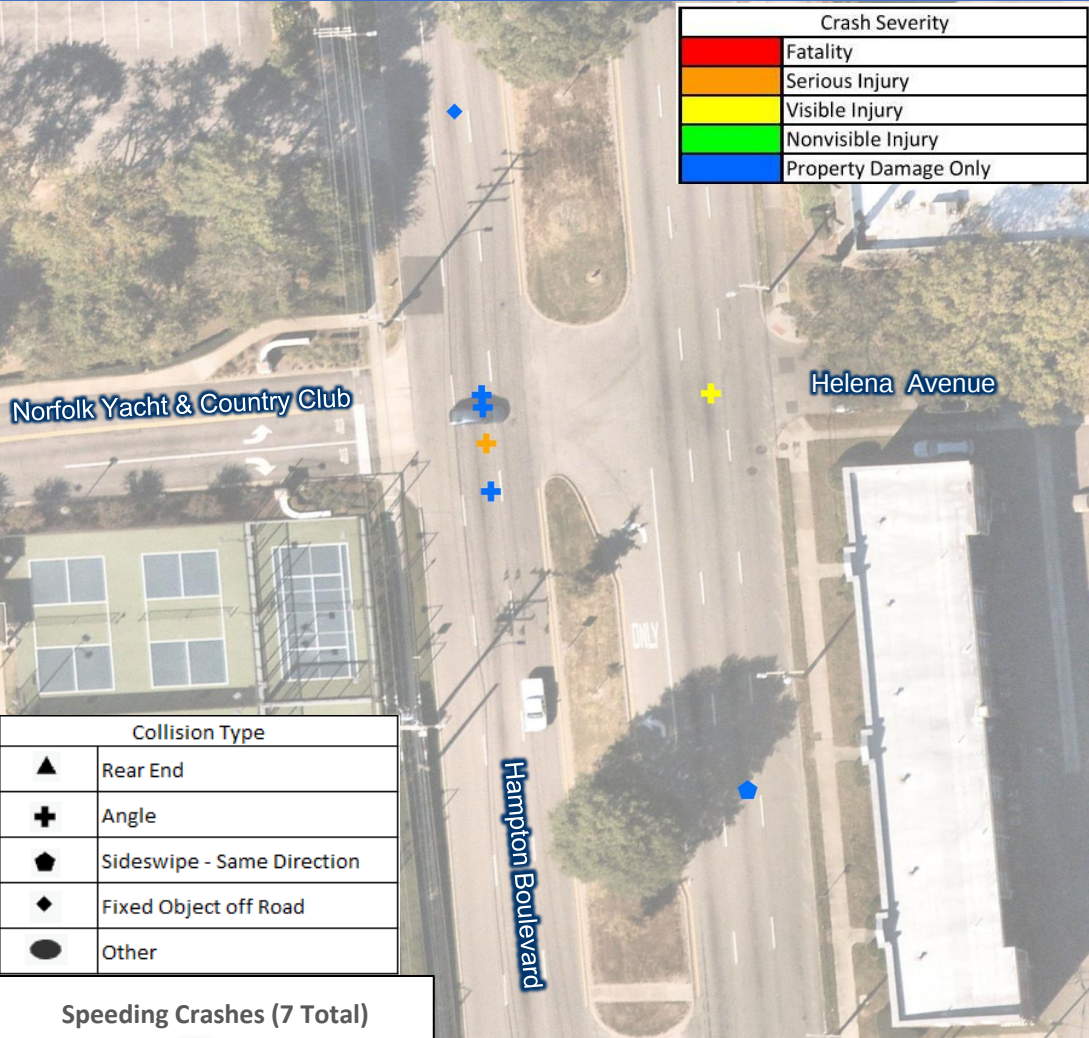
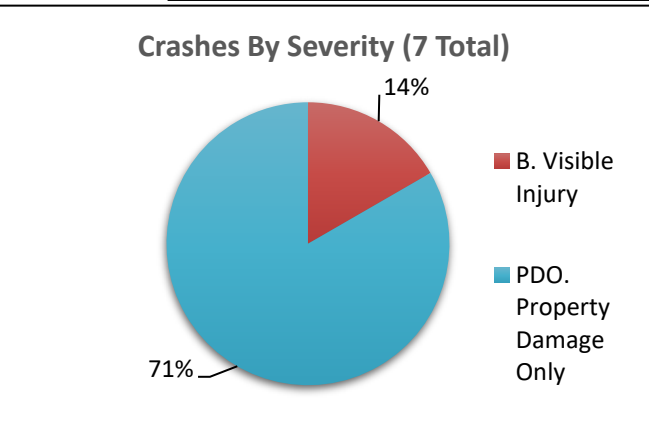
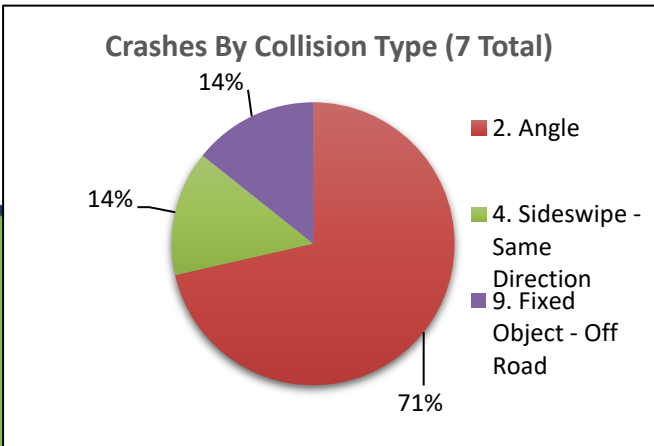
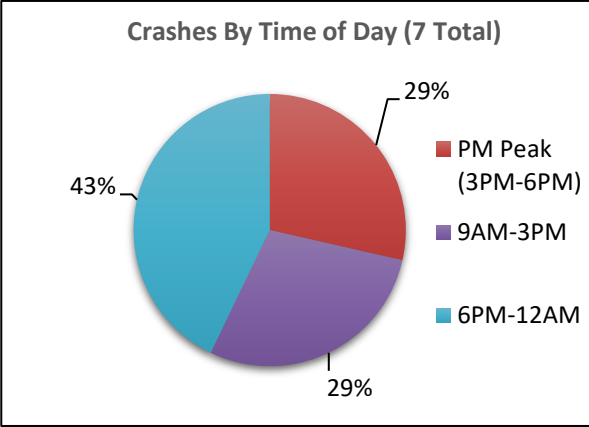
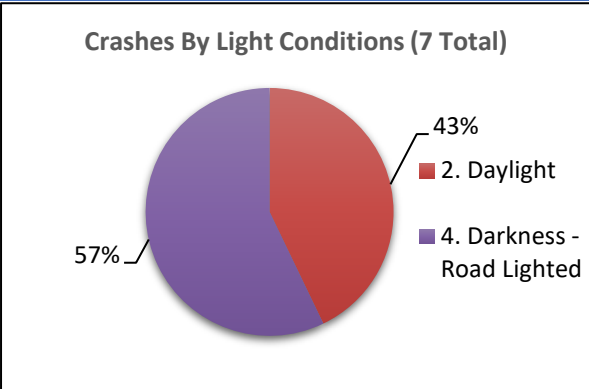
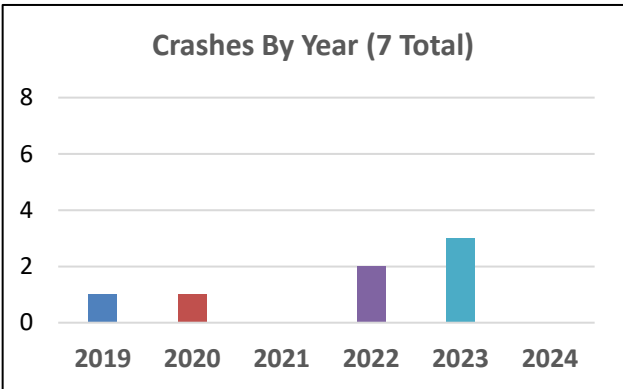
# HAMPTON BOULEVARD AT HELENA AVENUE & NYCC

Summary of Crash Data: May 1, 2019 to April 30, 2024

Unsignalized | 7 Total Crashes

## CRASH TRENDS

- Vast majority of crashes (71%) were angle crashes
- Majority of crashes (71%) resulted in Property Damage Only
- 43% of crashes occurred during evening hours (6 PM to 12 AM)
- 57% of crashes occurred during dark conditions



# HAMPTON BOULEVARD AT NORTH SHORE ROAD

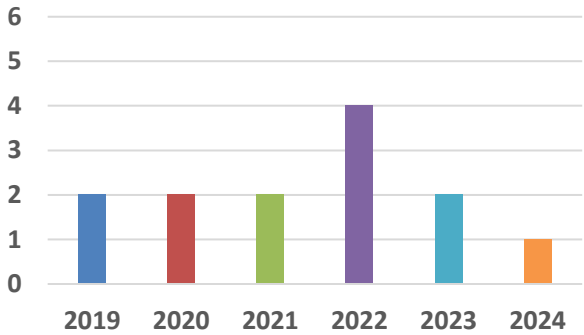
Summary of Crash Data: May 1, 2019 to April 30, 2024

Unsignalized | 13 Total Crashes

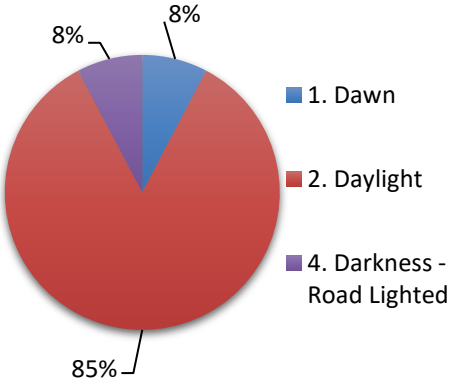
## CRASH TRENDS

- Majority of crashes (69%) are either rear end or angle crashes, but there were three (23%) fixed object off road crashes
- Majority of crashes (62%) resulted in Property Damage Only
- Vast majority of crashes (85%) occurred during daylight
- 6 angle crashes were due to improper yielding to mainline traffic

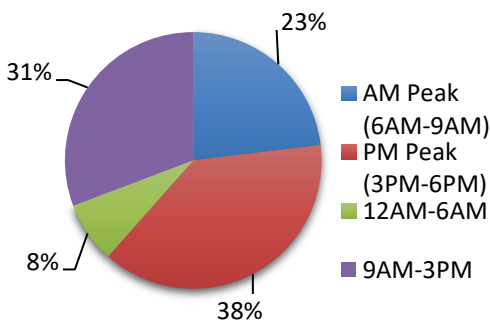
Crashes By Year (13 Total)



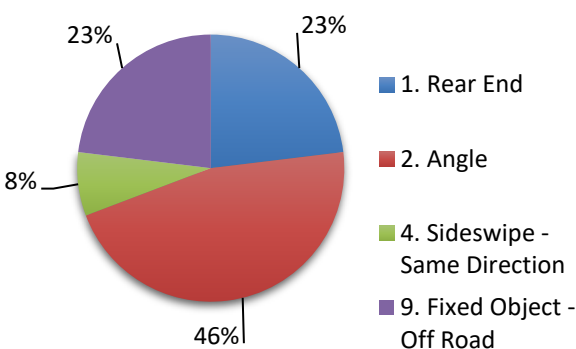
Crashes By Light Conditions (13 Total)



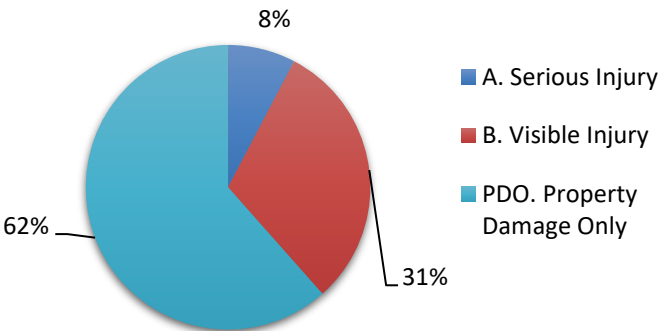
Crashes By Time of Day (13 Total)



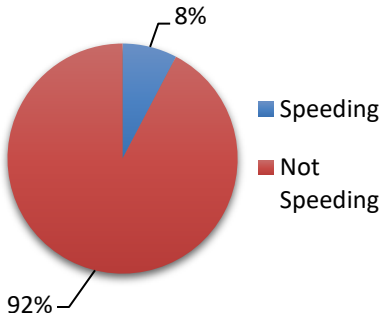
Crashes By Collision Type (13 Total)



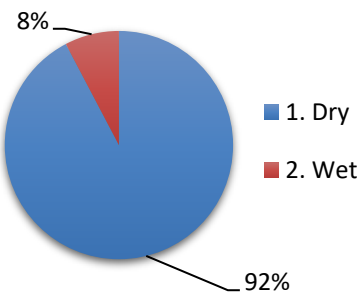
Crashes By Severity (13 Total)



Speeding Crashes (13 Total)

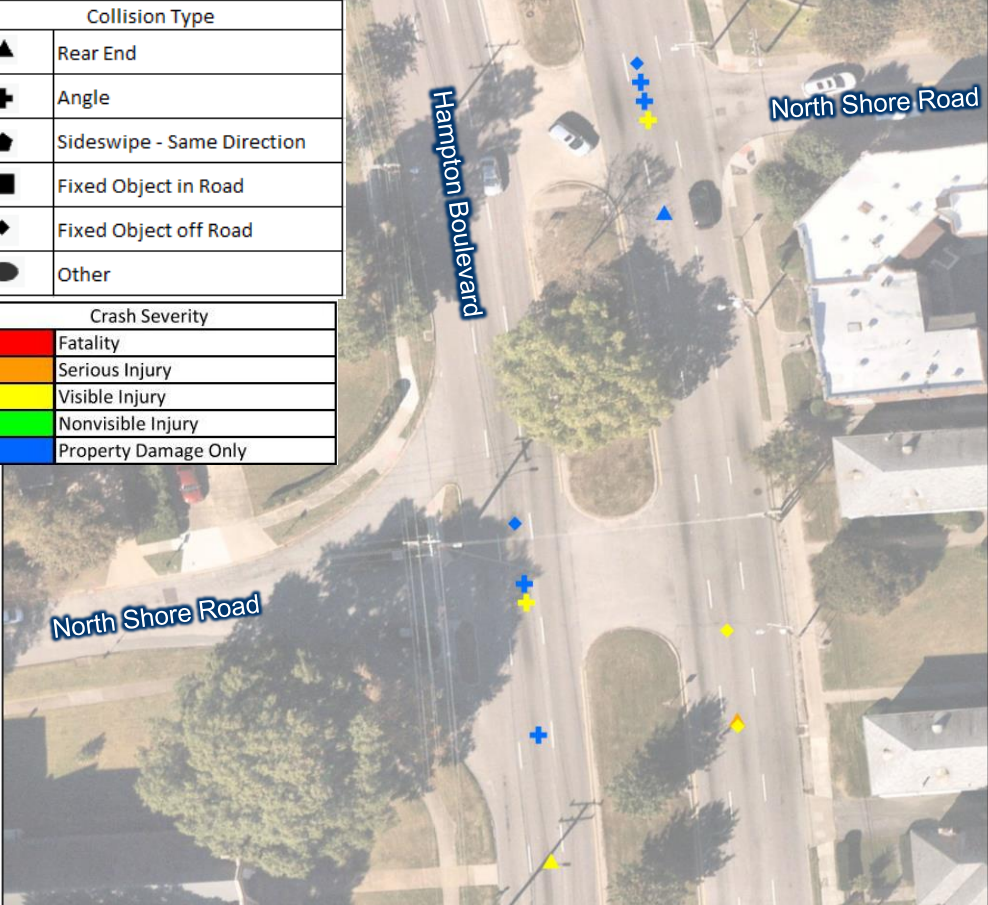


Crashes By Roadway Conditions (13 Total)



| Collision Type |                            |
|----------------|----------------------------|
| ▲              | Rear End                   |
| +              | Angle                      |
| ◀▶             | Sideswipe - Same Direction |
| ■              | Fixed Object in Road       |
| ◆              | Fixed Object off Road      |
| ●              | Other                      |

| Crash Severity |                      |
|----------------|----------------------|
| Red            | Fatality             |
| Orange         | Serious Injury       |
| Yellow         | Visible Injury       |
| Green          | Nonvisible Injury    |
| Blue           | Property Damage Only |



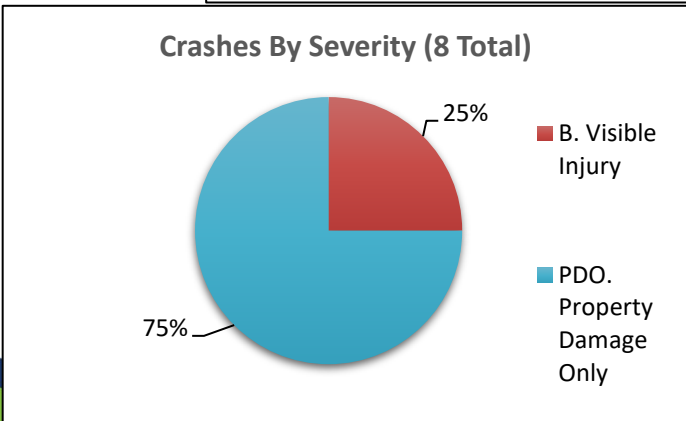
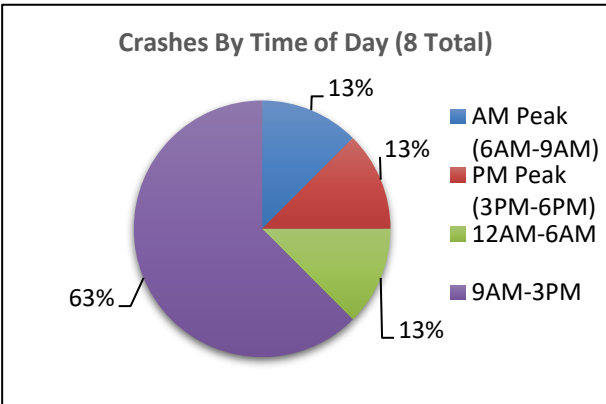
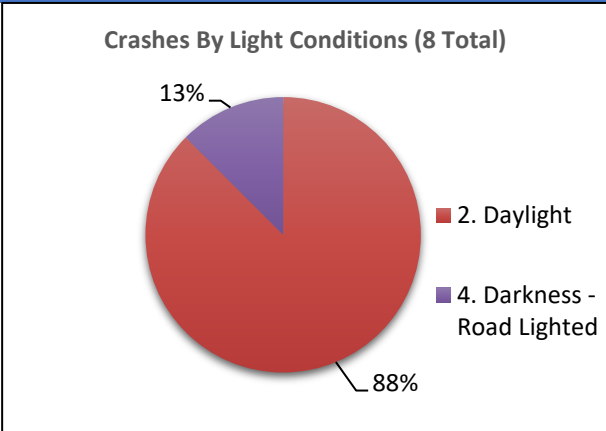
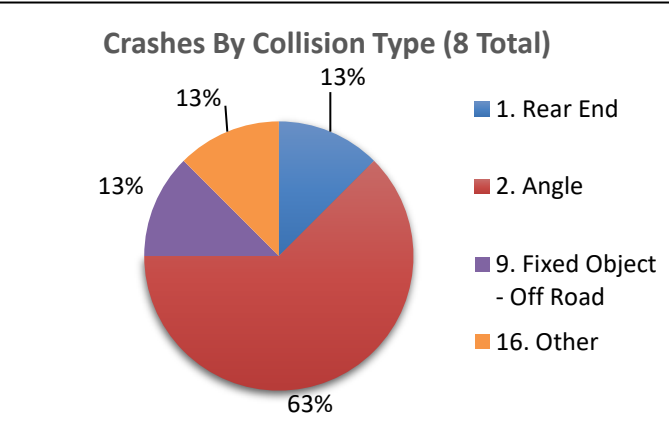
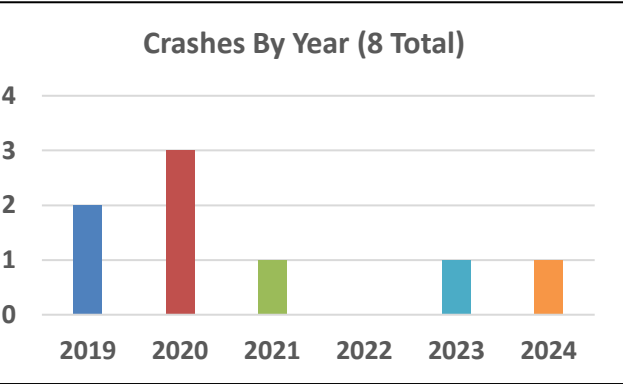
# HAMPTON BOULEVARD AT RUNNYMEDE ROAD

Summary of Crash Data: May 1, 2019 to April 30, 2024

Unsignalized | 8 Total Crashes

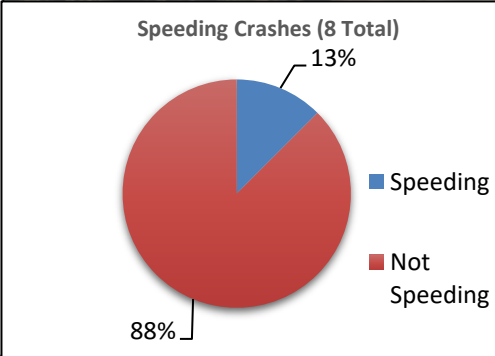
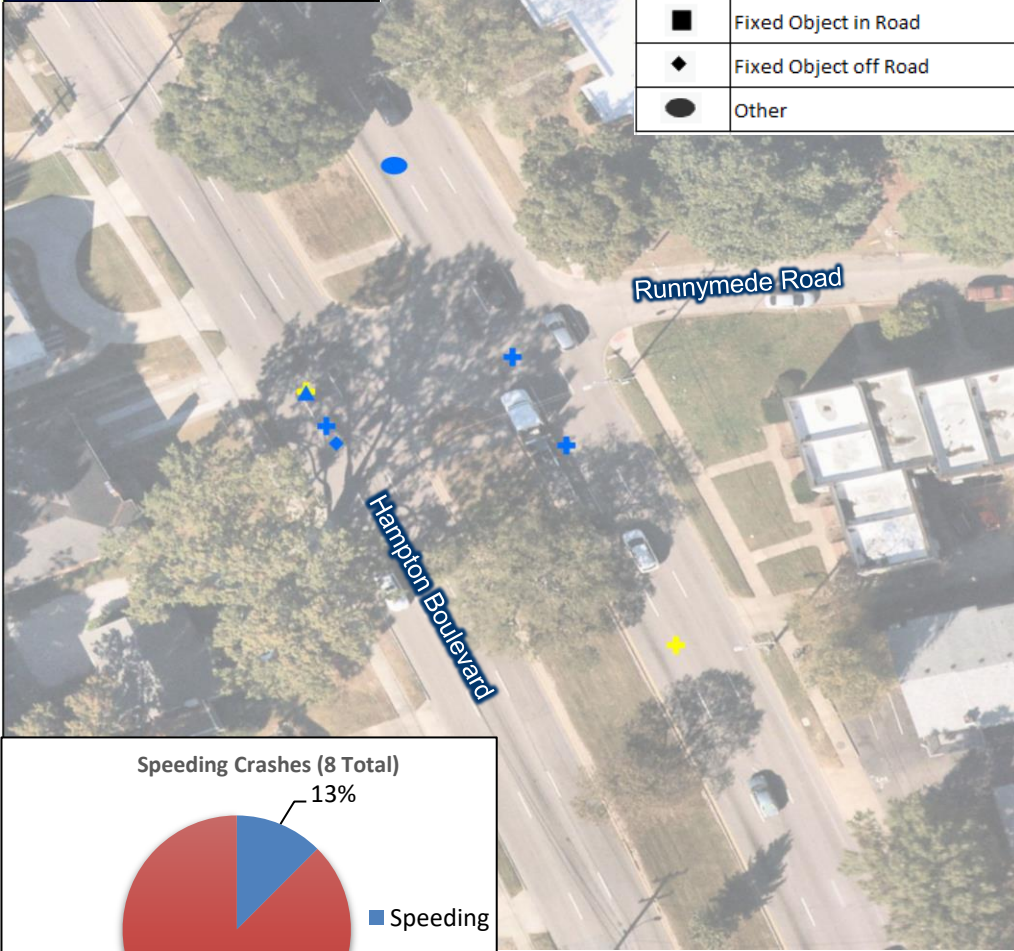
## CRASH TRENDS

- Majority of crashes (75%) resulted in Property Damage Only
- Majority of crashes (63%) were angle crashes due to improper yielding to mainline traffic
- Majority of crashes (63%) occurred during the midday hours (9 AM to 3 PM)
- Vast majority of crashes (88%) occurred during daylight
- 2 crashes occurred due to pooled water/ice



| Crash Severity |                      |
|----------------|----------------------|
|                | Fatality             |
|                | Serious Injury       |
|                | Visible Injury       |
|                | Nonvisible Injury    |
|                | Property Damage Only |

| Collision Type |                            |
|----------------|----------------------------|
| ▲              | Rear End                   |
| +              | Angle                      |
| ◆              | Sideswipe - Same Direction |
| ■              | Fixed Object in Road       |
| ◆              | Fixed Object off Road      |
| ●              | Other                      |



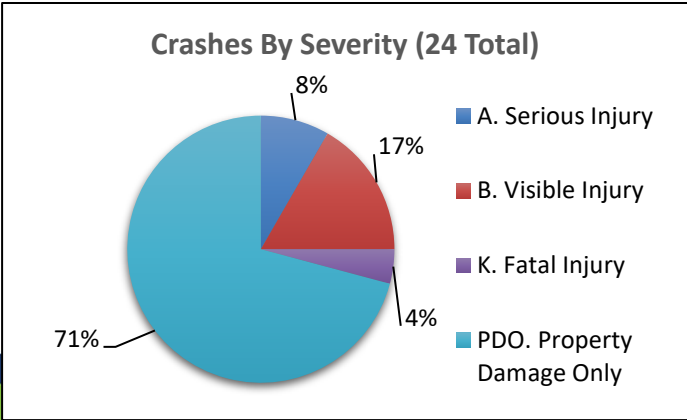
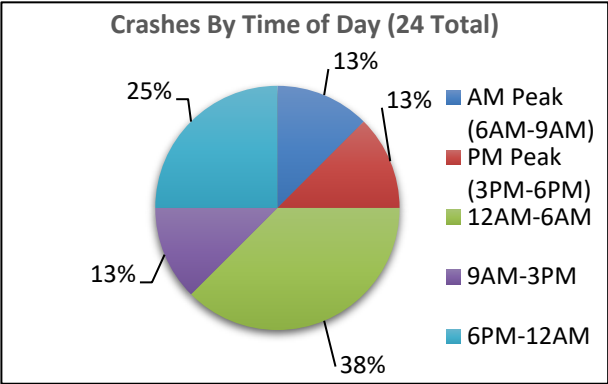
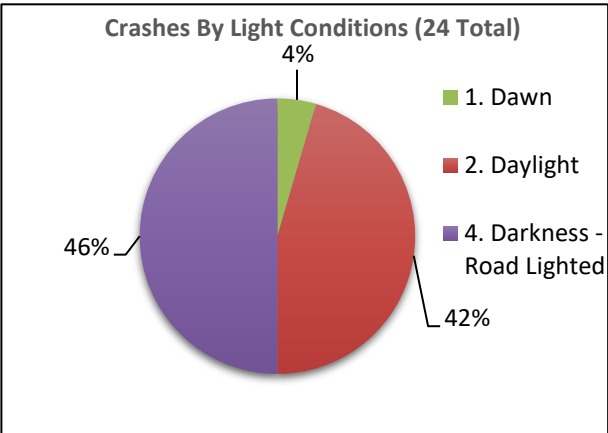
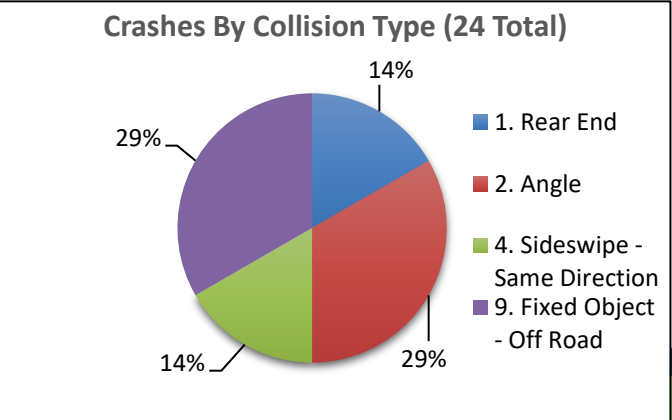
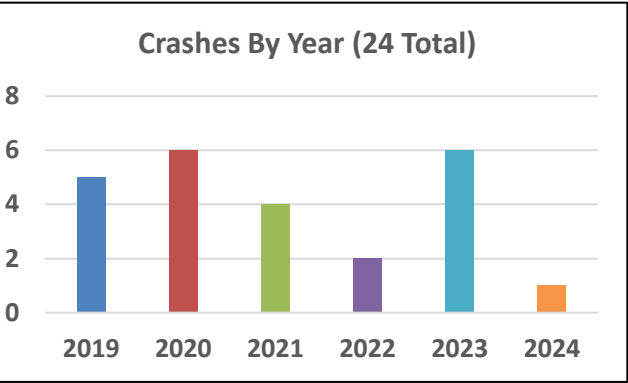
# HAMPTON BOULEVARD AT LITTLE CREEK ROAD

Summary of Crash Data: May 1, 2019 to April 30, 2024

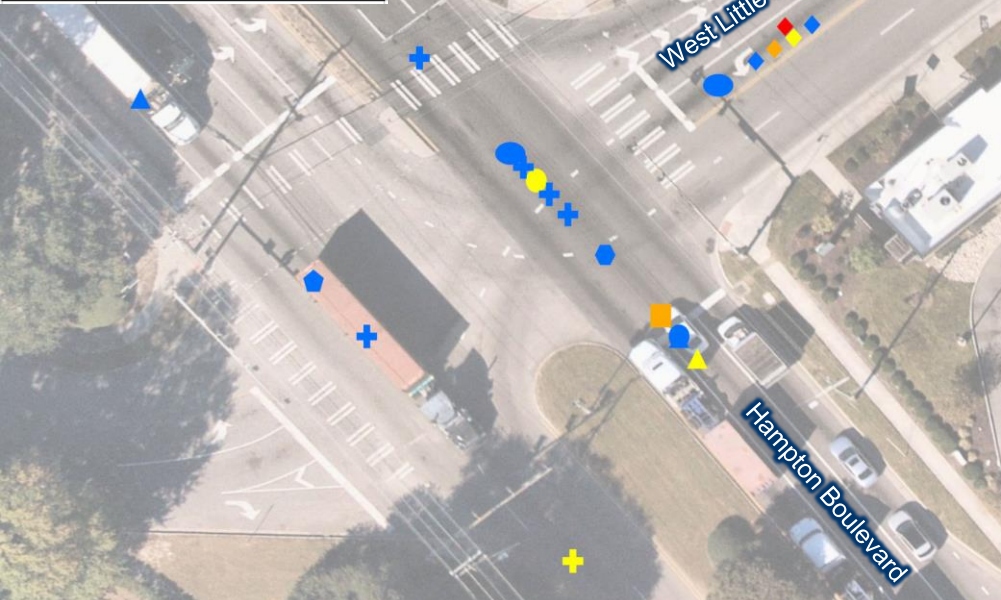
Signalized | 24 Total Crashes

## CRASH TRENDS

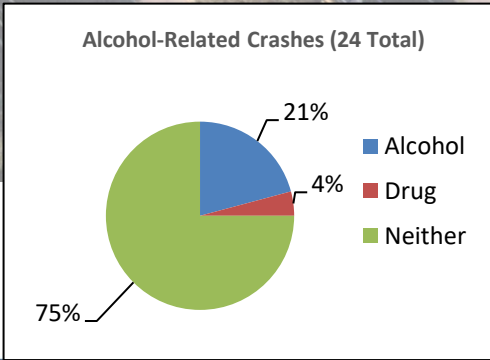
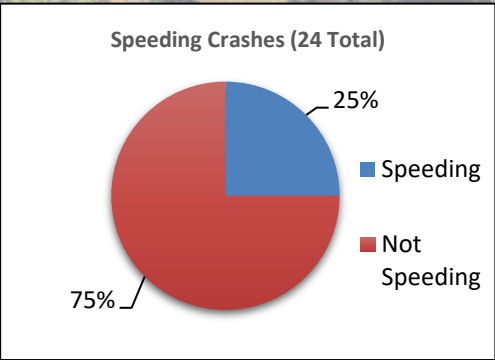
- Majority of crashes (71%) resulted in Property Damage Only
- Nearly half of crashes (46%) occurred in darkness
- More than one-third (38%) occurred during overnight hours (12 AM to 6 AM)
- 5 alcohol-related crashes with 1 being fatal
- 7 fixed object off road crashes
- 6 crashes (25%) involved speeding
- 6 crashes (25%) involved drug or alcohol use



| Collision Type |                            |
|----------------|----------------------------|
| ▲              | Rear End                   |
| +              | Angle                      |
| ◆              | Sideswipe - Same Direction |
| ■              | Fixed Object in Road       |
| ◆              | Fixed Object off Road      |
| ●              | Other                      |

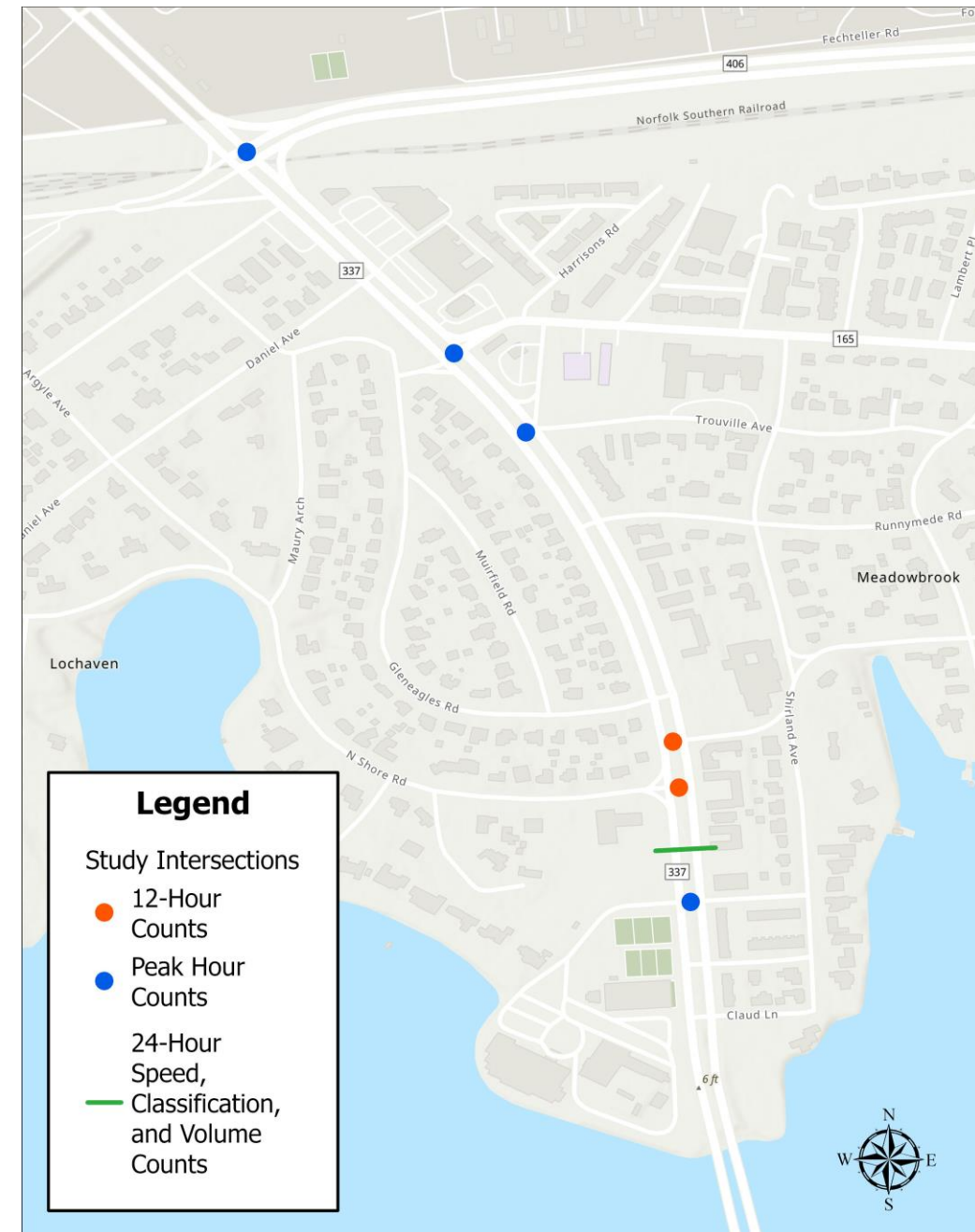


| Crash Severity |                      |
|----------------|----------------------|
| Red            | Fatality             |
| Orange         | Serious Injury       |
| Yellow         | Visible Injury       |
| Green          | Nonvisible Injury    |
| Blue           | Property Damage Only |



# Data Collection

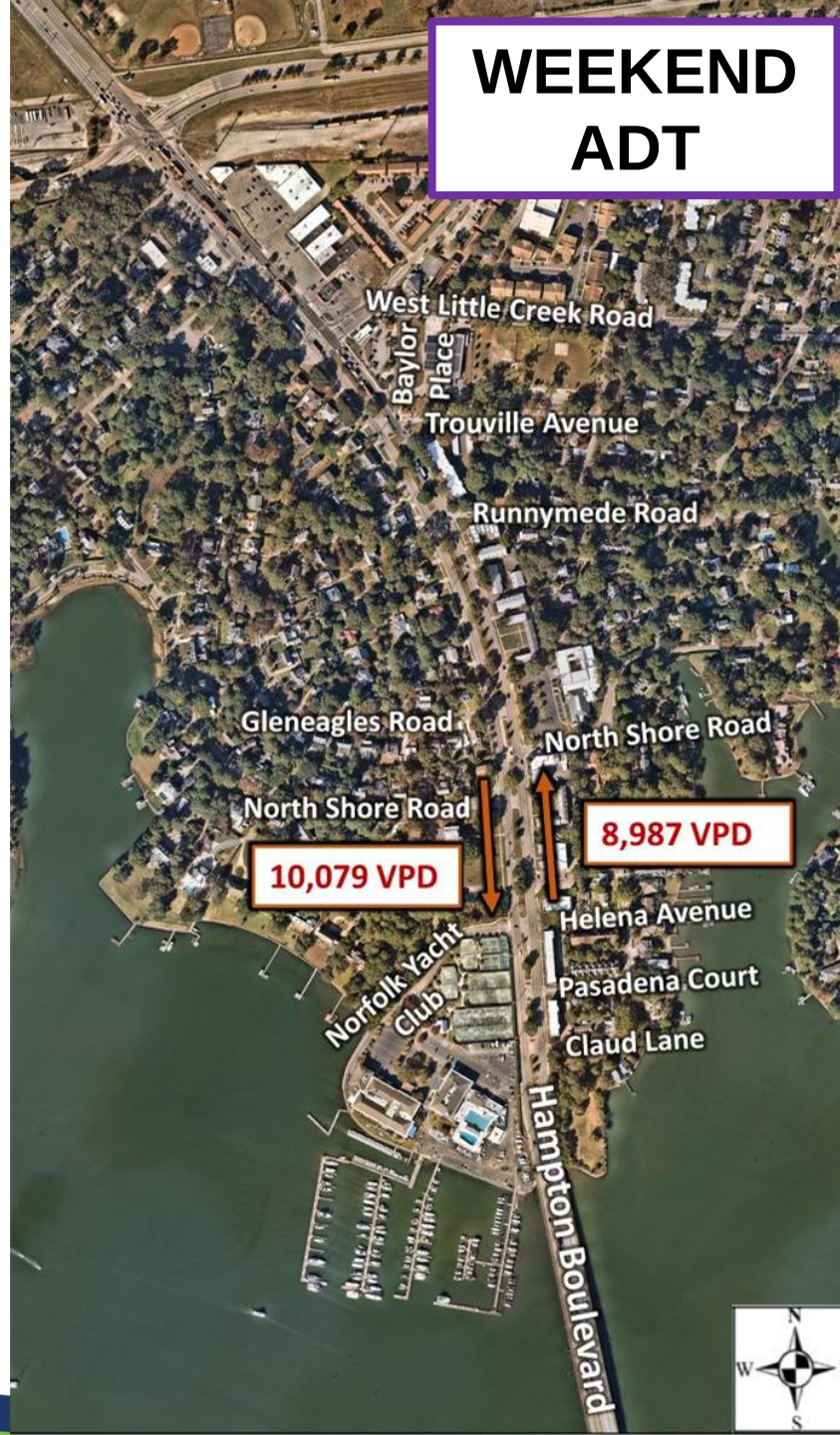
- Intersection turning movement counts
  - 3 signalized and 2 unsignalized intersections
  - Conducted on weekday in September 2024
- 24-hour roadway speed, classification, and volume counts
  - Collected along Hampton Blvd south of North Shore Road
  - Conducted for 7-day period in September 2024
- Peak hours for traffic analysis:
  - AM – 7:15AM – 8:15AM
  - PM – 3:30PM – 4:30PM



## WEEKDAY ADT



## WEEKEND ADT



Average Daily  
Traffic  
in Vehicles per  
Day (2024)

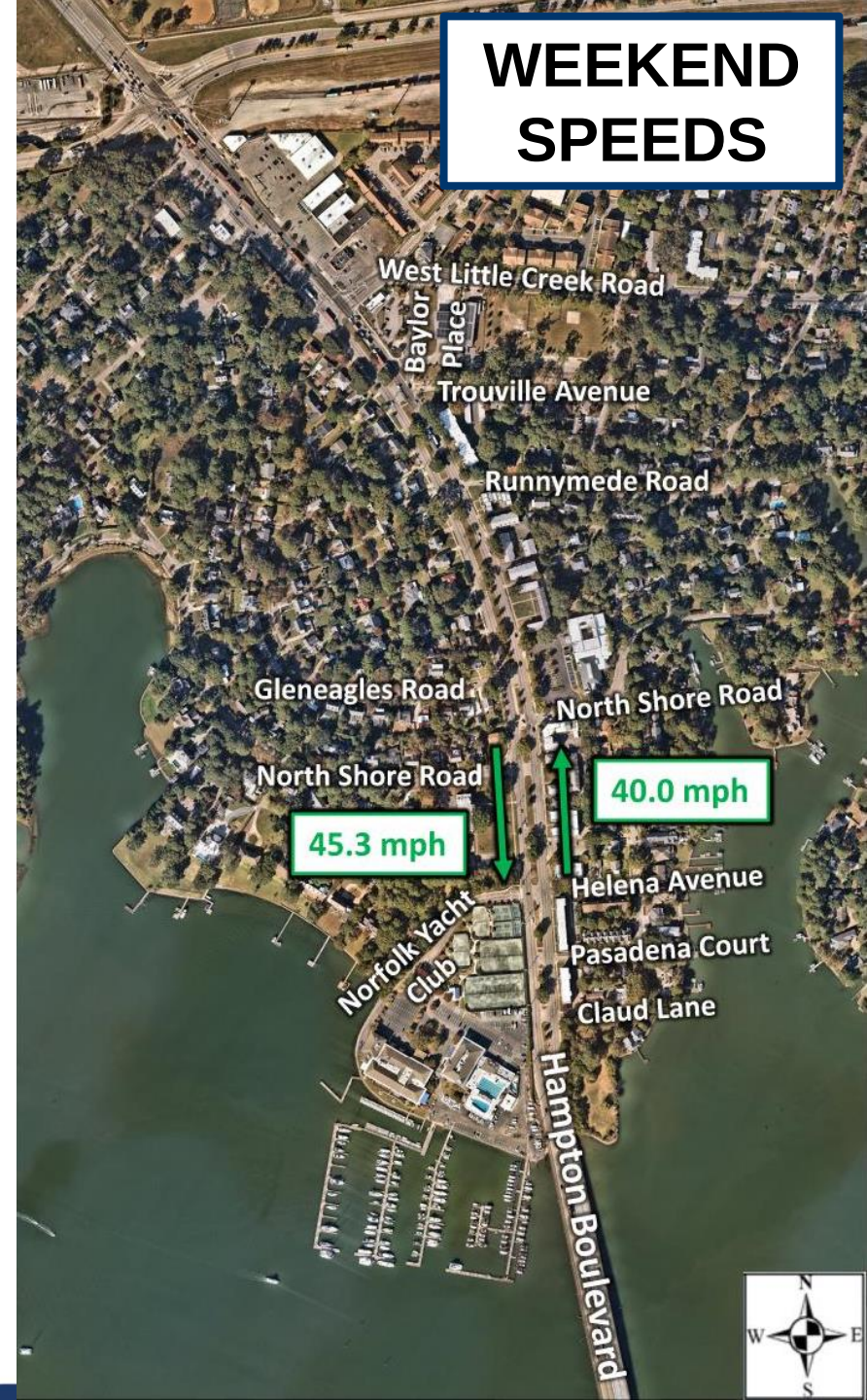
# Speed Analysis

- Average Speed – statistical average of individual speeds of all vehicles observed to travel past collection point
- 85<sup>th</sup> Percentile Speed – speed at or below which 85% of all vehicles are observed to travel past collection point
- Although the speed limit is posted at 30 MPH, 85<sup>th</sup> percentile speeds along the corridor range between 45 MPH and 51 MPH
- Average number of vehicles recorded traveling over 60 MPH
  - Weekday: 225 per day
  - Weekend: 415 per day

# Average Vehicle Speeds

September 2024

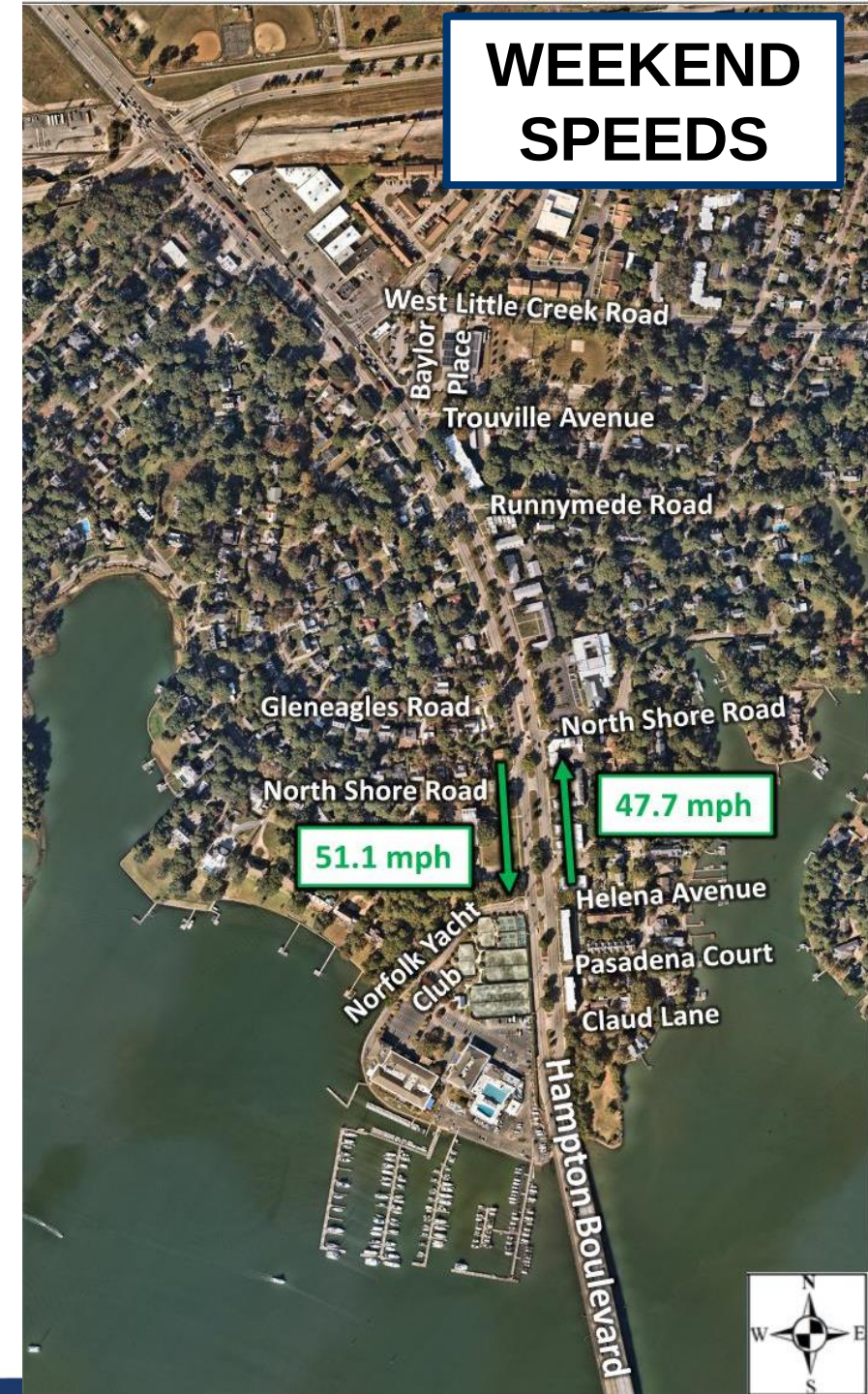
Posted Speed Limit:  
30 mph



# 85<sup>th</sup> Percentile Vehicle Speeds

September 2024

Posted Speed Limit:  
30 mph



# Signal Warrant Analysis

## Hampton Boulevard at North Shore Road

- Conducted using weekday 12-hour turning movement counts
- No signal warrants were satisfied

| MUTCD Signal Warrants                                                                                                                                                                                                                                                                         | Warrant Satisfied? | Notes          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|
| Warrant 1: Eight-Hour Vehicular Volume                                                                                                                                                                                                                                                        | No                 |                |
| Warrant 2: Four-Hour Vehicular Volume                                                                                                                                                                                                                                                         | No                 |                |
| Warrant 3: Peak Hour <sup>1</sup>                                                                                                                                                                                                                                                             | No                 |                |
| Warrant 4: Pedestrian Volume                                                                                                                                                                                                                                                                  | No                 |                |
| Warrant 5: School Crossing                                                                                                                                                                                                                                                                    | N/A                | Not applicable |
| Warrant 6: Coordinated Signal System                                                                                                                                                                                                                                                          | No                 |                |
| Warrant 7: Crash Experience <sup>2</sup>                                                                                                                                                                                                                                                      | No                 |                |
| Warrant 8: Roadway Network                                                                                                                                                                                                                                                                    | N/A                | Not applicable |
| Warrant 9: Intersection Near a Grade Crossing                                                                                                                                                                                                                                                 | N/A                | Not applicable |
| <sup>1</sup> Per MUTCD Section 4C.04, Warrant 3 shall only be applied in unusual cases, such as facilities that attract or discharge large numbers of vehicles over a short period of time.                                                                                                   |                    |                |
| <sup>2</sup> The Alternative Signal Warrant 7 – Crash Experience documented in FHWA Interim Approval #19 (IA-19) shall be used as per the Virginia Supplement to the MUTCD and the latest edition of IIM-TE-387. The most recent available three years of available crash data shall be used. |                    |                |

# Traffic Operations Analysis

- Existing conditions (2024) analysis
- Typical weekday AM and PM peak hour conditions
- Traffic volumes were collected in September 2024
- Traffic analysis measures:
  - Average vehicle delay and associated level of service (LOS)
  - 95<sup>th</sup> Percentile Queue Lengths

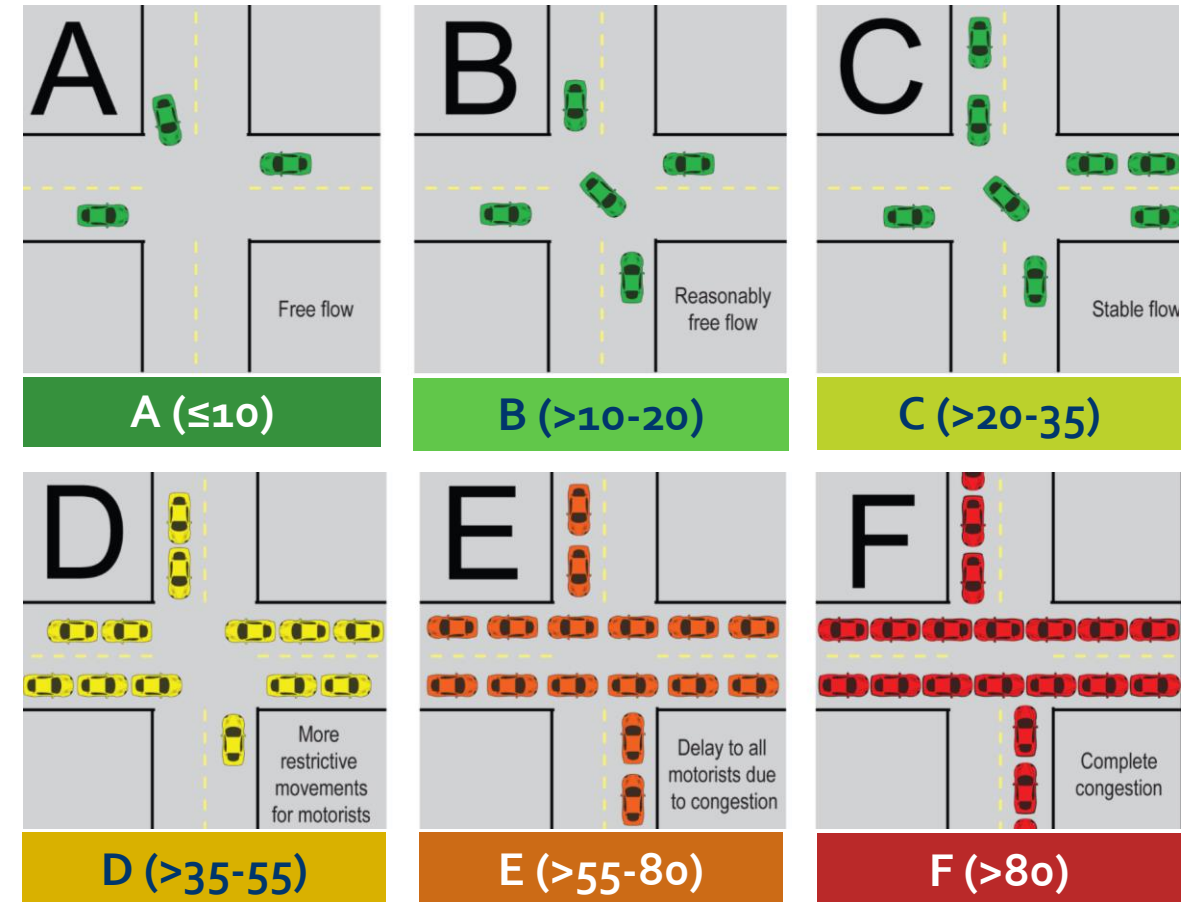
# Traffic Operations Analysis

## Level of Service (LOS)

The amount of traffic congestion and delay experienced by a driver at an intersection.

- Letter grade range A to F
  - LOS A – little to no congestion and delay
  - LOS F – severe congestion and long delay
  - LOS A – LOS D = Considered acceptable during peak hours for overall intersection
    - *Standard practice for urban areas*

## Overall Signalized Intersection LOS Depiction



LOS (average delay in seconds per vehicle)

# Existing (2024) Traffic Analysis Results

## AM Peak Hour

| Intersection                                | Level of Service (Delay) |          |          |           |          |
|---------------------------------------------|--------------------------|----------|----------|-----------|----------|
|                                             | NB                       | SB       | EB       | WB        | SWB      |
| Hampton Blvd & Helena Ave                   | A (0.1)                  | A (0.0)  | C (15.7) | F (141.5) |          |
| Hampton Blvd & North Shore Rd<br>(South)    | A (0.1)                  | A (0.0)  | B (14.6) |           |          |
| Hampton Blvd & North Shore Rd<br>(North)    | A (0.0)                  | A (0.3)  |          | F (186.0) |          |
| Hampton Blvd &<br>Baylor Pl / Trouville Ave | A (0.0)                  | A (0.0)  |          | B (14.2)  | B (14.1) |
| Hampton Blvd & Little Creek Rd              | C (33.2)                 | B (14.1) | D (53.1) | F (88.1)  |          |
| Hampton Blvd & Terminal Blvd                | C (31.4)                 | D (35.7) | D (49.9) | D (37.2)  |          |

**Level of Service Grade**  
(average delay in seconds per vehicle)

|                                 |
|---------------------------------|
| <b>A (<math>\leq 10</math>)</b> |
| <b>B (&gt;10–20)</b>            |
| <b>C (&gt;20–35)</b>            |
| <b>D (&gt;35–55)</b>            |
| <b>E (&gt;55–80)</b>            |
| <b>F (&gt;80)</b>               |

# Existing (2024) Traffic Analysis Results

## PM Peak Hour

| Intersection                                | Level of Service (Delay) |          |          |          |          |
|---------------------------------------------|--------------------------|----------|----------|----------|----------|
|                                             | NB                       | SB       | EB       | WB       | SWB      |
| Hampton Blvd & Helena Ave                   | A (0.4)                  | A (0.0)  | F (66.9) | C (21.5) |          |
| Hampton Blvd & North Shore Rd<br>(South)    | A (0.6)                  | A (0.0)  | D (27.9) |          |          |
| Hampton Blvd & North Shore Rd<br>(North)    | A (0.0)                  | A (0.2)  |          | D (27.9) |          |
| Hampton Blvd &<br>Baylor Pl / Trouville Ave | A (0.0)                  | A (0.1)  |          | A (10.0) | B (11.4) |
| Hampton Blvd & Little Creek Rd              | C (21.3)                 | B (11.6) | D (53.7) | D (44.5) |          |
| Hampton Blvd & Terminal Blvd                | C (28.3)                 | C (33.8) | D (50.3) | C (34.7) |          |

**Level of Service Grade**  
(average delay in seconds per vehicle)

|                                   |
|-----------------------------------|
| <b>A (<math>\leq 10</math>)</b>   |
| <b>B (<math>&gt;10-20</math>)</b> |
| <b>C (<math>&gt;20-35</math>)</b> |
| <b>D (<math>&gt;35-55</math>)</b> |
| <b>E (<math>&gt;55-80</math>)</b> |
| <b>F (<math>&gt;80</math>)</b>    |



# Next Steps

# Next Steps

- Review input from today's meeting and associated online survey
- Finalize list of potential improvements for evaluation
- Conduct future traffic operations and safety analysis of alternatives
- Develop planning-level cost estimates and evaluation matrix



# Input and Feedback on Potential Improvements

# Contribute to Online Survey



Complete  
Survey By  
April 30<sup>th</sup>

<https://www.norfolk.gov/NorthShoreSafety>

# Potential Engineering Improvements

- Traffic signal at North Shore Road intersection (both sides)
- Pedestrian hybrid beacon
- “Rest in red” operation at existing traffic signals (by time-of-day)
- Median, landscaping, and lighting enhancements
- Additional speed feedback signs
- Turn restrictions

WHAT ELSE?



# Potential Engineering Improvements

- Traffic signal at Hampton Boulevard intersection with North Shore Road
- Pedestrian hybrid beacon
- “Rest in red” operation at existing traffic signals (by time-of-day)
- Median, landscaping, and lighting enhancements
- Additional speed feedback signs
- Turn restrictions

WHAT ELSE?

# Traffic Signal at Hampton Boulevard Intersection with North Shore Road

- Signal control of four approaches at intersection
  - Northbound and southbound Hampton Boulevard
  - Eastbound and westbound North Shore Road
- Potential construction of left-turn lane from northbound Hampton Boulevard onto North Shore Road
- Signalized pedestrian crossings
- Coordinated with other signals along Hampton Boulevard (north of Lafayette River Bridge)



# Pedestrian Hybrid Beacon (PHB)

- Provides signalized crossing **only** for pedestrians
- Overhead beacons provide sequence of red and yellow lights to warn and stop drivers when activated by push button
- Overhead beacons are dark when PHB is not active
- Typically installed midblock rather than at intersections



# “Rest in Red” Operation at Existing Traffic Signals

- Signals revert to an “all-red” phase when there is no traffic demand at the signal
- Approaching vehicles and their current speed can be detected to give a green light to those traveling at the speed limit or stay red for those who are speeding
- Can be programmed by time-of-day, typically for late night and early morning hours, to reduce travel speeds when volumes are lower



# Median, Landscaping, and Lighting Enhancements

Features could include:

- Planting additional trees along both sides of the street and in the median to visually narrow the roadway
- Reviewing existing lighting levels and installing additional fixtures where needed



# Additional Speed Feedback Signs

- Installing additional speed feedback signs at other locations along the corridor
  - Similar to those near the Lafayette River Bridge



# Turn Restrictions

- Potential restrictions could include:
  - Left-turn movement from Trouville Avenue onto Hampton Boulevard
  - Left-turn movements from North Shore Road onto Hampton Boulevard
  - Left-turn movement from Helena Avenue and/or NYCC Driveway onto Hampton Boulevard
  - Other movements to/from Hampton Boulevard
- Restrictions could be in place at all times or by time-of-day





# Discussion and Q&A

THANK YOU!