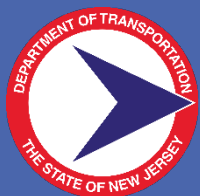




Road Safety Audit:

STUYVESANT AVENUE (CR 619),
VAUXHALL ROAD TO I-78
(MP 5.14-5.95)



July 2023
Issued January 2024

TABLE OF CONTENTS

Executive Summary.....	iii
I. Introduction	1
A. Site Selection.....	1
B. What is a Road Safety Audit (RSA)?	1
C. The RSA Event	2
II. Corridor Description and Analysis.....	2
A. Study Location and Other Studies.....	2
B. Roadway and Intersection Characteristics.....	2
C. Existing Bicycle/Pedestrian Accommodations	2
D. Traffic Volumes	2
E. Transit Service.....	2
F. Community Profile	2
G. Land Use.....	3
III. Crash Findings	3
A. Temporal Trends	3
B. Collision Types.....	4
C. Severity	5
D. Roadway Surface & Light Condition.....	6
E. Location.....	7
IV. Identified Issues & Observations	8
A. Pedestrian/Bicyclist.....	8
B. Operations, Visibility, and Maintenance.....	9
V. Findings and Recommendations.....	11
A. Recommendations	11
B. Road Owner Response.....	17
C. Recommendation Visualizations.....	17
VI. Conclusions	20

LIST OF FIGURES

Figure 1 – Total Crashes by Month and Day of Week.....	4
Figure 2 – Pedestrian/Bicyclist Crashes by Month and Day of Week	4
Figure 3 – Crash Type Breakdown.....	5
Figure 4 – Severity (Pedestrian/Bicycle Crashes).....	5
Figure 5 – Surface Conditions (All Crashes)	6
Figure 6 – Light Conditions (All Crashes).....	6
Figure 7 – Surface Conditions (Pedestrian/Bicycle Crashes)	7
Figure 8 – Light Conditions (Pedestrian/Bicycle Crashes).....	7
Figure 9 – Pedestrian Facility Examples	18
Figure 10 – Sidewalk and Driveways (Source: CSDG)	19

Figure 11 – Bicycle Facility Examples	19
Figure 12 - Example of a Rectangular Rapid Flashing Beacon (Source: NATCO: UB).....	20

LIST OF TABLES

Table 1 – County Ranking, Top 50 (Corridor).....	1
Table 2 – County Ranking, Top 50 (Intersection).....	1
Table 3 – Study Area Demographics	3
Table 4 – Corridor-Wide Recommendations	11
Table 5 – Site-Specific Recommendations	13

APPENDICES

- A. RSA Team
- B. Area Map
- C. Pedestrian Crash Diagrams
- D. Vehicular Crash Diagrams
- E. Traffic Data / Straight Line Diagrams
- F. Photographs
- G. Pre-Audit Presentation
- H. Road Owner Response

Executive Summary

This document is the draft report of the Road Safety Audit (RSA) conducted along Stuyvesant Avenue (CR 619) from Vauxhall Road to I-78, in Union Township, Union County. An RSA is an effective way of identifying crash-causing trends and appropriate countermeasures utilizing a nontraditional approach that promotes transportation safety while maintaining mobility.

The aforementioned roadway section was identified on NJDOT's Network Screening list. According to the NJDOT crash database, there were 185 crashes from 2018 to 2020 along the study area section of Stuyvesant Avenue. There were 11 pedestrian crashes and 2 bicyclist crashes from 2016 to 2020, none of which were fatal.

The hybrid RSA was conducted on Monday, May 1, and Tuesday, May 2, 2023. The pre-audit meeting was conducted online via Microsoft Teams on Monday and the field visit and post-audit were conducted on Tuesday. Representatives from Union County, Union Township, NJDOT, NJTPA, NJ Transit, and EZ Ride TMA were in attendance during one or both days.

The RSA site and crash history are described in Sections II and III of this report, respectively. Section II also identifies previous and on-going studies conducted by the agency representatives. Corridor-wide and site-specific issues and recommendations, organized by location, are discussed in Section V. These recommendations addressed pedestrian safety by ensuring ADA compliance, repairing sidewalks, and providing compliant pedestrian signal equipment at traffic signals. Additionally, many suggestions were made to provide access management, provide a shared use path, improve signage, and improve lighting.

The recommendations contained herein were developed collaboratively with the roadway owner and local stakeholders from the RSA Team (members listed in Appendix A). The study partners have expressed interest in implementing many of the recommendations as time and funds allow. Many of the maintenance items, which are typically low cost, can be addressed without additional engineering.

Please note this RSA report does not constitute an engineering report. The agency responsible for design and construction should consult a licensed professional engineer in preparing the design and construction documents, to implement any of the safety countermeasures mentioned in this report.

I. Introduction

A. Site Selection

This section of Stuyvesant Avenue was identified on NJDOT’s Network Screening lists, as shown below. The current Network Screening list rankings are based on 2014-2016 vehicular and 2012-2016 pedestrian crash data, unless noted otherwise.

Table 1 – County Ranking, Top 50 (Corridor)

Location	Ped Corridor	Regional Corridor
Stuyvesant Avenue	#3 (MP 4.92-5.92)	#10 (MP 4.75-5.75)

Table 2 – County Ranking, Top 50 (Intersection)

Location	Intersections	Pedestrian Intersections
Vauxhall Road (MP 5.14)	#13	#3
Oakland Avenue (MP 2.96)	#46	-

B. What is a Road Safety Audit (RSA)?

An RSA is a formal safety performance examination of an existing or future road or intersection by a multi-disciplinary audit team. It qualitatively estimates and reports on existing and potential road safety issues, as well as identifies opportunities for improvements in safety for all road users. RSAs can be used on any size project, from minor maintenance to mega-projects, and can be conducted on facilities with a history of crashes, or during the design phase of a new roadway or planned upgrade. RSAs consider all road users, account for human factors and road user capabilities, are documented in a formal report, and require a formal response from the road owner. RSAs focus on evaluating the safety of both pedestrians and bicyclists, which may include looking beyond the roadway to include other paths, connections, and generators.

RSAs are conducted to generate improvement recommendations and countermeasures for roadway segments demonstrating a history of, or potential for, a high frequency of crashes, or an identifiable pattern of crash types. Recommendations range from low-cost, quick-turnaround safety improvements to more complex strategies. Implementation of improvement strategies identified through this process may be eligible for Local Federal Aid Safety Funds. Because the RSA process is adaptable to local needs and conditions, recommendations can be implemented incrementally as time and resources permit. The RSA process, one of FHWA’s proven safety countermeasures, is shown below.



C. The RSA Event

This hybrid RSA was conducted on Monday, May 1, and Tuesday, May 2, 2023. The pre-audit meeting was conducted online via Microsoft Teams on Monday and the field visit and post-audit were conducted on Tuesday. Representatives from Union County, Union Township, NJDOT, NJTPA, NJ Transit, and EZ Ride TMA were in attendance during one or both days. A list of team members can be found in Appendix A. Other organizations that the RSA Team identified that may have an interest in the project area include the local businesses.

II. Corridor Description and Analysis

A. Study Location and Other Studies

The study area consists of a 0.8-mile segment of Stuyvesant Avenue (MP 5.14-5.95). The adjacent land use along the corridor is a mix of commercial and residential properties. The following sections provide additional information.

B. Roadway and Intersection Characteristics

Stuyvesant Avenue is an undivided urban minor arterial, with 2 travel lanes and on-street parking. Shoulders are not present throughout the study area. The posted speed is 25 mph. There are 3 signalized and 13 unsignalized intersections.

C. Existing Bicycle/Pedestrian Accommodations

Sidewalk is provided along both sides of Stuyvesant Avenue. Marked crosswalks consist of double lines, or ladder styles depending on location. Sidewalk and crosswalk conditions vary from newly installed to needing maintenance. There are no bicycle lanes or other bicycling infrastructure identified along the corridor.

D. Traffic Volumes

The 2019 Annual Daily Traffic (ADT) along Stuyvesant Avenue in the vicinity of Haines Avenue is approximately 14,140 vehicles per day. A copy of the available data can be found in Appendix E.

E. Transit Service

NJ Transit bus service is provided along Stuyvesant Avenue via routes 66, and 94. Stops are located at or near Vauxhall Road, Haines Avenue, Gless Avenue, Mountainview Avenue, Long Terrace / Tyler Street, Morrison Avenue, Oakland Avenue, and Everett Circle.

F. Community Profile

The American Community Survey (ACS) estimate, which updates the 2010 Census population and income characteristics, was used to identify minority and low-income populations surrounding the project limits. The latest ACS for this study area is a five-year estimate from 2016 through 2020. A summary of the demographics is listed below. Bold denotes that the percentage is above the Union County average.

Table 3 – Study Area Demographics

Characteristic	Study Area	County Average
Demographic Index	43%	-
Race/Ethnicity	-	-
<i>White</i>	23%	39%
<i>Hispanic/Latino</i>	18%	32%
<i>Black or African American</i>	43%	20%
<i>Asian American</i>	11%	5%
<i>American Indian/Alaskan</i>	0%	0%
<i>Other¹</i>	5%	4%
People over age 64	15%	14%
People under age 18	19%	23%
Low Income	4%	9%
Limited English Proficiency	15%	18%
Persons with a Disability	8%	9%
Use Public Transportation	5%	6%
Walk/Bike to Work	1%	1%
Homes with No Vehicle Available	4%	11%

The Demographic Index in the study area is below 50%. Therefore, this area may not be considered a historically underserved community.

G. Land Use

The area surrounding Stuyvesant Avenue is commercial/residential. The Union Public Library is located west of Vauxhall Road. Franklin Elementary school is located to the northeast of Oakland Ave and St Michaels School is located along Vauxhall Rd to the west. Throughout the corridor are various restaurants and auto shops. Additional features are shown on the project area map in Appendix B.

III. Crash Findings

The analysis used in the RSA was based on reportable crashes found in the NJDOT crash database resulting in a fatality, injury and/or property damage. Corridor-wide crash characteristics and overrepresentations were compared to the 2020 statewide average for the county road system as further detailed below. All crashes were plotted onto collision diagrams, which can be found in Appendix C and D.

According to the NJDOT crash database, 172 vehicular crashes occurred during the 3-year period between January 1, 2018 and December 31, 2020 along the study area. There were 13 pedestrian / bicyclist crashes over the 5-year period between January 1, 2016 and December 31, 2020. The total number of crashes used for the RSA was 185.

A. Temporal Trends

Total crashes varied (either higher or lower) from the county average except in February, March, and May through July. In general, crashes were lower on Saturdays and Sundays and higher on Mondays and Wednesdays.

¹ Percentages may not equal 100% due to rounding. Other includes individuals who identified themselves as 'Native Hawaiian or Pacific Islander', 'Some Other Race Alone' or 'Two or More Races'

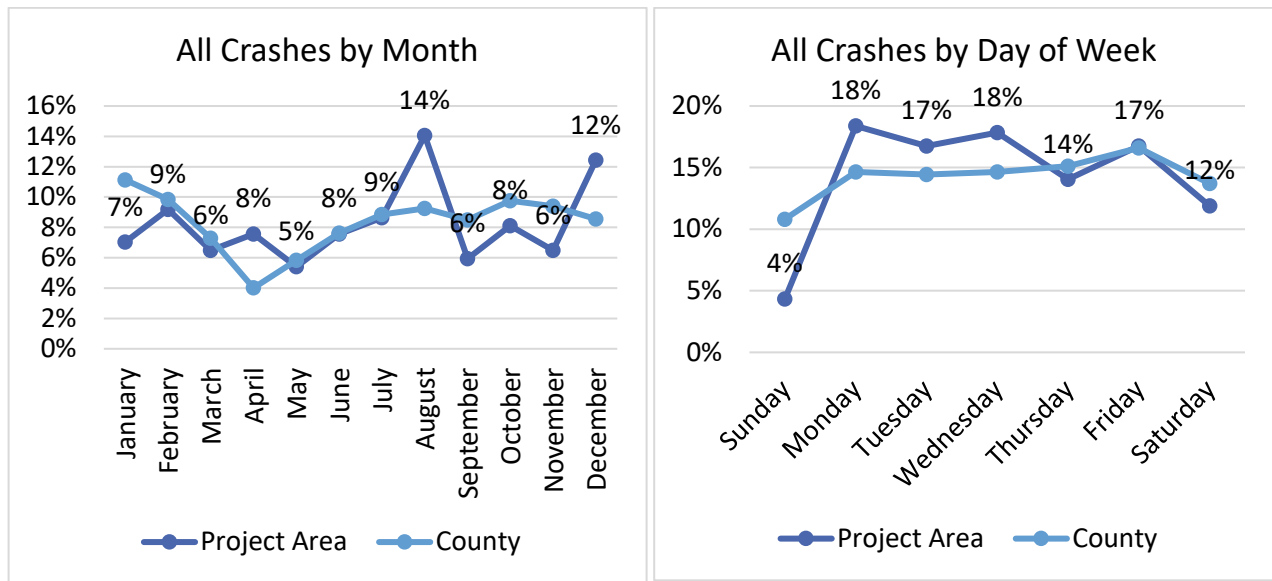


Figure 1 – Total Crashes by Month and Day of Week

Collisions with pedestrians and bicyclists were higher on Mondays, Tuesdays, and Fridays, and during December.

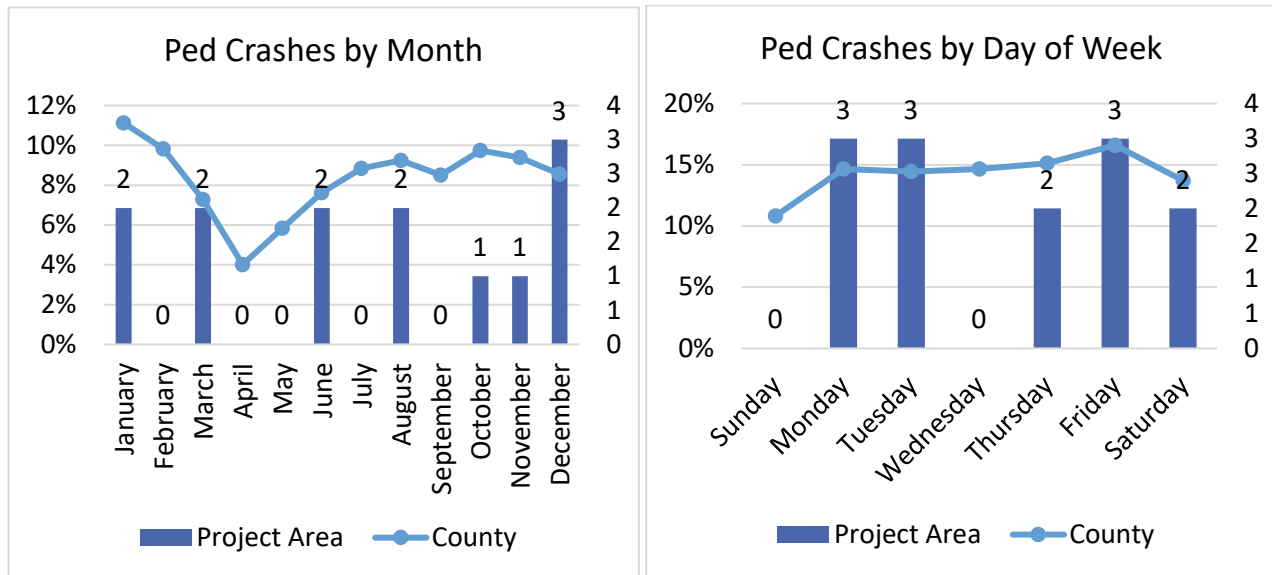


Figure 2 – Pedestrian/Bicyclist Crashes by Month and Day of Week

B. Collision Types

Overrepresented crash types included same direction-side swipe, right angle, parked vehicle, left turn, backing, and pedestrian. Same direction rear end and right angle crashes were the predominant crash types (46% of total).

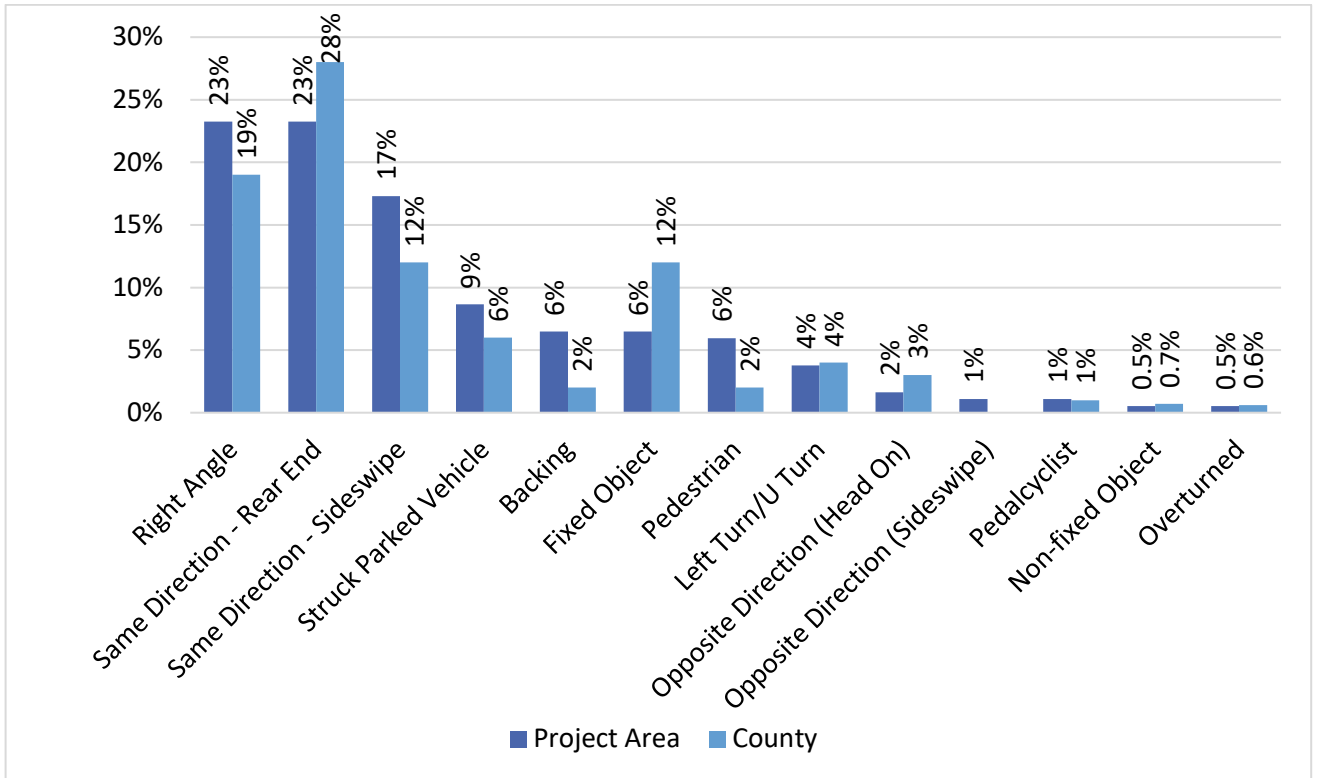


Figure 3 – Crash Type Breakdown

C. Severity

No fatal vehicular or pedestrian/bicyclist crashes were identified in the studied time period. Nine (9) pedestrian/bicyclist crashes included a possible injury, and 4 included a suspected minor injury during the time period studied.

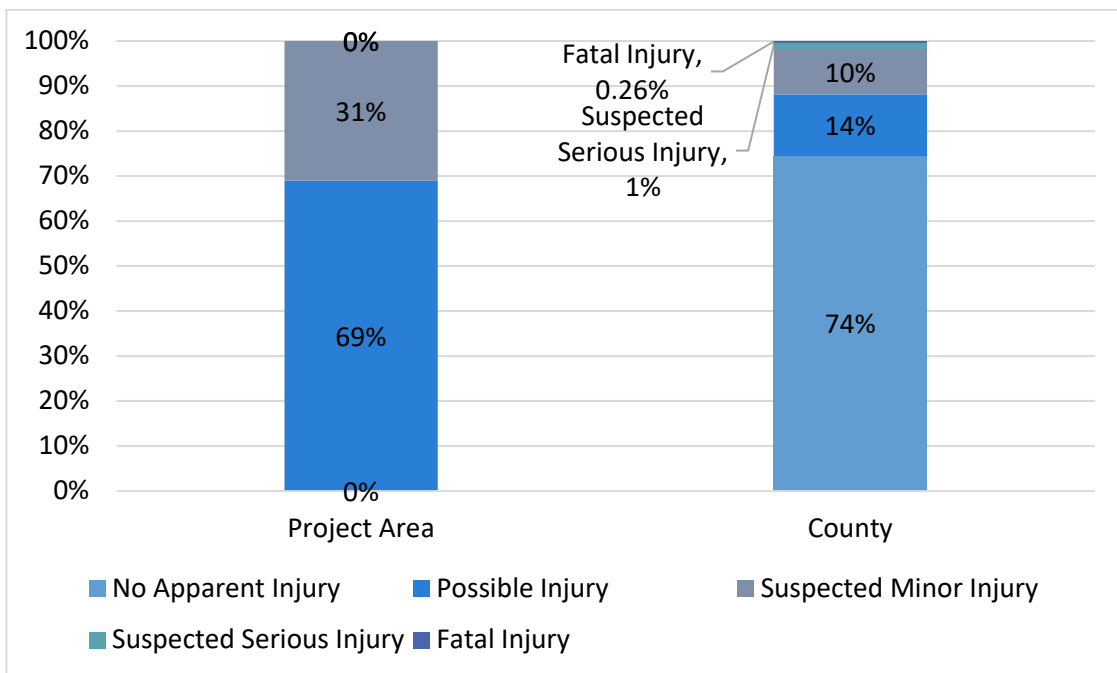


Figure 4 – Severity (Pedestrian/Bicycle Crashes)

D. Roadway Surface & Light Condition

Overrepresented conditions included daytime (73%), dry surface (86%), and icy surface (0.4%). All other conditions are similar to or underrepresented compared to the county road system.

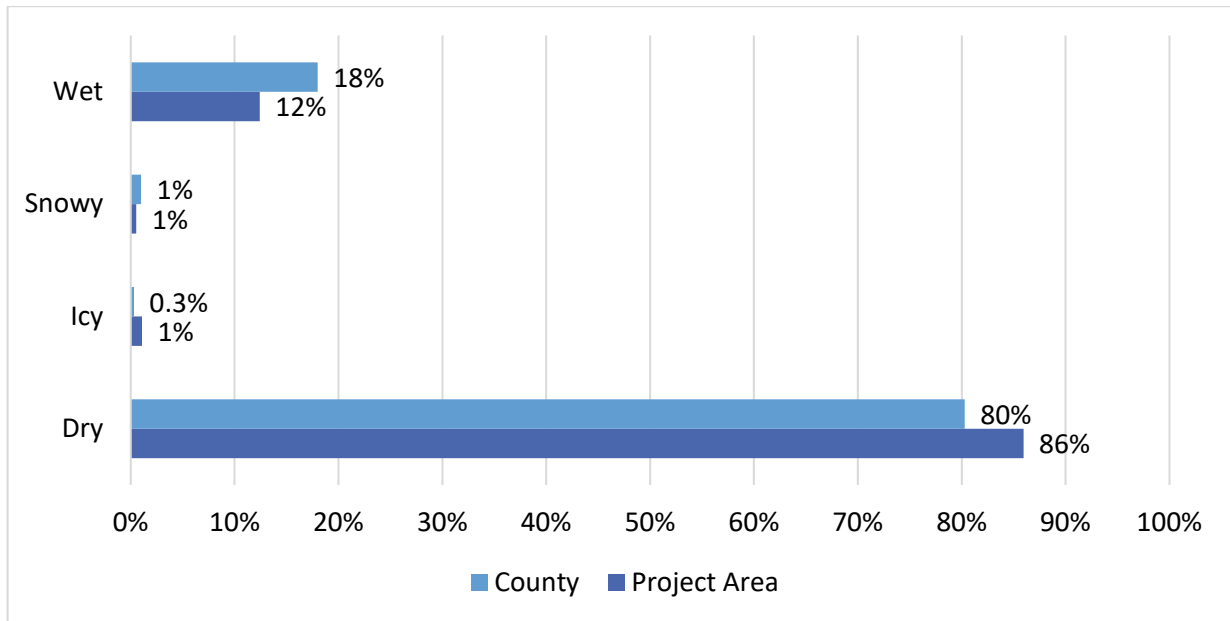


Figure 5 – Surface Conditions (All Crashes)

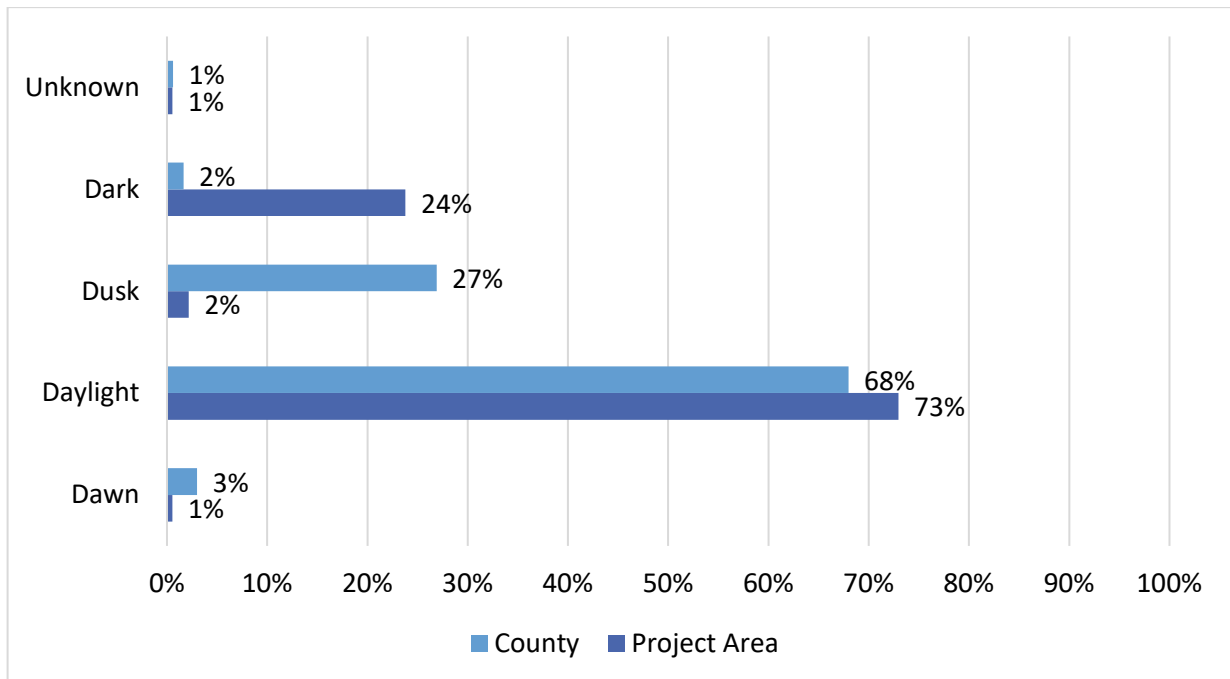


Figure 6 – Light Conditions (All Crashes)

Forty-six percent (46%) of pedestrian crashes occurred at night and 92% occurred on dry surface. As shown in the figures below, these are overrepresented compared to the county road system.

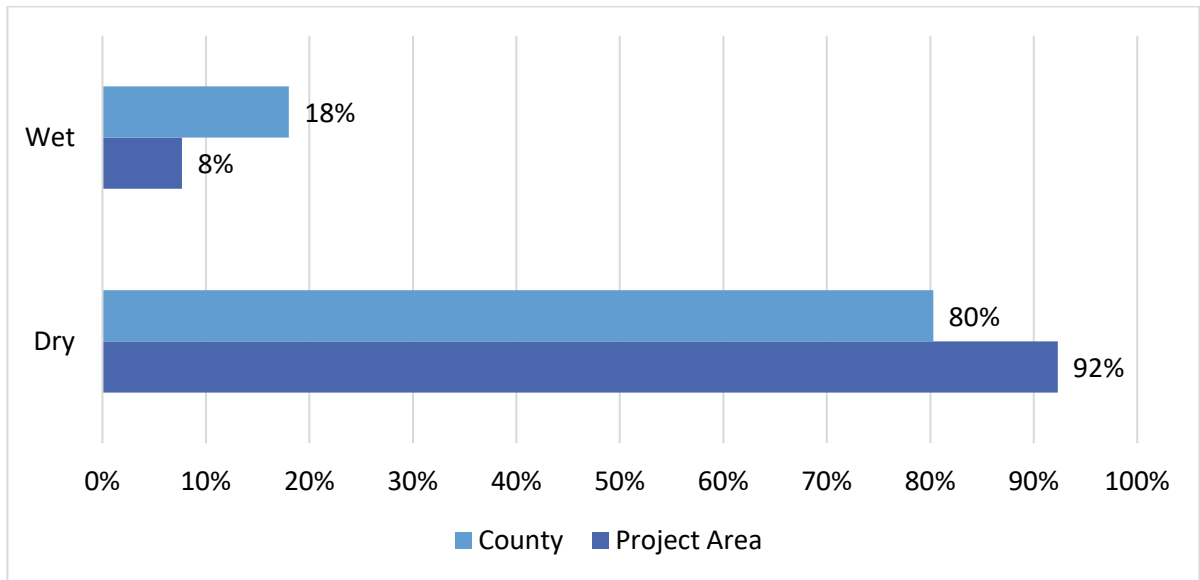


Figure 7 – Surface Conditions (Pedestrian/Bicycle Crashes)

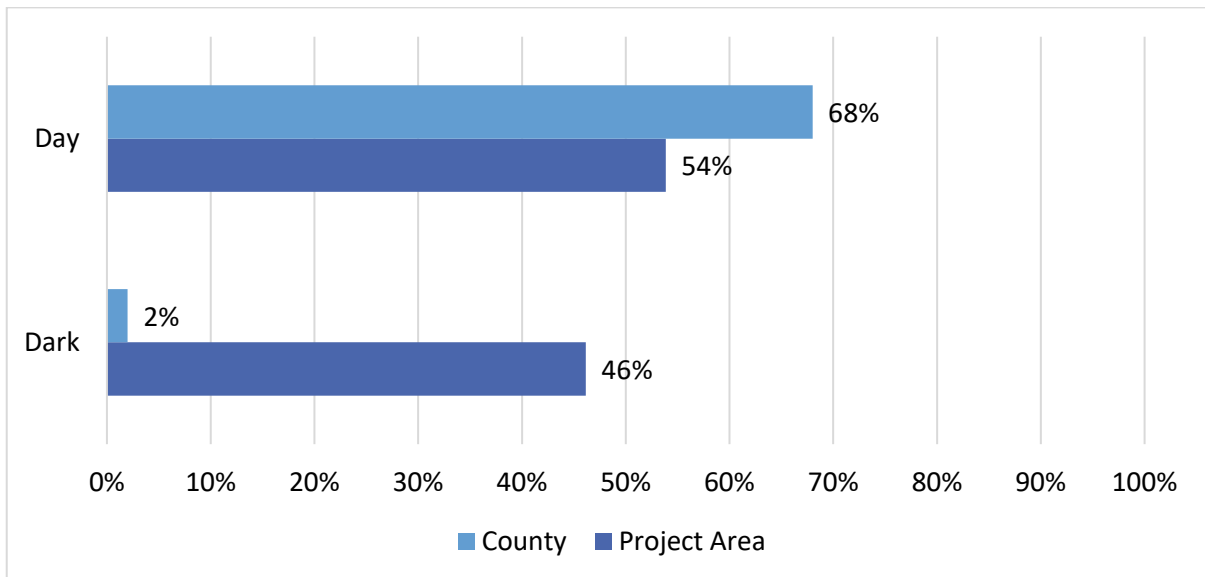


Figure 8 – Light Conditions (Pedestrian/Bicycle Crashes)

E. Location

Thirty-six percent (36%) of crashes occurred at signalized intersections, 12% occurred at unsignalized intersections, and 51% occurred between intersections. In comparison, 14%, 23%, and 63% of crashes on all county roads occur at signalized intersections, unsignalized intersections, and between intersections, respectively. All pedestrian/bicyclist crashes occurred at an intersection, with the majority of those occurring at the intersection of Vauxhall Road.

IV. Identified Issues & Observations

This section summarizes the common corridor-wide safety issues identified during the RSA and are not all inclusive. They are categorized into operations (including visibility) and maintenance issues, and pedestrian and bicyclist issues. Additional site-specific issues and photographs are in Appendix F.

A. Pedestrian/Bicyclist



Observation / Photo Location

Uneven sidewalk may pose tripping hazard

Stuyvesant Avenue between Haines Avenue and High Street



Vegetation obstructing sidewalk

Stuyvesant Avenue between Oakwood Parkway and Stecher Avenue



Drainage issues along ADA curb ramps; Faded crosswalk markings

Stuyvesant Avenue and Tyler Street



Observation / Photo Location

No marked crosswalk at intersection

Stuyvesant Avenue and Tyler Street



Vehicles parked on sidewalk obstruct pedestrian path

Stuyvesant Avenue between Morris Avenue and Walker Avenue

B. Operations, Visibility, and Maintenance



Observation / Photo Location

Outdated traffic signal heads and pedestrian signal equipment

Stuyvesant Avenue and Vauxhall Road



Observation / Photo Location

Poor driveway condition;
Stuyvesant Avenue and Kay Avenue



Drainage covered with trash

Stuyvesant Avenue and Ernst Terrace



Traffic circulation issues as oversized vehicle backs out at a gas station

Stuyvesant Avenue and Stecher Avenue

The Audit Team also observed vehicles traveling at higher speeds than the posted speed limit; large curb radii at intersections; sightline obstructions from the side streets due to vehicles parked too close to the intersections; inadequate lighting; lack of edge line and shoulder markings; unmarked crosswalks; poor sidewalk conditions; and drainage issues.

V. Findings and Recommendations

This section summarizes the site-specific and corridor-wide safety issues, potential strategies, and recommendations to improve the same. The safety benefit, time frame, cost, and jurisdiction are listed alongside each recommendation. Ratings used in the tables are described as follows. N/A indicates safety benefit not determined. Recommendations in ***bold italics*** are FHWA Proven Safety Countermeasures.

Symbol	Meaning	Definition
N/A	Not available	Safety benefit not determined
✓	Low safety benefit potential	May reduce total crashes by 1-25% ²
✓✓	Low to moderate safety benefit potential	May reduce total crashes by 26-49% ²
✓✓✓	Moderate safety benefit potential	May reduce total crashes by 50-74% ²
✓✓✓✓	High safety benefit potential	May reduce total crashes by 75+% ²
\$	Low cost	Could be accomplished through maintenance
\$\$	Medium cost	May require some engineering or design and funding may be readily available
\$\$\$	High cost	Longer term; may require full engineering, ROW acquisition and new funding
🕒	Short term	Could be accomplished within 1 year
🕒	Medium term	Could be accomplished in 1 to 3 years; may require some engineering and analysis
🕒	Long term	Could be accomplished in 3 years or more; may require full engineering and analysis

A. Recommendations

The following represents the specific findings and recommendations made by the RSA team. All recommendations and designs should be thoroughly evaluated with due diligence and designed as appropriate by the roadway owner and/or a professional engineer for conformance to all applicable codes, standards, and best practices.

Table 4 – Corridor-Wide Recommendations

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Operations					
1	Consider upgrading all ramps for ADA compliance	✓✓✓ ³	\$\$\$	🕒	County/ Township

² Based on existing Crash Modification Factors (CMFs), the Highway Safety Manual (HSM), FHWA Proven Safety Countermeasures and current research, where applicable. All safety benefits are approximate.

³ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
2	Consider corridor-wide signal upgrades (8" to 12" signal heads, install backplates with retroreflective border , evaluate clearance intervals, update to countdown pedestrian signal heads, replace push buttons for ADA compliance, signal timings, lighting, etc.)	✓✓	\$\$\$	●	County/ Township
3	Consider updating signage to ensure it is consistent throughout corridor	✓	\$	●	County/ Township
4	Consider conducting a parking study to investigate on-street parking requirements and Title 39 conformance	✓ ⁴	\$\$	●	County/ Township
5	Consider conducting a lighting analysis for the corridor	✓✓✓	\$\$	●	County/ Township
6	Review access management for the corridor and consider driveway revisions or consolidation	✓	\$\$\$	●	County/ Township
7	Investigate installing edge lines to delineate the travel lanes and parking areas/shoulder	✓ ⁴	\$	●	County/ Township
8	Consider installing curb in areas where missing	✓	\$\$	●	County/ Township
9	Consider clearing sight triangles at intersections	✓✓	\$	●	County/ Township
10	Investigate additional drainage improvements along the corridor	✓ ⁴	\$\$	●	County
Bicycle/Pedestrian					
11	Inspect, repair and construct sidewalk in compliance with ADA as needed, including driveway aprons; complete any missing connections	✓✓✓	\$\$	●	County/ Township
12	Examine crosswalks status: check placement, alignment, and markings	✓✓	\$	●	County/ Township
13	Study implementation of curb extensions (bump outs) based on the site-specific recommendations to maintain consistency	✓✓ ⁴	\$\$	●	County/ Township
14	Consider providing high-visibility crosswalk markings for all intersections throughout corridor	✓✓	\$	●	County/ Township
15	Investigate providing Leading Pedestrian Interval (LPI) at signalized intersections	✓✓✓	\$	●	County/ Township
16	Consider bicycle facilities throughout the corridor	✓✓	\$	●	County/ Township
Maintenance					
17	Inspect existing striping for wear and restripe accordingly	✓✓	\$	●	County/ Township
18	Inspect and replace missing, faded, damaged or incorrect/outdated signage as needed (i.e., signs mounted below 7-ft, on non-breakaway posts, or back-to-back signs that obscure shapes)	✓	\$	●	County/ Township

⁴ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
19	Inspect and trim foliage/vegetation to improve sidewalk paths	✓ ⁵	\$\$	●	County/ Township
20	Inspect drainage facilities; ensure they are free of debris	✓ ⁵	\$\$	●	County/ Township
Education					
21	Consider periodic sidewalk, crosswalk, multimodal education campaign and code enforcement	✓ ⁵	\$	●	EZ Ride TMA/ Township

The following site-specific recommendations are in addition to the corridor-wide improvements, except if noted otherwise. Since there are planned future resurfacing projects in the study area including Kay Avenue / Marianne Way, it is advised to coordinate any recommendations with Union Township.

Table 5 – Site-Specific Recommendations

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Vauxhall Road					
22	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁵	\$\$\$	●	County/ Township
23	Inspect parking abutting sidewalks and consider revisions to stalls with physical barriers so vehicles cannot park on or overhang the sidewalk	✓	\$\$	●	County/ Township
24	Consider corridor-wide recommendation 2 and 15 regarding signal upgrades and <i>LPIs</i> , including signal phasing for protected only left turns and no turn on red	✓✓	\$\$\$	●	County/ Township
25	Consider restriping to install <i>dedicated left turn lanes</i>	✓	\$\$	●	County/ Township
26	Consider installing lane use signs	✓	\$	●	County/ Township
27	Consider removing foundation tripping hazard at northwest corner	✓ ⁵	\$\$	●	County/ Township
28	Consider corridor-wide recommendation 6 regarding <i>access management</i> and driveway consolidation at northeast corner	✓	\$\$\$	●	County/ Township
29	Consider reconfiguring QuickChek driveway on Vauxhall Road to right-in, right-out (RIRO) only operations	✓✓	\$\$	●	County/ Township
30	Consider corridor-wide recommendation 8 regarding curb installation	✓	\$\$	●	County/ Township

⁵ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Haines Avenue					
31	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁶	\$\$\$	●	County/ Township
32	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	🕒	County/ Township
33	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	🕒	County/ Township
34	Consider installing transverse rumble strips to curb speeding	✓✓✓	\$\$	🕒	County/ Township
35	Consider installing panels at the bus shelter	N/A	\$	🕒	Township
High Street					
36	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁶	\$\$\$	●	County/ Township
37	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	🕒	County/ Township
38	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	🕒	County/ Township
39	Consider corridor-wide recommendation 8 regarding curb installation	✓	\$\$	●	County/ Township
Gless Avenue					
40	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁶	\$\$\$	●	County/ Township
41	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	🕒	County/ Township
Mountainview Avenue					
42	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁶	\$\$\$	●	County/ Township
43	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	🕒	County/ Township
Lentz Avenue					
44	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁶	\$\$\$	●	County/ Township
45	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	🕒	County/ Township
46	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	🕒	County/ Township

⁶ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Kay Avenue / Marianne Way					
47	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁷	\$\$\$	●	County/ Township
48	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	⌚	County/ Township
49	Consider corridor-wide recommendation 6 regarding access management	✓	\$\$\$	●	County/ Township
50	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	⌚	County/ Township
Ernst Terrace					
51	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁷	\$\$\$	●	County/ Township
52	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	⌚	County/ Township
Tyler Street / Long Terrace					
53	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁷	\$\$\$	●	County/ Township
54	Consider corridor-wide recommendation 2 regarding signal upgrades	✓✓	\$\$\$	●	County/ Township
55	Investigate signalizing the 7-Eleven Driveway	✓✓	\$\$\$	●	County/ Township
56	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$	⌚	County/ Township
57	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	⌚	County/ Township
58	Consider pavement resurfacing due to poor pavement condition	✓	\$\$	●	County/ Township
Balmoral Avenue / Oakwood Parkway					
59	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁷	\$\$\$	●	County/ Township
60	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	●	County/ Township
61	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	⌚	County/ Township
Stecher Avenue					
62	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁸	\$\$\$	●	County/ Township

⁷ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
63	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	●	County/ Township
64	Consider corridor-wide recommendation 18 on signs	✓	\$	○	County/ Township
Morrison Avenue					
65	Consider installing a traffic signal if warranted	✓✓	\$\$\$	●	County/ Township
66	Consider installing Rectangular Rapid Flashing Beacon (RRFB)	✓✓	\$	○	County
67	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁸	\$\$\$	●	County/ Township
68	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	●	County/ Township
69	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	○	County/ Township
Walker Avenue					
70	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁸	\$\$\$	●	County/ Township
71	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	●	County/ Township
72	Consider corridor-wide recommendation 10 regarding drainage	✓ ⁸	\$\$	○	County
73	Consider installing additional One-Way sign	✓	\$	○	County/ Township
74	Consider corridor-wide recommendation 9 regarding clearing sight triangles	✓✓	\$	○	County/ Township
Oakland Avenue					
75	Consider corridor-wide recommendation 2 and 15 regarding signal upgrades and LPIs	✓✓	\$\$\$	●	County/ Township
76	Consider reducing curb radii	✓✓	\$	○	County/ Township
77	Consider installing pedestrian refuge island	✓✓✓	\$\$	●	County/ Township
78	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, and crosswalks	✓✓✓ ⁸	\$\$\$	●	County/ Township
79	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	●	County/ Township
80	Consider improving lighting near the bus shelter	N/A	\$	○	County

⁸ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
81	Consider corridor-wide recommendation 18 on signs	✓	\$	☉	County/ Township
82	Consider installing lane use signs	✓	\$	☉	County/ Township
83	Consider adding dashed turn lane striping “tracks” for southbound left turn lanes	✓✓	\$	☉	County/ Township
84	Consider corridor-wide recommendation 8 regarding curb installation	✓	\$\$	☾	County/ Township
Everett Circle					
85	Consider corridor-wide recommendations 1, 5, 11, and 14 regarding ADA compliance, sidewalk, driveway apron, and crosswalks	✓✓✓ ⁹	\$\$\$	☾	County/ Township
86	Consider corridor-wide recommendation 12 and 17 regarding crosswalk and stop bar	✓✓	\$\$\$	☾	County/ Township
87	Consider corridor-wide recommendation 18 regarding on signs	✓	\$	☉	County/ Township
88	Investigate consolidating bus stops at this intersection and Oakland Ave depending on ridership	N/A	\$\$	☉	NJ Transit
I-78 Overpass					
89	Consider corridor-wide recommendation 19 regarding trimming foliage along sidewalk path	✓ ⁹	\$\$	☉	County/ Township
90	Consider corridor-wide recommendation 8 regarding curb installation	✓	\$\$	☾	County/ Township
91	Consider corridor-wide recommendation 11 regarding sidewalk	✓✓✓ ⁹	\$\$\$	☾	County/ Township
92	Inspect and improve underpass <i>lighting</i>	✓✓✓	\$\$	☉	NJDOT

B. Road Owner Response

An important part of the RSA process is the road owner’s response: an acknowledgment of the audit’s findings and recommendations, and their planned follow-up. In responding to the RSA’s findings, the road owner must bear in mind all the competing objectives involved when implementing the recommendations, and foremost among them is available resources. Because the audit process generated a long and wide-ranging list of improvements, the road owner is expected to implement these recommended improvements as time and funds allow in coordination with other projects and priorities. Union County’s response is provided in Appendix H.

C. Recommendation Visualizations

Examples of some of the site-specific and corridor-wide safety recommendations identified in Tables 4 and 5 are shown below and are based on current practices and standards. Descriptions and images of each treatment are from the *2017 NJ Complete Street Design Guide (CSDG)* and NACTO’s *Urban*

⁹ CMF/quantitative data not available for this type of roadway or treatment. Therefore, perceived safety benefit of the same was estimated relative to other similar treatments.

Street Design Guide (NACTO-US) and *Urban Bikeway Design Guide (NACTO-UB)*, including sources contained therein. These examples are meant to be generic and for informational purposes only.

1. Pedestrian Facilities

ADA standards specify a minimum 5-foot clear path width to accommodate two wheelchairs passing each other. In addition to providing a more accessible facility, this minimum width also creates a more comfortable environment for pedestrians to walk side-by-side and pass each other. Sidewalk width should support the surrounding street context, land uses, as well as current and future pedestrian demand. Crossing islands, or pedestrian refuge islands, reduce the exposure time of pedestrians to vehicular traffic. Pedestrians can cross in two stages — crossing one direction of vehicular travel lanes, pausing at the island, and then completing the crossing. While recommended for crossing three lanes of traffic in one or both directions, they may be implemented on smaller cross sections where space permits. Curb extensions physically and visually narrow the roadway at intersections and midblock locations, creating safer and shorter pedestrian crossings, while increasing the available space for streetscape. They increase the overall visibility of pedestrians by aligning them with the shoulder or parking lane and help prohibit vehicles from parking in violation of Title 39.

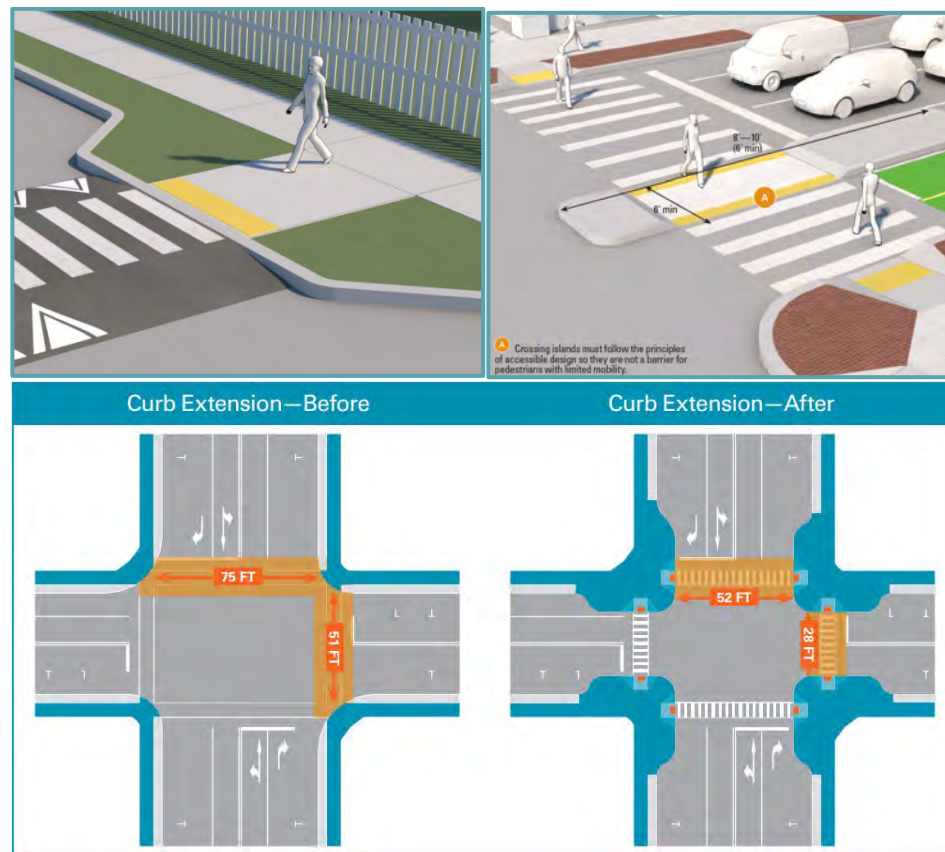


Figure 9 – Pedestrian Facility Examples

Left: Midblock Curb Extension. Right: Crossing Island. Bottom: Curb Extension (Source: CSDG)

The design of driveways should provide a continuous and level pedestrian path across the vehicular zone, encouraging drivers to stop for pedestrians on the sidewalk. Driveways should not be designed where the sidewalk is interrupted by the driveway.

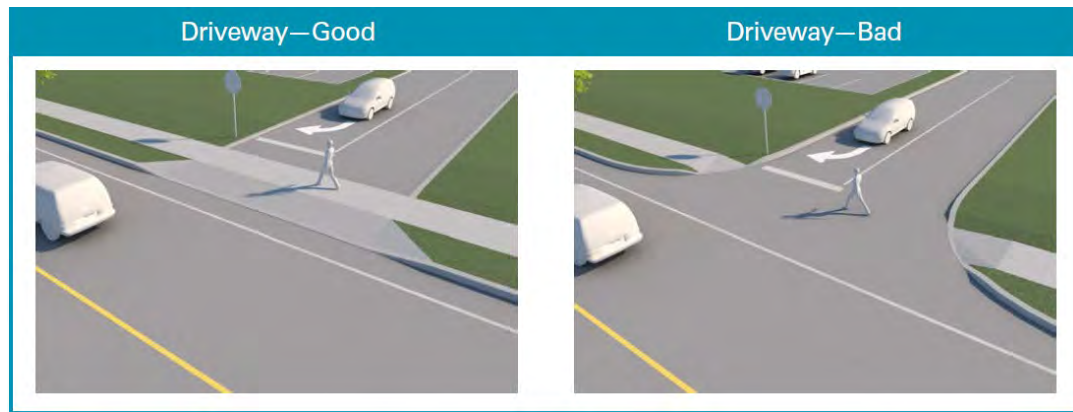


Figure 10 – Sidewalk and Driveways (Source: CSDG)

Crosswalk visibility enhancements, a FHWA Proven Safety Countermeasure, help make crosswalks and the pedestrians, bicyclists, wheelchair and other mobility device users, and transit users using them more visible to drivers. These include high-visibility crosswalks, lighting, and signing and pavement markings. These enhancements can also assist users in deciding where to cross.

2. Bicycle Facilities

Bicycle lanes provide an exclusive space for bicyclists using pavement markings and signage. These lanes enable bicyclists to ride at their preferred speed, free from interference from motorists. Curbside protected bike lanes address conflicts with parking, bus stops, and other curbside activities. Where it is not feasible or appropriate to provide dedicated bicycle facilities, shared-lane markings (e.g. “sharrows”) may be used to indicate a shared environment for bicycles and vehicles. Bicycle lanes and shared-lane markings should be extended through intersections and major driveways to enhance continuity, guide bicyclists through the intersection, and improve driver awareness of bicycle activity and movement.



Figure 11 – Bicycle Facility Examples

Left: Curbside bicycle lane (Source: NATCO: UB). Right: Sharrow Markings (Source: [Eric Gilliland/Flickr](#))

3. Rectangular Rapid Flashing Beacons

To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular- shaped yellow indications, each with a light-emitting diode (LED)-array-based light source¹⁰. RRFBs flash

¹⁰ MUTCD Interim Approval 21 - RRFBs at Crosswalks

with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers. RRFBs can also accompany school or trail crossing warning signs.



Figure 12 - Example of a Rectangular Rapid Flashing Beacon
(Source: NATCO: UB)

VI. Conclusions

The Stuyvesant Avenue RSA was conducted to identify safety issues and corresponding countermeasures that compromise the multimodal nature of this roadway. The team identified a thorough list of issues from the field visit, as well as many practical short-, mid-, and long-term improvements during the post-audit.

The recommendations documented in this report are designed to improve safety for all road users. Some of the strategies identified can be implemented through routine maintenance; however, all will be constrained by available time and budgetary priorities. The audit process and the resulting final document highlight the safety issues and present the needed improvements by location, organized for systematic implementation by the roadway owner.

It is important to note that when it comes to improving safety, engineering strategies alone only go so far – especially in areas undergoing redevelopment. Education, with support from a targeted enforcement campaign, is an effective approach for addressing driver and pedestrian behaviors that lead to crashes. Employing a multipronged approach is an effective course of action to advance the goal of improved safety on the corridor and the Towards Zero Deaths vision.

A. RSA TEAM

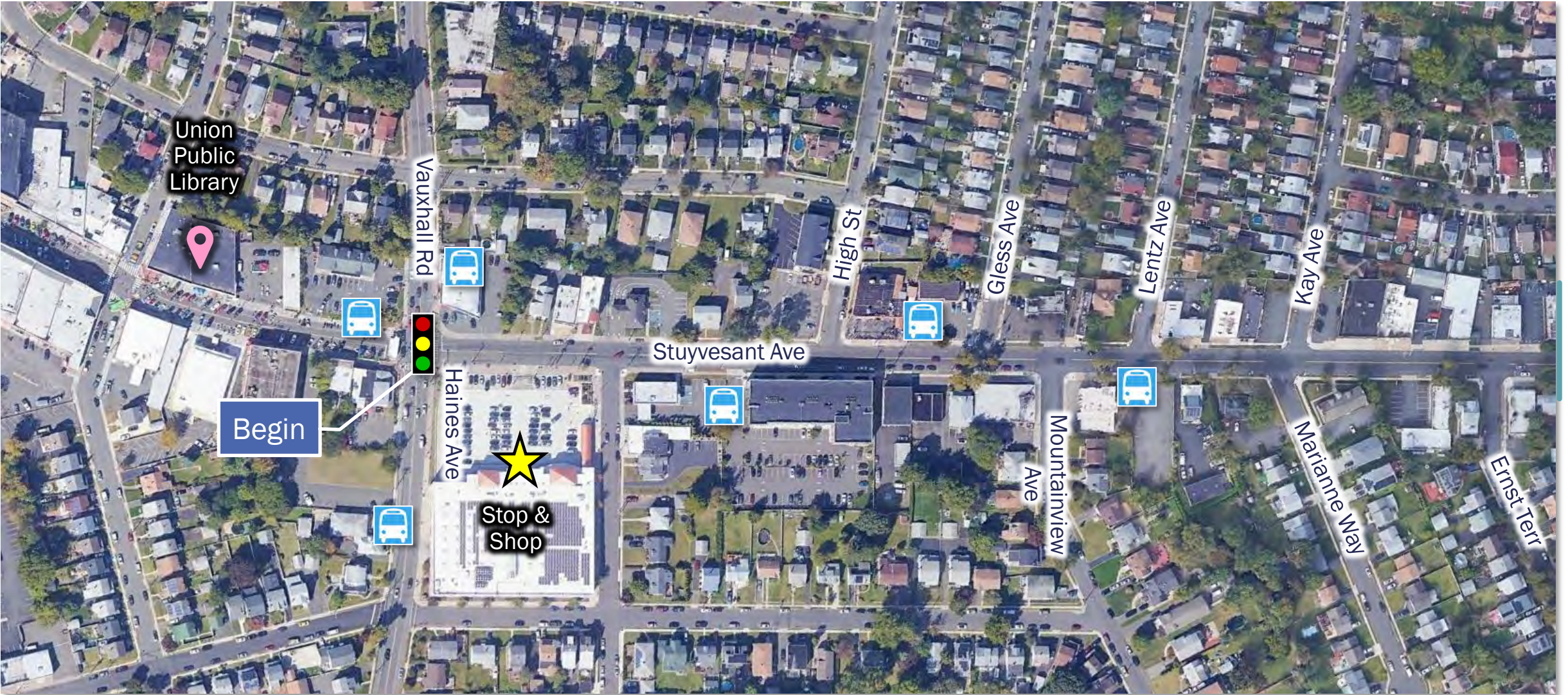
Audit Team

Name	Agency	Day 1	Day 2
Rick Matias	Union County	X	X
Bernice Dieter	Union County	X	X
Philip Kandl	Union County	X	
William Hoover	Union Township	X	X
Joseph Venezia	Union Township	X	
John Jahr	Union Township	X	
Elmira Buongiorno	NJ Transit	X	X
Hailey Graf	NJ Transit		X
Lisa Lee	EZ Ride		X
Erlen Maldonado	EZ Ride		X
Jensy Jimenez	EZ Ride		X
Yosy Cosme	NJDOT	X	X
Ereny Ibrahim	NJDOT	X	X
Marhaba Omer	NJDOT	X	
Shannon Hughes	NHTSA	X	
Andy Kaplan	NJTPA	X	
Aimee Jefferson	NJTPA	X	X
Julia Steponanko	Greenman-Pedersen, Inc.	X	X
Kruti Barot	Greenman-Pedersen, Inc.	X	X
Catherine Transfeld	Greenman-Pedersen, Inc.	X	X
Romesh Radhakrishnan	Greenman-Pedersen, Inc.	X	X



B. AREA MAP

AREA MAP



MATCH LINE

AREA MAP



MATCH LINE



C. PEDESTRIAN CRASH DIAGRAMS

FILE: L:\2021695_HSP_Project Development and Support\Cad\Drawings\Union County\Pedestrian Crashes\Sheet 1.dgn
 TIME: 4:58:22 PM
 DATE: 7/14/2022
 GREENMAN-PEDERSEN, INC.



COLLISION DIAGRAM DATA								
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION	
3	14:52	THU	06-02-16	1	DRY	CLEAR	DAY	
6	06:18	FRI	12-01-17	1	DRY	CLEAR	DARK	
7	21:22	THU	06-28-18	1	DRY	CLEAR	DARK	
10	07:07	FRI	08-30-19	1	DRY	CLEAR	DAY	
12	10:20	FRI	01-17-20	1	DRY	CLEAR	DAY	
13	08:45	MON	03-09-20	1	DRY	CLEAR	DAY	
14	14:57	SAT	10-31-20	1	DRY	CLEAR	DAY	
15	21:21	SAT	11-28-20	1	DRY	CLEAR	DARK	

MATCH LINE A
 SEE SHEET NO. 2 OF 6

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	8
FATALITIES	0
TOTAL NO. OF CRASHES	8

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS
 PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2016-2020 PEDESTRIAN COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

MATCH LINE A
SEE SHEET NO. 1 OF 6



MATCH LINE B
SEE SHEET NO. 3 OF 6

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
5	17:58	TUE	12-06-16	1	WET	RAIN	DARK
8	17:40	MON	01-07-19	1	DRY	CLEAR	DARK

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	2
FATALITIES	0
TOTAL NO. OF CRASHES	2

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
FROM VAUXHALL ROAD TO EVERETT CIRCLE
UNION TOWNSHIP, UNION COUNTY

2016-2020 PEDESTRIAN COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

FILE: L:\2021695_HSP_ProjectDevelopmentandSupport\CadDraw\Crash_Diagrams\Union_County\Pedestrian_Crashes\Sheet 3.dgn
 TIME: 8:55:38 AM
 DATE: 7/15/2022

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
4	11:26	MON	08-08-16	1	DRY	---	DAY



MATCH LINE B
SEE SHEET NO. 2 OF 6

MATCH LINE C
SEE SHEET NO. 4 OF 6

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	1
FATALITIES	0
TOTAL NO. OF CRASHES	1

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS
 PEDESTRIAN CRASH

3 / 6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2016-2020 PEDESTRIAN COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

FILE: L:\2021695_HSP_ProjectDevelopmentandSupport\CadDraws\Crash_Diagrams\Union_County\Pedestrian_Crashes\Sheet 4.dgn
 TIME: 5:07:49 PM
 DATE: 7/4/2022
 GREENMAN-PEDERSEN, INC.



COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
11	15:26	TUE	12-03-19	1	DRY	CLEAR	DAY

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	1
FATALITIES	0
TOTAL NO. OF CRASHES	1

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2016-2020 PEDESTRIAN COLLISION DIAGRAMS

Engineering Design Planning Construction Management	NOT TO SCALE
---	--------------

FILE: L:\2021695 HSP - Project Development and Support\Cadd\Drawings\Union County\Pedestrian Crashes\Sheet 5.dgn
 TIME: 5:08:38 PM
 DATE: 7/4/2022

MATCH LINE D
 SEE SHEET NO. 4 OF 6



MATCH LINE E
 SEE SHEET NO. 6 OF 6

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
2	20:10	TUE	03-15-16	1	DRY	CLEAR	DARK

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	<u>0</u>
INJURIES	<u>1</u>
FATALITIES	<u>0</u>
TOTAL NO. OF CRASHES	<u>1</u>

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	PEDESTRIAN CRASH

5
6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2016-2020 PEDESTRIAN COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management	NOT TO SCALE
--	--------------

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
-	--	--	--/--	-	--	--	--



STUYVESANT AVENUE

MATCH LINE E
SEE SHEET NO. 5 OF 6

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	0
FATALITIES	0
TOTAL NO. OF CRASHES	0

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	PEDESTRIAN CRASH

6/6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
FROM VAUXHALL ROAD TO EVERETT CIRCLE
UNION TOWNSHIP, UNION COUNTY

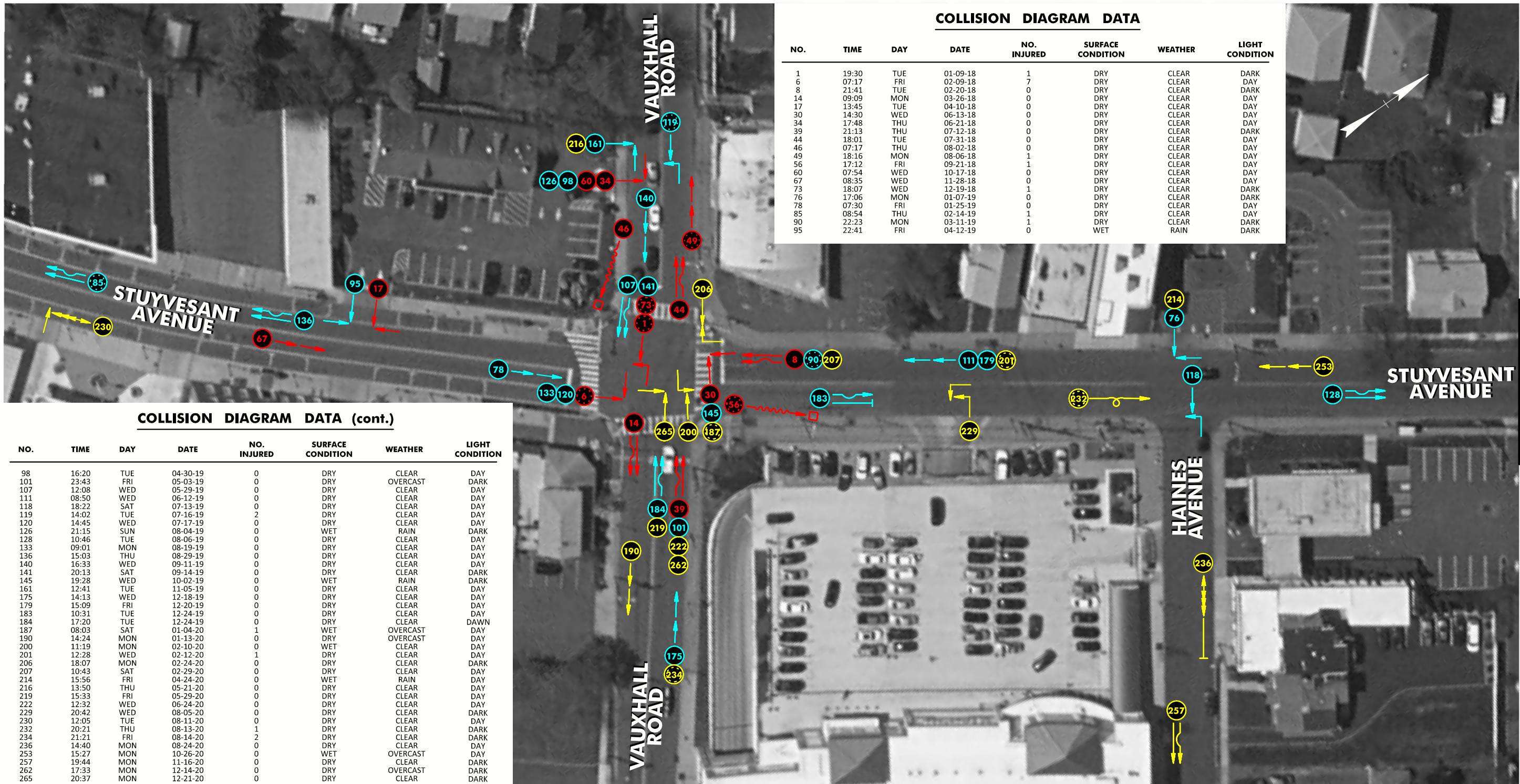
2016-2020 PEDESTRIAN COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

FILE: L:\2021685_HSP_ProjectDevelopmentandSupport\CadDrawings\Crash_Diagrams\Union_County\Pedestrian_Crashes\Sheet 6.dgn
DATE: 7/4/2022
TIME: 5:08:51 PM
GREENMAN-PEDERSEN, INC.

D. VEHICULAR CRASH DIAGRAMS



NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
1	19:30	TUE	01-09-18	1	DRY	CLEAR	DARK
6	07:17	FRI	02-09-18	7	DRY	CLEAR	DAY
8	21:41	TUE	02-20-18	0	DRY	CLEAR	DARK
14	09:09	MON	03-26-18	0	DRY	CLEAR	DAY
17	13:45	TUE	04-10-18	0	DRY	CLEAR	DAY
30	14:30	WED	06-13-18	0	DRY	CLEAR	DAY
34	17:48	THU	06-21-18	0	DRY	CLEAR	DAY
39	21:13	THU	07-12-18	0	DRY	CLEAR	DARK
44	18:01	TUE	07-31-18	0	DRY	CLEAR	DAY
46	07:17	THU	08-02-18	0	DRY	CLEAR	DAY
49	18:16	MON	08-06-18	1	DRY	CLEAR	DAY
56	17:12	FRI	09-21-18	1	DRY	CLEAR	DAY
60	07:54	WED	10-17-18	0	DRY	CLEAR	DAY
67	08:35	WED	11-28-18	0	DRY	CLEAR	DAY
73	18:07	WED	12-19-18	1	DRY	CLEAR	DARK
76	17:06	MON	01-07-19	0	DRY	CLEAR	DARK
78	07:30	FRI	01-25-19	0	DRY	CLEAR	DAY
85	08:54	THU	02-14-19	1	DRY	CLEAR	DAY
90	22:23	MON	03-11-19	1	DRY	CLEAR	DARK
95	22:41	FRI	04-12-19	0	WET	RAIN	DARK

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
98	16:20	TUE	04-30-19	0	DRY	CLEAR	DAY
101	23:43	FRI	05-03-19	0	DRY	OVERCAST	DARK
107	12:08	WED	05-29-19	0	DRY	CLEAR	DAY
111	08:50	WED	06-12-19	0	DRY	CLEAR	DAY
118	18:22	SAT	07-13-19	0	DRY	CLEAR	DAY
119	14:02	TUE	07-16-19	2	DRY	CLEAR	DAY
120	14:45	WED	07-17-19	0	DRY	CLEAR	DAY
126	21:15	SUN	08-04-19	0	WET	RAIN	DARK
128	10:46	TUE	08-06-19	0	DRY	CLEAR	DAY
133	09:01	MON	08-19-19	0	DRY	CLEAR	DAY
136	15:03	THU	08-29-19	0	DRY	CLEAR	DAY
140	16:33	WED	09-11-19	0	DRY	CLEAR	DAY
141	20:13	SAT	09-14-19	0	DRY	CLEAR	DARK
145	19:28	WED	10-02-19	0	WET	RAIN	DARK
161	12:41	TUE	11-05-19	0	DRY	CLEAR	DAY
175	14:13	WED	12-18-19	0	DRY	CLEAR	DAY
179	15:09	FRI	12-20-19	0	DRY	CLEAR	DAY
183	10:31	TUE	12-24-19	0	DRY	CLEAR	DAY
184	17:20	TUE	12-24-19	0	DRY	CLEAR	DAWN
187	08:03	SAT	01-04-20	1	WET	OVERCAST	DAY
190	14:24	MON	01-13-20	0	DRY	OVERCAST	DAY
200	11:19	MON	02-10-20	0	WET	CLEAR	DAY
201	12:28	WED	02-12-20	1	DRY	CLEAR	DAY
206	18:07	MON	02-24-20	0	DRY	CLEAR	DARK
207	10:43	SAT	02-29-20	0	DRY	CLEAR	DAY
214	15:56	FRI	04-24-20	0	WET	RAIN	DAY
216	13:50	THU	05-21-20	0	DRY	CLEAR	DAY
219	15:33	FRI	05-29-20	0	DRY	CLEAR	DAY
222	12:32	WED	06-24-20	0	DRY	CLEAR	DAY
229	20:42	WED	08-05-20	0	DRY	CLEAR	DARK
230	12:05	TUE	08-11-20	0	DRY	CLEAR	DAY
232	20:21	THU	08-13-20	1	DRY	CLEAR	DARK
234	21:21	FRI	08-14-20	2	DRY	CLEAR	DARK
236	14:40	MON	08-24-20	0	DRY	CLEAR	DAY
253	15:27	MON	10-26-20	0	WET	OVERCAST	DAY
257	19:44	MON	11-16-20	0	DRY	CLEAR	DARK
262	17:33	MON	12-14-20	0	DRY	OVERCAST	DARK
265	20:37	MON	12-21-20	0	DRY	CLEAR	DARK

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	46
INJURIES	12
FATALITIES*	0
TOTAL NO. OF CRASHES	58

SYMBOLS	
→	MOVING VEHICLE
←	BACKING VEHICLE
---	NON-INVOLVED VEHICLE
⊗	PEDESTRIAN
⊕	BICYCLIST
○	PROPERTY DAMAGE ONLY CRASH
⊙	INJURY IN CRASH
⊚	FATAL CRASH
□	FIXED OBJECT
⊠	NON-FIXED OBJECT
△	ANIMAL
⊗	POTHOLE

TYPES OF CRASHES	
→ ←	REAR END
→ →	HEAD ON
→ ↘	SIDE SWIPE
→ ~	OUT OF CONTROL
→ ○	OVERTURNED
→ ↗	ENCROACHMENT
→ ↙	LEFT TURN
→ ⊥	RIGHT ANGLE
→ ⊥	STRUCK PARKED VEHICLE

COLORS	
○	2018 CRASHES
○	2019 CRASHES
○	2020 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
FROM VAUXHALL ROAD TO EVERETT CIRCLE
UNION TOWNSHIP, UNION COUNTY

2018 - 2020 COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

MATCH LINE A
SEE SHEET NO. 2 OF 6

FILE: \\NF-Isr\vid\2021085_HSP_Prcjct\Development and Support\Cad\Hwy\Crash_Diagrams\Union County\Vertical Crashes\Sheet 1.dgn
DATE: 7/14/2022
TIME: 4:49:26 PM
GREENMAN-PEDERSEN, INC.

FILE: L:\2021\695_HSP_Project_Development_and_Support\Cad\CadDrawings\Union_County_Vehicular_Crashes_Sheet_2.dgn
 TIME: 4:53:00 PM
 DATE: 7/14/2022
 GREENMAN-PEDERSEN, INC.



COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
29	08:00	WED	06-06-18	0	DRY	CLEAR	DAY
38	14:24	WED	07-11-18	1	DRY	CLEAR	DAY
55	02:12	SAT	09-15-18	0	DRY	CLEAR	DARK
62	15:49	FRI	11-02-18	1	DRY	CLEAR	DAY
74	12:01	FRI	12-28-18	0	WET	RAIN	DAY
97	16:01	SAT	04-20-19	0	DRY	CLEAR	DAY
112	08:59	FRI	06-14-19	0	DRY	CLEAR	DAY
114	19:10	THU	06-27-19	0	DRY	CLEAR	DAY
116	18:47	THU	07-04-19	0	DRY	CLEAR	DAY
129	20:36	FRI	08-09-19	0	DRY	CLEAR	DARK
139	16:50	TUE	09-10-19	0	DRY	CLEAR	DAY
142	18:54	THU	09-19-19	0	DRY	CLEAR	DAY
170	06:59	WED	12-04-19	0	DRY	CLEAR	DAY
173	21:05	FRI	12-13-19	1	WET	RAIN	DARK
178	20:42	WED	12-18-19	0	WET	CLEAR	DARK
186	11:55	WED	12-25-19	0	DRY	CLEAR	DAY
210	14:36	WED	03-11-20	2	DRY	CLEAR	DAY
213	12:45	FRI	04-17-20	0	DRY	OVERCAST	DAY
227	15:09	FRI	07-17-20	0	DRY	OVERCAST	DAY
250	16:16	SUN	10-18-20	0	DRY	CLEAR	DAY

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	16
INJURIES	4
FATALITIES*	0
TOTAL NO. OF CRASHES	20

SYMBOLS	
→	MOVING VEHICLE
←	BACKING VEHICLE
- - -	NON-INVOLVED VEHICLE
X - - -	PEDESTRIAN
- - -	BICYCLIST
○	PROPERTY DAMAGE ONLY CRASH
○ with dot	INJURY IN CRASH
○ with cross	FATAL CRASH
□	FIXED OBJECT
□ with X	NON-FIXED OBJECT
△	ANIMAL
⊗	POT HOLE

TYPES OF CRASHES	
→ ←	REAR END
→ →	HEAD ON
→ ↘	SIDE SWIPE
→ ~	OUT OF CONTROL
→ ↺	OVERTURNED
→ ↗	ENCROACHMENT
→ ↙	LEFT TURN
→ ⊥	RIGHT ANGLE
→ ⊥	STRUCK PARKED VEHICLE

COLORS	
○ (Red)	2018 CRASHES
○ (Cyan)	2019 CRASHES
○ (Yellow)	2020 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2018 - 2020 COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

FILE: L:\2021\695 HSP - Project Development and Support\Cad\Drawings\Crash Diagrams\Union County\Vehicle Crashes\Sheet 4.dgn
 TIME: 4:55:07 PM
 DATE: 7/14/2022
 GREENMAN-PEDERSEN, INC.



COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
7	19:25	WED	02-14-18	0	DRY	CLEAR	DAY
12	08:03	MON	03-12-18	0	DRY	CLEAR	DAY
41	16:30	FRI	07-20-18	0	DRY	CLEAR	DAY
42	12:01	TUE	07-24-18	0	WET	OVERCAST	DAY
43	08:58	SUN	07-29-18	0	DRY	CLEAR	DAY
58	17:01	MON	10-15-18	0	DRY	CLEAR	DAY
70	10:07	SAT	12-01-18	0	DRY	CLEAR	DAY
77	18:00	SUN	01-13-19	0	DRY	CLEAR	DUSK
79	16:00	WED	01-30-19	0	SNOWY	SNOW	DAY
87	18:52	SAT	03-09-19	1	DRY	CLEAR	DARK
89	18:31	MON	03-11-19	0	DRY	CLEAR	DUSK
99	17:58	TUE	04-30-19	0	DRY	CLEAR	DAY
108	21:03	SAT	06-01-19	0	DRY	CLEAR	DARK
122	12:04	THU	07-25-19	0	DRY	CLEAR	DAY
127	08:02	MON	08-05-19	1	DRY	CLEAR	DAY
131	16:48	TUE	08-13-19	0	DRY	OVERCAST	DAY
153	10:36	SAT	10-19-19	0	DRY	CLEAR	DAY
155	08:55	MON	10-21-19	0	DRY	CLEAR	DAY
156	15:30	MON	10-21-19	0	DRY	CLEAR	DAY
159	14:14	SAT	11-02-19	0	DRY	CLEAR	DAY
176	18:57	WED	12-18-19	0	ICY	SNOW	DARK
177	19:52	WED	12-18-19	0	ICY	SNOW	DARK
181	15:38	MON	12-23-19	0	DRY	CLEAR	DAY
182	07:30	TUE	12-24-19	0	DRY	CLEAR	DARK
221	10:15	FRI	06-12-20	2	DRY	CLEAR	DAY
223	18:27	MON	06-29-20	0	DRY	CLEAR	DAY
233	18:25	FRI	08-14-20	0	DRY	CLEAR	DAY
235	14:00	THU	08-20-20	0	DRY	CLEAR	DAY
254	18:18	TUE	10-27-20	0	DRY	CLEAR	DARK
266	14:30	SUN	12-27-20	1	DRY	CLEAR	DAY

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	26
INJURIES	4
FATALITIES*	0
TOTAL NO. OF CRASHES	30

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	2018 CRASHES
	2019 CRASHES
	2020 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

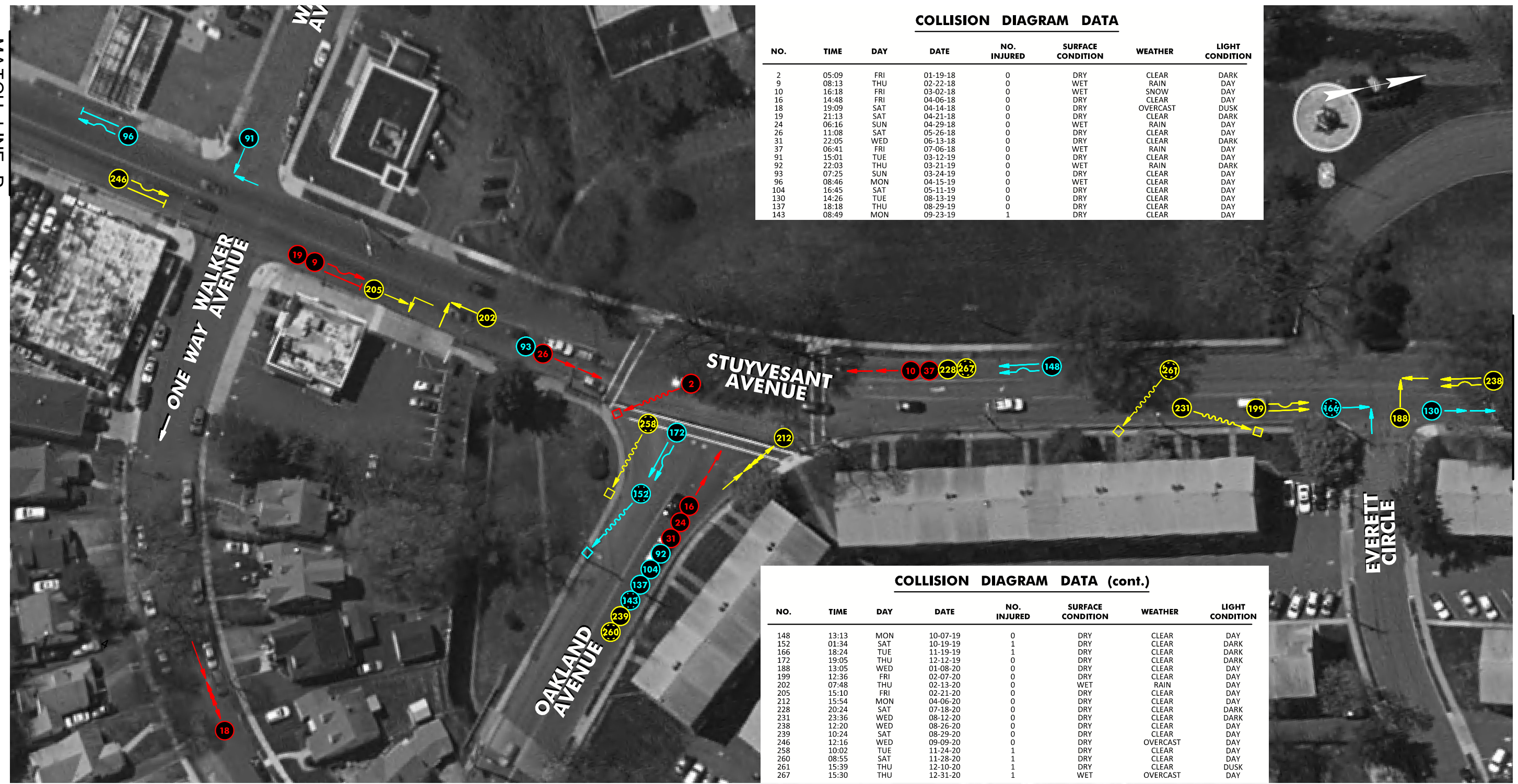
2018 - 2020 COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

FILE: L:\2021\605 HSP - Project Development and Support\Cad\Cad\Crash Diagrams\Union County\Vehicle Crashes\Sheet 5.dgn
 TIME: 4:56:03 PM
 DATE: 7/14/2022

MATCH LINE D
 SEE SHEET NO. 4 OF 6



COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
2	05:09	FRI	01-19-18	0	DRY	CLEAR	DARK
9	08:13	THU	02-22-18	0	WET	RAIN	DAY
10	16:18	FRI	03-02-18	0	WET	SNOW	DAY
16	14:48	FRI	04-06-18	0	DRY	CLEAR	DAY
18	19:09	SAT	04-14-18	0	DRY	OVERCAST	DUSK
19	21:13	SAT	04-21-18	0	DRY	CLEAR	DARK
24	06:16	SUN	04-29-18	0	WET	RAIN	DAY
26	11:08	SAT	05-26-18	0	DRY	CLEAR	DAY
31	22:05	WED	06-13-18	0	DRY	CLEAR	DARK
37	06:41	FRI	07-06-18	0	WET	RAIN	DAY
91	15:01	TUE	03-12-19	0	DRY	CLEAR	DAY
92	22:03	THU	03-21-19	0	WET	RAIN	DARK
93	07:25	SUN	03-24-19	0	DRY	CLEAR	DAY
96	08:46	MON	04-15-19	0	WET	CLEAR	DAY
104	16:45	SAT	05-11-19	0	DRY	CLEAR	DAY
130	14:26	TUE	08-13-19	0	DRY	CLEAR	DAY
137	18:18	THU	08-29-19	0	DRY	CLEAR	DAY
143	08:49	MON	09-23-19	1	DRY	CLEAR	DAY

COLLISION DIAGRAM DATA (cont.)

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
148	13:13	MON	10-07-19	0	DRY	CLEAR	DAY
152	01:34	SAT	10-19-19	1	DRY	CLEAR	DARK
166	18:24	TUE	11-19-19	1	DRY	CLEAR	DARK
172	19:05	THU	12-12-19	0	DRY	CLEAR	DARK
188	13:05	WED	01-08-20	0	DRY	CLEAR	DAY
199	12:36	FRI	02-07-20	0	DRY	CLEAR	DAY
202	07:48	THU	02-13-20	0	WET	RAIN	DAY
205	15:10	FRI	02-21-20	0	DRY	CLEAR	DAY
212	15:54	MON	04-06-20	0	DRY	CLEAR	DAY
228	20:24	SAT	07-18-20	0	DRY	CLEAR	DARK
231	23:36	WED	08-12-20	0	DRY	CLEAR	DARK
238	12:20	WED	08-26-20	0	DRY	CLEAR	DAY
239	10:24	SAT	08-29-20	0	DRY	CLEAR	DAY
246	12:16	WED	09-09-20	0	DRY	OVERCAST	DAY
258	10:02	TUE	11-24-20	1	DRY	CLEAR	DAY
260	08:55	SAT	11-28-20	1	DRY	CLEAR	DAY
261	15:39	THU	12-10-20	1	DRY	CLEAR	DUSK
267	15:30	THU	12-31-20	1	WET	OVERCAST	DAY

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	29
INJURIES	7
FATALITIES*	0
TOTAL NO. OF CRASHES	36

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	2018 CRASHES
	2019 CRASHES
	2020 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
 FROM VAUXHALL ROAD TO EVERETT CIRCLE
 UNION TOWNSHIP, UNION COUNTY

2018 - 2020 COLLISION DIAGRAMS

GPI Engineering Design Planning Construction Management

NOT TO SCALE

MATCH LINE E
 SEE SHEET NO. 6 OF 6

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
-	---	---	---/---/---	-	---	---	---



MATCH LINE E
SEE SHEET NO. 5 OF 6

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	0
FATALITIES*	0
TOTAL NO. OF CRASHES	0

SYMBOLS	
	MOVING VEHICLE
	BACKING VEHICLE
	NON-INVOLVED VEHICLE
	PEDESTRIAN
	BICYCLIST
	PROPERTY DAMAGE ONLY CRASH
	INJURY IN CRASH
	FATAL CRASH
	FIXED OBJECT
	ANIMAL
	NON-FIXED OBJECT
	POTHOLE

TYPES OF CRASHES	
	REAR END
	HEAD ON
	SIDE SWIPE
	OUT OF CONTROL
	OVERTURNED
	ENCROACHMENT
	LEFT TURN
	RIGHT ANGLE
	STRUCK PARKED VEHICLE

COLORS	
	2018 CRASHES
	2019 CRASHES
	2020 CRASHES

6/6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

STUYVESANT AVENUE (CR 619)
FROM VAUXHALL ROAD TO EVERETT CIRCLE
UNION TOWNSHIP, UNION COUNTY

2018 - 2020 COLLISION DIAGRAMS

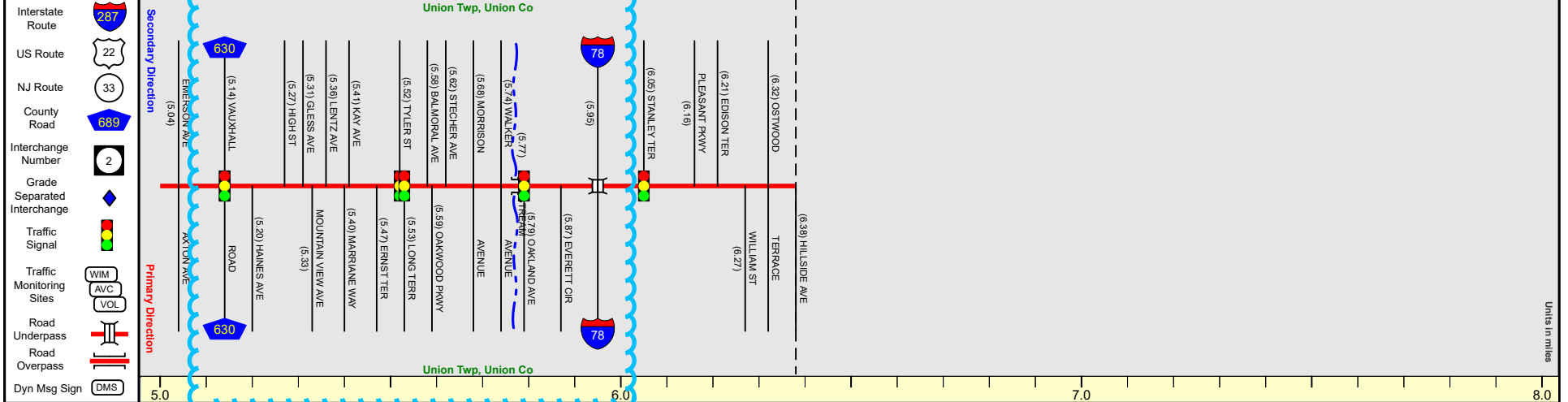
GPI Engineering Design Planning Construction Management	NOT TO SCALE
---	--------------

DATE: 7/4/2022
TIME: 4:56:32 PM
FILE: L:\2021695 HSP - Project Development and Support\Cad\Drawings\Union County\Vehicle Crashes\Sheet 6.dgn
GREENMAN-PEDERSEN, INC.

E. TRAFFIC DATA STRAIGHT LINE DIAGRAMS



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	Stuyvesant Avenue	
Jurisdiction	Municipal	County
Functional Class	Urban Minor Arterial	
Federal Aid - NHS Sy	STP	
Control Section	End Union County 619 MP-6.38	
Speed Limit	25	
Number of Lanes	2	
Med. Type	None	
Med. Width		
Pavement	38	
Shoulder		
Traffic Volume	14,139 (2019)	
Traffic Sta. ID	162024	
Structure No.	2011154	
Enlarged Views		

New Jersey Department of Transportation

Short-term Hourly Traffic Volume for 09/23/2019 to 09/25/2019

Site names: 162024,CO 619 Stuyvesant Ave-5.19,20000619__
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	Sun, Sep 22, 2019			Mon, Sep 23, 2019			Tue, Sep 24, 2019			Wed, Sep 25, 2019			Thu, Sep 26, 2019			Fri, Sep 27, 2019			Sat, Sep 28, 2019		
	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S
00:00							91	66	25	107	64	43									
01:00							45	32	13	57	38	19									
02:00							34	19	15	21	10	11									
03:00							31	10	21	31	11	20									
04:00							61	11	50	56	13	43									
05:00							162	66	96	171	61	110									
06:00							439	215	224	394	188	206									
07:00							954	498	456	950	511	439									
08:00							870	456	414	858	435	423									
09:00							790	419	371	770	379	391									
10:00				740	395	345	716	393	323												
11:00				797	427	370	808	427	381												
12:00				789	402	387	824	427	397												
13:00				811	441	370	804	425	379												
14:00				994	500	494	946	477	469												
15:00				969	496	473	1,054	586	468												
16:00				1,083	510	573	1,090	596	494												
17:00				1,212	638	574	1,190	641	549												
18:00				1,180	663	517	1,112	618	494												
19:00				1,058	640	418	858	445	413												
20:00				683	403	280	630	338	292												
21:00				483	279	204	490	302	188												
22:00				315	189	126	303	172	131												
23:00				207	130	77	200	134	66												
Total				11,321	6,113	5,208	14,502	7,773	6,729	3,415	1,710	1,705									
AM Peak Vol				797	427	370	954	498	456												
AM Peak Fct				1	1	1	1	1	1												
AM Peak Hr				11: 00	11: 00	11: 00	7: 00	7: 00	7: 00												
PM Peak Vol				1,212	663	574	1,190	641	549												
PM Peak Fct				1	1	1	1	1	1												
PM Peak Hr				17: 00	18: 00	17: 00	17: 00	17: 00	17: 00												
Seasonal Fct				1.039	1.039	1.039	1.039	1.039	1.039	1.039	1.039	1.039									
Daily Fct				1.008	1.008	1.008	.920	.920	.920	.868	.868	.868									
Axle Fct				.491	.491	.491	.491	.491	.491	.491	.491	.491									
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 23, 2019 Road

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
10	2 0.27%	647 87.43%	74 10.00%	0 0.00%	15 2.03%	2 0.27%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	740 100.00	17 2.30%	0 0.00%	17 2.30%
11	2 0.25%	688 86.32%	79 9.91%	1 0.13%	23 2.89%	1 0.13%	0 0.00%	2 0.25%	1 0.13%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	797 100.00	25 3.14%	3 0.38%	28 3.51%
12	0 0.00%	704 89.23%	52 6.59%	0 0.00%	31 3.93%	0 0.00%	0 0.00%	1 0.13%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.13%	789 100.00	31 3.93%	1 0.13%	32 4.06%
13	1 0.12%	709 87.42%	75 9.25%	0 0.00%	21 2.59%	4 0.49%	0 0.00%	0 0.00%	0 0.00%	1 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	811 100.00	25 3.08%	1 0.12%	26 3.21%
14	3 0.30%	872 87.73%	85 8.55%	0 0.00%	33 3.32%	1 0.10%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	994 100.00	34 3.42%	0 0.00%	34 3.42%
15	0 0.00%	863 89.06%	75 7.74%	1 0.10%	24 2.48%	0 0.00%	0 0.00%	1 0.10%	1 0.10%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	4 0.41%	969 100.00	25 2.58%	2 0.21%	27 2.79%
16	2 0.18%	976 90.12%	79 7.29%	0 0.00%	23 2.12%	0 0.00%	0 0.00%	1 0.09%	2 0.18%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,083 100.00	23 2.12%	3 0.28%	26 2.40%
17	2 0.17%	1,088 89.77%	96 7.92%	1 0.08%	22 1.82%	1 0.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	2 0.17%	1,212 100.00	24 1.98%	0 0.00%	24 1.98%
18	3 0.25%	1,080 91.53%	82 6.95%	0 0.00%	13 1.10%	0 0.00%	0 0.00%	1 0.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.08%	1,180 100.00	13 1.10%	1 0.08%	14 1.19%
19	2 0.19%	970 91.68%	75 7.09%	0 0.00%	9 0.85%	1 0.09%	1 0.09%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,058 100.00	11 1.04%	0 0.00%	11 1.04%
20	3 0.44%	608 89.02%	63 9.22%	0 0.00%	7 1.02%	1 0.15%	0 0.00%	1 0.15%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	683 100.00	8 1.17%	1 0.15%	9 1.32%
21	1 0.21%	435 90.06%	41 8.49%	0 0.00%	3 0.62%	2 0.41%	1 0.21%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	483 100.00	6 1.24%	0 0.00%	6 1.24%
22	0 0.00%	297 94.29%	15 4.76%	0 0.00%	1 0.32%	1 0.32%	1 0.32%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	315 100.00	3 0.95%	0 0.00%	3 0.95%
23	0 0.00%	196 94.69%	6 2.90%	0 0.00%	3 1.45%	1 0.48%	1 0.48%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	207 100.00	5 2.42%	0 0.00%	5 2.42%
Total	21 0.19%	10,133 89.51%	897 7.92%	3 0.03%	228 2.01%	15 0.13%	4 0.04%	7 0.06%	4 0.04%	1 0.01%	0 0.00%	0 0.00%	0 0.00%	8 0.07%	11,321 100.00	250 2.21%	12 0.11%	262 2.31%
Total Count	21 0.19%	10,133 89.51%	897 7.92%	3 0.03%	228 2.01%	15 0.13%	4 0.04%	7 0.06%	4 0.04%	1 0.01%	0 0.00%	0 0.00%	0 0.00%	8 0.07%	11,321 100.00	250 2.21%	12 0.11%	262 2.31%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 24, 2019 Road

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0	89	2	0	0	0	0	0	0	0	0	0	0	0	91	0	0	0
	0.00%	97.80%	2.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.00%	0.00%	0.00%
01	0	41	1	0	1	2	0	0	0	0	0	0	0	0	45	3	0	3
	0.00%	91.11%	2.22%	0.00%	2.22%	4.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	6.67%	0.00%	6.67%
02	0	24	6	1	1	2	0	0	0	0	0	0	0	0	34	4	0	4
	0.00%	70.59%	17.65%	2.94%	2.94%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	11.76%	0.00%	11.76%
03	0	27	3	0	0	1	0	0	0	0	0	0	0	0	31	1	0	1
	0.00%	87.10%	9.68%	0.00%	0.00%	3.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.23%	0.00%	3.23%
04	0	50	4	0	3	4	0	0	0	0	0	0	0	0	61	7	0	7
	0.00%	81.97%	6.56%	0.00%	4.92%	6.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	11.48%	0.00%	11.48%
05	0	137	18	1	5	1	0	0	0	0	0	0	0	0	162	7	0	7
	0.00%	84.57%	11.11%	0.62%	3.09%	0.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.32%	0.00%	4.32%
06	0	361	50	1	21	5	0	0	1	0	0	0	0	0	439	27	1	28
	0.00%	82.23%	11.39%	0.23%	4.78%	1.14%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	6.15%	0.23%	6.38%
07	0	831	89	1	31	2	0	0	0	0	0	0	0	0	954	34	0	34
	0.00%	87.11%	9.33%	0.10%	3.25%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.56%	0.00%	3.56%
08	0	766	77	1	24	1	0	0	1	0	0	0	0	0	870	26	1	27
	0.00%	88.05%	8.85%	0.11%	2.76%	0.11%	0.00%	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.99%	0.11%	3.10%
09	1	693	67	1	24	3	0	0	0	1	0	0	0	0	790	28	1	29
	0.13%	87.72%	8.48%	0.13%	3.04%	0.38%	0.00%	0.00%	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	100.00	3.54%	0.13%	3.67%
10	0	635	60	2	18	0	0	0	1	0	0	0	0	0	716	20	1	21
	0.00%	88.69%	8.38%	0.28%	2.51%	0.00%	0.00%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.79%	0.14%	2.93%
11	3	698	80	0	22	3	0	0	2	0	0	0	0	0	808	25	2	27
	0.37%	86.39%	9.90%	0.00%	2.72%	0.37%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.09%	0.25%	3.34%
12	1	740	58	0	23	2	0	0	0	0	0	0	0	0	824	25	0	25
	0.12%	89.81%	7.04%	0.00%	2.79%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.03%	0.00%	3.03%
13	0	707	83	0	13	0	0	0	1	0	0	0	0	0	804	13	1	14
	0.00%	87.94%	10.32%	0.00%	1.62%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.62%	0.12%	1.74%
14	0	832	81	1	30	0	0	0	2	0	0	0	0	0	946	31	2	33
	0.00%	87.95%	8.56%	0.11%	3.17%	0.00%	0.00%	0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.28%	0.21%	3.49%
15	2	942	82	2	22	0	0	1	1	0	0	0	0	2	1,054	24	2	26
	0.19%	89.37%	7.78%	0.19%	2.20%	0.00%	0.00%	0.09%	0.09%	0.00%	0.00%	0.00%	0.00%	0.19%	100.00	2.28%	0.19%	2.47%
16	1	987	78	0	23	0	0	0	0	0	0	0	0	1	1,090	23	0	23
	0.09%	90.55%	7.16%	0.00%	2.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	100.00	2.11%	0.00%	2.11%
17	1	1,088	79	1	20	0	0	0	0	0	0	0	0	1	1,190	21	0	21
	0.08%	91.43%	6.64%	0.08%	1.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	100.00	1.76%	0.00%	1.76%
18	3	1,007	80	0	19	1	0	1	0	0	0	0	0	1	1,112	20	1	21
	0.27%	90.56%	7.19%	0.00%	1.71%	0.09%	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	100.00	1.80%	0.09%	1.89%
19	0	781	64	0	13	0	0	0	0	0	0	0	0	0	858	13	0	13
	0.00%	91.03%	7.46%	0.00%	1.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.52%	0.00%	1.52%
20	2	577	43	0	7	1	0	0	0	0	0	0	0	0	630	8	0	8
	0.32%	91.59%	6.83%	0.00%	1.11%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.27%	0.00%	1.27%
21	1	468	17	0	1	2	1	0	0	0	0	0	0	0	490	4	0	4
	0.20%	95.51%	3.47%	0.00%	0.20%	0.41%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.82%	0.00%	0.82%
22	0	279	17	0	3	4	0	0	0	0	0	0	0	0	303	7	0	7
	0.00%	92.08%	5.61%	0.00%	0.99%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.31%	0.00%	2.31%
23	0	189	6	0	0	3	1	0	1	0	0	0	0	0	200	4	1	5
	0.00%	94.50%	3.00%	0.00%	0.00%	1.50%	0.50%	0.00%	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.00%	0.50%	2.50%
Total	15	12,949	1,145	12	324	37	2	2	10	1	0	0	0	5	14,502	375	13	388
	0.10%	89.29%	7.90%	0.08%	2.23%	0.26%	0.01%	0.01%	0.07%	0.01%	0.00%	0.00%	0.00%	0.03%	100.00	2.59%	0.09%	2.68%
Total Count	15	12,949	1,145	12	324	37	2	2	10	1	0	0	0	5	14,502	375	13	388
	0.10%	89.29%	7.90%	0.08%	2.23%	0.26%	0.01%	0.01%	0.07%	0.01%	0.00%	0.00%	0.00%	0.03%	100.00	2.59%	0.09%	2.68%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 25, 2019 Road

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0 0.00%	92 85.98%	6 5.61%	0 0.00%	2 1.87%	3 2.80%	2 1.87%	0 0.00%	1 0.93%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.93%	107	7 6.54%	1 0.93%	8 7.48%
01	0 0.00%	43 75.44%	7 12.28%	0 0.00%	2 3.51%	4 7.02%	0 0.00%	0 0.00%	1 1.75%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	57	6 10.53%	1 1.75%	7 12.28%
02	0 0.00%	18 85.71%	2 9.52%	0 0.00%	1 4.76%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	21	1 4.76%	0 0.00%	1 4.76%
03	0 0.00%	27 87.10%	2 6.45%	0 0.00%	0 0.00%	2 6.45%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	31	2 6.45%	0 0.00%	2 6.45%
04	0 0.00%	47 83.93%	6 10.71%	0 0.00%	2 3.57%	1 1.79%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	56	3 5.36%	0 0.00%	3 5.36%
05	1 0.58%	145 84.80%	18 10.53%	0 0.00%	5 2.92%	2 1.17%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	171	7 4.09%	0 0.00%	7 4.09%
06	0 0.00%	318 80.71%	49 12.44%	1 0.25%	19 4.82%	5 1.27%	0 0.00%	1 0.25%	1 0.25%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	394	25 6.35%	2 0.51%	27 6.85%
07	0 0.00%	851 89.58%	71 7.47%	2 0.21%	23 2.42%	3 0.32%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	950	28 2.95%	0 0.00%	28 2.95%
08	2 0.23%	755 88.00%	69 8.04%	2 0.23%	29 3.38%	0 0.00%	0 0.00%	0 0.00%	1 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	858	31 3.61%	1 0.12%	32 3.73%
09	0 0.00%	668 86.75%	77 10.00%	0 0.00%	24 3.12%	1 0.13%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	770	25 3.25%	0 0.00%	25 3.25%
Total	3 0.09%	2,964 86.79%	307 8.99%	5 0.15%	107 3.13%	21 0.61%	2 0.06%	1 0.03%	4 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.03%	3,415	135 3.95%	5 0.15%	140 4.10%
Total Count	3 0.09%	2,964 86.79%	307 8.99%	5 0.15%	107 3.13%	21 0.61%	2 0.06%	1 0.03%	4 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.03%	3,415	135 3.95%	5 0.15%	140 4.10%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 23, 2019 North

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
10	1 0.25%	345 87.34%	40 10.13%	0 0.00%	8 2.03%	1 0.25%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	395 100.00	9 2.28%	0 0.00%	9 2.28%
11	0 0.00%	371 86.89%	40 9.37%	0 0.00%	12 2.81%	1 0.23%	0 0.00%	2 0.47%	1 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	427 100.00	13 3.04%	3 0.70%	16 3.75%
12	0 0.00%	360 89.55%	22 5.47%	0 0.00%	18 4.48%	0 0.00%	0 0.00%	1 0.25%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.25%	402 100.00	18 4.48%	1 0.25%	19 4.73%
13	1 0.23%	398 90.25%	35 7.94%	0 0.00%	7 1.59%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	441 100.00	7 1.59%	0 0.00%	7 1.59%
14	1 0.20%	443 88.60%	37 7.40%	0 0.00%	18 3.60%	1 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	500 100.00	19 3.80%	0 0.00%	19 3.80%
15	0 0.00%	450 90.73%	31 6.25%	0 0.00%	11 2.22%	0 0.00%	0 0.00%	1 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	3 0.60%	496 100.00	11 2.22%	1 0.20%	12 2.42%
16	1 0.20%	466 91.37%	31 6.08%	0 0.00%	10 1.96%	0 0.00%	0 0.00%	1 0.20%	1 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	510 100.00	10 1.96%	2 0.39%	12 2.35%
17	1 0.16%	581 91.07%	47 7.37%	0 0.00%	9 1.41%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	638 100.00	9 1.41%	0 0.00%	9 1.41%
18	1 0.15%	612 92.31%	40 6.03%	0 0.00%	8 1.21%	0 0.00%	0 0.00%	1 0.15%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.15%	663 100.00	8 1.21%	1 0.15%	9 1.36%
19	1 0.16%	601 93.91%	34 5.31%	0 0.00%	4 0.63%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	640 100.00	4 0.63%	0 0.00%	4 0.63%
20	0 0.00%	364 90.32%	32 7.94%	0 0.00%	5 1.24%	1 0.25%	0 0.00%	1 0.25%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	403 100.00	6 1.49%	1 0.25%	7 1.74%
21	1 0.36%	252 90.32%	24 8.60%	0 0.00%	1 0.36%	1 0.36%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	279 100.00	2 0.72%	0 0.00%	2 0.72%
22	0 0.00%	183 96.83%	5 2.65%	0 0.00%	1 0.53%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	189 100.00	1 0.53%	0 0.00%	1 0.53%
23	0 0.00%	123 94.62%	4 3.08%	0 0.00%	1 0.77%	1 0.77%	1 0.77%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	130 100.00	3 2.31%	0 0.00%	3 2.31%
Total	8 0.13%	5,549 90.77%	422 6.90%	0 0.00%	113 1.85%	6 0.10%	1 0.02%	7 0.11%	2 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	5 0.08%	6,113 100.00	120 1.96%	9 0.15%	129 2.11%
Total Count	8 0.13%	5,549 90.77%	422 6.90%	0 0.00%	113 1.85%	6 0.10%	1 0.02%	7 0.11%	2 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	5 0.08%	6,113 100.00	120 1.96%	9 0.15%	129 2.11%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 24, 2019 North

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0	64	2	0	0	0	0	0	0	0	0	0	0	0	66	0	0	0
	0.00%	96.97%	3.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.00%	0.00%	0.00%
01	0	28	1	0	1	2	0	0	0	0	0	0	0	0	32	3	0	3
	0.00%	87.50%	3.13%	0.00%	3.13%	6.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	9.38%	0.00%	9.38%
02	0	13	4	0	0	2	0	0	0	0	0	0	0	0	19	2	0	2
	0.00%	68.42%	21.05%	0.00%	0.00%	10.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	10.53%	0.00%	10.53%
03	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0
	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.00%	0.00%	0.00%
04	0	8	1	0	1	1	0	0	0	0	0	0	0	0	11	2	0	2
	0.00%	72.73%	9.09%	0.00%	9.09%	9.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	18.18%	0.00%	18.18%
05	0	55	8	1	2	0	0	0	0	0	0	0	0	0	66	3	0	3
	0.00%	83.33%	12.12%	1.52%	3.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.55%	0.00%	4.55%
06	0	170	26	0	14	4	0	0	1	0	0	0	0	0	215	18	1	19
	0.00%	79.07%	12.09%	0.00%	6.51%	1.86%	0.00%	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	8.37%	0.47%	8.84%
07	0	432	49	0	17	0	0	0	0	0	0	0	0	0	498	17	0	17
	0.00%	86.73%	9.84%	0.00%	3.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.41%	0.00%	3.41%
08	0	402	40	0	13	1	0	0	0	0	0	0	0	0	456	14	0	14
	0.00%	88.16%	8.77%	0.00%	2.85%	0.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.07%	0.00%	3.07%
09	0	372	32	0	12	2	0	0	0	1	0	0	0	0	419	14	1	15
	0.00%	88.78%	7.64%	0.00%	2.86%	0.48%	0.00%	0.00%	0.00%	0.24%	0.00%	0.00%	0.00%	0.00%	100.00	3.34%	0.24%	3.58%
10	0	347	37	1	8	0	0	0	0	0	0	0	0	0	393	9	0	9
	0.00%	88.30%	9.41%	0.25%	2.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.29%	0.00%	2.29%
11	2	375	38	0	9	2	0	0	1	0	0	0	0	0	427	11	1	12
	0.47%	87.82%	8.94%	0.00%	2.11%	0.47%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.58%	0.23%	2.81%
12	0	389	30	0	8	0	0	0	0	0	0	0	0	0	427	8	0	8
	0.00%	91.10%	7.03%	0.00%	1.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.87%	0.00%	1.87%
13	0	379	38	0	8	0	0	0	0	0	0	0	0	0	425	8	0	8
	0.00%	89.18%	8.94%	0.00%	1.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.88%	0.00%	1.88%
14	0	431	32	0	12	0	0	0	2	0	0	0	0	0	477	12	2	14
	0.00%	90.36%	6.71%	0.00%	2.52%	0.00%	0.00%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.52%	0.42%	2.94%
15	2	530	44	0	9	0	0	0	0	0	0	0	0	1	586	9	0	9
	0.34%	90.44%	7.51%	0.00%	1.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	100.00	1.54%	0.00%	1.54%
16	1	544	40	0	11	0	0	0	0	0	0	0	0	0	596	11	0	11
	0.17%	91.28%	6.71%	0.00%	1.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.85%	0.00%	1.85%
17	1	591	41	0	8	0	0	0	0	0	0	0	0	0	641	8	0	8
	0.16%	92.20%	6.40%	0.00%	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.25%	0.00%	1.25%
18	2	568	34	0	11	1	0	1	0	0	0	0	0	1	618	12	1	13
	0.32%	91.91%	5.50%	0.00%	1.78%	0.16%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.16%	100.00	1.94%	0.16%	2.10%
19	0	410	28	0	7	0	0	0	0	0	0	0	0	0	445	7	0	7
	0.00%	92.13%	6.29%	0.00%	1.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.57%	0.00%	1.57%
20	2	310	21	0	4	1	0	0	0	0	0	0	0	0	338	5	0	5
	0.59%	91.72%	6.21%	0.00%	1.18%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.48%	0.00%	1.48%
21	1	296	3	0	1	1	0	0	0	0	0	0	0	0	302	2	0	2
	0.33%	98.01%	0.99%	0.00%	0.33%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.66%	0.00%	0.66%
22	0	160	9	0	1	2	0	0	0	0	0	0	0	0	172	3	0	3
	0.00%	93.02%	5.23%	0.00%	0.58%	1.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.74%	0.00%	1.74%
23	0	127	4	0	0	2	0	0	1	0	0	0	0	0	134	2	1	3
	0.00%	94.78%	2.99%	0.00%	0.00%	1.49%	0.00%	0.00%	0.75%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.49%	0.75%	2.24%
Total	11	7,011	562	2	157	21	0	1	5	1	0	0	0	2	7,773	180	7	187
	0.14%	90.20%	7.23%	0.03%	2.02%	0.27%	0.00%	0.01%	0.06%	0.01%	0.00%	0.00%	0.00%	0.03%	100.00	2.32%	0.09%	2.41%
Total Count	11	7,011	562	2	157	21	0	1	5	1	0	0	0	2	7,773	180	7	187
	0.14%	90.20%	7.23%	0.03%	2.02%	0.27%	0.00%	0.01%	0.06%	0.01%	0.00%	0.00%	0.00%	0.03%	100.00	2.32%	0.09%	2.41%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 25, 2019 North

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0 0.00%	58 90.63%	3 4.69%	0 0.00%	1 1.56%	1 1.56%	1 1.56%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	64 100.00	3 4.69%	0 0.00%	3 4.69%
01	0 0.00%	29 76.32%	4 10.53%	0 0.00%	1 2.63%	3 7.89%	0 0.00%	0 0.00%	1 2.63%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	38 100.00	4 10.53%	1 2.63%	5 13.16%
02	0 0.00%	8 80.00%	2 20.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	10 100.00	0 0.00%	0 0.00%	0 0.00%
03	0 0.00%	9 81.82%	1 9.09%	0 0.00%	0 0.00%	1 9.09%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	11 100.00	1 9.09%	0 0.00%	1 9.09%
04	0 0.00%	11 84.62%	2 15.38%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	13 100.00	0 0.00%	0 0.00%	0 0.00%
05	0 0.00%	53 86.89%	6 9.84%	0 0.00%	2 3.28%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	61 100.00	2 3.28%	0 0.00%	2 3.28%
06	0 0.00%	149 79.26%	24 12.77%	0 0.00%	10 5.32%	4 2.13%	0 0.00%	1 0.53%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	188 100.00	14 7.45%	1 0.53%	15 7.98%
07	0 0.00%	458 89.63%	39 7.63%	1 0.20%	12 2.35%	1 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	511 100.00	14 2.74%	0 0.00%	14 2.74%
08	1 0.23%	389 89.43%	27 6.21%	0 0.00%	17 3.91%	0 0.00%	0 0.00%	0 0.00%	1 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	435 100.00	17 3.91%	1 0.23%	18 4.14%
09	0 0.00%	329 86.81%	38 10.03%	0 0.00%	11 2.90%	1 0.26%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	379 100.00	12 3.17%	0 0.00%	12 3.17%
Total	1 0.06%	1,493 87.31%	146 8.54%	1 0.06%	54 3.16%	11 0.64%	1 0.06%	1 0.06%	2 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,710 100.00	67 3.92%	3 0.18%	70 4.09%
Total Count	1 0.06%	1,493 87.31%	146 8.54%	1 0.06%	54 3.16%	11 0.64%	1 0.06%	1 0.06%	2 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,710 100.00	67 3.92%	3 0.18%	70 4.09%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 23, 2019 South

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
10	1 0.29%	302 87.54%	34 9.86%	0 0.00%	7 2.03%	1 0.29%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	345 100.00	8 2.32%	0 0.00%	8 2.32%
11	2 0.54%	317 85.68%	39 10.54%	1 0.27%	11 2.97%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	370 100.00	12 3.24%	0 0.00%	12 3.24%
12	0 0.00%	344 88.89%	30 7.75%	0 0.00%	13 3.36%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	387 100.00	13 3.36%	0 0.00%	13 3.36%
13	0 0.00%	311 84.05%	40 10.81%	0 0.00%	14 2.78%	4 1.08%	0 0.00%	0 0.00%	0 0.00%	1 0.27%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	370 100.00	18 4.86%	1 0.27%	19 5.14%
14	2 0.40%	429 86.84%	48 9.72%	0 0.00%	15 3.04%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	494 100.00	15 3.04%	0 0.00%	15 3.04%
15	0 0.00%	413 87.32%	44 9.30%	1 0.21%	13 2.75%	0 0.00%	0 0.00%	0 0.00%	1 0.21%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.21%	473 100.00	14 2.96%	1 0.21%	15 3.17%
16	1 0.17%	510 89.01%	48 8.38%	0 0.00%	13 2.27%	0 0.00%	0 0.00%	0 0.00%	1 0.17%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	573 100.00	13 2.27%	1 0.17%	14 2.44%
17	1 0.17%	507 88.33%	49 8.54%	1 0.17%	13 2.26%	1 0.17%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	2 0.35%	574 100.00	15 2.61%	0 0.00%	15 2.61%
18	2 0.39%	468 90.52%	42 8.12%	0 0.00%	5 0.97%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	517 100.00	5 0.97%	0 0.00%	5 0.97%
19	1 0.24%	369 88.28%	41 9.81%	0 0.00%	5 1.20%	1 0.24%	1 0.24%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	418 100.00	7 1.67%	0 0.00%	7 1.67%
20	3 1.07%	244 87.14%	31 11.07%	0 0.00%	2 0.71%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	280 100.00	2 0.71%	0 0.00%	2 0.71%
21	0 0.00%	183 89.71%	17 8.33%	0 0.00%	2 0.98%	1 0.49%	1 0.49%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	204 100.00	4 1.96%	0 0.00%	4 1.96%
22	0 0.00%	114 90.48%	10 7.94%	0 0.00%	0 0.00%	1 0.79%	1 0.79%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	126 100.00	2 1.59%	0 0.00%	2 1.59%
23	0 0.00%	73 94.81%	2 2.60%	0 0.00%	2 2.60%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	77 100.00	2 2.60%	0 0.00%	2 2.60%
Total	13 0.25%	4,584 88.02%	475 9.12%	3 0.06%	115 2.21%	9 0.17%	3 0.06%	0 0.00%	2 0.04%	1 0.02%	0 0.00%	0 0.00%	0 0.00%	3 0.06%	5,208 100.00	130 2.50%	3 0.06%	133 2.55%
Total Count	13 0.25%	4,584 88.02%	475 9.12%	3 0.06%	115 2.21%	9 0.17%	3 0.06%	0 0.00%	2 0.04%	1 0.02%	0 0.00%	0 0.00%	0 0.00%	3 0.06%	5,208 100.00	130 2.50%	3 0.06%	133 2.55%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 24, 2019 South

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0	25	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0
	0.00%	100.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.00%	0.00%	0.00%
01	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0
	0.00%	100.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	0.00%	0.00%	0.00%
02	0	11	2	1	1	0	0	0	0	0	0	0	0	0	15	2	0	2
	0.00%	73.33%	13.33%	6.67%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	13.33%	0.00%	13.33%
03	0	17	3	0	0	1	0	0	0	0	0	0	0	0	21	1	0	1
	0.00%	80.95%	14.29%	0.00%	0.00%	4.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.76%	0.00%	4.76%
04	0	42	3	0	2	3	0	0	0	0	0	0	0	0	50	5	0	5
	0.00%	84.00%	6.00%	0.00%	4.00%	6.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	10.00%	0.00%	10.00%
05	0	82	10	0	3	1	0	0	0	0	0	0	0	0	96	4	0	4
	0.00%	85.42%	10.42%	0.00%	3.13%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.17%	0.00%	4.17%
06	0	191	24	1	7	1	0	0	0	0	0	0	0	0	224	9	0	9
	0.00%	85.27%	10.71%	0.45%	3.13%	0.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.02%	0.00%	4.02%
07	0	399	40	1	14	2	0	0	0	0	0	0	0	0	456	17	0	17
	0.00%	87.50%	8.77%	0.22%	3.07%	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.73%	0.00%	3.73%
08	0	364	37	1	11	0	0	0	1	0	0	0	0	0	414	12	1	13
	0.00%	87.92%	8.94%	0.24%	2.66%	0.00%	0.00%	0.00%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	2.90%	0.24%	3.14%
09	1	321	35	1	12	1	0	0	0	0	0	0	0	0	371	14	0	14
	0.27%	86.52%	9.43%	0.27%	3.23%	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.77%	0.00%	3.77%
10	0	288	23	1	10	0	0	0	1	0	0	0	0	0	323	11	1	12
	0.00%	89.16%	7.12%	0.31%	3.10%	0.00%	0.00%	0.00%	0.31%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.41%	0.31%	3.72%
11	1	323	42	0	13	1	0	0	1	0	0	0	0	0	381	14	1	15
	0.26%	84.78%	11.02%	0.00%	3.41%	0.26%	0.00%	0.00%	0.26%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.67%	0.26%	3.94%
12	1	351	28	0	15	2	0	0	0	0	0	0	0	0	397	17	0	17
	0.25%	88.41%	7.05%	0.00%	3.78%	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.28%	0.00%	4.28%
13	0	328	45	0	5	0	0	0	1	0	0	0	0	0	379	5	1	6
	0.00%	86.54%	11.87%	0.00%	1.32%	0.00%	0.00%	0.00%	0.26%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.32%	0.26%	1.58%
14	0	401	49	1	18	0	0	0	0	0	0	0	0	0	469	19	0	19
	0.00%	85.50%	10.45%	0.21%	3.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	4.05%	0.00%	4.05%
15	0	412	38	2	13	0	0	1	1	0	0	0	0	1	468	15	2	17
	0.00%	88.03%	8.12%	0.43%	2.78%	0.00%	0.00%	0.21%	0.21%	0.00%	0.00%	0.00%	0.00%	0.21%	100.00	3.21%	0.43%	3.63%
16	0	443	38	0	12	0	0	0	0	0	0	0	0	1	494	12	0	12
	0.00%	89.68%	7.69%	0.00%	2.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%	100.00	2.43%	0.00%	2.43%
17	0	497	38	1	12	0	0	0	0	0	0	0	0	1	549	13	0	13
	0.00%	90.53%	6.92%	0.18%	2.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%	100.00	2.37%	0.00%	2.37%
18	1	439	46	0	8	0	0	0	0	0	0	0	0	0	494	8	0	8
	0.20%	88.87%	9.31%	0.00%	1.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.62%	0.00%	1.62%
19	0	371	36	0	6	0	0	0	0	0	0	0	0	0	413	6	0	6
	0.00%	89.83%	8.72%	0.00%	1.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.45%	0.00%	1.45%
20	0	267	22	0	3	0	0	0	0	0	0	0	0	0	292	3	0	3
	0.00%	91.44%	7.53%	0.00%	1.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.03%	0.00%	1.03%
21	0	172	14	0	0	1	1	0	0	0	0	0	0	0	188	2	0	2
	0.00%	91.49%	7.45%	0.00%	0.00%	0.53%	0.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	1.06%	0.00%	1.06%
22	0	119	8	0	2	2	0	0	0	0	0	0	0	0	131	4	0	4
	0.00%	90.84%	6.11%	0.00%	1.53%	1.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.05%	0.00%	3.05%
23	0	62	2	0	0	1	1	0	0	0	0	0	0	0	66	2	0	2
	0.00%	93.94%	3.03%	0.00%	0.00%	1.52%	1.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00	3.03%	0.00%	3.03%
Total	4	5,938	583	10	167	16	2	1	5	0	0	0	0	3	6,729	195	6	201
	0.06%	88.24%	8.66%	0.15%	2.48%	0.24%	0.03%	0.01%	0.07%	0.00%	0.00%	0.00%	0.00%	0.04%	100.00	2.90%	0.09%	2.99%
Total Count	4	5,938	583	10	167	16	2	1	5	0	0	0	0	3	6,729	195	6	201
	0.06%	88.24%	8.66%	0.15%	2.48%	0.24%	0.03%	0.01%	0.07%	0.00%	0.00%	0.00%	0.00%	0.04%	100.00	2.90%	0.09%	2.99%

New Jersey Department of Transportation

Hourly Classification Count and Percent Distribution

September 25, 2019 South

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	Total	Single	Combo	Trucks
00	0 0.00%	34 79.07%	3 6.98%	0 0.00%	1 2.33%	2 4.65%	1 2.33%	0 0.00%	1 2.33%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 2.33%	43 100.00	4 9.30%	1 2.33%	5 11.63%
01	0 0.00%	14 73.68%	3 15.79%	0 0.00%	1 5.26%	1 5.26%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	19 100.00	2 10.53%	0 0.00%	2 10.53%
02	0 0.00%	10 90.91%	0 0.00%	0 0.00%	1 9.09%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	11 100.00	1 9.09%	0 0.00%	1 9.09%
03	0 0.00%	18 90.00%	1 5.00%	0 0.00%	0 0.00%	1 5.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	20 100.00	1 5.00%	0 0.00%	1 5.00%
04	0 0.00%	36 83.72%	4 9.30%	0 0.00%	2 4.65%	1 2.33%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	43 100.00	3 6.98%	0 0.00%	3 6.98%
05	1 0.91%	92 83.64%	12 10.91%	0 0.00%	3 2.73%	2 1.82%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	110 100.00	5 4.55%	0 0.00%	5 4.55%
06	0 0.00%	169 82.04%	25 12.14%	1 0.49%	9 4.37%	1 0.49%	0 0.00%	0 0.00%	1 0.49%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	206 100.00	11 5.34%	1 0.49%	12 5.83%
07	0 0.00%	393 89.52%	32 7.29%	1 0.23%	11 2.51%	2 0.46%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	439 100.00	14 3.19%	0 0.00%	14 3.19%
08	1 0.24%	366 86.52%	42 9.93%	2 0.47%	12 2.84%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	423 100.00	14 3.31%	0 0.00%	14 3.31%
09	0 0.00%	339 86.70%	39 9.97%	0 0.00%	13 3.32%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	391 100.00	13 3.32%	0 0.00%	13 3.32%
Total	2 0.12%	1,471 86.28%	161 9.44%	4 0.23%	53 3.11%	10 0.59%	1 0.06%	0 0.00%	2 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.06%	1,705 100.00	68 3.99%	2 0.12%	70 4.11%
Total Count	2 0.12%	1,471 86.28%	161 9.44%	4 0.23%	53 3.11%	10 0.59%	1 0.06%	0 0.00%	2 0.12%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1 0.06%	1,705 100.00	68 3.99%	2 0.12%	70 4.11%

New Jersey Department of Transportation

Count Class Distribution for 09/23/2019 through 09/25/2019

Site names: 162024
 County: UNION
 Funct Class: Urban Minor Arterial
 Location: Bet Haines Ave and Vauxhall Rd

Seasonal Factor Grp: rg1_4U
 Daily Factor Grp: rg1_4U
 Axle Factor Grp: rg1_4U
 Growth Factor Grp: rg1_4U

	Road	N	S
MC	39 .13%	20 .13%	19 .14%
CAR	26,046 89.08%	14,053 90.11%	11,993 87.91%
PU	2,349 8.03%	1,130 7.25%	1,219 8.94%
BUS	20 .07%	3 .02%	17 .12%
2D	659 2.25%	324 2.08%	335 2.46%
SU 3	73 .25%	38 .24%	35 .26%
SU 4+	8 .03%	2 .01%	6 .04%
ST 4-	10 .03%	9 .06%	1 .01%
ST 5	18 .06%	9 .06%	9 .07%
ST 6+	2 .01%	1 .01%	1 .01%
MT 5-	0 .00%	0 .00%	0 .00%
MT 6	0 .00%	0 .00%	0 .00%
MT 7+	0 .00%	0 .00%	0 .00%
UNCLS	14 .05%	7 .04%	7 .05%
Trucks	790 2.70%	386 2.47%	404 2.96%
Combo Trucks	30 .10%	19 .12%	11 .08%
Classified	29,224 99.95%	15,589 99.96%	13,635 99.95%
Volume	29,238 100.00%	15,596 100.00%	13,642 100.00%

F. PHOTOGRAPHS

Foundation tripping hazard in sidewalk;
Faded crosswalk



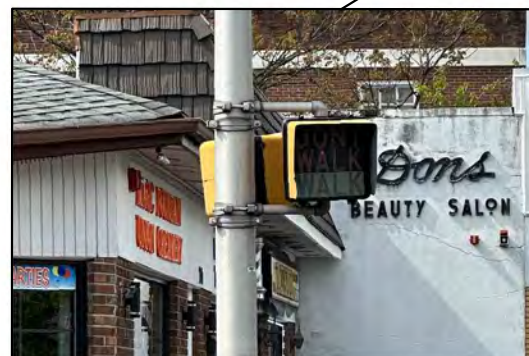
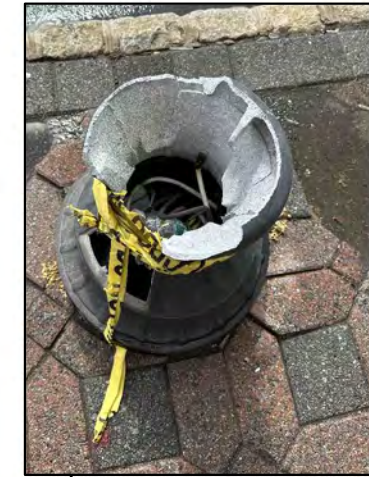
Outdated traffic signal equipment



Drainage issues along sidewalk;
Dips in curb



Exposed lighting pole foundation in sidewalk



Outdated pedestrian signal equipment;
Missing pedestrian push buttons



ADA curb ramp and adjoining paver sidewalk
results in uneven pedestrian path



No marked crosswalk;
Missing stop bar marking

LEGEND

 SIGNALIZED INTERSECTION

 PROJECT CORRIDOR

1
6

**NJDOT HSIP - ROAD SAFETY AUDIT
STUYVESANT AVENUE**

UNION TWP.
UNION COUNTY

SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

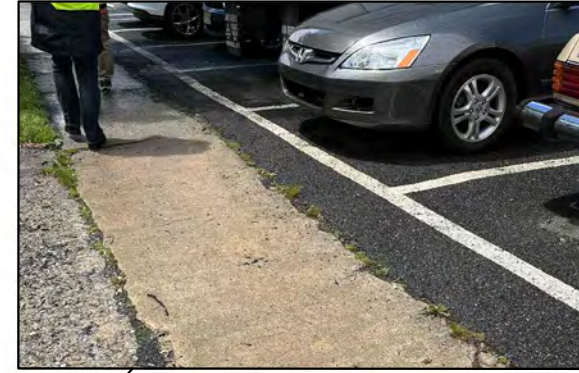
Uneven sidewalk



No marked crosswalk across Stuyvesant Avenue despite bus stop presence



Narrow sidewalk in poor condition and abutting parking stalls



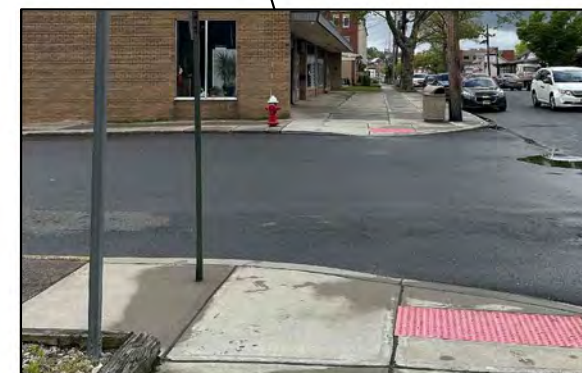
Ponding / Drainage issues at ADA curb ramps



No marked crosswalk across Stuyvesant Avenue despite bus stop presence



Cars parked too close to the intersection



No marked crosswalk; Missing stop bar marking; No lighting

LEGEND

 SIGNALIZED INTERSECTION

 PROJECT CORRIDOR

2
6

**NJDOT HSIP – ROAD SAFETY AUDIT
STUYVESANT AVENUE**

UNION TWP.
UNION COUNTY

SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

Driveway in poor condition



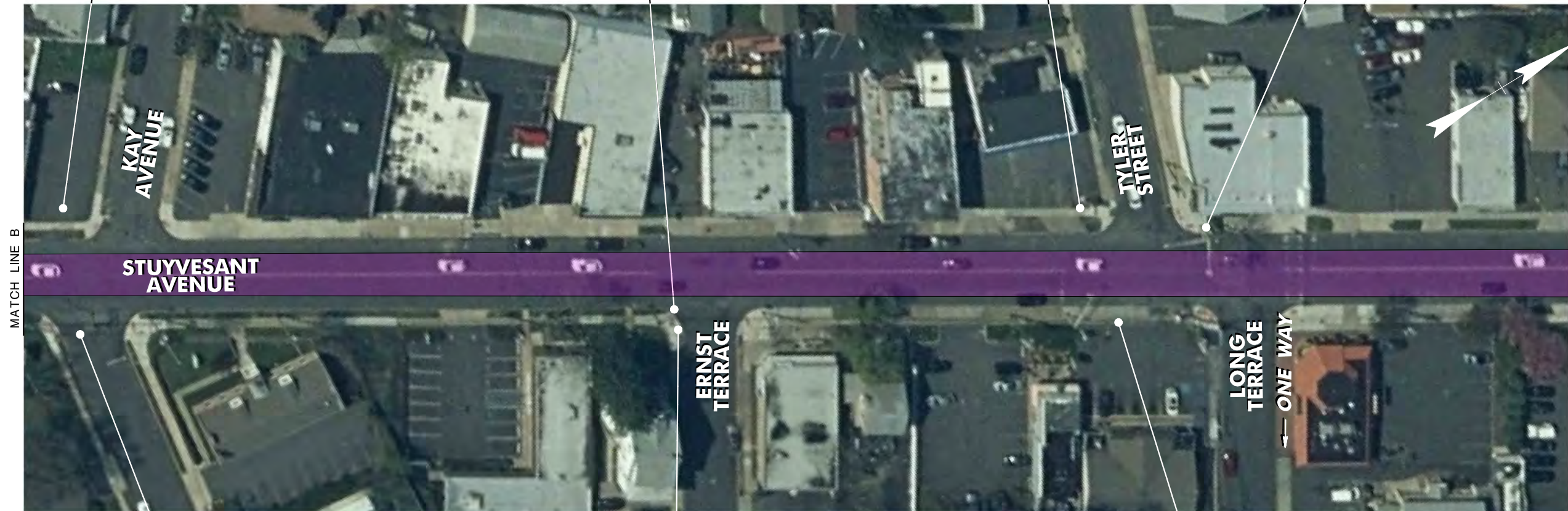
Manhole in ADA curb ramp area



Parked vehicle overhang obstructs pedestrian path



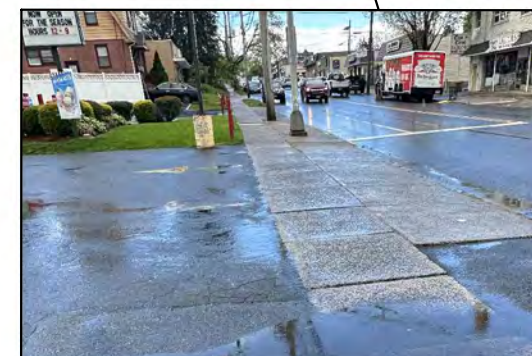
Outdated traffic signal;
Missing pedestrian signal equipment



Poor pavement condition;
Faded stop bar marking



No marked crosswalk;
Missing stop bar marking



Driveway within signalized intersection

LEGEND



SIGNALIZED INTERSECTION



PROJECT CORRIDOR

3/6

NJDOT HSIP - ROAD SAFETY AUDIT
STUYVESANT AVENUE

UNION TWP.
UNION COUNTY

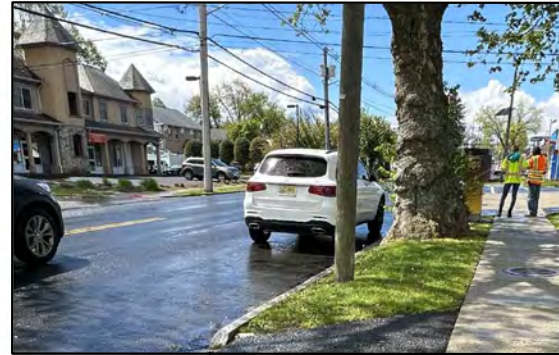
SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

Sightline issues on minor street due to tree



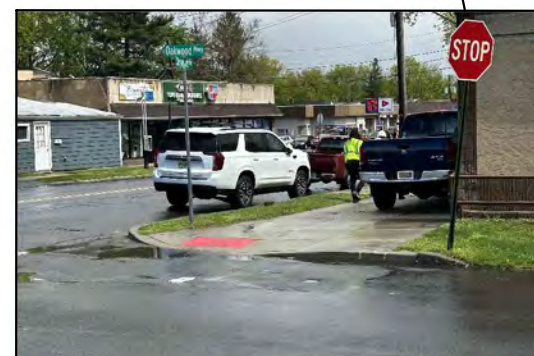
No marked crosswalk; Missing stop bar marking



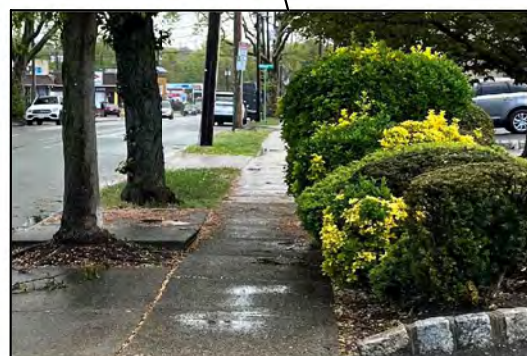
Drainage issues along sidewalk



Stop sign visibility issues



No marked crosswalk and missing stop bar marking; Tilted stop sign post; Truck parked on sidewalk



Vegetation obstructing sidewalk



Missing crosswalk and stop bar markings; Poor pavement condition

LEGEND

SIGNALIZED INTERSECTION

PROJECT CORRIDOR

4
6

NJDOT HSIP - ROAD SAFETY AUDIT
STUYVESANT AVENUE

UNION TWP.
UNION COUNTY

SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

No marked crosswalk;
Drainage issues along crosswalk



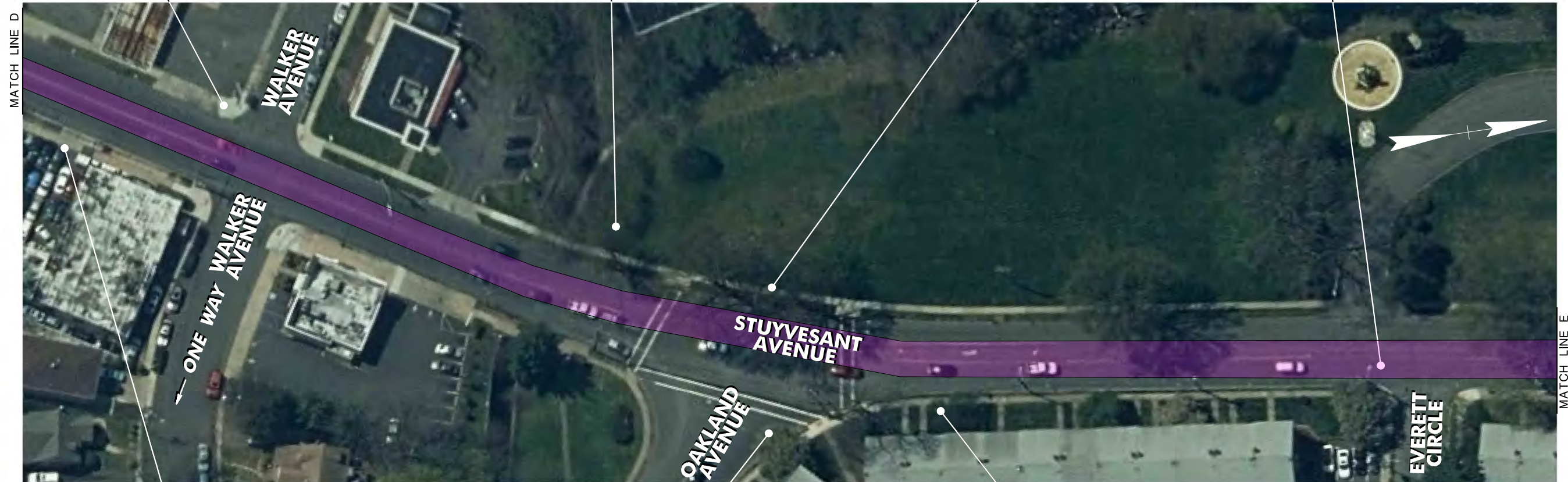
Guide rail not compliant



Bent sign post



No marked crosswalk and drainage issues along crosswalk;
Faded stop bar marking; Bent sign posts;
Stop sign height clearance inadequate



Parked cars overhanging on sidewalk
obstructing pedestrian path



Long pedestrian crossing and faded crosswalk;
Large curb radii;
No pedestrian signal equipment



Cars parked in bus stop

LEGEND

 SIGNALIZED INTERSECTION

 PROJECT CORRIDOR

5
6

**NJDOT HSIP – ROAD SAFETY AUDIT
STUYVESANT AVENUE**

UNION TWP.
UNION COUNTY

SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

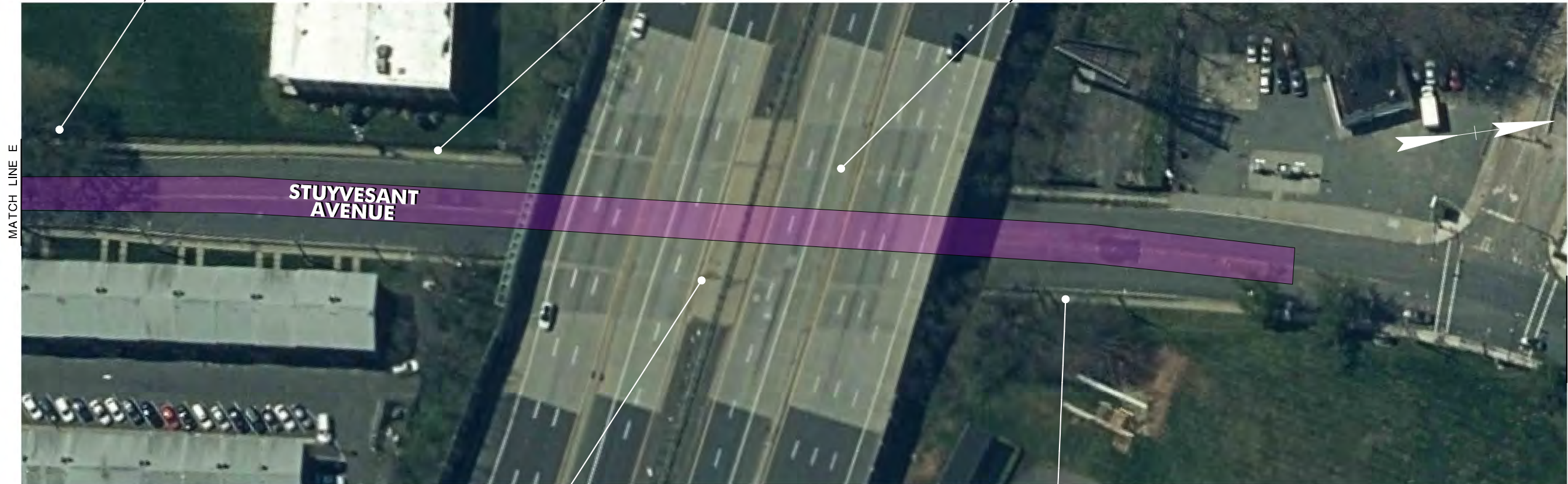
Tree protruding beyond curb



Vegetation obstructing sidewalk



Sidewalk curb cut out for manhole maintenance



Lighting underneath overpass needs inspection



Steep sidewalk slope

LEGEND



SIGNALIZED INTERSECTION



PROJECT CORRIDOR

6
6

**NJDOT HSIP – ROAD SAFETY AUDIT
STUYVESANT AVENUE**

**UNION TWP.
UNION COUNTY**

SITE PHOTOGRAPHS



GPI Engineering
Design
Planning
Construction Management

N.T.S.

G. PRE-AUDIT PRESENTATION



1

AUDIT TEAM



**NJDOT, NJTPA,
NJ Transit**



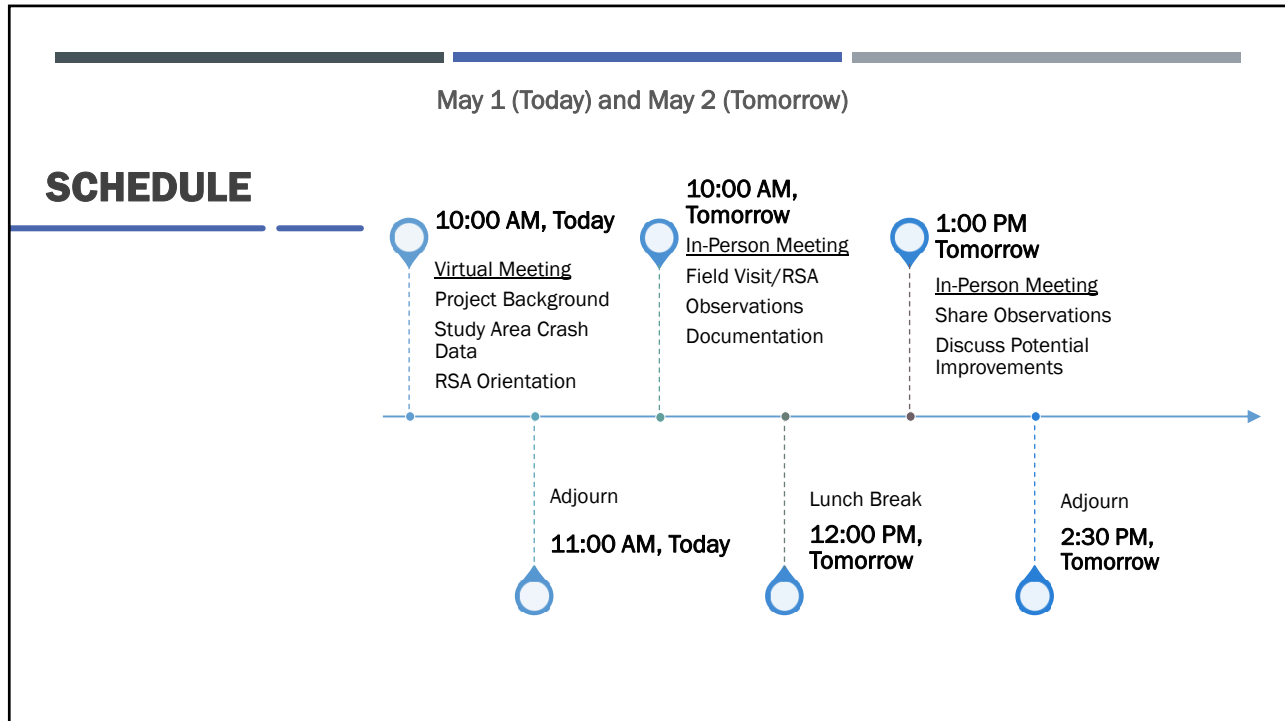
Union County



Union Township

Funded by Federal Highway Administration and NJDOT
Presented by Greenman-Pedersen, Inc., NJDOT Consultant

2



3

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

- 7 Emphasis Areas (NJ 2020 Strategic Highway Safety Plan)
- 7 sub-programs including Local Safety Program – ROAD SAFETY AUDITS
- Core Federal Aid Program, NJ receives about \$75M

Equity

Lane Departure

Intersections

Driver Behavior

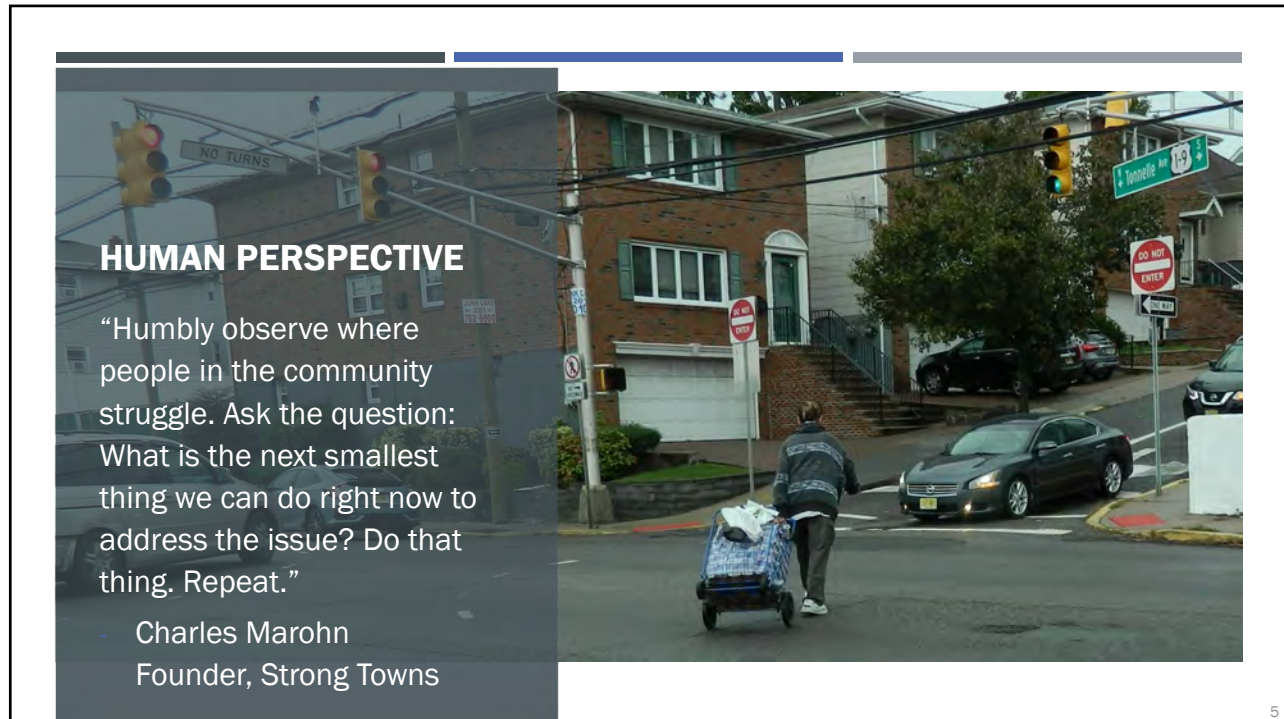
Pedestrians and Bicyclists

Other Vulnerable Road Users

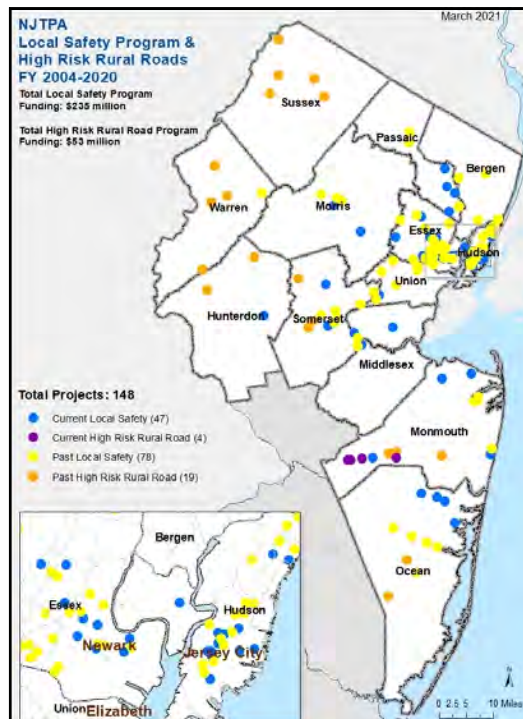
Data

Driver Behavior: Drowsy and Distracted Driving, Aggressive Driving, Impaired Driving, Unlicensed Driving, and Unbelted Drivers and Occupants
Other Vulnerable Road Users: Mature Drivers, Younger Drivers, Motorcyclists, Work Zone Workers and Other Road Workers

4



5



FEDERAL TRANSPORTATION FUNDING

- **Local Safety and High Risk Rural Roads Programs**
 - \$235M on County / Local Roadways
 - Relatively quick-fix safety improvements
- **HSIP funds** – emphasizes data-driven, strategic approach to improving highway safety
- **Network Screening** – identifies locations experiencing:
 - High crash frequencies
 - Severe crash injuries
 - Specific crash types (e.g. right-angle, roadway departures)
- **Community Outreach** – opportunities for public, local officials and stakeholders to comment and ask questions

6

RSA PURPOSE

Formal safety performance examination by an independent, multidisciplinary audit team that identifies safety improvement opportunities for all road users.



Benefits

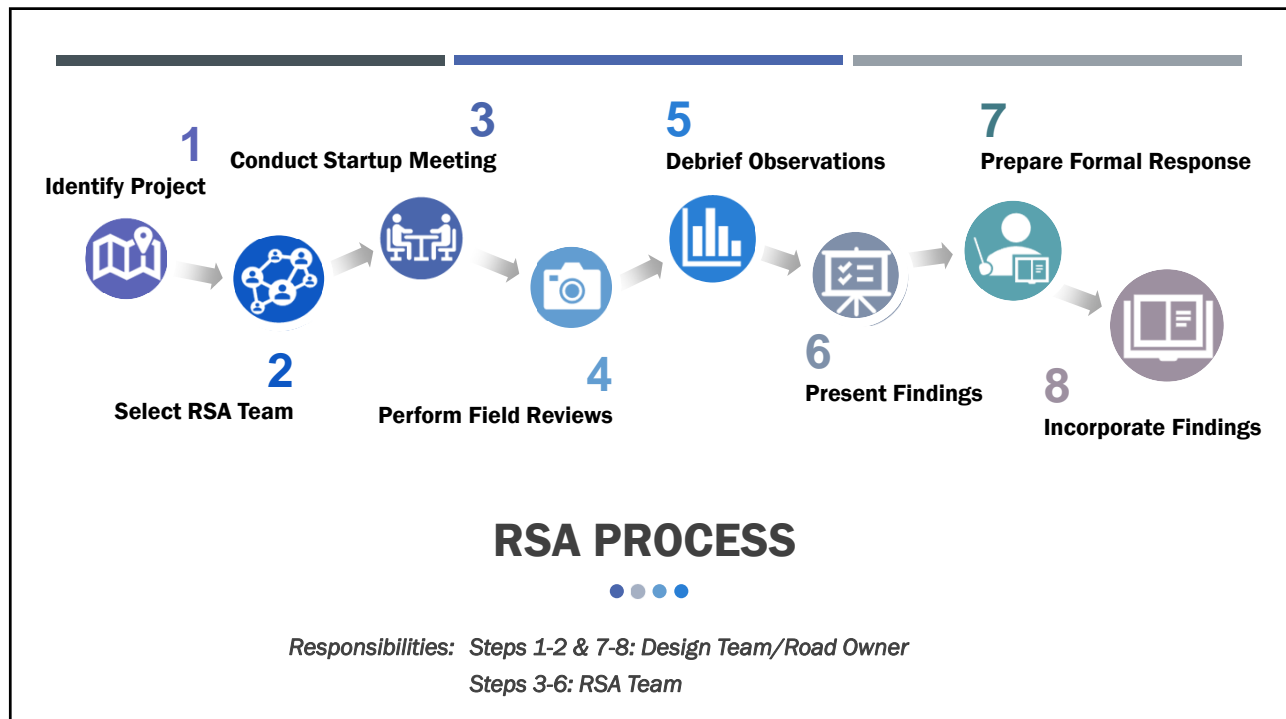
- Pro-actively address safety; reduce crashes
- Identify low-cost/high-value improvements
- Promote “safety culture”
- Provide continuous advancement of safety skills and knowledge
- Contribute feedback on safety issues
- Support optimized savings of lives, money and time



Not meant to replace

- Design quality control
- Standard compliance
- Traffic or safety impact studies
- Safety conscious planning
- Road safety inventory programs
- Traffic safety modeling efforts

7



8

FHWA PROVEN SAFETY COUNTERMEASURES (PSC)

- 28 countermeasures
- Research proven strategies
 - ✓ Intersections
 - ✓ Roadway departures
 - ✓ Pedestrian/bicyclist
- Several crosscutting strategies address multiple safety focus areas



9

PSC EXAMPLES

Left:

- Roundabout, Cinnaminson Township, Burlington County
- Road diet, Maplewood Township, Essex County
- Pedestrian Hybrid Beacon (HAWK), Ocean City, Cape May County

Right:

- Backplates with Retroreflective Borders, Statewide
- Enhanced Delineation, Horizontal Curves, Statewide

Additional Considerations:

- Curb extensions



10

PROJECT AREA

Site Summary

- Undivided
- Urban minor arterial
- 2 lanes (excl. turn lanes)
- 25 mph
- Commercial/residential mix

Demographics

Item*	Study Area	Union County
DI	43%	-
POC	77%	61%
65+	15%	14%
18-	19%	23%
LI	4%	9%
LEP	15%	18%
PwD	8%	9%

* DI = Demographic Index
 POC = People of Color
 65+ = People over age 64
 18- = People under age 18

LI = Low Income
 LEP = Limited English Proficiency
 PwD = Persons with a Disability
 DI > 50% indicates underserved

11



AREA MAP



MATCH LINE

MATCH LINE

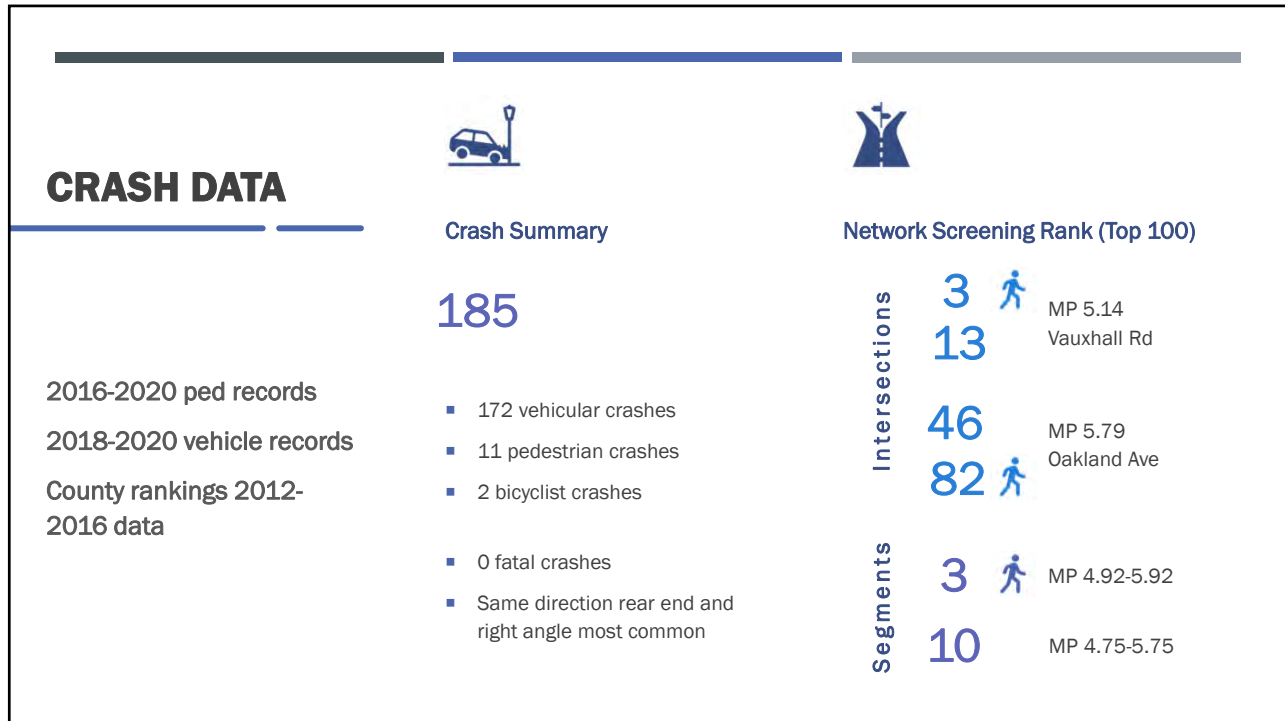
MATCH LINE

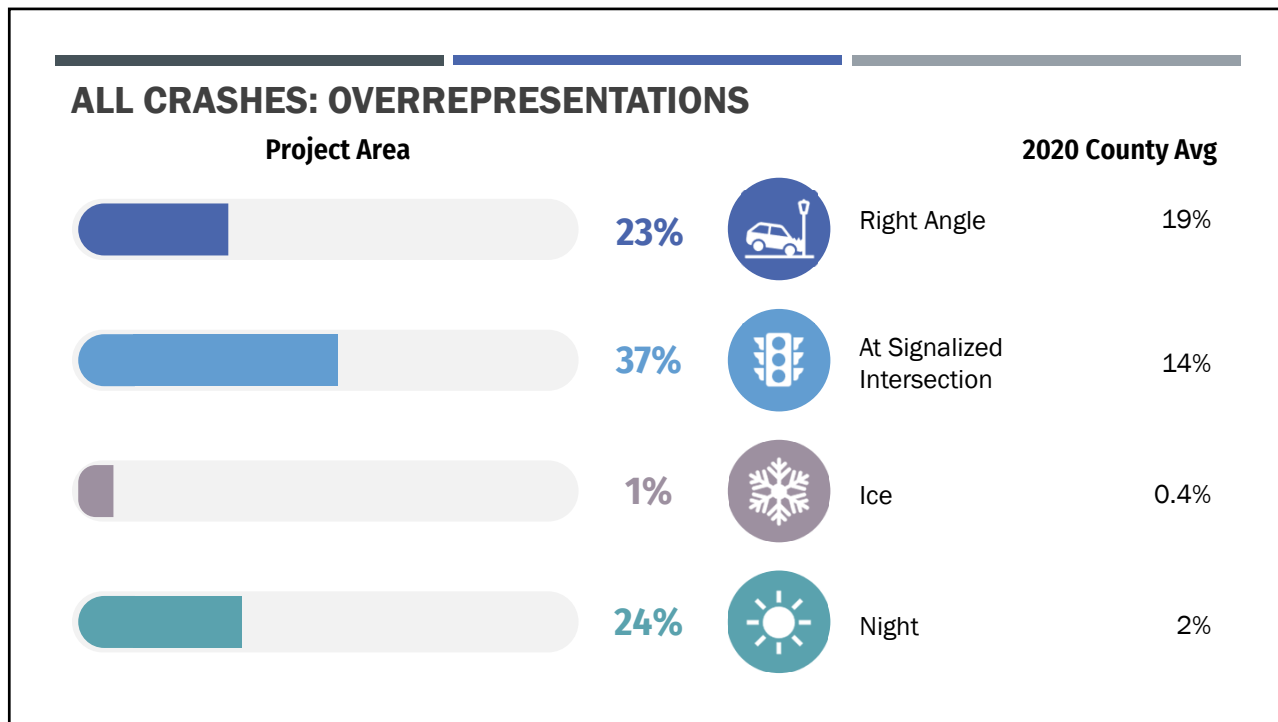
MATCH LINE

MATCH LINE

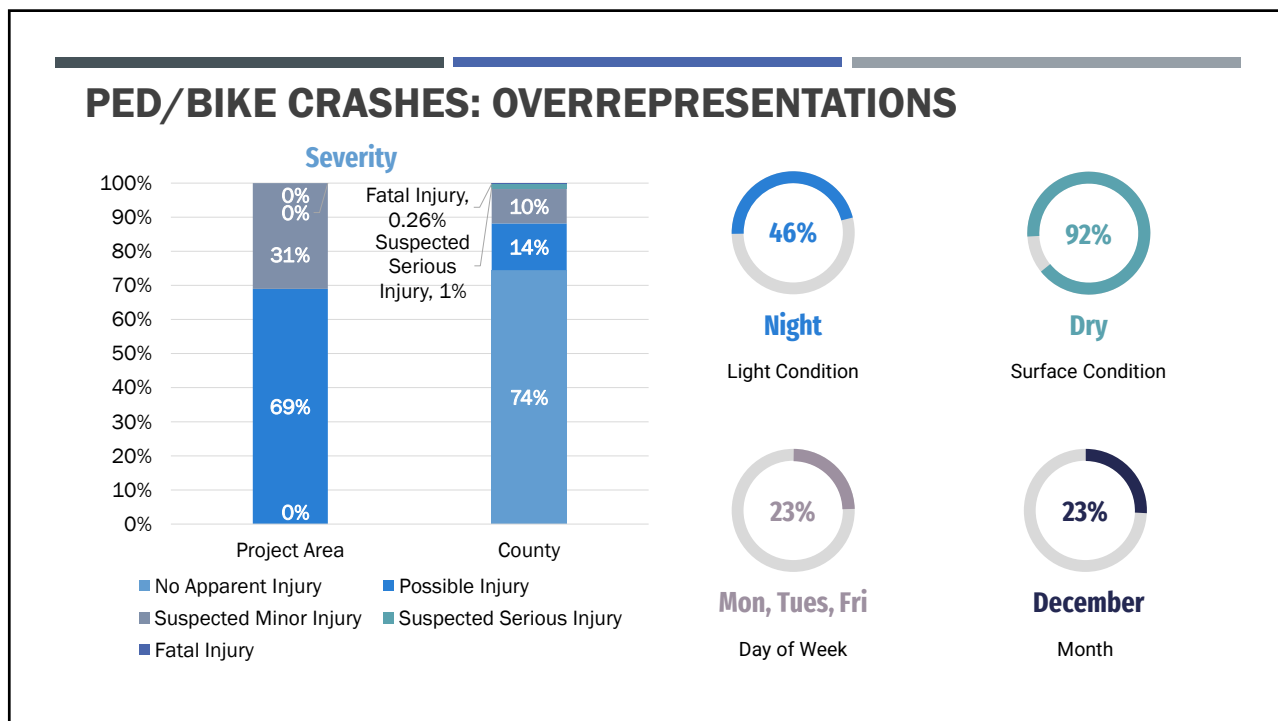
MATCH LINE

12

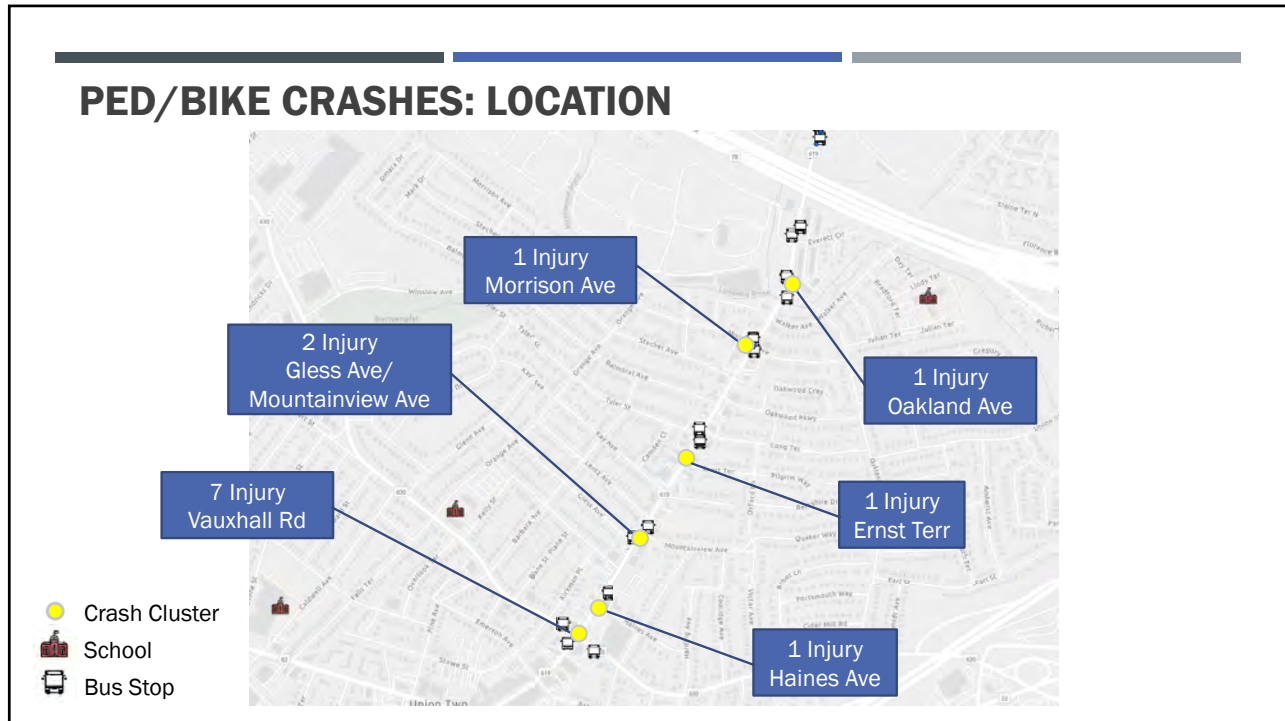




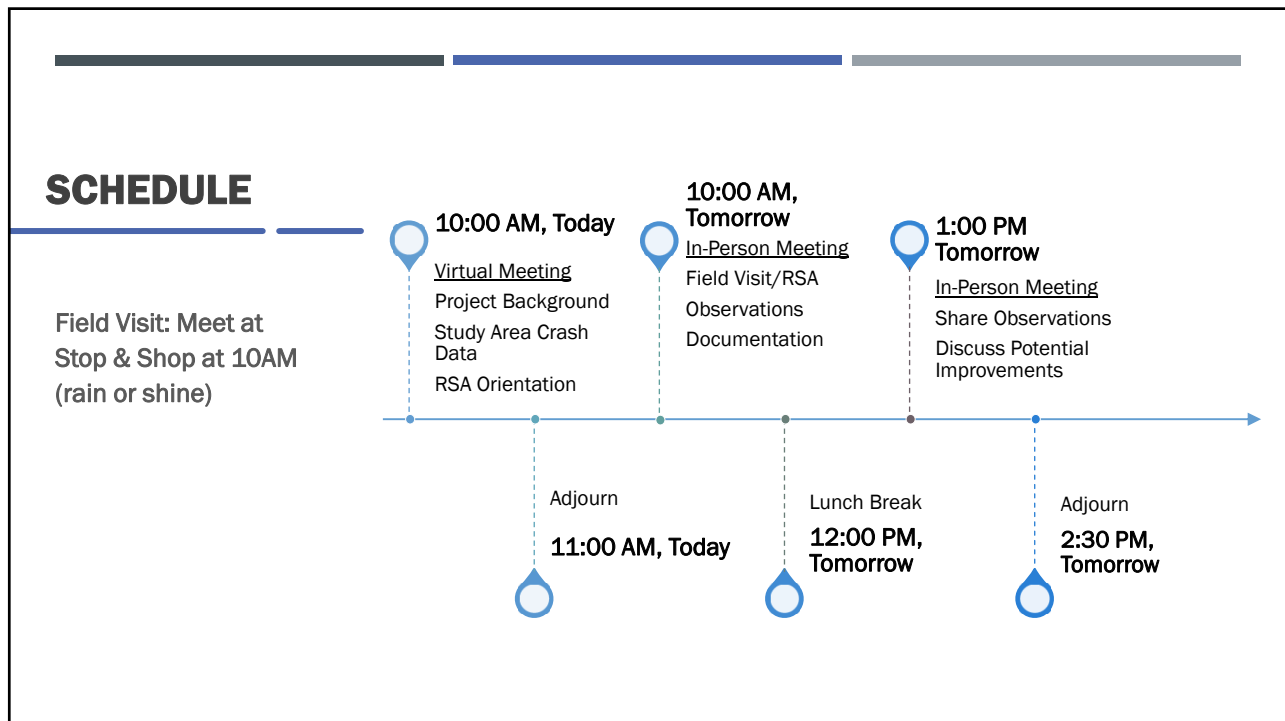
15



16



17



18

DISCUSSION DURING FIELD VISIT

Dress appropriately for safety and weather. Safety vests must be worn.



Observations

- What elements of the road may present a safety concern?
- To what extent, to which road users, and under what circumstances?
- What corridor safety issues did you observe?
- What localized safety issues did you observe?



Recommendations

- What opportunities exist to eliminate or mitigate identified safety concerns?
- What improvements would you make?
- Are any of the FHWA countermeasures beneficial?

19

NEXT STEPS



- Preparation of RSA Report
- Review/comments from RSA Team
- Preparation of Preliminary Final Report
- Preparation of Final Report
- Approximate timeframe: 6-8 weeks

20

H. ROAD OWNER RESPONSE



COUNTY OF UNION

DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

Joseph J. Policay, Jr., CPWM, Acting Director

January 22, 2024

**BOARD OF
COUNTY COMMISSIONERS**

KIMBERLY PALMIERI-MOUDED
Chairwoman

LOURDES LEON
Vice-Chairwoman

JAMES E. BAKER, JR.

JOSEPH C. BODEK

MICHÈLE S. DELISFORT

SERGIO GRANADOS

BETTE JANE KOWALSKI

ALEXANDER MIRABELLA

REBECCA WILLIAMS

EDWARD T. OATMAN
County Manager

AMY CRISP WAGNER
Deputy County Manager

BRUCE H. BERGEN, ESQ.
County Counsel

JAMES E. PELLETTIERE
Clerk of the Board

RICARDO S. MATIAS
PE, CME, CFM
County Engineer
Director, Division of Engineering

Greenman-Pedersen, Inc.
520 US Highway 22, Suite 200
Bridgewater, NJ 08807
ATTN: Julia Steponanko

Dear Ms. Steponanko,

On behalf of the County of Union, I would like to thank you and everyone involved for participating in the Stuyvesant Avenue (CR 619) Roadway Safety Audit which was conducted between Vauxhall Road and I-78. Union County values the collaboration between all of the stakeholders on this significant effort to evaluate traffic safety improvements along the vital corridor.

The Union County Engineering office has reviewed the numerous recommendations contained in the report and although we cannot commit to any specific recommendations, they will be useful in future analysis and considered in improvement projects moving forward.

Union County is committed to the improvement of safety and accessibility to all users of our transportation system and the Roadway Safety Audit is an important first step in that commitment.

Very truly yours,

Ricardo S. Matias, PE, CME, CFM
County Engineer

DIVISION OF ENGINEERING

2325 South Avenue

Scotch Plains, NJ 07076

(908)789-3675

fax(908)789-3674

www.ucnj.org

We're Connected to You!