GRANBY STREET BIKE LANE CONCEPT

Willow Wood Dr to Admiral Taussig Blvd

THE CITY OF NORFOLK

CRASH ANALYSIS

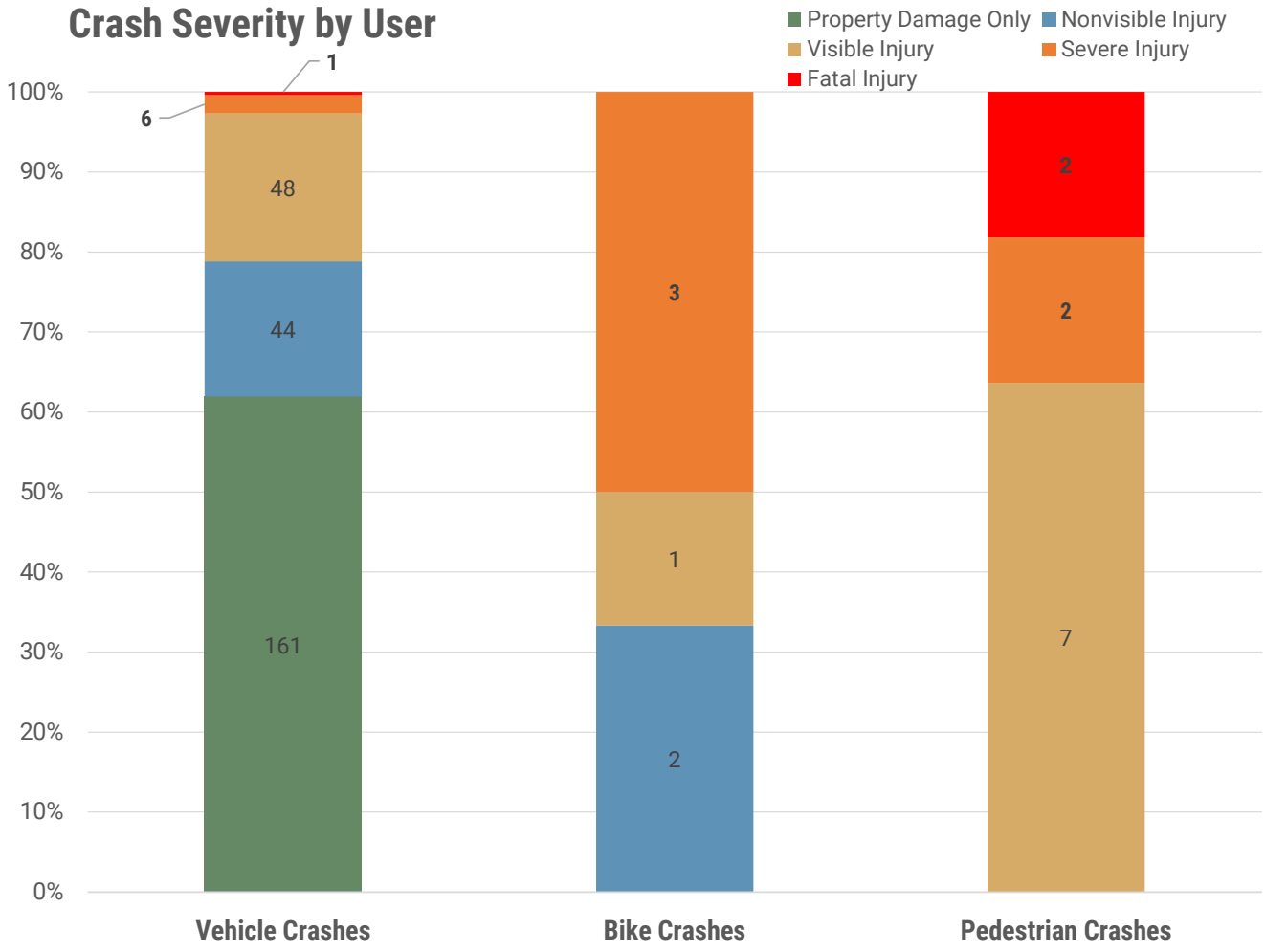
MEMO

Crash Analysis (2015 - 2019)

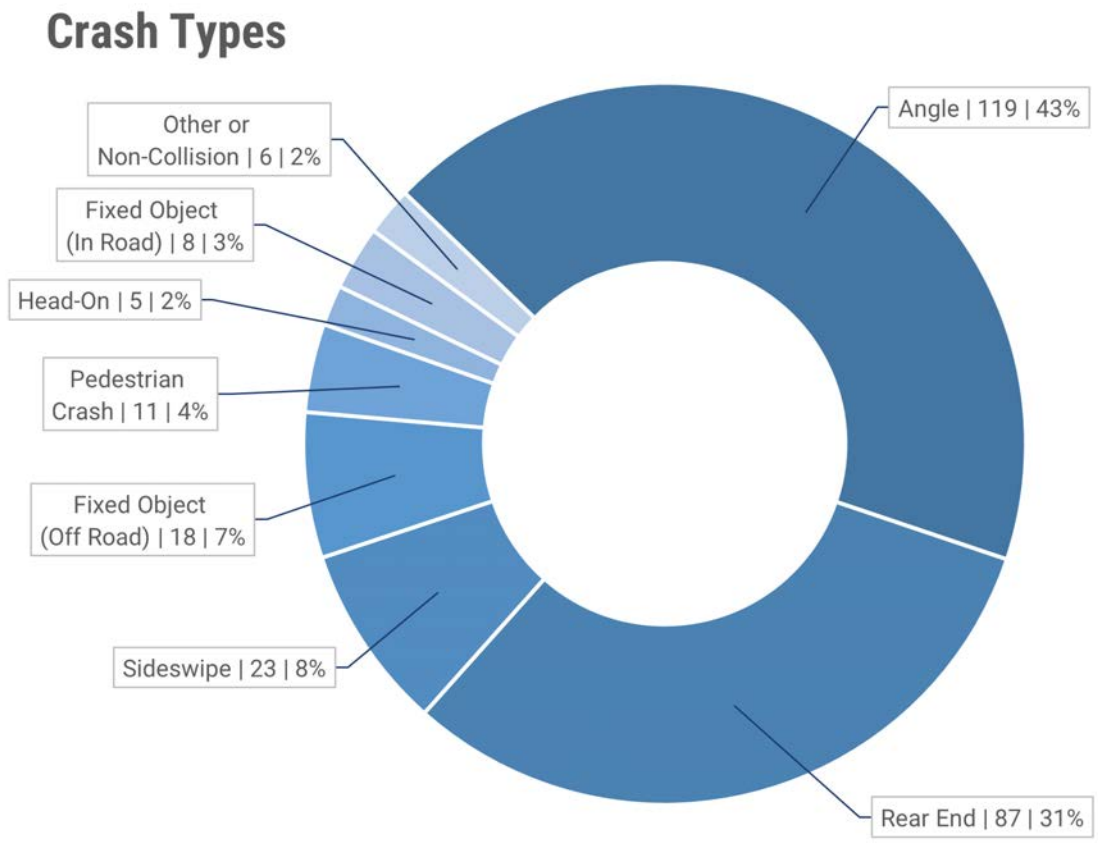
An analysis of crashes on the Granby Street corridor provides insights into conflict points for pedestrians, bicyclists, and vehicles. This analysis uses data from the City of Norfolk focuses on the locations and severity of crashes involving bicycles and pedestrians, but also shows the location and severity of vehicle crashes for context and additional safety insights. The focus on non-motorized users in this analysis is intended to aid in the design of a bicycle facility on Granby Street that will improve safety for bicycles and pedestrians and thereby improve safety outcomes for all modes.

Key Points

- **Bicycle and pedestrian crashes are more severe than vehicle crashes.** As the chart below shows, bicycles and pedestrians suffered much higher rates of fatal and serious injury than vehicles. 2 out of the 11 pedestrian crashes (18%) resulted in the death of a pedestrian, and another 2 pedestrian crashes (18%) resulted in a pedestrian being seriously injured. Half of bicyle crashes (50%) resulted in a cyclist being seriously injured. In comparison, the fatality and serious injury rates for crashes involving only vehicles was less than 0.4% and 21%, respectively.



- **Speeding was a factor in amost half of the severe and fatal injuries on the corridor.** 6 out of 14 severe and fatal injuries involved speeding, and 2 of the 3 fatal injuries involved speeding.
- **Intersections are major conflict points, especially for bicycle and pedestrian crashes.** All crashes involving bicycles and pedestrians occurred at intersections. In addition, 5 of the 6 bicycle crashes occurred at intersections when a vehicle was making a turn. When considering all crashes, the heat map in Map 1 shows that many crashes occurred at larger, busier intersections.
- **Visibility could be a factor in pedestrian crashes.** 7 of the 11 pedestrian crashes occurred at night.
- **Crash types support other data the other key points in this section related to high rates of speeding and intersection conflicts.** The chart below shows that 43% of all crashes were "angle" crashes and 31% were "rear end" crashes. Paired with the other key points in this report, this crash type data suggests that many crashes involved turning movements at intersections (evidenced by the high proportion of "angle" crashes) and speeding and/or distracted driving (evidenced by the high proportion of "rear end" crashes).



Countermeasures

Given the high number of bicyle and pedestrian crashes that occurred at intersections and the high number of severe and fatal injuries that involved speeding, the design for bicycle lanes on Granby Street must consider intersection risk factors and speed control. Drawn directly from the Virginia Department of Transportation (VDOT) Pedestrian Safety Action Plan, the following design countermeasures may be appropriate for improving safety for non-motorized users at intersections, at night, during vehicle turning conflicts, and where speeding is an issue.

Speed Management & Traffic Calming

Road Diet (lane reduction)/Lane re-utilization

Source: Richard Drdul

The conversion of a roadway that features a reduction of travel lanes. A common Road Diet treatment reduces a four-lane road to two lanes with a two-way left-turn lane in the center. Reclaimed pavement from the reduction in travel lanes can be used for a variety of purposes—such as on-street parking, transit access, and bicycle and pedestrian amenities—depending on the community's needs.

CRF: 19% to 47%

Situation: Speed reduction

MUTCD Reference: VA MUTCD 2011 Section 3B.09

Street trees

The intentional placement of trees along the outer edge of the roadway to provide additional separation for motorists and pedestrians, reduce the visual width of the roadway, and provide a pleasant street environment for all. Trees should be trimmed up to at least 8 to 10 feet to ensure that sight distances and head room are maintained and personal security is not compromised.

CRF: 38% to 41%

Situation: Speed reduction

MUTCD Reference: N/A

Lower speed limits

Source: J. Maus, BikePortland

A systematic reduction of the posted speed limit to decrease vehicle speeds and improve pedestrian safety. Lowering the speed limit may require enacting state or local legislation.

CRF: 15% to 44%

Situation: Speed reduction

MUTCD Reference: MUTCD Section 2B-13

Speed Management

Radar speed display/dynamic speed feedback signs

A sign board, screen, or similar device that is used by police departments and transportation agencies as educational tools to enhance speed compliance enforcement efforts. Speed radar trailers are best used in residential areas and may be used in conjunction with Neighborhood Speed Watch or other neighborhood safety education programs.

CRF: 5% to 7%

Situation: Speed reduction

MUTCD Reference: MUTCD Section 2B-13

Lighting

Intersection lighting/crosswalk lighting

Inclusion of in-pavement lighting or streetlights that assist motorists in identifying pedestrians at marked crosswalks during times of low light and glare. Lighting improvements may also make the walking area more inviting and safer to pedestrians.

CRF: 8% to 32%

Situation: Visibility

MUTCD Reference: VA MUTCD 2011 Section 4N

Pedestrian Signals

Accessible Pedestrian Signals (APS)

Signals that provide supplemental information in non-visual formats such as audible tones, speech messages, and/or vibrating surfaces. Signal activation should be placed within reach of pedestrians and located where pedestrians wait to cross.

CRF: Unknown

Situation: Signalized crossings

MUTCD Reference: VA MUTCD Section 4E.09

Automatic pedestrian detection devices

Source: Dan Burden

A device near an intersection that is able to sense when a pedestrian is waiting at a crosswalk and automatically send a signal to switch to a pedestrian "WALK" phase.

CRF: Unknown

Situation: Signalized crossings

MUTCD Reference: MUTCD Section 4E.08

Pedestrian Signals

Convert permissive or permissive/protected to protected left-turn phasing

The protected left-turn phase provides a green arrow for left-turning vehicles while stopping both oncoming traffic and parallel pedestrian crossings. This countermeasure can reduce conflicts with pedestrians crossing parallel to vehicle traffic by eliminating competition between vehicles turning left and pedestrians crossing during the concurrent signal phase.

CRF: Unknown

Situation: Turning vehicle conflicts

MUTCD Reference: as long as installation is MUTCD compliant.

Flashing Yellow Arrow (FYA) for left turns

Provides an alternative signal phasing option where left-turning vehicles are given an extended transition before a red arrow to prevent high speed left turns into small gaps of oncoming traffic. Implementing this modification of permissive left-turn phasing can reduce conflicts with pedestrians crossing parallel to vehicle traffic.

CRF: 0% to 14%

Situation: Turning vehicle conflicts

MUTCD Reference: VA MUTCD 2011 Section 4D

Increase pedestrian crossing time

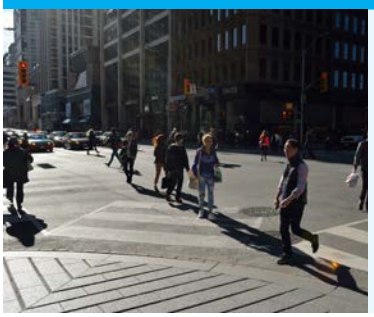
The extension of the "WALK" interval during the pedestrian signal phase that provides ample time for pedestrians to cross the roadway. The length of the crossing time extension may be dependent on pedestrian volumes, behavior, characteristics (such as age), and mobility.

CRF: Unknown

Situation: Signalized crossings

MUTCD Reference: MUTCD Section 4E.08

Pedestrian scrambles (Barnes dance)/exclusive ped phasing



A pedestrian phase that is active only when all conflicting vehicle movements are stopped across an approach to an intersection. Intersections deploying this type of signal phase often feature pedestrian crossing markings indicating that pedestrians may walk diagonally across the intersection.

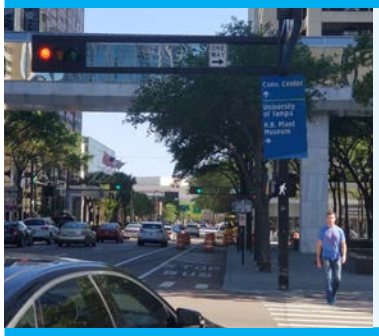
CRF: –10% to 50%

Situation: Signalized crossings

MUTCD Reference: MUTCD 2011 Section 3B.18

Pedestrian Signals

Leading pedestrian interval



A signal timing improvement where pedestrians are given an advance walk signal before motorists get a green signal, providing the pedestrian several seconds to start walking in the crosswalk before a concurrent signal is provided to vehicles. This makes pedestrians more visible to motorists and motorists more likely to yield to them.

CRF: 29% to 45%

Situation: Signalized crossings

MUTCD Reference: MUTCD Section 4E.06

Pedestrian countdown signal

A pedestrian signal head that begins a visible and potentially audible countdown at the beginning of the walk phase or at the beginning of the clearance (i.e., DON'T WALK) interval. The incorporation of a pedestrian countdown signal provides pedestrians with information that has been demonstrated to reduce pedestrian crossings when only a few seconds remain.

CRF: 55% to 70%

Situation: Signalized crossings

MUTCD Reference: MUTCD Section 4E

Pedestrian detection to extend crossing time when pedestrian is detected within the intersection

Source: Dan Burden

A system that detects the presence of pedestrians in crosswalks to determine whether the pedestrian phase of a traffic signal or beacon should be extended or canceled. Pedestrian detection systems are typically deployed on multilane roads or areas with a population that has difficulty walking. The goal of the system is to reduce waiting times for both pedestrians and motorists while making sure that slower pedestrians can safely cross the street.

CRF: Unknown

Situation: Signalized crossings

MUTCD Reference: N/A

Design

Choker

Curb extensions that narrow a street by widening the sidewalks or planting strips, effectively creating a pinch point along the street and are intended to slow vehicles at midblock locations. Chokers can be created by bringing both curbs in, or they can be done by more dramatically widening one side of the curb at a midblock location. They can also be used at intersections, creating a gateway effect.

CRF: Unknown

Situation: Speed reduction

MUTCD Reference: N/A

Design

Corner bulb outs and chokers/curb extensions

Source: Richard Drdul

An extension of the sidewalk or curb line out into the parking lane that reduces the effective street width at a location. Curb extensions improve pedestrian crossings by reducing pedestrian crossing distance and exposure, visually and physically narrowing the roadway, improving visibility for pedestrians and motorists, and allowing space for the installation of a curb ramp. Curb extensions are only appropriate where there is an on-street parking lane.

CRF: Unknown

Situation: Midblock and signalized crossings

MUTCD Reference: N/A

Curb radius reduction

The selection of the smallest practical actual curb radii based on how the effective curb radius accommodates the design vehicle. Smaller radii can improve pedestrian safety by requiring motorists to reduce vehicle speed to make the sharper turns, and shortening pedestrian crossing distances, which thereby improves signal timing.

CRF: –16% to 57%

Situation: Speed reduction

MUTCD Reference: N/A

Danish offset (also known as angled median crosswalks and split pedestrian crossover (SPXO))

A "Z"-shaped marked midblock crosswalk that typically crosses four or more vehicular lanes and includes an elongated pedestrian refuge. Pedestrians begin crossing after activating a pedestrian signal at either end of the crossing and use the pedestrian refuge island to orient themselves towards oncoming traffic before completing the crossing. May be installed midblock or at signalized intersections.

CRF: Unknown

Situation: Midblock and signalized crossings

MUTCD Reference: MUTCD Section 4B.04

Install raised ped crossing/raised crosswalks/speed tables

A speed table covering an entire intersection or midblock crossing that also functions as a marked crosswalk. The crosswalk is at the same level as the sidewalk, eliminating the need for curb ramps.

CRF: 30% to 45%

Situation: Speed reduction

MUTCD Reference: VA MUTCD 2011 Section 3B

Design

Install refuge islands/raised median

Source: Richard Drdul

Raised islands placed in the center of the street at intersections or midblock crossings that are intended to help protect crossing pedestrians from motor vehicles. Pedestrian refuge islands allow pedestrians to cross one direction of traffic at a time by stopping in the median refuge to wait for an adequate crossing gap.

CRF: 46%

Situation: Midblock and intersection crossings

MUTCD Reference: MUTCD Section 4B.04

Install/modify design of channelized right turn lane

Source: Dan Burden

A raised island or platform that accommodates waiting pedestrians between a travel lane and channelized right turn lane. The crosswalk should be oriented at a 90-degree angle to the right-turn lane to optimize sight lines. The island should include the same accessibility features as the pedestrian refuge island.

CRF: 44% to 60%

Situation: Visibility

MUTCD Reference: MUTCD Section 3

On-street parking enhancements/restrictions

The incorporation of parking on the edge of the roadway to encourage lower roadway speeds and narrow the effective crossing width for pedestrians. When designed appropriately, on-street parking can support a pedestrian commercial environment, generate revenue (if parking is priced), and provide a traffic calming function. However, parking should be prohibited where it obstructs pedestrian and motorist sightlines near intersections.

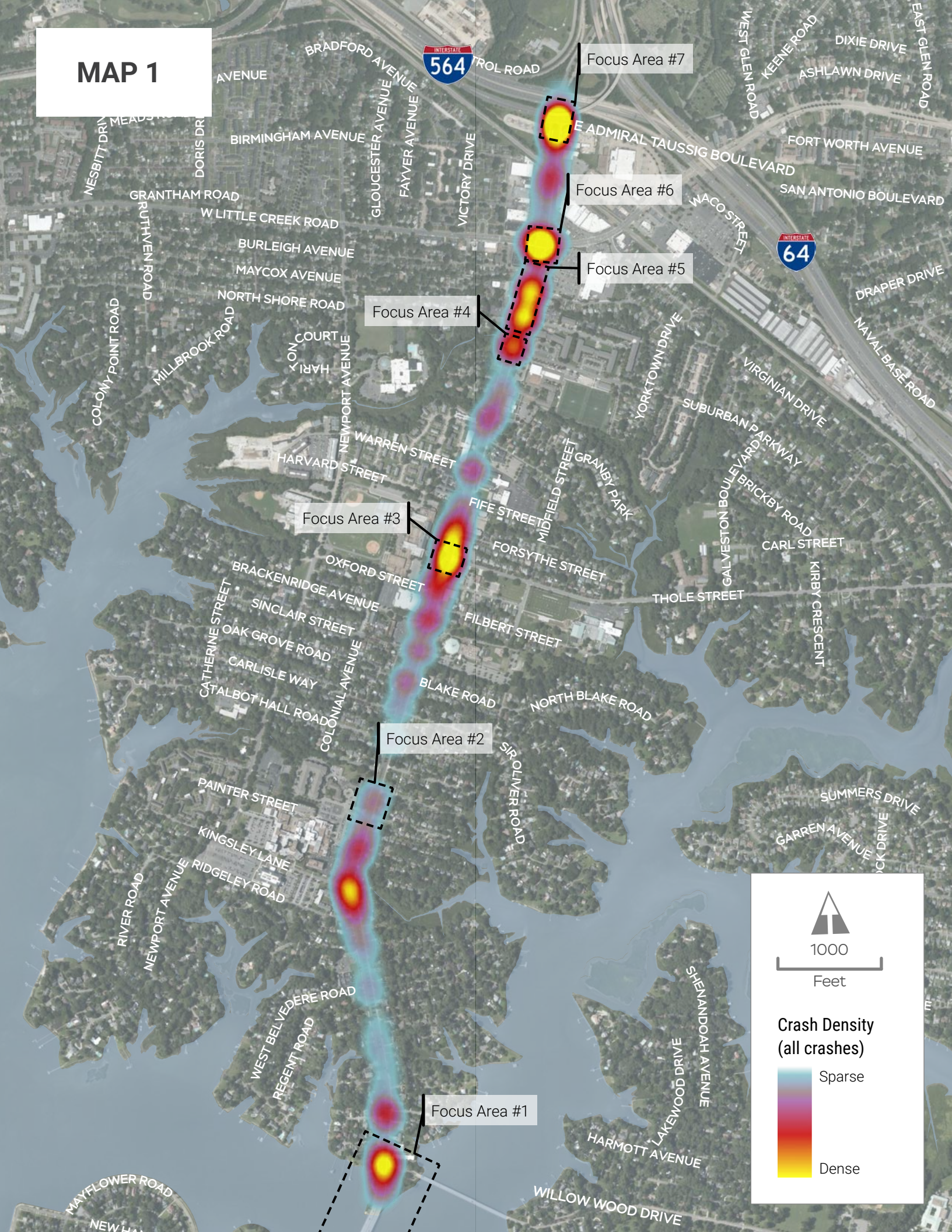
CRF: 20% to 48%

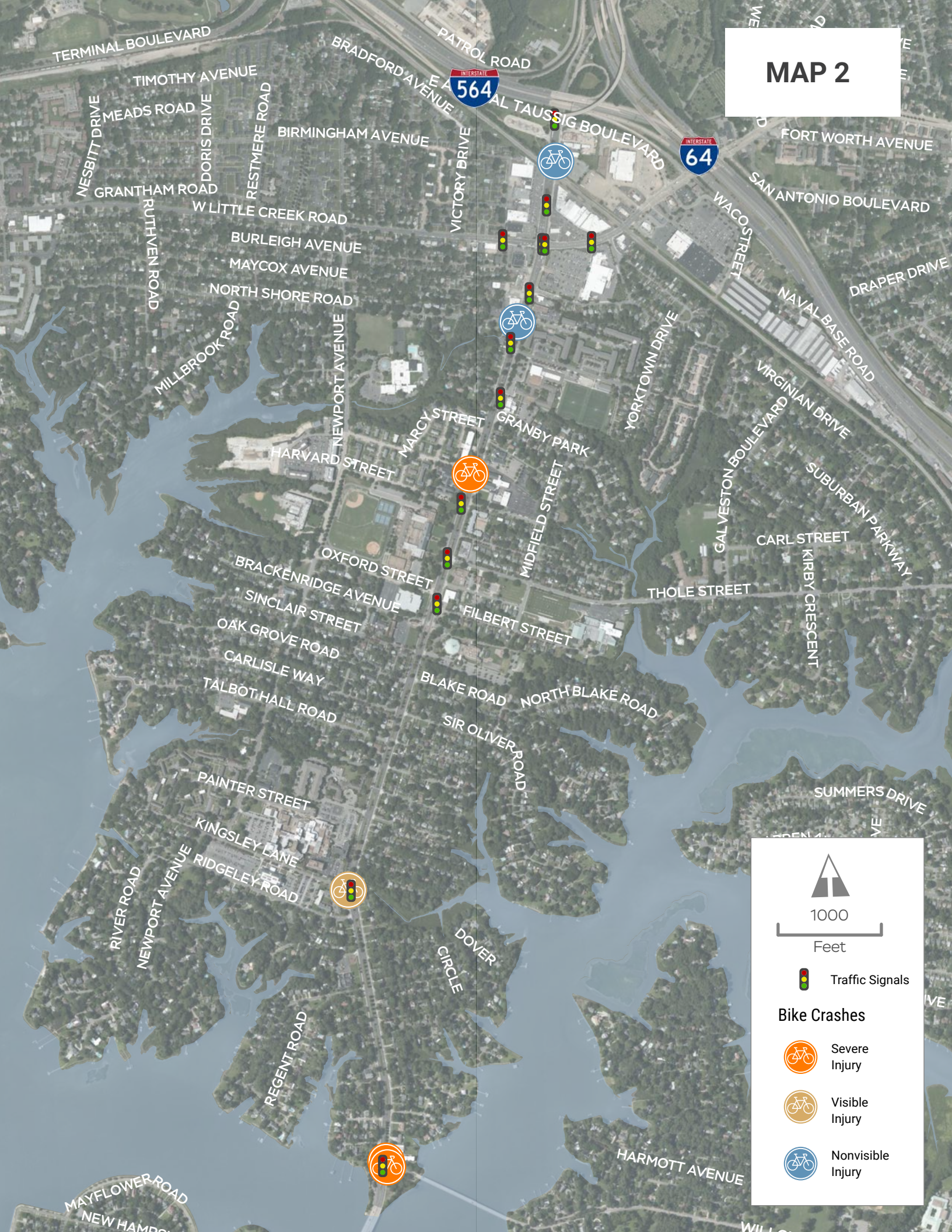
Situation: Visibility

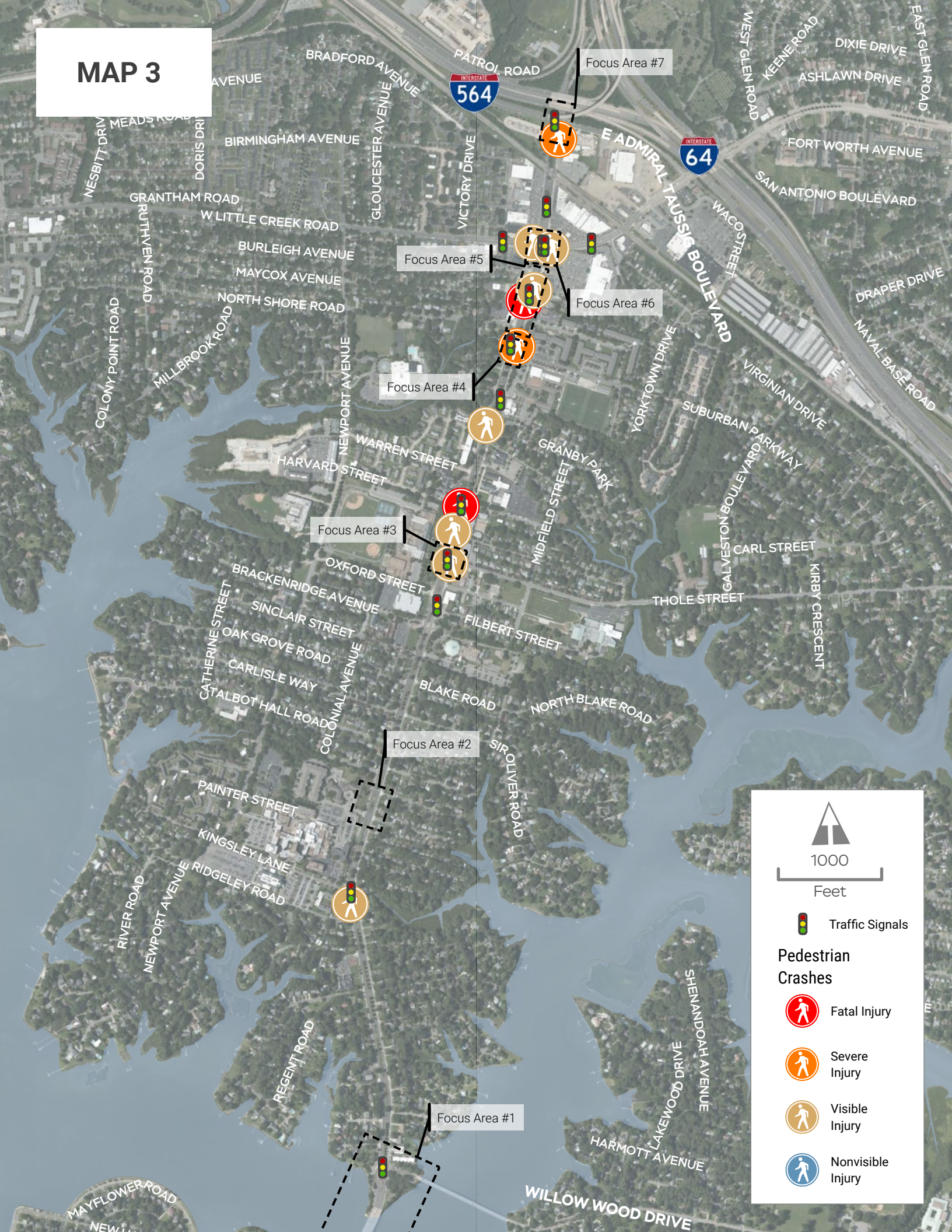
MUTCD Reference: VA MUTCD 2011 Section 2B.46

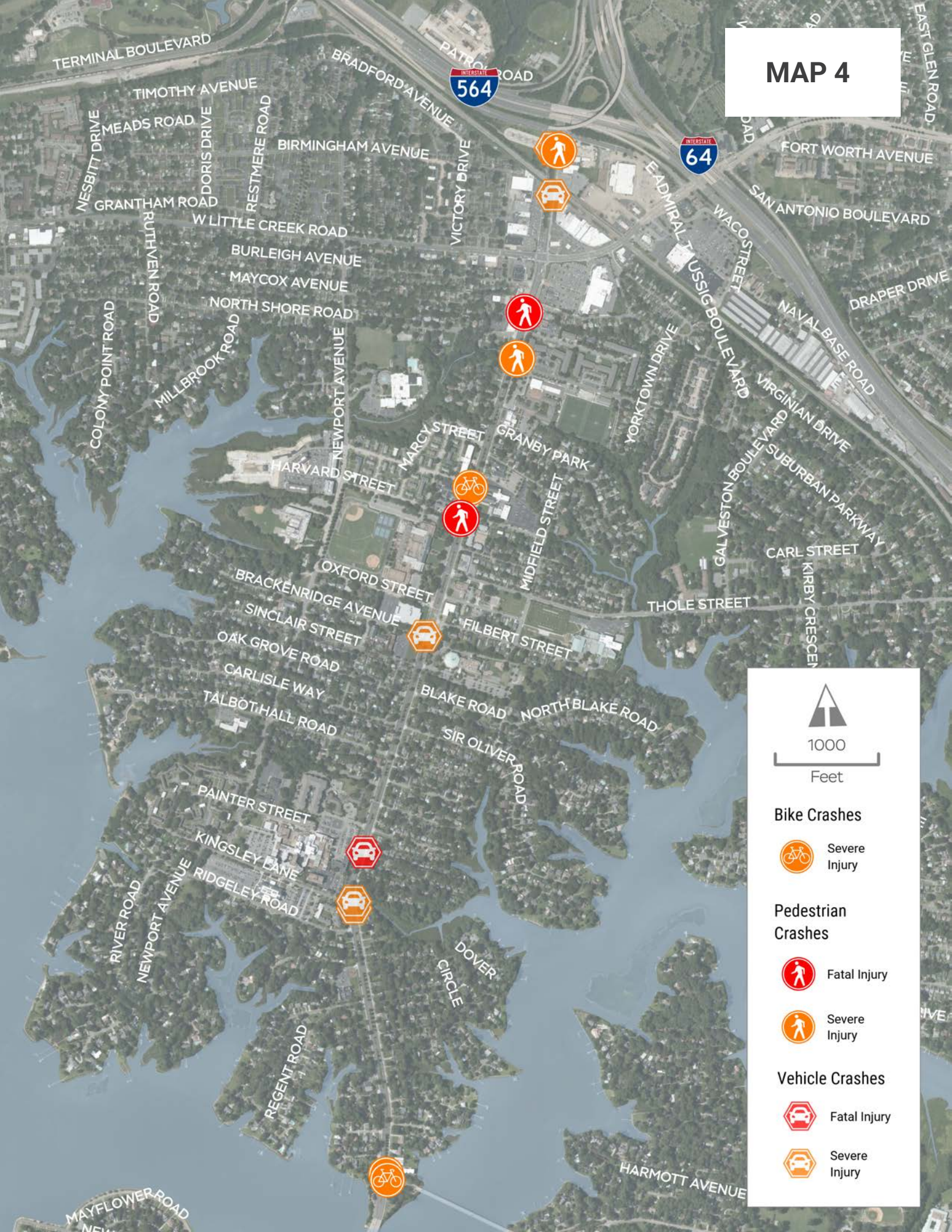
Crash Maps

The crash maps on the following pages show where crashes occurred, visualizing the same data crash data along the Granby Street project corridor from 2015-2019 as the Crash Analysis section above. The maps focus on displaying how severe those crashes were, and if they involved bicycles or pedestrians. Map 1 shows the density of all crashes (vehicle, bicycle, and pedestrian) along the corridor. Maps 2 and 3 show the location and severity of bicycle and pedestrian crashes along the corridor, and Map 4 shows the location of all fatal and severe crashes. Maps 5 through 15 provide a detailed look at each part of the Granby Street corridor and displays the location and severity of vehicle, bicycle, and pedestrian crashes while also identifying crashes that involved speeding.

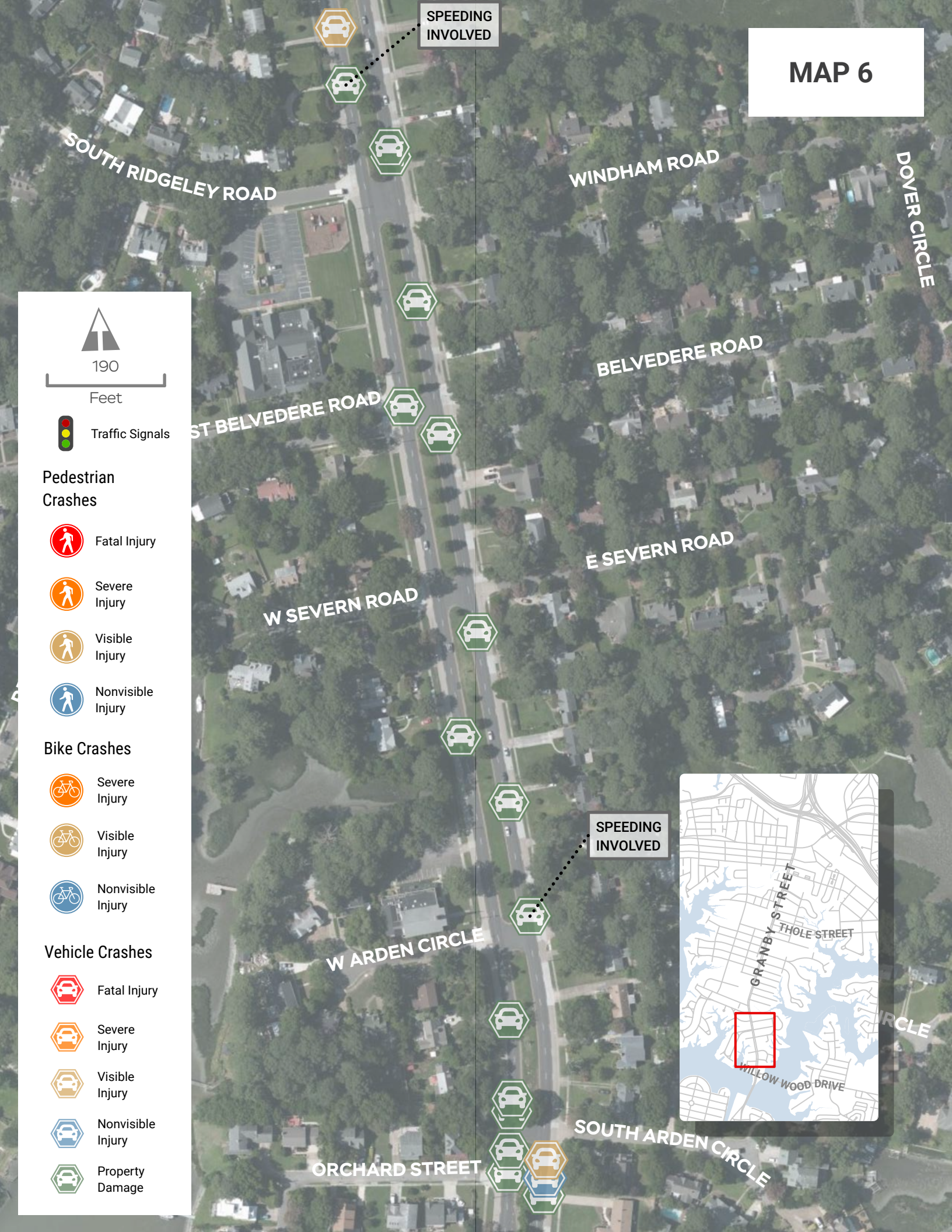

MAP 1
Focus Area #7
Focus Area #6
Focus Area #5
Focus Area #4
Focus Area #3
Focus Area #2
Focus Area #1
BRADFORD AVENUE
TROL ROAD
AVENUE
BIRMINGHAM AVENUE
GLOUCESTER AVENUE
FAYVER AVENUE
VICTORY DRIVE
E ADMIRAL TAUSSIG BOULEVARD
FORT WORTH AVENUE
SAN ANTONIO BOULEVARD
WACO STREET
GRANTHAM ROAD
W LITTLE CREEK ROAD
BURLEIGH AVENUE
MAYCOX AVENUE
NORTH SHORE ROAD
RUTHVEN ROAD
COLONY POINT ROAD
MILLBROOK ROAD
NEWPORT AVENUE
WARREN STREET
HARVARD STREET
YORKTOWN DRIVE
VIRGINIAN DRIVE
SUBURBAN PARKWAY
DRAPER DRIVE
NAVAL BASE ROAD
MIDFIELD STREET
GRANBY PARK
BRICKBY ROAD
GALVESTON BOULEVARD
CARL STREET
KIRBY CRESCENT
FIFE STREET
FORSYTHE STREET
THOLE STREET
OXFORD STREET
BRACKENRIDGE AVENUE
SINCLAIR STREET
OAK GROVE ROAD
CARLISLE WAY
TALBOT HALL ROAD
CATHERINE STREET
COLONIAL AVENUE
FILBERT STREET
BLAKE ROAD
NORTH BLAKE ROAD
SIR OLIVER ROAD
PAINTER STREET
KINGSLEY LANE
RIDGELEY ROAD
RIVER ROAD
NEWPORT AVENUE
SUMMERS DRIVE
GARREN AVENUE
WEST BELVEDERE ROAD
REGENT ROAD
SHENANDOAH AVENUE
LAKEWOOD DRIVE
HARMOTT AVENUE
WILLOW WOOD DRIVE
MAYFLOWER ROAD
1000
Feet
Crash Density
(all crashes)
Sparse
Dense


MAP 2
TERMINAL BOULEVARD
TIMOTHY AVENUE
MEADS ROAD
NESBITT DRIVE
DORIS DRIVE
RESTMERE ROAD
GRANTHAM ROAD
RUTHVEN ROAD
W LITTLE CREEK ROAD
BURLEIGH AVENUE
MAYCOX AVENUE
NORTH SHORE ROAD
MILLBROOK ROAD
BRADFORD AVENUE
PATROL ROAD
INTERSTATE 564
E ADMIRAL TAUSSIG BOULEVARD
BIRMINGHAM AVENUE
VICTORY DRIVE
INTERSTATE 64
FORT WORTH AVENUE
SAN ANTONIO BOULEVARD
WACO STREET
DRAPER DRIVE
NAVAL BASE ROAD
YORKTOWN DRIVE
VIRGINIAN DRIVE
GALVESTON BOULEVARD
SUBURBAN PARKWAY
CARL STREET
KIRBY CRESCENT
THOLE STREET
NEWPORT AVENUE
MARCY STREET
GRANBY PARK
HARVARD STREET
MIDFIELD STREET
OXFORD STREET
BRACKENRIDGE AVENUE
SINCLAIR STREET
OAK GROVE ROAD
CARLISLE WAY
TALBOT HALL ROAD
FILBERT STREET
BLAKE ROAD
NORTH BLAKE ROAD
SIR OLIVER ROAD
PAINTER STREET
KINGSLEY LANE
RIDGELEY ROAD
RIVER ROAD
NEWPORT AVENUE
DOVER CIRCLE
REGENT ROAD
SUMMERS DRIVE
HARMOTT AVENUE
MAYFLOWER ROAD
1000
Feet
Traffic Signals
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury

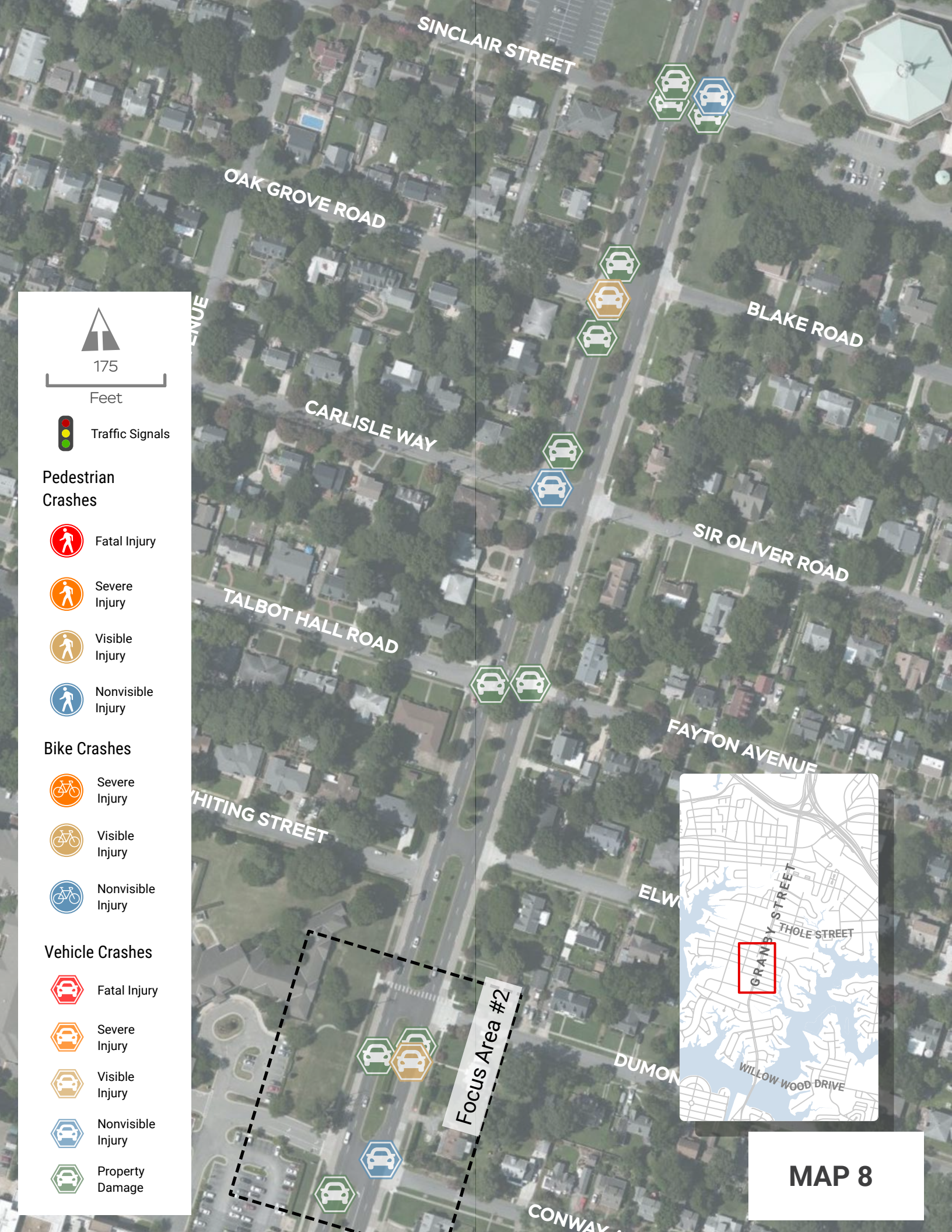

MAP 3
Focus Area #7
Focus Area #5
Focus Area #6
Focus Area #4
Focus Area #3
Focus Area #2
Focus Area #1
BRADFORD AVENUE
PATROL ROAD
INTERSTATE 564
BIRMINGHAM AVENUE
GLOUCESTER AVENUE
VICTORY DRIVE
E ADMIRAL TAUSSIG BOULEVARD
INTERSTATE 64
FORT WORTH AVENUE
SAN ANTONIO BOULEVARD
WACO STREET
WEST GLEN ROAD
KEENE ROAD
DIXIE DRIVE
ASHLAWN DRIVE
EAST GLEN ROAD
GRANTHAM ROAD
W LITTLE CREEK ROAD
BURLEIGH AVENUE
MAYCOX AVENUE
NORTH SHORE ROAD
RUTHVEN ROAD
COLONY POINT ROAD
MILLBROOK ROAD
NEWPORT AVENUE
DRAPER DRIVE
NAVAL BASE ROAD
YORKTOWN DRIVE
VIRGINIAN DRIVE
SUBURBAN PARKWAY
WARREN STREET
HARVARD STREET
GRANBY PARK
MIDFIELD STREET
GALVESTON BOULEVARD
CARL STREET
KIRBY CRESCENT
THOLE STREET
OXFORD STREET
BRACKENRIDGE AVENUE
SINCLAIR STREET
OAK GROVE ROAD
CARLISLE WAY
TALBOT HALL ROAD
CATHERINE STREET
COLONIAL AVENUE
FILBERT STREET
BLAKE ROAD
NORTH BLAKE ROAD
SIR OLIVER ROAD
PAINTER STREET
KINGSLEY LANE
RIDGELEY ROAD
RIVER ROAD
NEWPORT AVENUE
REGENT ROAD
SHENANDOAH AVENUE
LAKEWOOD DRIVE
HARMOTT AVENUE
WILLOW WOOD DRIVE
MAYFLOWER ROAD
1000
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury

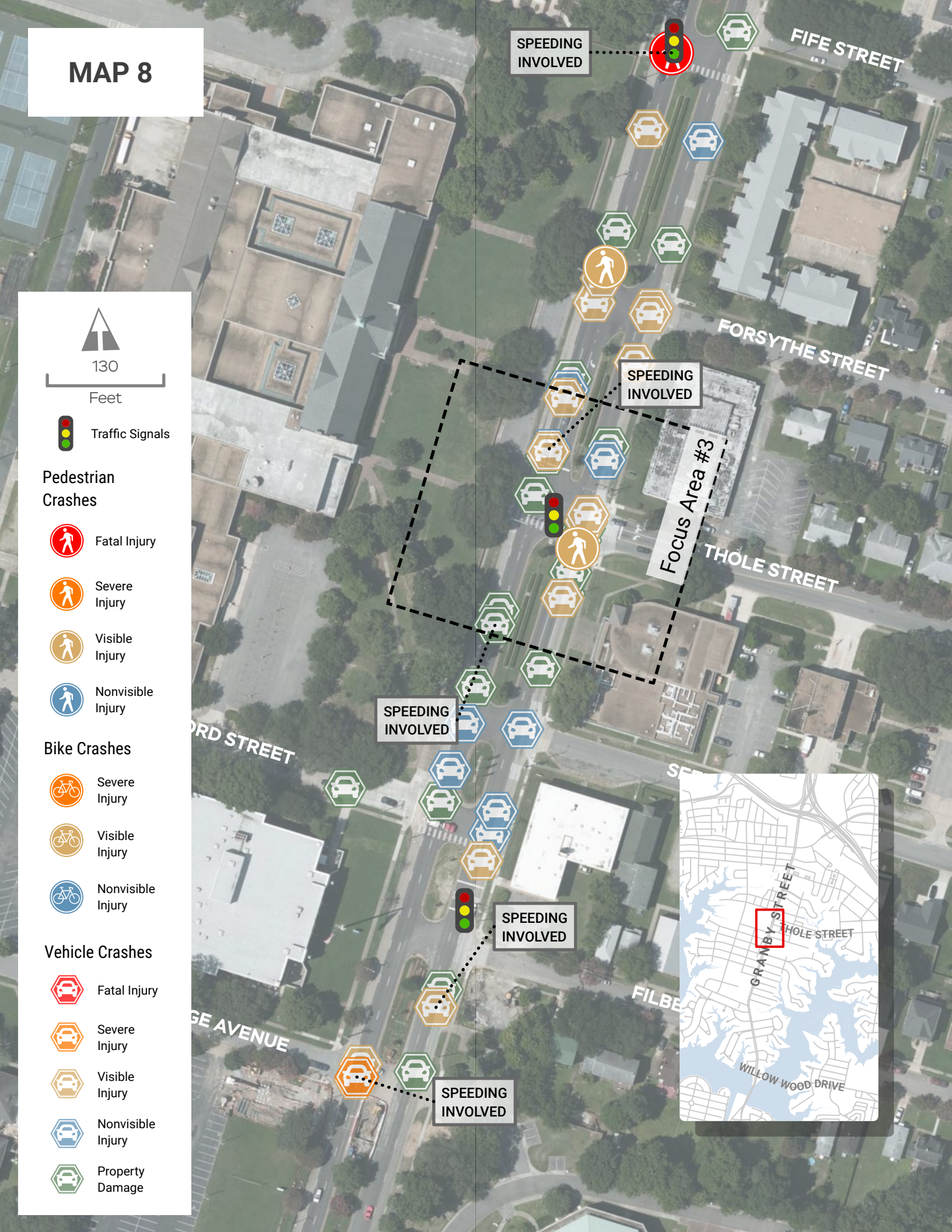

MAP 4
TERMINAL BOULEVARD
TIMOTHY AVENUE
MEADS ROAD
NESBITT DRIVE
DORIS DRIVE
RESTMERE ROAD
BIRMINGHAM AVENUE
BRADFORD AVENUE
PATROL ROAD
INTERSTATE 564
INTERSTATE 64
FORT WORTH AVENUE
SAN ANTONIO BOULEVARD
EAST GLEN ROAD
GRANTHAM ROAD
RUTHVEN ROAD
W LITTLE CREEK ROAD
VICTORY DRIVE
BURLEIGH AVENUE
MAYCOX AVENUE
NORTH SHORE ROAD
COLONY POINT ROAD
MILLBROOK ROAD
NEWPORT AVENUE
MARCY STREET
GRANBY PARK
HARVARD STREET
YORKTOWN DRIVE
ADMIRAL TUSSIG BOULEVARD
WACO STREET
NAVAL BASE ROAD
DRAPER DRIVE
VIRGINIAN DRIVE
SUBURBAN PARKWAY
GALVESTON BOULEVARD
CARL STREET
KIRBY CRESCEN
MIDFIELD STREET
OXFORD STREET
BRACKENRIDGE AVENUE
SINCLAIR STREET
OAK GROVE ROAD
CARLISLE WAY
TALBOT HALL ROAD
FILBERT STREET
THOLE STREET
BLAKE ROAD
NORTH BLAKE ROAD
SIR OLIVER ROAD
PAINTER STREET
KINGSLEY LANE
RIDGELEY ROAD
RIVER ROAD
NEWPORT AVENUE
DOVER CIRCLE
REGENT ROAD
HARMOTT AVENUE
MAYFLOWER ROAD
1000
Feet
Bike Crashes
Severe Injury
Pedestrian Crashes
Fatal Injury
Severe Injury
Vehicle Crashes
Fatal Injury
Severe Injury

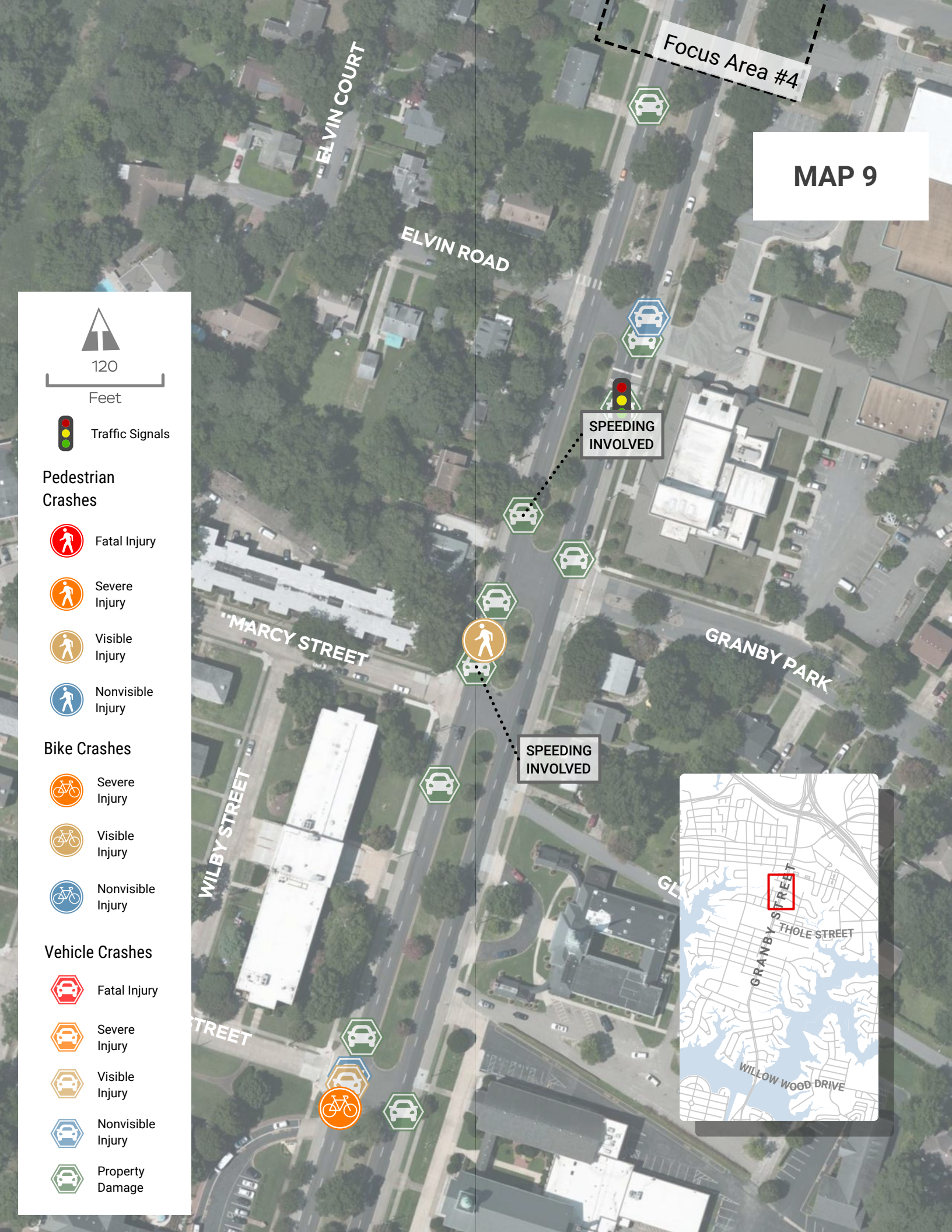

MAP 5
ROVE COURT
Focus Area #
WILLOW WOOD DRIVE
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
60
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE


MAP 6
SPEEDING INVOLVED
SOUTH RIDGELEY ROAD
WINDHAM ROAD
DOVER CIRCLE
BELVEDERE ROAD
ST BELVEDERE ROAD
E SEVERN ROAD
W SEVERN ROAD
SPEEDING INVOLVED
W ARDEN CIRCLE
SOUTH ARDEN CIRCLE
ORCHARD STREET
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE
190
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage


MAP 7
75
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
BEVERLY AVENUE
AFTON AVENUE
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE


SINCLAIR STREET
OAK GROVE ROAD
BLAKE ROAD
CARLISLE WAY
SIR OLIVER ROAD
TALBOT HALL ROAD
FAYTON AVENUE
HITING STREET
ELW
DUMON
CONWAY
Focus Area #2
175
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE
MAP 8

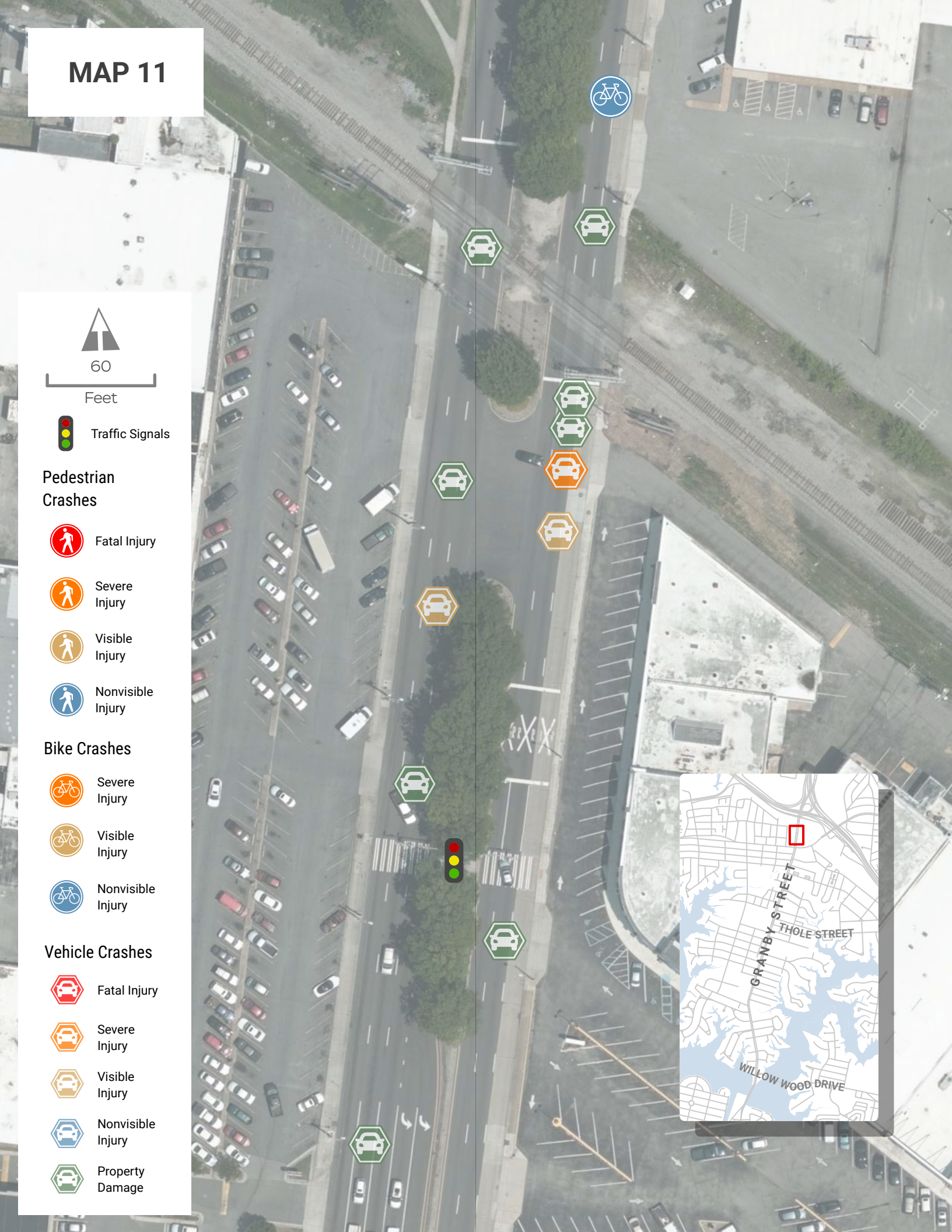

MAP 8
130
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
Focus Area #3
FIFE STREET
FORSYTHE STREET
THOLE STREET
GRANBY STREET
WILLOW WOOD DRIVE

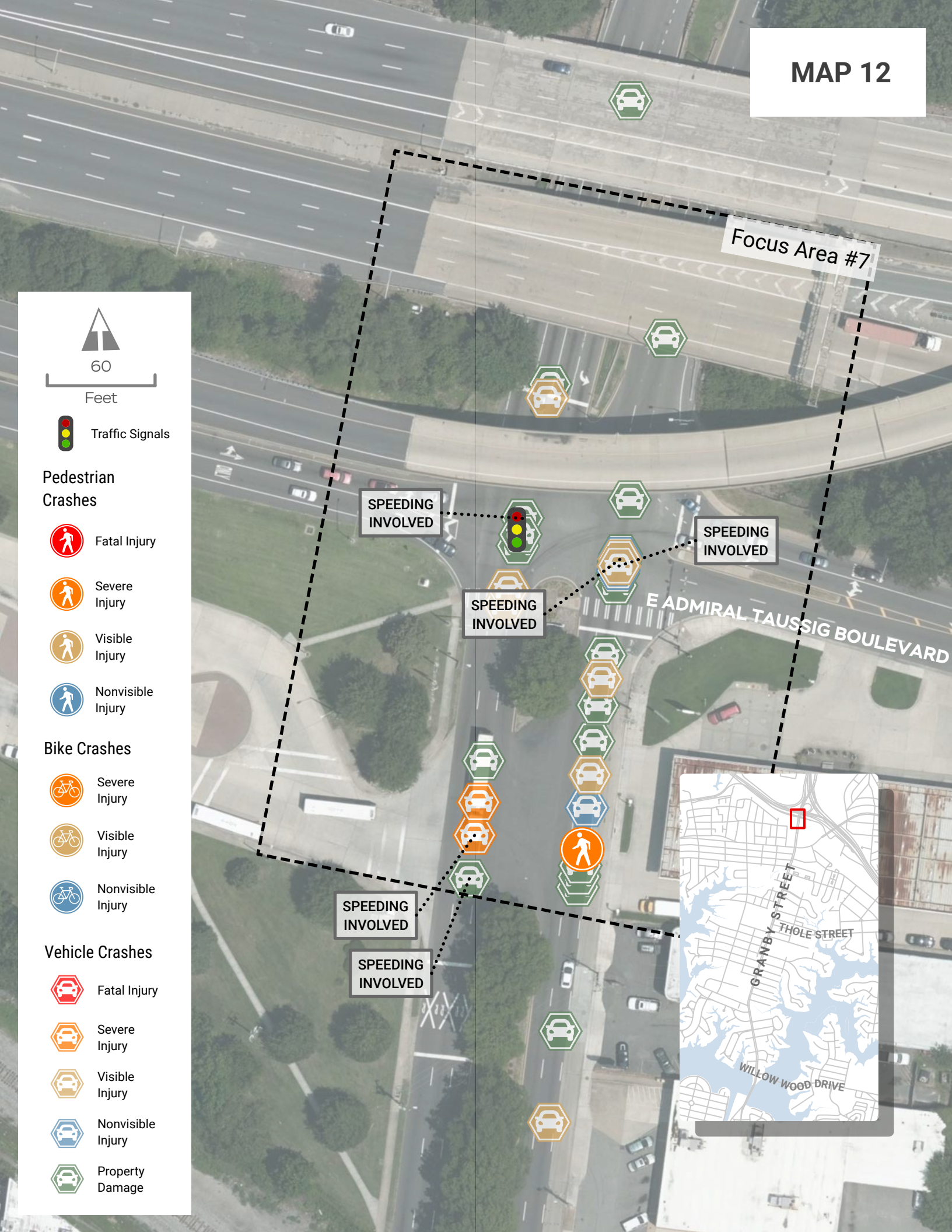

Focus Area #4
MAP 9
ELVIN COURT
ELVIN ROAD
SPEEDING INVOLVED
SPEEDING INVOLVED
MARCY STREET
GRANBY PARK
WILBY STREET
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE
120
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage


MAP 9
MAYCOX AVENUE
LOUISIANA DRIVE
ORE ROAD
CROMWELL PARKWAY
SUBURBAN PARKWAY
SPEEDING INVOLVED
Focus Area #5
Focus Area #4
75
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE


MAP 10
40
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
SPEEDING INVOLVED
E LITTLE CREEK ROAD
Focus Area #6
Focus Area #5
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE

MAP 11


60
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE


MAP 12
Focus Area #7
60
Feet
Traffic Signals
Pedestrian Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Bike Crashes
Severe Injury
Visible Injury
Nonvisible Injury
Vehicle Crashes
Fatal Injury
Severe Injury
Visible Injury
Nonvisible Injury
Property Damage
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
SPEEDING INVOLVED
E ADMIRAL TAUSSIG BOULEVARD
GRANBY STREET
THOLE STREET
WILLOW WOOD DRIVE