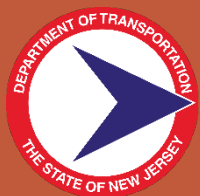




Road Safety Audit:

CR 638 (Valley Street),
Millburn Avenue to South Orange Avenue
Maplewood & South Orange Township, Essex County



APRIL 2018

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Executive Summary

This document is the final report of the CR 638, Valley Street Road Safety Audit (RSA). It was conducted from the Millburn Avenue intersection in Maplewood Township (MP 0.08) to the South Orange Avenue intersection in the Township of South Orange Village (MP 2.22), Essex 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.

This section of CR 638, Valley Street was identified on NJTPA's Local Safety Program Network Screening list as a high priority location. According to the NJDOT crash database, 202 crashes occurred during the three-year period between January 1, 2014, and December 31, 2016, along the study area section of CR 638, Valley Street with 82, 64, and 56 crashes occurring in 2014, 2015 and 2016, respectively. Additionally, 16 pedestrian crashes occurred over the five-year period between January 1, 2012, and December 31, 2016, one of which was fatal.

This one-day RSA was conducted on Thursday, October 26, 2017, from 8:30 am to 3:30 pm. The pre- and post-audit meetings were held in the Maplewood Township Municipal Building, 574 Valley Street, Maplewood, NJ. Representatives from NJDOT, NJTPA, Essex County, Maplewood Township, and the Township of South Orange Village were in attendance with NJDOT serving as the facilitator.

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 aforementioned agency representatives. Corridor-wide and site-specific issues and recommendations, organized by location, are discussed in Section IV. The most common recommendations were to consider developing an access management and parking plan; traffic signal and ADA ramp upgrades; and investigate curb extensions at unsignalized intersections.

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

The section of CR 638, Valley Street (herein referred to as Valley Street), from Millburn Avenue to South Orange Avenue (MP 0.08-2.22), was identified on NJTPA’s Local Safety Program Network Screening list as a high priority location, as shown in the below FY 2017-2018 ranking. Of note, these rankings are based on 2011-2013 vehicular and 2009-2013 pedestrian crash data.

Table 1 – Valley Street NJTPA FY 2017-18 LSP Ranking

Regional Corridors	Intersections	Pedestrian Intersections
#County Rank/NJTPA Region Rank		
#50/199 S Orange Ave	#71/291 S Orange Ave	#49/126 Roland Ave
#77/318 Valley St (MP 0.08-1.08)	#114/508 2nd St	#83/233 S Orange Ave
#155/839 Valley St (MP 1.15-2.15)	#237/1019 Baker St	#300/897 3rd St
#248/1472 Valley St (MP 1.15-2.15)	#450/1938 Parker Ave	#523/1683 Tuscan Rd
	#467/2012 S Pierson Rd	#557/1893 1st St
	#511/2245 Millburn Ave	
	#511/2245 Oakland Rd	

B. What is a Road Safety Audit?

A Road Safety Audit (RSA) is a formal safety performance examination of an existing or future road or intersection by a multi-disciplinary audit team independent of the project. 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.

The RSA program is 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 in the figure below.



C. The Valley Street RSA Event

This one-day RSA was conducted on Thursday, October 26, 2017, from 8:30 am to 3:00 pm. The pre- and post-audit meetings were held in the Maplewood Township Municipal Building, 574 Valley Street, Maplewood, NJ. Representatives from NJDOT, NJTPA, Maplewood Township, Township of South Orange Village, and Essex County were in attendance with NJDOT serving as the facilitator. A list of team members can be found in Appendix A.

II. Corridor Description and Analysis

A. Study Location

The study area consists of approximately 2.1 miles of Valley Street from the Millburn Avenue intersection to the South Orange Avenue intersection. The area lies within Maplewood Township and the Township of South Orange Village, Essex County. This stretch of Valley Street is a mix of commercial, residential, and recreational properties. Commercial sites consist of one- and two-story retail and service establishments; and a grocery store-anchored shopping plaza. Residential units consist of detached single-family homes and apartment complexes. Recreational areas consist of parks, ballfields, and a private golf course. The northern portion of Valley Street is within the South Orange Village Center Special Improvement District (SID). Nearby Maplewood Village is also a SID.

B. Roadway and Intersection Characteristics

Valley Street is classified as an urban minor arterial and runs in a southwest to northeast orientation. The corridor study section is two-lanes, undivided, with a posted speed limit of 25mph, and on-street parking where designated. There are seven (7) signalized intersections, twenty-seven (27) unsignalized intersections and multiple driveways along this section.

C. Existing and Proposed Bicycle/Pedestrian Accommodations

Sidewalks are consistently available throughout the study area. Sidewalk conditions vary from newly installed to needing maintenance. Crosswalk striping is a mix of continental, zebra or standard-style with the crosswalks in South Orange also including brick pavers within the standard white lines. At unsignalized intersections, crosswalks are provided to cross the side streets, however, crosswalks traversing Valley Street are sparse. Tuscan Road, Baker Street and Parker Avenue are official school crossings with crossing guards during the morning and afternoon peak pedestrian hours.

A bus shelter was noted at 1st Street and bus stops were observed throughout the corridor. There are no defined bicycle lanes along Valley Street, therefore bicyclists were observed riding on the roadway as well as the sidewalks. The Maplewood Bikeway Network includes a small portion of Valley Street between Pierson Road and Park Avenue. Bike routes were also recommended along South Crescent and Oakland Road, and Ridgewood Road, which cross and parallel Valley Street, respectively. According to the South Orange Bicycling Network, routes are proposed on 2nd and 3rd Street, which cross the northern portion of Valley Street, and Academy Street and Walton Avenue, which run parallel to Valley Street. Additionally, both Township networks include Prospect Street and Wyoming Avenue. The majority of these bike routes are considered share lane roadways.

D. Traffic Volumes

Based on available data, the ADT along Valley Street ranges from approximately 15,800 to 18,600 in the northern and southern portions of the study area, respectively. A copy of the available data can be found in Appendix C.

E. Transit Service

NJ Transit provides bus and rail services along or near this route. NJ Transit owns and operates two stations within a couple blocks of Valley Street, on either end of the project corridor: the Maplewood Station and the South Orange Station. Both stations are serviced by the Morristown Line and the Gladstone Branch trains which runs parallel to Valley Street.

NJ Transit also provides bus service along the corridor with one bus shelter at the corner of Valley Street and 1st Street in the Township of South Orange Village and additional stops along Valley Street within South Orange and Maplewood Township. Jitney shuttles also service this area with a bus stop at the corner of Valley Street and 5th Street.

F. Community Profile

Population and income characteristics from the 2010 Census (U.S. Census Bureau) were used to identify minority populations and low-income populations. Updates to the 2010 Census were performed by the Census Bureau through the American Community Survey (ACS) estimate. The latest ACS for this study area is a five-year estimate from 2011 through 2015. A summary of the demographics is listed below.

Table 2 – Valley Street Area Demographics

Characteristic		Valley St Area	County Average
Poverty		7.0%	17.3%
Minority	Black or African American	13.9%	39.9%
	Hispanic/Latino	6.6%	21.7%
Limited English Proficiency (LEP)		14.9%	9.8%

In addition, approximately 32.1% of the population use public transportation, compared to the County average of 20.6%.

G. Redevelopment

The March 2006 South Orange Village *Redevelopment/Rehabilitation Study* found that the entire study area of Valley Street, extending from South Orange Avenue to the municipal border with Maplewood (Hixon Place), meets the “Rehabilitation Area” criteria and part of the area meets the “in Need of Redevelopment” criteria, as defined by the Local Redevelopment and Housing Law (LRHL). Consequently, many properties along this corridor are currently, or are anticipated to be, redeveloped to include more mixed-use, multi-story buildings with first-floor retail and upper floor residential units in addition to multi-family residential complexes. One example is the proposed 5-story, mixed-use building proposed in the southwest quadrant of the Valley Street and 4th Street intersection.

South Orange Vision focuses on environmentally and fiscally sustainable development. This will be achieved through the formation of cultural destinations and public spaces within a downtown

district; the integration of affordable housing within the current housing market; and by designing walkable neighborhoods and implementing shared routes practices throughout the corridor. As aforementioned, Valley Street is part of the South Orange Village Center Special Improvement District (SID). Maplewood Village is also a SID; however, private redevelopment plans within the project limits are currently unknown.

III. Crash Findings

The analysis used in the RSA was based on reportable crashes that resulted in a fatality, injury and/or property damage as found in the NJDOT crash database. Corridor-wide crash characteristics and overrepresentations were compared to the 2016 statewide average for the county road system as further detailed below. All crashes were plotted onto a collision diagram, which can be found in Appendix D.

A. Temporal Trends

According to the NJDOT crash database, there were 202 crashes from 2014 to 2016 along the study area section of Valley Street with 82, 64, and 56 crashes occurring in 2014, 2015 and 2016, respectively. Total crashes were highest in May and lowest in August compared to the county average. The day of week trend was similar to the county averages.

Additionally, 16 pedestrian crashes occurred over the five-year period from 2012 to 2016. The majority of these crashes included minor injuries and occurred during the day, on Wednesdays, and in May and November. It should be noted that the low number of crashes compared to the county road system may be statistically insignificant since they could not be correlated with an identified event. For example, while the monthly chart indicates 31% of pedestrian crashes occurred on Wednesday, this equates to a total of 5 crashes versus the county average of 126 crashes (17%) for the same day.

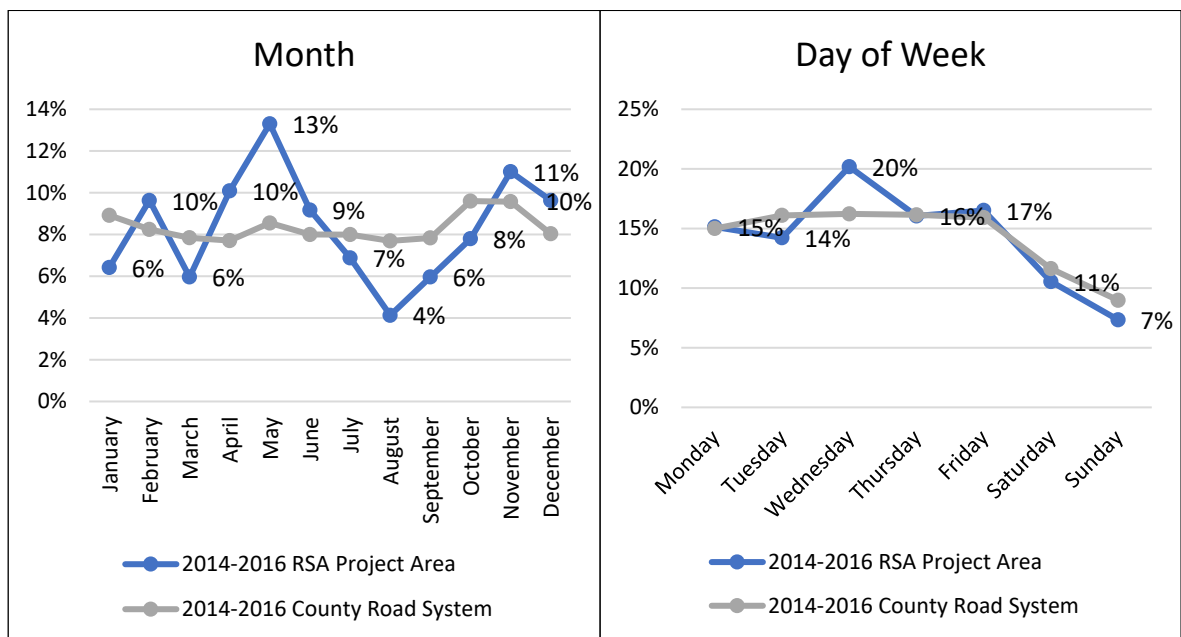


Figure 1 – Total Crashes by Month and Day of Week

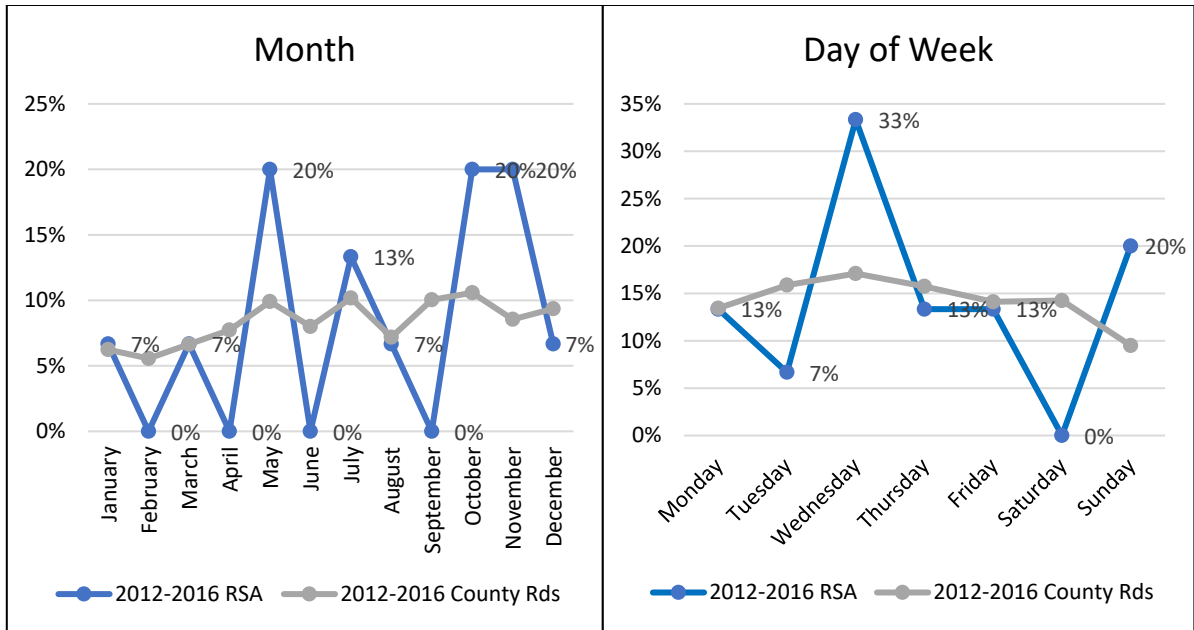


Figure 2 – Pedestrian/Bicyclist Crashes by Month and Day of Week

B. Collision Types

Overrepresented crash types included same direction (rear end), struck parked vehicle, and pedestrian collisions. Geographically, the same direction rear end crashes were relatively evenly distributed throughout the corridor. However, they were most prevalent along the mainline approaches to unsignalized intersections. The availability of on-street parking within South Orange Village contributes to many parked vehicle collisions. The parked vehicle collisions were clustered in two major sections. The first section exists between Edgewood Place and Parker Avenue, along the southbound side. The second section exists between First Street and Fourth Street, in both directions. It should be noted that both sections are in high-activity areas: the first section, a school zone; the second, a central business district. Similar to the rear end collisions, the left turn collisions (no U-turn collisions occurred within the three-year sample) were evenly distributed throughout the corridor with most incidents occurring at unsignalized intersections.

The collisions involving pedestrians (no cyclist collisions were reported within the five-year sample) were largely located within crosswalks, with only two of the sixteen occurring midblock. The intersection of Valley Street and Jefferson Avenue was the only location with multiple incidents, both involving pedestrians crossing Jefferson Avenue, parallel to the mainline.

Table 3 – Overrepresented Crash Types

Collision Type	Count	% of Total	2016 County Road System Average
Same Direction (Rear End)	96	47.52%	32.40%
Struck Parked Vehicle	19	8.91%	5.89%
Left Turn/U Turn	9	4.46%	4.06%
Pedestrian/Cyclist	9	4.46%	2.64%

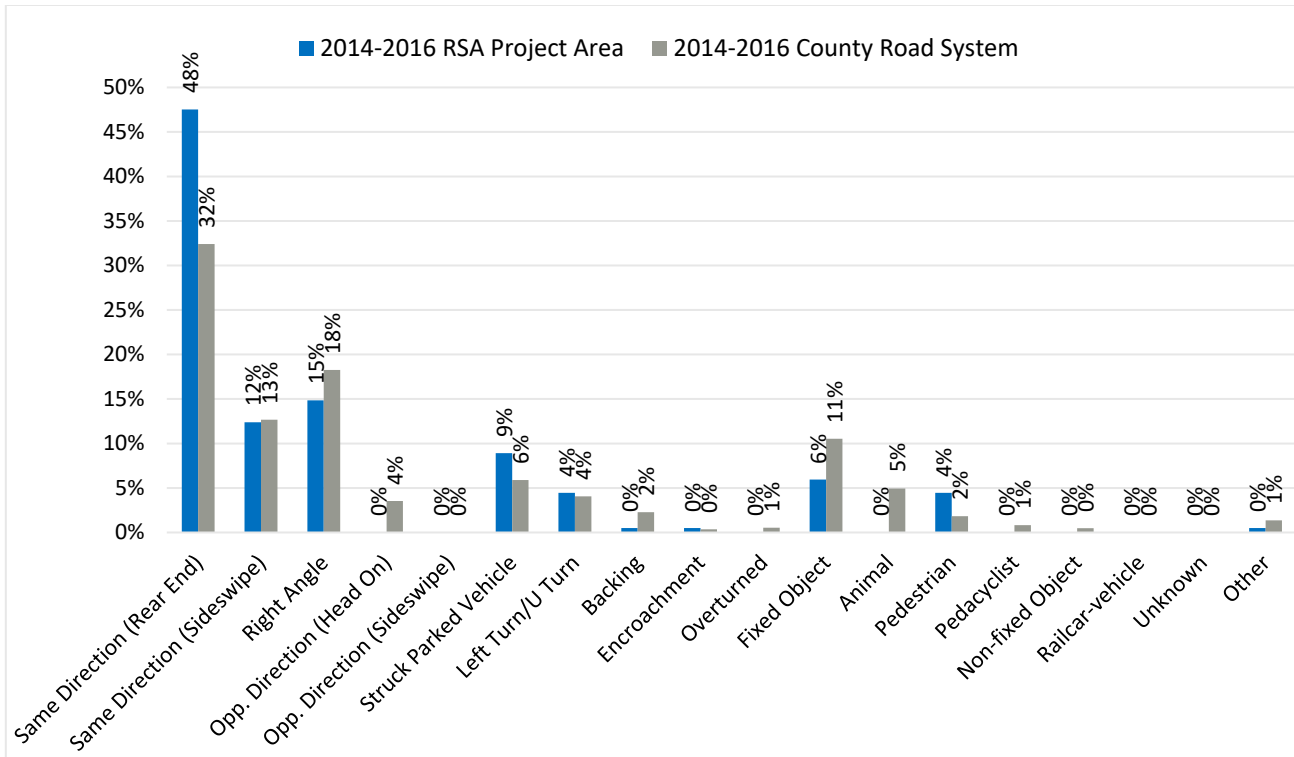


Figure 3 – Crash Type Breakdown

C. Severity

Crashes resulting in injury were underrepresented compared to the county road system. This is likely due to the higher rates of parked vehicle collisions, which involve fewer occupants and lower speed differentials. Additionally, this corridor has a lower rate of right-angle collisions, typically the most severe type of collision, compared to the county average. The majority of crashes resulted in property damage only, while the county road system had a higher volume of minor and moderate injury crashes. One fatal crash occurred in 2013 and resulted in the death of one pedestrian who was crossing Valley Street, between Lackawanna Place and 5th Street, midblock and outside of the marked crosswalk at 5th Street.

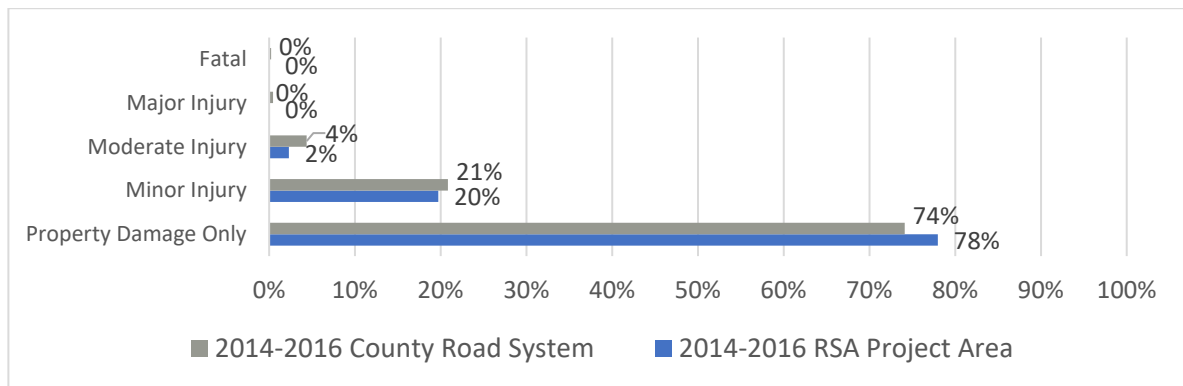


Figure 4 – Severity (All Crashes)

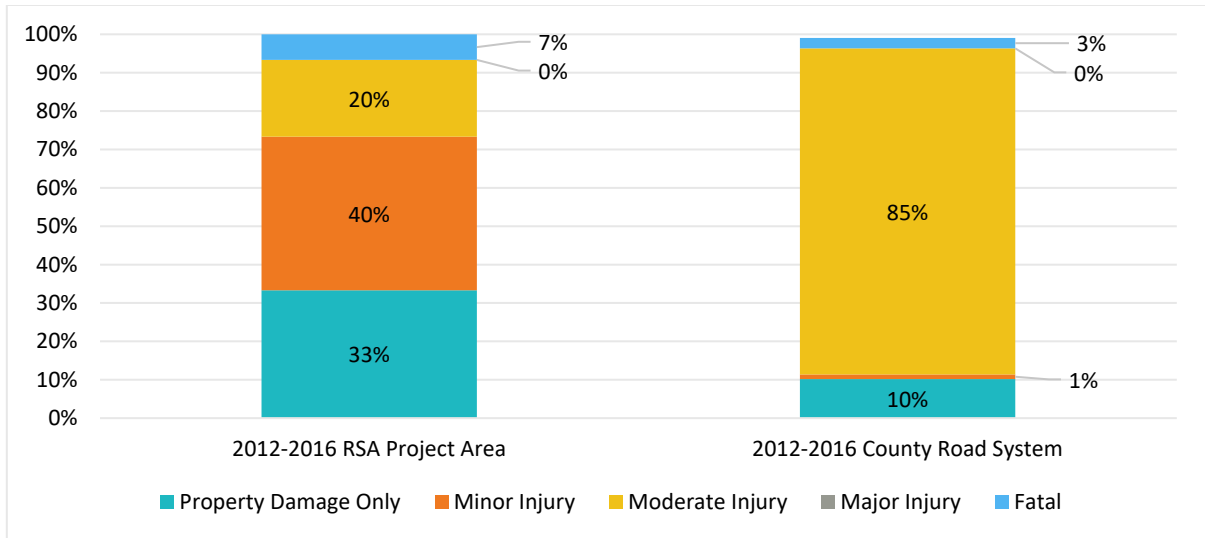


Figure 5 – Severity (Pedestrian/Bicycle Crashes)

D. Roadway Surface & Light Condition

Collisions occurred during dry and wet surface conditions approximately 85% and 14% of the time, respectively. These numbers are slightly over the county averages of 79% and 16%. Those differences are likely insignificant due to the minimal difference within a relatively small sample size. All other conditions are slightly underrepresented, although similar to the county averages. This data suggests that road surface is not a contributing factor to the accident rate within the corridor.

Daytime collisions are overrepresented in the corridor, accounting for 79% of all collisions. The county average is 71%. Meanwhile, nighttime collisions account for 17% of all collisions, which is lower than the county average of 24%. Additionally, collisions occurring during dawn or dusk account for 4% of all collisions, the same as the county average. This suggests lighting (or lack thereof) is not a contributing factor to vehicle collisions along the corridor.

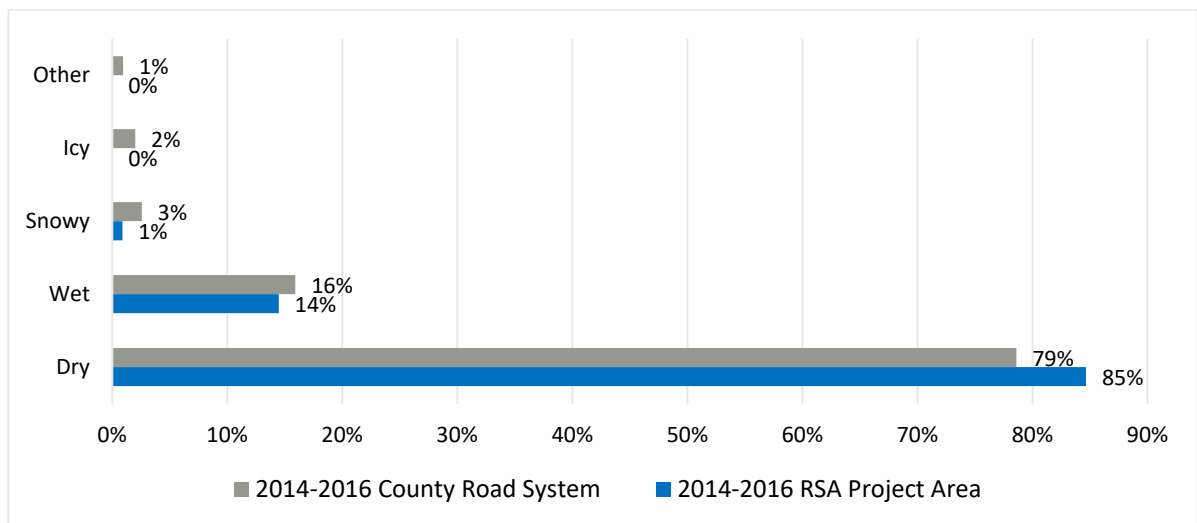


Figure 6 – Surface Conditions (All Crashes)

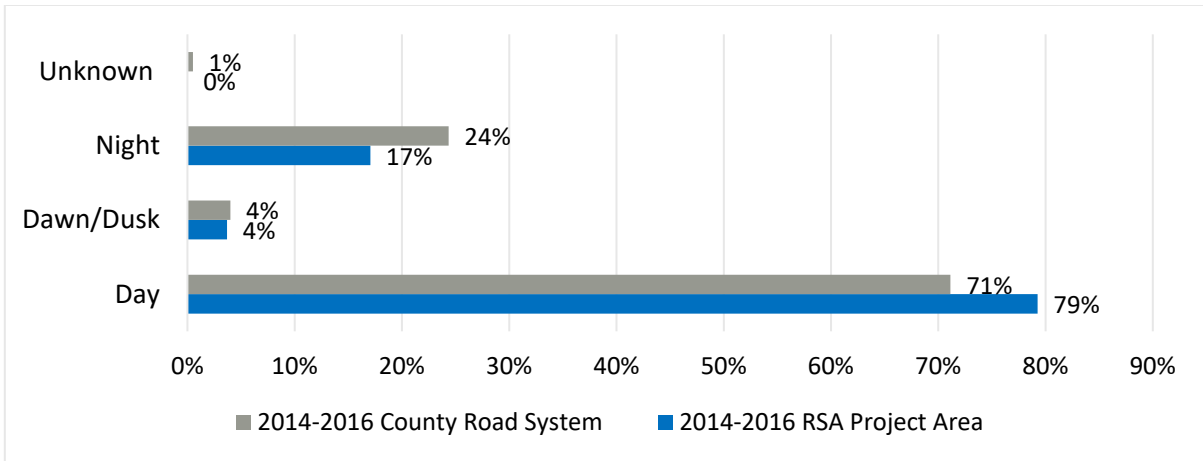


Figure 7 – Light Conditions (All Crashes)

In addition, approximately 13% of pedestrian crashes occurred during dawn or dusk, which is more than double the county road statewide average of 5%.

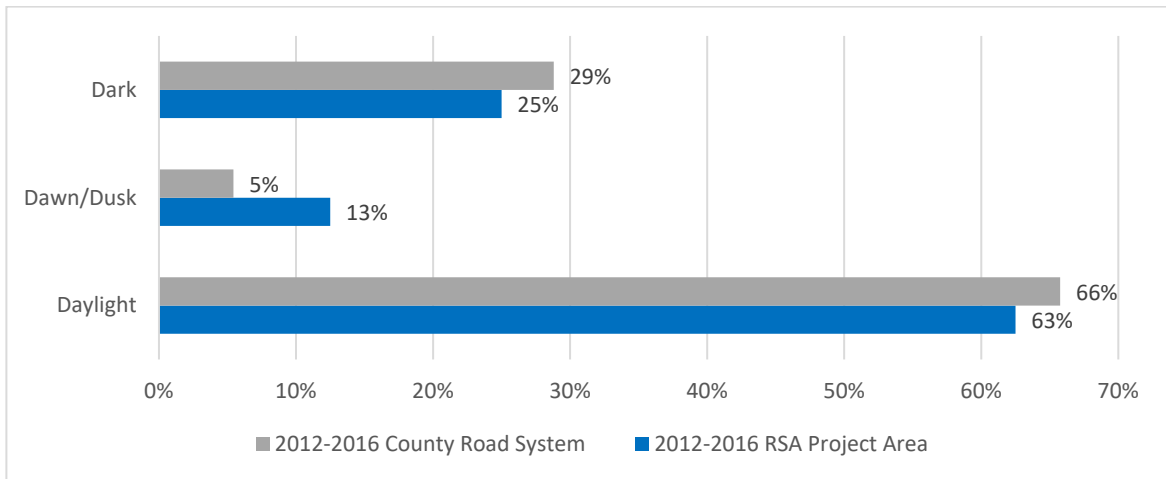


Figure 8 – Light Condition (Pedestrian/Bicycle Crashes)

E. Location

Crashes at unsignalized intersections were overrepresented compared to the county road system average. Thirty-seven percent (37%) of crashes occurred at unsignalized intersections compared to twenty-four percent (24%) on all county roads. More crashes occurred at or near 3rd Street, Edgewood Place, South Crescent, and South Pierson Road. Crash frequency in 0.1-mile increments for the three-year period from 2014 through 2016, as shown in the following figure, shows the concentration of crashes along Valley Street. Pedestrian crash frequency for the five-year period from 2012 through 2016 immediately follows.

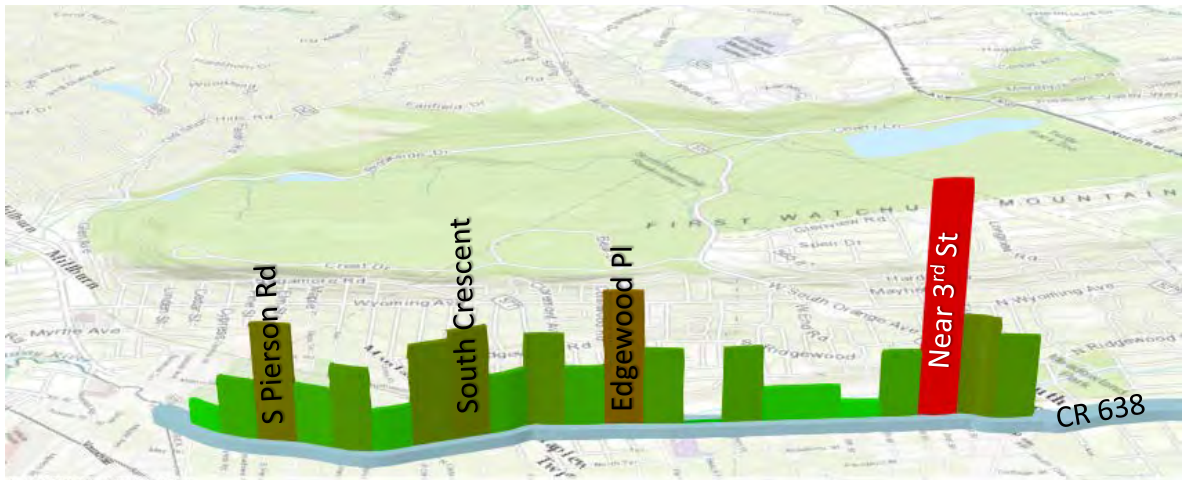


Figure 9 – Total Crash Locations (2014-2016)

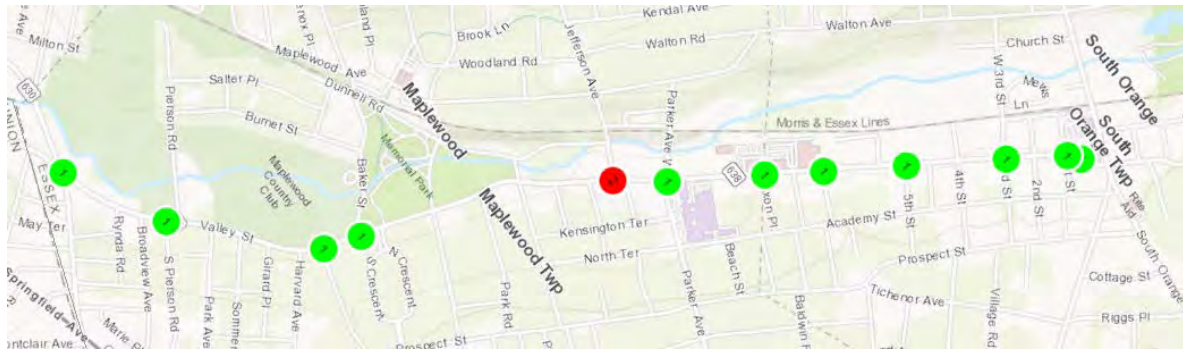


Figure 10 – Pedestrian Crash Locations (2012-2016)

IV. Identified Issues

This section summarizes the site-specific and corridor-wide safety issues identified during the RSA. They are categorized into operations (including visibility), pedestrian, bicyclist and maintenance. Additional issues and photographs can be found in Appendix F.

Pedestrian	Bicyclist
<p>Pedestrian crossing midblock in traffic</p>	<p>Lack of on-street bicycle facilities</p>

Pedestrian



Poor pavement conditions and obstructed sidewalks

Bicyclist



Edge of roadway pavement is inadequate for bicyclists



Signals lack pedestrian signal heads



Narrow, busy roadway during rush hours



Marked crosswalk with no warning signs



Lack of bicyclist infrastructure at intersections

Operations & Visibility



Limited sight distance and visibility at 2nd Street

Maintenance



Broken traffic signal transformer base



Limited sight distance and visibility of traffic signal




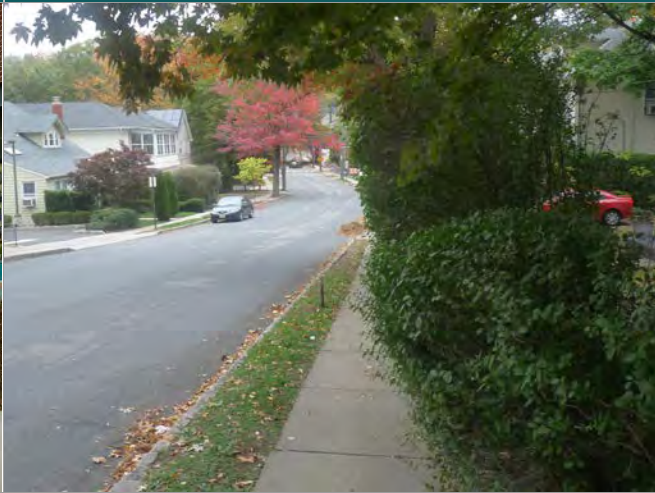
Missing section of curb



Back-to-back signs obscure shape of yield signs



Worn signing and non-breakaway posts

Operations & Visibility	Maintenance
	
<p>New development (recent and proposed) may generate more pedestrian and vehicular traffic</p>	<p>Overgrown vegetation impedes full use of sidewalk</p>

Additional issues, observations and details identified during the RSA include the following, listed from south to north:

Maplewood

- Villa Terrace (south of Millburn Avenue) gets blocked by Valley Street northbound queues.
- The 0.21-mile long stretch of Valley Street between Millburn Avenue and S. Pierson Road does not have any marked crosswalk across Valley Street. Marked crosswalks are also missing across Valley Street between Tuscan Road and S. Pierson Road (0.32 miles) and Crowell Place and Oakland Road (0.20 miles).
- The Tuscan School is within a block of Valley Street, on Harvard Avenue, and many students walk to the school daily. Crossing guards are present from 7:30am to 9:00am and from 2:30pm to 4:00pm. Additionally, one lane is closed along Harvard Avenue for one hour during start of the school day.
- Crossing guards are present from 7:30am to 9:00am and from 2:30pm to 4:00pm at the Baker Street intersection.
- Large right turn queues along Baker Street at the Valley Street intersection extend beyond the existing turning bay, due in part to the Valley Street southbound queue extending up to the intersection. Left turning vehicles cross double yellow to pass right turning vehicles.
- South Crescent is used for commuter parking after 9am.
- Push buttons at the Oakview Avenue intersection were noted as failing frequently and incorrectly positioned.
- Jefferson Avenue acts as a cut-through for high school and train station traffic. A traffic signal was unwarranted in a previous 2010 study conducted for Maplewood Township by GPI.

South Orange Village

- The 0.20-mile long stretch of Valley Street between Arnold Terrace and 5th Street does not have any marked crosswalk across Valley Street.
- JITNEY/Shuttle Service is proposed near Roland Avenue for Seton Hall students at 378 Valley Street.

- The office space on the third and fourth floors of the Third & Valley mixed-use building are anticipated to be fully occupied soon, which may add additional traffic to the intersection of Valley Street and 3rd Street.
- 2nd Street is considered part of the bus turnaround route (2nd Street to Sloan Street to 3rd Street).
- Sight distance is limited for Valley Street southbound near 1st Street due to the existing bus stops. (When the bus is stopped along Valley Street northbound, southbound left turns are difficult; when the bus is stopped along the southbound direction, southbound right turns are hazardous) In addition, many pedestrians cross Valley Street near Village Plaza to get to the bus stops.

V. Findings and Recommendations

This section summarizes the site-specific and corridor-wide potential strategies and recommendations to improve the issues from the previous section, safety benefit, time frame, cost, and jurisdiction. Ratings used in the recommendation tables are described as follows:

Symbol	Meaning	Definition
✓	Low safety benefit potential	May reduce total crashes by 1-25% ¹
✓✓	Low to moderate safety benefit potential	May reduce total crashes by 26-49% ¹
✓✓✓	Moderate safety benefit potential	May reduce total crashes by 50-74% ¹
✓✓✓✓	High safety benefit potential	May reduce total crashes by 75+% ¹
\$	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 project that may require full engineering, right of way 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
🕒	Long term	Could be accomplished in 3 years or more; may require full engineering

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 codes, standards, and best practices.

¹ 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.

Table 4 – Corridor-Wide Recommendations

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Operations					
1	Study highway and pedestrian scale lighting	✓✓✓	\$\$	🕒	County
2	Consider corridor-wide signal upgrades (replace 8" traffic signal heads with 12", install backplates with retroreflective border, evaluate clearance intervals, update to countdown pedestrian signal heads, replace push buttons in compliance with ADA, etc.)	✓✓	\$\$\$	🕒	County
3	Investigate on-street parking requirements where business have existing parking lots (parking study) and for conformance with Title 39.	✓ ²	\$\$	🕒	Township
4	Consider re-striping the shoulder and edgelines	✓ ²	\$	🕒	County
Bicycle/Pedestrian					
5	Study corridor-wide implementation of curb extensions (bump-outs) based on the site-specific recommendations to maintain consistency	✓✓ ²	\$\$\$	🕒	County/ Township
6	Consider development of an access management plan within the project limits (many sidewalks are disrupted by poorly constructed driveways)	✓	\$\$	🕒	County
7	Inspect, repair and construct sidewalks in compliance with ADA as needed	✓✓✓	\$\$	🕒	County
8	Inspect existing crosswalk striping for wear and restripe accordingly	✓✓	\$	🕒	County
9	Consider upgrading all ramps for ADA compliance and addressing ponding issues at street junction	✓✓✓ ²	\$\$\$	🕒	County
Maintenance					
10	Inspect and replace faded, damaged or incorrect signage as needed (i.e. signs mounted below 7' or back-to-back signs that obscure shapes [e.g. Do Not Enter behind Stop sign])	✓	\$	🕒	County
11	Consider performing necessary foliage trimming and obstacle removal to improve visibility of signs and pedestrian pathways, respectively	✓✓	\$	🕒	County/ Township
Education					
12	Consider sidewalk, crosswalk, multimodal education campaign and code enforcement	✓ ²	\$	🕒	County/ Township

The following site-specific recommendations are in addition to the corridor-wide improvements, except where noted otherwise. Of note, the improvements listed below were proposed by the County, Township and/or private developer at the time of the RSA (see Appendices I and J).

² 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.

- Essex County plans to install a traffic signal at the Pierson Road intersection.
- The curb ramp along Valley Street southbound at the Harvard Avenue and Girard Place intersections will be removed.
- Maplewood Township plans to reconstruct the southeast curb line at the Tuscan Road intersection to narrow the pedestrian crossing distance. Plans also include relocating the stop bars on the southbound and westbound approaches.
- Maplewood Township plans to reconstruct the southwest curb line at the Baker Street intersection to realign the Baker Street approach to be perpendicular with Valley Street. Plans also include relocating the stop bars on the northbound and eastbound approaches.
- A mixed-use building is proposed in the southwest corner of the Valley Street and 4th Street intersection in South Orange. Access to the same will only be provided along 4th Street, which will may increase the traffic at this intersection, but will eliminate two driveways along Valley Street.
- The timing of any changes should be coordinated between Essex County and South Orange as water main replacements and valve repairs are needed along Valley Street in South Orange.

Table 5 – Site-Specific Recommendations

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
Maplewood					
Millburn Avenue					
13	Perform intersection analysis of intersection (two approach lanes, only one receiving)	✓✓✓	\$\$	●	County
14	Consider delayed (inside/outside clearance) or lag left turn signals along Millburn	✓	\$	⦿	County
15	Consider changing the EBT/R lane to EBR-only	✓	\$	◐	County
16	Explore changing yield signs to stop signs	✓	\$	⦿	County
17	Review the pedestrian islands for ADA compliance or consider elimination of channelized right turns	✓✓✓	\$\$	◐	County
18	Consider corridor-wide recommendation 2, 8, and 9 regarding signal upgrades (especially pedestrian), crosswalks, and ADA compliance	✓✓✓	\$\$\$	●	County/ Township
19	Consider corridor-wide recommendation 11 regarding foliage and obstacle removal	✓✓	\$	⦿	County
20	Explore turn restrictions at Villa Terrace	✓✓✓	\$\$	◐	County/ Township
21	Consider track lines through the intersection	✓	\$	⦿	County
Rynda Road					
22	Consider corridor-wide recommendation 8 and 9 regarding crosswalks and ADA compliance	✓✓✓ ²	\$\$\$	●	County

² 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
23	Consider SB flashing “Red Signal Ahead” sign for Millburn Avenue	✓	\$	🕒	County
Broadview Avenue					
24	Consider corridor-wide recommendation 8 and 9 regarding crosswalks and ADA compliance	✓✓✓ ²	\$\$\$	🕒	County/ Township
25	Consider removing the curb ramp along Valley Street southbound at this intersection	✓	\$	🕒	County
South Pierson Road/Pierson Road					
26	Explore corridor-wide recommendation 1 regarding pedestrian and highway scale lighting issues	✓✓✓	\$\$	🕒	County
27	Consider additional pedestrian accommodations at this location (LPI, exclusive ped phase or ped recall)	✓✓✓	\$	🕒	County
28	Investigate southbound left turn restrictions onto S Pierson (cut-through to Springfield Ave)	✓✓✓	\$	🕒	County
29	Consider corridor-wide recommendation 8 regarding crosswalks and signing of the same	✓✓	\$	🕒	County
Park Avenue					
30	Investigate sight distance issues along Valley Street near this location	✓✓ ²	\$	🕒	County
31	Consider extending Park Ave boulevard treatment to intersection	✓✓✓ ²	\$\$	🕒	County
32	Consider corridor-wide recommendation 4 regarding edge lines (4-6’ shoulder)	✓ ²	\$	🕒	County
Girard Place/Sommer Avenue					
33	Consider corridor-wide recommendation 8 and 10 regarding inspecting crosswalks and signage	✓✓	\$	🕒	County
34	Study the need for a traffic signal or HAWK by performing a warrant analysis per MUTCD	✓✓✓	\$\$	🕒	County
Harvard Avenue					
35	Consider corridor-wide recommendation 2 regarding signal upgrades	✓✓	\$\$\$	🕒	County
36	Consider corridor-wide recommendation 11 regarding foliage and obstacle removal	✓✓	\$	🕒	County
37	Investigate the complaints of student drop-off and pick-up (coordinate with residents and school)	✓ ²	\$	🕒	Township
Tuscan Road					
38	Explore reducing the curb radii	✓✓ ²	\$\$\$	🕒	Township

² 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
39	Consider connecting the missing sidewalk between this street and Baker St along Valley St northbound to complete the network.	✓✓✓	\$\$\$	●	County
40	Investigate sight distance issues	✓✓	\$	🕒	County
41	Consider corridor-wide recommendation 4 regarding edge line and shoulder striping	✓ ²	\$	🕒	County
42	Consider corridor-wide recommendation 2 regarding signal upgrades	✓✓	\$\$\$	●	County
43	Consider corridor-wide recommendation 9 regarding ADA compliance	✓✓✓	\$\$\$	●	County
44	Consider corridor-wide recommendation 12 (education and code enforcement)	✓ ²	\$	🕒	County/ Township
Baker Street					
45	Investigate providing a shoulder and buffer for the sidewalks	✓✓✓	\$\$	🕒	County
46	Consider corridor-wide recommendation 7 and 9 regarding sidewalks and ADA compliance; add sidewalk to the eastern side	✓✓✓	\$\$\$	●	County
47	Consider corridor-wide recommendation 2 and 10 regarding signal and sign upgrades	✓✓	\$\$\$	🕒	County
48	Consider adding pavement markings for the left turn lane on Valley Street	✓	\$	🕒	County
49	Consider implementing a small roundabout	✓✓✓✓	\$\$\$	●	County/ Township
North & South Crescent					
50	Consider addressing the drainage issues at the SE corner	✓	\$	🕒	County
51	Consider adding a channelized island, moving the crosswalk closer to the intersection, and adding a crosswalk on the northern side	✓✓	\$\$	🕒	County
52	Consider corridor-wide recommendation 11 regarding foliage trimming and obstacle removal	✓✓	\$	🕒	County/ Township
53	Explore reducing the curb radii	✓✓ ²	\$\$	●	Township
Oakview Avenue					
54	Explore relocating the bus stops (SB stop causes queuing; NB stop blocks visibility)	✓✓ ²	\$\$	🕒	County
55	Consider corridor-wide recommendation 8 and 9 regarding crosswalks and ADA compliance	✓✓✓	\$\$\$	●	County
56	Consider relocating static “signal ahead” signs (W3-3) further from the intersection	✓	\$	🕒	County

² 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
57	Consider traffic calming measures on Oakview	✓✓	\$\$	🕒	County
58	Investigate corridor-wide recommendation 2 regarding signal upgrades (“Don’t Walk” hand not functional)	✓✓	\$\$\$	🕒	County
59	Evaluate signal timing for adequate side street green time, clearance intervals, etc.	✓	\$\$	🕒	County
60	Consider implementing a small roundabout	✓✓✓✓	\$\$\$	🕒	County/ Township
Park Road					
61	Consider adding static “signal ahead” signs (W3-3) for NB/SB approaches	✓✓ ²	\$	🕒	County
Oakland Road/Lincoln Place					
62	Consider widening NB sidewalk	✓✓✓	\$\$	🕒	County
Edgewood Place					
63	Consider corridor-wide recommendation 11 for foliage and obstacle removal	✓✓	\$	🕒	County/ Township
64	Consider corridor-wide recommendation 10 for sign replacement (i.e. breakaway poles)	✓	\$	🕒	County
Jefferson Avenue					
65	Consider corridor-wide recommendation 9 for ADA compliance	✓✓✓ ²	\$\$\$	🕒	County
66	Consider corridor-wide recommendation 10 and 11 for sign replacement (especially SB) as well as foliage and obstacle removal	✓✓	\$	🕒	County/ Township
Crowell Place					
67	Consider corridor-wide recommendation 10 for sign replacement (no breakaway poles)	✓	\$	🕒	County
68	Consider corridor-wide recommendation 11 for foliage and obstacle removal (especially WBR’s)	✓✓	\$	🕒	County/ Township
Parker Avenue					
69	Explore options to make pedestrians more visible during school peak hours (8:00 am, 10:45am-1:15pm, 3:00pm)	✓	\$	🕒	County/ Township
70	Evaluate signal timing for adequate side street green time, clearance intervals, ped recall, etc.	✓✓✓ ²	\$	🕒	County
71	Consider corridor-wide recommendation 2 and 5 for traffic signal upgrades and curb extensions	✓✓	\$\$\$	🕒	County/ Township
72	Explore the option of an all-ped phase, especially during school hours	✓✓✓ ²	\$	🕒	County

² 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
73	Consider corridor-wide recommendation 4 and 8 for roadway edge lines and crosswalks	✓✓ ²	\$	●	County
74	Consider corridor-wide recommendation 6 to evaluate the access management given the number of gas station driveways near the intersection	✓	\$\$	●	County
Hixon Place					
75	Investigate the purpose of the one-way street	✓✓	\$	●	Township
76	Consider corridor-wide recommendation 4 and 5 for roadway edge lines and curb extensions	✓✓ ²	\$\$\$	●	County/ Township
77	Consider corridor-wide recommendation 7 and 9 for sidewalk improvements and ADA compliance	✓✓✓ ²	\$\$\$	●	County
78	Investigate the impact of new commercial developments on operations and access	✓ ²	\$	●	County/ Township
79	Inspect intersections for appropriate signage	✓	\$	●	County
80	Coordinate with the school plan to create a smart route plan (Safe Routes to School)	✓	\$	●	County
81	Consider corridor-wide recommendation 6 regarding access management (especially around the high school)	✓	\$\$	●	County
82	Examine striping and lane widths along Valley Street (the centerline striping appears to be offset from the center of the roadway)	✓✓	\$\$	●	County
83	Consider corridor-wide recommendation 10 and 11 for sign and obstacle inspections, especially truck restrictions (which are not visible from Valley St)	✓✓	\$	●	County/ Township
South Orange Village					
Arnold Terrace					
84	Study the need for a traffic signal or HAWK by performing a warrant analysis per MUTCD	✓✓✓	\$\$	●	County
85	Investigate the purpose of the one-way street	✓✓	\$	●	Township
86	Consider corridor-wide recommendation 4 and 5 for roadway edge lines and curb extensions	✓✓ ²	\$\$\$	●	County/ Township
87	Consider corridor-wide recommendation 7 and 9 for sidewalk improvements and ADA compliance	✓✓✓ ²	\$\$\$	●	County
88	Inspect intersections for appropriate signage	✓	\$	●	County
89	Coordinate with the school plan to create a smart route plan (Safe Routes to School)	✓	\$	●	County

² 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
90	Explore on-street parking elimination since lots are available behind shopping center and sight distance may be obstructed	✓	\$	🕒	County
91	Examine striping and lane widths along Valley Street (the centerline striping appears to be offset from the center of the roadway)	✓✓	\$\$	🕒	County
92	Consider corridor-wide recommendation 10 and 11 for sign and obstacle inspections, especially truck restrictions (which are not visible from Valley St)	✓✓	\$	🕒	County/ Township
93	Investigate alternate locations for the bus stop near Blink Fitness	✓✓	\$	🕒	County/ Township
Roland Avenue					
94	Consider corridor-wide recommendation 4 and 6 for roadway edge lines and access management	✓ ²	\$\$	🕒	County
95	Consider corridor-wide recommendation 7 and 9 for sidewalk improvements and ADA compliance	✓✓✓ ²	\$\$	🕒	County
Lackawanna Place/5th Street/Massel Terrace					
96	Investigate corridor-wide recommendation 8 and 9 for crosswalk issues and ADA compliance	✓✓✓	\$\$	🕒	County
97	Investigate installing curb extensions to reduce crossing time across Valley Street	✓	\$	🕒	County
98	Study bus stop locations and consider relocation beyond crosswalk to maximize pedestrian visibility	✓✓ ²	\$\$	🕒	County
99	Investigate the lack of double yellow lines on the side streets	✓ ²	\$	🕒	County
4th Street					
100	Study the need for a traffic signal by performing a warrant analysis per MUTCD	✓✓✓	\$\$\$	🕒	County
101	Consider implementing a left turn lane on Valley St ³	✓✓	\$	🕒	County
102	Consider corridor-wide recommendation 2 and 10 for sign and signal upgrades	✓✓	\$\$	🕒	County
103	Consider corridor-wide recommendations 4, 5, and 8 for potential edge line, curb extensions, and crosswalk issues ³	✓✓ ²	\$\$\$	🕒	County/ Township
3rd Street					
104	Consider corridor-wide recommendation 2 for signal upgrades	✓✓	\$\$\$	🕒	County

² 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.

³ These recommendations may conflict with the January 2018 County Planning Board decision regarding the Meridia, Village Commons 1 application bullet 3 to maintain the current curb alignment. See Appendix J.

No.	Recommendation	Safety Benefit	Cost	Time Frame	Jurisdiction
105	Consider the impact continual development will have upon multimodal transportation center and intersection operation	✓ ²	\$\$	●	County
106	Consider corridor-wide recommendation 11 regarding foliage, especially the hedges at Valley National Bank	✓✓	\$	●	County/ Township
107	Investigate adding a left turn lane for all approaches	✓✓	\$\$	●	County/ Township
108	Consider recommendation 8 and 9 for restriping crosswalks and ADA compliance	✓✓✓ ²	\$\$\$	●	County
109	Examine intersection geometry (curb radii are tight for trucks)	✓✓ ²	\$\$\$	●	County/ Township
110	Study the need for a full pedestrian phase, at least during the peak pedestrian hours, including the parking garage/pedestrian traffic on 3 rd St.	✓✓✓	\$\$\$	●	Township/ County
2nd Street					
111	Consider corridor-wide recommendation 2 for sign upgrades (especially advanced pedestrian warning signs)	✓✓	\$\$\$	●	County
112	Explore the sight distance issues on 2 nd St EB or consider prohibiting left turns. Investigate a left turn lane for Valley St NB at this intersection.	✓✓ ²	\$	●	County/ Township
1st Street					
113	Investigate methods to improve lane discipline along S-curve	✓	\$	●	County
114	Explore options to improve sight distance and pedestrian visibility, specifically at/near bus stops	✓✓	\$	●	County/ Township
115	Consider corridor-wide recommendation 10 for improved signage (notably lacking “one way” signs)	✓	\$	●	County
116	Provide more advanced warning of a lane drop for SB traffic	✓	\$	●	County
117	Consider implementing a left turn lane on Valley St	✓✓	\$\$	●	County
118	Consider adding a northern crosswalk	✓✓	\$	●	County
Village Plaza					
119	Investigate the lack of crosswalk at Village Plaza	✓✓	\$	●	County
120	Consider corridor-wide recommendation 5 for curb extensions or refuge island	✓✓ ²	\$\$\$	●	County/ Township
121	Consider recommendation 1 to study highway and pedestrian lighting	✓✓✓	\$\$	●	County

² 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
122	Consider recommendation 6 to evaluate the access management	✓	\$\$	●	County
123	Consider repurposing the Valley Street southbound outside lane for pedestrian use (i.e. parklet, public plaza) since Valley St is 2-lanes north and south of this location. <i>Note: SOTAC has discussed widening of sidewalk along Valley Street (see #119)</i>	✓✓✓	\$/\$\$ ⁴	●/● ⁴	County/ Township
South Orange Avenue					
124	Perform intersection analysis of area (suggested to include surrounding intersections and lane analysis for Irvington Ave/Academy St)	✓✓ ²	\$\$\$	●	County/ Township
125	Explore improving the poor sight distances	✓✓	\$\$	●	County
126	Consider lowering speed limit on S. Orange Ave	✓	\$	●	County
127	Consider corridor-wide recommendations 1 and 2 to perform a lighting study and update signal heads	✓✓✓	\$\$\$	●	County
128	<i>Note: SOTAC has discussed a new plan for this intersection including limit SB traffic to one lane, providing curb extensions on SW corner of intersection; parallel parking on Valley SB between S Orange Ave & 1st St or widen sidewalks for walking and dining; transforming Village Plaza into a pedestrian corridor; and coordinating signal timings between S Orange Ave and 3rd St</i>	-	-	-	-

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 as time and funds allow in coordination with other projects and priorities.

Essex County delivered their response following the finalization of the findings and recommendations table, a copy of which can be found in Appendix K.

⁴ Interim (temporary) cost or timeframe / permanent cost or timeframe

² 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.

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 Street Design Guide (NACTO-US)* and *Urban Bikeway Design Guide (NACTO-UB)*, including sources contained therein. The list of treatments is not exhaustive.

1. Pedestrian Facilities

Curb extensions visually and physically 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 parking lane and help prohibit vehicles from parking in violation of Title 39. Crossing islands, or pedestrian refuge islands, reduce the exposure time of pedestrians to vehicular traffic. They enable pedestrians to make a crossing in two stages — crossing one direction of vehicular travel lanes, pausing at the island, and then completing the crossing. They are recommended where a pedestrian must cross three lanes of traffic in one or both directions but may be implemented on smaller cross sections where space permits.

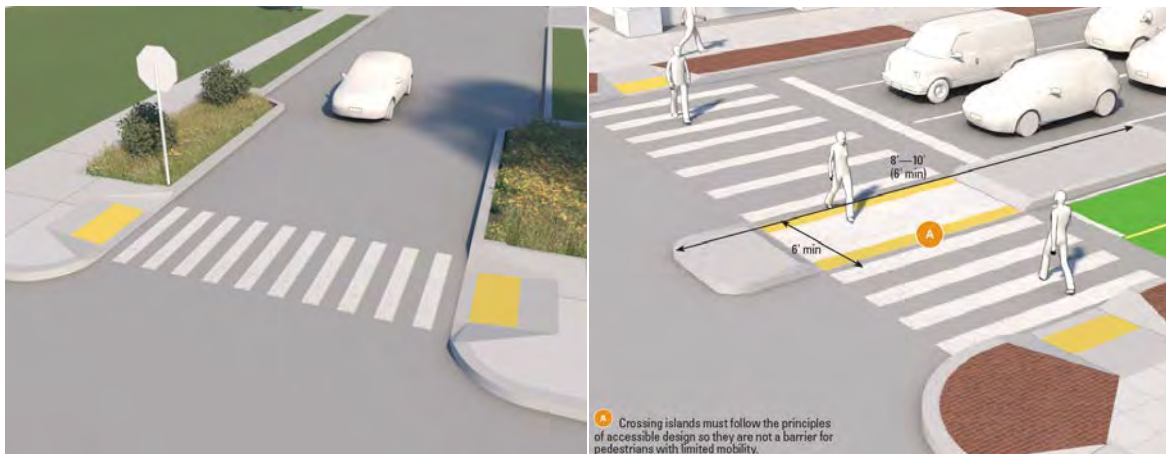


Figure 11 – Pedestrian Facility Examples
Left: Curb Extension. Right: Crossing Island (Source: CSDG)

An example of both options at South Crescent is shown in Figure 12.



Figure 12 – Recommendation at South Crescent. Left: Crossing Island. Right: Curb Extension.

Parklets are typically applied where narrow or congested sidewalks prevent the installation of traditional sidewalk cafes, or where local property owners or residents see a need to expand the seating capacity and public space on a given street. Public plazas are generally larger and reclaim unused/underutilized street space from vehicles to pedestrians.

Both parklets and public plazas can be implemented on an interim basis. Heavy planters, granite blocks, moveable seating, and other street furniture elements may be incorporated into the interim design. They also make intersections more compact, and easier to cross for pedestrians, as well as slow traffic speeds and improve safety. Such spaces could be implemented along Valley Street southbound between S. Orange Avenue and First Street.

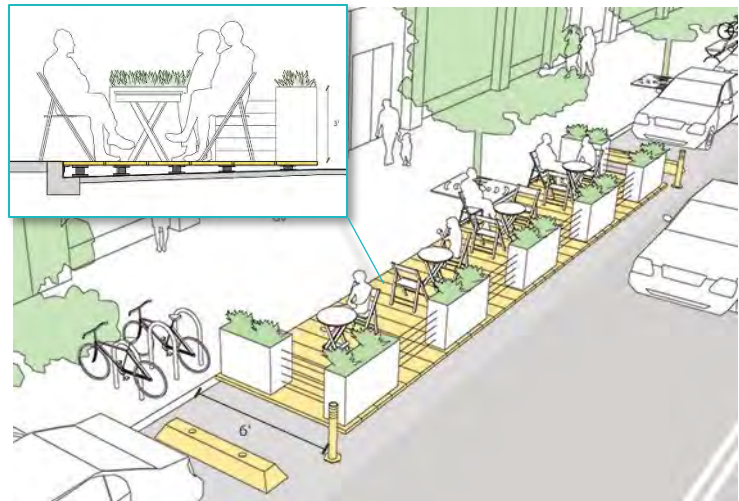


Figure 13 – Parklet Example (Source: NACTO)

2. Bicycle Facilities

Bicycle lanes provide an exclusive space for bicyclists using pavement markings and signage. Intended for one-way travel, they are typically located on both sides of a two-way street. Bicycle lanes enable bicyclists to ride at their preferred speed, free from interference from motorists. 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, such as the ones currently implemented along Hamilton Street in New Brunswick. 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.

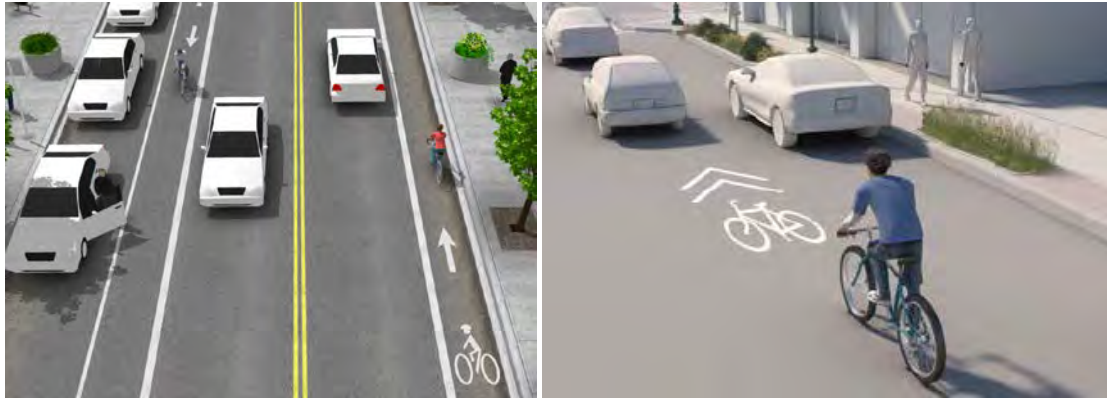


Figure 14 – Bicycle Facility Examples

Left: Bicycle Lane Adjacent to Parking or Curb (Source: NACTO-UB). Right: Sharrow Markings (Source: CSDG)

3. Roadway Reconfiguration

This treatment allows reallocation of existing street space (i.e. roadway cross section) to accommodate multi-modal users. Lane configuration and width for travel, turning movements, parking, and bicycle lanes can be adjusted to optimize use for vehicles, pedestrians, bicyclists and transit. Based on the recommendations listed in Section V-A, one option for Valley Street cross sections is shown in Figure 15, assuming an approximate existing width of 38 feet curb-to-curb. For example, by providing edge lines as recommended, part of the pavement can be reallocated as a shoulder that can be used by bicyclists or for parking. Alternatively, this reclaimed area can be used for accessible bus stops or bicycle corrals.

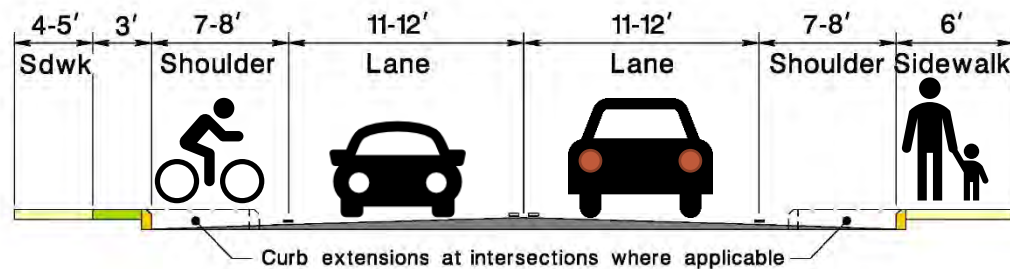


Figure 15 – Conceptual Cross Sections based on Recommendations (Maplewood)

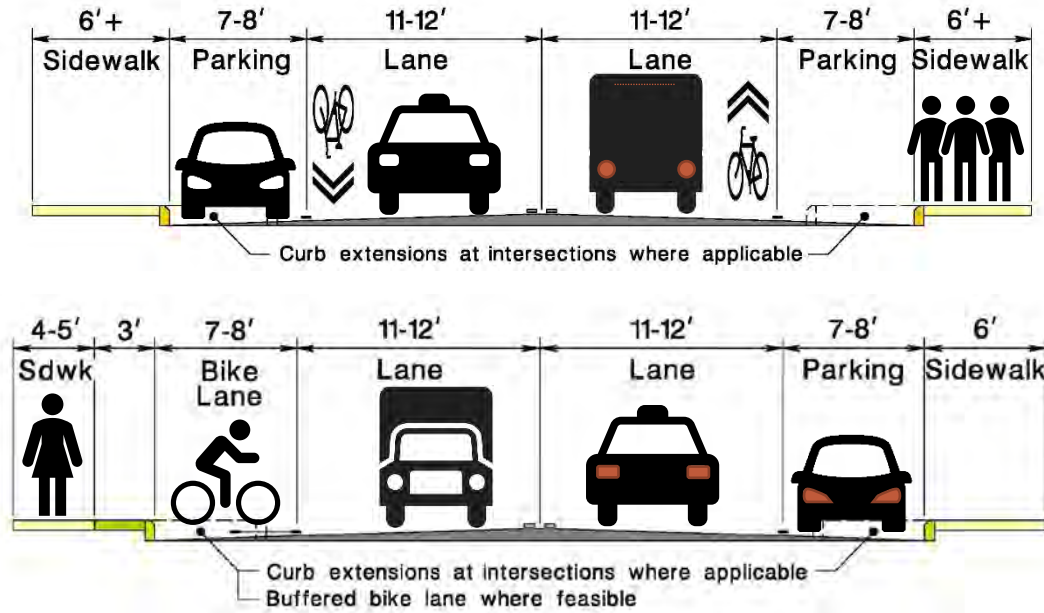


Figure 16 – Conceptual Cross Sections based on Recommendations (South Orange)

4. Transit Facilities

While stop location determines to a large extent how transit vehicles approach stops and interact with traffic, the physical configuration of stops and stations impact how riders interact with the transit system. Transit stops play a significant role in the urban street puzzle, and can be used not only to provide comfortable and accessible transit access, but also to organize traffic interactions and manage curbside activity.

Curbside pull-out stops (or bus bays) are areas separated from the travel lanes and off the normal section of a roadway that provides for the pickup and discharge of passengers. This design allows through traffic to flow freely without the obstruction of stopped buses and works well for bus stops on streets with curbside parking.

Boarding bulb stops use curb extensions that align the transit stop with the parking lane, creating an in-lane stop. They can become a focal point for improved public space along the street, creating space for waiting passengers, furnishings, bike parking, and other pedestrian amenities and community facilities without encroaching on the pedestrian through zone.

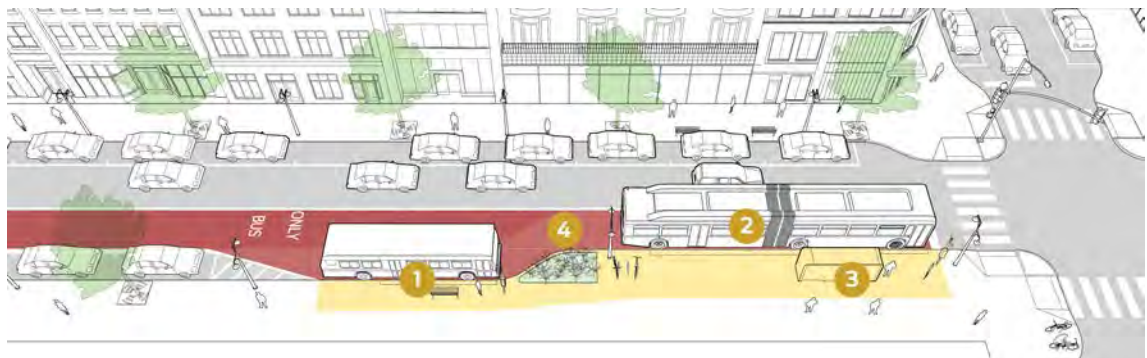


Figure 17 – Example of Bus Pull-Out Stop & Bulb Stop (alternative use of curbside)

5. Roundabout

Roundabout design, which was recommended at the intersections of Valley Street with Baker Street and South Crescent, should create conditions that reduce vehicle speed and provide a consistent speed into, through, and out of the roundabout. Lower speeds reduce crash frequency and severity for all roadway users, allow safer and easier merging of traffic, provide more reaction time for drivers, and make the facility more accessible for novice users.



Figure 18 – Roundabout Example (Source: CSDG)

VI. Conclusions

The Valley Street RSA was conducted to identify issues that compromise multimodal use of the roadway. The team identified a long 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 users of Valley Street. Some of the strategies identified can be implemented through routine maintenance; 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.

When it comes to improving safety, engineering strategies alone only go so far. This is especially true when trying to address pedestrian safety in an area 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.

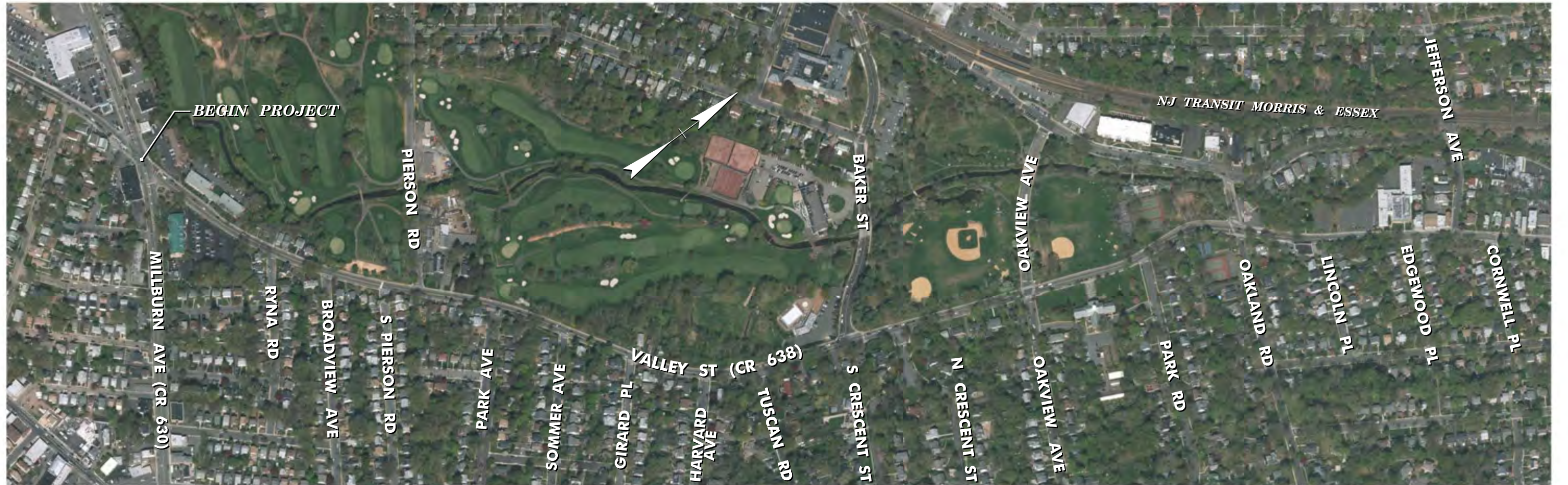
Appendix A - RSA Team



Audit Team

Name	Agency
Annette DePalma	Maplewood Township
Catherine Outlaw	Maplewood Township
Paul J Kittner, Jr.	Maplewood Township
Vic DeLuca	Maplewood Township
Nancy Adams	Maplewood Township
Matt Jones	Maplewood Township - Police Department
Jim DeVaul	Maplewood Township - Police Department
Howard Levison	South Orange Township
Salvatore Renda	South Orange Township
Walter Clarke	South Orange Township
Asif Mahmood	Essex County
Jim Lombard	Essex County
David Antonio	Essex County
Dan LiSanti	NJDOT – Bureau of Transportation Data and Safety
Amon Boucher	NJDOT – Bureau of Transportation Data and Safety
Mark Tozzi	NJDOT – Bureau of Transportation Data and Safety
Joseph Powell	NJDOT – Office of Bicycle and Pedestrian Programs
Christine Mittman	NJTPA
Aimee Jefferson	NJTPA
Bernie Boerchers	Greenman-Pedersen, Inc. (NJDOT Consultant)
Andrew Halloran	Greenman-Pedersen, Inc.
Julia Steponanko	Greenman-Pedersen, Inc.



Appendix B - Area Map



NJDOT HSIP ROAD SAFETY AUDIT CR 638 (VALLEY ST)	
MAPLEWOOD & S ORANGE VILLAGE TOWNSHIPS ESSEX COUNTY	
PROJECT LOCATION	
	 GPI Greenman-Pedersen, Inc. <small>Engineering and Construction Services</small>
N.T.S.	

Appendix C - Traffic Data

New Jersey Department of Transportation

Daily Volume from 05/15/2012 through 05/17/2012

Site Names: 3N5H705, , VALLEY ST-.15, 07000638__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: BET CO 630, MILLBURN AVE & RYNDA RD

Seasonal Factor Group:
 Daily Factor Group:
 Axle Factor Group:
 Growth Factor Group:

	Sun 05/13/2012			Mon 05/14/2012			Tue 05/15/2012			Wed 05/16/2012			Thu 05/17/2012			Fri 05/18/2012			Sat 05/19/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00										93	39	54	117	44	73						
01:00										55	22	33	66	28	38						
02:00										32	21	11	44	13	31						
03:00										18	6	12	29	14	15						
04:00										65	32	33	80	44	36						
05:00										168	111	57	202	136	66						
06:00										512	286	226	513	289	224						
07:00										906	529	377	941	562	379						
08:00							965	562	403	1,016	616	400									
09:00							836	437	399	877	470	407									
10:00							833	448	385	831	471	360									
11:00							869	460	409	847	447	400									
12:00							825	431	394	887	465	422									
13:00							885	491	394	902	482	420									
14:00							921	500	421	946	516	430									
15:00							925	506	419	963	491	472									
16:00							1,037	578	459	912	476	436									
17:00							1,029	487	542	1,033	464	569									
18:00							929	443	486	938	448	490									
19:00							864	441	423	884	428	456									
20:00							662	333	329	784	350	434									
21:00							501	220	281	614	303	311									
22:00							378	172	206	394	174	220									
23:00							196	87	109	242	102	140									
Volume							12,655	6,596	6,059	14,919	7,749	7,170	1,051	568	483						
AM Peak Vol										1,016	616	407									
AM Peak Fct										1.00	1.00	1.00									
AM Peak Hr										8:00	8:00	9:00									
PM Peak Vol							1,037	578	542	1,033	516	569									
PM Peak Fct							1.00	1.00	1.00	1.00	1.00	1.00									
PM Peak Hr							16:00	16:00	17:00	17:00	14:00	17:00									
Seasonal Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
Daily Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
Axle Fct							0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500						
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

Daily % Class Distribution for 05/15/2012 Through 05/17/2012 (48 hours)

Site Names: 3N5H705, , VALLEY ST-.15, 07000638__, Maplewo
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: BET CO 630, MILLBURN AVE & RYNDAL RD

Seasonal Factor Group:
 Daily Factor Group:
 Axle Factor Group:
 Growth Factor Group:

	Roadway	W DIR	E DIR
MC	0.6	0.4	0.8
CAR	80.0	81.4	78.4
PU	13.0	11.8	14.3
BUS	1.5	1.4	1.7
2D	1.3	1.4	1.1
SU 3	0.9	0.5	1.3
SU 4+	0.1	0.0	0.1
ST 4-	0.3	0.3	0.4
ST 5	1.2	1.7	0.7
ST 6+	0.0	0.0	0.0
MT 5-	0.0	0.0	0.0
MT 6	0.0	0.0	0.0
MT 7+	0.0	0.0	0.0
UNCLS	1.1	1.0	1.1
Trucks	3.8	3.9	3.7
Combo Trucks	1.6	2.0	1.1
Classified	98.9	99.0	98.9
Volume	29,566	15,475	14,091
Axle Factor	0.487	0.485	0.489

**New Jersey Department of Transportation
Roadway Detail Daily Class Distribution Beginning 05/15/2012**

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC
5/15	08-09	6	790	107	17	11	9	0	1	15	0	0	0	0	9	965	2.07	1.66	3.73	0.486
	09-10	5	672	108	12	9	5	0	3	8	0	0	0	0	14	836	1.67	1.32	2.99	0.490
	10-11	4	636	124	26	10	4	1	4	11	0	0	0	0	13	833	1.80	1.80	3.60	0.486
	11-12	5	660	138	15	16	13	1	2	5	0	0	0	0	14	869	3.45	0.81	4.26	0.490
	12-13	3	654	112	12	17	10	0	0	5	0	0	0	0	12	825	3.27	0.61	3.88	0.493
	13-14	2	709	115	14	20	6	0	2	9	0	0	0	0	8	885	2.94	1.24	4.18	0.490
	14-15	3	739	125	19	10	8	0	3	8	0	0	0	0	6	921	1.95	1.19	3.15	0.490
	15-16	7	721	129	19	13	9	0	2	12	0	0	0	0	13	925	2.38	1.51	3.89	0.487
	16-17	4	854	120	14	6	6	0	2	26	0	0	0	0	5	1,037	1.16	2.70	3.86	0.480
	17-18	3	825	128	16	13	12	1	3	19	0	0	0	0	9	1,029	2.53	2.14	4.66	0.482
	18-19	6	776	85	15	7	12	0	3	15	0	0	0	0	10	929	2.05	1.94	3.98	0.484
	19-20	4	733	79	8	5	7	2	4	11	0	0	0	0	11	864	1.62	1.74	3.36	0.485
	20-21	6	574	50	7	2	5	1	4	5	0	0	0	0	8	662	1.21	1.36	2.57	0.489
	21-22	3	440	33	5	3	4	1	3	2	0	0	0	0	7	501	1.60	1.00	2.59	0.491
	22-23	1	318	43	1	3	1	1	5	0	0	0	0	0	5	378	1.32	1.32	2.65	0.492
	23-24	2	172	15	1	3	2	0	0	0	0	0	0	0	1	196	2.55	0.00	2.55	0.498
	Day	64	10,273	1,511	201	148	113	8	41	151	0	0	0	0	145	12,655	2.13	1.52	3.64	0.487
5/16	00-01	0	89	4	0	0	0	0	0	0	0	0	0	0	0	93	0.00	0.00	0.00	0.500
	01-02	1	45	7	0	0	0	0	1	1	0	0	0	0	0	55	0.00	3.64	3.64	0.479
	02-03	0	27	0	1	2	0	0	1	0	0	0	0	0	1	32	6.25	3.13	9.38	0.486
	03-04	0	13	1	0	2	0	1	0	0	0	0	0	0	1	18	16.67	0.00	16.67	0.468
	04-05	1	52	9	0	1	0	1	0	0	0	0	0	0	1	65	3.08	0.00	3.08	0.491
	05-06	1	131	24	5	5	2	0	0	0	0	0	0	0	0	168	4.17	0.00	4.17	0.497
	06-07	3	405	74	10	6	7	0	1	2	0	0	0	0	4	512	2.54	0.59	3.13	0.493
	07-08	5	715	130	13	13	9	0	1	11	0	0	0	0	9	906	2.43	1.32	3.75	0.488
	08-09	6	766	159	24	23	10	0	1	17	0	0	0	0	10	1,016	3.25	1.77	5.02	0.485
	09-10	6	692	122	15	16	5	1	4	7	0	0	0	0	9	877	2.51	1.25	3.76	0.490
	10-11	2	634	124	16	16	9	0	7	12	0	0	0	0	11	831	3.01	2.29	5.29	0.483
	11-12	4	646	133	9	15	11	2	3	12	0	0	0	0	12	847	3.31	1.77	5.08	0.484
	12-13	3	702	123	9	16	8	2	5	12	0	0	0	0	7	887	2.93	1.92	4.85	0.484
	13-14	7	711	117	14	17	7	0	4	18	0	0	0	0	7	902	2.66	2.44	5.10	0.482
	14-15	4	754	135	18	9	5	0	1	8	0	0	0	0	12	946	1.48	0.95	2.43	0.492
	15-16	13	793	97	18	7	5	0	0	20	0	0	0	0	10	963	1.25	2.08	3.32	0.484
	16-17	7	711	127	20	13	8	0	2	12	0	0	0	0	12	912	2.30	1.54	3.84	0.487
	17-18	6	829	130	20	7	4	0	2	27	0	0	0	0	8	1,033	1.06	2.81	3.87	0.479
	18-19	4	781	108	11	6	8	0	0	11	0	0	0	0	9	938	1.49	1.17	2.67	0.489

PEAK HOUR	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
	1.16	2.7	1.41	1.05	2.76	1.95

**New Jersey Department of Transportation
Roadway Detail Daily Class Distribution Beginning 05/15/2012**

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC	
5/16	19-20	6	734	95	10	5	5	0	4	13	0	0	0	0	12	884	1.13	1.92	3.05	0.486	
	20-21	3	624	110	3	10	10	2	2	12	0	0	0	0	8	784	2.81	1.79	4.59	0.483	
	21-22	7	482	95	5	3	6	0	4	7	0	0	0	0	5	614	1.47	1.79	3.26	0.487	
	22-23	1	310	61	3	2	7	0	1	4	0	0	0	0	5	394	2.28	1.27	3.55	0.487	
	23-24	4	194	34	2	1	4	0	0	0	0	0	0	0	3	242	2.07	0.00	2.07	0.496	
	Day	94	11,840	2,019	226	195	130	9	44	206	0	0	0	0	0	156	14,919	2.24	1.68	3.91	0.486
5/17	00-01	3	94	15	0	2	0	0	2	1	0	0	0	0	0	117	1.71	2.56	4.27	0.486	
	01-02	1	48	15	0	1	0	0	1	0	0	0	0	0	0	66	1.52	1.52	3.03	0.493	
	02-03	0	27	13	0	1	0	0	2	0	0	0	0	0	1	44	2.27	4.55	6.82	0.480	
	03-04	0	22	3	1	2	0	0	1	0	0	0	0	0	0	29	6.90	3.45	10.34	0.485	
	04-05	2	61	11	0	2	1	1	1	0	0	0	0	0	1	80	5.00	1.25	6.25	0.484	
	05-06	1	144	39	5	4	5	2	0	1	0	0	0	0	1	202	5.45	0.50	5.94	0.484	
	06-07	6	406	76	5	7	5	0	2	1	0	0	0	0	5	513	2.34	0.58	2.92	0.494	
	07-08	4	731	144	15	15	9	0	4	9	0	0	0	0	10	941	2.55	1.38	3.93	0.489	
	Day	17	1,533	316	26	34	20	3	13	12	0	0	0	0	0	18	1,992	2.86	1.26	4.12	0.489
	Count	175	23,646	3,846	453	377	263	20	98	369	0	0	0	0	0	319	29,566	2.23	1.58	3.81	0.487

	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
PEAK HOUR	1.16	2.7	1.41	1.05	2.76	1.95

**New Jersey Department of Transportation
Posdir Detail Daily Class Distribution Beginning 05/15/2012**

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC
5/15	08-09	4	314	49	13	6	6	0	1	4	0	0	0	0	6	403	2.98	1.24	4.22	0.488
	09-10	3	318	52	6	3	5	0	2	3	0	0	0	0	7	399	2.01	1.25	3.26	0.489
	10-11	2	281	56	21	4	4	0	4	5	0	0	0	0	8	385	2.08	2.34	4.42	0.484
	11-12	4	310	61	6	6	12	1	1	0	0	0	0	0	8	409	4.65	0.24	4.89	0.490
	12-13	2	314	52	5	6	6	0	0	2	0	0	0	0	7	394	3.05	0.51	3.55	0.493
	13-14	2	314	54	6	10	2	0	1	0	0	0	0	0	5	394	3.05	0.25	3.30	0.498
	14-15	1	327	65	10	4	6	0	1	5	0	0	0	0	2	421	2.38	1.43	3.80	0.487
	15-16	4	328	56	10	6	6	0	1	2	0	0	0	0	6	419	2.86	0.72	3.58	0.492
	16-17	0	373	58	8	3	2	0	2	10	0	0	0	0	3	459	1.09	2.61	3.70	0.481
	17-18	2	443	66	9	4	7	1	2	5	0	0	0	0	3	542	2.21	1.29	3.51	0.487
	18-19	6	390	56	9	3	8	0	2	5	0	0	0	0	7	486	2.26	1.44	3.70	0.487
	19-20	3	359	36	4	2	5	2	4	2	0	0	0	0	6	423	2.13	1.42	3.55	0.487
	20-21	3	292	20	4	0	5	1	1	0	0	0	0	0	3	329	1.82	0.30	2.13	0.493
	21-22	2	250	14	2	1	4	0	2	1	0	0	0	0	5	281	1.78	1.07	2.85	0.491
	22-23	1	177	20	0	3	1	1	1	0	0	0	0	0	2	206	2.43	0.49	2.91	0.494
	23-24	2	92	11	1	2	1	0	0	0	0	0	0	0	0	109	2.75	0.00	2.75	0.498
	Day	41	4,882	726	114	63	80	6	25	44	0	0	0	0	78	6,059	2.46	1.14	3.60	0.489
5/16	00-01	0	52	2	0	0	0	0	0	0	0	0	0	0	0	54	0.00	0.00	0.00	0.500
	01-02	1	28	3	0	0	0	0	1	0	0	0	0	0	0	33	0.00	3.03	3.03	0.487
	02-03	0	10	0	0	1	0	0	0	0	0	0	0	0	0	11	9.09	0.00	9.09	0.500
	03-04	0	8	1	0	1	0	1	0	0	0	0	0	0	1	12	16.67	0.00	16.67	0.453
	04-05	1	26	5	0	0	0	1	0	0	0	0	0	0	0	33	3.03	0.00	3.03	0.482
	05-06	1	42	10	1	3	0	0	0	0	0	0	0	0	0	57	5.26	0.00	5.26	0.500
	06-07	3	161	47	5	2	4	0	1	1	0	0	0	0	2	226	2.65	0.88	3.54	0.491
	07-08	5	285	59	6	3	7	0	0	7	0	0	0	0	5	377	2.65	1.86	4.51	0.482
	08-09	2	283	76	10	9	7	0	0	6	0	0	0	0	7	400	4.00	1.50	5.50	0.485
	09-10	4	325	54	7	7	5	0	1	2	0	0	0	0	2	407	2.95	0.74	3.69	0.492
	10-11	1	275	53	7	3	7	0	5	3	0	0	0	0	6	360	2.78	2.22	5.00	0.483
	11-12	2	295	70	3	7	6	2	2	6	0	0	0	0	7	400	3.75	2.00	5.75	0.480
	12-13	2	329	65	4	6	6	1	2	3	0	0	0	0	4	422	3.08	1.18	4.27	0.488
	13-14	4	320	64	8	8	5	0	4	5	0	0	0	0	2	420	3.10	2.14	5.24	0.484
	14-15	2	327	78	10	4	4	0	0	0	0	0	0	0	5	430	1.86	0.00	1.86	0.498
	15-16	9	378	63	10	3	3	0	0	3	0	0	0	0	3	472	1.27	0.64	1.91	0.494
	16-17	4	333	72	9	4	5	0	1	1	0	0	0	0	7	436	2.06	0.46	2.52	0.494
	17-18	5	448	89	11	5	3	0	1	5	0	0	0	0	2	569	1.41	1.05	2.46	0.491
	18-19	3	392	74	5	3	7	0	0	3	0	0	0	0	3	490	2.04	0.61	2.65	0.492

PEAK HOUR	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
	1.16	2.7	1.41	1.05	2.76	1.95

**New Jersey Department of Transportation
Posdir Detail Daily Class Distribution Beginning 05/15/2012**

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC	
5/16	19-20	3	365	64	4	2	4	0	3	6	0	0	0	0	5	456	1.32	1.97	3.29	0.485	
	20-21	1	331	76	2	6	7	1	2	2	0	0	0	0	6	434	3.23	0.92	4.15	0.489	
	21-22	4	234	60	3	0	5	0	1	2	0	0	0	0	2	311	1.61	0.96	2.57	0.490	
	22-23	1	165	40	2	1	7	0	1	0	0	0	0	0	3	220	3.64	0.45	4.09	0.490	
	23-24	4	108	23	1	0	4	0	0	0	0	0	0	0	0	140	2.86	0.00	2.86	0.493	
	Day	62	5,520	1,148	108	78	96	6	25	55	0	0	0	0	0	72	7,170	2.51	1.12	3.63	0.489
5/17	00-01	3	57	10	0	1	0	0	2	0	0	0	0	0	0	73	1.37	2.74	4.11	0.488	
	01-02	1	25	12	0	0	0	0	0	0	0	0	0	0	0	38	0.00	0.00	0.00	0.500	
	02-03	0	18	10	0	1	0	0	2	0	0	0	0	0	0	31	3.23	6.45	9.68	0.473	
	03-04	0	13	2	0	0	0	0	0	0	0	0	0	0	0	15	0.00	0.00	0.00	0.500	
	04-05	2	29	3	0	0	0	1	1	0	0	0	0	0	0	36	2.78	2.78	5.56	0.472	
	05-06	0	50	10	3	1	2	0	0	0	0	0	0	0	0	66	4.55	0.00	4.55	0.493	
	06-07	5	163	42	3	3	4	0	2	1	0	0	0	0	1	224	3.13	1.34	4.46	0.488	
	07-08	4	290	56	6	6	6	0	1	4	0	0	0	0	6	379	3.17	1.32	4.49	0.487	
	Day	15	645	145	12	12	12	1	8	5	0	0	0	0	0	7	862	2.90	1.51	4.41	0.488
	Count	118	11,047	2,019	234	153	188	13	58	104	0	0	0	0	0	157	14,091	2.51	1.15	3.66	0.489

PEAK HOUR	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
	1.16	2.7	1.41	1.05	2.76	1.95

New Jersey Department of Transportation
Negdir Detail Daily Class Distribution Beginning 05/15/2012

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC
5/15	08-09	2	476	58	4	5	3	0	0	11	0	0	0	0	3	562	1.42	1.96	3.38	0.485
	09-10	2	354	56	6	6	0	0	1	5	0	0	0	0	7	437	1.37	1.37	2.75	0.491
	10-11	2	355	68	5	6	0	1	0	6	0	0	0	0	5	448	1.56	1.34	2.90	0.489
	11-12	1	350	77	9	10	1	0	1	5	0	0	0	0	6	460	2.39	1.30	3.70	0.491
	12-13	1	340	60	7	11	4	0	0	3	0	0	0	0	5	431	3.48	0.70	4.18	0.493
	13-14	0	395	61	8	10	4	0	1	9	0	0	0	0	3	491	2.85	2.04	4.89	0.484
	14-15	2	412	60	9	6	2	0	2	3	0	0	0	0	4	500	1.60	1.00	2.60	0.493
	15-16	3	393	73	9	7	3	0	1	10	0	0	0	0	7	506	1.98	2.17	4.15	0.483
	16-17	4	481	62	6	3	4	0	0	16	0	0	0	0	2	578	1.21	2.77	3.98	0.479
	17-18	1	382	62	7	9	5	0	1	14	0	0	0	0	6	487	2.87	3.08	5.95	0.476
	18-19	0	386	29	6	4	4	0	1	10	0	0	0	0	3	443	1.81	2.48	4.29	0.481
	19-20	1	374	43	4	3	2	0	0	9	0	0	0	0	5	441	1.13	2.04	3.17	0.484
	20-21	3	282	30	3	2	0	0	3	5	0	0	0	0	5	333	0.60	2.40	3.00	0.485
	21-22	1	190	19	3	2	0	1	1	1	0	0	0	0	2	220	1.36	0.91	2.27	0.492
22-23	0	141	23	1	0	0	0	4	0	0	0	0	0	3	172	0.00	2.33	2.33	0.490	
23-24	0	80	4	0	1	1	0	0	0	0	0	0	0	1	87	2.30	0.00	2.30	0.497	
	Day	23	5,391	785	87	85	33	2	16	107	0	0	0	0	67	6,596	1.82	1.86	3.68	0.486
5/16	00-01	0	37	2	0	0	0	0	0	0	0	0	0	0	0	39	0.00	0.00	0.00	0.500
	01-02	0	17	4	0	0	0	0	0	1	0	0	0	0	0	22	0.00	4.55	4.55	0.468
	02-03	0	17	0	1	1	0	0	1	0	0	0	0	0	1	21	4.76	4.76	9.52	0.480
	03-04	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6	16.67	0.00	16.67	0.500
	04-05	0	26	4	0	1	0	0	0	0	0	0	0	0	1	32	3.13	0.00	3.13	0.500
	05-06	0	89	14	4	2	2	0	0	0	0	0	0	0	0	111	3.60	0.00	3.60	0.496
	06-07	0	244	27	5	4	3	0	0	1	0	0	0	0	2	286	2.45	0.35	2.80	0.495
	07-08	0	430	71	7	10	2	0	1	4	0	0	0	0	4	529	2.27	0.95	3.21	0.493
	08-09	4	483	83	14	14	3	0	1	11	0	0	0	0	3	616	2.76	1.95	4.71	0.485
	09-10	2	367	68	8	9	0	1	3	5	0	0	0	0	7	470	2.13	1.70	3.83	0.488
	10-11	1	359	71	9	13	2	0	2	9	0	0	0	0	5	471	3.18	2.34	5.52	0.483
	11-12	2	351	63	6	8	5	0	1	6	0	0	0	0	5	447	2.91	1.57	4.47	0.487
	12-13	1	373	58	5	10	2	1	3	9	0	0	0	0	3	465	2.80	2.58	5.38	0.481
	13-14	3	391	53	6	9	2	0	0	13	0	0	0	0	5	482	2.28	2.70	4.98	0.480
14-15	2	427	57	8	5	1	0	1	8	0	0	0	0	7	516	1.16	1.74	2.91	0.487	
15-16	4	415	34	8	4	2	0	0	17	0	0	0	0	7	491	1.22	3.46	4.68	0.474	
16-17	3	378	55	11	9	3	0	1	11	0	0	0	0	5	476	2.52	2.52	5.04	0.481	
17-18	1	381	41	9	2	1	0	1	22	0	0	0	0	6	464	0.65	4.96	5.60	0.466	
18-19	1	389	34	6	3	1	0	0	8	0	0	0	0	6	448	0.89	1.79	2.68	0.486	

PEAK HOUR	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
	1.16	2.7	1.41	1.05	2.76	1.95

**New Jersey Department of Transportation
Negdir Detail Daily Class Distribution Beginning 05/15/2012**

Site Name: 3N5H705

County: ESSEX

Location: BET CO 630, MILLBURN AVE & RYNDA RD

		MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+	UNCLS	TOTAL	% SU	% MU	% TRK	AXL FAC
5/16	19-20	3	369	31	6	3	1	0	1	7	0	0	0	0	7	428	0.93	1.87	2.80	0.487
	20-21	2	293	34	1	4	3	1	0	10	0	0	0	0	2	350	2.29	2.86	5.14	0.476
	21-22	3	248	35	2	3	1	0	3	5	0	0	0	0	3	303	1.32	2.64	3.96	0.483
	22-23	0	145	21	1	1	0	0	0	4	0	0	0	0	2	174	0.57	2.30	2.87	0.483
	23-24	0	86	11	1	1	0	0	0	0	0	0	0	0	3	102	0.98	0.00	0.98	0.500
	Day	32	6,320	871	118	117	34	3	19	151	0	0	0	0	84	7,749	1.99	2.19	4.18	0.484
5/17	00-01	0	37	5	0	1	0	0	0	1	0	0	0	0	0	44	2.27	2.27	4.55	0.484
	01-02	0	23	3	0	1	0	0	1	0	0	0	0	0	0	28	3.57	3.57	7.14	0.484
	02-03	0	9	3	0	0	0	0	0	0	0	0	0	0	1	13	0.00	0.00	0.00	0.500
	03-04	0	9	1	1	2	0	0	1	0	0	0	0	0	0	14	14.29	7.14	21.43	0.470
	04-05	0	32	8	0	2	1	0	0	0	0	0	0	0	1	44	6.82	0.00	6.82	0.494
	05-06	1	94	29	2	3	3	2	0	1	0	0	0	0	1	136	5.88	0.74	6.62	0.481
	06-07	1	243	34	2	4	1	0	0	0	0	0	0	0	4	289	1.73	0.00	1.73	0.499
	07-08	0	441	88	9	9	3	0	3	5	0	0	0	0	4	562	2.14	1.42	3.56	0.490
	Day	2	888	171	14	22	8	2	5	7	0	0	0	0	11	1,130	2.83	1.06	3.89	0.491
	Count	57	12,599	1,827	219	224	75	7	40	265	0	0	0	0	162	15,475	1.98	1.97	3.95	0.485

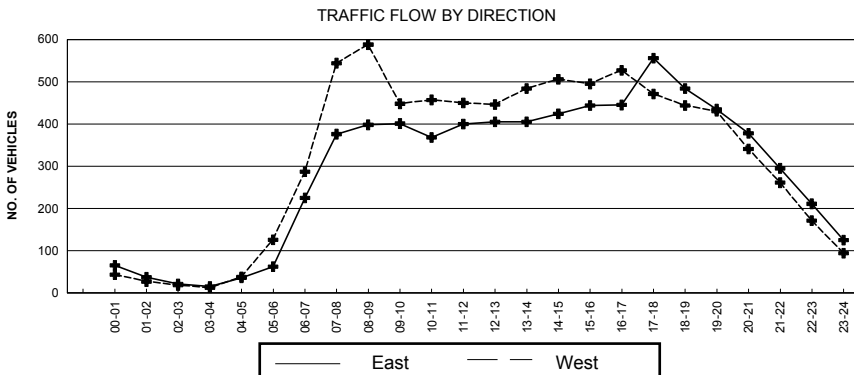
PEAK HOUR	ROADWAY		POSDIR		NEGDIR	
	% SU	% MU	% SU	% MU	% SU	% MU
	1.16	2.7	1.41	1.05	2.76	1.95

New Jersey Department of Transportation

Classification Count Average Weekday Hourly Data Report

Route/Road	VALLEY ST	Begin Date	05/15/2012	STATION	Maplewood Twp
Region-County	- ESSEX	End Date	05/17/2012	Taken By	
From		No. Days Counted	2	Processed By	
To		No. of Lanes	2	Batch ID	
Ref Marker		DOT ID			
End Milepost		Func. Class	16-Urban Minor Arterial		

VEHICLE CLASS AVG NUM AXLES	MC F1	CAR F2	2A-4T		BUS F4	SINGLE UNIT			SINGLE TRAILER			MULTI TRAILER			% HV F4-F13	% TRK F3-F13	AXLE ACTOR	
			F3	F4		2A-6T F5	3 A F6	4+ A F7	4- A F8	5 A F9	6+ A F10	5- A F11	6 A F12	7+ A F13				TOTAL
HOUR	00-01	2	55	6	0	1	0	0	1	0	0	0	0	0	65	3.1	12.3	.99
	01-02	1	27	8	0	0	0	0	1	0	0	0	0	0	37	2.7	24.3	.98
	02-03	0	14	5	0	1	0	0	1	0	0	0	0	0	21	9.5	33.3	.96
	03-04	0	11	2	0	1	0	1	0	0	0	0	0	15	13.3	26.7	.92	
	04-05	2	28	4	0	0	0	1	1	0	0	0	0	36	5.6	16.7	.94	
	05-06	1	46	10	2	2	1	0	0	0	0	0	0	62	8.1	24.2	.99	
	06-07	4	162	45	4	3	4	0	2	1	0	0	0	225	6.2	26.2	.98	
	07-08	5	288	58	6	5	7	0	1	6	0	0	0	376	6.6	22.1	.97	
	08-09	3	299	63	12	8	7	0	1	5	0	0	0	398	8.3	24.1	.97	
	09-10	4	322	53	7	5	5	0	2	3	0	0	0	401	5.5	18.7	.98	
	10-11	2	278	55	14	4	6	0	5	4	0	0	0	368	9.0	23.9	.96	
DIRECTION	11-12	3	303	66	5	7	9	2	2	3	0	0	0	400	7.0	23.5	.97	
East	12-13	2	322	59	5	6	6	1	1	3	0	0	0	405	5.4	20.0	.98	
	13-14	3	317	59	7	9	4	0	3	3	0	0	0	405	6.4	21.0	.98	
	14-15	2	327	72	10	4	5	0	1	3	0	0	0	424	5.4	22.4	.98	
	15-16	7	353	60	10	5	5	0	1	3	0	0	0	444	5.4	18.9	.98	
	16-17	2	353	65	9	4	4	0	2	6	0	0	0	445	5.6	20.2	.97	
	17-18	4	446	78	10	5	5	1	2	5	0	0	0	556	5.0	19.1	.98	
	18-19	5	391	65	7	3	8	0	1	4	0	0	0	484	4.8	18.2	.98	
	19-20	3	362	50	4	2	5	1	4	4	0	0	0	435	4.6	16.1	.97	
	20-21	2	312	48	3	3	6	1	2	1	0	0	0	378	4.2	16.9	.98	
	21-22	3	242	37	3	1	5	0	2	2	0	0	0	295	4.4	16.9	.98	
	22-23	1	171	30	1	2	4	1	1	0	0	0	0	211	4.3	18.5	.98	
	23-24	3	100	17	1	1	3	0	0	0	0	0	0	125	4.0	17.6	.99	
TOTAL VEHICLES		64	5529	1015	120	82	99	9	37	56	0	0	0	7011	5.7	20.2	.98	
TOTAL AXLES		128	11058	2030	240	164	297	41	141	280	0	0	0	14379				
HOUR	00-01	0	37	4	0	1	0	0	0	1	0	0	0	43	4.7	14.0	.97	
	01-02	0	20	4	0	1	0	0	1	1	0	0	0	27	11.1	25.9	.92	
	02-03	0	13	2	1	1	0	0	1	0	0	0	0	18	16.7	27.8	.95	
	03-04	0	7	1	1	2	0	0	1	0	0	0	0	12	33.3	41.7	.93	
	04-05	0	29	6	0	2	1	0	0	0	0	0	0	38	7.9	23.7	.99	
	05-06	1	92	22	3	3	3	1	0	1	0	0	0	126	8.7	26.2	.97	
	06-07	1	244	31	4	4	2	0	0	1	0	0	0	287	3.8	14.6	.99	
	07-08	0	436	80	8	10	3	0	2	5	0	0	0	544	5.1	19.9	.98	
	08-09	3	480	71	9	10	3	0	1	11	0	0	0	588	5.8	17.9	.97	
	09-10	2	361	62	7	8	0	1	2	5	0	0	0	448	5.1	19.0	.98	
	10-11	2	357	70	7	10	1	1	1	8	0	0	0	457	6.1	21.4	.97	
DIRECTION	11-12	2	351	70	8	9	3	0	1	6	0	0	0	450	6.0	21.6	.98	
West	12-13	1	357	59	6	11	3	1	2	6	0	0	0	446	6.5	19.7	.97	
	13-14	2	393	57	7	10	3	0	1	11	0	0	0	484	6.6	18.4	.96	
	14-15	2	420	59	9	6	2	0	2	6	0	0	0	506	4.9	16.6	.98	
	15-16	4	404	54	9	6	3	0	1	14	0	0	0	495	6.7	17.6	.95	
	16-17	4	430	59	9	6	4	0	1	14	0	0	0	527	6.5	17.6	.96	
	17-18	1	382	52	8	6	3	0	1	18	0	0	0	471	7.6	18.7	.94	
	18-19	1	388	32	6	4	3	0	1	9	0	0	0	444	5.2	12.4	.97	
	19-20	2	372	37	5	3	2	0	1	8	0	0	0	430	4.4	13.0	.97	
	20-21	3	288	32	2	3	2	1	2	8	0	0	0	341	5.3	14.7	.96	
	21-22	2	219	27	3	3	1	1	2	3	0	0	0	261	5.0	15.3	.97	
	22-23	0	143	22	1	1	0	0	2	2	0	0	0	171	3.5	16.4	.97	
	23-24	0	83	8	1	1	1	0	0	0	0	0	0	94	3.2	11.7	.99	
TOTAL VEHICLES		33	6306	921	114	121	43	6	26	138	0	0	0	7708	5.8	17.8	.97	
TOTAL AXLES		66	12612	1842	228	242	129	27	99	690	0	0	0	15935				
GRAND TOTAL VEHICLES		97	11835	1936	234	203	142	15	63	194	0	0	0	14719	5.8	18.9	.97	
GRAND TOTAL AXLES		194	23670	3872	468	406	426	68	240	970	0	0	0	30314				



DIRECTION	East	West	TOTAL
NUMBER OF VEHICLES	7011	7708	14719
NUMBER OF AXLES	14379	15935	30314
% HEAVY VEHICLES (F4-F13)	5.70%	5.80%	5.80%
% TRUCKS & BUSES (F3-F13)	20.20%	17.80%	18.90%
AXLE CORRECTION FACTOR	0.98	0.97	0.97

PEAK HOUR DATA					
DIRECTION	HOUR	COUNT	2-WAY	HOUR	COUNT
East	17-18	556	A.M.	08-09	986
West	08-09	588	P.M.	17-18	1027

New Jersey Department of Transportation

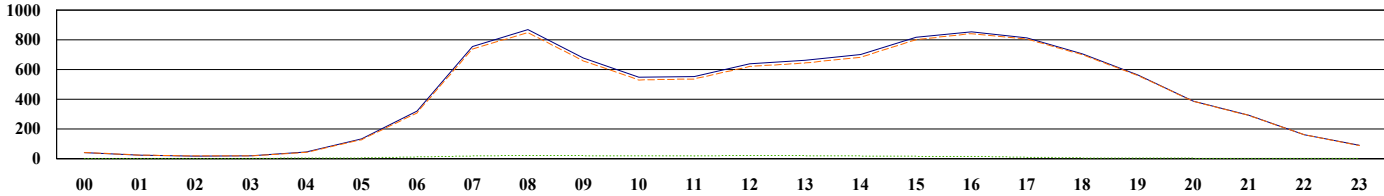
24 Hour Directional Summary, West Bound for Oct 19, 2015

3N5H705, , Valley Street-.17, 07000638 __, Maplewood Twp
FC16 ESSEX County

Bet CO 630 Millburn Avenue and Rynda Road

	Total	Total	Peak	Peak
Private:	10,453.8	97.9	848.0	97.5
Single:	198.7	1.9	19.7	2.3
Combo:	29.0	0.3	1.7	0.2
Trucks:	227.7	2.1	21.3	2.5
Total:	10,682.0		869.3	

Peak Hour:	8
Axle Factor:	0.99



	VOL	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+
0	41.0	0	38.3	2.3	0	0	0	0	0	0.3	0	0	0	0
1	22.7	0	22.3	0.3	0	0	0	0	0	0	0	0	0	0
2	16.7	0	15.7	1.0	0	0	0	0	0	0	0	0	0	0
3	18.3	0	15.3	2.3	0	0	0.7	0	0	0	0	0	0	0
4	44.3	0	37.7	3.0	0	1.3	2.3	0	0	0	0	0	0	0
5	132.3	0	121.7	6.0	0	2.7	1.0	0	0.3	0.7	0	0	0	0
6	319.7	0	289.3	19.0	0	6.7	2.3	0	0	2.3	0	0	0	0
7	755.0	0.3	680.0	57.0	0	10.0	4.7	0.3	1.0	1.7	0	0	0	0
8	869.3	1.7	779.7	66.7	0	9.0	8.7	2.0	0.3	1.3	0	0	0	0
9	677.7	1.3	602.0	55.3	0	12.0	3.7	1.3	0.3	1.7	0	0	0	0
10	548.0	2.0	478.5	47.5	0	8.0	6.5	4.0	0	1.5	0	0	0	0
11	552.0	0.5	479.5	55.0	0.5	9.0	2.5	3.0	1.0	1.0	0	0	0	0
12	639.0	0	565.0	53.5	0	12.0	2.5	3.5	0.5	2.0	0	0	0	0
13	661.7	1.0	580.0	61.3	0	12.7	3.3	1.3	1.0	1.0	0	0	0	0
14	700.3	0.3	628.3	53.7	0	10.3	3.3	2.7	0.3	1.3	0	0	0	0
15	816.7	1.7	741.7	57.7	0	8.3	3.7	1.3	0	2.3	0	0	0	0
16	854.0	1.0	788.3	50.7	0	10.3	1.0	0.3	0.3	2.0	0	0	0	0
17	813.0	2.0	758.3	44.3	0	6.7	0.7	0	0.3	0.7	0	0	0	0
18	704.3	2.3	655.7	41.0	0	3.7	0	0	0	1.7	0	0	0	0
19	563.7	0.3	544.0	14.0	0	4.7	0.3	0	0	0.3	0	0	0	0
20	388.0	0	370.3	15.3	0	1.3	0.3	0	0.7	0	0	0	0	0
21	292.7	0.3	281.7	9.0	0	0.7	0	0	0	1.0	0	0	0	0
22	162.3	0.3	157.3	4.0	0	0.7	0	0	0	0	0	0	0	0
23	89.3	0.3	86.3	1.3	0	1.0	0.3	0	0	0	0	0	0	0
Total	10,682.0	15.5	9,717.0	721.3	0.5	131.0	47.8	19.8	6.2	22.8	0	0	0	0
%	100.0	0.1	91.0	6.8	0	1.2	0.4	0.2	0.1	0.2	0	0	0	0

New Jersey Department of Transportation

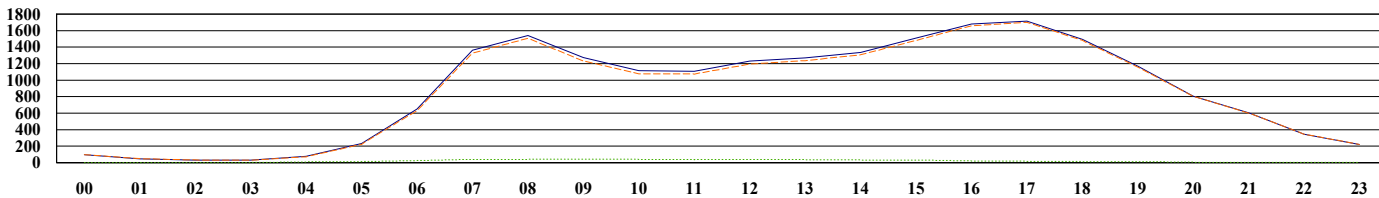
24 Hour Roadway Summary for Oct 19, 2015

**3N5H705, , Valley Street-.17, 07000638 __, Maplewood Twp
FC16 ESSEX County**

Bet CO 630 Millburn Avenue and Rynda Road

	Total	Total	Peak	Peak
Private:	20,493.5	97.9	1,699.3	99.1
Single:	388.5	1.9	13.3	0.8
Combo:	58.2	0.3	2.3	0.1
Trucks:	446.7	2.1	15.7	0.9
Total:	20,943.7		1,715.3	

Peak Hour: 17
Axle Factor: 0.99



	VOL	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+
0	96.0	0	89.7	6.0	0	0	0	0	0	0.3	0	0	0	0
1	48.0	0	45.7	2.3	0	0	0	0	0	0	0	0	0	0
2	31.0	0	27.0	3.0	0	0	0.7	0	0	0.3	0	0	0	0
3	29.3	0	24.0	3.7	0	0.7	0.7	0	0.3	0	0	0	0	0
4	76.3	0	63.0	6.0	0	2.3	4.7	0	0.3	0	0	0	0	0
5	232.3	1.0	207.3	13.0	0	5.7	3.0	0	0.7	1.7	0	0	0	0
6	650.3	0	575.3	52.7	0	12.0	6.7	0	0	3.7	0	0	0	0
7	1,362.3	1.3	1,211.0	111.0	0	19.7	11.0	3.3	1.3	3.7	0	0	0	0
8	1,542.0	2.3	1,362.0	140.3	0	17.0	13.7	2.7	0.3	3.7	0	0	0	0
9	1,274.7	1.7	1,111.7	117.0	0	26.0	9.7	3.0	1.0	4.7	0	0	0	0
10	1,116.5	2.0	966.0	109.0	0	18.5	12.5	5.5	1.0	2.0	0	0	0	0
11	1,108.0	0.5	954.0	117.0	0.5	18.0	9.5	5.0	1.5	2.0	0	0	0	0
12	1,229.5	1.0	1,078.0	112.0	0	21.0	8.5	5.0	1.5	2.5	0	0	0	0
13	1,268.7	1.3	1,119.0	113.7	0	22.0	8.0	1.3	1.7	1.7	0	0	0	0
14	1,336.3	0.7	1,199.3	105.0	0	16.0	8.0	3.3	1.3	2.3	0.3	0	0	0
15	1,508.7	2.0	1,368.7	106.3	0	16.7	7.7	2.0	0.7	4.7	0	0	0	0
16	1,678.7	2.3	1,553.0	102.3	0	16.0	1.7	0.3	0.3	2.7	0	0	0	0
17	1,715.3	4.0	1,605.7	89.7	0.3	12.3	1.0	0	0.7	1.7	0	0	0	0
18	1,494.0	4.7	1,399.7	75.0	2.3	8.7	0.7	0	0.7	2.3	0	0	0	0
19	1,169.3	0.7	1,121.7	36.0	0.3	9.3	0.3	0	0.3	0.7	0	0	0	0
20	805.3	0.3	774.0	27.3	0	1.3	0.7	0	0.7	1.0	0	0	0	0
21	602.3	0.3	581.0	17.3	0	2.0	0	0	0	1.7	0	0	0	0
22	346.3	0.3	337.0	7.7	0	1.0	0	0	0	0.3	0	0	0	0
23	222.3	1.0	213.0	6.0	0	1.0	1.3	0	0	0	0	0	0	0
Total	20,943.7	27.5	18,986.7	1,479.3	3.5	247.2	109.8	31.5	14.3	43.5	0.3	0	0	0
%	100.0	0.1	90.7	7.1	0	1.2	0.5	0.2	0.1	0.2	0	0	0	0

New Jersey Department of Transportation

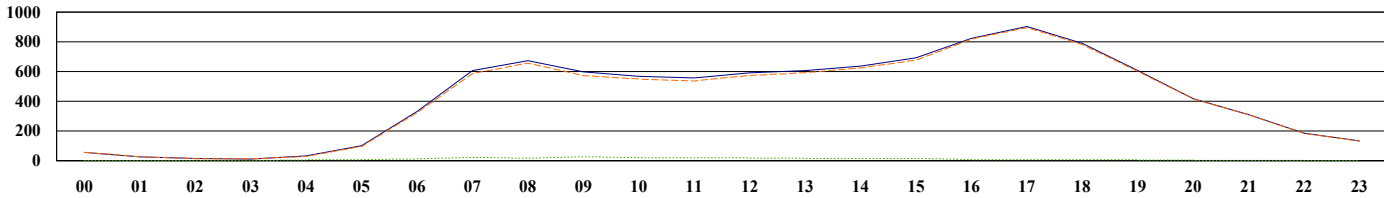
24 Hour Directional Summary, East Bound for Oct 19, 2015

3N5H705, , Valley Street-.17, 07000638 __, Maplewood Twp
FC16 ESSEX County

Bet CO 630 Millburn Avenue and Rynda Road

	Total	Total	Peak	Peak
Private:	10,039.7	97.8	894.7	99.2
Single:	189.8	1.8	6.0	0.7
Combo:	29.2	0.3	1.3	0.1
Trucks:	219.0	2.1	7.3	0.8
Total:	10,261.7		902.3	

Peak Hour: 17
Axle Factor: 0.99



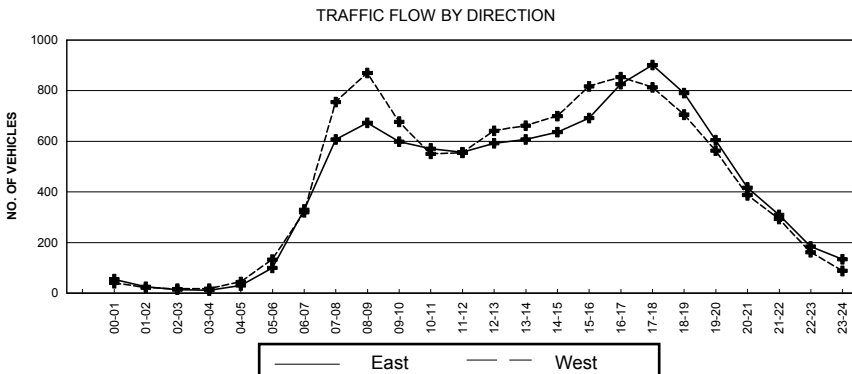
	VOL	MC	CAR	PU	BUS	2D	SU 3	SU 4+	ST 4-	ST 5	ST 6+	MT 5-	MT 6	MT 7+
0	55.0	0	51.3	3.7	0	0	0	0	0	0	0	0	0	0
1	25.3	0	23.3	2.0	0	0	0	0	0	0	0	0	0	0
2	14.3	0	11.3	2.0	0	0	0.7	0	0	0.3	0	0	0	0
3	11.0	0	8.7	1.3	0	0.7	0	0	0.3	0	0	0	0	0
4	32.0	0	25.3	3.0	0	1.0	2.3	0	0.3	0	0	0	0	0
5	100.0	1.0	85.7	7.0	0	3.0	2.0	0	0.3	1.0	0	0	0	0
6	330.7	0	286.0	33.7	0	5.3	4.3	0	0	1.3	0	0	0	0
7	607.3	1.0	531.0	54.0	0	9.7	6.3	3.0	0.3	2.0	0	0	0	0
8	672.7	0.7	582.3	73.7	0	8.0	5.0	0.7	0	2.3	0	0	0	0
9	597.0	0.3	509.7	61.7	0	14.0	6.0	1.7	0.7	3.0	0	0	0	0
10	568.5	0	487.5	61.5	0	10.5	6.0	1.5	1.0	0.5	0	0	0	0
11	556.0	0	474.5	62.0	0	9.0	7.0	2.0	0.5	1.0	0	0	0	0
12	590.5	1.0	513.0	58.5	0	9.0	6.0	1.5	1.0	0.5	0	0	0	0
13	607.0	0.3	539.0	52.3	0	9.3	4.7	0	0.7	0.7	0	0	0	0
14	636.0	0.3	571.0	51.3	0	5.7	4.7	0.7	1.0	1.0	0.3	0	0	0
15	692.0	0.3	627.0	48.7	0	8.3	4.0	0.7	0.7	2.3	0	0	0	0
16	824.7	1.3	764.7	51.7	0	5.7	0.7	0	0	0.7	0	0	0	0
17	902.3	2.0	847.3	45.3	0.3	5.7	0.3	0	0.3	1.0	0	0	0	0
18	789.7	2.3	744.0	34.0	2.3	5.0	0.7	0	0.7	0.7	0	0	0	0
19	605.7	0.3	577.7	22.0	0.3	4.7	0	0	0.3	0.3	0	0	0	0
20	417.3	0.3	403.7	12.0	0	0	0.3	0	0	1.0	0	0	0	0
21	309.7	0	299.3	8.3	0	1.3	0	0	0	0.7	0	0	0	0
22	184.0	0	179.7	3.7	0	0.3	0	0	0	0.3	0	0	0	0
23	133.0	0.7	126.7	4.7	0	0	1.0	0	0	0	0	0	0	0
Total	10,261.7	12.0	9,269.7	758.0	3.0	116.2	62.0	11.7	8.2	20.7	0.3	0	0	0
%	100.0	0.1	90.3	7.4	0	1.1	0.6	0.1	0.1	0.2	0	0	0	0

New Jersey Department of Transportation

Classification Count Average Weekday Hourly Data Report

Route/Road	Valley Street	Begin Date	10/19/2015	STATION	Maplewood Twp
Region-County	- ESSEX	End Date	10/22/2015	Taken By	
From		No. Days Counted	3	Processed By	
To		No. of Lanes	2	Batch ID	
Ref Marker		DOT ID			
End Milepost		Func. Class	16-Urban Minor Arterial		

VEHICLE CLASS AVG NUM AXLES	HOUR	SINGLE UNIT											SINGLE TRAILER			MULTI TRAILER			% HV F4-F13	% TRK F3-F13	AXLE ACTOR	
		MC F1	CAR F2	2A-4T F3	BUS F4	2A-6T F5	3 A F6	4+ A F7	4- A F8	5 A F9	6+ A F10	5- A F11	6 A F12	7+ A F13	TOTAL							
	00-01	0	51	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	0.0	7.3	1
	01-02	0	23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0.0	8.0	1
	02-03	0	11	2	0	0	0	1	0	0	0	0	0	0	0	0	0	14	7.1	21.4	.97	
	03-04	0	9	1	0	1	0	0	0	0	0	0	0	0	0	0	0	11	9.1	18.2	1	
	04-05	0	25	3	0	1	2	0	0	0	0	0	0	0	0	0	0	31	9.7	19.4	.97	
	05-06	1	86	7	0	3	2	0	0	1	0	0	0	0	0	0	0	100	6.0	13.0	.98	
	06-07	0	286	34	0	5	4	0	0	1	0	0	0	0	0	0	0	330	3.0	13.3	.99	
	07-08	1	531	54	0	10	6	3	0	2	0	0	0	0	0	0	0	607	3.5	12.4	.98	
	08-09	1	582	74	0	8	5	1	0	2	0	0	0	0	0	0	0	673	2.4	13.4	.99	
	09-10	0	510	62	0	14	6	2	1	3	0	0	0	0	0	0	0	598	4.3	14.7	.98	
	10-11	0	488	62	0	11	6	2	1	1	0	0	0	0	0	0	0	571	3.7	14.5	.99	
DIRECTION	11-12	0	475	62	0	9	7	2	1	1	0	0	0	0	0	0	0	557	3.6	14.7	.99	
East	12-13	1	513	59	0	9	6	2	1	1	0	0	0	0	0	0	0	592	3.2	13.2	.99	
	13-14	0	539	52	0	9	5	0	1	1	0	0	0	0	0	0	0	607	2.6	11.2	.99	
	14-15	0	571	51	0	6	5	1	1	1	0	0	0	0	0	0	0	636	2.2	10.2	.99	
	15-16	0	627	49	0	8	4	1	1	2	0	0	0	0	0	0	0	692	2.3	9.4	.99	
	16-17	1	765	52	0	6	1	0	0	1	0	0	0	0	0	0	0	826	1.0	7.3	1	
	17-18	2	847	45	0	6	0	0	0	1	0	0	0	0	0	0	0	901	.8	5.8	1	
	18-19	2	744	34	2	5	1	0	1	1	0	0	0	0	0	0	0	790	1.3	5.6	1	
	19-20	0	578	22	0	5	0	0	0	0	0	0	0	0	0	0	0	605	.8	4.5	1	
	20-21	0	404	12	0	0	0	0	0	1	0	0	0	0	0	0	0	417	.2	3.1	1	
	21-22	0	299	8	0	1	0	0	0	1	0	0	0	0	0	0	0	309	.6	3.2	1	
	22-23	0	180	4	0	0	0	0	0	0	0	0	0	0	0	0	0	184	0.0	2.2	1	
	23-24	1	127	5	0	0	1	0	0	0	0	0	0	0	0	0	0	134	.7	4.5	1	
TOTAL VEHICLES		10	9271	760	2	117	62	14	8	21	0	0	0	0	0	0	0	10265	2.2	9.6	.99	
TOTAL AXLES		20	18542	1520	4	234	186	63	30	105	0	0	0	0	0	0	0	20704				
DIRECTION	00-01	0	38	2	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0.0	5.0	1	
	01-02	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0.0	0.0	1	
	02-03	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0.0	5.9	1	
	03-04	0	15	2	0	0	1	0	0	0	0	0	0	0	0	0	0	18	5.6	16.7	.97	
	04-05	0	38	3	0	1	2	0	0	0	0	0	0	0	0	0	0	44	6.8	13.6	.98	
	05-06	0	122	6	0	3	1	0	0	1	0	0	0	0	0	0	0	133	3.8	8.3	.99	
	06-07	0	289	19	0	7	2	0	0	2	0	0	0	0	0	0	0	319	3.4	9.4	.99	
	07-08	0	680	57	0	10	5	0	1	2	0	0	0	0	0	0	0	755	2.4	9.9	.99	
	08-09	2	780	67	0	9	9	2	0	1	0	0	0	0	0	0	0	870	2.4	10.1	.99	
	09-10	1	602	55	0	12	4	1	0	2	0	0	0	0	0	0	0	677	2.8	10.9	.99	
DIRECTION	10-11	2	479	48	0	8	7	4	0	2	0	0	0	0	0	0	0	550	3.8	12.5	.98	
West	11-12	1	480	55	1	9	3	3	1	1	0	0	0	0	0	0	0	554	3.2	13.2	.99	
	12-13	0	565	54	0	12	3	4	1	2	0	0	0	0	0	0	0	641	3.4	11.9	.98	
	13-14	1	580	61	0	13	3	1	1	1	0	0	0	0	0	0	0	661	2.9	12.1	.99	
	14-15	0	628	54	0	10	3	3	0	1	0	0	0	0	0	0	0	699	2.4	10.2	.99	
	15-16	2	742	58	0	8	4	1	0	2	0	0	0	0	0	0	0	817	1.8	8.9	.99	
	16-17	1	788	51	0	10	1	0	0	2	0	0	0	0	0	0	0	853	1.5	7.5	1	
	17-18	2	758	44	0	7	1	0	0	1	0	0	0	0	0	0	0	813	1.1	6.5	1	
	18-19	2	656	41	0	4	0	0	0	2	0	0	0	0	0	0	0	705	.9	6.7	1	
	19-20	0	544	14	0	5	0	0	0	0	0	0	0	0	0	0	0	563	.9	3.4	1	
	20-21	0	370	15	0	1	0	0	1	0	0	0	0	0	0	0	0	387	.5	4.4	1	
	21-22	0	282	9	0	1	0	0	0	1	0	0	0	0	0	0	0	293	.7	3.8	.99	
	22-23	0	157	4	0	1	0	0	0	0	0	0	0	0	0	0	0	162	.6	3.1	1	
	23-24	0	86	1	0	1	0	0	0	0	0	0	0	0	0	0	0	88	1.1	2.3	1	
TOTAL VEHICLES		14	9717	721	1	132	49	19	5	23	0	0	0	0	0	0	0	10681	2.1	8.9	.99	
TOTAL AXLES		28	19434	1442	2	264	147	86	19	115	0	0	0	0	0	0	0	21537				
GRAND TOTAL VEHICLES		24	18988	1481	3	249	111	33	13	44	0	0	0	0	0	0	0	20946	2.2	9.2	.99	
GRAND TOTAL AXLES		48	37976	2962	6	498	333	149	49	220	0	0	0	0	0	0	0	42241				



DIRECTION	East	West	TOTAL
NUMBER OF VEHICLES	10265	10681	20946
NUMBER OF AXLES	20704	21537	42241
% HEAVY VEHICLES (F4-F13)	2.20%	2.10%	2.20%
% TRUCKS & BUSES (F3-F13)	9.60%	8.90%	9.20%
AXLE CORRECTION FACTOR	0.99	0.99	0.99

PEAK HOUR DATA				
DIRECTION	HOUR	COUNT	2-WAY	HOUR COUNT
East	17-18	901	A.M.	08-09
West	08-09	870	P.M.	17-18

New Jersey Department of Transportation

Daily Volume from 10/19/2015 through 10/22/2015

Site Names: 3N5H705, , Valley Street-.17, 07000638__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: Bet CO 630 Millburn Avenue and Rynda Road

Seasonal Factor Group: RG1_FC16
 Daily Factor Group: RG1_FC16
 Axle Factor Group: RG1_FC16
 Growth Factor Group: RG1_FC16

	Sun 10/18/2015			Mon 10/19/2015			Tue 10/20/2015			Wed 10/21/2015			Thu 10/22/2015			Fri 10/23/2015			Sat 10/24/2015		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00							86	35	51	88	39	49	114	49	65						
01:00							36	16	20	54	23	31	54	29	25						
02:00							28	15	13	30	15	15	35	20	15						
03:00							33	22	11	30	17	13	25	16	9						
04:00							70	42	28	87	52	35	72	39	33						
05:00							245	136	109	223	126	97	229	135	94						
06:00							629	307	322	649	312	337	673	340	333						
07:00							1,345	728	617	1,385	796	589	1,359	742	617						
08:00							1,610	911	699	1,556	854	702	1,463	846	617						
09:00							1,298	696	602	1,265	674	591	1,261	663	598						
10:00							1,173	578	595	1,060	518	542									
11:00							1,126	573	553	1,091	532	559									
12:00							1,265	673	592	1,195	606	589									
13:00				1,227	636	591	1,294	670	624	1,286	679	607									
14:00				1,361	720	641	1,330	702	628	1,319	680	639									
15:00				1,547	850	697	1,485	782	703	1,494	818	676									
16:00				1,659	835	824	1,738	922	816	1,640	806	834									
17:00				1,749	823	926	1,734	829	905	1,665	787	878									
18:00				1,489	701	788	1,501	691	810	1,495	721	774									
19:00				1,153	550	603	1,188	597	591	1,168	545	623									
20:00				717	341	376	890	434	456	809	389	420									
21:00				558	262	296	590	267	323	659	349	310									
22:00				320	151	169	371	175	196	348	161	187									
23:00				212	89	123	225	88	137	230	91	139									
Volume				11,992	5,958	6,034	21,290	10,889	10,401	20,826	10,590	10,236	5,285	2,879	2,406						
AM Peak Vol							1,610	911	699	1,556	854	702									
AM Peak Fct							1.00	1.00	1.00	1.00	1.00	1.00									
AM Peak Hr							8:00	8:00	8:00	8:00	8:00	8:00									
PM Peak Vol							1,738	922	905	1,665	818	878									
PM Peak Fct							1.00	1.00	1.00	1.00	1.00	1.00									
PM Peak Hr							16:00	16:00	17:00	17:00	15:00	17:00									
Seasonal Fct				0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985						
Daily Fct				0.939	0.939	0.939	0.889	0.889	0.889	0.893	0.893	0.893	0.889	0.889	0.889						
Axle Fct				0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500						
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000						

New Jersey Department of Transportation

Daily % Class Distribution for 10/19/2015 through 10/22/2015 (69 hours)

Site Names: 3N5H705, , Valley Street-.17, 07000638__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: Bet CO 630 Millburn Avenue and Rynda Road

Seasonal Factor Group: RG1_FC16
 Daily Factor Group: RG1_FC16
 Axle Factor Group: RG1_FC16
 Growth Factor Group: RG1_FC16

	Roadway	Neg DIR	Pos DIR
MC	0.13	0.15	0.12
CAR	90.86	91.13	90.57
PU	6.90	6.62	7.19
BUS	0.02	0.00	0.03
2D	1.15	1.20	1.10
SU 3	0.50	0.44	0.57
SU 4+	0.13	0.16	0.10
ST 4-	0.07	0.06	0.08
ST 5	0.21	0.21	0.21
ST 6+	0.00	0.00	0.00
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	0.03	0.03	0.02
Trucks	2.06	2.06	2.06
Combo Trucks	0.28	0.27	0.29
Classified	99.97	99.97	99.98
% Unclassified	0.03	0.03	0.02
Volume	59,393	30,316	29,077

New Jersey Department of Transportation

Daily Volume from 05/14/2012 through 05/16/2012

Site Names: 3N5H708, , BAKER ST-.72, 07111792__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Collector
 Location: BET DUNNELL RD & VALLEY ST

Seasonal Factor Group: 2 Urban Other Roadways
 Daily Factor Group: 2 Urban Other Roadways
 Axle Factor Group:
 Growth Factor Group:

	Sun 05/13/2012			Mon 05/14/2012			Tue 05/15/2012			Wed 05/16/2012			Thu 05/17/2012			Fri 05/18/2012			Sat 05/19/2012			
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	
00:00							27	10	17	28	11	17										
01:00							23	8	15	18	5	13										
02:00							7	2	5	4	2	2										
03:00							5	4	1	6	4	2										
04:00							10	6	4	12	7	5										
05:00							40	19	21	43	24	19										
06:00							125	53	72	133	51	82										
07:00							455	239	216	429	232	197										
08:00							592	301	291	581	257	324										
09:00							398	185	213	336	179	157										
10:00							362	169	193	375	190	185										
11:00							338	146	192	410	195	215										
12:00							378	184	194	369	189	180										
13:00				332	147	185	338	151	187													
14:00				421	183	238	430	190	240													
15:00				491	202	289	523	217	306													
16:00				435	183	252	456	206	250													
17:00				511	183	328	473	170	303													
18:00				552	217	335	528	190	338													
19:00				405	156	249	362	146	216													
20:00				266	94	172	288	83	205													
21:00				306	109	197	166	53	113													
22:00				99	26	73	127	38	89													
23:00				59	21	38	44	18	26													
Volume				3,877	1,521	2,356	6,495	2,788	3,707	2,375	1,157	1,218										
AM Peak Vol							646	329	331	632	300	355										
AM Peak Fct							0.68	0.67	0.73	0.67	0.74	0.66										
AM Peak Hr							7:45	7:15	7:30	7:45	7:15	7:45										
PM Peak Vol							537	223	343													
PM Peak Fct							0.91	0.82	0.73													
PM Peak Hr							14:45	14:30	17:30													
Seasonal Fct				0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969										
Daily Fct				1.055	1.055	1.055	0.956	0.956	0.956	0.934	0.934	0.934										
Axle Fct				0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500										
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

Daily Volume from 12/15/2015 through 12/17/2015

Site Names: 3N5H708, , Baker Street-.83, 07111792__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Collector
 Location: Bet Burnet Street and CO 638 Valley Street

Seasonal Factor Group: RG1_FC17
 Daily Factor Group: RG1_FC17
 Axle Factor Group: RG1_FC17
 Growth Factor Group: RG1_FC17

	Sun 12/13/2015			Mon 12/14/2015			Tue 12/15/2015			Wed 12/16/2015			Thu 12/17/2015			Fri 12/18/2015			Sat 12/19/2015		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00										70	12	58	124	21	103						
01:00										38	11	27	35	7	28						
02:00										14	4	10	22	7	15						
03:00										4	1	3	2	1	1						
04:00										4	2	2	7	4	3						
05:00										18	7	11	14	8	6						
06:00										48	21	27	43	22	21						
07:00										176	100	76	179	91	88						
08:00										471	251	220	459	238	221						
09:00										543	262	281	554	276	278						
10:00										329	171	158	381	196	185						
11:00							363	189	174	370	193	177									
12:00							412	201	211	394	204	190									
13:00							375	193	182	418	203	215									
14:00							422	188	234	363	152	211									
15:00							461	201	260	427	198	229									
16:00							604	270	334	556	228	328									
17:00							545	234	311	543	247	296									
18:00							582	210	372	606	260	346									
19:00							526	216	310	555	223	332									
20:00							420	173	247	495	235	260									
21:00							246	66	180	304	128	176									
22:00							203	53	150	253	65	188									
23:00							137	34	103	143	31	112									
Volume							5,296	2,228	3,068	7,142	3,209	3,933	1,820	871	949						
AM Peak Vol										606	292	314									
AM Peak Fct										0.75	0.81	0.70									
AM Peak Hr										8:45	8:45	8:45									
PM Peak Vol							624	270	394	624	270	362									
PM Peak Fct							0.89	0.81	0.93	0.99	0.87	0.96									
PM Peak Hr							18:15	16:00	18:15	17:45	17:45	18:15									
Seasonal Fct							0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970						
Daily Fct							0.926	0.926	0.926	1.097	1.097	1.097	0.887	0.887	0.887						
Axle Fct							0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490						
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

Daily Volume from 07/10/2012 through 07/12/2012

Site Names: 090721, , RT 510, South Orange-24.5, 00000510__, South Orange Tw
 County: ESSEX
 Funct. Class: Urban Principal Arterial - Other
 Location: Bet Vose St and Village Place

Seasonal Factor Group:
 Daily Factor Group:
 Axle Factor Group:
 Growth Factor Group: 2 Urban Other Roadways

	Sun 07/08/2012			Mon 07/09/2012			Tue 07/10/2012			Wed 07/11/2012			Thu 07/12/2012			Fri 07/13/2012			Sat 07/14/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00										174	42	132	114	43	71						
01:00										76	22	54	59	26	33						
02:00										35	16	19	36	18	18						
03:00										34	19	15	31	16	15						
04:00										63	33	30	40	26	14						
05:00										155	110	45	148	111	37						
06:00										479	289	190	445	313	132						
07:00										838	422	416	721	458	263						
08:00										1,067	573	494	899	539	360						
09:00										986	486	500	951	489	462						
10:00										697	421	276	776	435	341						
11:00										684	422	262	681	440	241						
12:00							1,024	505	519	697	471	226									
13:00							1,012	484	528	725	473	252									
14:00							1,051	490	561	734	466	268									
15:00							1,166	515	651	741	455	286									
16:00							1,191	514	677	800	465	335									
17:00							1,232	535	697	822	501	321									
18:00							1,245	561	684	762	506	256									
19:00							1,109	442	667	733	449	284									
20:00							879	335	544	607	314	293									
21:00							831	266	565	503	267	236									
22:00							541	206	335	386	194	192									
23:00							376	85	291	233	97	136									
Volume							11,657	4,938	6,719	13,031	7,513	5,518	4,220	2,474	1,746						
AM Peak Vol										1,076	573	516	962	550	462						
AM Peak Fct										0.96	0.97	0.94	0.94	0.94	0.95						
AM Peak Hr										8:15	8:00	8:30	8:45	7:30	9:00						
PM Peak Vol							1,261	561	708	823	526	355									
PM Peak Fct							0.98	0.87	0.95	0.93	0.96	0.91									
PM Peak Hr							17:45	18:00	17:30	16:45	16:45	15:45									
Seasonal Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
Daily Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
Axle Fct							0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500						
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

Daily Volume from 01/16/2012 through 01/19/2012

Site Names: 110738, , Millburn Avenue-1, 07000630__, Maplewood Twp
 County: ESSEX
 Funct. Class: Urban Principal Arterial - Other
 Location: Bet Melman Terrace and Mildred Terrace

Seasonal Factor Type: 2 Urban Other Roadways
 Daily Factor Type: 2 Urban Other Roadways
 Axle Factor Type: 14
 Growth Factor Type:

	Sun 01/15/2012			Mon 01/16/2012			Tue 01/17/2012			Wed 01/18/2012			Thu 01/19/2012			Fri 01/20/2012			Sat 01/21/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00							15	9	6	33	15	18	40	15	25						
01:00							10	5	5	20	10	10	11	7	4						
02:00							1	0	1	12	7	5	10	4	6						
03:00							13	8	5	9	4	5	10	4	6						
04:00							36	18	18	32	21	11	29	17	12						
05:00							67	41	26	66	34	32	64	37	27						
06:00							181	124	57	183	119	64	188	117	71						
07:00							394	247	147	385	257	128	404	255	149						
08:00							618	391	227	570	359	211	625	382	243						
09:00							504	263	241	450	215	235	469	265	204						
10:00							404	211	193	364	177	187	451	234	217						
11:00							440	218	222	398	198	200	474	237	237						
12:00							435	203	232	476	236	240	531	294	237						
13:00				491	250	241	499	242	257	461	224	237									
14:00				500	249	251	496	226	270	510	236	274									
15:00				508	248	260	523	248	275	525	237	288									
16:00				512	222	290	606	251	355	551	237	314									
17:00				508	192	316	638	236	402	623	240	383									
18:00				364	139	225	480	188	292	450	176	274									
19:00				268	121	147	329	137	192	292	123	169									
20:00				163	68	95	167	63	104	217	88	129									
21:00				118	44	74	170	77	93	155	66	89									
22:00				98	46	52	96	38	58	115	38	77									
23:00				70	26	44	66	28	38	71	24	47									
Volume				3,600	1,605	1,995	7,188	3,472	3,716	6,968	3,341	3,627	3,306	1,868	1,438						
AM Peak Vol							618	391	241	576	359	243	625	384	248						
AM Peak Fct							0.93	0.98	0.80	0.96	0.94	0.79	0.93	0.91	0.91						
AM Peak Hr							8:00	8:00	9:00	8:15	8:00	8:30	8:00	7:45	8:15						
PM Peak Vol							643	258	407	623	255	383									
PM Peak Fct							0.88	0.90	0.93	0.92	0.92	0.92									
PM Peak Hr							16:30	15:45	17:15	17:00	16:30	17:00									
Seasonal Fct				1.078	1.078	1.078	1.078	1.078	1.078	1.078	1.078	1.078	1.078	1.078	1.078						
Daily Fct				0.937	0.937	0.937	0.911	0.911	0.911	0.964	0.964	0.964	0.974	0.974	0.974						
Axle Fct				0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487						
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000						

New Jersey Department of Transportation

Daily Volume from 03/08/2012 through 03/10/2012

Site Names: 110748, , Valley St-1.95, 07000638__, South Orange Twp
 County: ESSEX
 Funct. Class: Urban Minor Arterial
 Location: Bet 4th St and 3rd St

Seasonal Factor Group: 2 Urban Other Roadways
 Daily Factor Group: 2 Urban Other Roadways
 Axle Factor Group:
 Growth Factor Group:

	Sun 03/04/2012			Mon 03/05/2012			Tue 03/06/2012			Wed 03/07/2012			Thu 03/08/2012			Fri 03/09/2012			Sat 03/10/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00																283	169	114	127	63	64
01:00																132	88	44	71	43	28
02:00																65	36	29	50	32	18
03:00																31	17	14	31	21	10
04:00																47	29	18	52	33	19
05:00																143	77	66	118	72	46
06:00																332	180	152	331	178	153
07:00																862	449	413	841	461	380
08:00																1,208	656	552	1,174	656	518
09:00																931	526	405	899	512	387
10:00																916	478	438	877	483	394
11:00												1,018	555	463	954	534	420				
12:00												911	484	427	972	616	356				
13:00												857	459	398	986	650	336				
14:00												913	444	469	1,101	713	388				
15:00												1,200	624	576	1,215	772	443				
16:00												1,163	726	437	1,182	737	445				
17:00												1,110	688	422	1,278	771	507				
18:00												1,219	683	536	1,249	711	538				
19:00												1,116	642	474	959	567	392				
20:00												954	523	431	743	423	320				
21:00												728	361	367	679	337	342				
22:00												619	318	301	428	225	203				
23:00												458	196	262	258	110	148				
Volume												12,266	6,703	5,563	16,954	9,871	7,083	3,694	2,071	1,623	
AM Peak Vol																1,208	656	557			
AM Peak Fct																0.91	0.85	0.99			
AM Peak Hr																8:00	8:00	7:45			
PM Peak Vol												1,224	726	576	1,326	786	549				
PM Peak Fct												0.97	0.86	0.94	0.91	0.98	0.88				
PM Peak Hr												18:15	16:00	15:00	17:30	15:15	17:30				
Seasonal Fct												1.011	1.011	1.011	1.011	1.011	1.011	1.011	1.011	1.011	1.011
Daily Fct												0.935	0.935	0.935	0.876	0.876	0.876	1.081	1.081	1.081	
Axle Fct												0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	
Pulse Fct												2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	

Appendix D - Vehicular Crash Diagrams

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
3	12:54	MON	01-13-14	0	DRY	CLEAR	DAY
12	08:22	FRI	02-21-14	0	WET	RAIN	DAY
21	10:11	THU	03-20-14	0	DRY	CLEAR	DAY
22	16:24	SAT	04-05-14	1	DRY	CLEAR	DAY
36	20:02	SUN	05-17-14	0	DRY	CLEAR	DAY
61	18:57	MON	09-15-14	0	DRY	CLEAR	DAY
81	23:23	WED	02-11-15	1	DRY	CLEAR	DARK
85	11:47	SAT	02-21-15	0	DRY	CLEAR	DAY
95	13:12	SAT	05-02-15	0	DRY	CLEAR	DAY
104	17:58	THU	05-14-15	1	DRY	CLEAR	DAY
109	15:53	WED	06-03-15	0	DRY	CLEAR	DAY
118	09:07	WED	07-22-15	0	DRY	CLEAR	DAY
145	17:38	SUN	12-27-15	2	WET	RAIN	DARK
152	08:45	WED	02-10-16	0	DRY	OVERCAST	DAY
159	09:15	FRI	04-01-16	0	DRY	OVERCAST	DAY
189	17:17	WED	11-30-16	0	WET	OVERCAST	DARK
194	11:14	FRI	12-09-16	0	DRY	CLEAR	DAY
197	22:00	THU	12-15-16	0	DRY	CLEAR	DARK



SEE SHEET NO. 2 OF 14
MATCH LINE A

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	14
INJURIES	4
FATALITIES	0
TOTAL NO. OF CRASHES	18

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/2/2016 TIME: 11:41:22 AM FILE: L:\2017\1691_HSRP_Program_and_Project_Development\Support\VDOT_HSRP_year_1\Cadd\dwg\03_Essex\CADD\Sheet\Sheet-01.dwg

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
7	18:34	THU	01-30-14	0	DRY	CLEAR	DARK
82	05:30	SUN	02-15-15	0	SNOWY	SNOW	DARK
102	13:46	THU	05-07-15	0	DRY	CLEAR	DAY
137	15:11	WED	11-25-15	0	DRY	CLEAR	DAY
139	16:24	MON	11-30-15	0	DRY	CLEAR	DAY
176	05:48	SUN	07-03-16	0	DRY	CLEAR	DAWN



MATCH LINE B
SEE SHEET NO. 2 OF 14

SEE SHEET NO. 4 OF 14
MATCH LINE C

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	6
INJURIES	0
FATALITIES	0
TOTAL NO. OF CRASHES	6

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
	LEFT TURN
	RIGHT ANGLE

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\2017\1691_RSRP_Program_and_Project_Development_Support\AUDOT_RSRP_year_1\Cadd\dwg\03_Essex\CR638\Sheet3.dwg DATE: 3/2/2016 TIME: 11:43:21 AM

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
2	09:35	FRI	01-10-14	0	SNOWY	SNOW	DAY
6	15:47	WED	01-29-14	0	DRY	CLEAR	DAY
42	17:58	TUE	06-10-14	2	DRY	CLEAR	DAY
46	09:20	TUE	06-24-14	0	DRY	CLEAR	DAY
62	19:26	FRI	10-03-14	0	DRY	CLEAR	DARK
64	15:25	WED	10-15-14	0	WET	OVERCAST	DAY
80	11:35	TUE	01-06-15	0	SNOWY	SNOW	DAY
90	23:29	THU	03-12-15	0	DRY	CLEAR	DARK
131	15:21	WED	10-28-15	0	WET	RAIN	DAY
132	16:01	MON	11-02-15	0	DRY	CLEAR	DAY
151	07:35	MON	02-08-16	1	DRY	CLEAR	DAY
164	07:15	MON	04-18-16	0	DRY	CLEAR	DAY



SEE SHEET NO. 3 OF 14
MATCH LINE C

SEE SHEET NO. 5 OF 14
MATCH LINE D

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	10
INJURIES	2
FATALITIES	0
TOTAL NO. OF CRASHES	12

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\2017\1691_HSP_Program_and_Project_Development_Support\VDOT_HSP_year_1\Cadd\w\03_Essex\CADD\Sheet\Sheet-04.dgn
DATE: 3/2/2016
TIME: 11:42:29 AM
GREENMAN-PEDERSEN, INC.

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
16	15:12	THU	03-13-14	0	DRY	CLEAR	DAY
17	08:27	FRI	03-14-14	0	ICY	CLEAR	DAY
33	07:30	MON	05-05-14	0	DRY	CLEAR	DAY
41	15:34	FRI	06-06-14	0	DRY	CLEAR	DAY
49	09:23	TUE	07-15-14	0	DRY	OVERCAST	DAY
54	17:23	WED	08-06-14	0	DRY	CLEAR	DAY
76	15:00	TUE	12-09-14	0	WET	CLEAR	DAY
100	16:02	MON	05-04-15	0	DRY	CLEAR	DAY
136	16:17	TUE	11-17-15	0	DRY	CLEAR	DUSK
169	17:12	MON	05-23-16	0	DRY	CLEAR	DAY
170	13:23	TUE	05-24-16	0	WET	CLEAR	DAY
182	13:34	WED	09-07-16	1	DRY	CLEAR	DAY
192	15:21	WED	12-07-16	0	WET	CLEAR	DAY
198	19:06	MON	12-28-16	0	DRY	CLEAR	DARK



FILE: L:\2017\169_HSP_Program_and_Project_Development_Support\VDOT_HSP_year_1\Cadd\mwy\03_Essex\CADD\Sheets\Sheet-06.dgn
 DATE: 3/2/2018
 TIME: 11:46:20 AM
 GREENMAN-PEDERSEN, INC.

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	13
INJURIES	1
FATALITIES	0
TOTAL NO. OF CRASHES	14

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
 between Millburn Avenue and S. Orange Avenue
 Maplewood & S. Orange Townships, Essex County

2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
 Engineering and Construction Services

NOT TO SCALE

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
27	00:12	SUN	04-27-14	0	DRY	CLEAR	DARK
38	14:55	WED	05-21-14	0	DRY	CLEAR	DAY
43	08:11	THU	06-12-14	0	WET	OVERCAST	DAY
58	16:43	TUE	09-02-14	0	DRY	CLEAR	DAY
83	05:49	SUN	02-15-15	1	SNOWY	BLOWING SNOW	DARK
98	14:48	MON	05-04-15	0	DRY	CLEAR	DAY
99	14:58	MON	05-04-15	0	DRY	CLEAR	DAY
111	20:30	MON	06-15-15	1	DRY	CLEAR	DARK
113	14:51	THU	06-18-15	0	DRY	CLEAR	DAY
116	15:25	SAT	07-11-15	0	DRY	CLEAR	DAY
124	17:22	MON	09-14-15	1	DRY	CLEAR	DAY
125	20:19	SUN	09-20-15	0	DRY	CLEAR	DUSK
126	08:15	MON	09-21-15	0	DRY	CLEAR	DAY
133	09:00	MON	11-09-15	0	DRY	CLEAR	DAY
156	15:45	FRI	02-26-16	1	DRY	CLEAR	DAY
172	14:47	TUE	05-31-16	0	DRY	CLEAR	DAY



MATCH LINE E
SEE SHEET NO. 5 OF 14

MATCH LINE F
SEE SHEET NO. 7 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	12
INJURIES	4
FATALITIES	0
TOTAL NO. OF CRASHES	16

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/2/2016 TIME: 11:48:32 AM FILE: L:\2017\1691 RSP Program and Project Development Support\NJDOT RSP Year 1\Cadd\169103 Essex\CADD\Sheet\Sheet-06.dgn

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
4	14:33	WED	01-15-14	0	DRY	OVERCAST	DAY
19	09:53	MON	03-17-14	0	DRY	CLEAR	DAY
24	14:58	SUN	04-13-14	1	DRY	CLEAR	DAY
40	14:02	THU	06-05-14	0	DRY	CLEAR	DAY
48	12:41	FRI	07-04-14	0	WET	RAIN	DAY
60	16:33	SAT	09-13-14	0	WET	RAIN	DAY
66	10:47	SUN	10-19-14	0	DRY	CLEAR	DAY
69	17:14	MON	11-10-14	0	DRY	CLEAR	DUSK
77	11:06	SAT	12-13-14	1	DRY	CLEAR	DAY
88	16:50	WED	03-11-15	1	DRY	CLEAR	DAY
141	09:43	TUE	12-08-15	1	DRY	CLEAR	DAY
153	14:54	WED	02-10-16	0	DRY	CLEAR	DAY
167	17:19	SUN	05-22-16	0	DRY	CLEAR	DAY
180	18:06	WED	08-09-16	0	DRY	CLEAR	DARK
184	15:05	SAT	09-17-16	0	DRY	CLEAR	DAY



MATCH LINE F
SEE SHEET NO. 6 OF 14

MATCH LINE G
SEE SHEET NO. 8 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	11
INJURIES	4
FATALITIES	0
TOTAL NO. OF CRASHES	15

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. <small>Engineering and Construction Services</small>	NOT TO SCALE
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DATE: 3/2/2016 TIME: 12:28:51 PM FILE: L:\2017\1691_HSP_Program_and_Project_Development\Support\AUDOT_HSP_year_1\Cadd\mwy\03_Essex\CADD\Draws\Draw-07.dwg

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
10	16:12	TUE	02-18-14	2	WET	CLEAR	DAY
11	-	WED	02-19-14	0	WET	CLEAR	DAY
13	14:57	MON	02-24-14	0	DRY	CLEAR	DAY
30	08:11	WED	04-30-14	0	WET	RAIN	DAY
56	19:36	FRI	08-29-14	0	DRY	CLEAR	DARK
72	19:19	WED	11-19-14	0	DRY	CLEAR	DARK
78	08:11	THU	12-18-14	0	DRY	CLEAR	DAY
93	13:33	WED	04-22-15	0	DRY	CLEAR	DAY
96	13:44	SAT	05-02-15	0	DRY	CLEAR	DAY
107	11:06	FRI	05-29-15	0	DRY	CLEAR	DAY
114	16:32	TUE	07-07-15	0	DRY	CLEAR	DAY
119	13:38	MON	08-03-15	0	DRY	CLEAR	DAY
122	19:05	SUN	09-06-15	0	DRY	CLEAR	DAY
123	20:11	THU	09-10-15	0	WET	RAIN	DARK
127	15:39	FRI	10-09-15	0	WET	OVERCAST	DAY
128	08:17	MON	10-12-15	0	DRY	CLEAR	DAY
142	09:50	TUE	12-08-15	0	DRY	CLEAR	DAY
150	18:48	SAT	02-06-16	0	DRY	CLEAR	DARK
158	14:30	WED	03-02-16	0	DRY	CLEAR	DAY
168	08:48	MON	05-23-16	0	DRY	CLEAR	DAY
190	15:10	TUE	12-06-16	0	DRY	CLEAR	DAY
191	14:12	WED	12-07-16	0	WET	CLEAR	DAY
195	15:12	FRI	12-09-16	0	DRY	CLEAR	DAY
196	-	SAT	12-10-16	0	DRY	CLEAR	DAY



MATCH LINE G
SEE SHEET NO. 7 OF 14

MATCH LINE H
SEE SHEET NO. 9 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	23
INJURIES	1
FATALITIES	0
TOTAL NO. OF CRASHES	24

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\2017\1699_HSRP_Program_and_Project_Development\Support\VDOT_HSRP_year_1\Cadd\Map\03_Essex\CADD\Sheet\Sheet-06.dwg
DATE: 3/2/2016
TIME: 12:23:00 PM
GREENMAN-PEDERSEN, INC.

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
57	12:08	SAT	08-30-14	0	DRY	CLEAR	DAY
74	17:49	FRI	12-05-14	0	WET	RAIN	DARK
89	14:19	THU	03-12-15	0	DRY	CLEAR	DAY
101	13:03	TUE	05-05-15	0	DRY	CLEAR	DAY
140	14:31	THU	12-03-15	0	DRY	CLEAR	DAY



MATCH LINE H
SEE SHEET NO. 8 OF 14

MATCH LINE I
SEE SHEET NO. 10 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	5
INJURIES	0
FATALITIES	0
TOTAL NO. OF CRASHES	5

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/2/2016 TIME: 12:24:51 PM FILE: L:\2017\1698_HSRP_Program_and_Project_Development_Support\WDDOT_HSRP_year_1\Cadd\dwg\03_Essex\CADD\Sheet\Sheet-09.dwg

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
15	16:29	FRI	03-07-14	0	DRY	CLEAR	DAY
37	12:16	WED	05-21-14	0	DRY	CLEAR	DAY
44	12:19	FRI	06-13-14	0	DRY	CLEAR	DAY
50	12:42	TUE	07-15-14	0	DRY	OVERCAST	DAY
55	17:06	MON	08-18-14	1	DRY	CLEAR	DAY
65	19:16	WED	10-15-14	1	WET	RAIN	DARK
68	13:26	FRI	11-07-14	0	DRY	CLEAR	DAY
73	08:29	MON	12-01-14	0	DRY	CLEAR	DAY
79	22:46	WED	12-31-14	2	DRY	CLEAR	DARK
84	15:13	TUE	02-17-15	0	DRY	CLEAR	DAY
108	08:20	WED	06-03-15	0	DRY	CLEAR	DAY

MATCH LINE I
SEE SHEET NO. 9 OF 14

MATCH LINE J
SEE SHEET NO. 11 OF 14



LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	8
INJURIES	3
FATALITIES	0
TOTAL NO. OF CRASHES	11

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/2/2016 TIME: 12:26:52 PM FILE: L:\2017\169_HSR_Program_and_Project_Development_Support\VDOT_HSR_year_1\Cadd\dwg\03_Essex\CADD\Sheet\Sheet-10.dwg

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
14	14:09	THU	02-27-14	0	DRY	CLEAR	DAY
28	08:31	MON	04-28-14	0	DRY	CLEAR	DAY
86	15:02	MON	02-23-15	0	DRY	CLEAR	DAY
130	14:19	MON	10-19-15	0	DRY	CLEAR	DAY



MATCH LINE J
SEE SHEET NO. 10 OF 14

MATCH LINE K
SEE SHEET NO. 12 OF 14

LEGEND

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

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

11 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. <small>Engineering and Construction Services</small>	NOT TO SCALE
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DATE: 3/2/2016
TIME: 12:28:54 PM
FILE: L:\2017\1694 RSP Program and Project Development Support\VDOT RSP Year 1\Cadd\wy03 Essex\CADD\Sheet\Sheet-11.dgn

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
9	08:09	SUN	02-02-14	0	DRY	CLEAR	DARK
25	08:26	THU	04-24-14	0	DRY	CLEAR	DAY
26	16:06	THU	04-24-14	0	DRY	CLEAR	DAY
29	13:54	MON	04-28-14	0	DRY	CLEAR	DAY
31	15:55	WED	04-30-14	0	WET	RAIN	DAY
32	14:34	SAT	05-03-14	0	DRY	CLEAR	DAY
51	14:53	TUE	07-15-14	0	WET	OVERCAST	DAY
53	17:02	THU	07-24-14	0	DRY	CLEAR	DAY
67	13:18	FRI	10-24-14	0	DRY	CLEAR	DAY
71	14:22	WED	11-19-14	0	DRY	CLEAR	DAY
91	08:29	FRI	04-03-15	0	DRY	OVERCAST	DAY
115	23:57	THU	07-09-15	0	WET	CLEAR	DARK
120	14:42	FRI	08-21-15	2	DRY	CLEAR	DAY
129	10:43	THU	10-15-15	0	DRY	CLEAR	DAY
135	17:25	SUN	11-15-15	0	DRY	CLEAR	DARK
144	17:16	THU	12-10-15	0	DRY	CLEAR	DARK
148	10:52	THU	01-28-16	0	WET	CLEAR	DAY
157	16:02	FRI	02-26-16	0	DRY	CLEAR	DAY
166	17:00	TUE	04-26-16	0	DRY	OVERCAST	DAY
175	21:59	THU	08-23-16	0	DRY	CLEAR	DARK
185	09:37	SAT	10-29-16	0	DRY	CLEAR	DAY
193	19:52	WED	12-07-16	1	DRY	CLEAR	DARK



DATE: 3/2/2018
 TIME: 12:40:48 PM
 FILE: L:\2017\1698 ISRP Program and Project Development Support\VDOT ISRP Year 1\Cadd\dwg\03 Essex\CADD\Sheets\Sheet-12.dwg

MATCH LINE K
 SEE SHEET NO. 11 OF 14

MATCH LINE L
 SEE SHEET NO. 13 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	20
INJURIES	2
FATALITIES	0
TOTAL NO. OF CRASHES	22

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 CR 638 (Valley Street)
 between Millburn Avenue and S. Orange Avenue
 Maplewood & S. Orange Townships, Essex County
2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
 Engineering and Construction Services

NOT TO SCALE

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
5	16:12	MON	01-20-14	0	DRY	CLEAR	DAY
18	14:14	FRI	03-14-14	0	DRY	CLEAR	DAY
23	16:17	TUE	04-08-14	0	DRY	CLEAR	DAY
34	18:44	SAT	05-10-14	0	WET	OVERCAST	DAY
35	16:10	TUE	05-13-14	0	DRY	CLEAR	DAY
39	13:46	TUE	05-27-14	0	DRY	CLEAR	DAY
70	18:39	TUE	11-11-14	0	DRY	CLEAR	DARK
75	13:54	SAT	12-06-14	0	WET	RAIN	DAY
87	22:01	FRI	03-06-15	0	DRY	CLEAR	DARK
92	12:25	THU	04-16-15	0	DRY	CLEAR	DAY
94	15:09	FRI	04-24-15	0	DRY	CLEAR	DAY
97	14:37	MON	05-04-15	0	DRY	CLEAR	DAY
103	16:48	FRI	05-08-15	1	DRY	CLEAR	DAY
105	11:25	WED	05-27-15	1	DRY	CLEAR	DAY
110	15:33	WED	06-10-15	0	DRY	CLEAR	DAY
117	12:19	THU	07-16-15	0	DRY	CLEAR	DAY
134	17:29	FRI	11-13-15	0	DRY	CLEAR	DUSK
143	14:52	WED	12-09-15	0	DRY	CLEAR	DUSK
146	13:50	WED	01-06-16	0	DRY	CLEAR	DAY
149	21:44	THU	01-28-16	0	WET	CLEAR	DARK
160	14:44	TUE	04-05-16	0	DRY	CLEAR	DAY
173	07:49	TUE	06-07-16	0	DRY	CLEAR	DAY
179	16:37	WED	08-03-16	0	DRY	CLEAR	DAY
187	11:15	FRI	11-11-16	0	DRY	CLEAR	DAY



FILE: L:\2017\189_HSR_Program_and_Development\Support\VDOT_HSR_year_1\Cadd\wy\03_Essex\CADD\Sheets\Sheet-10.dgn
 DATE: 3/2/2018
 TIME: 12:42:52 PM
 GREENMAN-PEDERSEN, INC.

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	22
INJURIES	2
FATALITIES	0
TOTAL NO. OF CRASHES	24

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
 between Millburn Avenue and S. Orange Avenue
 Maplewood & S. Orange Townships, Essex County

2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
 Engineering and Construction Services

NOT TO SCALE

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
1	12:30	SAT	01-04-14	0	WET	CLEAR	DAY
45	14:59	FRI	06-20-14	0	DRY	CLEAR	DAY
59	22:59	FRI	09-05-14	0	DRY	CLEAR	DARK
63	17:47	FRI	10-10-14	0	DRY	CLEAR	DUSK
112	12:22	WED	06-17-15	1	DRY	CLEAR	DAY
154	12:57	THU	02-11-16	0	DRY	CLEAR	DAY
161	09:11	WED	04-06-16	0	DRY	CLEAR	DAY
174	15:35	THU	06-16-16	0	DRY	CLEAR	DAY
186	14:32	SAT	11-05-16	1	DRY	CLEAR	DAY
188	08:46	TUE	11-15-16	0	WET	RAIN	DAY



SEE SHEET NO. 13 OF 14
MATCH LINE M

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	<u>8</u>
INJURIES	<u>2</u>
FATALITIES	<u>0</u>
TOTAL NO. OF CRASHES	<u>10</u>

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

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

COLORS	
	2014 CRASHES
	2015 CRASHES
	2016 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2014 - 2016 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. Engineering and Construction Services	NOT TO SCALE
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DATE: 3/2/2016
TIME: 12:41:25 PM
FILE: L:\2017\69_HSR_Program_and_Project_Development\Support\VDOT_HSR_year_1\Cadd\wy\03_Essex\CADD\Sheet\Sheet-14.dgn

Appendix E - Pedestrian Crash Diagrams

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
15	18:15	SUN	10-30-16	0	WET	RAIN	DARK



SEE SHEET NO. 2 OF 14
MATCH LINE A

1
14

LEGEND

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

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

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 9/20/16 TIME: 4:31:22 PM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_year_1\Cadd\wy02_Essex\Valley_St\Sheet_01.dgn GREENMAN-PEDERSEN, INC.

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
2	10:46	TUE	07-31-12	1	DRY	CLEAR	DAY



SEE SHEET NO. 1 OF 14
MATCH LINE A

SEE SHEET NO. 3 OF 14
MATCH LINE B

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 9/20/16 TIME: 4:28:06 PM FILE: L:\2017\1691 RSP Program and Project Development Support\VDOT RSP Year 1\Cadd\1602 Essex\1602\1602\1602.dwg - Plot Sheet=1602.dwg

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
3	06:11	WED	08-01-12	1	WET	RAIN	DAY



SEE SHEET NO. 3 OF 14
MATCH LINE C

SEE SHEET NO. 5 OF 14
MATCH LINE D

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

4 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 9/2/2016 TIME: 4:46:38 PM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_year_1\Cadd\dwg\02_Essex\Valley_03\Sheet_04.dwg - Plot\Sheet-04.dwg

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
8	11:39	SUN	10-05-14	1	DRY	CLEAR	DAY



SEE SHEET NO. 4 OF 14
MATCH LINE D

MATCH LINE E
SEE SHEET NO. 6 OF 14

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

5 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. Engineering and Construction Services	NOT TO SCALE
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DATE: 3/2/2016 TIME: 4:52:01 PM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_year_1\Cadd\wy02_Essex\Valley St\Sheet - Ped\Sheet-16.dgn

COLLISION DIAGRAM DATA

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



MATCH LINE E
SEE SHEET NO. 5 OF 14

MATCH LINE F
SEE SHEET NO. 7 OF 14

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

6 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. Engineering and Construction Services	NOT TO SCALE
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DATE: 3/2/2016 TIME: 4:27:32 PM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_Year_1\Cadd\dwg\02_Essex\Valley_03\Sheet_06.dwg - Plot\Sheet_06.dwg

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
14	16:43	MON	06-27-16	0	DRY	CLEAR	DAY



MATCH LINE F
SEE SHEET NO. 6 OF 14

MATCH LINE G
SEE SHEET NO. 8 OF 14

LEGEND

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

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

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc. <small>Engineering and Construction Services</small>	NOT TO SCALE
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DATE: 3/2/2016 TIME: 5:01:06 PM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_year_1\Cadd\dwg\02_Essex\Valley_03\Sheet_07.dwg

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
9	16:54	WED	11-19-14	1	DRY	CLEAR	DUSK
13	20:31	MON	05-02-16	2	DRY	CLEAR	DARK
16	16:43	WED	11-30-16	1	WET	RAIN	DARK



MATCH LINE G
SEE SHEET NO. 7 OF 14

MATCH LINE H
SEE SHEET NO. 9 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	0
INJURIES	3
FATALITIES	0
TOTAL NO. OF CRASHES	3

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

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/3/2018 TIME: 10:31:00 AM FILE: L:\2017\1698 RSP Program and Project Development Support\AUDOT RSP Year 1\Cadd\Maplewood Essex\Valley St\Sheet - Pedst\Sheet-16.dgn

COLLISION DIAGRAM DATA							
NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
1	16:58	THU	05-03-12	1	DRY	CLEAR	DAY



MATCH LINE H
SEE SHEET NO. 8 OF 14

MATCH LINE I
SEE SHEET NO. 10 OF 14

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS

PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/3/2016 TIME: 11:23:17 AM FILE: L:\2017\1691 RSP Program and Project Development Support\WDDOT_RSP_year\1\Cadd\1691\1691_02 Essex\Valley St\Sheet - Pedst (Sheet-1691.dwg)

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
6	17:23	MON	12-23-13	1	WET	OVERCAST	DARK



VALLEY ST (CR 638)

VALLEY ST (CR 638)

ARNOLD TERRACE

ROLAND AVE

MATCH LINE I
SEE SHEET NO. 9 OF 14

MATCH LINE J
SEE SHEET NO. 11 OF 14

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/3/2016 TIME: 12:28:06 AM FILE: L:\2017\1698 RSP Program and Project Development Support\VDOT RSP Year 1\Cadd\1698 Essex\Valley St\Sheet - Ped\Sheet-10.dgn

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
5	22:48	FRI	10-18-13	1*	DRY	CLEAR	DARK
10	11:51	THU	03-26-15	0	DRY	OVERCAST	DAY



MATCH LINE J
SEE SHEET NO. 10 OF 14

MATCH LINE K
SEE SHEET NO. 12 OF 14

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	1
INJURIES	0
FATALITIES	1
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
	LEFT TURN
	RIGHT ANGLE

COLORS	
	PEDESTRIAN CRASH

11 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
4	16:14	WED	11-07-12	0	WET	RAIN	DARK



MATCH LINE K
SEE SHEET NO. 11 OF 14

MATCH LINE L
SEE SHEET NO. 13 OF 14

VALLEY ST (CR 638)

4TH ST

3RD ST

4TH ST

3RD ST

LEGEND

NUMBER OF CRASHES WITH	
PROPERTY DAMAGE ONLY	<u>1</u>
INJURIES	<u>0</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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

12 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County

2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\2017\69 HSP Program and Project Development Support\VDOT_HSP_year\Cadd\wy02 Essex\Valley St\Sheet - Ped\Sheet-12.dgn
DATE: 3/3/2018
TIME: 11:44:52 AM
GREENMAN-PEDERSEN, INC.

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
7	11:12	WED	01-15-14	1	WET	CLEAR	DAY
11	14:17	FRI	05-15-15	1	DRY	CLEAR	DAY



MATCH LINE L
SEE SHEET NO. 12 OF 14

SEE SHEET NO. 14 OF 14
MATCH LINE M

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
	LEFT TURN
	RIGHT ANGLE

COLORS	
	PEDESTRIAN CRASH

13 / 14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\2016\158\158\Program and Project Development Support\VDOT_HSP_year\1\Cadd\102_Essex\Valley St\Sheet - Part 2.dwg DATE: 3/3/2016 TIME: 11:48:01 AM

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
12	16:18	SUN	07-05-15	1	DRY	CLEAR	DAY



SEE SHEET NO. 13 OF 14
MATCH LINE M

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
	FIXED OBJECT
	NON-FIXED OBJECT
	FATAL CRASH
	ANIMAL
	POTHOLE

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

COLORS	
	PEDESTRIAN CRASH

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CR 638 (Valley Street)
between Millburn Avenue and S. Orange Avenue
Maplewood & S. Orange Townships, Essex County
2012-2016 PEDESTRIAN COLLISION DIAGRAMS

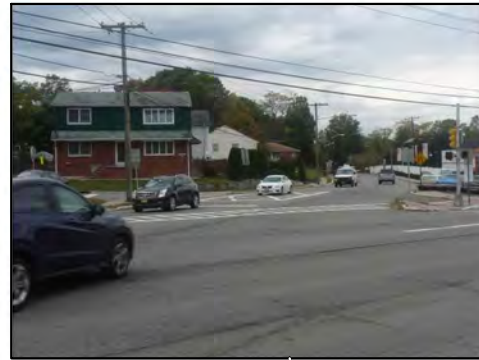
GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

DATE: 3/3/2016 TIME: 11:29:26 AM FILE: L:\2017\1698_HSP_Program_and_Project_Development\Support\VDOT_HSP_year_1\Cadd\dwg\02_Essex\Valley_02\Sheet_14.dgn

Appendix F - Photographs

Villa Terrace gets blocked, despite "Do Not Block Intersection" sign



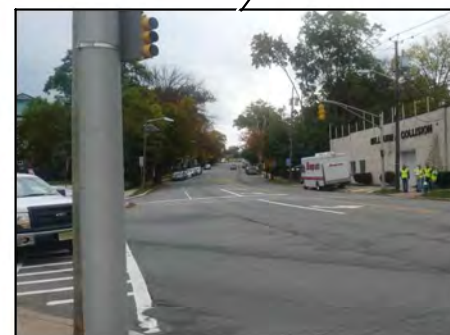
Pedestrian push buttons are not functioning; questionable sign placement



There is no pedestrian signage at or around pedestrian crosswalk



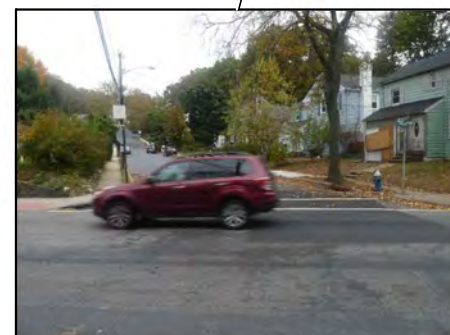
Lots of pedestrians in the area, however there are few crosswalks



Two approach lanes, yet only one receiving lane for EB/WB traffic



Pedestrian island is too small with no room for a landing area




Intersection is not ADA compliant



Multiple non-standard traffic and pedestrian signs

1
5

<p>NJDOT HSIP ROAD SAFETY AUDIT CR 638 (VALLEY ST)</p> <p>MAPLEWOOD & S ORANGE VILAGE TOWNSHIPS ESSEX COUNTY</p>	
<p>SITE PHOTOGRAPHS</p>	
	<p>GPI Greenman-Pedersen, Inc. Engineering and Construction Services</p>
<p>N.T.S.</p>	

Limited sight distance due to roadside vegetation, road geometry (Left: NB, Right: SB)



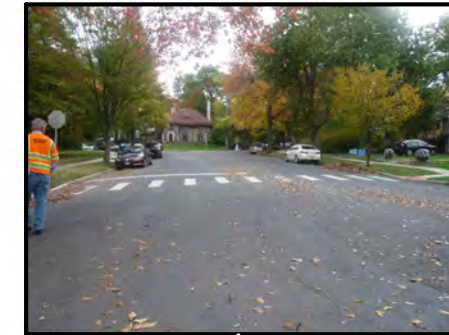
Sidewalks are not ADA compliant



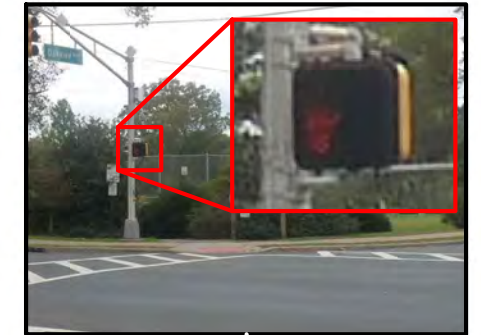
Wide curb radius in SW corner; Missing sidewalk on East side



Wide curb radii pushed crosswalk away from intersection; Many commuters cross here to get to school and the train station



Some pedestrian signal heads are not functioning properly



Lack of crosswalks and pedestrian signage



No All-Red phases in a heavily trafficked, multimodal intersection



Outdated, faded pedestrian signage



Stop bar far from intersection

2
5

**NJDOT HSIP
ROAD SAFETY AUDIT
CR 638 (VALLEY ST)**

MAPLEWOOD & S ORANGE VILAGE TOWNSHIPS
ESSEX COUNTY

SITE PHOTOGRAPHS



GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

N.T.S.

Poor drainage conditions on many roadside inlets



Broken traffic signal foundation, the foundation is not breakaway



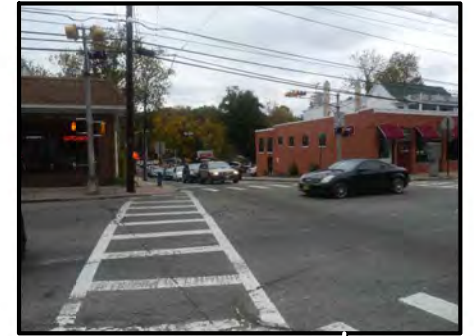
Curb cuts to accommodate trees; not ADA compliant



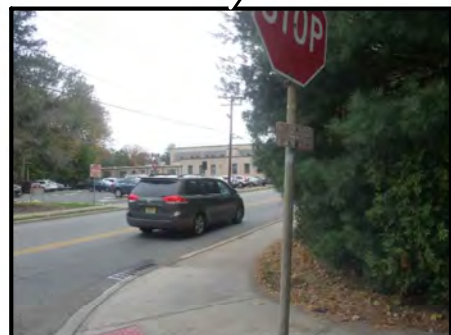
NB Queue from Parker Ave is causing additional queues on the side streets



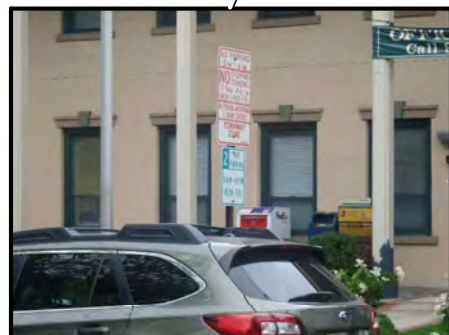
Outdated signal and pedestrian heads, some ramps are not ADA compliant, lots of congestion, observed multiple near-collisions



Limited sight distance for signalized intersection at Oakland Rd



Poor sight distance for side streets



Overly complicated, redundant parking signs



NB queue extending from Parker Ave past Jefferson Ave

**NJDOT HSIP
ROAD SAFETY AUDIT
CR 638 (VALLEY ST)**
MAPLEWOOD & S ORANGE VILLEGE TOWNSHIPS
ESSEX COUNTY

SITE PHOTOGRAPHS



GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

N.T.S.

3
5

"When Children Are Present" although the speed limit is 25 MPH throughout corridor



Unofficial school crossing; daycare crosses to the high school park twice a day



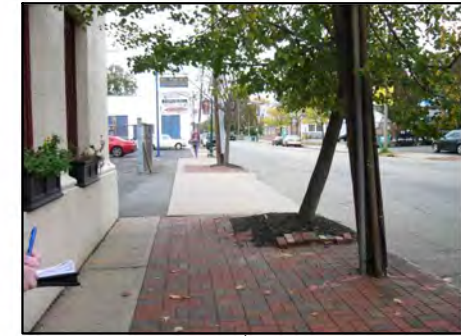
Poor sight distance; on-street parking extends close to the intersection



Construction equipment extending into roadway, limiting driver visibility and narrowing pedestrian walkways



Upheaved sidewalk; not ADA compliant



Sidewalks are in poor condition and can be a tripping hazard



Pavement issues & there is no known reason that Hixon Pl is a One-Way




Vehicle parked on sidewalk in non-parking area



Observed speeding along corridor; non-standard pedestrian crosswalks

4
5

<p>NJDOT HSIP ROAD SAFETY AUDIT CR 638 (VALLEY ST)</p> <p>MAPLEWOOD & S ORANGE VILLEGE TOWNSHIPS ESSEX COUNTY</p>	
<p>SITE PHOTOGRAPHS</p>	
	<p>GPI Greenman-Pedersen, Inc. Engineering and Construction Services</p>
<p>N.T.S.</p>	

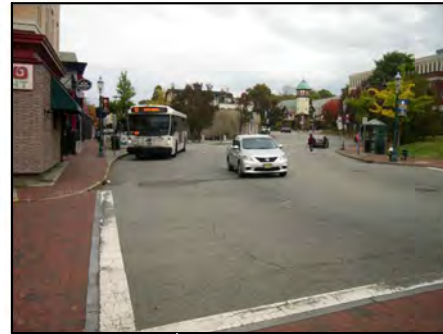
Pavement cracks within the intersection and along curblines



Cars creep into intersection due to poor line of sight



Buses stopping within the S-curve cause sight distance issues



No Crosswalks available for Village Plaza or Bus stops in a pedestrian-heavy area



Wide pedestrian crossings, Poor sight distances, Ped heads are blocked by street signs



Outdated traffic lights and non-standard crosswalks



Sidewalk is narrow, obstructed, and uneven




Pedestrian, crossing from bus stop to Village Plaza, is completely hidden from the driver



Complex intersection; Traffic analysis needed for the area

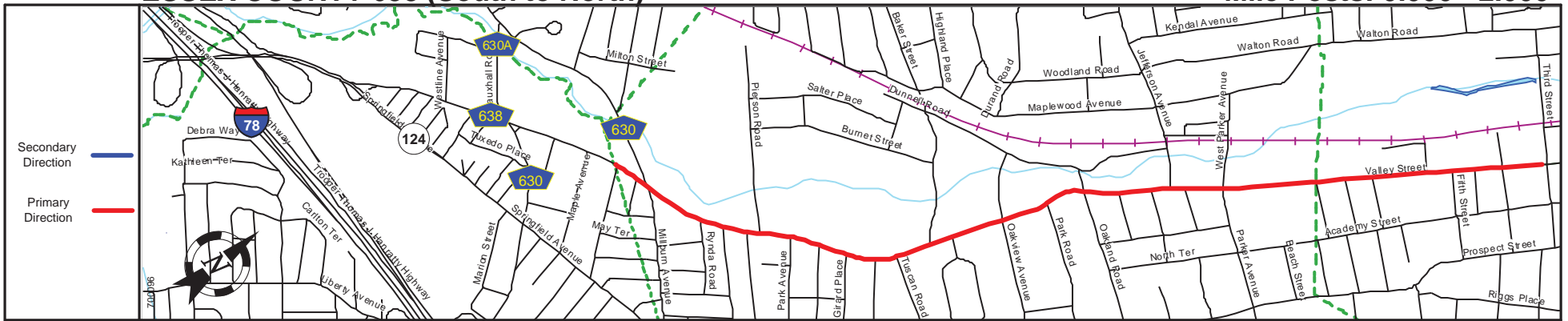
5
5

<p>NJDOT HSIP ROAD SAFETY AUDIT CR 638 (VALLEY ST)</p> <p>MAPLEWOOD & S ORANGE VILLAGE TOWNSHIPS ESSEX COUNTY</p>	
<p>SITE PHOTOGRAPHS</p>	
	<p>GPI Greenman-Pedersen, Inc. Engineering and Construction Services</p>
<p>N.T.S.</p>	

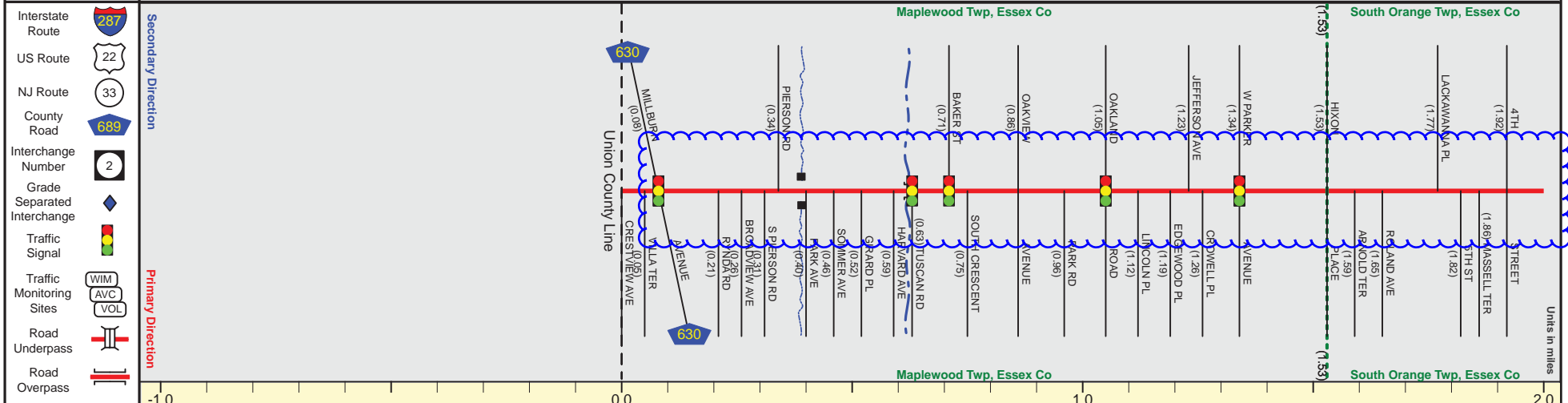
Appendix G - Straight Line Diagrams

ESSEX COUNTY 638 (South to North)

Mile Posts: 0.000 - 2.000



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



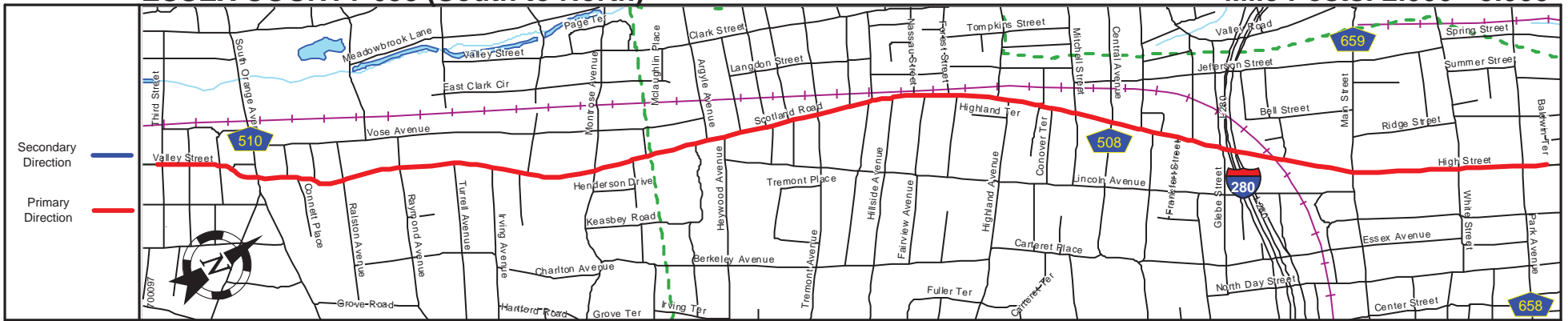
Street Name	Valley Street
Jurisdiction	County
Functional Class	Urban Minor Arterial
Federal Aid - NHS Sy	IM - Transit Term. + STP
Control Section	
Speed Limit	35 + 30
Number of Lanes	2
Med. Type	None
Med. Width	0
Pavement	38
Shoulder	0
Traffic Volume	14,784 (2012) 15,803 (2012)
Traffic Sta. ID	3N54705 110748
Structure No.	
Enlarged Views	

SRI = 07000638__

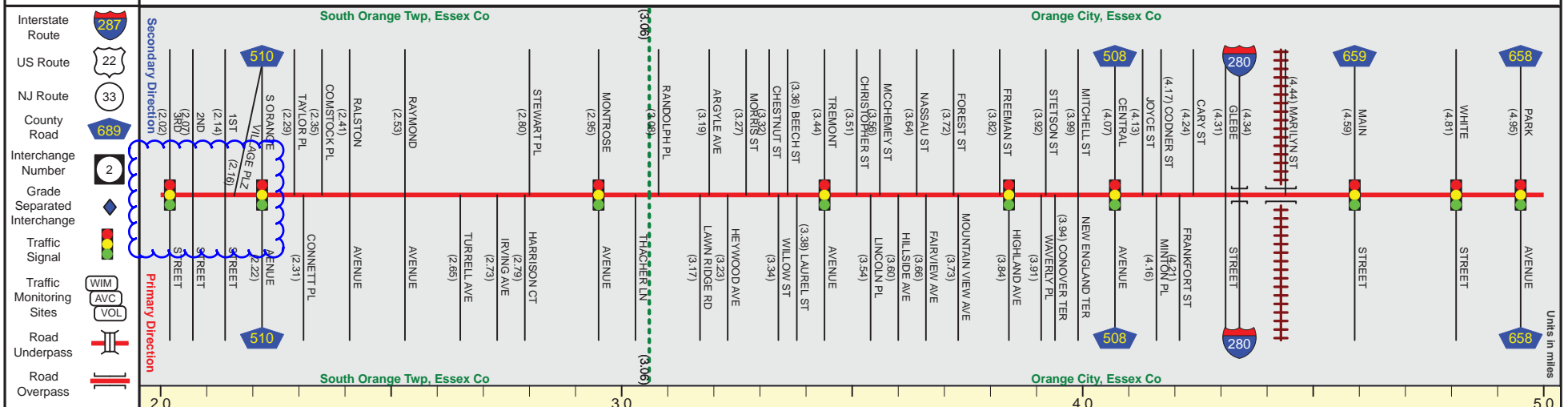
Date last inventoried: July 2011

ESSEX COUNTY 638 (South to North)

Mile Posts: 2.000 - 5.000



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



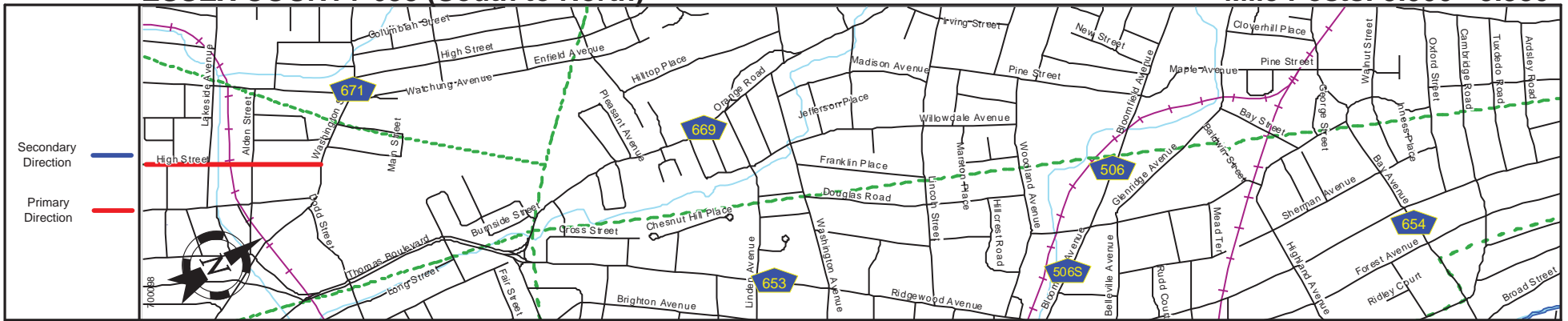
Street Name	Valley Street	Scotland Road	High Street
Jurisdiction	County		
Functional Class	Urban Minor Arterial		
Federal Aid - NHS Sy	STP		
Control Section			
Speed Limit	30	25	
Number of Lanes	2	4	2
Med. Type	None		
Med. Width	0		
Pavement	38	22	32
Shoulder	0	6	6
Traffic Volume	15,171 (2012)		
Traffic Sta. ID	110749		
Structure No.			
Enlarged Views			

SRI = 07000638

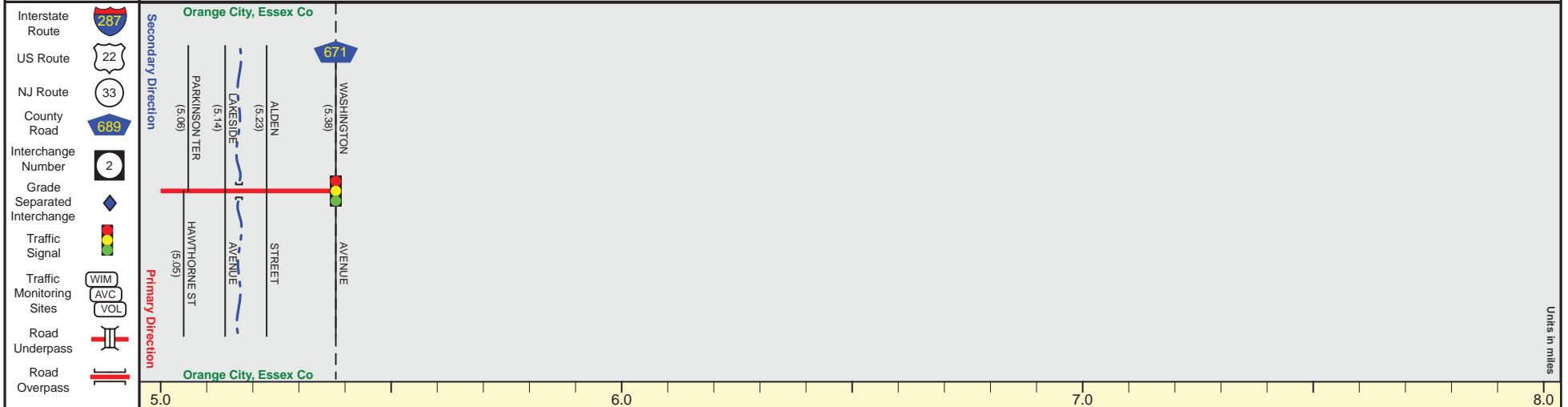
Date last inventoried: July 2011

ESSEX COUNTY 638 (South to North)

Mile Posts: 5.000 - 5.380



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	High Street	
Jurisdiction	County	
Functional Class	Urban Minor Arterial	
Federal Aid - NHS Sy	STP	End Essex County 638 MP=5.38
Control Section		
Speed Limit	25	
Number of Lanes	2	
Med. Type	None	
Med. Width	0	
Pavement	32	
Shoulder	6	
Traffic Volume	9,687 (2012)	
Traffic Sta. ID	110750	
Structure No.		
Enlarged Views		

SRI = 0700638

Date last inventoried: July 2011

Units in miles

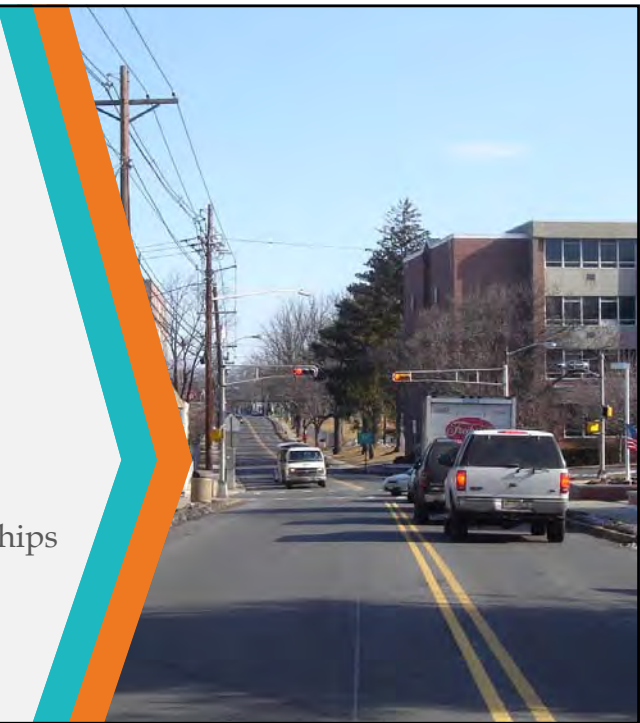
Appendix H - Pre-Audit Presentation

Road Safety Audit:

CR 638 (Valley Street),
Millburn Avenue to South
Orange Avenue

Maplewood & S. Orange Village Townships
Essex County

October 26, 2017

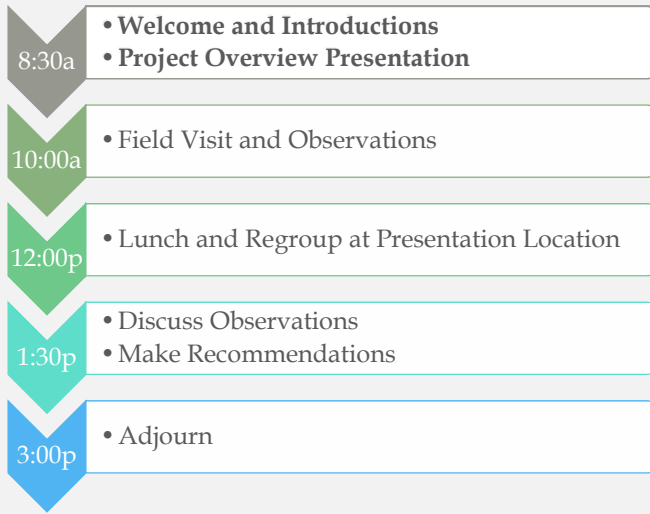


Audit Team Introductions

- *Funded by Federal Highway Administration and NJDOT*
- NJDOT, Bureau of Transportation Data & Safety
 - Bicycle & Pedestrian Programs
- NJTPA
- Essex County
- Maplewood Township
- South Orange Village Township
- Greenman-Pedersen, Inc., NJDOT Consultant



Today's Schedule

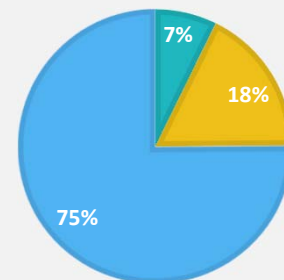


3

Highway Safety Improvement Program/ Local Safety Program

- GOAL: Reduce serious injury and fatality (K+A) crashes on all of NJ's public roads
 - 40,000 centerline miles of public roads
 - 33% K+A crashes occur on state highways
 - 57% K+A crashes occur on local roads
- Achieve zero deaths on all public roads
 - Established 2.5%/year reduction in 5-year rolling average
- Performance-based goals consistent with SHSP
- Data-driven, strategic approach to improving highway safety

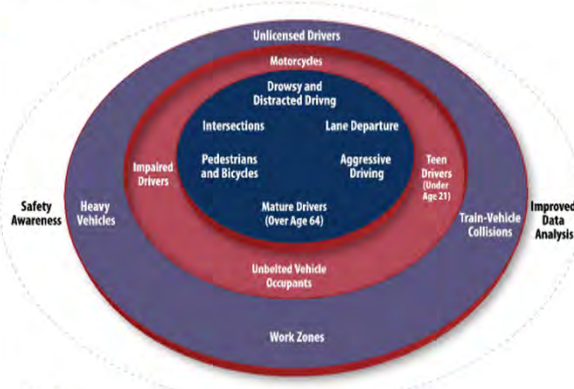
ROADWAY JURISDICTION
■ NJDOT (2,800 mi) ■ County (6,800 mi) ■ Municipal (29,000 mi)



4

Highway Safety Improvement Program (HSIP)

New Jersey Prioritization of Safety Emphasis Areas



Legend

- 1st Priority (>2,000 fatality and serious injury crashes)
- 2nd Priority (1,000 to 2,000 fatality and serious injury crashes)
- 3rd Priority (<1,000 fatality and serious injury crashes)

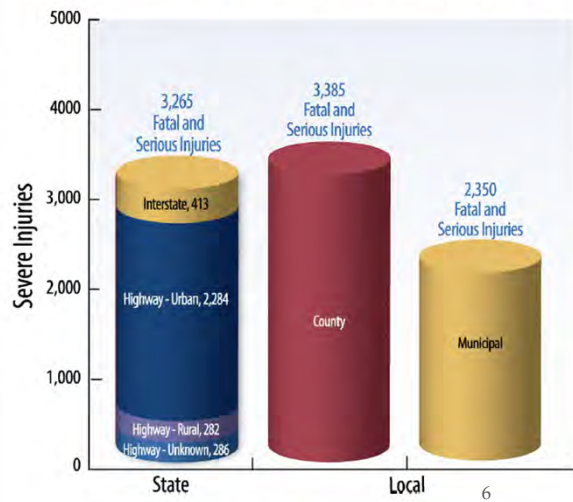
Note: Fatality and serious injury crashes are those crashes that result in one or more fatalities or serious injuries, or both. The exception to this categorization is for Mature Drivers, which are considered a first priority emphasis area due to the increasingly older population in New Jersey.

- 14 Emphasis Areas
- Pedestrian Safety and Intersection Focus State
- Top priority: lane departure, intersections, and pedestrians
- 7 sub-programs including Local Safety Program
- Core Federal Aid Program, NJ receives ~\$57M

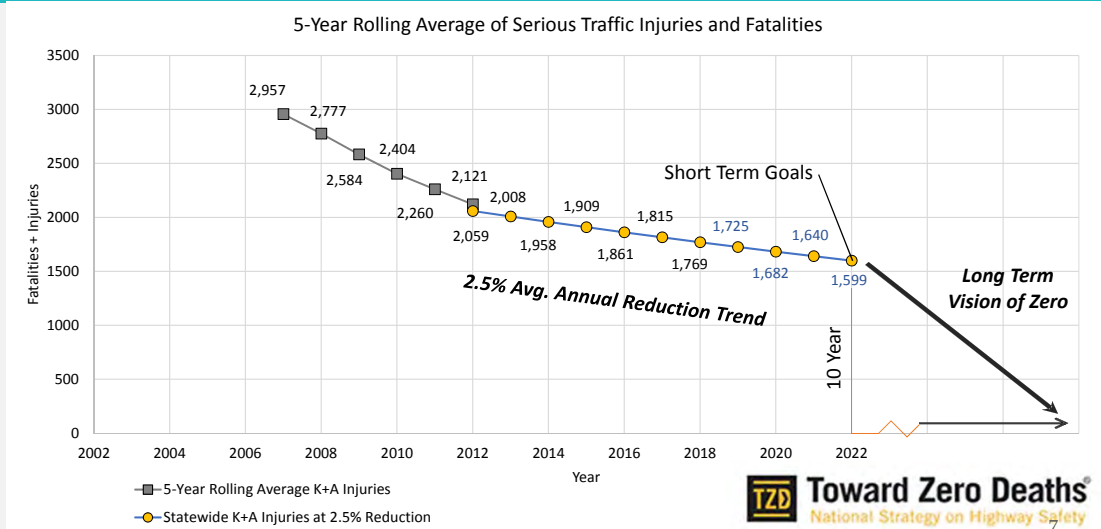
Local Safety Program (LSP)

- NJDOT supports LSP:
 - Dedication of HSIP funds
 - Technical assistance
 - Screening lists for MPOs
 - **Road Safety Audits**
- MPOs support LSP:
 - Local Road Safety/High Risk Rural Roads
 - PE/FD Assistance Program
- Focus annual HSIP funding:
 - 40% on state highways
 - 60% percent on county and municipal network

Fatal and Serious Injuries by Roadway System by Roadway System, 2008 to 2012

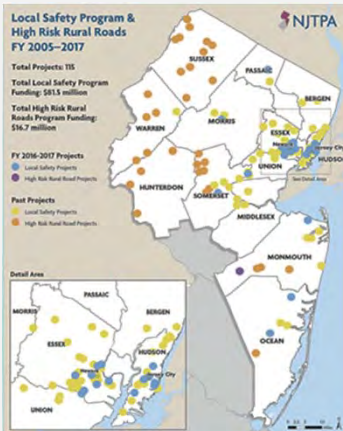


National Strategy – Toward Zero Deaths



Federal Transportation Funding

through the
North Jersey Transportation Planning Authority
 The Metropolitan Planning Organization for Northern New Jersey



Local Safety and High Risk Rural Roads Programs

Over \$98 million in funding since 2005 on County and Local Roadways
 Relatively quick-fix safety improvements

Highway Safety Improvement Program (HSIP) funds

Emphasizes a data-driven, strategic approach to improving highway safety

Network Screening

Identifies locations experiencing:
 High crash frequencies
 Severe crash injuries
 Specific crash types such as right-angle or roadway departures

Community Outreach

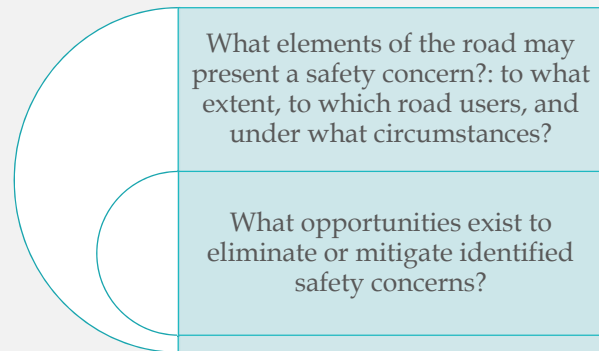
Provides the public, local stakeholders and officials with an opportunities for provide comments and ask questions



RSA Purpose

- Formal safety performance examination
- Qualitatively estimates and reports on potential road safety issues
- Identifies safety improvement opportunities for all road users.
- Independent, multidisciplinary audit team

- Goals:

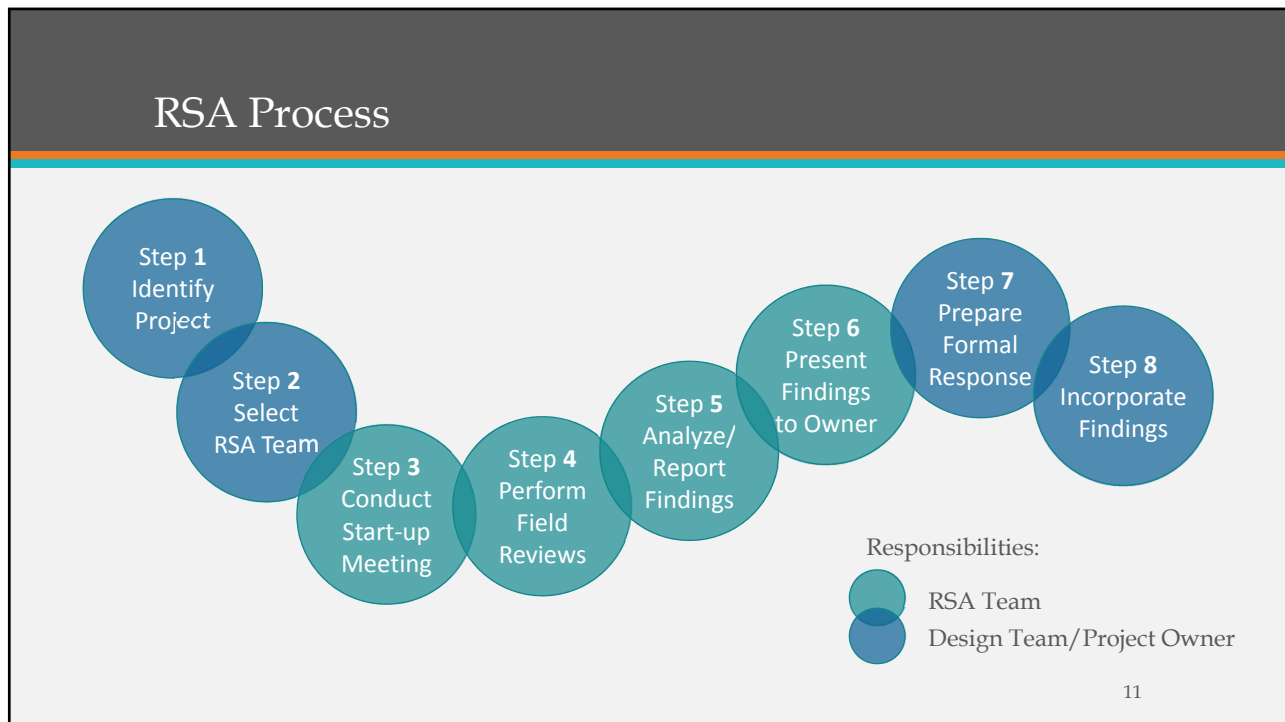


9

RSA Benefits









- Pro-actively address safety
 - Audited designs should produce fewer, less severe crashes
 - Identify low-cost/high-value improvements
 - Enhance consistency in how safety is considered and promote a "safety culture"
 - Provide continuous advancement of safety skills and knowledge
 - Contribute feedback on safety issues for future projects
 - Support optimized savings of lives, money and time
- Not a replacement for:
 - Design quality control
 - Standard compliance
 - Traffic or safety impact studies
 - Safety conscious planning
 - Road safety inventory programs
 - Traffic safety modeling efforts

10



FHWA Proven Safety Countermeasures

Descriptions provided in your handouts

 Roadside Design Improvement at Curves	 Reduced Left-Turn Conflict Intersections	 Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections	 Leading Pedestrian Interval	 Local Road Safety Plan
 USLIMITS2	 Enhanced Delineation and Friction for Horizontal Curves	 Longitudinal Rumble Strips and Stripes on Two-Lane Roads	 Median Barrier	 Safety Edges _{SM}
 Backplates with Retroreflective Borders	 Corridor Access Management	 Dedicated Left- and Right-Turn Lanes at Intersections	 Roundabouts	 Yellow Change Intervals
 Medians and Pedestrian Crossing Islands in Urban and Suburban Areas	 Pedestrian Hybrid Beacon	 Road Diet	 Walkways	 Road Safety Audit

12

FHWA Proven Safety Countermeasures



Longitudinal Rumble Stripes/
Center Line Rumble Stripes (CLRS)



Roundabout
Chesterfield Township, Burlington County

13

Additional Considerations



Curb Extensions
Hoboken City, Hudson County



Enhanced signing / pedestrian crossings

14

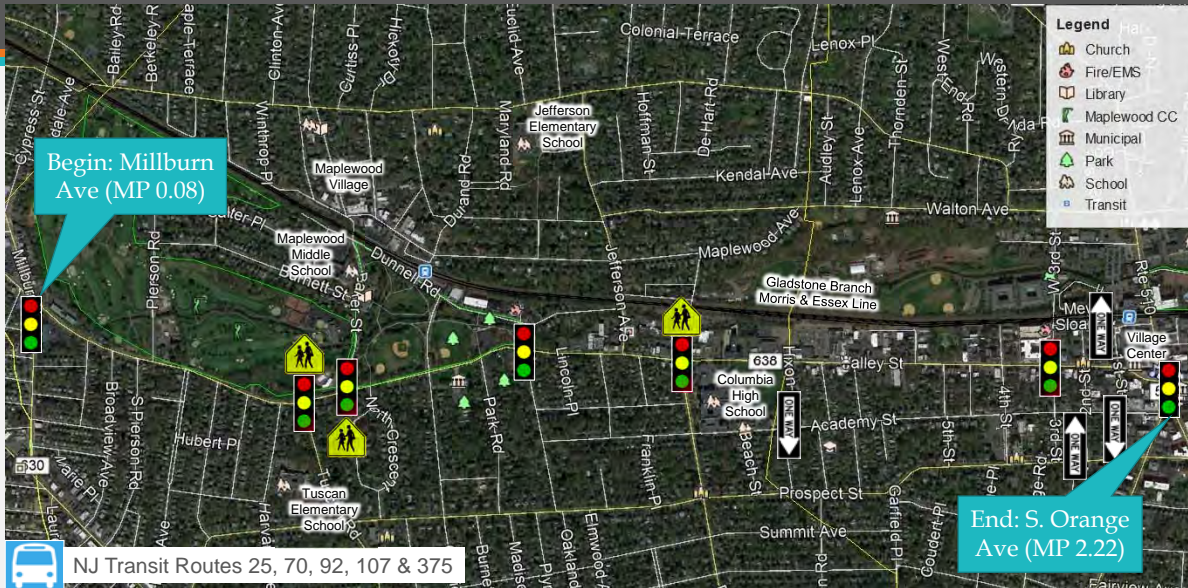
Project Area

- Urban Minor Arterial, undivided 2-lanes
- 25 mph within project limits
- On street parking permitted
- Sidewalk on both sides
- Crosswalks at most intersections



15

Area Map



Project Area



© Third Place Media

- Land Use
 - Commercial/residential
 - Detached single family
 - Multi-story mixed use
 - Parks & golf course
 - 2 NJ Transit Train Stations
 - Multiple NJ Transit Bus Stops
- Surrounding Demographics
 - 14% Black or African American
 - 72% White
 - 7% below poverty level
 - 32% use public transportation

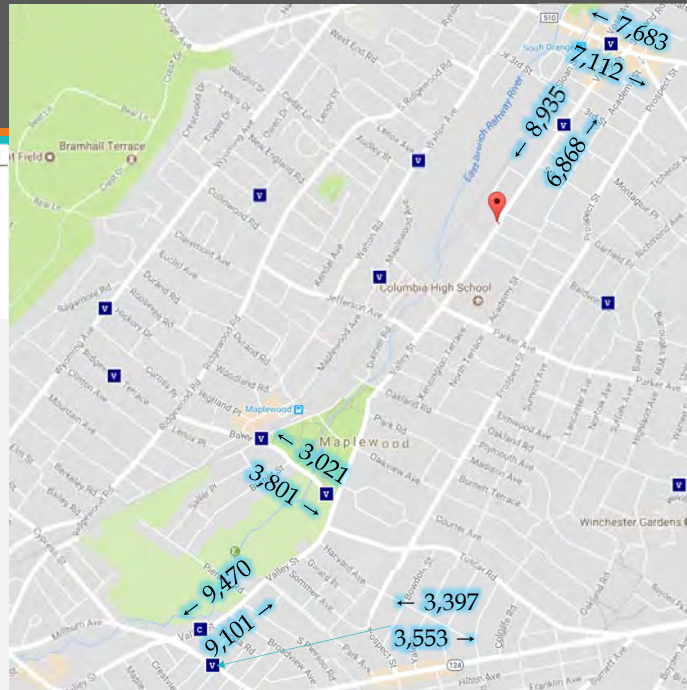
17

Traffic Data (2012-2015)

TRAFFIC COUNT LOCATIONS

C	Classification 48hrs
V	Volume 48hrs
V	Continuous
M	Weight in Motion
I	Intersection Count
R	Ramps

ADT: 15,803 – 18,571



18

Crash Data

All Crashes 2014-2016

- Total=218
- Overrepresentations:
 - Rear End
 - Left Turn
 - Parked Vehicle
 - Pedestrian
 - At Intersections
 - Wet/Snowy
 - Dusk

Pedestrian Crashes 2012-2016

- Total=15
- Overrepresentations:
 - Minor Injury
 - Dawn/Dusk
 - Wednesdays
 - May, October & November

19

NJTPA's FY 2017-2018 Local Safety Program Network Screening List

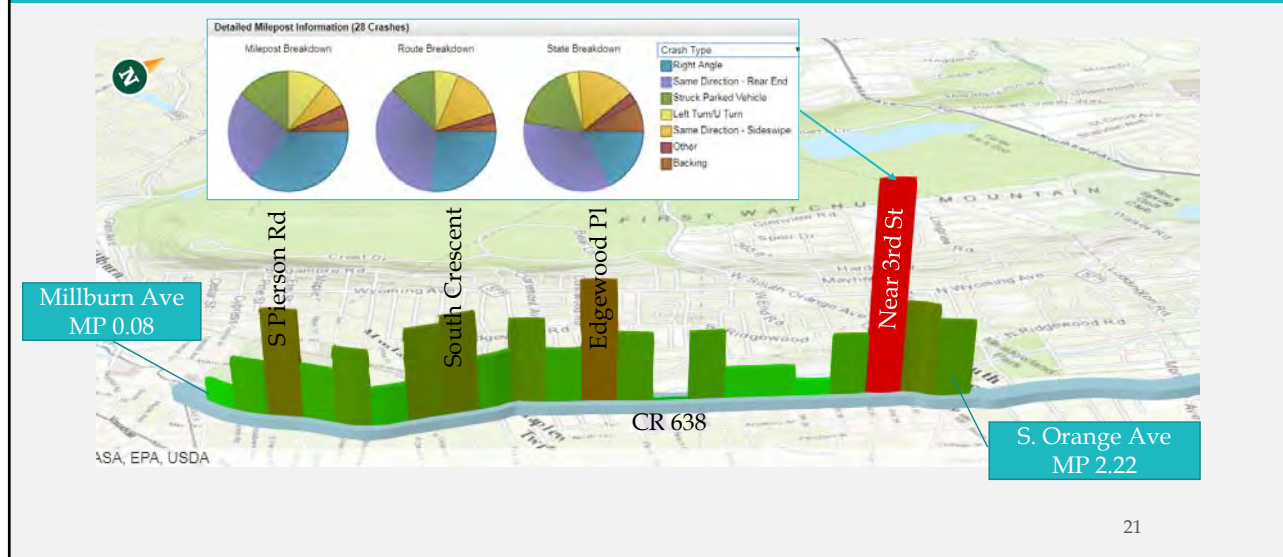
County Ranking

Regional Corridors	Intersections	Pedestrian Intersections
#50 S Orange Ave	#71 S Orange Ave	#49 Roland Ave
#155 Valley St	#114 2nd St	#300 County: 3rd St
	#450 Parker Ave	#557 County: 1st St
	#467 S Pierson Rd	
	#511 Millburn Ave	
	#511 Oakland Rd	

20

Crash Data (2014-2016)

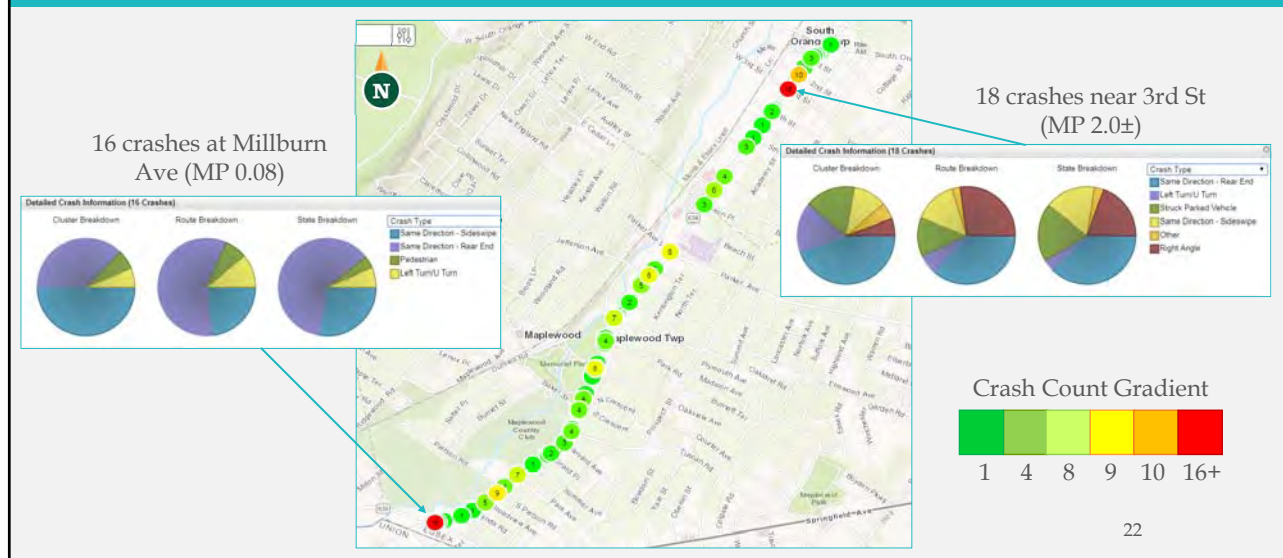
Histogram & Pie Charts by 0.1 Mile



21

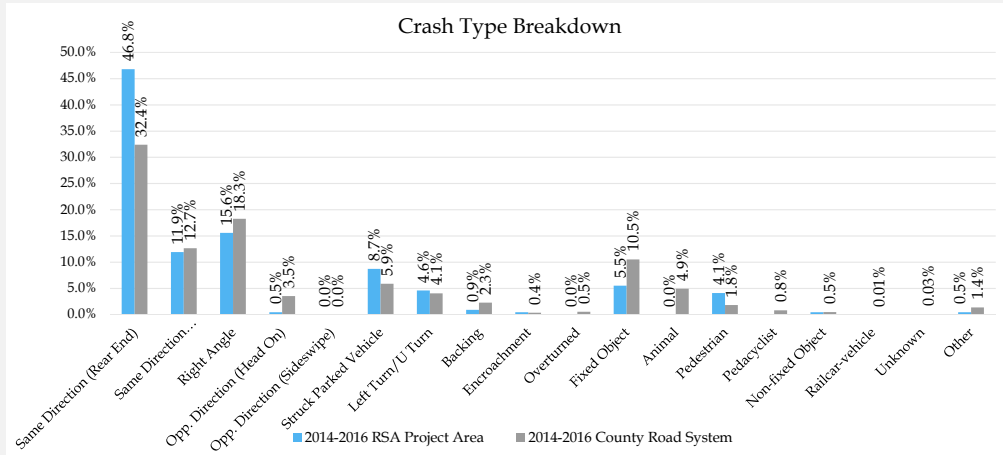
Crash Data (2014-2016)

Plan View by 0.01 Mile



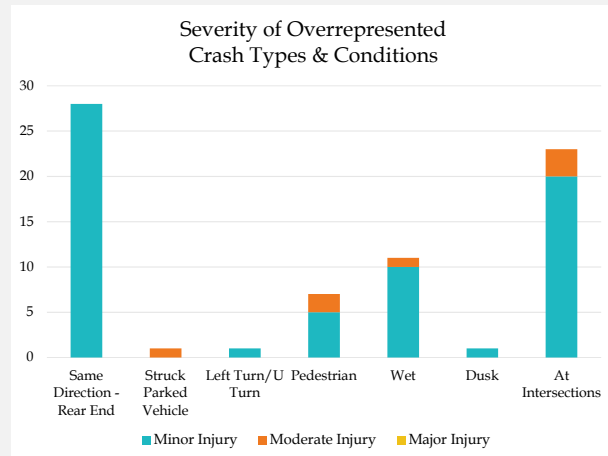
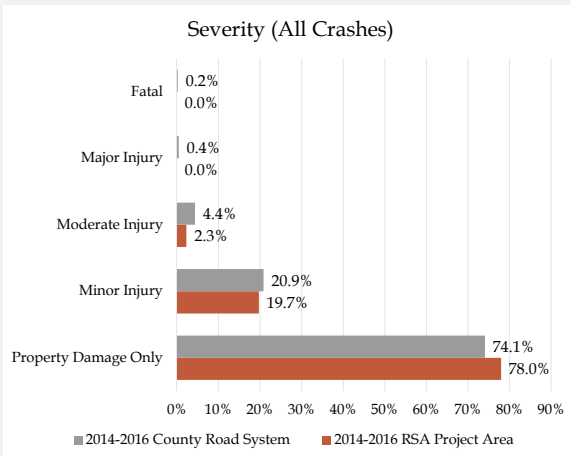
22

Crashes: RSA Project Area v. County Road System



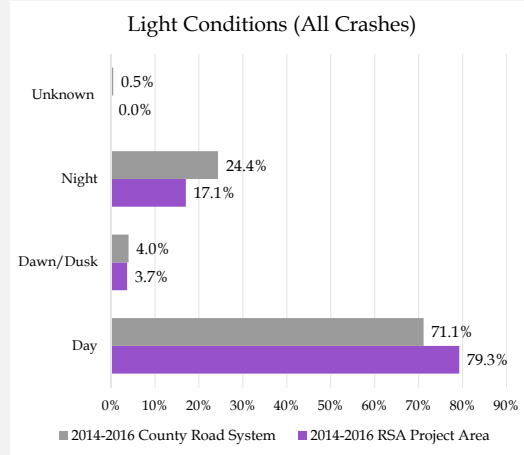
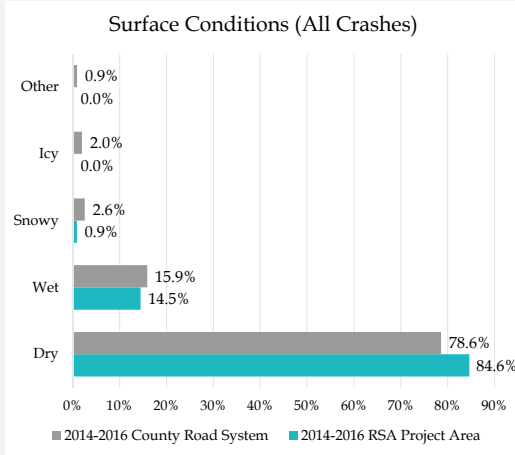
23

Crashes: Severity



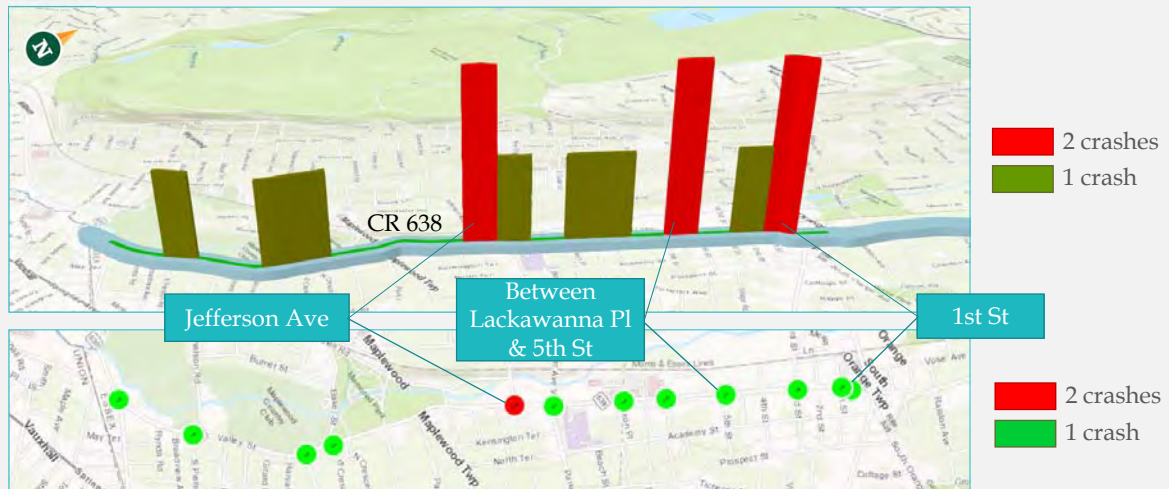
24

Crashes: Light & Surface Conditions

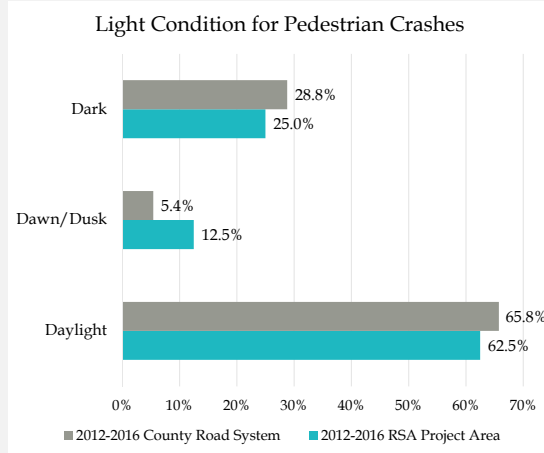
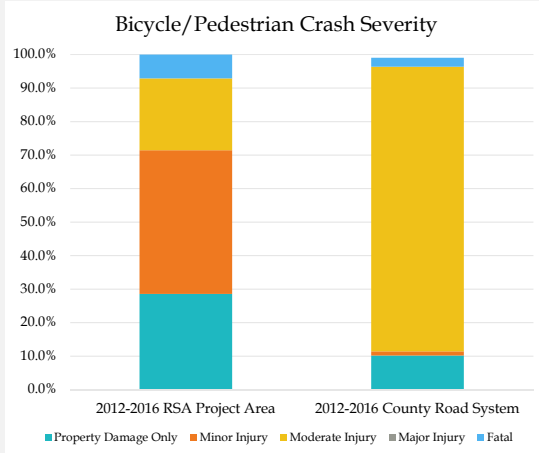


Pedestrian Crash Data (2012-2016)

Histogram by 0.1 Mile
Plan View by 0.01 Mile

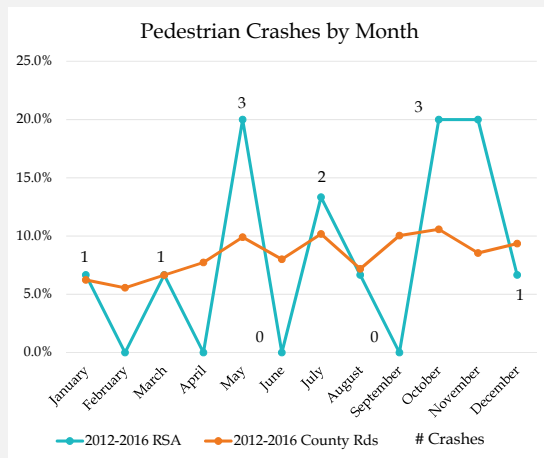
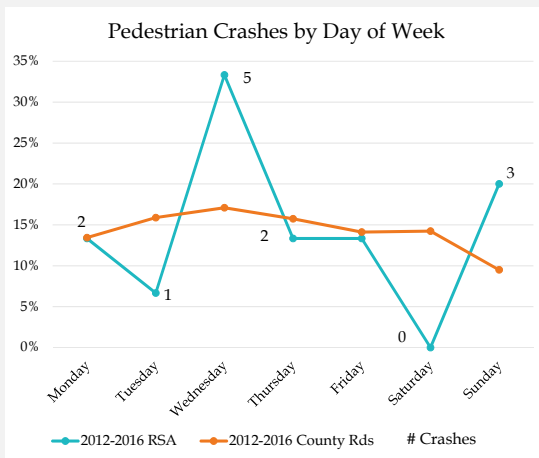


Pedestrian Crashes



27

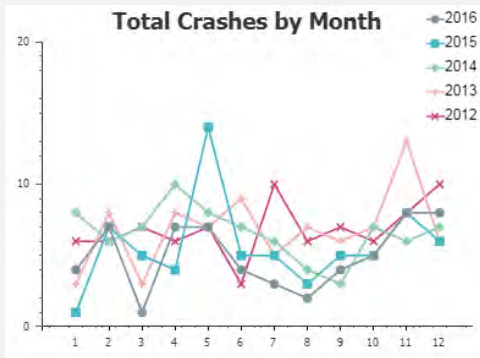
Pedestrian Crashes: Temporal Data



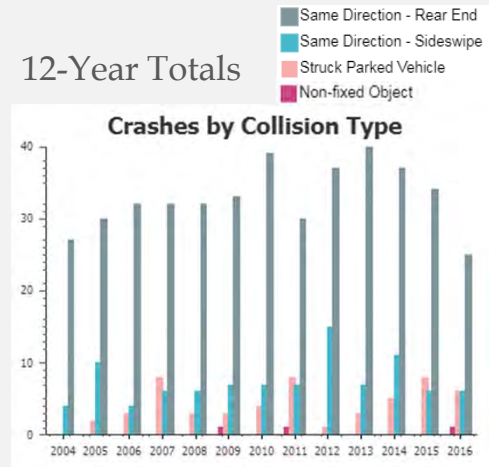
28

Crash Statistics

5-Year Temporal



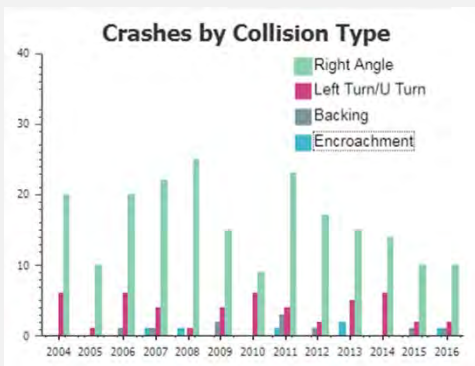
12-Year Totals



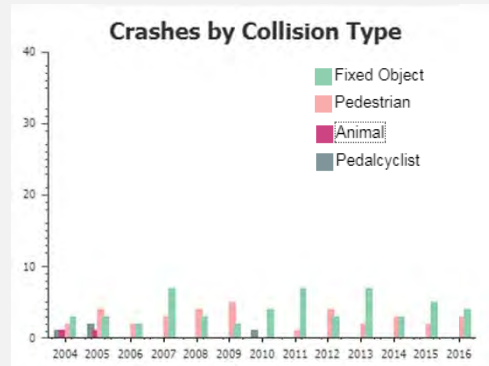
29

Crash Statistics (continued)

12-Year Totals



12-Year Totals



30

Field Visit Itinerary

9:00a

- Welcome and Introductions
- Project Overview Presentation

10:30a

- **Field Visit and Observations**

12:30p

- Lunch and Regroup at Presentation Location

2:00p

- Discuss Observations
- Make Recommendations

3:30p

- Adjourn

- ✓ Verify Identified Issues
- ✓ Observe Operations
- ✓ Note Other Safety Concerns
- ✓ Document Findings
 - Photographs
 - Checklist
- ✓ Safety First!
 - Use proper safety equipment
 - Stay alert to your surroundings

31

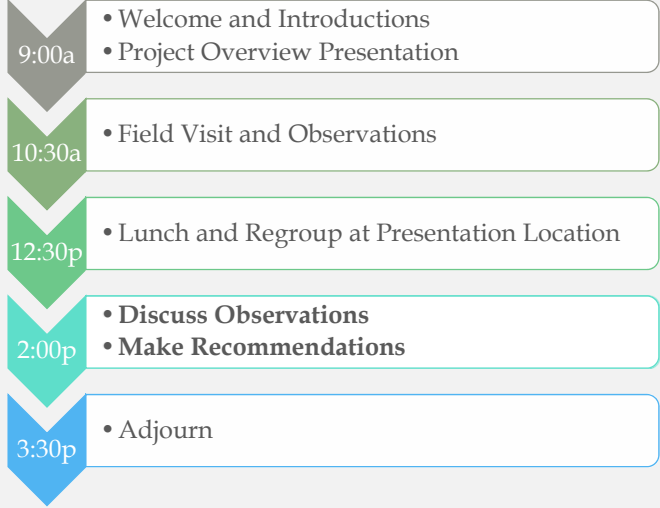
Field Visit & Observations

(pause presentation)



Post Audit Analysis
(resume presentation)

RSA Schedule

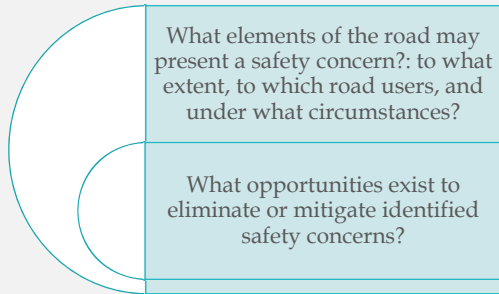


- 9:00a
 - Welcome and Introductions
 - Project Overview Presentation
- 10:30a
 - Field Visit and Observations
- 12:30p
 - Lunch and Regroup at Presentation Location
- 2:00p
 - **Discuss Observations**
 - **Make Recommendations**
- 3:30p
 - Adjourn

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Post Audit Analysis

Observations



Recommendations

- What corridor safety issues did you observe?
- What localized safety issues did you observe?
- What improvements would you make?
- Are any of the FHWA countermeasures beneficial?

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Next Steps

- Preparation of RSA Report
- Review/comments from RSA Team
- Preparation of Preliminary Final Report
- NJDOT review
- Preparation of Final Report
- Approximate timeframe: 10 weeks

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Appendix I - Maplewood Project Information

EXCERPTS FROM:

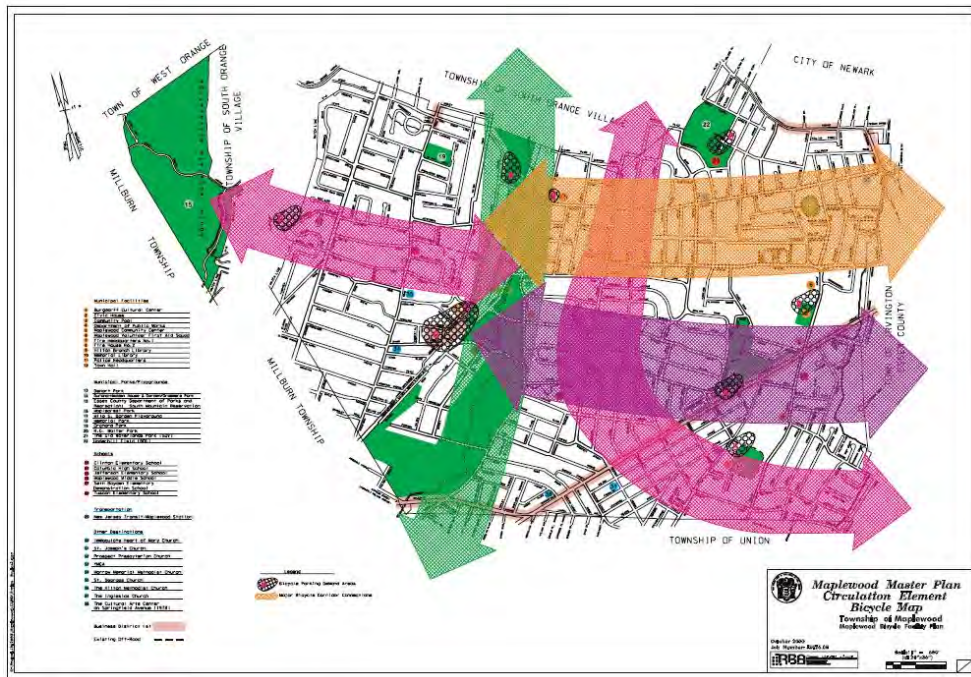
Maplewood Bikeway Network Plan



Urbana Consulting, LLC

December 2010

I. Maplewood Master Plan Corridors



Maplewood latest Master Plan (2004) provides for bikeway corridors to connect portions of the Township. The above graphic is Figure 5.3 of the Master Plan.

Pages 71-72 of the Maplewood Master Plan state as follows:

“These [corridors] are intended to guide the location of a bikeway network throughout Maplewood. Within these corridors, specific roadways and facility types should be selected and implemented through a phased implementation plan. These projects can be implemented by the township as incidental features of general roadway improvements and maintenance activities. They may also be implemented as independent projects.”

The next section of this report provides a plan of specific routes to accommodate the corridors recommended above in Maplewood’s Master Plan.

J. Maplewood Bikeway Network



The recommended plan for Maplewood Bikeway Network is shown in the above graphic. The **pink lines designate bike routes** – signed shared roadways designated by special signage and pavement stenciling. The **green lines reflect bike paths** – off-road segments in the Waterlands area, Maplewood’s parks and selected other locations.

Several of the routes are highlighted for discussion below:

K. Criteria for Selection of MBN Routes

Routes were selected by the Maplewood Transportation Committee Bike Subcommittee as facilitated by the Township's consultant based on the objectives of the MBN:

- Choose routes to serve the bikeway corridors adopted in the 2004 Master Plan;
- Select bikeways to connect major Township destinations;
- Provide connections to South Orange and Millburn;
- Minimize use of certain major streets;
- Provide shoulders for cyclists on some routes;
- Provide safe places to teach children to ride; and
- Minimize parking restrictions

Applying the Criteria to Route Selection

In selection of routes, busy streets such as Springfield Avenue and Boyden Avenue were not included and use of Valley Street and Parker Avenue was minimized.

Two routes, Summit Avenue and Kendal Avenue, were designated as lower-traffic streets to provide locations to teach children to ride. More experienced cyclists may choose parallel routes that operate at relatively faster speeds.

Shoulders may be added on many streets with a width equal to or exceeding 28 feet. Examples of routes that would benefit from shoulders include Prospect Street, Elmwood Avenue and Ridgewood Road.

Other Factors Impacting Route Selection

Routes were generally favored were those with:

- Less traffic and lower speeds (Hickory Drive was selected for this reason);
- Better sight lines (Baker Street with poor sight lines was not included);
- Lesser slope (Oakview Avenue west of Prospect Street was considered too steep);
- Good connectivity between key Township destinations; and
- An off-road bike path option – preferred by cyclists and more likely to receive state discretionary grants.

Note that Wyoming Avenue, one of Maplewood's widest streets and one with existing shoulders, is an exception to the first criterion in this section.

O. Maplewood Phase I Bikeway

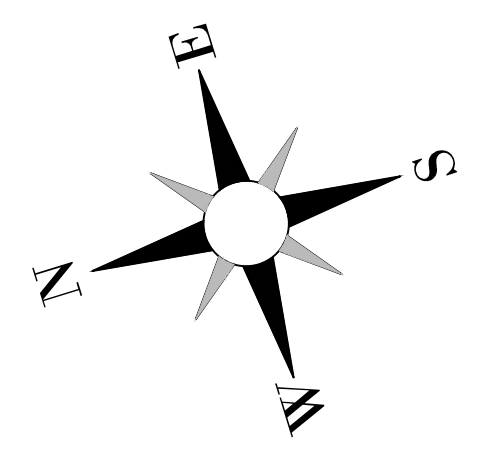
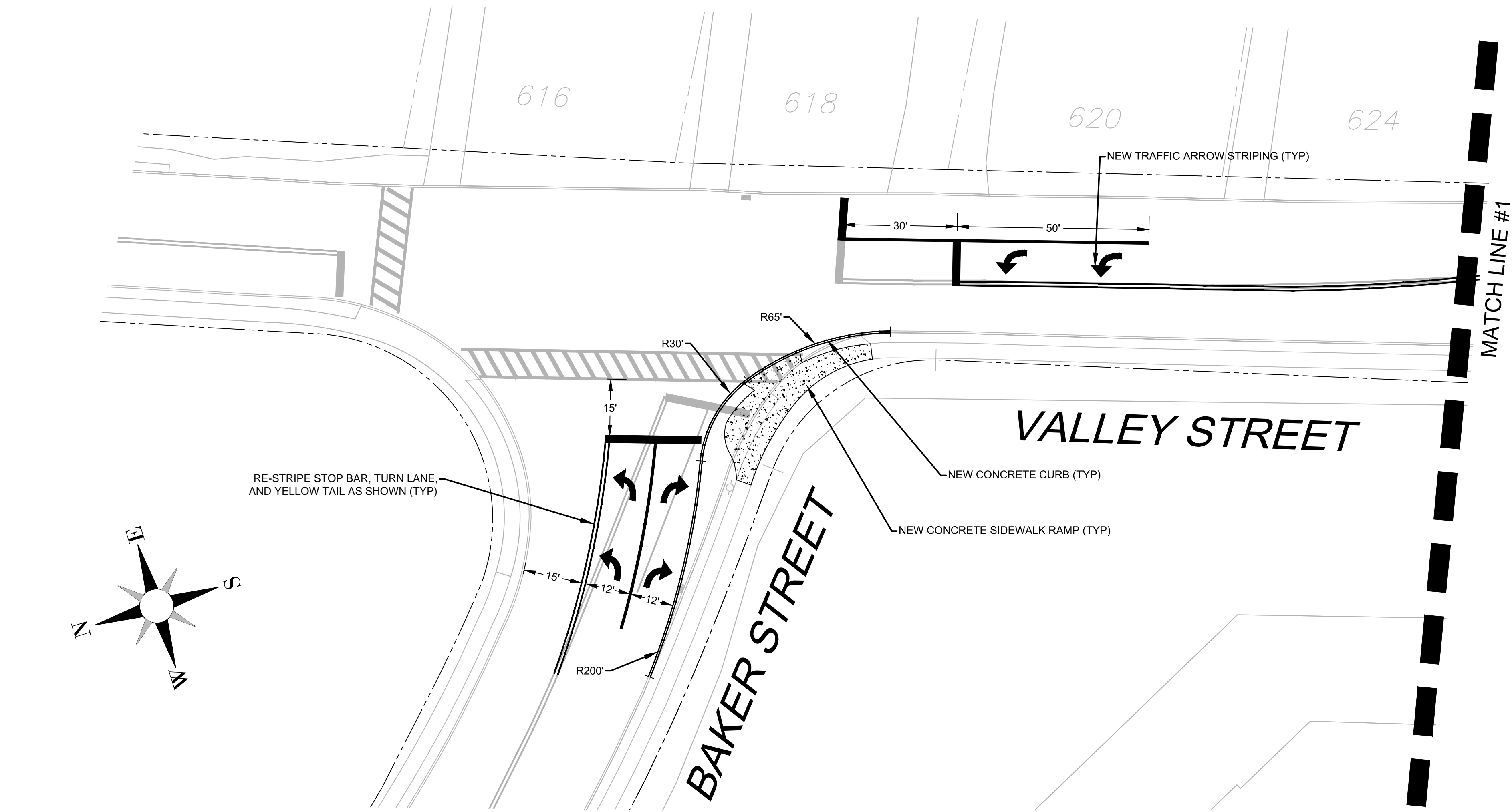
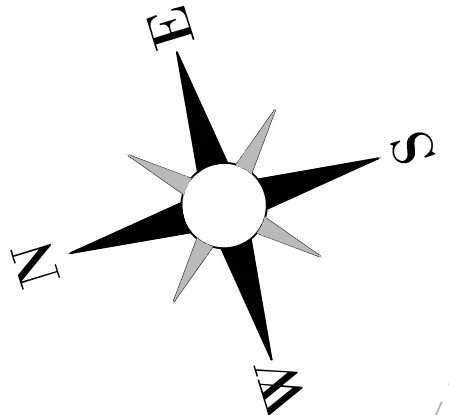
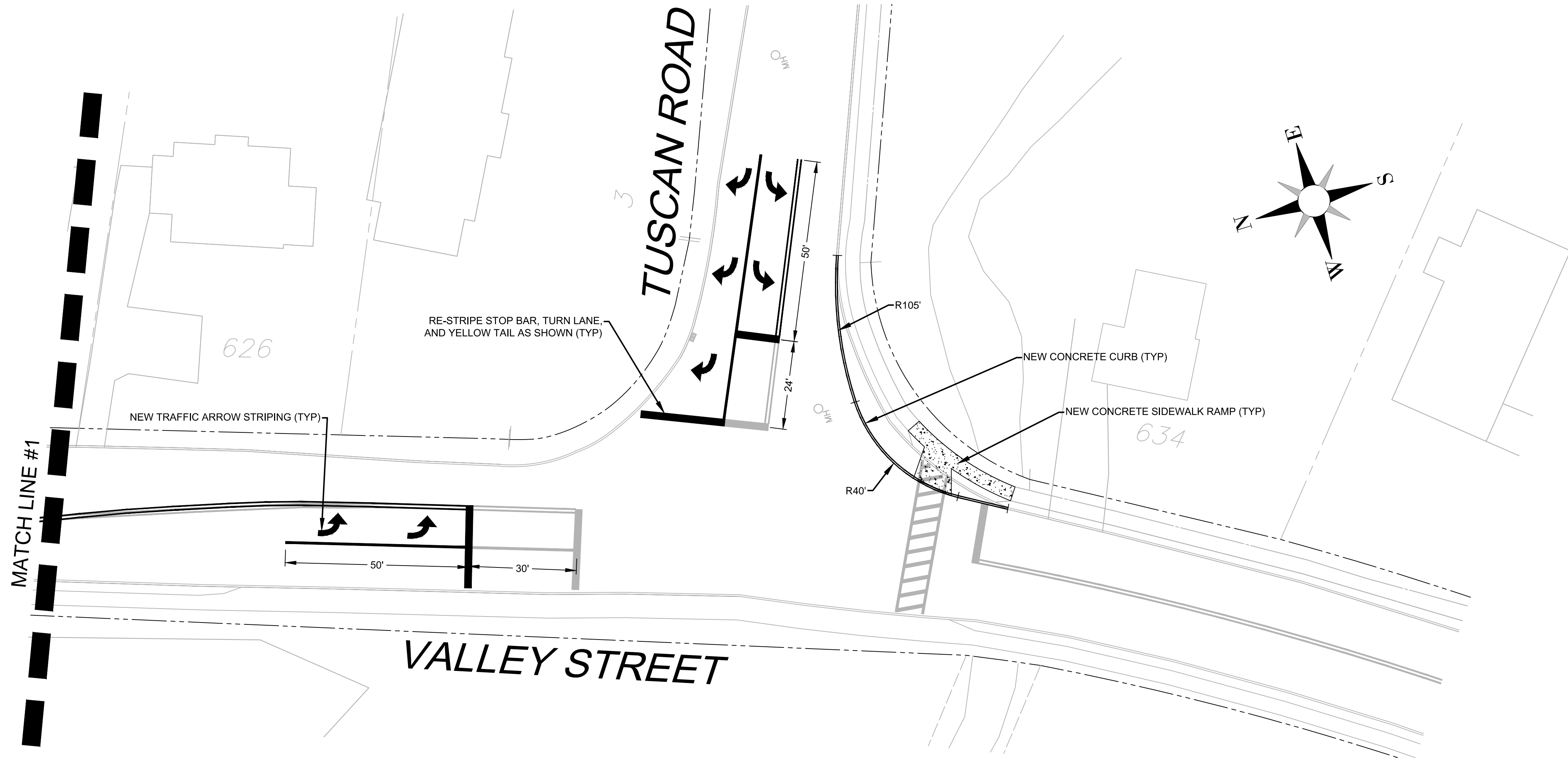
- Starting Point: Maplewood Ave. & Lenox Pl. in Maplewood Village
- Via: Maplewood Ave., off-road segment on existing fenced path adjacent to railroad, Cottage Ct., Ridgewood Rd.
- End Point: Ridgewood Rd. and Glen Ave. (start of Millburn's Glen Ave. bikeway)



This route is proposed to have the following attributes:

- Delineate with “share the road” signage and pavement stenciling. Shoulders on Ridgewood Road section.
- Total Length = 0.5 mile
- Connects to Millburn's bike route, which in turn connects to the Brookside Drive segment which is car-free Sunday mornings through South Mountain Reservation.

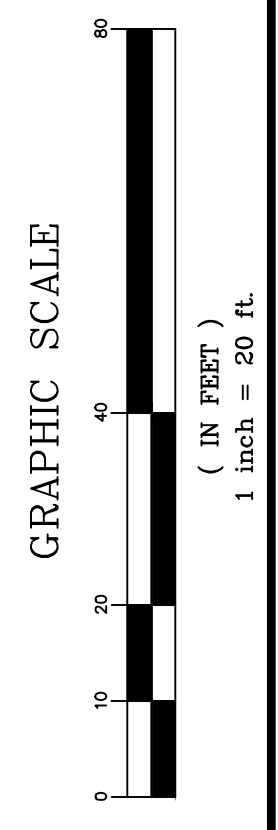
Following on the next page is a measured drawing, prepared by Maplewood's Engineering Department, of the Phase I off-road segment.



NOTE:
 REFERENCE:
 1. TOPOGRAPHIC AND PHYSICAL FEATURE INFORMATION TAKEN FROM TOPOGRAPHIC MAPPING
 2. PROPERTY LINES AND RIGHT-OF-WAY LINES TAKEN FROM TOWNSHIP TAX MAPS
 3. PHYSICAL FEATURE INFORMATION SUPPLEMENTED BY FIELD INVESTIGATIONS.

**VALLEY STREET INTERSECTION
 IMPROVEMENTS
 BAKER STREET AND TUSCAN ROAD
 CONSTRUCTION PLAN SHEET**

Job No.	-
Scale:	1" = 20'
Drawn ADG	Designed ADG/PJK
Checked ADG/PJK	Released PJK
Date 2/13/17	Drawer # TBD
SHEET No.	1
OF 1	

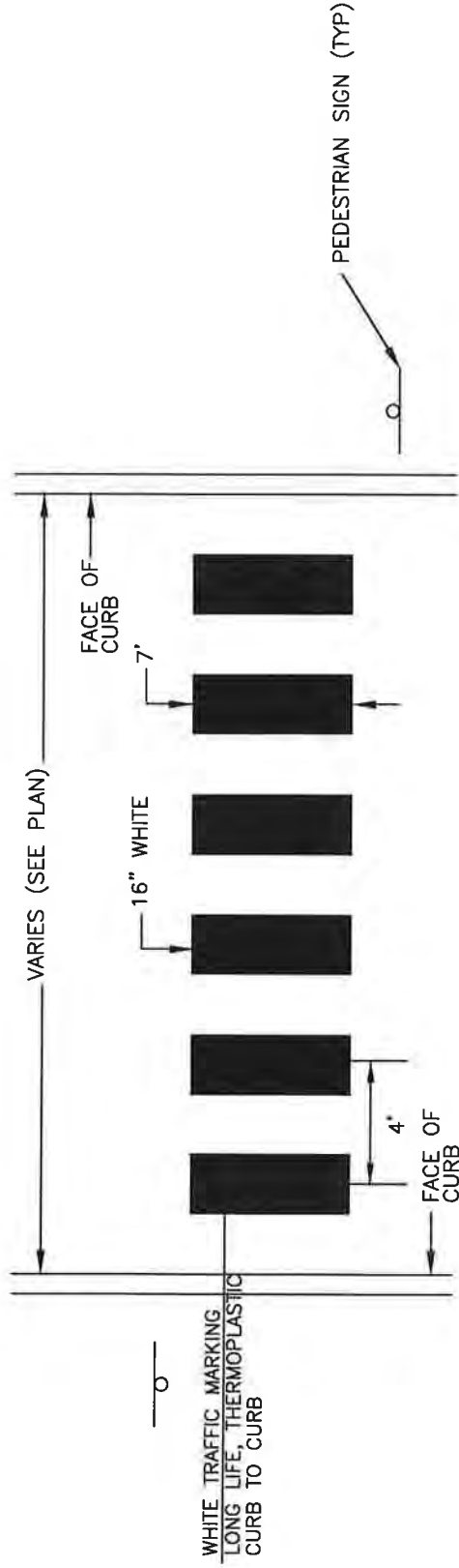


ENGINEERING DEPARTMENT
 TOWNSHIP OF MAPLEWOOD
 ESSEX COUNTY
 NEW JERSEY
 Drawing Path: C:\Projects\Project Base County\Valley Street
 Intersections\Baker Street and Tuscan
 Intersections with Baker Street and Tuscan
 Intersections

DRAFT
 PAUL J. KITTNER, JR.
 NEW JERSEY PROFESSIONAL ENGINEER
 LIC. NO. 24GE04250500

TOWNSHIP OF MAPLEWOOD
 COUNTY OF ESSEX, NEW JERSEY
 574 VALLEY STREET, MAPLEWOOD NJ 07040
 Ph. 973.762.8120 F. 973.762.2894
 ENGINEER@TWP.MAPLEWOOD.NJ.US

NO.	DATE	REVISION	DRAWN	CHK'D	REL'D



TYPICAL STRIPING FOR CROSSWALK ZONE

N.T.S.

Paul Kittner

From: John Jahr <JJJahr@petrytraffic.com>
Sent: Sunday, July 17, 2016 7:16 PM
To: Paul Kittner
Subject: Springfield Avenue

Paul;

These are the deficiencies we found.

Springfield & Indiana:

1. NE Corner has a walk signal burnout
2. SW Corner has a walk signal burnout
3. Junction Box cover broken in front of controller
4. Maintenance light in controller needs to be replaced
5. Controller cabinet needs new air filter

Springfield & Prospect:

1. SE Corner has push button sign missing
2. No countdown ped signals.

Springfield & Yale:

1. NE corner Ped signal out
2. SW corner red ball burnout facing driveway
3. SE corner PB sign loose needs banding
4. SE corner Trim tree branches blocking walk signal
5. Ch.4 loop in fault
6. Bulb in cabinet needs to be replaced
7. No countdown ped signals.

Springfield & Rutgers:

1. NW corner arm out of alignment
2. SW corner countdown not working
3. Bulb in cabinet needs to be replaced

Springfield & Vermont:

1. SW corner pole #1 ped signal missing and base door needs to be replaced
2. SW corner pole #2 base and through rods needs to be replaced and countdown ped signal not working
3. NE corner Amber ball is out
4. Filter needs to be replaced in controller
5. Bulb needs to be replaced in the controller

Springfield & Tuscan St:

1. controller bulb needs to be replaced

Springfield & Burnett

1. NW corner base and through rods needs to be replaced
2. SW ped signal needs to be rebranded and readjusted
3. Replace filter in controller cabinet
4. Replace bulb in controller cabinet

Springfield & Boyden

1. Amber ball out on side mount
2. NE corner PB signs need to be addressed
3. SW corner trim tree blocking ped signal
4. Bulb needs to be replaced in controller cabinet

I asked him to price each intersection individually in case you needed to spread out the costs.
After we have the costs I can get together with you to help identify what items should be prioritized.

Please call me with any questions.

Thanks

John

732 236 7557

John Jahr, PTP, TSOS

Principal

Petry Traffic and Transportation Services

155 Passaic Ave

Fairfield, NJ 07004

Cell 732-236-7557

Phone 973-227-7005

Fax 973-227-7074

www.petrytraffic.com

Those who answer the calling will find out if they have what it takes.

The Few. The Proud. The Marines.

Appendix J - South Orange Village Project Information

TRAFFIC IMPACT STUDY

For



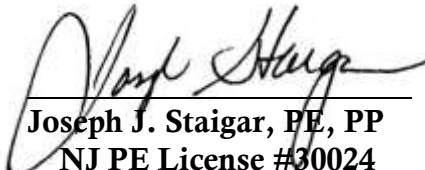
MERIDIA, VILLAGE COMMONS I, SOUTH ORANGE, LLC

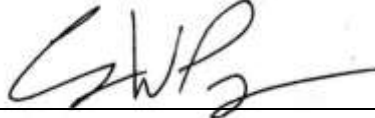
**Meridia Village Commons Proposed Mixed Use Building
4th Street & Valley Street
Block 2303, Lots 7-11
Township of South Orange Village
Essex County, New Jersey**

Prepared by:



1904 Main Street | 245 Main Street, Suite 110
Lake Como, NJ 07719 | Chester, NJ 07930
(732) 681-0760


Joseph J. Staigar, PE, PP
NJ PE License #30024


Craig W. Peregoy, PE
NJ PE License #45880

**June 19, 2017
Revised: October 6, 2017**

1084-16-015T

INTRODUCTION

It is proposed to construct a 5 story building with 4,412 square feet of ground floor retail space, a 4,412 square foot restaurant and one hundred six (106) residential units (The Project). The site is located in the southwest quadrant of the intersection of Valley Street (CR 638) with Fourth Street, in the Township of South Orange Village, Essex County, New Jersey as shown on Figure 1 contained in Appendix A. The site is designated as Block 2303 – Lots 7-11 on the Township Tax Maps. Parking will be provided via one hundred twenty four (124) parking stalls on the lower level of the building, six (6) parallel parking spaces on Valley Street and eleven (11) parallel parking spaces on Fourth Street. Access to the proposed site will be provided via one (1) full movement driveway along Fourth Street. The property is currently occupied by four dwellings and an automotive service center, with access provided via two (2) full movement driveways along Fourth Street and six (6) full movement driveways along Valley Street.

Dynamic Traffic, LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, pedestrian crossings, sidewalk widths and location and geometry of existing driveways and intersections.
- Existing traffic and pedestrian data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at four intersections in the vicinity of the site.
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build and Build conditions for the study intersection and the site driveways.
- The proposed site driveway was inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.

EXISTING CONDITIONS

A review of the existing roadway conditions near the subject site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Valley Street (CR 638) is an urban minor arterial roadway under the jurisdiction of Essex County. In the vicinity of the site the posted speed limit is 30 miles per hour and the roadway provides one travel lane in each direction with a general north/south orientation. On-street parking is permitted along both sides of the roadway with curb and sidewalk provided along both sides of the roadway. Valley Street provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Valley Street in the vicinity of The Project are a mix of commercial and residential.

Academy Street is an urban major collector roadway under the jurisdiction of the Township of South Orange Village. In the vicinity of the site the posted speed limit is 25 miles per hour and the roadway provides one travel lane in each direction with a general north/south orientation. On-street parking is permitted along the west side of the roadway with curb and sidewalk provided along both sides of the roadway. Academy Street provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Academy Street in the vicinity of The Project are primarily residential.

Fourth Street is a local roadway under the jurisdiction of the Township of South Orange Village. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane for each direction of travel with a general east/west orientation. Fourth Street to the east of Academy Street provides one travel lane for one-way travel in the westbound direction. On-street parking is permitted along the south side of the roadway with curb and sidewalk provided along both sides of the roadway. Fourth Street provides a straight horizontal alignment and an uphill vertical alignment from west to east. The roadway is approximately $\frac{1}{4}$ of a mile long traversing from Prospect Street to its terminus just west of the site at the New Jersey Transit Rail Lines. At this western terminus there is access to the PSE&G utilities substation which will remain as existing. On school days during the hours of 7:30 AM to 5:00 PM Fourth Street is closed from Academy Street to Prospect Street in front of Our Lady of Sorrows School/Church. The land uses along Fourth Street in the vicinity of The Project are primarily commercial to the west of Valley Street and primarily residential to the east of Valley Street.

Third Street is a local roadway under the jurisdiction of the Township of South Orange Village. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane for each direction of travel with a general east/west orientation. On-street parking is permitted along the north side of the roadway with curb and sidewalk provided along both sides of the roadway. Third Street provides a straight horizontal alignment and an uphill vertical alignment from west to east. The roadway is approximately $\frac{1}{2}$ of a mile long traversing from Prospect Street to South Ridgewood Road. The land uses along Third Street in the vicinity of The Project are a mix of commercial and residential.

Massel Terrace is a local roadway under the jurisdiction of the Township of South Orange Village. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane for each direction of travel with a general east/west orientation. On-street parking is permitted along both sides of the roadway with curb and sidewalk provided along both sides of the roadway. Massel Terrace provides a straight horizontal alignment and an uphill vertical alignment from west to east. The roadway is approximately 440 feet long traversing from Prospect Street to Academy Street. The land uses along Massel Terrace in the vicinity of The Project are primarily residential.

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Wednesday, June 7, 2017 between 7:00 AM and 9:00 AM and between 4:30 PM and 6:30 PM at the intersections of Valley Street with Fourth Street, Valley Street with Third Street, Valley Street with Massel Terrace and Academy Street with Fourth Street. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs between 7:30–8:30 AM and the Evening PSH occurs between 5:15–6:15 PM. Figure 2 in Appendix A shows the existing peak hour traffic volumes at the study intersection.

Existing Pedestrian Movements

Pedestrian counts were also conducted on Wednesday, June 7, 2017 between 7:00 AM and 9:00 AM and between 4:30 PM and 6:30 PM at the intersections of Valley Street with Fourth Street, Valley Street with Third Street, Valley Street with Massel Terrace and Academy Street with Fourth Street. The following Table I summarizes the results of the pedestrian counts during the peak hours of the roadway. The pedestrian movements were utilized in the capacity analysis that are included in Appendix C.

**Table I
Pedestrian Volumes**

Intersection	Approach	Pedestrians per Hour	
		AM PSH	PM PSH
Valley Street and Third Street	Eastbound	19	17
	Westbound	33	18
	Northbound	19	20
	Southbound	85	15
Valley Street and Fourth Street	Eastbound	35	21
	Westbound	34	12
	Northbound	1	1
	Southbound	13	3
Valley Street and Massel Terrace	Westbound	32	18
	Northbound	0	0
	Southbound	0	0
Fourth Street and Academy Street	Eastbound	24	9
	Westbound	44	5
	Northbound	3	3
	Southbound	24	1

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the, *Highway Capacity Manual 2010*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal “green time”, turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service “F” range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table II describes the level of service ranges for signalized intersections.

**Table II
Level of Service Criteria
for Signalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table III describes the level of service ranges for unsignalized (stop controlled) intersections.

**Table III
Level of Service Criteria
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

All capacity analyses were performed utilizing the SYNCHRO software package. Table IV summarizes the existing levels of service (LOS) and delay in seconds per vehicle. All Capacity analysis calculation worksheets are contained in Appendix C.

**Table IV
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH
Valley Street and Third Street	EB	LTR	C (22)	C (22)
	WB	LTR	C (24)	C (22)
	NB	LTR	C (22)	C (24)
	SB	LTR	C (21)	B (20)
	Overall		C (22)	C (22)
Valley Street and Fourth Street	EB	LTR	b (14)	d (29)
	WB	LTR	c (17)	c (19)
	NB	LTR	a (9)	a (0)
	SB	LTR	a (9)	a (9)
Valley Street and Massel Terrace	WB	LR	b (14)	c (20)
	SB	LT	a (8)	a (9)
Fourth Street and Academy Street	EB	LR	b (12)	b (10)
	WB	L	b (12)	b (10)
		TR	b (11)	a (10)
NB	LT	a (8)	a (7)	

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)
a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis.

Valley Street and Third Street

Third Street intersects Valley Street to form a four-leg signalized intersection. All four approaches provide a shared left turn/through/right turn lane. The intersection has crosswalks on all four legs of the intersections with only the southwest corner having an ADA compliant detectable warning surface. Pedestrian-oriented traffic signals are provided although “Man/Hand” pedestrian signal heads are not. The sidewalks in the vicinity of this intersection range from 5’ to 8’ wide.

A review of the existing analysis reveals that the intersection operates at overall acceptable level of service “C” during the AM and PM analyzed peak periods. See Table IV for the individual movement levels of service and delays.

Valley Street and Fourth Street

Fourth Street intersects Valley Street to form a four-leg unsignalized intersection with Fourth Street under stop control. All four approaches provide a shared left turn/through/right turn lane. The intersection has crosswalks on all four legs of the intersections with no ADA compliant detectable warning surfaces present. The sidewalks in the vicinity of this intersection range from 3’ to 4’ wide.

A review of the existing analysis reveals that the individual intersection movements operate at acceptable level of service “C” or better during the AM and PM analyzed peak periods. See Table IV for the individual movement levels of service and delays.

Valley Street and Massel Terrace

Massel Terrace intersects Valley Street to form an unsignalized T-intersection with Massel Terrace under stop control. The westbound approach of Massel Terrace provides a shared left turn/right turn lane. The northbound and southbound approaches of Valley Street provide a shared through/right turn lane and a shared left turn/through lane respectively. The intersection has a crosswalk to cross the Massel Terrace leg of the intersection with no ADA compliant curb ramps present. The sidewalks in the vicinity of this intersection range from 5’ to 8’ wide.

A review of the existing analysis reveals that the individual intersection movements operate at acceptable level of service “C” or better during the AM and PM analyzed peak periods. See Table IV for the individual movement levels of service and delays.

Fourth Street and Academy Street

Fourth Street intersects Academy Street to form a four-leg unsignalized intersection with Fourth Street under stop control. The eastbound approach of Fourth Street provides a shared left turn/through lane. The westbound approach of Fourth Street provides a left turn lane and a shared through/right turn lane. The northbound and southbound approaches of Academy Street provide a shared left turn/through lane and a shared through/right turn lane respectively. The intersection has crosswalks on all four legs of the intersection with only the northeast and southeast corners having ADA compliant detectable warning surfaces. The sidewalks in the vicinity of this intersection range from 4’ to 8’ wide.

A review of the existing analysis reveals that the individual intersection movements operate at favorable level of service “B” or better during the AM and PM analyzed peak periods. See Table IV for the individual movement levels of service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the Future No Build and Build conditions. The no build conditions provide a baseline for assessing the impact of site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 2.0% per year.

Future No Build traffic volumes were developed by applying the background growth rate of 2.0% per year for two (2) years to the study area roadways existing traffic volumes. Figure 3, in Appendix A of this report, shows the Future No Build traffic volumes.

Traffic Generation

Projections of future traffic volumes were developed utilizing data as published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 9th Edition* for Land Use Code (LUC) 223 – Mid-Rise Apartments, LUC 932 – High-Turnover (Sit-Down) Restaurant and LUC 820 – Shopping Center. Table V summarizes the projected trips generated by the proposed development utilizing the ITE data.

**Table V
Trip Generation**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
106 Residential Units	9	21	30	23	17	40
4,412 Square Foot Shopping Center	2	2	4	8	8	16
4,412 Square Foot Restaurant	26	22	48	26	17	43
Total	37	45	82	57	42	99

The ITE publication *Trip Generation Handbook, 9th Edition*, recognizes that when land uses are proximate to each other, individual land uses tend to interact, reducing the overall trip generation for the site. In order to perform a more conservative analysis no credit was taken for the “internally captured” trips associated with the individual uses. It should also be noted that, conservatively, no credit was taken for passby trips associated with the shopping center portion of the site.

One of the attractive features for prospective tenants is that within a half mile of the site there is access to New Jersey Transit bus lines 92, 107 and the Morris & Essex Rail Line. However, no adjustments are made to the ITE trip rate data to account for the likely high utilization of mass transit for daily commutation purposes for the future tenants of the proposed building. Furthermore no credit was

taken for the existing use of the site which currently generates traffic. All trip generation was considered an increase over vacant land. This allows for a conservative projection of a “worst case” scenario.

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of site traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections, and existing traffic patterns. Located in Appendix A, Figure 4 illustrates the site generated traffic volumes. The site generated volumes were added to the Future No Build traffic volumes to generate the Future Build traffic volumes, which are shown in Figure 5.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table VI below.

**Table VI
Future Levels of Service**

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Valley Street and Third Street	EB	LTR	C (23)	C (23)	C (22)	C (23)
	WB	LTR	C (25)	C (25)	C (22)	C (22)
	NB	LTR	C (23)	C (26)	C (27)	C (30)
	SB	LTR	C (21)	C (22)	C (21)	C (22)
	Overall		C (23)	C (24)	C (23)	C (25)
Valley Street and Fourth Street	EB	LTR	b (14)	e (36)	d (31)	e (48)
	WB	LTR	c (18)	c (20)	c (20)	d (26)
	NB	LTR	a (9)	a (9)	a (0)	a (9)
	SB	LTR	a (9)	a (10)	a (9)	a (9)
Valley Street and Massel Terrace	WB	LR	b (15)	b (15)	c (21)	c (22)
	SB	LT	a (8)	a (9)	a (9)	a (9)
Fourth Street and Academy Street	EB	LR	b (12)	b (12)	b (11)	b (11)
	WB	L	b (13)	b (13)	b (10)	b (10)
		TR	b (11)	b (11)	a (10)	b (10)
NB	LT	a (8)	a (8)	a (8)	a (8)	
Site Driveway and Fourth Street	WB	LT	-	a (7)	-	a (7)
	NB	R	-	a (9)	-	a (9)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)
a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

Valley Street and Third Street

With the addition of the site traffic the intersection will continue to operate at overall acceptable level of service “C” or better during the AM and PM peak hours, maintaining the no build levels of service. See Table VI for the individual movement levels of service and delays.

Valley Street and Fourth Street

With the addition of the site traffic the individual intersection movements will operate at level of service “E” or better during the AM and PM peak hours. See Table VI for the individual movement levels of service and delays. It should also be noted that the sidewalks along the property frontage will be improved and widened and that ADA compliant curb ramps will be installed in the southwest corner of the intersection.

Valley Street and Massel Terrace

With the addition of the site traffic the individual intersection movements will continue to operate at acceptable level of service “C” or better during the AM and PM peak hours, maintaining the no build levels of service. See Table VI for the individual movement levels of service and delays.

Academy Street and Fourth Street

With the addition of the site traffic the individual intersection movements will continue to operate at favorable level of service “B” or better during the AM and PM peak hours, maintaining the no build levels of service. See Table VI for the individual movement levels of service and delays.

Fourth Street and the Site Driveway

The site driveway is proposed to intersect Fourth Street to form a three-leg unsignalized intersection with the site driveway under stop control. The eastbound and westbound approaches of Fourth Street will provide a shared through/right turn lane and a shared left turn/through lane respectively. The northbound approach of the site driveway will provide one lane for left and right turns.

With the addition of the site traffic the individual intersection movements will operate at favorable level of service “A” during the AM and PM analyzed peak periods. See Table VI for the individual movement levels of service and delays. Access to the PSE& G substation exists to the west of the site driveway and will remain. It is expected that this minimally utilized access point will continue to function adequately in its existing location.

SITE PLAN

Site Access

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via one (1) full movement driveway along Fourth Street. The proposed access layout is an improvement over the existing layout which currently provides two (2) full movement driveways along Valley Street and six (6) full movement driveways along Fourth Street. A loading zone will be provided along Fourth Street and loading/unloading will be conducted during off peak hours of the surrounding roadways.

FINDINGS & CONCLUSIONS

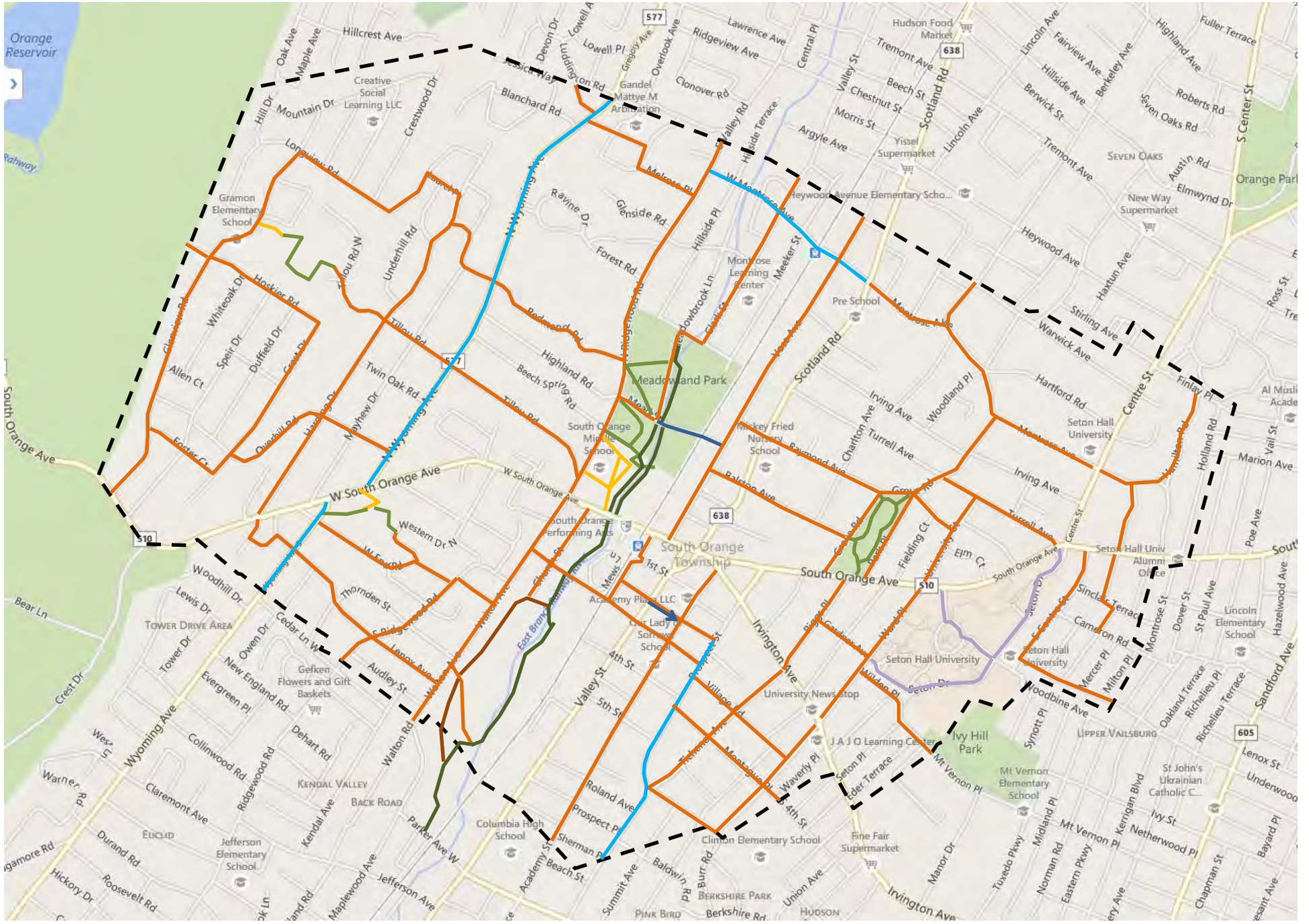
Findings

Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed 5,152 square feet of retail space, 5,093 square foot restaurant and 106 residential units will generate 42 entering trips and 48 exiting trips during the morning peak hour and 62 entering trips and 47 exiting trips during the evening peak hour. This is based on a conservative assessment of trip generation with no credit for mass transit usage, internal trips or passby trips.
- Access to the site will be provided via one (1) full movement driveway along Fourth Street. Sidewalks and pedestrian amenities will be upgraded along the subject property frontages.
- With the addition of the site generated traffic, the intersection of Valley Street with Third Street will continue to operate at overall acceptable level of service “C” or better during the AM and PM peak hours, maintaining the no build levels of service.
- With the addition of the site generated traffic, the individual intersection movements of Valley Street with Fourth Street will operate at level of service “E” or better during the AM and PM peak hours.
- With the addition of the site generated traffic, the individual intersection movements of Valley Street with Massel Terrace will continue to operate at acceptable level of service “C” or better during the AM and PM peak hours, maintaining the no build level of service.
- With the addition of the site generated traffic, the individual intersection movements of Academy Street with Fourth Street will continue to operate at acceptable level of service “B” or better during the AM and PM peak hours, maintaining the no build level of service.
- With the addition of the site generated traffic, the individual intersection movements of Fourth Street and the site driveway will operate at favorable level of service “A” during the AM and PM peak hours.
- The on-site parking is compatible with roadway traffic as required by the redevelopment plan.
- As proposed, The Project’s site driveways have been designed to provide for safe and efficient movement of vehicles on-site.

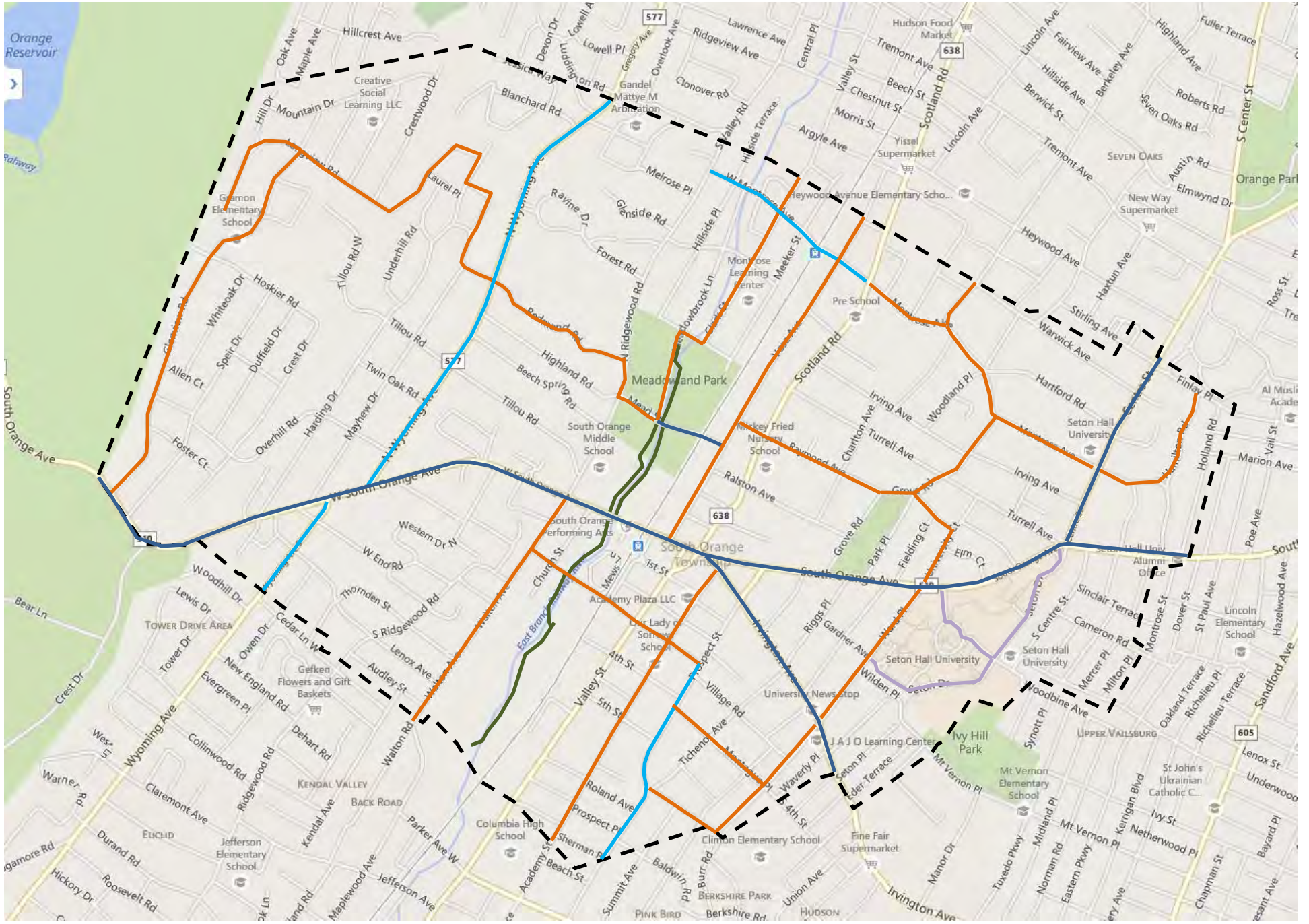
Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the Township of South Orange Village and County of Essex will not experience any significant degradation in operating conditions with the construction of The Project. The site driveway is located to provide safe and efficient access to the adjacent roadway system.









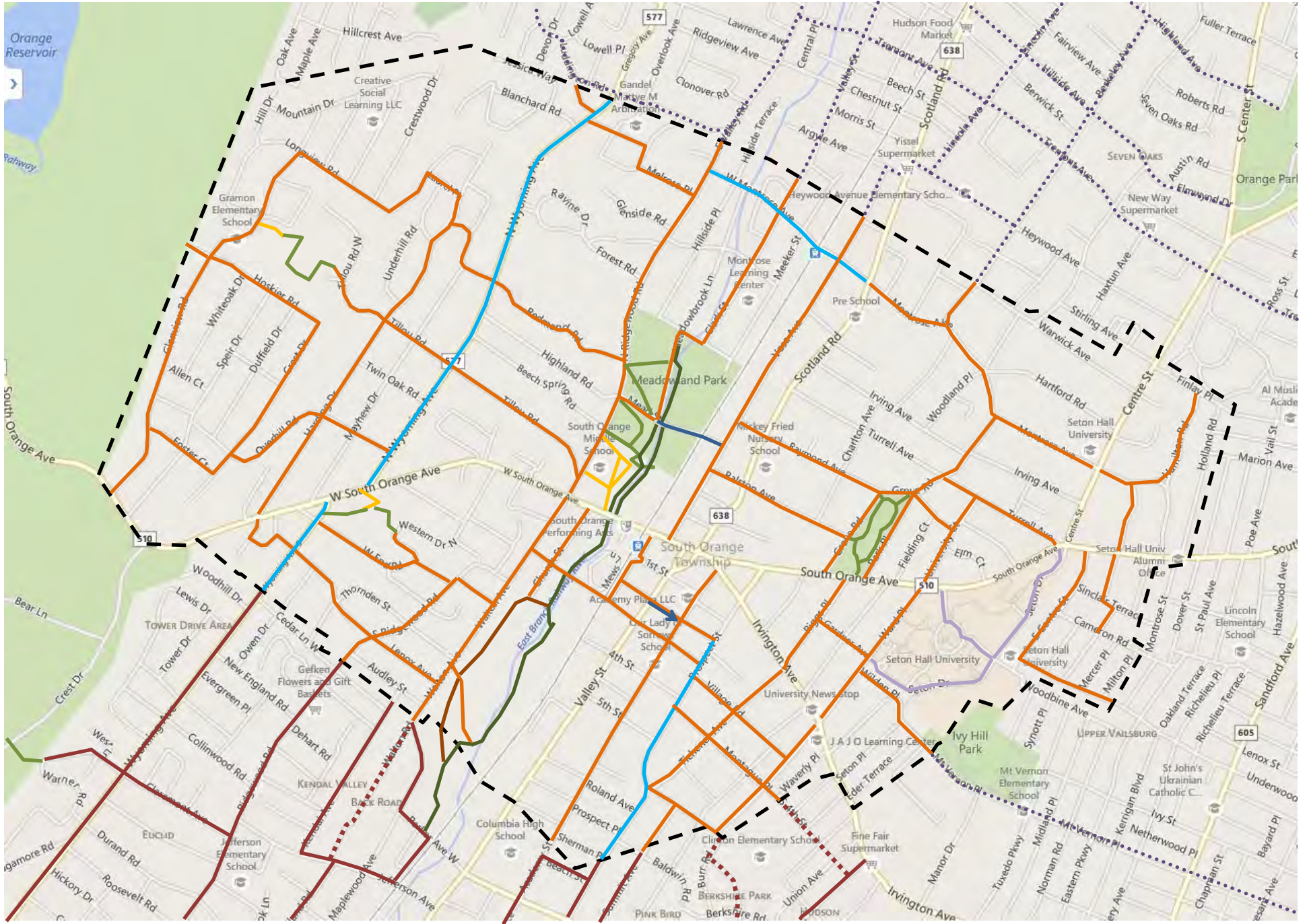
South Orange Bicycling Network

Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary



SO Bicycle Network PB Masterplan Element

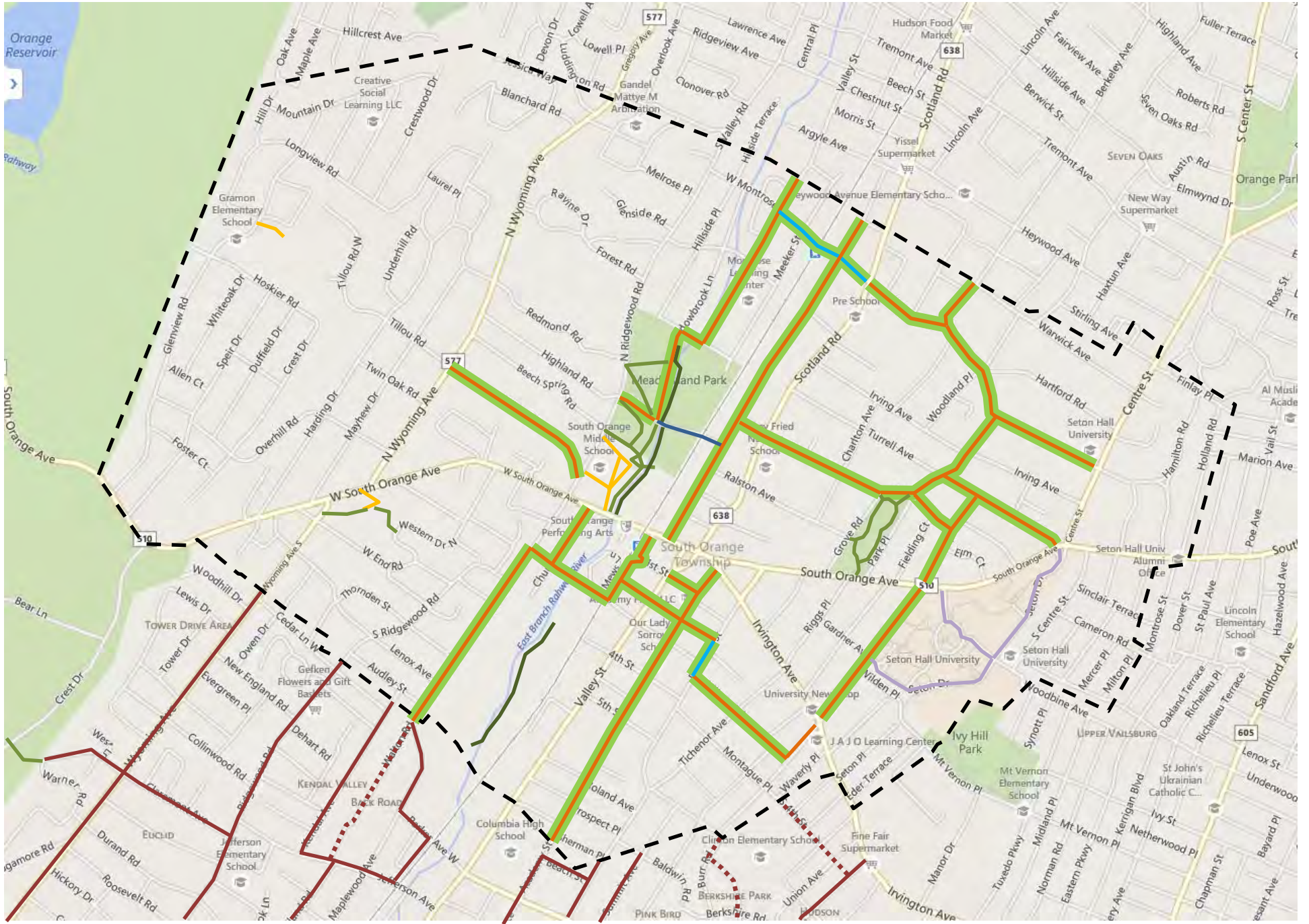
 Shared Lane	 Greenway
 Empty Striped shoulders	 Seton Hall access
 Bike Lane	 SO Boundary



South Orange Bicycling Network

Depicting surrounding town networks

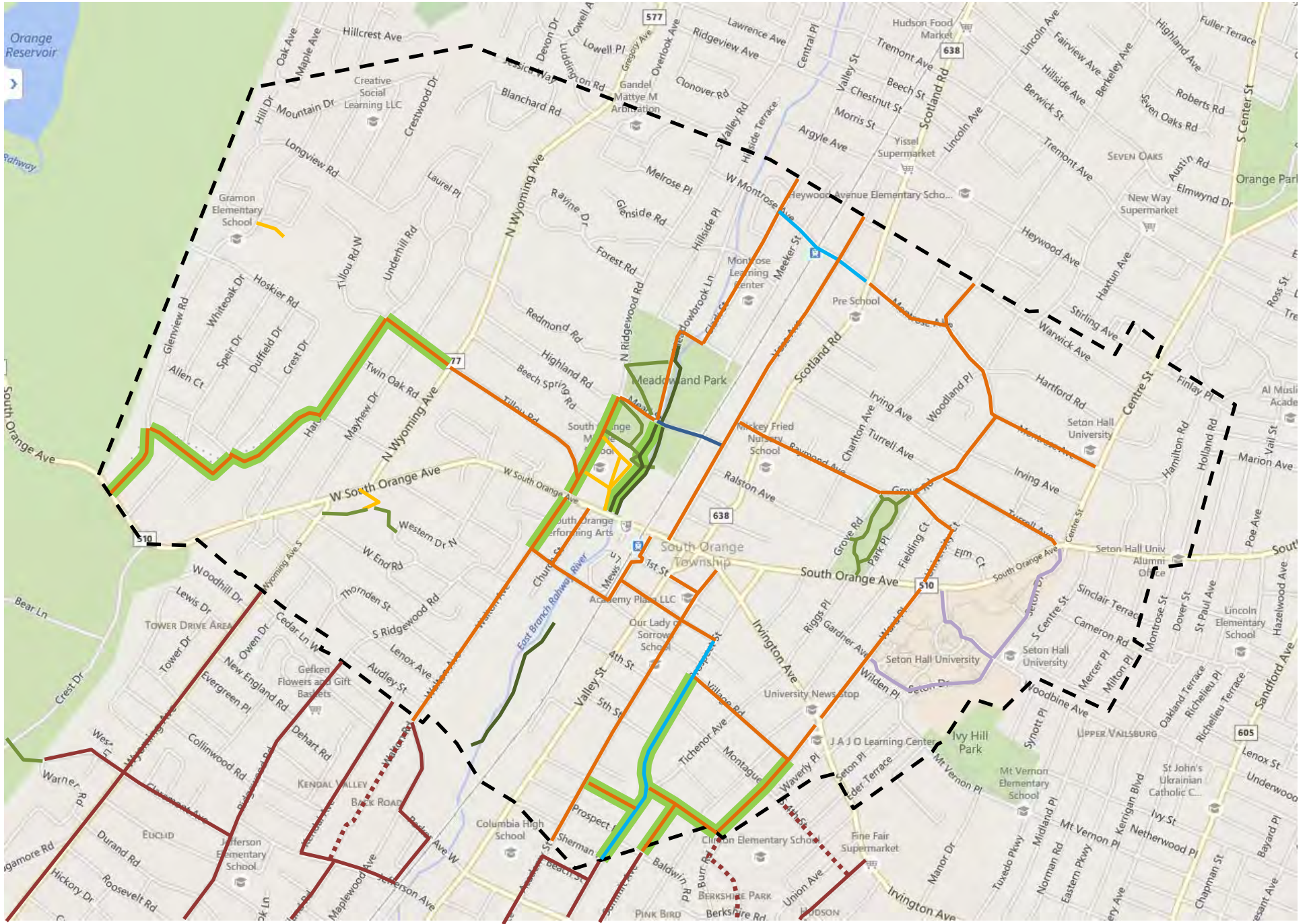
Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
Maplewood adjusted	Possible surrounding town connections	



South Orange Bicycling Network

Stage - 1

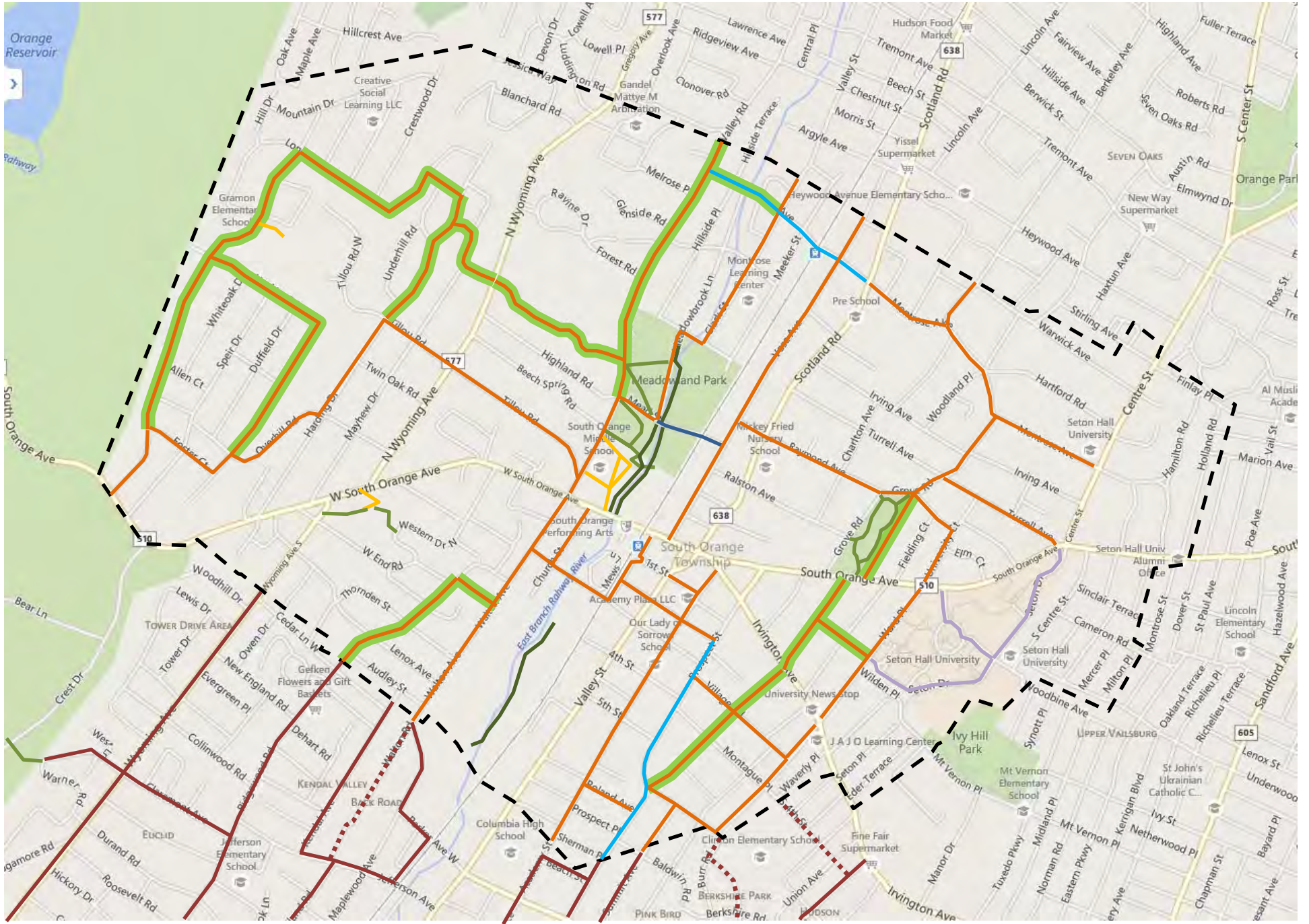
Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, → one way	Woods Trail	SO Boundary
Maplewood adjusted	Added Network Elements	



South Orange Bicycling Network

Stage - 2

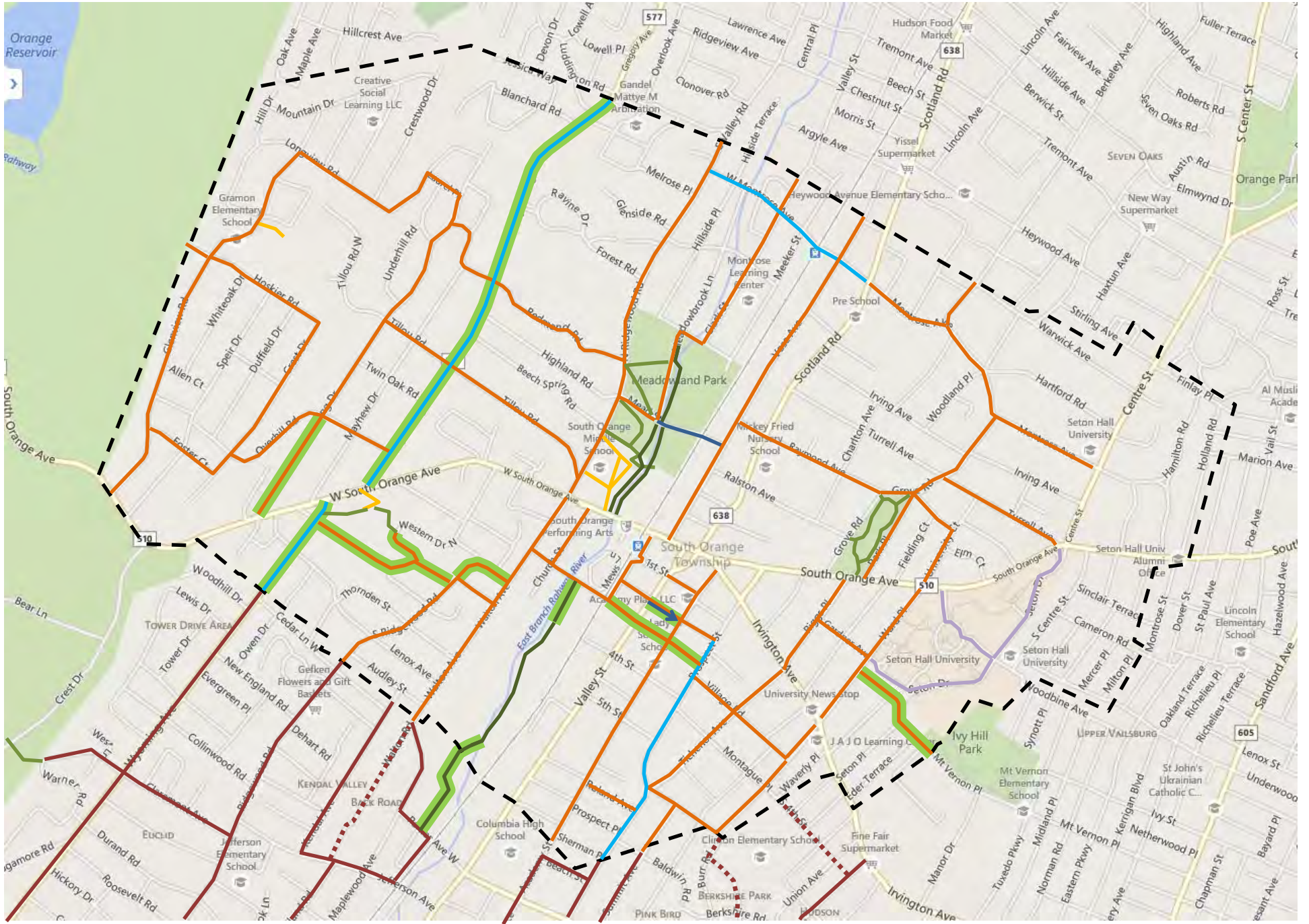
Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
Maplewood adjusted	Added Network Elements	



South Orange Bicycling Network

Stage - 3

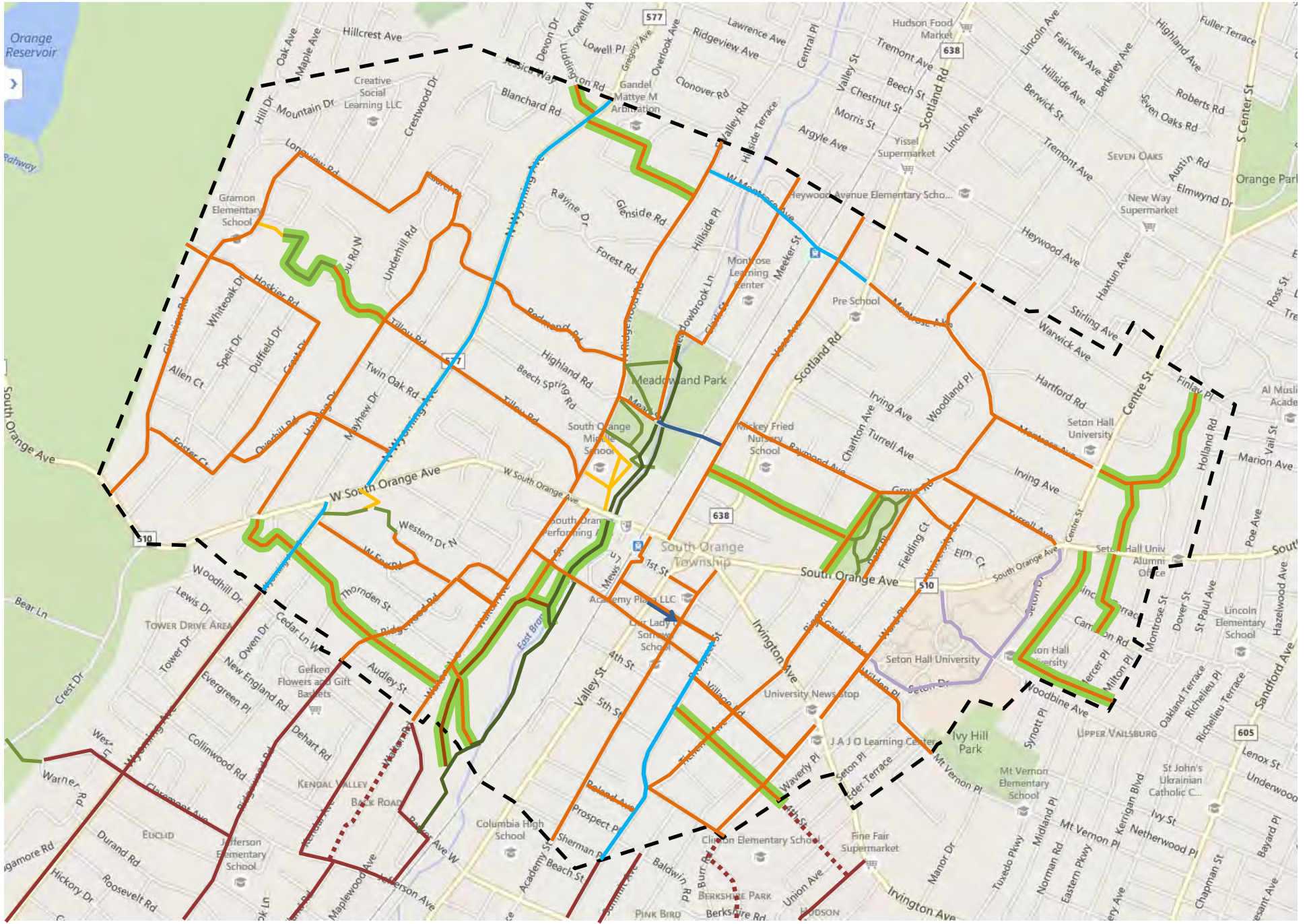
Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
Maplewood adjusted	Added Network Elements	



South Orange Bicycling Network

Stage - 4

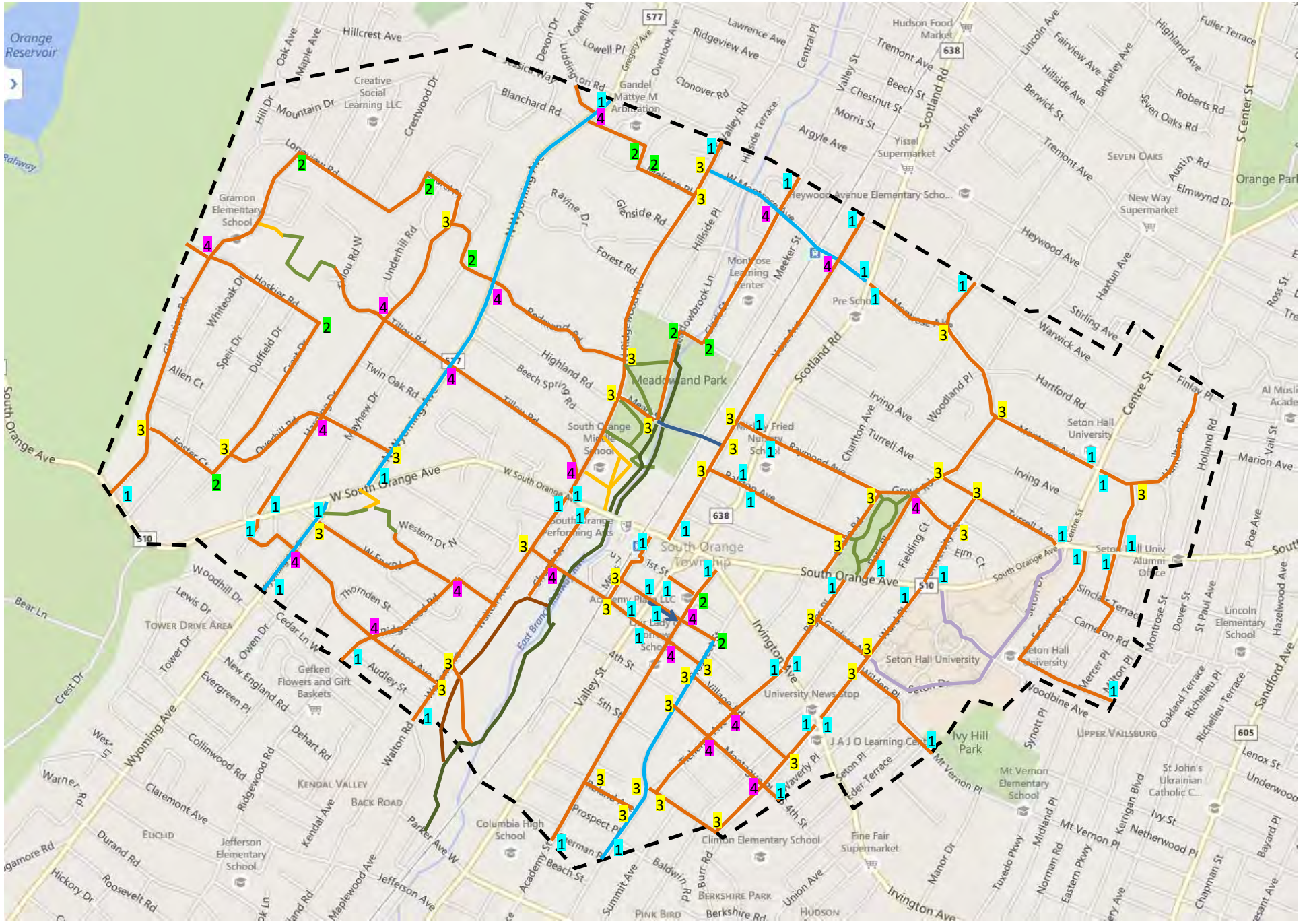
Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
Maplewood adjusted	Added Network Elements	



South Orange Bicycling Network

Stage – 5 (complete)

Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
Maplewood adjusted	Added Network Elements	



South Orange Bicycling Network

Workup of Signage & Pavement Marking Quantities

Shared Lane	Greenway	Seton Hall access
Empty Striped shoulders	Park Trail	School Roads
Bike Lane, one way	Woods Trail	SO Boundary
No. of Wayfinding Indications	49	10
	38	19 = 248

From: [Walter Clarke](#)
To: [Steponanko, Julia](#)
Cc: [Howard Levison](#); [Salvatore Renda](#)
Subject: Re: Essex County CR 638 Road Safety Audit Scheduled: October 26, 2017
Date: Monday, October 30, 2017 3:48:54 PM

Julia,

I am now pasting in notes regarding Valley Street (and 3rd St, South Orange Ave) from Dan Petersen who is a resident and PE who runs our Transportation Advisory Committee. I thought these might be helpful in addition to your own notes and the field observations regarding these areas.

Sal,

We discussed the Third & Valley intersection at yesterday's SOTAC.

A couple of things came out of this.

We understand that Essex County will shortly begin working on the reconstruction of Valley St.

Presumably that would permit some modifications of the striping and signaling at Third & Valley

We discussed the option of including a Nb Left turn pocket. This was thought to be useful

We also discussed the option of including a Sb Left turn pocket, The need for this was thought to be less. Either of these would require changes to the signal heads, and may require an upgrade of the cabinet equipment. We also discussed options of Wb and Eb left turn pockets. These were thought to not be warranted nor particularly useful given the lower volumes and would introduce turning radius problems for the Wb to Nb bus movements.

A sight distance issue for Sb right turning vehicles striking Eb then Sb pedestrians that are entering the west crosswalk was surfaced by a member of the community. I believe that Howard suggested a conversation with the Valley National Bank to trim back their large hedge there at.

Regarding the ped heads, subject of the above emails, we would recommend NOT installing countdown type heads as it leads to drivers accelerating to make the light (at least not on the Nb/Sb directions).

We did advocate installing ADA compliant ped buttons. With that in mind though, we recommended that the signals automatically display white walk phases regardless of the buttons being pressed. I understand that is not implemented in Essex's signals as a matter of course. The absence of an automatic white walk signal induces pedestrians to go ahead and cross whenever they feel they can manage it, which is a recipe for serious accidents. [I noted that we see this at the Parker and Valley signal, which is particularly problematic given the volume of High School students who cross there and are oblivious to the ped buttons].

Further to the conversation on Valley, we discussed relocation of the west curb alongside the Sb direction between Village Plaza and First to eliminate the ability to pass hung-up Sb left turning vehicles on the right, and the resulting threat to Wb crossing pedestrians thereat. We also discussed making the Sb Scotland right lane "Right Only" at its approach to SO Ave and providing a bump out on the opposite SW corner to protect what would then become a strip of parallel parking along the western edge of Valley continuing to First Ave. As part of that discussion, we surfaced a town objective to transform Village Plaza into public space. We also discussed an alternative to widen sidewalks to support al fresco dining through the space alongside Valley instead of providing the aforementioned parking. With all these concepts, the introduction of a crosswalk on the north side of the First & Valley intersection was supported, particularly given the Nb bus stop on the east side of Valley. We also discussed whether the signal cycle lengths of SO Ave and Scotland/Valley and Third & Valley were the same and whether phase coordination of Sb movements at the former and Nb movements at the later could reduce the number of Nb & Sb vehicles simultaneously present at the Valley and First intersection, facilitating Sb lefts and Nb [lefts.at](#) different times.

Returning to Third, it was pointed out that vehicles leaving the new parking deck have a VERY difficult time negotiating the traffic on Third and on Sloan as well as being able to see pedestrians making their various movements. There apparently are some REAL sight distance issues that might (as suggested) warrant installation of a

mirror. Finally, and related to the previous, we still need to get SOMETHING between the trestle columns to prevent pedestrians filtering from north to south (or vice versa). Lastly, it was noted that we need to add the missing pedestrian crossing signs at the crosswalk west of the trestle.

Let me know if you should have any questions or would like to follow up.

Kind regards,

Dan Peterson, PE
Chair, SOTAC

On Thu, Oct 12, 2017 at 1:44 PM, Steponanko, Julia <jsteponanko@gpinet.com> wrote:
Good Afternoon,

The Road Safety Audit (RSA) for CR 638 (Valley Street) is scheduled for Thursday, October 26, 2017 from 8:30a to 3:00p and will start at the Maplewood Township Municipal Building, 574 Valley Street, Maplewood, NJ. The RSA will be held rain or shine.

NJDOT / NJTPA request and appreciate your attendance or the attendance of a representative from your agency/department. Your involvement in this meeting is important and will result in specific recommendations to increase the safety at this location. An agenda and background materials are attached for review. Additional materials will be provided prior to the RSA via a project-specific SharePoint site (a link will be provided in a separate email). Meeting participants are encouraged to drive the site on their own and to document comments regarding the condition of the location prior to October 26. If you have additional historical information and/or reports it would be helpful for you to bring them to the meeting.

Please note: on the day of the RSA, we will meet first at the Maplewood Township Municipal Building and then go to the site as a group. Please dress appropriately for safety and weather (i.e. safety vest, umbrella, etc.) as required by your agency for a field visit and as necessary. A select number of safety vests are available if you do not have one or cannot obtain one from your agency.

Please do not hesitate to contact me with any questions.
Thank you,

Julia Steponanko, P.E.
Engineer

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[Twitter]<<https://twitter.com/GPI1966>>

[Facebook]<<https://www.facebook.com/GPI1966/?ref=hl>>

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Walter Clarke
Trustee, Village of South Orange
wclarke@southorange.org

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In short: Assume this email correspondence is public information.



**COUNTY OF ESSEX
DEPARTMENT OF PUBLIC WORKS**

ESSEX COUNTY PLANNING BOARD
900 BLOOMFIELD AVENUE
VERONA, NEW JERSEY 07044-1393

☎ (973) 226-8506
☎ (973) 226-7469

**JOSEPH N. DIVINCENZO, JR.
COUNTY EXECUTIVE**

**Joseph Alessi
Chairman**

January 24, 2018

Ojetti Davis
South Orange Planning Board Secretary
101 South Orange Avenue
South Orange, New Jersey 07079

JAN 29 2018

**RE: Application SP 02-1017/43-M-88
Meridia, Village Commons1, South Orange, LLC
Fourth Street & Valley Street (South Orange)
Block 2303 Lots 7 - 11
Plans By: Dynamic Engineering Consultants, LLC
Plans Dated: 10/06/2017**

Dear Secretary:

At a meeting of the Land Development Review Committee of the Essex County Planning Board held on January 23, 2018 the above-mentioned application was approved with the following.

- Applicant will make a payment in the amount of \$50,000.00 to the County's Department of Public Works as contribution to the future modernization of the existing traffic signal at the intersection of Valley Street and Third Avenue.
- Existing depressed curbing along Valley Street which will no longer be used for vehicular site access to be replace with full face curb.
- The proposed curbing indentation along Valley Street which is designated as a drop-off/parking area should not be constructed. Instead the current curb alignment should be maintained throughout the site's frontage with Valley Street.
- A maintenance schedule for storm water detention and drainage facilities shall be shown on the plans including the name of responsible party.
- The following two (2) notes are to be placed on the plans:
 - A permit is required from the Office of the County Engineer prior to beginning any work along Valley Street.
 - All work within the County Road Right-of-Way shall be according to Essex County Standards.

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Any and all changes to the approved plans must be resubmitted to the Essex County Planning Board for further review and/or approval.

If you have any questions, please direct them to me at (973) 226-8500, extension 2580 or dantonio@essexcountynj.org.

Sincerely,

A handwritten signature in black ink that reads "David Antonio". The signature is written in a cursive, flowing style.

David Antonio, P.P., AICP
County Planner

cc: Joseph C. Sparone, PE, PP

Appendix K - Road Owner Response: Essex County



**COUNTY OF ESSEX
DEPARTMENT OF PUBLIC WORKS**

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**JOSEPH N. DiVINCENZO, JR.
COUNTY EXECUTIVE**

**Sanjeev Varghese, P.E., P.P.
Director & County Engineer**

**Dennis R. Sedaille
Assistant County Engineer**

April 9, 2018

Julia Steponanko, PE, Project Manager
Greenman-Pedersen Inc (GPI)
100 Corporate Drive
Lebanon, NJ 08833

**Re: Valley St (CR-638), Road Safety Audit (RSA)
Township of South Orange Village and the Township of Maplewood, County of Essex**

Dear Ms. Steponanko:

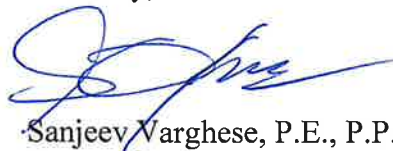
The County of Essex generally agrees with the recommendations of the Valley Street, Road Safety Audit (RSA). The County strives to make our roads safer for all road users and is willing to investigate any recommendations that can assist in achieving that goal. Our agreement with the assessment should in no way be perceived as a commitment to the implementation of such suggestions.

The following general points should be noted:

- Essex County does not maintain or inspect sidewalks along County Roads. That responsibility lies with the municipality or property owner.
- Traffic impacts of land development projects are contingent on implementation of measures that ameliorate those impacts. Review of the traffic impacts of new developments would therefore be redundant.
- Some recommendations may not be warranted or feasible due to engineering or fiscal constraints. Additional analysis is necessary.

Should you have any questions concerning the above, please contact Asif U. Mahmood, Principal Engineer at (973) 226-8500, extension 2560.

Sincerely,



Sanjeev Varghese, P.E., P.P.
County Engineer

RECEIVED APR 12 2018

SV/DA/RV/JP/AUM/File

J:\AMAAMHOOD\njtpa\RSA 2017\RSA for Valley St, letter to Ms Julia.doc

C: Christine Mittman, Project Manager, NJTPA

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