



# Washington Street, Main Street, and Franklin Avenue Walkable Community Workshop Township of West Orange, Essex County, NJ 2020



## About the Report

This report has been prepared as part of the North Jersey Transportation Planning Authority (NJTPA) Complete Streets Technical Assistance Program, with financing by the Federal Transit Administration and the Federal Highway Administration of the U.S. Department of Transportation. This report is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or its use thereof.

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## Acknowledgments

The authors of this report would like to extend special thanks to West Orange Councilman Jerry Guarino, Municipal Engineer Len Lepore, Chief of Police James P. Abbott, and Pedestrian Safety Advisory Board Member Michael Dannemiller for making this project possible. The team would also like to thank all those who participated in the online webinar and were able to provide their valuable insights into the study area. Lastly, Rutgers graduate students Deja Dennis, Jiajia Jiayu Zhou, and Maxim Gladkiy provided support in the preparation of this report. The NJTPA provided several photographs used throughout this report.

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# 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**

The Township of West Orange, New Jersey, participated in the North Jersey Transportation Planning Authority (NJTPA) Complete Streets Technical Assistance (CSTA) Program in 2020. The CSTA Program selected eight municipalities to receive up to \$10,000 in technical assistance to advance complete streets projects. This report identifies several recommendations to promote walking as a means of travel and improve the pedestrian experience along a corridor on the eastern edge of West Orange, adjacent to Washington Elementary School and a business district. This report calls for improving pedestrian conditions along the corridor; addressing missing signage and parking concerns; re-imagining the intersection of Main Street and Washington Street; and providing safe access to Washington School through a bicycle boulevard concept on neighboring roadways.

The recommendations in this report were developed using a collaborative process with municipal employees and township stakeholders. The process included a virtual Walkable Community Workshop (WCW) that was held on July 29, 2020. A follow-up public meeting was conducted on September 17, 2020 to collect feedback before finalizing the recommendations. Both meetings were conducted virtually rather than in-person due to COVID-19.

The lessons learned by all participants during the virtual workshop can be applied to other municipal- owned roadways in West Orange. The field audit form, information about the NJTPA's Street Smart NJ pedestrian safety education program and a list of potential funding resources can be found in this report's appendices. These resources can be used to conduct other walking audits and projects within the town.



Figure 1. West Orange Municipal Complex.

# 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, a need identified by the Together North Jersey (TNJ) consortium. TNJ was created in 2011 to develop the first comprehensive plan for sustainable development for North Jersey. Sustainable Jersey (SJ) and the Alan M. Voorhees Transportation Center (VTC) at Rutgers University were retained to provide technical assistance for this program. In its first year, the program successfully supported nine municipal governments seeking to implement complete streets in their communities. This report is part of the second year of the CSTA Program, in which eight additional municipalities were selected to receive technical assistance. Municipalities were chosen for the program based on the following criteria: the need for technical assistance; commitment to project implementation; opportunity for public engagement; the strength of their respective municipal teams; and the project's potential effects on Environmental Justice (EJ) populations.

Through the CSTA Program, municipal employees and stakeholders participated in a half-day Walkable Community Workshop (WCW) on July 29, 2020 to learn about the benefits of complete streets and proven strategies for protecting the most vulnerable street users—pedestrians and bicyclists. The workshop included an hour-long virtual classroom-style training, and a virtual walking audit along Washington Street, Main Street, and Franklin Avenue. The audit, led by staff from VTC with support from SJ and the NJTPA, enabled participants to identify problems and potential improvements for the study corridor.

West Orange does not have a single downtown, but instead multiple commercial districts. Main Street, adjacent to the study corridor, hosts destinations and developments such as the Thomas Edison National Historic Park, the Edison Lofts, the Washington School, and a variety of popular restaurants and shops. Additionally, the audit corridor is a 30 minute walk from the City of Orange's train station and provides access to numerous NJ TRANSIT bus routes. Like many New Jersey municipalities, the township's business corridors have been re-developed with various auto-oriented commercial properties, including auto body repair shops and large parking lots. There are a number of curb cuts along the corridor which create pedestrian safety concerns.

Direct observations by the study team and feedback from residents found that walking and bicycling along the study corridor is challenging due to a lack of well-maintained pedestrian and bicycle infrastructure. In their application to the CSTA Program, West Orange officials expressed interest in improving walkability and bikeability to provide better connections to community assets, which include commercial areas, community centers and schools. West Orange officials also expressed interest in providing special consideration for residents living along the corridor, 80 percent of which are minority and low-income. Providing safe pedestrian and bicycle infrastructure along Washington Street could enable residents and visitors to forgo single-occupancy vehicles in favor of other transportation options. This environmentally responsible alternative contributes to the overarching goal of promoting public health benefits for the community.

West Orange has undertaken various policy, planning, and programmatic efforts to improve pedestrian and bicyclist safety and mobility. In 2015, the township worked with Rutgers to create a Complete Streets Concept Plan. In 2016, the township's Pedestrian Safety Advisory Board adopted a Pedestrian Safety Action Plan for 2016-2020 to support and advance health, wellness education and disease prevention, and treatment. During the planning process, the community prioritized encouraging the West Orange Township Council to: participate in Street Smart NJ; adopt a Vision Zero plan/policy; institutionalize the complete streets policy into all aspects of planning, zoning, and development; push for the implementation of strategies and recommendations listed in the Complete Streets Concept Plan; and move towards a partnership with the Metropolitan YMCA of the Oranges in order to leverage the town's participation in the New Jersey Healthy Communities Network. As a result of these efforts, the township is planning a road diet along Main Street in 2021 that will reduce the four-lane road to two lanes.

The township hopes that complete streets improvements will provide significant regional and community benefits, better connect commuters to regional employment opportunities; improve access to commercial areas and community centers and alleviate vehicle congestion by promoting walking and biking. The township's goal



is to provide environmentally responsible alternatives to single-occupancy vehicle travel that will promote general welfare and wellbeing while increasing the visibility and viability of local businesses.

## What is a Complete Street?

Complete streets are roads designed for all users, all modes of transportation, and all ability levels (Figure 2). They balance the needs of drivers, pedestrians, bicyclists, transit riders, emergency responders, and goods movement based on the local context. Complete streets should tailor 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 achieve a safer setting for students. Meanwhile, streets along transit routes should 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 help 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, pedestrian fatality rates drop to 45 percent, and down to five percent at 20 mph (Figure 3 and Figure 4). Complete streets recognize that all users of the transportation network, whether traveling by car, bus, train, or taxi, become a pedestrian at some point during their journey. Creating a safer environment benefits everyone.

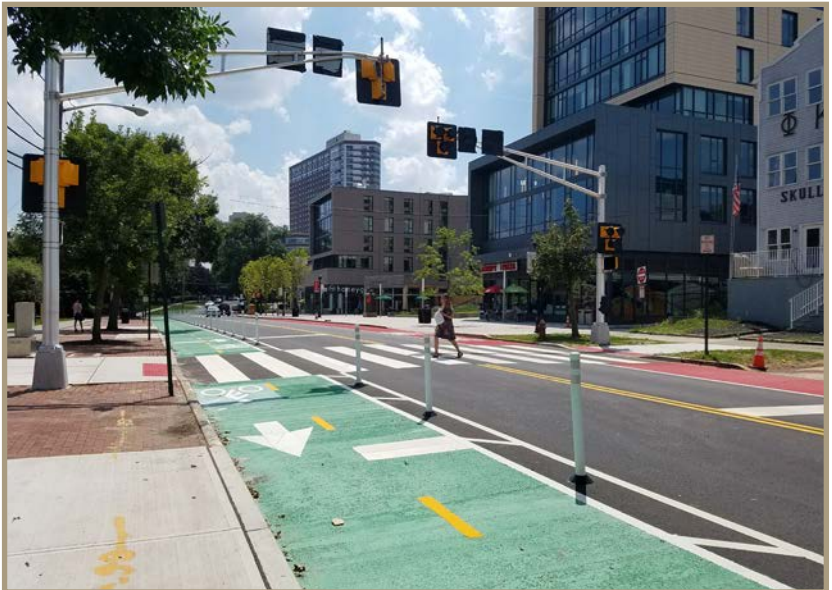


Figure 2. A complete street, as seen in New Brunswick, New Jersey. No two complete streets are alike, as they should always reflect the context of the street and the character of the community.

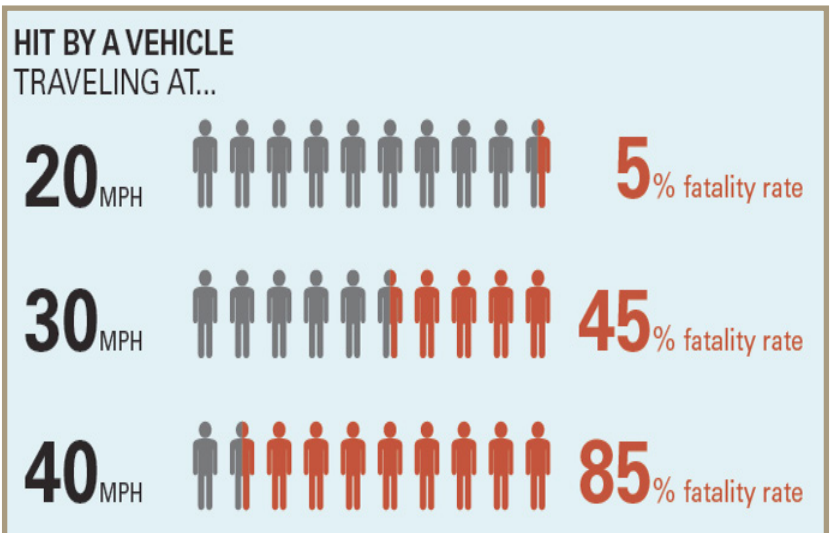


Figure 3. Graphic showing increased fatality rate as vehicle speeds increase.

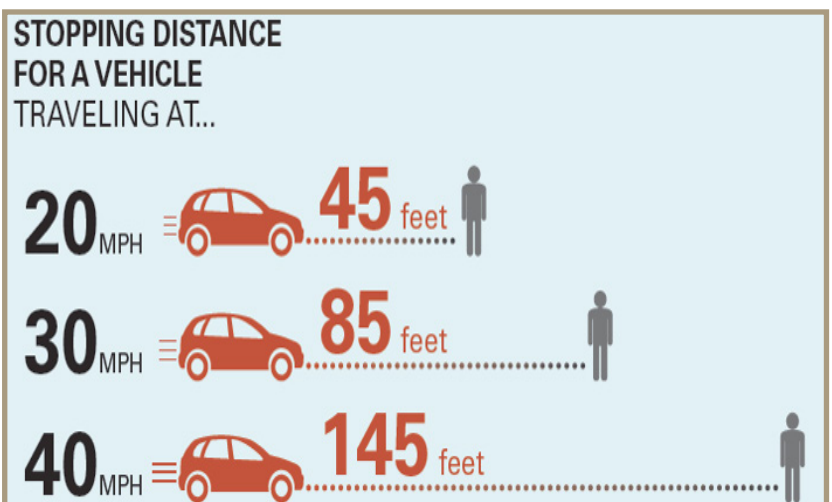


Figure 4. Graphic showing increased stopping distance as vehicle speeds increase.

## 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 expands mobility opportunities for everyone, including nondrivers, youth, and senior citizens (Figure 5). 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.

### Equity

Complete streets help decrease the necessity of the automobile for 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 to combat obesity (Figure 6).

### 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 (Figure 7).



Figure 5. When a street lacks accessible sidewalks and ramps, it is not complete.



Figure 6. Trails, such as this one in Monroe, New Jersey, can encourage exercise and lead to improved health.



Figure 7. Complete Streets in Asbury Park help foster a lively social environment.



## 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 8)<sup>1</sup>.



Figure 8. Division Street in Somerville was converted into a pedestrian plaza that has become a popular gathering space.

## 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. (Figure 9).



Figure 9. Green infrastructure used to narrow the roadway and provide a shorter crossing distance for pedestrians.

## Complete Streets in New Jersey and West Orange

New Jersey is a national leader in the complete streets movement. In 2009, the New Jersey Department of Transportation (NJDOT) was among the first state departments of transportation (DOTs) in the nation to adopt an internal complete streets policy. In 2010, the National Complete Streets Coalition ranked that policy first among 210 state, regional, county, and municipal policies nationwide. Since 2009, NJDOT has funded five Complete Streets Summits, and over a dozen local, regional and statewide in-person and online educational workshops intended to disseminate the latest information about complete streets to planners, engineers, elected officials, and advocates. In 2017, NJDOT released the *New Jersey Complete Streets Design Guide* to inform New Jersey communities on how to implement complete streets projects. In 2019, NJDOT released the *Complete & Green Streets for All: Model Complete Streets Policy and Guide* to serve as a new resource for local best practices in policy language. One of the positive outcomes of these efforts is that 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, 167 municipalities have implemented complete streets policies affecting 3.8 million (44 percent) of the state's residents (Figure 10).

West Orange adopted a policy on July 9, 2013, which states that "all public street projects, both new construction and reconstruction undertaken by the Township of West Orange shall be designed and constructed as Complete Streets whenever feasible to do so in order to safely accommodate travel by pedestrians, bicyclists, public transit, motorized vehicles and their passengers, with special priority given to pedestrian safety and walkability." Essex County passed its own policy on April 11, 2012.

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



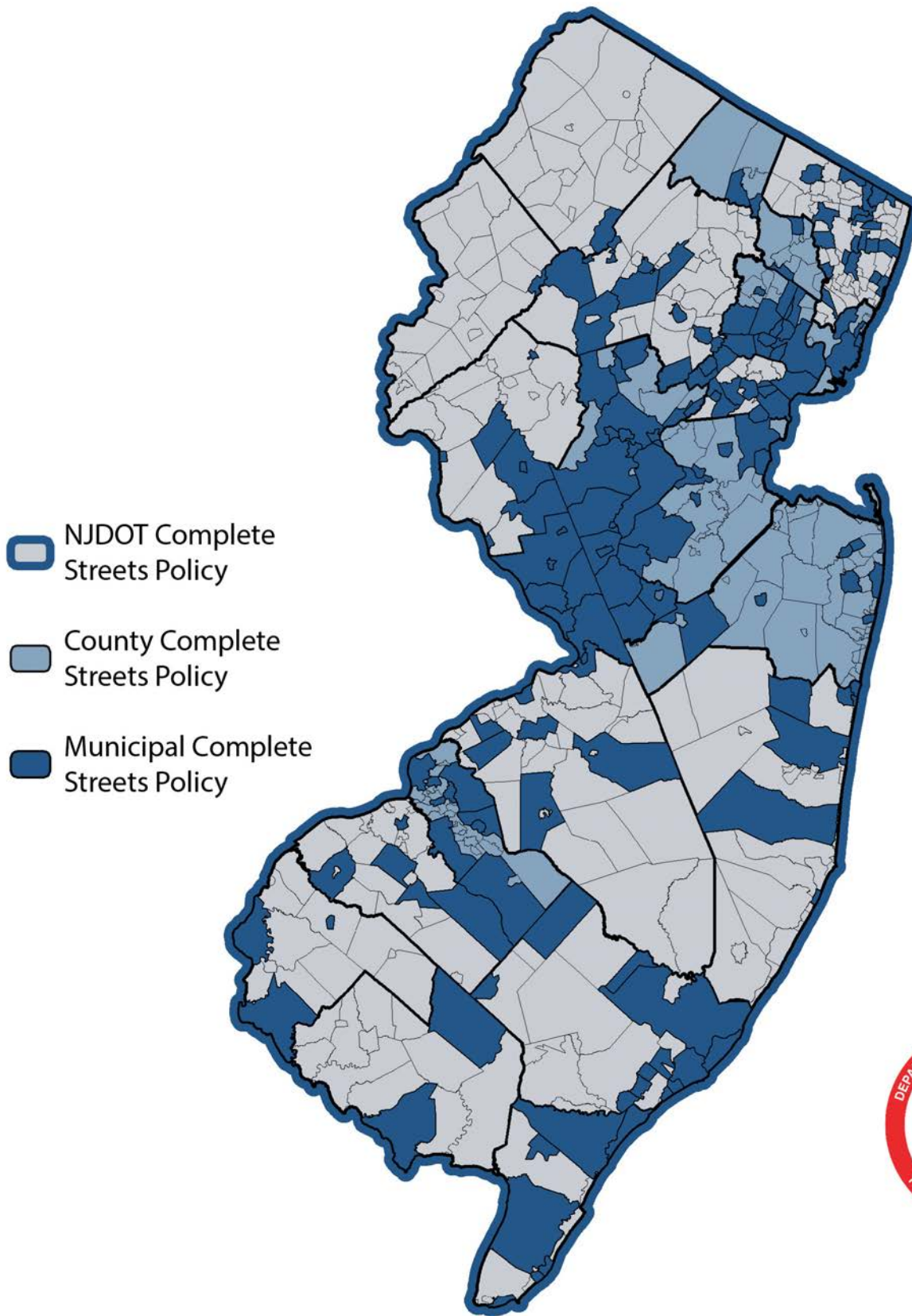


Figure 10. Complete Streets Policies in New Jersey, as of October 15, 2020. Visit <http://njbikeped.org/services/complete-streets-policy-compilation/> for a constantly updated list of policies.

# Walking Audit Location

The Township of West Orange is home to approximately 47,563 residents within an area of 12.13 square miles. The median age is 40.6 and the estimated median household income is \$99,845, which is higher than Essex County’s median income of \$59,302. The poverty rate in West Orange is 6.4 percent, which is less than half Essex County’s rate of 14.9 percent. West Orange is a majority-minority community with 27.7 percent identifying as Black and 19.5 percent as Hispanic. 34.6 percent of residents speak a language other than English at home (US Census Bureau, 2018).

Seventy two percent of West Orange residents drive alone to work, followed by 15.5 percent who use public transportation—a high amount for a municipality without a train station. Just 1.5 percent of residents walk or bicycle to work. NJ TRANSIT offers bus service to Newark on five local routes. DeCamp and Coach USA, private bus companies, provide commuter service to Manhattan. New York City is the primary commuting destination for West Orange residents, followed by Newark, Jersey City, and remaining within West Orange. Commuters who work in West Orange are primarily arriving from Newark and East Orange. (US Census Bureau, OnTheMap, 2018).

Downtown West Orange is immediately east of I-280. The municipal complex and a commercial area occupy this section of town. Slightly to the north is the Thomas Edison National Historical Park, and to the west lies the Llewellyn Park gated community. The walking audit study area is located north of these landmarks, starting on the border with the City of Orange (Figure 11).

Washington Street, also known as Essex County Route 671, runs from Orange in a northwesterly direction until it terminates at Main Street. Within West Orange, the roadway hosts local businesses such as a thrift store, hair salon, neighborhood market, auto repair, and restaurants. Intermingled with the businesses are a number of medium-density residential properties and a fire station. The study corridors continues briefly along Main Street (Essex County Route 659) for 250 feet. The west side of the roadway hosts a number of small businesses, while the east side is bordered by Washington Elementary School. The study corridor continues to follow the school property as it transitions onto Franklin Avenue for one block. Along this block, the Holy Trinity Episcopal Church is on the west side, while the school continues along the east side of the roadway. The roadway crosses over Wigwam Brook and the corridor ends at the intersection with William Street.

Washington Elementary School draws students from a small area as compared to other schools in West Orange (Figure 12). While this could allow most of students to walk to school, residents report that many arrive by car. While Washington School is the focal point of this audit, Edison Middle School is located in close proximity. The Mount Carmel Guild Academy is also located just under one half mile away.

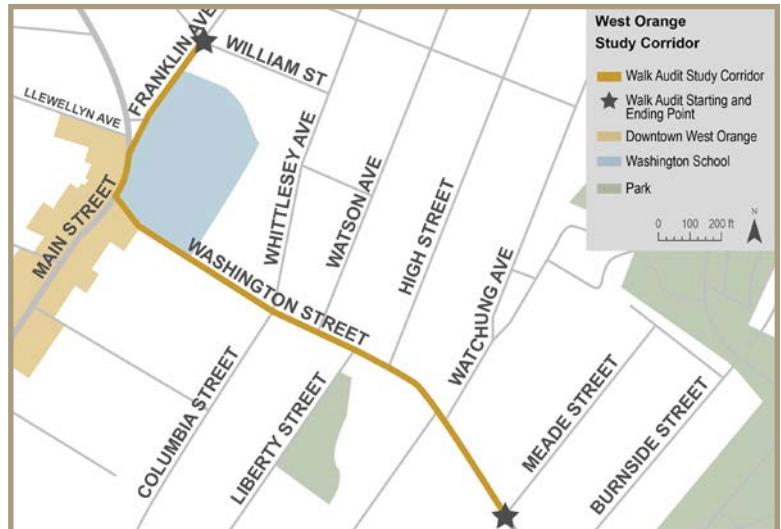


Figure 11. Map of study corridor

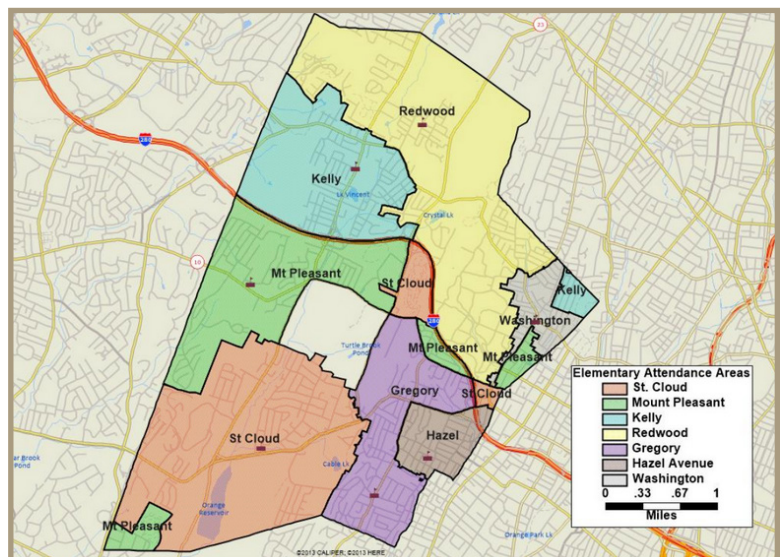


Figure 12. Elementary school locations and attendance Boundaries



## Assessment of need

The study corridor was selected due to West Orange's desire to create safer pedestrian and bicyclist connections between the residential areas around Washington School and the surrounding community. In their application, borough officials also expressed interest in encouraging resident and visitor engagement with commercial establishments and other community assets by implementing better pedestrian and bicycle infrastructure. Improving the pedestrian realm will help generate foot traffic for local businesses and addressing safety concerns for bicyclists will create a more welcoming environment for them as well as further improve pedestrian safety by moving bicyclists off the sidewalk (Figure 13).



Figure 13. Bicyclists lack dedicated infrastructure in the study area.

Members of the public provided feedback during the walking audit, follow-up meeting, and through emails. They stated that the corridor is fairly unwelcoming to pedestrians and bicyclists. Unmaintained pavers create tripping hazards along sidewalks and frequent curb cuts increase the likelihood of pedestrian and vehicular interaction. The corridor has few marked crosswalks and there is a lack of bicycle infrastructure, which can make bicycling difficult. Residents noted that the intersection of Washington Street and Main Street is challenging for pedestrians, and traffic backs up frequently. Residents also stated that drop-off and pickup times at the school can be overwhelming as many parents stop their cars outside of the designated loading areas and children cross the roadway outside of crosswalks.

## Data

### Traffic

According to NJDOT, Washington Street just east of Main Street had an annual average daily traffic volume (AADT) of 4,716 vehicles in 2012 (the most recent year for which data is available). NJDOT also noted an AADT volume of 14,016 in 2012 on Main Street just south of the study area. It is likely that traffic volumes have increased in recent years as new housing developments have been completed in the surrounding area.

### Speed

Traffic speed data was not available. The speed limit throughout the study area is 25 mph.

### Crash History

According to NJDOT records, from 2015-2019 there have been four crashes involving pedestrians and two involving bicyclists along the study corridor (Table 1). None of them were fatal. Five of those crashes occurred in 2015 and the other was in 2017. Two of the crashes involved elementary school children. Numerous crashes involving only automobiles have occurred along the study area, with the highest concentration located at the intersection of Main Street and Washington Street. Most of the vehicle collisions were the result of one vehicle striking a parked vehicle, striking a vehicle entering or exiting a parking spot, or sideswiping a vehicle while attempting to pass (Figure 14).

Table 1. Pedestrian and bicycle crashes in study area, 2015-2019.

Location	Date	Time	Crash Type	Ped. Age	Ped. Gender	Injury Severity	At Intersection	Lighting
Main St at Lewellyn Ave	02/19/2015	4:22 pm	Pedestrian	11	Male	No Apparent injury	Yes	Daylight
Washington St at Watchung Ave	03/04/2015	6:58 am	Pedestrian	51	Female	Possible Injury	Yes	Daylight
Franklin Ave at William St	09/06/2015	1:59 pm	Pedacyclist	9	Female	Minor Injury	Yes	Daylight
Main St at Prospect Pl	09/09/2015	9:42 am	Pedacyclist	52	Unknown	Possible Injury	Yes	Daylight
Main St at Washington St	10/12/2015	1:47 pm	Pedestrian	44	Unknown	Minor Injury	Yes	Daylight
Washington St at High St	03/07/2017	1:16 pm	Pedestrian	70	Male	Minor Injury	Yes	Daylight

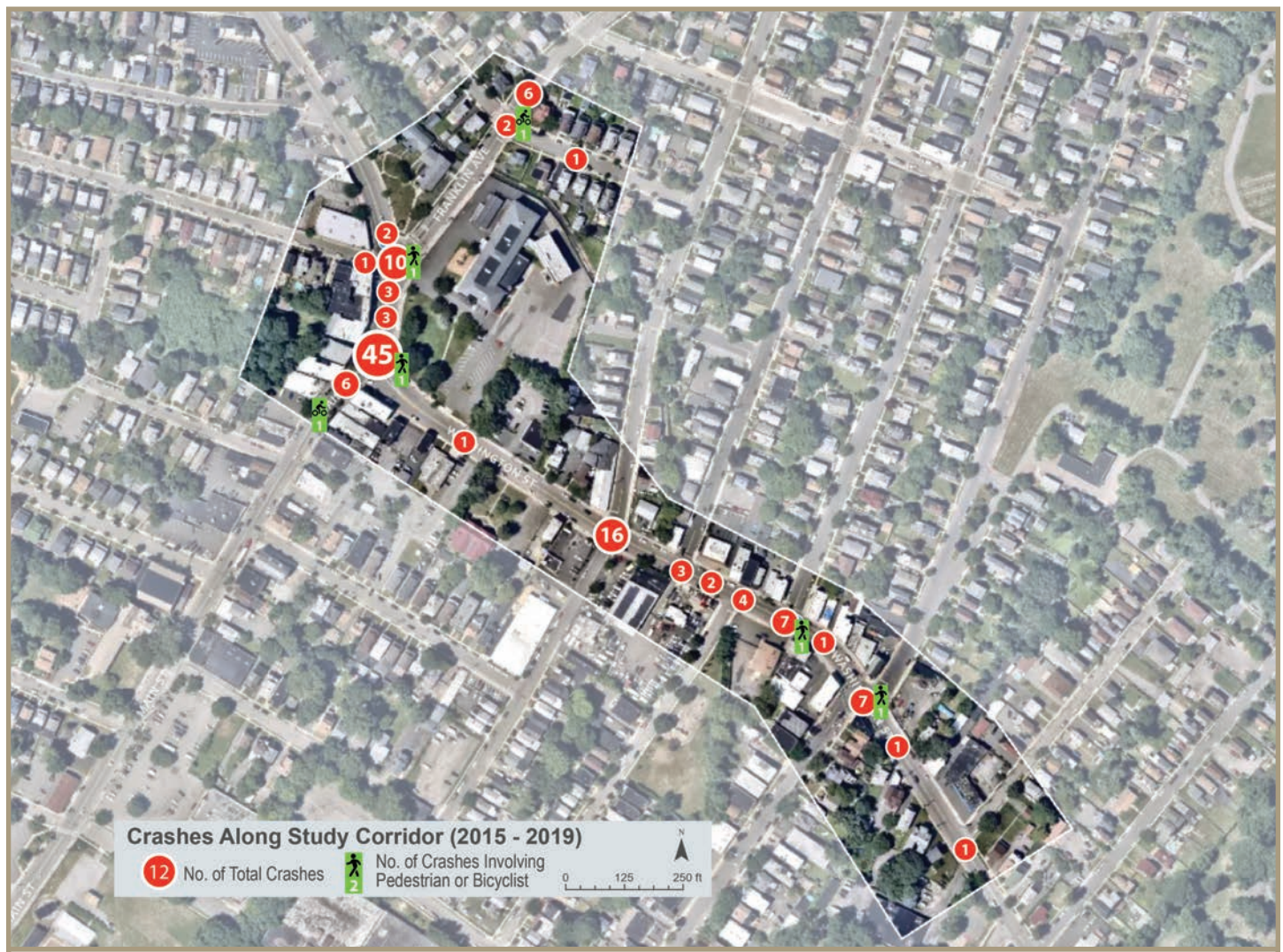


Figure 14. Map of crashes within the study area, from 2015 to 2019.



# Workshop Methodology

Prior to conducting the workshop, the CSTA project team met virtually with West Orange officials to discuss the proposed study corridor and gain a better understanding of the corridor, its location, use, and appropriateness for a walking audit. The project team scheduled an online workshop and created English and Spanish language flyers for the municipality to share with residents.

The virtual WCW, held on July 29, 2020, 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. It included instruction on ways to better support walking and bicycling, and insight into the causes of vehicular speeding. Additionally, the presentation covered traffic engineering techniques to better accommodate bicyclists and pedestrians, and proven measures to reduce speeding and improve overall safety along the corridor. The 29 workshop participants included residents, elected officials, municipal representatives, EZ Ride transportation management association, and the NJTPA.

Following the presentation, the project team provided participants with a link to the walking audit form so that they could complete it during the virtual audit. The project team conducted the virtual walking audit using Google Street View and began at the intersection of Washington Street and Meade Street. The audit continued north along the corridor and ended at the intersection of Franklin Avenue and William Street. The audit consisted of discussing issues, recording observations, and identifying the existing conditions noted by participants familiar with the area. The project team conducted a post-audit debrief to review the most important findings and potential recommendations for improvements.

Following the virtual walking audit, one member of the project team visited the corridor in person and the team developed a series of recommendations. The team presented the proposed recommendations to 18 attendees during a virtual public meeting on September 17, 2020, gathered community feedback, then revised the recommendations for inclusion in this report. Additionally, the project team accepted feedback from the community through email.



Figure 15. Pedestrians and bicyclists seen on Washington Street in August, 2020.



# Workshop Findings

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

## Corridor Summary

### Sidewalks

Sidewalks along Washington Street are generally narrow, with a usable width of 4 feet throughout most of the corridor. While this meets minimum standards, it does not allow for pedestrians to walk side-by-side. The sidewalk does widen slightly on Main Street and when adjacent to Washington School. In a few locations, the sidewalk is further narrowed by encroaching vegetation (Figure 16). The sidewalk is interrupted frequently with driveways. In some cases, the entire sidewalk is sloped towards the roadway, which is hazardous for wheelchair users (Figure 17).

The furnishing zone—a narrow strip adjacent to the curb, where street lights, trash cans, and other amenities are placed—is filled with brick pavers. This does allow some space for pedestrians to pass each other, and provides a paved surface for passengers exiting parked cars. However, at many locations the pavers have become dislodged or sunken, creating a tripping hazard (Figure 18 and Figure 19).

The corridor has few trees. Trees can increase the visual appeal of the neighborhood and make it more comfortable for pedestrians to walk, especially in the summer (Figure 20 and Figure 21).



Figure 16. Looking north on Washington Street, a narrow sidewalk is limited by overgrown bushes on a neighboring property.



Figure 17. Looking north on Washington Street, a driveway creates a cross slope along the sidewalk.

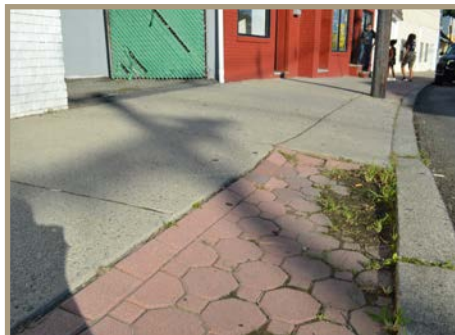


Figure 18. Sunken furnishing zone pavers adjacent to the curb.



Figure 19. Tripping hazard at end of furnishing zone.



Figure 20. Brand new sidewalk on Columbia Street is wide and even, but lacks trees.



Figure 21. Sidewalk on Franklin Ave, adjacent to Washington School.



## Intersections and Crosswalks

Of the nine intersections along the corridor, three are signalized, one is a four-way stop, four are t-intersections, and one is a two-way stop. All the intersections have standard painted crosswalks across the side streets (Figure 22). However, the only crosswalks across the study corridor streets of Washington Street, Main Street, and Franklin Avenue are at the signalized or stop-controlled intersections. At the signalized intersection of Washington Street and Main Street the crosswalks are marked with a brick pattern (Figure 23).

The intersection of Franklin Avenue and William Street, which is controlled by a four-way stop, is marked with high-visibility ladder crosswalks in all directions. Additionally, the stop signs have embedded flashing LED lights. According to local stakeholders, this is a recent upgrade installed in response to drivers failing to yield to people crossing. All crosswalk striping observed along the corridor was faded (Figure 24).

The three traffic signals along the route have pedestrian signal heads. The signals have a push-button for pedestrians, but these buttons have been removed, and the pedestrian signals turn on automatically (Figure 25).

The quality of curb ramps along the corridor varies. While almost all the ramps have truncated domes installed, which are required to assist blind pedestrians, most of the ramps are angled diagonally into the intersection, instead of straight into the crosswalk. While this is permitted by American with Disabilities Act (ADA) standards, it is not the preferred design as it can misdirect blind pedestrians away from the crosswalk. For wheelchair users, some of the ramps along the corridor do not appear to comply with current standards for slope and transition into the roadway (Figure 26).

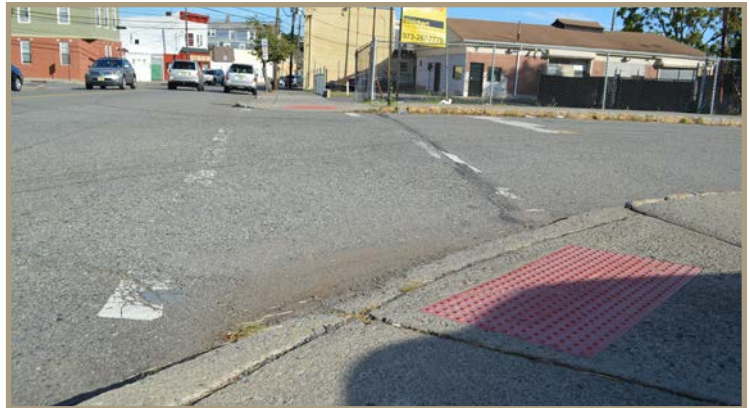


Figure 22. A standard marked crosswalk across Liberty Street with faded striping. Gravel at the base suggests that water may pool here.



Figure 23. Brick crosswalks at Washington Street and Main Street, looking east.



Figure 24. Looking south at Franklin Ave. and William St. Flashing red LEDs activate on the border of the stop sign when vehicles approach. Crosswalks have high-visibility striping, but need a new coat of paint.



Figure 25. A non-functioning push button on a traffic signal.

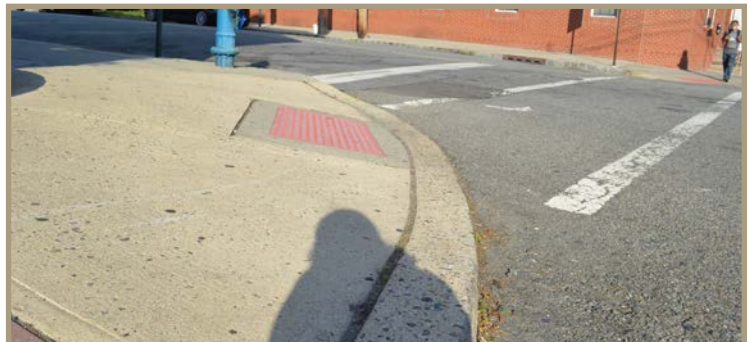


Figure 26. The curb ramp on the corner of Washington Street and High Street has truncated domes, but the slope of the ramp may be too steep.



## Safety

The research team conducted an in-person field audit at 2 p.m. on a September weekend to supplement the information learned from the virtual audit. Although the study corridor was not observed at night, the distance between overhead cobra lighting fixtures may be too far to provide uniform lighting, and some crosswalks do not have overhead lighting nearby (Figure 27). Pedestrian-oriented lighting is not provided anywhere along the corridor. A nighttime observation would be needed to confirm whether there is a need to add lighting along the entire route.

Although the project team did not conduct a speed study on the corridor, residents noted the need for reducing vehicle speeds. A lack of speed limit signs may contribute to this issue. Audit observations and participants revealed that vehicles parking too close to intersections have negative impacts on visibility (Figure 28). Some of this illegal parking may be due to unclear, faded, or missing signage along the corridor.

Residents noted that school drop-off and dismissal times are chaotic, with many cars stopping illegally and pedestrians crossing the street outside of crosswalks. While COVID-19 restrictions did not allow in-person observations, crash data confirmed that many collisions along the corridor involved parked or stopped cars.

There is no bicycle infrastructure along the corridor, which results in bicyclists sharing a narrow sidewalk with pedestrians, or sharing a lane with motor vehicles traffic.

## Comfort and Appeal

Trash on the street was a problem observed on many blocks, but the municipality has done a good job at providing trash cans frequently (Figure 29). The corridor could benefit from pedestrian-oriented lighting and streetscaping to create a buffer between pedestrians and moving vehicles. There are few trees along the corridor (Figure 30). Trees increase the aesthetic appeal of the neighborhood and create shade that provides a more comfortable walking environment. Conversely some overgrown foliage from neighboring properties limits sidewalk space in some sections.

A seating area with shade and a trash can is provided at Tory Corner. Other benches along the route could help add to pedestrian comfort. None of the bus stops on the corridor have seating or shelters.



Figure 27. There is no overhead lighting at the intersection of Washington Street and Liberty Street.



Figure 28. Cars parked too close to the intersection, at Llewellyn Avenue and Main Street.



Figure 29. Trash collecting on a drain.



Figure 30. A tree that was not replaced, on Main Street.





Figure 31. Detailed map of the study corridor.



## Detailed Conditions

### Washington Street: Meade Street to Watchung Avenue

The southern end of the study area begins at the intersection of Washington Street (Essex County Route 671) and Meade Street, which is also the town line between West Orange and Orange (A in Figure 31). Washington Street is classified as an urban minor arterial and is 40 feet wide, with one lane of traffic in each direction, and parking allowed on each side. The sidewalk on the west side of Washington Street is approximately four feet wide, with a two-foot wide brick furnishing strip. The sidewalk on the east side is approximately five feet wide, and also has a brick furnishing strip.

Meade Street terminates at Washington Street with a stop sign. A standard crosswalk is marked across Meade Street, but no crosswalk is provided across Washington Street. The two Meade Street corners have newly installed curb ramps with tactile domes that face directly into the crosswalk. The sidewalk on the north side of Meade Street was also recently rebuilt (Figure 32 and Figure 33). There is a curb ramp on the west side of Washington Street, but it is lacking tactile domes. Overhead lighting is not present at the intersection.

The northeast corner of the intersection hosts a thrift store with a small surface parking area in front of it. This creates an extended driveway, and the sidewalk is sloped towards the roadway for the entire length (Figure 35). This can make navigating the sidewalk hazardous for wheelchair users.

There are no street trees for this entire block, although the residential properties on the west side do have small front yards with vegetation—some of which narrow the sidewalk (Figure 37). A trash can is provided at the intersection.

Approaching the intersection with Watchung Avenue, there is a bus stop on the east side of the roadway (northbound). The bus stop serves NJ TRANSIT Route 97, which provides local service between East Orange, Orange, West Orange, and Montclair. During the site visit, a vehicle was observed illegally parked in the bus area. Additionally, the entire bus stop is on a sloped sidewalk due to an unused driveway. There is no shelter or seating at this bus stop, and the narrow width of the sidewalk would make it difficult to add one (Figure 36).



Figure 32. Looking north on Washington Street, to brand new ADA-compliant curb ramps across Meade Street.



Figure 33. New sidewalk and faded sign on Meade Street, looking west.



Figure 34. Faded signage on Washington Street.



Figure 35. Sloped sidewalk due to commercial driveway.



Figure 37. Looking south on Washington Street, vegetation narrows the sidewalk.

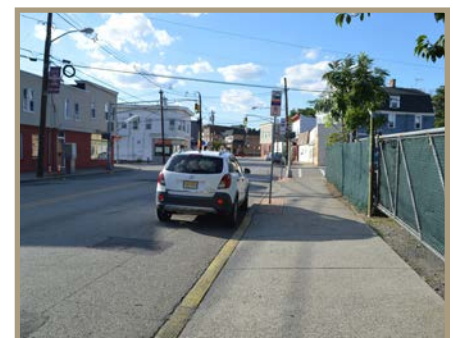


Figure 36. Illegally parked car, sloped sidewalk, and bus stop without amenities.



## Washington Street: Watchung Avenue to Columbia Street/Whittlesey Avenue

Watchung Avenue meets Washington Street at a signalized intersection that is slightly offset on each side (B in Figure 31). This creates skewed crosswalks, poor visibility, and difficult left turns (Figure 38 and Figure 39). In November 2020, Essex County and West Orange received a grant from NJTPA under the Local Safety Program to install a new signal and create safety improvements at this location. Problems with the existing signal include small signal heads, a lack of backplates, broken pedestrian pushbuttons, and low-visibility crosswalks. Additionally, there is only one overhead light at the intersection. As Essex County does not install lighting on new signal installations, West Orange should consider additional lighting.



Figure 38. The angle of the intersection creates a tight squeeze for pedestrians on the southwest corner.



Figure 39. Looking west on Watchung Avenue to Washington Street. A bicyclist is seen using the crosswalk, as the roadway has no bicycle infrastructure.



Figure 40. Illegally parked vehicles block sight-lines looking east.

Watchung Avenue is 40 feet wide, with one travel lane in each direction, and parking allowed on both sides. Vehicles were seen parked too close to the intersection both during the in-person audit and during the virtual audit. While state law prohibits parking within 25 feet of the signal, there are no signs on Watchung Avenue to remind motorists of this law. This severely limits visibility and creates a dangerous situation for all roadway users (Figure 40). The sidewalk on the northwest side of Watchung Avenue was overgrown with grass, creating a hazard for pedestrians (Figure 41).



Figure 41. Overgrown sidewalk on Watchung Avenue.

North of the intersection, the sidewalks on both sides of Washington Street widen to around 7 feet. However, the corridor continues to lack street trees and amenities beyond trash cans (Figure 42). Once again, drivers were observed parking too close to the intersection, although a sign was clearly posted.



Figure 42. No street trees, looking south.



Continuing north, Washington Street meets High Street, which terminates from the north, and Liberty Street, which terminates from the south just 800 feet later (C in Figure 31). High and Liberty streets are stop controlled, while traffic traveling on Washington Street has the right of way. As was the case with Meade Street, marked crosswalks exist only along the side streets, and not across Washington Street. On both sides of the street, the sidewalk narrows again to around 4 feet (Figure 43). The curb ramps at both intersections have truncated domes but appear to be too steep for current ADA standards.



Figure 43. Looking north toward High Street.

Approaching Liberty Street, on the south side of Washington Street, the sidewalk slopes towards the roadway due to a long driveway. The driveway is also the location of a bus stop. While the front of the bus stop does have a suitable landing area for wheelchair users, the back door of the bus discharges passengers onto the driveway (Figure 44).

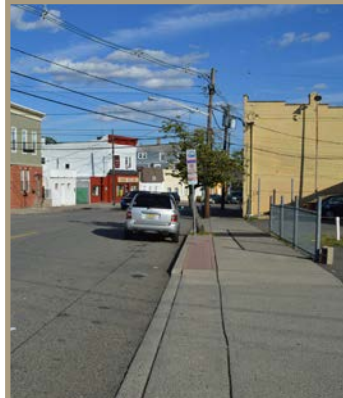


Figure 44. Looking south on Washington St., to the bus stop.

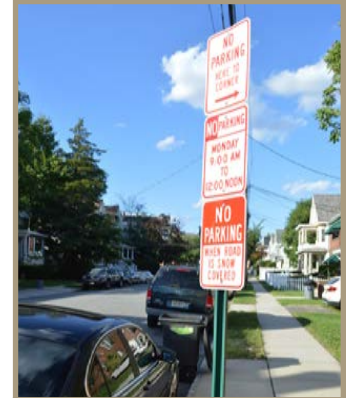


Figure 45. Recently installed signage, looking east.

High Street is approximately 34 feet wide, with one travel lane in each direction and parking on both sides. Liberty Street is just 26 feet wide, with one travel lane in each direction and parking on the south side. “No Parking” signs are posted on the north side of the road (Figure 45).

North of Liberty Street, an auto repair business is located on the west corner of the intersection. The business was observed parking cars over the sidewalk, blocking pedestrian access (Figure 46).



Figure 46. Cars parked over the sidewalk, looking north.

Watson Avenue terminates at Washington Street from the north just 125 feet northwest of Liberty Street. Watson Avenue is 30 feet wide, with one lane in each direction, and parking on each side. Once again, there is only a marked crosswalk across Watson Avenue, and not Washington Street. The intersection features ADA-compliant curb ramps, but the brick pavers create an uneven transition that could be hazardous to pedestrians (Figure 47).



Figure 47. Looking north toward Watson Ave., an uneven transition could trip a pedestrian.

North of Watson Avenue, the sidewalk on the east side of Washington Street once again slopes slightly towards the roadway due to a long driveway at an auto-repair business (Figure 48). On the west side of the street, vehicles were observed parking too close to the intersection, but there was no signage to remind them of the state law.



Figure 48. Driveway north of Watson Avenue.



## Washington Street: Columbia Street/Whittlesey Avenue to Main Street

Washington Street intersects with Columbia Street (from the south) and Whittlesey Avenue (from the north) at a standard four-way intersection, where Washington Street has the right of way (Figure 49 and D in Figure 31). Standard crosswalks are marked across Columbia Street and Whittlesey Avenue, but not across Washington Street. An overhead cobra light is oriented diagonally to the center of the intersection, providing lighting.

Columbia Street is 26 feet wide, with one travel lane in each direction and parking allowed on the south side of the roadway. A 25 mph sign is posted, but it is faded. The sidewalks and curb ramps were recently reconstructed providing a smooth and accessible surface. However, no space was left for street trees (Figure 50).

Whittlesey Avenue is 30 feet wide, with one travel lane in each direction and parking allowed on both sides. As with previous intersections, signage prohibiting parking near the intersection is missing. Overgrown weeds in the sidewalk also give the roadway a neglected look (Figure 51).

North of the Whittlesey Avenue intersection, Washington Street continues in a similar manner, with residences, auto-oriented businesses, and a fire station (Figure 52). The sidewalk remains narrow until it widens to 7 feet adjacent to the Washington School property. Vegetation encroaches on the pedestrian space along the approach to the school (Figure 53). Approaching Main Street, parking in the southbound direction is metered. In the northbound direction, parking is prohibited adjacent to the school, but the sign is faded and illegible (Figure 54).



Figure 49. Looking south, Whittlesey Avenue is seen on the left, Columbia Street is on the right.



Figure 50. Looking south on Columbia Street, with new sidewalks on both sides.



Figure 51. Looking south on Whittlesey Avenue toward Washington Street. Overgrown weeds are visible.



Figure 52. West Orange Fire Station.



Figure 53. Looking north on Washington Street.



Figure 54. Faded parking signage in the northbound direction.



Residents reported that traffic during school drop-off and pick-up times is chaotic. Unfortunately, due to COVID-19 restrictions, the CSTA team was unable to observe typical traffic patterns. The school prohibits drivers from using the parking lot and instructs parents to drop-off on Franklin Avenue (Figure 55). As parking is not allowed in this area, the Washington Street northbound lane is 20 feet wide, which may send a false message that stopping to load in that space is permitted.

### Main Street (CR659): Washington Street to Franklin Avenue

Approaching Main Street, Washington Street begins to curve to the north, and widens significantly from 40 feet to 80 feet at the crosswalk (E in Figure 31). However, no additional lanes are added. The northbound lane widens to 22 feet and allows only right turns onto Main Street. This width, and a lack of striping, creates uncertainty as to how many lanes exist (Figure 56). The southbound lane widens to around 42 feet, but only receives a single lane of traffic at a time from protected left or right turns from Main Street. A small median with plantings sits between both directions of traffic and acts as a pedestrian refuge for the very long crosswalk. The plantings did not appear to be maintained during the audit (Figure 57).



Figure 55. The Washington School parking lot, as seen from Washington Street.



Figure 56. Two lanes forming in the northbound direction.



Figure 57. Two lanes forming in the northbound direction.



Figure 58. Looking south on Main Street, with a dedicated left turn lane and a through lane.

South of Washington Street, Main Street is 40 feet wide. During peak hours (7:00 a.m. to 9:00a.m. on weekdays) there are four lanes of travel provided. At all other hours, parking is allowed adjacent to the curb, creating one travel lane in each direction (Figure 58).

Between Washington Street and Franklin Avenue, Main Street widens to 54 feet, which consists of one southbound parking lane, one southbound through lane, one southbound left turn lane, and two northbound lanes. Parking is never allowed in the northbound direction in this section (Figure 59).



Figure 59. Looking north on Main Street, with two through lanes.



Adjacent to Washington School, the sidewalk is 11 feet wide (Figure 60). Across the street, in front of a series of small businesses, the sidewalk is 6 feet wide, with a 2-foot-wide furnishing zone. The sidewalk in front of the businesses is in poor shape, with raised concrete panels creating a tripping hazard (Figure 61). A granite monument marking Tory Corner is accompanied by three benches on the east side of the intersection, next to Washington School. Behind the monument are several large trees (Figure 62).



Figure 60. A bicyclist on the sidewalk in front of Washington School, looking north on Main Street.



Figure 61. The sidewalk in front of the businesses, looking south on Main Street.



Figure 62. Tory Corner monument and seating area.

There are several challenges at the intersection of Main Street and Washington Street. For pedestrians, the eastern crosswalk is very long, and there is no crosswalk on the northern leg (Figure 63). The sidewalks on the west side of the roadway are too narrow for the volume of foot traffic, and the sidewalks are uneven. For motorists, left turns are not allowed from Washington Street to Main Street, and wide lanes create confusion as to the number of lanes available. As is the case for the entire corridor, bicyclists do not have a dedicated riding area, and many were observed using the sidewalks.



Figure 63. A pedestrian crossing where a crosswalk is not marked.

For all modes, the traffic signal has a long cycle, at least for the level of traffic observed during the audit (which may be reduced due to COVID-19 restrictions). For example, the left turn signal from Main Street to Washington Street provided a green light for a much longer time period than was necessary for the traffic volumes observed, causing delays in all other directions. These delays are doubled for pedestrians who must wait for two signals when crossing from the Washington School to the shops.



Figure 64. A car waiting for a long red light cycle.

These issues are heightened by the nearby intersection of Main Street, Franklin Avenue, and Llewellyn Avenue. As this intersection is just 200 feet to the north, the signal timing likely coordinates with the previous intersection to prevent congestion. However,



long delays were also observed here. For example Figure 65 shows a vehicle waiting for a red light even though the only potential conflict (the crosswalk) also was on red.

In the northbound direction, Main Street has two through lanes and one channelized right turn lane into Franklin Avenue. In the southbound direction, Main Street has two lanes north of the signal, which transition to one left turn lane for Washington Street and a through lane after the signal. Left turns are prohibited from Main Street to Franklin Avenue.

Franklin Avenue, which terminates at the intersection from the east, is 36 feet wide. In the westbound direction, there is one right turn lane and one left turn lane. In the eastbound direction, there is one travel lane and curbside space for school loading.

Llewellyn Avenue, which terminates at the intersection from the west, is 22 feet wide, with a one-way eastbound travel lane and parking allowed on the south side. Vehicles were observed parking right up to the crosswalk, and there is no signage posted to say otherwise (Figure 65). Traffic exiting Llewellyn Avenue is only allowed to make a right turn, and is prohibited from turning on red. Llewellyn Avenue and Franklin Avenue receive a green signal at the same time, but the audit team observed confusion every cycle as to who had the right of way, possibly due to the slight offset (Figure 66).

Crosswalks, marked with a brick pattern, are provided on the eastern, northern and western legs of the intersection. Some overhead lighting is provided by cobra fixtures, but the lighting may not be enough to account for the width of the intersection. A southbound bus stop is located just north of the intersection, but there is no shelter or seating (Figure 67).

### Franklin Avenue: Main Street to William Street

The study corridor extends one last block along Franklin Avenue, adjacent to Washington School. Past the intersection, the roadway is 34 feet wide, with one lane in each direction, and parking on both sides. A 25 mph sign is posted (Figure 68). The sidewalk adjacent to the school is 14 feet wide, and narrows to 7 feet past the school. Adjacent to the school, there is a small retaining wall, which school representatives noted is in poor shape. The sidewalk on the west side of the street, adjacent to the Holy Trinity Episcopal Church is 4 feet wide.



Figure 65. Looking south from Llewellyn Avenue, vehicles are seen parked right up to the crosswalk.



Figure 66. Looking south from Llewellyn Avenue, vehicles making a left turn from Franklin Avenue were not yielding.

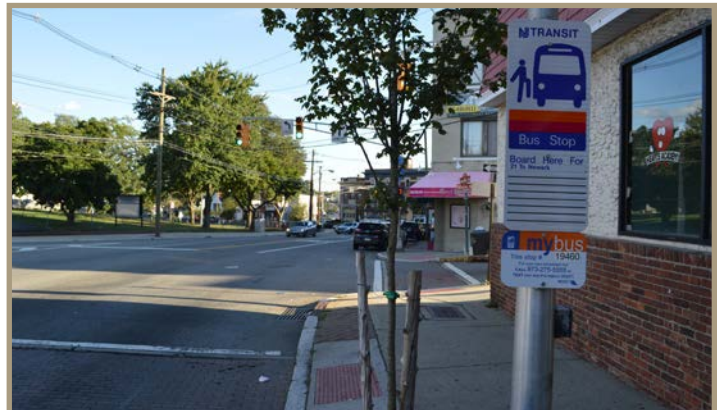


Figure 67. Looking south on Main Street, to the bus stop.

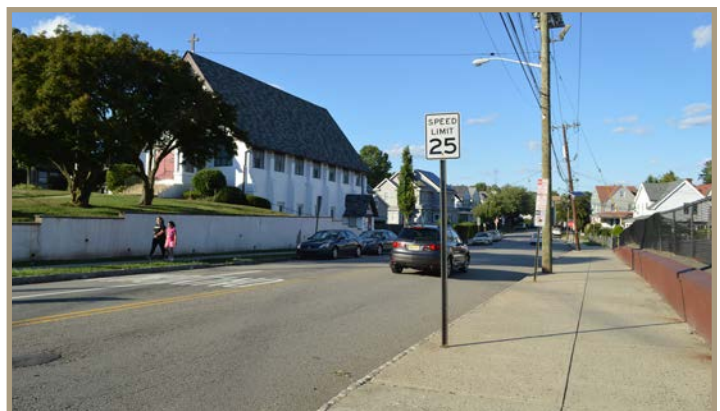


Figure 68. Looking south on Main Street, to the bus stop.



The intersection of Franklin Avenue and William Street is a four-way stop, and has high-visibility crosswalks in all directions (although the paint has faded) (F in Figure 31). While all the curb ramps have tactile domes, they do not appear to be ADA-compliant due to an improper transition between the concrete and asphalt (Figure 69). The two stop signs on Franklin Avenue have been enhanced with flashing LED lights that activate when a car approaches (Figure 70). The stop sign in the westbound direction on William Street is faded from sunlight (Figure 71). During the audit, drivers in all directions were observed stopping properly.



Figure 69. Curb ramps on the corner of Franklin Avenue and William Street.



Figure 70. A flashing stop sign on Franklin Avenue.



Figure 71. A faded stop sign on William Street.

## Recommendations

### I. Implement Pedestrian Improvements Along Washington Street

The neighborhood surrounding the study area is well suited for walking, thanks to the interconnected nature of its streets and proximity to the elementary school, commercial district, and the bus routes. However, pedestrian activity is limited by missing crosswalks, concerns about traffic, and a lack of pedestrian amenities. Crosswalk visibility can be improved in several ways. Standard parallel crosswalks are striped along Washington Street, but they can be upgraded to high-visibility crosswalks. In addition, adding missing crosswalks across Washington Street can improve safety for pedestrians looking to cross, and remind drivers that pedestrian traffic is expected. In particular, the intersection of Washington Street and Columbia Street should receive enhanced pedestrian measures due to the distance from the nearest signalized intersections (see recommendation 4).

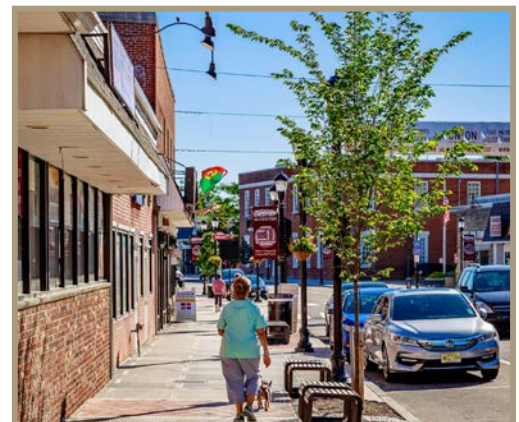


Figure 72. Sidewalk streetscape in Union, New Jersey. (Photo courtesy of Arterial LLC)

Attention should be paid to the furnishing zone, where misaligned pavers have created hazards. An opportunity exists to add trees and benches in some sections, which will improve pedestrian comfort, enhance the neighborhood appeal, and help local businesses (Figure 72). While the corridor has many trash cans, the municipality should consider an enclosed model, as it appears that the current designs are not keeping the trash inside. Upgrading all the curb ramps to meet the latest ADA standards should be a priority and any traffic signal upgrades should include audible cues for blind pedestrians. Curb extensions should be considered at all intersections. Extensions provide pedestrians with more space, slow down turning cars, shorten crosswalk distances, and prevent illegal parking.



## 2. Address Parking Violations and Signage

Vehicles parked too close to intersections are a common problem throughout the route. At a minimum, “No Parking From Here to Corner” signage should be added where it is currently missing or badly faded. Additional steps can be taken to make it clear to drivers where parking isn’t allowed. As mentioned in the previous section, curb extensions benefit pedestrians and also provide a physical impediment to illegal parking, which improves visibility for all roadway users. In the short term, curb extensions can be added using paint and plastic bollards (Figure 73). Adding bicycle racks in these extensions can also help support both bicyclists and local businesses, while preserving the limited sidewalk width for pedestrians.

Eventually, curb extensions can be upgraded to be a concrete extension of the sidewalk, and include green infrastructure such as water retention basins (rain gardens). In locations where curb extensions are not possible, the no parking area should be supplemented with diagonal striping to make it clear that parking is prohibited (Figure 74). Bus stops can also be upgraded with stencils to clearly define the stop.

As many of the collisions along the corridor involve sideswipes or parked vehicles, striping between the parking area and the travel lane should be considered. Marking individual parking stalls can also bring some order to a chaotic environment, even if there are no parking meters. During times of day when no cars are parked, the added striping helps to visually narrow the lane, which may deter speeding.

Speed limit signage should be added along Washington Street, where none currently exist.

## 3. Redesign Main Street Intersections

The two intersections on Main Street, with Washington Street and Franklin Avenue, present challenges for all road users (Figure 75). Crosswalks are missing at two locations, which requires pedestrians to cross twice instead of once. Wide lanes cause confusion among drivers, turning restrictions inconvenience travelers, and the very long signal cycle times delay all modes. While no fatal crashes have been recorded, the two intersections have seen a high number of crashes. The CSTA team has envisioned three ways in which the two intersections could be modified to better serve all roadway users. As both roadways are county routes, the concepts presented here will require further study and development by Essex County.



Figure 73. An example of a painted curb extension in Seattle, WA.

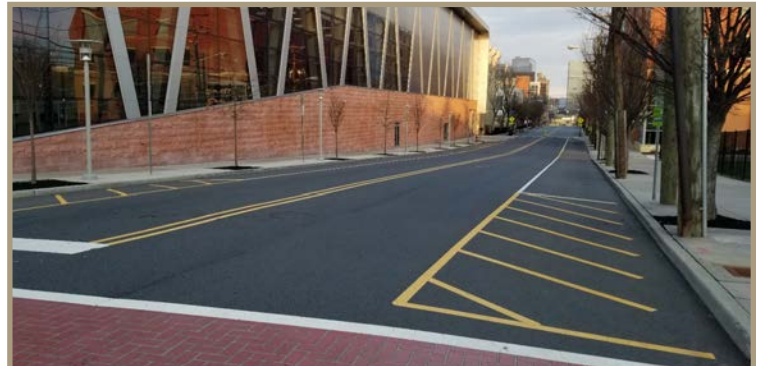


Figure 74. Striping clearly defines where parking is and isn't allowed, in Newark, New Jersey.



Figure 75. A bicyclist uses a crosswalk at the intersection of Main Street and Washington Street.



## Alternative 1: Minor Changes

The first alternative envisions a low-cost way to improve the intersections while retaining the way they function (Figure 76). In this alternative, changes can be made quickly using paint and temporary materials, and then upgraded with concrete sidewalk extensions as shown in the figure.

The northbound Washington Street lane is narrowed to prevent confusion over how many lanes exist at that location. Additionally, the existing median island is widened slightly, and a sidewalk extension is added on the west side of the roadway.

Northbound Main Street is envisioned as consisting of a single lane, to match the proposed road diet south of the study corridor. Approaching Franklin Avenue, a curve in the roadway (chicane) acts as traffic calming to slow drivers. In the southbound direction, curb extensions are proposed to maintain one through travel lane. Parking is replaced by a sidewalk extension, both to provide pedestrians with more space near the businesses, and also to decrease the number of collisions observed in this area.

A narrow median is proposed on Main Street, and the existing traffic island feeding into Franklin Avenue is widened. This alternative does not modify the traffic signals or turning restrictions, although the team does recommend a review of the signal timing to match current demand.

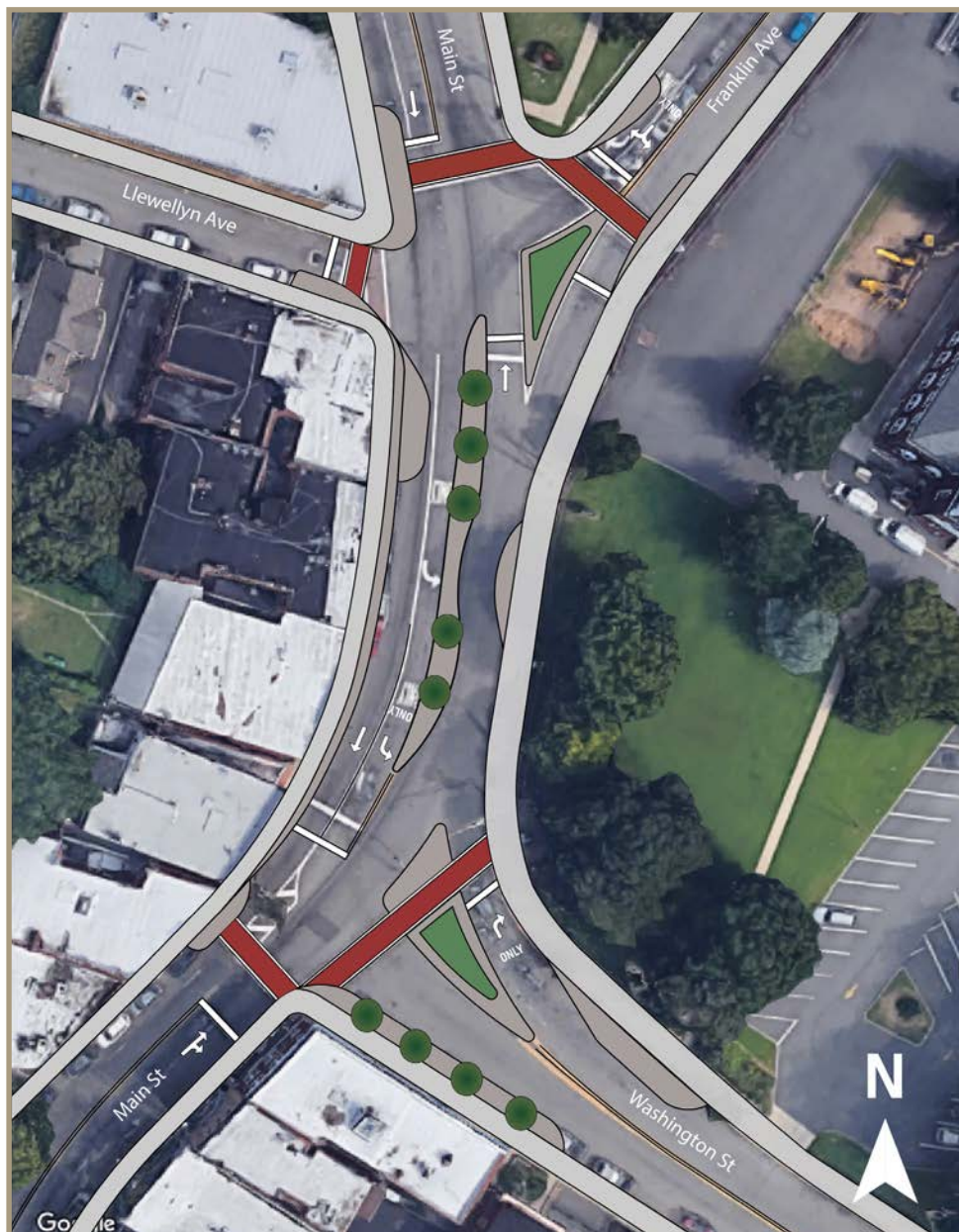


Figure 76. Alternative 1: Minor Changes



## Alternative 2: Reconfigure Intersections

The second alternative envisions a redesign of the intersections to create more traditional 90-degree connections between the roadways (Figure 77). This redesign decreases unnecessary roadway space and adds wider sidewalks. This proposal is capital-intensive, as it requires moving/updating the traffic signals and reconfiguring the traffic islands.

As with Alternative 1, the northbound Washington Street lane is narrowed to prevent confusion over how many lanes exist at that location. The traffic island is removed, and in its place the sidewalks are widened on both corners which shortens the crosswalk. To allow larger vehicles to make turns, the stop bar is set back from Main Street. The new configuration would make it feasible to allow northbound traffic on Washington Street to make a left turn onto Main Street. However, a traffic study has not been conducted, and it is unclear how allowing this movement would affect signal timing and congestion. A crosswalk is proposed where one is missing today.

As with Alternative 1, northbound Main Street is envisioned as consisting of a single lane, to match the proposed road diet south of the study corridor. Approaching Franklin Avenue, a curve in the roadway (chicane) acts as traffic calming to slow drivers. In the southbound direction, curb extensions are proposed to maintain one through travel lane. Parking is replaced by a sidewalk extension, both to provide pedestrians with more space near the businesses, and also to decrease the number of collisions observed in this area.

At Franklin Avenue, Alternative 2 also proposes the removal of the traffic island and slip lane. In its place, a much wider sidewalk is created at the corner. Vehicles can still turn right but must do so at slower speeds. Removing the traffic island would allow southbound Main Street traffic to turn left onto Franklin Avenue, and Llewellyn vehicles to continue straight onto Franklin Avenue, two movements that are currently prohibited. However, a traffic study has not been conducted, and it is unknown how permitting these movements would affect signal timing. This proposal also allows the missing crosswalk to be added to the northern intersection.

Although it is not shown in the figure, redesigning the intersection provides an excellent opportunity to add lighting, pedestrian amenities, and branding flourishes to celebrate the municipality and support local businesses.



Figure 77. Alternative 2: Reconfiguring the intersections.



### Alternative 3: Roundabouts

The third alternative envisions a complete redesign of the intersections, where the traffic signals are removed and replaced by two single-lane modern roundabouts. The primary benefit of this configuration is that signal delays are eliminated because traffic can flow freely. Additionally, this allows all turning movements, including U-turns. Even though traffic can flow continuously, the various curves in the design ensure vehicles must travel at slow speeds, increasing traffic safety. Modern roundabouts are considered a Proven Safety Countermeasure by the Federal Highway Administration (FHWA) because they decrease the number of severe collisions found at traditional signalized intersections.

In a roundabout, pedestrians have the right of way at crosswalks and do not face signal delays. While multi-lane roundabouts can be difficult for pedestrians to navigate, the single-lane design proposed here allows pedestrians to assert their right-of-way easily, with islands provided between each direction of traffic. The proposed design also creates a much wider sidewalk in front of the businesses. A roundabout can also function as a focal point for the municipality, as the center of the circle can host a monument, fountain, art exhibit, or other aesthetic feature.

The proposed design does require minor takings from the Washington School property. The Tory Corner monument would have to be relocated as well. Representatives from the school stated that the existing retaining wall at the edge of the property is in poor shape. Reconstructing the intersections would provide an opportunity to rebuild the wall to accommodate the proposed design.

This design is an initial vision, and has not been reviewed or approved by traffic engineers. The proposal has been designed to allow 40-foot long NJ TRANSIT buses and school buses to navigate the roundabout, but larger tractor trailers may not be able to complete all movements and truck restrictions may be needed. Roundabouts work best when traffic volumes are relatively even in all directions. A traffic study is needed to identify what current turning volumes are, and if the proposed single-lane design can accommodate them without excess delay.

As with Alternative 2, redesigning the intersection provides an excellent opportunity to add lighting, pedestrian amenities and branding flourishes to celebrate the municipality and support local businesses.



Figure 78. Alternative 3: Two modern roundabouts



## 4. Create a Bicycle Boulevard

During the audit, residents raised concerns about the lack of safe bicycle infrastructure along the corridor and surrounding areas. This in turn makes it difficult for children to bicycle to school, which encourages parents to drive children, creating heavy congestion twice a day.

Unfortunately, it is difficult to add dedicated bicycle infrastructure to the study corridor due to limited space available. Adding bicycle lanes would require the removal of large amounts of parking, which residents did not favor. Shared-lane markings (sharrows) should be added to Washington Street to support existing bicyclists by defining where they should ride, but such an improvement is unlikely to attract new cyclists to this route (Figure 79).

Instead, the study team encourages West Orange Township to apply a bicycle boulevard treatment to secondary roadways, such as Columbia Street, Whittlesey Avenue, William Street, and Watchung Avenue (Figure 80). These improvements would direct bicyclists to an existing entrance to the Washington School at the intersection of Whittlesey Avenue and John Street (Figure 81 and G in Figure 31). By using this entrance, children can avoid the higher traffic volumes on Washington Street and Main Street. Additionally, the bicycle boulevard can also provide access to nearby Edison Middle School and Colgate Park.

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 likely the case for the proposed route. Adopting this model can effectively encourage bicycling and walking by reducing vehicular speeds and discouraging cut-through traffic.

Bicycle boulevard treatments include signs, pavement markings, and other traffic-calming measures to discourage through-trips by motor vehicles, while accommodating local access. A bicycle boulevard communicates that pedestrians and bicyclists have priority along the corridor and that motorists need to be especially mindful or select an alternative route. The bicycle boulevard treatments also fit the character of the residential neighborhood. Bicycle boulevards are a new concept to most New Jersey residents. As such, it is important to communicate the purpose of the project to residents and visitors. On the corridor itself, there are two forms of signage that need to be deployed: regulatory and educational/informational. Regulatory markings include speed limit signs, marked crosswalks, and instructions to drivers, bicyclists,



Figure 79. A shared-lane marking, in Paterson, New Jersey.

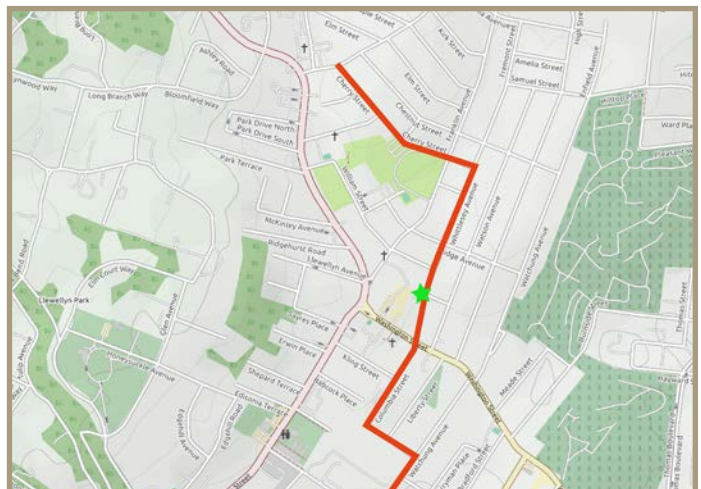


Figure 80. Suggested bicycle boulevard routing, connecting residential neighborhoods to the rear entrance of Washington School (green star).

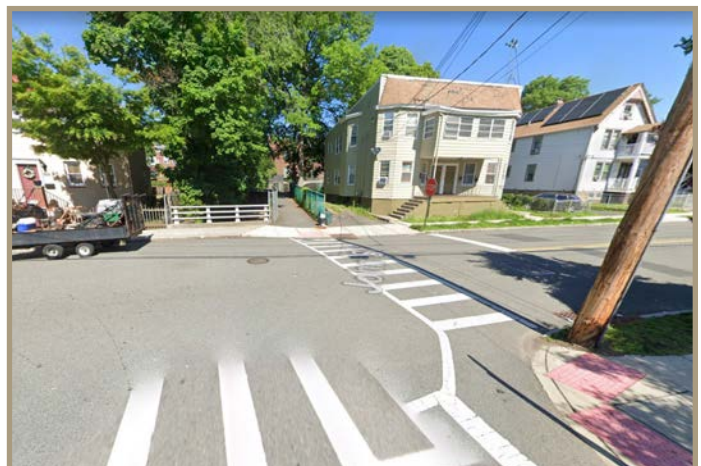


Figure 81. The rear entrance to Washington School.



and pedestrians where appropriate (Figure 82 and Figure 83). This can include the “Bicycles May Use Full Lane” (R4-11) signs. Informational signage may include branding, wayfinding, and explanations of the project purpose. It is important that community input informs the branding for these corridors.

Pavement markings reinforce the message of the corresponding signage. 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 84). 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 makes bicyclists and pedestrians feel more comfortable when sharing the road 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 mini-roundabouts). 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 (Figure 85). 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 serve as a rain garden to collect stormwater and add native plants.

Improving the intersection of Washington Street, Columbia Street and Whittlesey Avenue is key to a successful bicycle boulevard (Figure 86). Currently, Washington Street has the right of way. A traffic study should be conducted to determine if the intersection can be converted into a four-way stop. If that does not prove possible, other options such as a Rectangular Rapid Flash Beacon (RRFB) should be considered. RRFB’s look like standard crosswalk signs but produce a flashing light pattern when activated. They can be activated passively with a sensor that detects pedestrians, or directly via a button that pedestrians push when they are ready to cross. This flashing light is highly visible to motorists, and more drivers comply with the requirement to stop for pedestrians when it’s used. These installations can be powered by solar panels or connected to the electrical grid.

Another treatment that can improve safety at the intersection can include traffic diverters, which would allow bicyclists to continue from Columbia Street to Whittlesey Avenue while prohibiting vehicles from doing so.



Figure 82. Bicycle Boulevard signage in McKinley, Texas.



Figure 83. Signs for a bicycle boulevard in Portland, OR.



Figure 84. Extra large bicycle boulevard stencils.



Figure 85. Traffic calming chicanes and green infrastructure in Shoreline, WA.

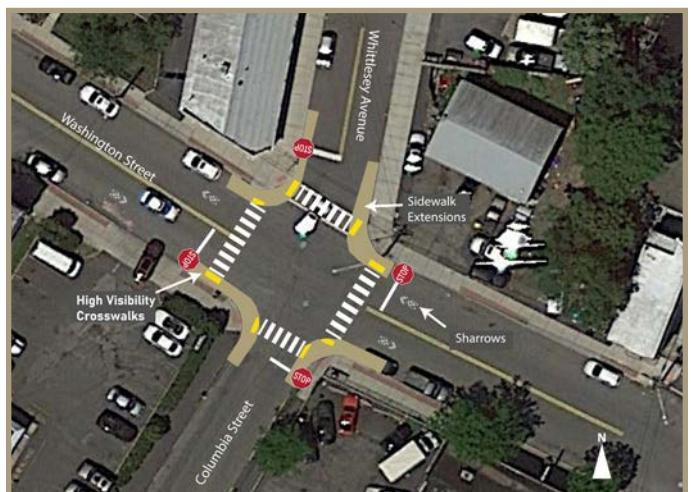


Figure 86. Proposed improvements to the Washington Street, Columbia Street, and Whittlesey Avenue.



# Conclusion

Washington Street, Main Street, and Franklin Avenue provide important connections between a residential neighborhood, business district, and elementary school in West Orange. With a few improvements, the corridor could become an attractive and safe location for walking, and bicycling to school could become an option for students. Residents and municipal officials who are aware of the challenges and opportunities sought out the help of the CSTA Program to audit current conditions and recommend potential improvements. As part of this assistance, local stakeholders received a course on complete streets and guidance on how to audit a corridor.

Pedestrian amenities and improved signage and striping are potential remedies to improve the walkability and bikeability of the area in the short term. A complete re-imagining of the intersection of Main Street and Washington Street could decrease congestion, add pedestrian connections, and decrease traffic collisions but might require significant capital investment. These changes will require approval and coordination with Essex County officials. West Orange can deploy demonstration projects to test out the acceptability of the bicycle boulevard concept, which involves municipal roadways, and could be tested with low-cost materials. Additionally, West Orange can use the findings from the WCW as a starting point to help inform future complete streets plans citywide.

While this report focuses on infrastructure, successful implementation will also require education and community support. The study team encourages West Orange to work with EZ Ride and the New Jersey Safe Routes to School Resource Center to develop programs that can help make bicycle riding an easy choice for residents. Programs can include bicycle rodeos, which teach children safe riding techniques, and bicycle school buses, which make riding to school a social event.



Figure 87. A bicyclist on Main Street in West Orange.





# Appendix

**A. Workshop Flyers**

**B. Workshop Agenda and Field Audit Form**

**C. Street Smart NJ Campaign Resources**

**D. Potential Funding Resources**

**E. Design Resources**



## A. Workshop Flyers

# Township of West Orange Walkable Community Workshop

ONLINE MEETING

WEDNESDAY, JULY 29, 2020

4:00PM TO 6:00PM

WEST ORANGE IS INTERESTED in improving pedestrian connections along Washington Street, Main Street, and Franklin Avenue which connects the downtown district with nearby schools, parks, and residential areas. Workshop participants will learn to identify safety concerns for pedestrians and discuss possible solutions. The suggestions made during the workshop will be compiled into a final report along with recommendations to make walking a safer and more attractive option for residents of all ages and abilities.

**Please join us in a virtual meeting to learn about making West Orange's streets safer for pedestrians and provide your feedback! The meeting is open to all, pre-registration is required.**

Register here: <https://go.rutgers.edu/WestOrangeWCW>

For more information, email: [heasleya@tcnj.edu](mailto:heasleya@tcnj.edu)



The Complete Streets Technical Assistance Program is a collaboration between Sustainable Jersey, the Voorhees Transportation Center at Rutgers University, and the North Jersey Transportation Planning Authority. Funded by the NJTPA, the program is designed to support municipal government efforts to advance complete streets initiatives.



# West Orange Walkable Community Workshop

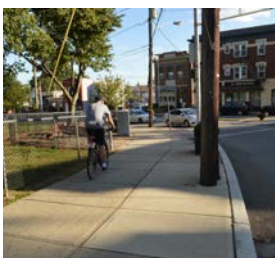
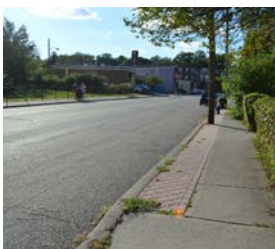
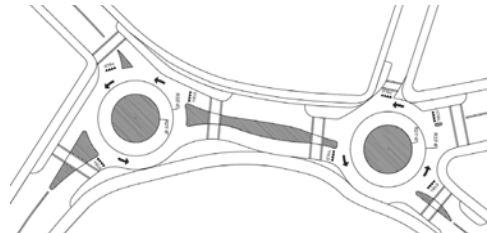
ONLINE MEETING THURSDAY, SEPTEMBER 17, 2020 4:00PM TO 5:00PM

WEST ORANGE IS INTERESTED in improving pedestrian connections along Washington Street, Main Street, and Franklin Avenue, which link the downtown district with nearby schools, parks, and residential areas. The study team needs your help to finalize the draft recommendations that aim to make walking a safer and more attractive option for residents of all ages and abilities. These recommendations were based on public input we received during the July 29 virtual public workshop where participants analyzed the corridor, discussed pedestrian safety concerns, and possible solutions.

**Please join us in a virtual meeting to learn about the audit findings, view the initial design concepts, and provide your feedback!! The meeting is open to all, but pre-registration is required.**

Register here: <https://go.rutgers.edu/WestOrange>

For more information, email: [heaslya@tcnj.edu](mailto:heaslya@tcnj.edu)



The Complete Streets Technical Assistance Program is a collaboration between Sustainable Jersey, the Voorhees Transportation Center at Rutgers University, and the North Jersey Transportation Planning Authority (NJTPA). Funded by the NJTPA, the program is designed to support municipal government efforts to advance complete streets initiatives.





## B. Workshop Agenda and Field Audit Form

# TOWNSHIP OF WEST ORANGE WALKABLE COMMUNITY WORKSHOP

## WASHINGTON STREET TO FRANKLIN AVENUE

July 29, 2020 | 4:00 PM to 6:00 PM

### VIRTUAL WORKSHOP AGENDA



**4:00 pm Walkable Community Presentation**  
The Complete Streets Technical Assistance project team will lead a presentation for people who live and work in West Orange about what to look for when auditing walking and biking infrastructure.

**5:45 pm Debrief and Next Steps**  
Participants will share recommendations to improve the safety, convenience, and comfort of the walking environment based upon what they observed during the walking audit.

**5:00 pm Virtual Walking Audit**  
Participants will virtually walk the corridor using Google Street View, assessing the existing streets and sidewalks and identifying issues to overcome to provide safer conditions for pedestrians and bicyclists

**6:00 pm Adjourn**

**Please print and complete this audit form, then scan or take a picture of each page and email it along with any photos to [heaslya@tcnj.edu](mailto:heaslya@tcnj.edu) by August 13.**

The Complete Streets Technical Assistance Program is a collaboration between Sustainable Jersey, the Voorhees Transportation Center at Rutgers University, and the North Jersey Transportation Planning Authority (NJTPA). Funded by the NJTPA, the program is designed to support municipal government efforts to advance complete streets initiatives.

**WEST ORANGE WALK AUDIT**  
 July 29, 2020 | 4:00 PM to 6:00 PM

<b>Contact</b>	Person Completing:	
	Email:	
	Phone:	

**Section 1: Washington Street**

<b>Design</b>	How many lanes are there?	Are there crosswalks?
	What is the speed limit?	Is there a median?

<b>Driver Behavior</b>	<b>Circle all that apply:</b>	
	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	

<b>Sidewalk Condition</b>	<b>Are sidewalks present?</b>		
	No	One Side (Which?)	Both Sides
	<b>Any problems you observed:</b>		
	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?			



**WEST ORANGE WALK AUDIT**

July 29, 2020 | 4:00 PM to 6:00 PM

<b>Curb Cuts/Ramps</b>	<b>Circle all that apply:</b>	
	a. Missing	
	b. Non ADA compliant curb cuts/ramps (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:		
<b>Signage</b>	<b>Streets are labeled:</b> Excellent    Average    Poor    None	
	<b>Pedestrian oriented directions:</b> Excellent    Average    Poor    None	
	<b>Car oriented directions:</b> Excellent    Average    Poor    None	
<b>Parking</b>	Side 1	Side 2
	<input type="checkbox"/> Yes: Parallel or Angled <input type="checkbox"/> No	<input type="checkbox"/> Yes: Parallel or Angled <input type="checkbox"/> No
<b>Amenities</b>	<b>Check all that apply:</b>	
	<input type="checkbox"/> Bench <input type="checkbox"/> Trash Can ▪ Overflowing? Yes or No	<input type="checkbox"/> Bus shelter <input type="checkbox"/> Bicycle Racks
<b>Lighting</b>	<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





**WEST ORANGE WALK AUDIT**

July 29, 2020 | 4:00 PM to 6:00 PM

<b>Sidewalk Condition</b>	<p>Are sidewalks present?</p> <p><b>No      One Side (Which?)      Both Sides</b></p> <p><b>Any problems you observed:</b></p> <p>a. Sidewalks or paths started and stopped, where?</p> <p>b. Sidewalks were broken or cracked, where?</p> <p>c. Sidewalk slope problems, where?</p> <p>d. Sidewalks were blocked with parked cars, signs, shrubs, etc., where?</p> <p>e. Sidewalks not wide enough, where?</p> <p>f. Sight obstructions, where?</p>															
<b>Curb Cuts/Ramps</b>	<p><b>Circle all that apply:</b></p> <p>a. Missing</p> <p>b. Non ADA compliant curb cuts/ramps (too steep, not passable, etc.)</p> <p>c. Aligned with crosswalk: yes or no</p> <p>d. Truncated domes present: yes or no</p> <p>e. Truncated domes placed correctly: yes or no</p> <p>f. Curb extensions: yes or no</p> <p>g. Other concerns:</p>															
<b>Signage</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Streets are labeled:</b></td> <td style="width: 15%;">Excellent</td> <td style="width: 15%;">Average</td> <td style="width: 15%;">Poor</td> <td style="width: 15%;">None</td> </tr> <tr> <td><b>Pedestrian oriented directions:</b></td> <td>Excellent</td> <td>Average</td> <td>Poor</td> <td>None</td> </tr> <tr> <td><b>Car oriented directions:</b></td> <td>Excellent</td> <td>Average</td> <td>Poor</td> <td>None</td> </tr> </table>	<b>Streets are labeled:</b>	Excellent	Average	Poor	None	<b>Pedestrian oriented directions:</b>	Excellent	Average	Poor	None	<b>Car oriented directions:</b>	Excellent	Average	Poor	None
<b>Streets are labeled:</b>	Excellent	Average	Poor	None												
<b>Pedestrian oriented directions:</b>	Excellent	Average	Poor	None												
<b>Car oriented directions:</b>	Excellent	Average	Poor	None												





**WEST ORANGE WALK AUDIT**

July 29, 2020 | 4:00 PM to 6:00 PM

<b>Section 3: Franklin Avenue</b>		
<b>Design</b>	How many lanes are there?	Are there crosswalks?
	What is the speed limit?	Is there a median?
<b>Driver Behavior</b>	<b>Circle all that apply:</b>	
	<ul style="list-style-type: none"> <li>a. Speeding</li> <li>b. Blocking crosswalk</li> <li>c. Not stopping for pedestrians</li> <li>d. Double parking</li> </ul>	<ul style="list-style-type: none"> <li>e. Loud music</li> <li>f. Loud engine</li> <li>g. Not stopping for traffic control</li> </ul>
<b>Sidewalk Condition</b>	<b>Are sidewalks present?</b>	
	No	One Side (Which?)
<b>Sidewalk Condition</b>	<b>Any problems you observed:</b>	
	<ul style="list-style-type: none"> <li>a. Sidewalks or paths started and stopped, where?</li> <li>b. Sidewalks were broken or cracked, where?</li> <li>c. Sidewalk slope problems, where?</li> <li>d. Sidewalks were blocked with parked cars, signs, shrubs, etc., where?</li> <li>e. Sidewalks not wide enough, where?</li> <li>f. Sight obstructions, where?</li> </ul>	

**WEST ORANGE WALK AUDIT**

July 29, 2020 | 4:00 PM to 6:00 PM

<b>Curb Cuts/Ramps</b>	<b>Circle all that apply:</b>	
	a. Missing	
	b. Non ADA compliant curb cuts/ramps (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:		
<b>Signage</b>	<b>Streets are labeled:</b> Excellent    Average    Poor    None	
	<b>Pedestrian oriented directions:</b> Excellent    Average    Poor    None	
	<b>Car oriented directions:</b> Excellent    Average    Poor    None	
<b>Parking</b>	Side 1	Side 2
	<input type="checkbox"/> Yes: Parallel or Angled <input type="checkbox"/> No	<input type="checkbox"/> Yes: Parallel or Angled <input type="checkbox"/> No
<b>Amenities</b>	<b>Check all that apply:</b>	
	<input type="checkbox"/> Bench <input type="checkbox"/> Trash Can ▪ Overflowing? Yes or No	<input type="checkbox"/> Bus shelter <input type="checkbox"/> Bicycle Racks
<b>Lighting</b>	<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



**WEST ORANGE WALK AUDIT**

July 29, 2020 | 4:00 PM to 6:00 PM

**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          |

Additional Notes:

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**WEST ORANGE WALK AUDIT**  
 July 29, 2020 | 4:00 PM to 6:00 PM

**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

Additional Notes:

**Please print and complete this audit form, then scan or take a picture of each page and email it along with any photos to [heaslya@tcnj.edu](mailto:heaslya@tcnj.edu) by August 3.**



## C. Street Smart NJ 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 140 communities have participated in Street Smart in some way since the program's inception in 2013. NJTPA's goal is to continue growing the program across the state. Communities everywhere are invited to use the strategies and materials on the Street Smart website, [bestreetsmartnj.org](http://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.



[BeStreetSmartNJ.org](http://BeStreetSmartNJ.org)

 [StreetSmartNJ](https://www.facebook.com/StreetSmartNJ)

 [NJStreetSmart](https://twitter.com/NJStreetSmart)



### 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 2019, 179 pedestrians died as a result of pedestrian-vehicle crashes in New Jersey. From 2015 to 2019, 876 pedestrians were killed and thousands were injured on New Jersey’s roadways. That translates to one death every two days and 12 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.

[BeStreetSmartNJ.org](http://BeStreetSmartNJ.org)

[StreetSmartNJ](https://www.facebook.com/StreetSmartNJ)

[NJStreetSmart](https://twitter.com/NJStreetSmart)



## Results

Evaluations of previous Street Smart NJ campaigns have shown positive results. There was a 60 percent improvement in drivers stopping for people crossing before turning right at a red light or stop sign and 45 percent reduction in drivers running a red light or stop sign, based on an analysis of eight campaigns conducted in 2018 and 2019. There was also a 40 percent improvement in drivers stopping for pedestrians before turning at a green light and a 21 percent reduction in the number of people crossing unsafely against a signal or outside a crosswalk. The full report can be viewed at [BeStreetSmartNJ.org](https://www.beStreetSmartNJ.org).



[BeStreetSmartNJ.org](https://www.beStreetSmartNJ.org)

 [StreetSmartNJ](https://www.facebook.com/StreetSmartNJ)

 [NJStreetSmart](https://twitter.com/NJStreetSmart)

## D. 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](mailto: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://njdotlocalaidrc.com/federally-funded-programs/safe-routes-to-school>

**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://njdotlocalaidrc.com/federally-funded-programs/transportation-alternatives>

**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/grants.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:** <https://www.sustainablejersey.com/grants/>

**Together North Jersey Funding and Resources Database:** <https://togethernorthjersey.com/funding-tools-database/>

<b>Federal Funding</b>
<b>1. US Department of Transportation (USDOT)</b>
a. Better Utilizing Investments to Leverage Development (BUILD, replaced TIGER)
<b>2. Federal Highway Administration (FHWA) Programs</b>
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
<b>3. National Highway Traffic Safety Association</b>
a. NHTSA Section 402 State Highway Safety Program
b. NHTSA Section 405 Non-Motorized Safety Grants
<b>4. Federal Transit Administration Programs</b>
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
<b>State Funding</b>
<b>5. Municipal Aid (\$140m)</b>
<b>6. County Aid (\$150m)</b>
<b>7. Local Bridges (\$44m)</b>
<b>8. Safe Streets to Transit (\$1m)</b>
<b>9. Transit Village (\$1m)</b>
<b>10. Bikeways (\$1m)</b>
<b>11. Local Aid Infrastructure Fund (\$7.5m)</b>
<b>12. Safe Corridors Highway Safety Funds</b>
<b>13. Urban Aid (\$10m)</b>
<b>14. New Jersey Trails Program (Department of Environmental Protection)</b>
<b>15. Other Funding Sources</b>
<b>16. Regional/Local CMAQ Initiatives Program (NJTPA)</b>
<b>17. NJ Division of Highway Traffic Safety</b>
<b>18. Open Space &amp; Farmland Preservation</b>
<b>19. Homeland Security Transit Security Grant Program (TSGP)</b>
<b>Other Sources</b>
<b>20. County Capital Program</b>
<b>21. Municipal Capital Programs</b>
<b>22. Foundations</b>

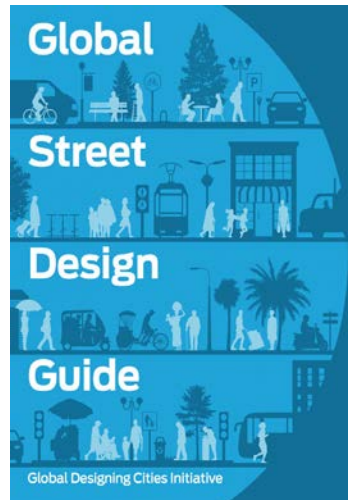


# E. Design Resources

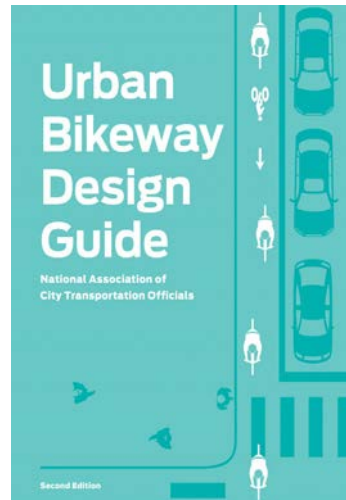
## NACTO Guides



[Urban Street Design Guide](#)



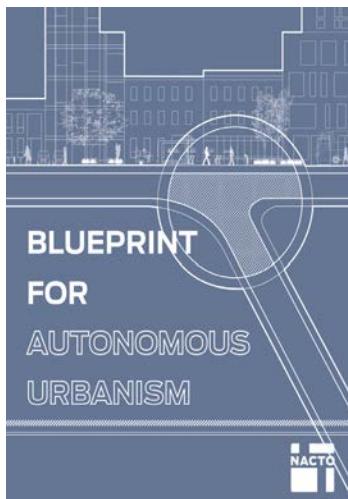
[Global Street Design Guide](#)



[Urban Bikeway Design Guide](#)



[Transit Street Design Guide](#)



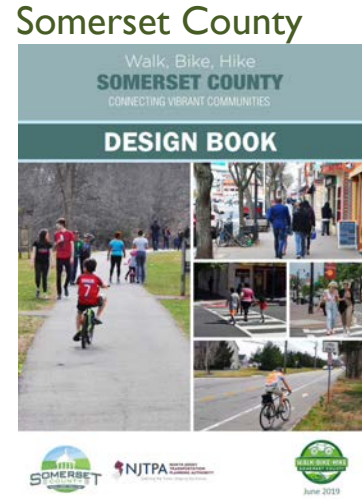
[Blueprint for Autonomous Urbanism](#)



[Urban Street Stormwater Guide](#)

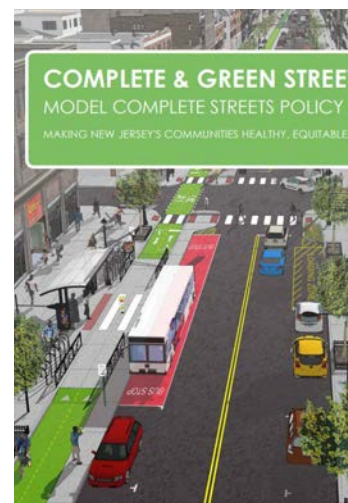


[Bike Share Station Siting Guide](#)

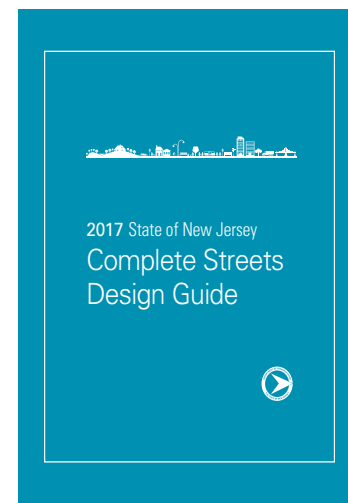


[Walk, Bike Hike, Somerset County Design Book](#)

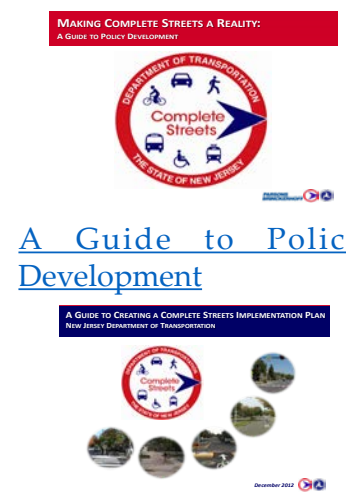
## NJDOT Guides



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

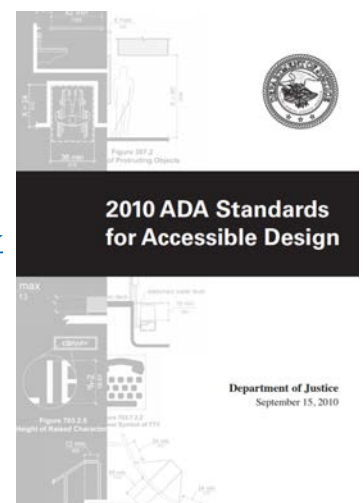


[2017 State of New Jersey Complete Streets Design Guide](#)



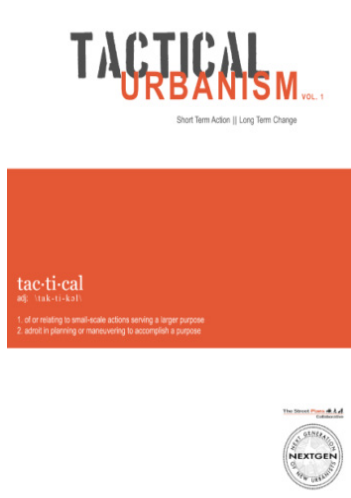
[A Guide to Policy Development](#)

## ADA Guidelines



[ADA Standards for Accessible Design](#)

# Tactical Urbanism Guides



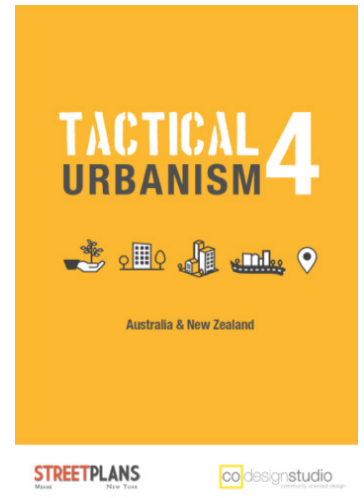
[Tactical Urbanism 1](#)



[Tactical Urbanism 2](#)



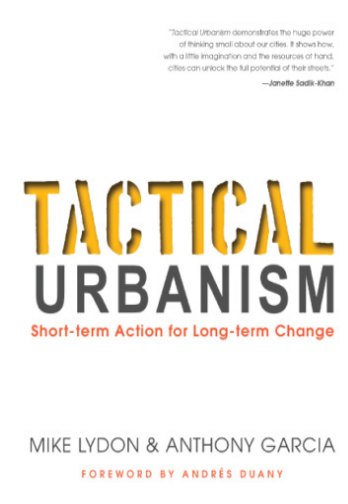
[Tactical Urbanism 3](#)



[Tactical Urbanism 4](#)



[Tactical Urbanism 5](#)



[Tactical Urbanism](#)



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



[The Open Streets Guide](#)



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