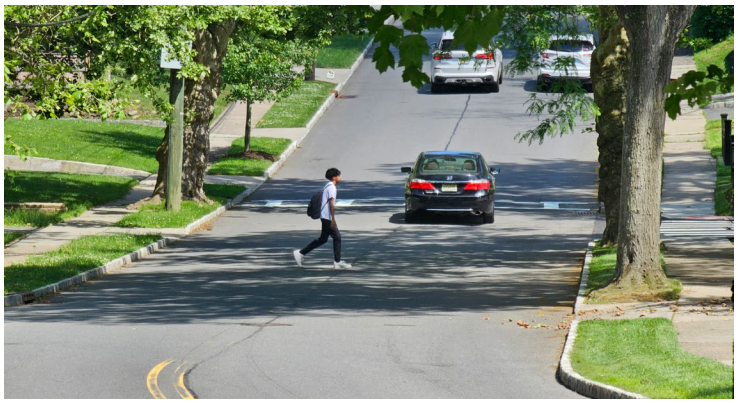

Linden Avenue Walkable Community Workshop

Verona, Essex County, NJ

2025

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

SUSTAINABLE JERSEY
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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 document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The NJTPA is solely responsible for its contents.

The development of this report was led by staff at the Alan M. Voorhees Transportation Center (VTC) at Rutgers, The State University of New Jersey, in collaboration with Sustainable Jersey and the NJTPA.

The Alan M. Voorhees Transportation Center

The Alan M. Voorhees Transportation Center (VTC) is a national leader in the research and development of innovative transportation policy. Located within the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, VTC has the full array of resources from a major research university on transportation issues of regional and national significance.

Alan M. Voorhees Transportation Center
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Sustainable Jersey

Sustainable Jersey (SJ) is a nonprofit organization that provides tools, training, and financial incentives to support communities as they pursue sustainability programs. By supporting community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity, Sustainable Jersey is empowering communities to build a better world for future generations.

Sustainable Jersey
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North Jersey Transportation Planning Authority

The North Jersey Transportation Planning Authority (NJTPA) is the federally authorized Metropolitan Planning Organization for 7 million people in the 13-county northern New Jersey region. Each year, the NJTPA oversees more than $3 billion in transportation improvement projects and provides a forum for interagency cooperation and public input. It also sponsors and conducts studies, assists county planning agencies, and monitors compliance with national air quality goals.

North Jersey Transportation Planning Authority
One Newark Center, 17th Floor
Newark, NJ 07102

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Figure 1. Township of Verona municipal complex.

Table of Contents

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 Verona, New Jersey, participated in the 2024-2025 North Jersey Transportation Planning Authority (NJTPA) Complete Streets Technical Assistance (CSTA) Program. Technical assistance included a Temporary Demonstration Project (installed on October 15, 2024) and a Walkable Community Workshop (held on October 24, 2024). Both components were a collaborative effort with municipal employees and Township stakeholders.

This report summarizes the implementation of three temporary traffic calming demonstrations and the feedback provided by community members that was collected through an online survey. This report identifies several recommendations to reduce speeds, promote walking and bicycling as a means of travel and improve safety along a section of Linden Avenue in Verona (Figure 2), taking into consideration observations by team members and the public made during the workshop and input received from the online survey.

The Linden Avenue corridor is a municipal roadway located in the center of the Township. However, it is one of just two roadways that provide east-west access across the Township via a bridge over the Peckman River. As such, the roadway sees cut-through traffic, and residents of this street have concerns about speeding and congestion.

This report calls for installing traffic calming measures such as chicanes or speed humps, curb extensions, and a median to slow vehicle speeds and discourage cut-through traffic. In addition, the report recommends adopting a Complete Streets policy or ordinance; providing and maintaining high-quality pedestrian infrastructure; adding lighting; and addressing deficiencies in signage and striping.

The lessons learned by all participants during the workshop and the demonstration can be applied to other roadways in Verona. Appendices in the report include detailed survey results, outreach materials, the field audit form, and a list of potential funding resources. These resources can be used to conduct other walk audits and demonstration projects within the Township.

Figure 2. Linden Avenue.

Background

The North Jersey Transportation Planning Authority created the CSTA Program in 2018 to assist municipalities in advancing or implementing Complete Streets. This report is part of the fourth round of the CSTA Program, in which five municipalities were selected to receive technical assistance. Municipalities were chosen for the program through a competitive application process based on the following criteria: the need for technical assistance, commitment to project implementation, opportunity for public engagement, and the strength of their respective municipal teams. In addition, projects at locations with high crash rates and projects with the potential to involve and benefit traditionally underserved populations were given additional consideration.

Verona requested a Walkable Community Workshop on Linden Avenue, a municipal roadway. Verona is a walkable community with 2.2 square miles of land bisected by Bloomfield Avenue (CR 506), a major arterial connecting various communities in Essex County. Bloomfield Avenue hosts Verona's commercial district and municipal complex. Due to the location of Eagle Rock Reservation to the south and Hilltop Reservation to the north, Bloomfield Avenue is the only roadway providing an extended connection through this portion of the county. As such, it carries around 18,000 vehicles a day. Verona is bisected north-south by the Peckman River, so Linden Avenue is the only other roadway that carries east-west traffic across the Township. Due to congestion on Bloomfield Avenue, many drivers use Linden Avenue as a cut-through, and speeding is an issue on this street.

In addition to mitigating the speeding and congestion issues along Linden Avenue, Verona would like to encourage residents to walk and bicycle around town more often. While almost all roads in town have sidewalks, there is no dedicated bicycle infrastructure.

When applying for the CSTA program, Verona noted that Linden Avenue was scheduled for a repaving project in 2025. While Township officials were familiar with some traffic-calming applications, such as speed humps, they were interested in testing other solutions in advance of the repaving project. As such, they worked with the CSTA team to install a temporary demonstration project that would be in place during the Walkable Community Workshop.

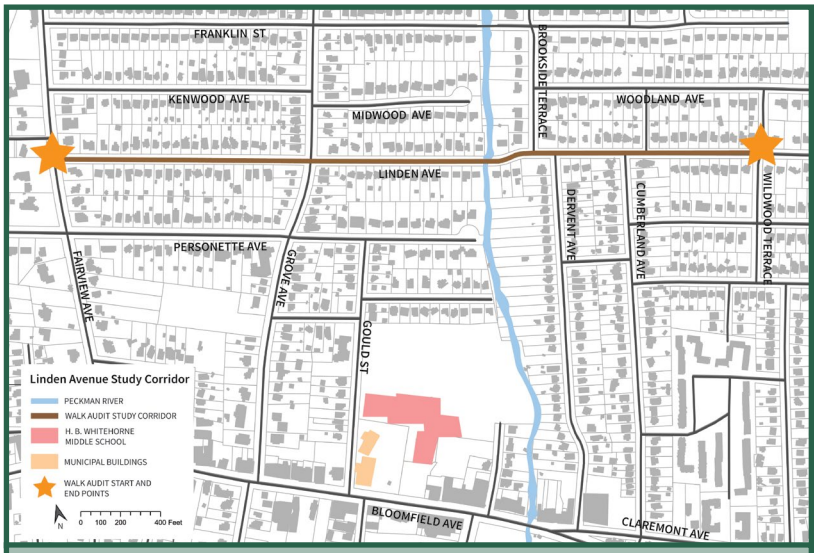


Figure 3. Study corridor map.

Municipal employees and stakeholders, including area residents, participated in Walkable Community Workshop on October 15, 2024. Participants learned about the diverse benefits of Complete Streets and how improvements could be applied in their community. The workshop included an hour-long classroom-style training to ensure all participants were familiar with Complete Streets and best practices for designing roads that balance the needs of drivers, pedestrians, bicyclists, and transit users while incorporating green infrastructure. The participants then walked the length of the study corridor with the project team, making note of existing conditions, observing driver and pedestrian behavior, and talking about future needs. As shown in Figure 3, the study corridor extends along Linden Avenue, between Fairview Avenue and Wildwood Terrace.

What is a Complete & Green Street?

Complete & Green Streets are part of a movement where municipalities, counties, and states adopt policies that require road engineering and design projects to consider the mobility needs of everyone (Figure 4). Everyone includes all roadway users and all travel modes—pedestrians, cyclists, transit users, freight, and travelers of all ages and abilities.

Section 11206 of the Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA) of 2021, defines Complete Streets standards or policies as those which "ensure the safe and adequate accommodation of all users of the transportation system, including pedestrians, bicyclists, public transportation users, children, older individuals, individuals with disabilities, motorists, and freight vehicles."

Complete Streets should tailor the road 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 accommodate the needs of commuters with benches, shelters, lighting, and signs (Figure 4).

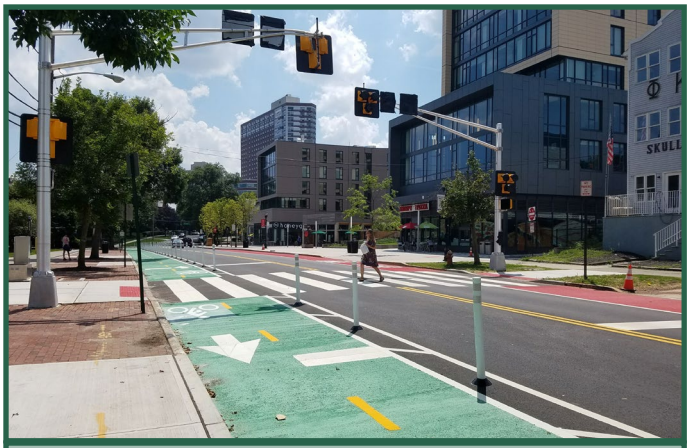


Figure 4. This Complete Street in New Brunswick, NJ, features a bicycle path, bus lane, and enhanced pedestrian crossing.

Regardless of the context, Complete & Green 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 older adults, 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 at 20 mph they are down to five percent (Figure 5 and Figure 6). Complete & Green Streets recognize that all transportation network users, whether traveling by car, bus, train, or taxi, become pedestrians at some point during their journey.

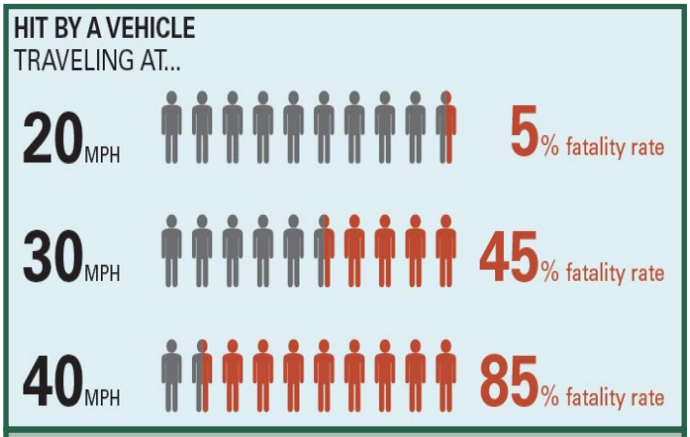


Figure 5. Graphic showing increased fatality rate as vehicle speeds increase. (USDOT)

Complete Streets is also an implementation strategy of the Safe System Approach, adopted as the guiding principle behind the USDOT National Roadway Safety Strategy, which holds that deaths and serious injuries due to roadway crashes are unacceptable. The Safe System Approach refocuses transportation system design and operation on anticipating human errors and reducing impact forces to minimize crash severity and save lives. Through this approach, transportation agencies implement proactive, redundant systems of safety to prevent crash fatalities and serious injuries. Complete Streets addresses two of the five elements of a Safe System (Safe Roads and Safe Speeds) and advances the proactive implementation of safety infrastructure.

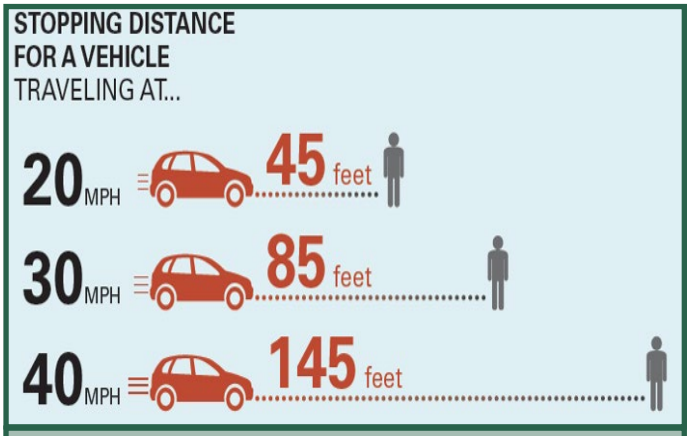


Figure 6. Graphic showing increased stopping distance as vehicle speeds increase. (USDOT)

Benefits of Complete Streets

While the primary benefit of Complete & Green Streets is improved safety for all roadway users, there are other positive outcomes. Complete streets create better places to live, work, and do business.

Public Health

Complete Streets make it possible for people to routinely choose walking, bicycling, and transit to access community destinations such as supermarkets, medical services, and entertainment destinations, leading to greater physical activity and social connectivity. Improving walkability, bikeability, and transit access helps solve urgent public health problems by improving safety and sociability and by reducing air pollution.

Green Streets

Green Streets use green infrastructure practices installed within the public right-of-way to manage stormwater while preserving the primary function of a street as a conduit for vehicles, pedestrians, bicyclists, and transit riders (Figure 7). Green Streets and Complete Streets can complement each other by creating an inviting and comfortable walking and bicycling environment by incorporating green infrastructure elements, such as street trees and rain gardens that provide shade and remove pollutants from the air, while minimizing flooding along streets and sidewalks that interferes with and discourages walking and bicycling.

Figure 7. Green infrastructure used to narrow the roadway and provide a shorter crossing distance for pedestrians.

Economic Vitality

Improving streetscapes can help to strengthen or revitalize 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. For example, pedestrianizing Division Street in Somerville, New Jersey attracted new businesses and helped to revitalize a struggling business corridor (Figure 8). The economic benefits also extend to individuals by lowering costs related to car ownership. By walking, biking, and taking transit for more trips, households save money on driving expenses like gasoline, parking, and maintenance, and can choose to own fewer vehicles – or no vehicles at all.

Figure 8. Division Street in Somerville was converted into a popular pedestrian plaza.

Transportation Equity

Fair and equitable distribution of transportation investments is a fundamental principle of Complete Streets. All users of the transportation system should benefit from our shared streets regardless of income, ability, or other factors. For those whose transportation choices are limited by circumstance or location, pedestrian, bicycle, and transit access to essential services and community destinations such as hospitals, medical offices, senior centers, schools, employment centers, bus routes, and transit stops can be life-changing.

Complete Streets in Verona and New Jersey

New Jersey is a leader in the Complete Streets movement. In 2009, NJDOT was among the first state DOTs in the nation to adopt an internal complete streets policy. Since 2009, NJDOT has funded seven 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 (with updates in 2020), NJDOT released the Complete & Green Streets for All: Model Complete Streets Policy and Guide to serve as a 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, 182 municipalities have implemented their own policies (Figure 9). In November 2024, NJDOT updated its internal policy and checklists[1].

Currently, Essex County has a Complete Streets policy, but Verona does not. However, work is underway to establish a policy in 2025.

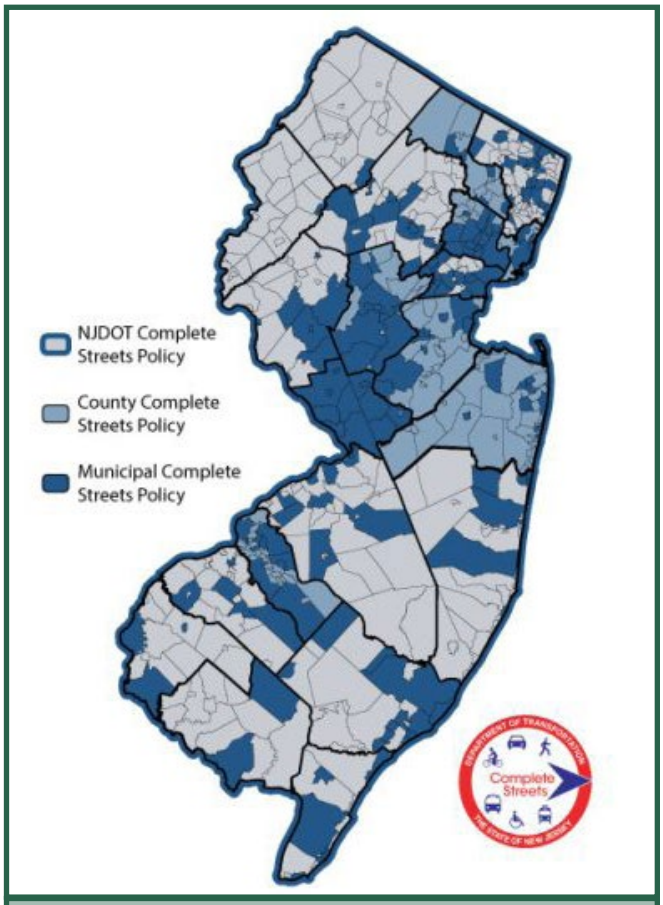


Figure 9. Complete Streets Policies in New Jersey, as of April 15, 2025. Visit https://njbikeped.org/nj-complete-streets-policy-compilation/ for a constantly updated list of policies.

What is a Temporary Demonstration Project?

Demonstration projects are an approach to neighborhood building that uses short-term, low-cost, scalable Complete Streets interventions to affect long-term change related to street safety and public space. This approach can draw attention to perceived shortcomings of the current roadway design, widen public engagement, test interventions, and inspire action.

Demonstration projects allow communities to quickly make high-priority safety and livability improvements. They also provide flexibility due to the temporary nature of improvements. Rather than debating the costs and benefits of a curb extension, a municipality can paint one and observe the new dynamic between pedestrians and drivers without committing to a permanent change. They allow for the collection of operational data and community feedback that can be used to refine the final permanent design (Figure 10).

Demonstration projects can be used to spur conversation around neighborhood improvements, allowing residents to evaluate potential changes before permanent installation. The projects can be used to solicit local ideas to address planning challenges, taking the debate out of city hall and placing it on the street where people can experience and respond to the proposed changes.

Figure 10. A demonstration project in Belleville, NJ created during of a previous CSTA project.

1. https://njbikeped.org/complete-green-streets-for-all-model-policy-guide/ and https://www.nj.gov/transportation/eng/completestreets/resources.shtm

Best Practices in Demonstration Projects

Successful demonstration projects employ low risks for high returns, inspiring people to think differently about their surroundings. For example, painting curb extensions enables residents to experience safer, more visible street crossings and provide input for permanent implementation. Beyond function, demonstration projects may provide aesthetic improvements through the installation of planters and art. Examples of demonstration projects in New Jersey include:

Painted Curb Extensions

Maintaining visibility at intersections can improve safety outcomes for all roadway users. While New Jersey law prohibits parking within 25 feet of a corner for visibility, this regulation is frequently violated. In 2017, the City of Jersey City engaged planning consultants to conduct a series of six walkability workshops. The workshops included a public-feedback board, tables and chairs, wayfinding signage, planters, and colorful paint (Figure 11). By shortening the crossing distance for pedestrians, curb extensions provide a tangible experience of potential safety improvements, allowing participants to offer input for future implementation. Temporary curb extensions are now part of the municipal toolkit and have been installed throughout the city.

Figure 11. Painted curb extensions in Jersey City. Photo by Street Plans.

Pedestrian Malls

In 2015, Jersey City created a new pedestrian plaza on Newark Avenue using planters, paint, tables, and chairs. One of the major concerns about pedestrianizing a roadway was how a plaza would affect many businesses, both in terms of visibility from drivers and being able to receive deliveries. The temporary demonstration project allowed all stakeholders to view the results with the understanding that the design is fully reversible, if needed.

However, the temporary plaza was very successful, and in 2021 the city completed a permanent plaza with stone pavers, larger planters, enhanced lighting, benches, pedestrian safety bollards, and other public space features (Figure 12).

Figure 12. Originally a demonstration project, the Newark Avenue pedestrian plaza is now a permanent installation.

Figure 13. Bicyclists navigating the temporary on-road bicycle path in Keyport, NJ. Photos by NJTPA.

Temporary Bicycle Lanes

As part of the creation of a Complete Streets Policy and Implementation Plan funded by the NJTPA, Keyport Borough and Monmouth County constructed a temporary two-way bike lane and crosswalk at the intersection of Maple Place, Atlantic Street, and Church Street. The project aimed to calm traffic, increase motorist visibility of pedestrians and bicyclists at the intersection, and create safe access to the nearby Henry Hudson Trail (Figure 13).

Project Location and Assessment of Need

According to the 2020 US Census, Verona is home to approximately 14,572 residents within an area of 2.8 square miles. The median age is 44, and the estimated median household income is $153,236. The median home value is $577,100, which is more than the state median. The number of bicycle commuters in Verona stayed the same at zero percent from 2015 to 2020, although that data is affected by the COVID-19 pandemic and does not include non-commute trips. Sixty-one percent of residents drive alone to work, while 0.7 percent walk to work. The population in Verona is majority white (83 percent). About two percent of the population aged five years and over speak Spanish at home, which is lower than the state average.

Linden Avenue is an east-west corridor located north of the center of the Township (Figure 14). The land use consists of single-family detached homes. The homes along the corridor are within walking distance of Verona's main street (Bloomfield Avenue) to the south, and Verona High School to the north (Figures 15 and 16).

Although at first glance it appears that Verona's roadway system is a grid, the network is interrupted frequently, funneling traffic to just a few roadways, including Linden Avenue. For drivers coming from the north, Linden Avenue presents the first opportunity to travel across town, as no other roadways cross the Peckman River. Drivers heading north may turn off Bloomfield Avenue early to avoid congestion, then use Linden Avenue to dart across town.

Figure 14. Map of study corridor.

According to municipal officials, this traffic has created safety concerns, especially for those walking and bicycling. Verona also wants to make it easier for residents to travel around town without relying on vehicles. Addressing speeding and congestion concerns will help residents navigate their community regardless of travel mode.

Figure 15. Verona Municipal Complex, on Bloomfield Avenue.

Figure 16. Looking west on Bloomfield Avenue, in front of the Municipal Complex.

Traffic Volumes, Speed, and Crash History

The Verona Police Department assisted the project team by providing traffic and speed counts from different locations along Linden Avenue (Table 1).

Linden Avenue has a speed limit of 25 mph. Speed data was collected at multiple locations between March and May 2024. Additional data was collected during the demonstration period, which is discussed later. The data found that while average speeds varied from 22 to 27 mph, the 85th percentile speed was consistently above the speed limit. The 85th percentile speed is the speed at which the majority of drivers (85 percent) travel at, or below, on a road segment. If the 85th percentile speed is appreciably greater than the posted speed limit, and the roadway context does not support setting a higher speed limit (as in this case), then traffic calming measures and additional traffic enforcement may be warranted. Traffic volumes along Linden varied by location and day of the week. They ranged from 512 to 1,810 vehicles per day.

The data collected at 210 Linden Avenue, just west of the Peckman River bridge, captured the highest speeds and traffic volumes.

Table 1. Traffic volumes and speeds along Linden Avenue, Spring 2024.

Address	Location	Dates	Daily Traffic Volume	85th Percentile Speed (mph)	Daily Average Speed (mph)	Percent Drivers Speeding
95 Linden Avenue Eastbound	East of Wildwood Terrace	March 2–11, 2024	885–1159	34	25.5–27	60–69%
118 Linden Avenue Westbound	East of Wildwood Terrace	March 2–11, 2024	534–875	35	22.6–27	52–69%
152 Linden Avenue Eastbound	Between Wildwood Terrace and Cumberland Avenue	May 24 –28, 2024	913 –1411	N/A	22 –23	55%
169 Linden Avenue Eastbound	Between Cumberland Avenue and Derwent Avenue	May 24–28, 2024	512–1414	29–33	22–25	23–55%
210 Linden Avenue Westbound	West of Peckman River Bridge	May 6–15, 2024	1678–1810	35	27–28.4	69–79%
260 Linden Avenue Westbound	Between Grove Avenue and Fairview Avenue	May 6–15, 2024	801–1047	35	24–26	52–60%

Source - Verona Police Department

According to NJDOT crash data posted on their crash analysis website, Safety Voyager, over the six years from 2018-2023, there have been two reported crashes involving bicyclists and none involving a pedestrian along the study corridor (Table 2). Fortunately, there were no fatalities. Both crashes involved young teen bicyclists at the intersection of Linden Avenue and Grove Avenue. Fifty-two additional vehicle collisions occurred along the corridor during the same period, three of which resulted in moderate injuries.

Table 2. Pedestrian and bicycle crashes in study area, 2018-2023.

Location	Date	Time	Crash Type	Ped./Cyclist Age	Injury Severity	At Intersection	Lighting Condition
Linden Avenue and Grove Avenue	7/20/2021	5:19 pm	Bicyclist	14	Moderate Injury	Yes	Daylight
Linden Avenue and Grove Avenue	7/20/2019	3:39 pm	Bicyclist	13	Moderate Injury	Yes	Daylight

Source - Safety Voyager

Project Methodology

Scoping

Prior to conducting the workshop, the CSTA project team met virtually with Verona officials to discuss the study corridor and gain a better understanding of the roadway, its location, use, and appropriateness for a walk audit and temporary demonstration project. An initial site visit was conducted on June 14, 2024, to assess the feasibility of a demonstration project (Figure 17). The project team then developed an initial design for the demonstration and met virtually with Verona officials to discuss options. Township officials were willing to try three different demonstrations along the same corridor to better understand which designs are more effective at reducing vehicle speeds and to develop more experience implementing quick-build installations that could be tried in other parts of town. More information about the demonstration designs can be found in the section "**Workshop and Demonstration Findings**"

Figure 17. Preliminary site visit.

Supporting Materials

The CSTA team provided Verona with guidance on the installation and design of the project, including the materials needed, usage of a speed radar for pre/post data collection, and requirements for striping and placement of vertical elements to comply with the Manual on Uniform Traffic Control Devices.

Prior to installation, the project team developed outreach materials aimed at local residents. Verona distributed flyers to residents and shared project details through social media and newsletters. This flyer informed community members about the demonstration project, invited them to participate in the workshop, and solicited comments through an online survey. The flyer is found on the next two pages (Figures 18 and 19).

Installation and Workshop

The Township installed three temporary traffic calming demonstrations on Linden Avenue on October 15, 2024. The demonstrations consisted of chicanes with alternating on-street parking installed between Fairview Avenue and Grove Avenue, a median consisting of striping and plastic delineator posts installed in the vicinity of the Peckman River bridge, and painted curb extensions installed at the intersection with Derwent Avenue. Plastic delineator posts, temporary paint, and painting supplies were supplied by the NJTPA Complete Streets Demonstration Library.

That same week, the technical assistance team conducted a Walkable Community Workshop, consisting of a training presentation and a walking audit, for residents, elected officials, and staff on October 24, 2024. The workshop included a one-hour presentation on the fundamentals of Complete Streets and best practices concerning pedestrian and bicycle 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.

Following the presentation, the project team provided participants with a walk audit form so that they could take notes during the audit. The project team and participants then split up into two groups, each walking the entire length of the corridor. During the walk, participants and the team discussed and recorded existing conditions and opportunities for improvement, relying on their observations and local knowledge. Participants were also able to observe and discuss the temporary demonstration projects.

The project team and participants then conducted a post-audit debrief meeting to review the most important findings and identify potential recommendations for improvements. Following the workshop, the project team developed a series of recommendations for the corridor.

LINDEN AVE TEMPORARY DEMONSTRATION PROJECTS

Starting October 15, 2024

Verona wants your input on making Linden Avenue safer!

Verona Township is investigating ways to improve traffic safety, decrease cut-through traffic, and make it easier to walk and bicycle along Linden Avenue. A traffic study found that only 7.5% of the vehicles followed the posted speed limit, and that during peak hours, traffic can back up at the Grove Street intersection. The Township will be making temporary changes starting the week of October 15, and wants to know what **YOU** think!

What is a Temporary Demonstration Project?

A Temporary Demonstration Project is a low-cost way to test out new traffic patterns and get community input before committing to permanent changes. Verona received a repaving grant for Linden Avenue from NJDOT and is interested in testing out a new layout *before* repaving. Verona applied to the Complete Streets Technical Assistance program, a partnership of Rutgers-Voorhees Transportation Center, Sustainable Jersey, and the North Jersey Transportation Planning Authority, to help organize this project.

What will Verona be testing?

Verona will be evaluating three possible changes along Linden Avenue. Between Fairview Avenue and Grove Avenue, curbside parking will be modified to alternate between the north and south side of the roadway. On the Peckman River Bridge, a painted median will be added. At the Derwent Avenue intersection, a painted curb extension will be added. Details of each installation can be found on the second page of this flyer.

I live on Linden Avenue. Will access to my home change?

NO. Two-way traffic will still be allowed, and there will only be a decrease of two parking spaces along the project area.

How will the Township make the changes?

As part of this demonstration, temporary road striping and signs will be added to mark the new parking and traffic pattern. In addition, plastic soft-hit bollards will be placed to help drivers understand the new traffic pattern.

How will these changes improve traffic safety?

Slower streets are safer for drivers, pedestrians, and all people using the road. The traffic calming treatments being tested here encourage drivers to drive more slowly. In addition, slower speeds discourage cut-through traffic.

How long will the demonstration be in place?

Changes will be in place for a minimum of two weeks

How will success be measured?

The team's evaluation will include speed studies, direct observations, and feedback from residents. An online survey will be conducted once the changes are in place. Verona will also host an in-person Walk Audit to hear directly from the community.

What happens after the project?

Based on the results of the evaluation, parts of the project may be removed, modified, or made permanent as part of the repaving project.

Figure 18. Flyer, page 1.

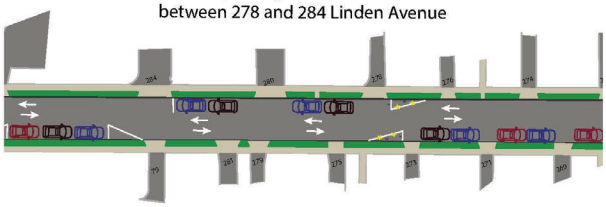
Three Demonstrations

The project team will test **THREE** different concepts along Linden Avenue.

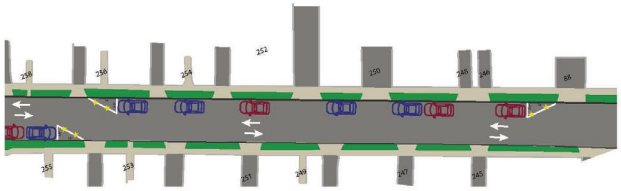
Fairview Avenue to Grove Avenue - Alternate Street Parking

Parking is currently permitted only on the south side of Linden Avenue. During the demonstration, parking will be shifted to the north side of the roadway from 278-284 and from 246-256 Linden Avenue. Temporary striping and vertical posts will be added to clarify the transition. This change will create a curve by shifting the travel lane, requiring drivers to slow down as they travel between Fairview Avenue and Grove Avenue.

Street parking shifts to north side between 278 and 284 Linden Avenue

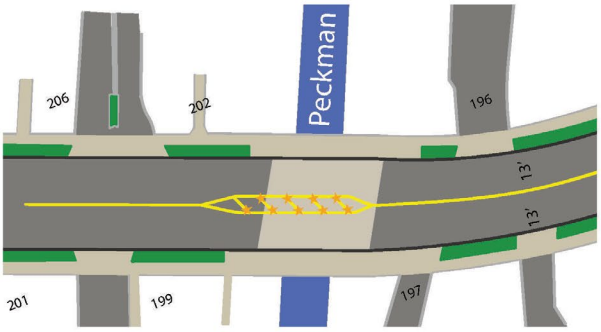


Street parking shifts to north side between 246 and 256 Linden Avenue



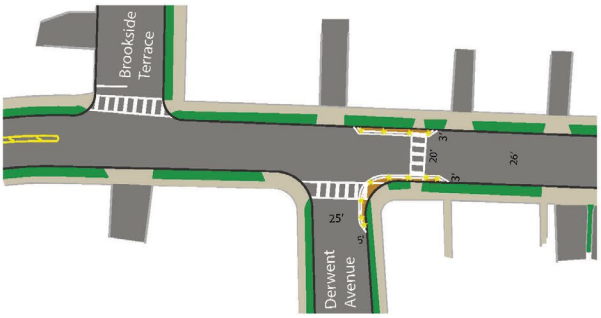
Peckman River Bridge - Painted Median

As parking is not allowed on and adjacent to the Peckman River Bridge, the travel lanes widen to 15-feet in each direction, which encourages faster driving. A painted median will narrow the travel lanes to 11-feet in each direction. Vertical posts will be added to clarify the installation during the demonstration period and to prevent vehicles from driving over the painted median. This installation will not affect parking or access to driveways.



Derwent Avenue Intersection - Painted Curb Extensions

Curb extensions reduce the crossing distance for pedestrians, narrow the roadway to reduce speeds, and improve sightlines by helping to enforce existing parking prohibitions near the intersection. This installation will not affect parking or access to driveways.



Project Toolkit

Verona will be using temporary low-cost materials for these changes, including striping, signage, and flexible posts.

Public Input

Once the demonstration is in place, a questionnaire will be made available at https://go.rutgers.edu/verona-survey or by using this QR code.

Questions?

For questions about this project, contact the Township of Verona Administration at 973-239-3220 or via https://www.veronanj.org/town-council-contact-form

VERONA NEW JERSEY

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RUTGERS–NEW BRUNSWICK Edward J. Bloustein School of Planning and Public Policy Alan M. Voorhees Transportation Center

Figure 19. Flyer, page 2.

Workshop and Demonstration Findings

This section highlights corridor-wide commonalities of the study area, including sidewalks, intersections, safety, and comfort, which were observed during the walking audit portion of the Walkable Community Workshop. This is followed by a detailed description of conditions along the route, including workshop findings, temporary demonstration project designs and outcomes, and recommendations.

Corridor Summary

Sidewalks

Sidewalks are present on both sides of Linden Avenue and on all intersecting roadways (Figure 20). Only Brookside Terrace and Wildwood Terrace lack a sidewalk on one side (Figure 21). Sidewalk conditions are generally good, but some segments have quality issues, such as uneven pavement, cracks, or objects obstructing the pedestrian path, such as overgrown landscaping and parked vehicles (Figures 22 and 23). Some of these issues create a tripping hazard for pedestrians and negatively impact accessibility, particularly for older adults and people with disabilities. The lack of bicycle infrastructure (lanes or paths) along the corridor may encourage bicyclists to choose to ride on the sidewalk, although none were observed during the audit or site visit.

Sidewalk width is primarily four feet, which is typical for a residential area. Although this meets minimum accessibility standards, it is not wide enough for two pedestrians to comfortably walk together side by side. The traffic signal controller box on the southeast corner of Linden Avenue and Grove Avenue narrows the sidewalk below the minimum width of 48 inches allowed by the Public Right of Way Accessibility Guidelines[2]. Both the initial site visit and walk audit were conducted around school dismissal time to see if and how the corridor is used by students leaving school. Only a few teens were observed walking along the corridor.

2. R302.2 Continuous Clear Width, https://www.access-board.gov/prowag/technical.html#r3022-continuous-clear-width

Figure 20. Sidewalks on Linden Avenue.

Figure 21. No sidewalk on east side of Wildwood Terrace.

Figure 22. Uneven pavement.

Figure 23. Vegetation narrowing sidewalk.

Intersections and Crosswalks

Linden Avenue has seven intersections along the study corridor, only one of which is signalized (Grove Avenue/ County Route 639, Figure 24). On the western end, Linden Avenue terminates with a stop sign at Fairview Avenue (County Route 637). On the eastern end, the intersection with Wildwood Terrace is a four-way stop. All marked crosswalks along the corridor are painted with high-visibility striping. However, there are a few locations without marked crosswalks across Linden Avenue.

Most curb ramps along the corridor appear to be ADA compliant, with proper sloping and truncated domes. However, the traffic signal at Grove Avenue does not have pedestrian signal heads or newly required audible and vibrotactile walk indications[3]. Also at Grove Avenue, the curb ramps are positioned diagonally into the intersection, a design that no longer meets ADA accessibility standards[4].

Figure 24. Grove Avenue intersection.

Figure 25. The highest speeds were observed near the Peckman River Bridge.

Figure 26. Bicyclist on Linden Avenue.

Safety

Safety considerations that can be observed through a walking audit include insufficient lighting, vehicle speeding, unsafe driver, pedestrian, or bicyclist behavior, and general level of comfort influenced by the road environment and surrounding land uses.

Although the audit occurred during the day, the placement of light poles suggests that Linden Avenue may lack sufficient lighting for pedestrians, especially at intersections. The distance between the existing overhead cobra lighting fixtures indicates that they are too far apart to provide uniform lighting without excess shadows. The intersection with Grove Avenue has just one overhead light, which is set back slightly away from the intersection. The safety needs of pedestrians include lighting along sidewalks and at crosswalks for visibility to vehicle traffic. The lighting needs of both the sidewalks and the crosswalks should be assessed.

The Verona Police Department provided the project team with speed data along the corridor. The data confirmed that speeding is an issue, with an 85th percentile speed of 35 mph, compared with the posted speed limit of 25 mph. Additional speed data is discussed on page 8. Low traffic volumes can make drivers feel comfortable traveling at higher speeds. When there are few cars parked on the street, the roadway feels wider, further encouraging speeding (Figure 25). Only one speed limit sign is posted along the corridor. Drivers were observed failing to stop for pedestrians waiting to cross at a marked crosswalk.

There is no bicycle infrastructure along this corridor. Only a couple of bicyclists were observed using the corridor during the site visit and walk audit (Figure 26). The high vehicle speeds likely deter bicycle travel along the corridor, even though many common destinations are nearby. A few faded parking signs were noted that should be replaced.

3. R308 Accessible Pedestrian Signal Walk Indications, https://www.access-board.gov/prowag/technical.html#r308-accessible-pedestriansignal-walk-indications

4. R304 Curb Ramps and Blended Transitions, https://www.access-board.gov/prowag/technical.html#r304-curb-ramps-and-blended-transitions

Comfort and Appeal

The area was observed to be free of litter, graffiti, and other quality-of-life concerns that could discourage walking or bicycling. Residential properties are well maintained. While some segments have attractive, mature trees, other segments lack trees close to the roadway (Figure 27). Trees can create a buffer between pedestrians and moving vehicles, increasing comfort. Trees are also essential in providing shade, helping to lower sidewalk temperatures during the summer.

The corridor lacks amenities such as benches, trash cans, or bicycle racks. While this is typical for a residential roadway, pedestrian amenities and art can help encourage pedestrian trips.

Figure 27. Mature trees on the north side.

Detailed Conditions and Recommendations

For this study, Linden Avenue was divided into three areas:

a. Between Fairview Avenue and Grove Avenue.
b. Between Grove Avenue and Brookside Terrace.
c. Between Brookside Terrace and Wildwood Terrace.

This section looks at detailed existing conditions in each section, the results of the demonstration projects, and recommendations for future implementation. The recommendations were informed by the walk audit and community feedback received through the online questionnaire.

Section 1: Fairview Avenue to Grove Avenue

Linden Avenue is 28–30 feet wide with bidirectional traffic. Parking is allowed only on the south side of the roadway (Figure 28). The roadway is lined with single-family detached homes with garages and driveways. As such, on-street parking is sporadically used. During the audit, the team observed that most parked vehicles were landscapers or delivery trucks.

Figure 28. Looking east on Linden Avenue.

About 900 vehicles a day use this section of the corridor. The speed limit is 25 mph, but a speed study found an 85th percentile speed of 35 mph. The 85th percentile speed is the speed at which the majority (85 percent) of drivers travel at, or below, on a road segment. Over half of drivers were found exceeding the speed limit on an average day. During the seven days that speeds were observed, maximum speeds ranged from 45 mph to 51 mph. In this section, Linden Avenue is straight, is downhill in the eastbound direction, and there are 1,200 feet between the two intersections. These conditions allow and encourage drivers to speed.

The intersection with Grove Avenue (County Route 639) is the only one along the study area with a traffic signal (Figure 29). The traffic signal is outdated and does not meet current MUTCD standards. The signal heads are 8" instead of the recommended 12," and the northbound direction lacks a secondary signal head on the far side. There are no pedestrian signal heads in any direction and the timing across Grove Avenue may not be enough for pedestrians. Right turns on red are prohibited onto Grove Avenue from 8 am to 4 pm on weekdays.

Figure 29. Grove Avenue intersection.

Grove Avenue widens from two lanes to four lanes as it approaches the traffic signal from both the north and south direction. While the added lane allows more vehicles to cross the intersection during a signal cycle, it creates a merge 150 feet north and south of the intersection, increasing the risk of collisions. As noted in the corridor summary, lighting is lacking at the intersection.

Temporary Demonstration

To address speeding in this section of the corridor, the team recommended the use of chicanes. Chicanes are a series of raised or delineated curb extensions, edge islands, or parking bays that are placed on alternating sides of a street to form an S-shaped bend in the roadway. Neckdowns narrow the roadway, which makes drivers feel like they're moving faster, so they reduce their speed to navigate them. Figure 30 shows an example from Raleigh, North Carolina, on a residential roadway that had similar speeding concerns before the chicanes were installed.

Figure 30. A permanent chicane example located at 3113 Brentwood Road, Raleigh, North Carolina.

To create a chicane demonstration, the project team recommended using parked vehicles to create the S-bend in the roadway. This was done by shifting the parking from the south to the north side in one section. This change was reinforced by the installation of temporary vertical delineators placed in the roadway, along with temporary striping and signage. Shifting the parking, rather than removing it, preserved all but one parking spot. Figure 35, on the next page, shows the concept design.

Figures 31 to 34 show the installed demonstration, which faced a few challenges. As identified during the preliminary site visit and walk audit, many of the cars parked during the day were delivery trucks or landscape contractors instead of residents. As such, the informational literature provided to residents did not reach the drivers who use the parking spaces during the day. Many were observed ignoring the signs and parking in no-parking areas. Additionally, the plastic delineators located near the intersection with Fairview Avenue were quickly run over and lost.

Due to these challenges, feedback from residents was primarily negative. Many survey respondents stated that the change made the roadway less safe, particularly by increasing the risk of sideswipe collisions. No collisions were reported during the demonstration.

Vehicle data captured by a radar placed at 260 Linden Avenue found that the 85% percentile speed fell from 35 mph before the demonstration to 32 mph during the demonstration. The number of vehicles exceeding the 25 mph speed limit fell from 51–61 percent (daily variation) to 28–37 percent. The daily average speed decrease from 24.4–25.9 mph to 22.1–23.1 mph.

Figure 31. Plastic delineators located near the intersection with Fairview Avenue.

Figure 32. Plastic delineators located near the intersection with Fairview Avenue.

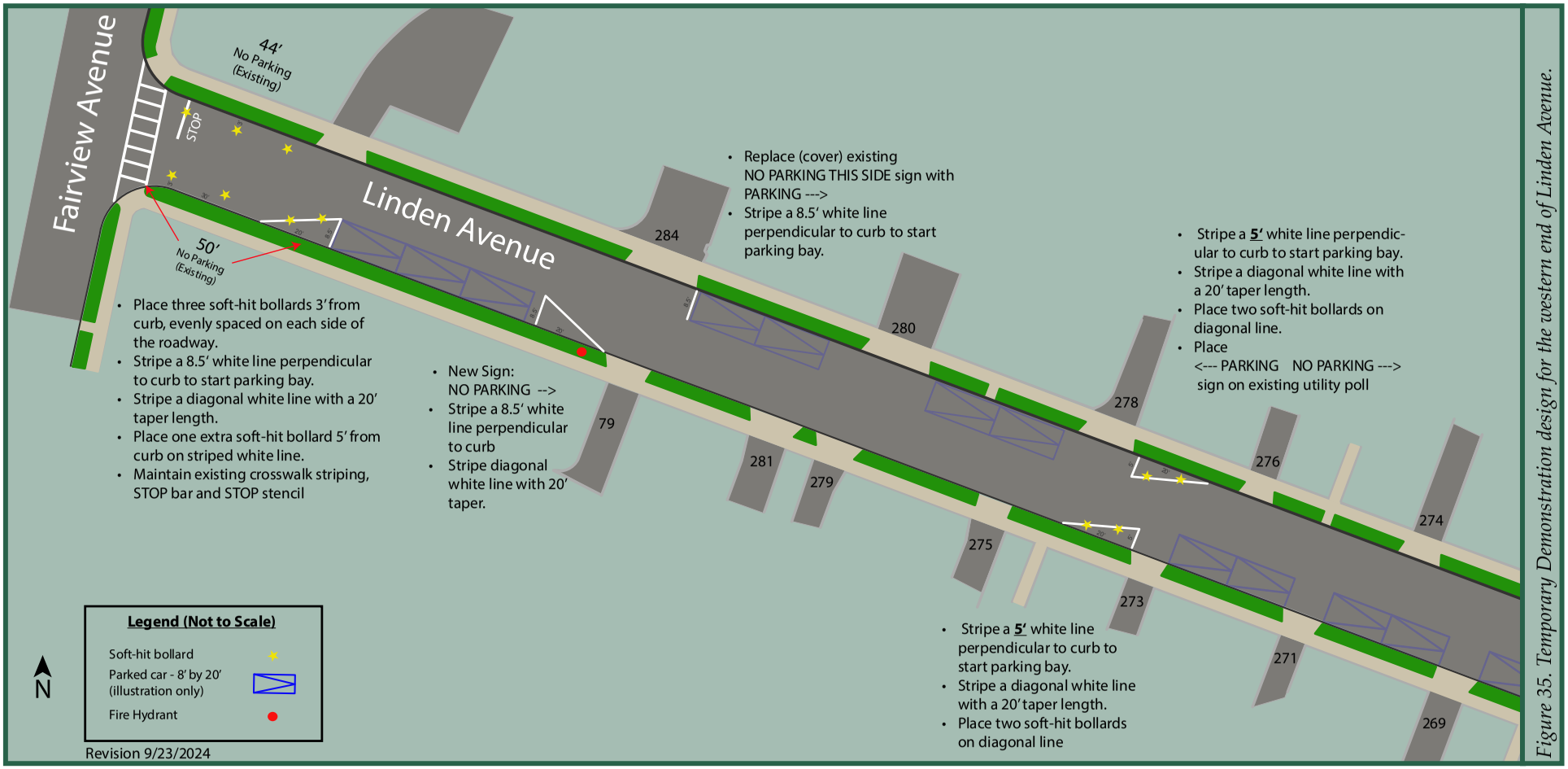


Figure 35. Temporary Demonstration design for the western end of Linden Avenue.

Figure 33. First chicane treatment, looking east.

Figure 34. First chicane treatment, looking west.

Recommendations

Verona should pursue a traffic calming treatment on this section of Linden Avenue to lower vehicle speeds and discourage cut-through traffic. The chicane installed as a temporary demonstration project received a negative response from many community members due to driver unfamiliarity, poor visibility of the temporary materials, and conflicts with turning movements at the Fairview Avenue intersection. However, a permanent chicane could be designed that avoids the interaction with Fairview Avenue, eliminates the need to shift parking, and has improved visibility (Figure 36).

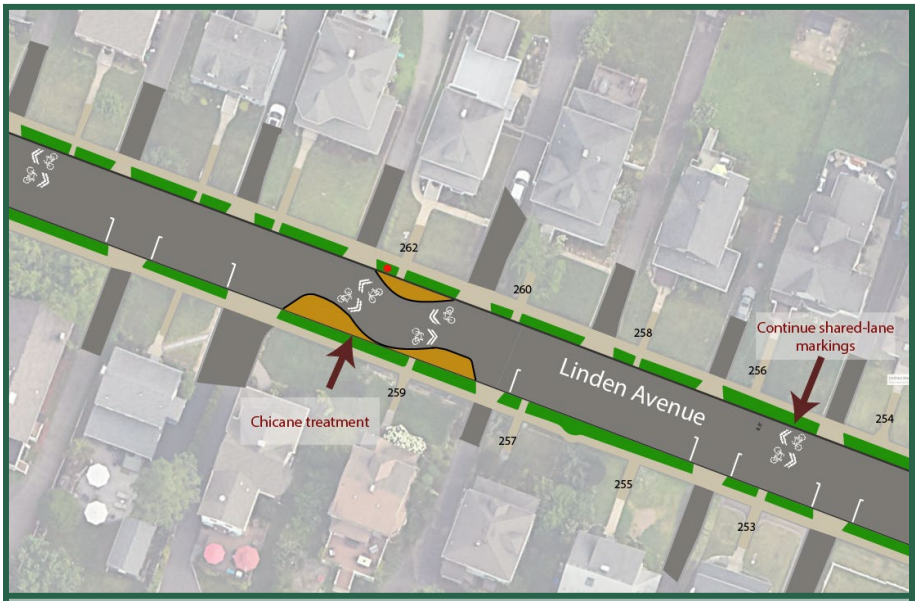


Figure 36. Example of a chicane.

A chicane will require the removal of some parking and will require community education when it is introduced, but we believe this option should be investigated. An alternative to a chicane is the addition of speed humps. Speed humps are familiar to New Jersey drivers and were supported by respondents to both the study survey and a resident-led survey. Speed humps are effective at lowering vehicle speeds but may produce noise that could disturb the residents closest to it.

If the Township determined that neither a chicane or speed humps are viable, Figure 37 shows minor suggested changes to striping and signage. Striping the parking areas does not narrow the roadway, but it does help to visually constrain the driving area when there are no parked cars. By making the roadway appear narrower, drivers may lower their speeds. This is assisted by the taper at the west end of the roadway to ensure that vehicles turning onto Linden Avenue shift left into the driving lane even if no vehicle is parked. This taper also helps reinforce the state law that prohibits parking within 50 feet of an intersection.

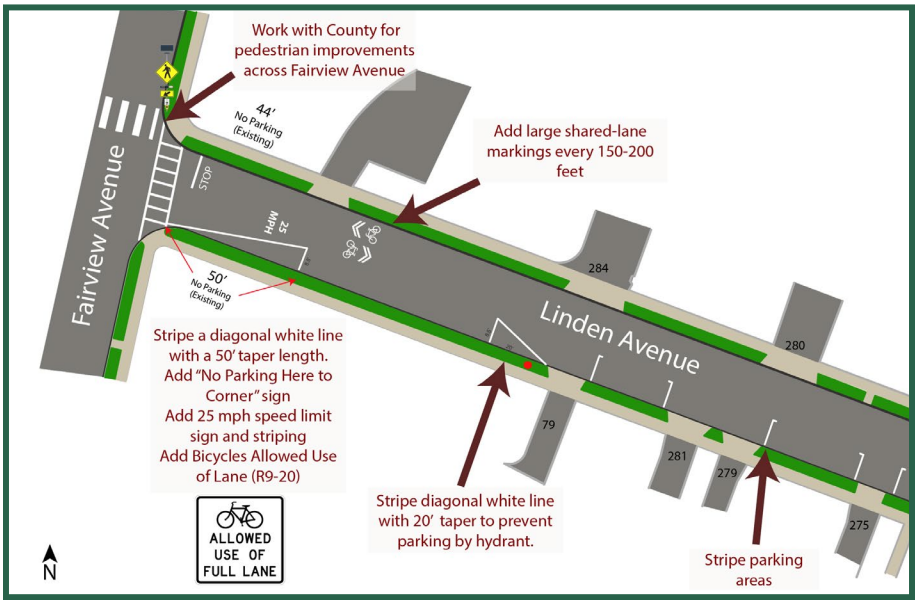


Figure 37. Recommended changes to striping and signage on the west end Linden Avenue.

Regardless of the traffic calming or striping changes made in this section of Linden Avenue, a new 25 mph speed limit sign accompanied by a stencil can help remind drivers of the speed limit, which is not posted on this block. Large bicycle "shared-lane markings" on the pavement, accompanied by "Bicycles Allowed Full Use of Lane" signs assist bicyclists with lateral positioning, reduce the incidence of wrong-way bicycling, and encourage the safe passing of bicycles by motor vehicles.

Verona should also investigate installing a new pedestrian crosswalk across Fairview Avenue by reaching out to Essex County regarding its feasibility. This will require the installation of ADA-compliant curb ramps, high-visibility crosswalk striping, and advisory signage. A Reflective Rapid-Flashing Beacon may also be warranted at this new Fairview Avenue crosswalk due to the traffic volume. Consideration should also be made about overhead lighting.

Approaching Grove Avenue, parking is not permitted within 130 feet to the west of the intersection. This presents an opportunity to add a bicycle lane to help formalize traffic movement by creating clear spaces for all road users near the intersection, which is where most conflicts exist (Figure 38). In addition, adding a bicycle box at the intersection could assist bicyclists in making a left turn by allowing them to position themselves on the left side of the lane.

As with the Fairview Avenue intersection, adding a 25 mph sign and stencil can remind drivers of the speed limit. Currently, there is just one speed limit sign in the eastbound direction. Extending the existing "no turn on red" restriction to end at 7 pm instead of 4 pm may be helpful to accommodate after-school activities and pedestrians commuting home after work.

Working with Essex County, there is an opportunity to reallocate space on Grove Avenue by eliminating the second traffic lane that only exists at the intersection. Adding curb extensions would decrease the pedestrian crossing distance from 48 feet to 24 feet. Although removing the travel lane would reduce vehicle throughput at the intersection, some time in the traffic signal cycle would be regained as a shorter crossing distance allows for a shorter pedestrian signal phase. In the short term, the lane can be removed with a simple striping change. In the long term, installation of concrete curb extensions could be investigated, but the impact on vehicle turning movements, snow removal operations, and drainage would need to be carefully considered. Alternatively, a bicycle lane on Grove Avenue may be preferred. Upgrading the traffic signal to meet current standards would also provide an opportunity for new overhead lighting using the same poles.

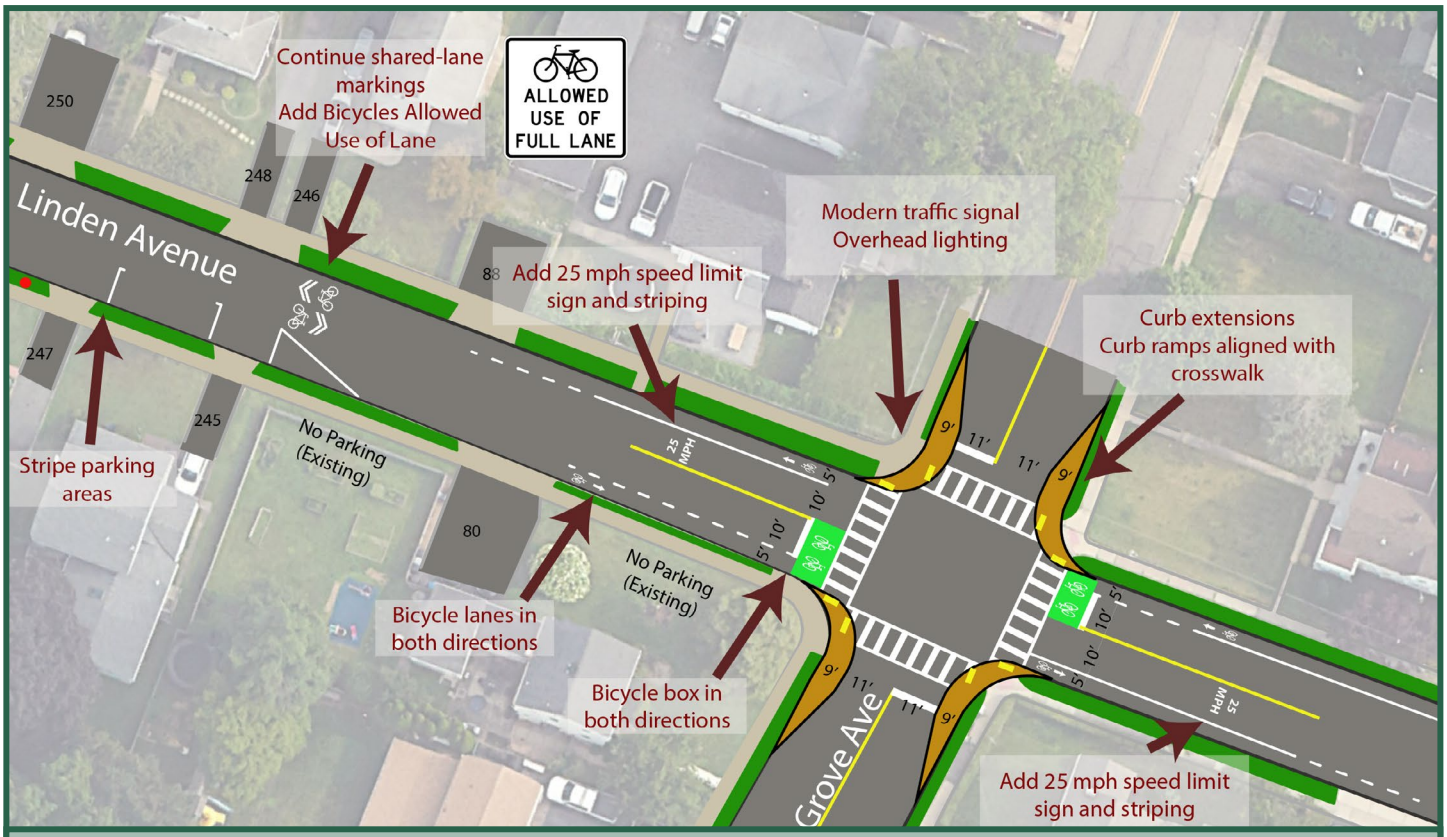


Figure 38. Potential improvements for the intersection with Grove Avenue.

Section 2: Between Grove Avenue and Brookside Terrace

East of Grove Street, Linden Avenue continues in a similar manner as the first section, with a 30-foot width and a 25 mph speed limit. The roadway continues to be lined with single-family detached homes with driveways.

The character of the roadway only changes briefly as it crosses over the Peckman River. This short section has no driveways, and parking is prohibited, which results in two wide 15-foot lanes. Just east of the river, the roadway curves slightly north, creating a small S-bend. Drivers were observed crossing over the center line in this section as they navigated the curve (Figure 39).

Figure 39. S-bend east of the Peckman River Bridge.

Temporary Demonstration

To address speeding in this section of roadway, the team recommended the installation of a painted center median, reinforced with plastic delineator posts. The median narrowed the traffic lanes to 11 feet and physically prevented drivers from crossing into the oncoming lane. No parking was affected. A second smaller painted median was installed west of the intersection with Brookside Terrace.

Vehicle data captured by a radar placed at 210 Linden Avenue found that the 85% percentile speed fell from 35 mph before the demonstration to 32 mph during the demonstration. The number of vehicles exceeding the 25 mph speed limit fell from 69–79 percent (daily variation) to 43–52 percent. The daily average speed decrease from 27–28.4 mph to 24.6–25.2 mph.

Resident feedback was mixed. Most respondents agreed that the median helped to slow drivers. Some, though, were concerned that by moving vehicles closer to the edges of the roadway, the safety and comfort of pedestrians on the sidewalk would be negatively impacted. Others noted that the narrower lanes meant less space to safely pass a bicyclist.. Figure 40 displays the design for the temporary demonstration while figures 41-45 show the installation in place.

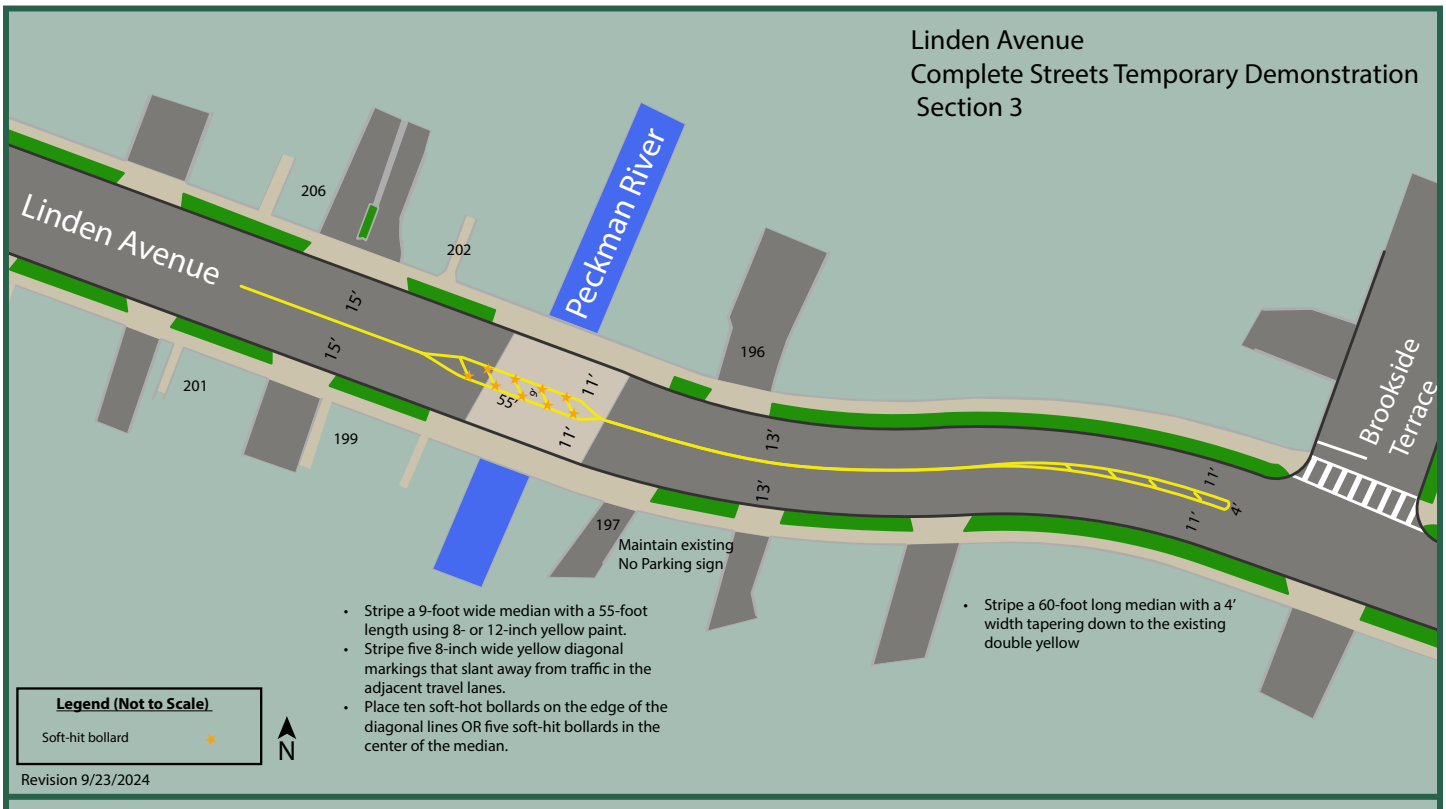


Figure 40. Temporary Demonstration design for the section over the Peckman River.

Figure 41. Plastic delineators marking the temporary median over the Peckman River Bridge.

Figure 42. Plastic delineators marking the temporary median over the Peckman River Bridge, looking east.

Figure 43. Plastic delineators marking the temporary median over the Peckman River Bridge, looking west.

Figure 44. Looking west to the smaller painted median at the Brookside Terrace intersection.

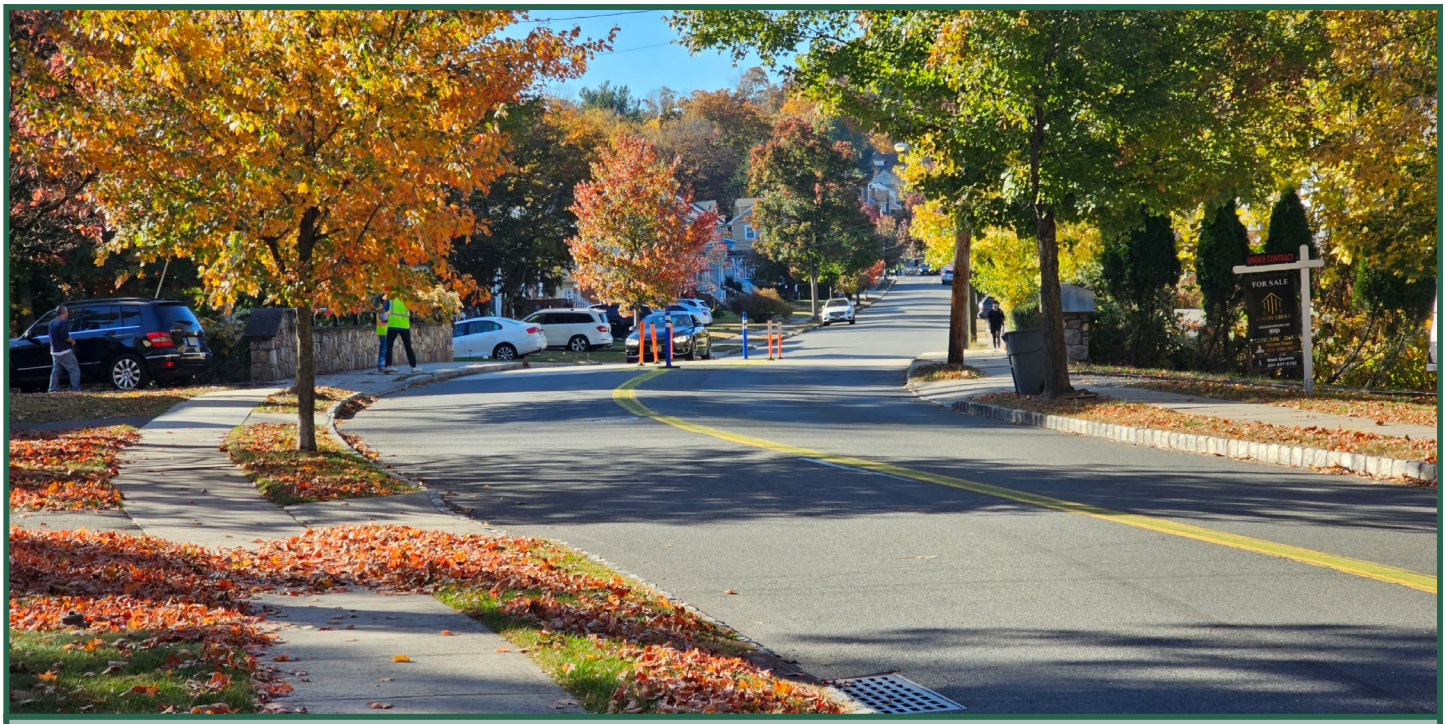


Figure 45. Plastic delineators marking the temporary median over the Peckman River Bridge, looking west.

Recommendations:

Between Grove Avenue and the Peckman River Bridge, the project team recommends continuing the changes from the previous segment: painted parking bays, shared lane markers, and improved signage and striping.

For the bridge, the team recommends a permanent installation of the median with some adjustments, as seen in Figure 46. The median can be narrowed slightly, allowing for the striping of a narrow shoulder. This will create a slightly wider buffer between vehicles and pedestrians, addressing resident concerns about separation of motor vehicle traffic from pedestrians and providing more curbside space for bicyclists.

The center median can be hardened with more permanent and attractive materials than the temporary flex posts used for the demonstration. For example, the proposed seven-foot-wide median can accommodate planters (with the appropriate retroreflective signage to warn drivers of the median obstacle).

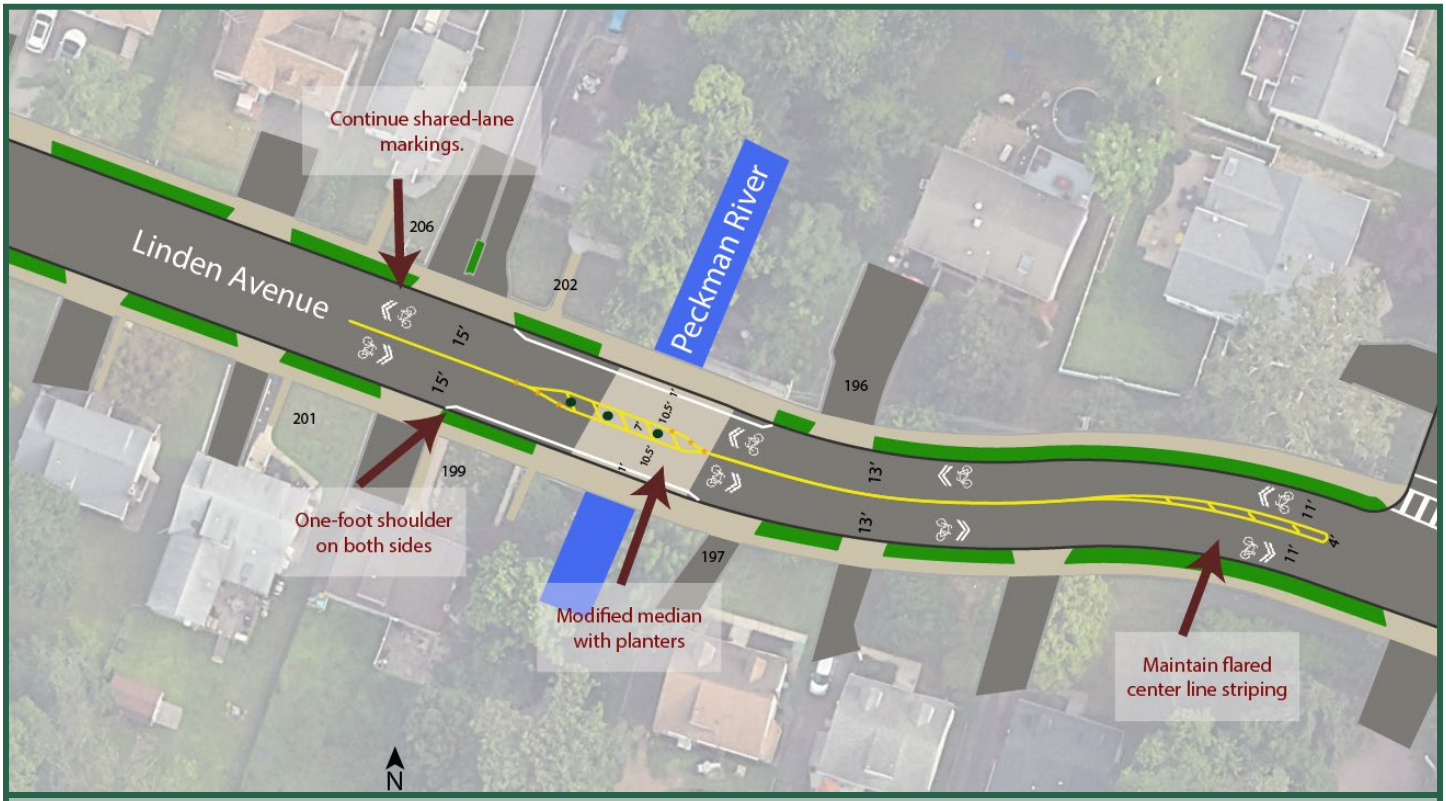


Figure 46. Recommended changes to striping and signage for the Peckman River section of Linden Avenue.

Section 3: Between Brookside Terrace and Wildwood Terrace

East of Brookside Terrace, the general character of Linden Avenue continues, although the roadway width varies from 26 to 30 feet. This section does present two distinct features. The first is that four roadways terminate on Linden Avenue, creating closely spaced intersections (Figure 47). As such, this is the only segment with two marked crosswalks across Linden Avenue (at Derwent Avenue and Cumberland Avenue) that are not controlled by a signal or stop sign. Brookside Terrace appears to be a popular route for children walking to and from FN Brown School and Verona High School, although only the east side of the roadway has a sidewalk. During both observation periods, pedestrians were frequently observed crossing Linden Avenue at that intersection. However, there is no marked crosswalk at that location. Instead, the marked crosswalk is 150 feet east at the Derwent Avenue intersection (Figure 48).

The second distinct feature is that there is a hill east of Derwent Avenue. Westbound vehicles are going downhill and are likely to pick up speed. The hill continues past Wildwood Terrace (Figure 49).

Wildwood Terrace is a four-way stop, although it is slightly misaligned. There are no marked crosswalks across Linden Avenue at that intersection (Figure 50). The east side of Wildwood Terrace also lacks a sidewalk.

Figure 47. Looking to the Woodland Place intersection from Cumberland Avenue.

Figure 48. Middle and high school students crossing Linden at the Brookside Terrace and Derwent Avenue intersections.

Figure 49. Continuous hill on Linden Avenue, looking west.

Figure 50. Wildwood Terrace intersection, looking east.

Temporary Demonstration

To encourage pedestrians to use the marked crosswalks, increase safety at the intersections, and decrease vehicle speeds, the team recommended the installation of painted curb extensions at the Derwent Avenue crosswalk. As the roadway is only 26 feet wide at this location, the painted extensions were three feet wide. They were also highlighted with the use of plastic delineator posts. A slightly wider (five-foot) curb extension was installed on Derwent Avenue. Aside from decreasing pedestrian crossing distance, the curb extension also prevents vehicles from illegally parking too close to the crosswalk and blocking sightlines (Figure 51).

Vehicle data captured by a radar placed at 169 Linden Avenue found that the 85% percentile speed fell from 33 mph before the demonstration to 30 mph during the demonstration. The number of vehicles exceeding the 25 mph speed limit fell from 23–54 percent (daily variation) to 27–40 percent. The daily average speed decrease from 21.9–25.6 mph to 22.9–24 mph.

This demonstration had the most favorable reaction from residents. The benefits to pedestrians are also more obvious compared to the other demonstrations. Figures 52–56 show the installation.

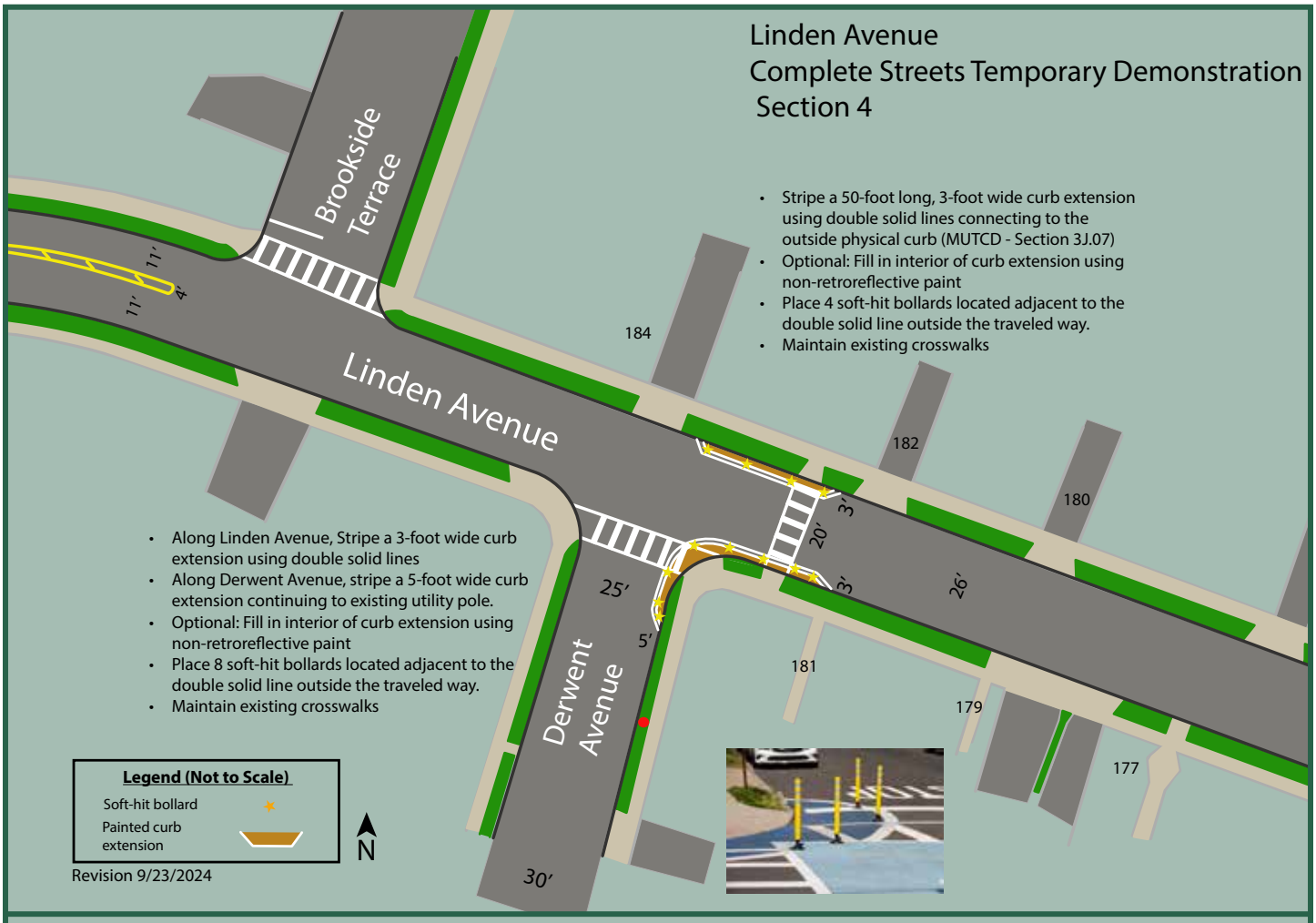


Figure 51. Temporary Demonstration design for Derwent Avenue.

Figure 52. Plastic delineators marking the temporary curb extension on Linden Avenue, looking east.

Figure 53. Workshop attendees crossing Linden Avenue at the Derwent Avenue crosswalk.

Figure 54. Plastic delineators marking the temporary curb extension on Derwent Avenue, looking north.

Figure 55. Plastic delineators marking the temporary curb extension on Linden Avenue, looking west.

Figure 56. Two-way traffic passing the narrowed roadway with the temporary curb extensions.

Recommendations

Painted curb extensions are a low-cost and effective way to improve safety at intersections. As such, the project team recommends that Verona maintain painted extensions at Derwent Avenue and install similar ones at the Cumberland Avenue crossing and Wildwood Terrace intersection (Figures 57–59). Adding pedestrian crossing signage at the crosswalks can further enhance their visibility.

Long-term improvements may include a new marked crosswalk with ADA-compliant curb ramps at Brookside Terrace, where most of the observed pedestrians chose to cross. A crosswalk across Linden Avenue at Wildwood Terrace should also be added on the western leg. A crosswalk on the eastern leg may be harder to add due to the placement of the fire hydrant and storm drain. Overhead lighting should also be considered at the crosswalks, especially because in the winter, children who attend after-school activities walk home after dark.

The hill presents a challenge when it comes to maintaining lower travel speeds. A speed hump located at the bottom of the hill (by Derwent Avenue) could help lower speeds but may create too much noise for neighbors. Drainage is also an important consideration due to the grade of the hill.

A stronger strategy to address speeding is to make Linden Avenue undesirable for cut-though traffic. Instead of adding one speed hump, multiple speed humps located at intervals along the entire study corridor can be installed. Aside from adding some discomfort to drivers, more speed bumps ensures that vehicles have to remain at a slower speed for the length of the corridor.

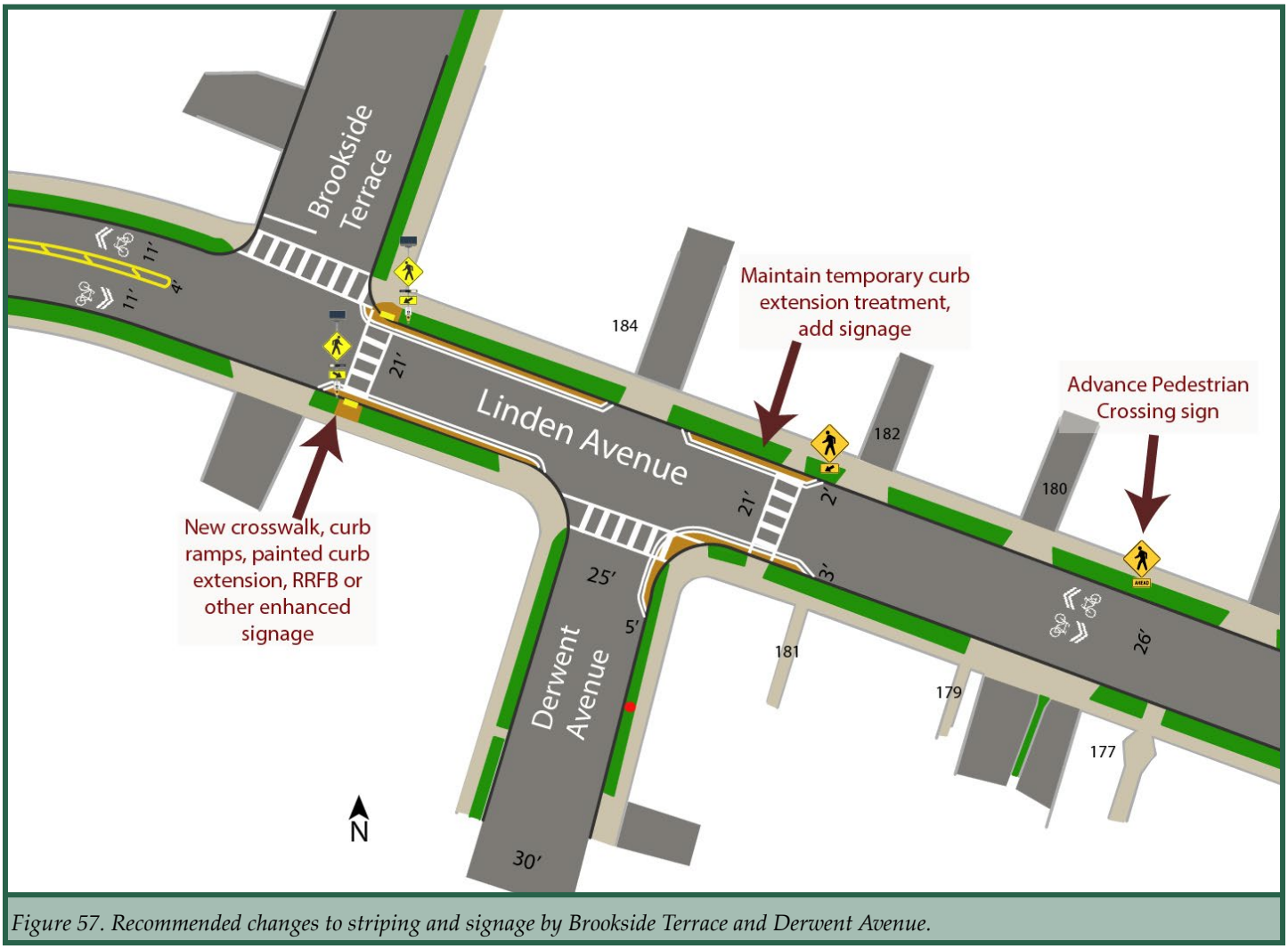


Figure 57. Recommended changes to striping and signage by Brookside Terrace and Derwent Avenue.

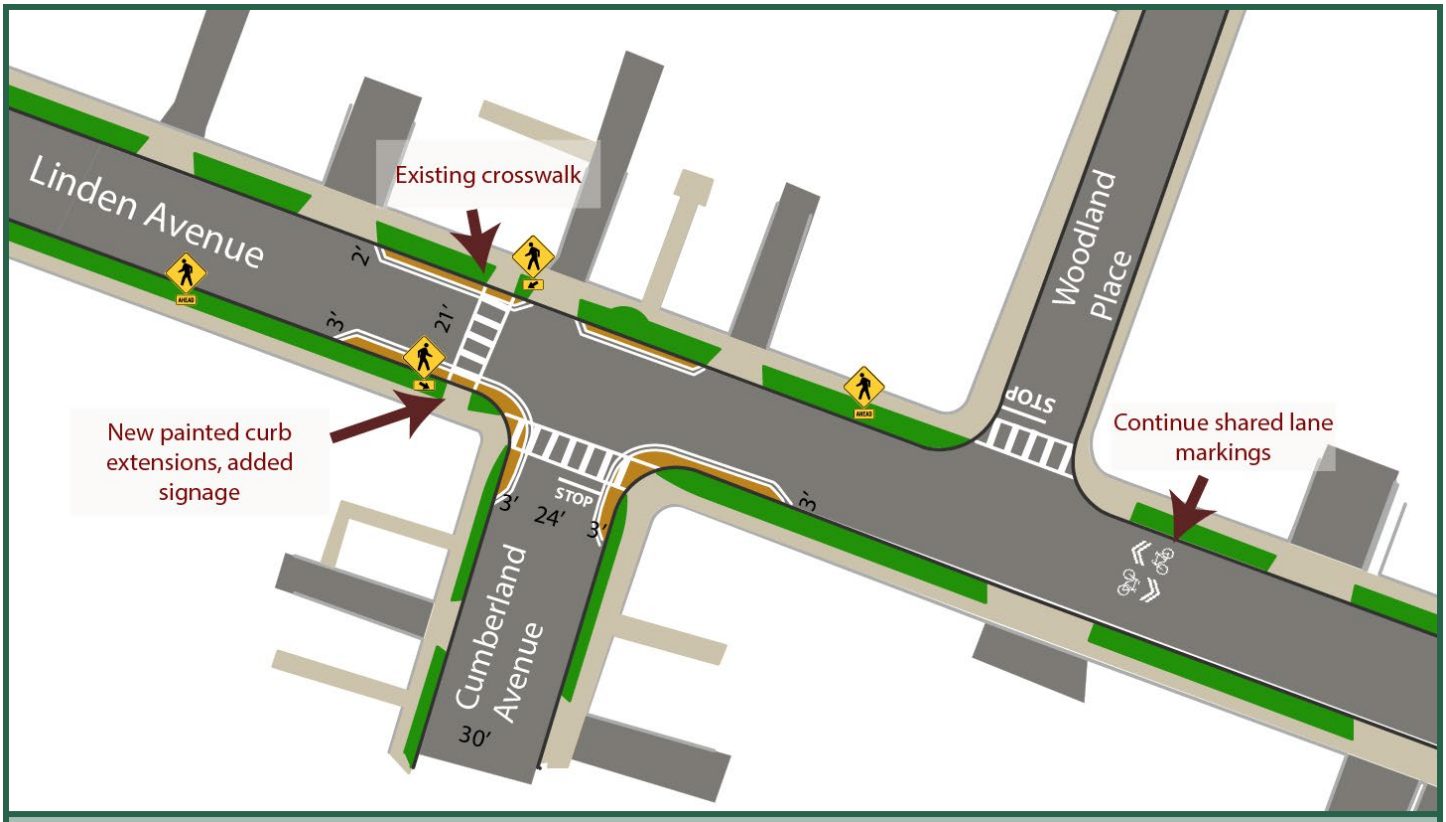


Figure 58. Recommended changes to striping and signage by Cumberland Avenue and Woodland Place.

Figure 59. Recommended changes to striping and signage by Wildwood Terrace.

Temporary Demonstration Local Input

Introduction

To collect community input on the three temporary demonstration projects installed along Linden Avenue, an online questionnaire was conducted. The questionnaire was promoted via flyers posted on the Township's social media and delivered door-to-door in the project area. The online questionnaire was opened concurrently with the installation of the demonstrations on October 15, 2024, and responses were accepted until November 11, 2024. During that period, 692 responses were received, although not all respondents answered all questions. The following is a summary of results. The questionnaire is available in Appendix A.

When interpreting the questionnaire results, it's important to recognize that changes to a roadway are likely to receive an initial negative response from community members, because change can be disruptive. When considering which recommendations to advance, community leaders should balance the community benefits of slower traffic with resident concerns.

In a separate effort, residents circulated their own questionnaire to 200 homes on Linden Avenue and received 74 responses. That survey was focused on perceptions of current safety and potential interventions. While the technical assistance team cannot speak to the survey design and methods, the results shared by the residents indicate a strong concern for speeding and unsafe driving on Linden Avenue. A summary of their findings was shared with the project team, which can be found in Appendix B and is referred to as the "*resident survey*" in the analysis below.

Existing Traffic Safety Conditions

Respondents were asked to rate the previous traffic safety of Linden Avenue (before the demonstration) on a scale from 0 to 10, with 10 being the safest. The corridor received an average score of 5.38.

Perceived Safety of Interventions by Residence of Respondent

For each of the three temporary changes implemented, respondents were asked how they believe the demonstration changed safety on Linden Avenue for pedestrians, bicyclists, and drivers. Respondents chose between "safer," "no change," "less safe," or "did not experience before change." The last option was excluded from this analysis. The results of this question are summarized by residency, specifically "Verona resident, living along Linden Avenue," "Verona resident, living elsewhere in Verona," and "Visitor."

The resident survey asked, "how concerned are you with speeding or unsafe driving on Linden Avenue." Seventy-four percent of respondents stated they were very concerned, with 16 percent selecting somewhat concerned. The resident survey also asked respondents to describe the safety at the intersection of Linden Avenue and Fairview Avenue. Eighty-five percent of respondents selected "very unsafe" (42.5%) or "somewhat unsafe" (42.5%).

Chicanes

For the first temporary change, a chicane treatment with alternating parking, the answers can be seen in Table 3. Most respondents felt that the chicane treatment resulted in less safety for bicyclists and drivers. For pedestrians, a plurality selected "less safe," but "no change" received a similar amount of responses. Visitors felt that the change was "less safe" at a greater rate than Verona residents.

Table 3. Perceived Safety Impact by Resident Group for Chicane Demonstration.

	For pedestrians (n=516)			For bicyclists (n=483)			For drivers (n=541)		
	Less safe	No change	More safe	Less safe	No change	More safe	Less safe	No change	More safe
Living along Linden Avenue	43%	47%	10%	63%	24%	13%	69%	18%	13%
Living elsewhere in Verona	50%	42%	8%	71%	21%	8%	82%	10%	8%
Visitor	48%	36%	16%	83%	4%	13%	80%	8%	12%

Median

Results for the second intervention (a painted median on the Peckman River Bridge) grouped by residency can be seen in Table 4. For pedestrian safety, respondents were divided on whether the median resulted in improved safety or no change. Linden Avenue residents were more likely to feel that the treatment resulted in improved safety compared with those who do not live on Linden Avenue. Respondents were more concerned about the impact of the median on bicyclist safety, with greater percentages stating that the change resulted in less safety. Visitors were more likely to feel that the change decreased safety for bicyclists.

Most Linden Avenue residents stated that they believe the median resulted in improved safety for drivers. While those living elsewhere in Verona or outside Verona still felt that the intervention resulted in less safety, the results were closely split compared with the other modes.

Table 4. Perceived Safety Impact by Resident Group for Chicane Demonstration.

	For pedestrians (n=489)			For bicyclists (n=462)			For drivers (n=503)		
	Less safe	No Change	More Safe	Less safe	No Change	More Safe	Less safe	No Change	More Safe
Living along Linden Avenue	21%	40%	39%	34%	33%	32%	31%	22%	47%
Living elsewhere in Verona	28%	44%	28%	48%	29%	23%	42%	21%	37%
Visitor	33%	39%	28%	59%	6%	35%	40%	15%	45%

Curb Extensions

Results for the third intervention (painted curb extensions at the intersection of Linden Avenue and Derwent Avenue) grouped by residency can be seen in Table 5. Linden Avenue residents viewed the change as more beneficial than the other resident groups, but by a smaller margin than the painted median. All three groups felt the painted curb extensions improved safety for pedestrians while decreasing safety for bicyclists.

Table 5. Perceived Safety Impact by Resident Group for Curb Extension Demonstration.

	For pedestrians (n=475)			For bicyclists (n=447)			For drivers (n=484)		
	Less safe	No Change	More Safe	Less safe	No Change	More Safe	Less safe	No Change	More Safe
Living along Linden Avenue	15%	30%	55%	31%	38%	31%	29%	47%	24%
Living elsewhere in Verona	29%	28%	44%	43%	34%	24%	46%	36%	17%
Visitor	35%	24%	41%	56%	25%	19%	46%	28%	28%

Perceived Safety of Interventions by Travel Mode

Respondents were also asked how they typically travel on Linden Avenue. Respondents were able to select more than one option, hence the higher sample sizes when compared to the previous section which categorized where respondents lived.

Chicanes

For the chicane treatment, responses can be seen in Table 6.

Table 6. Perceived Safety Impact by Travel Mode for Chicane Demonstration.

	For pedestrians (n=756)			For bicyclists (n=699)			For drivers (n=779)		
Travel Mode	Less safe	No change	More safe	Less safe	No change	More safe	Less safe	No change	More safe
Walking	**39%**	**47%**	**14%**	64%	19%	17%	71%	16%	13%
Bike/Scooter	14%	51%	35%	**44%**	**20%**	**36%**	47%	24%	29%
Driving	49%	43%	8%	71%	21%	8%	**80%**	**11%**	**9%**
Passenger	44%	42%	14%	66%	15%	19%	**77%**	**9%**	**14%**

The results show that how a respondent travels the corridor affects their perception of the treatments. For example, 39 percent of respondents who walk on Linden Avenue thought the chicane worsened pedestrian safety, while just 14 percent of respondents who indicated that they bike or scooter on Linden Avenue felt that the demonstration made the street less safe for pedestrians. On the other hand, while 80 percent of drivers felt that the roadway became less safe for automobiles, just 47 percent of those who bicycle along the corridor felt the same way.

Median

For the median treatment, responses can be seen in Table 7 for the perceived safety impact by mode of travel.

Table 7. Perceived Safety Impact by Travel Mode for Median Demonstration.

	For pedestrians (n=756)			For bicyclists (n=699)			For drivers (n=779)		
Travel Mode	Less safe	No change	More safe	Less safe	No change	More safe	Less safe	No change	More safe
Walking	**23%**	**39%**	**38%**	42%	25%	33%	31%	19%	50%
Bike/Scooter	12%	34%	54%	**23%**	**29%**	**48%**	17%	11%	72%
Driving	27%	43%	30%	45%	30%	25%	**39%**	**21%**	**40%**
Passenger	23%	37%	40%	39%	24%	37%	**32%**	**13%**	**55%**

As was the case with the chicane treatment, how a respondent navigates the corridor affected their perception of safety. Once again, bicyclists were most likely to find that the treatments improved safety for all users. Conversely, drivers felt that the change would be less safe for bicyclists. This may be because drivers are less comfortable or familiar with sharing the road with bicyclists.

Curb Extensions

For the curb extensions, responses can be seen in Table 8 for the perceived safety impact by mode of travel.

Table 8. Perceived Safety Impact by Travel Mode for Curb Extensions.

Travel Mode	For pedestrians (n=756)			For bicyclists (n=699)			For drivers (n=779)		
	Less safe	No change	More safe	Less safe	No change	More safe	Less safe	No change	More safe
Walking	**21%**	**27%**	**51%**	33%	37%	30%	31%	44%	25%
Bike/Scooter	6%	26%	68%	**18%**	**30%**	**52%**	21%	35%	44%
Driving	26%	28%	46%	40%	35%	25%	**42%**	**39%**	**19%**
Passenger	26%	23%	51%	42%	23%	35%	**40%**	**33%**	**27%**

Bicyclists again had the most favorable view of the curb extension treatment for all roadway users, finding that it either improved safety or didn't result in a change. Drivers were more negative about the demonstration for all roadway users.

Should the changes be made permanent?

Respondents were asked if they think each change should be permanent, with the choices being "yes" or "no."

Chicanes

For the chicane demonstration, the results seen in Table 9 and Table 10 show that respondents do not want to maintain the treatment. Of note is that bicycle/scooter users were more likely to want to see the treatment be made permanent.

Table 9. Permanence Preference by Resident Group for Chicane Demonstration.

	Yes	No
Living along Linden Avenue	20%	80%
Living elsewhere in Verona	11%	89%
Visitor	19%	81%

Table 10. Permanence Preference by Travel Mode for Chicane Demonstration.

	Yes	No
Walking	20%	80%
Bike/Scooter	46%	54%
Driving	12%	88%
Passenger	16%	84%

Median

When asked if they would like to keep the painted median, respondents in all resident groups leaned more towards permanence for this demonstration than for the chicane. As seen in Table 11, 56 percent of respondents living along Linden Avenue would maintain the treatment. Residents living outside of Linden Avenue, on the other hand, preferred to not keep the treatment. For mode of travel, seen in Table 12, 58 percent of drivers stated that they did not want the median to be made permanent, while pedestrians and bicyclists support maintaining it.

Table 11. Permanence Preference by Resident Group for Median Demonstration.

	Yes	No
Living along Linden Avenue	56%	44%
Living elsewhere in Verona	38%	62%
Visitor	43%	57%

Table 12. Permanence Preference by Travel Mode for Median Demonstration.

	Yes	No
Walking	53%	47%
Bike/Scooter	69%	31%
Driving	42%	58%
Passenger	55%	45%

Curb Extensions

As shown in Table 13, Linden Avenue residents were evenly split in stating whether the curb extensions should remain or not. Those not living on Linden Avenue do not want to see them made permanent. Table 14 shows that drivers do not support maintaining the extensions, while bicyclists are strongly in favor of them. Pedestrians are evenly split.

Table 13. Permanence Preference by Resident Group for Curb Extension Demo.

	Yes	No
Living along Linden Avenue	50%	50%
Living elsewhere in Verona	33%	67%
Visitor	35%	65%

Table 14. Permanence Preference by Travel Mode for Curb Extension Demo.

	Yes	No
Walking	49%	51%
Bike/Scooter	69%	31%
Driving	37%	63%
Passenger	41%	59%

Written Responses

Throughout the questionnaire, written response questions solicited respondents' concerns, comments, and recommendations regarding each change. For each project, respondents were asked to share any thoughts they had about the change and were also asked to provide any other insights regarding all changes as a whole. These questions were optional; respondents were able to leave each section blank if they chose to. Written responses were coded so that similar responses could be combined in the results shown in Tables 15-17.

Chicanes

In the written responses, respondents expressed concern that the chicanes could cause motor vehicle crashes due to road narrowing, poor visibility, and driver unfamiliarity. They also expressed general concerns about traffic congestion and speeding, and suggested speed humps as a traffic-calming alternative.

Table 15. Summary of Written Feedback for Chicane Demonstration.

Chicane feedback	Responses
Dangerous	56
Increased risk of motor vehicle crashes (sideswipes)	56
Too narrow to pass	50
Confusing	47
General dislike	36
Road users are not following traffic rules	26
Other general concerns	**Responses**
Speeding	12
Traffic congestion	10
High school student behavior	2
Suggestions	**Responses**
Speed bumps	17
Increased enforcement	9
Better signage or signals	6

Median

In the written responses, respondents gave favorable comments about the median treatment, stating that it would slow down vehicles and/or make the roadway safer. However, some expressed concerns that it made the roadway too narrow, will not affect behavior, or will make the roadway less safe for pedestrians and bicyclists. As a recommendation, some suggested adding speed bumps and traffic enforcement.

Table 16. Summary of Written Feedback for Median Demonstration.

Median feedback	Responses
Will make road slower/safer	85
Too narrow	39
Won't work	20
Less safe for pedestrians or bicyclists	13
Dangerous	10
Suggestions	**Responses**
Speed bumps	8
Better aesthetics	9
Enforcement	3
Extend to intersection	2

Curb Extensions

In the written responses, some respondents felt that the curb extensions will make the roadway slower and/or safer, while others were concerned that they narrow the roadway too much. Some reported that it increased visibility between drivers and pedestrians, while others expressed a general dislike for the change. As a recommendation, some respondents asked for enhanced signage, particularly a flashing beacon, while others suggested speed bumps or crossing guards.

Other Comments

In the section for general comments, non-specific to the demonstration projects, some respondents re-emphasized frustrations about the roads being narrowed and worsening safety for drivers, while others expressed a positive view of the changes and the project overall. Twenty-four respondents restated their suggestions to implement speed bumps or speed tables, and others did the same regarding increasing traffic enforcement and adding additional traffic signals.

Table 17. Summary of Written Feedback for Curb Extension Demo.

Curb Extension feedback	Responses
Too narrow	37
Will make road slower/safer	33
General dislike	18
More visibility for drivers and/or pedestrians	16
Harder to make turns	8
Suggestions	**Responses**
Flashing signal	8
Crossing guard	3
Speed bumps	3

Table 18. Summary of Other Comments.

Median feedback	Responses
General dislike	36
General positive comments	16
Aesthetics	5
Suggestions	**Responses**
Speed bumps	24
Enforcement	14
Add traffic signals	10
Add stop signs	4

Additional Recommendations

1. Adopt a Complete Streets Policy or Ordinance

Adopting a Complete Streets policy or ordinance is an important first step toward implementing Complete Streets, as it defines the meaning of Complete Streets, establishes goals, and lays out the ways in which the municipality will accomplish the goals. Adopting a Complete Streets policy represents a commitment by a municipality to apply Complete Streets principles and goals to all transportation decisions.

Having a Complete Streets policy earns a municipality extra consideration on certain state grant applications. Municipalities that are seeking Sustainable Jersey certification earn points for adopting and instituting a policy. NJDOT offers a guide to policy development and a separate guide on how to create an implementation plan. These resources are among those available at http://njbikeped.org/complete-streets-resources/. NJDOT also offers a model policy guide, which should be used as a template for a new municipal policy (https://njbikeped.org/wp-content/uploads/2022/08/CS_Model_Policy_2020-R.pdf). A policy can be strengthened by enacting it as a municipal ordinance. The guide also provides example text for doing so.

2. Provide and Maintain High-Quality Pedestrian Infrastructure

The neighborhood surrounding the study corridor is well suited for walking, thanks to the interconnected nature of its streets and proximity to the downtown commercial district. However, unmaintained or narrow sidewalks can make walking a challenge (Figure 60). While most sidewalks were observed to be in good condition, the Township should work with property owners to ensure that sidewalks in poor condition are rebuilt to provide a continuous pedestrian route.

Figure 60. Uplifted sidewalk.

3. Add and Maintain Street Trees

Street trees improve pedestrian comfort by providing shade and creating a buffer between moving vehicles and the sidewalk. In addition, they provide aesthetic and air quality benefits and help to absorb stormwater.

The Township, working through the Shade Tree Commission and in partnership with property owners, should proactively seek to maintain existing street trees, add new street trees where they are lengthy gaps, and replace street trees that are removed due to disease or storm damage. Additionally, reducing impervious surfaces and adding green infrastructure, such as the use of stormwater tree pits or rain gardens, can help mitigate localized flooding.

4. Quick-build implementation

Curb extensions were recommended throughout the corridor. In the short term, this can be done using low-cost materials, as installed for the demonstrations (Figure 61). As funding allows, the Township can upgrade the project to a permanent installation, which can include the addition of green infrastructure.

Figure 61. Quick-build curb extension.

5 Lighting

A lighting study was not conducted as part of this project, and the study area was not visited at night. However, the project team did notice that streetlights are placed far apart, and many intersections lack well-positioned overhead lights. Crashes occurring at night are significantly more likely to result in fatalities than those in daylight conditions. Lighting increases the visibility of all roadway users and is a way to systematically improve safety. As such, lighting is an FHWA Proven Safety Countermeasure[5]. In addition, lighting of pedestrian spaces can encourage nighttime use by alleviating personal safety concerns.

Figure 62. Lighting illustration by DarkSky.

Lighting can also have negative environmental and community impacts, such as glare, light pollution, disturbance of adjacent properties, undesirable aesthetic impacts, and disruption of wildlife. Therefore, the amount, type, and placement of any additional lighting should be carefully considered to provide a safety benefit while also minimizing these impacts (Figure 62). The Borough should consider providing additional lighting in strategic locations, especially at intersections. Between Ocean Avenue and B Street, the utility poles are spread out, which means any new lighting will require new supports. Between B Street and D Street, utility poles are more frequent. Existing utility poles by the playground provide an opportunity to add lighting to enable evening use of the playground if desired.

5. https://safety.fhwa.dot.gov/roadway_dept/night_visib/docs/Pedestrian_Lighting_Primer_Final.pdf

Conclusion

Linden Avenue is an attractive residential roadway that also serves as an important east-west connection as it is just one of two roadways with a bridge over the Peckman River. Local officials interested in addressing resident concerns about speeding and cut-through traffic applied to the CSTA Program to audit current conditions and develop recommendations for potential improvements. As part of this assistance, local stakeholders received an educational workshop on Complete Streets and participated in a Walkable Community Workshop. The project also included assisted the Township with a traffic calming temporary demonstration project that included chicanes, a median, and curb extensions, allowing the Township to trial three different traffic calming techniques.

This report identifies several recommendations that could discourage unsafe driving behaviors and improve pedestrian and bicycle access to destinations using a range of designs consistent with the New Jersey Complete Streets Design Guide. High-visibility crosswalks, curb extensions, green infrastructure, lighting, and modifications to striping could improve the walkability and bikeability of the area while encouraging more people to walk and bike for transportation. Chicanes, medians, and curb extensions were tested for effectiveness, feasibility, and to collect community feedback. These are recommended for permanent installation, with design adjustments to address lessons learned and community feedback received during the demonstration. Thanks to extensive feedback provided by local residents through an online questionnaire, Verona is now better equipped to move forward with improvements that enhance safety.

Some of the recommendations relate to policies and maintenance, such as adopting a Complete Streets policy. Others can be implemented during periodic maintenance, such as by upgrading crosswalk striping and ADA curb ramps during routine roadway resurfacing. More intensive and costly roadway changes, such as curb extensions, stormwater tree pits, and green infrastructure, may be best suited for competitive funding grants. A list of funding sources that can be used by municipalities to implement pedestrian and bicycle improvements is included as Appendix E.

While the recommendations in this plan were limited to Linden Avenue, Verona should identify other roadways that can receive similar treatments to improve safety throughout the entire Township.

Figure 63. Verona municipal complex.

Appendix

A. Online Questionnaire

B. Resident Survey

C. Workshop Flyers

D. Workshop Agenda and Field Audit Form

E. Potential Funding Resources

F. Design Resources

A. Online Questionnaire

Start of Block: Default Question Block

Q0 **Verona - Linden Avenue Traffic Calming Questionnaire**

Q1
This questionnaire is intended to get local input on the three traffic calming improvements installed in October 2024 along Linden Avenue, between Fairview Avenue and Derwent Avenue, in Verona. The goal of this demonstration is to improve safety and discourage cut-through traffic. If these improvements are successful, they could be made permanent, and similar installations could be added along other roadways in Verona. Since the installation is temporary, it is easy to remove it or modify it. To view the project flyer, click here.

This project is part of the Complete Streets Technical Assistance Program, which supports municipal government efforts to advance Complete Streets initiatives in northern New Jersey. A Complete Street is one that is safe and accessible to users of all ages and abilities. Verona is one of five towns to participate in the program, which is funded by the North Jersey Transportation Planning Authority. To learn more about the program visit https://www.njtpa.org/completestreets.

Your participation in this survey is voluntary. By completing this survey, you will be contributing to knowledge surrounding the use, community perspective, and safety of pedestrian and bicyclist infrastructure in Verona, NJ. If you choose to take part now, you may exit the survey at any point. In addition, you can choose to skip questions that you do not wish to answer. If you do not click on the 'submit' button after completing the form, your responses will not be recorded. If you do not wish to take part in the research, close this webpage.

If you have questions about this questionnaire, you can contact bikeped@ejb.rutgers.edu.

I acknowledge that I have read and understand the information. I agree to take part in the research, with the knowledge that I am free to withdraw my participation without penalty.

Click on the "Start Survey" button to confirm your agreement to participate in the questionnaire.

End of Block: Default Question Block

Start of Block: Block 1

Q2 Are you a... (**select <u>all</u> that apply**)

- ☐ Verona resident, living along Linden Avenue (1)
- ☐ Verona resident, living elsewhere in Verona (2)
- ☐ Student at a local school (5)
- ☐ Municipal Employee / Police Officer / Councilperson in Verona (6)
- ☐ Work or own a business in Verona (7)
- ☐ Visitor (8)
- ☐ Other (9) _____

Q3 How often do you visit Linden Avenue, between Fairview Avenue and Derwent Avenue?

- ○ Daily (1)
- ○ Frequently (several times per week) (2)
- ○ Infrequently (less than once a week) (4)
- ○ First time (5)

Q4 How do you usually travel through Linden Avenue, between Fairview Avenue and Derwent Avenue ? (**select all that apply**)

- ☐ Walking (including with a mobility device like a walker or wheelchair) (1)
- ☐ Bicycling / Scootering (2)
- ☐ Driving (3)
- ☐ Passenger in a car or bus (4)

Q5 I would rate the **previous** traffic safety (before the demonstration) of Linden Avenue as:

	Unsafe			Neutral				Safe		
	0	1	2	3	4	5	6	7	8	9	10
Move slider to select your answer ()											

End of Block: Block 1

Start of Block: Block 2

Q6 Verona is evaluating three changes along Linden Avenue. This section will ask you about the first change.

Between Fairview Avenue and Grove Avenue, curbside parking has been modified to alternate between the north and south side of the roadway. The purpose of this change is to prevent drivers from accelerating rapidly in a straight line.

(Insert picture here)

Q7 Compared to how Linden Avenue (between Fairview Avenue and Grove Avenue) was before the demonstration, do you think the changes made to parking make it:

	More safe (1)	Less safe (2)	No change (3)	Did not experience before change (4)
For pedestrians (1)	○	○	○	○
For bicyclists (2)	○	○	○	○
For drivers (3)	○	○	○	○

Q8 Use this space if you would like to tell us how you feel the temporary parking changes have, or have not, impacted safety:

_____

_____

_____

Q9 Compared to how Linden Avenue (between Fairview Avenue and Grove Avenue) was before was before, do you think the changes to parking makes it:

- ○ More attractive/welcoming (1)
- ○ Less attractive/welcoming (2)
- ○ No change (3)
- ○ Did not experience before (4)

Q10 Use this space if you would like to tell us how you feel the temporary parking changes have, or have not, impacted the attractiveness or welcoming feeling of the area:

_____

_____

_____

Q11 Do you think the change to parking should be made permanent?

- Yes (1)
- No (2)

Q12 Use this space if you would like to tell us why:

_____

_____

_____

Q13 Do you think similar changes to parking should be installed at other locations in Verona?

- Yes (1)
- No (2)

Q14 If yes, do you have a specific location in mind?

_____

End of Block: Block 2

Start of Block: Block 3 - Median

Q23 Verona is evaluating three changes along Linden Avenue. This section will ask you about the **second** change.

On the Peckman River Bridge, a painted median has been added. As parking is not allowed on and adjacent to the Peckman River Bridge, the travel lanes widen to 15-feet in each direction, which encourages faster driving. The painted median narrows the travel lanes to 11-feet in each direction. Vertical posts have been added to clarify the installation during the demonstration period and to prevent vehicles from driving over the painted median. This installation does not affect parking or access to driveways.

(Insert picture here)

Q24 Compared to how Linden Avenue (over the Peckman River Bridge) was before, do you think the painted median makes it:

- ○ More safe (1)
- ○ Less safe (2)
- ○ No change (3)
- ○ Did not experience before change (4)

Q7 Compared to how Linden Avenue (between Fairview Avenue and Grove Avenue) was before the demonstration, do you think the temporary painted median made it:

	More safe (1)	Less safe (2)	No change (3)	Did not experience before change (4)
For pedestrians (1)	○	○	○	○
For bicyclists (2)	○	○	○	○
For drivers (3)	○	○	○	○

Q25 Use this space if you would like to tell us how you feel the temporary median has, or has not, impacted safety:

_____

_____

_____

Q26 Compared to how Linden Avenue (over the Peckman River Bridge) was before was before, do you think the painted median makes it:

- More attractive/welcoming (1)
- Less attractive/welcoming (2)
- No change (3)
- Did not experience before (4)

Q27 Use this space if you would like to tell us how you feel the temporary median has, or has not, impacted the attractiveness or welcoming feeling of the area:

_____

_____

_____

Q28 Do you think the painted median should be made permanent?

- Yes (1)
- No (2)

Q29 Use this space if you would like to tell us why:

_____

_____

_____

Q30 Do you think additional painted medians should be installed at other locations in Verona?

- Yes (1)
- No (2)

Q31 If yes, do you have a specific location in mind?

_____

End of Block: Block 3 - Median

Start of Block: Block 4 - Curb Extensions

Q32 Verona is evaluating three changes along Linden Avenue. This section will ask you about the **third** change.

At the intersection of Linden Avenue and Derwent Avenue, a painted curb extension has been added.

Curb extensions reduce the crossing distance for pedestrians, narrow the roadway to reduce speeds, and improve sightlines by helping to enforce existing parking prohibitions near the intersection. This installation does not affect parking or access to driveways.

(Insert picture here)

Q33 Compared to how the intersection of Linden Avenue and Derwent Avenue was before the demonstration, do you think the painted curb extensions makes it:

	More safe (1)	Less safe (2)	No change (3)	Did not experience before change (4)
For pedestrians (1)	○	○	○	○
For bicyclists (2)	○	○	○	○
For drivers (3)	○	○	○	○

Q34 Use this space if you would like to tell us how you feel the temporary curb extensions have, or have not, impacted safety:

_____

_____

_____

Q35 Compared to how the intersection of Linden Avenue and Derwent Avenue was before, do you think the painted curb extensions makes it:

- ○ More attractive/welcoming (1)
- ○ Less attractive/welcoming (2)
- ○ No change (3)
- ○ Did not experience before (4)

Q36 Use this space if you would like to tell us how you feel the temporary curb extensions have, or has have, impacted the attractiveness or welcoming feeling of the area:

_____

_____

_____

Q37 Do you think the painted curb extensions should be made permanent?

- Yes (1)
- No (2)

Q38 Use this space if you would like to tell us why:

_____

_____

_____

Q39 Do you think additional painted curb extensions should be installed at other locations in Verona?

- Yes (1)
- No (2)

Q40 If yes, do you have a specific location in mind?

_____

End of Block: Block 4 - Curb Extensions

Start of Block: Block 5

Q16 What year were you born?

- Enter year (1) _____

Q17 With which race do you **most** identify with? (Select one)

- Black or African American (1)
- White (2)
- American Indian or Alaska Native (3)
- Asian (4)
- Native Hawaiian or Pacific Islander (5)
- Not listed (6)
- Two or more races (7)
- Prefer not to answer (8)

Q18 Are you Hispanic or Latino?

- Yes (1)
- No (2)
- Prefer not to answer (3)

Q19 Which most closely describes your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / Non-conforming (3)
- ○ Not listed (4)
- ○ Prefer not to answer (5)

Q15 Any other comments or input you would like to share?

_____

_____

_____

_____

_____

End of Block: Block 5

B. Resident Survey

Linden Avenue Traffic/Safety Survey

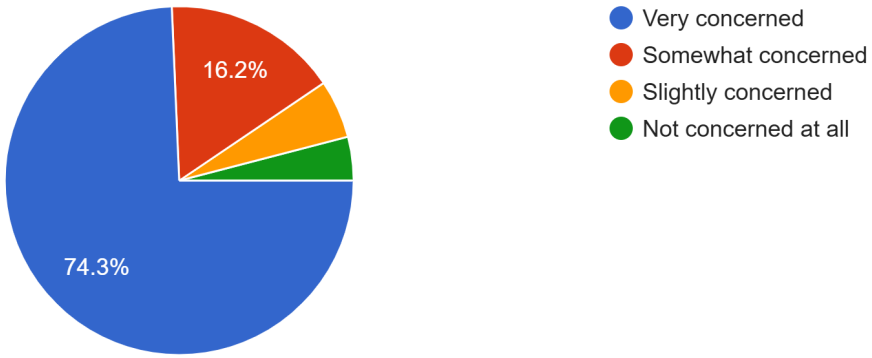
In response to the town's recent implementation of a temporary traffic calming demonstration on Linden Avenue—which, while appreciated, was found ineffective by residents—the community decided to take action.

To gather local perspectives and advocate for meaningful improvements, we developed and distributed a survey to all 200 households on Linden Avenue. With 74 responses, the survey provides valuable insight into the community's concerns and priorities regarding street safety.

Question 1

How concerned are you about speeding or unsafe driving on Linden Avenue?

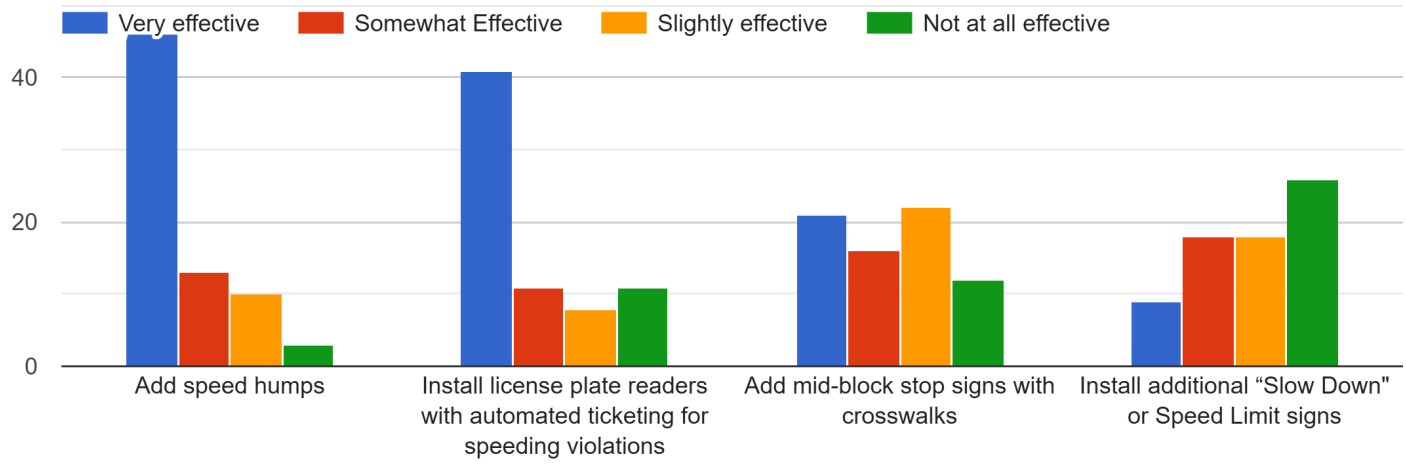
74 responses



Survey results show that a substantial majority of residents are deeply worried about speeding and unsafe driving on Linden Avenue. Specifically, 74.3% of respondents are *very concerned*, with an additional 16.2% *somewhat concerned*. Together, **these numbers reflect over 90% of residents who believe this is a pressing issue that requires immediate action**. Only a small percentage, 5.4%, indicated they were *slightly concerned*, and 4.1% reported they were *not concerned at all*. This data demonstrates a clear and strong call for changes that will improve safety on Linden Avenue.

Question 2

For each of the following safety measures, please click the button that best reflects how effective you believe it would be in improving safety on Linden Avenue.



Summary of comments (general traffic safety on Linden Ave):

- Based on survey responses, speed humps emerged as the most favored solution for reducing speeding along Linden Avenue. Many respondents specifically mentioned speed humps in the comments as a potential measure to improve safety. While there are mixed feelings about their use—some residents noted their personal dislike of speed humps—they also recognized that this measure may be necessary to effectively address the speeding issue.

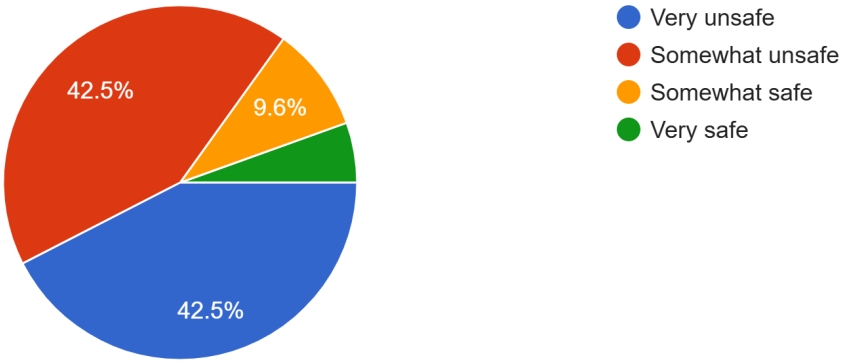
- Additionally, many survey respondents identified license plate readers with ticketing as a potentially effective measure to reduce speeding; however, we have since learned that such use of license plate readers may not be legal in New Jersey. Some residents expressed opposition to license plate readers, ticket machines, and mid-block stop signs, citing privacy concerns and potential inconvenience.

  Despite these differing opinions, there was a strong call for increased police presence to enforce speed limits and traffic laws. Residents suggested measures such as speed traps, double fines during school hours, and regular ticketing as effective ways to deter speeding.

Question 3

How would you describe the safety at the intersection of Linden Ave and Fairview Ave?

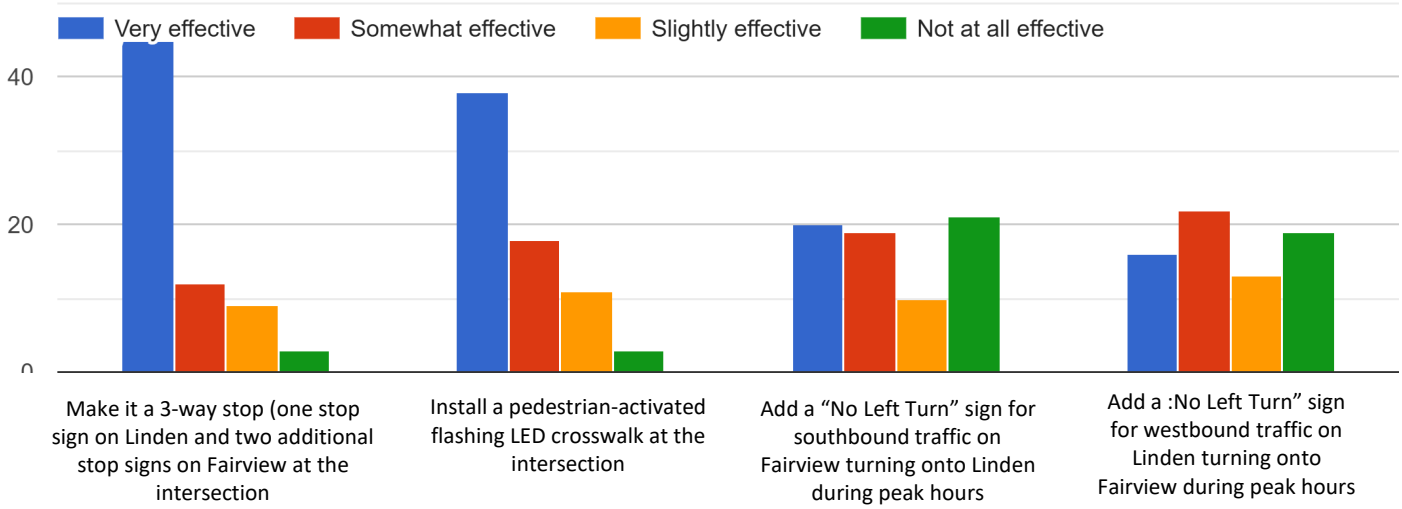
73 responses



Survey responses reveal a clear concern about safety at the intersection of Linden Avenue and Fairview Avenue, **with 85% of respondents describing it as either *very unsafe* (42.5%) or *somewhat unsafe* (42.5%).** Only a small portion of residents view the intersection as safe, with 9.6% indicating it is *somewhat safe* and just 5.5% considering it *very safe*. This feedback highlights a strong community perception of risk at this location, underscoring the need for safety improvements.

Question 4

For each of the following safety measures, please click the button that best reflects how effective you believe it would be in improving safety at the intersection of Linden Avenue and Fairview Avenue.



Summary of comments (Fairview/Linden intersection):

- The two most popular safety measures identified by respondents for improving safety at the intersection at Fairview and Linden were the addition of a 3-way stop and the installation of pedestrian-activated LED crosswalk sign

- Residents reported hearing honking, cursing, and screeching tires as drivers attempting left turns onto Fairview encounter continuous traffic with few breaks. Some suggested reducing the speed limit to 25 mph near the high school to help alleviate this issue.

- A successful traffic improvement (new 3-way stop) at the intersection of Upper Mountain Road (a county road similar to Fairview) and Bellevue Ave in Montclair, suggests that similar measures could be applied to the Linden and Fairview intersection.

- To prevent hazardous conditions, residents proposed prohibiting drivers from using the shoulder to pass vehicles turning left onto Linden Avenue. This practice creates dangerous situations for both turning vehicles and oncoming traffic.

- Parking restrictions near the Linden and Fairview intersection were frequently suggested to improve visibility. Residents noted that when cars park close to the intersection, it becomes especially challenging to make a safe turn onto Fairview. Proposed solutions include moving allowable parking further from the corners, painting curbs yellow to indicate parking restrictions, and designating specific areas, such as around the mailbox, as 'No Standing' zones.“

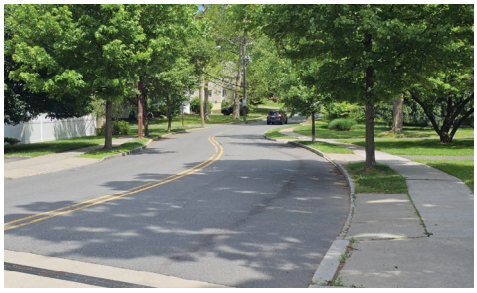
- Concerns for pedestrian safety were emphasized, particularly for school children. Ideas included adding a blinking yellow light that is active during school hours.

- While residents appreciate the crossing guard’s presence on the Fairview/Linden corner, some note that drivers often ignore her, especially when making difficult left turns. Additional safety measures may help to support her role.

C. Workshop Flyers

WALKABLE COMMUNITY WORKSHOP

Thursday, October 24, 2024, 1:00 pm to 4:00 pm
Verona Municipal Building, 600 Bloomfield Ave, Verona, NJ 07044



Join us to address walkability, bikeability, and the ongoing Temporary Demonstration Project on Linden Avenue, between Fairview Avenue and Wildwood Terrace!

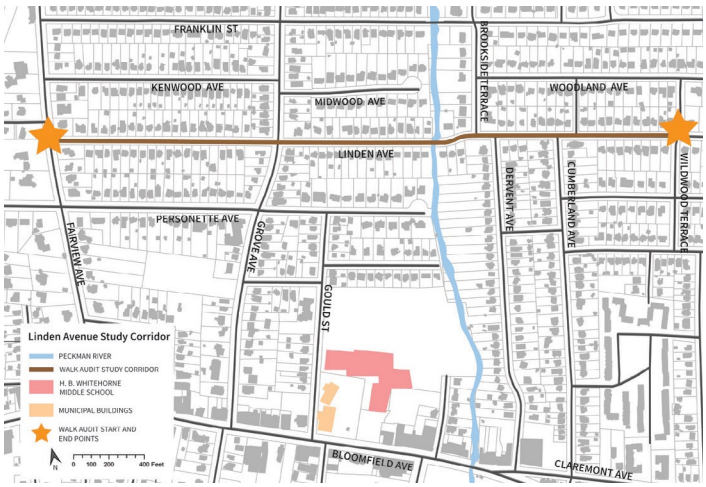
Verona wants your input on how to improve Linden Avenue!

A Walkability Workshop engages Township employees, residents, and businesses in a discussion about walking and biking. After learning about what to look for, workshop participants will walk a half-mile corridor, assessing existing streets and sidewalks and identifying issues to overcome to ensure safer and more welcoming conditions for pedestrians and bicyclists. After the workshop, a report will be prepared with recommendations on improvements to address key locations and issues identified in the workshop.

The workshop and audit will also provide an opportunity to see and talk about the ongoing Temporary Demonstration Project. Learn why these changes have been put in place, and let Verona know what is working well or what needs improvement.

This effort is part of the Complete Streets Technical Assistance Program, 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.

To register for this workshop, visit:
https://go.rutgers.edu/verona



WORKSHOP AGENDA

1:00 - 2:00 pm
Classroom Training

2:00- 3:00 pm
Walking Audit

3:30- 4:00 pm
Report Back and Next Steps

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

SUSTAINABLE JERSEY
CERTIFIED

RUTGERS–NEW BRUNSWICK
Edward J. Bloustein School of Planning and Public Policy
Alan M. Voorhees Transportation Center

VERONA NEW JERSEY

D. Workshop Agenda and Field Audit Form

RUTGERS–NEW BRUNSWICK
Edward J. Bloustein School of Planning and Public Policy
Alan M. Voorhees Transportation Center

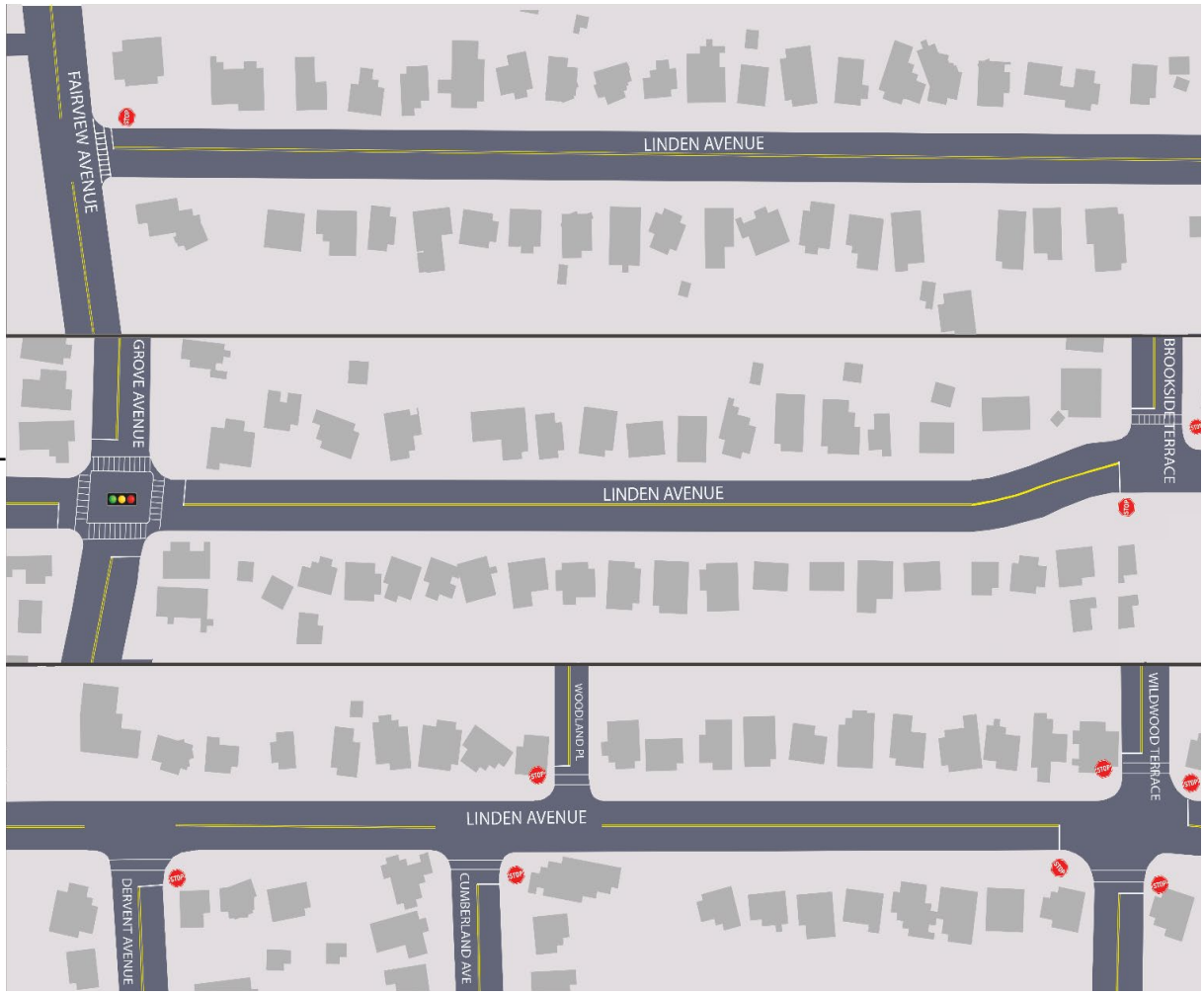
NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

SUSTAINABLE JERSEY
CERTIFIED
A Better Tomorrow, One Community at a Time

Linden Avenue Walking Audit

Verona, NJ

October 24, 2024



This effort is part of the Complete Streets Technical Assistance Program, 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.

WALKING EXPERIENCE

Street Segment 1: Linden Avenue between Fairview Avenue and Grove Avenue
Temporary Demonstration: Street parking alternated to create chicanes

Please indicate how much you agree with the following statements:

1 = Disagree 2 = Somewhat Disagree 3 = Somewhat Agree 4 = Agree

	1	2	3	4
1. Now and historically, motorists are respectful of my presence (yield to me at intersections, drive at a safe speed, look before turning or exiting a driveway, etc.). Notes:				
2. I feel visible and safe from crime while walking along this segment.				
Notes:				
3. The street is friendly and inclusive to people walking of all ages and physical abilities; sidewalks are well-maintained, smooth, and wide enough to walk comfortably alongside another person.				
Notes: 4. Intersection design elements (ADA accessible curb ramps, pedestrian signals, well-marked crosswalks, curb extensions, etc.) are all present and make me feel safe while approaching and crossing the intersection. Notes:				
5. The street includes consistent tree coverage, attractive landscaping, interesting/important destinations, and a consistent and interesting mix of buildings fronts (porches, windows, stoops, etc.) to invite walking.				
Notes:				
6. Amenities for a wide number of street users are available (bike racks, public seating, etc.) and are comfortable to use.				
Notes:				

WALKING EXPERIENCE

Street Segment 2: Linden Avenue between Grove Avenue and Brookside Terrace
Temporary Demonstration: Painted median on Peckman River Bridge

Please indicate how much you agree with the following statements:

1 = Disagree **2 = Somewhat Disagree** **3 = Somewhat Agree** **4 = Agree**

	1	2	3	4
1. Now and historically, motorists are respectful of my presence (yield to me at intersections, drive at a safe speed, look before turning or exiting a driveway, etc.). Notes:				
2. I feel visible and safe from crime while walking along this segment.				
Notes:				
3. The street is friendly and inclusive to people walking of all ages and physical abilities; sidewalks are well-maintained, smooth, and wide enough to walk comfortably alongside another person.				
Notes: 4. Intersection design elements (ADA accessible curb ramps, pedestrian signals, well-marked crosswalks, curb extensions, etc.) are all present and make me feel safe while approaching and crossing the intersection. Notes:				
5. The street includes consistent tree coverage, attractive landscaping, interesting/important destinations, and a consistent and interesting mix of buildings fronts (porches, windows, stoops, etc.) to invite walking.				
Notes:				
6. Amenities for a wide number of street users are available (bike racks, public seating, etc.) and are comfortable to use.				
Notes:				

WALKING EXPERIENCE

Street Segment 3: Linden Avenue between Brookside Terrace and Wildwood Terrace
Temporary Demonstration: Curb extensions at Derwent Avenue intersection

Please indicate how much you agree with the following statements:

1 = Disagree 2 = Somewhat Disagree 3 = Somewhat Agree 4 = Agree

	1	2	3	4
1. Now and historically, motorists are respectful of my presence (yield to me at intersections, drive at a safe speed, look before turning or exiting a driveway, etc.). Notes:				
2. I feel visible and safe from crime while walking along this segment.				
Notes:				
3. The street is friendly and inclusive to people walking of all ages and physical abilities; sidewalks are well-maintained, smooth, and wide enough to walk comfortably alongside another person.				
Notes: 4. Intersection design elements (ADA accessible curb ramps, pedestrian signals, well-marked crosswalks, curb extensions, etc.) are all present and make me feel safe while approaching and crossing the intersection. Notes:				
5. The street includes consistent tree coverage, attractive landscaping, interesting/important destinations, and a consistent and interesting mix of buildings fronts (porches, windows, stoops, etc.) to invite walking.				
Notes:				
6. Amenities for a wide number of street users are available (bike racks, public seating, etc.) and are comfortable to use.				
Notes:				

E. Potential Funding Resources

This appendix provides a list of 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. This appendix also includes links to two online databases with additional funding sources. The grants listed are highly competitive; grant application requirements should be carefully reviewed before deciding to apply. Incomplete grant applications may be automatically rejected. The most successful applications tell the story of the populations most in need of the proposed improvements, especially traditionally underserved or vulnerable populations. Applications should use compelling pictures, data, and other documentation, and indicate how and why the project was selected.

New Jersey Department of Transportation

The Division of Local Aid and Economic Development at the New Jersey Department of Transportation (NJDOT) administers funds to local public agencies such as county and municipal governments for construction projects to improve the state's transportation system. Grant support and technical assistance is provided through the Local Aid Resource Center's Help Desk (https://njdotlocalaidrc.com/). The New Jersey Transportation Trust Fund and the 2021 Bipartisan Infrastructure Law provide the opportunity for funding assistance to local governments for road, bridge, and other transportation projects. While NJDOT and the three metropolitan planning organizations that cover the state administer many federal aid programs, including Transportation Alternatives and Safe Routes to School, the USDOT administers some grant programs directly. 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 New Jersey municipalities 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://njdotlocalaidrc.com/state-funded-programs/municipal-aid

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://njdotlocalaidrc.com/state-funded-programs/county-aid

Bikeways: This program provides funds to counties and municipalities to promote bicycling as an alternate mode of transportation in New Jersey. A primary objective of the Bikeway Grant Program is to support the State's goal of constructing 1,000 new miles of dedicated bike paths that are physically separated from vehicle traffic. Learn more here: https://njdotlocalaidrc.com/state-funded-programs/bikeways

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, to promote increased usage of transit by all segments of the population and decrease private vehicle use. Learn more here: https://njdotlocalaidrc.com/state-funded-programs/safe-streets-to-transit

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 NJDOT Commissioner and the inter-agency Transit Village Task Force to be eligible to apply. Learn more here: https://njdotlocalaidrc.com/state-funded-programs/transit-village

Other NJDOT Assistance

Bicycle and Pedestrian Planning Assistance (BPPA): NJDOT offers local planning assistance through the Bureau of Safety, Bicycle, and Pedestrian Programs. Under the BPPA program, on-call consultants are paired with communities to complete a variety of projects, including bicycle and pedestrian plans, safety assessments, trail feasibility studies, and improvement plans for traffic calming projects. Priority is given to traditionally underserved communities and those with a documented safety concern. For more information, please contact the NJDOT Bicycle and Pedestrian Coordinator at bikeped@dot.nj.gov.

State-Administered Federal Aid Infrastructure Grant Programs

Transportation Alternatives Program: The Transportation Alternatives Program is a set-aside of the Surface Transportation Block Grant Program, and it is sometimes referred to as TA Set-Aside. It 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, are a Targeted Urban Municipality, or are a designated Transit Village. Learn more here: https://njdotlocalaidrc.com/federally-funded-programs/transportation-alternatives

Safe Routes to School: The Safe Routes to School Program is funded through the Federal Highway Administration's (FHWA) Federal Aid Program and is being administered by the NJDOT, in partnership with the North Jersey Transportation Planning Authority (NJTPA), the Delaware Valley Regional Planning Commission (DVRPC), and the South Jersey Transportation Planning Organization (SJTPO). The program provides federal funds for infrastructure projects that enable and encourage children in grades K-12, 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 Streets Policy, and Transit Village designation. Learn more here: https://njdotlocalaidrc.com/federally-funded-programs/safe-routes-to-school

Recreational Trails Program: The Recreational Trails Grant 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. The program is currently on hold as it undergoes revisions. Learn more and get notified of future grant opportunities here: https://dep.nj.gov/greenacres/trails-program-home/

Federal Highway Administration-Administered Federal Aid Infrastructure Grant Programs

The Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act of 2021 (IIJA), and the Inflation Reduction Act of 2022 (IRA) established new funding programs that can be helpful for county and municipal governments looking to fund Complete Streets and other safety and active transportation projects. The new funding generally requires a 20 percent local match on a cost-reimbursement basis. In other words, for every dollar spent within the grant's budget, up to 80 cents will be eligible for reimbursement by the federal government. Eligible entities apply for grants directly to the United States Department of Transportation through the grants.gov online portal.

Safe Streets and Roads for All Program (SS4A): This program was established out of the Infrastructure Investment and Jobs Act of 2021 (IIJA). It funds planning and implementation of projects and strategies which share a goal of eliminating roadway deaths and serious injuries. Many Complete Streets-related measures are eligible. Funding can be used to produce a comprehensive safety action plan, undergo demonstration projects, and implement permanent measures. Congress has appropriated $5 billion to the program through fiscal year 2026, and all grants require a 20 percent local match. The SS4A program supports the National Roadway Safety Strategy and the United States Department of Transportation's goal of zero deaths and serious injuries on our nation's roadways. Counties, municipalities, and other non-State government entities are eligible to apply. Applications for the 2023 fiscal year are due on July 10, 2023. More information is available here: https://www.transportation.gov/grants/SS4A

Reconnecting Communities Pilot Program (RCP): The Reconnecting Communities Pilot Program was established by the Infrastructure Investment and Jobs Act of 2021 (IIJA). The program aims to correct wrongs of past transportation projects that have isolated or otherwise cut off communities from jobs and other amenities. Ideal projects improve access in one or more ways, increasing opportunities for residents of impacted communities. Congress has appropriated $1 billion for this program through fiscal year 2026. States, counties, and local units of government are eligible to apply for funding to plan and implement projects on facilities of which the applicant is the owner. Non-owners may apply for planning grants, as well as capital construction grants, provided that the facility owner has appropriately endorsed the application. All grants require a 20 percent local match. More information is available here: https://www.transportation.gov/grants/reconnecting-communities

Thriving Communities Program (TCP): The Thriving Communities Program provides technical assistance to governments and transit agencies. The program focuses on communities that have suffered historic disinvestment and lack the resources and capacity to successfully engage, develop, design, and deliver infrastructure projects. The program provides planning, technical assistance, and capacity building to better navigate federal requirements, identify financing and funding opportunities, and grow long-term capacity to leverage transportation investments to achieve broader economic and community development goals. More information is available here: https://www.transportation.gov/grants/thriving-communities

Neighborhood Access and Equity Grant Program: This program was created by the Inflation Reduction Act of 2022 (IRA). Much of the eligibility and criteria are similar to the Reconnecting Communities Pilot (RCP, see above). It appropriates an additional $1.8 billion to reconnecting communities.

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 about grant opportunities here: https://www.sustainablejersey.com/grants/

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/

Funding from Other Sources

Various other funding sources exist that may help municipalities further cComplete 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:

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

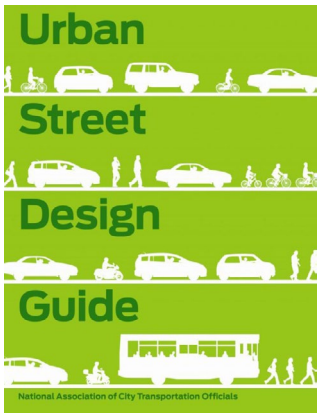
New Jersey Transportation Infrastructure Bank (NJTIB): The NJTIB is an independent State Financing Authority responsible for providing and administering low interest rate loans to qualified municipalities, counties, and regional authorities in New Jersey. The unique partnership with NJDOT was established with the mission of reducing the cost of financing transportation projects in the state. Learn more here: https://www.njib.gov/njtib

County and Municipal Capital Programs: In the case where alternative funds are not available but there is community consensus and political will to move forward with a project, county and municipal capital programs should be considered. Local budgets may have the ability to support some projects, especially if other state and federal programs provide budget relief in other areas.

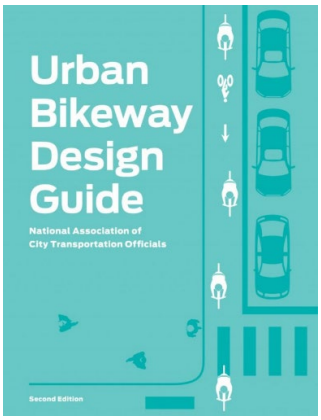
County and Municipal Open Space Trust Funds: All New Jersey counties and many New Jersey municipalities have an Open Space Trust Fund, which is a dedicated program supporting open space land acquisition. The trust funds are established by ballot measure. Depending on the fund parameters, other development projects can be eligible including trails, historical preservation, and farmland protection. For a database of ballot measures descriptions with amount of Open Space Trust Funds, visit the Trust for Public Lands LandVote Database. https://tpl.quickbase.com/db/bbqna2qct?a=dbpage&pageID=8

F. Design Resources

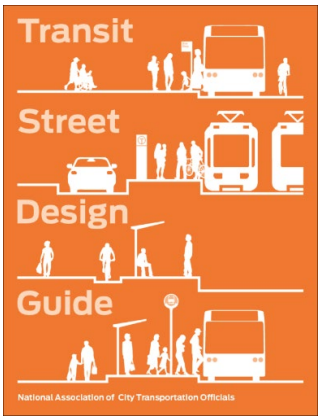
NACTO Guides



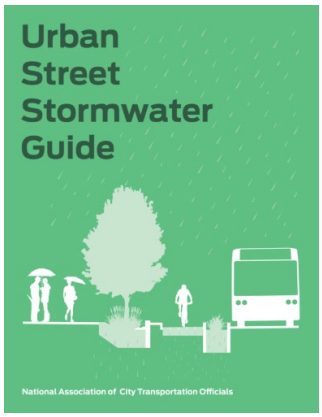
[Urban Street Design Guide]



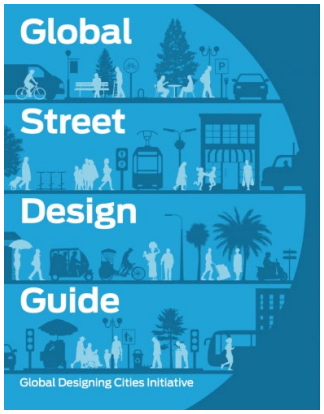
[Urban Bikeway Design Guide]



[Transit Street Design Guide]

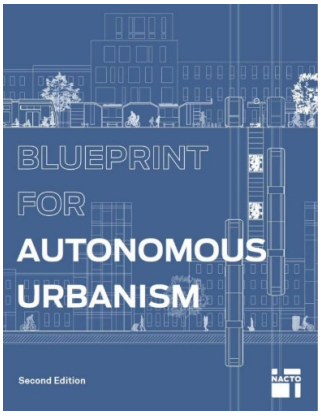


[Urban Street Stormwater Guide]



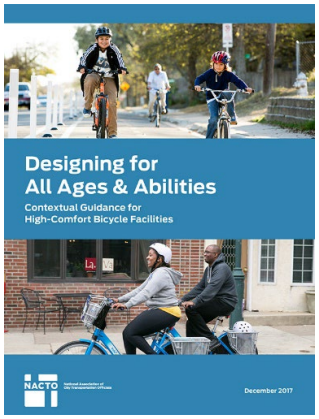
[Global Street Design Guide]

[Designing Streets for Kids]



[Blueprint for Autonomous Urbanism]

[Bike Share Station Siting Guide]

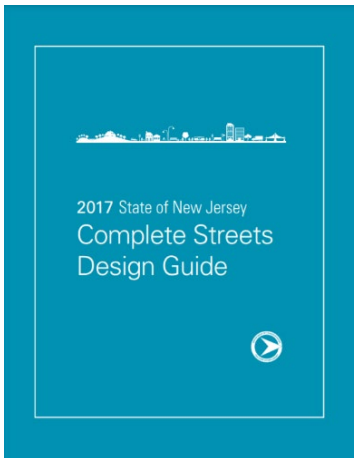


[Designing for All Ages & Abilities]

[Don't Give Up at the Intersection]

NJDOT Guides

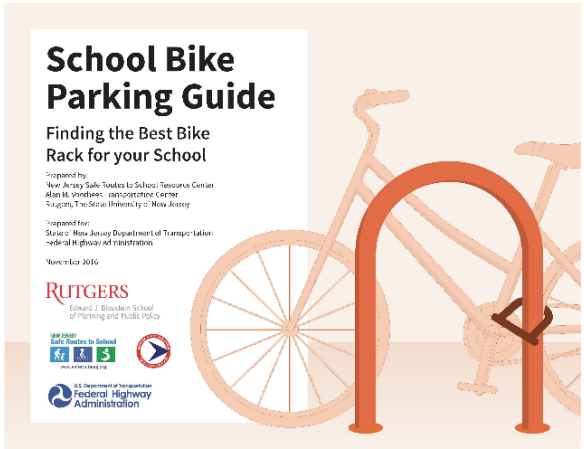
[Complete & Green Streets for All: Model Policy & Guide]



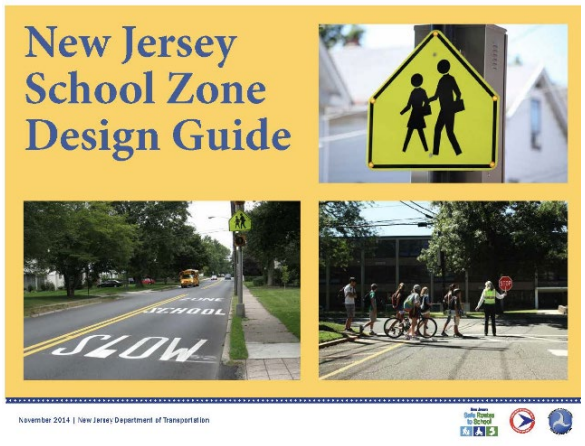
[2017 State of New Jersey Complete Streets Design Guide]

[A Guide to Creating a Complete Streets Implementation Plan]

[A Guide to Policy Development]

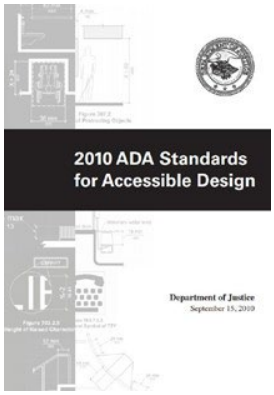


[School Bicycle Parking Guide]



[New Jersey School Zone Design Guide]

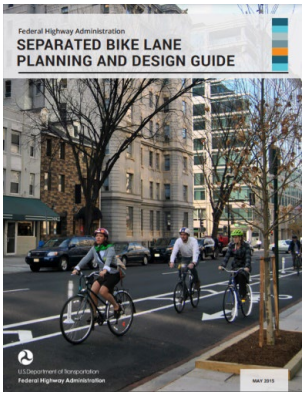
ADA Guidelines



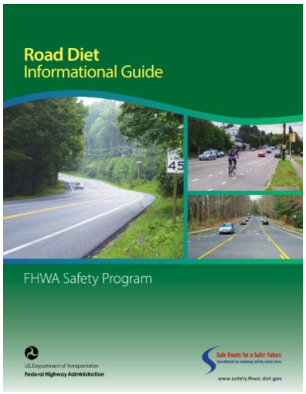
[ADA Standards for Accessible Design]

FHWA Guides

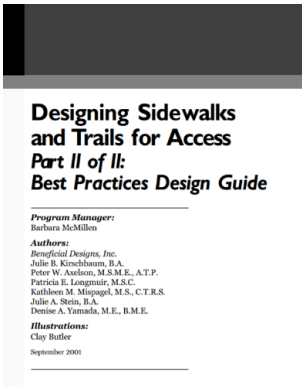
[Making Our Roads Safer: One Counter-measure at a Time]



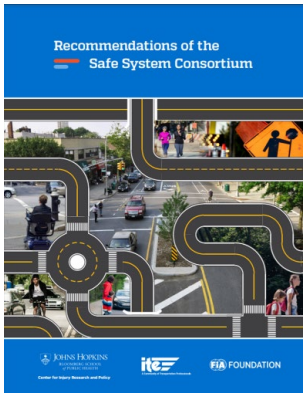
[Separated Bike Lane Planning and Design Guide]



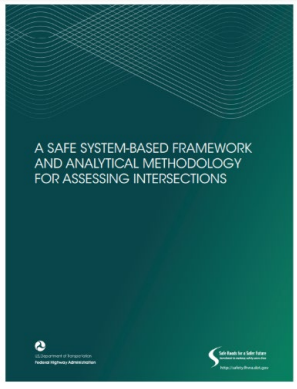
[Road Diet Informational Guide]



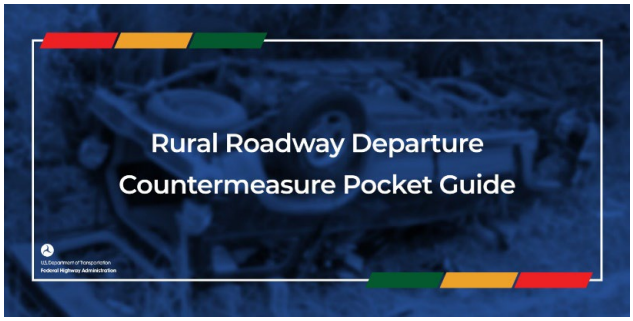
[Designing Sidewalks and Trails for Access Part II of II: Best Practices Design Guide]



[Recommendations of the Safe System Consortium]

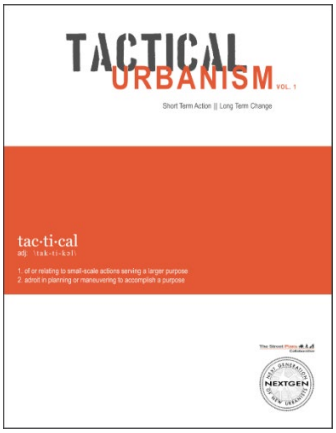


[A Safe System-Based Framework and Analytical Methodology for Assessing Intersections]

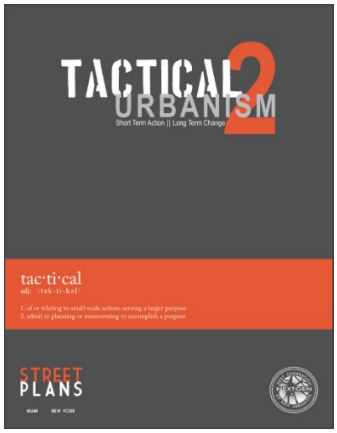


[Rural Roadway Departure Countermeasure Pocket Guide]

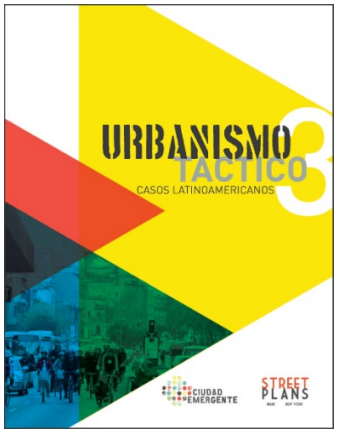
Tactical Urbanism Guides



[Tactical Urbanism 1]



[Tactical Urbanism 2]



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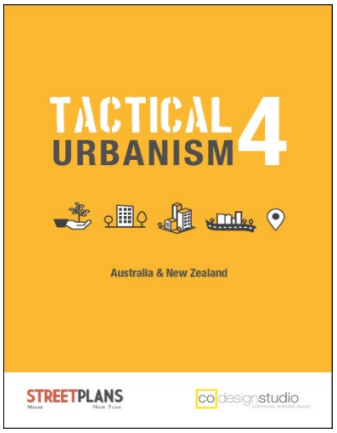

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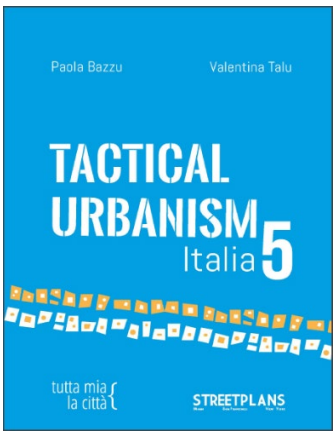

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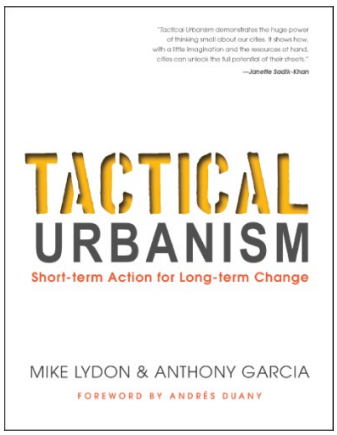
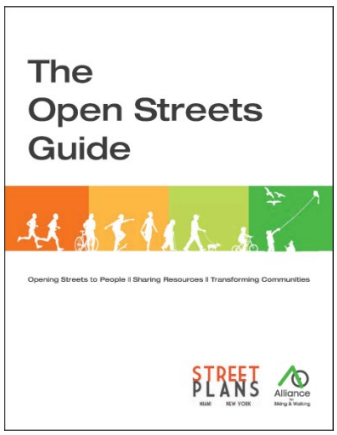
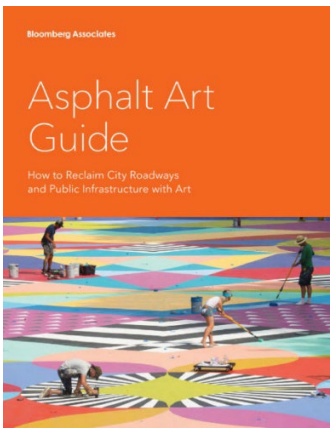


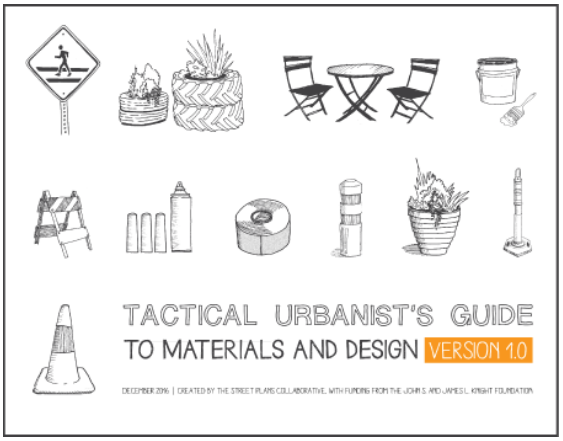
[Tactical Urbanism: The Book]



[The Open Streets Guide]



[Asphalt Art Guide]



[Tactical Urbanist's Guide to Materials and Design]

[Fast-Tracked: A Tactical Transit Study]