DATA AND ANALYSIS

HIGH CRASH LOCATIONS

Pedestrian and bicycle crash information throughout the city was obtained from Plan4Safety. Plan4Safety is a crash analysis tool created by the Rutgers Center for Advanced Infrastructure and Transportation which includes a database of all crash records within the state. Five years of pedestrian and bicycle crash data from 2009 – 2013 was used to identify and rank the highest, most severe crash intersections and corridors throughout Newark including city, county and state controlled roadways (see Appendix A-1 for the complete list). From this list, the 10 highest crash intersections and corridors under the city's jurisdiction were identified.

Intersections involving one or more Essex County routes or New Jersey state highway or interstate routes were excluded from the top 10 list because the action plan is focused on making improvements on streets and intersections under the city's jurisdiction.

For the high crash corridors, all crash types were included in the analyses to allow for longer segments to be identified as corridors in need of pedestrian, bicycle and traffic calming improvements. A standard safety metric was used, Killed & Seriously Injured per mile (KSI/mile), which gives the rate of total fatalities and incapacitating injuries per mile by calculating the total number of pedestrians, cyclists, drivers and occupants killed or seriously injured and dividing by the length of the corridor (in miles) for each of the corridors in the crash dataset. The corridors were ranked based on the KSI per mile metric to identify the 10 highest severe crash corridors.

In order to identify crash patterns and determine the statistical profile of roads, drivers and pedestrians involved, the crash data for the 10 highest crash intersections and corridors were further analyzed to review various crash attributes related to environmental, geometric, vehicular and human/behavioral factors.
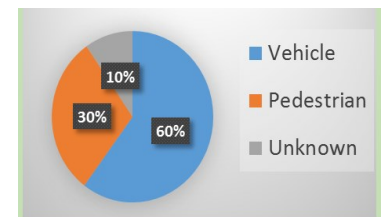
Environmental and geometric factors included:

- time of day
- light condition
- surface condition
- presence or absence of a median

Vehicular factors included vehicle approach direction

Human/behavioral factors (both driver and pedestrian) included:

- alcohol involvement
- age
- gender

Primary Contributing Factor – Intersections

Crash attributes are summarized in Appendix A-2. Select attributes are also shown in figures in the Implementation Section for the high crash locations.

HIGH CRASH INTERSECTIONS

1. Broad Street and Market Street

2. Market Street and Mulberry Street

3. Bergen Street and 12th Avenue

4. Ferry Street and Monroe Street

5. Raymond Boulevard and Raymond Plaza East

6. Walnut Street and McWhorter Street

7. Ferry Street and Adams Street

8. Raymond Boulevard and Mulberry Street

9. 7th Avenue and Colonnade Place

10. Market Street and Raymond Plaza East

NORTH

LEGEND

INTERSECTION RANK

HIGH CRASH CORRIDORS

1. Lincoln Park from Clinton Avenue to Broad Street
2. Dayton Street from Evergreen Avenue to Frelinghuysen Avenue
3. Broad Street from Poinier Street to dead end (near Oriental Street)
4. South Street from Pennsylvania Avenue to Delancy Street
5. Bergen Street from Grumman Avenue to W. Market Street
6. Clinton Avenue from S. 20th Street to Lincoln Park
7. 14th Avenue from S. 20th Street to Jones Street
8. 18th Avenue from Irvine Turner Boulevard to Sandford Avenue
9. Central Avenue Dr. MLK Jr. Boulevard to Broad Street
10. Orange Street from W. Market Street to Broad Street

NORTH

LEGEND

━━━ **HIGH CRASH CORRIDOR**

▢ **CORRIDOR RANK**

DATA AND ANALYSIS

PEDESTRIAN AND BICYCLE VOLUMES

Pedestrian and bicycle volume data was collected to compare the annual average number of pedestrian and bicycle crashes at a location to the number of pedestrians and cyclists crossing at the intersection or along the corridor to analyze the exposure. Volumes were collected at the 10 high crash intersections and one location along each of the 10 corridors during the a.m. and p.m. peak hours in May 2015 using a specialized app created for the Newark Pedestrian and Bicycle Safety Action Plan. Pedestrian and bike volumes were also collected at 10 control locations – five intersections and five midblock locations that are not high crash locations, i.e., had zero crashes during the study period – for comparison. The 10 comparison locations were chosen through a random number selection process and verified using maps to ensure that they were not dead-end streets or otherwise atypical locations. The rate of crashes by volume was calculated to compare the 10 high crash intersections and corridors to the 10 comparison locations as shown in Appendix A-3. Over 21,000 individual pedestrian and bicycle movements were collected during the AM and PM peak hours at 30 count locations. The pedestrian and bicycle crash and volume data were used to identify potential screening methods.

Screen shot of the app developed for this project to collect pedestrian and bicycle volumes.
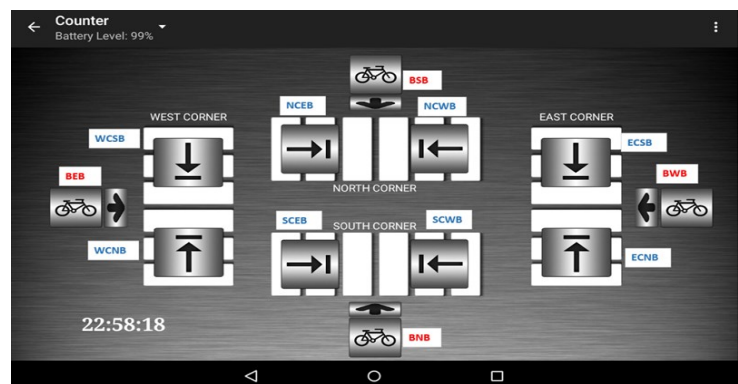
PHYSICAL INVENTORY OF HIGH CRASH LOCATIONS

In addition to crash history and pedestrian and bike a.m. and p.m. peak hour volumes, a physical inventory was conducted for each of the 10 high crash intersections, corridors, as well as 10 control locations. Aerial and street view images were used and verified in the field. Intersection inventory included:

- Presence or absence of signalized traffic control
- Pedestrian signals
- Crosswalks and pedestrian curb ramps
- Pedestrian warning signs
- Median refuge (pedestrian islands or raised medians)
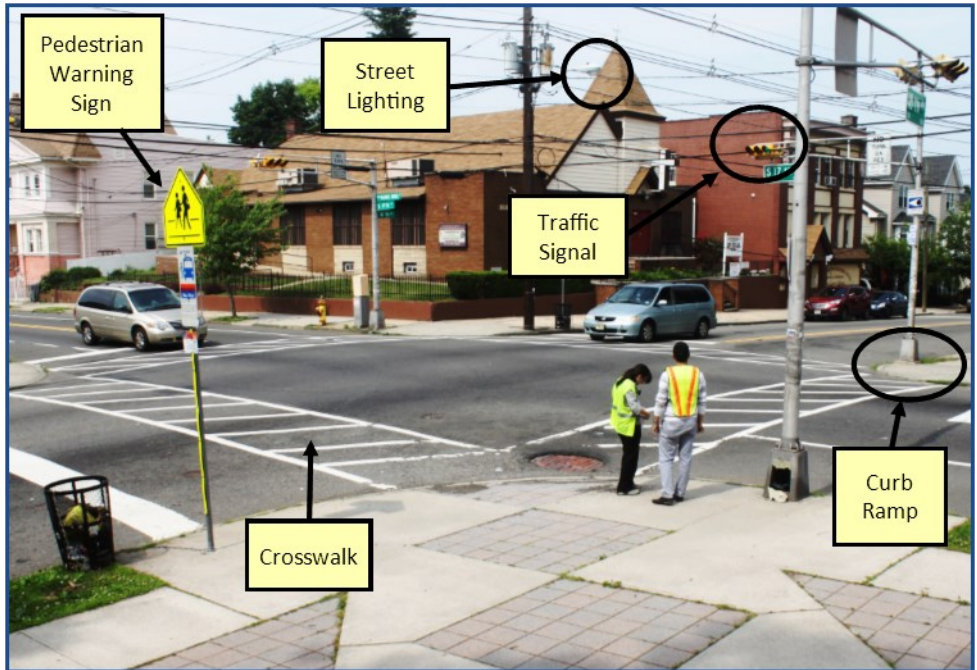- Street lighting

Corridors were inventoried for the entire length using online aerial and street view images and included:

- Road width and number of travel lanes
- Presence or absence of on-street parking
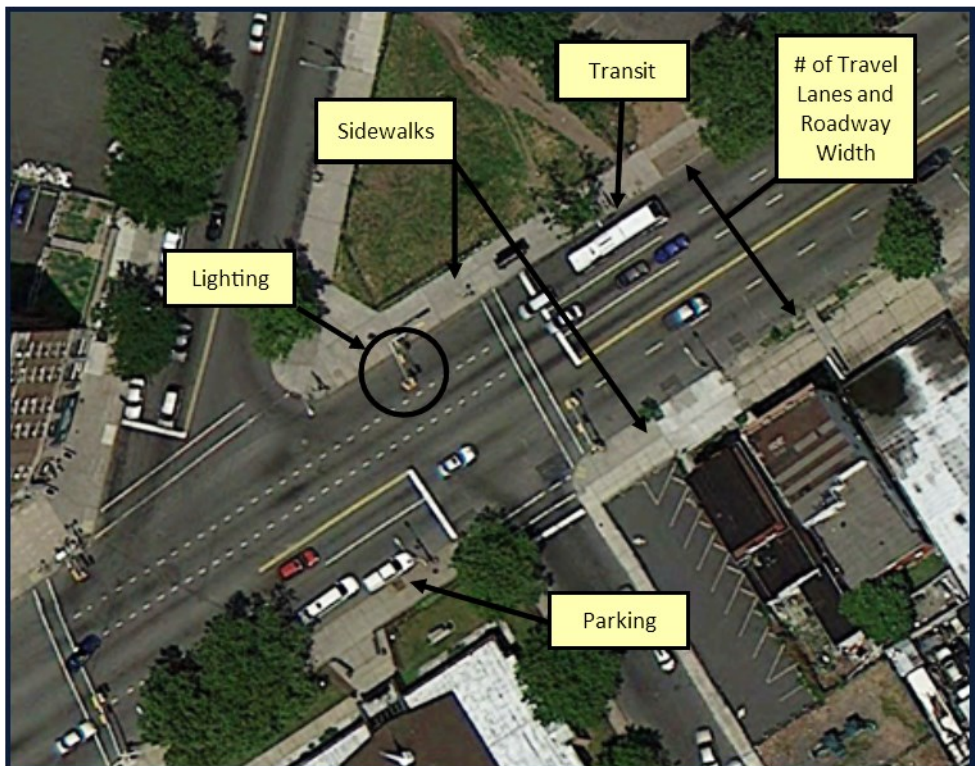- Sidewalks
- Midblock crosswalks

Table 3-1
Total crashes and volumes at high crash intersections

Intersection	Pedestrian Crashes	AM Peak Hour Pedestrian Volumes	PM Peak Hour Pedestrian Volumes	Bike Crashes	AM Peak Hour Bike Volumes	PM Peak Hour Bike Volumes
Broad Street at Market Street	17	2439	3556	-	9	20
Market Street at Mulberry Street	8	116	837	1	-	5
Bergen Street at 12th Avenue	7	313	412	-	4	5
Ferry Street at Monroe Street	5	333	778	-	5	9
Raymond Blvd at Raymond Plaza East	5	234	326	-	4	5
Walnut Street at McWhorter Street	5	97	140	-	2	8
Ferry Street at Adams Street	4	376	973	1	11	15
Raymond Blvd at Mulberry Street	4	419	394	1	-	9
7th Ave at Colonnade Plaza	3	314	42	1	7	1
Market Street at Raymond Plaza East	4	445	509	-	2	4

DATA AND ANALYSIS

	Intersection Characteristics	Observation
1.	**Crosswalk Style**	Continental
2.	**Pedestrian Warning Sign**	Yes
3.	**Pedestrian Ramp**	Yes
4.	**Median Refuge**	No
5.	**Traffic Signal**	Yes
6.	**Pedestrian Count-down Signals**	No
7.	**Street Lighting**	Yes

	Corridor Characteristics	Observation
1.	**Estimated No. of Travel Lanes**	5
2.	**Width of Roadway**	75'
3.	**Parking**	Yes
4.	**Parking Stripes**	No
5.	**Median/Pedestrian Refuge**	No
6.	**Sidewalks**	Both Sides
7.	**Midblock Crosswalks**	No
8.	**Street Lighting**	Yes
9.	**Transit Route**	Yes