## South Jersey Transportation Planning Organization

## 2011-12 Road Safety Assessment

Ventnor Avenue (CR 629)<br>Ventnor City<br>Margate City, Atlantic County



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## Introduction

Orth-Rodgers \& Associates, Inc. (ORA) was selected by the South Jersey Transportation Planning Organization (SJTPO) to conduct their 2011-12 Road Safety Assessment (RSA) project. The sections of roadway to be studied were selected by SJTPO based on a number of factors considered important to the safety and future development of the roadways. Among the factors considered were crash data, traffic volume growth, recent and planned future development along the roadway, and local cooperation and control. County and local officials cooperated with the SJTPO in identifying roads that meet these parameters.

Three roadway sections and 15 signalized intersections were chosen for the 2011-12 assessments. Two of the roadways are located in Atlantic County, one in Cape May County and the 15 signalized intersections are located in Cape May County.

The three roadway sections are:

1. Ventnor Avenue (CR 629) between Coolidge Avenue (MP 0.78) in Margate City and Dorset Avenue (MP 3.39) in Ventnor City, Atlantic County.
2. Brigantine Avenue (CR 638) entire length, between RT 87 and its northern terminus north of $14^{\text {th }}$ Street. in The City of Brigantine, Atlantic County.
3. New Jersey Avenue (CR 621) between Rambler Road (MP 4.19) and Cresse Road (MP 5.05) and between Young Avenue (MP 5.70) and $26^{\text {th }}$ Street in Wildwood Crest Borough and Wildwood City, Cape May County.

The 15 signalized intersections are:

1. Central Avenue and $16^{\text {th }}$ Avenue in the City of North Wildwood
2. The following locations in the city of Wildwood
a. New York Avenue and Maple Avenue (flashing beacon)
b. Atlantic Avenue and Glenwood Avenue
c. Ocean Avenue and Cresse Avenue
d. Atlantic Avenue and Cresse Avenue
e. Atlantic Avenue and Hand Avenue
f. Atlantic Avenue and Taylor Avenue
g. Atlantic Avenue and Montgomery Avenue
h. Atlantic Avenue and Schellenger Avenue
i. Atlantic Avenue and Oak Avenue
j. Atlantic Avenue and Wildwood Avenue
k. Atlantic Avenue and Magnolia Avenue
l. Atlantic Avenue and $26^{\text {th }}$ Street
m. Pacific Avenue and Baker Avenue
n. Pacific Avenue and Spencer Avenue
o. Central Avenue and $16^{\text {th }}$ Avenue

Each studied roadway will have a separate report, but will share basically the same introduction, background section, format and some text.

Safety assessments serve to address the safe operation of the roadways and to ensure a high level of safety for all road users. The process of a safety assessment is two-fold: 1) to conduct a formal examination of highway features and the surrounding environment that increases the potential for crashes; and, 2) to identify countermeasures that will reduce or eliminate the probability of such crashes. According to the Federal Highway Administration (FHWA), the formal definition of a road safety audit is as follows:

## "A Road Safety Audit is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team."

To accomplish these goals, the assessment team assesses the safety performance history as well as the future crash potential of a roadway and prepares a report that documents the safety
deficiencies and appropriate countermeasures. The purpose of the 2011-12 assessment is to identify potential safety deficiencies along the selected sections of the three roadways and at the 15 signalized intersections.

There are three primary parts of the assessment: 1) the data collection and analysis phase; 2) the field view (conducted by the team); and, 3) the preparation of the report and findings.

The data collection phase is performed prior to the assessment team conducting a field view of the entire roadway. The data is intended to assist the team in identifying potential safety issues, as well as to provide a factual and historic component of the study. Traffic count and crash data are collected, and a capacity analysis of major intersections is performed. The traffic counts are used to assist in analyzing solutions for the intersections, as well as aid in identifying the most congested sections of the roads. The crash data assists the team in identifying specific areas and/or conditions that warrant close scrutiny that might have otherwise been overlooked. The capacity analysis of intersections identifies how well the intersections are operating and when and where improvements may be needed. Based on an analysis of all of the data, the team can conduct a productive and comprehensive evaluation of the roads being studied. A multidisciplinary team conducts the field view.

In this case, the team divided into two groups with one group walking the northbound side of the road and the other the southbound side of the road beginning at Huntington Avenue and walking north to Derby Avenue. They then rode south to Coolidge Avenue and walked north to Huntington Avenue discussing observations and taking notes for inclusion in the report. The team leader then prepared a draft report that documented the assessments findings and recommended actions. The draft report was distributed to the team members for their review and comments. A final report was then prepared by the team leader incorporating the agreed upon draft report comments.

## BACKGROUND INFORMATION

At the pre-assessment meeting a list of questions were asked of the County and local representatives seeking to gather background information on Ventnor Avenue (CR 629). The questions asked were:

- Why was the road chosen for the assessment?
- What problems exist on the road?
- What areas should be given special attention?
- Has the roadway changed in the last three years?
- Are there any projects pending or anticipated for the roadway and their status?
- Have any of the traffic control devices or regulations been changed in the last three years (i.e., signals, speed limits, etc.)?
- Was there any development on the road in the last three years, or any proposed development on the road or in the area that has or will impact traffic in the future?
- Are any recent traffic counts available?
- Have any recent traffic studies been conducted on the road?
- What plans, if any, are available for the road?
- At what locations should new traffic counts, either turning movement or ATRs, be conducted?

The same questions were again asked at the workshop on the day of the assessment to ensure that no available data was missing. A pre-assessment information package was prepared and distributed at the workshop prior to the field view The package included a brief explanation of what a safety assessment is, why safety assessments are conducted, and the process involved. It also included a chart of three year crash trends, crash occurrence by month, by day of the week, by time of day, by surface condition, by light condition, by crash severity, by crash type, and by closest intersection.

## VENTNOR AVENUE (CR 629)

Ventnor Avenue (CR 629) is under the jurisdictional control of Atlantic County. It is designated as a south-north road. The road is classified as an urban principal arterial. The total length of the study area is 2.61 miles.

Ventnor Avenue (CR 629) is basically a two-lane fifty three foot wide roadway. Parking is practiced along both sides of much of the road. The speed limit along the study section of road is 25 MPH . Its curb lines are fully developed with mixed business- residential use. There is sidewalk along most of the road.

It was ascertained from local members of the assessment team that:

- The road was chosen to be assessed because of the seasonal influx of summer traffic as the road is located in the summer resort area of the state. Pedestrian and bicycle traffic is considered to be significant during the summer months and is a safety concern. Also, the County desires to upgrade the traffic signals in the study area as most are old , lack detection, lack pedestrian signals , are inadequately coordinated, and lack various items now required by the MUTCD which contribute to the over all safety of the road.
- There are no projects planned for the road.
- There have been no changes to the traffic controls along the road in the last three years.

The following sections describe the various tasks undertaken by ORA in partnership with the Safety Assessment Team and summarize the findings from the assessment process in a manner that will allow the responsible agencies and personnel to prioritize implementation of safety enhancements.

## Pre-Assessment Data Collection and Analysis

Prior to the assessment activities on site, ORA collected and reviewed traffic data and other related materials in order to assist the team in conducting the assessment. ORA also conducted a pre-assessment field view of the road to familiarize itself with the road. A description of the materials that were reviewed is provided below.

## 1. Traffic Volume Data

Since the road is located within the summer resort area of the state, the County requested traffic counts be conducted during the summer months; therefore they were not available prior to conducting the field view. Eight hour traffic counts were conducted at the intersection of Washington Avenue and Ventnor Avenue (CR 629), Also, 10AM-2 PM Saturday traffic counts were also conducted at the intersection. GTS consultants conducted the weekday count at Washington Avenue on Thursday July 28, 2011 and the Washington Avenue Saturday count on July 30, 2011.

## 2. Crash Data

SJTPO forwarded the crash data excel files to ORA for the roadway being studied. Crash data for the years 2008, 2009 and 2010 was reviewed. A summary sheet, crash data summary text, and crash data charts were prepared for use during the pre-assessment meeting.

## CRASH DATA SUMMARY

During the kickoff meeting with the County it was learned that SJTPO would provide the crash charts for the section of roadway being assessed. It was agreed that a straight line diagram plot of the crash data would not be required. In the three year period, a total of 204 crashes occurred along the study section of road. Seventy six (76) crashes occurred in 2008, sixty five (65) in 2009 and sixty three (63) in 2010.

The types of crashes are characterized as follows: a concentration of crashes for reference in this report will consist of three (3) or more crashes of the same type at a location in the three (3) year period, 2008-2010. The table below summarizes the crash data by type of crash and location:

| $\begin{array}{\|c} \hline \text { \# of Crashes } \\ \text { (\%) } \\ \hline \hline \end{array}$ | Type of Crash | Location of Crashes |
| :---: | :---: | :---: |
| 0 | Fatal Crashes |  |
| $\begin{gathered} 62 \\ (30 \%) \end{gathered}$ | Injury Crashes |  |
| 146 (70\%) | Non-Injury Crashes |  |
| 17 (8\%) | Right Angle Type Crashes | No concentrations. |
| 70 (34\%) | Same Direction Rear End Crashes | (6) at Fredericksburg Ave., (4) at both Douglas Ave. and Troy Ave., (3) at Cornwall Ave., Dorset Ave., Grandville Ave., Lancaster Ave., Portland Ave., Washington Ave. (MP 1.07); no other concentrations. |
| 8 (4\%) | Left Turn Type Crashes | No concentrations. |
| 33 (16\%) | Side Swipe Same Direction Type Crashes | (4) at Frontenac Ave., (3) at Dorset Ave., Ventnor Ave., and Washington Ave.; no other concentrations. |
| 2 (1\%) | Side Swipe Opposite Direction Type Crashes | No concentrations. |
| 9 (4\%) | Fixed Object Type Crashes | No concentrations. |
| 2 (1\%) | Head-On Type Crash | No concentrations. |
| 8 (4\%) | Pedestrian Type Crashes | No concentrations. |
| 5 (2\%) | Bicyclist Type Crashes | No concentrations. |
| 37 (18\%) | Struck Parked Vehicle Type Crashes | (3) at Martindale Avenue, no other concentrations |
| 9 (4\%) | Backing Type Crashes | No concentrations. |
| 4 (2\%) | Other Type Crashes (overturned, nonfixed object, other) | No concentrations. |

The crash data was compared to the "Crash Summary For County Road System" obtained from the NJDOT for the year 2009. Where SJTPO Regional averages for roads in the region were available they also are referenced.

A review of the crashes established the following:

- The months with the most crashes, as expected since the roadway is in the summer resort area of the state, were July (34) and August (33).
- The day of the week with the highest number of crashes was Thursday (40) and Wednesday (22) was the day with the least number of crashes.
- The highest frequency of crashes (31) occurred between 1:00-2:00 PM.
- The percentage of crashes during hours of darkness (14\%) is lower than the statewide average for county roads (approximately 27\%). The SJTPO Regional average for roads in the region is $24 \%$.
- The percentage of crashes for wet surface conditions (10\%) is lower than the statewide average for county roads (approximately 22\%).
- The percentage of crashes with injuries (29\%) is approximately the same as the statewide average for county roads (approximately 28\%).
- The percentage of right angle type crashes (8\%) is lower than the statewide average for county roads (approximately 19\%). The SJTPO regional average for roads in the region is $16 \%$.
- The percentage of same directional type crashes (34\%) is approximately the same as the statewide average for county roads (approximately 32\%). The SJTPO Regional average for roads in the region is $22 \%$.
- The percentage of left-turn crashes (4 \%) is approximately the same as the statewide average for county roads (approximately 5\%).
- The percentage of side-swipe same direction type crashes (16\%) is higher than the statewide average for county roads (approximately 11\%). The SJTPO Regional average for roads in the region is $9 \%$.
- The percentage of fixed-object type crashes (5\%) is lower than the statewide
average for county roads (approximately 12\%). The SJTPO Regional average for roads in the region is $17 \%$.
- The percentage of head on crashes (1\%) is approximately the same as the statewide average for county roads (approximately 3\%).
- The percentage of pedestrian type crashes (4\%) is greater than the statewide average for county roads (approximately 2\%).
- The percentage of bicycle type crashes (2\%) is greater than the statewide average for county roads (approximately 1\%).
- The percentage of struck parked vehicle type crashes (18\%) is much higher than the statewide average for county roads (approximately 6\%). The SJTPO Regional average for roads in the region is $13 \%$. This crash type has also increased significantly in each of the last 3 years; 7 in 2008, 12 in 2009 and 18 in 2010.


## Assessment

On August 4, 2011, the Safety Assessment Team met in the Ventnor City library building to formally conduct the assessment. The meeting commenced at 9:00 AM with brief statements by ORA representatives who reiterated the importance of RSAs and outlined the objectives of the safety assessment. There were brief introductions by team members followed by an extensive review and discussion of materials described in the previous section. The team then walked to the Huntington Avenue intersection to begin the assessment. Atlantic County provided a van for the team. Team members are listed below.

SAFETY ASSESSMENT TEAM FOR BRIGANTINE AVENUE

| Name | Agency |
| :--- | :--- |
| John Masi | Atlantic County |
| James Mason | Atlantic County |
| Donald Cattie | Margate Police |
| Jennifer Marandino | SJTPO |
| John Everest | Atlantic County |
| Edward Newman | Atlantic County |
| Lt. Peter Crook | Margate Police |
| Chief David Wolfon | Margate Police |
| Thanh Le | Rutgers TSRC |
| Sgt Charles Hood | Ventnor Police |
| Andy Kaplan | Rutgers TSRC |
| Ashley Machado | Rutgers TSRC |
| Chief Donald Cancelosi | Ventnor Police |
| Kim Rochester | Orth-Rodgers \& Associates, Inc. |
| Norman Deitch | Orth-Rodgers \& Associates, Inc. |
| George Strathern | Orth-Rodgers \& Associates, Inc. |
| Mark Ciabrone | Margate Police |

The team split up into two groups, one walking the northbound side of the road lead by Mr . Strathern and the other walking the southbound side lead by Mr. Masi. The teams walked from Huntington Avenue north to Dorset Avenue and then rode south to Coolidge Avenue and
walked north to Huntington Avenue.

During the field views, team members identified features on the roadway and its surrounding environment that could contribute to the occurrence or relative severity of roadway crashes. At the intersections and mid-block locations, the Assessment Team identified safety deficiencies and inappropriate traffic signs, as well as other items that were felt to be inconsistent with effective road function and use. A variety of safety improvement measures were discussed with field notes and digital photographs being taken by team members.

At the completion of the assessment, the team leader recapped the findings of the assessment with the team. The team leader informed the team members on the next step in the assessment process; ORA will prepare a draft report summarizing the findings from the assessment process and forward the report to all team members for their review and comments.

On November 4, 2011 Norman Deitch and George Strathern conducted a night assessment of the road. The goal was to check the retroflectivity of the street signs, pavement markings, and condition of the raised pavement markers (RPMs). In addition, the need for street lighting was checked and lights adjacent to the roadway on private property were checked to ensure that they did not create bright areas that could distract drivers. The team also looked for issues that would only be apparent during hours of darkness, such as clearly defined roadway alignment, ineffective street lighting, etc.

The next section of the report summarizes the findings from the daytime and nighttime assessment of Ventnor Avenue (CR 629) along with suggested remedial actions to address the noted safety issue. In order to assist in prioritizing the work effort recommended to correct the situation, the level of effort (low, medium, high) and degree of safety benefit derived (low, medium, high) is also noted for each item.

## LEVEL OF EFFORT REQUIRED

For this road safety assessment final report the "level of effort" required to address a remedial action recommendation has been divided into three levels - low, medium and high. A correlation of cost and man hour expenditures generally helps to define the level of effort. The following are some examples of the levels of effort:

- Low Level of Effort - Development of general work orders or directives from the engineering department to its maintenance forces to: implement signal timing changes; pavement marking revisions and refurbishing; replacing worn signs; installing new signs; replacing a few rigid sign supports with breakaway supports; tree trimming.
- Medium Level of Effort - Minor revisions to a traffic signal not requiring any underground work; signal revisions that require re-wiring for new signal heads; installing pedestrian indications; replacing inlet grates; installing or repairing small sections of sidewalk and guiderail; installing corridor wide breakaway sign supports; restriping an entire roadway section; conducting more detailed in-house traffic studies to address specific issues.
- High Level of Effort - Major signal revisions requiring underground work such as new foundations, conduit, new signal controller; redesign of roadway features; resolving poor drainage issues; development of design plans that would require outside contractors to implement; any road work that would require permits and general capital improvement projects.


## POTENTIAL SAFETY BENEFITS

Potential safety benefits are divided into three categories - low, medium and high. This is a subjective breakdown based on engineer's opinion as to the percentage of the road that would be impacted by the improvement along with the degree of impact that the identified safety issue would have on potential crash experience. For example, eliminating a potential tripping safety hazard where there are very few pedestrians could be considered low, however, if they number of pedestrians was high the potential safety benefit would increase. Pavement markings not visible at night could be considered high.

## Findings

The findings from the Ventnor Avenue (CR 629) safety assessment are listed below. Where practical repetitious items have been combined into a single comment or general comment

| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 1 | General comment- the pavement markings along the entire roadway are worn and need to be re-painted |  | Re-install pavement markings. |  |  | X |  |  | X |
| 2 | General comment- the county suggested that the pedestrian clearance intervals be checked for compliance with MUTCD. The team concurs with this item. | Review duration of pedestrian clearance intervals for compliance with MUTCD. | X |  |  |  | X |  |
| 3 | General comment-roadway surface is deteriorated. (Picture \#1) | Consideration be given to evaluation the pavement condition and making the necessary repairs to the pavement. |  |  | X |  |  | X |





| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 10 | General comment- local officials stated that the signal progression along the road was not good. The team concurs with this observation. |  | Consideration be given to evaluating the signal progression along the roadway to determine what improvements can be made. |  |  | X |  | X |  |
| 11 | General comment- the county noted lack of detection at many of the signalized intersections. Additionally, they commented that much of the signal equipment is worn and needs to be replaced (signal heads, controllers, poles, conduit). Team members concur with this item. (Pictures 6, 7 \& 8) | Consideration be given to reviewing the need for detection at intersections and replacing the old traffic signal equipment. |  |  | X |  |  | X |
|  |  |  |  |  |  |  |  |  |




| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 14 | The following locations have inlets located within the crosswalk-handicap ramp area (Picture 10): <br> Northbound side- <br> Gladstone Avenue -northeast and southeast corners. <br> Franklin Avenue- northeast and southeast corners. <br> Douglas Avenue. <br> Claremont Avenue <br> Clarendon Avenue <br> Barclay Avenue <br> Fortenac Avenue-northeast and southeast corners. <br> Franklin Avenue <br> Essex Avenue |  | Consideration be given to investigating what can be done to either relocate the inlets out of the handicapped area or to revise the handicapped area and crosswalk to eliminate the conflict. |  |  | X | X |  |  |
|  |  | PICTURE 10: Inlet Located in crosswalk area |  |  |  |  |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 15 | Fortenac Avenue Signalized Intersection: <br> There is no painted centerline along the Fortenac Avenue easterly approach to the intersection. (Picture 11) <br> Northeast and southeast corner-pole mounted vehicular indication installed for pedestrian control at the intersection. |  | Install a minimum of 50 ' of double yellow centerline. <br> Consideration be given to installing WALK_DONT WALK pedestrian indications at the intersection. | X |  | X | X | X |  |
|  |  | PICTURE 1 <br> No Painted Centerline |  |  |  |  |  |  |
| 16 | Northbound side- Franklin Avenue crosswalk across Ventnor Avenue does not lead into the handicapped ramp | Reinstall crosswalk to handicap ramp. | X |  |  | X |  |  |
| 17 | Northbound side- Essex Avenue"STOP" sign is worn and defaced. | Replace with new sign. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 18 | Douglas Avenue Signalized Intersection: <br> Southeast corner- "DO NOT ENTER" sign is worn and installed on a round steel pole. <br> Northeast corner- "DO NOT ENTER" sign is worn. <br> Pedestrian indications across the Douglass Avenue easterly approachhand goes dark during the countdown interval and remains out during the "DON'T WALK" interval. (Picture 12) |  | Replace with new sign on a breakaway post. <br> Replace with new sign. <br> Make necessary repairs to obtain correct signal displays. | X <br> X <br> X |  |  | X <br> X <br> X |  |  |
|  |  |  |  |  |  |  |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 19 | Northbound side- north of Arygle- "NO PARKING WHEN ROAD IS SNOW COVERED" sign is worn. |  | Replace with new sign. | X |  |  | X |  |  |
| 20 | Inlets which are not bicycle safe were noted at the following locations. <br> New Haven Avenue. <br> Dorset Avenue. | Consideration be given to replacing all of the inlet grates with bicycle safe grates. |  | X |  |  | X |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 21 | The following locations had sign which are installed on non-breakaway posts. <br> NORTHBOUND SIDE- <br> Douglass Avenue- Southeast corner"DO NOT ENTER" sign is worn and installed on a round steel pole. <br> Worn "STOP" sign on the Clermont Avenue easterly approach. <br> "ONE WAY" sign at Arygle Avenue. <br> Worn "DO NOT ENTER" at Andover Avenue. <br> "ONE WAY" signs (2) at Andover Avenue. <br> "NO PARKING MONDAY 7AM-7PM" just north of Baltimore Avenue. <br> Worn "STOP" sign on the Lafayette Avenue approach <br> Worn "SPEED LIMIT 25" just north of Lafayette. <br> "NO PARKING MONDAY 7AM-7PM" just north of Buffalo Avenue. <br> "NO PARKING MONDAY 7AM-7PM" sign and " 60 MINUTE PARKING 9AM-6PM" just south of Richards Avenue. |  | Re-install signs on break-away posts. Replace those signs indicated as worn or undersized unless otherwise noted. Trim tree or relocate those indicated as obstructed by tree branches. |  |  | X |  | X |  |



| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 21 | Continued |  |  |  |  |  |  |  |  |
|  | "SPEED LIMIT 25" north of Monroe Avenue. |  |  |  |  |  |  |  |
|  | "MUNCIPAL PARKING ON NORTH WASHINGTON AVENUE" north of Monroe Avenue. |  |  |  |  |  |  |  |
|  | "TWO HOUR PARKING 8AM-5PM" north of Monroe Avenue. |  |  |  |  |  |  |  |
|  | Worn "DO NOT ENTER" sign on southeast corner of Jefferson Avenue. |  |  |  |  |  |  |  |
|  | Adams Avenue-southeast corner- "STOP FOR PEDESTRIANS IN CROSSWALK" |  |  |  |  |  |  |  |
|  | Adams Avenue-southeast corner- "ONE WAY" signs. |  |  |  | X |  | X |  |
|  | "TWO HOUR PARKING 8AM-5PM" north of Adams Avenue. |  |  |  |  |  |  |  |
|  | South of Washington Avenue"CURFEW 10 PM STRICKLY ENFORCED". |  |  |  |  |  |  |  |
|  | North of Quincy Avenue-"NEW JERSEY TRANSIT BUS STOP" sign. |  |  |  |  |  |  |  |
|  | "STOP" sign just north of Memorial park. |  |  |  |  |  |  |  |
|  | Lancaster Avenue- Worn "ONE WAY" sign on the southeast corner. Relocate to more visible location. |  |  |  |  |  |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 21 | Continued- <br> Kenyon Avenue-"ONE WAY" sign southeast corner. Relocate to more visible location. <br> Jasper Avenue-southeast corner "ONE WAY" sign and "DO NOT ENTER" sign. Also, signs are obstructed by trees. <br> North of Jasper Avenue- worn "SPEED LIMIT 25". <br> Hanover Avenue- southeast corner"ONE WAY" signs. <br> Just north of New Haven Avenue-"NO PARKING ANYDAY 7AM-7PM". <br> Also, sign obstructed by tree branches. <br> SOUTHBOUND SIDE- <br> Signs at Benson Avenue. <br> "DO NOT ENTER" at Andover Avenue. |  |  |  |  | X |  | X |  |
| 22 | Northbound side- Clarendon Avenuenortheast corner- sidewalk uneven, possible tripping hazard. | Consideration be given to correcting possible tripping hazard. |  | X |  | X |  |  |
| 23 | Brunswick Avenue and West Drivethere was much discussion regarding the movements to and from West Drive and possible motorist confusion as to where specific movements should be made. | Consideration be given to evaluating the intersection in more detail to determine what if anything should be done to better define the movements at the intersection. |  | X |  |  | X |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 24 | Fredericksburg Avenue Signalized Intersection |  |  |  |  |  |  |  |  |
|  | General comment-This is a complex intersection with significant pedestrian activity. | Considering the complexity of the intersection and pedestrian crossing activity at the intersection the County should consider the possibility of installing a new traffic signal at the intersection. |  |  | X |  |  | X |
|  | There is no centerline along the East Drive approach to the intersection. | Install double yellow centerline along approach as indicated on the signal plan for the intersection. | X |  |  | X |  |  |
|  | There are two far side mast arm mounted indications facing the East Drive approach to the intersection, one of which is obstructed by tree branches. <br> (Picture 13) | Trim tree to eliminate obstruction. | X |  |  |  |  | X |



| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 26 | Washington Avenue Signalized Intersection: -pedestrian signals recently installed at intersection. <br> Pedestrian signal head clamps not attached. <br> Count down feature not working properly on WAWA corner. Washington Avenue pedestrian walk phase not coming up. |  | Attach clamps for pedestrian head. <br> Correct signal operation to operate as authorized. | X <br> X |  |  | X | X |  |
| 27 | Northbound side-Baltimore Avenuepavement depressed near corner resulting in water pooling in road. <br> (Picture 14) <br> Southbound side- sidewalk damaged. | Consideration be given to evaluating what can be done to eliminate pooling. <br> Consideration be given to repairing the damaged sidewalk. |  | X | X | X <br> X |  |  |
|  |  | PICTURE 14: <br> Water Ponding in the roadway |  |  |  |  |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 28 | Melborune Avenue Signalized Intersection: |  |  | X |  | X | X | X |  |
|  | Traffic signal at the intersection utilizes vehicular indications to control the pedestrian movements at the intersection. | Consideration be given to upgrading the traffic signal installation with WALK_DONT WALK pedestrian signals. |  |  |  |  |  |  |
|  | Neither of the Melborune Avenue approaches have painted center lines. | Install a minimum of 50 ' of double yellow center line along both approaches. |  |  |  |  |  |  |
|  | Visor damaged on signal head. | Replace damaged visor. | X |  | X |  |  |  |
| 29 | Lafayette Avenue- neither of the Lafayette Avenue approaches have a painted center line. | Install a minimum of 50' of double yellow center line along both approaches. <br> Consideration be given to investigating what can be done to improve the drainage at the intersection. | X |  | X | X |  |  |
|  | Southbound side-storm water ponding on northwest corner. |  |  |  |  |  | X |  |



| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 32 | Wissahickon Avenue Signalized Intersection: This signalized intersection is identified as a school crossing. |  |  |  |  |  |  |  |  |
|  | Northeast corner- pedestrian push button and sign are not installed parallel to the crosswalk as recommended in the current MUTCD. Sign for pedestrian push button is mounted approximately 2 ' above the push button. | Consideration be given to reinstalling the pedestrian push button and sign parallel to the crosswalk at the appropriate height. | X |  |  | X |  |  |
|  | Southeast corner- pole supporting pedestrian push button appears to be more then 5 ' from the crosswalk as recommended in the current MUTCD. Pedestrian push button and sign are not installed parallel to the crosswalk as recommended in the current MUTCD. Sign for pedestrian push button is worn and mounted approximately 2' above the push button. (Picture 15) | Consideration be given to reinstalling the pedestrian push button and a new sign parallel to the crosswalk at the appropriate height. | X |  |  | X |  |  |
|  | Northbound side-There is not an advance school crossing warning sign with an ahead plate. | Install advance school crossing warning sign with ahead plate at appropriate distance in advance of the crossing. | X |  |  | X |  |  |
|  | Southbound side- signs are installed too low. Signs are worn. | Replace worn signs, install others at appropriate height. | X |  |  | X |  |  |
| PICTURE 15: <br> Non-Compliant Pedestrian Signal Pole |  |  |  |  |  |  |  |  |

\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{2}{|r|}{\multirow[b]{2}{*}{SAFETY ISSUE}} \& \multirow[b]{2}{*}{REMEDIAL ACTION} \& \multicolumn{3}{|l|}{LEVEL OF EFFORT REQUIRED} \& \multicolumn{3}{|l|}{POTENTIAL SAFETY BENEFIT} \\
\hline \& \& \& LOW \& MEDIUM \& HIGH \& LOW \& MEDIUM \& HIGH \\
\hline 33 \& Northbound side- just south of Wissahickon Avenue-worn "NO PARKING HERE TO CORNER." \& Replace with new sign. \& X \& \& \& X \& \& \\
\hline 34 \& Troy Avenue Signalized Intersection: No painted centerline on the Troy Avenue westerly approach to the intersection. \& Install a minimum of 50' of double yellow center line along approach. \& X \& \& \& X \& \& \\
\hline 35 \& \begin{tabular}{l}
New Haven Avenue Signalized Intersection: \\
It is questionable if there is a signal indication within the cone of vision along for the eastbound approach. Signal plan shows a pedestal mounted far side indication that on the plan appears to be within the cone of vision. \\
The New Haven Avenue westerly approach has angle parking along its southerly curb line and parallel parking along its northerly curb line. The painted centerline along that approach appears to be located in the center of the approach. (Picture 16) \\
Southbound side- New Haven Avenue eastbound approach- signal heads may be installed too high.
\end{tabular} \& \begin{tabular}{l}
Consideration be given to reviewing the signal plan against the installation in the field to ensure that the design meets the requirements of the MUTCD. \\
Consideration be given to relocating the painted centerline along the approach to the north to provide a wider approach lane behind the angle parking. \\
Check height of signal heads make any needed adjustments.
\end{tabular} \& X

X

X \& \& \& | X |
| :--- |
| X |
| X | \& \& <br>

\hline \&  \& | PICTURE 16: |
| :--- |
| Angle Parking | \& \& \& \& \& \& <br>

\hline
\end{tabular}

| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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| 36 | New Port Avenue Signalized Intersection: <br> Access door to the pedestal pole on the southeast corner of the intersection is missing. <br> Pole mounted traffic signal indications on the northeast and southeast corners of the intersection are missing visors. <br> (Picture 17) <br> Traffic signal at the intersection utilizes vehicular indications to control the pedestrian movements at the intersection. Pedestal mounted indications at the intersection are worn. |  | Install missing access door. <br> Install missing visors. <br> Consideration be given to upgrading the traffic signal installation with WALK_DONT WALK pedestrian signals. | X |  | X | X | X |  |
| PICTURE 17: <br> Missing Visors |  |  |  |  |  |  |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 37 | Portland Avenue Signalized <br> Intersection: Install advance school crossing <br> warning signs with ahead plates <br> at appropriate distance, to be <br> crossing but lack the advance school <br> crossing warning signs and ahead plates. <br> determined in the field, in <br> advance of the intersection. X <br> Some water was observed lying along <br> the curb line on the southeast and <br> northeast corners of the intersection. <br> Consideration be given to <br> evaluating the cause of the <br> pooling and any possible <br> corrective action. Replace with new sign  <br> Southbound side-worn "ONE WAY" <br> sign. X  <br> Southbound side- sign mounted too low. Reinstall sign at appropriate <br> height. X <br> Southbound side-milepost "3" sign <br> damaged. Replace with new sign.  |  |  |  |  | X | X |  |
|  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  | X |  |  |
|  |  |  |  |  |  | X |  |  |



| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 39 | Cambridge Avenue Signalized Intersection: |  |  | X |  | X | X | X |  |
|  | Traffic signal at the intersection utilizes vehicular indications to control the pedestrian movements at the intersection | Consideration be given to upgrading the traffic signal installation with WALK_DONT WALK pedestrian signals. |  |  |  |  |  |  |
|  | Signal indications on the pedestal pole on southeast corner of the intersection are obstructed by tree branches on that corner. | Trim tree branches to remove obstruction. |  |  | X |  |  |  |
|  | Visor is missing from pole mounted signal indication on the southwest corner of the intersection. | Install missing visor. | X |  |  |  |  |  |
|  | Southeast corner- pole supporting pedestrian push button appears to be more then 5' from the crosswalk as recommended in the current MUTCD. Sign of pedestrian push button is mounted approximately 2 ' above the push button. | Consideration be given to correcting location of the push button if and when the signal installation is upgraded. Reinstall sign at the appropriate height. | X |  |  | X |  |  |
|  | Northeast and southwest corners Pedestrian push buttons and signs are not installed parallel to the crosswalk as recommended in the current MUTCD. Sign for pedestrian push button is mounted approximately 2 ' above the push button. | Consideration be given to installing pedestrian push buttons and signs parallel to the crosswalk at the appropriate height. | X |  |  |  |  |  |
|  | Southbound side-"DO NOT ENTER" sign obstructed by pedestal signal. | Investigate alternative location for sign. | X |  |  | X |  |  |




| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| PICTURE 19: <br> Bus Stop |  |  |  |  |  |  |  |  |
| 42 | Coolidge Avenue Signalized Intersection: <br> Traffic signal at the intersection utilizes vehicular indication to control the pedestrian movements at the intersection. <br> Pedestrian push buttons and signs are not installed parallel to the crosswalk as now recommended by MUTCD. |  | Consideration be given to upgrading the traffic signal installation with WALK-DONT WALK pedestrian signals. <br> Consideration be given to reinstalling the pedestrian push button and a new sign parallel to the crosswalk at the appropriate height. |  | X | X | X | X |  |
| 43 | Northbound side- north of Coolidge Avenue- "NO PARKING WHEN ROAD IS SNOW COVERED" and "TWO HOUR PARKING 8AM-5PM" signs obstructed by tree branches. | Trim tree or find another location for signs. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 44 | Northbound side- north of Coolidge Avenue- "TWO HOUR PARKING 8AM-5PM" installed on breakaway post but the stub is too far above the ground. |  | Adjust post installation so that stub is at appropriate height. | X |  |  | X |  |  |
| 45 | Northbound side -southeast corner of Monroe Avenue- empty non-breakaway sign post that should probably have a "DO NOT ENTER" sign installed on it. | Remove sign post, install breakaway sign post and "DO NOT ENTER" sign. | X |  |  | X |  |  |
| 46 | Northbound side- north of Monroe Avenue- "TWO HOUR PARKING 8AM-5PM" Sign will probably have to be relocated to another location to be visible. The sign is installed on breakaway post but the stub is too far above the ground. | Relocate sign and post. | X |  |  | X |  |  |
| 47 | Northbound side- north of Jefferson Avenue- " 15 MINUTE PARKING" sign is installed on breakaway post but the stub is too far above the ground. | Adjust post installation so that the stub is at the appropriate height. | X |  |  | X |  |  |
| 48 | Northbound side- north of Jefferson Avenue- "15 MINUTE PARKING" sign is installed on breakaway post but the stub is too far above the ground. | Adjust post installation so that the stub is at the appropriate height. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 49 | Lancaster Avenue Signalized Intersection: <br> Traffic signal at the intersection utilizes vehicular indications to control pedestrian movements. <br> Access door to pedestal pole on the southeast corner of the intersection is missing. <br> Southbound side-worn "ONE WAY" sign. <br> Signal heads are not LED. |  | Consideration be given to upgrading the traffic signal installation with WALK-DONT WALK pedestrian signals. <br> Install missing access door. <br> Replace worn sign. <br> Consideration be given to replacing signal heads with LED fixtures. | X |  | X | X <br> X <br> X | X |  |
| 50 | Northbound side- North of Lancaster Avenue- newspaper boxes chained to sign post for 'NO PARKING WHEN ROAD IS SNOW COVERED" sign. | Contact appropriate authority regarding the relocation of the news paper boxes. | X |  |  | X |  |  |
| 51 | Jerome Avenue Signalized Intersection: <br> Southbound side- signal heads facing Jerome Avenue are not aligned with travel lanes. <br> Southbound side-"NO TURN ON RED" sign is worn. <br> Southbound side- worn signs. | Review signal design for conformance with current MUTCD standards. <br> Replace with new sign. <br> Replace worn signs. | X <br> X <br> X |  |  | X <br> X <br> X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 52 | Southbound side- uneven sidewalk in front of number 9615- possible tripping hazard. |  | Consideration be given to contacting the appropriate local authority to eliminate tripping hazard. |  | X |  | X |  |  |
| 53 | Southbound side- At Adams Avenuestop signs not up to standard. | Replace with new stop signs. | X |  |  | X |  |  |
| 54 | Southbound side- Vicinity of Thurlow Avenue - "SPEED LIMIT" sign not up to standard. | Replace with new sign. | X |  |  | X |  |  |
| 55 | Southbound side- Vicinity of Kenyon Avenue- parking sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 56 | Southbound side-Jasper Avenue"STOP" sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 57 | Southbound side- At Iroquious Avenue"ONE WAY" sign is missing. | Install missing one way sign. | X |  |  | X |  |  |
| 58 | Southbound side- vicinity of Hanover Avenue- "SPEED LIMIT" sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 59 | Southbound side-Huntington Avenue "STOP" sign at improper location. | Re-install sign to more appropriate location. | X |  |  | X |  |  |
| 60 | Southbound side - Harverford Avenue"ONE WAY" signs are worn. | Re-place with new signs. | X |  |  | X |  |  |
| 61 | Southbound side-Harverford Avenuewater puddles on handicap ramp. | Consideration be given to investigating what can be done to improve drainage at the intersection. |  |  | X | X |  |  |
| 62 | Southbound side- Cleaver Avenue-street sign tilted. | Contact locals regarding need to re-install post. | X |  |  | X |  |  |
| 63 | Southbound side- vicinity of Cleaver Avenue- "SPEED LIMIT" sign installed on tree. | Re-install sign on sign post. | X |  |  | X |  |  |
| 64 | Southbound side-Gladstone Avenue"ONE WAY" sign missing. | Install missing sign. | X |  |  | X |  |  |
| 65 | Southbound side-"NO TRUCKS" sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 66 | Southbound side- in front of number 8003- stop line needs to be removed. |  | Remove stop line | X |  |  | X |  |  |
| 67 | Southbound side- Frontenac Avenue- no parking sign installed to low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 68 | Southbound side- Franklin Avenue"ONE WAY" sign is missing. | Install missing sign. | X |  |  | X |  |  |
| 69 | Southbound side- Essex Avenue- no parking sign is installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 70 | Southbound side-Essex Avenue- only one "ONE WAY" sign, should be two. | Install additional "ONE WAY" sign. | X |  |  | X |  |  |
| 71 | Southbound side- Douglass Avenue"STOP" sign installed too low and is obstructed by tree branches. | Re-install sign at appropriate height, trim tree to remove obstruction. | X |  |  | X |  |  |
| 72 | Southbound side-Delavan Avenue-signs are worn and install too low. | Replace worn signs, reinstall others at appropriate height. | X |  |  | X |  |  |
| 73 | Southbound side- Clermont Avenue- bus stop is not signed. Undersized "STOP" sign. | Contact appropriate authority regarding the need for signing the bus stop. Replace "STOP" sign. | X |  |  | X |  |  |
| 74 | Southbound side Clarendon AvenueThere should be no parking in bus stop. | Install missing sign. | X |  |  | X |  |  |
| 75 | Southbound side- Brunswick Avenue"ONE WAY" sign is missing. One way system should be evaluated. No bus stop pavement markings to supplement existing bus stop sign. | Install missing one way sign. Evaluate one way system. Install bus stop pavement markings. |  | X |  |  | X |  |
| 76 | Southbound side- Fredericksburg Avenue-no parking sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |
| 77 | Southbound side- West Avenue- Marvin Gardens access too close to New Brunswick Avenue. | Consideration be given to evaluating location in more detail. |  |  | X |  | X |  |
| 78 | Southbound side-Barclay Avenue-"DO NOT ENTER" sign installed on utility pole. | Reinstall sign on sign post. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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| 79 | Southbound side- Martindale Avenue"DO NOT ENTER" sign needs to be relocated closer to intersection. |  | Relocated sign. | X |  |  | X |  |  |
| 80 | Southbound side- Martindale Avenue"ONE WAY" sign missing. | Install missing sign. | X |  |  | X |  |  |
| 81 | Southbound side-Washington AvenueCounty indicated that traffic signal is to be replaced | Traffic signal to be replaced. | N/A |  |  | N/A |  |  |
| 82 | Southbound side- Swarthmore Avenue"DO NOT ENTER" sign installed too low. | RE-install sign at appropriate height. | X |  |  | X |  |  |
| 83 | Southbound side- Newark Avenue-worn signs, signs installed too low. <br> Storm water manhole a tripping hazard. | Replace worn signs at appropriate height. <br> Contact appropriate authority regarding correcting tripping hazard. | X | X |  | $\mathrm{X}$ <br> X |  |  |
| 84 | Southbound side-Buffalo Avenuesidewalk is deteriorated. <br> "ONE WAY" sign is worn and installed too low. | Consideration be given to contacting the responsible party regarding the repair of the sidewalk. <br> Replace with new sign installed at appropriate height. | X | X |  | $\bar{X}$ X |  |  |
| 85 | Southbound side- Richards Avenue"ONE WAY" sign worn and installed too low. | Replace with new sign installed at appropriate height. | X |  |  | X |  |  |
| 86 | Southbound side- Newport Avenue"ONE WAY" sign is missing. | Install missing sign. | X |  |  | X |  |  |
| 87 | Southbound side- Newport Avenuecurbing is deteriorated. | Consideration be given to repairing the deteriorated curb. |  | X |  | X |  |  |
| 88 | Southbound side- New Haven Avenue to Newport Avenue- sidewalk in poor condition. | Consideration be given to contacting the appropriate party regarding repair of the sidewalk. |  | X |  | X |  |  |
| 89 | Southbound side-in front of number 6303- milepost sign installed too low. | Re-install sign at appropriate height. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 90 | Southbound side- Cornwall Avenuewater lying in road. |  | Consideration be given to reviewing the drainage at the intersection. |  |  | X |  | X |  |
| 91 | Southbound side-Monroe Avenuemissing "ONE WAY" sign, sign mounted too low. <br> Sidewalk mid- block in poor condition | Replace with sign installed at appropriate height. <br> Consideration be given to repairing the sidewalk. | X | X |  | $\mathrm{X}$ <br> X |  |  |
| 92 | Southbound side-Madison Avenue- worn "ONE WAY" sign. | Replace with new sign. | X |  |  | X |  |  |
| 93 | Southbound side-Jefferson Avenueworn "ONE WAY" sign, sign installed too low. | Replace with new sign installed at appropriate height. | X |  |  | X |  |  |
| 94 | Southbound side-Adams Avenue- worn "ONE WAY" sign, sign installed too low. | Replace with new sign installed at appropriate height. | X |  |  | X |  |  |
| 95 | Southbound side-Decatur Avenue- worn "ONE WAY" sign. <br> White centerline on Decatur Avenue | Replace with new sign. <br> Replace with double yellow centerline. | X <br> X |  |  | X <br> X |  |  |
| 96 | Southbound side-Benson Avenue-storm water ponding on southwest corner. | Consideration be given to evaluating what can be done to improve drainage. |  |  | X |  | X |  |
| 97 | Southbound side-Harding Avenue- worn "STOP" sign. | Replace with new sign. | X |  |  | X |  |  |
| 98 | Southbound side-Thurlow Avenue- worn "SPEED LIMIT 25" sign. | Replace with new sign. | X |  |  | X |  |  |
| 99 | Southbound side-Rumson Avenue- stop line too close to handicap ramp. | Replace with new stop line at appropriate location. | X |  |  | X |  |  |
| 100 | Southbound side-Kenyon Avenue- worn "ONE WAY" sign and empty sign post. | Replace worn sign. Remove sign post. | X |  |  | X |  |  |


| SAFETY ISSUE |  | REMEDIAL ACTION | LEVEL OF EFFORT REQUIRED |  |  | POTENTIAL SAFETY BENEFIT |  |  |
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|  |  | LOW | MEDIUM | HIGH | LOW | MEDIUM | HIGH |
| 101 | Southbound side-Jasper Avenue- worn regulatory signs, two crosswalks across Ventnor Avenue in close proximity to one another. |  | Replace worn signs. Consolidate crosswalks at appropriate location. | X |  |  | X |  |  |
| 102 | Southbound side-Iroquois Avenuemissing "ONE WAY" signs on northwest and southwest corners and missing "DO NOT ENTER" sign. | Install missing signs. | X |  |  | X |  |  |
|  | NIGHTTIME FIELD VIEW IDENTIFIED THE FOLLOWING SAFETY ISSUES |  |  |  |  |  |  |  |
| 103 | General comment- roadway generally well illuminated. |  |  |  |  |  |  |  |
| 104 | General comment- SPEED LIMIT 25 signs generally worn. | Replace worn signs. | X |  |  | X |  |  |
| 105 | Southbound at Jerome Avenue- existing "RIGHT LANE MUST TURN RIGHT" sign. It was felt that symbol lane use control signing would be more effective. | Replace with symbol lane use control sign. | X |  |  | X |  |  |
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## Recommendations

As stated earlier, the intent of the road safety assessment process is to conduct a formal examination of highway features and the surrounding environment that increase the potential for crashes and identify countermeasures that will reduce (or eliminate) the probability of such crashes. The safety issues identified during the conduct of this assessment and included in this report have been organized to provide the convenience and flexibility necessary to allow the implementation of the safety improvements as time and budget limitations allow. To the extent possible, the findings have been separated into line items so that the improvements can be implemented independently as appropriate. Clearly, consolidating a number of the safety recommendations will reduce the overall cost of improvements. We recommend that the appropriate management staff review the findings and decide which items can be completed in the immediate future (within one year). Many of the deficiencies can be corrected in the short term if the roadway owners dedicate both the time and financial resources to the task. The Level of Effort (an estimate of expenditures and man hours) indicated on the finding sheets of the report represent the team's best effort at categorizing each item.

The finding of the report with the greatest potential for reducing the crash experience along the road appears to be item \#24, the redesign of the traffic signal at the Fredericksburg Avenue which is a complicated intersection having five approaches to the traffic signal. Additionally, much of the signal equipment at this intersection is worn and in need of replacement. Item \#40, the analysis of the signal operation at the Dorset Avenue intersection and the upgrading of the signal detection at this intersection. Item \#11, the general comment noting the need to replace the old signal equipment along the road as well as the need for detection at the intersections.

Also, replacing vehicular signal heads installed to control pedestrians with countdown walk-don't walk pedestrian signals at the signalized intersections and bring the handicapped ramps into conformance with ADA standards are two amenities that will enhance pedestrian safety along the road. At the same time pedestrian push buttons and
signs should be installed parallel to the crosswalks in accordance with the current MUTCD. Additionally, better coordination of the $\mathbf{2 0}$ traffic signals along the study section of road could improve both the traffic flow and safety of the road.

Side street center lines should be installed as noted in Items \#24 (East Drive), \#28 (Melborune Avenue), \#29 (Lafayette Avenue), \#30 (Wyoming Avenue), \#31 (Rosborough Avenue), and \#34 Troy Avenue.

Many of the street signs are in need or replacement. Item \#9 (the need for mast arm mounted street name signs) should be given serious consideration to improve motorist guidance.

Unfortunately, with many roads and many of the assessments we have conducted, there is no easy quick-fix solution to many of the crash patterns. While the safety assessment focuses on roadway features, enforcement is still a crucial component of safety on a road. Enforcement discourages the motorist from becoming lax in obeying or observing the traffic regulations along the road. Just as resources must be allocated to the physical improvements of the road, they must also be allocated to enforcement to maintain the safe operation of the road.

The opinions found in the findings of this Safety Assessment report are those of the Safety Assessment Team, as a whole, and not necessarily the opinions of the SJTPO or the individual team members.

Appendix A

## Crash Data Summary Sheets

# VENTNOR AVENUE (CR 629) <br> MP 0.79-3.33 <br> MARGATE CITY, VENTOR CITY <br> CRASH SUMMARY 2008-2010 <br> TOTAL-204 CRASHES <br> <br> Month 

 <br> <br> Month}

| Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underline{15}$ | $\underline{7}$ | $\underline{16}$ | $\underline{7}$ | $\underline{24}$ | $\underline{15}$ | $\underline{34}$ | $\underline{33}$ | $\underline{16}$ | $\underline{15}$ | $\underline{11}$ | $\underline{12}$ |


| AM <br> Midnight - Noon | Time of Day |  | Number of Crashes | Day of Week <br> Number of Crashes |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Midnight - 1:00 |  | 12:00-1300 | 10 | Monday | 28 |
| 1:00-2:00 | 1 | 1300-1400 | 31 | Tuesday | 29 |
| 2:00-3:00 |  | 1400-1500 | 25 | Wednesday | 22 |
| 3:00-4:00 | 2 | 1500-1600 | 16 | Thursday | 40 |
| 4:00-5:00 | 2 | 1600-1700 | 19 | Friday | 26 |
| 5:00-6:00 |  | 1700-1800 | 13 | Saturday | 32 |
| 6:00-7:00 | 1 | 1800-1900 | 9 | Sunday | $\underline{\underline{27}}$ |
| 7:00-8:00 | 2 | 1900-2000 | 11 |  |  |
| 8:00-9:00 | 11 | 2000-2100 | 4 |  |  |
| 9:00-10:00 | 10 | 2100-2200 | 5 |  |  |
| 10:00-11:00 | 15 | 2200-2300 | 3 |  |  |
| 11:00-12 Noon | 12 | 2300-2400 | 1 |  |  |

DAY $\underline{170}$ NIGHT $\underline{28}$ OTHER $\underline{6}$
DRY 178 WET 21 SNOWY $\underline{1}$ ICY__ OTHERS 2
CLEAR 179 RAIN 15 SNOW $\underline{3}$ FOG $\underline{2}$ OTHERS 5
INJURY $\underline{59}$ NON-INJURY 145 FATAL $\underline{0}$

| Right Angle | Same Direction | Left Turn | Side swipe opposite <br> direction | Side Swipe Same <br> direction |
| :---: | :---: | :---: | :---: | :---: |
| 17 | 70 | 8 | 2 | 33 |
| Fixed Object | Head On | Backing | Pedestrian | Bike |
| 9 | 2 | 9 | 8 | 5 |

Parking Related 37 STRUCK PARKED VEHICLE Others-4

| Year | Number of <br> Crashes |
| :--- | :---: |
| 2003 | 91 |
| 2004 | 92 |
| 2005 | 90 |
| 2006 | 57 |
| 2007 | 67 |
| 2008 | 76 |
| 2009 | 65 |
| 2010 | 63 |
| 2011 | 10 |
| Grand Total | $\mathbf{6 1 1}$ |
| 2008-2010 Total | $\mathbf{2 0 4}$ |


| Month | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| J anuary | 6 | 6 | 6 | 6 | 2 | 4 | 4 | 7 | 4 | 45 | 15 | 7\% |
| February | 5 | 5 | 2 | 2 | 3 | 4 | 1 | 1 |  | 23 | 6 | 3\% |
| March | 2 | 4 | 6 | 1 | 3 | 5 | 9 | 2 | 3 | 35 | 16 | 8\% |
| April | 7 | 8 | 1 | 3 | 4 | 1 | 2 | 4 | 3 | 33 | 7 | 3\% |
| May | 5 | 9 | 9 | 4 | 9 | 14 | 4 | 6 |  | 60 | 24 | 12\% |
| J une | 11 | 14 | 13 | 7 | 7 | 6 | 2 | 7 |  | 67 | 15 | 7\% |
| July | 12 | 14 | 14 | 9 | 10 | 9 | 13 | 12 |  | 93 | 34 | 17\% |
| August | 18 | 15 | 16 | 10 | 14 | 13 | 11 | 9 |  | 106 | 33 | 16\% |
| September | 8 | 8 | 4 | 7 | 8 | 6 | 6 | 4 |  | 51 | 16 | 8\% |
| October | 6 | 3 | 7 | 2 | 4 | 5 | 5 | 5 |  | 37 | 15 | 7\% |
| November | 6 | 2 | 3 | 3 | 2 | 3 | 5 | 3 |  | 27 | 11 | 5\% |
| December | 5 | 4 | 9 | 3 | 1 | 6 | 3 | 3 |  | 34 | 12 | 6\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Day of Week | $\mathbf{2 0 0 3}$ | $\mathbf{2 0 0 4}$ | $\mathbf{2 0 0 5}$ | $\mathbf{2 0 0 6}$ | $\mathbf{2 0 0 7}$ | $\mathbf{2 0 0 8}$ | $\mathbf{2 0 0 9}$ | $\mathbf{2 0 1 0}$ | $\mathbf{2 0 1 1}$ | Grand Total | 2008-2010 <br> Total | Percentage |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| Time of Day | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{aligned} & \text { 2008-2010 } \\ & \text { Total } \end{aligned}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| 12:00 MI DNIGHT-1:00 AM | 1 | 2 | 1 |  | 2 |  |  |  |  | 6 | 0 | 0\% |
| 1:00-2:00 AM | 1 |  |  | 1 | 2 | 1 |  |  |  | 5 | 1 | 0\% |
| 2:00-3:00 AM | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| 3:00-4:00 AM | 1 | 1 | 1 |  |  |  |  | 2 |  | 5 | 2 | 1\% |
| 4:00-5:00 AM |  |  |  |  |  | 1 | 1 |  |  | 2 | 2 | 1\% |
| 5:00-6:00 AM |  | 1 | 1 | 1 |  |  |  |  |  | 3 | 0 | 0\% |
| 6:00-7:00 AM |  |  |  | 1 | 1 |  |  | 1 |  | 3 | 1 | 0\% |
| 7:00-8:00 AM | 3 |  | 2 |  | 2 |  | 1 | 1 |  | 9 | 2 | 1\% |
| 8:00-9:00 AM | 5 | 4 | 5 | 2 | 3 | 3 | 3 | 5 | 1 | 31 | 11 | 5\% |
| 9:00-10:00 AM | 6 | 3 | 7 | 5 | 5 | 4 | 3 | 3 |  | 36 | 10 | 5\% |
| 10:00-11:00 AM | 12 | 5 | 3 | 1 | 7 | 5 | 5 | 5 |  | 43 | 15 | 7\% |
| 11:00AM-12:00 NOON | 5 | 10 | 11 | 6 | 4 | 7 | 4 | 1 | 1 | 49 | 12 | 6\% |
| 12:00-1:00 PM | 6 | 9 | 9 | 7 | 8 | 3 | 3 | 4 | 3 | 52 | 10 | 5\% |
| 1:00-2:00 PM | 5 | 12 | 12 | 4 | 6 | 11 | 10 | 10 | 2 | 72 | 31 | 15\% |
| 2:00-3:00 PM | 8 | 12 | 6 | 4 | 2 | 12 | 5 | 8 |  | 57 | 25 | 12\% |
| 3:00-4:00 PM | 5 | 4 | 6 | 8 | 6 | 4 | 8 | 4 | 2 | 47 | 16 | 8\% |
| 4:00-5:00 PM | 12 | 6 | 7 | 6 | 5 | 5 | 6 | 8 |  | 55 | 19 | 9\% |
| 5:00-6:00 PM | 5 | 7 | 3 | 5 | 4 | 6 | 2 | 5 | 1 | 38 | 13 | 6\% |
| 6:00-7:00 PM | 4 | 2 | 9 | 1 | 3 | 5 | 4 |  |  | 28 | 9 | 4\% |
| 7:00-8:00 PM | 3 | 4 | 2 | 2 | 2 | 5 | 5 | 1 |  | 24 | 11 | 5\% |
| 8:00-9:00 PM | 3 | 3 | 2 | 1 |  | 1 | 2 | 1 |  | 13 | 4 | 2\% |
| 9:00-10:00 PM | 1 | 2 | 1 | 1 | 3 | 2 | 1 | 2 |  | 13 | 5 | 2\% |
| 10:00-11:00 PM | 2 | 2 | 2 |  | 1 | 1 | 1 | 1 |  | 10 | 3 | 1\% |
| 11:00PM-12:00 MI DNIGHT | 1 | 3 |  | 1 | 1 |  | 1 |  |  | 7 | 1 | 0\% |
| Unknown Time | 1 |  |  |  |  |  |  | 1 |  | 2 | 1 | 0\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Road Surface Condition | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| Dry | 72 | 77 | 78 | 50 | 57 | 64 | 57 | 57 | 6 | 518 | 178 | 87\% |
| Wet | 16 | 15 | 8 | 6 | 9 | 9 | 7 | 5 | 4 | 79 | 21 | 10\% |
| Snowy | 2 |  | 3 |  |  | 2 |  | 1 |  | 8 | 3 | 1\% |
| Icy |  |  | 1 |  | 1 |  |  |  |  | 2 | 0 | 0\% |
| Slush |  |  |  | 1 |  |  |  |  |  | 1 | 0 | 0\% |
| Water (Standing/Moving) |  |  |  |  |  | 1 |  |  |  | 1 | 1 | 0\% |
| Sand, Mud, Dirt |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Unknown | 1 |  |  |  |  |  | 1 |  |  | 2 | 1 | 0\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Weather Condition | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| Clear | 75 | 79 | 79 | 51 | 54 | 62 | 60 | 57 | 6 | 523 | 179 | 88\% |
| Rain | 13 | 13 | 7 | 4 | 8 | 9 | 2 | 4 | 3 | 63 | 15 | 7\% |
| Snow | 1 |  | 4 |  |  | 2 |  | 1 |  | 8 | 3 | 1\% |
| Fog/Smog/Smoke | 1 |  |  | 1 |  |  | 2 |  |  | 4 | 2 | 1\% |
| Overcast |  |  |  | 1 | 5 | 3 | 1 | 1 | 1 | 12 | 5 | 2\% |
| Sleet/Hail/Freezing Rain |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Unknown | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Light Condition | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \\ \hline \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| Daylight | 72 | 75 | 75 | 51 | 55 | 63 | 55 | 52 | 9 | 507 | 170 | 83\% |
| Dawn |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Dusk | 2 | 2 | 1 | 2 |  | 1 | 1 | 1 |  | 10 | 3 | 1\% |
| Dark - Street Lights Off |  |  |  |  | 1 |  |  |  |  | 1 | 0 | 0\% |
| Dark - No Street Lights |  |  |  |  |  |  |  | 1 | 1 | 2 | 1 | 0\% |
| Dark - Street Lights On/ continuous | 16 | 15 | 14 | 4 | 9 | 11 | 9 | 8 |  | 86 | 28 | 14\% |
| Dark - Street Lights On/ spot |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Unknown | 1 |  |  |  | 2 | 1 |  | 1 |  | 5 | 2 | 1\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Severity | Number of Crashes by Year |  |  |  |  |  |  |  |  |  | 2008-2010 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | $2005$ | $2006$ | $2007$ | $2008$ | $2009$ | 2010 | 2011 | Grand Total | Total | Percentage |
| Fatal | 1 |  |  | 1 |  |  |  |  |  | 2 | 0 | 0\% |
| I j ury | 29 | 20 | 21 | 15 | 24 | 23 | 17 | 19 | 4 | 172 | 59 | 29\% |
| Property Damage Only | 61 | 72 | 69 | 41 | 43 | 53 | 48 | 44 | 6 | 437 | 145 | 71\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Crash Type | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | $2005$ | 2006 | 2007 | $2008$ | $2009$ | 2010 | 2011 |  |  |  |
| Same Direction - Rear End | 30 | 34 | 24 | 19 | 30 | 25 | 20 | 25 | 6 | 213 | 70 | 34\% |
| Same Direction - Side Swipe | 10 | 6 | 12 | 4 | 8 | 15 | 10 | 8 |  | 73 | 33 | 16\% |
| Right Angle | 12 | 15 | 13 | 8 | 13 | 6 | 7 | 4 |  | 78 | 17 | 8\% |
| Opposite Direction - Head On, Angular | 2 |  |  |  |  |  | 2 |  |  | 4 | 2 | 1\% |
| Opposite Direction - Side Swipe |  |  |  |  |  | 1 |  | 1 |  | 2 | 2 | 1\% |
| Struck Parked Vehicle | 13 | 18 | 21 | 13 | 4 | 7 | 12 | 18 | 2 | 108 | 37 | 18\% |
| Left Turn / U Turn | 6 | 4 | 2 | 2 | 1 | 5 | 2 | 1 | 1 | 24 | 8 | 4\% |
| Backing | 2 | 4 | 5 | 2 | 2 | 3 | 4 | 2 | 1 | 25 | 9 | 4\% |
| Encroachment |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Overturned |  |  |  |  |  |  |  | 1 |  | 1 | 1 | 0\% |
| Fixed Object | 1 | 1 |  | 1 | 1 | 3 | 5 | 1 |  | 13 | 9 | 4\% |
| Animal |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Pedestrain |  |  |  | 3 | 4 | 8 |  |  |  | 15 | 8 | 4\% |
| Pedalcyclist |  |  |  | 4 | 4 | 2 | 2 | 1 |  | 13 | 5 | 2\% |
| Non-fixed Object |  |  |  | 1 |  |  | 1 | 1 |  | 3 | 2 | 1\% |
| Railcar - Vehicle |  |  |  |  |  |  |  |  |  | 0 | 0 | 0\% |
| Other | 13 | 9 | 12 |  |  | 1 |  |  |  | 35 | 1 | 0\% |
| Unknown | 2 | 1 | 1 |  |  |  |  |  |  | 4 | 0 | 0\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Nearest Cross Street | Number of Crashes by Year |  |  |  |  |  |  |  |  | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |  |  |  |
| COOLIDGE AVENUE | 3 | 2 |  |  | 2 | 3 |  | 1 | 1 | 12 | 4 | 2\% |
| MONROE AVENUE | 1 |  |  | 1 | 1 | 2 | 3 | 1 |  | 9 | 6 | 3\% |
| HORIZON EYE CARE |  | 3 |  |  |  |  |  |  |  | 3 | 0 | 0\% |
| MADISON AVENUE |  |  | 1 |  | 1 |  | 1 | 3 |  | 6 | 4 | 2\% |
| JEFFERSON AVENUE | 5 | 4 |  | 1 |  | 4 | 1 |  |  | 15 | 5 | 2\% |
| ADAMS AVENUE | 1 | 2 | 2 | 2 | 1 |  | 2 |  | 1 | 11 | 2 | 1\% |
| WASHINGTON AVENUE, MP 1.07 | 7 | 2 | 3 | 3 | 6 | 4 | 2 | 2 |  | 29 | 8 | 4\% |
| DECATUR AVENUE | 1 | 2 |  | 1 | 2 | 1 |  |  |  | 7 | 1 | 0\% |
| BENSON AVENUE |  | 1 | 1 |  |  | 2 | 1 | 1 |  | 6 | 4 | 2\% |
| HARDING AVENUE |  | 1 | 1 |  |  |  |  |  |  | 2 | 0 | 0\% |
| CEDAR GROVE AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| NORTH WILSON AVENUE |  | 1 |  |  |  |  |  | 1 |  | 2 | 1 | 0\% |
| VENDOME AVENUE |  |  |  | 1 |  | 1 |  |  |  | 2 | 1 | 0\% |
| UNION AVENUE |  |  |  |  | 1 |  | 1 | 1 |  | 3 | 2 | 1\% |
| THURLOW AVENUE | 1 | 1 |  | 2 | 1 |  |  | 1 | 1 | 7 | 1 | 0\% |
| SUMNER AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| RUMSON AVENUE | 1 |  |  | 2 |  |  |  |  |  | 3 | 0 | 0\% |
| QUINCY AVENUE |  |  |  | 1 |  |  |  | 2 |  | 3 | 2 | 1\% |
| PEMBROKE AVENUE |  |  | 1 |  |  | 1 |  | 1 |  | 3 | 2 | 1\% |
| OSBORNE AVENUE |  | 1 |  |  |  |  | 1 |  |  | 2 | 1 | 0\% |
| NASSAU AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 | 0\% |
| MANSFIELD AVENUE | 1 |  |  |  |  |  |  | 1 |  | 2 | 1 | 0\% |
| LANCASTER AVENUE |  |  |  |  |  | 4 | 2 | 1 |  | 7 | 7 | 3\% |
| KENYON AVENUE |  |  |  | 1 |  |  |  |  |  | 1 | 0 | 0\% |
| SOUTH KING STREET |  |  |  |  |  |  | 2 |  |  | 2 | 2 | 1\% |
| JEROME AVENUE |  | 1 | 2 | 2 | 1 | 1 | 3 | 1 |  | 11 | 5 | 2\% |
| Sub Total A | 23 | 21 | 11 | 17 | 16 | 24 | 19 | 17 | 3 | 151 | 60 | 29\% |


| Nearest Cross Street | 2003 | 2004 | $\begin{gathered} \text { Num } \\ 2005 \end{gathered}$ | $\begin{aligned} & \text { nber of } \\ & 2006 \end{aligned}$ | $\begin{aligned} & \text { f Crash } \\ & 2007 \end{aligned}$ | $\begin{gathered} \text { hes by } \\ 2008 \end{gathered}$ | $\begin{aligned} & \text { Year } \\ & 2009 \end{aligned}$ | 2010 | 2011 | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| JASPER AVENUE |  |  | 2 | 1 |  |  |  | 1 |  | 4 | 1 | 0\% |
| IROQUIOUS AVENUE |  |  |  |  | 1 |  |  |  |  | 1 | 0 | 0\% |
| SOUTH HANOVER AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| HUNTINGTON AVENUE |  |  |  |  | 2 | 1 |  |  |  | 3 | 1 | 0\% |
| HAVERFORD AVENUE | 1 | 2 | 1 |  | 3 | 1 |  |  |  | 8 | 1 | 0\% |
| GRANVILLE AVENUE | 1 | 3 | 1 |  | 3 | 1 | 3 | 3 | 1 | 16 | 7 | 3\% |
| GLADSTONE AVENUE | 3 | 1 | 2 | 1 | 1 |  | 1 | 2 | 1 | 12 | 3 | 1\% |
| NORTH GLADSTONE AVENUE | 2 | 1 | 4 |  | 1 | 2 | 2 |  |  | 12 | 4 | 2\% |
| CASEL'S SUPERMARKET |  |  | 2 |  |  |  |  |  |  | 2 | 0 | 0\% |
| FRONTENAC AVENUE | 5 | 1 | 2 | 4 | 1 | 3 | 1 | 2 | 1 | 20 | 6 | 3\% |
| NORTH FRANKLIN AVENUE | 1 |  | 2 | 1 | 2 |  |  | 2 |  | 8 | 2 | 1\% |
| SOUTH FRANKLIN AVENUE | 1 |  | 2 |  |  |  |  |  |  | 3 | 0 | 0\% |
| SUN NATIONAL BANK |  | 2 |  |  |  |  |  |  |  | 2 | 0 | 0\% |
| EXETER AVENUE |  |  | 1 | 1 | 1 |  | 1 | 1 |  | 5 | 2 | 1\% |
| TAYLORS GULF SERVICE STATION | 2 |  | 1 |  |  |  |  |  |  | 3 | 0 | 0\% |
| SOUTH ESSEX AVENUE | 2 | 1 |  |  |  |  | 1 | 2 |  | 6 | 3 | 1\% |
| NORTH ESSEX AVENUE | 1 | 2 |  |  | 1 | 1 |  | 2 |  | 7 | 3 | 1\% |
| DOUGLAS AVENUE | 1 | 3 |  |  | 3 | 1 | 2 | 2 |  | 12 | 5 | 2\% |
| NORTH DELAVAN AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 | 0\% |
| CLERMONT AVENUE | 1 | 1 |  | 1 | 2 |  |  |  |  | 5 | 0 | 0\% |
| SUNNY SUNCOCO SERVICE STATION | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| CLARENDON AVENUE |  |  | 1 |  |  |  | 1 | 1 |  | 3 | 2 | 1\% |
| BARCLAY AVENUE |  |  |  |  |  |  | 1 |  |  | 1 | 1 | 0\% |
| ARGYLE AVENUE |  | 2 | 1 |  |  |  |  | 1 |  | 4 | 1 | 0\% |
| ANDOVER AVENUE |  |  | 1 |  |  | 1 |  |  |  | 2 | 1 | 0\% |
| EAST DRIVE |  |  |  |  | 1 |  |  |  |  | 1 | 0 | 0\% |
| FREDERICKSBURG AVENUE | 4 | 1 | 3 |  |  | 5 | 1 | 3 |  | 17 | 9 | 4\% |
| MARTINDALE AVENUE | 2 | 2 |  | 1 |  | 1 | 2 | 4 |  | 12 | 7 | 3\% |
| WASHI NGTON AVENUE, MP 2.49 | 2 | 1 |  | 2 | 1 | 1 | 1 | 2 |  | 10 | 4 | 2\% |
| WAWA PARKING LOT | 2 | 2 | 6 |  |  |  |  |  |  | 10 | 0 | 0\% |
| CVS PARKING LOT | 2 | 1 | 6 |  |  |  |  |  |  | 9 | 0 | 0\% |
| BALTIMORE AVENUE |  |  |  |  |  |  | 1 |  |  | 1 | 1 | 0\% |
| MELBOURNE AVENUE | 1 | 4 | 2 | 3 | 3 | 1 |  |  |  | 14 | 1 | 0\% |
| LAFAYETTE AVENUE | 1 |  |  |  |  | 1 |  |  |  | 2 | 1 | 0\% |
| WYOMING AVENUE | 2 | 2 | 3 | 1 | 2 | 3 |  | 1 |  | 14 | 4 | 2\% |
| ROSBOROUGH AVENUE | 3 |  | 1 |  |  | 2 |  | 1 |  | 7 | 3 | 1\% |
| NEWARK AVENUE |  | 1 |  |  | 2 |  |  |  |  | 3 | 0 | 0\% |
| WISSAHICKON AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 | 0\% |
| Sub Total B | 42 | 34 | 44 | 16 | 30 | 26 | 18 | 30 | 3 | 243 | 74 | 36\% |


| Nearest Cross Street | 2003 | 2004 | $\begin{gathered} \text { Num } \\ 2005 \end{gathered}$ | $\begin{gathered} \text { nber of } \\ 2006 \end{gathered}$ | $\begin{aligned} & \text { f Crash } \\ & 2007 \end{aligned}$ | $\begin{array}{r} \text { hes by } \\ 2008 \end{array}$ | $\begin{aligned} & \text { Year } \\ & 32009 \end{aligned}$ | 2010 | 2011 | Grand Total | $\begin{gathered} \text { 2008-2010 } \\ \text { Total } \end{gathered}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BUFFALO AVENUE | 2 | 1 | 1 |  |  |  | 1 |  |  | 5 | 1 | 0\% |
| RICHARDS AVENUE | 2 | 1 | 1 |  |  |  | 3 | 1 |  | 8 | 4 | 2\% |
| TROY AVENUE | 2 | 1 | 2 | 3 | 1 | 4 | 2 | 2 |  | 17 | 8 | 4\% |
| AVOLYN AVENUE |  | 1 | 1 |  | 1 |  | 1 |  |  | 4 | 1 | 0\% |
| NEW HAVEN AVENUE | 2 | 3 | 5 | 2 |  | 2 | 3 | 2 |  | 19 | 7 | 3\% |
| NEWPORT AVENUE | 2 | 7 | 8 | 7 | 4 | 3 | 3 | 2 | 1 | 37 | 8 | 4\% |
| PORTLAND AVENUE | 3 | 8 | 9 | 4 | 2 | 5 | 5 | 2 | 1 | 39 | 12 | 6\% |
| SACRAMENTO AVENUE | 2 | 4 | 1 |  | 1 |  | 3 | 1 | 1 | 13 | 4 | 2\% |
| HARVARD AVENUE |  | 1 |  | 1 |  | 1 |  |  |  | 3 | 1 | 0\% |
| CAMBRIDGE AVENUE | 2 | 3 | 2 | 1 | 1 |  | 1 | 1 |  | 11 | 2 | 1\% |
| CORNWALL AVENUE |  |  |  | 2 | 1 | 1 | 1 | 1 |  | 6 | 3 | 1\% |
| DERBY AVENUE | 5 |  | 1 |  | 2 | 1 |  |  |  | 9 | 1 | 0\% |
| DORSET AVENUE | 3 | 5 | 3 |  | 4 | 5 | 4 | 3 | 1 | 28 | 12 | 6\% |
| VENTNOR AVENUE | 1 | 2 | 1 | 4 | 4 | 4 | 1 | 1 |  | 18 | 6 | 3\% |
| Sub Total C | 26 | 37 | 35 | 24 | 21 | 26 | 28 | 16 | 4 | 217 | 70 | 34\% |
| Sub Total A | 23 | 21 | 11 | 17 | 16 | 24 | 19 | 17 | 3 | 151 | 60 | 29\% |
| Sub Total B | 42 | 34 | 44 | 16 | 30 | 26 | 18 | 30 | 3 | 243 | 74 | 36\% |
| Sub Total C | 26 | 37 | 35 | 24 | 21 | 26 | 28 | 16 | 4 | 217 | 70 | 34\% |
| Grand Total | 91 | 92 | 90 | 57 | 67 | 76 | 65 | 63 | 10 | 611 | 204 | 100\% |


| Crash Type - Top 3 Types ONLY <br> Nearest Cross Street | 2003 | 2004 | $\begin{gathered} \text { Num } \\ 2005 \end{gathered}$ | nber of <br> 2006 | $\begin{aligned} & \text { f Crash } \\ & 2007 \end{aligned}$ | $\begin{array}{r} \text { 1es by } \\ 2008 \\ \hline \end{array}$ | $\begin{aligned} & \text { Year } \\ & 2009 \\ & \hline \end{aligned}$ | 2010 | 2011 | Grand Total | $\begin{aligned} & \text { 2008-2010 } \\ & \text { Total } \end{aligned}$ | Percentage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Same Direction - Rear End | 30 | 34 | 24 | 19 | 30 | 25 | 20 | 25 | 6 | 213 | 70 | 34\% |
| ADAMS AVENUE |  |  | 1 |  |  |  |  |  | 1 | 2 | 0 |  |
| ANDOVER AVENUE |  |  | 1 |  |  | 1 |  |  |  | 2 | 1 |  |
| ARGYLE AVENUE |  | 1 | 1 |  |  |  |  |  |  | 2 | 0 |  |
| AVOLYN AVENUE |  |  |  |  | 1 |  | 1 |  |  | 2 | 1 |  |
| BENSON AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 |  |
| BUFFALO AVENUE | 1 | 1 |  |  |  |  |  |  |  | 2 | 0 |  |
| CAMBRIDGE AVENUE | 2 | 2 | 1 |  | 1 |  | 1 |  | 1 | 8 | 1 |  |
| CLARENDON AVENUE |  |  |  |  |  |  |  | 1 |  | 1 | 1 |  |
| CLERMONT AVENUE |  |  |  | 1 |  |  |  |  |  | 1 | 0 |  |
| COOLIDGE AVENUE | 2 | 1 |  |  | 1 | 2 |  |  | 1 | 7 | 2 |  |
| CORNWALL AVENUE |  |  |  |  |  | 1 | 1 | 1 |  | 3 | 3 |  |
| DECATUR AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |  |
| DERBY AVENUE | 1 |  |  |  | 1 |  |  |  |  | 2 | 0 |  |
| DORSET AVENUE |  |  |  |  | 2 | 1 | 1 | 1 |  | 5 | 3 |  |
| DOUGLAS AVENUE | 1 | 2 |  |  | 3 |  | 2 | 2 |  | 10 | 4 |  |
| EAST DRIVE |  |  |  |  | 1 |  |  |  |  | 1 | 0 |  |
| EXETER AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |  |
| FREDERICKSBURG AVENUE | 2 | 1 | 1 |  |  | 3 | 1 | 2 |  | 10 | 6 |  |
| FRONTENAC AVENUE | 3 |  | 1 | 1 |  | 1 |  | 1 | 1 | 8 | 2 |  |
| GLADSTONE AVENUE | 2 |  |  |  | 1 |  | 1 | 1 | 1 | 6 | 2 |  |
| GRANVILLE AVENUE |  | 1 |  |  | 1 |  | 1 | 2 |  | 5 | 3 |  |
| HAVERFORD AVENUE |  | 2 |  |  | 2 | 1 |  |  |  | 5 | 1 |  |
| HUNTINGTON AVENUE |  |  |  |  | 1 |  |  |  |  | 1 | 0 |  |
| J ASPER AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |  |
| JEFFERSON AVENUE | 1 | 2 |  | 1 |  | 1 |  |  |  | 5 | 1 |  |
| J EROME AVENUE |  |  | 1 | 2 | 1 | 1 | 1 |  |  | 6 | 2 |  |


| LAFAYETTE AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LANCASTER AVENUE |  |  |  |  |  | 2 | 1 |  |  | 3 | 3 |
| MADISON AVENUE |  |  |  |  |  |  |  | 1 |  | 1 | 1 |
| MARTINDALE AVENUE |  | 2 |  |  |  |  |  | 1 |  | 3 | 1 |
| MELBOURNE AVENUE |  | 4 | 1 | 1 |  |  |  |  |  | 6 | 0 |
| MONROE AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |
| NEW HAVEN AVENUE | 2 | 1 | 4 | 1 |  |  |  | 1 |  | 9 | 1 |
| NEWPORT AVENUE |  | 2 |  | 1 | 3 |  |  | 1 |  | 7 | 1 |
| NORTH DELAVAN AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |
| NORTH ESSEX AVENUE |  | 1 |  |  |  |  |  | 1 |  | 2 | 1 |
| NORTH FRANKLIN AVENUE |  |  | 1 |  | 1 |  |  |  |  | 2 | 0 |
| NORTH GLADSTONE AVENUE |  |  | 1 |  |  |  | 1 |  |  | 2 | 1 |
| OSBORNE AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 |
| PEMBROKE AVENUE |  |  |  |  |  |  |  | 1 |  | 1 | 1 |
| PORTLAND AVENUE | 3 | 3 | 4 |  | 1 | 2 | 1 |  | 1 | 15 | 3 |
| QUINCY AVENUE |  |  |  |  |  |  |  | 1 |  | 1 | 1 |
| RICHARDS AVENUE |  |  |  |  |  |  | 1 | 1 |  | 2 | 2 |
| SACRAMENTO AVENUE | 1 | 2 | 1 |  |  |  | 2 |  |  | 6 | 2 |
| SOUTH ESSEX AVENUE | 1 |  |  |  |  |  | 1 | 1 |  | 3 | 2 |
| SOUTH FRANKLIN AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |
| SOUTH HANOVER AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 |
| THURLOW AVENUE | 1 | 1 |  | 2 | 1 |  |  | 1 |  | 6 | 1 |
| TROY AVENUE | 1 |  |  | 2 | 1 | 1 | 1 | 2 |  | 8 | 4 |
| UNION AVENUE |  |  |  |  | 1 |  |  |  |  | 1 | 0 |
| VENDOME AVENUE |  |  |  | 1 |  | 1 |  |  |  | 2 | 1 |
| VENTNOR AVENUE | 1 |  | 1 | 1 | 2 |  |  |  |  | 5 | 0 |
| WASHINGTON AVENUE, MP 1.07 | 1 |  |  | 2 | 3 | 1 | 2 |  |  | 9 | 3 |
| WASHINGTON AVENUE, MP 2.49 | 2 |  |  | 2 |  |  |  | 2 |  | 6 | 2 |
| WISSAHICKON AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 |
| WYOMING AVENUE | 1 | 2 | 1 | 1 | 1 | 2 |  |  |  | 8 | 2 |

    ADAMS AVENUE
    1
11

1 1

| 13 | 18 | 21 | 13 | 4 | 7 | 12 | 18 | 2 | 108 | 37 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

    ARGYLE AVENUE
    AVOLYN AVENUE
BENSON AVENUE
BENSON AVENUE
COOLIDGE AVENUE
CVS PARKING LOT
DECATUR AVENUE
EXETER AVENUE
FREDERICKSBURG AVENUE
FRONTENAC AVENUE

1
4
1

|  | 2 |  |  |
| :--- | :--- | :--- | :--- |
| 1 | 1 |  | 1 |

1

2

1
GRANVILLE AVENUE
HARVARD AVENUE
HAVERFORD AVENUE
HORIZON EYE CARE
IROQUIOUS AVENUE
JEFFERSON AVENUE
JEROME AVENUE
LANCASTER AVENUE
MADISON AVENUE
MANSFIELD AVENUE MARTINDALE AVENUE
MELBOURNE AVENUE
MONROE AVENUE
NEW HAVEN AVENUE
NEWPORT AVENUE
NORTH ESSEX AVENUE
NORTH FRANKLIN AVENUE
NORTH GLADSTONE AVENUE
PORTLAND AVENUE
RICHARDS AVENUE
RUMSON AVENUE
SACRAMENTO AVENUE
SOUTH KING STREET
SUNNY SUNCOCO SERVICE STATION
TAYLORS GULF SERVICE STATION
TROY AVENUE
UNI ON AVENUE
WASHINGTON AVENUE, MP 1.07
WAWA PARKING LOT

1
1
1
1
1
2
1

1

| Same Direction - Side Swipe | 10 | 6 | 12 | 4 | 8 | 15 | 10 | 8 | 0 | 73 | 33 | 16\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AVOLYN AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 |  |
| BALTIMORE AVENUE |  |  |  |  |  |  | 1 |  |  | 1 | 1 |  |
| BENSON AVENUE |  |  | 1 |  |  | 1 |  |  |  | 2 | 1 |  |
| BUFFALO AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |  |
| CEDAR GROVE AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 |  |
| CLERMONT AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 |  |
| DORSET AVENUE | 1 |  |  |  | 1 | 1 | 1 | 1 |  | 5 | 3 |  |
| EXETER AVENUE |  |  |  | 1 | 1 |  |  |  |  | 2 | 0 |  |
| FREDERICKSBURG AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |  |
| FRONTENAC AVENUE |  | 1 | 1 | 1 |  | 2 | 1 | 1 |  | 7 | 4 |  |
| GLADSTONE AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |  |
| GRANVILLE AVENUE | 1 |  |  |  | 1 |  |  |  |  | 2 | 0 |  |
| HARDI NG AVENUE |  |  | 1 |  |  |  |  |  |  | 1 | 0 |  |
| HUNTINGTON AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |  |
| JEFFERSON AVENUE | 2 |  |  |  |  | 1 |  |  |  | 3 | 1 |  |
| J EROME AVENUE |  |  |  |  |  |  | 1 | 1 |  | 2 | 2 |  |
| LANCASTER AVENUE |  |  |  |  |  | 1 |  |  |  | 1 | 1 |  |
| MADISON AVENUE |  |  |  |  |  |  | 1 |  |  | 1 | 1 |  |
| MARTINDALE AVENUE |  |  |  |  |  |  | 1 | 1 |  | 2 | 2 |  |
| NEW HAVEN AVENUE |  |  | 1 |  |  |  | 1 | 1 |  | 3 | 2 |  |
| NEWARK AVENUE |  | 1 |  |  | 1 |  |  |  |  | 2 | 0 |  |
| NEWPORT AVENUE | 1 | 1 | 2 | 2 |  | 1 |  | 1 |  | 8 | 2 |  |
| NORTH FRANKLIN AVENUE |  |  |  |  | 1 |  |  |  |  | 1 | 0 |  |
| NORTH GLADSTONE AVENUE |  |  | 2 |  | 1 | 1 |  |  |  | 4 | 1 |  |
| PORTLAND AVENUE |  | 1 | 1 |  |  |  | 2 |  |  | 4 | 2 |  |
| RICHARDS AVENUE |  |  |  |  |  |  | 1 |  |  | 1 | 1 |  |
| ROSBOROUGH AVENUE | 1 |  |  |  |  |  |  |  |  | 1 | 0 |  |
| SACRAMENTO AVENUE |  | 1 |  |  |  |  |  |  |  | 1 | 0 |  |
| TROY AVENUE |  |  | 1 |  |  | 1 |  |  |  | 2 | 1 |  |
| VENTNOR AVENUE |  |  |  |  | 1 | 2 |  | 1 |  | 4 | 3 |  |
| WASHINGTON AVENUE, MP 1.07 | 2 |  |  |  | 1 | 2 |  | 1 |  | 6 | 3 |  |

Appendix B

## $\underline{\text { Traffic Counts }}$

## Orth-R odgers \& Associates, Inc. <br> 810 Bear Tavern Road, Suite 307

West Trenton, NJ 08628
File Name : 004_07-28-11
Site Code : 00000000
Start Date : 7/28/2011
Page No : 1


# Orth-R odgers \& Associates, Inc. <br> 810 Bear Tavern Road, Suite 307 <br> West Trenton, NJ 08628 

File Name : 004_07-28-11 Site Code : 00000000 Start Date : 7/28/2011 Page No : 2

|  | Washington Avenue Southbound |  |  |  |  | Ventnor Avenue Westbound |  |  |  |  | Washington Avenue Northbound |  |  |  |  | Ventnor Avenue Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| 05:00 PM | 0 | 0 | 0 | 1 | 1 | 0 | 84 | 5 | 0 | 89 | 2 | 3 | 2 | 3 | 10 | 10 | 77 | 0 | 7 | 94 | 194 |
| 05:15 PM | 0 | 0 | 0 | 2 | 2 | 0 | 81 | 8 | 3 | 92 | 1 | 0 | 1 | 3 | 5 | 4 | 60 | 0 | 0 | 64 | 163 |
| 05:30 PM | 0 | 0 | 0 | 4 | 4 | 0 | 64 | 2 | 0 | 66 | 0 | 5 | 1 | 8 | 14 | 4 | 68 | 0 | 0 | 72 | 156 |
| 05:45 PM | 0 | 0 | 0 | 8 | 8 | 0 | 67 | 4 | 0 | 71 | 2 | 2 | 0 | 5 | 9 | 5 | 83 | 0 | 5 | 93 | 181 |
| Total | 0 | 0 | 0 | 15 | 15 | 0 | 296 | 19 | 3 | 318 | 5 | 10 | 4 | 19 | 38 | 23 | 288 | 0 | 12 | 323 | 694 |
| Grand Total | 0 | 0 | 0 | 89 | 89 | 0 | 2375 | 122 | 40 | 2537 | 37 | 61 | 32 | 83 | 213 | 131 | 2148 | 4 | 80 | 2363 | 5202 |
| Apprch \% | 0 | 0 | 0 | 100 |  | 0 | 93.6 | 4.8 | 1.6 |  | 17.4 | 28.6 | 15 | 39 |  | 5.5 | 90.9 | 0.2 | 3.4 |  |  |
| Total \% | 0 | 0 | 0 | 1.7 | 1.7 | 0 | 45.7 | 2.3 | 0.8 | 48.8 | 0.7 | 1.2 | 0.6 | 1.6 | 4.1 | 2.5 | 41.3 | 0.1 | 1.5 | 45.4 |  |


|  | Washington Avenue Southbound |  |  |  |  | Ventnor Avenue Westbound |  |  |  |  | Washington Avenue Northbound |  |  |  |  | Ventnor Avenue Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |

Peak Hour Analysis From 10:00 AM to 02:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 11:30 AM

| 11:30 AM | 0 | 0 | 0 | 3 | 3 | 0 | 86 | 6 | 3 | 95 | 1 | 0 | 1 | 1 | 3 | 3 | 79 | 0 | 2 | 84 | 185 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11:45 AM | 0 | 0 | 0 | 2 | 2 | 0 | 90 | 4 | 1 | 95 | 2 | 5 | 1 | 5 | 13 | 4 | 61 | 0 | 3 | 68 | 178 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 4 | 2 | 101 | 1 | 0 | 0 | 10 | 11 | 7 | 82 | 0 | 6 | 95 | 207 |
| 12:15 PM | 0 | 0 | 0 | 3 | 3 | 0 | 91 | 8 | 2 | 101 | 1 | 3 | 1 | 3 | 8 | 5 | 73 | 0 | 13 | 91 | 203 |
| Total Volume | 0 | 0 | 0 | 8 | 8 | 0 | 362 | 22 | 8 | 392 | 5 | 8 | 3 | 19 | 35 | 19 | 295 | 0 | 24 | 338 | 773 |
| \% App. Total | 0 | 0 | 0 | 100 |  | 0 | 92.3 | 5.6 | 2 |  | 14.3 | 22.9 | 8.6 | 54.3 |  | 5.6 | 87.3 | 0 | 7.1 |  |  |
| PHF | . 000 | . 000 | . 000 | . 667 | . 667 | . 000 | . 953 | . 688 | . 667 | . 970 | . 625 | . 400 | 750 | . 475 | . 673 | . 679 | . 899 | . 000 | 462 | . 889 | . 934 |

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 03.15 PM

| 03:15 PM | 0 | 0 | 0 | 1 | 1 | 0 | 93 | 5 | 2 | 100 | 2 | 4 | 0 | 3 | 9 | 3 | 100 | 0 | 0 | 103 | 213 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 03:30 PM | 0 | 0 | 0 | 3 | 3 | 0 | 99 | 2 | 0 | 101 | 1 | 1 | 1 | 0 | 3 | 2 | 83 | 0 | 0 | 85 | 192 |
| 03:45 PM | 0 | 0 | 0 | 5 | 5 | 0 | 96 | 9 | 0 | 105 | 1 | 2 | 2 | 1 | 6 | 5 | 68 | 0 | 0 | 73 | 189 |
| 04:00 PM | 0 | 0 | 0 | 2 | 2 | 0 | 84 | 2 | 2 | 88 | 2 | 3 | 3 | 1 | 9 | 8 | 94 | 0 | 3 | 105 | 204 |
| Total Volume | 0 | 0 | 0 | 11 | 11 | 0 | 372 | 18 | 4 | 394 | 6 | 10 | 6 | 5 | 27 | 18 | 345 | 0 | 3 | 366 | 798 |
| \% App. Total | 0 | 0 | 0 | 100 |  | 0 | 94.4 | 4.6 | 1 |  | 22.2 | 37 | 22.2 | 18.5 |  | 4.9 | 94.3 | 0 | 0.8 |  |  |
| PHF | . 000 | . 000 | . 000 | . 550 | . 550 | . 000 | . 939 | . 500 | . 500 | . 938 | . 750 | . 625 | . 500 | . 417 | . 750 | . 563 | . 863 | . 000 | . 250 | . 871 | . 937 |

## Orth-R odgers \& Associates, Inc. <br> 810 Bear Tavern Road, Suite 307

West Trenton, NJ 08628
File Name : 005_07-30-11
Site Code : 00000000
Start Date : 7/30/2011
Page No : 1

| Groups Printed- Unshifted |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | W Southbound |  |  |  |  | Ventnor Avenue Westbound |  |  |  |  | Washington Avenue Northbound |  |  |  |  | Ventnor Avenue Eastbound |  |  |  |  |  |
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| 10:00 AM | 0 | 0 | 0 | 20 | 20 | 0 | 105 | 3 | 0 | 108 | 3 | 0 | 3 | 5 | 11 | 2 | 65 | 0 | 12 | 79 | 218 |
| 10:15 AM | 0 | 0 | 0 | 11 | 11 | 0 | 102 | 4 | 5 | 111 | 5 | 3 | 5 | 12 | 25 | 10 | 90 | 0 | 6 | 106 | 253 |
| 10:30 AM | 0 | 0 | 0 | 9 | 9 | 0 | 111 | 3 | 0 | 114 | 1 | 3 | 1 | 3 | 8 | 3 | 77 | 0 | 6 | 86 | 217 |
| 10:45 AM | 0 | 0 | 0 | 18 | 18 | 0 | 106 | 9 | 3 | 118 | 2 | 4 | 3 | 18 | 27 | 4 | 77 | 0 | 5 | 86 | 249 |
| Total | 0 | 0 | 0 | 58 | 58 | 0 | 424 | 19 | 8 | 451 | 11 | 10 | 12 | 38 | 71 | 19 | 309 | 0 | 29 | 357 | 937 |
| 11:00 AM | 0 | 0 | 0 | 21 | 21 | 0 | 122 | 4 | 1 | 127 | 1 | 2 | 2 | 5 | 10 | 8 | 85 | 0 | 9 | 102 | 260 |
| 11:15 AM | 0 | 0 | 0 | 14 | 14 | 0 | 103 | 1 | 6 | 110 | 4 | 6 | 0 | 5 | 15 | 10 | 87 | 0 | 16 | 113 | 252 |
| 11:30 AM | 0 | 0 | 0 | 17 | 17 | 0 | 91 | 6 | 4 | 101 | 2 | 4 | 1 | 9 | 16 | 6 | 81 | 0 | 13 | 100 | 234 |
| 11:45 AM | 0 | 0 | 0 | 11 | 11 | 0 | 109 | 3 | 1 | 113 | 2 | 3 | 2 | 8 | 15 | 4 | 84 | 0 | 8 | 96 | 235 |
| Total | 0 | 0 | 0 | 63 | 63 | 0 | 425 | 14 | 12 | 451 | 9 | 15 | 5 | 27 | 56 | 28 | 337 | 0 | 46 | 411 | 981 |
| 12:00 PM | 0 | 0 | 0 | 2 | 2 | 0 | 82 | 5 | 1 | 88 | 2 | 1 | 3 | 5 | 11 | 8 | 72 | 0 | 6 | 86 | 187 |
| 12:15 PM | 0 | 0 | 0 | 10 | 10 | 0 | 111 | 5 | 6 | 122 | 3 | 4 | 2 | 9 | 18 | 4 | 91 | 0 | 7 | 102 | 252 |
| *** BREAK *** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total | 0 | 0 | 0 | 12 | 12 | 0 | 193 | 10 | 7 | 210 | 5 | 5 | 5 | 14 | 29 | 12 | 163 | 0 | 13 | 188 | 439 |
| 01:00 PM | 0 | 0 | 0 | 10 | 10 | 0 | 89 | 9 | 5 | 103 | 3 | 2 | 0 | 4 | 9 | 8 | 86 | 0 | 4 | 98 | 220 |
| 01:15 PM | 0 | 0 | 0 | 2 | 2 | 0 | 108 | 4 | 5 | 117 | 2 | 2 | 4 | 9 | 17 | 9 | 83 | 0 | 10 | 102 | 238 |
| 01:30 PM | 0 | 0 | 0 | 4 | 4 | 0 | 100 | 10 | 7 | 117 | 0 | 1 | 7 | 6 | 14 | 8 | 77 | 0 | 6 | 91 | 226 |
| 01:45 PM | 0 | 0 | 0 | 15 | 15 | 0 | 106 | 1 | 17 | 124 | 2 | 3 | 6 | 7 | 18 | 6 | 76 | 0 | 17 | 99 | 256 |
| Total | 0 | 0 | 0 | 31 | 31 | 0 | 403 | 24 | 34 | 461 | 7 | 8 | 17 | 26 | 58 | 31 | 322 | 0 | 37 | 390 | 940 |
| Grand Total | 0 | 0 | 0 | 164 | 164 | 0 | 1445 | 67 | 61 | 1573 | 32 | 38 | 39 | 105 | 214 | 90 | 1131 | 0 | 125 | 1346 | 3297 |
| Apprch \% | 0 | 0 | 0 | 100 |  | 0 | 91.9 | 4.3 | 3.9 |  | 15 | 17.8 | 18.2 | 49.1 |  | 6.7 | 84 | 0 | 9.3 |  |  |
| Total \% | 0 | 0 | 0 | 5 | 5 | 0 | 43.8 | 2 | 1.9 | 47.7 | 1 | 1.2 | 1.2 | 3.2 | 6.5 | 2.7 | 34.3 | 0 | 3.8 | 40.8 |  |


|  | W <br> Southbound |  |  |  |  | Ventnor Avenue Westbound |  |  |  |  | Washington Avenue Northbound |  |  |  |  | Ventnor Avenue Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |

Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1 Peak Hour for Entire Intersection Begins at 10:45 AM

| 10:45 AM | 0 | 0 | 0 | 18 | 18 | 0 | 106 | 9 | 3 | 118 | 2 | 4 | 3 | 18 | 27 | 4 | 77 | 0 | 5 | 86 | 249 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11:00 AM | 0 | 0 | 0 | 21 | 21 | 0 | 122 | 4 | 1 | 127 | 1 | 2 | 2 | 5 | 10 | 8 | 85 | 0 | 9 | 102 | 260 |
| 11:15 AM | 0 | 0 | 0 | 14 | 14 | 0 | 103 | 1 | 6 | 110 | 4 | 6 | 0 | 5 | 15 | 10 | 87 | 0 | 16 | 113 | 252 |
| 11:30 AM | 0 | 0 | 0 | 17 | 17 | 0 | 91 | 6 | 4 | 101 | 2 | 4 | 1 | 9 | 16 | 6 | 81 | 0 | 13 | 100 | 234 |
| Total Volume | 0 | 0 | 0 | 70 | 70 | 0 | 422 | 20 | 14 | 456 | 9 | 16 | 6 | 37 | 68 | 28 | 330 | 0 | 43 | 401 | 995 |
| \% App. Total | 0 | 0 | 0 | 100 |  | 0 | 92.5 | 4.4 | 3.1 |  | 13.2 | 23.5 | 8.8 | 54.4 |  | 7 | 82.3 | 0 | 10.7 |  |  |
| PHF | . 000 | . 000 | . 000 | . 833 | . 833 | . 000 | . 865 | . 556 | . 583 | . 898 | . 563 | . 667 | . 500 | . 514 | . 630 | . 700 | . 948 | . 000 | . 672 | . 887 | . 957 |

## HCS+ ${ }^{\text {T" }}$ DETAILED REPORT

## General Information

| Analyst | KD |
| :--- | :--- |
| Agency or Co. | ORA |

Date Performed 1/9/2012
Time Period $\begin{aligned} & \text { Weekday AM Peak (11:30- } \\ & \text { 12:30) }\end{aligned}$

Site Information

| Intersection | Washington Ave \& Ventnor <br> Ave |
| :--- | :--- |
| Area Type | All other areas |
| Jurisdiction |  |
| Analysis Year | 2011 |
| Project ID | 2011 Road Safety <br> Assessment Project |

Volume and Timing Input


Lane Group Capacity, Control Delay, and LOS Determination


## HCS+ ${ }^{\text {" }}$ DETAILED REPORT



## HCS+ ${ }^{\text {" }}$ DETAILED REPORT

## General Information

| Analyst | KD |
| :--- | :--- |
| Agency or Co. | ORA |
| Date Performed | 1/9/2012 |
| Time Period | Saturday Peak Hr (10:45- |
|  | 11:45) |

$\begin{array}{ll}\text { Analyst } & K D \\ \text { Agency or Co. } & \text { ORA }\end{array}$
Date Performed 1/9/2012
$\begin{array}{ll}\text { Time Period } & \text { 11:45) }\end{array}$

Volume and Timing Input


| Lane Group Capacity, | la | nd LO | te | atio |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | EB |  |  | WB |  |  | NB |  |  | SB |  |
|  | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Adjusted Flow Rate, v |  | 402 |  |  | 491 |  |  | 49 |  |  |  |  |
| Lane Group Capacity, c |  | 1111 |  |  | 1166 |  |  | 369 |  |  |  |  |
| v/c Ratio, X |  | 0.36 |  |  | 0.42 |  |  | 0.13 |  |  |  |  |
| Total Green Ratio, g/C |  | 0.63 |  |  | 0.63 |  |  | 0.22 |  |  |  |  |
| Uniform Delay, $\mathrm{d}_{1}$ |  | 6.2 |  |  | 6.5 |  |  | 21.9 |  |  |  |  |
| Progression Factor, PF |  | 1.000 |  |  | 1.000 |  |  | 1.000 |  |  |  |  |
| Delay Calibration, k |  | 0.50 |  |  | 0.50 |  |  | 0.50 |  |  |  |  |
| Incremental Delay, $\mathrm{d}_{2}$ |  | 0.9 |  |  | 1.1 |  |  | 0.7 |  |  |  |  |
| Initial Queue Delay, $\mathrm{d}_{3}$ |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |  |  |  |
| Control Delay |  | 7.1 |  |  | 7.6 |  |  | 22.7 |  |  |  |  |
| Lane Group LOS |  | A |  |  | A |  |  | C |  |  |  |  |
| Approach Delay |  |  |  |  | 6 |  |  |  |  |  |  |  |
| Approach LOS |  |  |  |  | A |  |  |  |  |  |  |  |
| Intersection Delay |  |  |  |  | 0.35 |  | Inter | tion LOS |  |  | A |  |

Appendix C

## Crash Data Charts

Ventnor Avenue (CR 629) MP 0.78-3.39
Crash Occurence by Year (2003-2010)






## Ventnor Avenue (CR 629) MP 0.78-3.39 <br> Crash Occurrence by Light Condition (2008-2010)






## Ventnor Avenue (CR 629) MP 0.78-3.39 <br> Spot Location of Crashes (Proximity to Nearest Intersection) <br> (2008-2010)

$\square 2008 \square 2009 \square 2010$


## Appendix D

## Photographs







## Appendix E

## Straight Line Diagram





