

PEDESTRIAN SAFE CORRIDORS: MEMORANDUM

SUBMITTED TO:

STATE OF NEW JERSEY
Department of Transportation
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SUBMITTED BY:

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This memorandum contains a brief analysis of the pedestrian crashes pre- and post-improvement along three corridors in New Jersey: downtown Newark (Market and Ferry Sts); Route 27 in Elizabeth, Roselle, and Linden; and Route 70 in Cherry Hill. The data analyzed come from CAIT's Plan4Safety database of reported automobile crashes involving pedestrians from January 2003 to May 2011. In summary, we found that pedestrian improvements may have been a factor in reducing pedestrian crashes in the dense urban area of downtown Newark where mixed pedestrian-automobile traffic is more common. In more suburban locations like Route 27 and especially Route 70, the evidence is inconclusive.

Table 1: Crashes by corridor, pre- and post-pedestrian improvements (CAIT, Plan4Safety, 2011)

Corridor	Pre-improvement	Post-improvement
Downtown Newark	1.0 crashes per month (64 total)	0.6 crashes per month (22 total)
Route 27/Elizabeth/Roselle/Linden	1.0 crashes per month (55 total)	1.0 crashes per month (46 total)
Route 70/Cherry Hill	3 crashes (01/2003-10/2006)	6 crashes (11/2006-05/2011)

Our analysis was not able to include assessment of the specific pedestrian improvements. At the advisement of the client, we contacted New Jersey Department of Transportation regional engineers in North Jersey and South Jersey, but North Jersey was not able to provide us with detailed information on improvements along these corridors in the time necessary to generate this report. We were able to secure information from the NJDOT Regional Operations South, City of Newark, Parsons Brinckerhoff and MKW + Associates, LLC., on the specific suggestions for improvements in Cherry Hill and downtown Newark. These documents did not, however, include information on the actual improvements made in downtown Newark. To supplement the information provided to us, the VTC staff visited each of the three sites and photographed the existing pedestrian conditions along the corridors (see Appendix B for additional photographs).

Corridor Descriptions

Downtown Newark

Pedestrian improvements were recommended by consulting firm Parsons

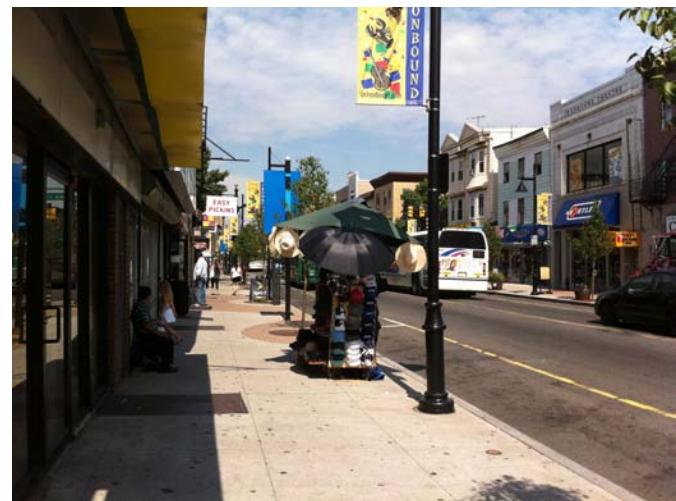


Figure 1: Streetscape improvements along Ferry Street in the Ironbound neighborhood of Newark, New Jersey

Brinckerhoff for downtown Newark, New Jersey, along two parallel roadways. The first is a 0.7 mile stretch of Market Street between Broad Street and Jackson Street in downtown Newark. The second is a 2.4 mile segment of Ferry Street from Newark Penn Station to Raymond Boulevard.

The Market Street corridor includes Newark Penn Station, which is a major multimodal transportation hub including buses, taxicabs, light rail, and commuter rail. The rail station generates significant pedestrian activity throughout the day, with major activity during peak commute periods. Observations of the street conditions were made in mid-2011. We observed modest improvements along the Market Street section. The improvements were limited to ADA accessibility ramps and some signage, though we were not able to determine if these improvements were made specifically to address the pedestrian safety changes completed in 2008.

The Ferry Street corridor begins at Newark Penn Station and extends southeast through Newark's Ironbound neighborhood. Ferry Street is a major commercial corridor for the neighborhood with a variety of neighborhood-scale shops, restaurants and service-oriented businesses. Ferry Street is a high intensity, high traffic corridor, both for automobiles and pedestrians. Our observations at Ferry Street detected much higher quality of changes along this corridor. Streetscape improvements included new sidewalks, textured ADA ramps, garbage cans, plantings, and road striping. We also observed a very high pedestrian volume along the Ferry Street portion of this corridor; in contrast, the Market Street section had a low volume of pedestrian activity.

Route 27 Elizabeth, Linden, Roselle

The second corridor was along Route 27 passing through the municipalities of Elizabeth, Linden and Roselle. This corridor is 3.05 miles long and runs roughly parallel to the Northeast

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Figure 2: Uncontrolled intersection in downtown Newark

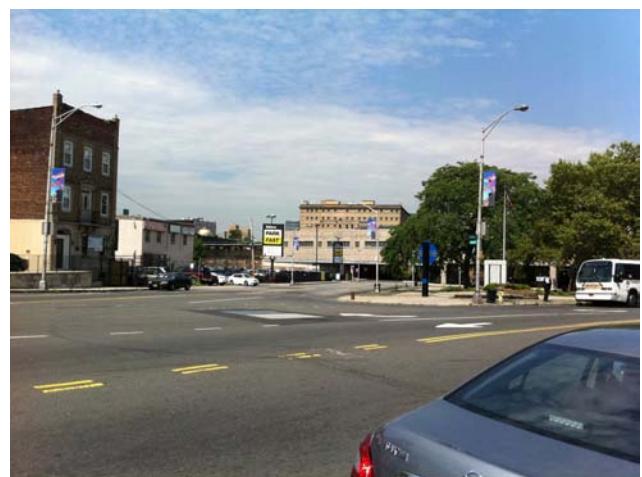


Figure 3: Ferry St near the north end of the corridor: Less pedestrian friendly environment.

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Figure 4: Improvements in downtown Elizabeth along Route 27

or pedestrian). The lack of signals made crossing dangerous for both pedestrians and drivers. We observed moderate pedestrian volumes around midday in downtown Elizabeth. The rest of the corridor, through Roselle and Linden, had low levels of pedestrian activity.

Route 70 Cherry Hill

The third corridor we examined was Route 70 in Cherry Hill from Locustwood Cemetery in the west to just past I-295 in the east. This stretch of Route 70 is a major arterial roadway; four travel lanes are split by a grass median. The roadway is wide and fast. Sidewalks are present on both sides of the divided highway; improvements were made to connect all sidewalks along the corridor and add ADA ramps. Pedestrian crossing zones are located at controlled intersections, but these intersections are distant from each other. In some cases, the corners have curb cuts for driveways very close to the pedestrian crossings.



Figure 5: Limited improvements along Route 70 in Cherry Hill.

Corridor rail line. The northern area includes the dense urban center in Elizabeth. Traveling south and west, Route 27 passes through older suburban neighborhoods. In these areas, Route 27 is a high speed, four-lane road with sidewalks on both sides. Commercial retail clusters are interspersed with residential uses along this part of the highway.

We observed minimal improvements in our field visit along Route 27. Downtown Elizabeth had some road striping, signage, and ADA textured ramps, but pedestrian signals were missing at all crossings. In fact, several intersections had no visible signals at all (auto

or pedestrian). The lack of signals made crossing dangerous for both pedestrians and drivers. We observed moderate pedestrian volumes around midday in downtown Elizabeth. The rest of the corridor, through Roselle and Linden, had low levels of pedestrian activity.

Field observation detected very little improvement along the Route 70 corridor, although some photos provided to us show the installation of sidewalks in the corridor (see Appendix B). No striping, signs or signals were observed along the corridor. This may be due to the age of the potential improvements; they were made over 5 years ago. The overall pedestrian environment as observed during our field trip was poor.

Numerous driveways, limited crossing zones, and high speeds on Route 70 make this an uninviting place for pedestrians. Large scale improvements would be necessary to address all the potential conflicts along this corridor. We observed very little pedestrian activity along this corridor during our early afternoon field visit.

Crash statistics

Downtown Newark

Parsons Brinckerhoff produced a report in 2007 for NJDOT and the City of Newark detailing some suggested improvements for pedestrian safety along the corridor. Their review of the pedestrian crash data covered only 2003-2005, a very short period from which to assess the danger of such a small area. Over this period, PB found a total of 33 crashes involving pedestrians (one fatal). Fifteen crashes were along the Ferry Street corridor; 18 along the Market Street corridor.

Our own review of pedestrian crash data from the Center for Advanced Infrastructure and Transportation's Plan4Safety data repository shows 22 crashes involving pedestrians (0 fatal) from March, 2008, to May, 2011, or approximately 0.6 crashes per month. Appendix figures A-1 and A-2 map the pre- and post-improvement crashes along the study corridors in downtown Newark. From January, 2003, to February, 2008, sixty-four crashes involving pedestrians (0 fatal) were reported for the two corridors combined, or approximately 1.0 crashes per month. This analysis does seem to show a decrease in crashes involving pedestrians along these corridors in the time period since improvements have been made.

Day/night and intersection/non-intersection crosstabulations did not reveal any significant differences for downtown Newark.

Route 27 Elizabeth, Linden, Roselle

Route 27 in Union County had pedestrian improvements completed in July, 2007 along a 3.9-mile corridor. Appendix figures A-3 and A-4 map the pre- and post-improvement crashes along the study corridors in downtown Elizabeth and the rest of the corridor. From August, 2007, to April, 2011, this corridor had 46 reported pedestrian crashes (1 fatal), or about 1.0 per month. Prior to improvement, reported crashes along this corridor totaled 55 (2 fatal) from January, 2003, to July 2007, or about 1.0 crashes per month. The limited nature of these data—especially without information on specific improvements—make the reported results inconclusive. The spatial data presented in Figures A-3 and A-4, though, show a decrease in crashes in the dense downtown Elizabeth area along Westfield Avenue.

Table 2: Route 27 crashes by location, pre- and post-improvements (CAIT, Plan4Safety, 2011)

Corridor	Pre-improvement	Post-improvement
Route 27—At intersection	29 crashes (0.64/month)	26 crashes (0.58/month)
Route 27—Mid-block	26 crashes (0.58/month)	20 crashes (0.44/month)
Route 27—Daytime	38 crashes (0.84/month)	28 crashes (0.62/month)
Route 27—Dusk/Dawn/Night	17 crashes (0.38/month)	18 crashes (0.40/month)

In addition, we examined two factors which we believed may have also been impacted by pedestrian improvements along the Route 27 corridor. First, we looked at daytime versus nighttime crashes. In the pre-improvement period, thirty-eight crashes were reported during daytime hours compared to 17 in dusk, dawn, or nighttime. In the post-improvement period, twenty-eight (28) crashes were reported in the daytime versus 18 in the other categories. Given the sample size, this evidence is inconclusive; but, these data do suggest a slight reduction in daytime crashes.

The second category we investigated was crash location (at intersection or mid-block). We hypothesized that pedestrian improvements may make intersections safer. They may also lead to fewer mid-block crossings. In the case of Route 27, the evidence was still inconclusive but does point to a slight shift toward fewer mid-block crashes (see Table 2).

Route 70 Cherry Hill

In the 3-mile stretch of Route 70 in Cherry Hill, New Jersey, the data include even fewer pedestrian incidents. Appendix figures A-5 and A-6 map the pre- and post-improvement crashes along the study corridor on Route 70 in Cherry Hill. Pedestrian improvements along this corridor were completed in October, 2006. Since that time, only six pedestrian crashes (1 fatal) have been reported. Prior to improvement, our dataset only contains three pedestrian incidents (0 fatal) from January, 2003, to October, 2006. Due to the low number of crashes, we cannot confidently assess the preconditions or postconditions of this corridor. The low level of pedestrian crashes in this corridor is likely due to a low level of pedestrian activity along the suburban roads in Cherry Hill. Route 70 is a partially separated highway with few pedestrian crossings and high speeds. Any increase in pedestrian incidents after improvements may be related to the improvements themselves; marginally improving pedestrian environments along an automobile-centric corridor may just increase the likelihood of crashes altogether.

The small number of observations prevented a meaningful analysis of day/night or intersection/non-intersection crosstabulations for Route 70.

Conclusions

In summary, these data show a marked improvement in downtown Newark, where drivers and pedestrians are normally mixing together in dense, urban space. Pedestrian improvements in areas like downtown Newark may have a significant impact in reducing crashes when *automobile speeds are manageable and pedestrian visibility is enhanced through infrastructure improvements*. In suburban areas where drivers are not expecting pedestrian traffic, improving pedestrian accessibility may only lead to more conflicts between drivers—at higher speeds—and pedestrians, or as in the case of Union County, marginal improvements if any at all. Short of dramatic changes in the transportation and land use of these areas, pedestrian improvements are unlikely to aid in making high-speed suburban roads much safer. Minor pedestrian infrastructure improvements like those observed along Routes 27 and 70 are likely to have little impact on pedestrian safety. ADA ramps may make pedestrian travel easier for persons with disabilities, but they do not address the fundamental safety problems along these corridors. Ferry Street in downtown Newark provides a counter-example of effective improvements that achieve dual goals of potentially improving safety and attracting more pedestrian activity to a core commercial corridor.

Appendix A

Pre- and Post-Implementation Spatial Crash Data

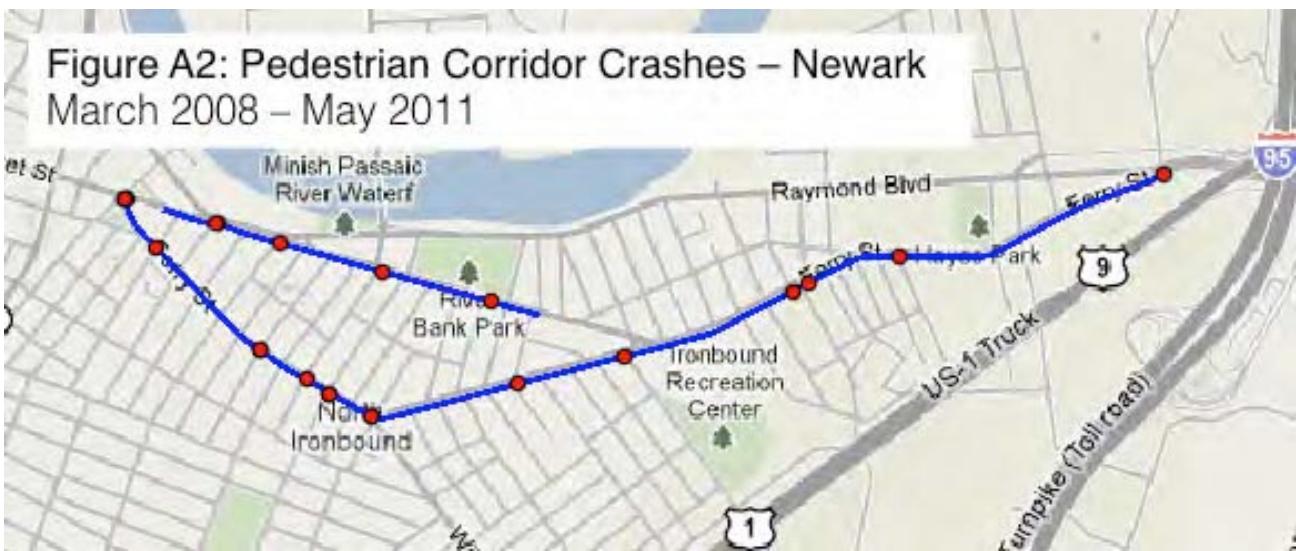


Figure A3: Pedestrian Corridor Crashes – Route 27
January 2003 – June 2007

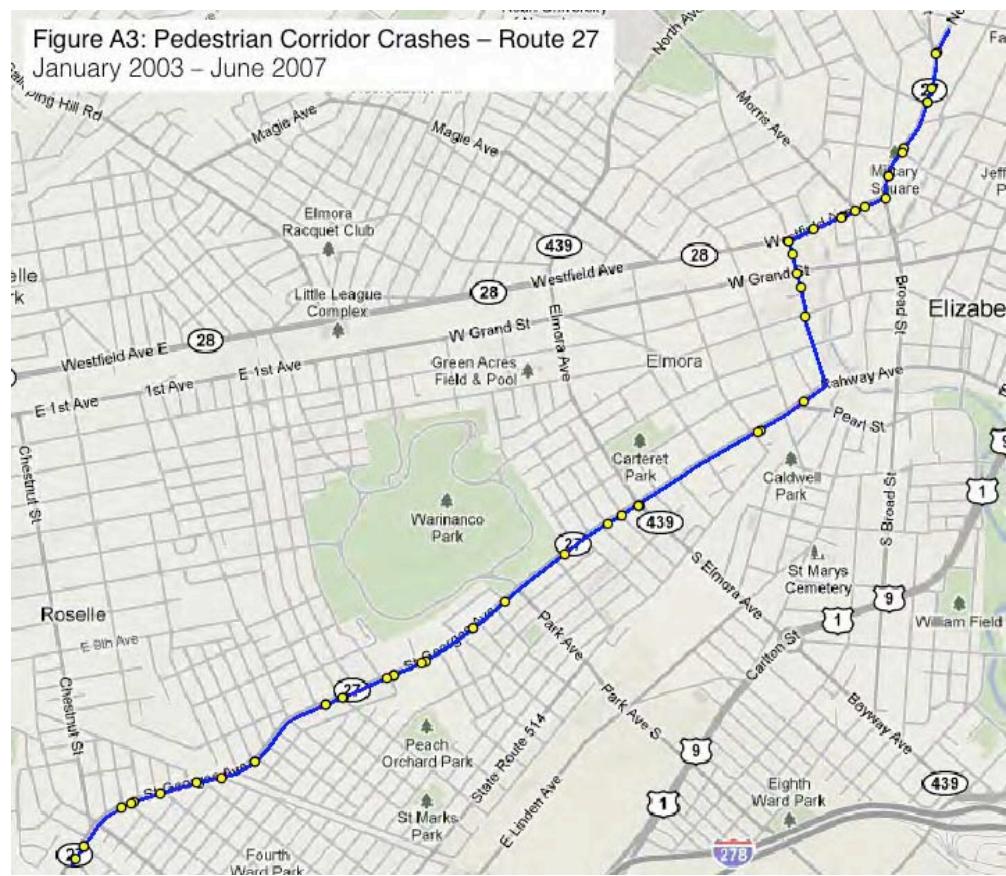
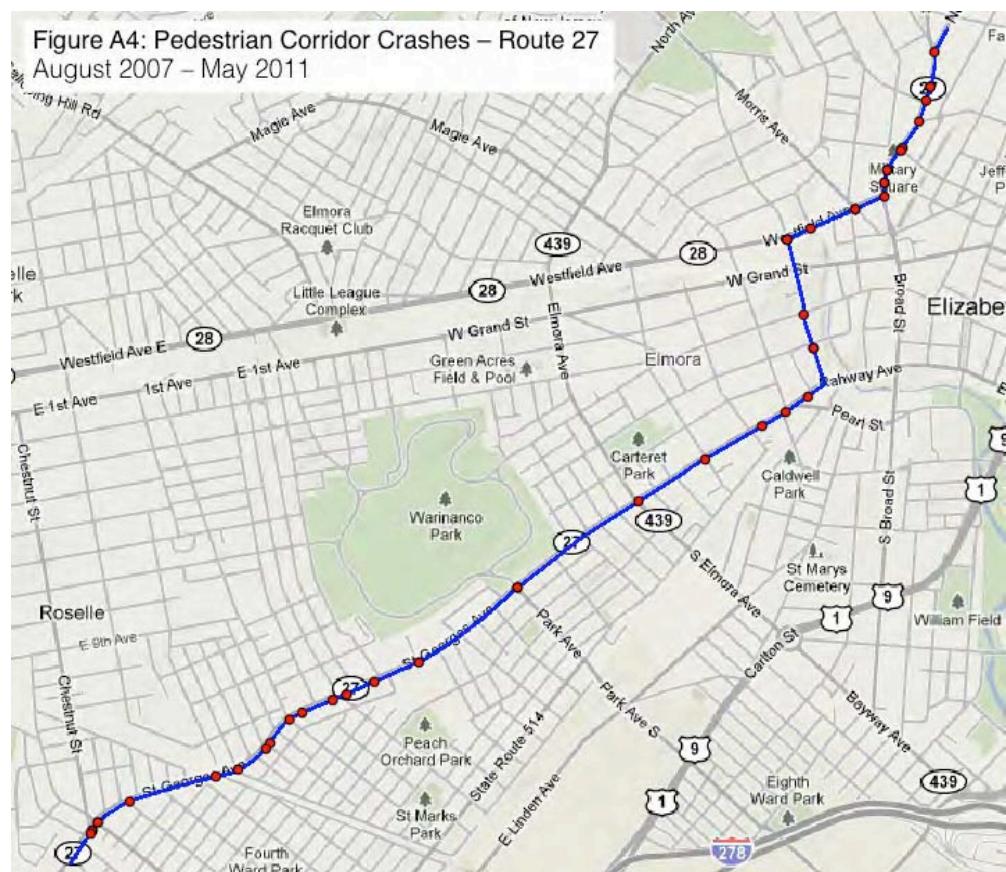
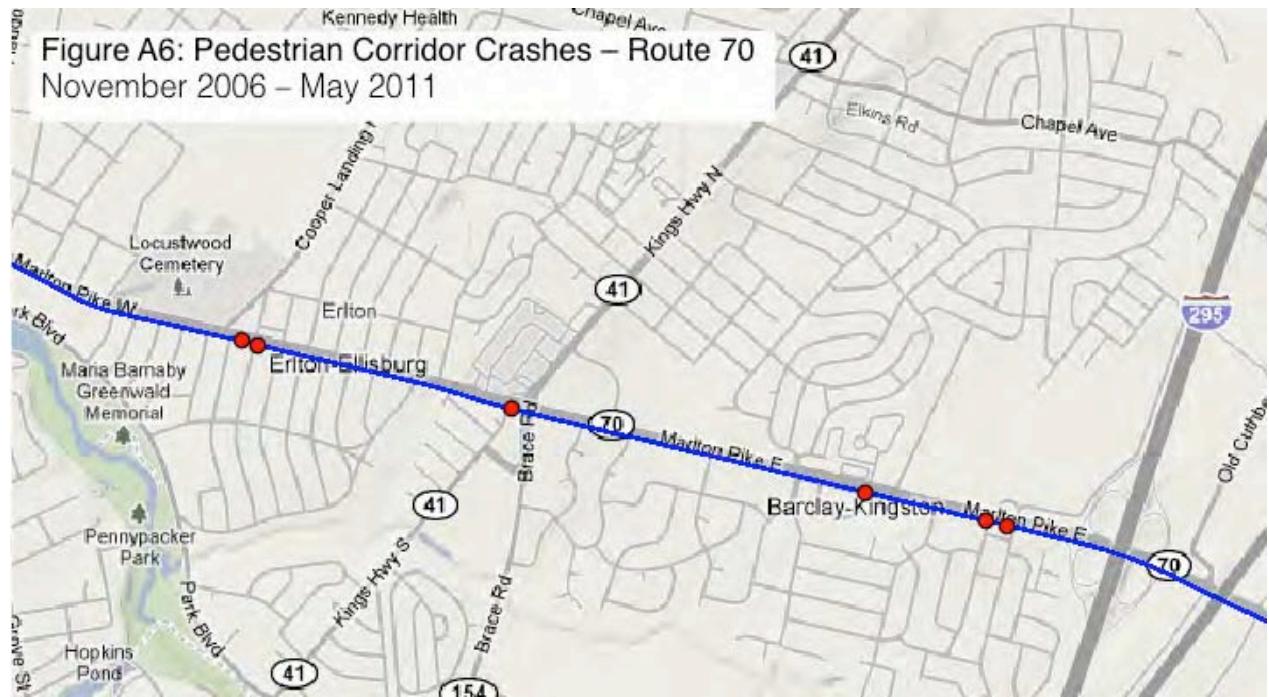
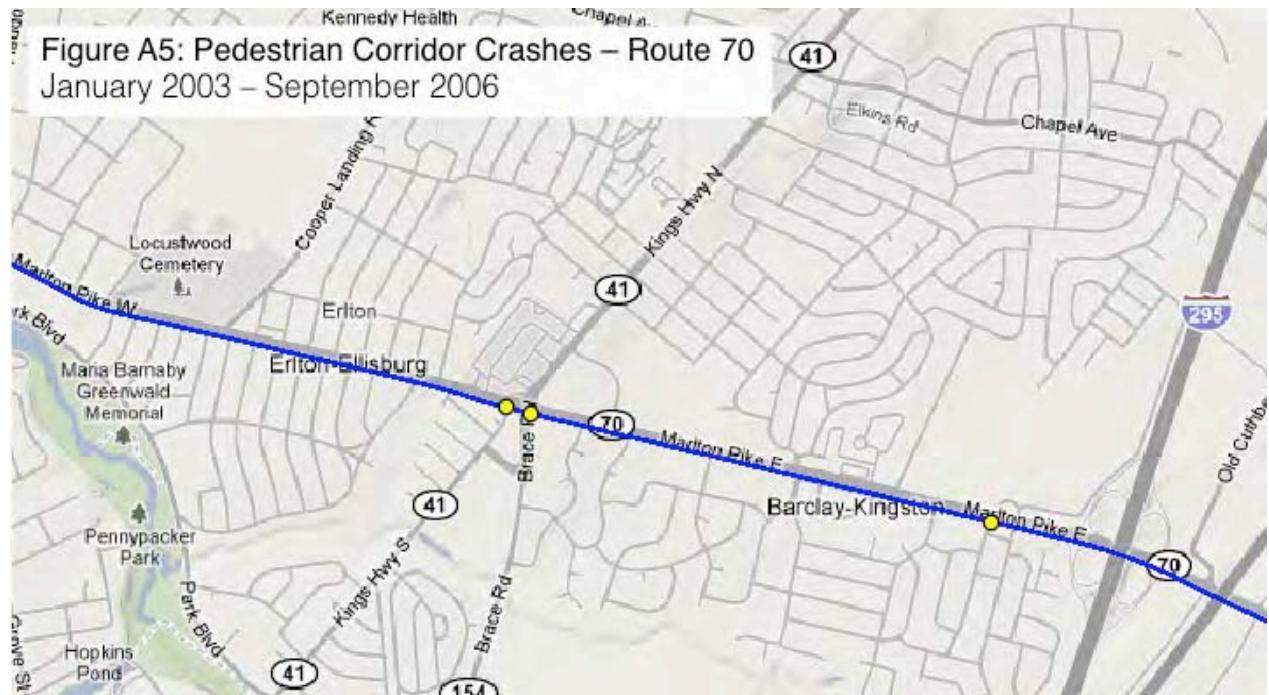


Figure A4: Pedestrian Corridor Crashes – Route 27
August 2007 – May 2011





Appendix B
Pedestrian Improvement Photographs
Field Visit - August 3, 2011

Downtown Newark



Figure B1 – Improvements along Market Street consist of mainly striping, ADA sidewalk ramps, and pedestrian crossing signs.



Figure B2 – Van Buren St & Ferry St – More substantial improvements along Ferry Street, but road striping has not been maintained.



Figure B3 – Monroe St & Ferry St – Greatly improved sidewalk aesthetic quality and planters along Ferry Street. Curb bump outs make crossing safer, but intersection is still uncontrolled.



Figures B4 & B5 – Pedestrian and parking signs have been improved along the corridor; parking meters have been replaced with electronic collection kiosks.

Route 27 – Elizabeth, Roselle, Linden



Figure B6 – Westfield Ave & Morris Ave – Minor improvements to the crosswalks (including ADA ramps) and pedestrian signage were made in downtown Elizabeth.



Figure B7 – Westfield Ave – Some areas of sidewalk and curbs were replaced, but not along the entire corridor



Figure B8 – Rahway Ave & Elmora Ave – Further down the corridor, similar improvements were made to the sidewalks and crosswalks, but only at major intersections.



Figure B9 – Rahway Ave & Elmora Ave – No pedestrian crossing signals are in place along the corridor.

Route 70 – Cherry Hill



Figure B10 – Marlton Pike W near Route 41 – Very little improvement was visible along the entire Route 70 corridor. These improvements date back to 2006, so age may have taken a toll.



Figure B11 – Marlton Pike W near Route 41 – The entire corridor has narrow sidewalks and very few pedestrian crossings. Traffic volumes and speeds seem like a significant deterrent to pedestrian activity along this corridor.



Figure B12 – Before and after photos of improvements along Route 70 (Unknown photo credit; NJDOT)