



Hamilton Avenue Walkable Community Workshop

Borough of Glen Rock, Bergen County, NJ

2019



About The Report

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Table of Contents

Executive Summary	1
Background	2
What is a “Complete Street?”	3
Benefits of Complete Streets	3
Walking Audit Location	6
Assessment of Need.....	7
Data	7
Workshop Methodology	9
Workshop Findings and Potential Considerations	10
Corridor Summary.....	10
Detailed Conditions.....	14
Recommendations.....	20
1. Adopt a Complete Streets Policy	20
2. Create a Neighborhood Greenway / Bicycle Boulevard	20
3. Use Tactical Urbanism Principles	24
Detailed Recommendations	26
Conclusion	32
Appendices	34

Executive Summary

Complete Streets are streets designed for all users, all modes of transportation, and all ability levels. They balance the needs of drivers, pedestrians, bicyclists, transit riders, emergency responders, and goods movement based on local context.

-State of New Jersey Complete Streets Design Guide

This report identifies a number of recommendations for potential improvements to Glen Rock’s Hamilton Avenue and details lessons learned by Glen Rock officials and other stakeholders that may be applied to other streets in the borough. The most significant recommendation reimagines the corridor as a bicycle boulevard, which would prioritize pedestrians and bicyclists through a combination of traffic calming infrastructure, signage, and public education. Additional recommendations include enhancing the pedestrian experience through the addition of high-visibility crosswalks and curb ramps that comply with the Americans with Disabilities Act (ADA). This report also recommends the adoption of a borough-wide complete streets policy.

The Borough of Glen Rock submitted an application to the NJTPA’s competitive Complete Streets Technical Assistance (CSTA) Program in 2018. The borough was one of nine communities selected out of 17 applications to receive up to \$10,000 in technical assistance. Glen Rock requested a Walkable Community Workshop (WCW) to explore the benefits of complete streets and develop strategies for making streets safer for the most vulnerable users — pedestrians and bicyclists. Staff from the Alan M. Voorhees Transportation Center (VTC) at Rutgers, The State University of New Jersey, led the workshop on November 28, 2018, with support from Sustainable Jersey (SJ) and the North Jersey Transportation Planning Authority (NJTPA).



Figure 1. Looking south on Hamilton Avenue during the audit.

The workshop included an hour-long classroom-style training in borough hall, and an on-site walking audit along the length of Hamilton Avenue, which serves two schools, the free public library, and a residential neighborhood. It intersects with Rock Road, which provides connection to the downtown commercial area and train station, and Maple Avenue, which connects with Route 208. During the walk audit, participants took a detailed look at existing conditions along the corridor and envisioned potential improvements. The audit found that Hamilton Avenue is generally in good shape, with a low speed limit, sidewalks on both sides, and well-maintained properties. The audit also identified a variety of opportunities to improve the pedestrian and bicycle experience.

While the workshop and report focus on Hamilton Avenue, the lessons learned during the half-day workshop can be applied to every municipal-owned road in Glen Rock. The field audit form can be found in this report’s appendices and can be repurposed for walk audits in other corridors within the borough. Another resource the NJTPA offers communities is Street Smart NJ, a pedestrian safety campaign that works to raise awareness of New Jersey’s pedestrian-related laws and change the behaviors that contribute to pedestrian-vehicle crashes. StreetSmart NJ campaign information, along with a list of potential funding resources, can also be found in the appendices.

Background

The North Jersey Transportation Planning Authority (NJTPA) created the Complete Streets Technical Assistance (CSTA) Program in 2018 to assist municipalities in advancing or implementing complete streets, which was a need identified through the Together North Jersey consortium. Sustainable Jersey (SJ) and the Alan M. Voorhees Transportation Center (VTC) at Rutgers University were retained to provide technical assistance for this program. The CSTA Program was designed to support nine municipal governments seeking to implement complete streets in their communities. Municipalities were selected for the program based on the following criteria: the need for technical assistance, commitment to implementation, stakeholder support, and the strength of the municipal team.

In October of 2018, the CSTA Project Team worked with the municipal officials to identify a corridor for the workshop (see “Walking Audit Location” section). Hamilton Avenue was selected and stakeholders were invited to participate (Figure 1).

At its core, the Borough of Glen Rock is an inherently walkable community, thanks to its centralized downtown district flanked by two train stations, clustered municipal amenities, and wide sidewalk coverage. However, an absence of bicycle lanes, substandard sidewalk ramps, and unmarked crosswalks hinder overall pedestrian and bicyclist travel.

In its application to the CSTA Program, the Borough of Glen Rock expressed interest in finding effective ways to communicate the need for added pedestrian and bicycle improvements within the community. Some of the proposed improvements include the recommendations of the 2015 Central Bergen Bicycle and Pedestrian Plan (CBBPP), which envisions interconnecting six municipalities with a network of bicycle and pedestrian accommodations. Unfortunately, implementation of the CBBPP has been limited, something that has largely been attributed to a lack of understanding of how the community can benefit from the improvements. The Borough of Glen Rock stated that a WCW would help educate stakeholders (such as elected officials and residents) on what complete streets are and how infrastructure improvements (such as those indicated in the CBBPP) can benefit the community. The workshop would also assist the municipality in identifying problems along a corridor and provide proposed steps the municipality could take in order to address the deficiencies. On November 28, 2018, the CSTA Project Team led the half-day WCW, which included a presentation on complete streets, a walkability audit, and a debrief.



Figure 2. Facing north on Hamilton Avenue in Glen Rock, New Jersey.

What is a Complete Street?

Complete streets are streets designed for all users, all modes of transportation, and all ability levels. They balance the need of drivers, pedestrians, bicyclists, transit riders, emergency responders, and goods movement based on local context (Figure 3). Complete streets should be tailored to the specific needs of the surrounding environment. A school zone, for instance, may require reduced speed limits, narrower travel lanes, and wider sidewalks to induce a safer setting for students. Meanwhile, streets along transit routes will incorporate the needs of bus and rail commuters by installing benches, shelters, and enhanced lighting and signs.

Regardless of the context, complete streets should be designed to improve safety for pedestrians and bicyclists who are the most vulnerable road users. Reduced speed limits, raised medians, and other design elements can be used to create a safer environment for seniors, children, and people with disabilities.

To put traffic speeds into perspective, a 10 mph reduction in vehicle speed dramatically decreases the chance of pedestrian fatalities in a collision. The U.S. Department of Transportation (USDOT) cites collisions in which pedestrians are struck by a vehicle traveling 40 mph as being fatal 85 percent of the time. Comparatively, at 30 mph, the pedestrian fatality rates drop to 45 percent, and down to 5 percent at 20 mph (Figure 4).¹ Complete streets recognizes that users of all transportation modes, whether it be car, bus, train, or taxi, at some point during their journey become a pedestrian. Creating a safer environment benefits everyone.

1. Leaf, William A., and David F. Preusser. 1999. Literature review on vehicle travel speeds and pedestrian injuries. DOT HS 809 021. Washington, DC: U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/research/pub/HS809012.html>.



Figure 3. A complete street, as seen in New Brunswick, New Jersey. No two complete streets are alike, as they should always reflect the context of the street and the character of the community.

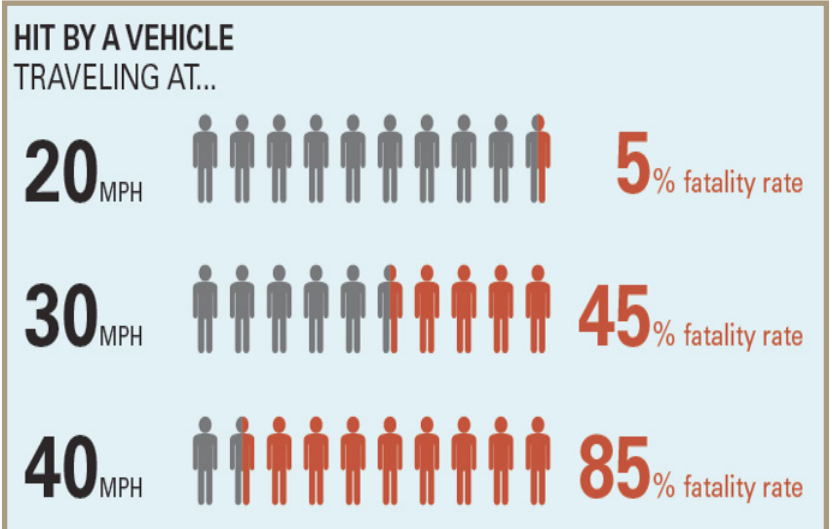


Figure 4. Graphic showing increased fatality rate as vehicle speeds increase.

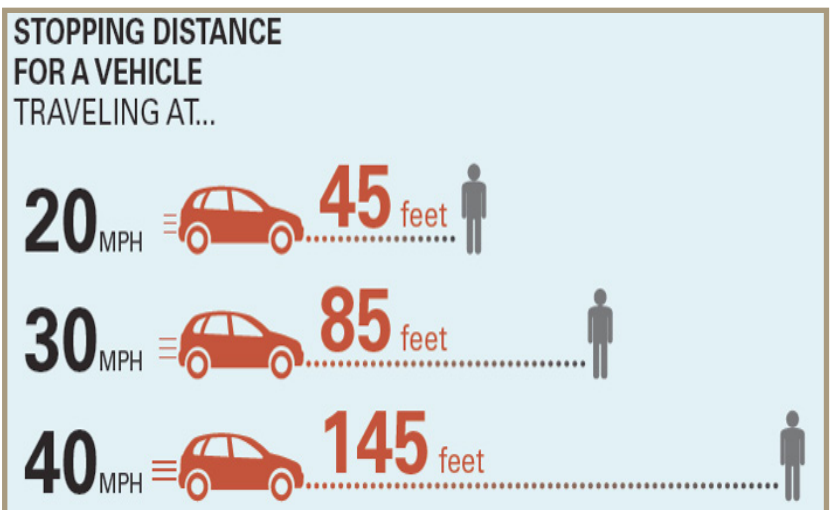


Figure 5. Graphic showing increased stopping distance as vehicle speeds increase.

Benefits of Complete Streets

While the primary benefit of complete streets is improved safety for all roadway users, there are other positive outcomes. Complete streets create better places to live, work, and do business. These benefits include mobility, equity, health, quality of life, economic vitality, and environmental health.

Mobility

Creating or enhancing multi-modal transportation options creates mobility opportunities for everyone, including non-drivers, youth, and senior citizens (Figure 6). In turn, increased mobility improves access to jobs and services, which is crucial for people who cannot afford or choose not to own a car, as well as those who are unable to drive due to a disability or their age.



Figure 6. When a street lacks accessible sidewalks and ramps, it is not complete.

Equity

Complete streets decrease the necessity of the automobile regarding access to opportunity. Transportation costs comprise a significant portion of a household budget, approximately 20 percent in the United States. Much of this is due to the high cost of automobile ownership, including insurance, fuel, maintenance, registration fees, and financing. However, household transportation costs drop to just 9 percent in communities with improved street connectivity and accommodations for other modes. Connected communities allow residents to use less energy and spend less money to get around, allowing for fewer car trips and the use of other less expensive modes of transportation like bicycling, walking, or public transit. Providing a variety of transportation choices across different price points allows families to free up more money for housing or other needs.

Health

Complete streets enhance opportunities for increased walking and bicycling which in turn leads to the numerous health benefits associated with increased physical activity. The Center for Disease Control (CDC) supports complete streets as a means to prevent obesity.

Quality of Life

Livable, walkable communities diminish the need for automobiles. Walking or bicycling around town creates a sociable environment, fostering interactions between family, friends, or clients and increasing community involvement. These interactions, in turn, entice users to enjoy the surroundings they would otherwise ignore in a car. A reduction in vehicle use can also increase the quality of life thanks to reductions in noise and stress associated with congestion and crashes.

Economic Vitality

Improving streetscapes revitalizes business districts. Complete streets generate more foot traffic when they create great places where people want to be, which can encourage both residents and visitors to spend more money at local shops and restaurants that they may have driven past before. Such is the experience in Somerville, New Jersey, where one block of Division Street was converted to a pedestrian plaza. The area witnessed a sharp decline in vacant commercial properties; vacancy dropped from 50 percent to zero after the plaza was developed (Figure 7)².



Figure 7. Division Street in Somerville was converted into a pedestrian plaza that has become a popular gathering space.

2. "Complete Streets Case Study: Somerville, New Jersey," Alan M. Voorhees Transportation Center, 2016.

Environmental Health

By reducing automobile use, complete streets can contribute to cleaner air. Additional sustainable design elements installed along complete streets can also bring other environmental benefits. For example, landscape improvements (green streets) can reduce impervious cover, reduce or filter stormwater runoff, and contribute to water quality improvement.

Complete Streets in New Jersey and Glen Rock

New Jersey is a leader in the complete streets movement. In 2009, the New Jersey Department of Transportation (NJDOT) was among the first state DOTs in the nation to adopt an internal complete streets policy. In 2010, the National Complete Streets Coalition ranked NJDOT's complete streets policy first among 210 state, regional, county, and municipal policies nationwide. Communities of all sizes throughout the state have joined NJDOT in adopting complete streets policies. Of New Jersey's 21 counties, eight have adopted complete streets policies. Additionally, 153 municipalities have implemented complete streets policies affecting 3.8 million (44 percent) of the state's residents.³ Currently, both Bergen County and Glen Rock Borough lack complete streets policies.

3. New Jersey Bicycle and Pedestrian Resource Center, "NJ Complete Streets Policy Atlas," 2018. <http://njbikeped.org/complete-streets-2/>.

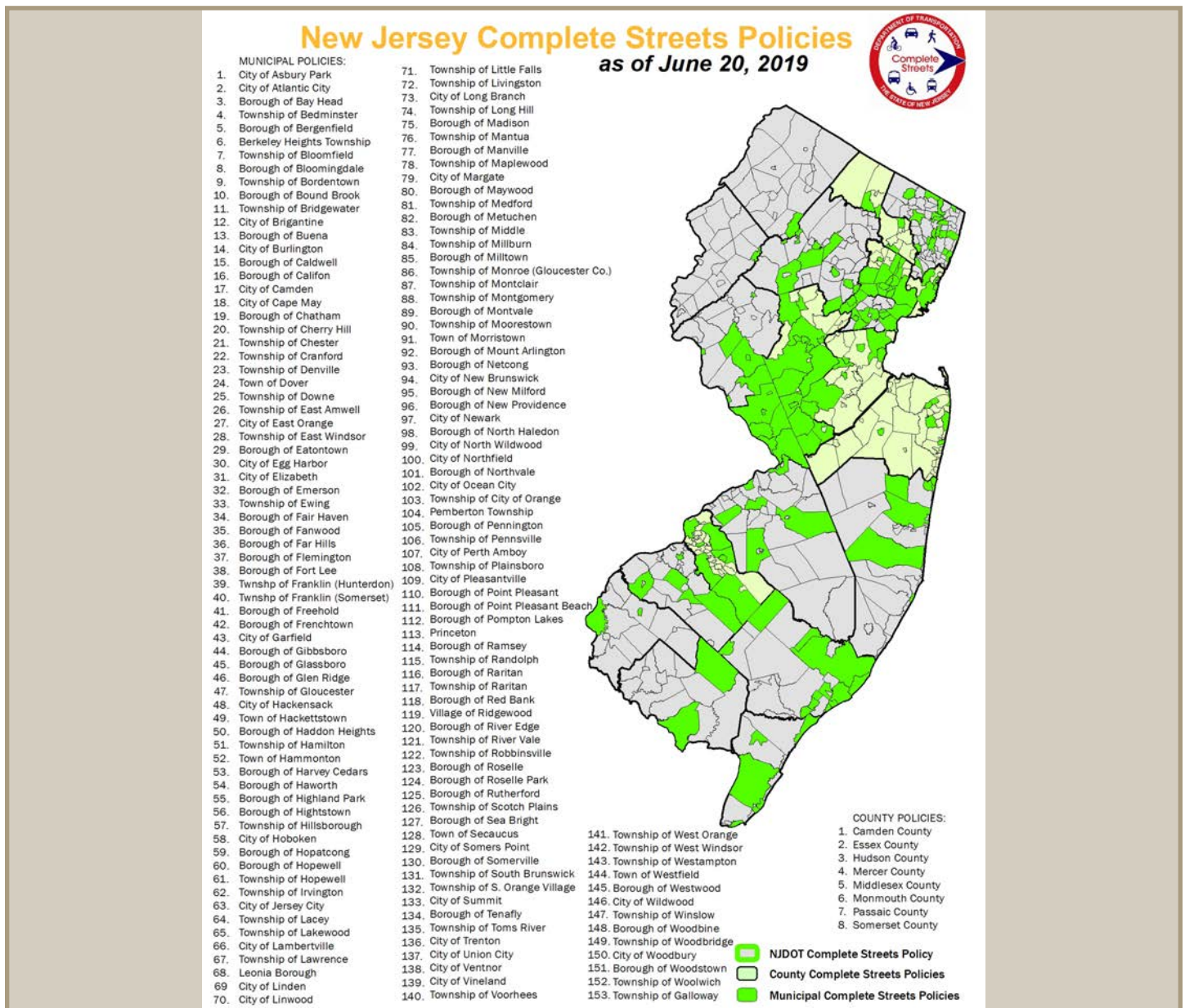
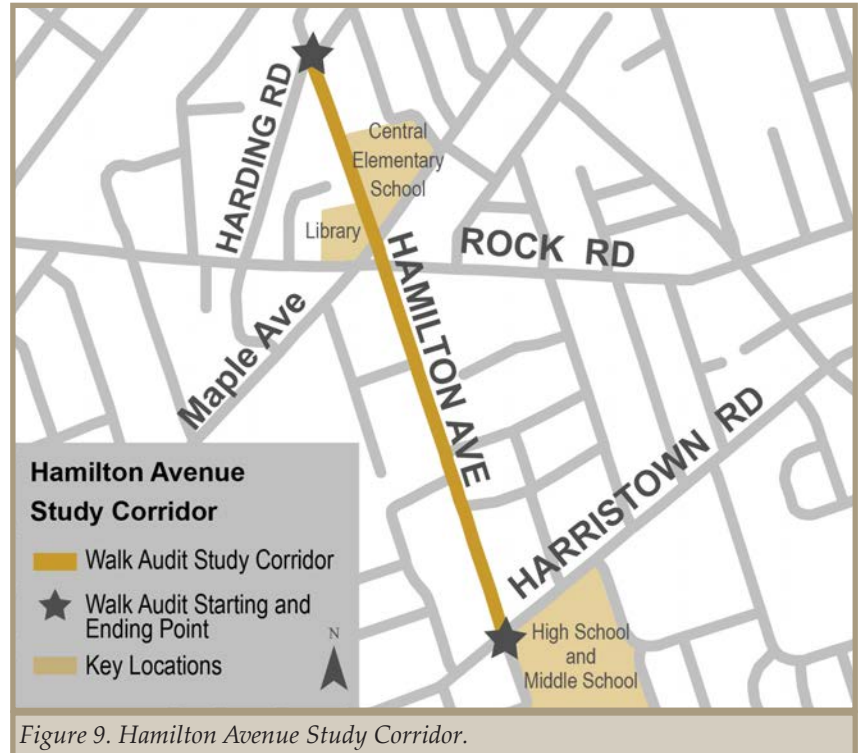


Figure 8. Complete Streets Policies in New Jersey, as of March 18, 2019.

Walking Audit Location

The Borough of Glen Rock is home to approximately 12,000 residents and occupies an area of 2.7 square miles. The median age is 42, and 76 percent of residents have a college degree. The labor force is comprised of approximately 6,420 workers, with administrative support (16.9 percent) and sales (12.7 percent) as the top occupations. The community enjoys a 92 percent homeownership rate, with an estimated median household income of \$181,719 (US Census Bureau, 2017).

Glen Rock has a disconnected road network with residential streets feeding into larger north-south and east-west collectors. Rock Road is the principal east-west collector, providing access to municipal buildings and the downtown commercial area, which is located between Hamilton Avenue to the east and Doremus Avenue to the west. Glen Rock has access to two NJ Transit train stations, located on Rock Road, adjacent to the study corridor. Commuters access the Borough Hall or Main Line train stations and take the Main/Bergen or Port Jervis lines to Hoboken in 30 to 40 minutes. In 2013, Rock Road had an annual average daily traffic (AADT) volume of 8,665 vehicles. Although Rock Road was considered for this study, it was previously looked at as part of the 2015 CBBPP study the county conducted.⁴ In order to best allocate resources, a 0.7 mile section of Hamilton Avenue was instead recommended for the study.



Hamilton Avenue runs roughly north to south, starting at South Broad Street on the north end, and terminating in front of Glen Rock High School and Middle School on the southern end. A small section between Maple Avenue and Rock Road has been blocked to traffic by the municipality in order to improve safety at these two intersections, which have a history of crashes. The long-term plans for this segment are to create an expanded park or plaza.

4. New Jersey Bicycle and Pedestrian Resource Center, "NJ Complete Streets Policy Atlas," 2018. <http://njbikeped.org/complete-streets-2/>.

Assessment of Need

Hamilton Avenue is classified as a local road with a posted speed limit of 25 mph and is mostly bordered on both sides by large single-family homes. The only non-residential attractions are the schools, library, and a church. As a small borough, Glen Rock does not offer bus service for its schools. As such, many students walk to and from school along Hamilton Avenue. Sometimes the road is also used as a vehicular cut-through between the High School and the downtown area. Since the road is straight and sees limited traffic, some drivers take the opportunity to speed.

Hamilton Avenue was selected for this study due to its proximity to the combined High School and Middle School building on one end, and the Glen Rock Public Library and Central Elementary School on the other end. Of the 2,526 students enrolled in the Glen Rock Public Schools district, 1,626 attend one of the three schools on the Hamilton Avenue corridor⁵. Additionally, the corridor was identified in Bergen County's CBPPP as a proposed candidate for shared lane markings (sharrows) to better accommodate bicyclists (Figure 10). The town sought to use the WCW to identify specific bicycle and pedestrian improvements, and as a mechanism for education and outreach to gain support to advance the recommendations of the county's plan.⁶

The walk audit provided an opportunity to educate the attendees on how sharrows recommended by the CBBPP can help bicyclists and motorists by creating a safer environment for all users. The lessons learnt during the audit and the improvements proposed for Hamilton Avenue can be used as a template for other roadways in Glen Rock, thereby establishing a complete network of safe streets.



Figure 10. Example of a sharrow.

Data

Traffic

A traffic study conducted in 2014 by the Glen Rock Police Department at Hamilton Avenue and Gramercy Place found an annual average daily traffic (AADT) volume of 2,133. The busiest day of the week was Wednesday, with 2,479 vehicles, compared to just 1,388 on a Sunday. A 2012 traffic study between Harding Road and Maple Avenue found an AADT of 949. The busiest day of the week was Tuesday, with 1,062 vehicles, compared to just 645 on a Sunday. By comparison AADT on nearby intersecting arterial roadways are: Maple Avenue (10,650 vehicles), Rock Road (8,665 vehicles), and Harristown Road (5,270 vehicles).

Speed

The Glen Rock Police Department also collected traffic speeds when it studied volumes. For Hamilton Avenue at Gramercy Place, it found that the 85th percentile speed was 35 mph. This indicates that 15 percent of vehicles were traveling above 35 mph. Only 37 percent of vehicles were traveling at or below the 25 mph speed limit. This confirms that drivers speed on Hamilton Avenue. The fastest speed observed was one vehicle driving at 45 mph between 2 p.m. and 3 p.m.

On the northern section of the corridor, between Harding and Maple Avenue, the 85th percentile speed was 28 mph. Unlike the southern section, 76 percent of drivers were observed to be moving at or below the 25 mph speed limit. The fastest speed observed on this section was 34 mph.

Crash History

Hamilton Avenue does not have an extensive crash history. Only two crashes involving bicyclists or pedestrians were recorded between 2014 and 2018 (Figure 11). Other crashes along Hamilton Avenue have mostly involved drivers hitting parked vehicles.

5. https://www.glenrocknj.org/about_grps

6. <https://www.njtpa.org/getattachment/d5b47251-2ede-48bd-9f8b-9739705aa8b1/Bergen-County-Central-Bergen-Bicycle-Pedestrian-Pl.aspx>

Crashes Along Hamilton Avenue, 2014-2018



Figure 11. Map showing number and location of crashes along the study corridor, 2014-2018.

Table 1. Pedestrian and bicycle crashes along Hamilton Avenue, 2014-2018.

Location	Date	Time	Crash Type	Pedestrian Age	Pedestrian Gender	Severity	Intersection	Lighting
Rock Road and Hamilton Avenue	12/15/2016	15:26	Pedestrian	13	Male	Injury	No	Daylight
Harristown Road and Hamilton Avenue	6/30/2018	14:11	Bicycle	22	Male	Injury	Yes	Daylight

Workshop Methodology

Prior to conducting the workshop, the CSTA Project Team visited Glen Rock and observed Hamilton Avenue to gain a better understanding of the road, its location, use and appropriateness for a walk audit. The municipal team was responsible for selecting a group of stakeholders to attend the workshop. Workshop participants included representatives from the Glen Rock Police Department, Department of Public Works, the School District, and the Free Public Library. Additionally, two long-time residents of Hamilton Avenue participated in the workshop.

The WCW included a one-hour presentation on the fundamentals of complete streets and best practices concerning pedestrian design to ensure that all attendees had a common understanding of complete streets and the relationship between road design and behavior (Figure 12). It included instruction on ways to better support walking and bicycling, and insight into the causes of vehicular speeding. Additionally, the presentation explained various traffic engineering techniques to accommodate bicyclists and pedestrians, and proven measures to reduce speeding.



Figure 12. Complete Streets Presentation given at the borough offices.

Following the indoor presentation, participants were outfitted with safety vests, clipboards, and audit forms. Two groups audited both sides of the Hamilton Avenue corridor, beginning at the intersection of Hamilton Avenue and Harding Road. The audit consisted of discussing issues, writing observations and taking photographs of existing conditions that they saw (Figure 13). A post-audit debrief was conducted for the two teams to discuss the most important findings and potential recommendations for improvements.



Figure 13. Participants gathered at the start of the walk audit, on Harding Road.

Workshop Findings and Potential Considerations

This section highlights the existing conditions of the study corridor that were identified during the walk audit. It begins with corridor-wide commonalities of Hamilton Avenue, including sidewalks, intersections, safety, and comfort. This is followed by a detailed description of conditions along the route.

Corridor Summary

Sidewalks

While sidewalks are present along the entire corridor and are generally in good condition, there are a few instances where the sidewalks are cracked or raised (Figure 14, Figure 15). The five-foot sidewalks also represent the bare minimum width necessary for pedestrians to walk side by side, which may discourage some students from walking on the sidewalk. Although the New Jersey Complete Streets Design Guide states that a minimum width of five feet is required to meet accessibility standards, the desired sidewalk width should be based on pedestrian needs. Since the majority of foot traffic consists of groups of students, a wider sidewalk is warranted along portions of the corridor, and installation of a six-foot wide sidewalk would be appropriate. Additionally, the sidewalk narrows in sections where trees were previously planted. For most of the length, the sidewalks are separated from the roadway with a small planting strip, which creates a buffer between pedestrians and moving vehicles. Other issues observed along the corridor included incursion by vegetation (Figure 16), and a cross slope towards the roadway (Figure 17).



Figure 14. The sidewalk frequently narrows where mature trees once stood. The roots of those trees have raised the sidewalks at some locations.



Figure 15. The corridor has continuous sidewalks on both sides, although cracking is apparent in parts.



Figure 16. Sidewalk blocked by vegetation.



Figure 17. Sidewalk sloped towards roadway.

Intersections and Crosswalks

There are standard crosswalks across the intersecting side streets along either side of Hamilton Avenue, but crosswalks are non-existent for crossing Hamilton Avenue for long stretches of the corridor (Figure 18). The only locations with painted crosswalks across Hamilton Avenue are at the intersections with major county roads (Maple Avenue, Rock Road, and Harristown Road). The only high-visibility crosswalk is located at the Harristown Road intersection. ADA compliance is poor at intersections, with most curb ramps not meeting current standards (Figure 21). Additionally, there are no ramps positioned to allow pedestrians to cross Hamilton Avenue at the numerous T-intersections.

At these same major intersections, large turning radii allow drivers to quickly enter Hamilton Avenue (Figure 20). This results in higher driving speeds can intimidate pedestrians and reduce the likelihood that drivers will stop for people who are waiting to cross. Intersection geometry should be designed for the types of vehicles that typically frequent the intersection and does not need to be designed for larger vehicles if they are an infrequent occurrence. There are no traffic signals at Maple Avenue, Rock Road, or Harristown Road, so drivers are required to stop and stay stopped for a pedestrian that wants to use the crosswalk. Unfortunately, not all drivers follow the law, making it difficult for pedestrians to cross at these locations.



Figure 18. Crosswalks across Hamilton Avenue are absent at the various T-intersections, (looking north on Hamilton Avenue).

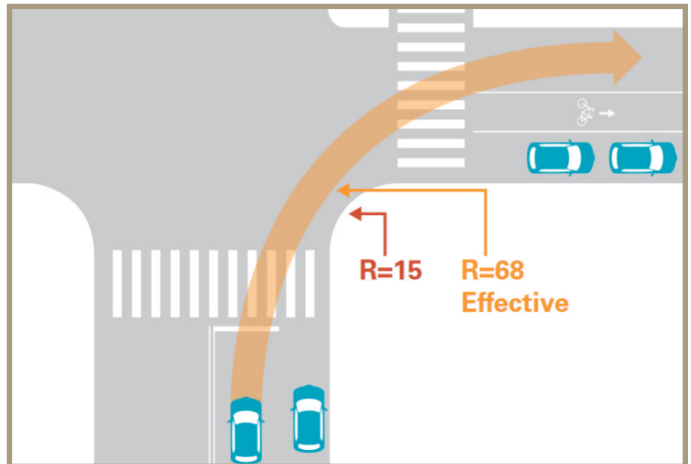


Figure 19. The actual turning radius (red) should be minimized to lower vehicle turning speeds. A larger effective turning radius (orange) is still available to larger vehicles as they can use the full width of the roadway to turn.



Figure 20. Wide turn radius at various intersections.



Figure 21. Ramps not ADA compliant along corridor.

Safety

When the corridor was audited at 2 p.m. on a weekday, both vehicular and pedestrian traffic was light. Overhead cobra lighting exists along the corridor and although Hamilton Avenue was not observed at night, this lighting is probably adequate for the residential character of the neighborhood. The exception is at intersections, where additional lighting may improve the visibility of pedestrians in crosswalks; although a nighttime observation would be needed to ascertain whether there is a pedestrian visibility problem. Residential properties along the corridor appear to be well maintained, which indicates that property owners are vigilant about the state of their community.

Three traffic safety concerns were apparent during the audit. The first was the ease at which drivers could reach high speeds between Harristown Road and Rock Road. This is possible because it is a long, straight section of road without any traffic controls (Figure 22). Second, between Harding Road and Maple Avenue, the narrow width of the street discourages speeding. However, when the street is further narrowed with leaves or snow, the possibility of vehicle collisions (sideswipes) increases (Figure 23). Finally, crossing Maple Avenue and Rock Road can be dangerous for pedestrians due to the high traffic volumes on these roadways and the lack of a pedestrian signal. Although pedestrians can walk to the nearby signalized intersection, most pedestrians prefer to use the most direct route to their destination.



Figure 22. High speeds are possible along Hamilton.



Figure 23. Roadway narrowed by leaves near Elementary School.

Comfort and Appeal

There were no litter, graffiti, or other quality of life concerns observed that could discourage walking or bicycling along the corridor.

Within the last decade, Glen Rock lost a large quantity of trees during several storms. Many of these trees were not replaced, leaving behind obvious gaps along the sidewalk where trees once grew. Tree replacement would assist with traffic calming, as they visually narrow the width of the roadway to drivers. Trees also can enhance the attractiveness of the corridor and provide additional shade. Because large trees can block street lighting at night, it is important to consider placement and canopy size when planting. It is also important to consider the root structure of fully grown trees, as they can disrupt the sidewalk. Green streets principles, such as a rain garden, can be applied to tree pits and curbing at time of planting to reduce stormwater runoff.

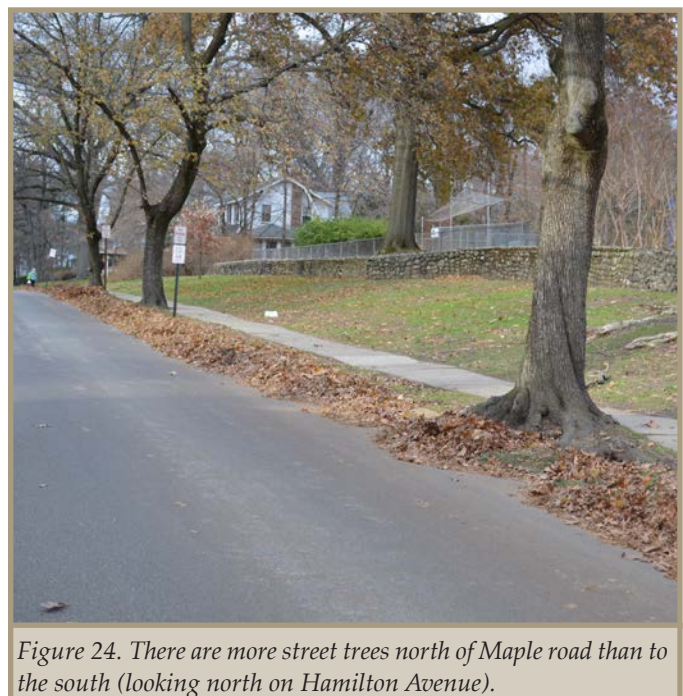


Figure 24. There are more street trees north of Maple road than to the south (looking north on Hamilton Avenue).



Detailed Conditions

Harding Road to Maple Avenue

The study corridor begins at the intersection of Hamilton Avenue and Harding Road (Location A on map). This is a challenging intersection due to the skewed angle at which the two streets intersect. Additionally, Harding Road is slightly offset on each side, and arrives with a minor slope. At this intersection, Hamilton Avenue has the right of way, with Harding Avenue controlled by stop signs.

On the east side of the intersection, Harding Avenue is very wide due to the angle at which it meets Hamilton Avenue, resulting in a very large turning radius at the intersection. While there is no painted crosswalk, the crossing distance for pedestrians is approximately 80 feet. Traffic moving westbound on Harding Avenue is split into two lanes at the intersection, with the right lane intended for vehicles continuing right or straight, and the left lane for those turning left. These lanes are separated by a painted traffic island (Figure 25). The stop sign is placed well before the intersection, but has been supplemented with the word STOP painted on the roadway, along with a stop bar. While the position of the stop bar maximizes visibility for drivers, it positions stopped vehicles where pedestrians would naturally choose to cross. At the time of the site visit, all the painted markings were white, although Google Streetview notes that they were previously painted yellow.

Striping dividing directions of traffic should be yellow, while the traffic island dividing traffic moving in the same direction should be white, according to the federal Manual on Uniform Traffic Control Devices (MUTCD). The west side of the intersection also has a painted stop bar with the word STOP, and the stop sign is properly positioned close to the intersection.

There are no marked crosswalks at this intersection and the existing sidewalk ramps are not ADA compliant and are oriented towards the center of the intersection, rather than into the unmarked crosswalks (Figure 26). On the northern leg of the intersection, an additional curb ramp is warranted to allow for the shortest possible crossing distance. The intersection has a single overhead cobra light on Hamilton Avenue, over where the northern crosswalk would be.



Figure 25. Wide crosswalk, split lanes, and traffic island at Harding Avenue.



Figure 26. Crosswalks are not painted in any direction (looking northeast).

South of the intersection, Hamilton Avenue has one lane of traffic in each direction, with parking prohibited on the eastern side. The road feels narrow, and during the fall and winter, fallen leaves and snow further narrow the roadway. Lanes are unmarked, but the speed limit is clearly signed for 25 mph. Sidewalks are present on both sides of the street, and are of similar width and quality. Generally, they are in good condition, with some occasional cracks. In several locations, the walkable space narrows due to overgrown vegetation from neighboring properties. This is especially true just south of the intersection with Harding Avenue, where a large bush makes the walkway feel claustrophobic.

Approaching Central Elementary School, southbound drivers are presented with a large school warning sign featuring flashing yellow lights that are activated at the appropriate times (Figure 14). Google Streetview shows that in the past, this sign was accompanied by pavement striping that said SCHOOL but this was not visible during the audit. The curb on the east side of the street is painted yellow along the school property to reinforce the ban on parking. The sidewalk in front of the school narrows in part to allow space for trees; however, some of the trees are no longer there.



Figure 27. Sign warning southbound traffic of upcoming school zone

A mid-block crosswalk is painted in front of the school (Location B). Southbound traffic is presented with an outdated “Caution school crossing” sign prior to the crosswalk, and then a modern pedestrian crossing sign at the sidewalk itself (Figure 28). However, the sign at the crosswalk is mostly blocked by tree canopy. Northbound traffic sees a modern “pedestrian crossing ahead” sign prior to the crosswalk, and then an additional sign at the crosswalk (Figure 29). The crosswalk itself is mostly faded, and is a mixture of white and yellow paint. Google Streetview shows that in the past, the crosswalk had a fake brick overlay. In the southbound direction, the curb has been painted yellow just prior to and just after the crosswalk to remind drivers that it is illegal to park close to the crosswalk. There is no other physical barrier to prevent drivers from parking illegally. At the appropriate times, a crossing guard is posted to facilitate crossings. Auditors found remnants of an in-street pedestrian crossing sign.



Figure 28. Mid-block crosswalk in front of school, looking south.



Figure 29. Mid-block crosswalk in front of school, looking north.

South of the school, on the west side of the street, the sidewalk is interrupted by the vehicle entrance to the Glen Rock Free Public Library. There is no painted crosswalk, and the curb ramps are not ADA-compliant. As Hamilton Avenue approaches Maple Avenue, the street widens due to the angle at which the roadways intersect. This results in a 70-foot crossing distance within the marked crosswalk (Figure 30). The turning radius on both corners is very wide, allowing vehicles to quickly enter and exit Hamilton Avenue without stopping.



Figure 30. Very wide turning radius at the intersection of Hamilton and Maple.



Figure 31. Portion of Hamilton Avenue closed to traffic with temporary traffic control.

Maple Avenue to Rock Road

Hamilton Avenue intersects with Maple Avenue (CR 507) and Rock Road (CR 134) in rapid succession – the two intersections are only 150 feet apart. Additionally, Maple Avenue and Rock Road intersect with each other less than 200 feet to the west. This results in three intersections in very close proximity, creating a triangular island in the middle. However, only the intersection of Maple Avenue and Rock Road is controlled by a traffic signal. Due to the complications created by this arrangement, Glen Rock recently decided to close the section of Hamilton Avenue between Maple Avenue and Rock Road to vehicular traffic (Figure 31, Location C). The municipality would like to make this closure permanent, and use the space for a public park or plaza.

Maple Avenue has the right of way over Hamilton Avenue, which is controlled by a stop sign. Just north of the intersection, Maple Avenue has a stop bar accompanied by a “do not block intersection” sign. During the audit, motorists were observed adhering to the sign, and leaving the intersection open for turns onto and off Hamilton Avenue. Crosswalks are painted across Hamilton Avenue, but not Maple Avenue. All four corners of the intersection have curb ramps, although none meet ADA standards. If crosswalks were to be painted at their current locations, the resulting crosswalks would be very long due to the skewed angle created by the ramp positions.

Rock Road also has the right of way over Hamilton Avenue, which has a stop sign. Unlike the Maple Avenue intersection, pedestrians do have one painted crosswalk across Rock Road on the east side of the intersection. This crosswalk is marked with high visibility striping. Eastbound traffic is presented with a “stop for pedestrians in crosswalk” sign, while westbound traffic has a standard crosswalk sign and a stop bar. All four corners have curb ramps, but none of them meet ADA standards. There is one overhead cobra light at this intersection, but it is not over the crosswalk.



Figure 32. Drivers did not block the intersection when observed during the audit (looking northeast).

Rock Road to Gramercy Place

South of the Rock Road intersection, Hamilton Avenue continues to be a two-way road with parking allowed only on the eastern side. Where parking is prohibited, signs are posted but they are faded. The speed limit is signed for 25 mph (Figure 33). This stretch of roadway is slightly wider than the section of the corridor north of Maple Avenue. Lighting is provided by standard overhead cobra fixtures. During the audit, residents noted that Hamilton Avenue northbound becomes congested during peak hours, as drivers wait to turn onto Rock Road.

Sidewalks continue on both sides of the street, separated from the roadway by a thin strip of grass. Frequently, the sidewalk narrows to allow for a tree cutout, but most of the trees are no longer there (Figure 35). In a few locations, the sidewalk is raised next to an empty tree well. In front of a couple of homes, trees or bushes in the front yard encroach onto the pedestrian's path. All of the homes have driveways, and the sidewalks cross them at level. The exceptions to this are the two driveways for a church, where the sidewalk gives way to a poorly maintained asphalt driveway (Figure 36) (Location D). There are curb ramps at the driveway, but they are not ADA compliant, and are in poor condition. A crosswalk is marked, but the paint is faded, and the asphalt is not level.

Clinton Place terminates at Hamilton Avenue from the west at a T-intersection. Clinton Place has a stop sign and Hamilton Avenue traffic has the right of way. There is a well-marked stop bar, but the stop sign is placed about 10 feet prior to the stop bar. A standard crosswalk is painted only across Clinton Place and the two curb ramps are only on the west side of the road. The ramps are in poor condition and not ADA-compliant. Visibility for drivers at this intersection is excellent.



Figure 33. Speed limit and parking regulations clearly posted.



Figure 34. Some signs have faded and should be replaced.



Figure 35. Sidewalk narrows where tree used to be.



Figure 36. Very poor pavement condition at church driveways.



Figure 37. Children walking past the PSE&G access right-of-way.

Sidewalk and road conditions along Hamilton Avenue do not change south of Clinton Place. Just north of Gramercy Place, Hamilton Avenue is bisected by an unpaved PSE&G access road (Figure 37). There is a driveway to this right-of-way on the east side of the road, which creates a slope on the sidewalk. On the west side, there is no driveway, but the vegetation is overgrown. A "no trespassing" sign is posted on the access road, but residents say the path is used by pedestrians. This right-of-way may offer an opportunity to one day create a valuable east-west pedestrian connection across Glen Rock.

Gramercy Place to Harristown Road

From the east, Gramercy Place comes to a T-intersection (Location E) at Hamilton Avenue. As with Clinton Place, Gramercy Place has a stop sign while Hamilton Avenue has the right-of-way. There is a well-marked stop bar, but the stop sign is placed well before the intersection. A standard crosswalk is painted only across Gramercy Place and the two curb ramps are only on the east side of the road. The ramps are in poor condition and are not ADA-compliant. The sidewalk is narrowed by the presence of a small retaining wall, and is sloped towards the road. The turning radius onto Gramercy Place is wider than necessary for a residential area, encouraging faster driving speeds (Figure 38). There is a single light over the intersection, on the west side of Hamilton Avenue.



Figure 38. At Gramercy Place, the sidewalk narrows, there is a strong cross-slope, the corner ramp is not ADA compliant, and the wide turning radius encourages faster vehicle speeds.



Figure 39. The curb ramp at Emerson Road accumulates debris, and is not ADA compliant. There is no marked crosswalk across Hamilton Avenue.

South of the intersection, the only change in conditions is that the sidewalk along the east side of Hamilton is directly adjacent to the road, with no grass strip. This creates an improper slope where the sidewalk crosses a driveway. Gramercy Place continues on the west side of Hamilton Avenue 173 feet south of the first intersection. Once again, there is only a marked crosswalk across Gramercy Place, with no crosswalk across Hamilton Avenue and there are two non-compliant curb ramps. Due to vegetation on the property south of this intersection, visibility for drivers is poor. Another 25 mph speed sign is posted on Hamilton Avenue visible to southbound traffic.

Emerson Road also terminates on Hamilton Avenue, but from the east. The setup of the intersection is identical to the previous ones, including a stop sign placed oddly distant from the stop bar. One minor difference is that south of Emerson Road, the eastern sidewalk regains the grass strip adjacent to the roadway. Pooling water and leaves were noted at the bottom of the curb ramp (Figure 39) at this intersection.

The character of the road changes slightly south of Emerson Road, as parking on the east side of Hamilton Avenue is marked with painted stalls (Figure 40). These stalls are positioned to allow drivers entering and exiting the driveways adequate space. This parking continues until Harristown Road, and is used by students attending the nearby high school. The grass strip adjacent to the parking has been filled in with asphalt.



Figure 40. Pedestrian traffic, parked cars, and a paved over planting strip near the southern end of the corridor (looking north).

Approaching the Harristown Road intersection, southbound drivers are shown a pedestrian crossing ahead sign, a sign banning parking along the west curb, and a sign banning the loading and unloading of passengers. Closer to the intersection, parking is banned on both sides of the street, which is reinforced by a yellow-painted curb. Prior to the intersection, Hamilton Avenue has a double-yellow striped centerline, a stop sign, and the word STOP painted on the roadway. Drivers must turn left or right onto Harristown Road, from a single lane.

The intersection of Harristown Road and Hamilton Avenue is well marked, with high-visibility crosswalks painted on three legs (Location F). Additionally, Harristown Road has been striped with yellow hatch marks to prevent parking near the crosswalks (Figure 41). Drivers on Harristown Road are presented with pedestrian crossing signage in both directions, which is reinforced by a crossing guard posted during the appropriate school hours (Figure 43). There is one overhead cobra light at this intersection, directly over the crosswalk.

All four corners have curb ramps that have recently been rebuilt, and appear to be ADA-compliant, but they do point towards the center of the intersection, rather than directly into the crosswalk. It is best practice for the curb ramps to be aimed into the crosswalk because it assists blind pedestrians in navigating the intersection (Figure 44). There is a very large turning radius on the northeast corner of the intersection that creates a ramp-to-ramp crossing distance of over fifty feet, even though Harristown Road is around thirty feet wide.



Figure 41. The crosshatch striping on Harristown Road effectively deters illegal parking (looking west).



Figure 42. Pedestrian traffic on Hamilton Avenue is heavy at school dismissal time (looking north).



Figure 43. A police officer controls traffic at Hamilton Avenue and Harristown Road to allow bicyclists and pedestrians to cross safely.



Figure 44. It is best practice to build a ramp oriented directly into each crosswalk, rather than a single diagonal ramp shown here.



Figure 45. Bicyclists do not have a defined space on Hamilton Avenue, resulting in unsafe behavior (looking north).

Recommendations

During the workshop, the community expressed the desire to encourage walking, facilitate bicycling, and improve safety, especially by addressing speeding. Various tools are available to begin the process.

1. Adopt a Complete Streets Policy

Adopting a complete streets policy is an important first step toward implementing of complete streets, as it defines the meaning of complete streets, establishes goals, and lays out the ways in which the municipality will accomplish the goals. The most successful policies state that complete street practices and principles should be a standard part of regular roadway maintenance, planning, and design. An implementation plan and checklist can also be developed to ensure that the municipality remains on the right path year after year. Additionally, points are available to municipalities who are seeking Sustainable Jersey certification for adopting and instituting a complete streets policy. The New Jersey Department of Transportation offers a guide to policy development and a separate guide on how to create an implementation plan. These resources are among those available at <http://njbikeped.org/complete-streets-resources/>. In July 2019, a new model policy guide will be released, and should be used as a template for a municipal policy.

2. Create a Neighborhood Greenway / Bicycle Boulevard

Hamilton Avenue is an ideal candidate for a low-speed multi-modal transportation corridor. This concept falls under a number of different names, including neighborhood greenway, quiet streets, or bicycle boulevard. According to NJDOT, bicycle boulevards are, “linear corridors of interconnected, traffic-calmed streets where bicyclists are afforded an enhanced level of safety and comfort.” The benefits extend beyond bicyclists, as implementation increases the safety and comfort for pedestrians and drivers as well. The 2017 New Jersey Complete Streets Design Guide states that bicycle boulevards are appropriate for roads with a traffic volume under 2,500 vehicles per day, which is the case for Hamilton Avenue. Adopting this model can be effective in encouraging bicycling and walking while reducing vehicular speeds.

Bicycle boulevard treatments include signs, pavement markings, and other traffic-calming measures to discourage through-trips by motor vehicles, while accommodating local access. Essentially, a bicycle boulevard sends a message that pedestrians and bicyclists have priority along the corridor, and drivers need to be especially careful, or select an alternative route. Hamilton Avenue already sees low motor vehicle traffic volumes, and is a natural corridor for pedestrians and bicyclists heading to the schools, library, or downtown. The treatments deployed with a bicycle boulevard would fit with the character of the neighborhood, which contains large single-family properties and plenty of greenery.



Figure 46. Bicycle Boulevard signage in McKinley, Texas.



Figure 47. Curb extensions, high-visibility crosswalks, and turn restrictions calm traffic along a bicycle boulevard in Ocean City, NJ.

According to the National Association of City Transportation Officials (NACTO), the following components must be considered when creating a bicycle boulevard:

1. **Route Planning:** Direct access to destinations
2. **Signs and Pavement Markings:** Easy to find and to follow
3. **Speed Management:** Slow motor vehicle speeds
4. **Volume Management:** Low or reduced motor vehicle volumes
5. **Minor Street Crossings:** Minimal bicyclist delay
6. **Major Street Crossings:** Safe and convenient crossings
7. **Offset Crossings:** Clear and safe navigation
8. **Green Infrastructure:** Enhancing environments

Route Planning

Hamilton Avenue is an excellent candidate for a bicycle boulevard treatment because it already provides direct and continuous access to various destinations, such as the elementary school, middle and high school, library, and a church. A challenge many communities face when designing a bicycle boulevard is that it can be difficult to convince people to use the planned route versus a shorter alternative. In Glen Rock, this is not a concern, because Hamilton Avenue is the natural choice to reach these destinations. Additionally, a bicycle boulevard has the potential to act as an integral component of a full Glen Rock bicycle network. The bicycle boulevard is discussed in the CBBPP, which notes that Glen Rock is fortunate to have a network of low-stress roadways that can be upgraded into desirable bicycle routes.



Figure 48. Regulatory and educational signs along a bicycle boulevard in Portland, Oregon.



Figure 49. Sign in Tucson, Arizona providing boulevard branding and wayfinding.

Signs and Pavement Marking

A bicycle boulevard is a new concept to most New Jersey residents. As such, it is important to communicate the purpose of the project to residents and visitors. According to NACTO, the bicycle boulevard “should also be actively marketed through events, activities, and maps to help reach its potential.” This is important because education is essential to “improve public perception, build support for additional treatments, and provide confidence to new bicyclists.”

On the corridor itself, there are two forms of signs and pavement markings that need to be deployed: regulatory and educational/informational. Regulatory markings include speed limit signs, marked crosswalks, and instructions to drivers, bicyclists, and pedestrians where appropriate (Figure 48). This can include the “bicycles may use full lane” (R4-11) signs. Informational signage may include branding, wayfinding, and explanations of the project purpose (Figure 49). It is important that the branding be developed with community input. Pavement markings reinforce the message being delivered by the signs. Large shared-lane pavement markings advise bicyclists on where to position themselves, and remind drivers that bicyclists may use the center of the lane (Figure 50).

Speed Management

A low speed limit (15 or 20 mph) is key to a successful bicycle boulevard, but signage is not enough. Additional tools exist to help reduce vehicle speeds so that they are closer to the speed of a bicycle. Reducing speeds helps to prevent collisions, and also makes bicyclists and pedestrians feel more comfortable when sharing roads with motor-vehicle traffic.

Traffic calming measures can include vertical deflection (e.g. speed humps or tables at intersections) or horizontal deflection (e.g. chicanes and traffic circles) (Figure 51). Traffic calming solutions can be combined with other measures to address other potential community goals, such as the addition of green infrastructure to a chicane, which creates a serpentine curve in a road to slow traffic (Figure 52).



Figure 50. Pavement markings in Ocean City, New Jersey.



Figure 51. A speed table with a marked crosswalk (a raised crosswalk).



Figure 52. Traffic calming chicanes with green infrastructure in Shoreline, WA.

Volume Management

Volume management is needed when the traffic volumes on the corridor exceed recommendations. This is especially true on residential streets being used as a cut-through. One common strategy to reduce traffic volumes is to prohibit cut-through traffic by forcing automobiles to turn off the boulevard every few blocks (Figure 53). Glen Rock has done this by closing off the section of Hamilton Avenue between Rock Road and Maple Avenue. Effective speed management will also discourage cut-through traffic as drivers look for the path of least resistance. Traffic data for Hamilton Avenue shows that additional diverters are not needed along the corridor at this time, but traffic volumes should be considered if planning additional bicycle boulevards.



Figure 53. Diverters in San Luis Obispo, California, force automobile traffic to turn, while allowing bicyclists to continue straight.

Minor Street Crossings

A bicycle boulevard should have the right-of-way over minor streets. This is done to reduce delays for bicyclists and pedestrians, and to clarify that these modes have the right-of-way. Hamilton Avenue already has the right-of-way over minor streets, so no changes are needed. However, it is important that existing deficiencies in the pedestrian network (especially ADA compliance) be addressed. This includes new compliant curb ramps, and high-visibility crosswalks.



Figure 54. "Crossbike" in Portland, OR. Photo: J. Maus/BikePortland

Major Street Crossings

If bicyclists and pedestrians do not feel safe along the entire corridor, then they will shift to other modes of travel. Particular attention is needed when looking at major intersections, as they present the biggest barrier to an effective and successful bicycle boulevard. For Hamilton Avenue, that means Maple Avenue, Rock Road, and Harristown Road. Fortunately, the closure of Hamilton Avenue between Maple Avenue and Rock Road presents an excellent opportunity to work with the county to improve safety at those intersections. A comfortable intersection is one where crossing distances are minimized, and visibility is maximized for boulevard users. This can be done with curb extensions, high-visibility crosswalks, advanced signage, and improved lighting.

Offset Crossings

In many cases, a bicycle boulevard is actually the combination of multiple disjointed roadways due to a broken street grid. In these situations, wayfinding and turning solutions are required. This is not the case for Hamilton Avenue, which is one continuous roadway. As Glen Rock audits other municipal roads, it may find additional opportunities for bicycle boulevards. In situations where the bicycle boulevard requires an offset crossing, additional treatments are required to facilitate turns. These treatments can include turn boxes for bicyclists, a bicycle lane in the middle of the roadway, or a protected cycle track.

Green Infrastructure

A bicycle boulevard can work hand-in-hand with the development of green infrastructure. Green infrastructure refers to projects that reduce flooding, add greenery, and address health concerns through the addition of vegetation. For example, a curb extension can be built as a rain garden to collect stormwater and add native plants.

Bicycle Parking

Bicyclists need safe and convenient bicycle parking at their destination, as fear of bicycle theft is a serious barrier to riding. The municipality should work with the school district to ensure that bicycle parking exists at the schools. Additional bicycle parking may be needed at the public library and near downtown businesses.



Figure 55. Green infrastructure used to narrow the roadway and provide a shorter crossing distance for pedestrians.

3. Demonstration Projects

Demonstration Projects are an approach to neighborhood building that uses short-term, low-cost, scalable interventions to effect long-term change related to street safety and public space. This approach can draw attention to perceived shortcomings, widen public engagement, test interventions, and inspire action. Common demonstration projects include installing pop-up bike lanes, painting crosswalks and curb extensions to calm traffic, and streetscape enhancements like parklets and planters.

Benefits of Demonstration Projects

Speed

These projects allow a municipality to quickly make necessary safety and livability improvements while the permanent improvements move through the various project design and funding steps.

Flexibility

Demonstration projects champion flexibility in that its improvements can be temporary. Rather than debating the costs and benefits of a sidewalk extension, the town can paint one and observe the new dynamic between pedestrians and drivers without committing to a permanent change. This allows residents and policymakers to witness the improvement and determine its effects. It also allows for data to be collected, and the final permanent design to be modified based on what was learned during the temporary installation.

Affordability

Demonstration projects offer a “lighter, quicker, cheaper” implementation through which the municipality can test new concepts—like a new bicycle lane or pocket park—without breaking the bank. This means using low-cost materials such as paint and plastic bollards instead of concrete.



Figure 56. New Brunswick, NJ, uses plastic bollards to prevent illegal parking near intersections. After a successful trial at one intersection, the city has added them throughout the city.



Figure 57. Curb extensions using plastic bollards and paint have been used in Seattle to realign confusing intersections, slow traffic, and add new pedestrian crossings.

Community Input

At its core, these projects are designed to spark a conversation about long-term change in the direction of complete streets. Demonstration projects solicit local ideas for planning challenges, taking the debate out of city hall and placing it on the street where people can visualize and respond to the proposed project. These projects seek to spur conversation around neighborhood improvements, allowing residents to evaluate changes before permanent installation.

Economic Development

By creating a more welcoming environment for pedestrians, these projects can spur economic development in commercial corridors that rely on walk-in consumers. Demonstration projects can also provide new outdoor space for restaurants by converting a single parking space into a protected seating area. In addition, these projects help develop social capital between citizens and organizational capacity between public and private institutions.

Resources

The “Tactical Urbanist’s Guide to Materials and Design” (<http://tacticalurbanismguide.com/guides/tactical-urbanists-guide-to-materials-and-design/>) provides an excellent guide on what materials are appropriate to use for demonstrations, pilots, or semi-permanent installations.



Figure 58. In 2015, Jersey City created a new pedestrian plaza using planters, paint, tables and chairs. The plaza was successful and extended in 2018. Now the city is designing a permanent plaza with stone pavers, larger planters, benches, pedestrian safety bollards, and other public space features.

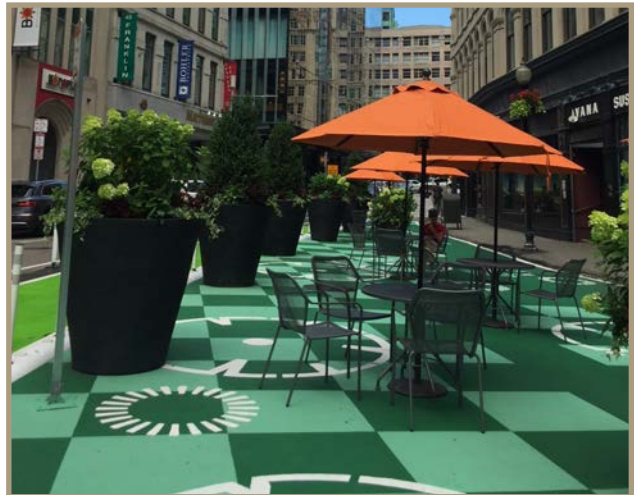


Figure 59. Tontine Crescent Tactical Plaza in Boston, MA. Photo: Ground Inc. A permanent design is in the works.



Figure 60. New York City has made extensive use of paint and plastic bollards to decrease turn radii at intersections throughout the city.

Detailed Recommendations

There is no such thing as a universal bicycle boulevard treatment. Each intersection and segment of roadway needs to be looked at individually, with an eye toward decreasing vehicular speeds and increasing pedestrian and bicycle safety. This section recommends specific projects that, when taken together, can create a full bicycle boulevard. It is not an exhaustive list of potential improvements.



Figure 61. Visualization of potential improvements at Hamilton Avenue and Harding Road intersection.

Hamilton Avenue and Harding Road

Location A on corridor map

- Install high-visibility crosswalks on southern, western, and eastern legs
 - Add striped crosswalk on northern leg pending realignment of ADA-compliant curb ramp.
 - Add crosswalk signage on Hamilton Avenue, such as a post-mounted pedestrian sign (W11-2) coupled with a diagonal downward pointing arrow (W16-7P), and/or an in-street pedestrian crossing sign (R1-6a) at the crosswalk location, in each direction
- Narrow west side of intersection by decreasing turn radius
 - Striping and vertical plastic bollards can be used for short-term or temporary demonstration improvements
 - Pavement reconstruction for sidewalk extension as a long-term improvement
- Realign striping on Harding Road on west side of intersection to create a single lane in each direction
 - Reposition painted traffic island to separate bidirectional traffic and act as a pedestrian refuge island
 - Reposition stop sign on Harding Road closer to intersection

- Introduce bicycle boulevard gateway treatment, including signage and striping on Hamilton Avenue south of intersection
 - Striping could include large shared lane markings in each directions, “boulevard” (or other) branding, and the speed limit
 - Signage could include “bicycle may use full lane” (R4-11), community boulevard branding, and speed limit sign
 - Wayfinding signage could highlight nearby destinations, including the library and high school
- By municipal ordinance, lower speed limit to 20 mph on Hamilton Avenue with updated signage to reflect the new speed limit
- Upgrade all curb ramps to be ADA-compliant and directionally oriented into the crosswalk (perpendicular curb ramps are preferred over diagonal curb ramps)
- Work with homeowners to ensure sidewalks are ADA-compliant
- Work with homeowners to ensure vegetation does not encroach onto the sidewalk

Figure 61 shows an example of how these modifications could look. This figure is only for visualization purposes.

Hamilton Avenue at Central Elementary School

Location B on corridor map

- Upgrade curb ramps to be ADA-compliant
- Work with school to ensure sidewalk is ADA-compliant
- Investigate a wider sidewalk along school frontage (8 feet preferred)
- Restripe crosswalk to improve visibility
- Trim tree branches covering crosswalk and “no parking” signage (southbound)
- Stripe stop bar prior to crosswalk
- Use vertical plastic bollards to deter illegal parking or standing within 15 feet of crosswalk
- Introduce bicycle boulevard signage and striping
- Investigate need for additional bicycle parking at the school



Figure 62. Plastic bollards (or on-street bicycle parking) can ensure the crosswalk remains visible.

Hamilton Avenue at Maple Avenue

Location C on corridor map

- Install high-visibility crosswalks on northern leg
- Work with county to identify the preferred location for a high visibility crosswalk on Maple Avenue. Crosswalk must be at least 155 feet from Maple Avenue/Rock Road intersection to meet county standards
 - Add crosswalk signage on Maple Avenue, such as combination bike and pedestrian crossing (W11-15) post-mounted with a diagonal downward pointing arrow (W16-7P) and in-street pedestrian crossing sign (R1-6a) at the crosswalk location, in each direction.
- Coordinate with the county to narrow the Hamilton Avenue north side leg of intersection by decreasing turn radius onto Hamilton Avenue
 - Striping and vertical plastic bollards can be used for short-term or temporary improvements
 - Pavement reconstruction for sidewalk extension with green infrastructure components as a long term improvement
- Coordinate with the county to reposition stop bar on Maple Avenue closer to narrowed intersection
- Maintain existing “do not block intersection” sign (R10-7) and supplement with county-approved intersection markings
- Introduce bicycle boulevard signage and striping on Hamilton Avenue north of intersection
 - Striping could include large shared lane markings in each directions, “boulevard” (or other)

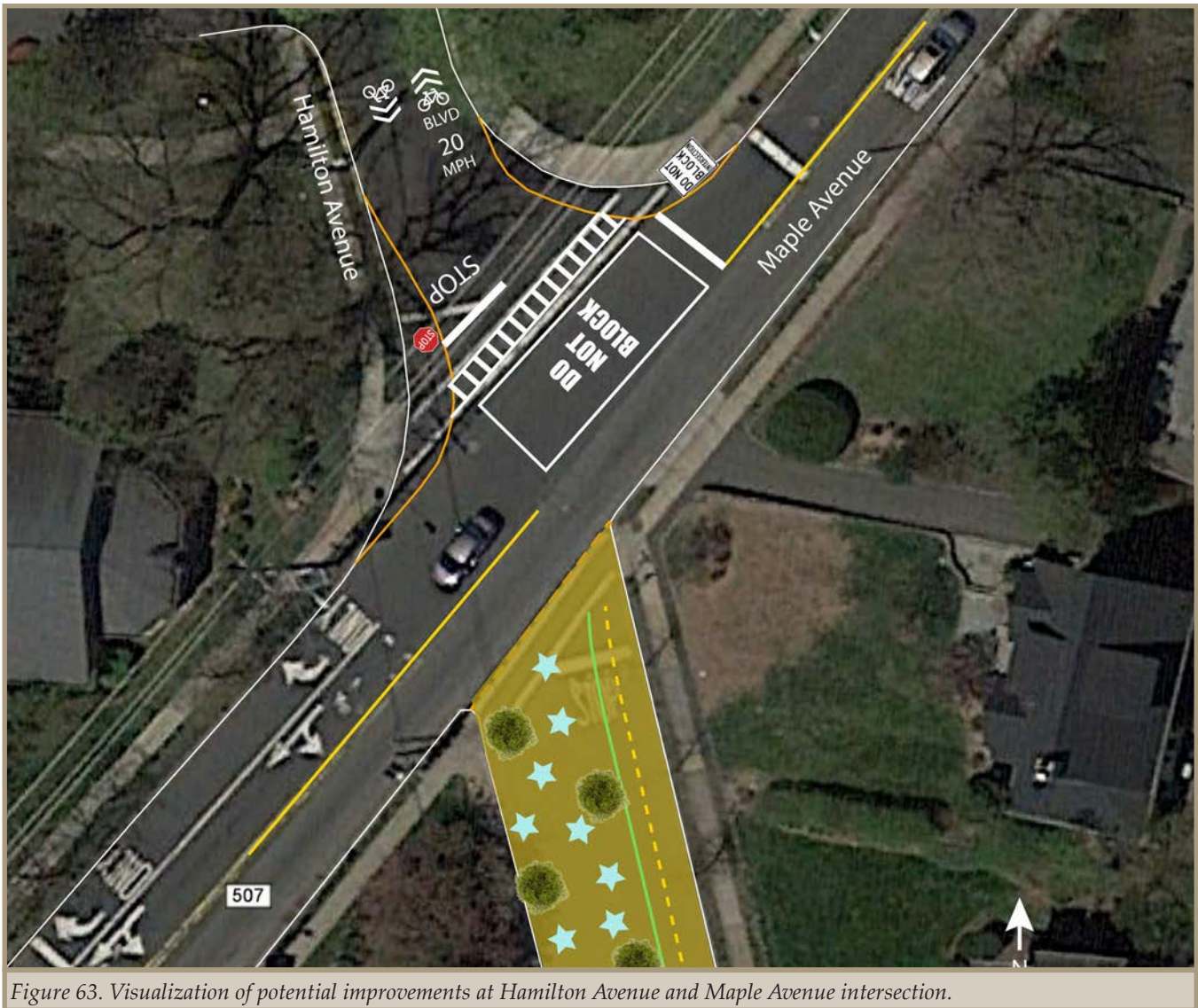


Figure 63. Visualization of potential improvements at Hamilton Avenue and Maple Avenue intersection.

- branding, and the speed limit
- Signage could include “bicycle may use full lane” (R4-11), community boulevard branding, and speed limit sign
- Upgrade all curb ramps to be ADA-compliant and direct pedestrians into the crosswalks

Figure 63 shows an example of how these modifications could look. This figure is only for visualization purposes.

Hamilton Avenue between Maple Avenue and Rock Road

Location C on corridor map

- Convert area between Maple Avenue and Rock Road into park or plaza
 - Use a demonstration project to create short term improvements and collect community feedback. These could include using planters for traffic control, painting the asphalt, adding community art, installing seating, and providing other amenities requested by the community
- Future development of park or plaza space should include a two-way paved bicycle path with a minimum width of 10 feet (12 feet preferred) to provide a continuous path of travel for bicyclists traveling along Hamilton Avenue
- Bicycle parking should be incorporated into the design of the future park or plaza space. See pages 45-47 in the New Jersey Complete Streets Design Guide for guidance on bicycle rack spacing and recommended design types

Hamilton Avenue at Rock Road

Location C on corridor map

- Paint high-visibility crosswalks on southern leg
- Coordinate with county to maintain high-visibility crosswalk on eastern leg
- Coordinate with the county to narrow the south side of intersection by decreasing turn radius on southwest corner onto Hamilton Avenue
 - Striping and vertical plastic bollards can be used for short-term improvements
 - Pavement reconstruction for sidewalk extension as a long-term improvement
- Introduce bicycle boulevard signage and striping on Hamilton Avenue south of intersection
 - Striping could include large shared-lane markings in each direction, “boulevard” (or other) branding, and the speed limit
 - Signage could include “bicycle may use full lane” (R4-11), community boulevard branding, and speed limit sign
- Wayfinding signage could highlight nearby destinations, including high school and middle school
- Upgrade all curb ramps to be ADA-compliant and direct pedestrians into the crosswalks

Hamilton Avenue at Minor Intersections

Location D on corridor map

- Paint high-visibility crosswalks with appropriate signage across Hamilton Avenue
- Stripe curbs and pavement to prevent illegal parking within 25 feet of crosswalks and act as a sidewalk extension
 - Striping and vertical plastic bollards can be used for short-term improvements
 - Pavement reconstruction for sidewalk extension as a long-term improvement
- Upgrade all curb ramps to be ADA-compliant and direct pedestrians into the crosswalks
- Add bicycle boulevard signage in both directions
- Work with homeowners to ensure sidewalks are ADA-compliant
- Work with homeowners to ensure vegetation does not encroach onto the sidewalk

Hamilton Avenue at PSE&G Access Road

Location E on corridor map

- Install raised crosswalk across Hamilton with high-visibility striping and add pedestrian crossing signage
 - W11-2 post-mounted with a diagonal downward pointing arrow (W16-7P) plaque and/or R1-6a in-street ped crossing sign at the crosswalk location, in each direction
- If trail is built, crosswalk signage should be replaced with trail signage
 - Combination bike and pedestrian crossing (W11-15), post-mounted with a diagonal downward pointing arrow (W16-7P), and in-street pedestrian crossing sign (R1-6a) at the crosswalk location, in each direction
- Reduce width of Hamilton Avenue at crosswalk by introducing curb extensions (potential green infrastructure opportunity)
- Add bicycle boulevard signage and striping on Hamilton Avenue on either side of new crosswalk
- Work with homeowners to ensure sidewalks are ADA-compliant
- Work with homeowners to ensure vegetation does not encroach onto the sidewalk

Figure 64 shows how these modifications could look. This figure is only for visualization purposes.

Figure 65 shows an example of a similar trail crossing in Appleton, Wisconsin.



Figure 64. Visualization of potential improvements at Hamilton Avenue and PSE&G Access Road.



Figure 65. A raised crosswalk at a trail crossing in Appleton, WI.

Hamilton Avenue at Harristown Road

Location F on corridor map

- Maintain existing high-visibility crosswalks
- Coordinate with county to add high visibility crosswalk on west side of intersection
- Coordinate with county to narrow east side of intersection by decreasing turn radius
 - Striping and vertical plastic bollards can be used for short-term improvements
 - Pavement reconstruction for sidewalk extension as a long-term improvement (will require relocation of drainage inlet)
- Introduce bicycle boulevard gateway treatment, including signage and striping on Hamilton Avenue north of intersection
 - Striping could include large shared lane markings in each directions, “boulevard” (or other) branding, and the speed limit
 - Signage could include “bicycle may use full lane” (R4-11), community boulevard branding, and speed limit sign
 - Wayfinding signage could highlight nearby destinations, including library and elementary school
- Work with homeowners to ensure sidewalks are ADA-compliant
- Work with homeowners to ensure vegetation does not encroach onto the sidewalk

Figure 66 shows an example of how these modifications could look. This figure is only for visualization purposes.

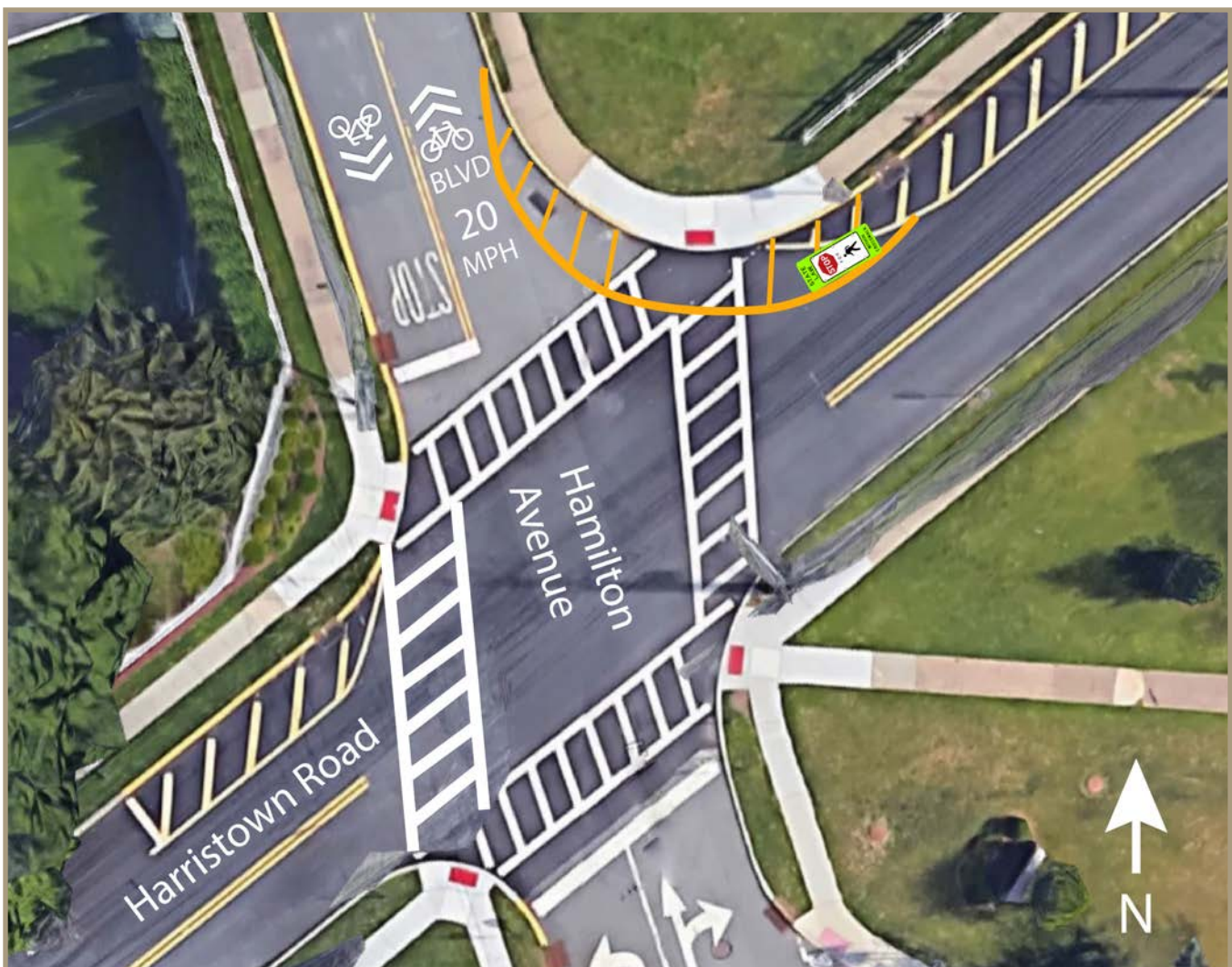


Figure 66. Visualization of potential improvements at Hamilton Avenue and Harristown Road intersection.

Conclusion

The Borough of Glen Rock is a small community primed for increased walking and bicycling activity. Residents and officials are aware of this potential, and sought the help of the Complete Streets Technical Assistance Program to audit current conditions and recommend improvements. As part of this assistance, local stakeholders received a course on complete streets, and were instructed on how to audit a corridor.

Hamilton Avenue already sees large volumes of pedestrians and bicyclists due to the presence of local schools. However, many students and parents choose to drive to school. One way to increase the number of residents walking and bicycling can be through the use of design treatments that make those modes of travel safer and more comfortable. Hamilton Avenue is an ideal candidate for a bicycle boulevard treatment, as shown by the criteria developed by NACTO. These treatments have been proven to improve bicycle mode share by slowing down vehicles and ensuring that all travelers share the road in a safe manner. These improvements also greatly benefit pedestrians and homeowners, by making the road safer for all users.

Many of these improvements can be done quickly and at a low cost, using demonstration projects or as part of the regular maintenance regimen of the corridor. Other aspects, such as education and marketing, must be done in partnership with local residents and stakeholders. This outreach is essential to ensure that the bicycle boulevard concept is adopted as an important facet of the community. Other recommendations, such as the use of a raised crosswalk and corresponding green infrastructure, may require an outside grant and a longer timeframe. Improvements at major intersections will require coordination with the county.

While every corridor is unique, Glen Rock has many roads similar to Hamilton Avenue. The lessons learned during the course and audit can be applied to other streets, with the end goal of developing a complete network of pedestrian and bicycle-friendly corridors. Complete streets will ensure that Glen Rock continues to be an attractive and family-friendly community that prioritizes safety, community, and the environment.



Figure 67. School dismissal time on Hamilton Avenue, looking south.



Appendix

A. Workshop Flyer

B. Workshop Attendees

C. Workshop Agenda and Field Audit Form

D. Street Smart NJ Campaign Resources

E. Potential Funding Resources

F. Design Resources

A. Workshop Flyer

WALKABLE COMMUNITY WORKSHOP

Wednesday, November 28, 2018
1 pm to 5 pm

JOIN US TO ADDRESS WALKABILITY ON HAMILTON AVENUE!

Glen Rock Borough Hall
1 Harding Plaza
Glen Rock, NJ

For more information email:
heasleya@tcnj.edu

To RSVP visit: <http://bit.ly/BernardsvilleWCW>

WORKSHOP AGENDA

1:00 pm
Welcome and Walkable Community Presentation

2:00 pm
Walking Audit

4:00 pm
Debrief and Next Steps

5:00 pm
Adjourn



A Walkability Workshop engages town employees, residents, business owners and workers on issues regarding walking and biking in a community. After training on what to look for, workshop participants will walk a half-mile corridor assessing their existing streets and sidewalks and identifying issues to overcome to ensure safer conditions for pedestrians and bicyclists. After the workshop, a report will be prepared with recommendations on improvements to address key locations and issues identified in the workshop.

This effort is part of the Complete Streets Technical Assistance Program, which is a collaborative venture between Sustainable Jersey (SJ), the Voorhees Transportation Center at Rutgers University (VTC), and the North Jersey Transportation Planning Authority (NJTPA). Funded by the NJTPA, the program is designed to support municipal government efforts to implement complete streets.



B. Workshop Attendees

Doug Greenfeld, North Jersey Transportation Planning Authority
Sutapa Bandyopadhyay, North Jersey Transportation Planning Authority
Anne Heasley, Sustainable Jersey
Lisa Cintron, Alan M. Voorhees Transportation Center
James Sinclair, Alan M. Voorhees Transportation Center
Anish Grover, Alan M. Voorhees Transportation Center
Aashna Jain, Alan M. Voorhees Transportation Center
Bruce Packer, Glen Rock
Lenora Benjamin, Glen Rock
Arati Kreibich, Glen Rock
Greg Toro, Glen Rock
Scott McGovern, Glen Rock P.D.
Sally Clark, Glen Rock Library
Tina Bacolas, Glen Rock School District
Hal Knapp, Glen Rock Resident
Carol Knapp, Glen Rock Resident

C. Workshop Agenda and Field Audit Form

HAMILTON AVENUE WALKABLE COMMUNITY WORKSHOP

Wednesday, November 28, 2018 | 1 pm to 5 pm
Glen Rock Borough Hall, 1 Harding Plaza, Glen Rock, NJ

WORKSHOP AGENDA

- 1:00 pm** **Welcome and Walkable Community Presentation**
Complete Streets Technical Assistance (CSTA) project team will lead a presentation to train town employees, residents, business owners and workers on what to look for when auditing walking and biking infrastructure.
- 2:15 pm** **Walking Audit**
Participants will walk a half-mile corridor assessing the existing streets and sidewalks while identifying issues to overcome to ensure safer conditions for pedestrians and bicyclists.
- 4:00 pm** **Debrief and Next Steps**
Participants will generate planning level recommendations to improve the safety, convenience, and comfort of the walking environment of what they observed on the walking audit to be incorporated as recommendations into the final report.
- 5:00 pm** **Adjourn**



This effort is part of the Complete Streets Technical Assistance Program, which is a collaborative venture between Sustainable Jersey (SJ), the Voorhees Transportation Center at Rutgers University (VTC), and the North Jersey Transportation Planning Authority (NJTPA). Funded by the NJTPA, the program is designed to support municipal government efforts to implement complete streets.



RUTGERS

FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Contact	Person Completing: _____
	Email: _____
	Phone: _____
Hamilton Avenue from Harding Road to Maple Avenue	
Design	How many lanes are there? _____
	Are there crosswalks? _____
Design	What is the speed limit? _____
	Is there a median? _____
Driver Behavior	Circle all that apply:
	a. Speeding
	b. Blocking crosswalk
	c. Not stopping for pedestrians
	d. Double parking
e. Loud music	
f. Loud engine	
g. Not stopping for traffic control	
h. Other: _____	
Sidewalk Condition	Are sidewalks present?
	No One Side (Which?) Both Sides
	Any problems you observed:
	a. Sidewalks or paths started and stopped, where?
	b. Sidewalks were broken or cracked, where?
	c. Sidewalk slope problems, where?
	d. Sidewalks were blocked with parked cars, signs, shrubs, etc, where?
e. Sidewalks not wide enough, where?	
f. Sight obstructions, where?	



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Curb Cuts/Ramps	Circle all that apply:		
	a. Missing		
	b. Non ADA compliant curb cuts/rams (too steep, not passable, etc.)		
	c. Aligned with crosswalk: yes or no		
	d. Truncated domes present: yes or no		
	e. Truncated domes placed correctly: yes or no		
	f. Curb extensions: yes or no		
g. Other concerns:			
Signage	Streets are labeled: Excellent Average Poor None		
	Other signage: Excellent Average Poor None		
Amenities	<input type="checkbox"/> Bench	<input type="checkbox"/> Bus shelter	
	<input type="checkbox"/> Trash Can	<input type="checkbox"/> Bicycle Racks	
	<input type="checkbox"/> Overflowing? Yes or No		
Lighting	<input type="checkbox"/> Overhead cobra	Is there lighting over the crosswalk?	
	<input type="checkbox"/> Historic		<input type="checkbox"/> Yes
	<input type="checkbox"/> Pedestrian oriented		<input type="checkbox"/> No
Trees	<input type="checkbox"/> Frequent, good shape	<input type="checkbox"/> Infrequent, good shape	
	<input type="checkbox"/> Frequent, poor shape	<input type="checkbox"/> Infrequent, poor shape	
	<input type="checkbox"/> Mostly empty tree wells	<input type="checkbox"/> No tree wells	



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Hamilton Avenue from Maple Avenue to Rock Road	
Design	How many lanes are there? Are there crosswalks?
	What is the speed limit? Is there a median?
Driver Behavior	Circle all that apply:
	a. Speeding e. Loud music
	b. Blocking crosswalk f. Loud engine
	c. Not stopping for pedestrians g. Not stopping for traffic control
	d. Double parking h. Other:
Sidewalk Condition	Are sidewalks present?
	No One Side (Which?) Both Sides
	Any problems you observed:
	a. Sidewalks or paths started and stopped, where?
	b. Sidewalks were broken or cracked, where?
	c. Sidewalk slope problems, where?
	d. Sidewalks were blocked with parked cars, signs, shrubs, etc, where?
e. Sidewalks not wide enough, where?	
f. Sight obstructions, where?	
Curb Cuts / Ramps	Circle all that apply:
	a. Missing
	b. Non ADA compliant curb cuts/rams (too steep, not passable, etc.)
	c. Aligned with crosswalk: yes or no



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

- d. Truncated domes present: yes or no
- e. Truncated domes placed correctly: yes or no
- f. Curb extensions: yes or no
- g. Other concerns:

Signage

Streets are labeled: Excellent Average Poor None
Other signage: Excellent Average Poor None

Amenities

- Bench
- Bus shelter
- Trash Can
 - Overflowing? Yes or No
- Bicycle Racks

Lighting

- Overhead cobra
 - Historic
 - Pedestrian oriented
- Is there lighting over the crosswalk?
- Yes
- No

Trees

- Frequent, good shape
- Frequent, poor shape
- Mostly empty tree wells
- Infrequent, good shape
- Infrequent, poor shape
- No tree wells

Hamilton Avenue from Rock Road to Gramercy Place

Design

- How many lanes are there? Are there crosswalks?
- What is the speed limit? Is there a median?

FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Driver Behavior	<p>Circle all that apply:</p> <ul style="list-style-type: none">a. Speedingb. Blocking crosswalkc. Not stopping for pedestriansd. Double parkinge. Loud musicf. Loud engineg. Not stopping for traffic control
Sidewalk Condition	<p>Are sidewalks present?</p> <p>No One Side (Which?) Both Sides</p> <p>Any problems you observed:</p> <ul style="list-style-type: none">a. Sidewalks or paths started and stopped, where?b. Sidewalks were broken or cracked, where?c. Sidewalk slope problems, where?d. Sidewalks were blocked with parked cars, signs, shrubs, etc, where?e. Sidewalks not wide enough, where?f. Sight obstructions, where?
Curb Cuts/Ramps	<p>Circle all that apply:</p> <ul style="list-style-type: none">a. Missingb. Non ADA compliant curb cuts/rams (too steep, not passable, etc.)c. Aligned with crosswalk: yes or nod. Truncated domes present: yes or noe. Truncated domes placed correctly: yes or nof. Curb extensions: yes or nog. Other concerns:



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Signage	Streets are labeled: Excellent Average Poor None Other signage: Excellent Average Poor None									
Amenities	<input type="checkbox"/> Bench <input type="checkbox"/> Trash Can ▪ Overflowing? Yes or No	<input type="checkbox"/> Bus shelter <input type="checkbox"/> Bicycle Racks								
Lighting	<input type="checkbox"/> Overhead cobra <input type="checkbox"/> Historic <input type="checkbox"/> Pedestrian oriented	Is there lighting over the crosswalk? <input type="checkbox"/> Yes <input type="checkbox"/> No								
Trees	<input type="checkbox"/> Frequent, good shape <input type="checkbox"/> Frequent, poor shape <input type="checkbox"/> Mostly empty tree wells	<input type="checkbox"/> Infrequent, good shape <input type="checkbox"/> Infrequent, poor shape <input type="checkbox"/> No tree wells								
Hamilton Avenue from Gramercy Place to Harristown Road										
Design	How many lanes are there? What is the speed limit?	Are there crosswalks? Is there a median?								
Driver Behavior	Circle all that apply: <table style="width:100%;"> <tr> <td>a. Speeding</td> <td>e. Loud music</td> </tr> <tr> <td>b. Blocking crosswalk</td> <td>f. Loud engine</td> </tr> <tr> <td>c. Not stopping for pedestrians</td> <td>g. Not stopping for traffic control</td> </tr> <tr> <td>d. Double parking</td> <td>h. Other:</td> </tr> </table>		a. Speeding	e. Loud music	b. Blocking crosswalk	f. Loud engine	c. Not stopping for pedestrians	g. Not stopping for traffic control	d. Double parking	h. Other:
a. Speeding	e. Loud music									
b. Blocking crosswalk	f. Loud engine									
c. Not stopping for pedestrians	g. Not stopping for traffic control									
d. Double parking	h. Other:									



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Sidewalk Condition	Are sidewalks present? No One Side (Which?) Both Sides
	Any problems you observed: a. Sidewalks or paths started and stopped, where? b. Sidewalks were broken or cracked, where? c. Sidewalk slope problems, where? d. Sidewalks were blocked with parked cars, signs, shrubs, etc, where? e. Sidewalks not wide enough, where? f. Sight obstructions, where?
Curb Cuts/Ramps	Circle all that apply: a. Missing b. Non ADA compliant curb cuts/rams (too steep, not passable, etc.) c. Aligned with crosswalk: yes or no d. Truncated domes present: yes or no e. Truncated domes placed correctly: yes or no f. Curb extensions: yes or no g. Other concerns:
	Streets are labeled: Excellent Average Poor None Other signage: Excellent Average Poor None
Signage	



FIELD AUDIT

Wednesday, November 28, 2018 | 1 pm to 5 pm

Amenities	<input type="checkbox"/> Bench	<input type="checkbox"/> Bus shelter
	<input type="checkbox"/> Trash Can ▪ Overflowing? Yes or No	<input type="checkbox"/> Bicycle Racks
Lighting	<input type="checkbox"/> Overhead cobra	Is there lighting over the crosswalk?
	<input type="checkbox"/> Historic	<input type="checkbox"/> Yes
	<input type="checkbox"/> Pedestrian oriented	<input type="checkbox"/> No
Trees	<input type="checkbox"/> Frequent, good shape	<input type="checkbox"/> Infrequent, good shape
	<input type="checkbox"/> Frequent, poor shape	<input type="checkbox"/> Infrequent, poor shape
	<input type="checkbox"/> Mostly empty tree wells	<input type="checkbox"/> No tree wells
Final Questions		
How safe did this area feel?	0 1 2 3 4 5 6 7 8 9 10	
How afraid would you be to walk ALONE in the area during <i>daytime</i> ?	0 1 2 3 4 5 6 7 8 9 10	
How afraid would you be to walk ALONE in the area during <i>night</i> ?	0 1 2 3 4 5 6 7 8 9 10	
How well cared for did this area feel?	0 1 2 3 4 5 6 7 8 9 10	

Other thoughts:

D. StreetSmart Campaign Resources



STREET SMART NJ FACT SHEET

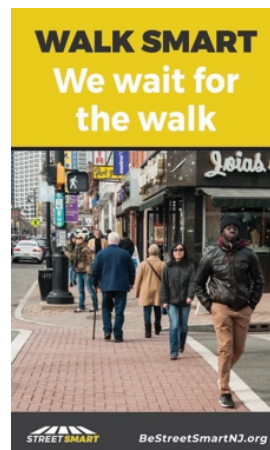
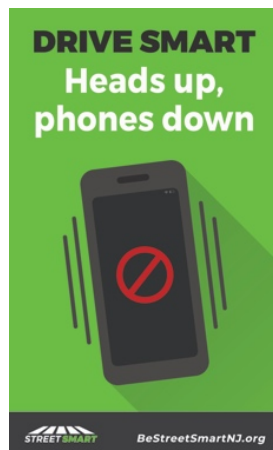
What is Street Smart NJ?

Street Smart NJ is a public education, awareness and behavioral change pedestrian safety campaign created by the North Jersey Transportation Planning Authority (NJTPA). The campaign combines grassroots public awareness efforts with social media, public outreach efforts and law enforcement to address pedestrian safety.

There are a number of different ways communities can participate. Nearly all campaigns enlist the involvement of community leaders, businesses and organizations and ask police to step up enforcement of pedestrian safety laws. Some campaigns have an evaluation component, including pre- and post-campaign surveys and observations at crash prone locations. Smaller campaigns may be limited to handing out information at community events and displaying signage around town.

More than 80 communities have participated in Street Smart in some way since the program's inception in 2013. NJTPA's goal is to increase that number to 100 campaign partners. Communities everywhere are invited to use the strategies and materials on the Street Smart website, bestreetsmartnj.org, to create their own campaigns. The website includes a 'How To' guide, printable materials, social media posts and a sample press release among other resources.

NJTPA staff are available to sit down with interested towns to discuss how to bring Street Smart NJ to their community.



Why do we need Street Smart?

Part of the impetus behind Street Smart NJ was that the Federal Highway Administration identified New Jersey as a pedestrian “focus” state due to the high incidence of pedestrian injuries and fatalities. In 2018, 175 pedestrians died as a result of pedestrian-vehicle crashes in New Jersey. From 2014 to 2018, 870 pedestrians were killed and thousands were injured on New Jersey’s roadways. That translates to one death every two days and 11 injuries daily.



Campaign Messages

The Street Smart NJ campaign urges pedestrians and motorists to keep safety in mind when traveling New Jersey’s roads. The program’s core message is “Walk Smart – Drive Smart – Be Street Smart” with specific messages including We look before crossing; Heads up, phones down; We slow down for safety; We stop for people – it’s the law; We use crosswalks; We cross at corners; We cross at the light; and We wait for the walk. The NJTPA has developed pedestrian safety tip cards, in English and Spanish, for public distribution built around the messages. The messages are also printed on posters, banners, street signs, coasters, tent cards and coffee sleeves.

Police Enforcement

One of the keys to Street Smart NJ’s success is law enforcement participation. Police officers engage and educate, rather than simply issue citations. In many communities that participate in Street Smart NJ police have issued warnings rather than citations and even rewarded good behavior with coupons, gift cards and free t-shirts. Street Smart NJ public awareness efforts are often conducted in conjunction with this increased enforcement.



Results

Evaluations of previous Street Smart NJ campaigns have shown positive results. There was a 28 percent reduction in pedestrians jaywalking or crossing against the signal and a 40 percent reduction in drivers failing to yield to crossing pedestrians or cyclists following campaigns the NJTPA managed in March 2016.

E. Potential Funding Resources

This appendix provides a list of common grant programs available to New Jersey communities for the advancement of complete streets initiatives, including both infrastructure and non-infrastructure projects, and programs to increase walking and bicycling. A table has been included that lists the most common grant sources for complete street related projects. Links to two online databases with additional funding sources has also been included. Grants listed are highly competitive and grant application requirements should be carefully reviewed before making the decision to apply. From the reviewers' perspective, application review is time-consuming and often applications will not be reviewed if all the required elements are not received by the published deadline. The most successful applications tell the story of the populations most in need of the proposed improvements, especially disadvantaged communities or vulnerable groups such as seniors. Applications should use compelling pictures, data and other documentation, and indicate how and why improvements are prioritized.

New Jersey Department of Transportation

The Division of Local Aid and Economic Development at the New Jersey Department of Transportation (NJDOT) provides funds to local public agencies such as municipal governments for construction projects to improve the state's transportation system. The state's Transportation Trust Fund and the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act — A Legacy for Users (SAFETEA-LU) legislation provides the opportunity for funding assistance to local governments for road, bridge and other transportation projects. NJDOT and the three metropolitan planning organizations that cover the state administer federal aid programs. NJDOT administers state aid programs. Below are some options for funding infrastructure projects through NJDOT.

State Aid Infrastructure Grant Programs

Municipal Aid: This program assists municipalities in funding local transportation projects, and all municipalities in New Jersey are eligible to apply. NJDOT encourages applications for pedestrian safety improvements, bikeways, and streetscapes. Additionally, a common strategy to implement on-street bike lanes is to include bike lane striping within repaving projects that are funded through this program. Learn more here: <https://www.state.nj.us/transportation/business/localaid/municipalaid.shtm>

County Aid: County Aid funds are available for the improvement of public roads and bridges under county jurisdiction. Public transportation and other transportation projects are also included. Learn more here: <https://www.state.nj.us/transportation/business/localaid/countyaid.shtm>

Bikeways: This program funds bicycle projects that create new bike path mileage, working towards NJDOT's goal of 1,000 miles of dedicated bikeways in New Jersey. Special consideration will be given to bikeways physically separated from vehicle traffic, but on-road bike lanes or other bike routes are also eligible for funding. Learn more here: <https://www.state.nj.us/transportation/business/localaid/bikewaysf.shtm>

Safe Streets to Transit: This program encourages counties and municipalities to construct safe and accessible pedestrian linkages to all types of transit facilities and stations, in order to promote increased usage of transit by all segments of the population and decrease private vehicle use. Learn more here: <https://www.state.nj.us/transportation/business/localaid/safe.shtm>

Transit Village: This program awards grants for transportation projects that enhance walking, biking, and/or transit ridership within a ½ mile of the transit facility. Municipalities must already be designated as a Transit Village by the Commissioner of Transportation and the inter-agency Transit Village Task Force in order to be eligible to apply. Learn more here: <https://www.state.nj.us/transportation/business/localaid/transitvillagef.shtm>

Other NJDOT Assistance

Bicycle and Pedestrian Planning Assistance: NJDOT offers 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 and master plan studies, safety assessments, trail feasibility studies, bikeway plans, and improvement plans for traffic calming projects. For more information, please contact the state bicycle and pedestrian program coordinator at bikeped@dot.nj.gov

Federal Aid Infrastructure Grant Programs

Safe Routes to School: The Safe Routes to School Program provides federal funds for infrastructure projects that enable and encourage children in grades K-8, including those with disabilities, to safely walk and bicycle to school. Applicants can receive bonus points on the grant if they have School Travel Plans, a Complete Street Policy and Transit Village designation. Learn more here: <https://www.state.nj.us/transportation/business/localaid/srts.shtm>

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. Municipalities can receive bonus points on the grant if they have an adopted Complete Street Policy and are a designated Transit Village. Learn more here: <https://www.state.nj.us/transportation/business/localaid/alternatives.shtm>

New Jersey Department of Environmental Protection: The Recreational Trails Program administered by the NJDEP Green Acres Program provides federal funds for developing new trails and maintaining and restoring existing trails and trail facilities including trails for non-motorized, multi-use (including land and water) and motorized purposes. Learn more here: <https://www.nj.gov/dep/greenacres/trails/index.html>

Health and Environment Funding

Sustainable Jersey: The Sustainable Jersey Small Grants program provides capacity building awards to municipalities to support local green teams and their programs, and is not project specific. Learn more here: <http://www.sustainablejersey.com/>

Sustainable Jersey for Schools: Sustainable Jersey for Schools grants are intended to help districts and schools make progress toward Sustainable Jersey for Schools certification. Learn more here: <http://www.sustainablejerseyschools.com>

New Jersey Healthy Communities Network: The New Jersey Healthy Communities Network is a partnership of grantees, funders and advocate organizations who seek to have collective impact on community well-being to support healthy eating and active living. The Community Grant Program provides opportunities to develop healthy environments for people to live, work, learn and play by funding policies, projects and programs that support walking and bicycling. Learn more here: <https://www.njhcn.org/>

Funding from Other Sources

Various other funding sources exist that may help municipalities further complete streets projects. Both Sustainable Jersey and Together North Jersey have developed comprehensive online databases that catalog the many funding sources available. They can be found at the following locations:

Sustainable Jersey Grants Portal: <http://www.sustainablejersey.com/grants-resources/grants-portal/>

Together North Jersey Funding and Resources Database: https://togethernorthjersey.com/?page_id=25162

Federal Funding

1. US Department of Transportation (USDOT)

- a. Better Utilizing Investments to Leverage Development (BUILD, replaced TIGER)

2. Federal Highway Administration (FHWA) Programs

- a. Congestion Mitigation and Air Quality Improvement (CMAQ)
- b. Surface Transportation Program (STP)
- c. Highway Safety Improvement Program (HSIP)
- d. National Highway Performance Program (NHPP)
- e. Transportation Alternatives Program (TAP)
- f. Safe Routes to School (SRTS)
- g. Local Safety / High Risk Rural Roads Program (HRRR)
- h. National Highway System (NHS)
- i. Recreational Trails Program - Including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.
- j. Federal Lands Access Program (FLAP) - The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.
- k. Emergency Relief - Repair or reconstruction after national disaster, can include bicycle and pedestrian facilities

3. National Highway Traffic Safety Association

- a. NHTSA Section 402 State Highway Safety Program
- b. NHTSA Section 405 Non-Motorized Safety Grants

4. Federal Transit Administration Programs

- a. Urbanized Area Formula Program (UZA) - Public transit and bike routes to transit
- b. Fixed Guideway Capital Investment Grants - Transit systems and bike parking
- c. Bus and Bus Facilities Formula Grants - Includes bike parking facilities
- d. Enhanced Mobility of Seniors and Individuals with Disabilities - Access to transit facilities for seniors

State Funding

5. Municipal Aid (\$140m)

6. County Aid (\$150m)

7. Local Bridges (\$44m)

8. Safe Streets to Transit (\$1m)

9. Transit Village (\$1m)

10. Bikeways (\$1m)

11. Local Aid Infrastructure Fund (\$7.5m)

12. Safe Corridors Highway Safety Funds

13. Urban Aid (\$10m)

14. New Jersey Trails Program (Department of Environmental Protection)

15. Other Funding Sources

16. Regional/Local CMAQ Initiatives Program (NJTPA)

17. NJ Division of Highway Traffic Safety

18. Open Space & Farmland Preservation

19. Homeland Security Transit Security Grant Program (TSGP)

Other Sources

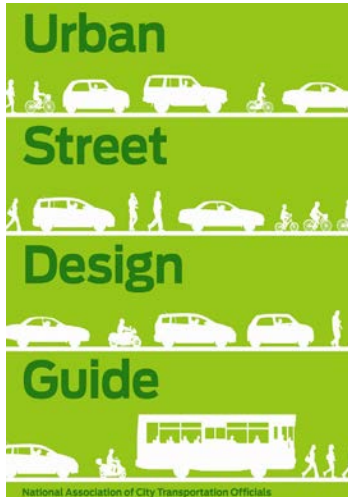
20. County Capital Program

21. Municipal Capital Programs

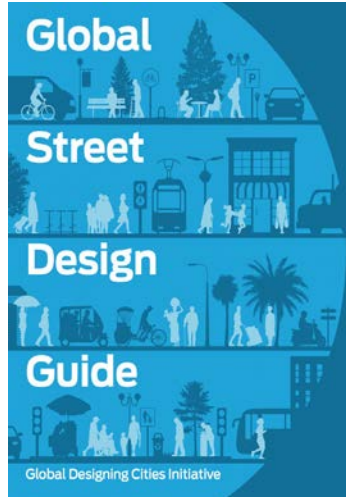
22. Foundations

F. Design Resources

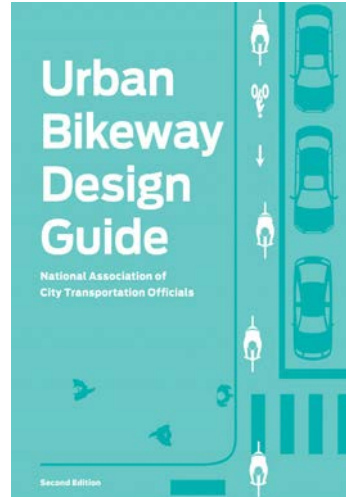
NACTO Guides



[Urban Street Design Guide](#)



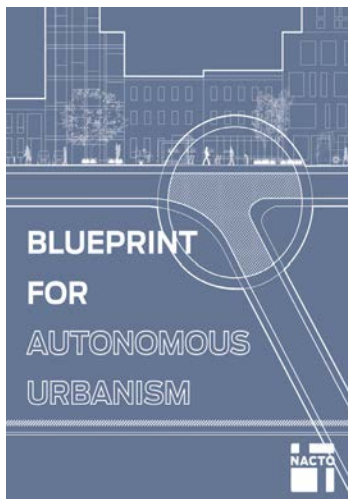
[Global Street Design Guide](#)



[Urban Bikeway Design Guide](#)



[Transit Street Design Guide](#)



[Blueprint for Autonomous Urbanism](#)

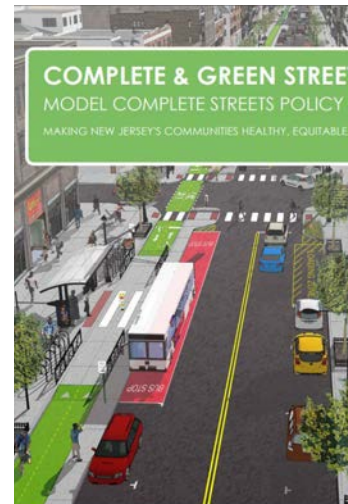


[Urban Street Stormwater Guide](#)

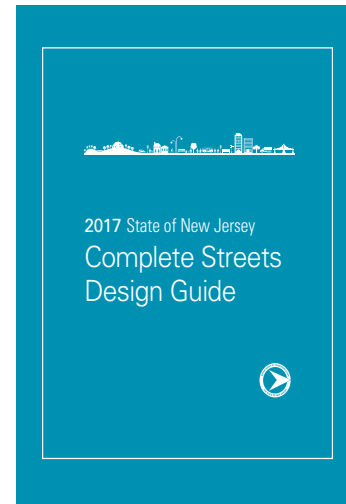


[Bike Share Station Siting Guide](#)

NJDOT Guides



[Complete & Green Streets for All: Model Policy and Guide](#)

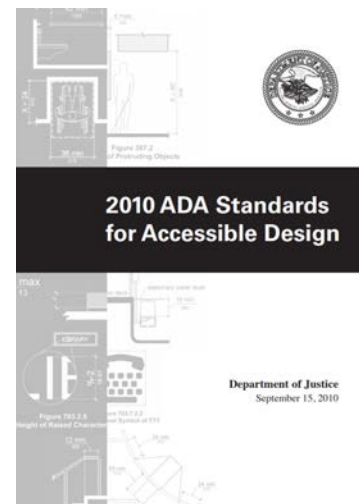


[2017 State of New Jersey Complete Streets Design Guide](#)



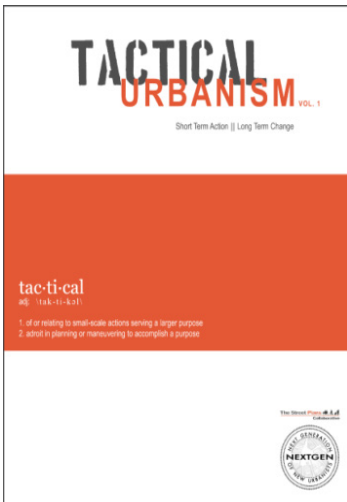
[A Guide to Creating A Complete Streets Implementation Plan](#)

ADA Guidelines

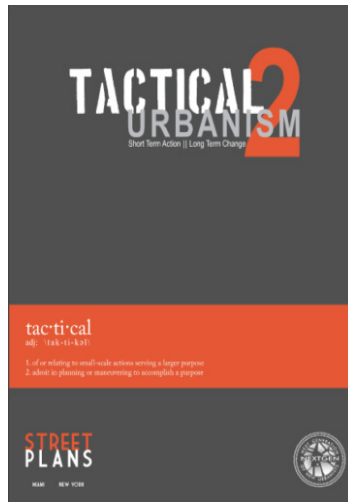


[ADA Standards for Accessible Design](#)

Tactical Urbanism Guides



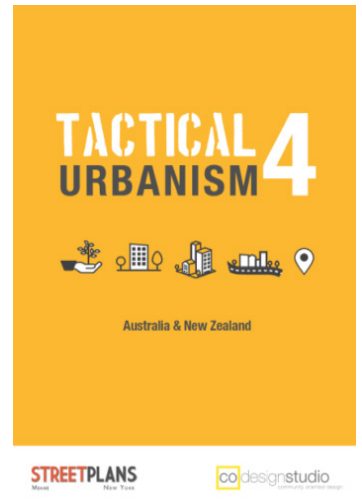
[Tactical Urbanism 1](#)



[Tactical Urbanism 2](#)



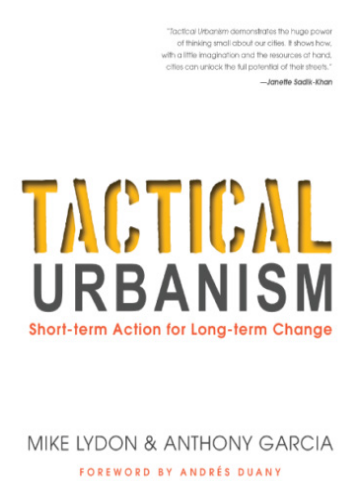
[Tactical Urbanism 3](#)



[Tactical Urbanism 4](#)



[Tactical Urbanism 5](#)



[Tactical Urbanism](#)



[Tactical Urbanist's Guide to Materials and Design Version 1.0](#)



[The Open Streets Guide](#)



[Mercado: Lessons from 20 Markets Across South America](#)



[Public Space Stewardship Guide](#)

