

Walkability & Bikeability Assessment

Introduction

On February 13, 2018, the studio team met with the steering committee representatives from Bound Brook and South Bound Brook to present and discuss initial data and findings.

The studio team wanted to gather feedback about priority areas to include in the walkability/bikeability assessments. The steering committee expressed concerns about several locations in both towns which helped refine the locations for the assessments.

In addition, feedback was gathered from high school student ambassadors from Middle Earth about areas of concern from their perspective. Based on the crash mapping, location of crossing guards, and feedback from both the steering committee and the high school students, the studio team prioritized areas to cover during the walkability assessments. Assessments were subsequently conducted to identify specific barriers and opportunities that exist in each municipality with a focus on the safety of young pedestrians.

The walkability and bikeability assessments for Bound Brook and South Bound Brook were conducted on Tuesday March 20, 2018 and March 6, 2018 respectively, with support from Ridewise, Inc.



Bound Brook Borough

Walkability & Bikeability Assessment Route



SIGNS

The purpose of road signs is to give instructions and provide information for users. In Bound Brook, the signs for speed and parking in school zones are provided to notify drivers of the laws. However, the effectiveness of these signs has room for improvement.

Findings

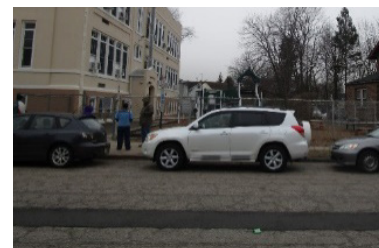
Speed Limit Signs

Bound Brook High School fronts a very busy state road, NJ-28. Many vehicles exceed the posted speed limit despite overhead flashing beacons warning of lower speed limits during school arrival and dismissal. School speed zone lights and signage (West Maple Ave) are limited and begin well within the school zone.



Ineffective No Parking Signs

Illegal parking around all schools is a common issue. At LaMonte School, a two-way street is converted into one-way during school hours which is an effective way to improve safety. However, parked vehicles line the road into the no parking zones up to and sometimes blocking the crosswalks. At Lafayette Elementary School, no parking signs did not stop parents from parking in front of the school causing the school buses to park further from the school. At both LaMonte and Lafayette, drivers without disability parking placards parked illegally in the spaces reserved for people with disabilities.



IDLING VEHICLES

Idling in front of all schools is a common issue. At both LaMonte and Lafayette schools, parents picking up students sat in idling vehicles for 10-20 minutes or more, far exceeding New Jersey's three-minute legal limit. Weather was above freezing with little if any need to run car heaters. Idling in school zones creates unhealthy air quality levels inside school buildings which has been shown to impact children's health, especially for children with asthma.



English Universal



Spanish Universal

No Idling Signs can be ordered from the NJ Department of Environmental Protection, but should also include an education component to parents and other residents.

<https://www.nj.gov/dep/stopthesoot/sts-no-idle-sign.htm>

SIDEWALKS

Sidewalks are the path for pedestrians. The conditions of sidewalks reveal the extent of friendliness to walkers. In Bound Brook, most streets include sidewalks which ensure a certain degree of safety. However, sidewalks are often uneven and heaved which may cause difficulty for users such as people with strollers, wheelchairs and the elderly.

Findings

Blocked Sidewalks

Residents should be reminded that even temporary sidewalk obstructions (garbage cans, snow, tree limbs and leaves) can be hazardous for pedestrians.



Uneven Pavement

The sidewalks in many areas were cracked or uneven. This creates a risk of tripping and falling, especially for children and the elderly. It also makes it very difficult to push strollers and wheelchairs over cracks or damaged sidewalks.



CURBS

Curbs are the edge of a sidewalk. Curb ramps should be designed to federal accessibility requirements that meet the Americans with Disabilities Act (ADA). Corner radii impact vehicle speeds and pedestrian crossing distance. Minimizing a corner radius to create safe turning speeds of 15 mph or less increases pedestrian safety.

Good Examples in Bound Brook

Truncated Domes

Truncated Domes are the bumpy pad placed right at the end of crosswalk to warn and guide users with sight impairments.



Incorrectly Placed Truncated Domes

Incorrectly placed truncated dome pad directs pedestrians into the middle of the street, not into crosswalks.



Painted Truncated Domes

Painted truncated domes are not in ADA compliance. Also, poor drainage around the curb is unfriendly to pedestrians, especially when frozen in winter.



Disconnected Curb Cut and Crosswalk

Curb cuts and crosswalks are disconnected forcing pedestrians with strollers or in wheelchairs to cross outside the crosswalk directly behind Lafayette School.



TURNING VEHICLE SPEEDS

Corner radii impact vehicle speeds and pedestrian crossing distance. Minimizing corner radii and defining driveway ingress and egress areas creates safer turning speeds of 15 mph or less which increases pedestrian safety.

Excessively Wide Driveways

Extremely wide driveways were found at some downtown blocks.



ROAD AND LANDSCAPE DESIGN

Road design is geometric positioning of the physical elements of roadway according to engineering standards. Road design directly impacts the efficiency and safety of traffic. Landscape design can create a cool vibe in a town and help increase foot-traffic. Landscape and road designs can be incorporated with each other to maintain traffic safety while providing a better aesthetic quality. In addition, landscape design can incorporate storm water management features, see Green Streets Chapter.

Findings

Uninviting Entrance

A dark and uninviting entrance to Bound Brook from South Bound Brook could be made friendlier with brighter, concrete sidewalks, better lighting and hanging planters.



Fast Traffic at the front of Bound Brook High School

There is speeding traffic at the intersection closest to Bound Brook High School (NJ-28 and Winsor St) with no traffic signals. Wide crossings along this straight, flat stretch could be safer with pedestrian refuge island(s) or other treatments that include plantings.



Intersection with Frequent Speeding

Frequent speeding along Vosseller Ave can be mitigated with traffic calming techniques such as a mini-roundabout which can include plantings and mountable curbs. Other options include curb extensions and/or narrowing travel lanes.



Source: NACTO Urban Street Design Guide

PEDESTRIAN ACCESS

Good pedestrian access not only ensures safety and accessibility of walkers but increases foot traffic and improves quality of life.

Good Examples in Bound Brook Closed Streets Provide Better Safety

One side of street is closed for safety during school hours. (Left: Bound Brook High School; Right: LaMonte School)



Findings

Need for Maintenance

Decorative brick pavers may look great when newly installed, however, can get beat up quickly and can cause uneven surfaces and tripping hazards. Brick pavers are better used for buffer areas between the sidewalk and road while using smooth, more durable concrete for sidewalk surfaces. Crosswalks should be striped on all four corners of the roundabout.



BIKE FACILITIES

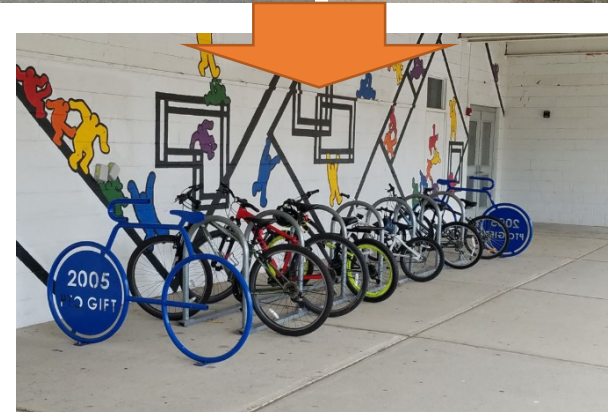
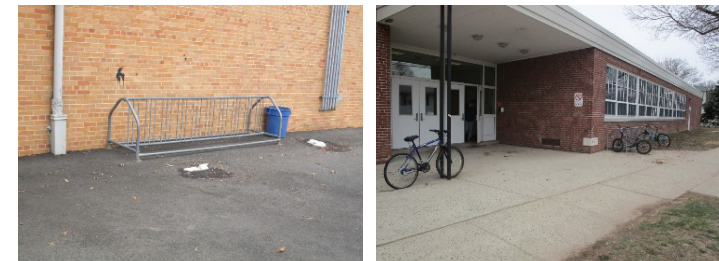
There are very few bike friendly roads and facilities in Bound Brook including a lack of secure bike parking.

Findings

Poor Bike Rack Placement at Schools

The bike parking rack at Lafayette School is intended to be double-sided but only one side is available since the rack is placed against the wall. The position should be changed to make both sides accessible. In addition, it is located in an area with no windows or oversight from the school putting bikes at risk for theft.

At Bound Brook High School, pillars at entrances are used to lock bikes which may partially block entrances/exits during an emergency. More secure inverted U-racks are recommended to be placed in high visibility, sheltered areas to deter theft.



Location: Branchburg Middle School, source RideWise Inc.



Bike Parking on Main Street

Adding inverted U-shaped bike racks to Main Street is recommended to improve bike access and reduce vehicle parking needs. Racks can be customized to fit into streetscapes. Any decorative bike rack should first and foremost be functional for locking bikes.

See NJ School Bike Parking Guide, www.saferoutesnj.org/school-bicycle-parking-guide

BETWEEN THE BROOKS

The Queens Bridge spans the Raritan River to connect Bound Brook and South Bound Brook via South Main Street. The best way to experience the bridge and surrounding water views is by walking or biking along the sidewalks on both sides of the bridge. Given the historic nature of the bridge itself and connections to the Battle of Bound Brook and the Delaware and Raritan Canal State Park, it is an opportunity to bring visitors and economic development to both downtowns through increased foot and bike traffic.

Findings

Access Points and Historic Significance

The Queens Bridge is an excellent opportunity for wayfinding and placemaking to help visitors connect with history and access the D&R Canal, the Raritan River, and downtown shops and amenities on either side. The entry points to the bridge are not well signed to alert users to the historic significance or river and canal access points. Partnering with the D&R Canal State Park, Crossroads to the American Revolution, and Somerset County Cultural and Historical Commission to improve wayfinding, additional historic informational signs along the bridge, landscaping at entry points, seasonal flags and decorations, and additional lighting could help make the bridge a primary destination for history buffs and visitors accessing land and water trails while providing information about downtown food and shopping destinations in both towns.



Signs provide historic information but lack landscaping and wayfinding to trail and downtown destinations.



Borough of South Bound Brook Walkability & Bikeability Asssessment

SIGNS

The blue theme color of the signs in South Bound Brook is attractive. The consistency of color and information provided on the signs creates a unique vibe throughout South Bound Brook.

Color and Design

The street signs on Main Street are attractive, historic-looking and share the same blue theme-color with other street furniture and infrastructure in the downtown area.



Findings

Sharp corner of sign at head height

Sharp corner of sign at head height poses risk to pedestrians.



Difficult to read wayfinding signs

There are nice wayfinding signs but many are difficult to see as they are oddly placed high above the street. The signage placement is primarily oriented towards motorists not pedestrians, yet the smaller font size would suggest they are more likely to be seen at slower walking and bicycling speeds. Walking distance can be added to encourage foot-traffic and increase healthy behaviors.



Plain Utility Box

Utility boxes are an opportunity for adding wayfinding and placemaking. For example, this box could be wrapped in a sign providing historic information or used to identify an entry point to the canal walk and potential kayak access point.



IDLING VEHICLES

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SIDEWALKS AND TRAILS

South Bound Brook has a mixture of roads with and without sidewalks. Many residential streets do not have sidewalk yet have speeding drivers. The Borough should conduct a sidewalk inventory to identify priority areas to add sidewalk. The canal trail is a unique and inviting feature that is an attractive amenity.

Good Examples in South Bound Brook

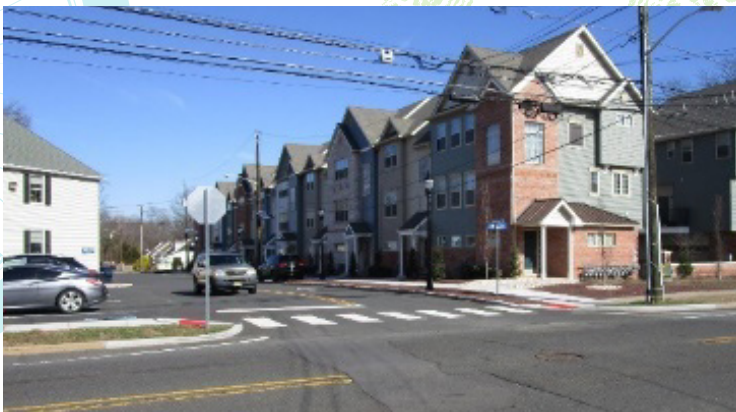
Quality Sidewalk and Street Furniture

Newer residential development on Elizabeth Ave across from the Robert Morris School features quality sidewalk and street furniture which is inviting to pedestrians.



ADA Pedestrian Infrastructure

New construction or renovations featured the most up-to-date, ADA compliant pedestrian infrastructure.



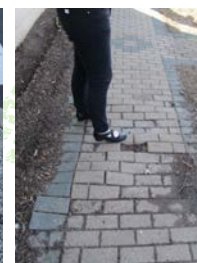
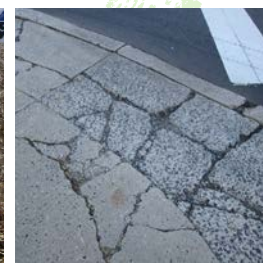
Canal Path in SBB

The canal path off Main Street is an enjoyable walk with nice natural features, however, it feels like visitors are unwanted due to the lack of signage, poor trail upkeep and lack of foliage maintenance.



Missing and Uneven Pavement

There are many area around town with poor sidewalk conditions including missing and cracked pavement and areas where vegetation encroaches onto the path.





PEDESTRIAN ACCESS

Good pedestrian access not only ensures safety and accessibility of walkers but increases foot traffic and improves quality of life.

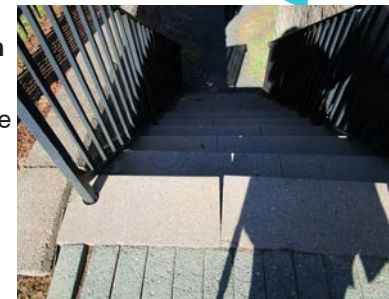
Narrow and Bumpy Sidewalks

Sidewalks along Main St. are narrower than standard and barely accommodates two pedestrians walking side-by-side. Although decorative brick pavers can provide an attractive aesthetic, they are discouraging for use by seniors, parents with strollers, and people with disabilities due to the bumpy surface. In addition, property owners have added other materials like stones in the buffer zones that further narrow the walking areas and decrease ADA compatibility.



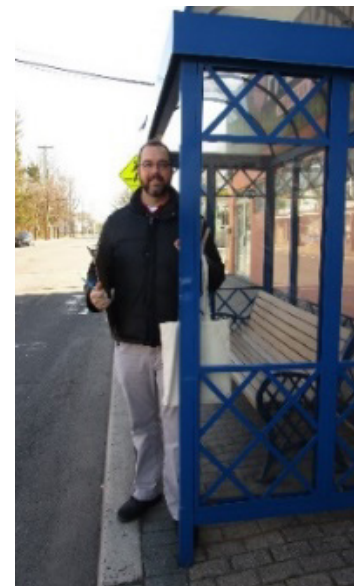
Exclusive Design of Access to Canal Path

The access to the canal path near the swing bridge does not have directional or informational signs which note it is a public area. The stairway to river through the new development is steep and in poor repair.



Bus Shelter Facilities on Sidewalk

The bus shelter on Main Street has a no setback from the curb which blocks access for some users, including people with disabilities.



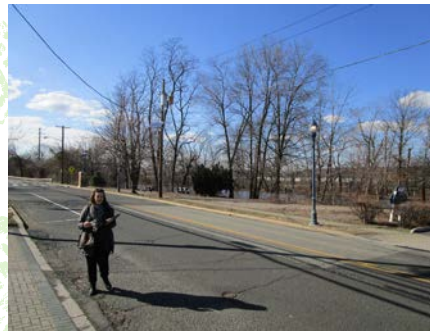
Lack of Pedestrian Access at Commercial Sites

Even though pedestrians have the right-of-way on sidewalks, people walking in front of QuickChek face fast turning vehicles and lack of better defined pedestrian space.



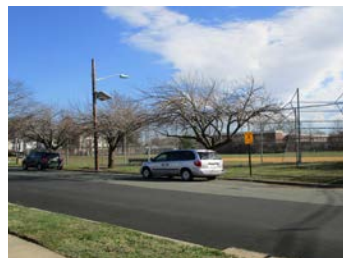
Unfriendly Crosswalk Location

Crosswalk location on Canal Rd. is too far from the canal park. The corner radius in front of the post office is wide creating longer crossing distances for pedestrians.



Lack of Pedestrian Access around school

Several sides of Memorial Park, near Robert Morris School, lack sidewalks



AMENITIES

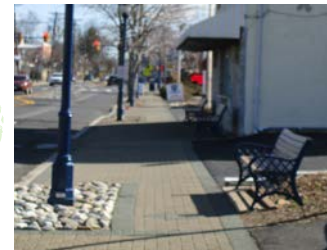
Walkway Lighting

Walkway lighting is provided along a pathway accessing the canal trail.



Isolated Benches, Need for Shade

Placement of benches are often not close enough to shopping facilities. [See woman sitting on the curb instead of using bench.] Benches are often lacking shade which would encourage pedestrians to linger and enjoy the area. Additional street trees would enhance aesthetics and provide needed shade.



Lifeless Canal Front

Canal pathway needs seating, garbage cans, and upkeep. This is a potential location for improved placemaking.



TURNING VEHICLE SPEEDS

Corner radii impact vehicle speeds and pedestrian crossing distance. Minimizing corner radii and defining driveway ingress and egress areas creates safer turning speeds of 15 mph or less which increases pedestrian safety.

Wide Corner Radius

Vehicles turn at high speeds at the intersection of Main Street and Maple Avenue due to the wide curb radius. Poor crosswalk, curb cut and pavement conditions are also visible. Water pools at the intersection and turning vehicles will splash waiting pedestrians.



Extremely wide turning radii off Main Street leads to higher vehicle turning speeds which creates increased risk for pedestrians and a longer crossing distance.



Excessive driveway width

Excessive driveway width on Warren St. to the commercial plaza off of Main Street puts pedestrians at risk due to turning vehicles and many conflict points.



Pedestrian Unfriendly Parking lot

Large trucks create an unfriendly environment for both vehicles and pedestrians. Many trucks parked in crosswalks in the downtown corridor.



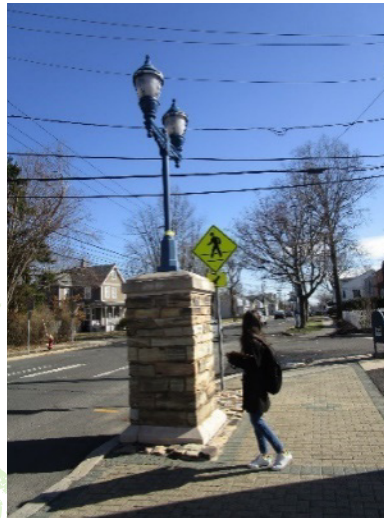
OBSTACLES

Sometimes objects get in the way. Pedestrian scale means creating human-proportioned features oriented to pedestrian activity, especial when considering the smaller heights of children who cross the street. When signage and architectural features obscure pedestrians, safety is compromised.

Findings

Decorative Street Light Obscures Pedestrians from Drivers

While aesthetically pleasing, the decorative street lights are not at pedestrian scale and obstructs the visibility of pedestrians crossing Main Street at Canal Walk.



Too Many Signs

Pedestrians crossing at crosswalk in front of Joe's Meat Market are hidden from driver's view by too many traffic signs. Sign post can be moved to provide increased pedestrian visibility.

ROAD DESIGN AND STREET SCAPE

Road and street scape designs can create a cool vibe in a town and help increase foot-traffic. Landscape and road designs can be incorporated with each other to maintain traffic safety while providing a better aesthetic quality and can incorporate storm water management features, see Green Streets Chapter.

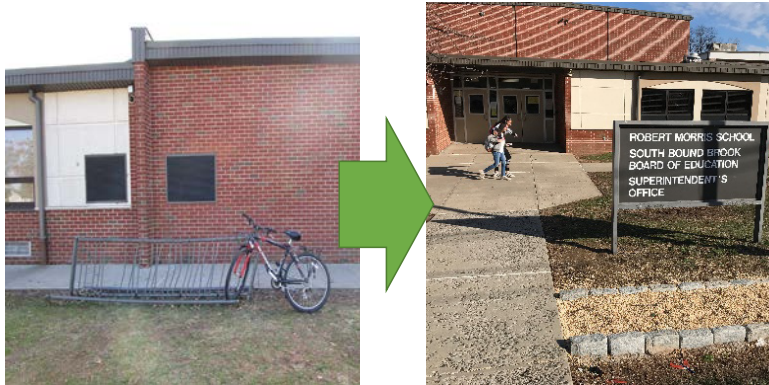
Traffic-Calming Island

Main Street includes a nice island that provides space for flowers. Adding trees and year-round plantings to this area would be helpful to create boulevard feel and encourage slower speeds. There is also an opportunity to extend the island to create protected pedestrian refuge areas. Incorporating storm water management through green infrastructure can be explored.



BICYCLE FACILITIES

There are very few bike friendly roads and facilities in South Bound Brook including a lack of secure bike parking.



Poor Bike Rack Location at School

The bike rack located at Robert Morris School is a double-sided rack which should allow bicycles to be parked at both sides. Since risk of bicycles being stolen is a concern, the rack should be moved to a more visible location in front of windows. A new rack should be installed in front of the windows to the main office/superintendent's office. See NJ School Bike Parking Guide, www.saferoutesnj.org/school-bicycle-parking-guide

Bike Parking on Main Street

Adding inverted U-shaped bike racks to Main Street is recommended to improve bike access and reduce vehicle parking needs.



BOARDED UP BUILDINGS

Abandoned Buildings at Gateway

Sadly, there are abandoned buildings causing an unsightly entrance to an otherwise pretty town. Vacant and broken buildings contribute to unfriendly walking environments, especially for children and seniors. Renovation and reuse of these buildings is paramount to further economic growth in the community. However, they provide an opportunity for interim improvements that can reflect positively on the neighborhood and be part of larger cultural programming through adding artwork, murals and wayfinding highlighting the history of the town. These murals can be designed by the community or commissioned by a local artist. See Crime Prevention Through Environmental Design chapter.



Source: Crime Prevention Through Environmental Design City of Paterson, NJ Audit

PRIORITY AREAS

The studio team has made a series of recommendations based on its walkability assessments, and engagement with community stakeholders. These recommendations based on the 5 E's of bicycle and pedestrian planning - engineering, education, encouragement, enforcement, and evaluation - will help make Bound Brook and South Bound Brook safer places for to walk and bike. In the following section, proposed design changes at certain priority locations have been discussed in further detail to help better illustrate the benefits of more pedestrian and bike friendly design.



TABLE 15: NEW JERSEY TITLE 39 PARKING DISTANCE

CROWWALK	25 FEET
STOP SIGN	50 FEET
FIRE HYDRANT	10 FEET
RAILROAD CROSSING	50 FEET
DRIVEWAY ENTRANCE TO FIRE STATION	20 FEET

Source: NJ statue 39:4-138

Use of flexible bollards & bike corrals

Flexible plastic bollards are an inexpensive way to improve pedestrian visibility and safety at crossings. Bollards can be used to create curb extensions or bulb-outs that extend the sidewalk into the parking lane to narrow the street crossing. They can be used at corners and at mid-block crossings to curtail illegal parking too close to crosswalks (see NJ statue 39:4-138, parking distance laws), shorten crossing distances, slow turning vehicles, and visually narrow the roadway to decrease speeding. Maintenance options need to be explored when considering the use of flexible bollards.

Additionally, these curb extensions can provide additional space for bike parking. Bike corrals are rows of bike racks that are installed in the no parking area on either side of a crosswalk. One corral can effectively accommodate up to 12 bicycles on 6 racks without obstructing sightlines, unlike parked vehicles.

BOUND BROOK

NJ-28 in front of Bound Brook High School



This is a wide busy street with a long crossing that serves as a transit corridor. Middle Earth students noted this as one of the most difficult crossings in Bound Brook.

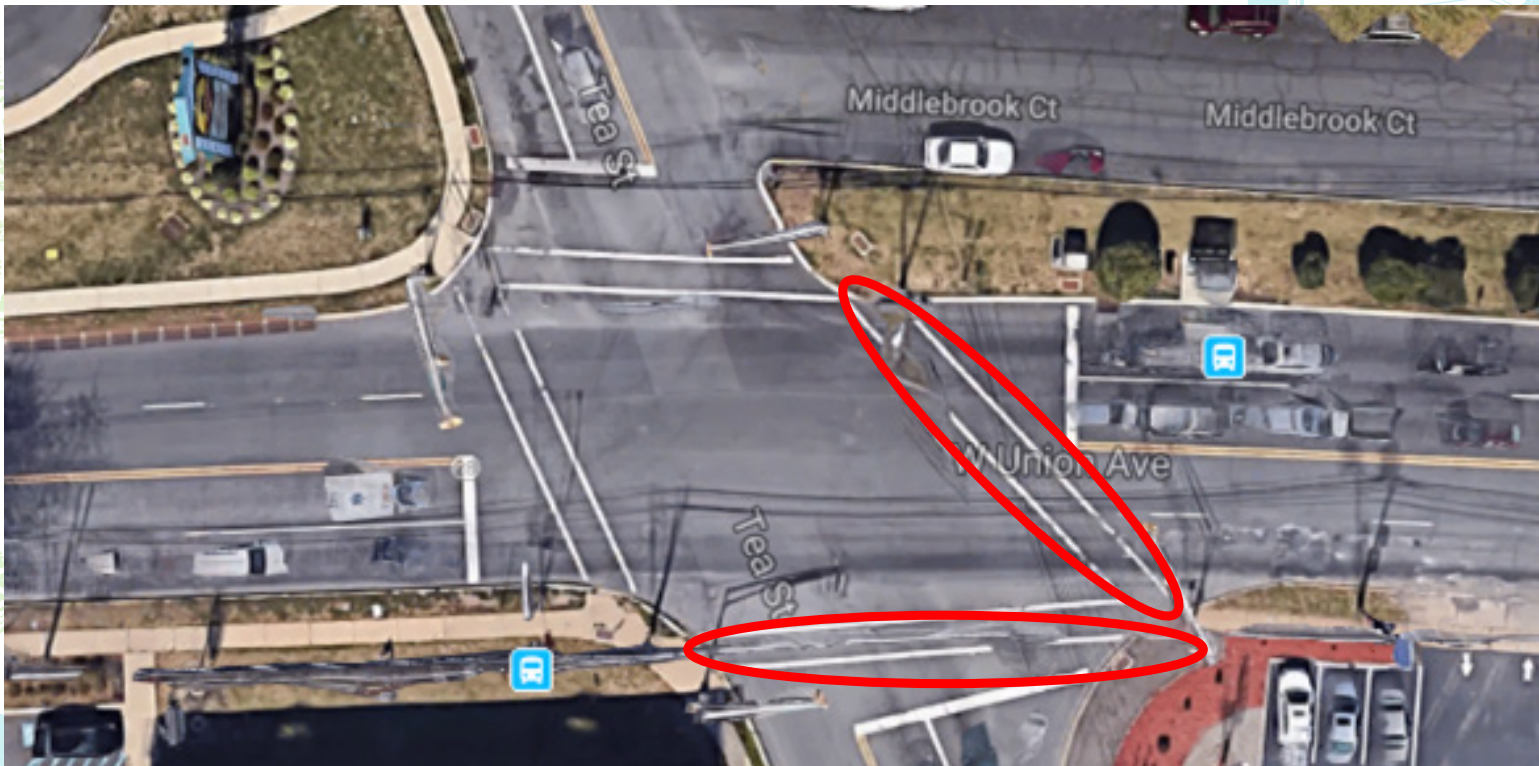
Concerns:

- Higher traffic volume
- Long, difficult crossings
- Speeding vehicles
- Wide travel lanes
- No bicycle infrastructure (e.g. racks, lanes, bicycle compatible shoulders)
- Lack of school zone markings & incorrect placement of school zone signage

Recommendations:

- Upgrade school zone flashing beacons (larger & MUTCD compliant, correct placement & updated tech)
- Add radar feedback signs
- Add "School Zone" & hi-viz crosswalk markings in street
- Improve Transit bus pull out areas
- Enforce no parking during school day
- Narrow travel lanes to add bike friendly shoulders/NJT bus pull outs
- Use curb extensions, bollards, or pedestrian refuge islands to shorten the crossing.





Intersection of NJ-28 and Tea Street

Though a difficult bicycle and pedestrian environment, this intersection is surrounded by trip attractors such as shops, restaurants, medical offices, and commercial businesses that are likely to generate bicycle and pedestrian travel.

Concerns:

- Relatively high pedestrian and cyclist crashes from empirical data
- Long crossings
- Missing sidewalk at crossing and to reach bus stop
- Wide curb radius



Intersection of NJ-28 and Tea Street

Recommendations:

- Add sidewalk to the island and connect bus shelter
- Add crosswalk between the island and residential blocks
- Make all crosswalks high visibility
- Shorten crossings by reducing curb radii
- Upgrade Ped crossing times to MUTCD standards
- Update infrastructure for ADA compliance (detectable warning surfaces and curb cuts)

Behind Lafayette Elementary School (2nd Street)

The area behind Lafayette School serves as an arrival and dismissal location for students walking and getting driven to and from school, creating conflicts.

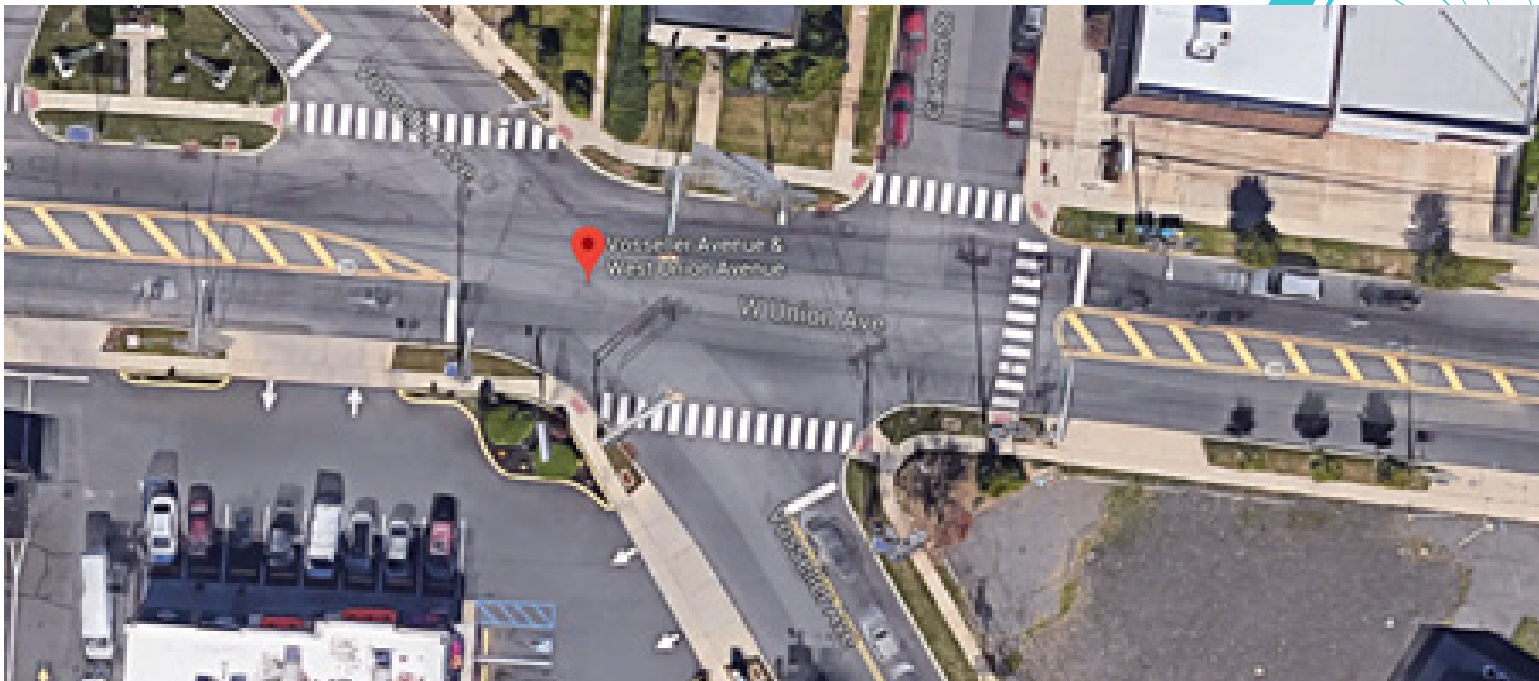
Concerns:

- Cracked and uneven sidewalks
- No "School Crossing" signs
- Missing curb cuts and ADA detectable warning surfaces
- Not a highly visible crossing
- Parent pick-up/drop-off too close to crosswalk

Recommendations:

- Repair broken sidewalk
- Improve crosswalk with high visibility crosswalk painting, ADA compliant curb ramps with detectable warning surfaces, and school crossing signage
- Use bollards or curb extensions to keep parents from parking too close to the crossing





W. Union Ave & Vosseller Ave

This long and difficult crossing is located within close proximity to the high school and shops and restaurants that serves as bicycle and pedestrian trip, generators.

Concerns:

- Long crossings
- Wide curb radii
- No countdown pedestrian signals

Recommendations:

- Extend painted median to create pedestrian refuge
- Add countdown pedestrian signals and increase crossing time to new MUTCD standards
- Tighten curb radii to shorten crossings, especially by Memorial and Dunkin Donuts





Vosseller Ave & West High Street

Speeding was observed along this long, straight section of Vosseller Ave.

Concerns:

- Speeding

Recommendations:

- Add mini roundabout using simple markings or a raised island with plantings using "green street" storm water management designs
- Add radar feedback signs



Source: NACTO Urban Street Design Guide

SOUTH BOUND BROOK

South Bound Brook Main Street Corridor

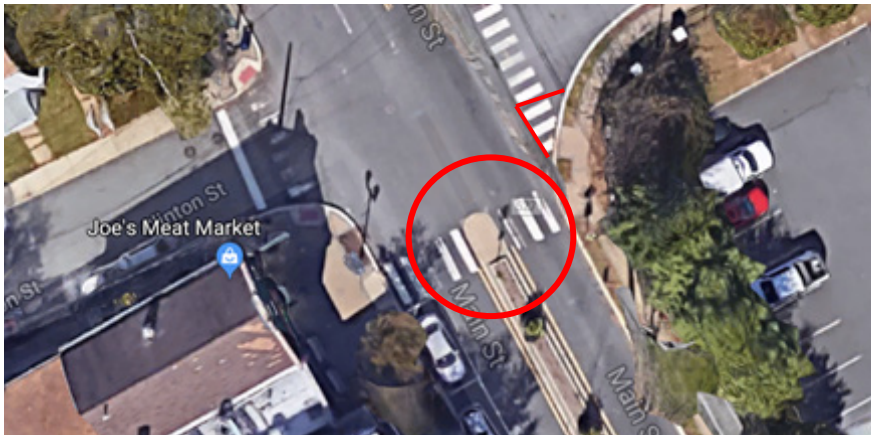
Main Street serves as a major thoroughfare and is home to the community's business area. As a result, higher pedestrian traffic should be expected and encouraged in this area.

Concerns:

- Crossings are long
- Drivers do not stop and stay stopped for pedestrians
- Wide turning radii at intersections
- Several barriers to pedestrian visibility
- Bus Shelters on road edge
- Quick Check driveways difficult to cross & access on foot

Recommendations:

- Create pedestrian refuge islands
- Explore adding 'green street' stormwater management treatments in medians
- Move signage that blocks pedestrian visibility
- Add wayfinding to canal trail
- Add bicycle parking
- Minimize turning speeds from major to minor streets. Flexible bollards at crosswalks enforces no parking areas, keep turning drivers off the crosswalk and reduce crashes with pedestrians.
- Reduce turning radius at corners



South Bound Brook Main Street Corridor Crossings - Edgewood Terrace, Maple, Washington, Cedar, Canal

Recommendations:

- Reduce curb radius (1st step) use paint and flexible bollards, (2nd step) concrete.
- Add ADA compliant curb cuts (To be installed 2018/2019 by Somerset County)
- Prohibit right turn on red
- Adjust wayfinding signage (some are too high and some are in the pedestrian headway)



South Bound Brook Main Street Corridor

QuickChek & Family Dollar

Recommendations:

- Work with owner to create clearly marked pedestrian paths to store entrances
- Continue sidewalk along Main Street
- Driveways should be designed for continuous and level pedestrian passage (New Jersey Complete Streets Design Guide pg 38)



South Bound Brook Main Street Sidewalks

Wider, ADA friendly sidewalks in a downtown area create a more welcome walking environment and have been shown to increase foot traffic and improve the local economy.

Concerns:

- Narrow, bumpy sidewalk
- Lack of ADA-compliant surface and curb ramps
- Many wide driveways
- Muddy buffer areas between sidewalk and road
- Lack of seating
- Auto-oriented

Recommendations:

- Update 4-foot sidewalk width to a 5-foot minimum clear path width to accommodate 2 wheelchairs passing each other to meet minimum ADA standards (NJDOT Complete Streets Design Guidelines pg 34)
- Replace sidewalk pavers with smooth concrete
- Use existing pavers to create attractive buffer areas
- Reduce driveway widths
- Add more seating



Edgewood Terrace & Armstrong Street

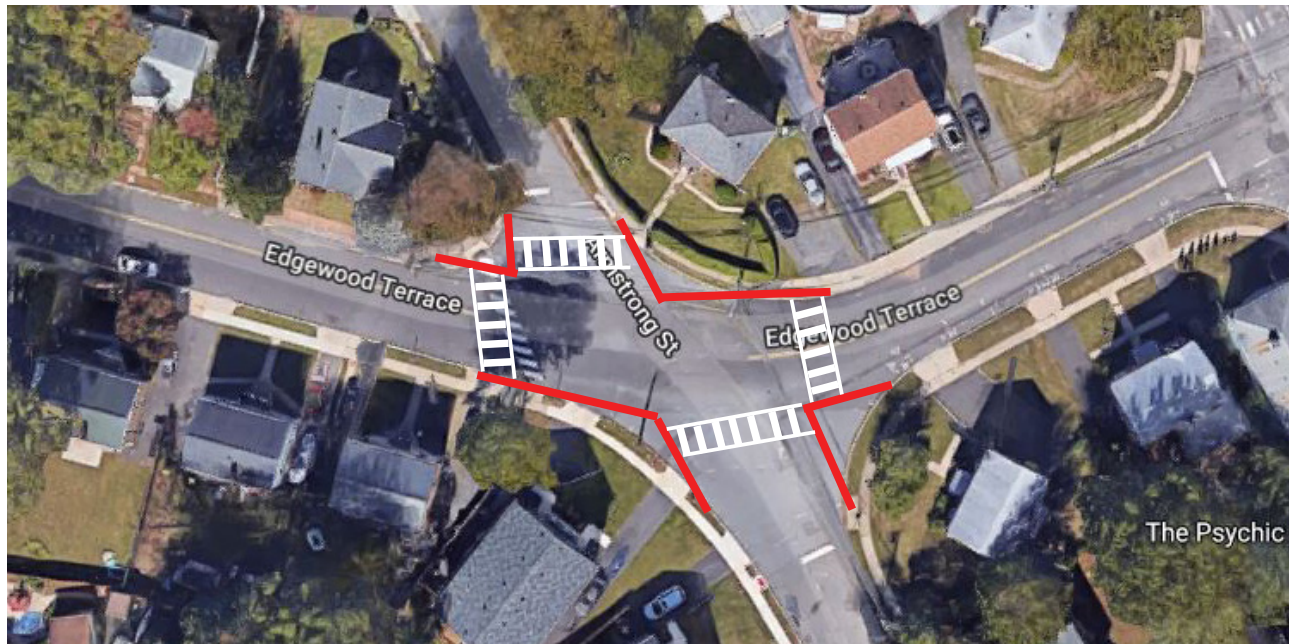
This extremely wide intersection was noted as an especially difficult place to cross by a Middle Earth student from South Bound Brook.

Concerns:

- Poor quality or missing crosswalks and sidewalks (ADA compliant curb ramps will be installed by Somerset County in 2018/2019)
- High motor vehicle speeds
- Wide curb radii

Recommendations:

- Sidewalk repair
- Shorten crossing distances and reduce width of pavement through use of paint and flexible bollards or curb extensions
- Add additional crosswalks



Robert Morris School

High quality bicycle parking located in a visible location could encourage more students to bicycle to school.

Concerns:

- Lack of bicycle facilities
- Current bike rack is poorly placed and in poor condition

Recommendations:

- Install new back rack to a more convenient location visible from inside the school.
- Consider additional bicycle parking
- See NJ School Bike Parking Guide, www.saferoutesnj.com



Memorial Park

Both Robert Morris School and adjacent Memorial Park serve as significant bicycle and pedestrian traffic generators.

Concerns:

- Lack of well-placed bicycle facilities
- Lack of sidewalk

Recommendations:

- Add sidewalk along High Street
- Install radar feedback signs
- Investigate restriping Elizabeth Ave. to narrow travel lanes to 10.5 foot and add on-street bike lanes.
- Move school bike rack to an area of school where there are more windows for visibility.
- Add bike racks for park.

