Project Description

Bike Walk Westfield
Bicycle and Pedestrian Plan

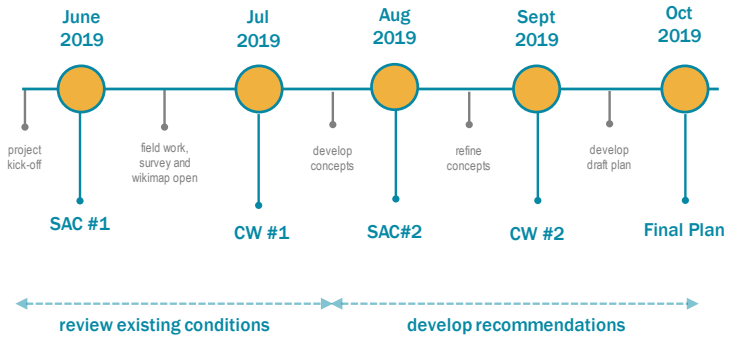
Study Background & Purpose

- Through funding from the New Jersey Department of Transportation (NJDOT), the Town initiated this effort to develop a plan to make bicycling and walking more comfortable, accessible, and safer for residents and visitors alike.
- The plan will create a framework for planning and implementing both short-term and long-term bicycle and pedestrian improvements in Westfield.
- A primary goal is to incorporate the plan's findings into the circulation and transportation components of the Town's Master Plan Reexamination.

Methodology

- Assess existing conditions:
  - Analyze and map crash data
  - Identify and map origins and destinations
  - Assess existing bicycle and pedestrian networks
- Develop conceptual recommendations to improve walking and biking conditions, including education, encouragement, and enforcement strategies along with engineering improvements
- Throughout the study, integrate stakeholder and public input into the planning process

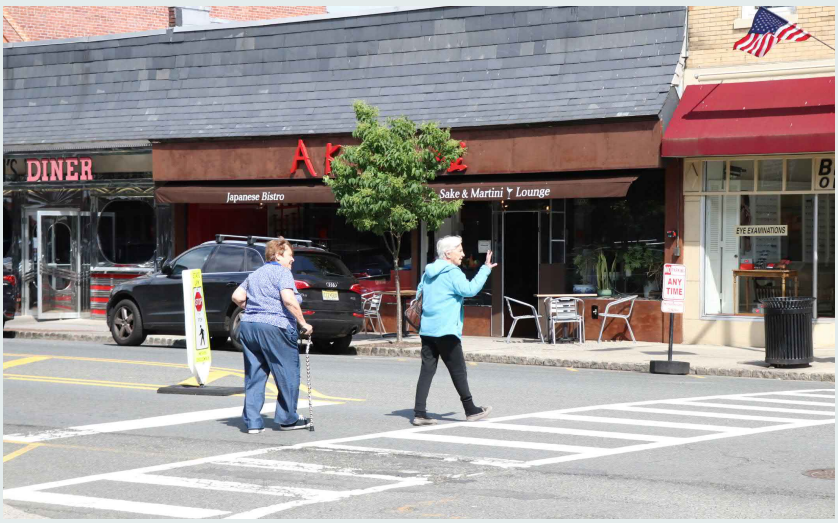
Project Schedule



Key Issues

An initial assessment of existing conditions identified several key issues related to biking and walking:

- Gaps in the sidewalk network
- The higher speed/volume streets in Town act as barriers to non-motorized travel
- Long crossing distances between traffic controls on some of the major streets
- Lack of safe and convenient bicycle and pedestrian connections between the north and south parts of Town
- Lack of on-street bicycle infrastructure/bike parking

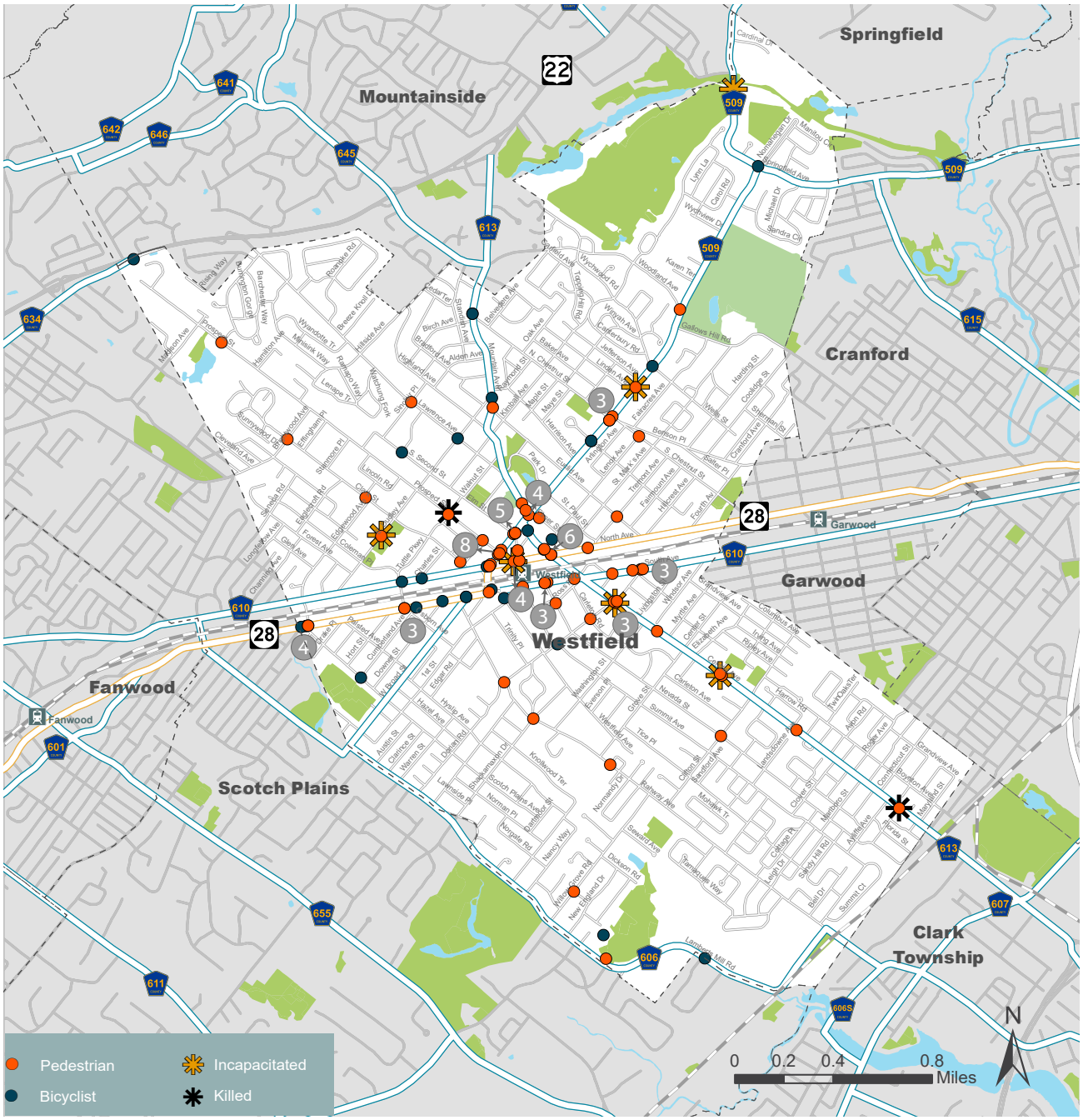


Benefits of Active Transportation

Bike Walk Westfield
Bicycle and Pedestrian Plan

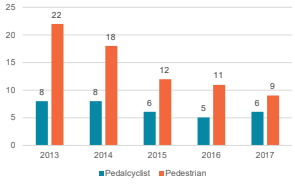
Crash Analysis (2013 -2017)

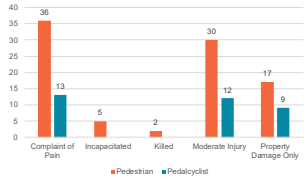
Bike Walk Westfield
Bicycle and Pedestrian Plan



1. Crash Statistics (2013-2017)

- Total crashes = 105
  - 72 Pedestrians
  - 33 Bicyclists
- Total involved = 124
  - 2 Killed
  - 5 Incapacitated





2. Precrash Actions (Pedestrians)

- Crossing at "unmarked" crosswalk at intersection = 7
- Crossing at "marked" crosswalk = 30

3. Vehicle Contributing Circumstances

- Failed to yield ROW to vehicle/pedestrian = 33
- Driver inattention (failed to obey traffic control device) = 24

Results from Community Survey

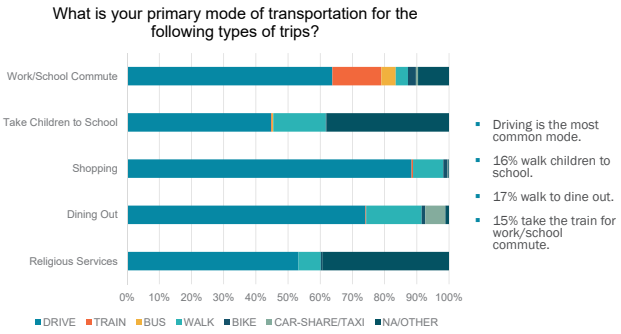
Bike Walk Westfield
Bicycle and Pedestrian Plan

Survey Overview

- Survey opened from June 7, 2019 to July 31, 2019
- 447 responses
- Majority live (91.8%) in Westfield
- About one-third (37%) live and work in Westfield
- About two-thirds (61%) are female respondents
- Three-fourths of respondents (71.5%) are between 35 to 59 years old
- Survey is one of several outreach tools to gather public input
- The survey provides window into local travel modes, perceptions of safety, and locations for improvement.
- 97% of participants expressed interest in walking and 64% expressed interest for biking

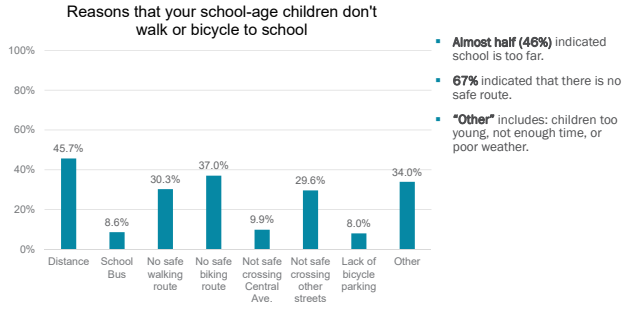
Mode Share

- Driving is the most common mode
- 16% of survey participants walk children to school
- 15% take the train for work or school commute



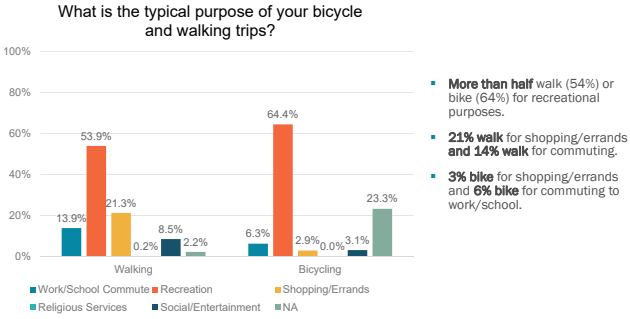
School

- 58% of the survey participants have school-age children living at their homes
- 56% of the children get to school via car
- 35% of the children walk to school. ~1% bike to school and 2% take the bus.



Walking and Biking

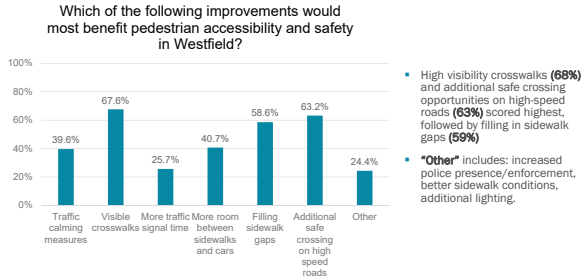
- 74% of survey participants walk at least a few times per week
- 32% bike at least a few times a week and 25% of the participants have never biked locally



Concerns and Issues

Traffic Volume and Speed:

- 64% of survey participants indicated that amount/ volume of traffic influences their walking comfort and 65% indicated traffic speed influences their walking comfort
- 84% of respondents indicated that the amount/volume influences their biking comfort and 65% indicated that traffic speed influences their biking comfort



Priority Areas for Walking and Biking

- Streets identified by survey respondents for improvements to make walking/bicycling safer in Westfield are listed in tables below.

Walking

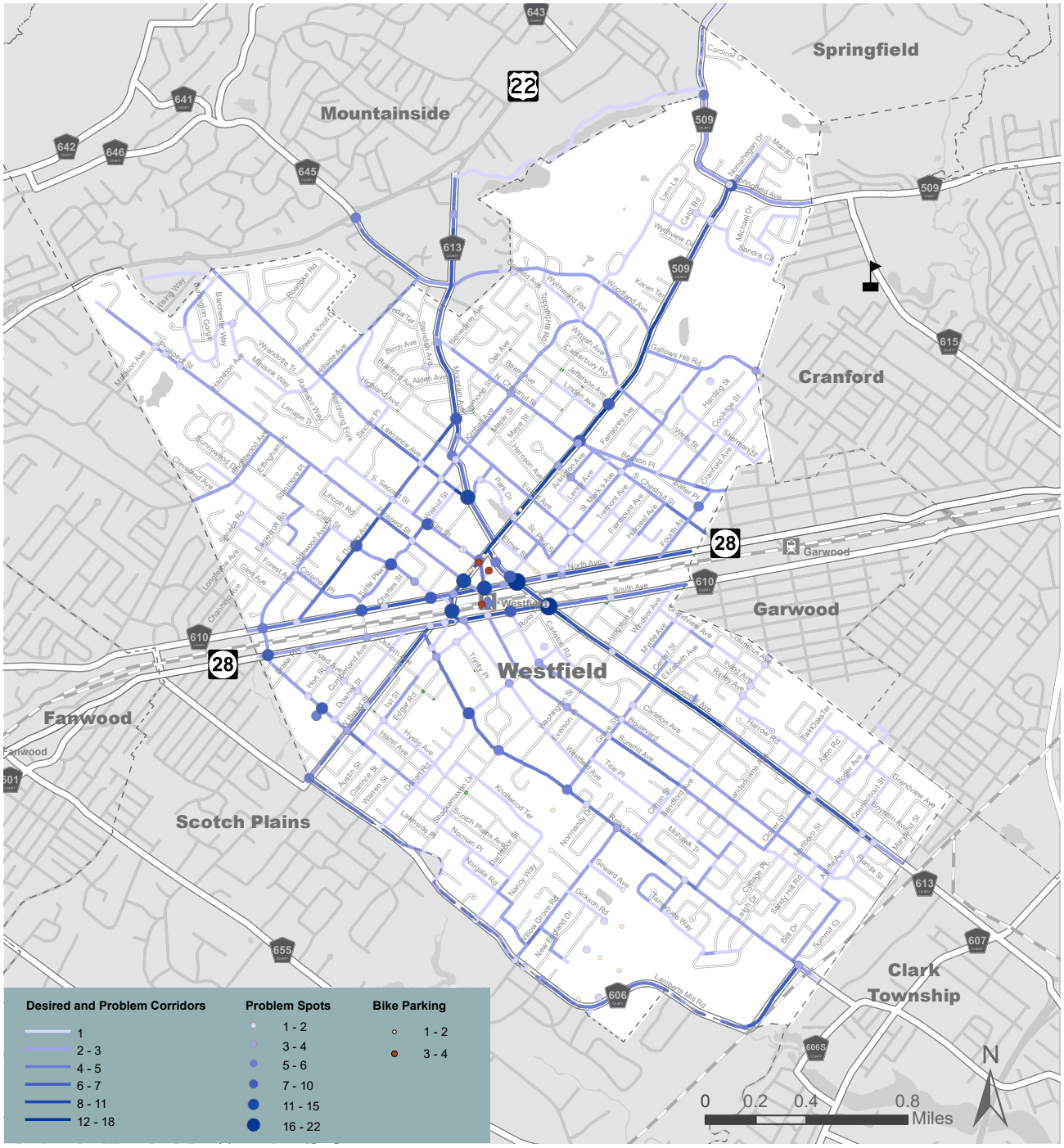
Ranking	Street	Number of Mentions	Percentage of Total Number of Streets Mentioned
1	E/W Broad St.	94	11.9%
2	Central Ave.	84	10.6%
3	North Ave.	76	9.6%
4	South Ave.	79	10.0%
5	Rahway Ave.	40	5.0%

Biking

Ranking	Street	Number of Mentions	Percentage of Total Number of Streets Mentioned
1	E/W Broad St.	110	16.6%
2	Central Ave.	69	10.4%
3	North Ave.	66	10.0%
4	South Ave.	64	9.7%
5	Rahway Ave.	53	8.0%

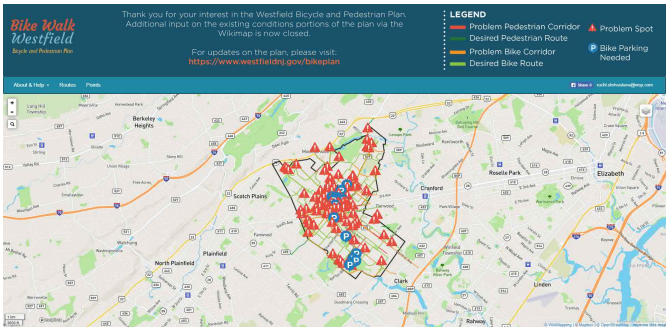
Summary of Public Outreach and Wikimap

Bike Walk Westfield
Bicycle and Pedestrian Plan



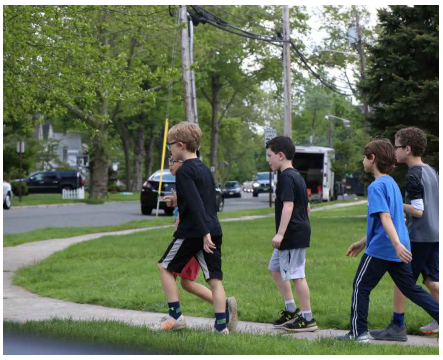
Interactive Wikimap

- Wikimap opened from June 4th – July 31st
- 1,133 interactions, 268 points, and 147 lines



Vision

The Town of Westfield's built and social environment supports walking, biking, and active living and enables people of all ages and abilities to comfortably access jobs, schools, recreation facilities, shopping, and transit by foot or on bicycle as part of their daily lives.



Goals

To support this aspirational vision, the Plan seeks to achieve the following goals:

Safety

- Improve safety and driver awareness of bicyclists and pedestrians through enhanced crossings, improved bicycle facilities, traffic calming measures, and other infrastructure improvements and programs/policies consistent with the local context and need

Implementation

- Develop a feasible plan that can be implemented over time, consisting of both short-term and long-term recommendations that can be integrated into capital improvement projects as well as regular maintenance

Connectivity/Access to Destinations

- Support a town-wide network for bicyclists and pedestrians that is comfortable for all ages and abilities and provides convenient access between residential neighborhoods and schools, parks, businesses, and transit

Sidewalk Maintenance

- Develop and maintain an inventory of sidewalk facilities and their conditions, coordinate with facility owners for maintenance, and monitor conditions at regular intervals

Bike/Walk Friendly Community

- Foster an environment where walking and biking are integral to the community's culture; where the town's livability, sustainability, and overall quality of life are enhanced by more people walking and biking; and where active transportation is safe, convenient, and practical

Priority corridors and intersections identified through the public outreach process are listed below:

Priority Corridors

- Mountain Ave (CR 613)
- East Broad St (CR 509)
- Central Ave (CR 613)
- South Ave (CR 610)
- North Ave (NJ 28)
- Lawrence St/Dudley Ave

Priority Intersections

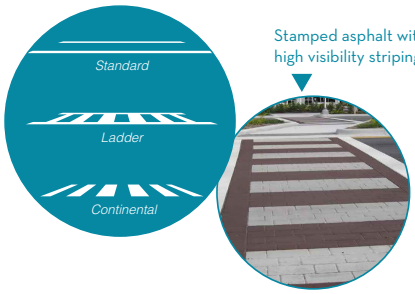
- Central Ave & South Ave
- Central Ave & North Ave
- Elm St & North Ave
- E. Broad & Prospect
- E. Broad & Chestnut
- Roundabout (NJ 28)
- Lawrence Ave & Mountain Ave
- South Ave & Crossway Place

Pedestrian Improvements

Bike Walk Westfield
Bicycle and Pedestrian Plan

Crosswalk Striping

- Enhances visibility of crossing and driver awareness of pedestrian activity
- Longitudinal striping (e.g., ladder or continental styles) is oriented parallel to vehicle traffic, significantly improving visibility of the crossing to motorists



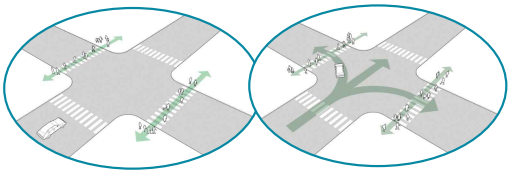
Ergonomic Crosswalks

Traffic Control

- Pedestrian Countdown Signal Heads
- Pedestrian Signage and Beacons
  - Enhances visibility of crossing and driver awareness of pedestrian activity
  - Improves driver yielding behavior and reinforces driver compliance with the State's **stop for pedestrian law**
  - Beacons combine signage with flashing LEDs, and may be suitable for locations with higher vehicle speeds, higher vehicle volumes, and/or a higher volume of pedestrians

Leading Pedestrian Interval

- Provides a few seconds of pedestrian crossing time before vehicular traffic gets a green light
- Lead time enhances visibility of pedestrians and allows them to establish presence in crosswalk, thereby reducing risk of collisions



Source: Urban Street Design Guide, National Association of City Transportation

Sidewalk Continuity

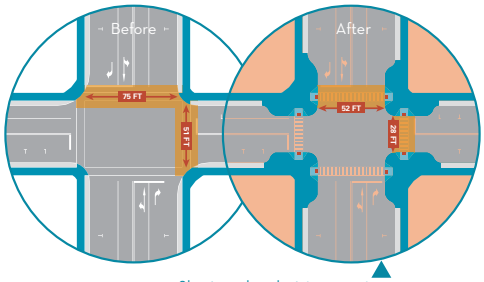
- Essential for pedestrian access between different land uses
- Wider sidewalks in commercial areas enhance pedestrian environment
- Maintenance is an important consideration

Traffic Calming

- Slows traffic to support and reinforce speed limits
- Decreases crash likelihood and severity for all street users
- Numerous treatment options are available to fit the specific context and needs of a street, from radar speed signs and striping enhancements to horizontal deflection (e.g., curb extensions, medians, reduce curb radius, etc) and vertical deflection strategies (e.g., raised intersections, speed humps, etc)

Curb Extensions/Intersection Daylighting

- Improves visibility
- Shortens pedestrian crossings
- Creates additional pedestrian space



Pedestrian Facilities - Crossing Improvements

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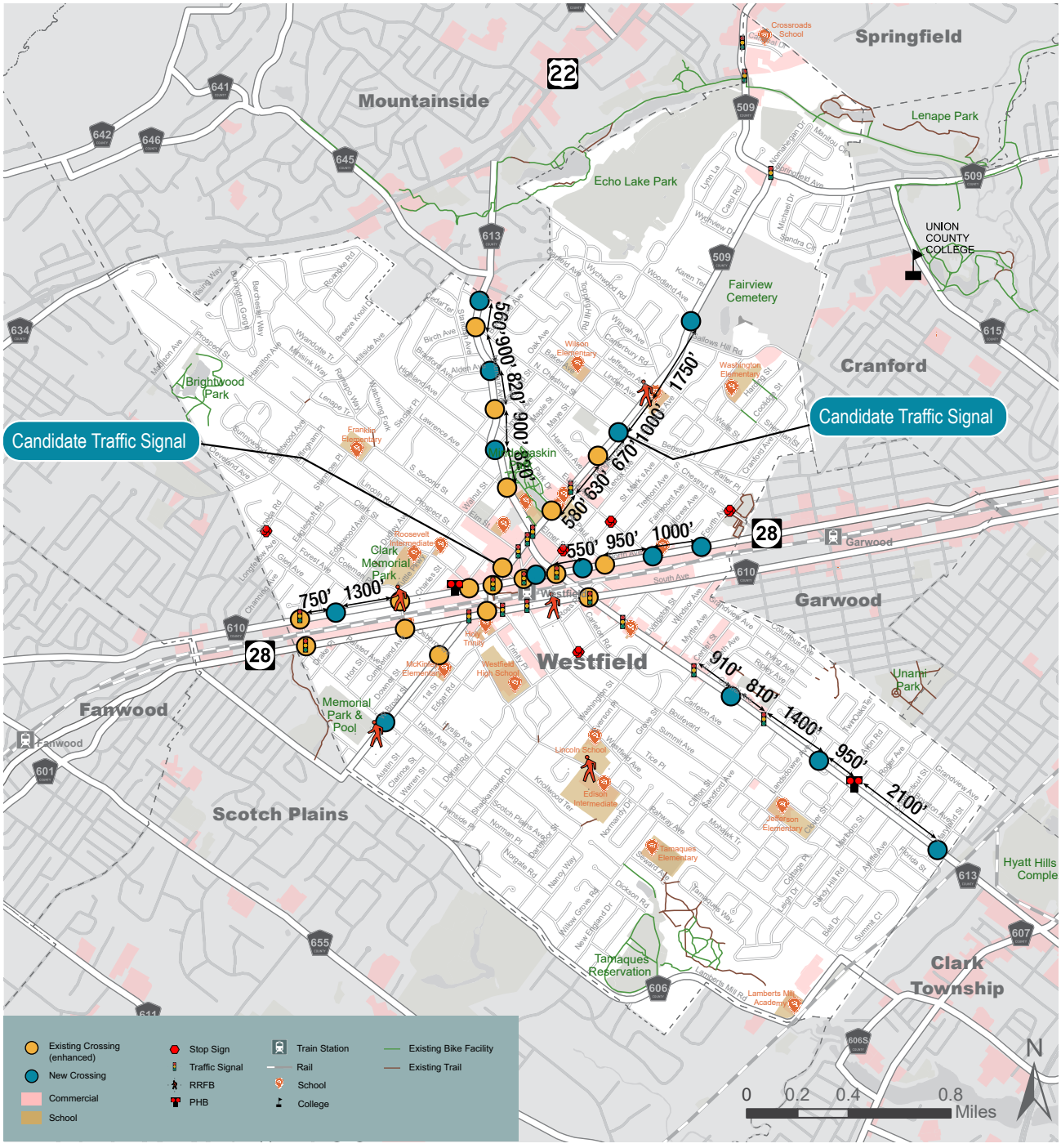
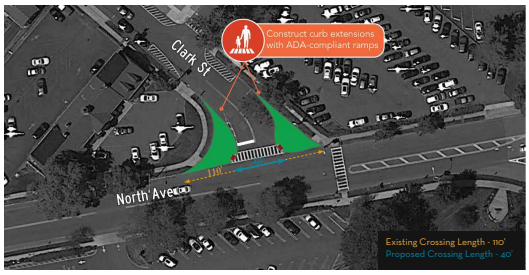


Crossing Improvement Summary

	Existing Crossing (Enhanced)		New Crossings	
Corridor	**#**	**Locations**	**#**	**Locations**
Mountain Ave	3	Chestnut, Dudley, Lawrence	3	Mountainview, Alden, Kimball
Broad St	3	St. Paul, Stanley, Osbourne	3	Chestnut, Woodland, Scotch Plains
Central Ave	2	North, South	3	Virginia, Pearl, Laurel
North Ave	2	Clark, St. Paul	5	Dudley, Lenox, Elmer, Euclid, Fourth
South Ave	2	Osbourne, Roundabout	0	n/a
Totals	**12**		**14**	

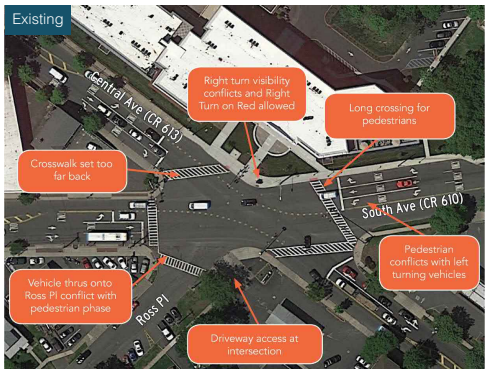
Enhanced Crossing Example

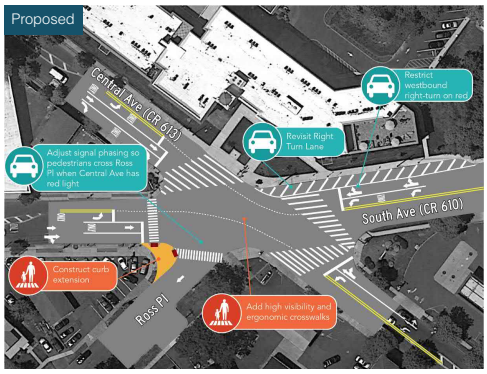


Intersection Improvement Concepts

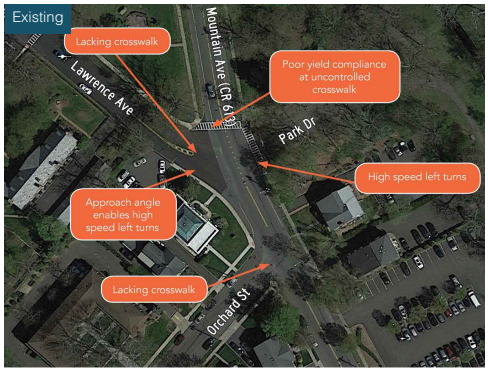
Bike Walk Westfield
Bicycle and Pedestrian Plan

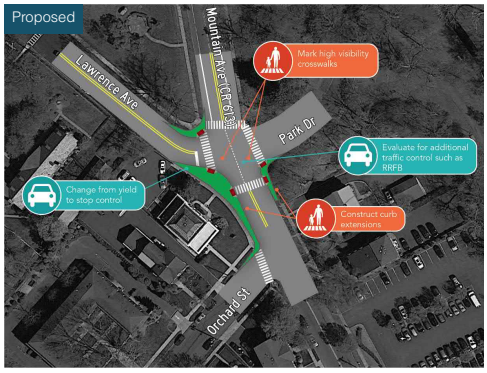
South Avenue (CR 610) and Central Avenue (CR 613)



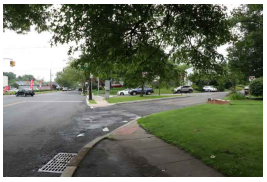


Mountain Avenue (CR 613), Lawrence Avenue, and Park Drive

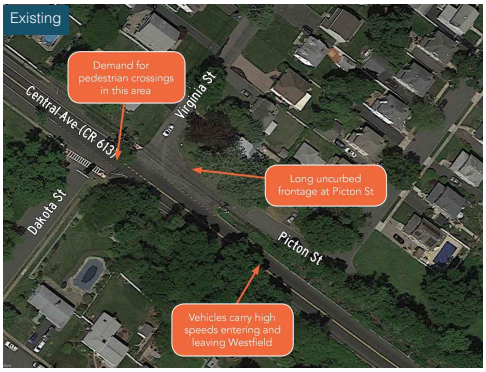


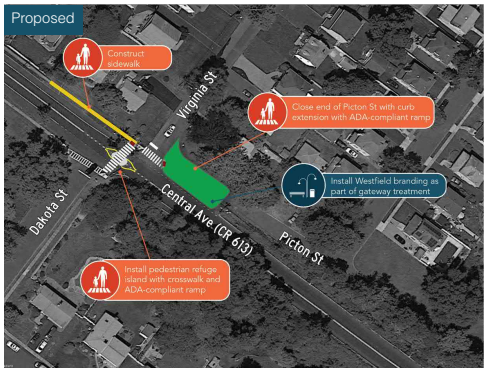


South Avenue (NJ 28), Scotch Plains Avenue,and Crossway Place



Central Avenue (CR 613) and Virginia Street

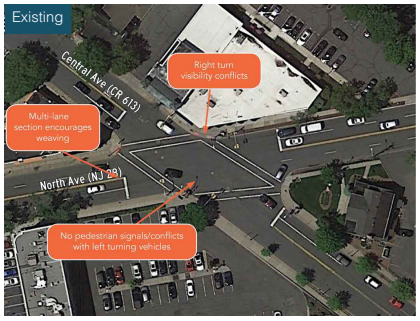




Intersection Improvement Concepts

Bike Walk Westfield
Bicycle and Pedestrian Plan

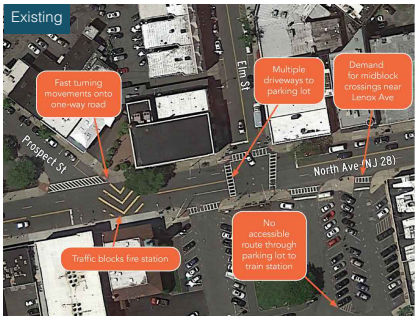
North Avenue (NJ 28) and Central Avenue (CR 613)



Proposed Recommendations

- Install pedestrian signal heads
- Consider implementing a Lead Pedestrian Interval (LPI)
  - Need to change from lead to lag lefts
- Good application of Ergonomic Crosswalks

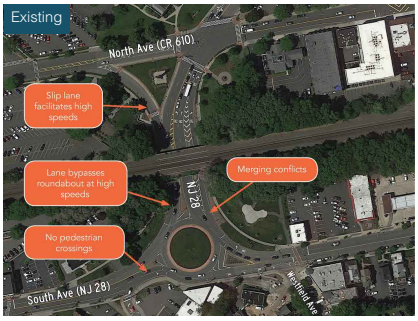
North Avenue (NJ 28) and Elm Street



Proposed Recommendations

- Pedestrian signal heads and timing improvements at Elm St and North Ave intersection
- Create ADA accessible pathways at train station
- Evaluate new midblock crosswalk near Lenox Ave
- Long term recommendations to be developed through the Master Plan Update

NJ 28 Roundabout

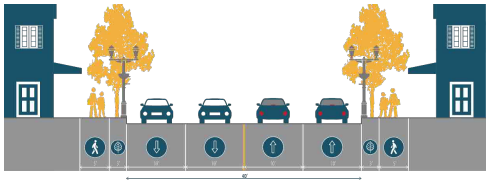


Proposed Recommendations

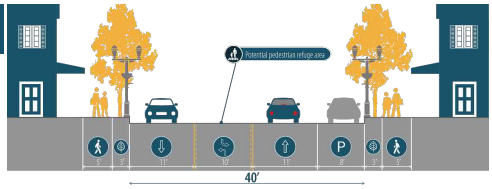
- Investigate alternatives to add pedestrian crossing of western approach
- Long term, consider re-designing roundabout to reduce speeds and create one-lane approaches
- Needs further study

North Avenue Road Diet (from E Broad St to Central Ave)

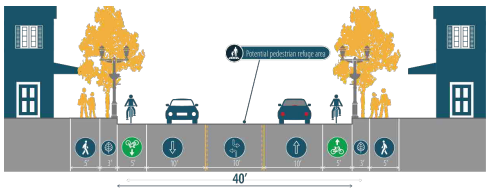
Existing



Proposed Option 1: On-Street Parking



Proposed Option 2: Bicycle Lanes



Please put a DOT to indicate your preference for the proposed road diet options

Proposed Option 1: On-Street Parking	Proposed Option 2: Bicycle Lanes

Prioritized Sidewalk Plan

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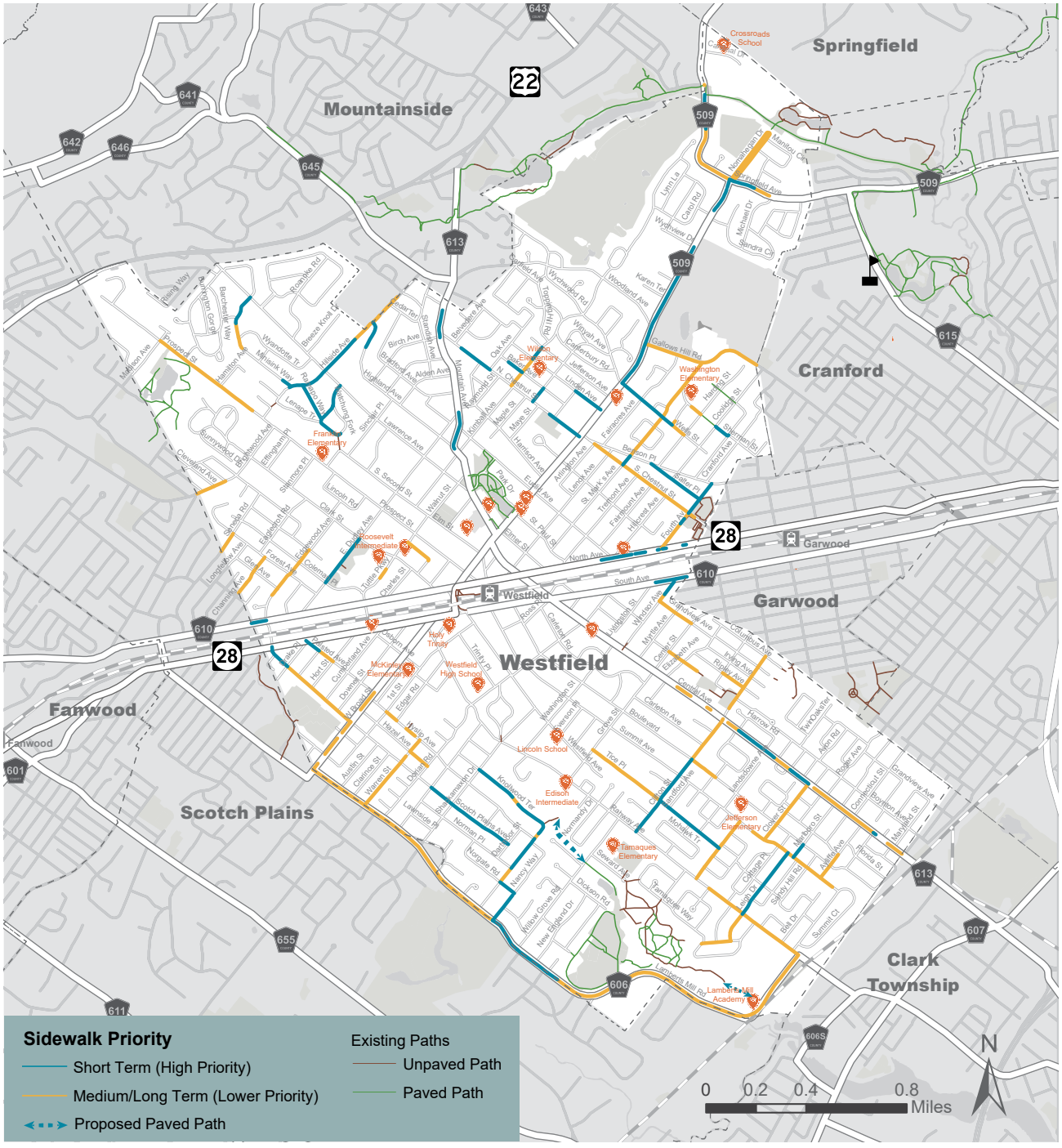
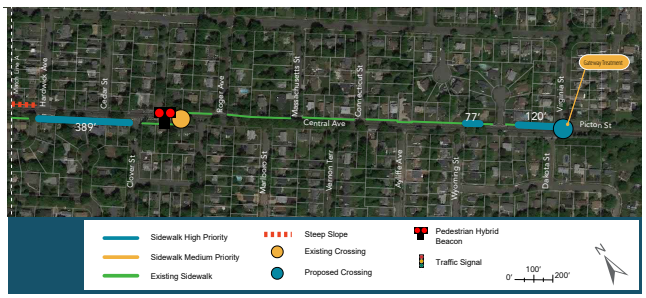
Bicycle and Pedestrian Plan



Central Avenue Sidewalk Recommendations



Bicycle Facility Types

Bike Walk Westfield
Bicycle and Pedestrian Plan

Separated Bicycle Lanes

Description & Application

- Used along streets with higher motor vehicle speeds and/or volumes
- Design elements such as flexible bollards, planters, raised curb, or on-street parking physically separate bicyclists from traffic

Benefits

- Research indicates that separated bicycle lanes are more attractive to bicyclists of all ages and abilities
- Provides vertical separation to prevent encroachment, improve safety, and deter double-parking
- Reduces the risk of "dooring"

Buffered Bicycle Lanes

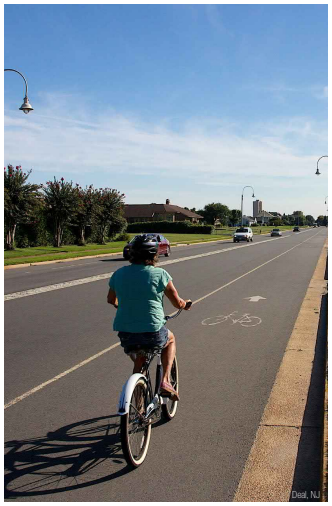
Description & Application

- Conventional bicycle lane paired with a striped buffer
- Used on streets with speed limits between 25 and 35 mph
- Best suited for streets where extra separation from vehicular traffic is desired, but physical separation is not feasible

Benefits

- Increases bicyclist comfort by providing additional space between bicyclists and motorists
- Visually narrows wide travel lanes, creating a traffic calming effect

Bicycle Lanes



Description & Application

- Used on streets with speed limits of 25 or 30 mph
- Typical minimum bicycle lane width: 5 ft

Benefits

- Provides a dedicated space for bicyclists, enabling them to ride at their preferred speed without interference from motorists
- Helps facilitate predictable behavior between bicyclists and motorists

Advisory Bicycle Lanes

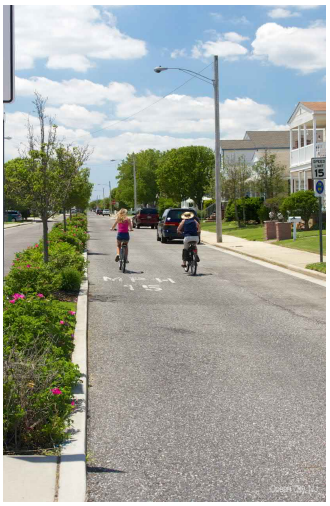
Description & Application

- Used where roadway is too narrow to accommodate standard bicycle lanes
- Delineated by dashed striping marking; can be supplemented with colored pavement as an optional treatment
- Motorists may only enter the bicycle lane when no bicyclists are present and must overtake these users with caution

Benefits

- Narrows lanes, reducing vehicle speeds
- Prioritizes space for bicyclists

Bicycle Boulevards



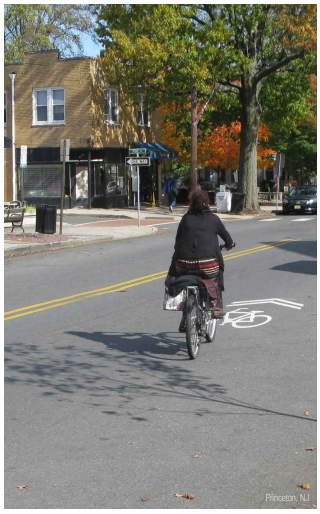
Description & Application

- Best used on low speed, low volume roadways including local residential streets
- Tools such as signage, pavement markings, diverters, and other traffic calming measures are used to reinforce slow traffic speeds and discourage through trips by motor vehicles while accommodating local access

Benefits

- Provides a designated route for bicyclists of all ages and abilities
- Creates a safer and quieter environment for all roadway users

Shared Lane Markings



Description & Application

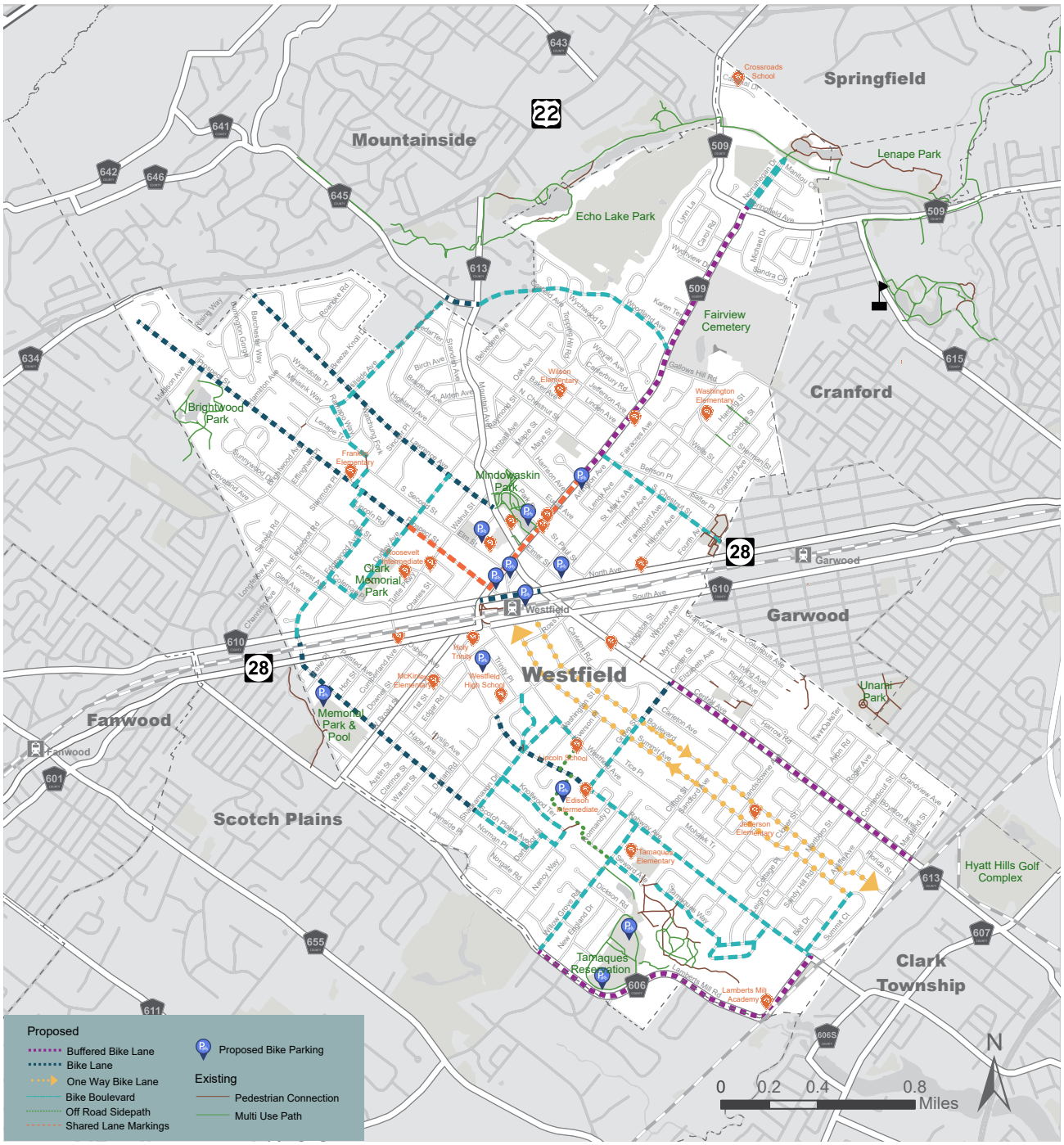
- Used on single-lane, low speed, lower volume roadways
- Used on roadways where it is not feasible or appropriate to provide dedicated bicycle facilities
- Used to connect and provide a designated route between dedicated bicycle facilities

Benefits

- Asserts the legitimacy of bicyclists on the roadway
- Provides directional and wayfinding guidance to bicyclists and directs bicyclists as to where to best position themselves in the roadway

Proposed Bicycle Network

Bike Walk Westfield
Bicycle and Pedestrian Plan



Recommended Bike Rack Designs

Preferred Design

Inverted U
Common style appropriate for many uses; two points of ground contact. Can be installed in series on rails to create a free-standing parking area in variable quantities. Available in many variations.

Other Acceptable Designs

Post and Ring
Common style appropriate for many uses; one point of ground contact. Compared to inverted-U racks, these are less prone to unintended perpendicular parking. Products exist for converting unused parking meter posts.

Wheelwell Secure
Includes an element that cradles one wheel. Design and performance vary by manufacturer; typically contains bikes well, which is desirable for long-term parking and in large-scale installations (e.g. campus); accommodates fewer bicycle types than other recommended designs.

Racks to Avoid

Wave
Not intuitive or user-friendly; real-world use of this style often falls short of expectations; supports bike frame at only one location when used as intended.

Wheelwell
Racks that cradle bicycles with only a wheelwell do not provide suitable security, pose a tripping hazard, and can lead to wheel damage.

Schoolyard (comb)
Does not allow locking of frame and can lead to wheel damage. Inappropriate for most public uses, but useful for temporary attended bike storage at events and in locations with no theft concerns.

Coathanger
This style has a top bar that limits the types of bikes it can accommodate.

Spiral
Despite possible aesthetic appeal, spiral racks have functional downsides related to access, real-world use, and the need to lift a wheel to park.

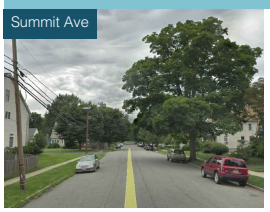
Bollard
This style typically does not appropriately support a bike's frame at two separate locations, which limits its framelock capability and bicycle stability.

Images and descriptions courtesy of APBP *Essentials of Bicycle Parking*

Proposed Bicycle Network

Case #1: Consolidate parking to one side and add paired one-way bike lanes

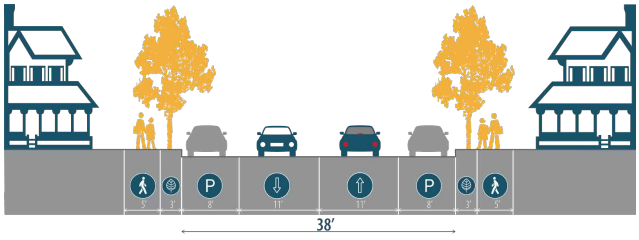
Summit Ave



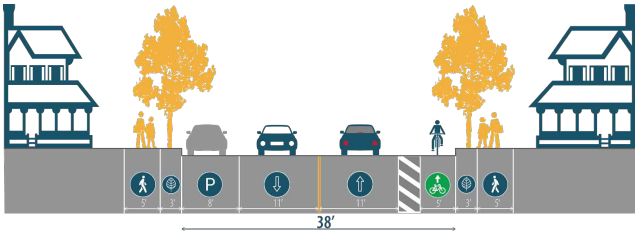
Candidate Streets:

- Summit Ave
- Boulevard

Existing



Proposed



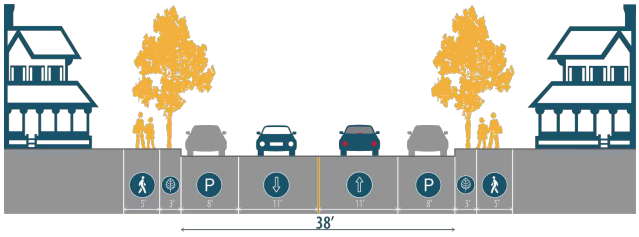
Case #2: Replace lightly used parking on major roadways with buffered bike lanes

E Broad St

Candidate Streets:

- Central Ave (CR 613)
- E Broad St (CR 509)
- Lamberts Mill (CR 606)

Existing



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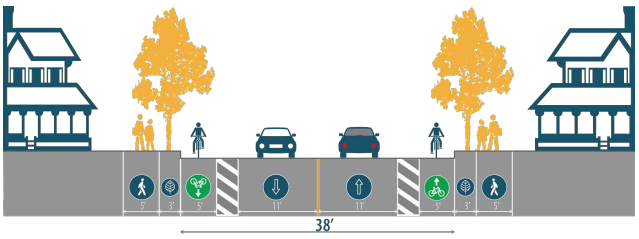


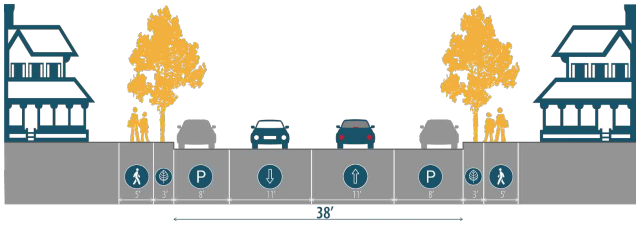
Case #3: Consolidate parking to one side; add bike lanes and striping

Scotch Plains Ave

Candidate Streets:

- Scotch Plains Ave
- Prospect Ave
- Lawrence Ave

Existing



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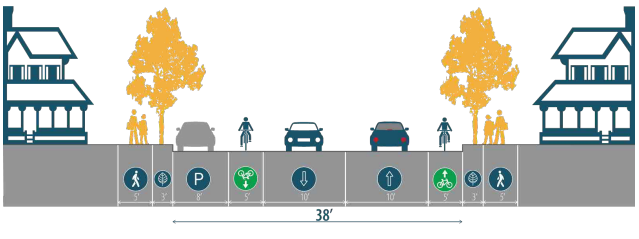
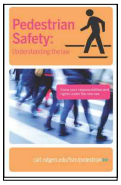


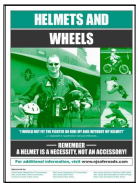
Program and Policy Recommendations

Bike Walk Westfield
Bicycle and Pedestrian Plan

Education

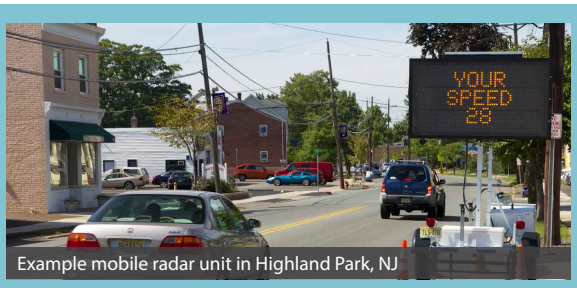
- Distribute information on bicycle, pedestrian, and motorist safety, such as:
  - Rules of the road for all users
  - Dangers of speeding
  - Health benefits of walking and biking
  - Safe walking and biking tips
- Support school outreach programs, such as:
  - Safe Routes to School
  - NJ Traffic Safety Learning Progression Component
- Encourage bike skills training programs through local partnerships
- Provide Complete Streets training for Town staff
- Education about "newer" traffic control devices:
  - Pedestrian Hybrid Beacons (PHBs)
  - Rectangular Rapid Flashing Beacons (RRFBs)





Enforcement

- Implement a pedestrian safety enforcement program to encourage motorist compliance at crosswalks
- Conduct a 25 mph campaign to raise awareness of speeding
- Street Smart NJ Program (NJTPA)
- "Stop and Stay Stopped" law (NJDHTS)



Example mobile radar unit in Highland Park, NJ

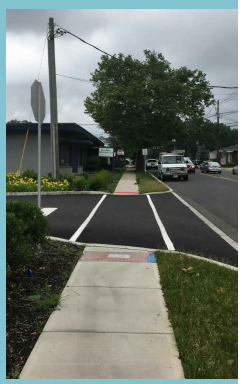
Example walking school bus in Morristown, NJ

Encouragement

- Promote bike and walk to school events, such as:
  - Walking school buses
  - Bike rodeos
- Develop local partnerships to discount or give away safety equipment
- Provide instruction on proper helmet fit
- Publicize ongoing bicycle and pedestrian improvements
- Market the Town's recreational assets, such as:
  - Develop and distribute a Town park and trail map

Further Study

- Parking studies:
  - Along proposed bike routes
  - Downtown and train station area
- Pedestrian crossings:
  - New crossings and enhanced crossings
  - All-way stop control
- Roundabout at NJ 28
- Road diet along North Ave between Broad Street and Elmer Street

Policy Recommendations

- Revisions to Town Code:
  - Increase minimum sidewalk width from 4 to 5 feet
  - Allow curb radii less than 25 feet
  - Require pedestrian zones across driveways to be treated as continuous sidewalks (with concrete) instead of road crossings
- Develop Bike Parking Ordinance