

PERRY STREET FUTURE



April 25, 2021



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1

INTRODUCTION

In June of 2016, the City of Trenton and the Delaware Valley Regional Planning Commission (DVRPC) completed the Downtown Trenton Bicycle and Pedestrian Plan (DTBPP), which identified the Route 1 interchange at Perry Street as an area in need of further investigation. Perry Street serves a number of conflicting roles - walkable neighborhood, municipal street, regional thoroughfare, and critical connector for multimodal travel. Despite this finding, however, Perry Street currently has limited accommodations for the many vulnerable uses - including pedestrians, school children, and bicyclists - who traverse the corridor daily.

Whether by foot, auto, truck, or bus, each individual's travel needs can be met in a safe, accessible, and equitable manner.

The PerryStreetFuture planning effort defines strategic steps forward that identify jurisdictional control and project development actions to support the Capital Project Delivery process for both the City of Trenton and NJDOT to support advancement of preliminary concepts to engineering and design phases.



2

LISTENING

The City of Trenton is home to numerous advocates, stakeholders, and citizens who are passionate about their home and invested in delivering a bright, prosperous, safe, and healthy future. This chapter presents the goals and vision for the future of Perry Street and the City of Trenton as articulated by the stakeholders.

PerryStreetFuture is grounded in direct, in-person engagement of stakeholders to understand their daily experiences, concerns, and travel needs. The project team designed and implemented a mix of formal and informal meetings, community events, discussion groups, and one-on-one conversations in a variety of settings and venues. These included meetings with City of Trenton elected officials, collaboration with planning and engineering staff, events sponsored by Trenton's dedicated advocates and social service providers, and informal discussion with residents, parents, students, business owners, and clergy.

The emphasis for the study team is one of listening and fostering dialogue, rather than formal, scripted agendas and slideshows, which often just talk AT the public, rather than listening to them.

PerryStreetFuture Vision

Mobility

Support the continuous movement of people, vehicles, and goods throughout the day, by all travel modes and for all trip purposes

Safety

Design to improve both personal and traffic safety

Investment

Encourage residents, businesses, and visitors to be invested in the community and its future

Sustainable

Present a comprehensive plan of projects, programs, and strategies to support and encourage positive and lasting change

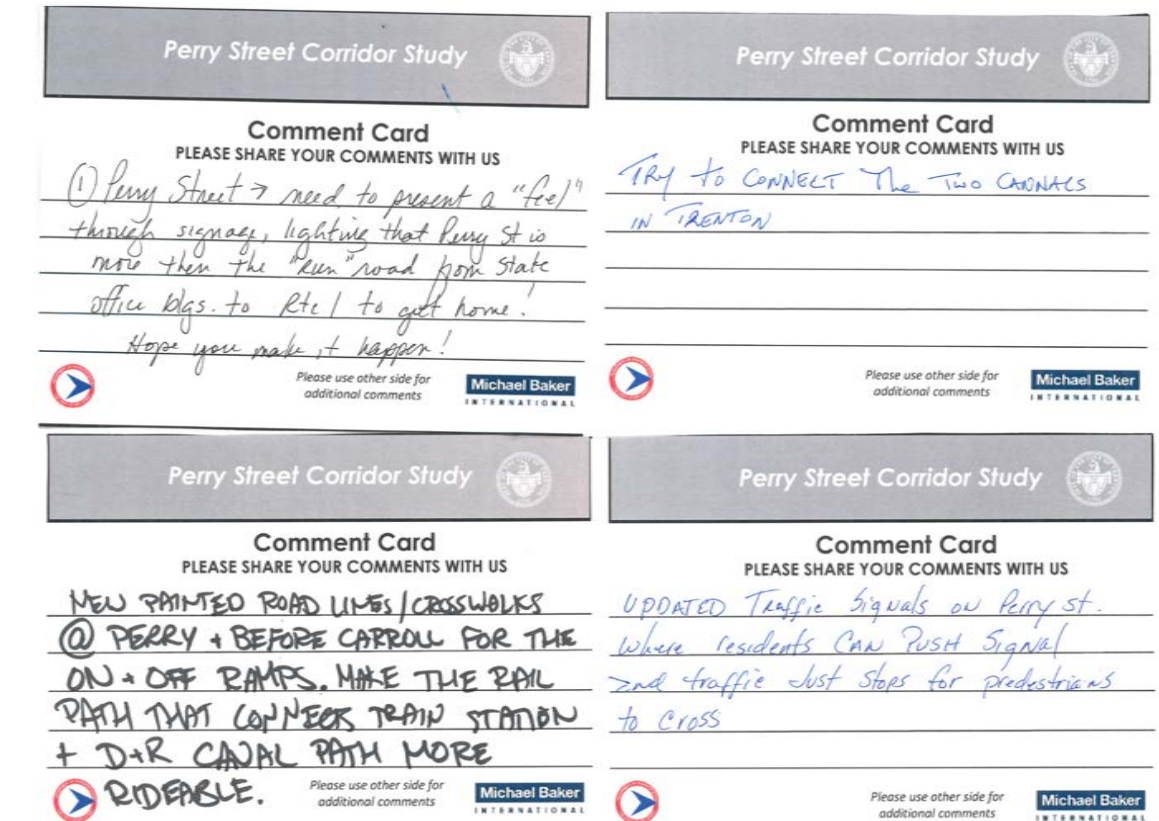
Trenton Cycling Revolution Open House - February 20, 2020

Trenton Cycling Revolution is an all-volunteer community organization, whose mission is to create a safe and healthy environment for cyclists in the Greater Trenton area through education, engagement, advocacy, and promotion.(i) In addition to their annual gathering, TCR sponsors bike tours, family rides, an annual D&R Canal Towpath cleanup, and a variety of recreation, education, and community engagement activities.

TCR's annual meeting and open house was held at Championship Bar on Chambers Street in the Chambersburg section of Trenton. Dozens of TCR members, vendors, and residents attended this event to talk about cycling in and around the Greater Trenton area. Members of the project team collected comments and suggestion for the Perry Street corridor from cyclists who frequently travel the City's streets and trails, and are intimately familiar with everyday conditions and safety and mobility needs.

Suggested improvements included:

- Dedicated bike lanes
- Traffic calming
- Connection to D&R Canal Towpath
- Pedestrian safety improvements



Isles Garden Support Network – Summer Garden Social. July 24, 2020

Isles, Inc. has a 40-year history as an essential and innovative community development and environmental organization based in Trenton, New Jersey.

Isles' urban agriculture initiative addresses hunger, food access, and community disinvestment by sharing tools, networks, and resources that empower residents to take action and make healthy eating and lifestyle choices. Isles supports over 70 Trenton-area community and school gardens by providing technical assistance to residents, teachers, students, parents, retirees, and community-based organizations. Isles also offers garden-based environmental education to schools and sponsors summer programs.(ii)

A diversity of residents, community advocates, and Isles staff and volunteers attended the July 24 Garden Social Event at 33 Tucker Street, which featured tours of garden plots and offered a meal of fresh foods and locally-sourced produce from the location's urban garden parcels and apprentice garden plots. Team members met with and discussed the Perry Street study area, personal safety and mobility needs, and potential for roadway, streetscaping, urban murals, green infrastructure, lighting, and other community aesthetic improvements to support and reinforce that viability of new housing, mixed-use, and other redevelopment projects. Many attendees displayed their passion for their community and neighborhoods, their goal of taking ownership and investing in the future, and possibilities for PerryStreetFuture to support this mission and vision.

Discussion and dialog with attendees focused on learning from each other to achieve mutual goals for Perry Street and the surrounding community, including how:

- Transportation improvements and policies can create safer and more inviting streets
- Building safer and more inviting streets to enhance the success and viability of new residential, and mixed-use development
- Safer and more inviting streets and new development opportunities can attract new residents, families, businesses, and jobs to both Perry Street and Trenton as a whole

Summer in the Garden – August 6, 2020

Isles, Inc. also sponsors the Summer in the Garden series, which includes weekly events at several Trenton community gardens and parks. The Summer in the Garden series is family-focused and designed to engage Trenton's children with active play, recreation, gardening, and exposure to healthy foods and lifestyle choices.

The Children's Garden at Roberto Clemente Park is a former industrial site that was turned into a vibrant and family-friendly education and recreation space featuring a community pool, vegetable garden, bamboo maze, wildflowers, and gazebos. The park is located directly across from the Trenton Fire Headquarters on Perry Street. (iii)

Team members attended the August 6 event at Roberto Clement Park, speaking with parents, families, and event volunteers to gather informal comments and concerns about Perry Street and the surrounding neighborhoods. The park is a significant community asset, and also provides a buffer from the Route 1 Freeway and its traffic noise, and presents opportunities for future small group discussions and activities.

The parents, children, and area residents that frequent Roberto Clemente Park include those that are most directly impacted by heavy traffic, speeding, challenging crossings, and other safety risks.



Mayor's Briefing – August 7, 2020

The team provided a briefing on the PerryStreetFuture planning study for Mayor Reed Gusciora on August 7, 2020. Team members provided an overview of the study methodology, including the three principal study tasks: Listening to the Community, Multimodal Mobility and Safety Assessment, and the beginnings of Proposed Improvements and coordination with NJDOT.

Key to the overall study has been the understanding that the theme of the Perry Street community and study area is the importance of safe movement. The well being of the Perry Street community is reliant on the safe and accessible movement of people, vehicular traffic, and goods throughout the day. This includes the diverse and unique needs of area residents, students, State and City employees, child and day care establishments, park visitors, local business and industry, fire headquarters, families, and social service clients.

Mayor Gusciora noted in particular the need for safe and accessible movement of students, especially during the early afternoon when the school day ends and students must contend with heavy vehicular traffic and queuing vehicles along the Perry Street corridor, walk along the local streets, and cross at busy and congested intersections. Addressing concerns of parents about Perry Street traffic queues in front of the building and difficulties in safely getting students to and from school has become a particular emphasis of the study.

Mayor Gusciora emphasized that the PerryStreetFuture study and recommendations must understand, evaluate, and address mobility, safety, and equity for all.

Trenton Cyclovia & ArtAllDay – September 19, 2020

The Trenton Cyclovia combined open streets free from motorized traffic, with food, art, music, entertainment, and a diversity of activities including skateboarding, artists, musicians, bike polo, and performances by the Trenton Circus Squad. The event was held on East Front Street and the adjacent Mill Hill Park and Warren Street areas.

The event provided additional opportunities for dialog and small group discussions. Attendees expressed interest in safer and more accessible streets, and noted the desirability of Trenton with its significant transportation network and accessibility. Attendees indicated they would be more likely to spend time in Trenton with improvements to traffic and personal safety, and found the area more attractive and desirable than many suburban, auto-oriented destinations.

Masks and social distancing were mandatory at the Trenton Cyclovia & ArtAllDay event.



Capital City Community Coalition Briefing - January 21, 2021

Founded in 2014, the mission of the Trenton Capitol City Community Coalition (4-Cs) is to mobilize the community to end violence in Mercer County. The group is comprised of a variety of City of Trenton and Mercer County officials, clergy members, social service agencies, community development organizations, educational institutions, nonprofits, and law enforcement agencies from the local, state and federal levels. The 4-Cs group hosts events across the City and meets on a regular basis to provide briefings and educate members about programs and initiatives by member agencies and groups.

The project team provided a detailed briefing on the PerryStreetFuture study and recommendation at the group's January meeting. More than 100 persons participated in the meeting which was held in a virtual format. Team members answered questions and several participants followed up with requests to provide an update of the Perry Street findings and recommendations, with some seeking assistance and advice for their own local safety and mobility needs and projects.

A follow-up presentation may be requested and scheduled at a later date.

UrbanPromise Trenton & East Trenton Collaborative - February 2, 2021

UrbanPromise Trenton was launched in July 2011 under the leadership of Carl Clark Jr, one of the first camp kids of UrbanPromise in Camden in 1988. UP Trenton works to develop faith-based leaders who will transform the City of Trenton by providing free After School and Summer Camp programs - preparing disadvantaged inner-city children for the real world through spiritual, personal, physical, and educational development.

The project team provided a summary briefing of the PerryStreetFuture study on February 2, 2021.

Following the PerryStreetFuture presentation of the 4Cs group in January, staff from UrbanPromise made contact with the project team and expressed interest on how local neighborhood connections could be made from areas adjacent to the D&R Canal Towpath. Opportunities abound across Trenton to implement these short, simple, low-cost linkages to create safe, multimodal connectivity, better integrating disparate neighborhoods, and providing access to destinations such as schools, parks, and other services and amenities. Trenton's residential zones and destinations are frequently separated by the U.S. 1 Freeway and other roadway, rail, and natural barriers.

Design Briefing, New Jersey Department of Transportation – March 18, 2021

Because the Department has jurisdiction of the interchanges with the Route 1 Freeway, it was necessary to coordinate with Department staff and review the proposed Perry Street Future recommendations.

Members of the project team and the NJDOT project manager held a design briefing on March 18 with Department staff from Traffic Engineering and Value Engineering to review the proposed design concepts.

The briefing was focused only on the interchanges at the Southbound and Northbound Freeway ramps; the remaining intersections are under local jurisdiction and therefore not discussed at the briefing. Team members provided an overview of the study findings, design considerations, and geometric and other design details.

Among the comments and suggestions from NJDOT's subject matter experts:

- Change the flow of Allen Place from two-way to one-way out to Perry Street to eliminate the possibility of the prohibited left turn from Perry Street eastbound into Allen Place
- Change the width of traffic islands and curb extensions along eastbound Perry Street to provide a consistent vertical profile and width along the travel lane and support the safe passage of snow plows
- Participants discussed the rationale for signalization of the Northbound interchange, and whether a roundabout design was considered. The roundabout was evaluated during early assessment of alternatives, but the location lacked adequate cross section for the roundabout, especially given the need for the movement and turns of large trucks and fire trucks.

UrbanPromise Trenton & East Trenton Collaborative – April 8, 2021

Members of the project team met with local stakeholders on April 8. Participants included team members, staff from East Trenton Collaborative and City of Trenton, and local residents. The group met at the East Trenton Collaborative community center at 601 N. Clinton Avenue and walked down Sherman Avenue toward the D&R Canal Towpath. Sherman Avenue is a close-knit neighborhood of residents invested in their community, engaged in its advancement, and seeking opportunities to overcome existing deficiencies. Neighbors spoke of their desire to gain direct access to the Towpath area and the local and regional mobility and safety it offers. Figure 1 depicts the existing condition and overgrown vegetation.

As depicted in Figure 2, the existing Towpath alignment has a smooth, paved surface. Access to the Towpath is approximately 150 feet from the junction of Sherman Avenue and Cortland Street, and required crossing the unused rail line. This area is moderately overgrown with trees and vegetation. A modest clearing of about 20–30 feet wide and 150 feet long would bridge the gap between the neighborhood and the Towpath alignment. This clearing would provide a fully open area with the necessary visibility for personal comfort and security.

Once the connection is established, this area could become a small pocket park suitable for family and social gatherings and a desirable amenity that greatly enhances the aesthetics and durability of the neighborhood. Cortland Street includes several businesses that detract from the residential setting; development of the Towpath connection and pocket park would provide a catalyst for positive change.

The team is seeking partnerships and grant opportunities to initiate further study and cost estimates for the initial connector alignment.

i <https://www.trentoncycling.org/about/>; accessed July 26, 2020

ii <https://isles.org/our-approach/live-green-and-healthy/urban-agriculture/>; accessed July 26, 2020

iii <https://www.artallday.artworkstrenton.org/2019/sites/Children's-Garden-at-Roberto-Clemente-Park>; accessed July 26, 2020



Figure 1: Existing worn path from Sherman St to D&R Towpath



Figure 2: Proposed Shared-use path connection to existing D&R Towpath

Capital City Community Coalition Briefing - October 21, 2021

This meeting served as the public meeting and public information center and the final presentation of PerryStreetFuture.

The meeting was held at the Friendship Baptist Church, 111 Perry Street, Trenton, New Jersey.

More than 50 individuals attended this in-person event, including representatives from a diversity of groups, agencies, and non-governmental organizations. In attendance were representatives from social service providers, churches and places of worship, health care and regional hospitals, City Government, and Trenton School District. Also in attendance were Trenton Police and Fire Departments, Mercer County Sheriff, and Federal Bureau of Investigation.

A number of questions were asked, including questions about the school pickup and drop off designs, and the feasibility of the traffic calming components and highway interchange ramp changes. The team clarified that no on-street parking spaces would be removed and that there would be no impact to either perking or access to Perry Street's many churches and houses of worship.

An extensive discussion focused on implementation and what could be done to advance the plan recommendations to design and construction, including possible funding sources.

During discussions with City Planning staff, it was proposed that a meeting be convened with City and NJDOT participants to discuss the implementation of PerryStreetFuture and determine next steps to begin to advance critical plan elements. These efforts are anticipated to commence in the early months of 2022.

3

Existing Conditions

In order to develop a program of multimodal mobility and safety recommendations for Perry Street, the project team first inventoried and analyzed existing conditions. The data collection effort included current traffic volume and level-of-service data, a comprehensive intersection inventory focusing on bicycle and pedestrian accommodations, safety and crash analysis, and examination of both existing and potential future off-road facilities.

Traffic Data Collection

The Perry Street traffic data collection effort consisted of Automatic Traffic Recorder (ATR) counts and Turning Movement Counts (TMCs). Each of the ATR counts collected seven full days of traffic data between February 23rd and 29th, 2020, while TMC counts collected data during the AM, Midday, and PM peaks on February 25th, 2020.

The ATR counts collected volume, vehicle classification, and travel speed data. Each TMC count collected volumes for all turning movements at each intersection, in addition to bicycles in the crosswalk and pedestrian volumes. All counts were completed prior to the traffic demand reductions caused by the COVID-19 pandemic and closures.

ATR count data was collected at eight locations, including six along Perry Street and two along N. Clinton Ave. TMC counts were collected at eight intersections along Perry Street. Table 1 and Figure 3 below depict the locations of all counts performed. Table 2 displays the key data elements from the collection effort. Table 3 summarizes the bicycle and pedestrian volume data.

See Appendix A for raw traffic count data.

Table 1: Traffic Count Locations

ATR Count Locations		TMC Count Locations	
#1	Perry St. Between N. Broad St (U.S. 206) and N. Montgomery St.	#1	Perry St. at N. Montgomery St.
#2	Perry St. Between N. Montgomery St and N. Stockton St.	#2	Perry St. at Stockton St.
#3	Perry St. Between U.S. 1 Southbound and Northbound Ramps	#3	Perry St. at U.S. 1 Southbound Ramp/ Allen Pl.
#4	Perry St. Between Ewing St. and Southard St.	#4	Perry St. at U.S. 1 Northbound Ramp/ Carroll St.
#5	Perry St. Between Southard St and N. Clinton Ave.	#5	U.S. 1 Northbound Off-Ramp at Carroll St.
#6	Lincoln Ave. Between N. Clinton Ave. and Seward Ave.	#6	Perry St. at Ewing St.
#7	N. Clinton Ave. Between Perry St. and Grant Ave.	#7	Perry St. at Southard St.
#8	N. Clinton Ave. Between Perry St. and Model St.	#8	Perry St. at N. Clinton Ave.



Figure 3: Traffic Count Locations

Table 2: Summary of Weekday Volume, Classification, and Speed Data Along Perry Street, Tuesday, 2/25/2020, 24 Hour Period

Segment	Combined 24 Hour Volume	Northbound/Eastbound					Southbound/Westbound					
		Volume	% Bus	% Small Truck	% Heavy Truck	% Vehicle Speed >30 mph	Volume	% Bus	% Small Truck	% Heavy Truck	% Vehicle Speed >30 mph	
#1	Perry St. Between N. Broad St (U.S. 206) and N. Montgomery St.	11,984	7,110	0.6%	2.5%	0.1%	1.7%	4,874	1.5%	6.7%	0.4%	6.9%
#2	Perry St. Between N. Montgomery St and N. Stockton St.	12,598	7,161	1.1%	3.8%	0.1%	2.1%	5,437	1.5%	5.5%	0.8%	2.3%
#3	Perry St. Between U.S. 1 Southbound and Northbound Ramps	16,662	8,586	1.1%	6.9%	0.3%	26.0%	8,076	1.1%	5.0%	0.1%	6.8%
#4	Perry St. Between Ewing St. and Southard St.	14,034	7,376	0.9%	4.3%	0.5%	10.3%	6,658	0.1%	3.0%	0.4%	1.4%
#5	Perry St. Between Southard St and N. Clinton Ave.	19,350	9,372	0.8%	3.8%	0%	6.7%	9,978	0.9%	5.0%	0.8%	0%
#6	Lincoln Ave. Between N. Clinton Ave. and Seward Ave.	12,454	6,510	1.0%	6.8%	0.4%	11.9%	5,944	0.1%	1.8%	0%	4.1%
#7	N. Clinton Ave. Between Perry St. and Grant Ave.	9,368	5,128	0.7%	3.9%	0.1%	0.6%	4,240	1.5%	5.7%	0%	0%
#8	N. Clinton Ave. Between Perry St. and Model St.	5,162	2,983	1.3%	4.9%	0.3%	2.1%	2,179	1.6%	6.5%	0%	10.6%

Table 3: Summary of Weekday Pedestrian Volumes Along Perry Street, Tuesday, 2/25/2020, Sum of Peak Period Counts

Bicycle in Crosswalk Volumes								
	Perry St at Montgomery St	Perry St at Stockton St	Perry St at Allen Pl	Perry St at Carroll St	US 1 off-ramp at Carroll St	Perry St at Ewing St	Perry St at Southard St	Perry St at N Clinton Ave
Crossing Perry Street	7	8	0	2	6	1	9	4
Crossing Cross-Street	10	9	29	31	0	13	10	7
Total Bicycle Volumes	17	17	29	33	6	14	19	11

Pedestrian Volumes								
	Perry St at Montgomery St	Perry St at Stockton St	Perry St at Allen Pl	Perry St at Carroll St	US 1 off-ramp at Carroll St	Perry St at Ewing St	Perry St at Southard St	Perry St at N Clinton Ave
Crossing Perry Street	382	46	8	374	333	13	265	342
Crossing Cross-Street	316	113	426	621	96	170	364	359
Total Pedestrian Volumes	698	159	434	995	429	183	629	701

Key Findings

Traffic volumes along Perry Street during a typical weekday are as low as 11,984 on the western portion of the study area to a high of 19,350 at the eastern end of the study area. In an average 24-hour period, total eastbound volumes are higher than westbound volumes, though both directions experience consistent volume throughout the day with limited peaking (see Figure 2 below). Buses comprise approximately 1% of Perry Street traffic, while small trucks and large trucks account for about 5% and less than 0.5% respectively. Speeds along Perry Street vary widely by segment. The highest travel speeds were observed between the U.S. 1 ramps in the eastbound direction, where 26% of traffic was recorded to be traveling at over 30 MPH.

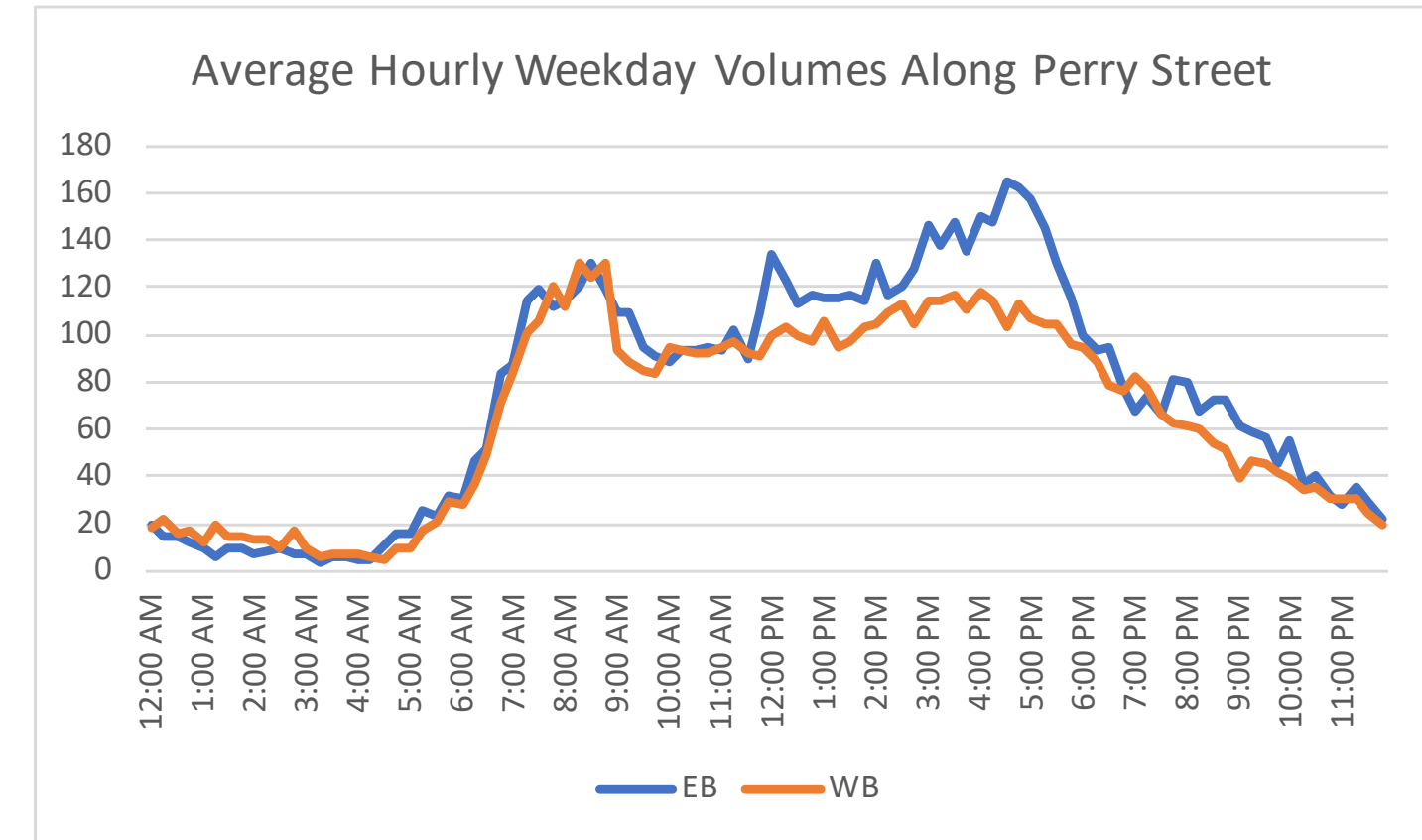


Figure 4: Average Hourly Volumes Along Perry Street, 2/25/2020

Crash Analysis

Crash data was collected for the Perry Street corridor between N. Montgomery Street and N. Clinton Avenue from NJDOT's Safety Voyager platform for the most recent five years of data (2014 - 2018). Crashes within a 150 foot buffer around the study area were also included to identify potential hotspots on all approaches to Perry Street.

Within 150 feet of Perry Street, a total of 174 crashes were reported between 2014 and 2018. A GIS spatial analysis on this data identified five distinct crash hotspots along the corridor (See Figure 3 and Table 4). The vast majority of the total 174 crashes occurred at these five locations. The intersection of Perry Street at Southard Street experienced 43 crashes, more than any other intersection.

Table 4 summarizes crash details and over-representations for each hotspot as compared with the entire study corridor, all crashes in the City of Trenton, and the statewide average. Crash over-representations occur when the prevalence of certain crash characteristics at a particular location exceed (i.e. are overrepresented) compared to the statewide average percentage for a similar roadway cross-section.

Noteworthy crash over-representations for the Perry Street corridor include wet condition crashes and crashes involving parked vehicles at the intersection with Montgomery Street, angle crashes at the intersection with N. Stockton Street, pedestrian crashes at the intersection with Southard Street, and left turn crashes at the intersection with N. Clinton Avenue.

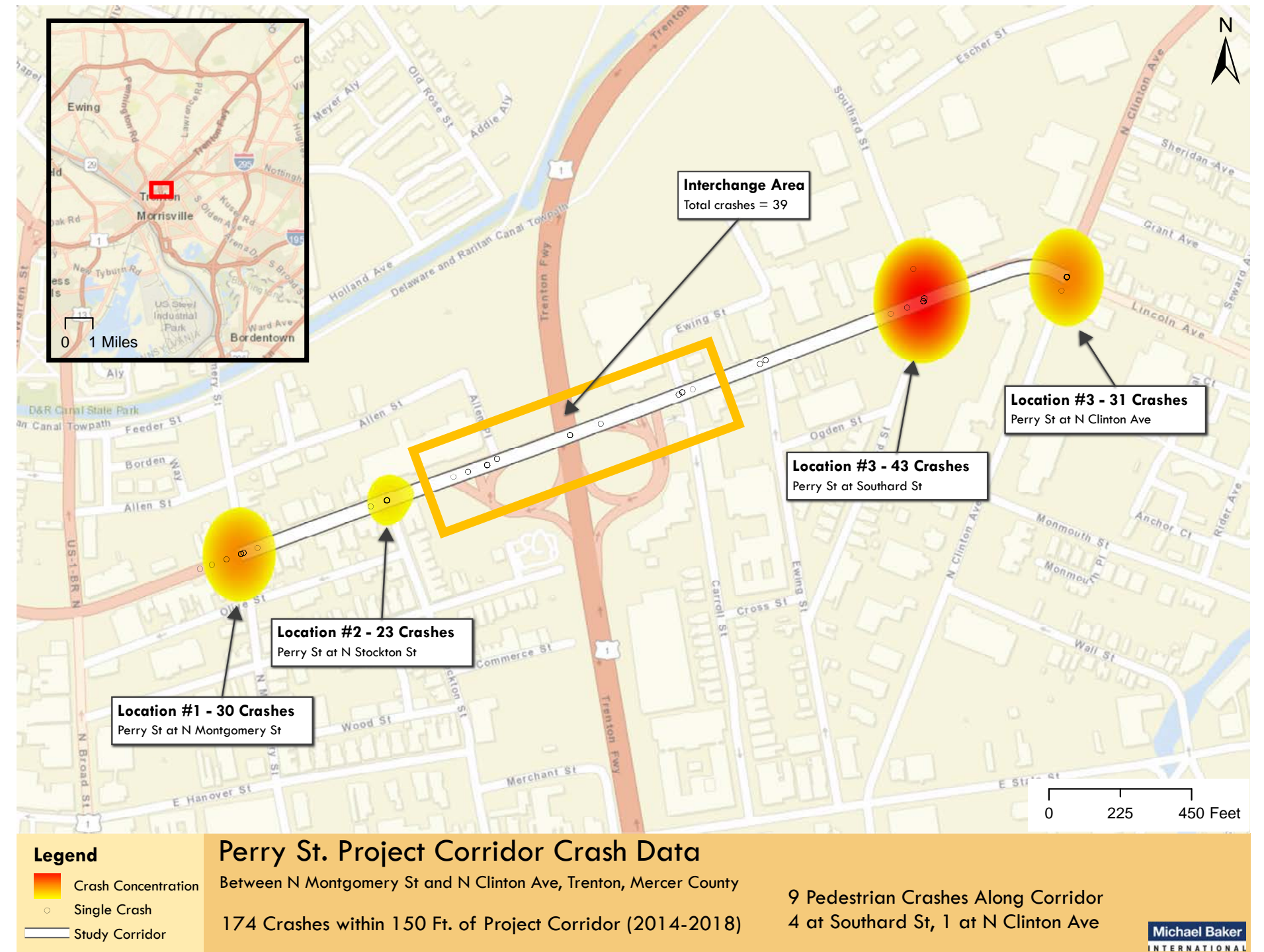


Figure 5: Crash Hotspots (2014-2018)

Table 4: Crash Data Summary

Crashes along Perry St Between N Montgomery St and N Clinton ave

	Total Crashes: 174 All Crashes along Perry St Between N Montgomery St and N Clinton Ave (2014-2018)		Total Crashes: 30 Hotspot #1 Perry St at N Montgomery St		Total Crashes: 23 Hotspot #2 Perry St at N Stockton St		Total Crashes: 43 Hotspot #3 Perry St at Southard St		Total Crashes: 32 Hotspot #4 Main St at N Clinton Ave		Total Crashes: 39 Hotspot #5 Between Carroll St & SB US 1 Ramp		Total Crashes: 7313 All Crashes in Trenton (2014-2018)		Total Crashes: 87511 Statewide Average on Municipal Roadways (2018)	
Road Condition	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total
Dry	141	81.03%	19	63.33%	20	86.96%	36	83.72%	28	87.50%	33	84.62%	5778	81.34%	66776	76.31%
Wet Surface	24	13.79%	8	26.67%	2	8.70%	4	9.30%	3	9.38%	6	15.38%	1191	14.46%	14794	16.91%
Snow	4	2.30%	2	6.67%	0	0.00%	1	2.33%	1	3.13%	0	0.00%	142	2.40%	3161	3.61%
Ice	2	1.15%	0	0.00%	1	4.35%	1	2.33%	0	0.00%	0	0.00%	91	0.69%	944	1.08%
Unknown	3	1.72%	1	3.33%	0	0.00%	1	2.33%	0	0.00%	0	0.00%	83	1.01%	1236	1.41%
Other	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	28	0.11%	600	0.69%
Total	174	100%	30	100%	23	100%	43	100%	32	100%	39	100%	7313	100%	87511	100%
Light Condition	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total
Day	128	73.56%	20	66.67%	18	78.26%	30	69.77%	26	81.25%	30	76.92%	4721	68.93%	59391	67.87%
Dusk	5	2.87%	1	3.33%	0	0.00%	1	2.33%	0	0.00%	3	7.69%	167	2.21%	2296	2.62%
Night	36	20.69%	5	16.67%	5	21.74%	12	27.91%	6	18.75%	6	15.38%	2266	26.39%	22523	25.74%
Dawn	3	1.72%	3	10.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	81	1.18%	1145	1.31%
Unknown	2	1.15%	1	3.33%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	78	1.29%	2156	2.46%
Total	174	100%	30	100%	23	100%	43	100%	32	100%	39	100%	7313	100%	87511	100%
Collision Type	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total
Same Dir- Rear End	46	26.44%	6	20.00%	5	21.74%	11	25.58%	11	34.38%	10	25.64%	1488	20.35%	13045	14.91%
Same Dir- Sideswipe	28	16.09%	4	13.33%	4	17.39%	7	16.28%	5	15.63%	8	20.51%	1119	15.30%	8919	10.19%
Angle	30	17.24%	4	13.33%	8	34.78%	7	16.28%	5	15.63%	5	12.82%	1197	16.37%	15342	17.53%
Head On	14	8.05%	4	13.33%	0	0.00%	3	6.98%	1	3.13%	5	12.82%	362	4.95%	2828	3.23%
Parked Vehicle	18	10.34%	8	26.67%	4	17.39%	1	2.33%	3	9.38%	2	5.13%	1666	22.78%	22332	25.52%
Left Turn / U Turn	9	5.17%	0	0.00%	1	4.35%	4	9.30%	4	12.50%	1	2.56%	108	1.48%	1668	1.91%
Backing	4	2.30%	2	6.67%	0	0.00%	1	2.33%	0	0.00%	0	0.00%	300	4.10%	7579	8.66%
Encroachment	3	1.72%	1	3.33%	0	0.00%	1	2.33%	0	0.00%	1	2.56%	67	0.92%	482	0.55%
Overturned	1	0.57%	0	0.00%	0	0.00%	1	2.33%	0	0.00%	0	0.00%	17	0.23%	279	0.32%
Fixed Object	11	6.32%	2	6.67%	0	0.00%	3	6.98%	2	6.25%	3	7.69%	519	7.10%	8898	10.17%
Animal	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	9	0.12%	1958	2.24%
Pedestrian	9	5.17%	0	0.00%	0	0.00%	4	9.30%	1	3.13%	4	10.26%	257	3.51%	2252	2.57%
Pedalcycle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	43	0.59%	755	0.86%
Non-Fixed Object	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	25	0.34%	436	0.50%
Railcar - Vehicle	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	9	0.01%
Unknown	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	9	0.12%	80	0.09%
Other	1	0.57%	0	0.00%	1	4.35%	0	0.00%	0	0.00%	0	0.00%	127	1.74%	649	0.74%
Total	174	100%	30	100%	23	100%	43	100%	32	100%	39	100%	7313	100%	87511	100%
Severity	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total
Fatal	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	13	0.18%	124	0.14%
Injury - Maj	1	0.57%	1	3.33%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	17	0.23%	287	0.33%
Injury - Mod	4	2.30%	1	3.33%	0	0.00%	3	6.98%	0	0.00%	0	0.00%	207	2.83%	2703	3.09%
Injury - Min	37	21.26%	4	13.33%	1	4.35%	12	27.91%	8	25.00%	8	20.51%	1406	19.23%	12917	14.76%
Property Damage	132	75.86%	24	80.00%	22	95.65%	28	65.12%	24	75.00%	24	61.54%	5670	77.53%	71480	81.68%
Total	174	100%	30	100%	23	100%	43	100%	32	100%	39	82%	7313	100%	87511	100%

Table 5 below displays the calculated crash rates along four segments of Perry Street. Crash rates are calculated on a per million vehicle miles traveled basis (MVMT). The crash rates are then compared to the statewide crash rates for roadways with similar cross-sections. All segments of the Perry Street study area have significantly higher crash rates than the statewide average of 4 per MVMT. Particularly high crash rates are observed between Southard Street and N. Clinton Avenue. (Note, only crashes coded directly on Perry Street are included in crash rate calculations. Crashes on cross-streets within the project buffer as presented in Figure 3 and Table 4 are excluded from the crash rate calculations and table 5 summary.)

Table 5: Crash Rates (2014-2018)

Segment	Crashes	Traffic Volume	Length of Segment (ft)	Crash Rate per MVMT	Statewide Crash Rate
Between Montgomery St. and N. Stockton St.	28	12,598	489	13.1	4.0
Between N. Stockton St. and NB U.S. 1 Ramps	51	16,662	901	9.8	4.0
Between NB U.S. 1 Ramps and Southard St	20	14,034	903	4.6	4.0
Between Southard St and N. Clinton Ave	69	19,350	477	21.6	4.0
Perry Street Corridor Average (Montgomery St. to N. Clinton Ave.)	168	15,661	2,770	11.2	4.0

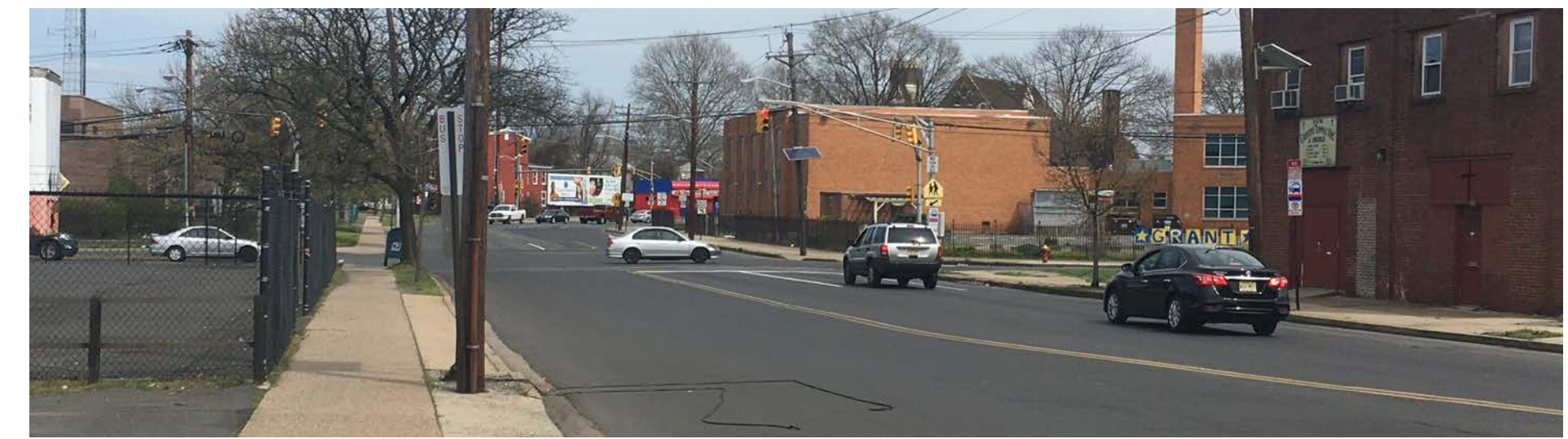


Figure 6: Perry Street at Southard Street, Location of 43 crashes between 2014 and 2018

Traffic Capacity Analysis

To understand the existing traffic operation in the study area, a Synchro analysis was conducted to determine the Level-of-Service (LOS) metrics for each intersection. Intersection LOS is ranked between A and F, with A consisting of virtually no delays and F resulting in virtual gridlock.

As shown in Table X below, all but one intersection operate at an LOS of B during both the AM and PM peaks. During the AM peak, the intersection of Perry Street and N. Clinton Avenue operates at an LOS C. Operationally, the Perry Street corridor performs well within the traditionally accepted LOS C or better.

Table 6: Capacity Analysis and Intersection Level of Service

Scenario	Intersection	AM Peak Hour 8:00-9:00 AM		PM Peak Hour 4:00-5:00 PM	
		Level of Service	Intersection Delay (seconds/vehicle)	Level of Service	Intersection Delay (seconds/vehicle)
Existing Year (2020) Existing Conditions	N. Montgomery Street & Perry Street	B	12.6	B	15.4
	Stockton Street & Perry Street	B	12.5	B	18.5
	US 1 SB Ramp & Perry Street	B	14.5	B	12.4
	Southard Street & Perry Street	B	13.4	B	17.5
	North Clinton Avenue & Perry Street	C	22.8	B	17.2

Bicycle Level of Traffic Stress (LTS)

Bicycle Level of Traffic Stress (LTS) evaluates a cyclist’s potential comfort level given the current conditions of the roadway. Different bicyclists have different tolerances for stress created by volume, speed, and proximity of vehicular traffic. The LTS metric is based on the Dutch concept of low-stress bicycle facilities and has proven influential in the advancement of bicycle planning in the United States.

In general, lower stress facilities have increased separation between cyclists and vehicular traffic and/or have lower posted speed limits and lower recorded traffic volumes. Higher stress environments generally involve some combination of: cyclists riding in close proximity to vehicular traffic, along multi-lane roadways, or exposed to higher vehicle speeds or traffic volumes.

Four levels of traffic stress were used to evaluate the roadways within the Perry Street study area:

- Level of Traffic Stress 1: The level most users can tolerate (including children and seniors)
- Level of Traffic Stress 2: The level tolerated by most adults
- Level of Traffic Stress 3: The level tolerated by “enthusiastic” riders who might still prefer dedicated space
- Level of Traffic Stress 4: The level tolerated by the most experienced and risk-tolerant riders

A project-specific analysis of the bicycle LTS metric reveals high levels of stress for bike riders in the study area, primarily associated with the wide roadway cross sections, high vehicular volumes, presence of heavy trucks, high-speed left- and right-turning movements, crash history, and observed vehicular speeds.

All segments of Perry Street in the study area are LTS 3 or 4, indicating difficult conditions not accessible to the typical bicycle rider.



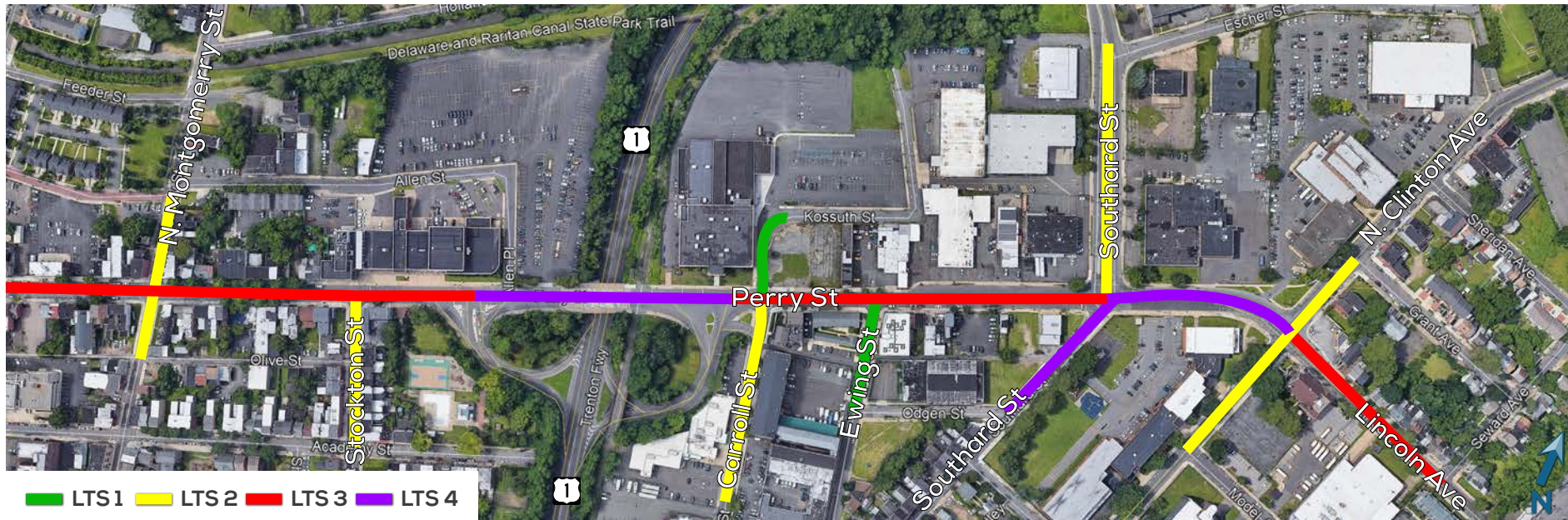


Figure 7: Existing Bicycle Level of Traffic Stress Along Perry Street



Figure 8: Cyclists riding on the sidewalk due to lack of on-road facilities

Existing Bicycle Network

The assessment of existing conditions found Perry Street study area to be a place of continuous movement of people, vehicles, and goods throughout the day, by all travel modes and for all trip purposes. In the case of travel by bike, Perry Street currently provides no facilities along its existing alignment. However two adjacent bicycle facilities are located in close proximity to the PerryStreetFuture study area. These include

- Existing bicycle facilities provided along the U.S. Route 206 alignment. Route 206 includes parallel one-way northbound and southbound pairs intersection with Perry Street.
- The northbound alignment is a hybrid designation, including shared-lane Sharrows connecting to dedicated bicycle lanes and then to buffered bicycle lanes up to the Trenton Battle Monument
- The southbound alignment is a continuous designation provides dedicated buffered on-street bicycle lanes from the Trenton Battle Monument to Perry Street
- Parallel to, and north of Perry Street, the D&R Canal Towpath provides a traffic-free mobility alternative for all non-motorized travelers. The Towpath offers both local and regional long-distance connectivity, with many linkages to Trenton neighborhoods and destinations. Among these destinations, the Towpath passes adjacent to the 9th Grade Academy offering students the ability to bike or walk to school free from traffic disturbance and roadway congestion

These existing facilities, depicted in Figure 7 on the following page, comprise the beginnings of a comprehensive and interconnected mobility network for both Trenton-area and region-wide bicycle travel.

Existing Bicycle Network and Facilities

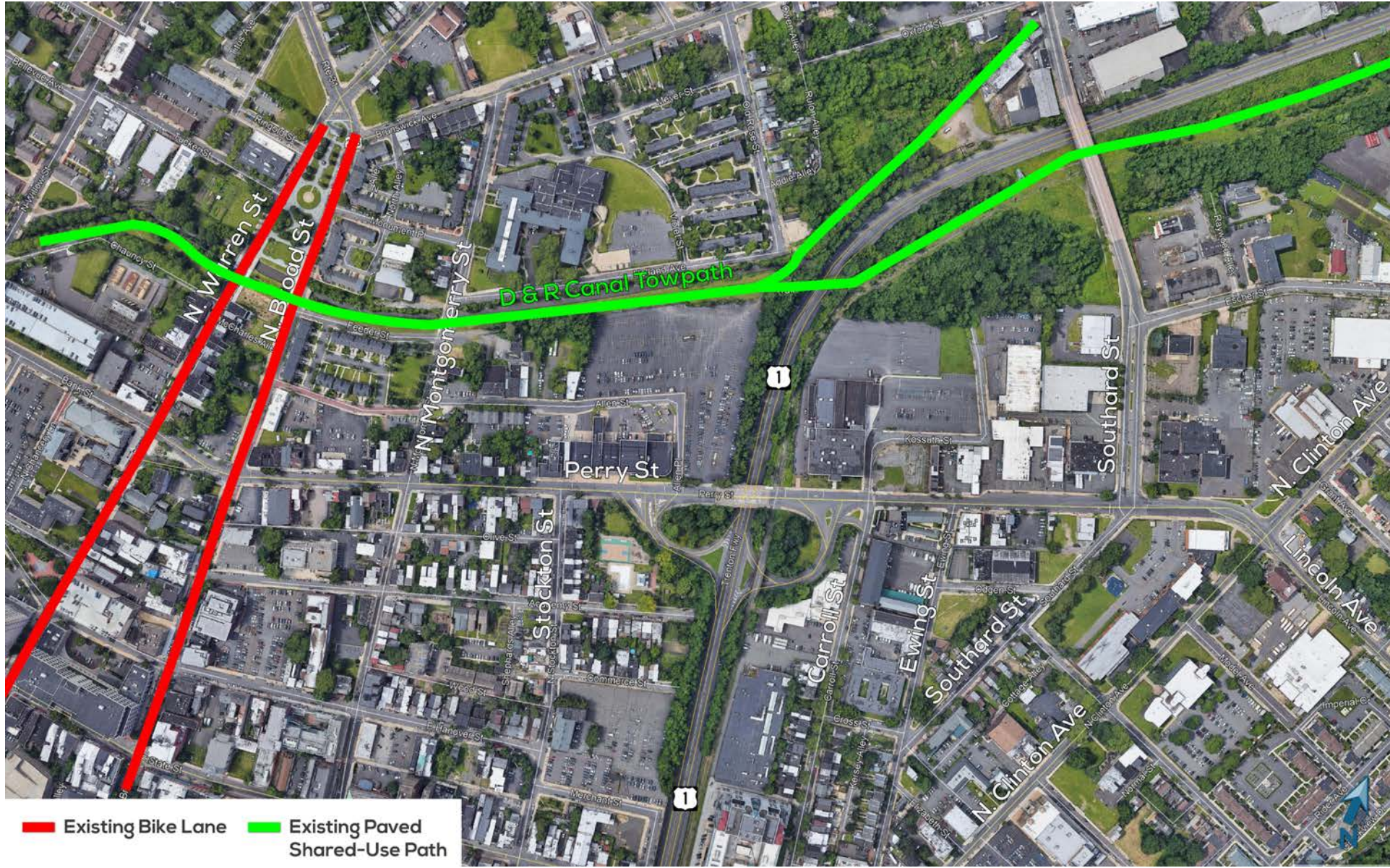


Figure 9: Existing Bicycle Network and Facilities

Off-Street Railroad Right-of-Way

The existing railroad right of way and railroad tracks cross Perry Street adjacent to the 9th Grade Academy, east of and roughly parallel to, the Route 1 Freeway. This rail corridor could potentially host a direct connection between the existing Delaware and Raritan Canal Towpath and the Trenton Transit Center at South Clinton Avenue & Raoul Wallenberg Avenue/Barlow Street. The corridor also provides direct access to residential areas, schools, social services, employment locations, houses of worship, local business establishments, and other generators of foot- and bike-traffic. Adjacent employment locations include Trenton City Hall, NJDEP, and U.S. District Court.

The overall rail corridor is aligned in a north-south direction, approx. 6/10 mile in length, and includes a rail line that is not currently in use. Although not in service, the rail alignment has been proposed as a potential alignment for an extension of the NJ Transit River Line from its current terminus at the Trenton Transit Center to the New Jersey State House and the West Trenton Line.

Segments of the rail corridor are overgrown with trees and vegetation much of the year, with some old rail equipment in place, and with the tracks and ties in various states of disrepair.

Starting at the northern terminus, there are three segments of the existing rail corridor:

Segment 1: D&R Canal Towpath to Perry Street

This northernmost segment is situated between the Freeway and the Trenton 9th Grade Academy. Existing fencing separates the corridor from the school property. Segment 1 extends from the existing D&R Canal Towpath alignment to a crossing at Perry Street.

The rail line is overgrown, particularly at the northern D&R Canal Towpath end, but there is ample room between the west side of the rail line and the Freeway to provide fencing and a 10 ft or wider asphalt path along this segment. Full and unobstructed visibility of the entire segment is provided from the D&R Canal Towpath alignment through to Perry Street for personal comfort and safety. At Perry Street the trail alignment would be shifted to the west side of tracks as it continues to the south due to fewer obstructions and wider available right-of-way for a trail alignment.

Due to the high traffic volumes, the Perry Street cross section width (50 feet), and proximity to the Route 1 Freeway ramps, a new traffic signal and traffic calming improvements are recommended.

This segment is approximately 710 feet in length.

Segment 2: Perry Street to East State Street

At Perry Street the crosswalk and trail alignment would be shifted to the west side of the tracks as it continues to the south; the east side of the tracks is wider than the west and provides a more suitable and visible alignment. An existing bridge carries the rail line over the Route 1 Freeway Ramps just south of Perry Street. Parcels along the eastern side of the railroad include the Treasury Printing Services, State of New Jersey Document Control Center, and the U.S. District Court of New Jersey. Fencing separates the railroad from these properties. There is sufficient room between the west side of the rail line and the Freeway to provide an 8-10 ft or wider asphalt path along this segment.

Depending on the time of the year, Segment 2 experiences significant tree and vegetative cover. Other than the periodic vegetative cover, Segment 2 has mostly unobstructed visibility of the entire segment from Perry Street to East State Street. Cleanup, improved visibility, and the provision of a new walkable corridor surface would contribute to East State Street revitalization and livability and improve access within the cluster of existing government services buildings.

The East State Street cross section width is about 45 feet and an RRFB and high-visibility crosswalk are recommended at the crossing; bulb outs, median island, or narrowing of the travel lanes to provide traffic calming and shorten the overall crossing distance are also recommended.

This segment is approximately 1250 feet in length.

Segment 3: East State Street to Route 1 Freeway Northbound On-Ramp/Barlow Street

This segment is situated between the Freeway and the NJDEP office building and surface parking lot, and extends to Barlow Street. The proposed trail alignment would continue along the eastern side of the railroad. Some minor obstructions including an advertising billboard and railroad crossing equipment are located near East State Street and adjacent to the proposed trail alignment.

At about 1/3 of the distance south, the railroad alignment bends slightly to the east, partially limiting the through-visibility of the full segment. There is some evidence of a temporary homeless population. At the southern terminus of Segment 3, the alignment would meet an existing sidewalk which continues to the east to the intersection of South Clinton Avenue & Raoul Wallenberg Avenue, providing direct access to the Trenton Transit Center. This intersection has crosswalks and pedestrian countdown timers, and is currently part of a traffic study of the intersections in the vicinity of the train station.

There is a grade differential between the existing railroad tracks and Barlow Street. A graded ramp structure would be required to connect the proposed trail alignment with Barlow Street to gain direct access to the nearby Trenton Transit Center and River Line. A graded ramp structure would be required to connect the proposed trail alignment with Barlow Street and gain access to the nearby Trenton Transit Center and River Line. An alternative alignment might connect directly to the NJDEP parcel and on-site parking lot, and mitigate some of the complexity and cost of the ramp structure.

Barlow Street is overly wide with an 18 ft wide travel lane providing direct access to the Freeway on-ramp. This roadway segment should be narrowed to provide a full 10 feet wide multi-use facility for travel by foot and bike, and a narrower travel lane of 11- or 12-feet with a limited shoulder. This concept would help provide dedicated and separated space for non-motorized travel and calm vehicular traffic on Barlow street to the posted 25 mph speed limit.

This segment is approximately 915 feet in length.

Summary of Key Findings

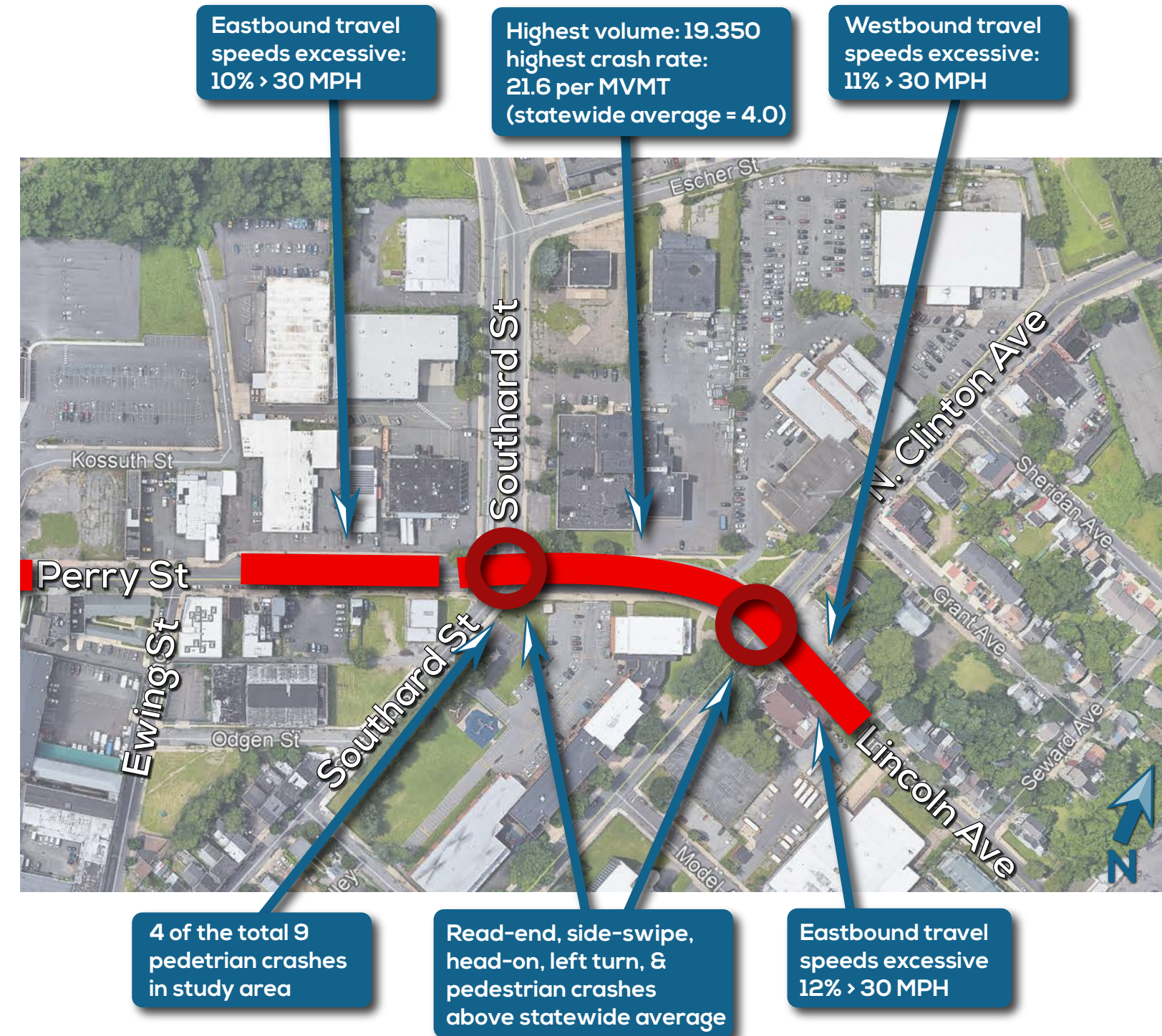
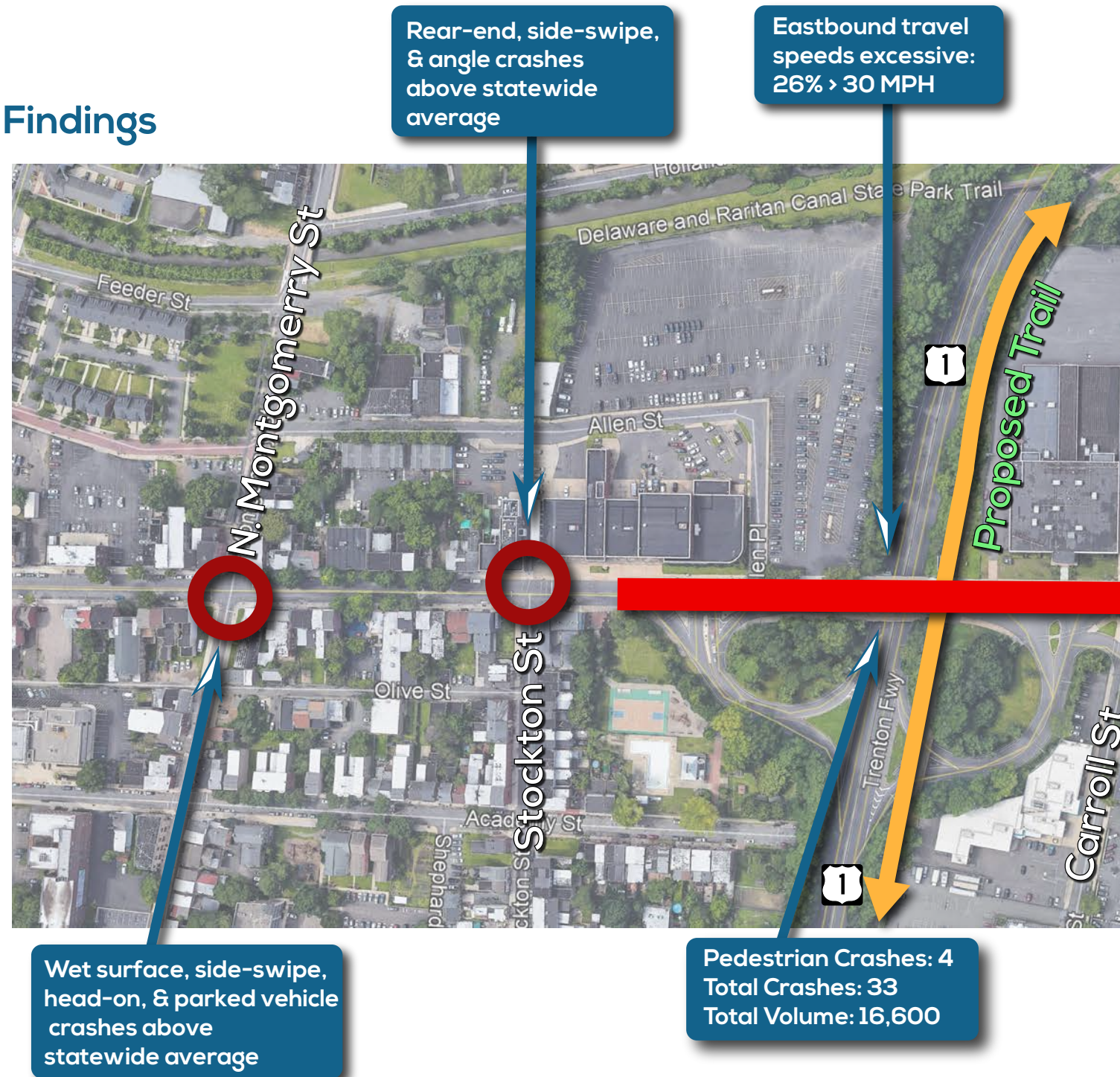


Figure 10: Summary of Key Findings

4 *Proposed Improvements*

The assessment of existing conditions finds the Perry Street study area to be a place of continuous movement of people, vehicles, and goods throughout the day, by all travel modes and for all trip purposes. And although the needs, purposes, destinations, and even who is making the trips varies constantly throughout the day, this theme of movement and the need for safe mobility is continuous and essential regardless of the time of day, day of week, or month of year.

Whether it is office employees coming to Trenton from surrounding communities, children and teens going to school, local residents going to work, trucks moving goods, social service clients or those engaging in religious activities and worship, Perry Street is the essential conduit for movement, access, and mobility in the community.

This chapter presents an overview of design considerations for pedestrian, bicycle, auto, truck, fire truck, and bus improvements, including proposed concepts for each of the major intersections, dedicated multi-use and bicycle facilities, and access and circulation at the 9th Grade Academy,

For each intersection concept the following design elements are proposed:

- New and upgraded traffic signals and infrastructure, including traffic signal poles, foundations, mast arms, controller cabinets, and 12" LED signal heads with reflective backplates to aid visibility at select intersections
- Upgrades to traffic signal infrastructure, timing, phasing, and video image detection to improve overall safety and traffic flow
- New ADA-compliant curb ramps with detectable warning surfaces
- Roadway and pedestrian-scale lighting
- High-visibility retro-reflective crosswalks

Perry Street at N. Montgomery St.

The intersection of Perry Street at North Montgomery Street is a full four-way intersection with traffic signal control. This is a high crash location; high pedestrian demand and excessive travel speeds were observed.

This context is a walkable, mixed use residential zone with two- and three-story buildings and some first floor small businesses. The Puerto Rican Community Center and Day Care is nearby on Perry Street. On-street parking is provided.

Design Considerations

- Provide curb extensions to slow traffic and improve safety
- Shorten pedestrian crossing distances
- Truck and Fire Truck turn compatibility
- Montgomery Street is too narrow for curb extensions
- Retain existing on-street parking

Preferred Alternative

Significant changes are limited due to the narrow street widths, particularly at Montgomery Street, and the City of Trenton's stated preference to retain on-street parking.

Traffic calming in the form of curb extensions is the primary design feature.

Perry Street at N. Stockton Street

The intersection of Perry Street at North Stockton Street is a three-way T intersection with traffic signal control. Prior to the redevelopment and expansion of the Trenton Fire Headquarters, North Stockton Street connected through to Allen Place, parallel to Perry Street. This is a high crash location.

This location is a walkable, primarily residential context with three-story brownstone buildings and some mixed use, and also includes the Trenton Fire Headquarters and Meredith Havens Fire Museum. On-street parking is provided.

Design Considerations

- Provide curb extensions to slow traffic and improve safety
- Shorten pedestrian crossing distances
- Truck and Fire Truck turn compatibility
- Retain existing on-street parking

Preferred Alternative

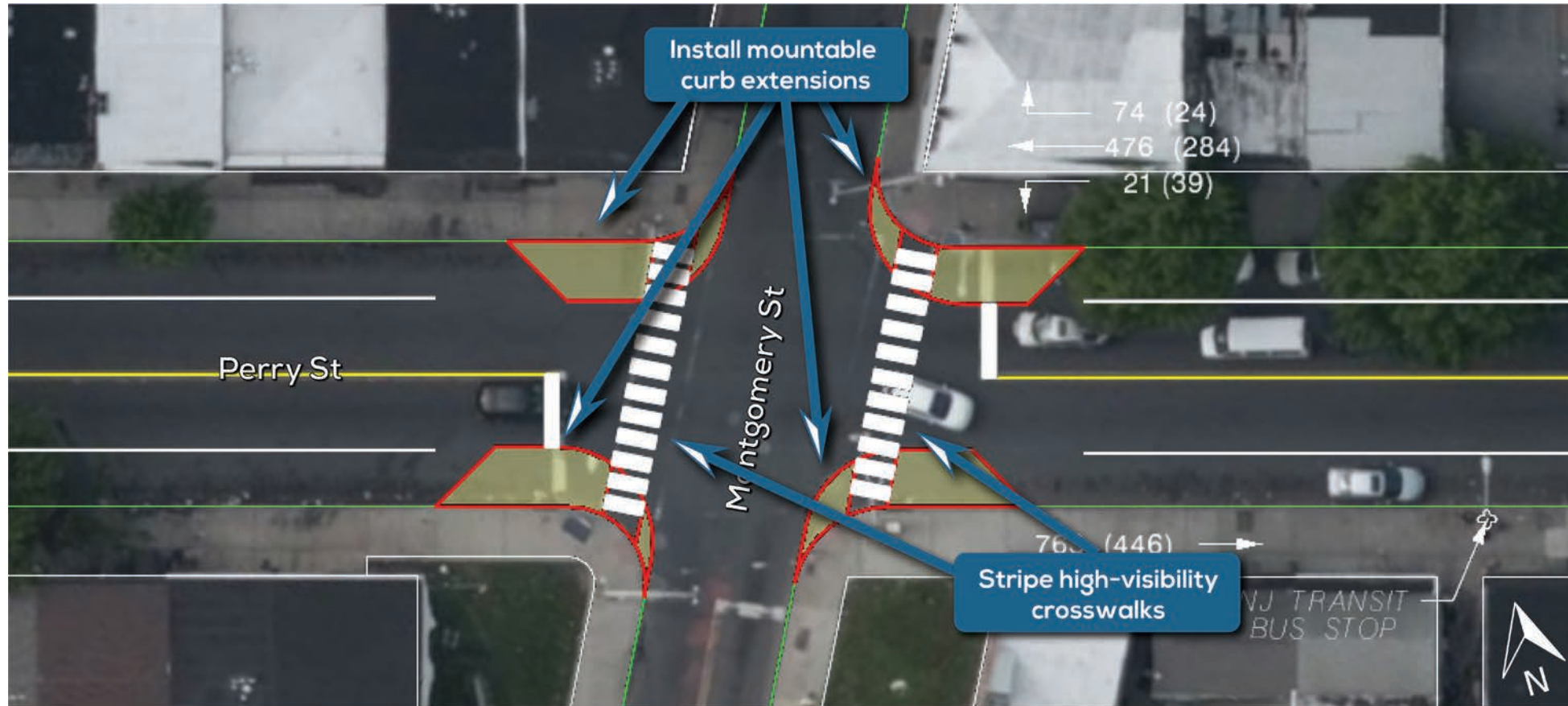
Significant changes are limited due to the narrow street widths and preference to retain on-street parking.

Traffic calming in the form of curb extensions is the primary design feature.



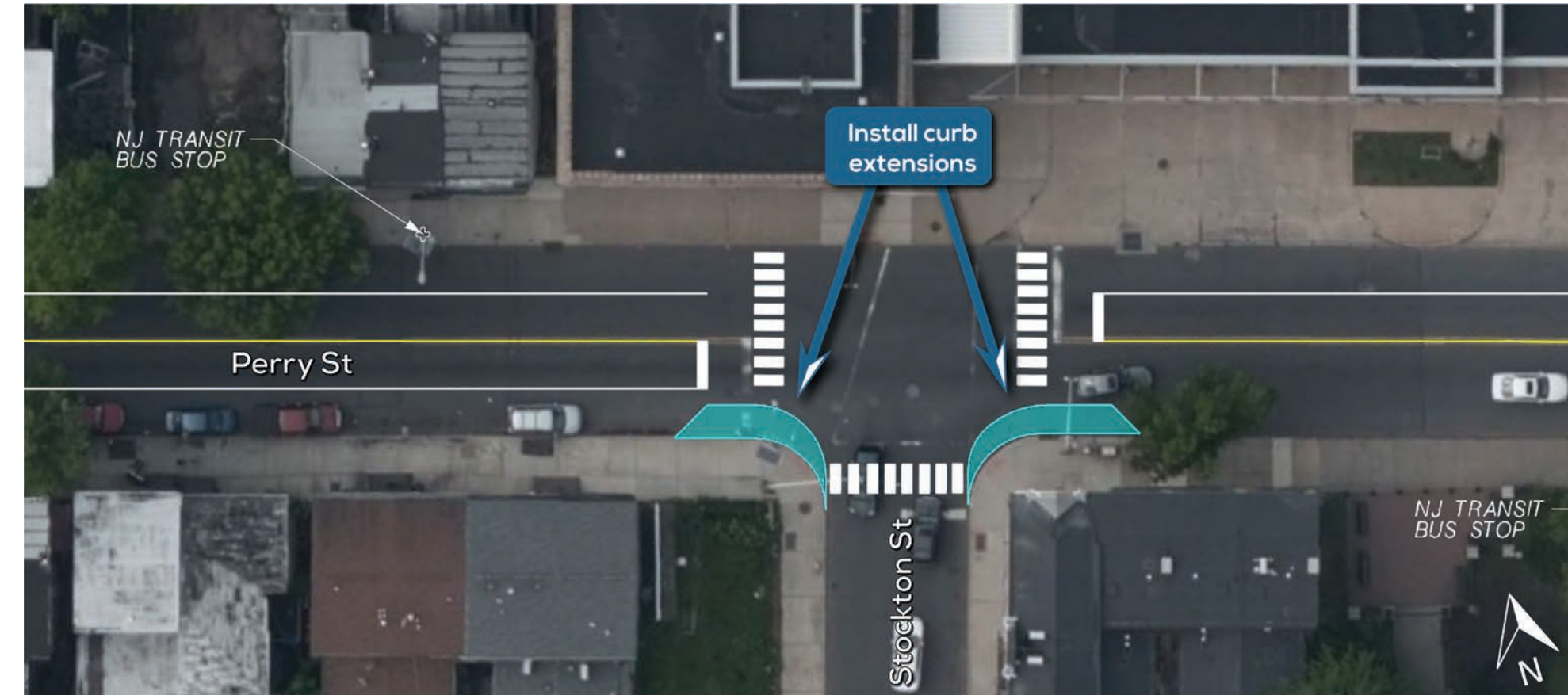
Proposed Concepts-N. Montgomery Street

- Mountable curb extensions along Perry Street to slow traffic and control unsafe passing maneuvers
 - High-visibility crosswalks protected by curb extensions
 - No narrowing or curb extensions along Montgomery Street
 - No additional limitations to truck turning movements
- LOS (AM/PM) = B (existing). B (proposed)



Proposed Concepts-N. Stockton Street

- Curb extensions along Perry Street to slow traffic and control unsafe passing maneuvers.
 - High-visibility crosswalks protected by curb extensions
 - No narrowing or curb extensions along Montgomery Street
 - No additional limitations to truck turning movements. (Mountable feature not required)
- LOS (AM/PM) = B (existing). B (proposed)



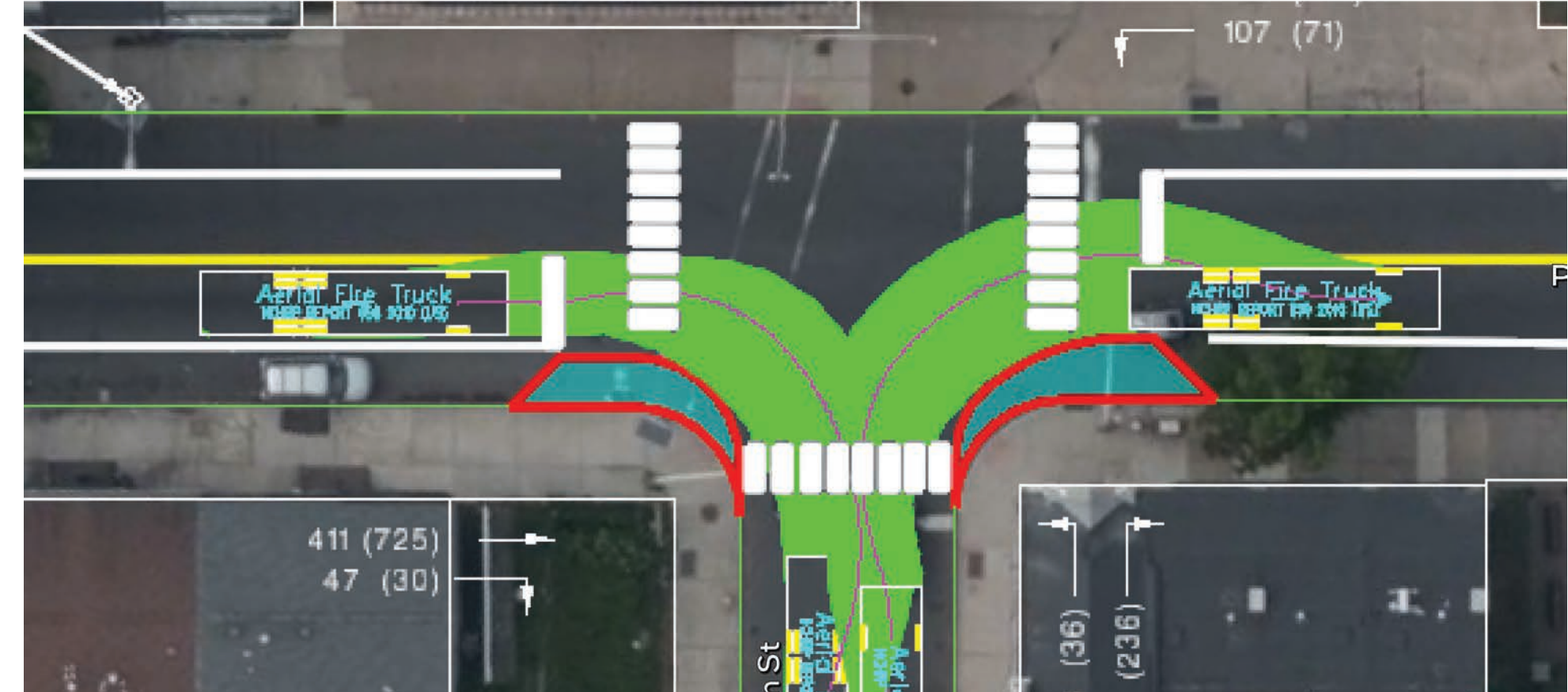
Truck Turning Templates-N. Montgomery St.

- Truck turns constrained by existing street widths
- Wide turn facilitated by mountable curb extension feature
- Aerial Fire Truck turn compatible



Truck Turning Templates-N. Stockton St.

- Truck turns constrained by existing street widths
- Aerial Fire Truck turn compatible



Perry Street at U.S. 1 Southbound Ramps and Allen Place

Overview and Local Context

The interchange of Perry Street at U.S. 1 Southbound is the first of two Perry Street interchanges with the Freeway. The current interchange alignment, geometrics, and ramps are all considered to be obsolete based on current design standards, but changes are severely constrained by limited available right-of-way and existing roadway cross section.

The interchange area is a high crash location with excessive speeds, high pedestrian demand, and high traffic volumes. Four pedestrian crashes were reported between 2014-2018.

The interchange is controlled by a traffic signal and includes access to Allen Place. The current high-speed channelized traffic island and ramp are not compatible with the local city street context and present numerous safety hazards and conflicts for those that travel by foot or bike.

This location includes the Trenton Fire Headquarters and the Meredith Havens Fire Museum, which is open weekdays to the public. Adjacent to and behind the first house is a large state-owned surface parking lot that meets the needs of nearby city, state, and federal office buildings, including the New Jersey Department of Environmental Protection (NJDEP).

Full and unimpeded access to the Fire Headquarters is essential and must include accommodation of appropriate fire truck turning templates.

Design Considerations

- Lower speed design for ramps to and from U.S. 1 Freeway
- Slow traffic speeds to improve safety
- Shorten pedestrian crossing distances
- Remove or reconfigure traffic islands where possible
- Truck and Fire Truck turn compatibility
- One-way alignment of Allen Place toward Perry Street with right-out only median and intersection design

Design Options

Two design options were considered: Option 1 reconfigures the existing traffic islands to mitigate existing deficiencies and better accommodate travel by foot and bike.

Option 2 is a more substantial re-configuration that eliminates the west-side traffic island and changes the channelized right turn ramp to a standard T-configuration and right turn, which is more consistent with traditional urban intersection design configuration.

Preferred Alternative

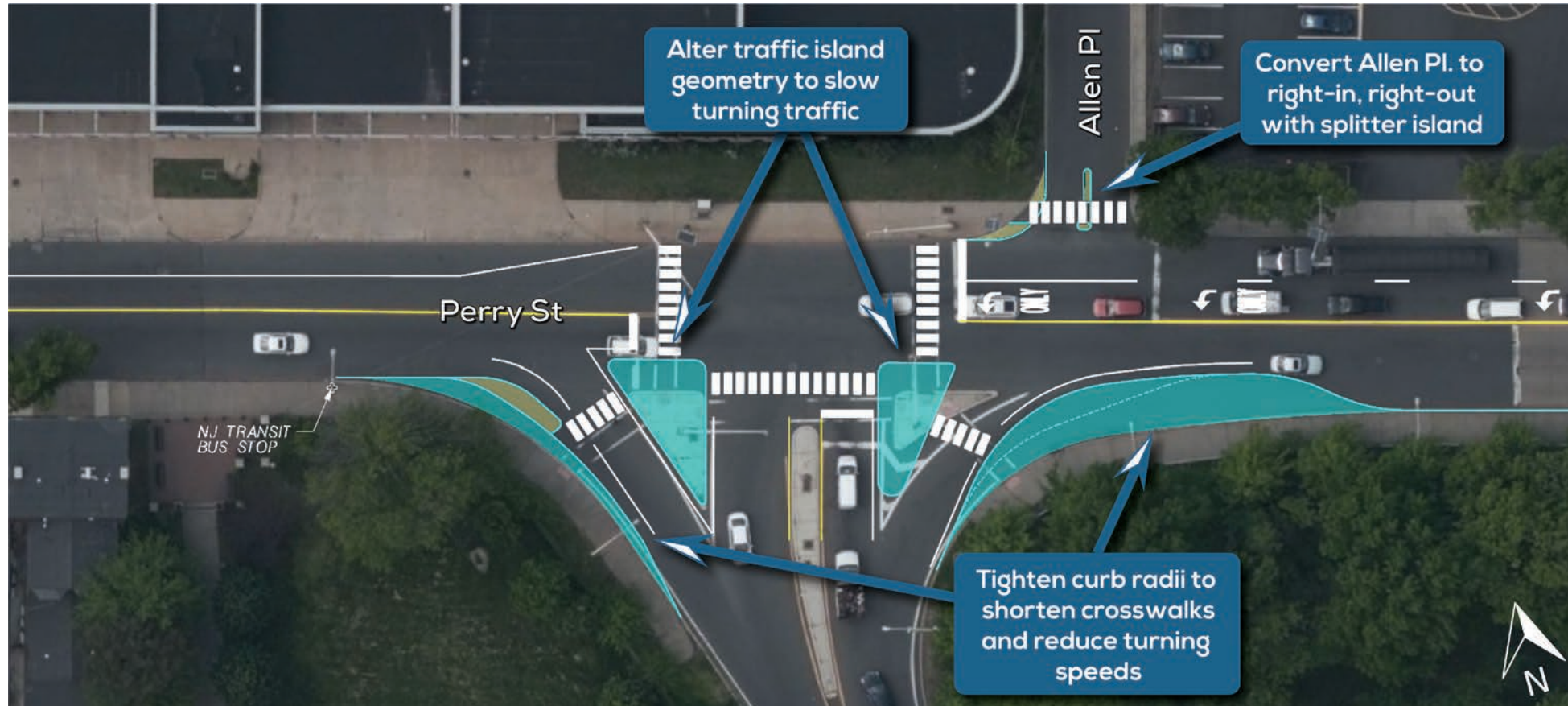
Although Option 2 is desirable because it removes the traffic island to create a more context-sensitive and lower-speed design, it causes complex truck turning movements and requires a problematic and impractical truck apron.

Therefore, Option 1 with its reconfigured traffic islands, is the preferred alternative.



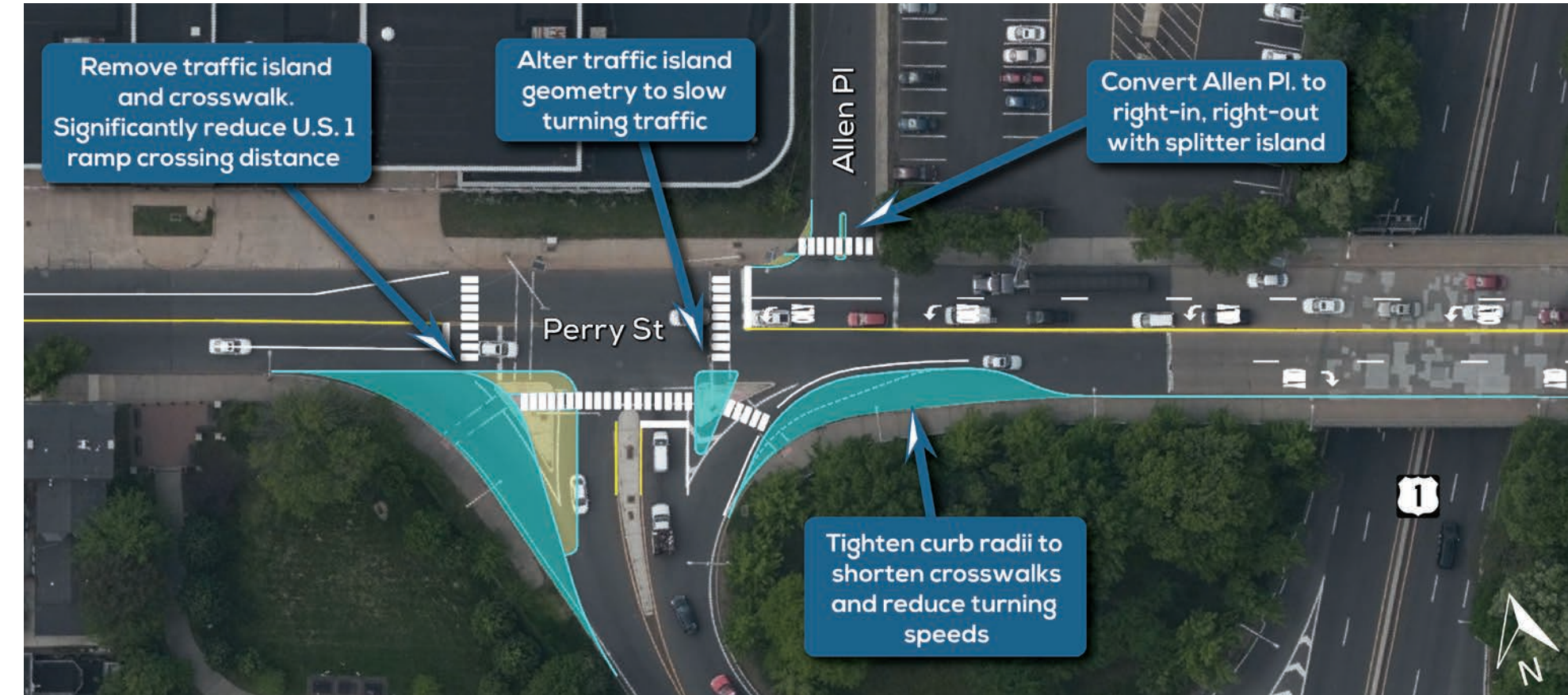
Option #1: Reconfigure Traffic Islands

- Improved (slower speed) design of traffic islands exiting from U.S. 1 Southbound
- Retains 3 existing separate crossings
- Each pedestrian crossing distance is shorter
- Eliminates relocation of stop bar (Option 2), and therefore improves throughput at intersection with shorter clearance times
- Eliminates truck apron for right-turn to U.S. 1
- Right-in-right-out only at Allen Place with splitter island
- LOS (AM/PM) = B, existing



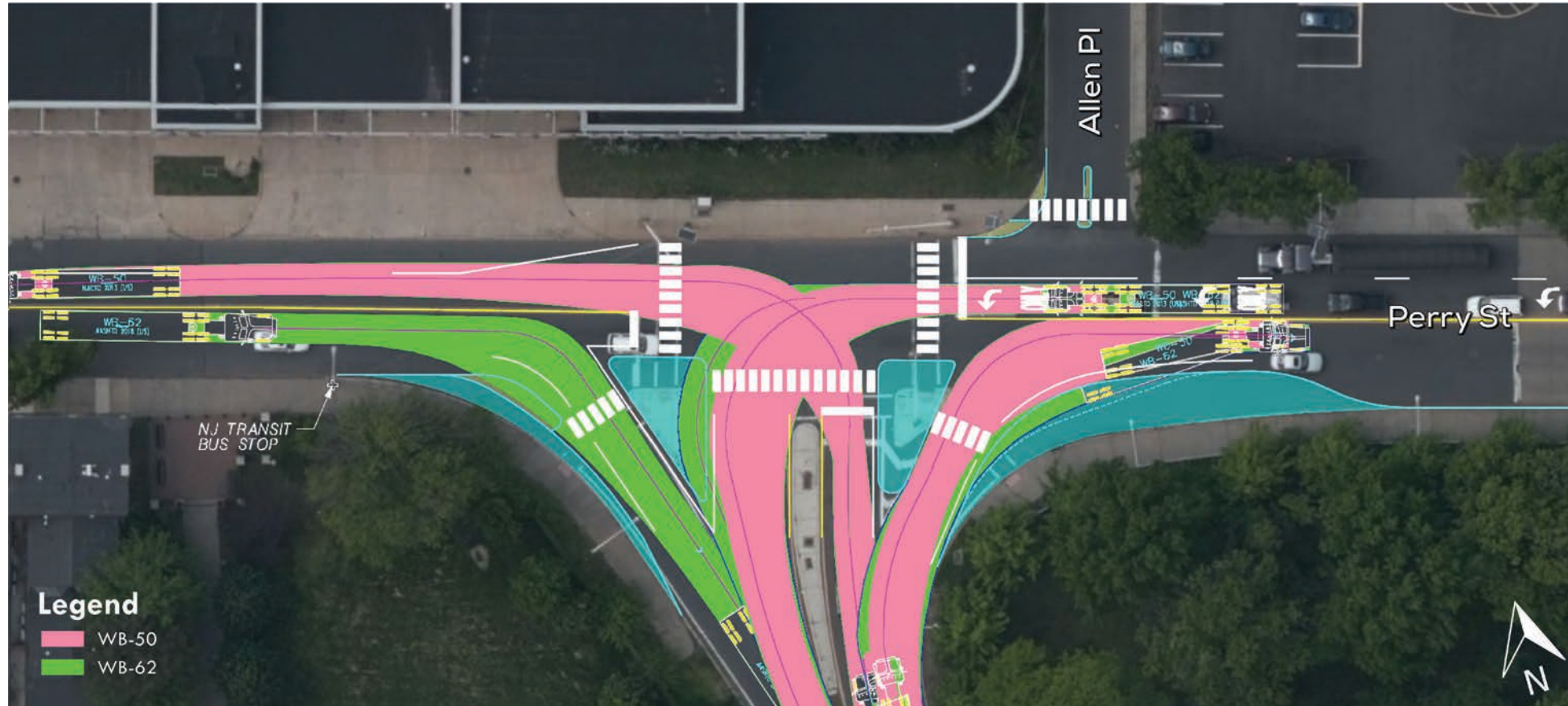
Option #2: Remove West-Side Traffic Island

- Improved (slower speed) design of traffic islands exiting from U.S. 1 Southbound
- Eliminates one existing pedestrian crossing
- Middle crossing distances longer than existing
- Required relocation of eastbound stop bar, and therefore reduces throughput at intersection with longer clearance times
- Expansive truck apron for right-turn to U.S. 1
- Eliminates (WB-50) left turn limitation
- Right-in-right-out only at Allen Place with splitter island
- LOS (AM/PM) = B, similar to existing



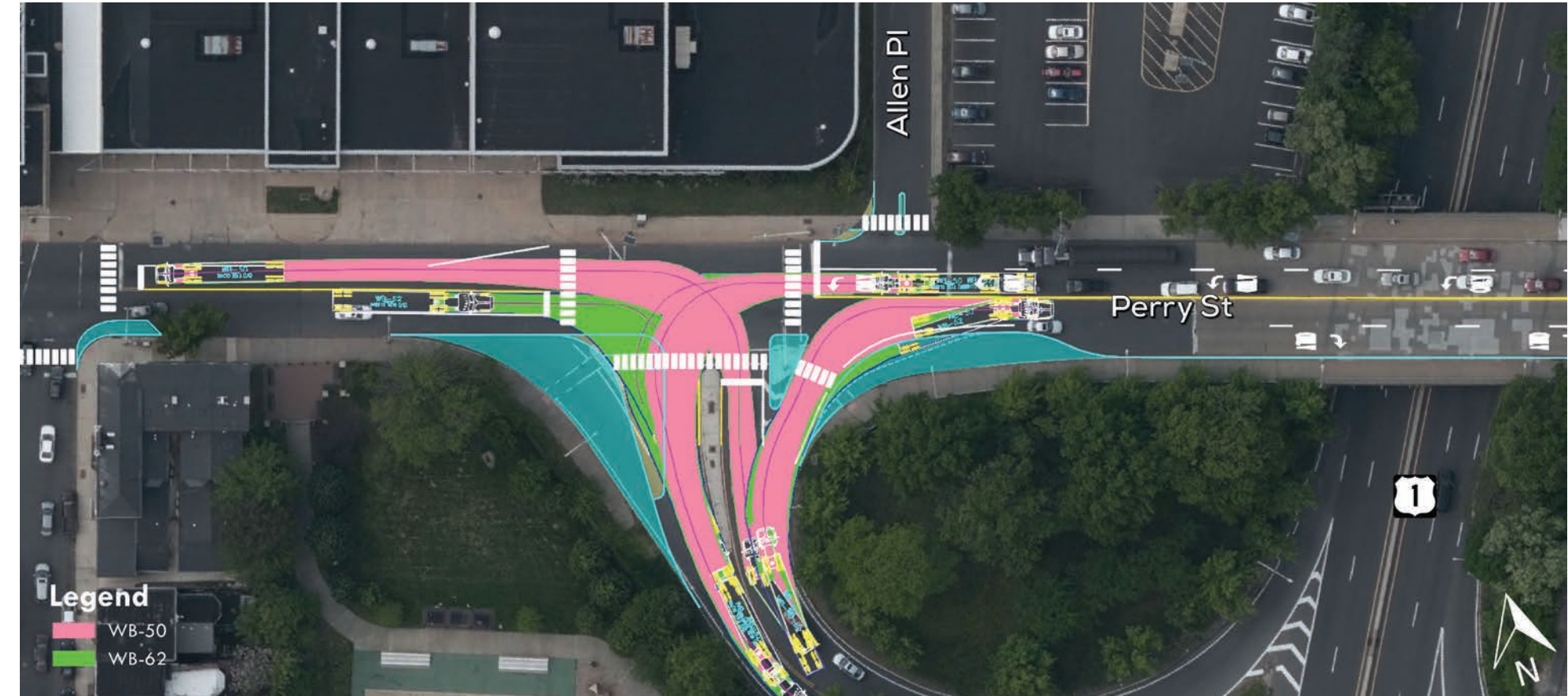
Option #1: Truck Turning Templates

- Wide turns facilitated by mountable curb extension features where required
- Turn compatible for Aerial Fire Truck, WB-50, WB-62



Option #2: Truck Turning Templates

- Wide turns facilitated by mountable curb extension features where required
- Turn compatible for Aerial Fire Truck, WB-50, WB-62



Perry Street at U.S. 1 Northbound Ramps and Carroll Street

Overview and Local Context

The interchange of Perry Street at U.S.1 Northbound is the second of two Perry Street interchanges with the Freeway. Similar to the southbound interchange, the alignment, geometrics, and ramps are all considered to be obsolete based on current design standards, but changes are severely constrained by limited available right-of-way and existing roadway cross section.

The interchange area is a high crash location with excessive speeds, high pedestrian demand, and high traffic volumes. Four pedestrian crashes were reported between 2014-2018.

The northbound interchange is uncontrolled and without stop or yield at the junction with Perry Street. The current high-speed channelized right turn and ramp design are not compatible with the local city street context and present numerous safety hazards and conflicts for those that travel by foot or bike. The provision of a slip ramp access to Carroll Street is an additional obsolete and challenging design feature. The existing traffic islands have a high-speed design and offer significantly less traffic control than the southbound interchange traffic islands.

This interchange is directly across from the 9th Grade Academy and this is the highest pedestrian demand location in the study area with morning and mid-afternoon demand peaks at the school driveway. Crossing guards are provided by the school district to provide for safe student crossings.

Design Considerations

- Lower speed design for ramps to and from U.S. 1 Freeway
- Slow traffic speeds to improve safety
- Shorten pedestrian crossing distances
- Remove or reconfigure traffic islands where possible
- Truck and Fire Truck turn compatibility
- Remove slip ramp to Carroll St
- Investigate signalized intersection
- Improve school crossing and provide access to 9th Grade Academy and proposed multiuse trail concept

Design Options

Two design options were considered. Both provide substantially improved access and safety at the 9th Grade Academy

Option 1 closes the ramp to Carroll Street and upgrades the intersection to provide a traffic signal to mitigate existing deficiencies and better accommodate travel by foot and bike.

Option 2 is a less substantial re-configuration that retains the ramp to Carroll Street but still provides a new traffic signal.

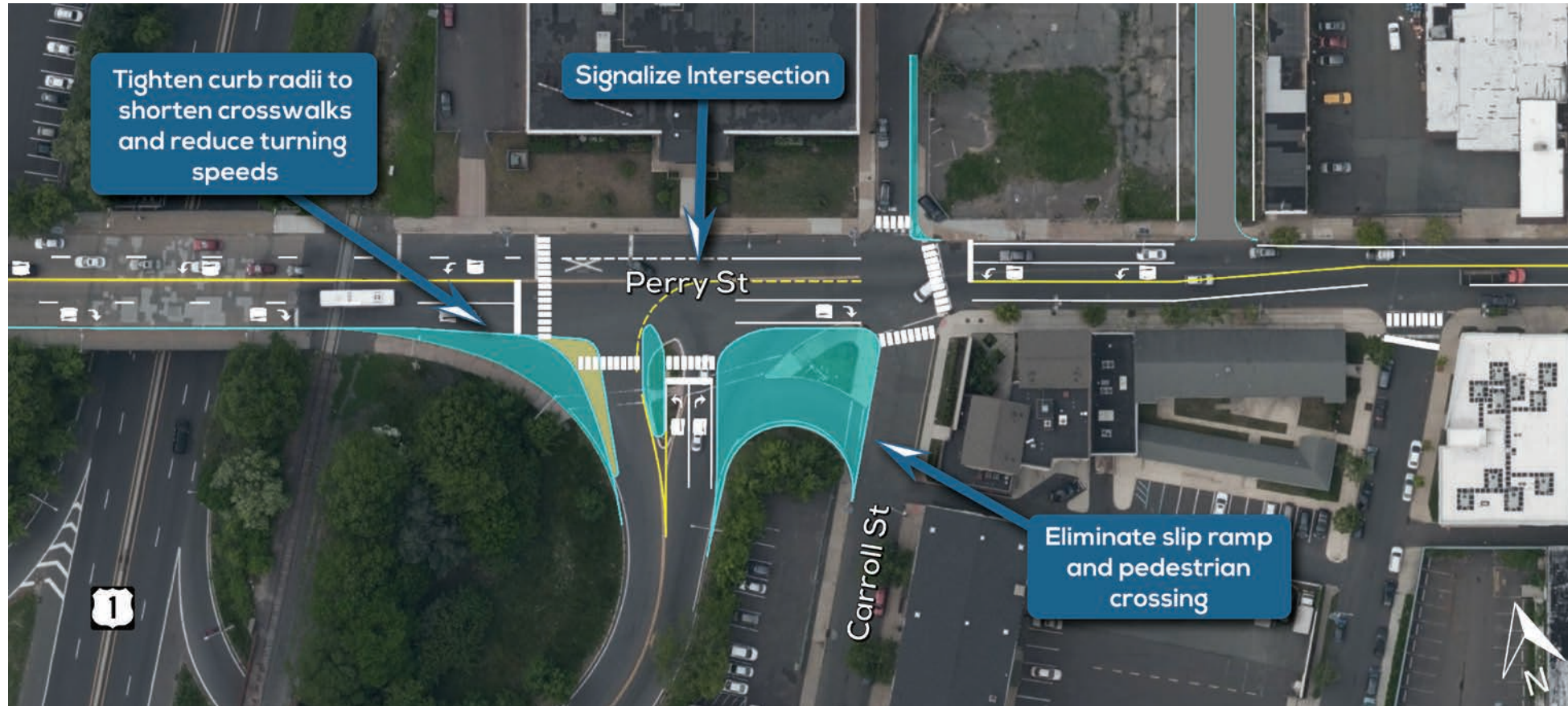
Preferred Alternative

Option 2 is preferred because its meets the primary design consideration to remove the Carroll Street ramp, signalize the intersection, and greatly enhance school access and student



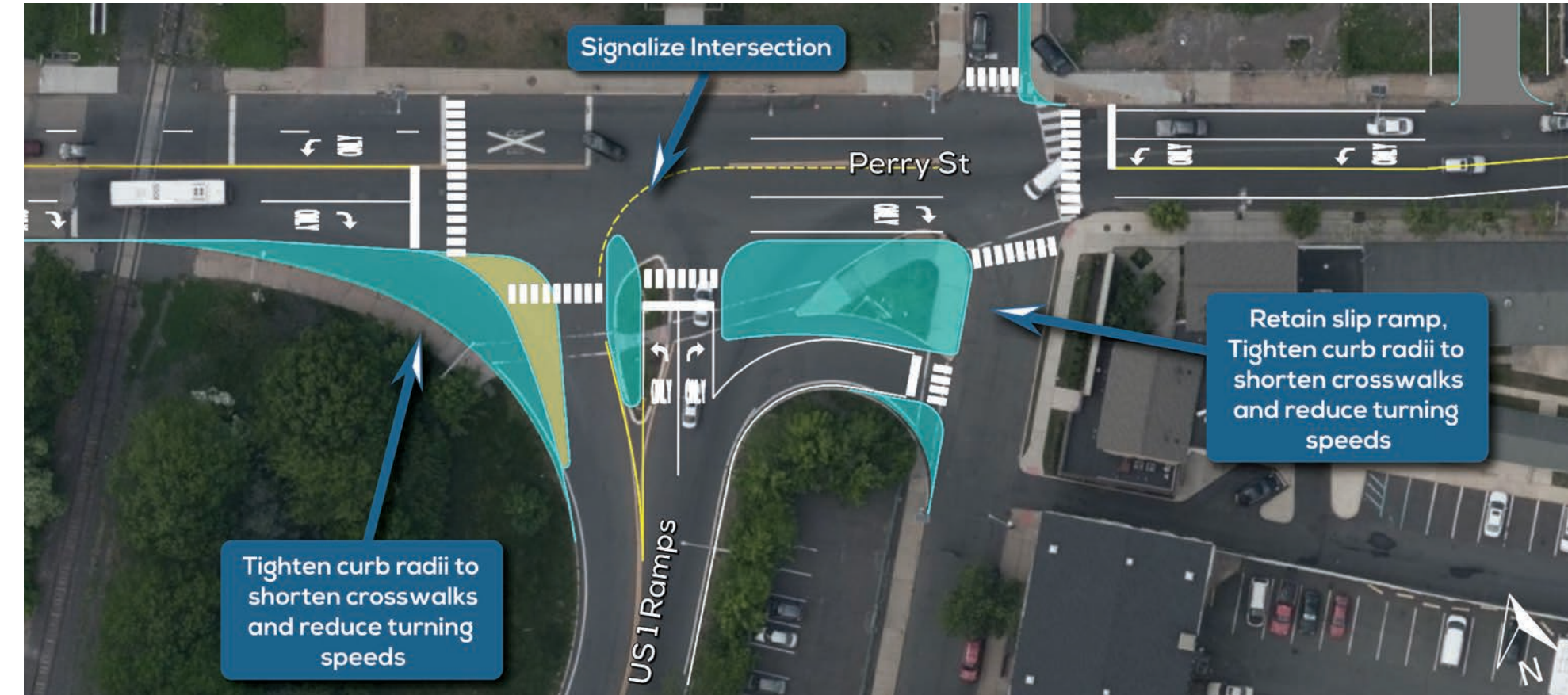
Option #1: Close Carroll St. Ramp & Signalize Intersection

- Improved (slower speed) design of traffic island existing from U.S. 1
- Eliminates slip ramp and pedestrian crossing of Carroll Street ramp
- Captures ramp area for public use
- Shortens crossing distances
- Introduces new traffic signal, meets warrants
- New traffic signal improves mobility and crossings at school
- Also moves school drop-off & pick-up off Perry Street and reduces queuing in front of school
- Eliminates (WB-50&62) truck turn limitations with truck aprons
- LOS (AM/PM) = B, existing



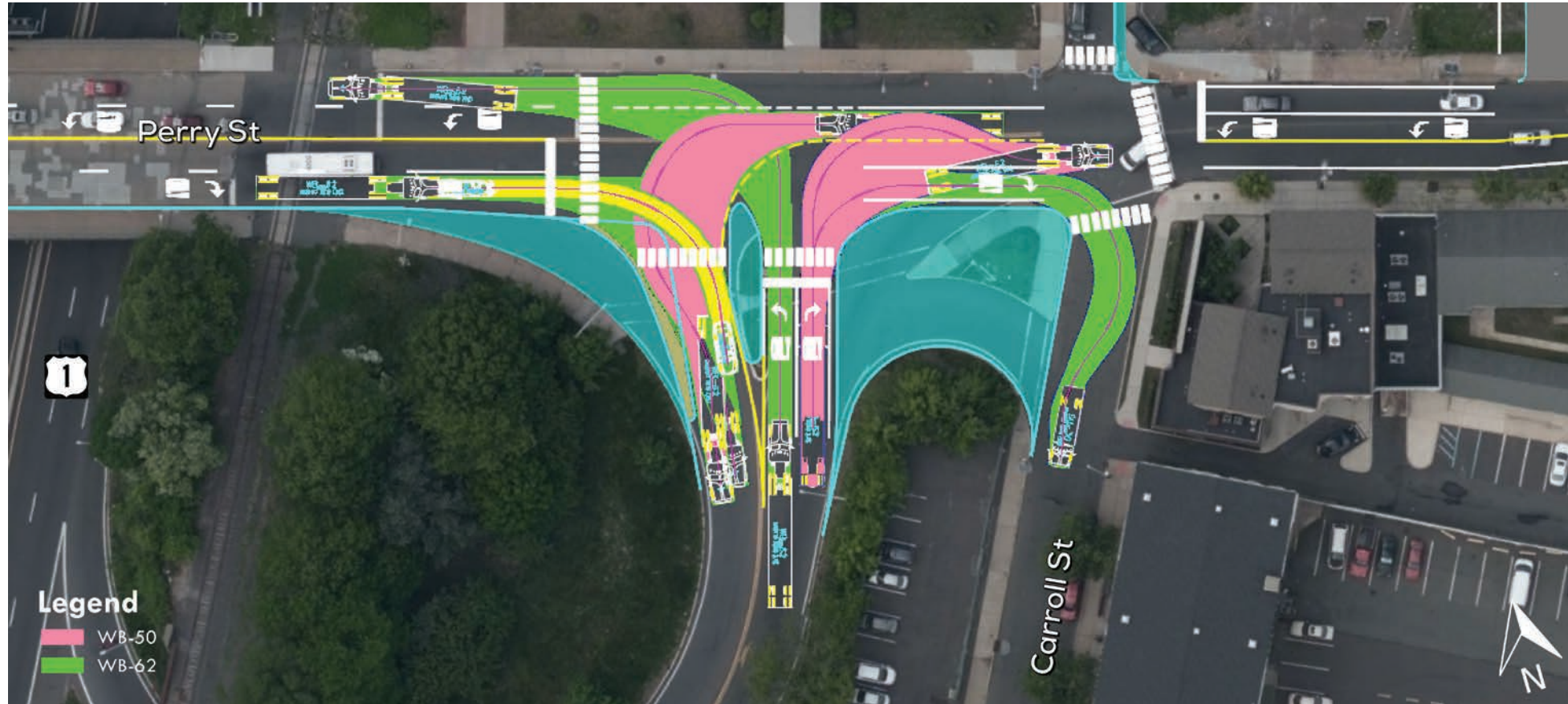
Option #2: Retain Carroll St. Ramp & Signalize Intersection

- Improved (slower speed) design of traffic islands to- and from U.S. 1
- Shortens remaining crossing distances
- Introduces new traffic signal, meets warrants
- New traffic signal improves access and crossing at school
- Also moves school drop-off & pick-up off Perry Street, and reduces queuing in front of school
- Eliminates (WB-50&62) truck turn limitations with truck aprons
- Does not remove slip ramp and ped crossing of Carroll St
- Does not capture ramp area for public use
- LOS (AM/PM) = B, similar to existing



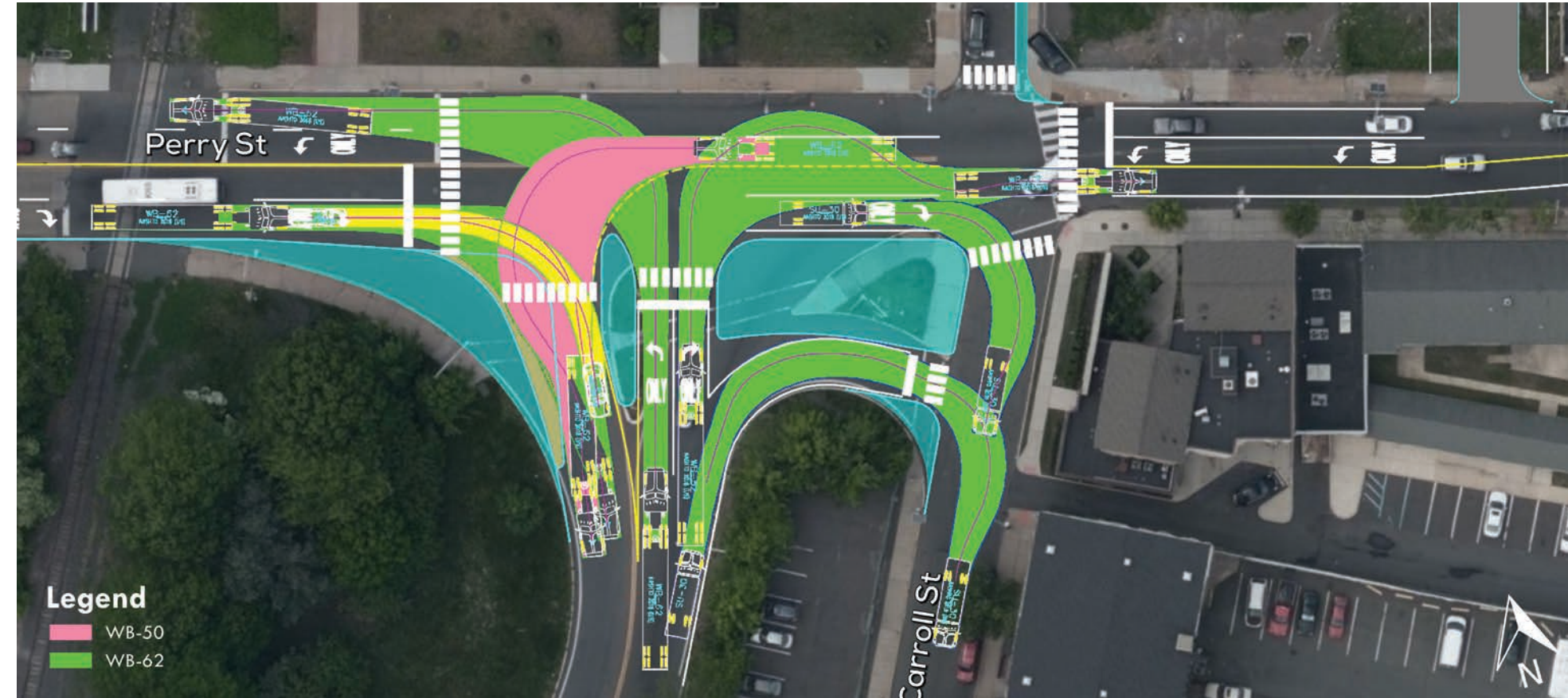
Option #1: Truck Turning Templates

- Wide turns facilitated by mountable curb extension features where required
- Turn compatible for Aerial Fire Truck, WB-50, WB-62



Option #2: Truck Turning Templates

- Wide turns facilitated by mountable curb extension features where required
- Turn compatible for Aerial Fire Truck, WB-50, WB-62



Perry Street at 9th Grade Academy

Overview and Local Context

The 9th Grade Academy is situated adjacent to the U.S.1 Northbound ramps and the intersection at Carroll Street. Perry Street is very wide at this location and the obsolete design of the interchange and ramp connections create significant safety risks for pedestrians, even more so for students. The proposed new traffic signal would improve student movements and crossings.

Mayor Reed Gusciora noted the need for safe and accessible movement of 9th Grade Academy students, particularly during the early afternoon when the school day ends and students must contend with heavy trucks, traffic, and queuing vehicles along the Perry Street corridor.

Addressing parent’s concerns about Perry Street traffic queues in front of the school building and difficulties in safely getting students to and from school is a particular emphasis of PerryStreetFuture.

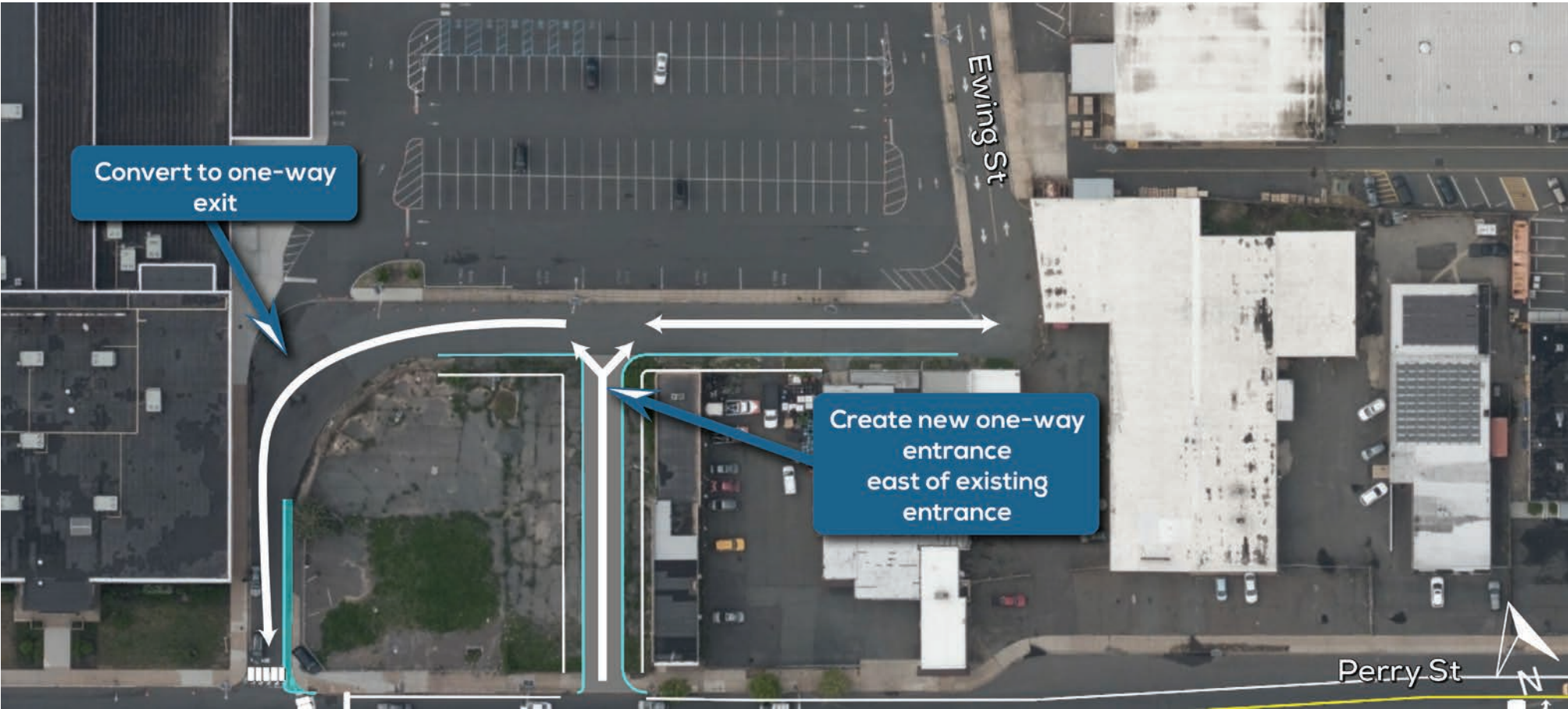
Design Considerations

- Provide safe crossings by students both along and across Perry Street
- Provide parents with dedicated off-street queuing area for student drop-off and pick-up
- Mitigate traffic queues in front of the school
- Accommodate school access by alternate travel modes via proposed new bike facilities and the existing D&R Canal Towpath
- Slow traffic speeds to improve safety
- Shorten pedestrian crossing distances

Preferred Alternative

The preferred alternative leverages the significant improvements in traffic calming, roadway and ramp reconfiguration, and new traffic signal at the U.S.1 Northbound and Carroll Street interchange to substantially improve access and circulation to the 9th Grade Academy.

The dedicated off-street design fully removes student drop-off and pick-up from busy traffic and large trucks at Perry Street and the proposed new traffic signal enhances the access and safety of students needs to cross Perry Street in traffic-free movements. Traffic queues should be mitigated by this changes in vehicle access,



Perry Street at Southard Street

Overview and Local Context

Southard Street is a critical link in the local road network, as it crosses over the U.S. 1 Freeway north of the study area. As such, Southard Street is highly trafficked by motorists and pedestrians. Southard Street's excessive width and high demand encourage speeding and aggressive driving, leading to the high crash rate experienced at this intersection.

The intersection area is the highest crash location in the study area with excessive speeds and high pedestrian volumes. Four pedestrian crashes were reported between 2014-2018.

This context features a mix of incompatible land uses and activities that create conflicts between motor vehicles and vulnerable non-motorized travelers, including light industrial uses that generate truck trips, institutional uses and houses of worship, and the Grant Elementary School. Building frontages are pulled back far from the street which also contributes to the observed high travel speeds.

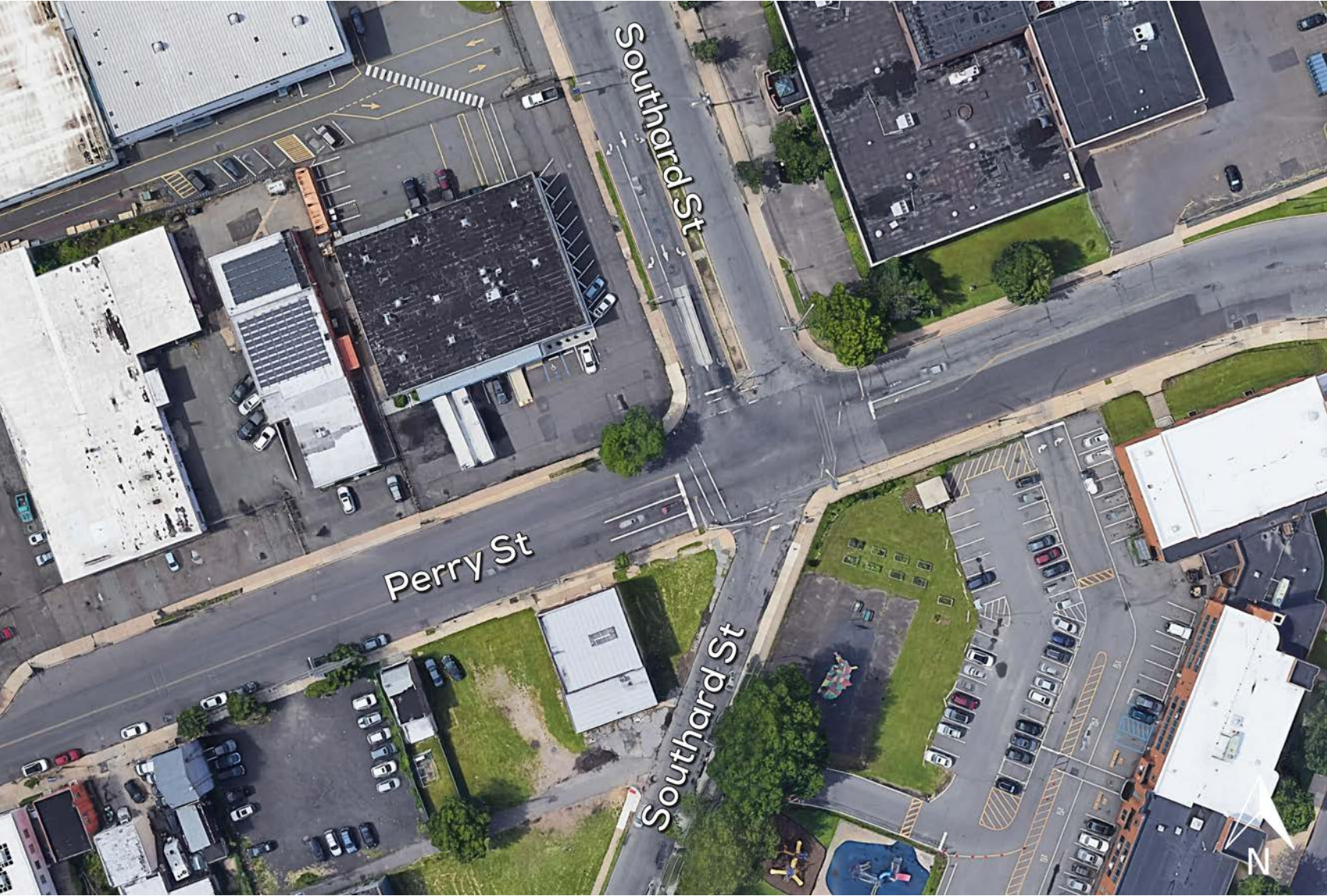
Excessive pavement and wide crossings are also a contributing factor to safety and mobility concerns.

Design Considerations

- Mitigate excessive travel speeds
- Shorten crossing distances for pedestrian safety
- Install pedestrian refuge island
- Eliminate one approach lane eastbound Perry Street to provide bus dedicated nearside bus turnout at eastbound approach to remove stopped buses from the travel lane and mitigate queuing traffic and aggressive passing maneuvers
- Provide curb extensions to mitigate speeds and shorten crossing distances at the remaining approaches
- No truck turning limitations
- Provide multiple locations of transverse rumble strip along the southbound approach of Southard Street to slow traffic approaching the Perry Street intersection

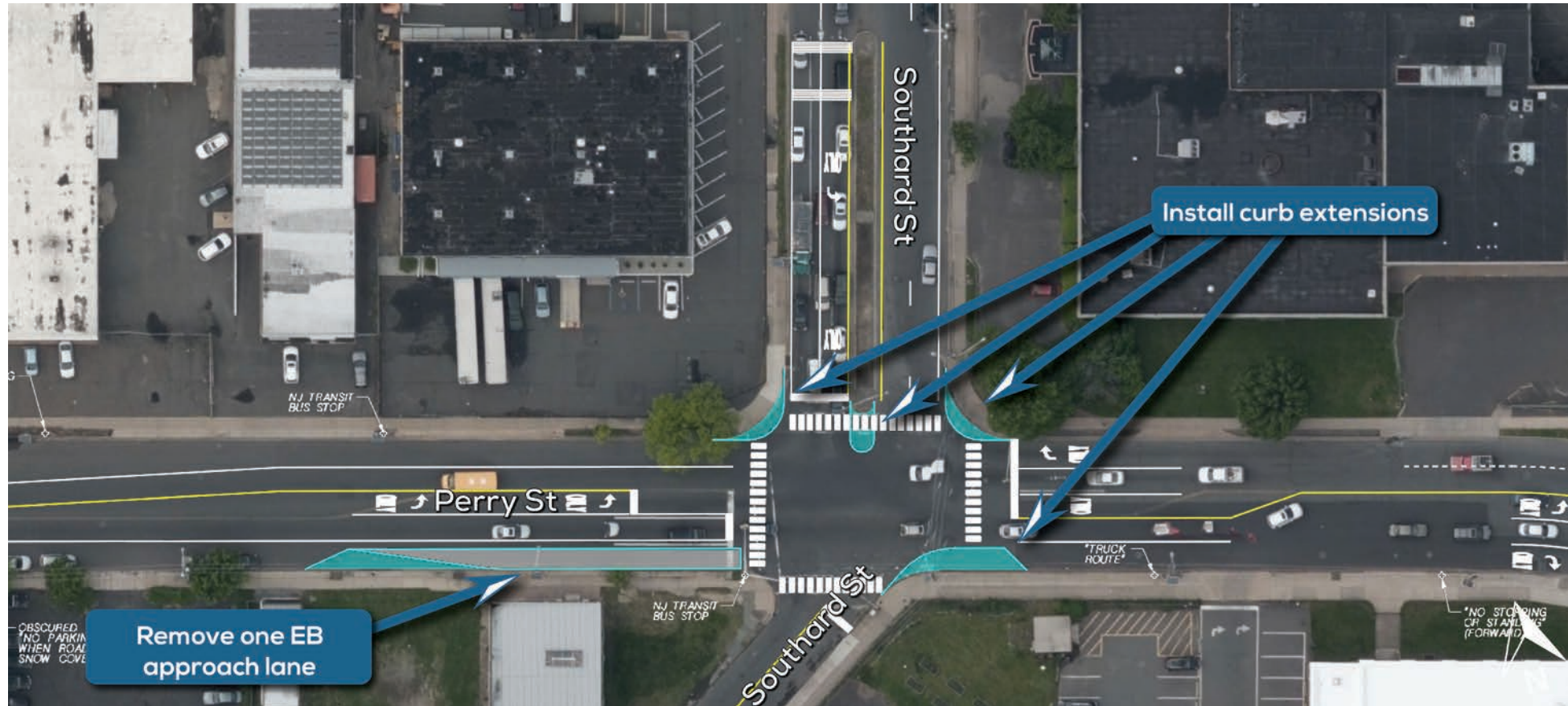
Preferred Alternative

Only one alternative was considered. The overall goal is to mitigate crashes and safety risk through various traffic calming measures and create a boulevard-style roadway design compatible with a walkable local street context.



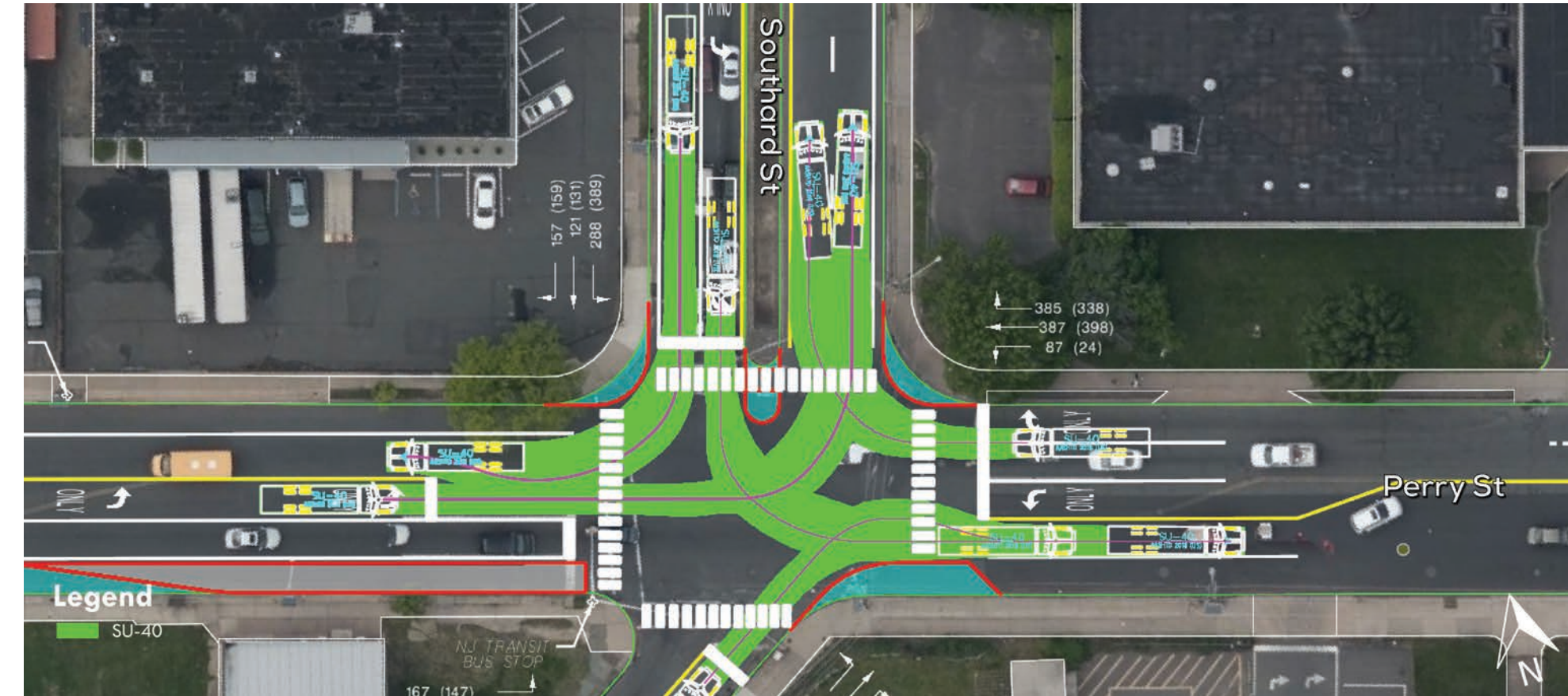
Proposed Concepts-Southard Street

- Mountable curb extensions to slow traffic and control unsafe passing maneuvers
- High-visibility crosswalks protected by curb extensions
- Rumble strips along southbound approach of Southard Street
- Eliminate one approach lane eastbound Perry Street
- Dedicated nearside bus turnout at eastbound approach of Perry Street
- No limitations to truck turning movements
- LOS (AM/PM) = B (existing). B (proposed)



Truck Turning Templates-Southard Street

- Turn compatible for SU-40



Perry Street at North Clinton Avenue & Lincoln Avenue

Overview and Local Context

The intersection of Perry Street at North Clinton Avenue and Lincoln Avenue is a complex and oversized intersection with significant turning movement volumes that degrade intersection performance and create excess delay. Approach geometry introduces sight distance limitations. This intersection was previously redesigned to reconfigure a complex left turn movement, but still presents challenges for both vehicular and non-motorized traffic.

This is a high crash location that experiences high pedestrian demand and excessive travel speeds.

Similar to the Southard Street location, this context features a mix of incompatible land uses and activities that create conflicts between motor vehicles and vulnerable non-motorized travelers, including light industrial uses that generate truck trips, institutional uses and houses of worship, and the Grant Elementary School. Building frontages are pulled back far from the street which also contributes to the observed high travel speeds.

Excessive pavement and wide crossings are also a contributing factor to safety and mobility concerns: Perry Street = 62 ft wide, N. Clinton Ave = 48 ft, Lincoln Ave = 52 ft.

Design Considerations

- Complex intersection configuration impacts performance
- Seek to narrow the street cross section by removing one or more travel lanes
- Slow traffic speeds to improve safety
- Shorten pedestrian crossing distances

Design Options

Two design options were considered. Both narrow the roadway to mitigate travel speeds and shorten crossing distances.

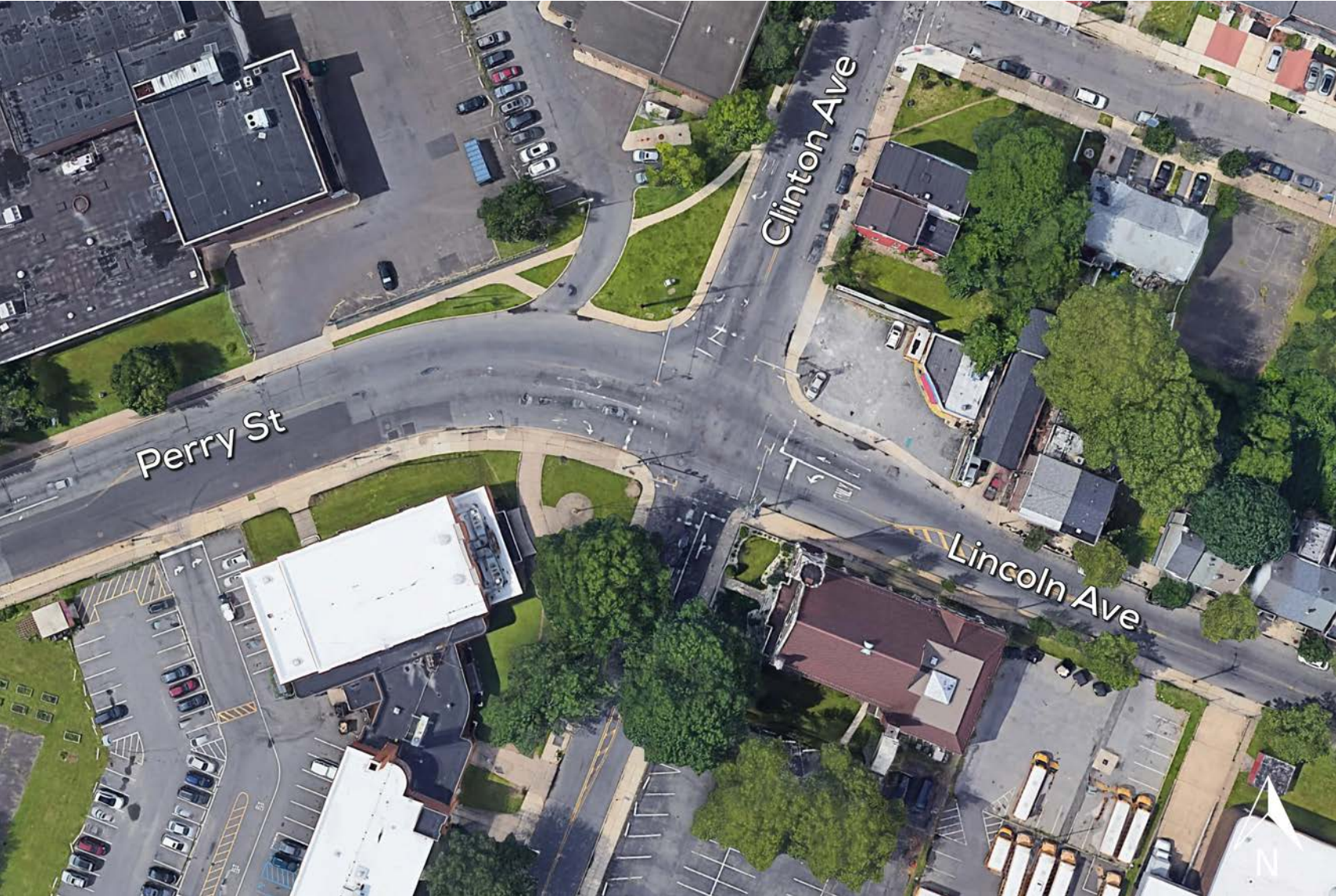
Option 1 removes one westbound travel lane and creates a shared through-left-turn lane with a dedicated right-turn-lane at the westbound approach

Option 2 removes one westbound travel lane and creates a shared through-right-turn lane with a dedicated left-turn-lane at the westbound approach

Preferred Alternative

Option 1 is the preferred alternative, due to superior level-of-service and less delay, with LOS = B. The combined left-turn and through movement volumes are compatible with the capacity of a single travel lane.

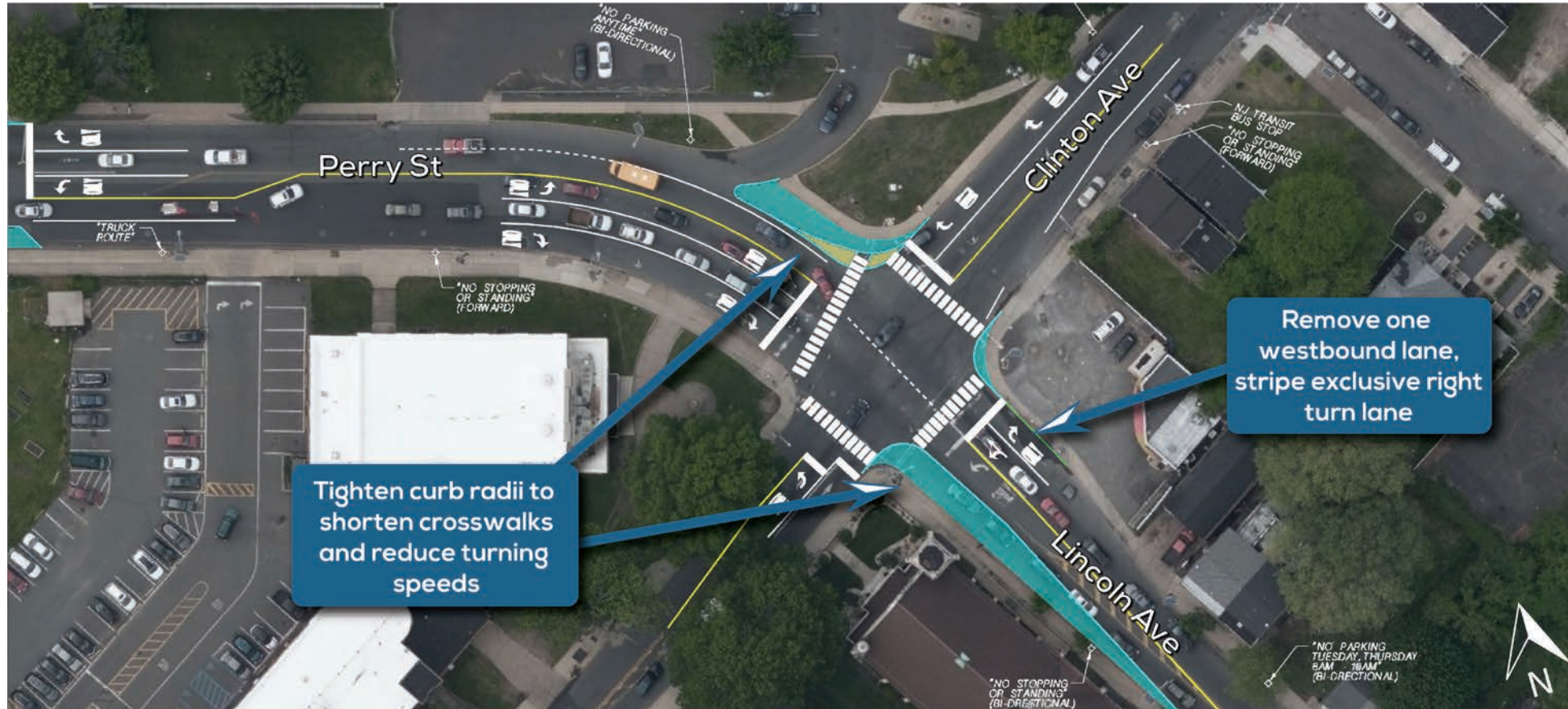
Option 2 results in significant delay for westbound movements and increased overall delay at the intersection. The combined through movement and right-turn volumes exceed the capacity of a single travel lane.



Option #1: Shared through-left-turn lane westbound approach

- Remove one westbound lane
- Shorten pedestrian crossing distances
- Improve bus accommodations
- Minor delay at WB through-left compared to existing
- Minor increase in total delay at intersection

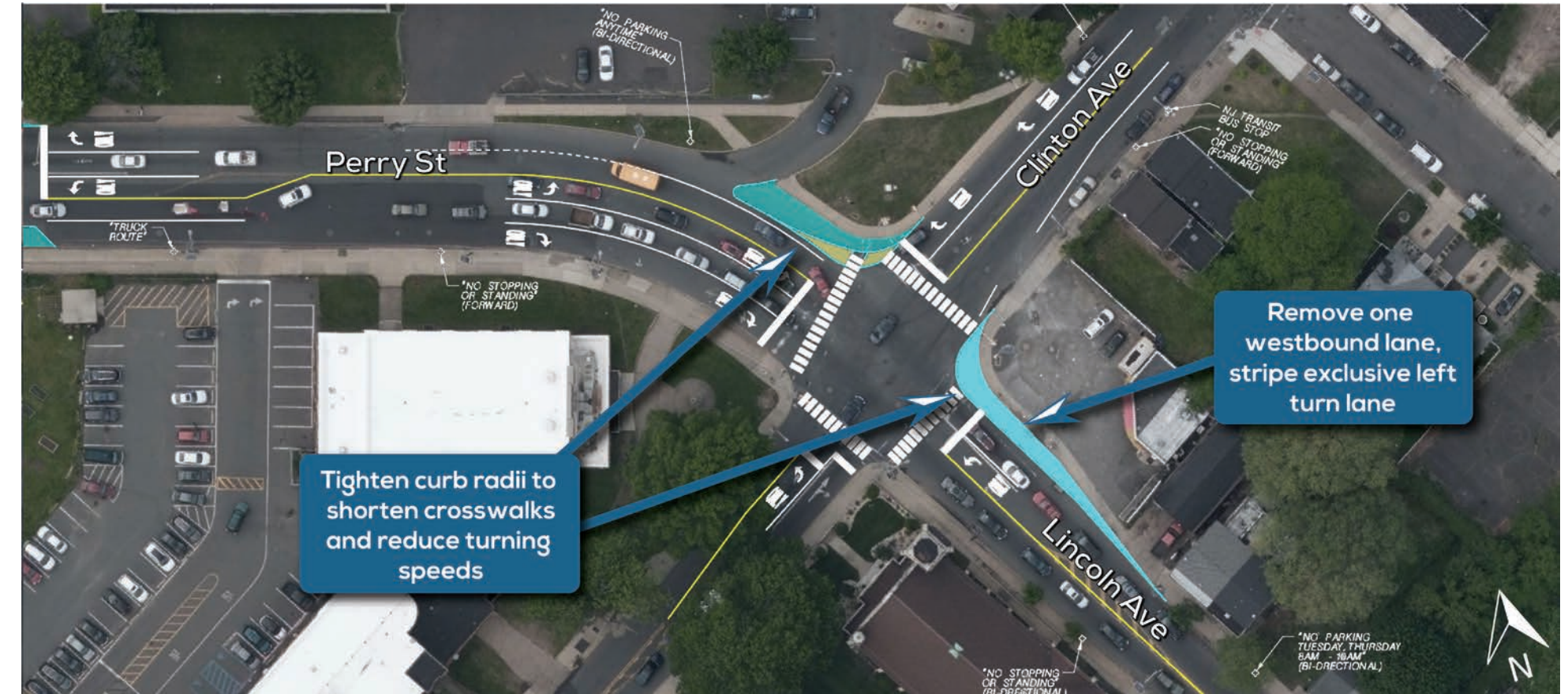
- Existing LOS (AM) = B
- Proposed LOS (AM) = B



Option #2: Shared through-right-turn lane westbound approach

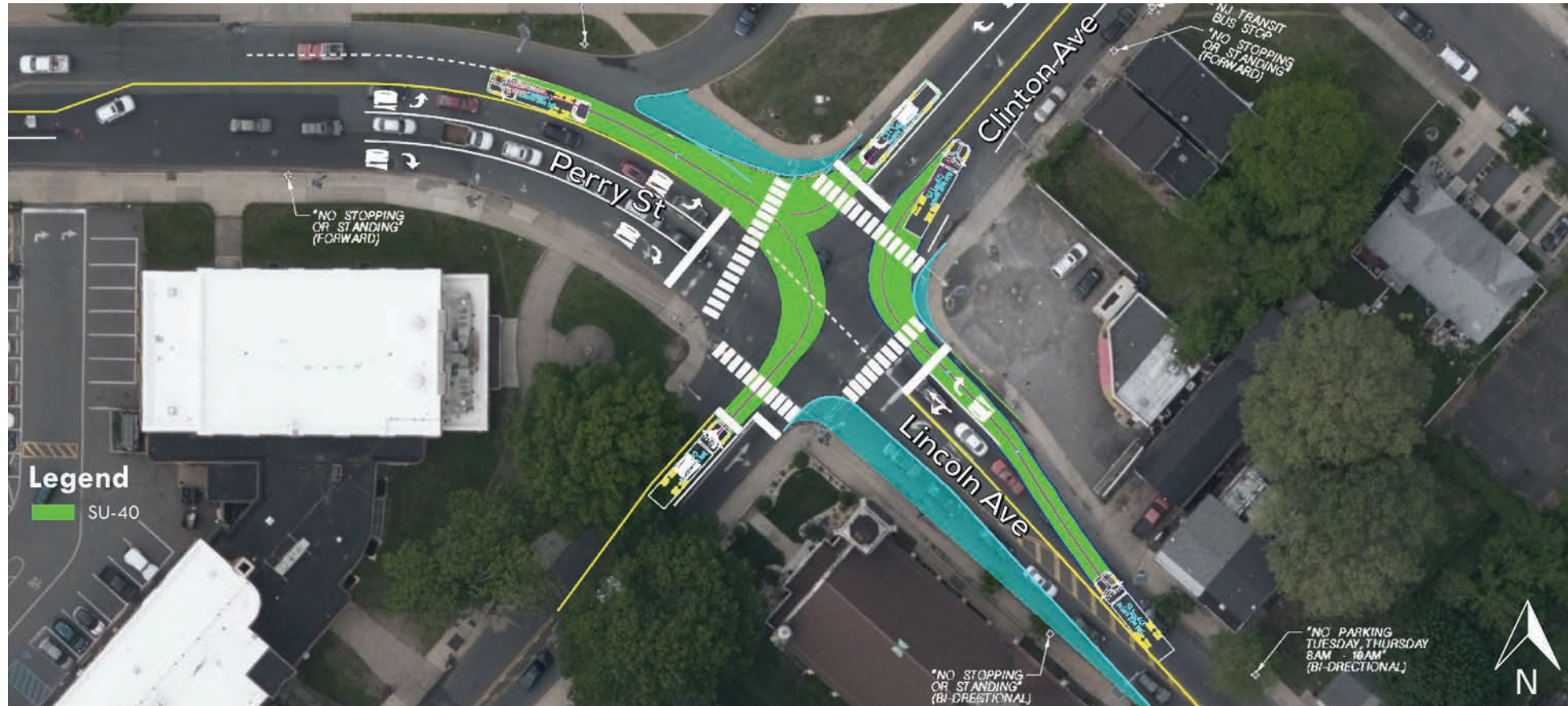
- Remove one westbound lane
- Shorten pedestrian crossing distances
- Improve bus accommodations
- Results in significant delay at proposed WB through-right lane compared to existing or Option #1, with 70 seconds delay, and increased total delay at intersection

- Existing LOS (AM) = C
- Proposed LOS (AM) = C



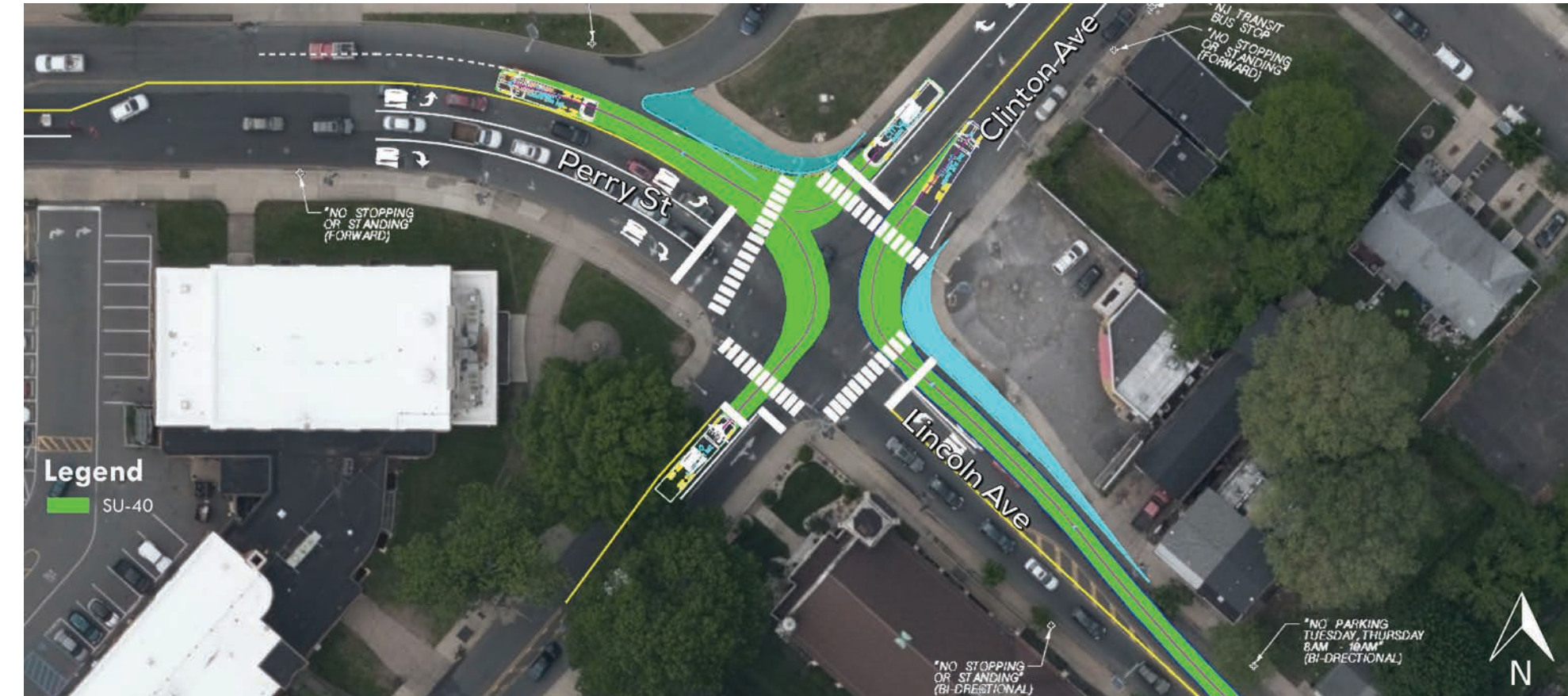
Option #1: Truck Turning Templates

- Turn compatible for BUS-40 and SU-40



Option #2: Truck Turning Templates

- Turn compatible for BUS-40 and SU-40



North Clinton Avenue Concept

Overview and Local Context

One block north along North Clinton Avenue is the intersection at Grant Avenue. The west side of North Clinton has the Trenton Police Department and the east side is primarily residential with some neighborhood mixed uses. A large vacant parcel is located at 216 Grant Avenue at the southeast corner of the intersection with North Clinton Avenue. Grant Avenue is stop-controlled at the approach to North Clinton.

The large vacant parcel at 216 Grant Avenue has a well-worn foot path from frequent pedestrian use on a diagonal toward a bus stop on North Clinton Avenue. The vacant parcel and worn path are an attractive nuisance and lead many pedestrians to cross North Clinton on a diagonal toward Perry Street at a mid block location away from the intersection. Many pedestrian crashes in New Jersey occur mid-block, and frequent pedestrian crossings are observed at this unprotected location.

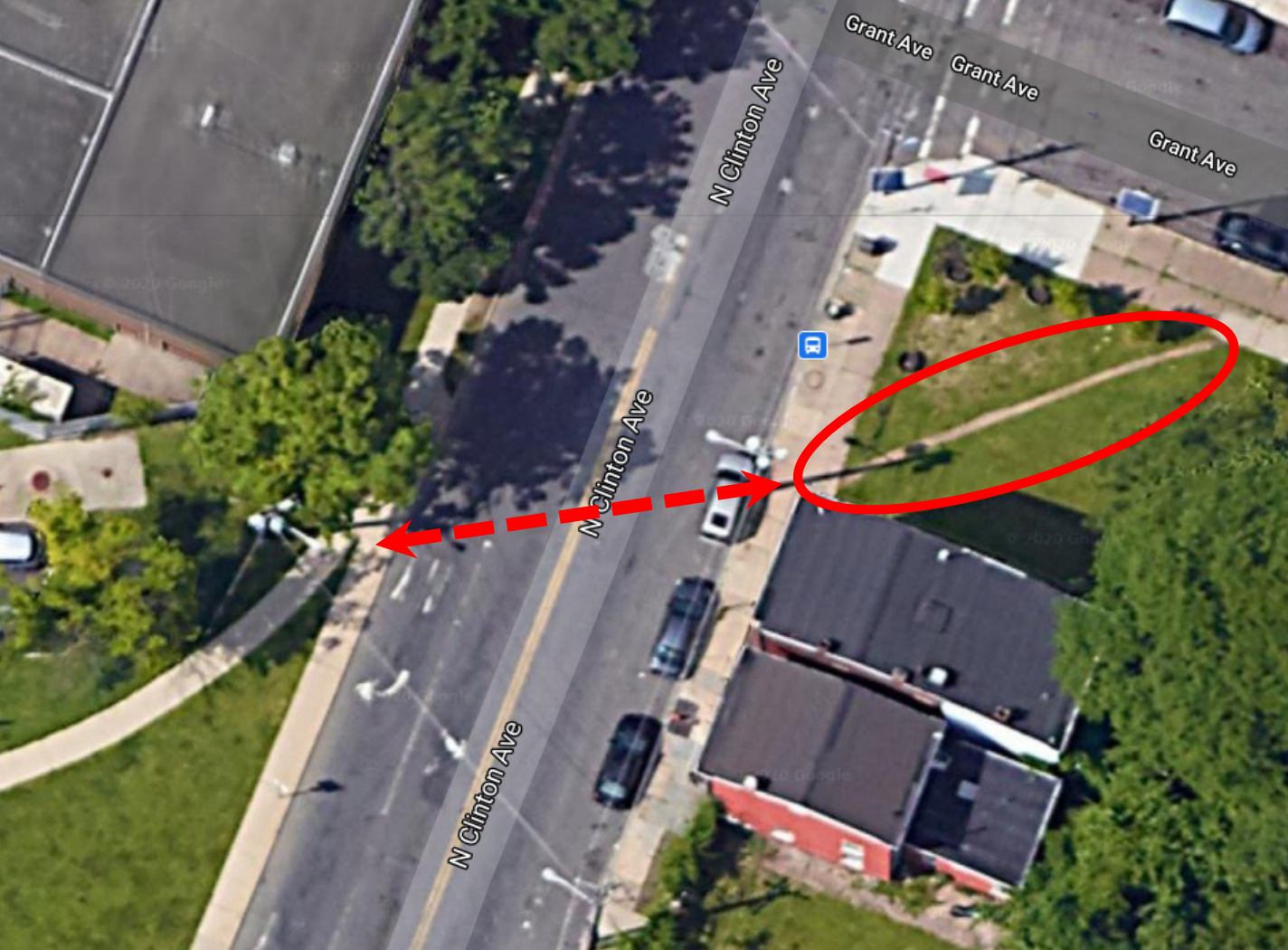
The intersection of Perry Street at North Clinton Avenue is a high crash location with excessive travel speeds, and the Grant Elementary School located at Perry Street at North Clinton Avenue.

Design Considerations

- Slow traffic speeds to improve safety
- Direct pedestrian to a marked crosswalk
- City proposes to purchase vacant parcel at 216 Grant Avenue for redevelopment

Preferred Alternative

The preferred alternative is for the City to purchase the vacant parcel at 216 Grant Avenue for redevelopment. This will remove the worm foot path and direct pedestrian along the Grant Avenue sidewalk to a new high visibility marked crossing at North Clinton Avenue.



Bicycle Network and Multiuse Trail Concept

Three new on-street bicycle and multi use concepts are proposed to create an enhanced and integrated multimodal network building on the existing bicycle lanes and D&R Canal Towpath to provide adequate separation between motorized traffic and vulnerable non-motorized travelers, improve safety, create enhanced network connectivity, and expand access between residential areas and study area destinations and amenities, including schools and social services. All are shown on the display on the following page.

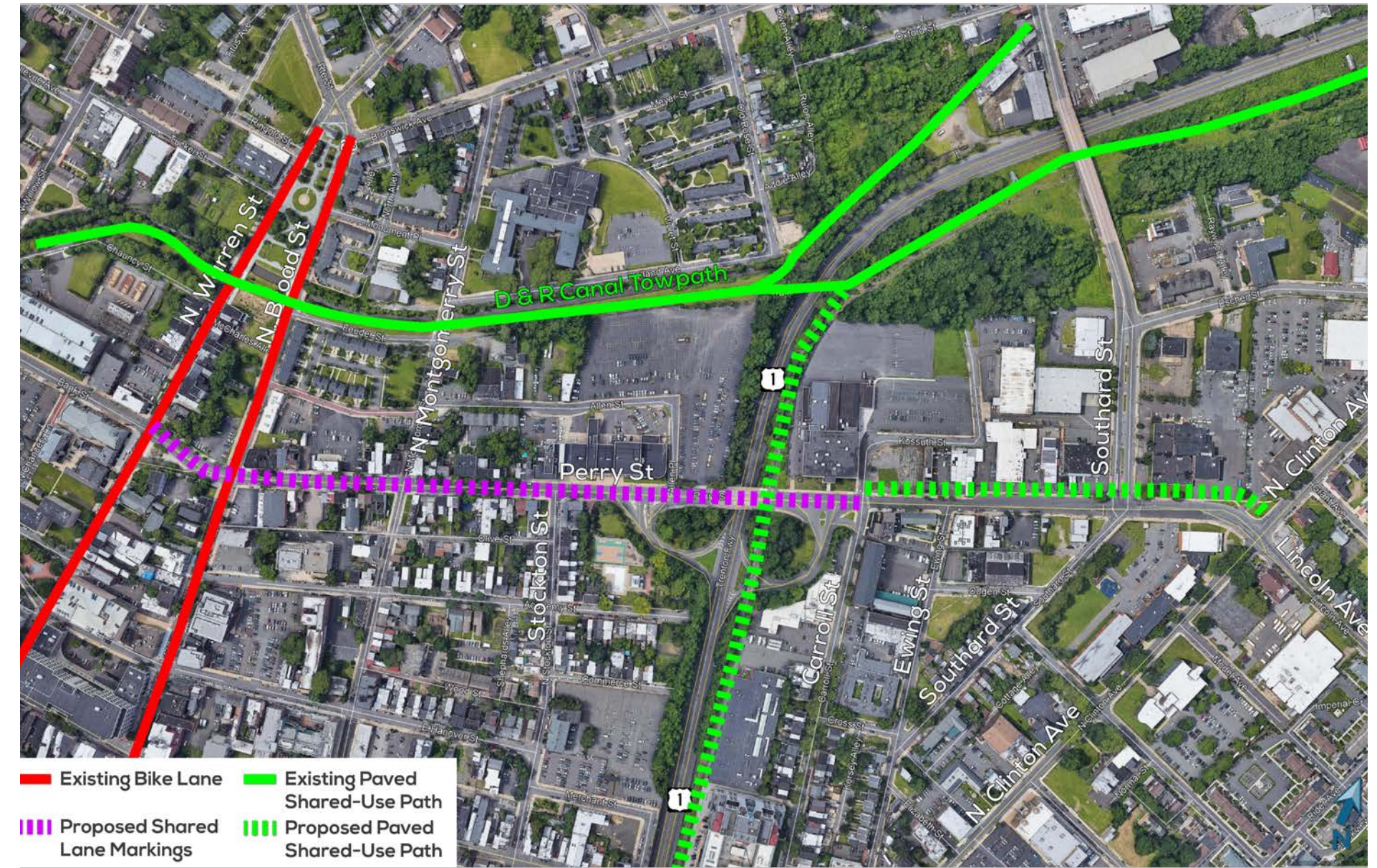
1. On-street Shared Lane (Sharrow) Concept (shown in dashed purple). Along Perry Street from the existing bicycle lanes at U.S. 206/Lincoln Avenue to the Carroll Street/9th Grade Academy intersection.
2. Off-street Multiuser Side Path Concept (shown in dashed green): Ten-foot wide along the westbound alignment of Perry Street from the Perry Street Shared Lane terminus at the Carroll Street/9th Grade Academy intersection eastward to the intersection of Perry Street at North Clinton Avenue & Lincoln Avenue.
3. Redevelop existing rail alignment as a multi use trail (shown in dashed green): Ten-foot wide facility parallel to and separated from railroad tracks from the D&R Canal south toward East State Street and the Trenton Transit Center.

The existing rail alignment is proposed as a multiuse trail free from roadway traffic and trucks, and without impact to the existing railroad tracks. A three-phase implementation plan is proposed for the Off-Street Multi-Use Trail Alignment.

The proposed trail concept would be a 'rail-with-trail' design, and include the following elements:

- Leave all segments of the existing railroad tracks in place and undisturbed for potential future re-use
- The proposed facility is design to safely function adjacent to and with no impact to the existing railroad and any possible future use of the tracks and alignment
- Remove existing vegetation and trees as needed
- Grading as required, to level out the existing surface for use a trail bed
- Install new 10-foot wide paved trail segments, possibly using permeable asphalt materials
- Provide appropriate fencing to adequately separate the trail facility from the railroad tracks; the Route 1 Freeway; and adjacent land uses
- Install suitable crossing treatments and pedestrian-only traffic signals or RRFB elements for at-grade street crossings (Perry Street and East State Street)

- Install wayfinding to local destinations
- Evaluate potential for interpretative and historical markers and signing



Phase One – build Segment 1 to provide direct, traffic-free access between the existing D&R Canal Towpath alignment and Perry Street. This segment requires the lowest level effort and would enhance walk and bike connectivity by extending the existing D&R Canal Towpath alignment to the Perry Street study area and adjacent land uses and destinations, including schools, houses of worship, social services, local business establishments, and residential areas.

Requires clearing of vegetation and trees, a new 10-ft wide trail surface, and an enhanced crossing at Perry Street (possibly with curb extensions or midblock pedestrian refuge).

Phase Two – build Segment 2 to provide direct, traffic-free access between Perry Street and East State Street. This segment requires clearing of vegetation and trees, some grading to level out the trail bed, a new 10-ft wide trail surface, and an enhanced crossing at East State Street (possibly with curb extensions or midblock pedestrian refuge). This segment requires some additional effort compared to Segment 1, in particular some grading is anticipated to even out the existing gravel and stone surface to accommodate the new 10-ft wide trail. Walk and bike connectivity would be enhanced by extending the existing D&R Canal Towpath alignment to the East State Street, with improved access to adjacent land uses and destinations, including the Federal Court House, NJDEP, Trenton City Hall, and nearby Trenton Transit Center and River Line. Workers using the nearby Perry Street-State Employee Parking Lot adjacent to the Fire Headquarters could also access work destination using the Segment 2 Multi-Use facility.

Phase Three – build Segment 3 to provide direct, traffic-free access between East State Street and the Trenton Transit Center and River Line. This segment requires the greatest level of effort and a graded ramp structure would be required to connect the proposed alignment with Barlow Street and gain access to the nearby Trenton Transit Center and River Line. An alternative alignment might connect directly to the NJDEP parcel and on-site parking lot, and mitigate some of the complexity and cost of the ramp structure. More extensive improvement would be required compared to Segments 1 and 2 including more clearing of vegetation and trees, grading to level out the trail bed, a new 10-ft wide trail surface, and a ramp structure to reach Barlow Street or the NJDEP parcel.



