SAFE ROUTES TO SCHOOL

FALL 2016

BAYONNE

SCHOOL DISTRICT

SCHOOL TRAVEL PLAN

Acknowledgments

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City of Bayonne

Bayonne Police Department

Bayonne Department of Public Works

Bayonne Division of Planning and Zoning

Hudson County Division of Planning

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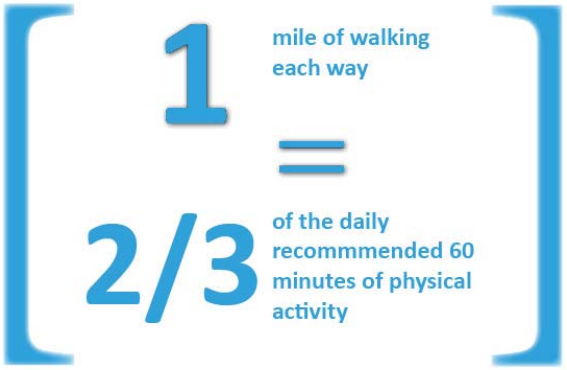

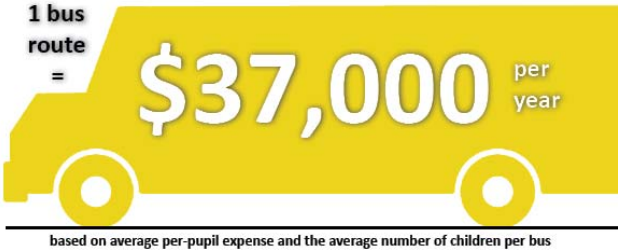

What is Safe Routes to School?

Safe Routes to School (SRTS) is an international, federal, state and local effort to create safe, convenient and fun opportunities that encourage children to walk and bicycle to and from school. In 2005, Congress passed legislation that established a National Safe Routes to School program dedicating funds administered through the Federal Highway Administration, and requiring each state to have a Safe Routes to School Coordinator as a central point of contact for the state.

New Jersey Safe Routes to School (NJ SRTS) is New Jersey's statewide initiative led by NJDOT to enable and encourage students to safely walk and bicycle to school through education, training and research efforts. The mission of NJ SRTS is to empower and assist communities with identifying issues, creating partnerships and implementing projects and programs to encourage walking and biking to and from school as a safe, daily activity. Safe Routes to School projects can involve physical improvements to the environment as well as encouragement programs to promote more walking and bicycling to and from school. The vision of NJ SRTS is to develop a culture and environment where walking and bicycling to school is safer, more appealing and a part of daily life for students of all abilities throughout New Jersey.

The New Jersey Safe Routes to School Resource Center assists public officials, transportation and health professionals, and the general public in creating a safer and more accessible walking and bicycling environment through primary research, education and dissemination of information about best practices in policy and design. In partnership with the New Jersey Safe Routes to School Resource Center, Regional Coordinators at the state's eight Transportation Management Associations offer advice and assistance in getting programs off the ground in communities in all 21 counties. The NJ SRTS Resource Center supports the TMA Regional Coordinators through training and outreach to help

maximize the effectiveness of the NJ SRTS program.

The SRTS Resource Center is supported by the New Jersey Department of Transportation through funds provided by the Federal Highway Administration. The SRTS Resource Center is managed by the Alan M. Voorhees Transportation Center within the Edward J. Bloustein School of Planning and Public Policy at Rutgers, The State University of New Jersey.

What is a District School Travel Plan?

A SRTS School Travel Plan "maps out" how to improve pedestrian and bicycle travel to and from school to increase the number of students who walk and bike to school and to improve safety. A School Travel Plan identifies the following:

- Where students currently walk and bike.
- Where to make safety improvements to the pedestrian and bicycle environment.
- What changes need to be made so that students to encourage more walking and bicycling to school.

The School Travel Plan will identify short term solutions for immediate action and implementation, as well as long term ones that may require further planning. While the NJ SRTS Resource Center has previously developed a successful and effective model for developing a School Travel Plan for a single school, large school districts with numerous schools present new and additional challenges. A School
Travel Plan requires detailed information, which is often difficult to provide for a School Travel Plan that addresses multiple schools. A School Travel Plan also requires public input, which can be very difficult to coordinate on a district-wide scale. A District focused School Travel Plan process streamlines the information gathering and public input process, using this data to help communities to complete a detailed prioritization of districtwide barriers and countermeasures. In the case of large school districts, priority information is necessary due to the potential for a large number of countermeasures and the community's need to determine which countermeasures to prioritize.

About This Project

The Bayonne School District Travel Plan is the first travel plan prepared for the Bayonne Public School
District and is the result of a partnership with the New Jersey Department of Transportation, Rutgers University, Hudson TMA, the Bayonne School District, and the City of Bayonne. The purpose of this project is to develop a districtwide travel plan that will ultimately make it safer and easier for students to walk and bicycle to and from school. Implementation of this plan aims to improve the health of students and reduce traffic congestion within school zones. In addition to providing the Bayonne School District and the City of Bayonne with a list of actions that will help to encourage safe and active options to travel to and from schools, as one of the first of its kind this district plan will serve as a model for future plans in districts across the State of New Jersey.

The Bayonne School District includes twelve public schools whose catchment areas comprise the entire City. Additionally, there are three private elementary schools (grades K-8) and one private high school (grades 9-12) in the City. To help understand the issues and concerns of such a large spatial area, a comprehensive methodology was designed to select representative schools. Information including city history, demographics, transportation data, as well as walking and bicycling related policies from both the City and the Schools, were gathered and analyzed. A student arrival and departure travel mode tally survey was distributed to each of the public schools. Returned tally data was used to understand the actual travel patterns of students throughout Bayonne. Additionally, a principal survey was conducted to understand transportation concerns at each school and to allow our team to identify some common issues.

Based on the analysis of the information collected throughout this city-wide and district-wide effort as well as feedback from the working group, three priority neighborhoods housing five schools were selected as the representative areas where specific concerns and issues could be observed and identified by the project team. Walkability assessments and observations were conducted around each of the five school locations as school existing conditions were identified and common areas of concern were noted. A public open house meeting was held to raise public interest, gather public input and identify community priorities. This comprehensive document including action plans, policy strategies and potential funding opportunities for the Bayonne Public School District and City of Bayonne is the final result of the project.

Working Groups & Partnerships

Working Group		
Organization	**Role/Responsibility**	**Contact**
Bayonne School District	Lead Organization	Kenneth Kopacz *Assistant Superintendent of Personnel* 201-858- 5847 kkopacz@bboed.org
Bayonne Division of Planning and Zoning	Lead Organization	Suzanne Mack, PP, AICP, CTP, FITE *Planner* 201-858-6138 Bayonneplanner@baynj.org
Bayonne Police Department	Lead Organization	Lt. Terrence Joynt 201-858-6900 Terrence.Joynt@Bayonnepd.org Sgt. David Conte 201-858-6963 Traffic@Bayonnepd.org
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CME Associates	Lead Organization	Rob Russo, PE *City Engineer* 732-727-8000 rrusso@cmeusa1.com

Table 1. Safe Routes to School working groups and partnerships

Working Group		
Organization	**Role/Responsibility**	**Contact**
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NJDOT	Funding and Support, SRTS Best Practices, Advocacy, Policy Change	Elise Bremer-Nei, AICP/PP *State SRTS Program Coordinator* 609-530-2765 elise.bremer-nei@dot.nj.gov William Riviere 609-530-4646 william.riviere@dot.nj.gov NJ Department of Transportation Office of Bicycle and Pedestrian Programs
Hudson TMA	SRTS Program Assistance, Community Resource, Safety Education	Jay DiDomenico *Director* Hudson TMA Hudson County Improvement Authority 201-324-6222 ext 3229 Jayd@hudsontma.org

02 Geographic Context, Land Use, and School Locations

Summary of Bayonne

The city of Bayonne is situated on a peninsula in the southernmost portion of Hudson County in New Jersey. Its only land border is Jersey City to the north. Bayonne is connected to Staten Island, to the south, by the Bayonne Bridge and to Newark, to the west, by the Newark Bay Bridge (officially known as the Casciano Memorial Bridge). The city is bordered by the Hudson River to the east, the Newark Bay to the west, and the Kill Van Kull to the south.

The city is served by four NJ TRANSIT bus routes as well as the Hudson-Bergen Light Rail (HBLR), which provides access to other Hudson County communities and to rail and ferry connections to New York City. Transit routes in the city are exclusively north-south. Two bus routes, the 119 and 120, provide service to New York's Port Authority Bus Terminal (PABT), while the other bus routes terminate in Jersey City. The city's four light rail stations provide direct service to Hoboken Terminal, which provides access to NJ TRANSIT commuter railroad. Additionally, the HBLR system links Bayonne with major destinations in the county such as Liberty State Park, the Jersey City waterfront, Newport Centre Mall, Bergenline Avenue commercial district, and Port Imperial.[15]

Bayonne is also a part of New Jersey's urban enterprise zone (UEZ), where consumers are subject to a reduced sales tax compared to the state standard (3.5% in an UEZ vs. 7% statewide). The UEZ is designed to help boost businesses in select urban areas across the state.[19] Bayonne has three major shopping districts: Broadway, South Cove Commons, and Bayonne Crossing - the latter two of which are located along Route 440. Given its compact nature, rich transit options, and proximity to New York, Bayonne is increasingly an attractive place to live.

Land Use Plans

Bayonne is home to a wide variety of land uses. Approximately 35% of its land area consists of industrial uses, which are primarily concentrated east of Route 440. The city is also home to the Military Ocean Terminal (MOT) and a cruise port, both of which are located east of Route 440. Bayonne's primary commercial thoroughfare is Broadway, which is almost exclusively commercial for much of its length. There are several commercial areas located in strip malls along the eastern side of Route 440, along with other pockets located elsewhere throughout the city. Aside from these uses, much of the town consists of high-density residential units, with relatively small lot sizes and a large number of multi-family dwellings.

Bayonne plans to create a Transit-Oriented Development (TOD) District along Avenue E, which runs parallel and adjacent to the HBLR right-of-way. The city's Master Plan is in the process of being updated. However, according to the city's current Master Plan:

> "The Transit-Oriented Development District is intended to function as a transit village with a mix of uses, high density residential development and an emphasis on mass transit and pedestrian circulation. The District is organized as a linear corridor on Avenue E adjacent to the HBLR right-of-way with the East 45th Street, East 34th Street and East 22nd Street station areas as the focal points. The 22nd Street station is also designated as a priority station with its own station area plan."

To further supplement the TOD district, the city's 8th Street Rehabilitation Area Plan aims to revitalize the area around the 8th Street HBLR station in downtown Bayonne. This can be accomplished through better bicycle and pedestrian infrastructure, pedestrian-oriented commercial structures (as opposed to strip mall-style development), and traffic calming measures. To supplement these measures, the city has also indicated interest in improving overall connectivity by increasing bicycle and pedestrian circulation.

"Increase bicycle/pedestrian safety and circulation by improving traffic signals at key intersections, utilizing traffic calming measures and providing bike lanes that connect activity centers throughout the City."

-Bayonne Master Plan

Municipal and School Policies

Municipal Policies

The City of Bayonne has a property maintenance ordinance and a street and sidewalk ordinance that mandates homeowners, occupants, and business owners to keep their property safe from hazardous conditions.

According to these ordinances, all public sidewalks, steps, driveways, parking spaces and similar paved areas for public use shall be maintained in a state of repair, free of all snow, ice, mud and rubbish and free of hazardous conditions (Ord. No. O-00-57 § 13A-27).

Additionally, removal of snow and ice from abutting sidewalks, abutting right-of-way actually used by the public, or in the event of ice which may be so frozen as to make removal impractical, shall cause the same to be thoroughly covered with sand, ashes or salt, within twenty-four (24) hours of daylight (Ord. No. O-10-33). Furthermore, snow and ice shall not be placed, deposited, or shoveled into any such street which has been cleaned, plowed, or shoveled of snow or ice by the City or by any governmental agency.

School Wellness Policy

Health and physical education in public schools take place under the supervision of a properly certified teacher. Students are highly encouraged to participate in supervised physical activity during recess. Age appropriate equipment and supplies during recess are used to encourage greater physical activity.

According to the policy, teachers incorporate brief, physical activity breaks into the school day. Schools also host after-school intramural and/or interscholastic team activities. Additionally, after-school activities such as, but not limited to, gardening clubs, walking clubs, and exercise classes are also possibilities that schools can use to encourage physical activity.

Schools can also use special events, such as field days, walk-a-thons, or activity competitions, to highlight physical activity. Schools can also establish a Wellness Committee and use a “School Wellness Week” to supplement regular physical education classes. These activities can be funded through fundraisers such as walk-a-thons, teacher-student activity competitions, school dances, or family activity nights.

After-school activities such as, but not limited to, gardening clubs, walking clubs, and exercise classes are also possibilities that schools can use to encourage physical activity.

-Bayonne Board of Education Policy #8505

Student Transportation Policy

Bayonne permits its public school students to travel to school on bicycles. Bicycles are required to be in sound condition and equipped with a rear reflector, signaling device (e.g., a bell), brakes, lock, and a headlight. Additional rules include:

- The operator of the bicycle may not have a second passenger on his or her bicycle
- The operator will keep his or her hands on the handlebars and feet on the pedals while the bicycle is being operated on the street
- The operator will not "hitch" a ride on any moving vehicle
- The operator will walk the bicycle while on school premises
- The operator will store his or her bicycle in a rack provided at the school. Pupils are advised to keep bicycles locked when not in use
- The operator will wear a biker's helmet

Additionally, if any parent/guardian of a pupil attending a school or program in grades Pre-K to 8, where the pupil does not use district-provided transportation, may request the school or program not to release the pupil to walk home after dismissal unless the pupil is released.

Bayonne School Policy also states that the Board of Education shall provide transportation services for educationally and physically disabled pupils as required by law and dictated by the pupil's educational needs and physical welfare. At a meeting with the studio team on October 14, 2016, Bayonne School District representatives confirmed that students without disabilities are not provided bus transportation.

History and Demographics

History

Bayonne was incorporated as a city in 1869, a few years after it split from Bergen Township. The city quickly industrialized and attracted thousands of European immigrants, which was complemented by the arrival of the railroads and the oil industry. By the 1920s, Bayonne became one of the largest oil refinery centers in the world, with Standard Oil alone employing more than 6,000 people. The city today is still major hub for industrial activity and freight shipping.

Race & Income

Today Bayonne is home to 66,000 people, making it 3rd largest municipality in Hudson County. Figure 1 shows racial demographics in Bayonne, and Figure 2 shows median household income[7]. The areas with the lowest median household incomes are concentrated in Midtown, with an additional pocket in the north near the border with Jersey City (see Figure 3).

Figure 1. Race

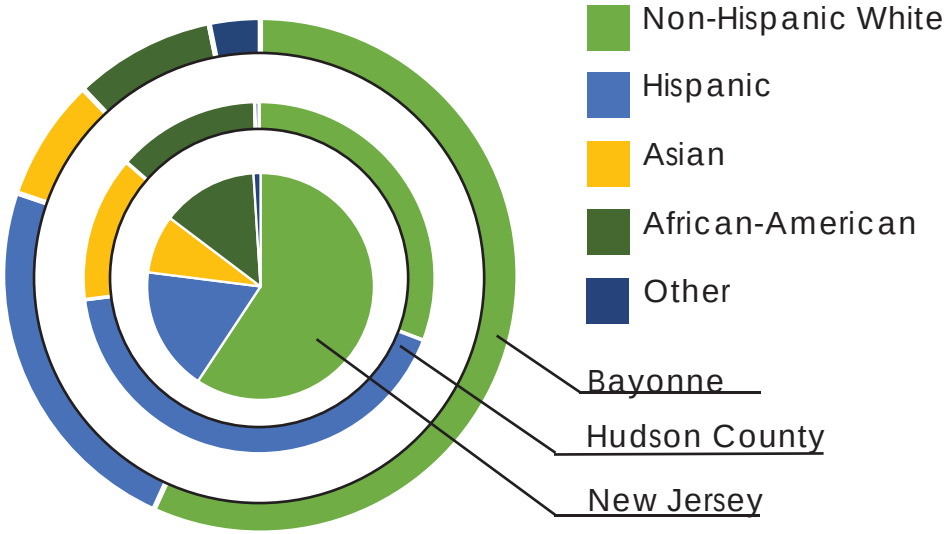
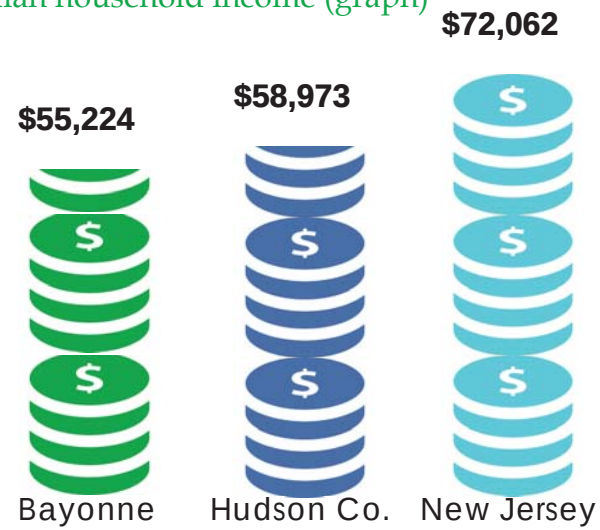


Figure 2. Median household income (graph)



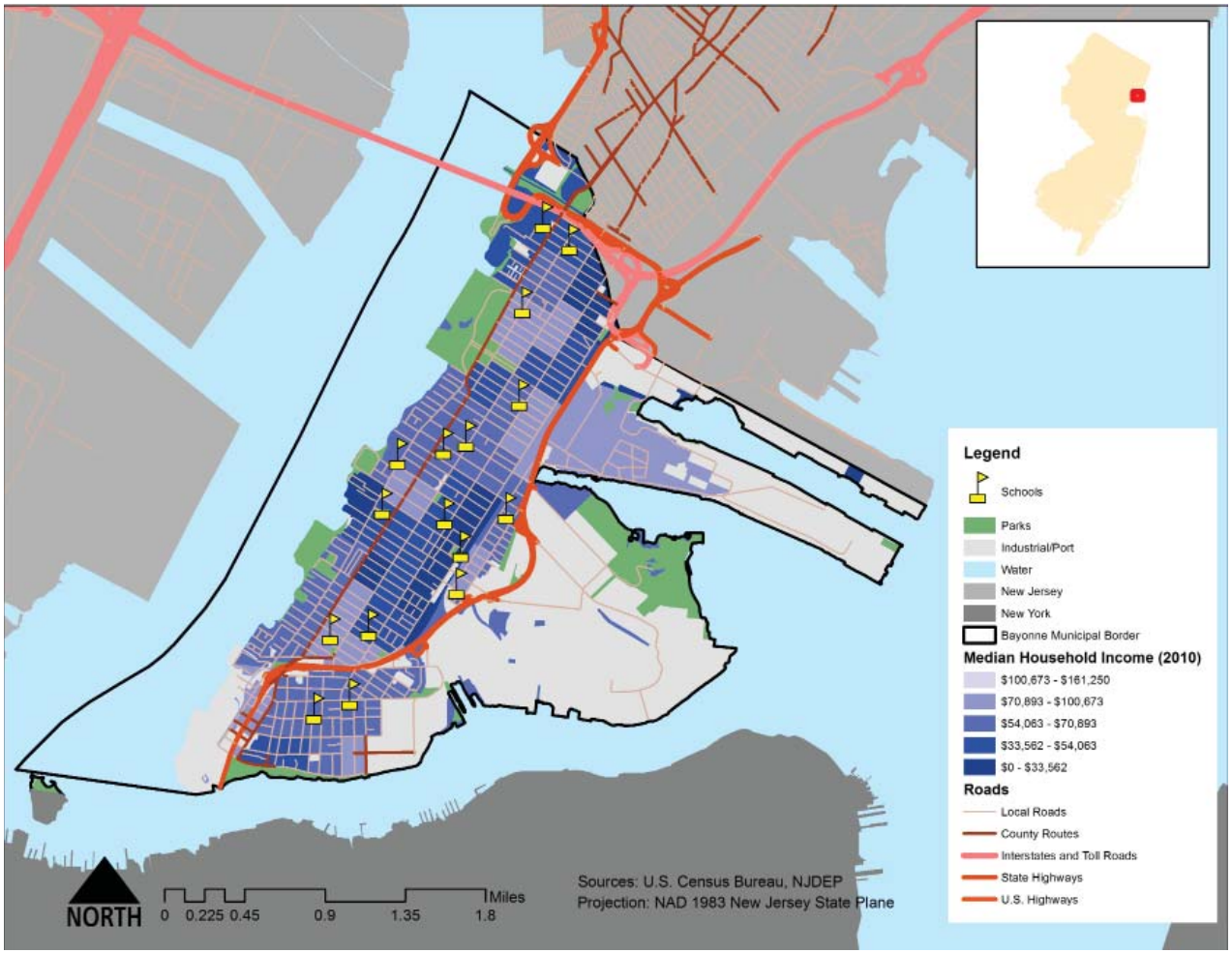


Figure 3. Median household income (map)

Racially, the city is slightly less diverse than the county as a whole, which contains heavily diverse cities such as Jersey City and North Bergen. The non-white population is concentrated in central and northern portions of the city (see Figure 4), which generally correlates with the low-income concentrations. The white population is concentrated primarily in the north-central, western, and southern areas of the city (see Figure 5).[1]

Health

The studio team analyzed disability, obesity, and the percent of adults who walk to work in Bayonne. The percentage of people with disabilities varies throughout the city, with no significant cluster in one area (see Figure 6). However, the adult obesity rate, which may be an indicator of childhood obesity and family lifestyles, correlates with low income areas, with the highest concentrations in Midtown. At 14.2%, New Jersey has the nation's highest rate of low-income obesity among children under 5 years old.[11] For this reason, adult obesity rates are relevant to cities wishing to address childhood obesity.

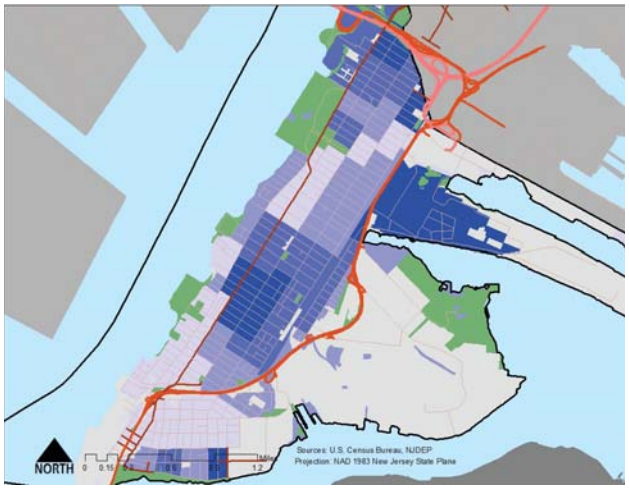


Figure 4. Population of color

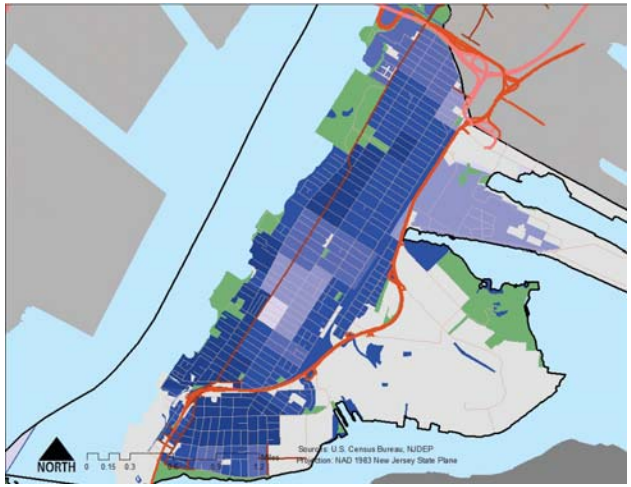


Figure 5. White population

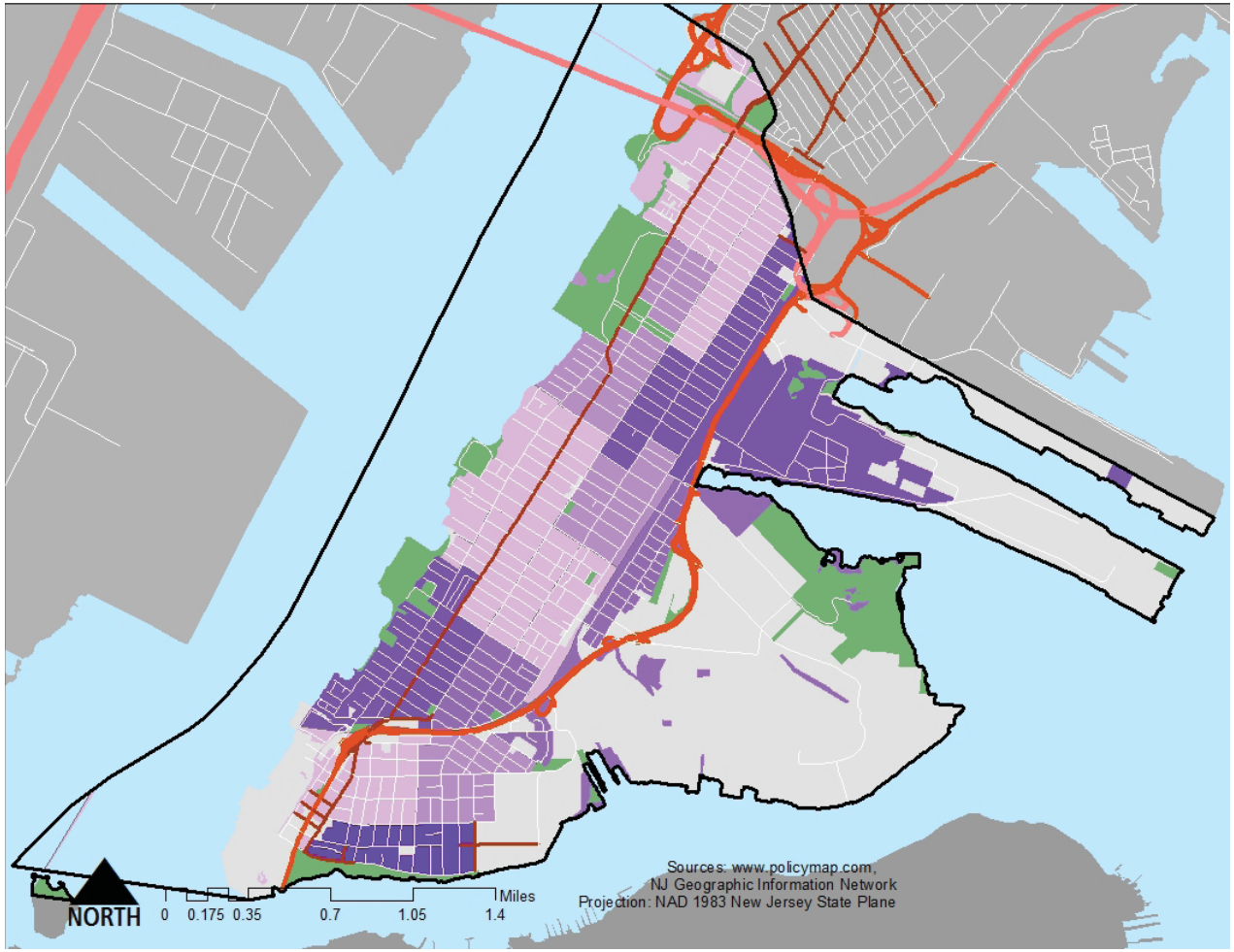


Figure 6. Adults with disabilities

Legend

- Local Roads
- County Routes
- Interstates and Toll Roads
- State Highways
- U.S. Highways
- Parks
- Industrial/Port
- Water

Racial demographics: Percentage of population

- 0% - 35.7%
- 35.7% - 44.2%
- 44.2% - 52.7%
- 52.7% - 65.7%
- 65.7% - 97.8%

Disability: Percentage of population

- 0%
- <1%
- 1.0 - 1.51%
- 1.52 - 2.46%
- 2.47 - 5.99%

Walk and Bike Commuting

Bayonne

Walk	8%
Bike	0.1%
Transit	23%
Drive	65%
Other: ?	4%

Hudson County

Walk	8.4%
Bike	0.4%
Transit	41%
Drive	47%
Other: ?	4%

Figure 7. Resident means of travel to work

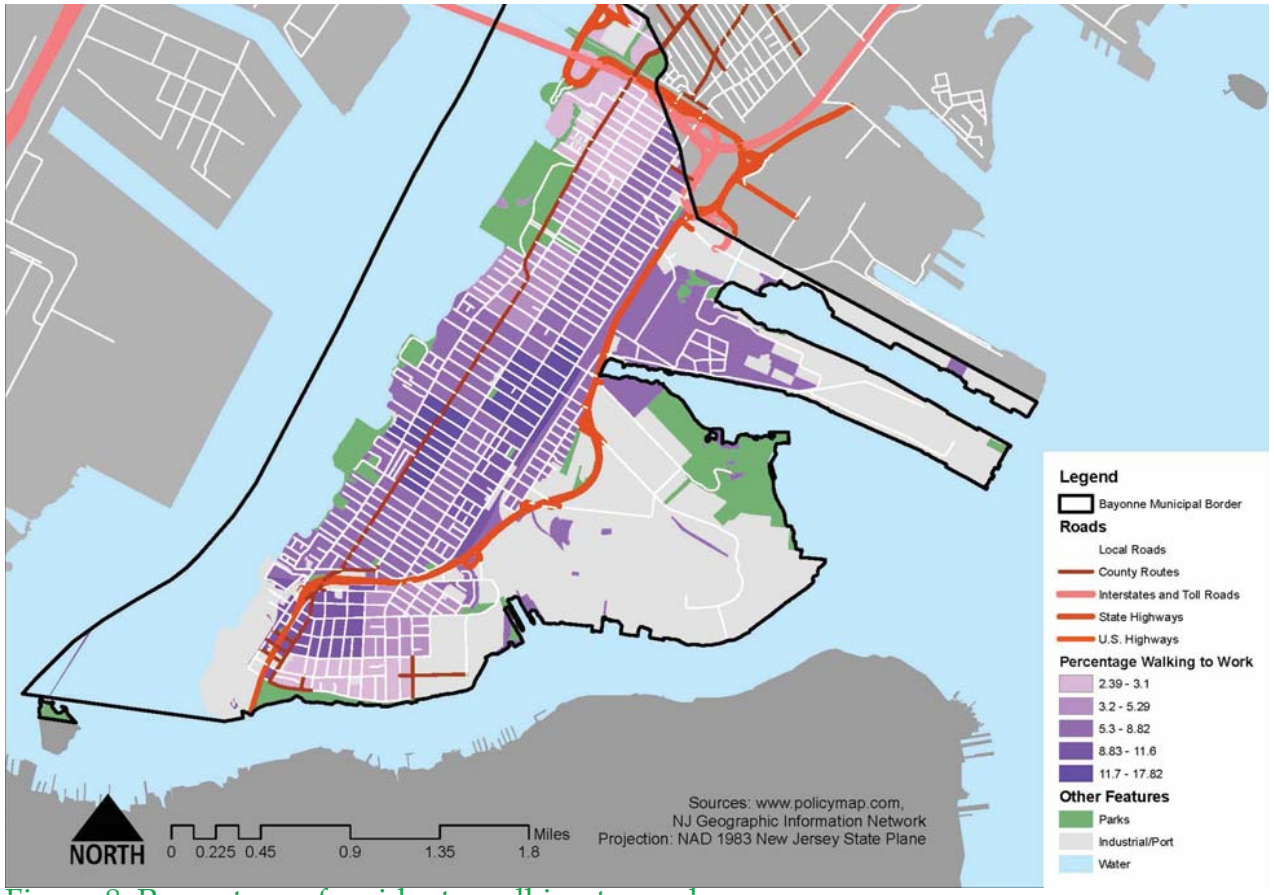


Figure 8. Percentage of residents walking to work

The studio team also examined commuting trends. The rate of commuters walking to work is equal to that of Hudson County, at 8%, but higher than the state rate of 3%. Bicycling rates are negligible at both levels.[7] Midtown Bayonne has the highest concentration of commuters walking to work, and areas to the east of Avenue C also have slightly higher rates of walking to work, which might be attributed to proximity to Broadway and light rail stations (see Figure 8).

Walk Score

Bayonne provides various opportunities for active transportation. The city's Walk Score is 80 out of 100, which is calculated from an algorithm considering distance to amenities, population density, block length, and intersection density.

The Walk Score means that most errands can be accomplished on foot. However, this score has its limitations in that it is generated without regards to local perceptions of walking safety or feelings of how pleasant it feels to walk through Bayonne, both of which can affect walking rates in a community.

Bayonne's Walk Score suggests that the city is very walkable.

Figure 9. Walk Score map

Crash Analysis

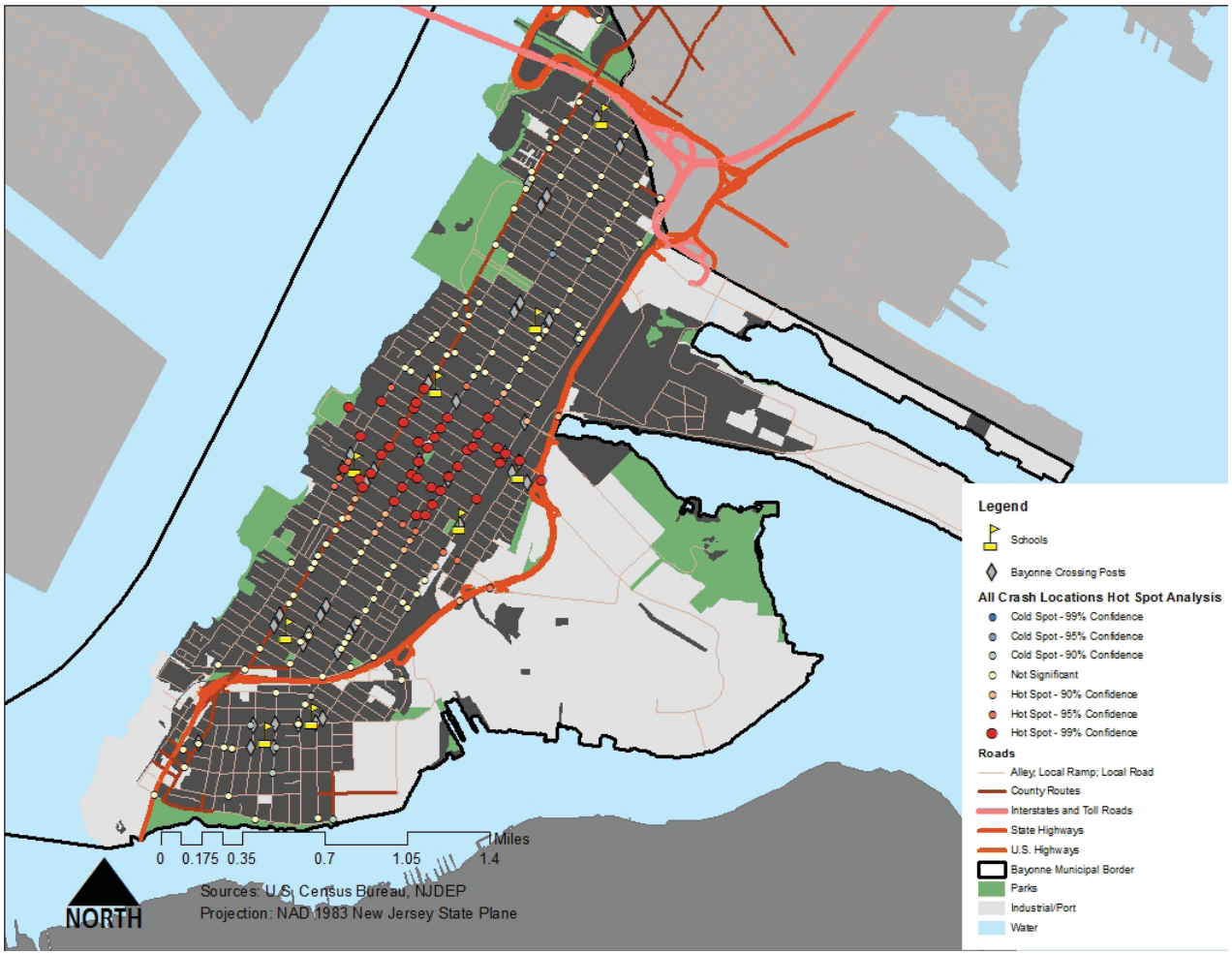


Figure 10. Crash hot spots map

The studio team conducted a crash hotspot analysis to find statistically significant clusters of vehicle collisions using crash data from 2010 - 2015[6]. Hotspots, shown in red, show where crash incidents occur more frequently than would be expected if crashes were randomly distributed throughout the city. The highest concentration of all types of crashes was found in Midtown, along all of the arterials between approximately 30th Street and 21st Street (see Figure 10).

Outside of these streets, the frequency of crashes quickly declines as distance increases. However, when looking exclusively at bicycle and pedestrian collisions with vehicles during the same period, the studio team noticed that there was a larger hotspot area. The hotspot area was located between 32nd St and 18th St, with a more gradual decline in frequency as one moves away from these streets.

Crash Data

The studio team also analyzed crash data by time of day from 2010 - 2015. The peaks for all crash types occurred between 8 AM and 9 AM (712 crashes), 2 PM and 3 PM (814 crashes), and 3 PM and 4 PM (809 crashes), which coincides with the times that students are most likely to be out on the roads. For bicycle and pedestrian crashes, the peaks occurred at between 8 AM and 9 AM (45 crashes) and 5 PM and 6 PM (54 crashes). There was a smaller peak in the number of such crashes at 3pm (45 crashes), which also coincides with the end of the school day.

Due to the high incidence of crashes occurring when students are likely to be walking to or from school, safety improvements at key intersections are especially important for ensuring student safety.

Figure 11. Time of day of all crash types

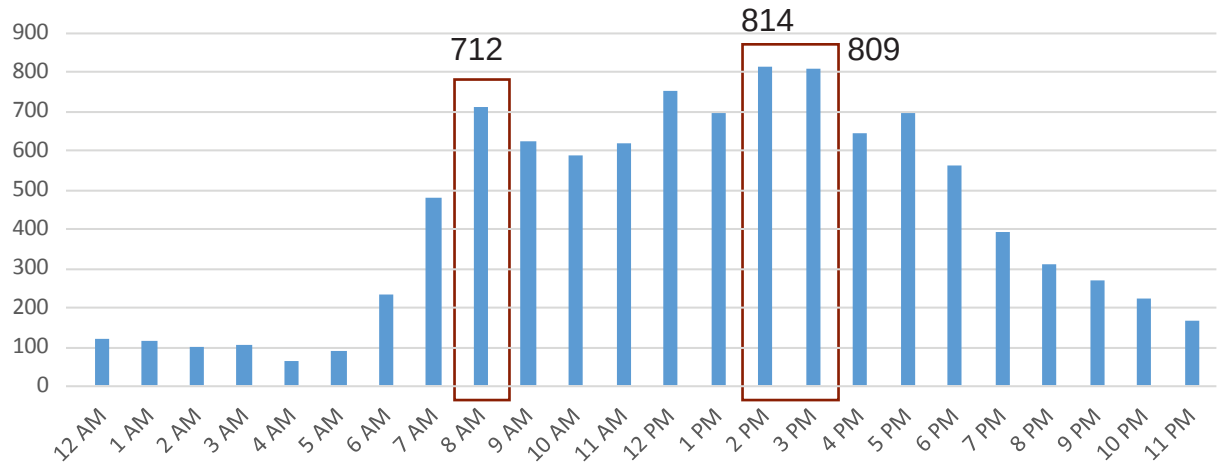
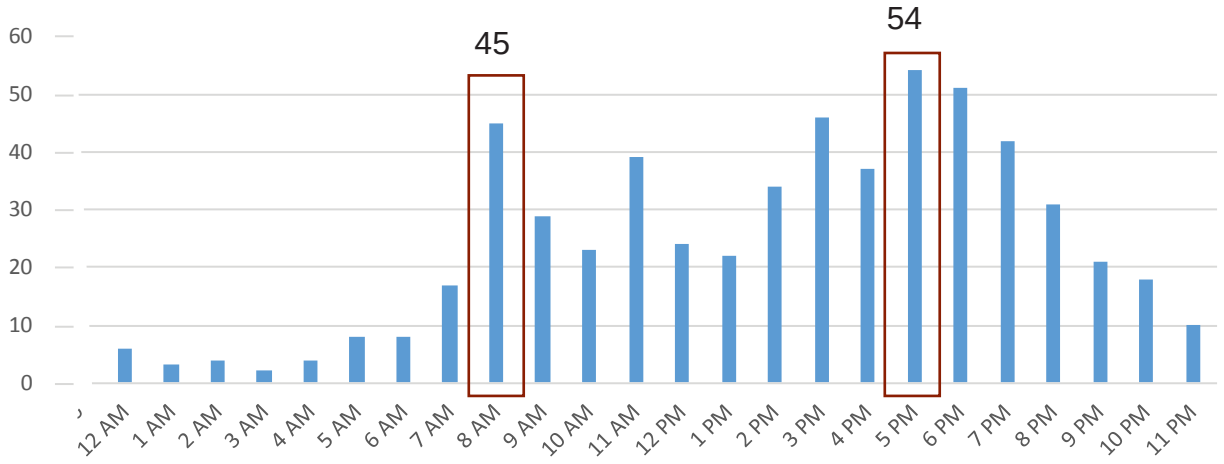


Figure 12. Time of day for bicycle and pedestrian-involved crashes



Low-Stress Bicycle Analysis

The studio team created a Bicycle Level of Traffic Stress (LTS) map (see Figure 13) using the Bicycle Level of Traffic Stress table at right. Bicycle Level of Traffic Stress maps categorizes all roadways and paths into 4 levels of bicyclist comfort. LTS 1 is typically suitable for those uncomfortable with cycling in traffic situations including youth (ages 12-17), senior and other adults who do not have confidence riding a bicycle. LTS 2 is the level that can be tolerated by the mainstream US adult population, meaning somewhat comfortable on a bicycle but not interested in riding on higher level roads without bicycle facilities, LTS 3 is acceptable for an experienced, confident cyclist, and LTS 4, the highest stress, is only tolerated by the most adventurous of cyclists[18]. For simplicity, the studio team only modeled north-south arterial routes and select east-west streets.

Bike paths in Bayonne Park and most of the streets were given a LTS 1 rating because the streets are only one lane wide and carry relatively low amounts of traffic. Some of the primary crosstown streets, including those connecting to Route 440 (e.g. 22nd St, 32nd St), were given a LTS 2 rating due to their heavier expected traffic volumes. Wide, four lane roads such as Avenue C and Kennedy Blvd were given a LTS 3 rating because of their width and susceptibility to speeding. Kennedy Blvd in particular is one of the most challenging roads in the entire county for pedestrians, despite its high density of traffic signals and posted 25 MPH speed limit.

Lastly, the studio team gave all of Route 440 a LTS 4 rating due to its high posted speed limit (at least 40 MPH) and high volume of traffic. However, the studio team also gave parts of 30th and 32nd Streets, particularly where they cross the HBLR tracks, LTS 4 ratings because of the steep grade of the overpasses. These overpasses carry high levels of traffic between Route 440 and the remainder of the city, and are frequently congested. This makes the overpasses particularly challenging for cyclists. Overall, Bayonne, with its well-connected street network, has the potential to be very bikeable, especially after traffic calming measures on its north-south arterials.

Overall, Bayonne, with its well-connected street network, has the potential to be very bikeable, especially after traffic calming measures on its north-south arterials.

Low-Stress Bicycle Map

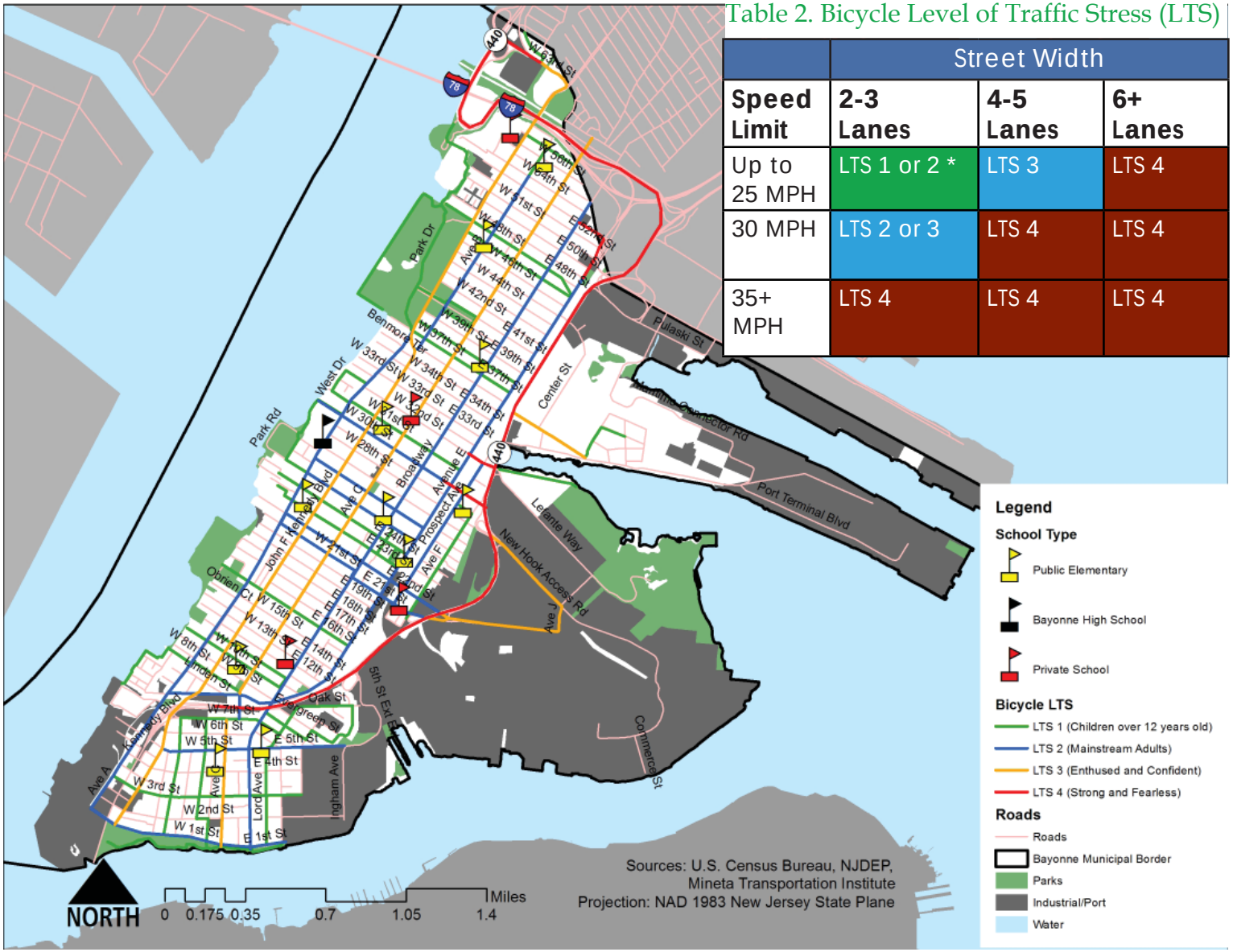


Figure 13. Bicycle Level of Traffic Stress map

Table 2. Bicycle Level of Traffic Stress (LTS)

	Street Width		
Speed Limit	**2-3 Lanes**	**4-5 Lanes**	**6+ Lanes**
Up to 25 MPH	LTS 1 or 2 *	LTS 3	LTS 4
30 MPH	LTS 2 or 3	LTS 4	LTS 4
35+ MPH	LTS 4	LTS 4	LTS 4

Bayonne Schools

School Name	Type	Address	Grades	Enrollment[10]	Economically Disadvantaged (2014-15)[10]	Students with a Disability[10]	NJ Safe Routes to School Recognition Program Status[12]
Lincoln Community School (No. 5)	Public	208 Prospect Avenue	Pre-K to 8	462	62.1%	24%	Bronze (2015)
Mary J. Donohoe School (No. 4)	Public	25 East 5th Street	Pre-K to 8	500	62%	8%	Bronze (2015)
Midtown Community School (No. 8)	Public	550 Avenue A	Pre-K to 8	1,154	75%	11%	Bronze (2015)
Nicholas Oresko School (No. 14)	Public	33 East 24th Street	Pre-K to 8	444	44.6%	0%	Bronze (2015)
John M. Bailey School (No. 12)	Public	75 West 10th Street	Pre-K to 8	652	65.5%	14%	Bronze (2015)
Dr. Walter F. Robinson School (No. 3)	Public	95 West 31st Street	Pre-K to 8	743	70.5%	6%	Silver (2013)
Bayonne High School	Public	667 Avenue A	9 to 12	2,528	66.8%	16%	None

Table 3. Bayonne schools

School Name	Type	Address	Grades	Enrollment[10]	Economically Disadvantaged[10]	Students with a Disability[10]	NJ Safe Routes to School Recognition Program Status[12]
Henry E. Harris School (No. 1)	Public	135 Avenue C	Pre-K to 8	695	59.1%	18%	Bronze (2015)
Horace Mann School (No. 6)	Public	25 West 38th Street	Pre-K to 8	614	52.3%	14%	Bronze (2015)
Philip G. Vroom School (No. 2)	Public	18 West 26th Street	Pre-K to 8	491	71.9%	15%	Bronze (2015)
Washington Community School (No. 9)	Public	191 Avenue B	Pre-K to 8	675	62.1%	22%	Bronze (2015)
Woodrow Wilson School (No. 10)	Public	101 West 56th Street	Pre-K to 8	653	66.5%	16%	Bronze (2015)
Beacon Christian Academy	Private	30 Prospect Avenue	Pre-K to 8	181	65.6%[2]	N/A	Bronze (2015)
Marist High School	Private	1241 Kennedy Boulevard	9 to 12	394	N/A	N/A	None
All Saints Catholic Academy	Private	19 West 13th Street	Pre-K to 8	409	N/A	N/A	None
Yeshiva Gedolah	Private	735 Avenue C	Pre-K to 8	68	N/A	N/A	None

Bayonne Schools (continued)

School Hours

Breakfast/after school/special program hours

- Breakfast for elementary students is given at students' desks at 8:40 a.m.
- After School Child Care Program is available at each public elementary school. It is a fee-based service that is provided from 3:05 p.m. to 5:30-6 p.m. each day that school is in session. It is not offered to morning session Pre-K students.
- Before School Child Care Program is available at each public elementary school. It is a fee-based service that is provided from 7:25 a.m. to 8:25 a.m. each day that school is in session. It is not offered to afternoon session Pre-K students.

Grade	Start Time	End Time
Pre-K Morning Session	8:40 a.m.	11:20 a.m.
Pre-K Afternoon Session	12:10 p.m.	2:50 p.m.
K - 3rd	8:40 a.m.	2:50 p.m.
4th - 8th	8:40 a.m.	2:55 p.m.

Table 4. School start and end times

Principal Survey

Principals believe that availability of crossing guards and unsafe intersections are the most important factors in walking or biking to school

During the studio project, a Principal Survey was given to the administrators of all eleven K-8 public schools in Bayonne. The purpose of this survey was to gain insight of the administrators' thoughts about children walking and bicycling to school. This survey helped the studio team understand any issues or concerns about the pedestrian and bicycling environment around their designated school.

Administrators were asked their opinion of the importance of certain factors relating to walking and bicycling. This information helped the studio team determine which Safe Routes to School issues to prioritize. As shown in Figure 14, administrators at all eleven K-8 public schools unanimously felt that crossing guards and unsafe intersections were the most important issue. Other high priorities included: car speeds, availability of sidewalks, and traffic.

Q: What are the most important factors in walking and biking to your school?

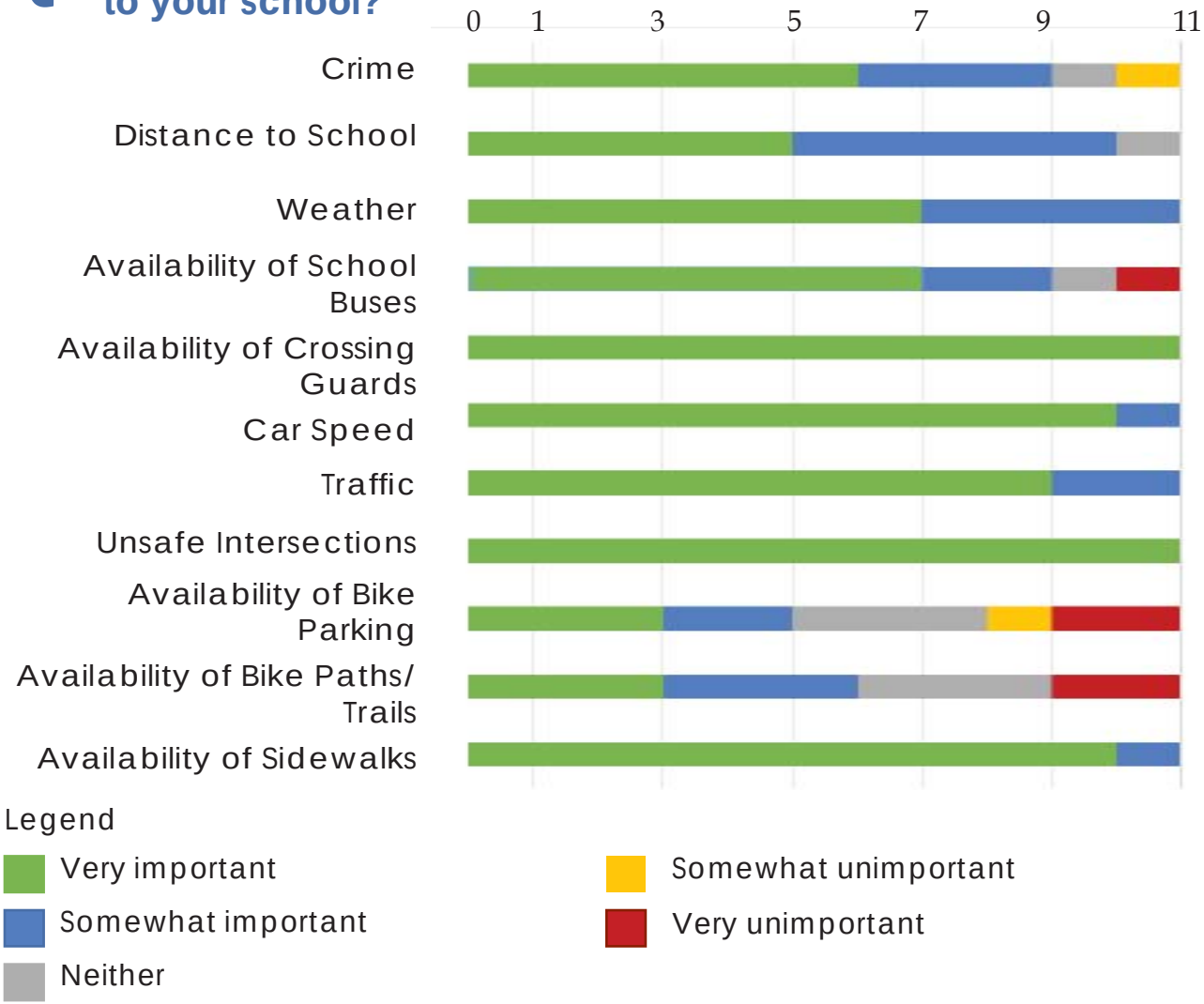


Figure 14. Principal rankings of factors in walking and biking to school

Principals believe that the majority of students walk to school while almost no students bike or use transit.

The Principal Survey also asked how principals believe students are getting to and from school every day. Walking is the most common form of transportation reported (63%), followed by car (29%) and then school buses (7%). Principals believe that a very low percentage of students bicycle to and from school and almost no one uses public transit. However, an open-ended response question on the survey revealed that they believed students would bicycle more often if there was available bicycle parking and infrastructure.

Q: How do students travel to and from your school?

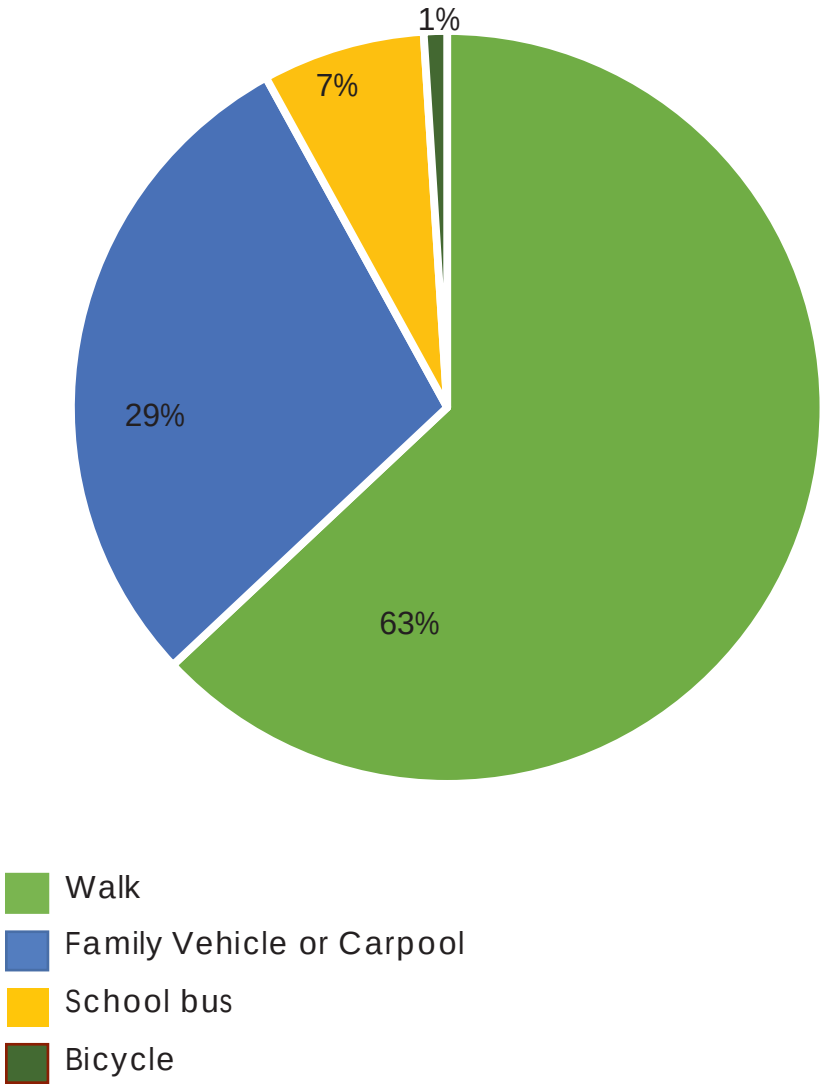


Figure 15. Principal estimations of how students travel to school

Student Travel Mode Tallies: District-wide Summary

In October 2016, each of Bayonne's eleven public schools were given Safe Routes to School Student Arrival and Departure Tally Sheets. These forms are meant to measure how students arrive to and depart from school. They are given to each teacher in the schools to assess each of their students.

In their classroom or homeroom, students are directed to raise their hands to vote for the form of transportation that they participate in. These modes include walking, biking, busing, utilizing a family vehicle, carpooling, utilizing public transit, or some other mode. Student tallies are taken for three consecutive days: Tuesday, Wednesday, and Thursday.

From the results, in Table 5, it is clear that a majority of students are already walking to and from school, though not at the rates principals thought. Furthermore, because school buses are reserved for students with disabilities, it follows that the next most common travel mode for students is family vehicle.

Table 5. Typical student travel mode

District-wide Tally Results			
		AM	PM
Walk		49%	57%
Bike		<1%	<1%
School bus		8%	11%
Family vehicle		40%	29%
Carpool		2%	1%
Transit		0.2%	0.4%
Other (skateboard, scooter, etc)	?	0%	0.1%
Number counted	#	18,399	17,602

Student Travel Mode Tallies by School

		Lincoln Community School (No. 5)		Mary J. Donohoe School (No. 4)		Midtown Community School (No. 8)		Nicholas Oresko School (No. 14)		John M. Bailey School (No. 12)		Dr. Walter F. Robinson School (No. 3)	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	Mode												
Walk		50%	53%	51%	55%	62%	66%	33%	42%	64%	69%	67%	71%
Bike		0.5%	0.2%	3%	3%	0.5%	0.6%	1%	0.2%	0.8%	0.7%	0.3%	0.4%
School bus		10%	11%	9%	9%	6%	7%	3%	2%	2%	3%	3%	5%
Family vehicle		37%	31%	31%	31%	28%	25%	53%	46%	31%	25%	21%	16%
Carpool		2%	3%	1%	1%	2%	2%	6%	6%	2%	1%	3%	3%
Transit		0.2%	0.3%	0.6%	0.6%	0%	0%	4%	4%	0.1%	0.3%	6%	5%
Other (skateboard, scooter, etc)	?	0.5%	1%	0%	0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.9%	0%	0.1%

Table 6. Student travel modes by school

Student Travel Mode Tallies by School

		Henry E. Harris School (No. 1)		Horace Mann School (No. 6)		Philip G. Vroom School (No. 2)		Washington Community School (No. 9)		Woodrow Wilson School (No. 10)	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	Mode										
Walk		49%	57%	67%	68%	66%	67%	60%	63%	70%	71%
Bike		0%	0%	0%	0%	0.3%	0.3%	2%	2%	0%	0%
School bus		8%	11%	3%	4%	7%	9%	7%	10%	16%	17%
Family vehicle		40%	29%	28%	26%	24%	21%	29%	24%	8%	6%
Carpool		2%	1%	2%	1%	2%	2%	1%	2%	5%	6%
Transit		0.2%	0.4%	0%	0.2%	1%	0.8%	0.2%	0.2%	0%	0%
Other (skateboard, scooter, etc)		0%	0.1%	0%	0%	0%	0%	0%	0.3%	0%	0%

Table 7. Student travel modes by school (cont'd)

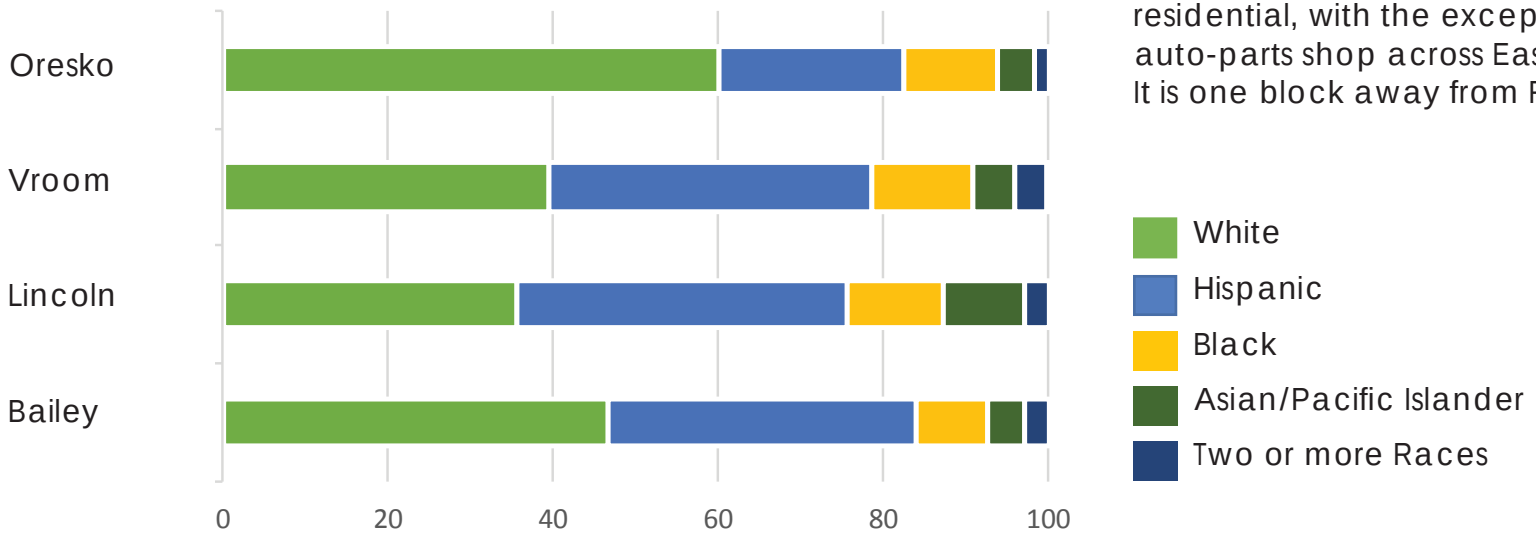
School Descriptions

Bailey: This is a public elementary school covering grades PK to 8. About 47% of the students are White, 38% are Hispanic, 9% are Black, 5% are Asian, and 3% are two or more races. Furthermore, about 14% of students have disabilities, and 65.5% are economically disadvantaged. Relative to the other priority schools, this school has a fairly high number of students that either have disabilities or are economically disadvantaged. The school is located in southern Bayonne, between Kennedy Boulevard West and Avenue C, with frontage on West 11th Street. The majority of properties in this area are residential.[10]

All Saints: This is a private Catholic school covering grades PK to 8. It is located in southern Bayonne, between Broadway and Avenue C, with frontage on West 23rd Street, two blocks away from the Bailey School down Avenue C. St. Mary Star of the Sea Church is located on the same block. Most of the properties in the area are residential, however there are a number of commercial properties on Broadway. Because All Saints Academy is a private school, student demographic data is not publicly available.

Lincoln: This is a public elementary school covering grades PK to 8. About 40% of the students at this school are Hispanic, 35.5% are White, 11.3% are Black, 9.7% are Asian, 3% are two or more races, and 0.2% are Pacific Islander. Furthermore, about 24% of students have disabilities, and 62% are economically disadvantaged. Relative to the other priority schools, this school has the highest percentage of students with disabilities, and the highest percentage of students that are Hispanic. The school is located in central Bayonne, between East 30th Street and East 29th Street, with frontage on Prospect Avenue. The majority of properties in this area are residential, with the exception of an auto-parts shop across East 30th Street. It is one block away from Route 440.

Figure 16. Race of students in select schools



Vroom: This is a public elementary school covering grades PK to 8. About 39.5% of students are White, 39% are Hispanic, 12% are Black, 5% are Asian, 4% are two or more races, and 0.2% are American Indian. Furthermore, 15% of students have disabilities, and 71.9% are economically disadvantaged. Relative to the other priority schools, this school has the highest number of economically disadvantaged students among the selected schools. This school also has the most students that speak Spanish as their primary language in their homes. The school is located in central Bayonne, between Avenue C and Broadway with frontage on West 26th Street. There are many residential and commercial properties in this area.

Oresko: This is a public elementary school covering grades PK to 8. About 60% of the students are White, 22.5% are Hispanic, 11.3% are Asian, 4.5% are Black, and 1.6% are two or more races. About 45% are economically disadvantaged. Relative to the other priority schools, this school has the most students that are White or Asian among the selected schools, and the lowest number of economically disadvantaged students. The school is located in central Bayonne, between Avenue E and Church Lane, with frontage on East 24th Street. There are many residential and commercial properties in this area.

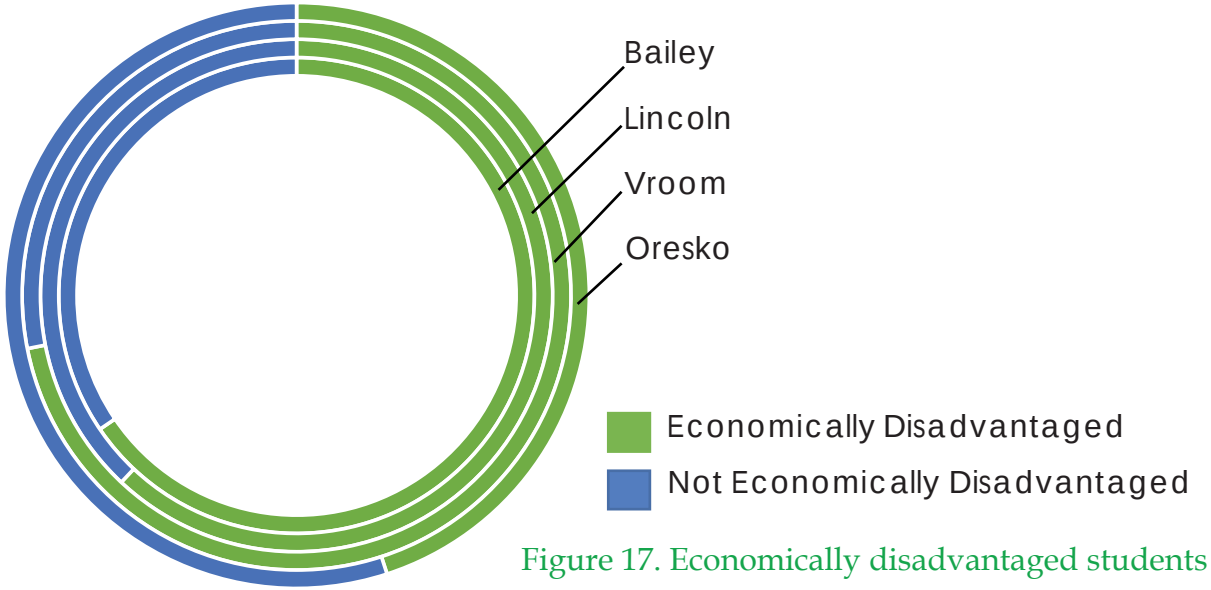


Figure 17. Economically disadvantaged students

School and Crossing Guard Locations

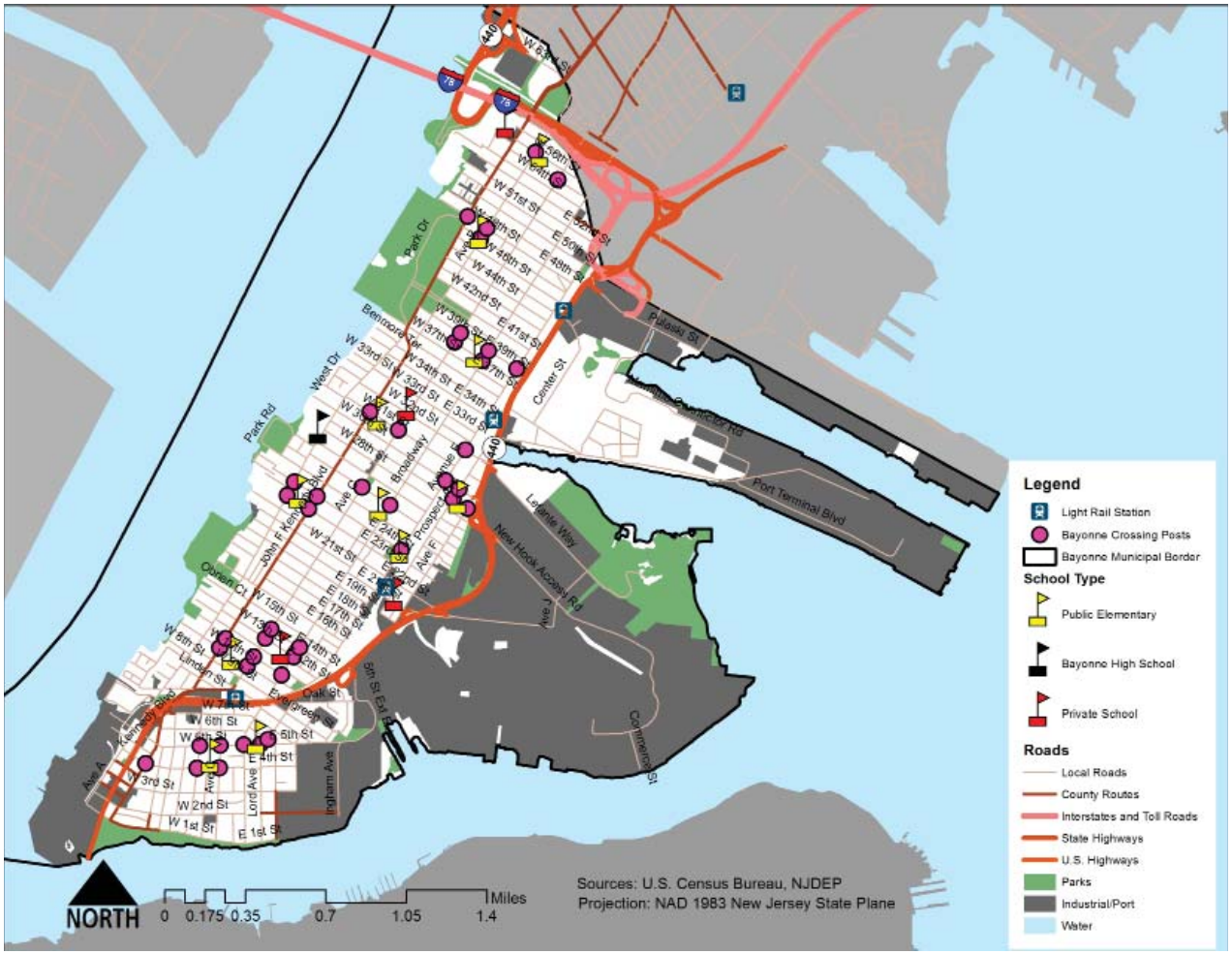


Figure 18. School and crossing guard locations

There are 41 crossing guard posts across Bayonne, and each post has three shifts per school day: one in the morning, one in the midday, and one after school.

For most of the posts, the first morning shift begins at 7:45 AM and ends at 9:15 AM. All posts have a midday shift from 11:15 AM until 1:15 PM and an afternoon shift from 2:30 PM until 3:30 PM.

The crossing posts around the All Saints Academy differ from the other post schedules in that the morning post is slightly shorter, lasting from 7:30 until 8:45 AM. The morning posts around the Midtown School are much longer, with the post lasting from 7:15 AM until 9:15 AM.

1/4 Mile Radius Around Schools

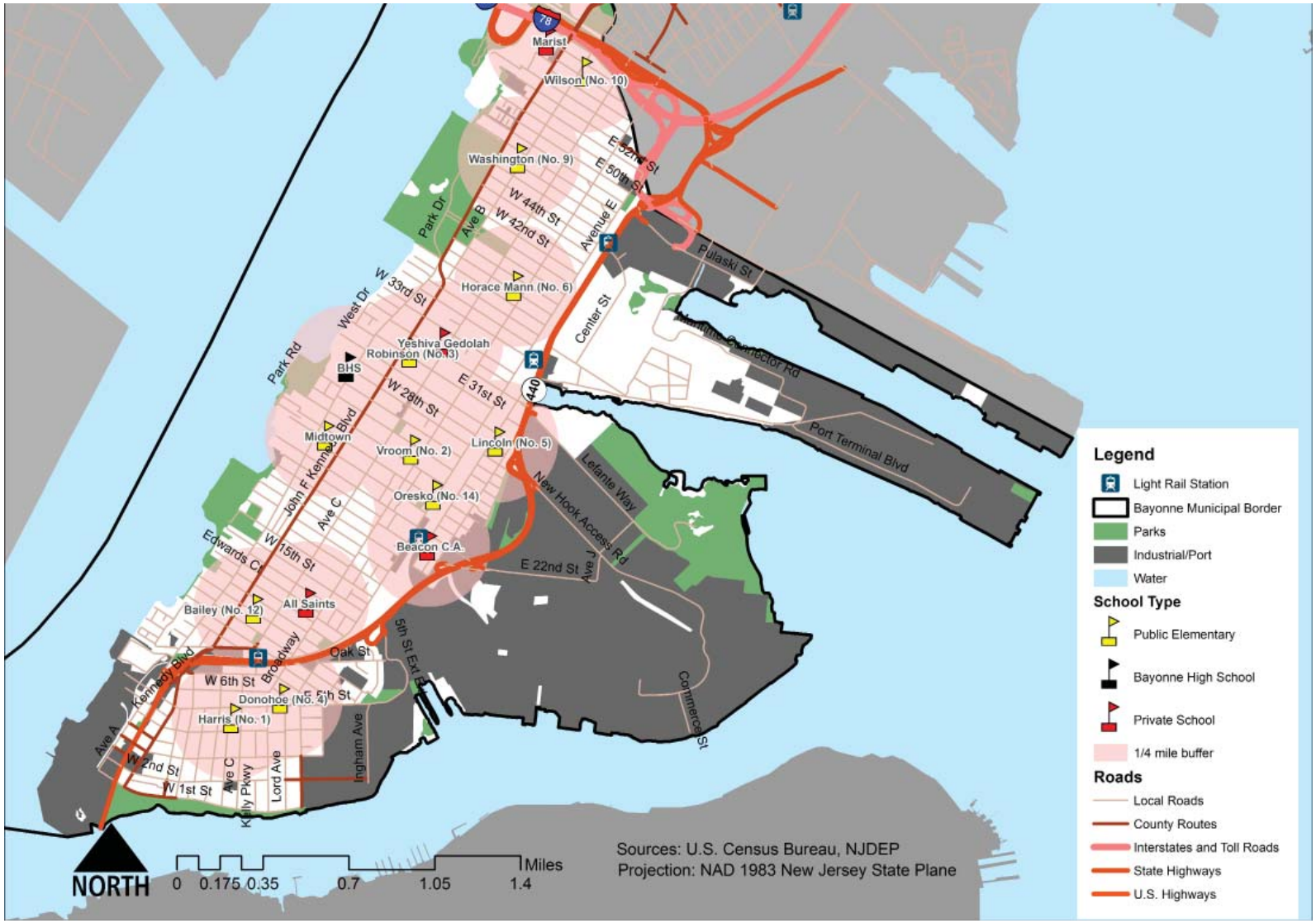


Figure 19. School locations and 1/4 mile radius around each school
A significant portion of Bayonne is located within a 1/4 mile, or 5 minute walk, from a school.

School Catchment Areas

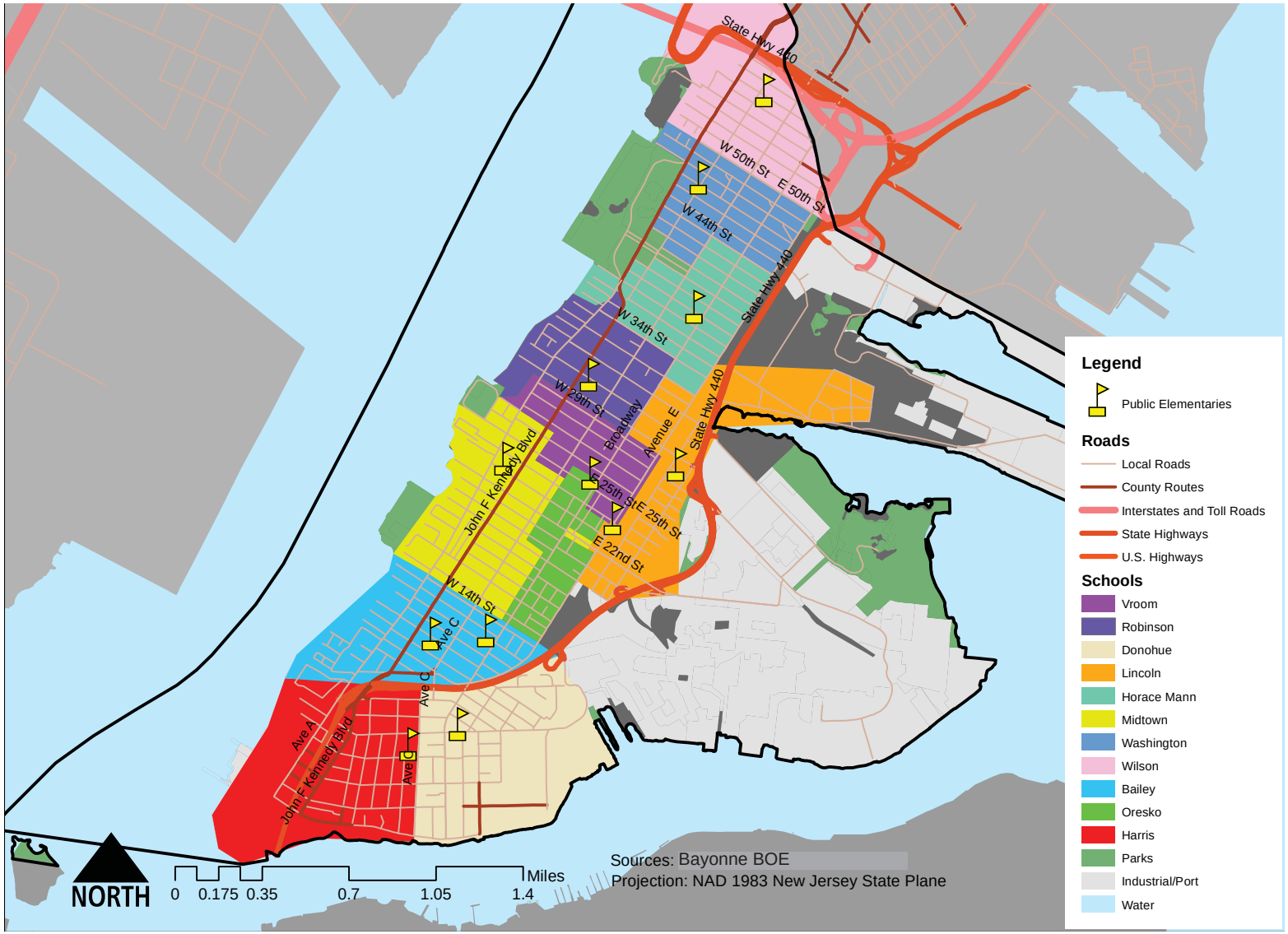


Figure 20. School catchment areas map

Existing Safe Routes Programs

Hudson County's Transportation Management Association, Hudson TMA, has a long history of working with schools in Bayonne to start, strengthen, and expand Safe Routes to School (SRTS) programs that both educate and encourage children to walk and bike to school. Hudson TMA has worked all public K-8 schools in Bayonne, as well as All Saints Academy and Beacon Christian Academy to implement at least one SRTS program or project. Table 3 lists all Bayonne schools.

Through a partnership with the New Jersey Department of Transportation, Hudson TMA is funded to work with schools and communities to provide and assist with a variety of SRTS programs at no cost to the school or municipality. Projects implemented at schools in Bayonne include fun, interactive, and educational presentations promoting the benefits of walking and biking to school including tips about traveling safely. Special presentations include "Safety Jeopardy!" which provides every student the opportunity to participate and is provided in a classroom setting covering pedestrian and bike safety issues and best practices.

Hudson TMA also provides the Bike Safety program which is an interactive game show style program for grades 3 to 5. This program was done with a few Bayonne schools in the Spring of 2015 and 2016, and was given to all the Bayonne schools in both 2013 and 2014. Schools throughout Bayonne also regularly participate in walk to school days where Hudson TMA staff, accompanied by their mascot "Buster the Walking School Bus," join students and their parents as they walk to school.

To complement the Walk to School events, Hudson TMA has continued to encourage walking to school in Bayonne through the Golden Sneaker Award Program. Students in grades 2 and 3 are given pedometers to see who can walk the most. The class with the highest number of steps is awarded the Golden Sneaker Trophy. Additionally, some schools in Bayonne have participated in Hudson TMA's NJ Bike School program. Under this unique program, staff from

Hudson TMA provide a detailed bicycle education curriculum, including both on-bike and off-bike lessons, and train physical education teachers to implement the program as part of the lessons. After the physical education teachers are trained, they are eligible to borrow a fleet of bicycles and equipment to use as part of their class. Bayonne has also served as the hometown for the Annual "Stride & Ride," a bike rodeo and community safety family fun event. Children of all ages as well as their adult family members participate in a bike rodeo with 10 educational safety stations and instructional obstacle courses designed to improve their abilities on the bike. There is a Learn to Ride component as well as a community health fair included.

Schools and municipalities from throughout New Jersey are recognized by NJDOT, the New Jersey SRTS Resource Center, and the state's Transportation Management Associations each year for their commitment and support of SRTS program through the New Jersey SRTS Recognition Program. Based upon their program-related achievements, municipalities and schools are recognized for First Step, Bronze, Silver or Gold SRTS levels. All of the public K-8 schools in Bayonne, as well as All Saints Academy and Beacon Christian School, have been recognized for their excellent SRTS programs, projects, and achievements.

With such an excellent foundation to build upon, schools in Bayonne should seek to maintain their commitment to SRTS by continuing to work with Hudson TMA to expand and grow their programs and focus on achieving Gold level NJ SRTS Recognition Program certification district-wide.

The SRTS program encourages all children, including those with disabilities, to be physically active and participate in the program, even though children with disabilities are eligible for busing. The studio team would like to encourage the SRTS program to be proactive in working to include and encourage students with disabilities.

03 School Selection

Working Group Meeting & Schools Selected

Client Meeting

On October 14, 2016, the studio team held a meeting at Bayonne City Hall with the Bayonne School Travel Plan Working Group to present and discuss initial data and findings as well as to discuss and obtain local feedback regarding which city schools should be prioritized for more detailed analysis by the studio team, including walkability audits at select schools.

The studio team came to the meeting with a list of suggested priority schools suggested for extra focus, based on several factors including school population, demographic information, proximity to high crash locations, and school crossing guard locations. The Working Group expressed concerns about several different schools and helped the studio team to refine the list. School zones with double parking and speeding violations were primary concerns of the Bayonne Working Group members.
It was specifically noted that despite

Working group and studio team meeting in October 2016.

interventions such as street closures and assigning an officer at the Phillip G. Vroom Community School, traffic and driver behavior remained a concern in that neighborhood. The streets around All Saints School were noted as a concern due to the high amount of parents driving students to school and the traffic back-ups created in the area. The streets around Lincoln Community School were noted as a concern due to the school's proximity to Route 440 and speeding along 30th Street.

Based upon this conversation and the feedback from the Working Group, three priority neighborhoods were identified: the neighborhood of John M. Bailey School and All Saints Academy (Bailey & All Saints), the neighborhood of the Philip G. Vroom Elementary School and the Nicholas Oresko School (Vroom & Oresko), and the neighborhood of the Lincoln Community School (Lincoln). Walkability audits were subsequently conducted at each of the three priority school neighborhoods in order to identify specific barriers and opportunities that exist in regards to Safe Routes to School objectives. Results of the assessments are described in the following pages.

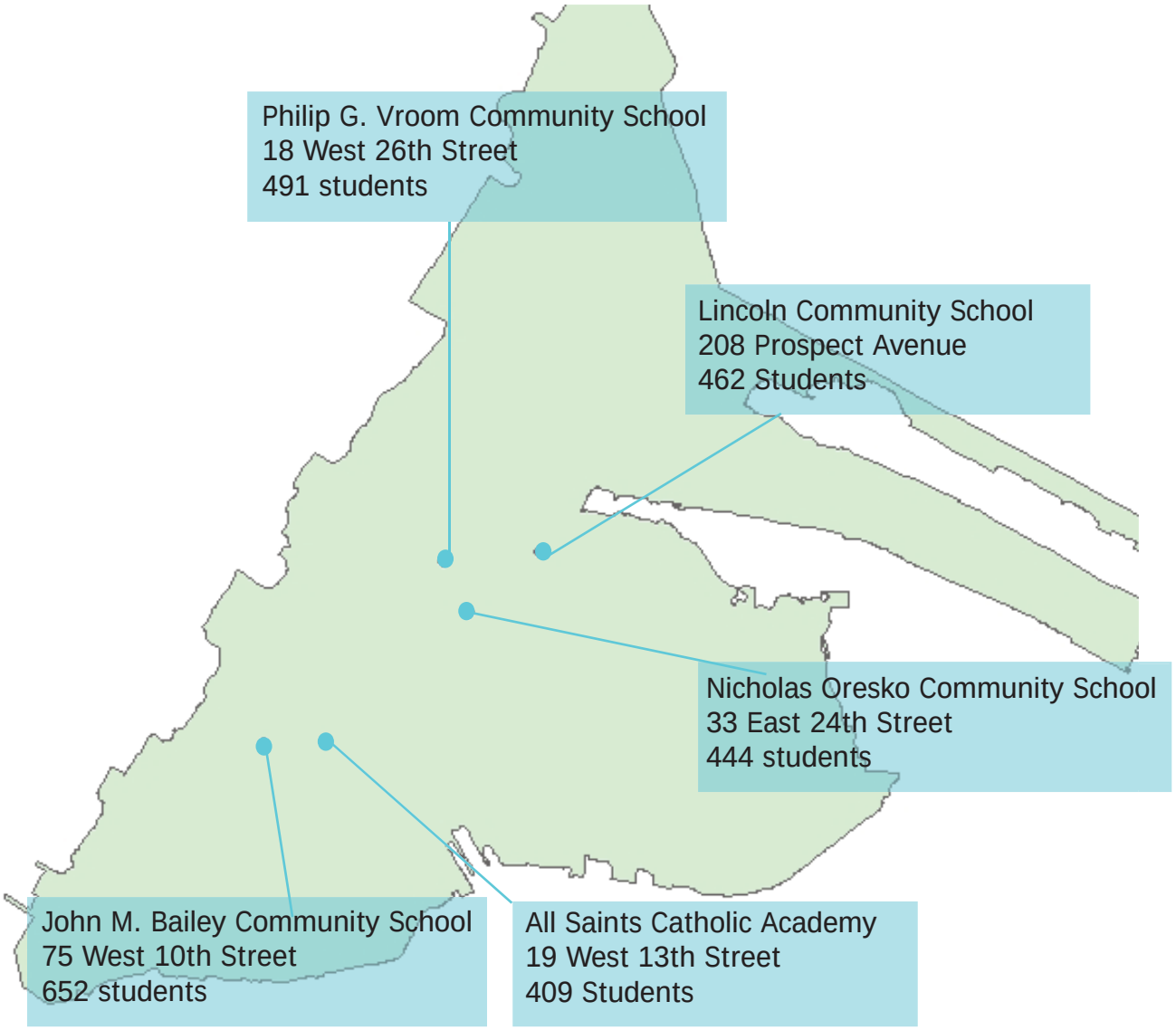


Figure 21. Schools selected for walkability assessments

Neighborhood Description: Bailey & All Saints

Many sidewalks used by schoolchildren are intersected by exceptionally wide driveways. These wide driveways pose a risk to pedestrians because they lead to more opportunities for vehicle and pedestrian conflicts. In some cases, sidewalks were blocked by parked vehicles, forcing pedestrians onto the street. Wide or obstructed driveways were observed at these locations (numbers refer to photos on the following page):

- West 12th Street at Avenue C (Photo 4)
- West 11th Street between Avenue C and Broadway (Photo 6)
- Avenue E between West 10th and West 11th streets

Other sidewalks are cracked or uneven, posing a danger to people using wheelchairs, people with poor balance, or children not accustomed to watching where they are walking. Sidewalks in poor condition were observed at:

- West 11th Street at Kennedy Blvd. (Photo 1)
- West 11th Street at Ave E (Photo 3)
- West 10th Street (Photo 2)
- West 12th Street at Broadway (Photo 5)

At morning drop-off time at the Bailey School, West 10th Street experiences heavy congestion, with cars backed up down the street as parents waited to drop off children at the school's front entrance. With cars parked on either side of the street, there is only room for one travel lane and it may be obstructed by drivers pausing to let students out. All Saints Catholic Academy also experienced congestion at morning drop-off time. Rather than congregate in front of the school, drop off traffic is directed through a school yard so that it flows between 13th & 14th Streets. Cars block sidewalks as they approach the drop-off area.

The team briefly interviewed several crossing guards during the morning shift. Many were concerned about vehicle speed on the avenues, especially Avenue C. They reported that some cars did not stop for crossing guards, and some pedestrians did not wait to be crossed. They also noted that current construction on the Bayonne Bridge has led to an increase in large truck traffic.

Morning drop-off at the Bailey School.

Morning drop-off at All Saints.

Assessment Photos: Bailey & All Saints

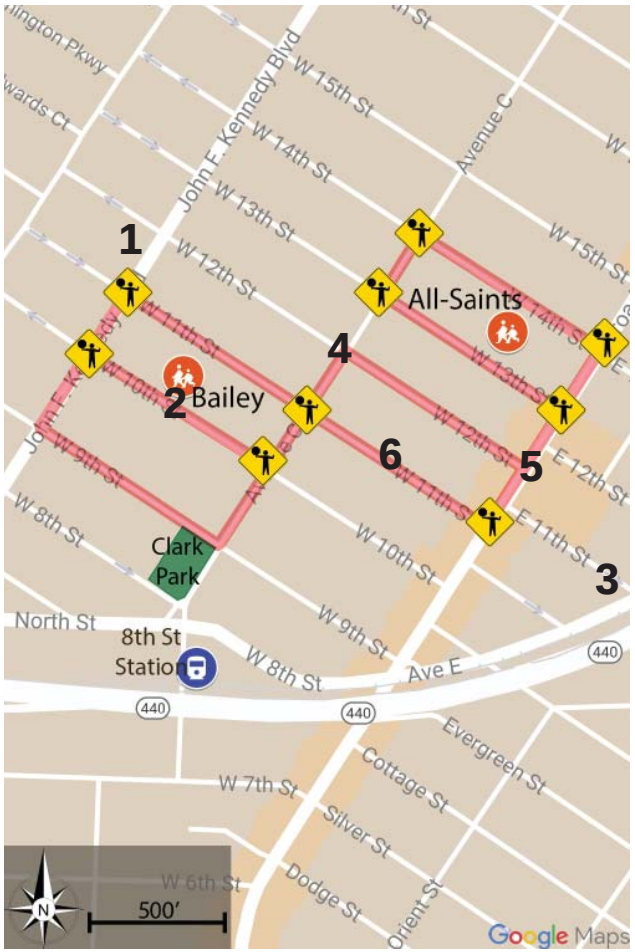
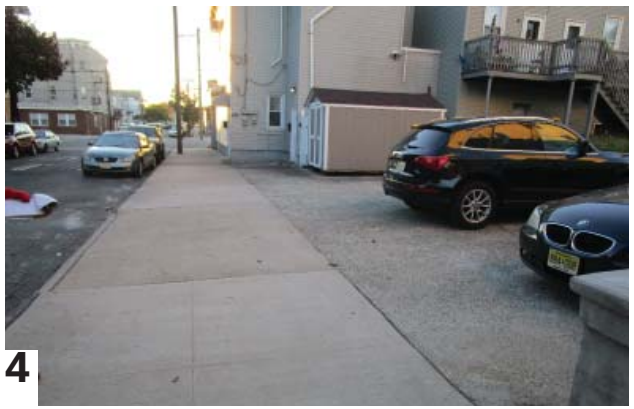


Figure 22. Bailey and All Saints walkability assessment route



Neighborhood Description: Lincoln

Lincoln School's proximity to Rt. 440 presents unique and potentially more dangerous issues in regards to students' activities after school. Across the highway from the school, there are many amenities that older students are likely to take advantage of, including Dunkin' Donuts, Wendy's, Starbucks and Frank Theatres. Pedestrians are directed to cross Rt. 440 at the crosswalk at East 32nd Street, although this is a very dangerous intersection for pedestrians to cross mainly because drivers frequently exceed posted speed limits. Even while properly using this particular crosswalk, two young boys were killed by oncoming traffic. While there is a pedestrian signal across the highway, it does not give pedestrians adequate time to cross. There are is also no sidewalk on Rt. 440 connecting East 30th and East 32nd streets. (Photo 1)

Crossing 440 to access the shopping center at East 32nd St.

Across the rail tracks from Lincoln School is the Bayonne Medical Center, where there is a particularly problematic intersection for pedestrians on Avenue E and West 29th Street. Despite the high visibility, yellow-and-white striped crosswalk and pedestrian-crossing light signs, drivers repeatedly fail to slow down for pedestrians here. (Photo 3)

There are two ramps passing over the rail tracks that are in close proximity to Lincoln School posing specific problems. These ramps are located at:

- East 30th Street (Photo 5) - Drivers tend to speed through the Prospect Avenue intersection to get through the traffic light.
- East 32nd Street (Photo 2). The sidewalk is in disrepair and is ADA noncompliant.

There is a children's play area located a block away from Lincoln School on Avenue F and East 28th Street (Photo 4). There is also a neighborhood park at the end of East 28th Street (Photo 6). These areas can be utilized for various SRTS events.

Hudson River Waterfront Walkway

Assessment Photos: Lincoln

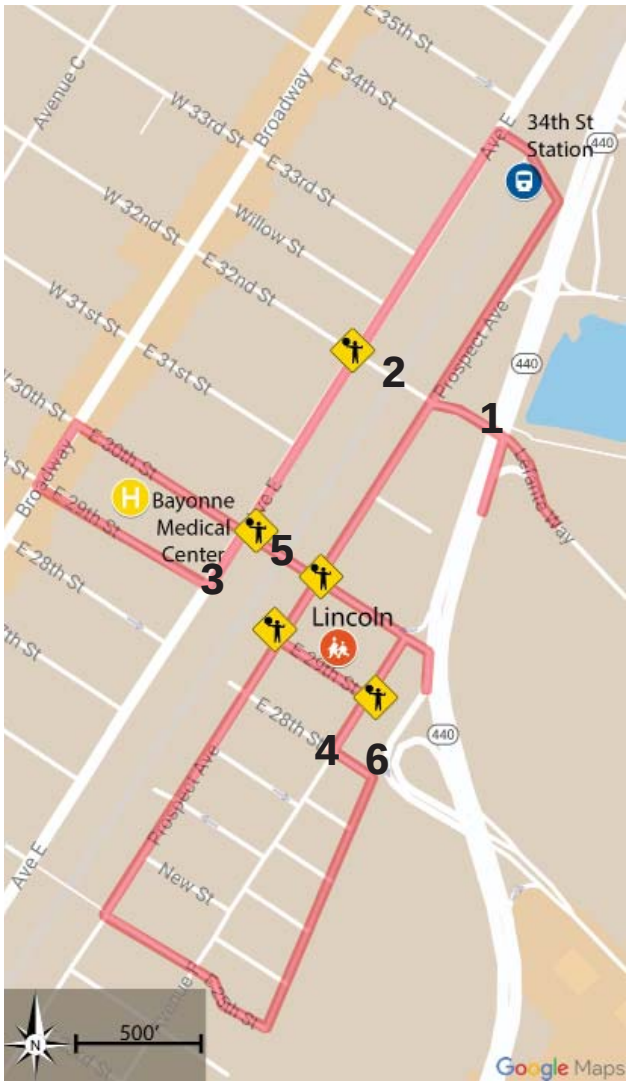


Figure 23. Lincoln walkability assessment route

Neighborhood Description: Vroom & Oresko

At East 23rd Street and Church Lane, there is a drive-up ATM machine, where automobiles must drive across sidewalk on East 23rd Street. There is no sidewalk on Church Lane where the drive-through/parking area exists. These factors should be addressed at this corner to make the area safer for pedestrians (See Photo 1 on the following page).

This neighborhood in particular is in need of pedestrian signals and truncated domes. These features are absent at many intersections where they could be used to make pedestrian crossings much safer, including:

- 23rd St & Broadway (Photo 6)
- 26th St & Broadway (Photo at right)

In front of St. Miriam Teresa Park, a stretch of land is missing sidewalk on East 23rd Street (Photo 3). During a rain or snow event, this will likely cause pedestrians to walk in the street in this area.

Various long crossings were also observed at the following locations:

- The pedestrian crossings on Avenue C are generally long, but there is a particularly long crossing at the intersection of Avenue C and West 26th Street. This is due to the fact that the crossing is diagonal rather than straight across (Photo 5).
- There are two intersections in this neighborhood where the pedestrian crossing has been unnecessarily elongated by receding the curb inward toward the sidewalk. These "reverse curb-cuts" are located at the intersection of Broadway and East 25th (Photo 4) and at the intersection of Avenue E and East 25th Street (Photo 2).

Missing truncated domes at West 26th Street & Broadway

Students walking to school

Assessment Photos: Vroom & Oresko

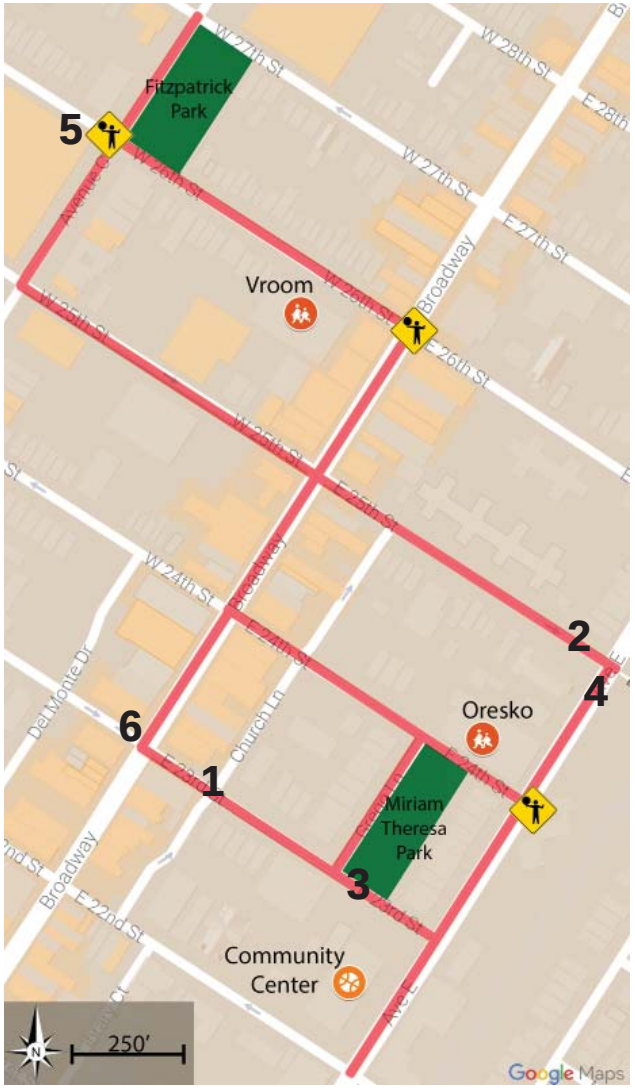
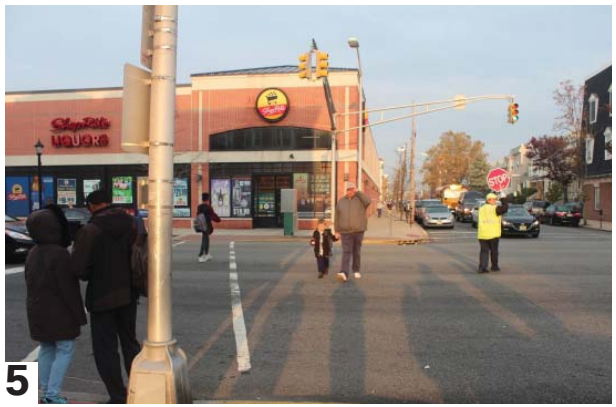


Figure 24. Vroom & Oresko walkability assessment route



04 Street Network & Routes

Methodology

The Safe Routes to School studio team has worked with Rutgers University, NJ Department of Transportation's Office of Bicycle and Pedestrian Programs, the City of Bayonne, and the Bayonne Public School District to identify needs and potential policy implementation to improve the city's bicycle and pedestrian infrastructure.

In order to determine where the highest needs were in Bayonne, the studio team:

- Identified SRTS working groups and team members;
- Researched and documented existing school and municipal policies;
- Gathered, analyzed and mapped data including demographics, crash data, and number of students walking and bicycling to school;
- Conducted field work to identify opportunities and barriers to walking and bicycling;
- Conducted public involvement activities to identify and prioritize key issues and countermeasures that address walking and bicycling safety; and
- Assembled this report finalizing a District Wide School Travel Plan.

The most important component of formulating this District School Travel Plan was the interim client meeting on October 14, 2016, and three additional field visits where the studio team assessed existing walking conditions. During the field visits, photographs of existing barriers and opportunities were documented, as well as observation of the surrounding environment.

Table 8 shows the routes that had a field visit from a team of two or more and were assessed to determine the area's walkability and observe conditions.

School	Date Assessed
Bailey, All Saints Academy	October 26, 2016 Afternoon
Vroom, Oresko	November 3, 2016 Morning
Lincoln	November 3, 2016 Morning

Table 8. Field visits to school neighborhoods

Area Speed Limits

As of July 2015, the city has a total of 76.40 miles of roadways, of which 66.5 miles are maintained by the city, 3.9 miles are overseen by Hudson County, 4.0 miles by the New Jersey Department of Transportation and 1.9 miles are the responsibility of the New Jersey Turnpike Authority.[17]

Jurisdiction	Mileage	Speed Limit
NJDOT	4.04 miles	Varies - see Figure 25
NJ Turnpike Authority	1.91 miles	1-78 (exiting turnpike) • 50 MPH • May temporarily be lowered due to unusual road conditions
Hudson County	3.91 miles	County Road 501 (Kennedy Blvd.) • 25 MPH
Municipal	66.54 miles	Local roads • 25 MPH • Sometimes not posted
Total mileage: 76.4 miles		

Table 9. Road mileage and speed limits by jurisdiction

Route 440 Speed Limits

Figure 25. Speed limits on Route 440

05 Public Engagement and Priorities

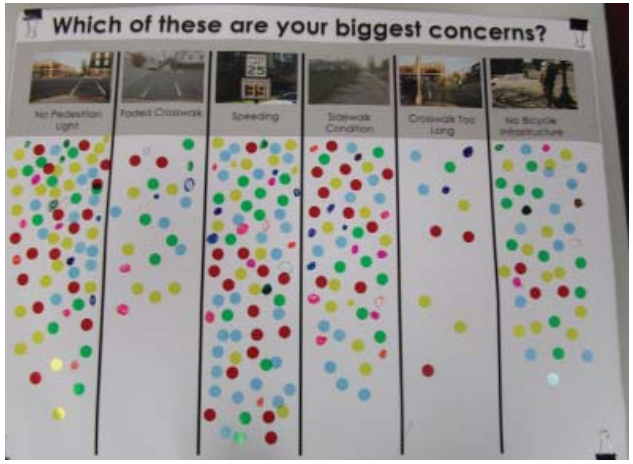
Open House Overview

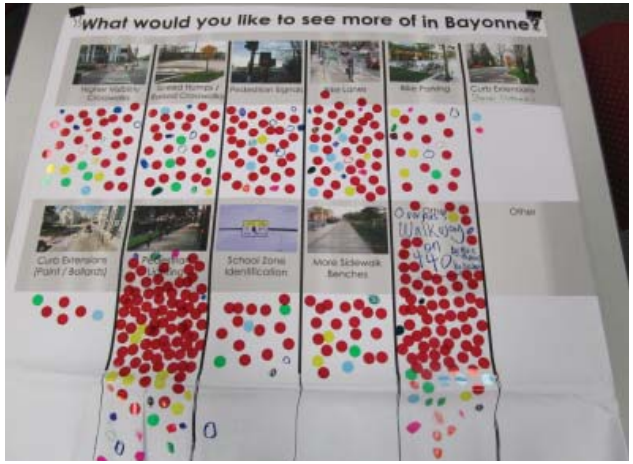
An open house was held on November 15, 2016 at the Nicholas Oresko School. The studio team attended in order to commence the public engagement process and identify the top priorities with regards to biking, walking, and general travel in Bayonne.

The studio team greeted open house attendees at the door with two visual preference surveys, boards where participants could vote on options they preferred. The team also held many informal conversations with parents, students and some staff to understand their concerns. Guests were eager to join and throughout the night, about 150 people were engaged.

For each activity, every participant, including children, was given a number of colored dots to “vote” for the topics that concerned them most. They could allocate them however they liked among the categories of concern. Participants voted on the list of choices and shared their thoughts with the team.

Participants were also provided the option to write down any other pressing needs they would want to be added.





Concerns

The first activity obtained feedback on what the participants thought are the biggest issues relating to parking and traveling in Bayonne. Participants were given four dots for issues related to parking, and three dots for other concerns related to biking and walking.

From the options relating to parking, the most pressing issue was lack of parking, followed by double parking, with participants moderately concerned about parking in drop-off zones and parking close to crosswalks. Parking on sidewalks seemed to be the participants' least concern.

From the issues relating to general travel, speeding seem to be the biggest concern, closely followed by no pedestrian signal and sidewalk conditions. Participants were moderately concerned about the lack of bicycle infrastructure and least concerned about faded and long crosswalks.

Which of these are your biggest concerns?

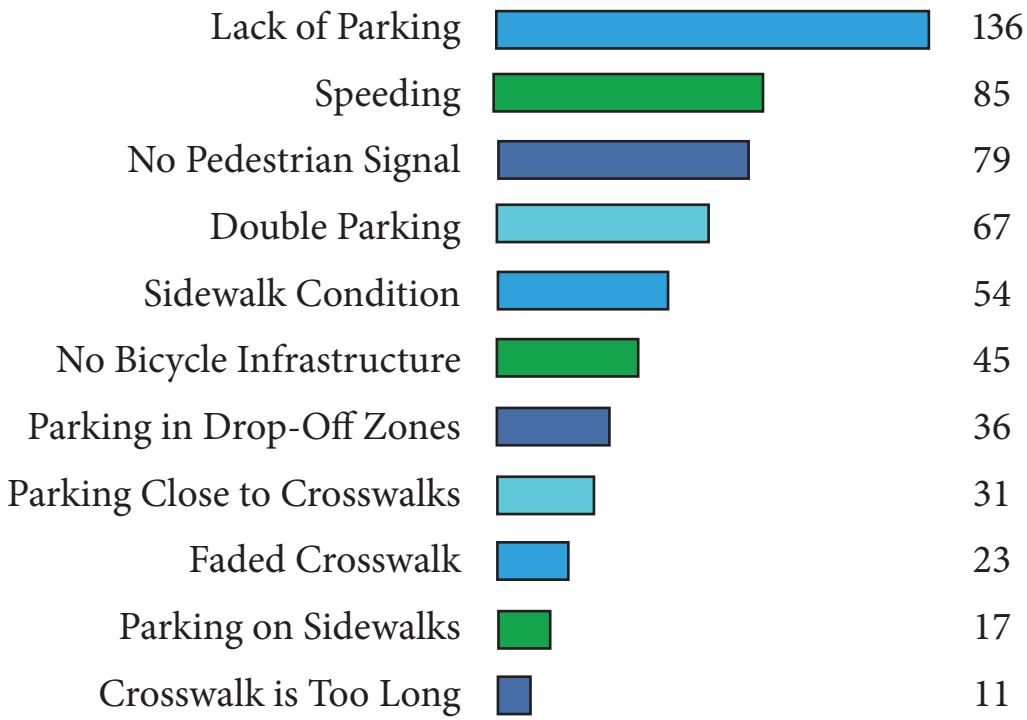


Figure 26. Visual Preference Board survey results, part 1

Lack of parking is the issue of biggest concern for parents and students.

Desired Improvements

The second activity focused on what participants hoped to see more of in their community. For this activity, each participant was given three voting dots. Originally, 10 choices were provided, but a participant also suggested an overpass walkway on Highway 440 to access South Cove Commons or Bayonne Crossing Shopping Center. Parents felt very passionately about this due to some recent fatalities on the road, and the idea quickly caught on among other participants and gathered votes.

Participants most hoped to see more pedestrian lighting and an overpass walkway on 440. They were moderately concerned about higher visibility or raised crosswalks, pedestrian signals and bike lanes, followed by school zone identification and sidewalk benches. Shorter crosswalks were of the least concern.

Participants also spoke with the studio team about other concerns, including: bike lanes on 440, and around Nicholas Oresko school, more parks, more climbing equipment at City Park, and difficulty crossing Avenue E, especially by bridges, due to speeding.

What would you like to see more of in Bayonne?

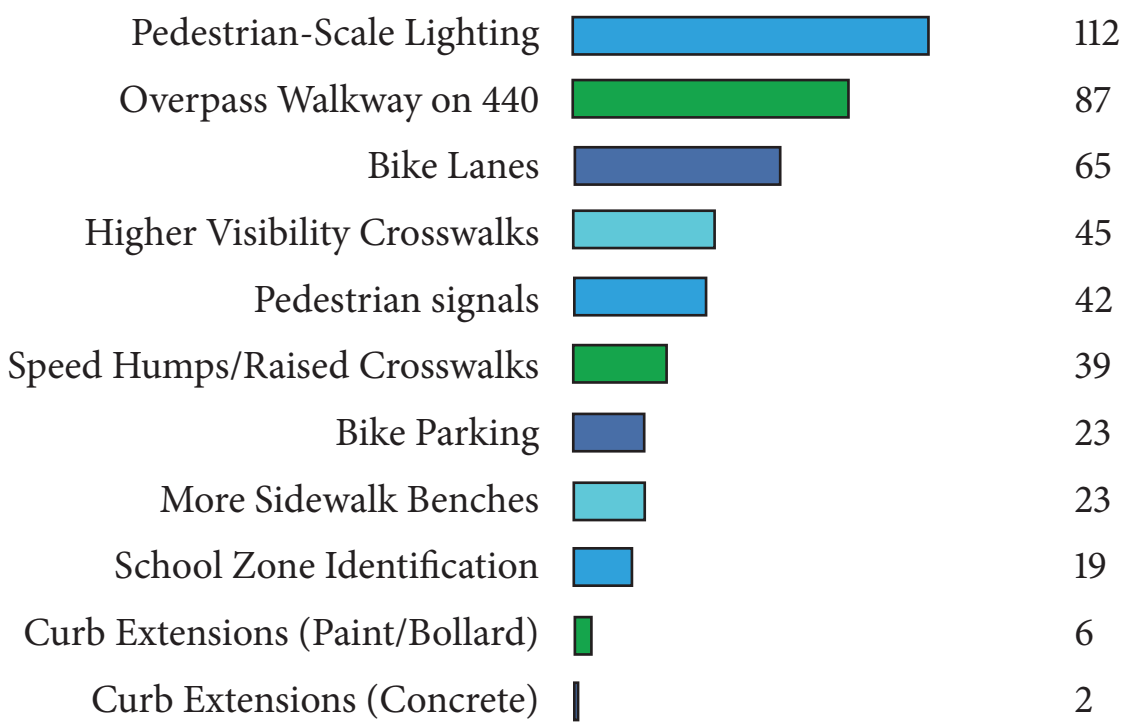


Figure 27. Visual Preference Board survey results, part 2

Parents and students would most like to see an overpass over Route 440 and more pedestrian lighting in Bayonne.

6.0 Action Plan

Recommendations

The studio team has made a series of recommendations based on its walkability assessments, engagement with community stakeholders, and the public. These recommendations are based on the 5 E's of bicycle and pedestrian planning, which together will help make Bayonne a safer place for students to walk or bike to school:

Engineering: Engineering improvements provide technical solutions for improving safety and increasing visibility. Solutions outlined range from low cost pavement markings and pedestrian signs to higher cost improvements such as constructing new pedestrian refuges, and electronic pedestrian signals.

Education: In order to increase both safety and awareness of SRTS, everyone involved must be educated on what will make the program successful. Schools are an ideal place for students to learn about walking and biking in conjunction with the school's curriculum.

Encouragement: In order to encourage lifelong participation in walking and biking, students should be encouraged through programs that make active transportation fun, easy, and safe.

Evaluation: To continuously improve, SRTS programs should be sure to evaluate what is and is not working.

Enforcement: It is essential for a SRTS program to enforce basic laws and regulations to ensure road safety for all users. Partnering with local law enforcement and implementing a set of laws and regulations that treat bicyclist and pedestrians with equity and enforce safety and security for everyone.

Renderings of proposed design changes are also included to help illustrate the benefits of more pedestrian and bike friendly road design. While these renderings are meant to help people see the true potential of their city to be more walkable and bike friendly, they are not drawn to scale.

Each recommendation has also been assigned an estimated time frame and a cost to assist in implementation efforts. Those definitions are given in Table 10.

Time frame Definition	Cost Definition
Short-term: 1 to 6 months	Low: Less than $2,000
Mid-term: Less than 1 year	Medium: Between $2,000 and $10,000
Long-term: 1 to 5 years	High: Over $10,000

Table 10. Time frames and costs of recommendations

Responsible Agency Acronyms
NJDOT: New Jersey Department of Transportation
PTAs: Parent-Teacher Associations
TMA: Hudson County Transportation Management Association
VTC: Voorhees Transportation Center at Rutgers University

Table 11. Responsible Agency acronyms

Engineering

Action	Responsible Agency	Next Step	Time frame	Cost
Remove parking meters too close to intersections (within 25 feet of the intersection. See Appendix A)	City	Create an inventory of parking spaces too closeto major intersections and have them removed to discourage parking near intersections.	Short-term	"Low to Medium"
Improve school bicycle parking facilities at schools and throughout the City	School district, City	Create paved areas with covered bike parking that are secured and easily accessible.	Medium-term	Medium
Explore opportunities for bicycle lanes	School district, City	Investigate opportunities for bicycle lanes throughout the City.	Mid-term	Medium
Introduce raised crosswalks where necessary	City	Introduce traffic calming measures on West 29th Street and Avenue E. Introduce raised crosswalks at East 24th Street and Gregg Lane.	Mid-term to Long- term	Medium to High
Add bollards to daylight crosswalks at major intersections	City	Add bollards to prevent parking adjacent to curbs around intersections to increase visibility for pedestrians and drivers while minimizing conflicts	Short-term	Moderate
Paint yellow boxes to discourage parking and daylight crosswalks at intersections	City	Add yellow boxes to prevent parking adjacent to curbs around intersections to increase visibility for pedestrians and drivers while minimizing conflicts	Short-term	Low
Install curb extensions	City	Fix reverse curbcuts to shorten crossing distances	Mid-term to Long- term	Medium to High
Complete a "road diet" on Avenue C	City	Introduce a "road diet" to rechannelize the street as to shorten crossing distance and enhance pedestrian safety	Mid-term to Long- term	Medium to High

Engineering

Action	Responsible Agency	Next Step	Time frame	Cost
Update crosswalk markings	City	Create an inventory of all crosswalks that need repainting, especially on Broadway and the Avenues.	Ongoing	Medium
Update curb ramps and truncated domes as needed	City	Create an inventory of missing truncated domes and curb ramps.	Long-term	High
Increase school zone identification and signage	City	Increase school zone identification in and around all schools to raise awareness of pedestrian and bicyclists. Also install timed flashing school crossing signs.	Short-term	Low to Moderate
Improve safety at W.29th street and Avenue E Pedestrian crossing	City	Install pedestrian hybrid signals and introduce new stop markings at the street intersection.	Short-term	Low to Moderate
Add pedestrian countdown timers	City	Install pedestrian countdown timers on each leg of all signalized intersections, especially on Broadway and the Avenues.	Medium to Long-term	High
Traffic calming measures on Route 440	State, City	Introduce pedestrian refuges and create a protected pedestrian walkway along Route 440.	Medium to Long-term	High
Remove parking spaces too close to intersections See Appendix A	City	Create an inventory of parking spaces too close to major intersections and have them removed to discourage parking near intersections.	Short-term	Low to Moderate
Improve school bicycle parking facilities and explore opportunities for bicycle lanes	School district, City	Create paved areas with covered bike parking that are secured and easily accessible. Also investigate opportunities for bicycle lanes.	Medium-term	Medium
Introduce raised crosswalks where necessary	City	Introduce traffic calming measures on West 29th Street and Avenue E. Introduce raised crosswalks at East 24th Street and Gregg Lane.	Medium to Long-term	Medium

Table 12. Engineering recommendations

Education

Action	Responsible Agency	Next Step	Time frame	Cost
Incorporate bike/pedestrian safety into P.E. curriculum	Schools, TMA, VTC	Train staff; acquire bicycles and other materials	Ongoing	Low to Moderate
Update the adult crossing guard training program	Police Dept., VTC	Hold annual training sessions with current and new crossing guards	Ongoing	Low
Distribute information on SRTS to school administrators, PTA leaders, neighborhood groups, and parent volunteer groups	Schools, TMA, PTAs	Draft reading materials and online resources that outline initiatives that are taking place and how to get involved	Ongoing	Low
Expand High School Green Club to educate students on the connection between active transportation and the environment and well-being	PTAs or Schools	Interested PTA members and school staff should volunteer to draft an agenda and enroll students	Short-term	Low
Provide parents with information regarding driver and pedestrian and bicycle safety within the school zone	Police Dept., Schools, TMA	Decide how to distribute material and what information is important to school zone	Ongoing	Low
Continue to work with Hudson TMA to develop and implement educational bicycle and pedestrian SRTS safety programing	Schools, TMA, City	Work with Hudson TMA to schedule programming in all schools	Ongoing	Low
Create municipal websites or add to existing websites with the purpose of 1) providing anti-idling law education to parents and community members, and 2) spreading awareness of “Stop and Stay Stopped” law	Schools, TMA, City	Compile and organize information; advertise website via email and/or mail	Short-term	Low

Table 13. Education recommendations

Encouragement

Action	Responsible Agency	Next Step	Time frame	Cost
Work with Hudson TMA to schedule and participate in Walk to School Day in October and National Bike to School Day in May, as well as NJ Walk and Bike to school month each year.	Schools, TMA	Decide on the type of event, form a team, and pick a date	Short-term	Low
Work with Hudson TMA to develop SRTS programs at all schools including student poster or art contests, walking mileage clubs, golden sneaker awards, etc. centered on walking and biking to school activities.	Schools, TMA	Decide on the type of event, form a team, and pick a date	Short-term	Low
Install wayfinding signage	NJDOT or City	Identify intersections that could benefit from improved pedestrian-scale signage	One-time	Low to Moderate
Host Bike/Walk to School Days throughout the school year	Schools, TMA	Decide on the type of event, form a team, and pick a date	Short-term	Low
Work with Hudson TMA to develop a Walking School Bus program.	PTAs, Schools, TMA	Identify key partners in the community and begin gathering parties interested in participating.	Ongoing	Low
Work with Hudson TMA to include pedestrian and bicycle safety information in school curriculum.	Schools, TMA	Provide ideas for teachers to lead lessons including a walk and bike-themed component.	Short-term or ongoing	Low

Table 14. Encouragement recommendations

Evaluation and Policy

Action	Responsible Agency	Next Step	Time frame	Cost
Monitor long-term crash data after road engineering improvements	City of Bayonne or Police Dept.	Identify key intersections and hot spots	Ongoing	Low
Monitor and track impact of student encouragement programs on travel modes	Schools, City, TMA	Pick events and specific schools to monitor	Ongoing	Low
Monitor impact of bike/ pedestrian infrastructure on parental attitudes on commuting	Schools, City, TMA	Identify corridors and schools for surveys	Ongoing	Low
Conduct speed analysis of targeted enforcement areas before and after infrastructure improvements or programs	City of Bayonne and Police Dept.	Identify enforcement priority corridors	Ongoing	Low
Create SRTS committee to encourage and increase public involvement in SRTS programs	Schools, School District	Consider maintaining the School Travel Plan Working group as a SRTS committee	Short-term	Low
Adopt a Complete Streets policy	City	Complete Streets include all ages and abilities (see "Municipal Policy Adoption" in Section 7)	Short-term	Low to Moderate
Update School Wellness Policy	School District	Add SRTS language to policy (check SRTS website)	Short-term	Low
Adopt a vulnerable road user law that increases penalties for a motorist that injures or kills a bicyclist or pedestrian	Law Department, City Council	Draft an ordinance between the police department and law department to pass through city council	Short-term	Low

Table 15. Evaluation recommendations

Enforcement

Action	Responsible Agency	Next Step	Time frame	Cost
Enhanced Speed enforcement	Police Dept.	Prosecute speeders and dangerous drivers – especially on the Avenues, Kennedy Blvd., and Broadway	Ongoing	Low
Enhanced enforcement of parking laws	Police Dept.	Ticket illegally parked vehicles, especially those that hinder pedestrian safety – no parking near intersections, in crosswalks, on sidewalks, in front of hydrants, and driveways	Ongoing	Low
Discourage distracted driving	Police Dept.	Increase penalties for distracted drivers (i.e. use of cell phone while driving)	Ongoing	Low
More police officers on bicycles	Police Dept.	Integrate bicycle enforcement training into the police academy curriculum for new officers	Medium-term	Low to Moderate

Table 16. Enforcement recommendations

1 East 29th Street & Avenue E

Figure 28. **Before:** Existing signage

Figure 29. **After:** More visible pedestrian signage

Improve pedestrian visibility to motorists:

1. Introduce pedestrian hybrid signals
2. Introduce visible stop signs

2 East 25th Street & Avenue E

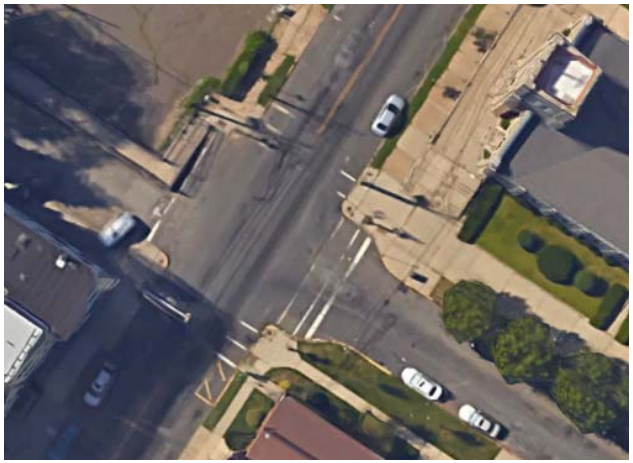


Figure 30. **Before:** Existing crosswalks

Improve crosswalk safety:

1. Introduce high-visibility crosswalks at all crossings
2. Use paint or concrete to create curb extensions to shorten crossing distances

Figure 31. **After**: New improvements to crosswalks

3 Avenue C & West 25th Street

Figure 32. **Before**: Existing road lacking pedestrian features

Introduce a rechannelization of the street network, or "road diet," to help accommodate all users of the road, using:

1. Lane reduction
2. Center pedestrian refuge island
3. Higher crosswalk visibility
4. Bicycle lane
5. Paint or concrete to create curb extensions

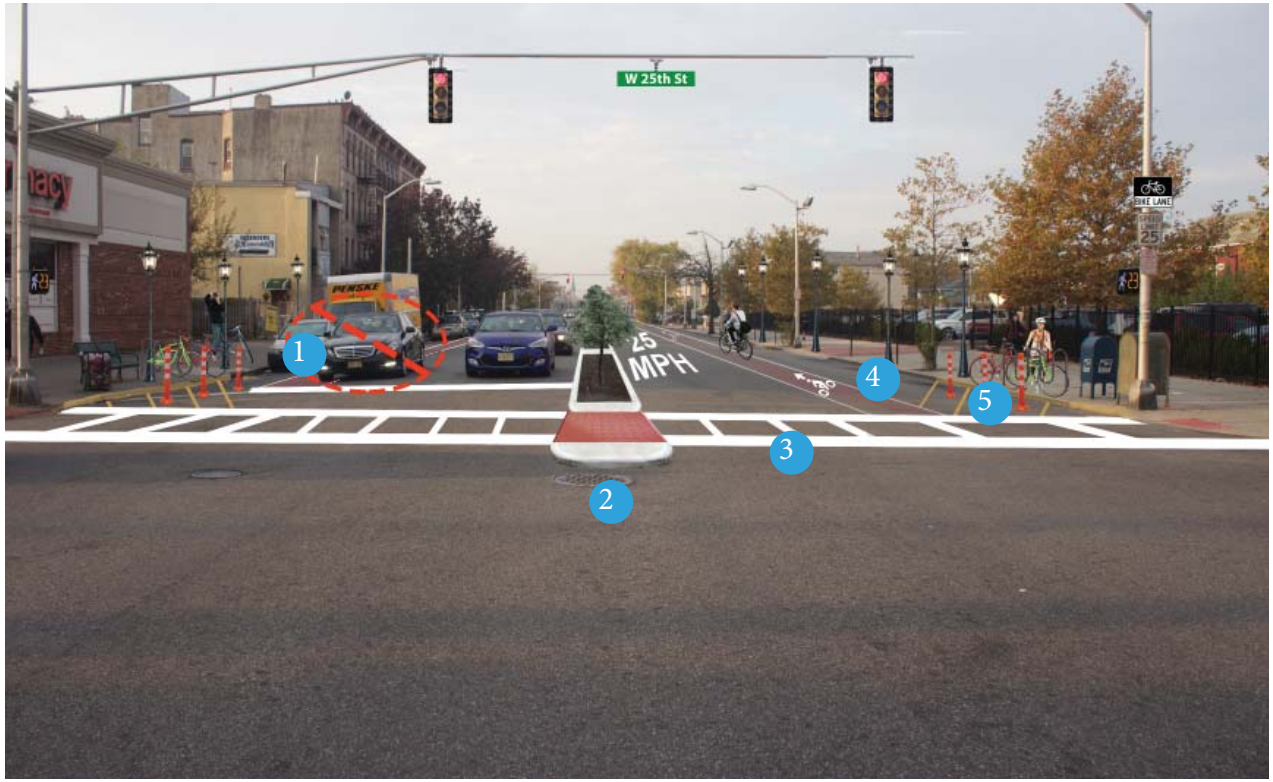


Figure 33. **After:** New pedestrian features

4 Avenue C & West 25th Street

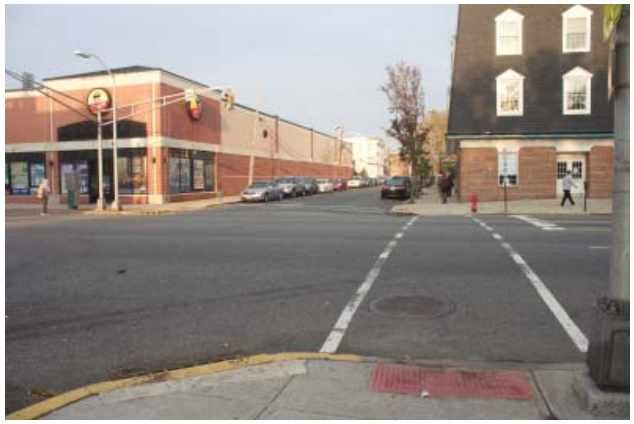


Figure 34. **Before**: Existing intersection

Improve crosswalk safety:

1. Install street lights
2. Introduce bicycle racks, or "corrals," to provide bike parking and daylight crosswalks
3. Install bollards at intersections as a cheaper alternative to sidewalk "bump-outs"
4. Ensure every intersection is properly equipped with truncated domes for ADA compliance
5. Add pedestrian countdown signal at all intersections
6. Install protected bike lanes at wide roads

Figure 35. **After**: Proposed safety improvements

5 Route 440 & East 32nd Street

Figure 37. **After**: More visible crosswalks and a pedestrian refuge

Reduce crossing distance and improve crosswalk visibility:

1. Introduce pedestrian refuges
2. Introduce high-visibility markings

Figure 36. **Before**: Existing crosswalk

07 Funding

Funding Opportunities

The New Jersey Department of Transportation and the NJ Metropolitan Planning Organizations currently administer Federal Aid Programs that can be used to help fund bicycle and pedestrian improvements.

Safe Routes to School:

The Safe Routes to School Program provides federal-aid highway funds for infrastructure projects that enable and encourage children in grades K-8, including those with disabilities, to safely walk and bicycle to school. Bonus points on the grant are given to applicants with School Travel Plans, a Complete Street Policy and Transit Village Designation.

Transportation Alternatives Program:

The Transportation Alternatives Program provides federal funds for community based "non-traditional" transportation projects designed to strengthen the cultural, aesthetic and environmental aspects of the nation's intermodal system. Bonus points on the grant are given to municipalities that have an adopted Complete Street Policy and Transit Village Designation.

In addition to federal funding, The State Aid Program is another method by which the NJDOT can work with county and municipal governments. All projects funded through the Transportation Trust Fund must comply with the Americans with Disabilities Act (ADA).

Municipal Aid:

Each year NJDOT invites municipalities to apply for funds for road improvement projects such as resurfacing, rehabilitation or reconstruction and signalization. NJDOT has set a goal to award up to 10% of the Municipal Aid Program funds to projects such as pedestrian safety improvements, bikeways and streetscapes.

The Transportation Alternatives Program provides federal funds for community based "non-traditional" transportation projects designed to strengthen the cultural, aesthetic and environmental aspects of the nation's intermodal system.

County Aid:

County Aid funds are used for the improvement of public roads and bridges under county jurisdiction. Public transportation and other transportation projects are also included.

Bikeways:

This program provides funds to promote bicycling as an alternate mode of transportation in New Jersey with priority given to construction of new bike paths. Special consideration is given to bikeways that are physically separated from motorized vehicular traffic by open space or barrier, either on-road or off-road.

Safe Streets to Transit:

This program provides funds to construct safe and accessible pedestrian linkages to transit facilities, in order to promote increased usage of transit by all segments of the population.

Fixing America's Surface Transportation (FAST) Act:

This legislation authorizes over $305 billion from FY 2016 - 2020 for highway, motor vehicle safety, pedestrian transportation, research, and statistics programs.

Bicycle and Pedestrian Planning Assistance:

The City of Bayonne should apply for NJDOT Local Technical Assistance (LTA) funding through the Office of Bicycle and Pedestrian Programs. Under this program, on-call consultants are paired with communities to complete a variety of projects including bicycle and pedestrian circulation studies, pedestrian safety assessments, trail feasibility studies, bikeway plans, and crosswalk improvement plans. Bayonne should seek funding to complete a bicycle and pedestrian master plan that prioritizes schools, businesses, parks, and light rail stations.

Health and environment funding programs can also be a great way to fund bicycle and pedestrian improvement. Options may include:

NJ Prevention Network, Get Active NJ Grant:

New Jersey Prevention Network offers financial assistance to communities to help them evaluate their current policies and educate stakeholders on potential policy changes that improve safety and access for pedestrians. This funding can be used to adopt a Complete Streets policy and update internal procedures to ensure people of all ages and abilities can safely walk and bike in and around Bayonne.

Sustainable Jersey Grants:

The Sustainable Jersey Small Grants program provides capacity building awards to municipalities to support local green teams and their programs to make progress toward Sustainable Jersey certification.

Sustainable Jersey for Schools Grants:

Sustainable Jersey for Schools grants are intended to help school districts and individual schools make progress toward Sustainable Jersey for Schools certification.

New Jersey Healthy Communities Network Grants:

Working on a two-year grant cycle, the New Jersey Healthy Communities Network works to prevent chronic disease and obesity by enhancing the built environment and developing policies to support healthy eating and active living. Supported projects make the healthy choice the easy choice and encourage and support physical activity by ensuring accessibility and safety; and make healthy school, work, and community environments the norm and not the exception.

Municipal Policy Adoption

Adopt a Municipal Complete Streets Policy

A Complete Streets policy ensures that a community's roadways are designed to enable safe access for pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. It can help to create more livable communities and save money by incorporating sidewalks, bike lanes, safe crossings and transit amenities into project design from the beginning to avoid expensive retrofits. An adopted Complete Streets policy earns a municipality an extra point when NJDOT grant applications are scored. An ideal Complete Streets Policy would:

- Include a vision for how and why the community wants to complete its streets
- Specify that the policy is for "all users" - including pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
- Cover all roads, applying to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Encourage street connectivity and an integrated network for all transportation modes.
- Make any exceptions specific and set a clear procedure that requires high-level approval of exceptions.
- Include language that identifies public health and equity benefits.

For more information, visit: http://www.saferoutesnj.org/sustainable-jersey-and-sustainable-jersey-for-schools-actions/

Implement a Comprehensive Crossing Guard Policy

School crossing guards play an important role in helping children travel to and from school safely. A school crossing guard policy can establish uniform standards and procedures related to hiring, training and supporting crossing guards, as well as assessment of crossing guard performance. In addition, training regulations should also be included in the crossing guard policy to ensure high working efficiency of crossing guards. The crossing guard policy can also address uniform standards and outline expectations, duties, and performance protocols. An ideal municipal crossing guard policy would include:

- Crossing Guard duties
- Hiring
- Compensation
- Training and Retraining
- Uniform and Equipment
- Performance review/Evaluation
- Reporting Absences
- Reporting Incidences, violations, and hazardous conditions
- Crossing Guard placement

For more information, visit http://www.njcrossingguards.org/?p=213

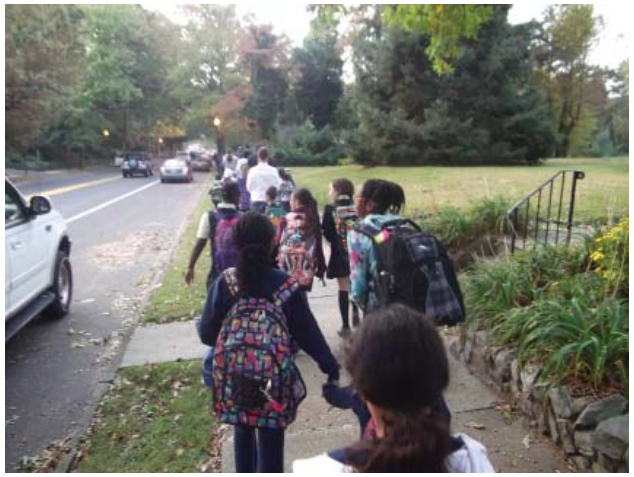
School District Policy Adoption

Implement a Comprehensive walking to School Policy and a Bicycling to School Policy

Although individual schools have policies that address staff supervision at arrival and dismissal times and remind parents of proper places to park, drop off and pick up students, the school district should establish clear regulations related to walking and biking to school. Policies establish direction for the district and its schools, set the goals, assign authority, and are the means by which educators are accountable to the public. Adopting a school bicycling or walking policy standardizes the transportation safety rules for the district. A positive and comprehensive walking and bicycling to school policy earns a municipality an extra point when NJDOT grant applications are scored. Policies should include:

- A description of the benefits of walking and bicycling to school,
- A list of conditions explaining the rules and expectations of the student, guardian and school, and
- A disclaimer that states that walking or bicycling is an "assumption of responsibility by guardians and students."

The policy should be incorporated into the student handbook to encourage the students and their parents to follow recommended walking and bicycling policies. For more information and for sample policy language, visit: http://www.saferoutesnj.org/resources/tips-tools-and-more/



Adopt a Comprehensive School Wellness Policy

The Bayonne School District Wellness/Nutrition policy describes the importance of nutrition education and physical education to foster lifelong healthy habits. Children need access to healthy foods and opportunities to be physically active in order to grow, learn and thrive. Bayonne could benefit by enhancing their Wellness Policy to include support for Safe Routes to School and how supporting active travel to school such as walking and bicycling can help children meet daily physical activity goals. An adopted Comprehensive School Wellness policy earns a municipality an extra point when NJDOT grant applications are scored. A comprehensive Wellness Policy would include the minimum requirements from the mandated wellness nutrition policy as well as additional components including:

- Establish a School Wellness Council or School Green Team or equivalent team
- Extend nutrition requirements outside the school hours (school fundraisers, after school activities and events -- no candy, etc.)
- Extend physical education beyond what's mandated -- more recess, more physical education which includes movement, more physical activity during the school day, incorporate the suggested 60 minutes of physical activity a day
- Support for Safe Routes to School
- Keep school facilities open outside of school hours (playgrounds, gyms, sports fields)
- Incorporate nutrition, physical activity, etc into school curriculum -- marketing and communications to students, staff and parents about the importance of good nutrition, physical activity etc.
- Disciplinary measures tied to physical activity shall not be used (i.e. no recess, no physical education, etc.)

For examples of School Wellness Policies that incorporate Safe Routes to School, visit: http://www.saferoutesnj.org/resources/tools-tips-and-more-2/.

Appendix A: Parking Distance Laws

New Jersey Title 39 Parking Distance Laws

Stop Sign	50 Feet
Fire Hydrant	10 Feet
Railroad crossing	50 Feet
Driveway entrance to fire station	20 Feet
Crosswalk of intersecting highway	25 Feet

New Jersey statute 39:4-138 lays out these rules:

39:4-138 Places where parking prohibited; exceptions; moving vehicle not under one's control into prohibited area.
39:4-138. Except when necessary to avoid conflict with other traffic or in compliance with the directions of a traffic or police officer or traffic sign or signal, no operator of a vehicle shall stand or park the vehicle in any of the following places:

a. Within an intersection;
b. On a crosswalk;
c. Between a safety zone and the adjacent curb or within at least 20 feet of a point on the curb immediately opposite the end of a safety zone;
d. In front of a public or private driveway;
e.
(1) Within 25 feet of the nearest crosswalk or side line of a street or intersecting highway, except at alleys and as provided in section 2 of P.L.2009, c.257 (C.39:4-138.6); or
(2) Within 10 feet of the nearest crosswalk or side line of a street or intersecting highway, if a curb extension or bulbout has been constructed at that crosswalk;
f. On a sidewalk;
g. In any appropriately marked "No Parking" space established pursuant to the duly promulgated regulations of the Commissioner of Transportation;
h. Within 50 feet of a "stop" sign except as provided in section 2 of P.L.2009, c.257 (C.39:4-138.6);
i. Within 10 feet of a fire hydrant;
j. Within 50 feet of the nearest rail of a railroad crossing;
k. Within 20 feet of the driveway entrance to any fire station and on the side of a street opposite the entrance to any fire station within 75 feet of said entrance, when properly signposted;

l. Alongside or opposite any street excavation or obstruction when stopping, standing, or parking would obstruct traffic, when properly signposted;

m. On the roadway side of any vehicle stopped or parked at the edge or curb of a street;

n. Upon any bridge or other elevated structure upon a highway, or within a highway tunnel or underpass, or on the immediate approaches thereto except where space for parking is provided;

o. In any space on public or private property appropriately marked for vehicles for the physically handicapped pursuant to P.L.1977, c.202 (C.39:4-197.5), P.L.1975, c.217 (C.52:27D-119 et seq.) or any other applicable law unless the vehicle is authorized by law to be parked therein and a handicapped person is either the driver or a passenger in that vehicle. State, county or municipal law enforcement officers or parking enforcement authority officers shall enforce the parking restrictions on spaces appropriately marked for vehicles for the physically handicapped on both public and private property.

No person shall move a vehicle not lawfully under his control into any such prohibited area or away from a curb such distance as is unlawful.
Amended 1948, c.342, s.2; 1951, c.23, s.77; 1981, c.20, s.1; 1989, c.201, s.1; 2009, c. 107, s.2; 2009, c.257, s.1.

Appendix B: Best Practices in Road Diets

A roadway reconfiguration known as a Road Diet typically involves converting an existing four-lane roadway segment to a three-lane segment consisting of two through lanes and a center, two-way left-turn lane. Primary benefits of a Road Diet include enhanced safety, mobility and access for all road users and a "Complete Streets" environment to accommodate a variety of transportation modes. Examples include a crash reduction of 19 to 47 percent, reduced vehicle speed differential, improved mobility and access by all road users, and integration of the roadway into surrounding uses that results in an enhanced quality of life. Another key feature of a Road Diet is that it also allows reclaimed space to be allocated for other uses, such as turn lanes, bus lanes, pedestrian refuge islands, bike lanes, sidewalks, bus shelters, parking or landscaping[13].

When a Road Diet is considered for safety reasons, practitioners must determine if the crash patterns can be addressed with this alternative. Four-lane undivided highways have inherent design aspects that make them susceptible to crashes. Left-turning and through movements sharing a single lane contributes to rear-end crashes, left-turn crashes, and speed discrepancies. In most cases, current four-lane undivided cross sections do not include accommodations for bicyclists, and most have no refuge for pedestrians to cross four lanes of traffic.

Lane widths. Widths of 10 to 12 feet are typically used in practice. Auxiliary lanes (i.e., turn lanes) at intersections are often the same width as through lanes, and seldom less than 10 feet. The width of the two-way left turn (TWLT) lane provided as part of a lane width conversion typically ranges from 10 to 16 feet. The width for a bus lane along these roadways is usually 11 to 15 feet.

Shoulders. Shoulders are the portions of the roadway adjacent to the traveled way. In most Road Diet applications, curb-to-curb widths and the desire to allocate the space to traffic, bicycle lanes, and parking limit ability to provide shoulders. Painted buffers are sometimes provided between the traveled way and bicycle lanes, and those buffers offer some similar advantages as shoulders.

Curbs. Curbs may already be present at the Road Diet conversion location, as they are commonly used in lower speed urban and suburban areas. Curbs have multiple functions, including drainage, delineation, right-of-way reduction, and delineation of pedestrian walkways.

Curb Extensions. On roadways with on-street parking, curb extensions at intersections can be added to shorten pedestrian crossing distances and make the pedestrian waiting at the corner more visible to drivers. Similarly, it gives the pedestrian a better view of oncoming traffic without having to step into the roadway. Curb extensions should only be used

where on-street parking is permitted and should be slightly narrower than the parking lane, so that the extension is not bumping out into the traveled way for either bicyclists or motor vehicles.

Bicycle Facilities. Road Diets allow the addition or expansion of bicycle facilities. On roads where bicyclists previously shared lanes with motor vehicles or navigated between travel lanes and the edge of pavement, the opportunity to provide a separate facility arises. Where bicycle lanes already existed, the Road Diet presents an opportunity to provide even more separation by adding a painted buffer or a physical separation using parked cars, bollards, or curb. Bicycle lane widths should be determined based on context and anticipated use, including the speed, volume, and types of vehicles in adjacent lanes. AASHTO's Guide for the Development of Bicycle Facilities covers the design of these bicycle lanes. Under typical circumstances, the width of a one-way bicycle lane is 5 feet. A minimum width of 4 feet can be used on roadways with no curb and gutter. Wider bicycle lanes should be considered when feasible, and especially at locations with narrower parking lanes (e.g., 7 feet), high bicycle volumes, and higher speed roadways or roadways with a significant number of larger vehicles. When 7 feet or more is available for the bicycle facility, a buffered or protected bike facility should be considered. Typical bicycle lane cross sections are illustrated in Figure 38. The presence of a bicycle lane influences the recommended design of on-street parking accommodations as well.

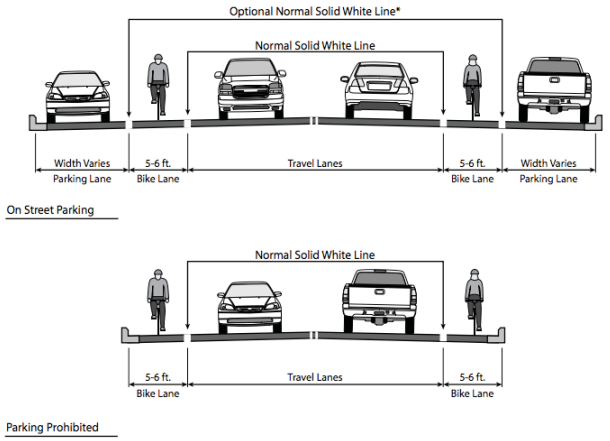


Figure 38. Suggested roadway geometries to accommodate bike lanes

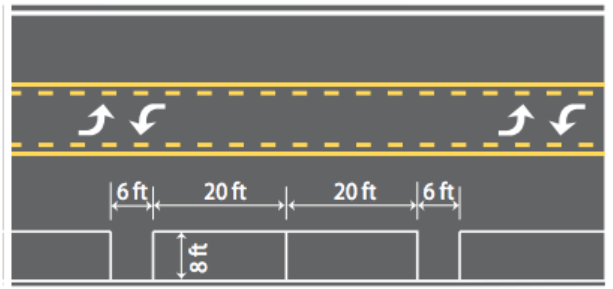


Figure 39. Paired parking

Bicycle Design Considerations. Where the Road Diet includes on-street bicycle lanes, intersection designs should be modified accordingly. The bicycle facility should be carried up to and through the intersection. Where right- turn lanes are added, lane markings will be needed to channelize and separate bicycles from right-turning vehicles.

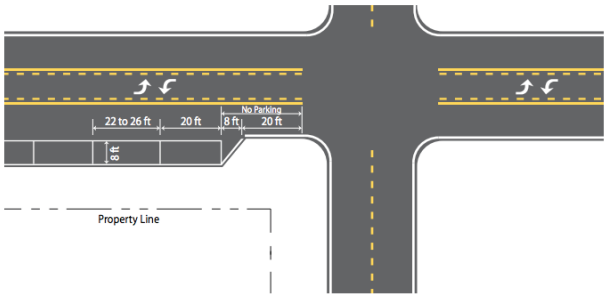


Figure 40. Parking lane transition

On-Street Parking. Road Diets provide the opportunity for parallel or diagonal on-street parking. The desirable minimum width of a parallel parking lane is 8 feet, as most vehicles will occupy approximately 7 feet of actual street space when parallel parked. A parking lane width of 10 to 12 feet may be desirable to provide additional clearance from the traveled way and accommodate transit

operations, though some jurisdictions have used parking lane widths as narrow as 7 feet, particularly where only passenger cars need to be accommodated in the parking lane. Parallel parking lanes may also be separated from bicycle lanes by an optional solid white line. Where parallel parking and bike lanes are present, but a parking lane line or stall markings are not used, the recommended width of the shared bicycle and parking lane is 13 feet. In addition, practitioners could consider "paired parking" to reduce conflicts and delays with vehicle parking (See Figure 39).

The treatment of a parking lane approaching an intersection requires special consideration. If the lane is carried up to the intersection, right-turning vehicles may use it in the absence of parked vehicles, potentially leading to undesirable operations. However, keeping a parking lane can increase the effective corner radius for large right-turning vehicles. Other options include using a parking lane transition (i.e., a "bulb out," as shown in Figure 40) or prohibiting parking a certain distance from the intersection.

Bus Turnouts. One potential concern with a Road Diet installation is that stopped buses in the now-singular through lane block all downstream vehicles while loading and unloading. The paved width available with the installation of a Road Diet provides space for potential accommodations for bus operations (e.g., stopping, loading, unloading) away from the traveled way by using a turnout. Bus stop locations should provide about 50 feet in length for each bus. In some cases, there may be room to provide deceleration and entry tapers using a combination of pavement markings. A taper of about 5:1, longitudinal to transverse, is a desirable minimum. When the stop is on the near or far side of an intersection, the width of the cross street is generally adequate for merging back into traffic or diverging to the bus stop, respectively. Keep in mind, however, that most transit operators prefer in-lane stops versus turn-outs due to the difficulties of through lane ingress from the turn-out. Bus stops located at the near side or far side of intersections provide pedestrian access from both sides of the street and connections to intersecting bus routes.

Bus stops located at the near side or far side of intersections provide pedestrian access from both sides of the street and connections to intersecting bus routes.

Source: Proven Safety Countermeasures, FHWA

Appendix C: Best Practices in Bike Corrals

Bike corrals are rows of bike racks that are installed in the curbside lane, or parking lane, of a street. One 20 foot parking space can effectively accommodate up to 12 bicycles on 6 racks. Bike corrals should be placed so that parked bikes are perpendicular to the curb line. They should be protected from errant vehicles via bollards, which also prevents cars from parking too close to the pedestrian crosswalk, which disrupts sight lines of crosswalks to drivers. Maintenance should also be accounted for in order to keep corrals clear of snow and debris.[5, 4]

For more information on sight lines for crosswalks, please see the following resources:

- Beneficial Designs, Inc. "Designing Sidewalks and Trails for Access." https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalks/sidewalks.pdf
- Federal Highway Administration. "Pedestrian Safety Guide and Countermeasure Selection System." http://www.pedbikesafe.org/PEDSAFE/countermeasures.cfm
- Federal Highway Administration. "Proven Safety Countermeasures." http://safety.fhwa.dot.gov/provencountermeasures/

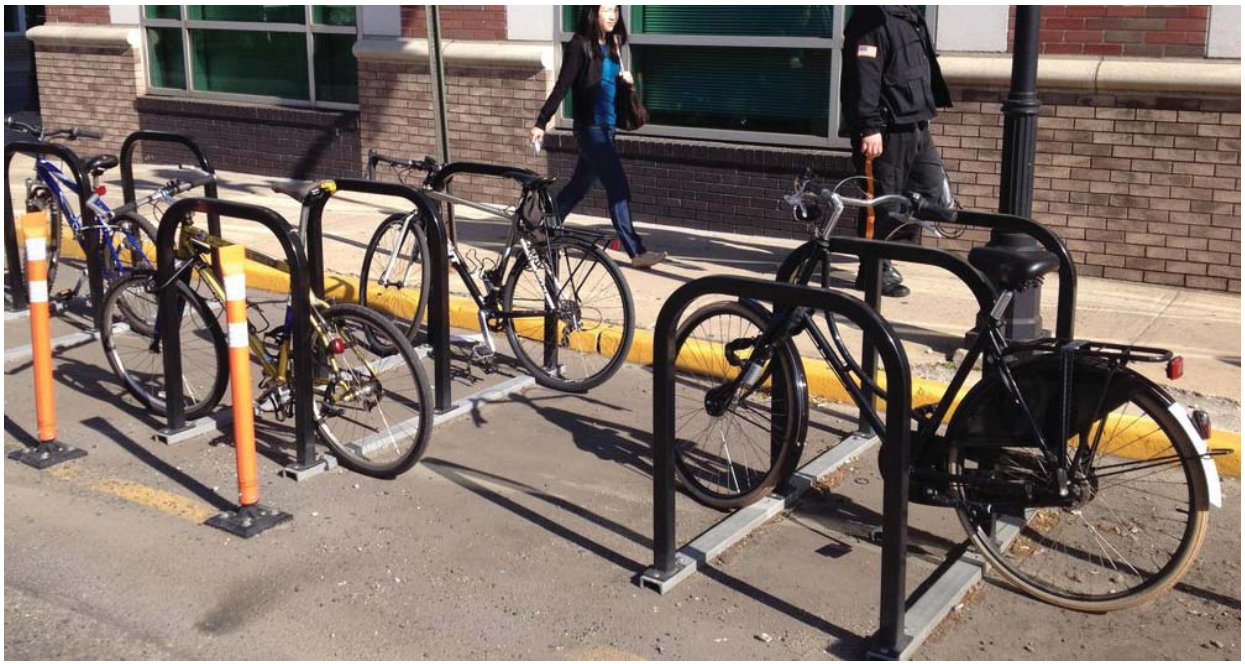


Photo Credits: Glenn Paterson, City of New Brunswick

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