

UPPER JOURNAL SQUARE

ROAD SAFETY AUDIT

Jersey City, Hudson County, New Jersey

REPORT

>> December 2015

RSA facilitated by the Transportation Safety Resource Center (TSRC) at the Rutgers' Center for Advanced Infrastructure and Transportation (CAIT) in partnership with the North Jersey Transportation Planning Authority (NJTPA) and Hudson County, with funding provided by FHWA and NJDOT

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>> INTRODUCTION

WHAT IS AN ROAD SAFETY AUDIT (RSA)?

CAIT's Transportation Safety Resource Center (TSRC) offers a statewide Road Safety Audit (RSA) service at no charge to New Jersey towns and counties. Interested parties can request RSA surveys conducted by a team of engineers, planners, and law-enforcement officers to help municipalities and counties make cost-effective safety improvements.

A multidisciplinary team of professionals offers assessments on roadway issues such as pedestrian and bicycle safety, intersection analyses, rural roads, human factors, speed management, and sign visibility and retroreflectivity standards.

RSAs include data-driven considerations and analysis of crashes. To determine the best safety solutions, RSA professionals perform incisive crash data evaluations on the target area using Plan4Safety, TSRC's award-winning crash database and software.

The RSA team provides a final report that includes long- and short-term countermeasure recommendations that fit within the requestor's budget. Furthermore, RSAs pay off. According to the Federal Highway Administration (FHWA), countermeasures applied after RSAs can reduce crashes by about 60 percent.

For more information, contact Andy Kaplan, Safety Program Manager, at andy.kaplan@rutgers.edu.

DISCLAIMER

A Road Safety Audit report provided by the Center for Advanced Infrastructure and Transportation staff does not constitute an engineering report. The agency responsible for design and construction should consult a professional engineer licensed in the State of New Jersey in preparing construction documents to implement any of the safety countermeasures in the report.

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The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the New Jersey Department of Transportation or the Rutgers Center for Advanced Infrastructure and Transportation. This report does not constitute a standard, specification, or regulation. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The US government assumes no liability for the contents or use thereof.

EXECUTIVE SUMMARY

A Upper Journal Square road safety audit (RSA) was conducted along JFK Boulevard from Pavonia Avenue to St. Paul's Avenue on April 28, 2015. The RSA is a continuation the 2014 Journal Square RSA for Hudson County. A section of the corridor lies within NJTPA's highest-ranked pedestrian corridor and two of the intersections have high "spot" rankings.

Journal Square area is a high-traffic zone for car, bus, rail, foot, and bicycle traffic alike due to its proximity to the Pulaski Skyway, its PATH station, and areas of commercial, office and residential zones. Vehicular traffic is especially high during the morning and afternoon rush hours.

The corridor's cross section varies, but is generally 2 lanes wide in each direction with curbside parking north of Van Winkle Avenue/Brooks Place. South of the intersection, a third southbound lane is added. At Pavonia Avenue, a fourth lane is added southbound and a third lane from the south terminates. Of the six intersections in the RSA corridor, Van Reipen Avenue is the only unsignalized intersection. Sidewalks exist along the entirety of the corridor, though there are no bicycle facilities.

The following crashes were overrepresented:

- Temporal: morning and evening rush hours, several weekdays, September – February
- Type: Same direction (both rear end and side swipe), Left turn/u-turn, and Pedestrian
- Conditions: Daylight; Wet surfaces

The following general issues were observed:

- Maintenance deficiencies, such as faded pavement markings and abandoned foundations
- Pedestrian facilities, including lack of consistent ADA facilities and a history left-turn vehicle-pedestrian crashes
- Lack of cyclist facilities
- Traffic operations, including illegal parking in travel lanes and aggressive driving

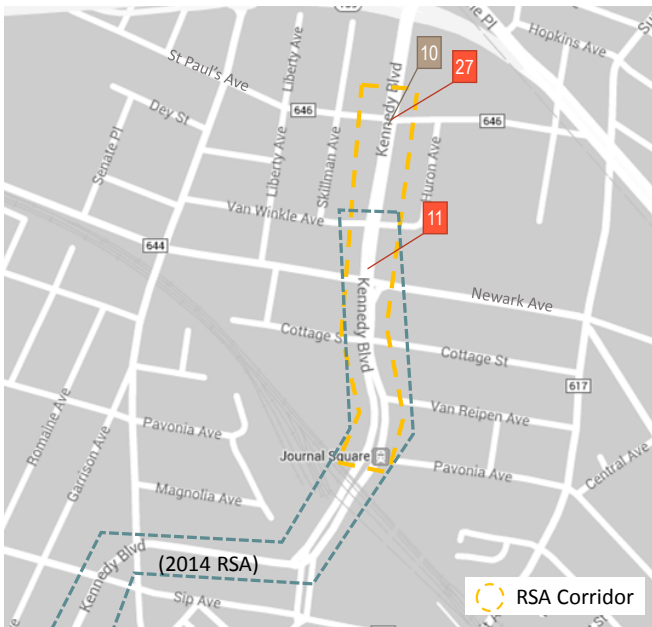
Recommendations include the following:

- Upgrade pedestrian facilities
- Repaint pavement markings
- Install in-street cyclist facilities or alternative marked routes
- Install edgelines

Other intersection-specific intersections are also listed with accompanying diagrams. Many of intersection-specific recommendations included installing pedestrian refuge islands or curb extensions, and extending the planted median from south of the corridor.

>> 1.0 CORRIDOR DESCRIPTION AND ANALYSIS

1.1 SITE SELECTION



Symbol	Safety Focus	Hudson County Ranking	NJTPA Ranking
	Intersection Spot	#10	#60
	Pedestrian Spot	#11; #27	#44; #86
	Pedestrian Corridor	#1	#1

Figure 1 – Identified Priority High Crash Locations

The Upper Journal Square RSA is a continuation of the Journal Square RSA* conducted in September 2014 along the same corridor, Kennedy Boulevard. The Upper Journal Square RSA began at the intersection of Pavonia Avenue and continues north to the intersection of St. Paul's Avenue.

The Upper Journal Square RSA is located in the northern section of the NJTPA's highest ranked pedestrian corridor. There are two pedestrian "spots," the Hudson County #11-ranked spot at the Newark Avenue intersection and the Hudson County #27-ranked spot at the St. Paul's Avenue intersection. The St. Paul's Avenue intersection is also the location of Hudson County's #10-ranked "intersection" spot.

Because the RSA is located in a pedestrian corridor, the entirety of the Pavonia Avenue to St. Paul's Avenue segment was analyzed during the RSA.

1.2 TRAFFIC VOLUMES

The most recent and geographically-close traffic counts for Kennedy Boulevard are 0.85 miles south of the Pavonia Avenue intersection, at Duncan Avenue, where there were approximately 19,000 vehicles a day. Anecdotally, the area is heavily congested during peak hours. According to locals, off-peak hours and weekends the is noticeably less-congested.

It was observed that foot traffic is quite heavy, especially on weekends near the commercial enterprises on Newark Avenue and Sundays near the church at northeast corner of the Pavonia Avenue intersection.

Significant bicycle traffic was observed as well. There are no recorded counts, though based on the heavily-utilized bike rack at the Journal Square station, it would seem that there is a sizable population that bike commutes to the station.



Figure 2 – Bike parking at PATH

*The 2014 RSA at Journal Square ran from Bergen Avenue to Sip Avenue. There was also a 2013 RSA further south along Kennedy Boulevard from Montgomery Street to Communipaw Avenue.

1.3 TRANSIT SERVICE

Nearly half of Jersey City residents rely on public transportation for their work commute. The Journal Square area has high public transit use due to its proximity to the PATH station. Many people use the Kennedy Boulevard corridor to walk, bicycle or bus to the PATH station. There are also many through-routes that connect the Journal Square area to the rest of Jersey City and the surrounding region. Running the entire length of the corridor are three NJ Transit buses, as well as two lines that travel northbound until Newark Avenue where they turn to travel eastbound.

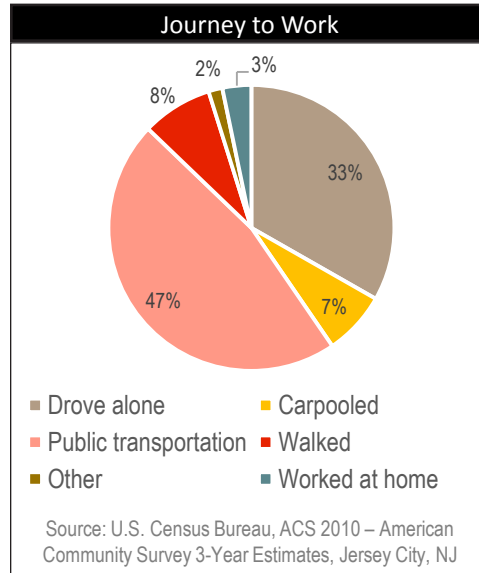


Figure 3 – Journey to Work



Figure 4 – Area Bus Transit

At least five other bus lines also pass through the Pavonia Avenue intersection to pick up passengers at the Journal Square bus terminal.

Jersey City’s modal split differs greatly from the rest of New Jersey. At the state level, 11 percent of people commute via public transit, and over 70 percent drive alone, whereas in Jersey City, nearly one-half of people use public transit and only one-third drive alone.¹ The increased frequency of workers using public transit has many implications for the transportation network, but in terms of safety, it is important to understand that transit users are also typically pedestrians for a time, especially near a large transit hub like Journal Square. When added to the actual number of people who walk to work, we see that Jersey City has over half of its population traveling by foot at some point in their daily commute to work. This high number of pedestrians does not account for all of the students who walk or take the bus to the area’s various primary and secondary schools, colleges, universities, and institutes.

1.4 AREA CHARACTERISTICS

The Journal Square area of Jersey City is centered around the Port Authority’s Journal Square PATH station. The main thoroughfare is Kennedy Boulevard, also known as county road 501. Kennedy Boulevard runs continuously for approximately 12.5 miles from Bayonne northwards to North Bergen. Journal Square is bordered by the Pulaski Skyway/Route 139/Routes 1 & 9 north and east of the study area.

The neighborhood is mostly residential on the side streets with smaller commercial units along Kennedy Boulevard and Newark Avenue. Kennedy Boulevard takes on a more neighborhood mixed use character north of Van Winkle Avenue with preservation zones beginning northeast of Van Winkle with the St. John the Baptist Church and Golden Door Charter School. Northwest of St. Paul’s Avenue is another preservation zone in which Public School #31 is located. At the southern end of the corridor, there is high density office space at the Pavonia Avenue intersection as well as the well-attended Jersey City Assembly Hall of Jehovah’s Witnesses church.

Complete Streets: Both Jersey City and Hudson County have established Complete Streets policies that support safe and accessible roads for all users, including pedestrians and cyclists. The 2008 Hudson County Master Plan also explicitly supports pedestrian and bicycle facilities in their Circulation Goals 10 and 11:

Goal 10: To promote a pedestrian-first approach in downtown areas.

Goal 11: To provide pedestrian and bicycle access along all roadways, particularly those roads that lead residents to job centers.

¹ Hudson County Reexamination of the Master Plan. p. 34 http://www.hudsoncountynj.org/wp-content/uploads/2013/06/Hudson_County_Master_Plan_Reexamination_Report_2008.pdf

Sidewalks exist along the entirety of the corridor.

In terms of bicycle accommodations Journal Square Area has noticeably fewer facilities than parts of Jersey City north and east of the neighborhood, as seen in figure 5. On-road facilities are proposed on Summit Avenue, the street immediately east of Kennedy Boulevard, though as of yet, nothing has been constructed.

In terms of transit, the Journal Square 2060 Plan Circulation Map shows that Kennedy Boulevard operations may someday include a streetcar, street widening on Pavonia Avenue and an expanded pedestrian area over the rail tracks.

Incoming developments: Journal Square will be home to several new residential and commercial buildings in the next several years. For example, phase one of the 1,840-unit Journal Squared complex is expected to be completed in mid-2016. New residential developments will especially impact traffic patterns, creating an increase in the number of pedestrians during non-peak hours (as compared with the current abundance of daytime commuters). Furthermore, Jersey City seeks to become more sustainable, encouraging transit-friendly development and “[...] reducing parking to limit traffic congestion and effects on air quality, requiring bicycle parking and wider sidewalks to limit automobile use, and promote alternative modes, requiring retail uses along pedestrian corridors to create an enjoyable and safe neighborhood environment...”² The ideas are supported in the recommendation of the RSA team.

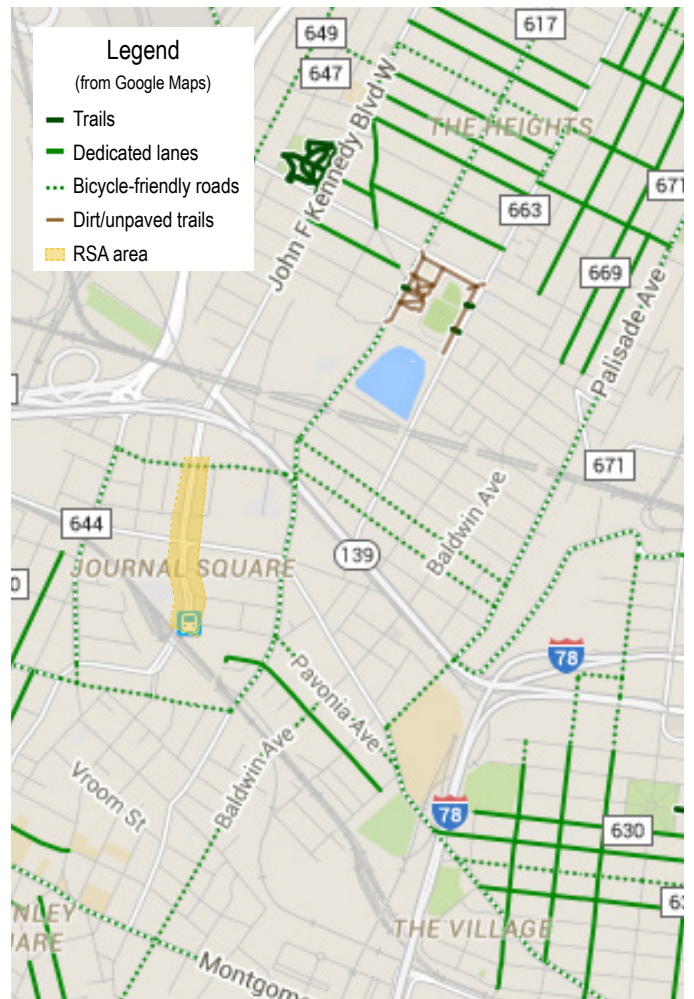


Figure 5 – Excerpt of Google Maps bike facilities

² “Journal Square 2060 Redevelopment Plan.” City Planning Division, Jersey City, July 2010, p. 2.

1.5 INTERSECTION CHARACTERISTICS



St. Paul's Ave. & Kennedy Blvd.

- Signalized
- North leg: 1 right-turn lane, 2 through lanes, 1 left-turn lane, 2 receiving lanes.
- East leg: Curbside parking on both sides, 1 through/right/left-turn lane, 1 receiving lane.
- South leg: Curbside parking on both sides. 1 left-turn, 1 through lane, 1 through/right-turn lane, 2 receiving lanes.
- West leg: 1 left-turn lane, 1 through/right-turn lane, 1 receiving lane.

Van Winkle/Brooks Pl. and Kennedy Blvd.

- Signalized
- North leg: Curbside parking lanes north/southbound, 1 through lane, 1 through/left-turn lane, 2 receiving lanes
- East leg: Curbside parking lanes east/westbound, single lane for through and left/right turns, 1 receiving lane
- South leg: 3 receiving lanes, a painted median at intersection, 1 through lane, 1 through/right-turn lane. Bus stop on east side.
- West leg: Eastbound only. 1 left-turn lane, 1 through/right turn lane.



Newark Ave. & Kennedy Blvd.

- Signalized
- North leg: 2 through lanes, 1 through/right-turn lane, 1 left-turn lane, 2 receiving lanes.
- East leg: 1 through/right-turn lane, 1 left-turn lane, 1 receiving lane. Curbside parking on south edge.
- South leg: 2 through lanes, 1 right-turn ramp lane, 1 left-turn lane, 3 receiving lanes.
- West leg: 1 through/right-turn lane, 1 left turn lane, 1 receiving lane, curbside parking on north edge.

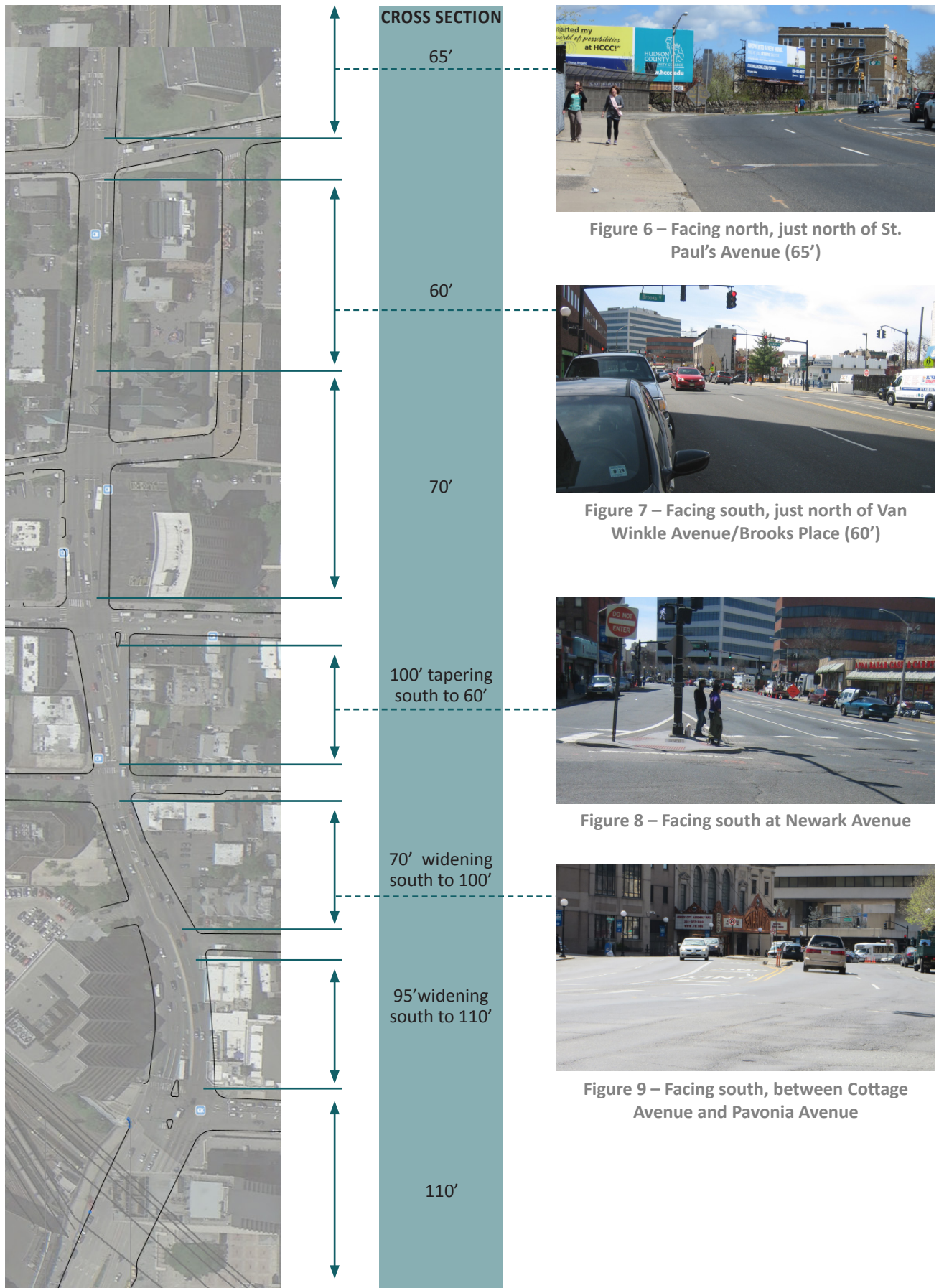
Cottage St. & Kennedy Blvd.

- Signalized
- North leg: 2 through lanes, 1 through/right-turn lane, painted median, 2 receiving lanes.
- East leg: Westbound only. 1 through/right-turn lane, 1 left-turn lane, curbside parking on south side.
- South leg: 2 through lanes, 1 left-turn lane, 3 receiving lanes.
- West leg: 1 left-turn lane, 1 right-turn lane, 1 receiving lane, 1 curbside parking lane on north side.

Pavonia Ave. & Kennedy Blvd.

- Signalized
- North leg: 4 southbound through lanes, 1 left-turn lane, 1 median refuge island, 3 northbound through lanes.
- East leg: 1 right-turn lane, 1 through/left-turn lane, 1 left-turn lane.
- South leg: 4 receiving lanes, 1 left-turn/u-turn lane, 1 refuge island, 3 through lanes, 1 right-turn lane
- West leg: Driveway to office building parking.

1.6 CROSS SECTIONS



>> 2.0 CRASH FINDINGS

2.1 TEMPORAL TRENDS

In terms of time of day (figure 8), crashes were over-represented during the 8 to 9 o'clock AM hours, the noon hour, and between 3 and 8 p.m. Crashes occurred most frequently on Tuesdays, Wednesdays and Fridays with below-average representation over the weekend (figure 9). The time of day patterns and day of week crashes correlate slightly with the rush hour, weekday traffic.

When compared with county-wide data, the corridor's three-year crash data had a slight over-representation of crashes occurring in 2012 (figure 10). There was also a slightly higher proportion of crashes occurring between September and February (figure 11).

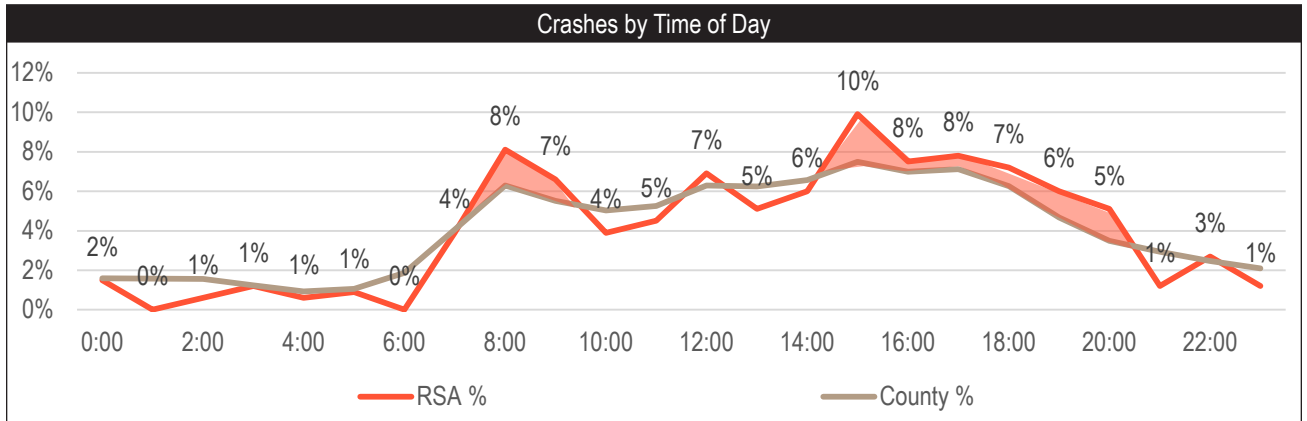


Figure 10 – Crashes by Time of Day

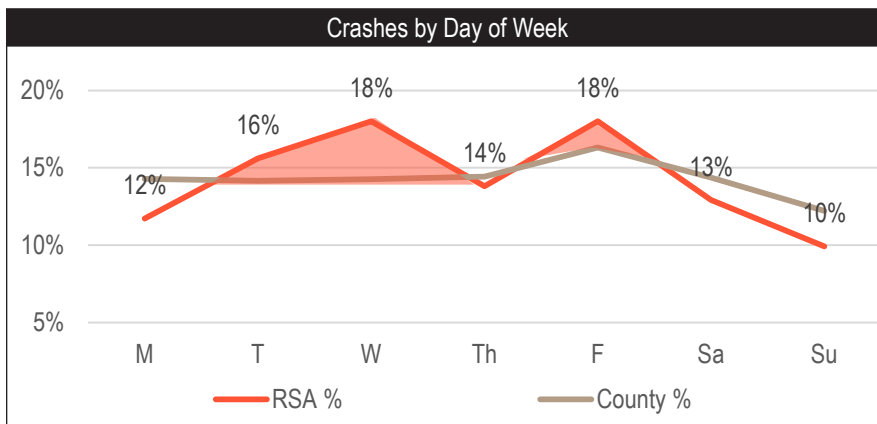


Figure 11 – Crashes by Day of Week

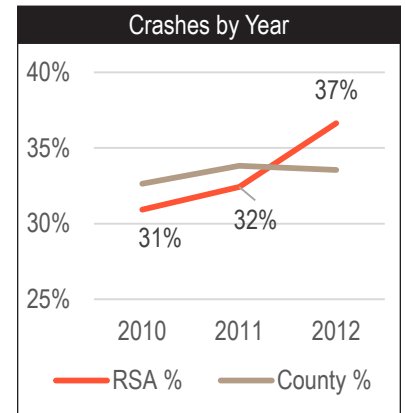


Figure 12 – Crashes by Year

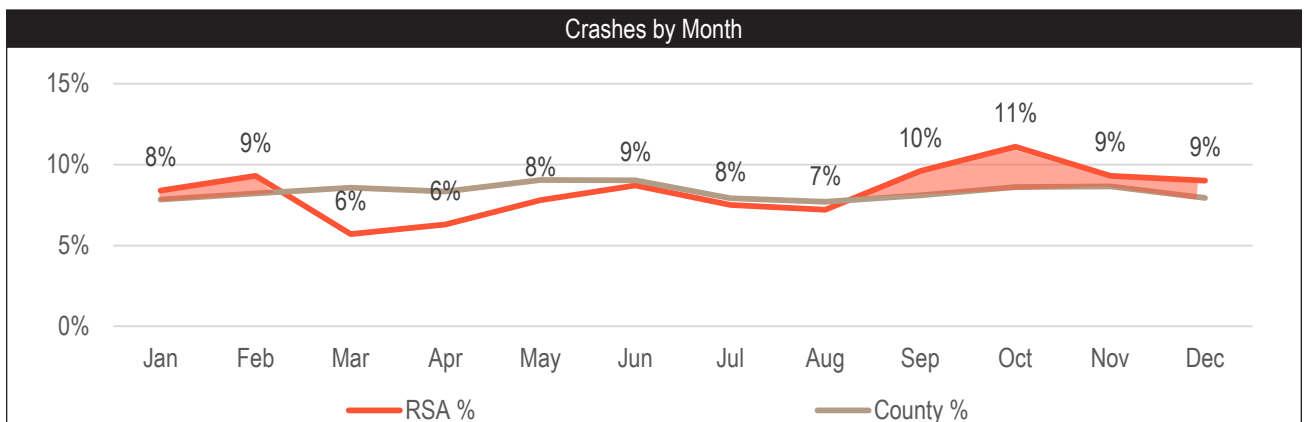


Figure 13 – Crashes by Month

2.2 TYPE & SEVERITY

When looking at crash type trends, the following were found to be over-represented in the dataset when compared with county-wide crash percentages (figure 13):

- Left-turn/U-turn: > 2.5 times more likely
- Same Direction – Rear End: 1.5 times more likely
- Same Direction – Side Swipe: 2.2 times more likely
- Pedestrian: 1.6 times more likely

In terms of injury trends, the bicycle/pedestrian crashes were the most severe. Every single bicycle or pedestrian crashes resulted in an injury, whereas at the county level, slightly fewer (87%) bicycle or pedestrian crashes resulted in injury.

Crash Type	Count in RSA Area	% in RSA Area	% in Hudson County
Same Direction – Rear End	89	27%	18%
Same Direction – Side Swipe	118	35%	16%
Right Angle	12	4%	15%
Opposite Direction – Head On/ Angular	3	1%	1%
Opposite Direction – Side Swipe	4	1%	1%
Struck Parked Vehicle	40	12%	28%
Left Turn / U-Turn	15	5%	2%
Backing	12	4%	7%
Encroachment	1	0%	0%
Fixed Object	10	3%	4%
Pedestrian	25	8%	5%
Pedalcyclist	4	1%	1%

Figure 16 – Crash Type in RSA Area

Severity	Pedestrians	Bicyclists	All Crashes
Fatal	1	-	1
Incapacitated	-	-	-
Moderate Injury	5	2	9
Complaint of Pain	19	2	55
Property Damage Only	-	-	268

Figure 14 – Severity

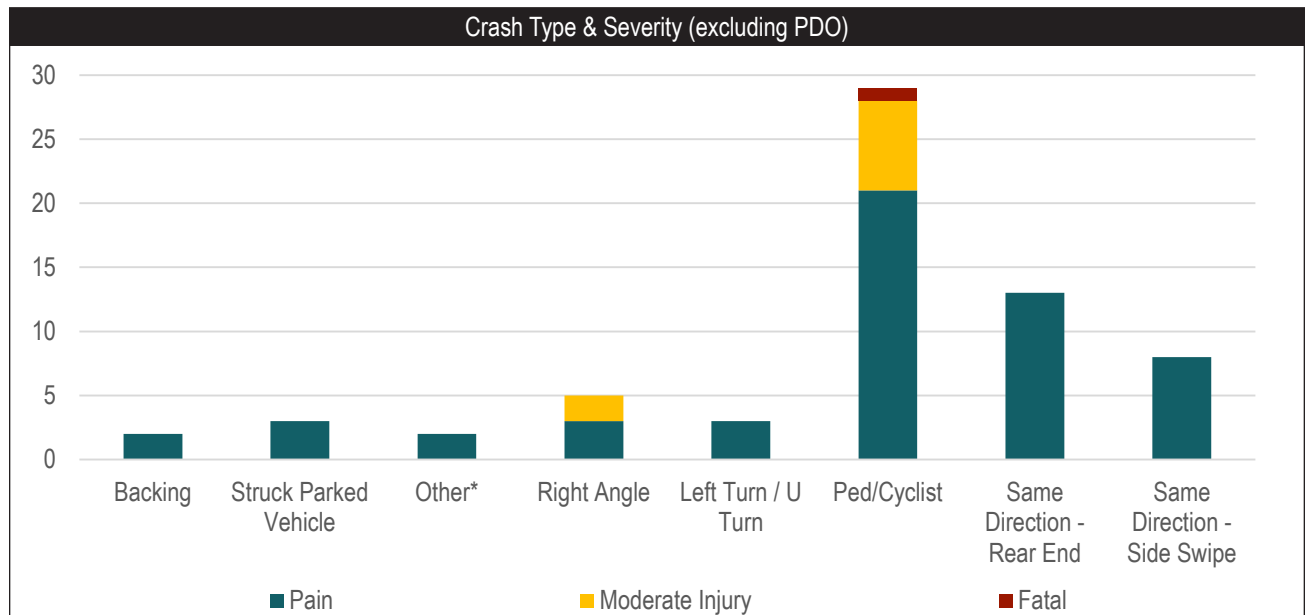


Figure 15 – Crash Type & Severity

*Other includes: Opposite direction, Encroachment, Overturned, Animal, Fixed object, Non-fixed object, railcar-vehicle, and "other"

2.3 ROADWAY SURFACE AND LIGHTING CONDITIONS

Wet roadway conditions, accounted for slightly more crashes than dry roadways when compared to countywide data. Typical contributing factors to wet roadway crashes reduced friction, reduced visibility or obstruction of lanes due to pooling rainwater.

In terms of light condition, crashes tended to occur more predominantly during daylight hours when compared with countywide data, possibly indicating that lighting is not necessarily an issue. The overrepresented percentage of daylight crashes may also be because the roadway experiences more daytime commuter traffic.

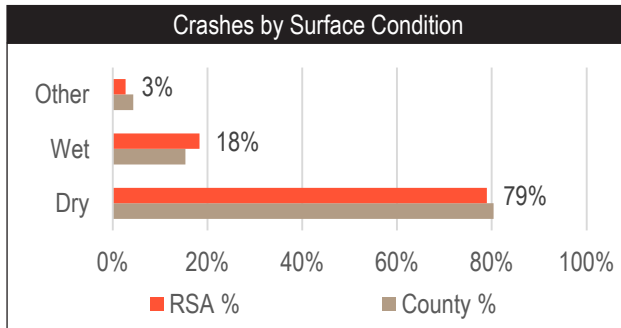


Figure 17 – Crashes by Surface Condition

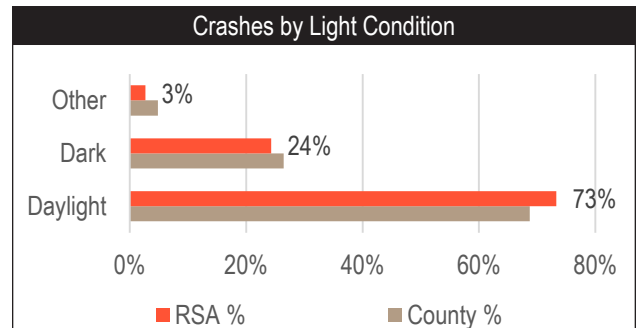
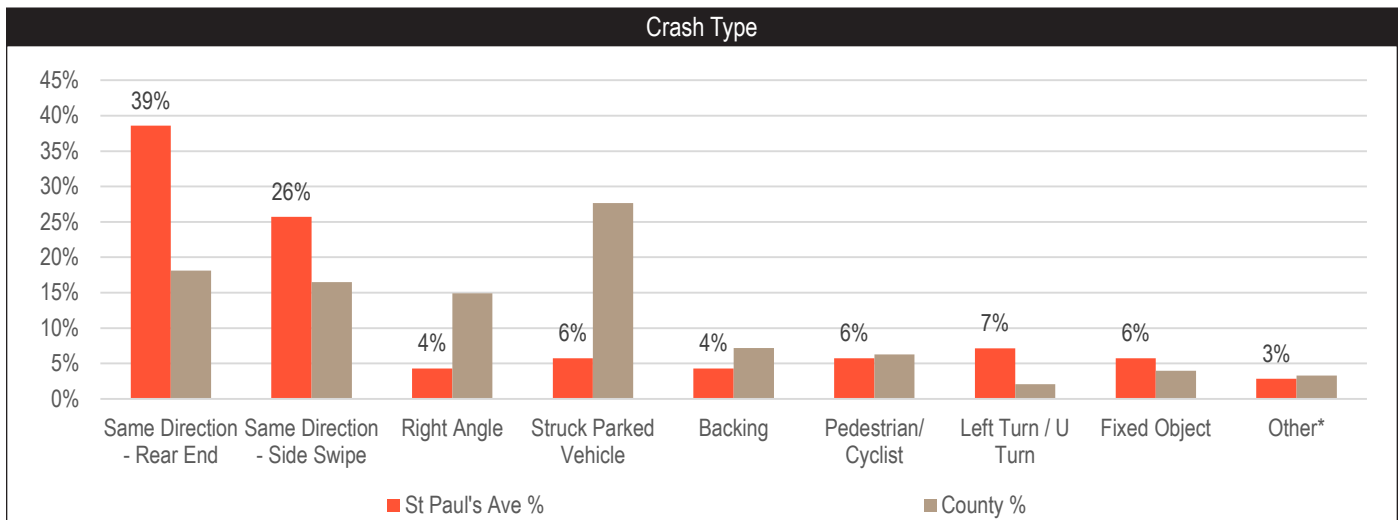
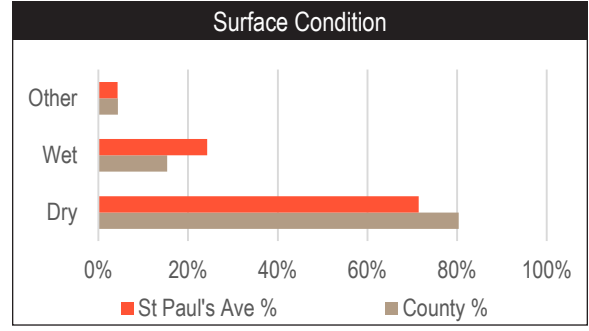
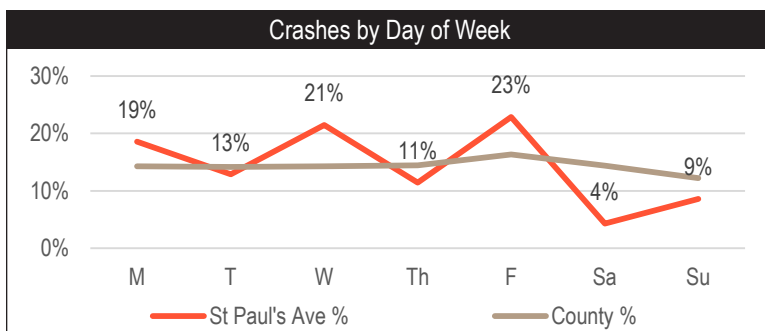
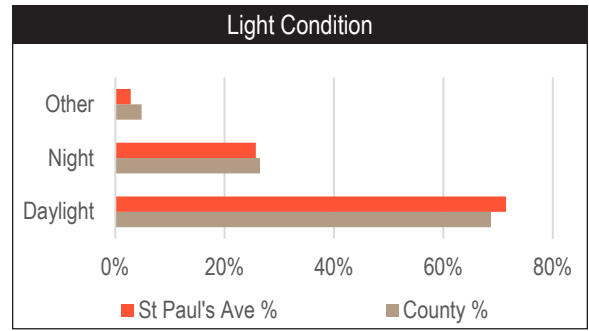
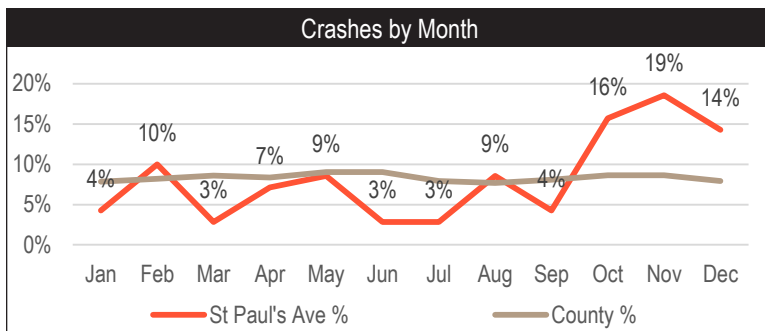
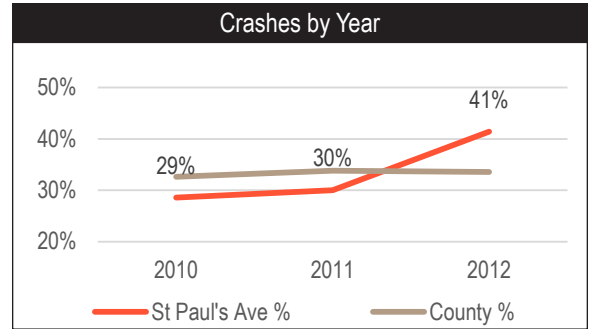
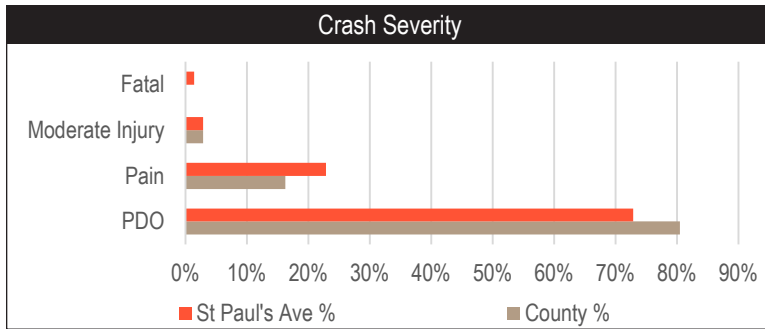


Figure 18 – Crashes by Light Condition

ST. PAUL'S AVENUE

Between 2010 and 2012, there were approximately 23.3 crashes/year. Overrepresented crash characteristics were:

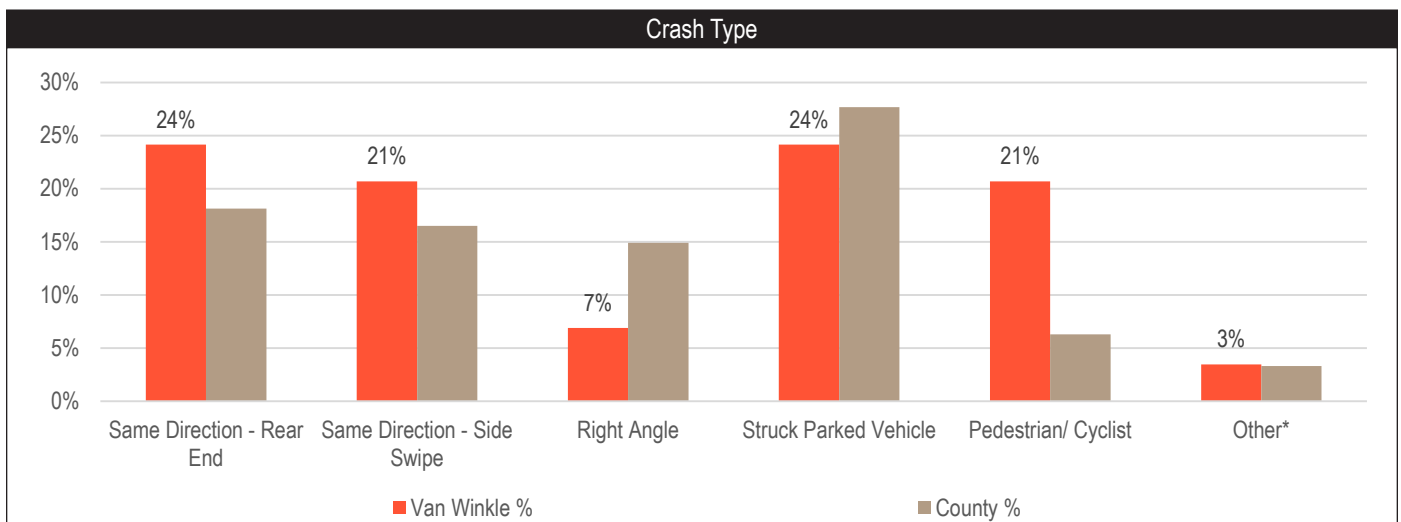
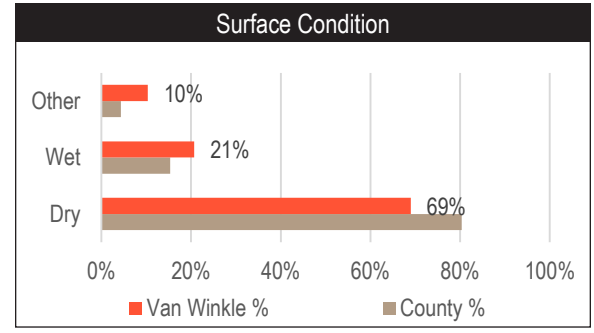
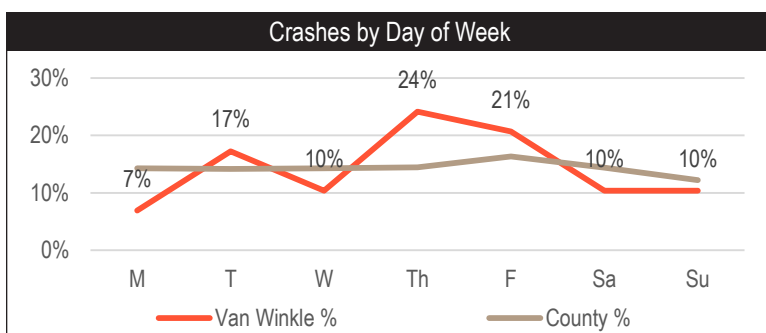
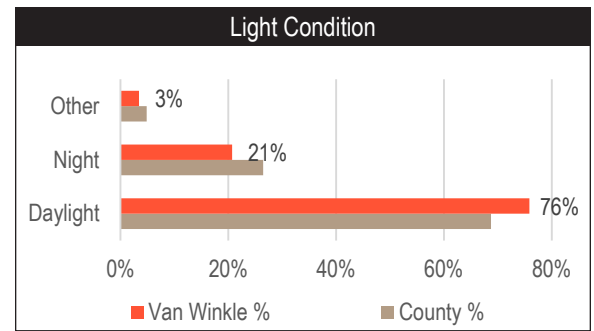
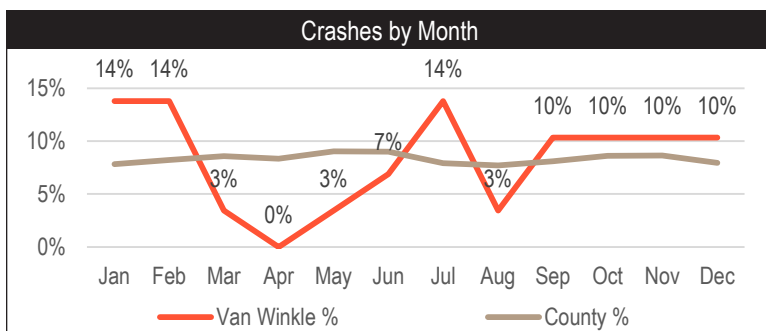
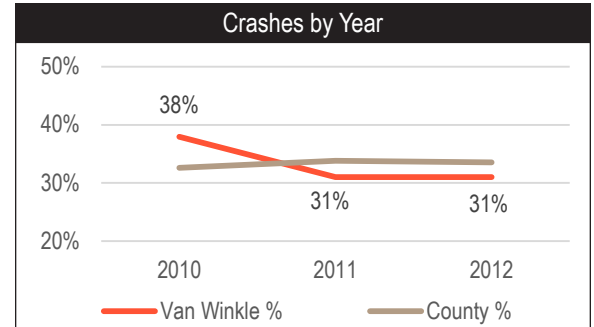
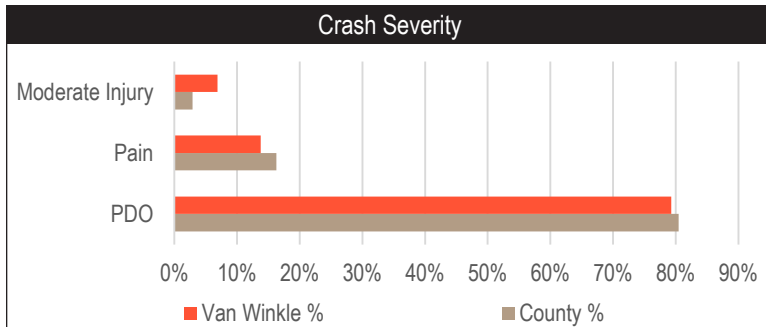
- Severity: Fatal, pain
- Crash month: October – December, February, August
- Day of week: Monday, Wednesday, Friday
- Year: Increasing
- Light condition: Daylight
- Surface condition: Wet
- Crash Type: Same direction (rear end and side swipe), Left/U-turn, Fixed object



VAN WINKLE AVENUE/BROOKS PLACE

Between 2010 and 2012, there were approximately 9.7 crashes/year. Overrepresented crash characteristics were:

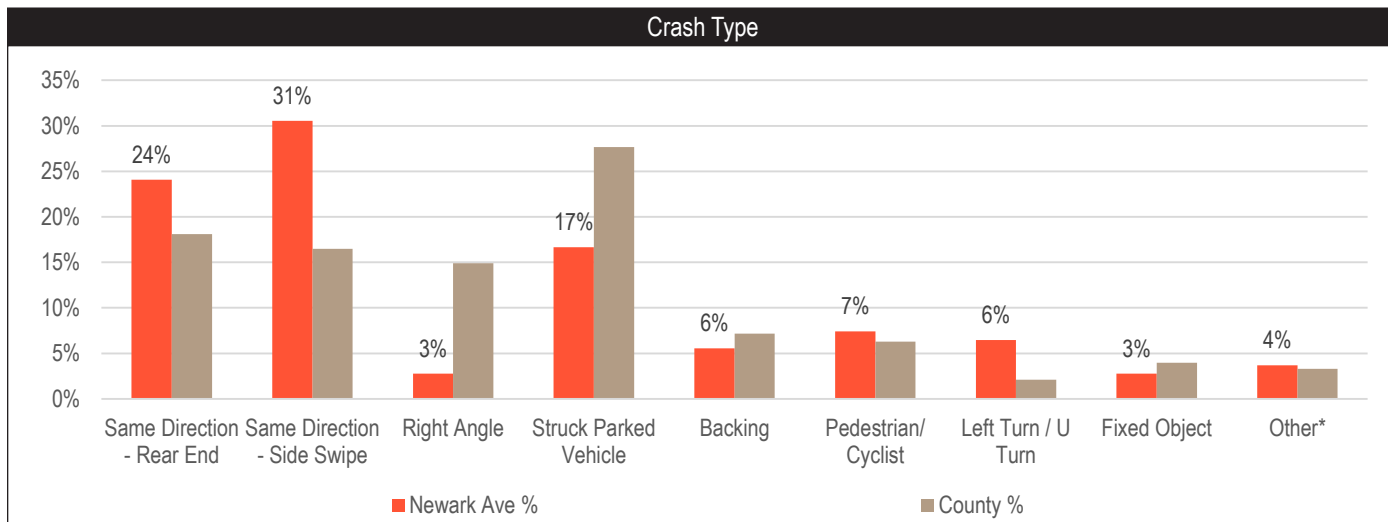
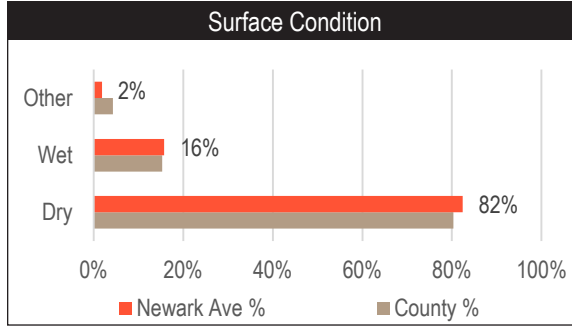
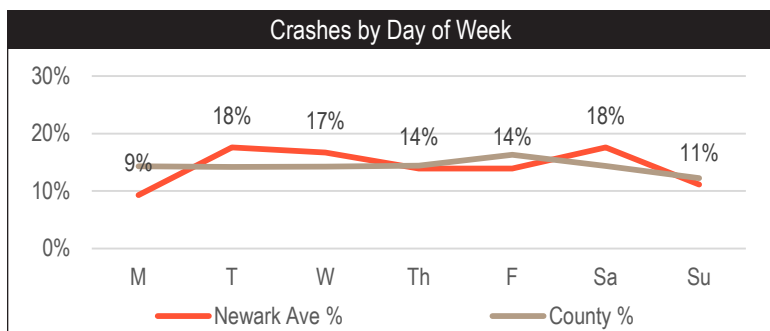
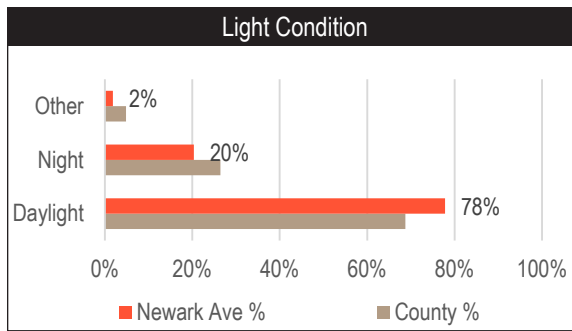
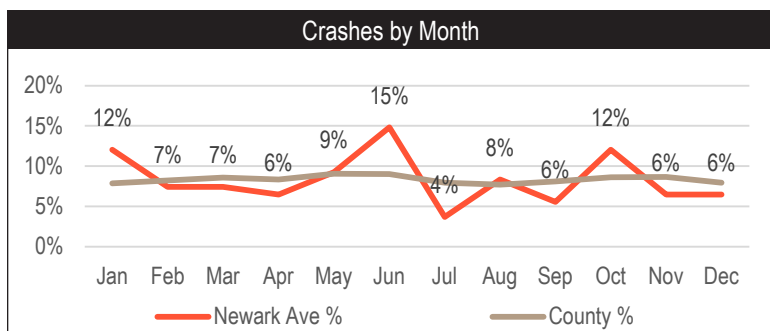
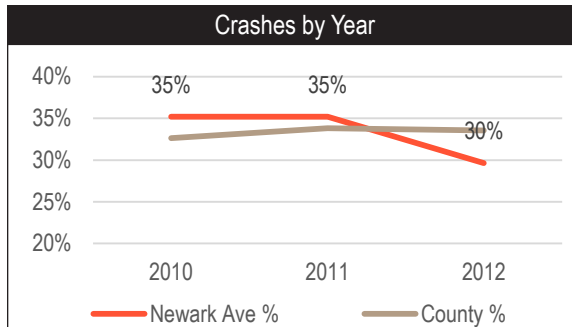
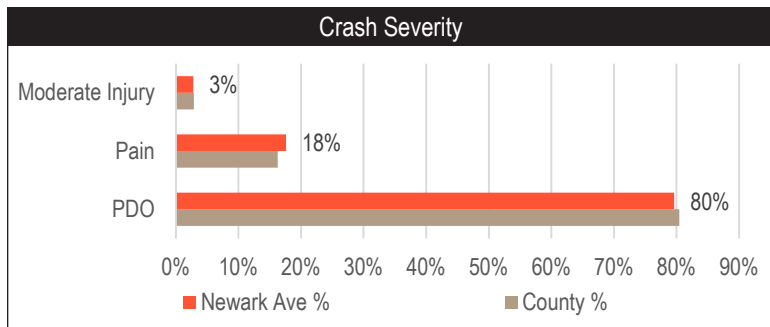
- Severity: Moderate injury
- Crash month: July, September – February
- Day of week: Tuesday, Thursday, Friday
- Year: Decreasing
- Light condition: Daylight
- Surface condition: Wet
- Crash Type: Same direction (rear end and side swipe), Pedestrian/cyclist, Other



NEWARK AVENUE

Between 2010 and 2012, there were approximately 36 crashes/year. Overrepresented crash characteristics were:

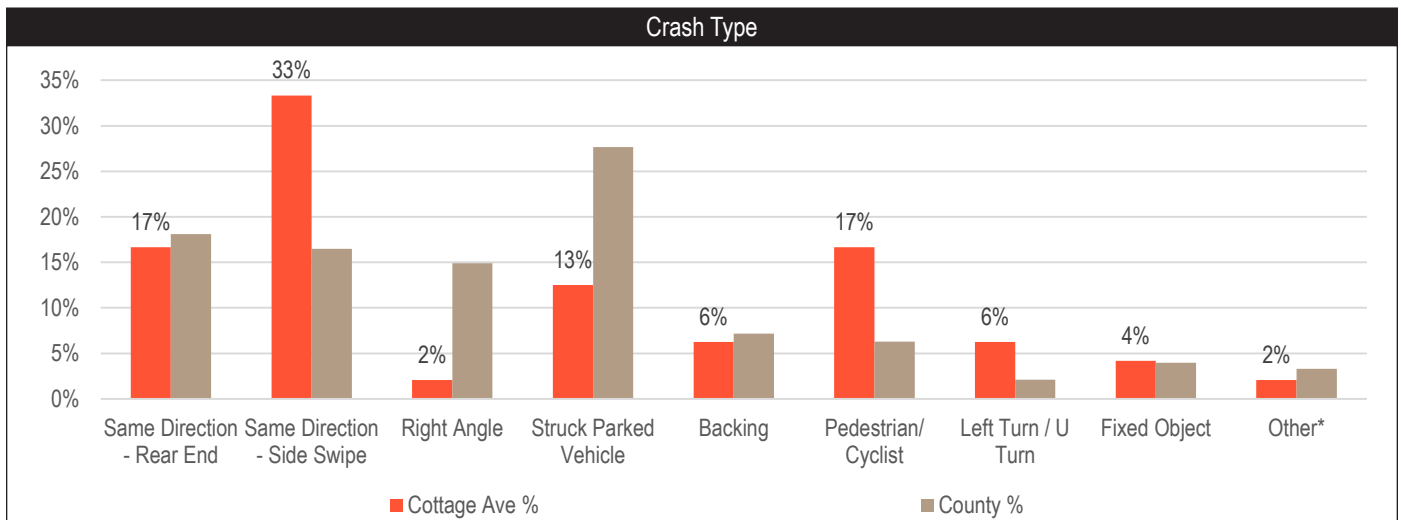
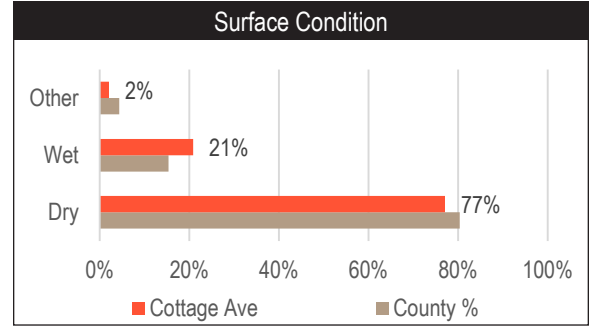
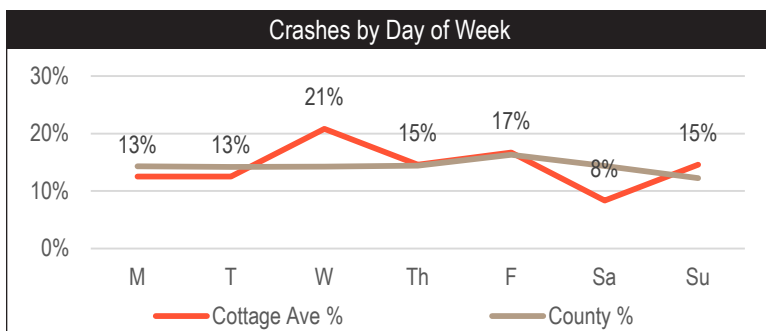
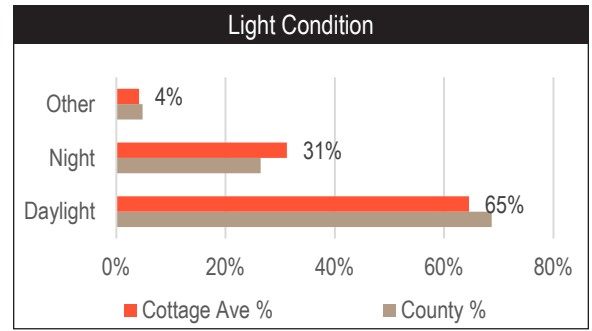
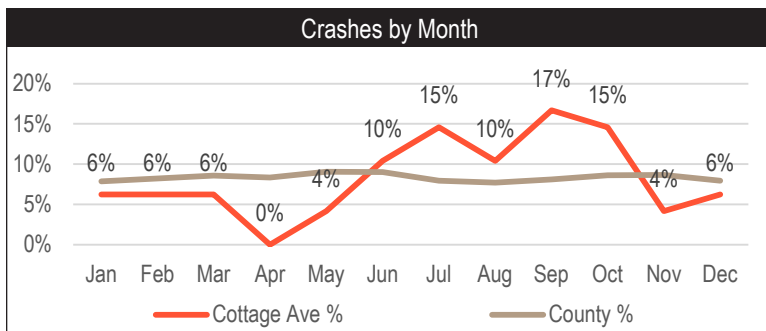
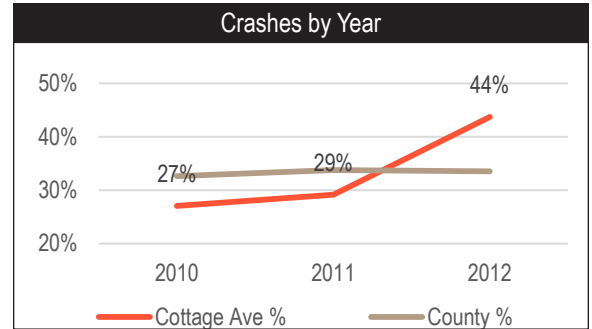
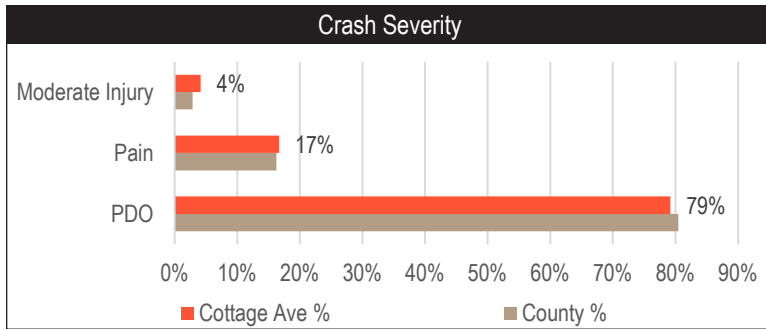
- Severity: Pain
- Crash month: January, June, August, October
- Day of week: Tuesday, Wednesday, Saturday
- Year: Decreasing
- Light condition: Daylight
- Surface condition: Dry
- Crash Type: Same direction (rear end and side swipe), Pedestrian/cyclist, Other



COTTAGE AVENUE

Between 2010 and 2012, there were approximately 16 crashes/year. Overrepresented crash characteristics were:

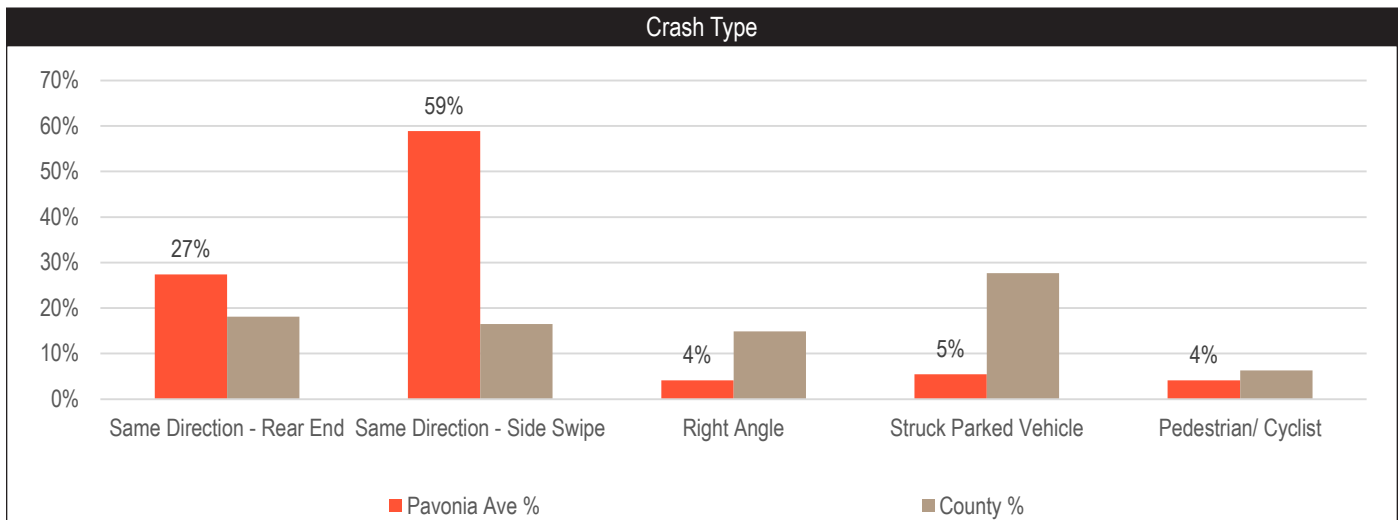
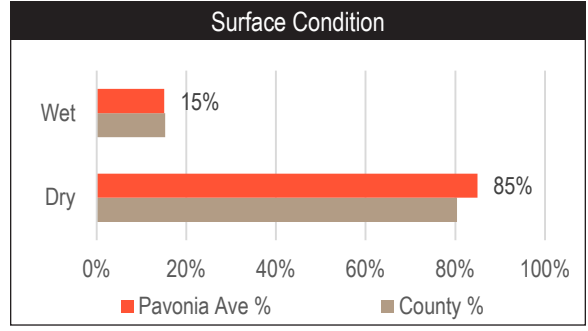
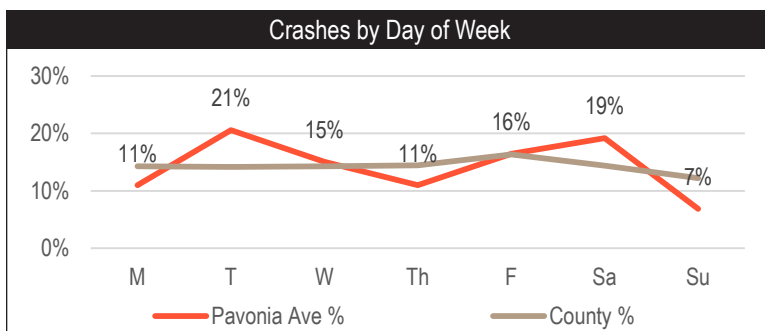
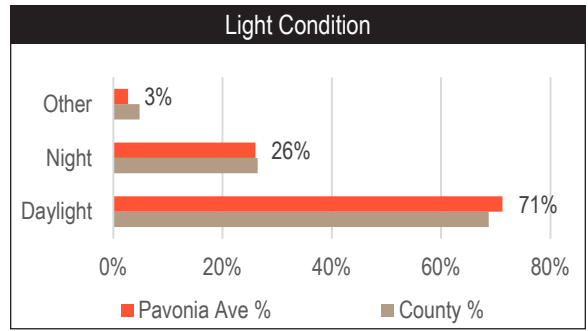
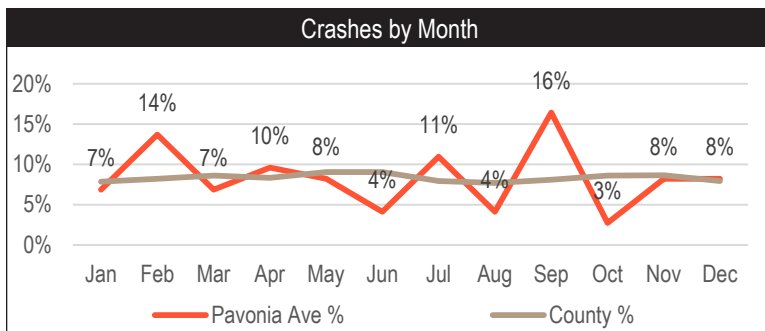
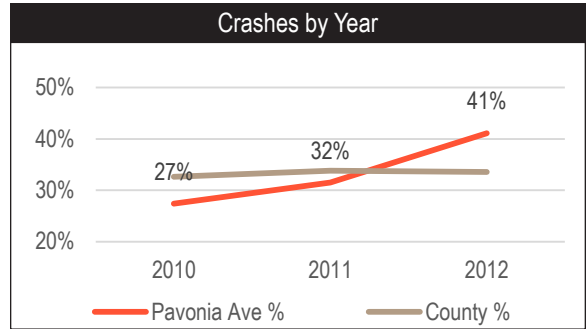
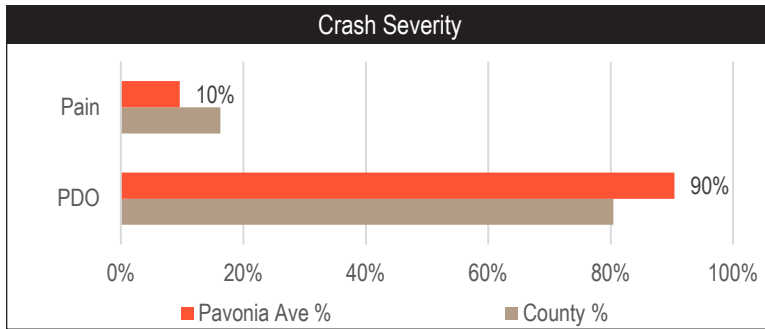
- Severity: Moderate injury, pain
- Crash month: June – October
- Day of week: Wednesday, Sunday
- Year: Increasing
- Light condition: Night
- Surface condition: Wet
- Crash Type: Same direction (side swipe), Pedestrian/cyclist, Fixed object



PAVONIA AVENUE (2010 – 2012)

Between 2010 and 2012, there were approximately 24.3 crashes/year. Overrepresented crash characteristics were:

- Severity: Property damage only (PDO)
- Crash month: February, April, July, September
- Day of week: Tuesday, Thursday, Saturday
- Year: Increasing
- Light condition: Daylight
- Surface condition: Dry
- Crash Type: Same direction (side swipe), Pedestrian/cyclist, Fixed object



>> 3.0 IDENTIFIED ISSUES

ISSUES LIST	
Corridorwide	
Maintenance	
1	Lane striping, especially at side streets, was faded.
2	Pavement was uneven, especially at the <u>Newark Avenue</u> intersection.
3	Several drainage grates were observed to be loose in the pavement. <ul style="list-style-type: none"> • Badly damaged drainage grate at <u>Cottage Avenue</u> in northbound lane.
4	Several drainage grates were observed to be filled with sediment. <ul style="list-style-type: none"> • Northwest corner of <u>St. Paul's Avenue</u>
5	Missing or broken traffic signs <ul style="list-style-type: none"> • At <u>St. Paul's Avenue</u>: School crossing sign and plaque • At <u>Van Winkle Avenue</u>: <ul style="list-style-type: none"> • Missing overhead street name sign for JFK Boulevard. • Left turn sign on northbound approach was skewed. • Sign missing on pole on northeast corner. • Bus stop signs don't appear to be in standard format. • At <u>Pavonia Avenue</u>: <ul style="list-style-type: none"> • Missing overhead sign for Pavonia Avenue • Right-turn only from driveway is not MUTCD compliant
54	Sign clutter may distract drivers.
6	Broken or abandoned foundations: <ul style="list-style-type: none"> • Between <u>Cottage Avenue</u> and <u>Newark Avenue</u> (west curb) • At <u>Newark Avenue</u> (northwest corner) • At <u>Cottage Avenue</u> (southeast corner)
7	Locals reported that lighting is insufficient at night and that many bulbs were not functioning. Many globes were observed missing.
8	Missing plates on signal foundations.
Pedestrian facilities	
9	ADA facilities (tactile pads and curb ramps) are missing at nearly every intersection.
10	There is limited instructional signage for pedestrian push buttons (locals said many pedestrians didn't understand when PPBs are automated, and then think they don't work).
11	Many pedestrian push buttons were not correctly oriented.
12	Nearly all crosswalks throughout corridor were faded or missing.
13	The corridor lacked consistent pedestrian amenities (trees, benches, bus shelters), giving it a more highway-like characteristic. <ul style="list-style-type: none"> • Very few trees on east side of Kennedy Boulevard south of <u>Saint Paul's Avenue</u>. • No bus stops in corridor have shelters, some stops were observed to have poor sign conditions.
14	Heavy foot traffic leads to pedestrian-vehicle conflicts when there is no sufficient crossing time to accommodate pedestrian volumes, especially at: <ul style="list-style-type: none"> • <u>Pavonia Avenue</u>: On weekends especially because of the large church on the northeast corner. • <u>Newark Avenue</u> since it is a popular commercial strip.
15	Tripping hazards on sidewalk
16	History of pedestrian-vehicle left-turn crashes: <ul style="list-style-type: none"> • <u>Cottage Avenue</u>: 5 crashes where pedestrians in south leg crosswalk struck by left-turning vehicles from Cottage Avenue • <u>Newark Avenue</u>: 2 crashes where pedestrians in south leg crosswalk struck by left-turning vehicles from Newark Avenue • <u>Van Winkle Avenue</u>: 3 crashes where pedestrians in north leg crosswalk struck by left-turning vehicles from Van Winkle Avenue

ISSUES LIST

Operations	
17	Number of lanes changes throughout corridor, and merge points do not seem optimal or well-signed.
18	Pedestrians were observed disobeying traffic signals.
19	Vehicles were observed to park illegally in curbside travel lanes, especially <ul style="list-style-type: none"> • <u>Cottage Avenue</u> (west leg) • Between <u>Cottage Avenue</u> and <u>Pavonia Avenue</u> (west curb)
20	Aggressive passing maneuvers and speeding <ul style="list-style-type: none"> • Particularly on longer unsignalized stretches and horizontal curves <ul style="list-style-type: none"> • North of <u>St. Paul's Avenue</u> where Kennedy Boulevard southbound measures greater than 28' for 2 traffic lanes. Possible contributing factors are that the curbside southbound lane measures at 17' and there is a relatively long gap from the subsequent signalized intersection (~800') • Between <u>Cottage Avenue</u> and <u>Pavonia Avenue</u>. • Crash clusters* of same direction crashes (both rear and side swipe), which are typically associate with aggressive maneuvers. <ul style="list-style-type: none"> • <u>St. Paul's Avenue</u> - 2 northbound clusters in/north of intersection; 1 cluster southbound north of intersection. • <u>Van Winkle Avenue</u> - 1 southbound cluster north of intersection. • <u>Newark Avenue</u> - 2 northbound clusters near lane widening south of intersection; 1 southbound and 2 northbound clusters north of intersection. • <u>Cottage Avenue</u> - 2 northbound clusters south of intersection after curve. • <u>Pavonia Avenue</u> - 3 northbound clusters on approach; 1 cluster northbound after intersection; 4 southbound clusters approaching intersection.
21	Many delivery vehicles were observed to be un/loading in travel lanes, potentially because loading zones were often illegally occupied by parked vehicles. Noted specifically at: <ul style="list-style-type: none"> • <u>Newark Avenue</u> (west leg) • <u>Cottage Avenue</u> (west of intersection)
Other	
22	Many side streets had the smaller 8-inch signal heads.
Cyclist facilities	
23	No cyclist accommodations
24	Many cyclists observed to use sidewalks despite signage prohibiting bicycle-riding on sidewalk
St. Paul's Avenue	
25	No crosswalk on north side (had been decided with school principal).
26	Narrow sidewalks on west side of north leg.
27	Left-turns are protected-permitted off of JFK Boulevard whereas elsewhere are protected only
28	Rumble strips near school are deteriorated.
29	Long distances between crosswalks across JFK Boulevard north of intersection
30	Two crashes in which right-turning vehicle struck pedestrian in crosswalk, one resulting in fatality.
52	Missing "Do not cross" sign on north leg.
Van Winkle Avenue/ Brooks Place	
31	Missing LEDs on ped head signal.
32	Crosswalks are not high visibility.
Newark Avenue	
33	Broken yellow light.

*Clusters will refer to >1 crash/year

ISSUES LIST

34	Right turn lane at slip ramp might not be widely used and approach is not clearly delineated.
35	Left-turn crash history where vehicles turning left from eastbound Newark Avenue struck by westbound vehicles.
36	Bus stop signs are too close to White Castle driveway.
37	PPB plaque is broken on northwest corner.
Cottage Avenue	
38	Wayfinding signage on northbound approach is confusing. It seems to imply making a right onto Cottage Avenue whereas it is actually supposed to direct traffic at the Newark Avenue intersection.
39	Broken pedestrian light.
40	Merge sign is located in wrong place.
Van Reipen Avenue	
44	Pedestrians were observed crossing JFK Boulevard at Van Reipen, which is dangerous as motorists speed around the curve.
45	Crosswalk at Van Reipen is not marked
46	The long, continuous curb-cut north of Van Reipen may expose pedestrians to vehicles turning into the parking lot.
55	Deteriorated curb end.
Pavonia Avenue	
41	Missing visor on traffic head signal.
42	Crossing times may not be long enough to handle pedestrian volume.
43	Pedestrian crossing time may not be fully optimized.
48	Lane drop north of intersection is not well-defined and continues to be extremely wide, possibly contributing to more speeding and driver confusion on appropriate lane use.
49	Traffic bottlenecks near the lane drop north of the intersection.
50	U-turn from northbound to southbound may be dangerous as it means cutting across three lanes of traffic. Also, southbound traffic is coming around a curve and may have limited site visibility.
51	Vehicles were observed waiting to pick up passengers in the travel lanes of Pavonia Avenue.

ISSUE VISUALS: ST. PAUL'S AVENUE

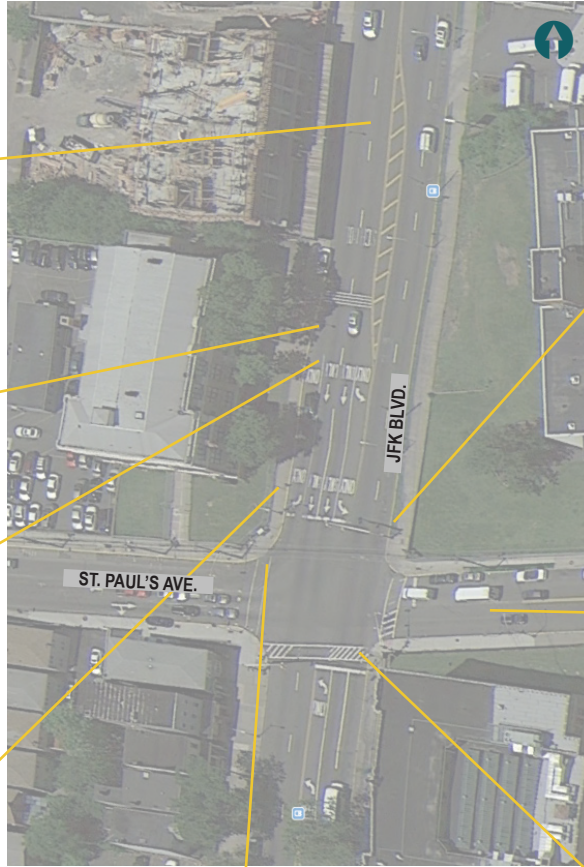


20 Motorists speed around horizontal curve north of intersection.

28 Deteriorated rumble strips.



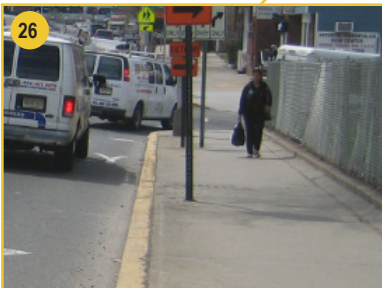
Metal plate in roadway



25 Missing crosswalk on north leg. Also missing "USE OTHER CROSSWALK" pedestrian signage.



27 Vertical curve may impose on site distance, possibly being the reason for frequent left-turn crashes. Tower to left houses elderly residents who may be more vulnerable to tripping hazards..



26 Narrow sidewalks with no pedestrian buffer area.



30 2 crashes (1 fatal, 1 moderate injury) involving pedestrians and right-turning vehicles from JFK Boulevard southbound.



3 Sunken grate needing maintenance.



15 Abandoned breakaway post; Grit (presumably from the road) on sidewalk.



15 Metal plates (about 6" x 6") with screws sticking out on sidewalk.

ISSUE VISUALS: VAN WINKLE AVENUE/BROOKS PLACE



Broken sidewalk pavement.



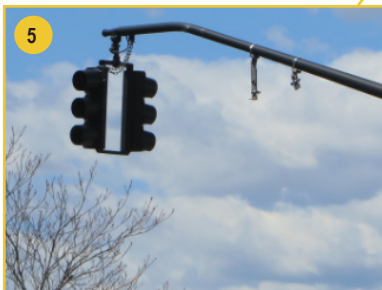
Broken pedestrian signal head.



Abandoned pole near tree.



"NO LEFT TURN" sign is skewed downwards.



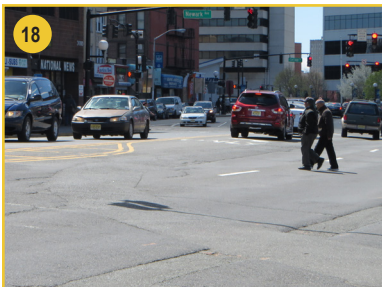
Missing street name sign.



Coming up hill and making left, 3 pedestrian-vehicle crashes occurred in the north leg's crosswalk..



Bus stop south of intersection is located in White Castle driveway entrance.



Pedestrians crossing mid-block south of intersection.



Faded crosswalks

ISSUE VISUALS: NEWARK AVENUE



Broken yellow.



Faded crosswalk



Missing centerline on east leg.



Abandoned foundation.



Uneven pavement.



Right and through lanes on northbound approach are not clearly marked. Nor is there a parking delineation.



Faded crosswalks.



Foundation missing plate on southwest corner.

ISSUE VISUALS: COTTAGE AVENUE TO VAN REIPEN



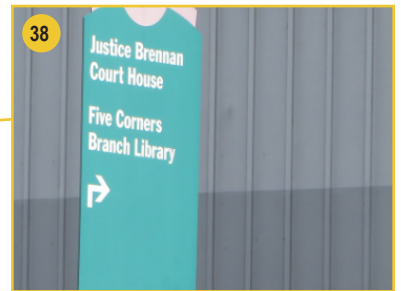
5 Broken street name sign.



3 Sunken sewer grate.



5 Misplaced merge sign.



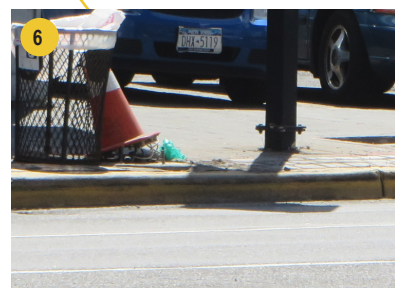
38 Wayfinding signage may confuse drivers into turn right to Cottage Avenue.



19 Vehicles parked in right and left-turning lanes, impeding sight distance.



46 Prolonged depressed curb exposes pedestrians to vehicles turning into the adjacent parking lot.



6 Rubbish and loose brick in the sidewalk are tripping hazards.



21 Trucks un/loading in non-designated areas, including travel lanes.



16 Five crashes with pedestrians in the south leg crosswalk and left-turning vehicles from Cottage Street westbound.

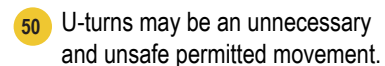
ISSUE VISUALS: PAVONIA AVENUE



Vehicles illegally parked in travel lane.



Missing visor on signal head.



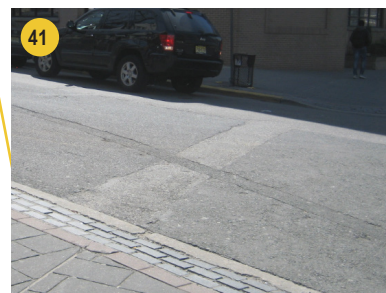
U-turns may be an unnecessary and unsafe permitted movement.



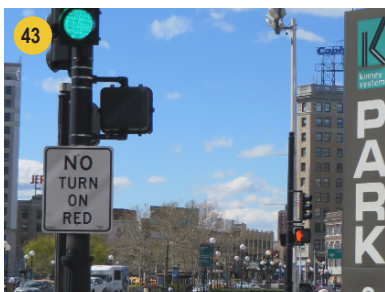
Deteriorated curb end.



Vehicles illegally parked impede traffic, including safe pedestrian movement.



Missing crosswalk marking



Pedestrian signal heads display the "don't walk" signal when there is no direct conflict between pedestrian and protected left-turn movements, resulting in pedestrians not having as much signalized crossing time as possible.



Missing plate.

PEDESTRIAN FACILITIES



Pedestrians were observed to cross Kennedy Boulevard at the intersection of Van Reipen Street, using the median as a refuge.



Faded crosswalks (above, #12), lack of tactile domes (right, #9).



Some pedestrian push buttons were not properly oriented and appeared to be underutilized by pedestrians crossing the street.

CYCLIST FACILITIES



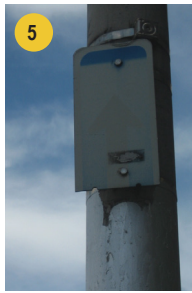
Some cyclists were observed to bicycle on the sidewalk, some traveled with vehicular traffic, and others traveled against traffic.



Apart from the overloaded rack at the PATH station, there were no bicycle parking facilities.

ISSUE VISUALS: GENERAL (CONTINUED)

SIGNAGE

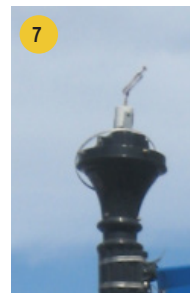
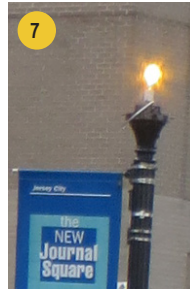


Many signs along corridor were observed to be damaged or lacking in retroreflectivity (left).

Sign clutter (below).



MAINTENANCE



Many lights along corridor were observed to be missing the glass globe that protects the light. Other lights were observed to be on during daylight hours.



Faded crosswalks and uneven pavement were observed throughout the corridor.

PARKING



Vehicles parked too close to intersections impede sight distance; vehicles parked in travel lanes may lead to sudden braking and sideswipes.

Van parked in travel lane on Kennedy Boulevard southbound on curve north of Pavonia (left).



Multiple vehicles parked in right and left-turning lanes on east leg of Cottage Avenue.



Abandoned foundation (above left) and rusted metal plates in sidewalk (above right) are tripping hazards for pedestrians.

Missing plate of traffic light base exposes signal wires (left).

>> 4.0 RECOMMENDATIONS

Rec. #	RECOMMENDATIONS LIST	Safety Benefit	Time Frame	Cost	Jurisdiction	Issue Ref. #
	Corridorwide					
A	Pedestrians					
A-1	Consider installing ergonomic crosswalks at intersections that more accurately reflect pedestrian desire lines	Medium	Short	\$	Hudson County	18
A-2	Revise walk signals to maximize walk time, keeping in conformance with MUTCD regulations.	Medium	Short	\$	Hudson County	14, 18
A-3	Replace all sidewalks that are not safe for pedestrians.	Medium/High	Medium	\$\$	Jersey City	15
A-4	Install signage explaining when pedestrian recall is active and, conversely, when the pedestrian push button (PPB) needs to be activated.	Low	Medium	\$\$	Hudson County	10
A-5	Consider installing audible crosswalk signals.	Low	Medium	\$\$	Hudson County	9
A-6	Install and upgrade pedestrian push buttons so they are realigned and include an arrow to indicate crossing direction	Medium	Short	\$	Hudson County	11
A-7	Install fully-compliant ADA curb ramps and tactile domes.	Medium	Medium	\$\$	Hudson County	9
A-8	Study pedestrian movement (volume counts) to better understand facility use.	Low	Short	\$	Hudson County	18, 14
A-9	Provide enhanced bus amenities:					
	Install shelters and seating areas	Low	Medium	\$\$	Jersey City	13
	Mark bus stop lane areas with high-visibility paint	Medium/Low	Short	\$	Jersey City	13
A-10	Consider installing lead pedestrian interval phasing at intersections where appropriate.	Medium	Short	\$	Hudson County	32, 16
B	Maintenance					
B-1	Repair pavement by filling in potholes and milling/repaving where appropriate.	Medium	Short/Medium	\$\$\$\$	Hudson County	2
B-2	Repair catch basin installations.	Low	Short	\$	Hudson County	2, 3
B-3	Professional staff should conduct a formal engineering review of existing lighting conditions to evaluate where both vehicles and pedestrian level lighting can be enhanced.	Medium/High	Medium	\$\$	Hudson County	7
B-4	Broken and exposed bulbs should be replaced	Low	Short	\$	Hudson County	7
B-5	Replace signs with retroreflective materials and add breakaway posts.	Medium	Short	\$	Hudson County	5
B-6	Check and replace breakaway posts.	Low	Short	\$	Hudson County	5
B-7	Repaint faded pavement (centerlines, crosswalks). Consider stamping crosswalks with decorative brick pavers.	Medium	Medium	\$\$/\$\$	Hudson County	1, 12
B-8	Add lane line extensions through intersection.	Low	Short	\$	Hudson County	20
C	Cyclists					
C-1	Install bicycle parking where feasible.	Low	Short	\$	Hudson County	23
C-2	Consider the provision of shared lane markings or bicycle lanes to encourage on-street riding, possibly by reconfiguring cross section.	High	Medium/Long	\$\$\$	Hudson County	24
C-3	If no bike lanes are installed on Kennedy Boulevard, designate alternative routes for cyclists.	High	Medium/Long	\$	Hudson County	24
D	Operations					
D-1	Upgrade 8-inch signal heads to 12-inch signal heads with retroreflective backplates on minor approaches.	Medium	Medium	\$\$	Hudson County	22
D-2	Possibly add greenery or street furniture to give the corridor more of an urban rather than a "highway" character, possibly via TAP funds, being careful not to let either obstruct motorist viewsheds.	Medium	Medium/Long	\$\$	Hudson County	13

Rec. #	RECOMMENDATIONS LIST	Safety Benefit	Time Frame	Cost	Jurisdiction	Issue Ref. #
D-3	Conduct a speed study to see where and by how much motorists are speeding.	Medium	Short	\$	Hudson County	20
D-4	Increase enforcement efforts, particularly in regards to: <ul style="list-style-type: none"> Vehicles parking in travel lanes Pedestrians crossing mid-block 	Medium	Medium	\$\$	Jersey City	19, 21
D-5	Paint an edgeline to clearly define the parking area and curbside travel lane.	Medium	Medium	\$	Hudson County	20
D-6	Conduct a corridor study to see if general number of travel lanes can be decreased from 3 to 2.	High	Long	\$\$	Hudson County	17
D-7	Review signal layout to have one far-side signal head per lane.	Medium	Medium	\$\$	Hudson County	20
St. Paul's Avenue						
E-1	Consider installing crosswalk on north leg (option had previously been decided against because there is currently a crossing guard to assist students traveling to from local school sites) OR install signage on prohibiting pedestrian crossing on north leg.	Medium	Medium	\$	Hudson County	25
E-2	Re-stripe rumble strips	Medium	Short	\$	Hudson County	28
E-3	Re-install school zone signage and refresh pavement marking.	Low	Short	\$	Hudson County	5
E-4	Consider installing bulb-outs at northeast, northwest, and southwest corners.	High	Medium/Long	\$\$/\$\$\$	Hudson County	
E-5	Consider installing a split-turn phase for left turns (was previously split phase, but operations were too stalled and split-phasing was removed).	Medium	Long	\$\$\$	Hudson County	27
E-6	Consider removing dedicated right-turn lane on southbound approach and using reclaimed space for wider sidewalk facilities.	Medium	Medium/Long	\$\$	Hudson County	25, 30
Con						
Van Winkle Avenue/Brooks Place						
F-1	Consider adding corner bulb-outs (painted or concrete) to increase sight distance and visibility of crossing pedestrians.	High	Medium/Long	\$\$/\$\$\$	Hudson County	32, 16
F-3	Reposition "no left-turn" sign.	Medium	Short	\$	Hudson County	5
F-4	Install high visibility crosswalks.	High	Medium	\$\$	Hudson County	32
F-5	Repair pedestrian signal head.	Low	Short	\$	Hudson County	31
F-6	Consider installing a refuge island.	High	Long	\$\$	Hudson County	32, 16
F-7	Install a "NO TURN ON RED" sign on the eastbound approach, keeping in conformance with MUTCD regulations.	Medium	Short	\$	Hudson County	32
F-8	Replace missing sign on pole	Low	Short	\$	Hudson County	5
Newark Avenue						
G-1	Relocate bus stop (see "Concept Design" pages).	Medium	Medium	\$\$	Jersey City	36
G-2	Consider the possibility of eliminating the right turn lane on west side of the southbound leg so curb aligns with pedestrian desire lines on north leg. Use reclaimed space to install a bus bump-in, community space, or parking.	High	Long	\$\$\$	Hudson County	34
G-3	Add dotted lane line extensions	Medium	Medium	\$	Hudson County	35
G-4	Study how adding a split phase on minor approaches will impact operations.	High	Medium	\$\$	Hudson County	35
G-5	Limit driveway access on southwest corner (along Kennedy Boulevard)	Low	Medium	\$\$	Hudson County	46
Cottage Avenue						
H-1	Install a lead pedestrian interval	Medium	Short	\$	Hudson County	16
H-2	Consider installing a median refuge island in the hatched area on the north leg.	High	Long	\$\$	Hudson County	16
H-3	Relocate wayfinding signage.	Medium	Short	\$	Jersey City	38
H-4	Relocate merge.	Medium	Short	\$	Hudson County	5
H-5	Create designated driveway entrance (possibly by raising the curb height).	High	Medium	\$\$\$	Hudson County	33

Rec. #	RECOMMENDATIONS LIST	Safety Benefit	Time Frame	Cost	Jurisdiction	Issue Ref. #
H-7	Repair broken pedestrian signal head.	Medium	Short	\$	Hudson County	39
H-8	Add loading zone pavement markings.	Medium	Short	\$	Hudson County	21
H-9	Consider adding corner bulb-outs.					
H-10	Combine east bound left and right turn lanes into a single lane, bump-out curb, and potentially utilize extra pavement space for reverse angle parking.	Low	Long	\$\$\$	Hudson County	19
Van Reipen Avenue						
J-2	Add a decorative fence to median so pedestrians don't cross Kennedy Boulevard at the Van Reipen intersection.	High	Long	\$\$\$	Hudson County	44
J-2	Mark crosswalk across Van Reipen.	Short	Medium	\$	Hudson County	45
J-3	Define edge of northbound curbside lane south of Cottage Avenue, with paint or by physically extending the curb (see figure 26). Could also install additional parking within curb extension.	High	Short/Long	\$/\$\$\$	Hudson County	48
J-4	Replace median head	Low	Medium	\$\$	Hudson County	53
Pavonia Avenue						
I-1	Grade separation for pedestrians to reduce vehicle/pedestrian conflict <ul style="list-style-type: none"> Coordinate with Port Authority Shouldn't necessarily remove pedestrians entirely from Pavonia Avenue Needs to be constructed well so it's well-used Options could be studied by a subregional study that assesses how pedestrians can best access PATH (note that Hudson County had previously submitted a thumbnail for such a project, but they didn't receive the grant) 	High	Long	\$\$\$	Hudson County	14
I-3	Install a lead pedestrian interval/lag left.	Medium	Short	\$	Hudson County	14
I-4	Consider conducting an engineering study that would analyze the possibility of marking diagonal crosswalks for all-pedestrian phase.	Low	Medium	\$\$	Hudson County	14, 18
I-5	Restrict u-turn movement on northbound approach, possibly by physically extending the median (see figure 26).	High	Medium	\$\$	Hudson County	50
I-6	Review location of lane drops/add-ins. Relocate if necessary.	Medium	Medium	\$\$	Hudson County	48
I-7	Consider reducing lanes on Pavonia Avenue from 3 to 2 (see figure 26). Could be done with paint or physical bulb-out.	Low	Medium	\$\$	Hudson County	51
I-8	Add diagrammatic lane markings on southbound approach	Medium	Short	\$	Hudson County	48
I-9	Consider installing a pedestrian refuge on westerly crosswalk (private drive).	Medium	Medium	\$\$	Private office	14
I-10	Consider expanding existing pedestrian refuge island to clearly direct southbound and northbound left turning and provide a positive affect.	Medium	Long	\$\$	Hudson County	42, 14
I-11	If a lead pedestrian interval is installed, consider also installing, in conjunction, a southbound protected lag left.	Medium	Medium	\$\$	Hudson County	42
I-12	Consider installing a "NO TURN ON RED" sign at the parking facility exit, keeping in conformance with MUTCD regulations.	Medium	Short	\$	Hudson County	32

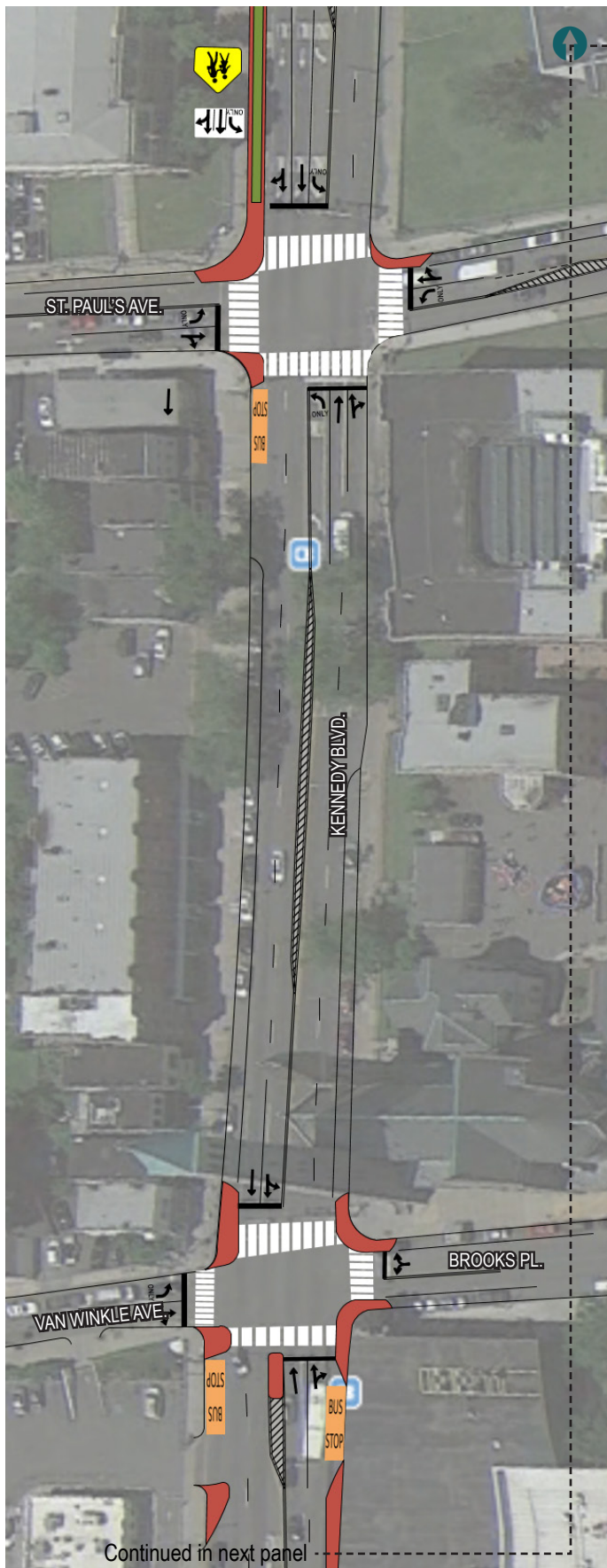
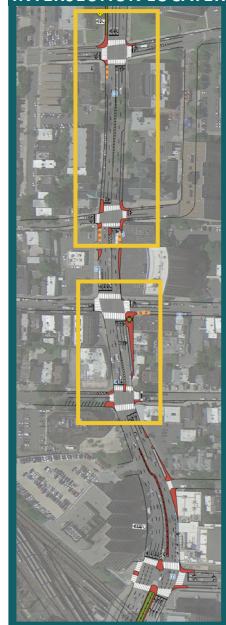


Figure 19 – Van Winkle/Brooks Place to St. Paul's Avenue



Figure 20 – Cottage Avenue to Newark Avenue

INTERSECTION LOCATER

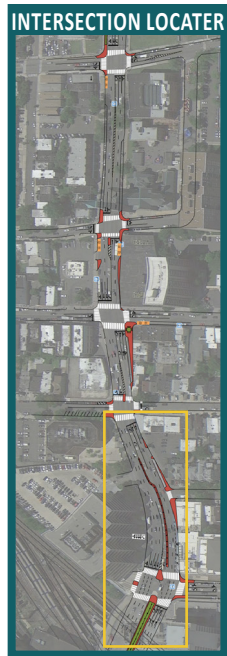


St. Paul's Avenue: Dedicated right lane removed and sidewalk extended with bulb-out in location where fatal and moderate pedestrian crashes had occurred (northwest corner). Green space added on north leg. Bulb-outs on north and southwest corners to align curblines. Painted bus stop area.

Van Winkle/Brooks Place: Painted edgelines along travel lanes north of intersections, bulb-outs on corners. Curb-protected bus stop moved out of driveway and third lane added south of stop on Newark Avenue approach.

Newark Avenue: Dedicated right-turn lane removed and bulb-outs applied to maximize sidewalk space without removing parking. Green features added on corner.

Cottage Avenue: Painted median upgraded to physical pedestrian refuge island. Loading area hatched. Corner bulb-outs added, east-bound approach reduced to one lane, extra pavement utilized for reverse angle parking.



Van Reipen Avenue: Marked crosswalk, curb extensions to narrow lanes and define driveway entrance north of Van Reipen on east curb, median fence on top of concrete median. Curb extensions parking could house curb-side parking.

Pavonia Avenue: Diagrammatic lane use markings on southbound approach, extended median to eliminate left-turns, widened pedestrian refuge island with median fence. Bulb-out on northeast corner to eliminate potentially unnecessary third lane. Dashed lane markings and merge arrows north of intersection to indicate lane termination. Enlarged refuge island on north leg. Refuge island added on west leg.

Figure 21 – Pavonia Avenue to Cottage Avenue

PHOTOSIMULATIONS



Figure 22 – Cottage Avenue & Kennedy Boulevard looking northbound (current).



Figure 23 – Cottage Avenue & Kennedy Boulevard looking northbound, with refuge island, truncated domes, repainted crosswalk, removed merge sign, and curb extension along north leg (photo-simulated improvements).



Figure 24 – St. Paul's Avenue & Kennedy Boulevard looking southbound (current).



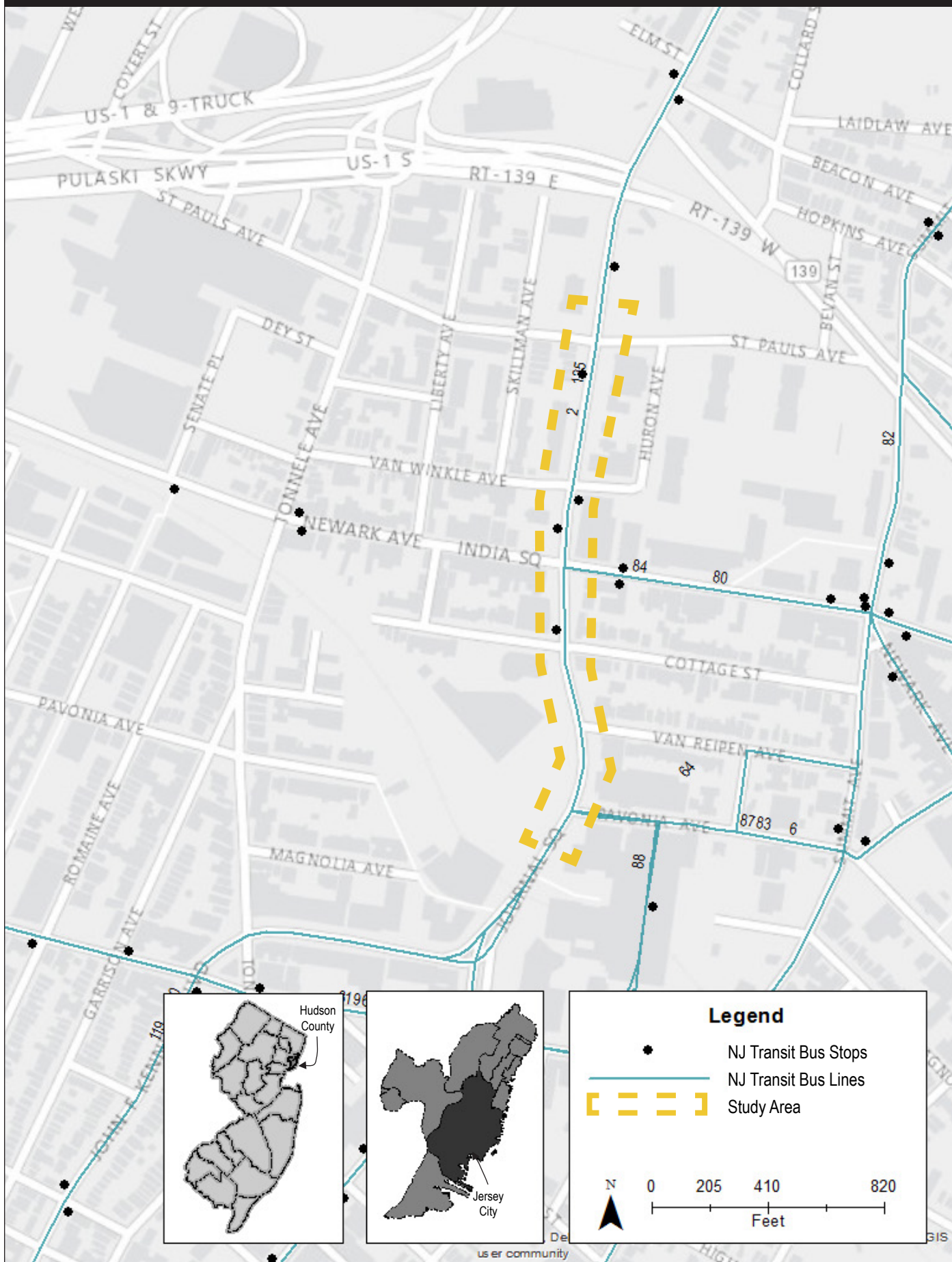
Figure 25 – St. Paul's Avenue & Kennedy Boulevard looking southbound, with right-turn lane removed, sidewalk extended, added green space.

>> APPENDIX A – RSA TEAM

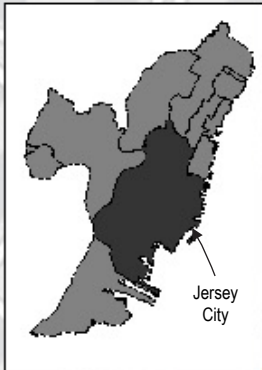
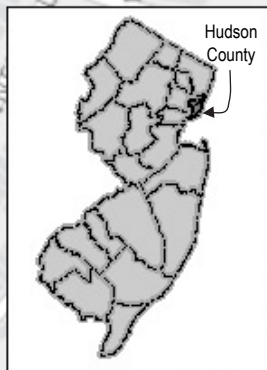
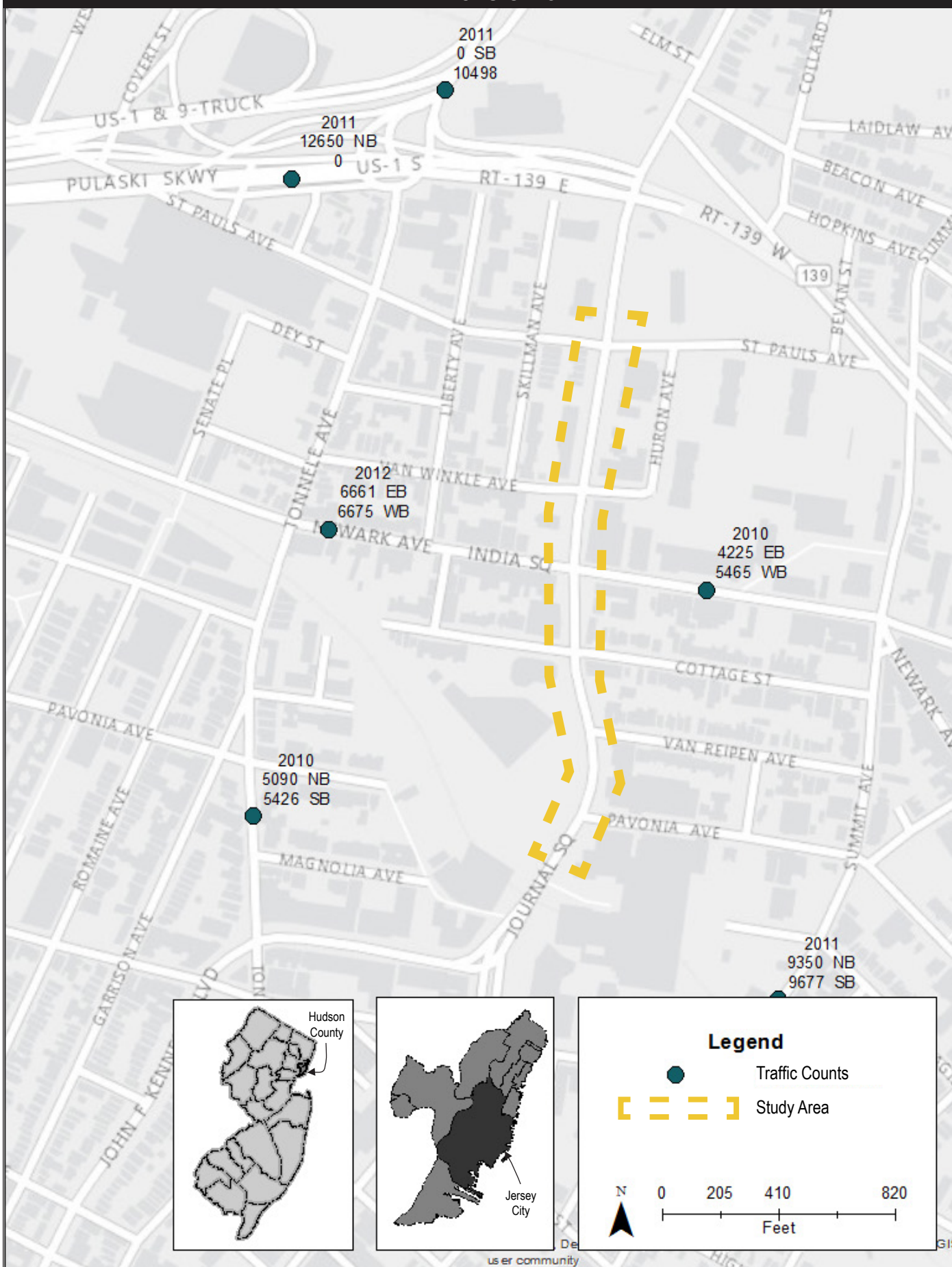
Name	Representing	E-mail
Bryon Nicholas	Hudson County Planning	bnicholas@hcnj.us
Megan Massey	Hudson County Planning	mmassey@hcnj.us
Chris Roberts	Hudson County Planning	croberts@hcnj.us
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Kara Hrabosky	Duncan Avenue Neighborhood Association	klhrabosky@gmail.com

>> APPENDIX B – AREA MAPS

AREA TRANSIT



TRAFFIC VOLUMES



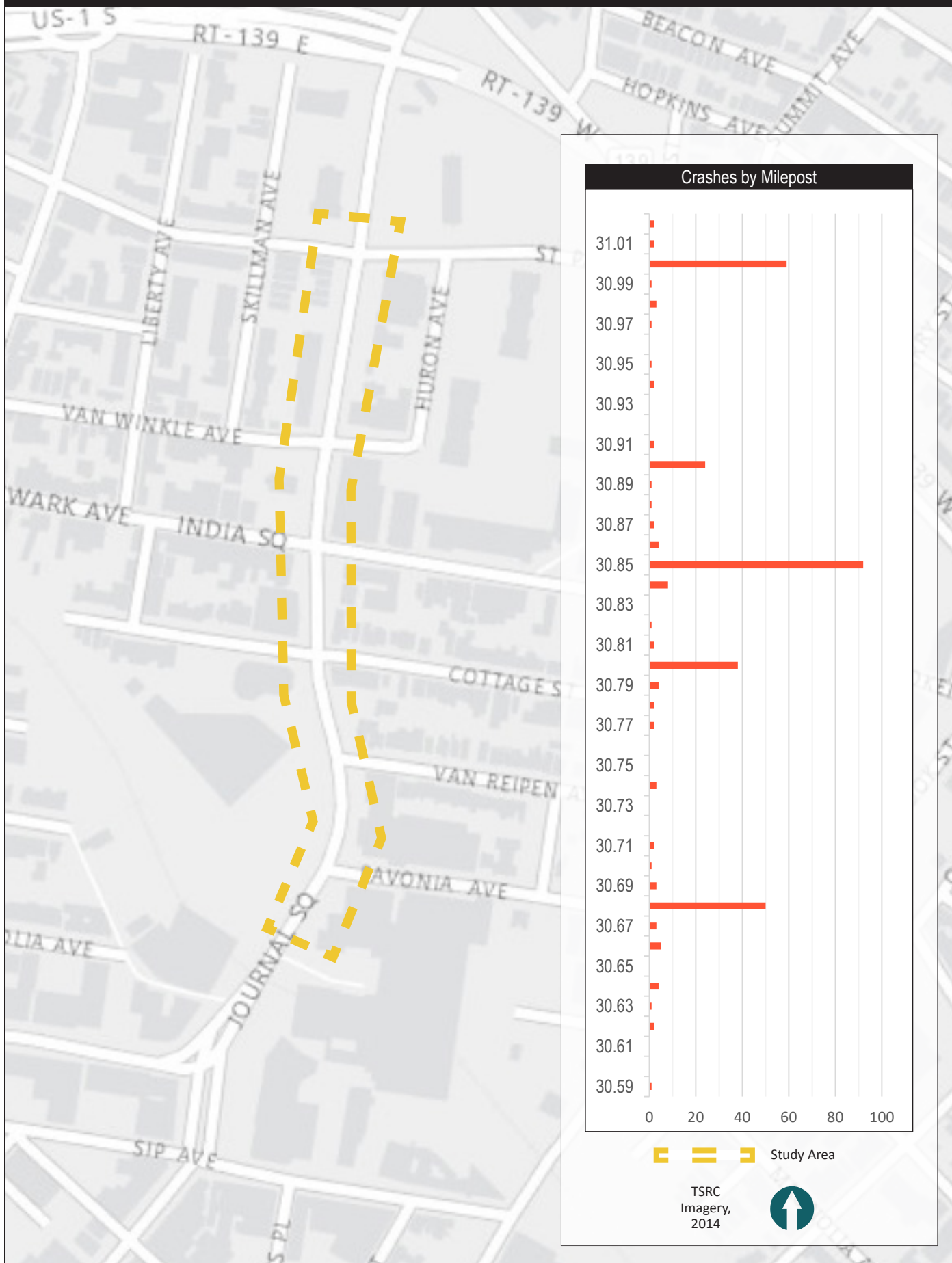
Legend

- Traffic Counts
- Study Area

0 205 410 820
Feet

>> APPENDIX C – CRASH DATA & DIAGRAMS

CRASH CORRIDOR



RSA CORRIDOR CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	89
Same Direction – Side Swipe	118
Right Angle	12
Opposite Direction – Head On/ Angular	3
Opposite Direction – Side Swipe	4
Struck Parked Vehicle	40
Left Turn / U-Turn	15
Backing	12
Encroachment	1
Overtuned	-
Fixed Object	10
Animal	-
Pedestrian	25
Pedalcyclist	4
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	333

Month	#
January	28
February	32
March	19
April	21
May	25
June	28
July	25
August	24
September	33
October	37
November	31
December	30
Total	333

Severity	#
Property Damage Only (PDO)	268
Pain	55
Moderate Injury	9
Incapacitating Injury	-
Fatal	1
Total	333

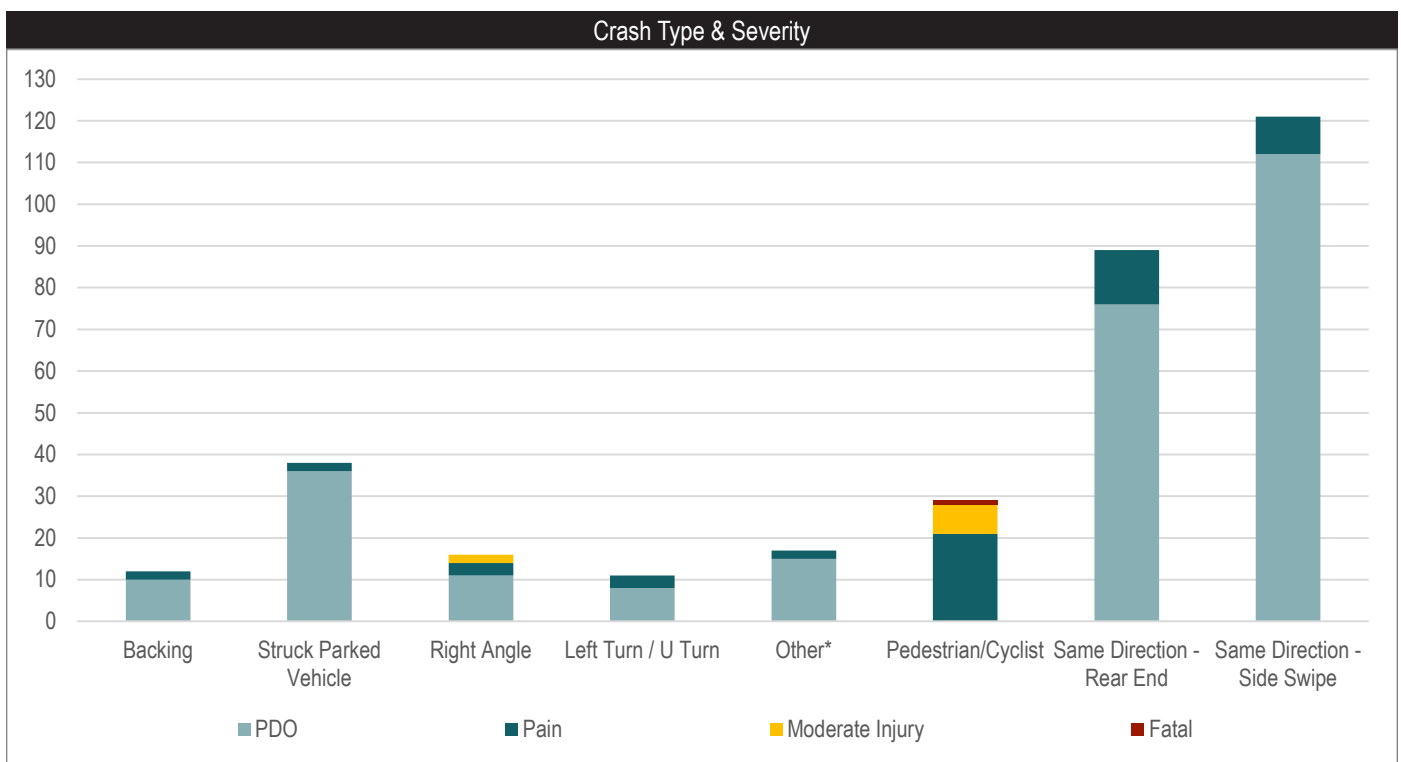
Crash Year	#
2010	103
2011	108
2012	122
Total	333

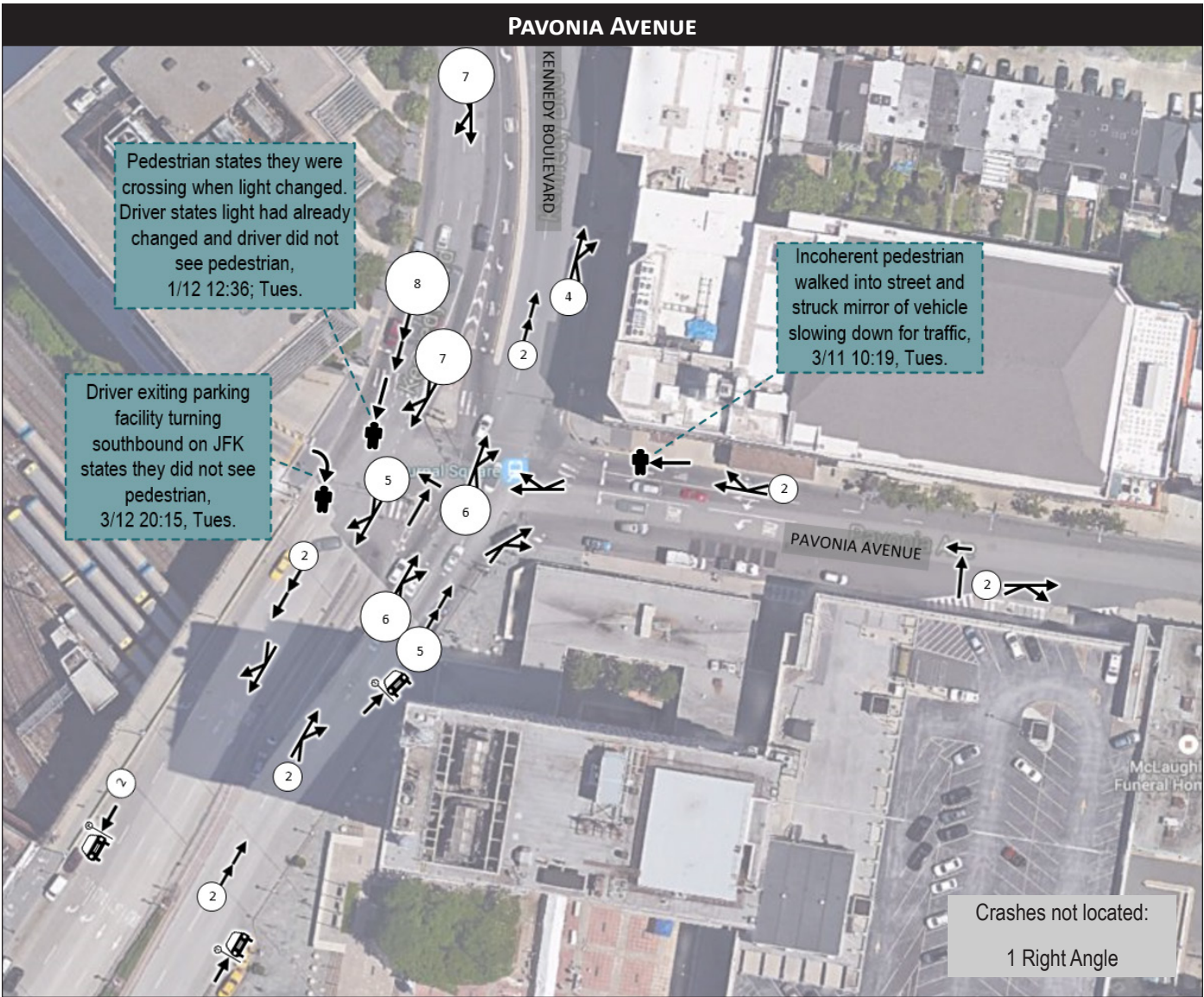
Intersection	#
At intersection	123
Not at intersection	210
At or Near Railroad	-
Total	333

Surface Condition	#
Dry	263
Wet	61
Snowy	2
Icy	2
Slush	5
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	333

Light Condition	#
Daylight	244
Dawn	-
Dusk	6
Dark – No Street Lights	3
Dark – Street Lights On/ Continuous	72
Dark – Street Lights On/ Spot	5
Dark – Street Lights Off	1
Other	2
Total	333

Day	#
Monday	39
Tuesday	54
Wednesday	59
Thursday	46
Friday	59
Saturday	43
Sunday	33
Total	333





All pedestrian and cyclist crashes from 2008 – 2012 have a brief crash narrative included in the diagram and are color coded by severity.

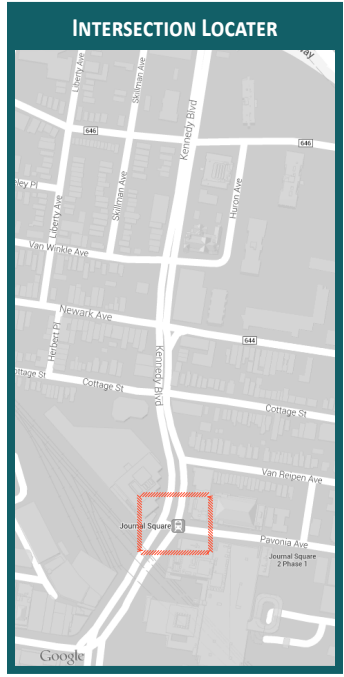
Additionally, any other crash type having a severity of “moderate injury” or greater has a color-coded narrative.

CRASH DIAGRAM LEGEND

<ul style="list-style-type: none"> Right angle Cyclist Pedestrians Backing Encroachment Left-turn 	<ul style="list-style-type: none"> Same direction - Side swipe Same direction - Rear End Struck parked vehicle Fixed-object Opposite direction - Head on/angular Opposite direction - Side Swipe
---	--

Google Imagery, 2014

Crash diagrams based on reports retrieved from NJDOT



PAVONIA AVENUE – CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	20
Same Direction – Side Swipe	43
Right Angle	3
Opposite Direction – Head On/ Angular	-
Opposite Direction – Side Swipe	-
Struck Parked Vehicle	4
Left Turn / U-Turn	-
Backing	-
Encroachment	-
Overtaken	-
Fixed Object	-
Animal	-
Pedestrian	3
Pedalcyclist	-
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	73

Month	#
January	5
February	10
March	5
April	7
May	6
June	3
July	8
August	3
September	12
October	2
November	6
December	6
Total	73

Severity	#
Property Damage Only (PDO)	66
Pain	7
Moderate Injury	-
Incapacitating Injury	-
Fatal	-
Total	73

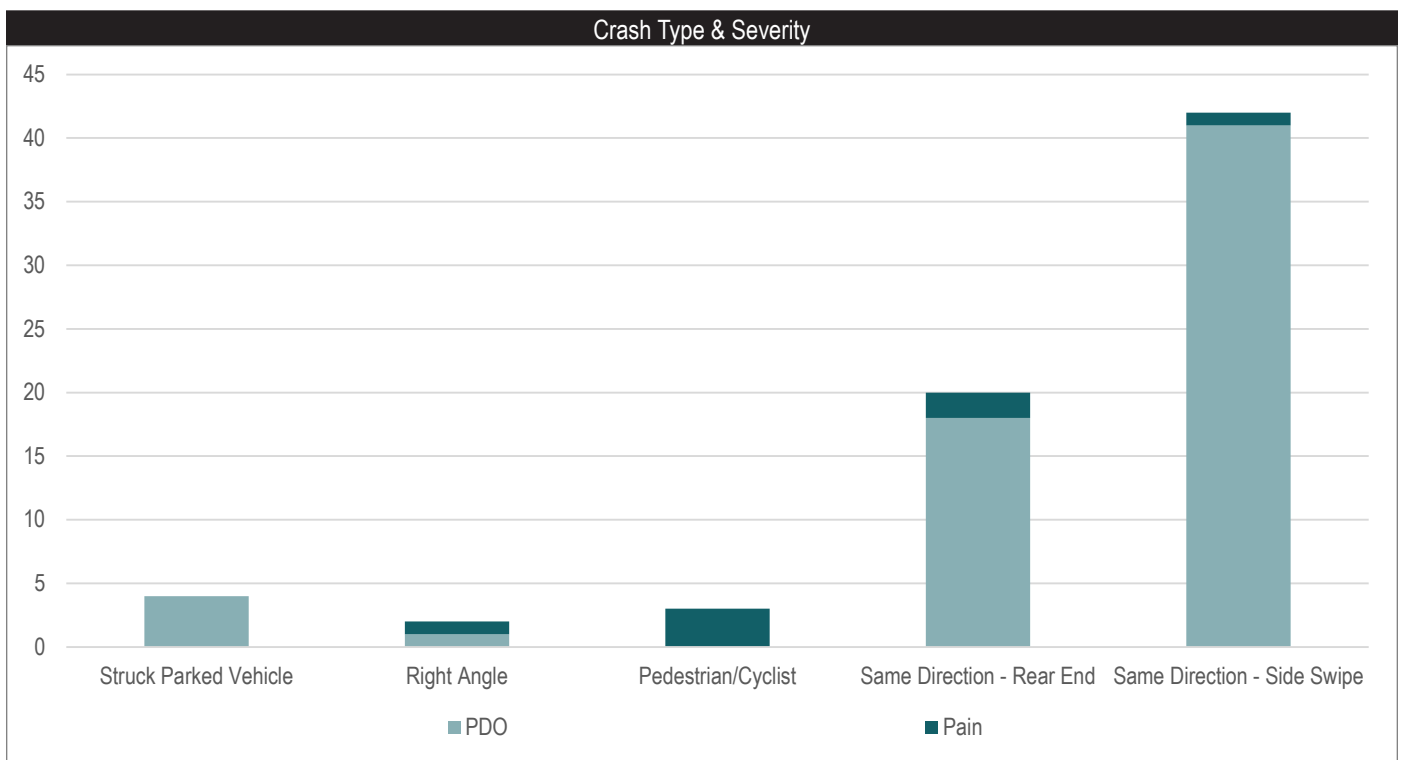
Crash Year	#
2010	20
2011	23
2012	30
Total	73

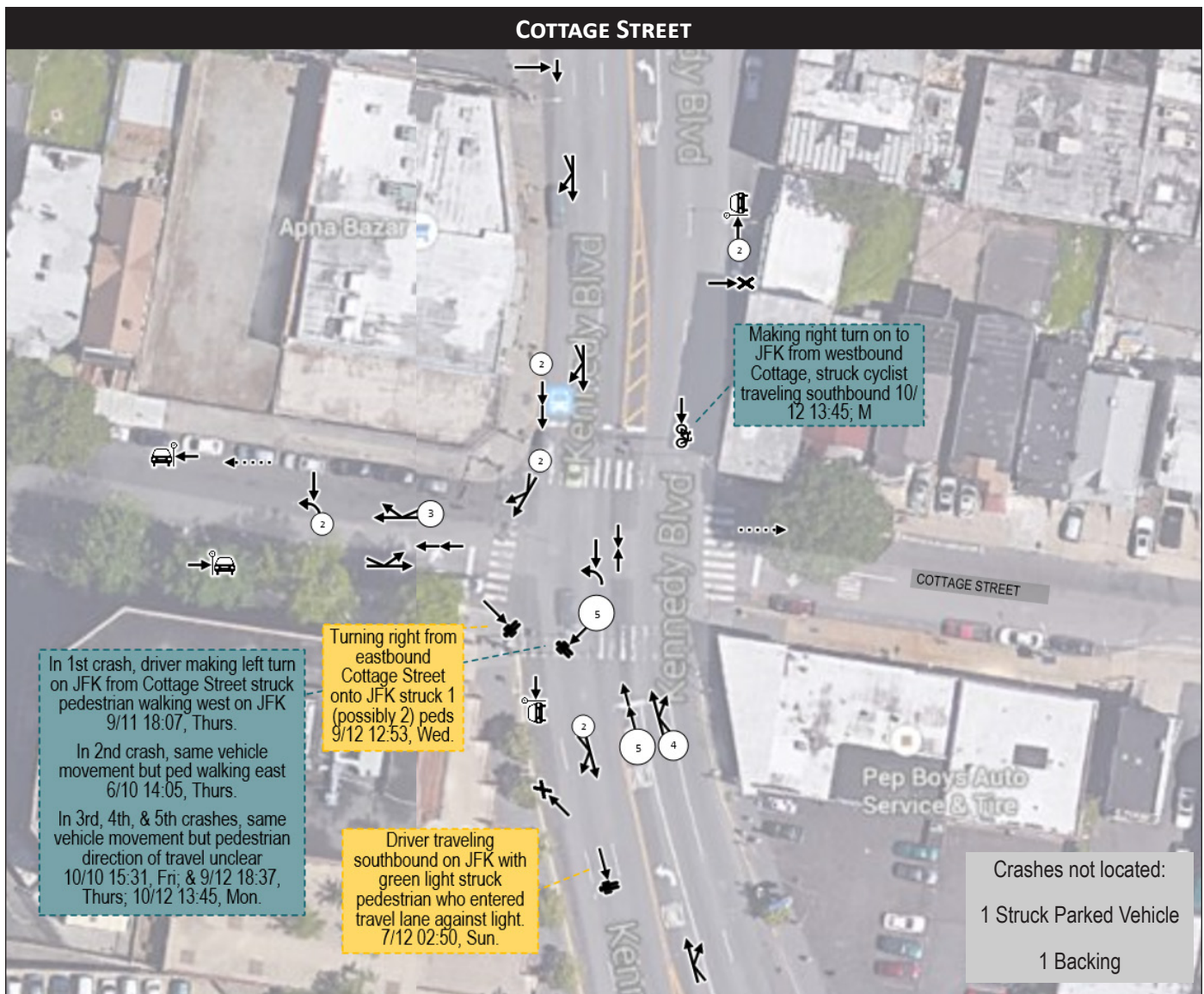
Intersection	#
At intersection	23
Not at intersection	50
At or Near Railroad	-
Total	73

Surface Condition	#
Dry	62
Wet	11
Snowy	-
Icy	-
Slush	-
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	73

Light Condition	#
Daylight	52
Dawn	1
Dusk	-
Dark – No Street Lights	1
Dark – Street Lights On/ Continuous	16
Dark – Street Lights On/ Spot	2
Dark – Street Lights Off	-
Other	1
Total	73

Day	#
Monday	8
Tuesday	15
Wednesday	11
Thursday	8
Friday	12
Saturday	14
Sunday	5
Total	73





- = Moderate injury
- = Complaint of pain

All pedestrian and cyclist crashes from 2008 – 2012 have a brief crash narrative included in the diagram and are color coded by severity.

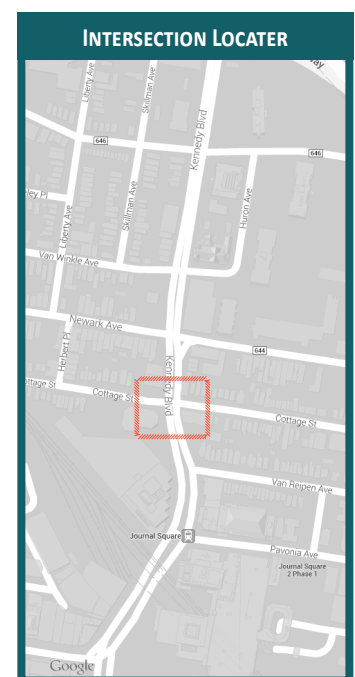
Additionally, any other crash type having a severity of "moderate injury" or greater has a color-coded narrative.

CRASH DIAGRAM LEGEND

	Right angle		Same direction - Side swipe
	Cyclist		Same direction - Rear End
	Pedestrians		Struck parked vehicle
	Backing		Fixed-object
	Encroachment		Opposite direction - Head on/angular
	Left-turn		Opposite direction - Side Swipe

Google Imagery, 2014

Crash diagrams based on reports retrieved from NJDOT



COTTAGE STREET – CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	8
Same Direction – Side Swipe	16
Right Angle	1
Opposite Direction – Head On/ Angular	1
Opposite Direction – Side Swipe	-
Struck Parked Vehicle	6
Left Turn / U-Turn	3
Backing	3
Encroachment	-
Overtaken	-
Fixed Object	2
Animal	-
Pedestrian	7
Pedalcyclist	1
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	48

Month	#
January	3
February	3
March	3
April	-
May	2
June	5
July	7
August	5
September	8
October	7
November	2
December	3
Total	48

Severity	#
Property Damage Only (PDO)	38
Pain	8
Moderate Injury	2
Incapacitating Injury	-
Fatal	-
Total	48

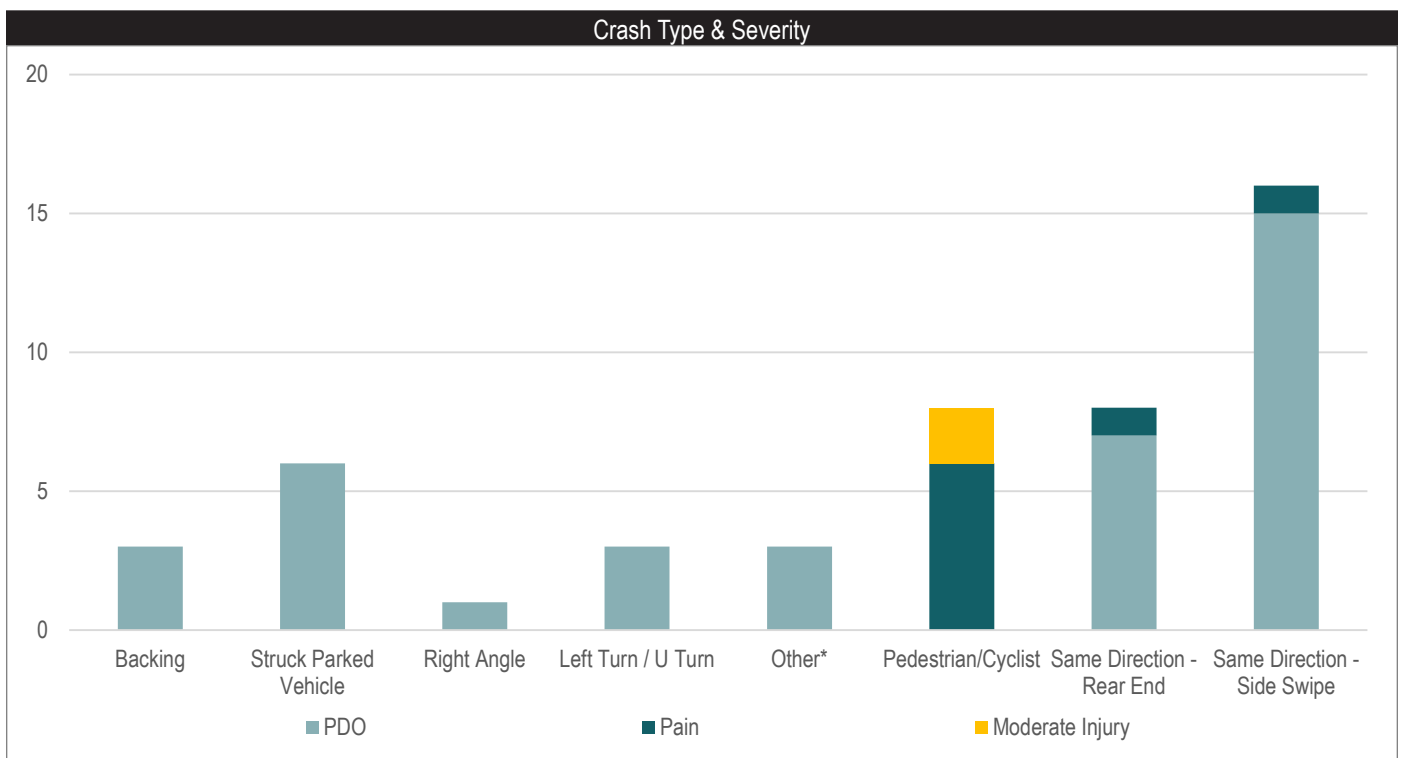
Crash Year	#
2010	13
2011	14
2012	21
Total	48

Intersection	#
At intersection	19
Not at intersection	29
At or Near Railroad	-
Total	48

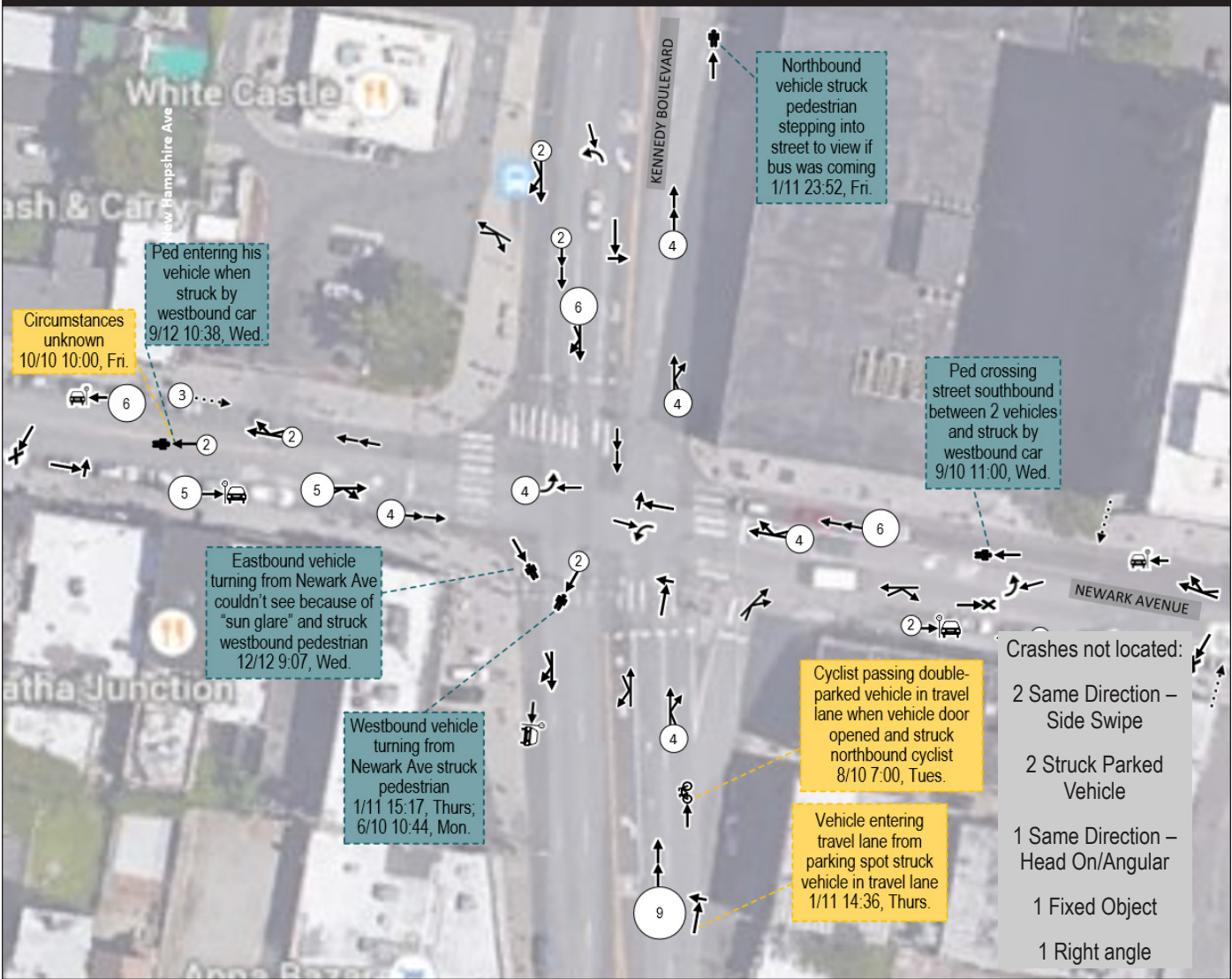
Surface Condition	#
Dry	37
Wet	10
Snowy	-
Icy	-
Slush	1
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	48

Light Condition	#
Daylight	31
Dawn	-
Dusk	2
Dark – No Street Lights	1
Dark – Street Lights On/ Continuous	12
Dark – Street Lights On/ Spot	2
Dark – Street Lights Off	-
Other	-
Total	48

Day	#
Monday	6
Tuesday	6
Wednesday	10
Thursday	7
Friday	8
Saturday	4
Sunday	7
Total	48



NEWARK AVENUE



- Crashes not located:
- 2 Same Direction – Side Swipe
 - 2 Struck Parked Vehicle
 - 1 Same Direction – Head On/Angular
 - 1 Fixed Object
 - 1 Right angle



- = Moderate injury
- = Complaint of pain

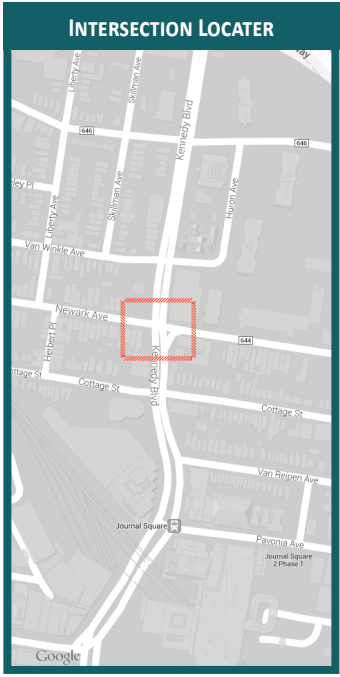
All pedestrian and cyclist crashes from 2008 – 2012 have a brief crash narrative included in the diagram and are color coded by severity.

Additionally, any other crash type having a severity of "moderate injury" or greater has a color-coded narrative.

CRASH DIAGRAM LEGEND

	Right angle		Same direction - Side swipe
	Cyclist		Same direction - Rear End
	Pedestrians		Struck parked vehicle
	Backing		Fixed-object
	Encroachment		Opposite direction - Head on/angular
	Left-turn		Opposite direction - Side Swipe

Google Imagery, 2014
Crash diagrams based on reports retrieved from NJDOT



NEWARK AVENUE – CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	26
Same Direction – Side Swipe	33
Right Angle	3
Opposite Direction – Head On/ Angular	1
Opposite Direction – Side Swipe	3
Struck Parked Vehicle	18
Left Turn / U-Turn	7
Backing	6
Encroachment	-
Overtaken	-
Fixed Object	3
Animal	-
Pedestrian	7
Pedalcyclist	1
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	108

Month	#
January	13
February	8
March	8
April	7
May	11
June	17
July	4
August	9
September	5
October	12
November	7
December	7
Total	108

Severity	#
Property Damage Only (PDO)	88
Pain	17
Moderate Injury	3
Incapacitating Injury	-
Fatal	-
Total	108

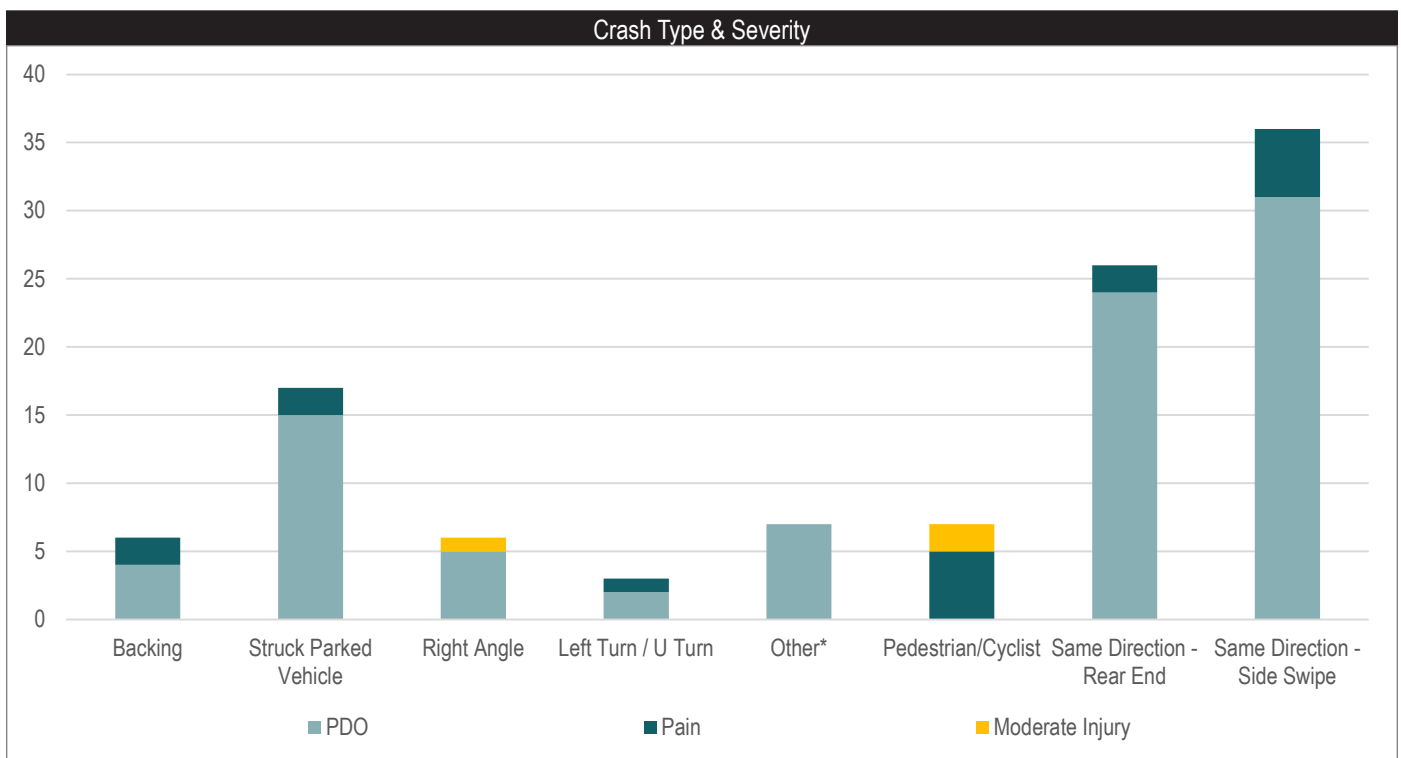
Crash Year	#
2010	38
2011	39
2012	31
Total	108

Intersection	#
At intersection	29
Not at intersection	79
At or Near Railroad	-
Total	108

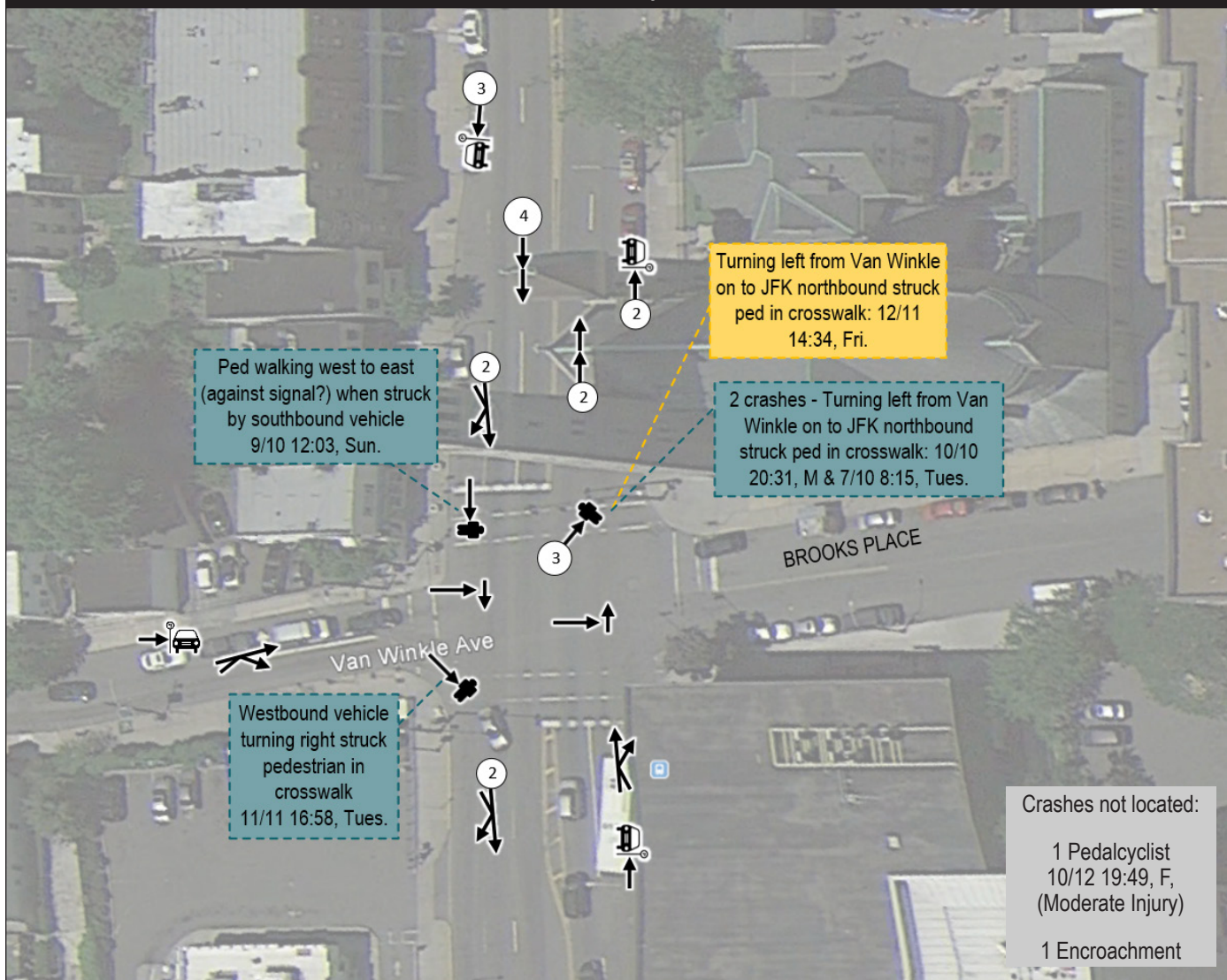
Surface Condition	#
Dry	90
Wet	16
Snowy	1
Icy	1
Slush	-
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	108

Light Condition	#
Daylight	84
Dawn	-
Dusk	2
Dark – No Street Lights	-
Dark – Street Lights On/ Continuous	22
Dark – Street Lights On/ Spot	-
Dark – Street Lights Off	-
Other	-
Total	108

Day	#
Monday	10
Tuesday	19
Wednesday	17
Thursday	15
Friday	16
Saturday	19
Sunday	12
Total	108



VAN WINKLE AVENUE/BROOKS PLACE



- = Moderate injury
- = Complaint of pain

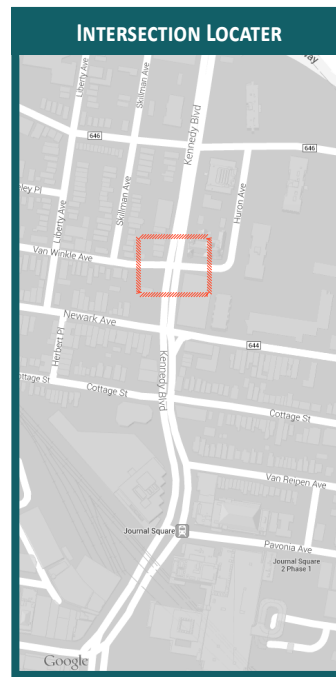
All pedestrian and cyclist crashes from 2008 – 2012 have a brief crash narrative included in the diagram and are color coded by severity.

Additionally, any other crash type having a severity of “moderate injury” or greater has a color-coded narrative.

CRASH DIAGRAM LEGEND

	Right angle		Same direction - Side swipe
	Cyclist		Same direction - Rear End
	Pedestrians		Struck parked vehicle
	Backing		Fixed-object
	Encroachment		Opposite direction - Head on/angular
	Left-turn		Opposite direction - Side Swipe

Google Imagery, 2014
Crash diagrams based on reports retrieved from NJDOT



VAN WINKLE AVENUE/BROOKS PLACE – CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	7
Same Direction – Side Swipe	6
Right Angle	2
Opposite Direction – Head On/ Angular	-
Opposite Direction – Side Swipe	-
Struck Parked Vehicle	7
Left Turn / U-Turn	-
Backing	-
Encroachment	1
Overtaken	-
Fixed Object	-
Animal	-
Pedestrian	5
Pedalcyclist	1
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	29

Month	#
January	4
February	4
March	1
April	-
May	1
June	2
July	4
August	1
September	3
October	3
November	3
December	3
Total	29

Severity	#
Property Damage Only (PDO)	23
Pain	4
Moderate Injury	2
Incapacitating Injury	-
Fatal	-
Total	29

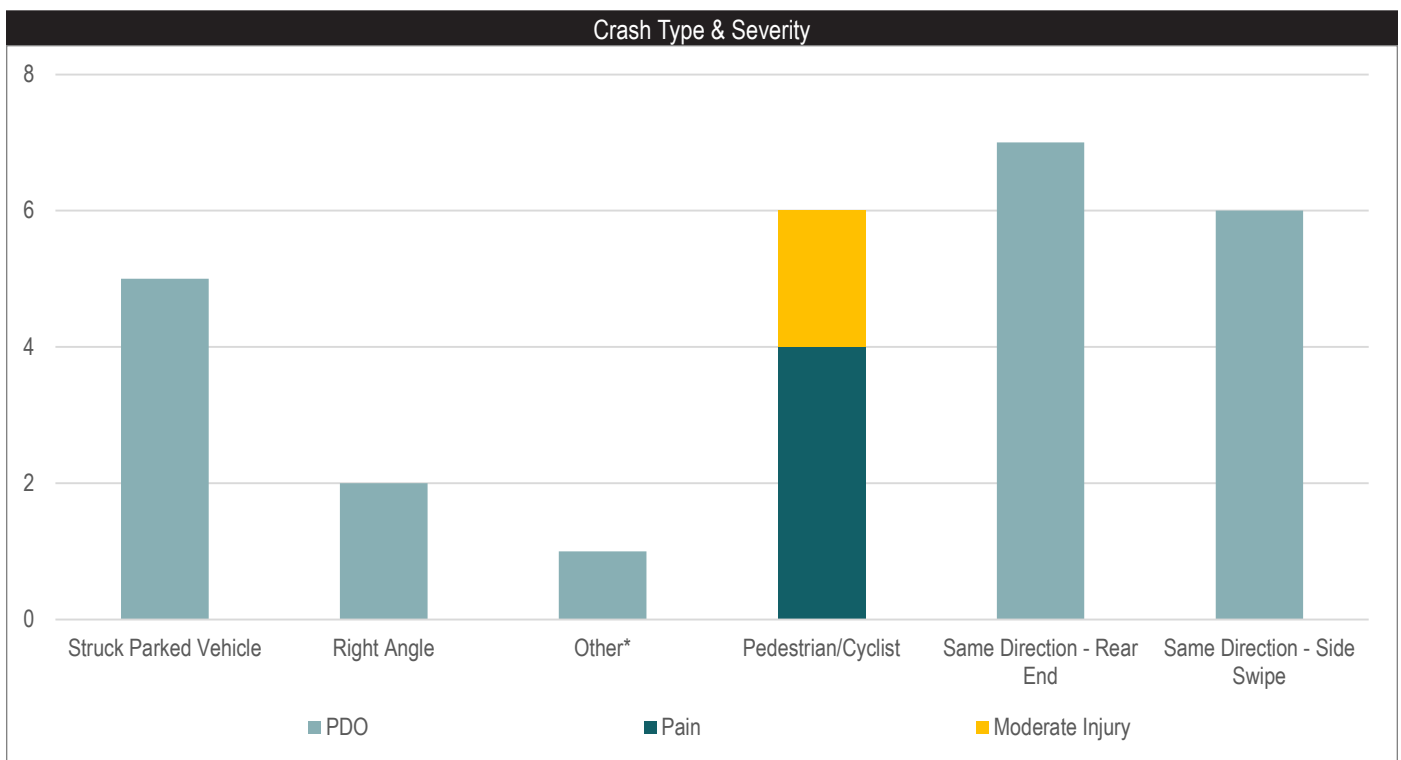
Crash Year	#
2010	11
2011	9
2012	9
Total	29

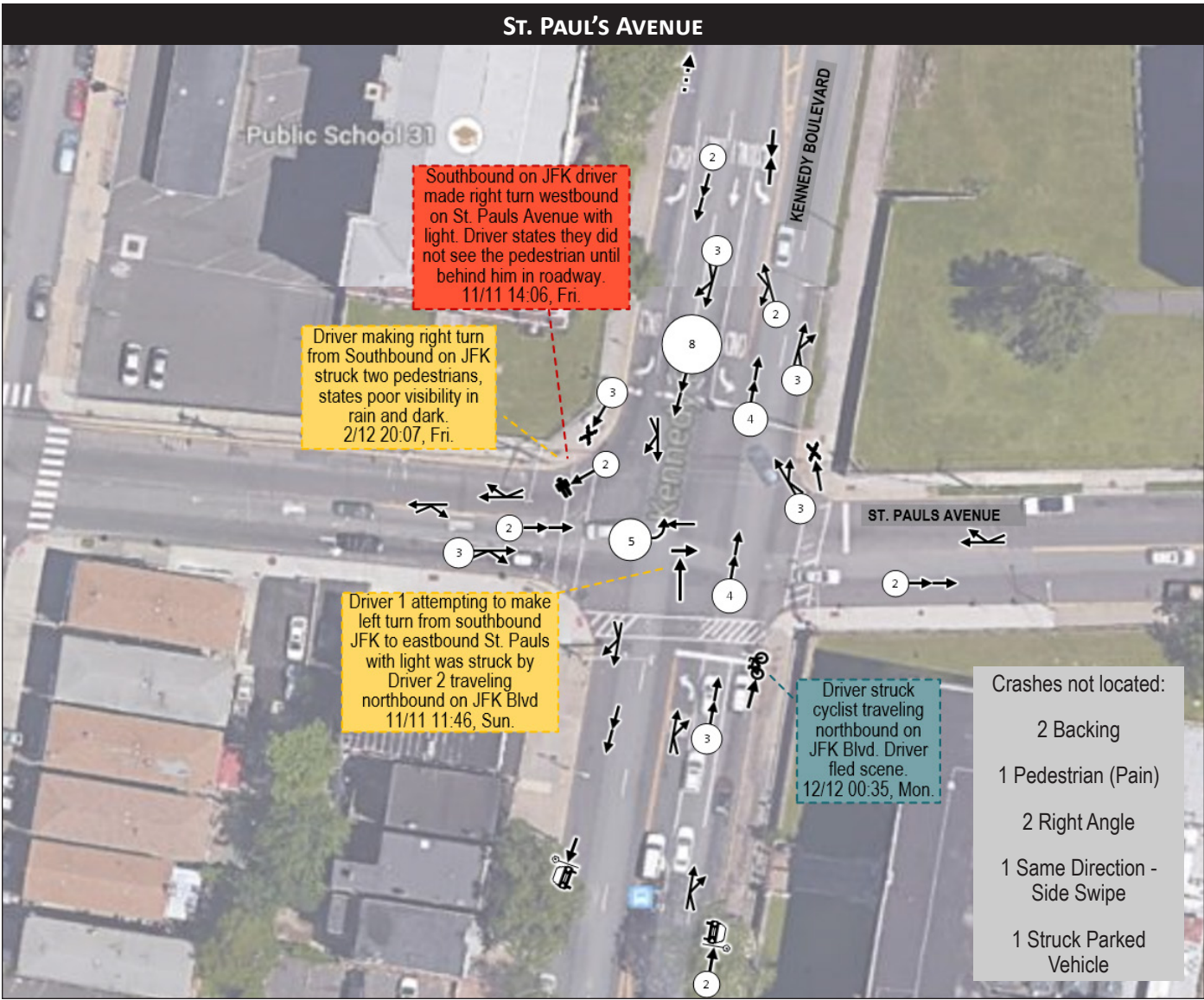
Intersection	#
At intersection	12
Not at intersection	17
At or Near Railroad	-
Total	29

Surface Condition	#
Dry	20
Wet	6
Snowy	1
Icy	1
Slush	1
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	29

Light Condition	#
Daylight	22
Dawn	-
Dusk	1
Dark – No Street Lights	1
Dark – Street Lights On/ Continuous	4
Dark – Street Lights On/ Spot	-
Dark – Street Lights Off	1
Other	-
Total	29

Day	#
Monday	2
Tuesday	5
Wednesday	3
Thursday	7
Friday	6
Saturday	3
Sunday	3
Total	29





- = Fatal
- = Moderate injury
- = Complaint of pain

All pedestrian and cyclist crashes from 2008 – 2012 have a brief crash narrative included in the diagram and are color coded by severity.

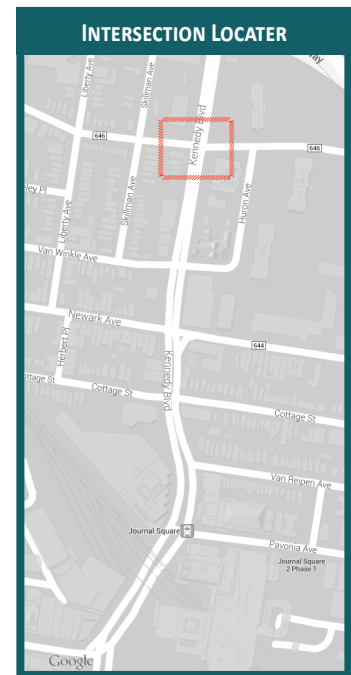
Additionally, any other crash type having a severity of “moderate injury” or greater has a color-coded narrative.

CRASH DIAGRAM LEGEND

Right angle	Same direction - Side swipe
Cyclist	Same direction - Rear End
Pedestrians	Struck parked vehicle
Backing	Fixed-object
Encroachment	Opposite direction - Head on/angular
Left-turn	Opposite direction - Side Swipe

Google Imagery, 2014

Crash diagrams based on reports retrieved from NJDOT



ST. PAUL'S AVENUE – CRASH SUMMARY (2010 – 2012)

Crash Type	#
Same Direction – Rear End	27
Same Direction – Side Swipe	18
Right Angle	3
Opposite Direction – Head On/ Angular	1
Opposite Direction – Side Swipe	1
Struck Parked Vehicle	4
Left Turn / U-Turn	5
Backing	3
Encroachment	-
Overtuned	-
Fixed Object	4
Animal	-
Pedestrian	3
Pedalcyclist	1
Non-fixed Object	-
Railcar – Vehicle	-
Other	-
Total	70

Month	#
January	3
February	7
March	2
April	5
May	6
June	2
July	2
August	6
September	3
October	11
November	13
December	10
Total	70

Severity	#
Property Damage Only (PDO)	51
Pain	16
Moderate Injury	2
Incapacitating Injury	0
Fatal	1
Total	70

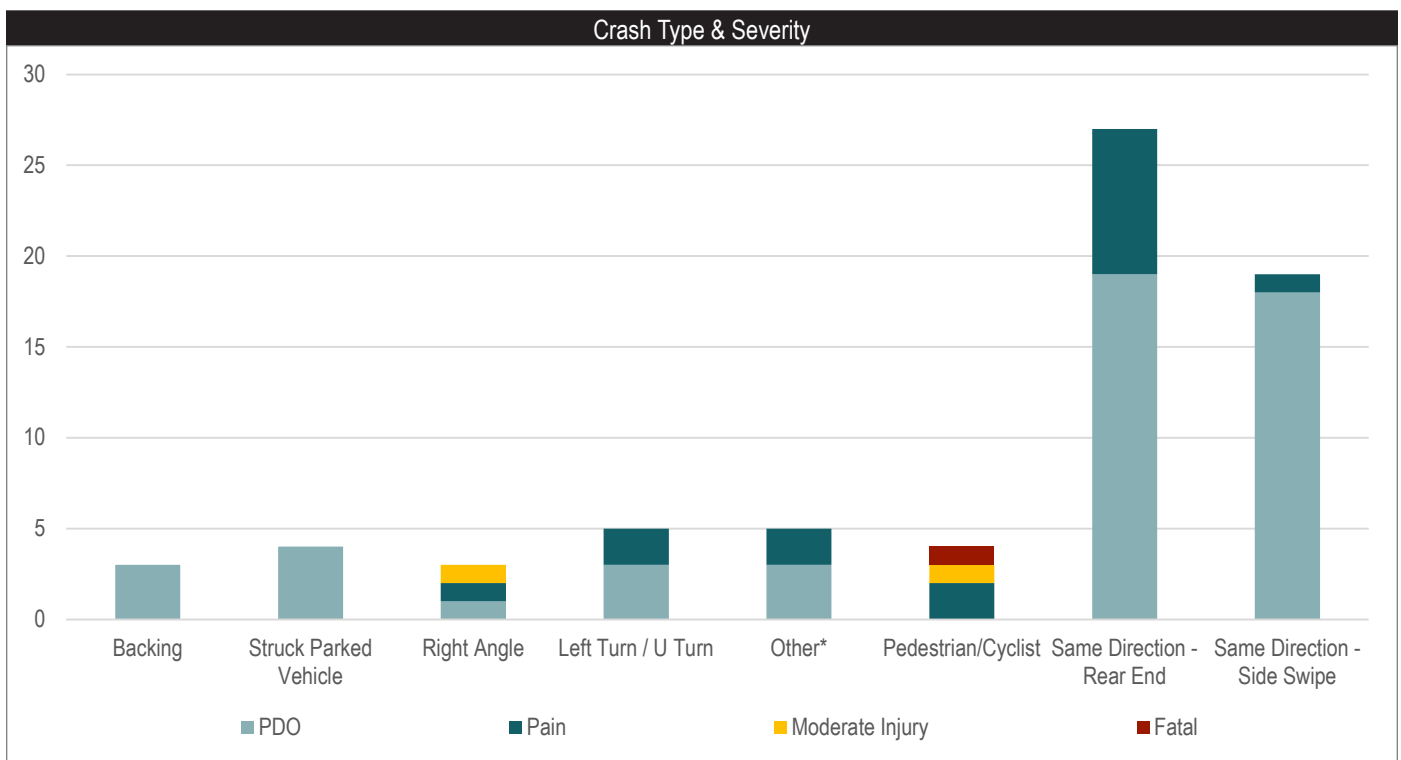
Crash Year	#
2010	20
2011	21
2012	29
Total	70

Intersection	#
At intersection	39
Not at intersection	31
At or Near Railroad	-
Total	70

Surface Condition	#
Dry	50
Wet	17
Snowy	-
Icy	-
Slush	3
Water – Standing/ Moving	-
Sand, Mud, Dirt	-
Oil	-
Total	70

Light Condition	#
Daylight	50
Dawn	-
Dusk	1
Dark – No Street Lights	-
Dark – Street Lights On/ Continuous	17
Dark – Street Lights On/ Spot	1
Dark – Street Lights Off	-
Other	1
Total	70

Day	#
Monday	13
Tuesday	9
Wednesday	15
Thursday	8
Friday	16
Saturday	3
Sunday	6
Total	70

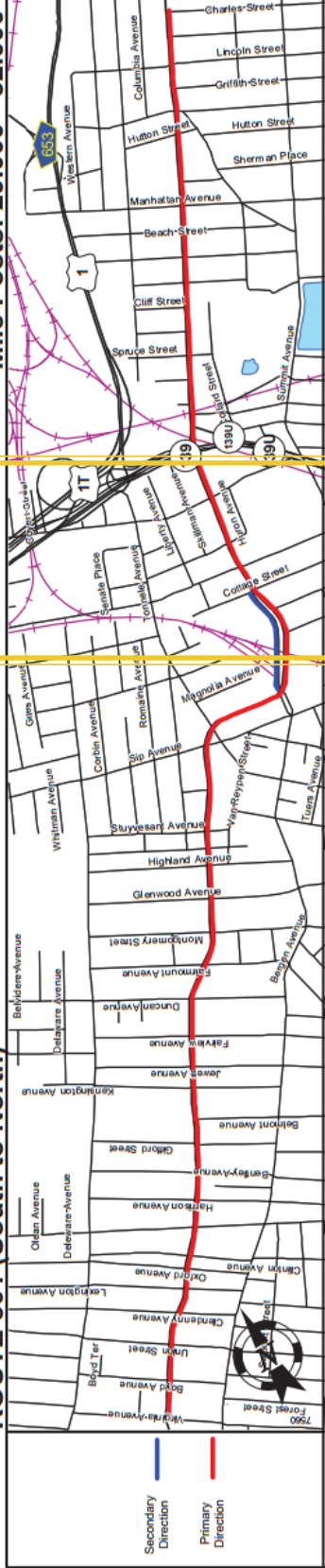


>> APPENDIX D – STRAIGHT LINE DIAGRAMS

STRAIGHT LINE DIAGRAMS

ROUTE 501 (South to North)

Mile Posts: 29.000 - 32.000



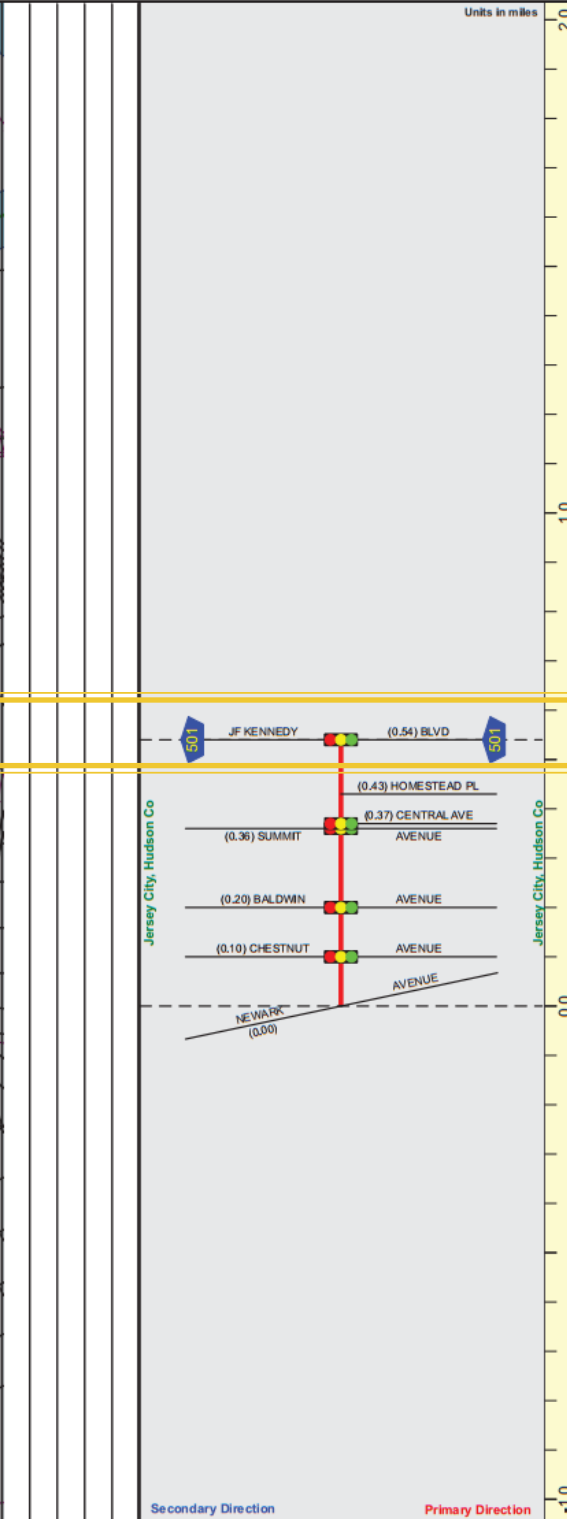
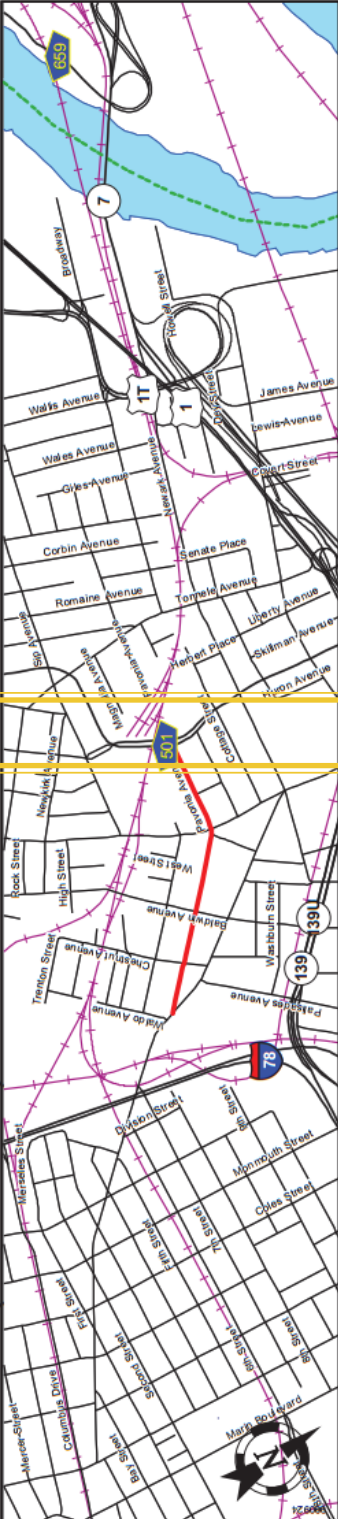
Mile Post	Street Name	Direction
29.00	DAOB (8.00)	AVENUE
29.13	UNION	STREET
29.20	CLENDENNEY	AVENUE
29.25	LEXINGTON	AVENUE
29.29	OXFORD	AVENUE
29.31	CLINTON	AVENUE
29.37	TYSON LN	AVENUE
29.43	HARRISON	AVENUE
29.48	BENTLEY	AVENUE
29.54	GIFFORD	AVENUE
29.58	LINCOLN PARK	AVENUE
29.61	LINCOLN PARK	AVENUE
29.66	KENSINGTON	AVENUE
29.70	JEWETT	AVENUE
29.76	FAIRVIEW	AVENUE
29.84	DUNCAN	AVENUE
29.91	FAIRMOUNT	AVENUE
29.98	MONTGOMERY	STREET
30.05	GLENWOOD	AVENUE
30.12	HIGHLAND	AVENUE
30.15	DE KALB	AVENUE
30.19	STUYVESANT	AVENUE
30.27	BOND ST	AVENUE
30.36	SIP	AVENUE
30.40	TONNELLE	AVENUE
30.56	BERGEN AVE	AVENUE
30.68	PAVONIA AVE	AVENUE
30.74	VAN REIPEN AVE	AVENUE
30.80	COTTAGE STREET	AVENUE
30.85	NEWARK AVENUE	AVENUE
30.90	VAN WINKLE AVE	BROOKS AVE
31.00	ST. PALLS AVENUE	AVENUE
31.15	ELM ST	AVENUE
31.20	FLOYD ST	AVENUE
31.30	SPRUCE STREET	AVENUE
31.35	STAGE ST	AVENUE
31.40	CLIFF ST	AVENUE
31.45	LAKE STREET	AVENUE
31.50	CARLTON AVENUE	AVENUE
31.55	BEACH STREET	AVENUE
31.60	MANHATTAN AVENUE	AVENUE
31.65	SHERMAN PL	AVENUE
31.75	HUTTON STREET	AVENUE
31.80	ZABRISKIE STREET	AVENUE
31.84	GRIFFITH ST	AVENUE
31.89	LINCOLN STREET	AVENUE
31.95	BOWERS ST	AVENUE
32.00	CHARLES ST	AVENUE

Street Name	Jurisdiction	Functional Class	Federal Aid - NHS Sy	Control Section	Speed Limit	Number of Lanes	Med. Type	Med. Width	Pavement	Shoulder	Traffic Volume	Traffic Sta. ID	Structure No.	Enlarged Views
DAOB (8.00)	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60		23.515 (2009)	3-4-405		
UNION	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
CLENDENNEY	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
LEXINGTON	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
OXFORD	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
CLINTON	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
TYSON LN	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
HARRISON	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
BENTLEY	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
GIFFORD	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
LINCOLN PARK	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
KENSINGTON	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
JEWETT	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
FAIRVIEW	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
DUNCAN	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
FAIRMOUNT	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
MONTGOMERY	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
GLENWOOD	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
DE KALB	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
HIGHLAND	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
STUYVESANT	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
BOND ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
SIP	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
TONNELLE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
BERGEN AVE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
PAVONIA AVE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
VAN REIPEN AVE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
COTTAGE STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
NEWARK AVENUE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
VAN WINKLE AVE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
ST. PALLS AVENUE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
ELM ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
FLOYD ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
SPRUCE STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
STAGE ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
CLIFF ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
LAKE STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
CARLTON AVENUE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
BEACH STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
MANHATTAN AVENUE	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
SHERMAN PL	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
HUTTON STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
ZABRISKIE STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
LINCOLN STREET	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
BOWERS ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					
CHARLES ST	Jersey City, Hudson Co	Urban Principal Arterial	NHS		25	4	None	0	60					

SRI = 00000501 Date last inventoried: November 2012

Mile Posts: 0.000 - 0.540

PAVONIA AVE (South to North)



Street Name	Pavonia Avenue
Jurisdiction	Municipal
Functional Class	Urban Major Collector
Federal Aid - NHS Sy	STP
Control Section	NOT POSTED
Speed Limit	2
Number of Lanes	None
Med. Type	0
Med. Width	28
Pavement	0
Shoulder	0
Traffic Volume	
Traffic Sta. ID	
Structure No.	
Enlarged Views	

Date last inventoried: September 2011

SRI = 09061565