

Lower Connecticut River Valley Bicycle and Pedestrian Master Plan 2022 DRAFT



Cover Photos:

Top: Family riders during the 2019 Tour de Lyme.

Source: <https://www.tourdelyme.org/>

Bottom Left: Pedestrians in Downtown Middletown

Source: New Haven Register

*Right: Boardwalk over wetlands in walking trail at Clark Community Park
in Old Saybrook*

Source: FHI Studio

DRAFT

TABLE OF CONTENTS

The plan is organized around the following chapters:

| | | |
|----------|--|---------------------|
| Page 5 |  | Existing Conditions |
| Page 25 |  | Municipal Overviews |
| Page 61 |  | Design Guidelines |
| Page 95 |  | Recommendations |
| Page 113 |  | Implementation |
| Page 119 |  | Appendix |

DRAFT

Page Intentionally Left Blank

DRAFT

EXISTING CONDITIONS

INTRODUCTION

About This Plan

The Lower Connecticut River Valley (LCRV) Bicycle and Pedestrian Master Plan (the Plan) provides information on existing conditions, opportunities, and challenges related to bicycle and pedestrian projects. It also provides a vision and goals, design guidelines, and recommendations.

Recommendations were developed for implementing multi-modal improvements that will ensure a safe and efficient transportation network that enhances quality of life and economic vitality. The Plan is focused on “placemaking”. *Placemaking inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Strengthening the connection between people and the places they share, placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution. With community-based participation at its center, an effective placemaking process capitalizes on a local community’s assets, inspiration, and potential, and it results in the creation of quality public spaces that contribute to people’s health, happiness, and well being.*¹ Please see Appendix B for more information on placemaking opportunities throughout the LCRV Region.

The Plan identifies projects based on facility type that can be implemented to expand bicycle and pedestrian mobility and placemaking throughout the Region. This work builds upon previous efforts of RiverCOG staff in creating the draft Bicycle and Pedestrian Plan and augments efforts from the Regional Plan of Conservation and Development (RPOCD), the Metropolitan Transportation Plan, and the GrowSMART Regional Economic Growth Strategy Report. Those efforts included community engagement, a Plan marketing campaign, and an online mapping tool created to gather public comments.

This Plan is a significant move towards improving safety, mobility options, and connectivity while preserving and enhancing the Region’s scenic, historic, and environmental resources.



Students at a pedestrian plaza at Wesleyan University
Source: RiverCOG

¹ Project for Public Spaces, What is Placemaking?, <https://www.pps.org/category/placemaking>.

What are the Benefits of a Regional Bicycle and Pedestrian Plan?

The Plan will help the LCRV Region to:

Connect across municipalities

Taking a holistic look across the Region, this Plan helps to identify regional connections and linkages to nodes and destination points. These nodes are transfer points that provide users with the ability to connect to other nodes through bicycle and pedestrian facilities.



Technical assistance

The Plan identifies goals and strategies for implementing multi-modal facilities.



Funding opportunities

It identifies the most recent funding sources available to fund multi-modal projects related to bicycle and pedestrian accommodations.



Tourism and Economic Opportunities

The bicycle and pedestrian enhancements recommended by this Plan will directly support the LCRV Region as a tourist destination.



Health

The bicycle and pedestrian accommodations and facilities recommended in this Plan are part of promoting a healthy and active lifestyle across the Region.



Quality of Life

The LCRV Region has a high quality of life supported by the natural environmental, small New England towns, and community attributes, such as high quality schools and attractive downtowns and town centers. This Plan strives foster this quality of life by providing further recreational and transportation assets to the Region.



The Plan's Steering Committee

A steering committee was formed that included representatives from bicycle and pedestrian advocacy groups across the LCRV Region as well as RiverCOG Staff. The committee met at key intervals during the planning process to provide input regarding the Region's assets, needs and issues, and opportunities. The steering committee worked together to establish the following vision and goals that guide the Plan:

Goals of the Plan

1

The LCRV Region will provide safe and inviting routes used by cyclists and pedestrians. They are assets that improve regional connectivity, promote public health, and are economic drivers.

2

The LCRV Region has an equitable network of bicycle and pedestrian amenities that are accessible to users across the Region.

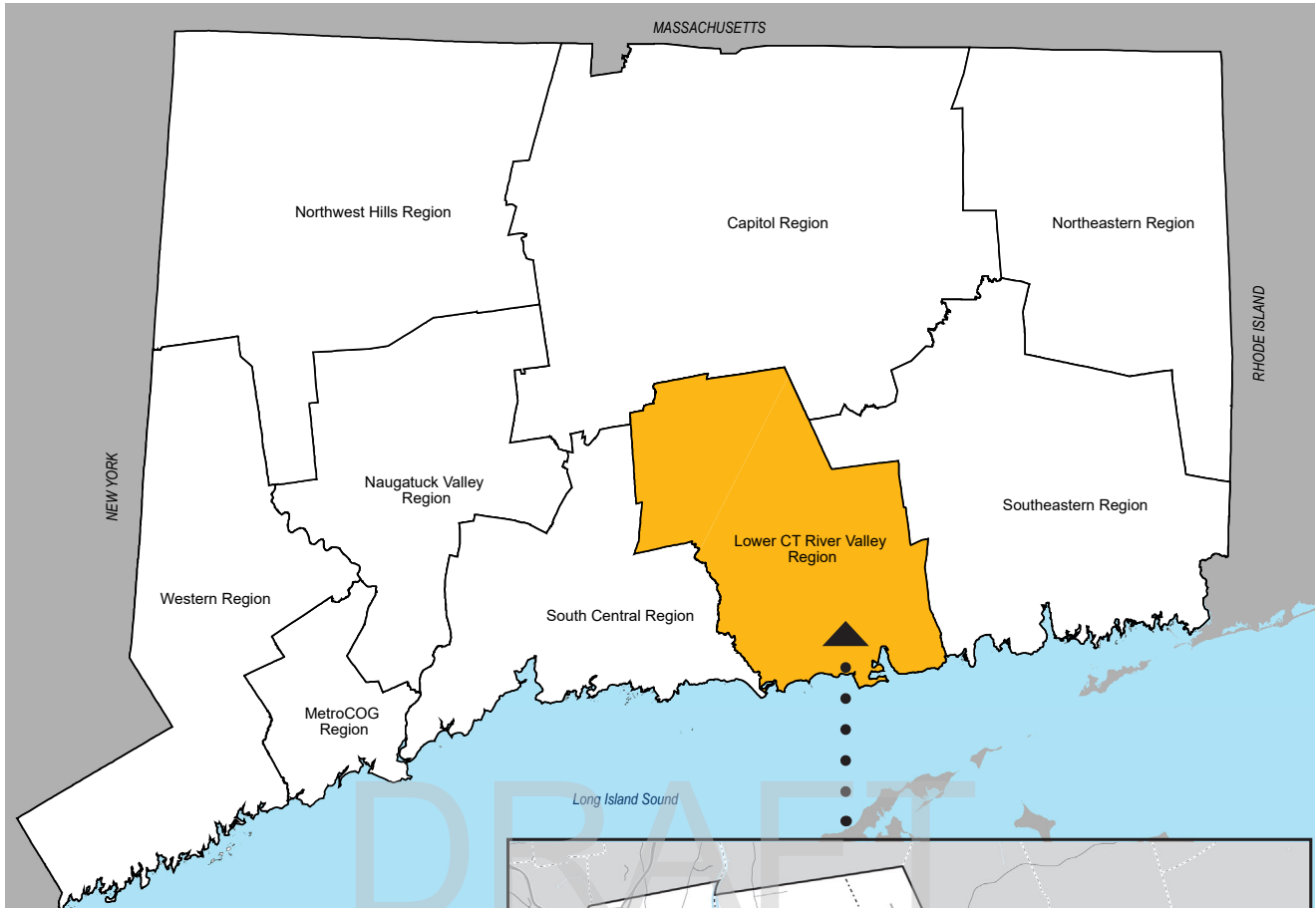
3

The LCRV Region provides bicycle and pedestrian facilities that connect village centers and nodes as well as the open space resources that are so valued across the Region.



*Lack of sidewalks in a commercial area of Route 1 in Clinton
Source: FHI Studio*

Figure 1: Regional Location



The LCRV Region is located in southern Connecticut. The Connecticut River runs northward across the Region, while Long Island Sound is located at its southern terminus. The Region is comprised of seventeen municipalities that are united by their location in proximity to these natural features. The Region is accessible by Route 9 (Rt 9) which runs north to south, Interstate 95 (I-95) from east to west, and Interstate 91 (I-91) from the north and west. Figure 1 displays the Region's location in the State as well as its municipalities.



Source: RiverCOG, CT DOT

REVIEW OF PAST WORK EFFORTS, PLANS AND STUDIES

Existing data to inform this Plan was compiled from a collection of sources including the Connecticut Active Transportation Plan, the LCRV Region’s Metropolitan Transportation Plan, Municipal Plan’s of Conservation and Development, Road Safety Audits (RSAs) conducted in the municipalities, bicycle and pedestrian crash records that were accessible through UCONN’s Crash Data Repository, and public engagement. An overview of findings from these sources is provided on the following pages.

Connecticut Active Transportation Plan

The Connecticut Active Transportation Plan from the Connecticut Department of Transportation (CTDOT), contains a Statewide Bicycle Planning Network that identifies key routes and connections which bicyclists can use to travel throughout the State. Figure 2 displays the CT Active Transportation Plan’s Priority Implementation Tiers. It identifies Tier I, Tier II, and Tier III routes throughout the Region. This network identifies key routes and connections that bicyclists can use to travel throughout the Region based on existing and desired routes, traffic volumes, and roadway geometry. It provides guidance to CTDOT on where future improvements should occur and with what level of priority.

Tier I segments have bicycle safety concerns and may be considered for stand-alone bicycle improvements; Tier II segments are less critical but may have bicycle improvements incorporated into existing maintenance and other road work; and Tier III segments generally meet recommended design criteria and are not identified as a key department priority, but should be maintained.

Metropolitan Transportation Plan

The LCRV Region’s Metropolitan Transportation Plan (MTP) defines the region’s future transportation vision and outlines regional transportation funding priorities. The MTP emphasizes support of bike-friendly shared roadways, bike lanes, wide shoulder lanes, shoulder bikeways, signed bicycle routes, off road multi-use trails, and greenway corridors for bicycle and pedestrian use as a priority for recreational, personal business, and commuting purposes. Benefits from such projects include reduced roadway congestion, environmental benefits, and user health benefits.

Figure 2: CTDOT State Active Transportation Plan



Priority Implementation Tiers

- Tier I Improvements
- Tier II Improvements
- Tier III Improvements

Source: Connecticut Active Transportation Plan (2017), CT Department of Transportation

Road Safety Audits

CTDOT has created a Community Connectivity Program that focuses on improving the state’s transportation network for all users. A major component of this program is conducting Road Safety Audits (RSAs) at selected locations. An RSA is a formal safety assessment of the existing roadway. It is a qualitative review by an independent team experienced in traffic, pedestrian, and bicycle operations and design that considers the safety of all road users and proactively identifies mitigation measures to improve the safe operation of the facility by reducing the potential crash risk frequency and/or severity. RSAs were conducted in the following LCRV municipalities:

- [Cromwell - Main Street \(Route 99\), 2016](#)
- [Haddam - Bridge Road \(Route 82\) between Route 154 and East Haddam, 2016](#)
- [Portland - Main Street \(Route 17A\), 2016](#)

Municipal Plans of Conservation and Development

To be eligible for State and Federal Funding, every municipality in the State is required to complete a Plan of Conservation and Development (POCD). The goal of the POCD's is to plan for future development and conservation needs of the municipality. Transportation is one of many topics traditionally covered in the POCD. A review of POCDs in the Region revealed the following regarding bicycle and pedestrian infrastructure across the Region:

Pedestrian Facilities

Many municipalities in the region have a sparse and discontinuous network of paved walkways and sidewalks. These walkways are focused around town centers and connect the centers with residential areas, services, school, and recreational facilities. Middletown possesses a dense and well-integrated sidewalk network in the downtown, North End, and Wesleyan campus but outside of these areas pedestrian infrastructure is very limited. Some of the more rural municipalities have little to no pedestrian infrastructure. Lyme and Killingworth, for example, have no public sidewalks within their boundaries. Also notably lacking are sidewalks along major arterials such as the Boston Post Road (Route 1), Middlesex Turnpike (Route 154), and Routes 66, 80, 81, and 82.

Currently, sidewalk inventories are maintained by individual municipalities; there is no consolidated inventory of pedestrian facilities for the Region. CTDOT does maintain an inventory of ADA curb ramps, sidewalks, and signals along State roads. Middletown, Westbrook, and Durham have sidewalk plans. Clinton is in the process of surveying their sidewalk network. To date, only Essex, Middletown and Old Saybrook have completed a bike/ped plan.¹

Regional Trails

The Region hosts a system of trails, many of which are in state parks and forests, town-owned lands, and land trust properties as well as extensive mountain biking trails. Regional trails include:

Westlake Area Bikeway and the Mattabesett Trolley Trail, Middletown: The Westlake Trail is 3.9 mile long multi-use trail located in a residential/commercial area that links the FedEx building, a major regional employer, to a densely populated residential area. The Mattabesett Trolley Trail was extended in 2014 and now spans 3.9 miles in length. It loops around a residential area and provides scenic views of and access to the Mattabesett River.

Air Line State Park Trail: Beginning in East Hampton, the gravel trail which accommodates pedestrians, cyclists, and equestrians, starts at Alden's Crossing and traverses 4.7 miles before crossing into Colchester at Bull Hill Road. Portland is currently working to extend the Air Line Trail to the Connecticut River and the Brownstone Exploration & Discovery Park. RiverCOG, the Jonah Center for Earth and Art, East Hampton, Portland, Middletown, Meriden, and Cheshire are working on a connection between the Air Line Trail in East Hampton and Portland to the Farmington Canal Trail in Cheshire. This connection would allow for the creation of a 112 mile loop trail connecting central Connecticut to the East Coast Greenway. In addition, East Hampton is working to close the gap between East Hampton's section of Air Line Trail and Portland.

New England Trail: This hiking trail follows the Metacomet ridgeline through Middletown, Middlefield, Durham, and Haddam and includes the former Metacomet and Mattabesett Trails in Connecticut and the Metacomet Monadnock Trail in Massachusetts. The New England Trail is over 200 miles long and encompasses ridges, forests, and state, municipal, and private lands in 39 communities spanning central Connecticut, western Massachusetts, and southern New Hampshire. These trails are primarily designed for hiking and are designated as nonmotorized trails.

Regional Greenways

A greenway is a linear open space established along a natural corridor such as a river, forest, stream, ridgeline, rail-trail, canal, or other route for conservation, recreation, or multimodal transportation purposes. Greenways in the region include the Menunketesuck—Cockaponset Regional Greenway, Quinimay Trail, Eight Mile River Greenway, Old Lyme Greenway, and the Connecticut River Gateway Conservation Zone Greenway. Clinton is working on an eastern extension of the Shoreline Greenway from its current terminus at Hammonasset Beach State Park to the center of town.



Bicyclists on the Mattabesett Trolley Trail
Source: Traillink.com, Michael Parker

¹ Regional Metropolitan Transportation Plan, LCRVCOG, 2019

PUBLIC ENGAGEMENT

Online Mapping Tool

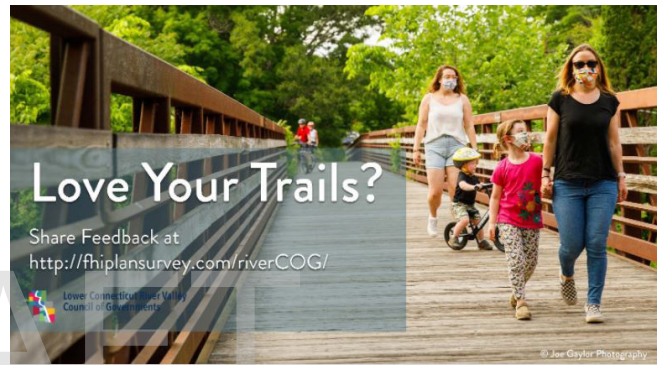
RiverCOG launched an online bike-ped mapping tool in 2020. The mapping tool allowed users to provide location-based feedback in a user-friendly anonymous way. Input provided will be used to inform planning and prioritizing improvements for bicyclists and pedestrians in the Region and directly influenced the goals of this Plan. Improvements are focused on safety and connectivity of bicycle and pedestrian networks.

Facebook advertisements as well as media press releases were used to promote the interactive mapping tool. Highlights from the online mapping tool are provided below.

The online mapping tool was active between the months of July and August 2020. During this time period, over 100 comments were entered related to the Region's bicycle and pedestrian network. Participants were able to provide distinct location-based comments and had the option of tagging comments by type such as:

- Crosswalk needed
- Cross signal/push button missing; Crosswalk needed
- Missing sidewalk
- Wayfinding signage needed
- Missing trail head signage
- Narrow shoulder
- Poor sidewalk condition
- Dangerous intersection
- High speed traffic
- Too much traffic
- Other (leave a comment)

Many comments received described challenging crossing points, sidewalk conditions, and traffic considerations such as speeding and heavy traffic. Most comments included a variety of tags, meaning that the location had multiple challenging conditions for cyclist, pedestrians, or both. Appendix C provides a summary of survey results.

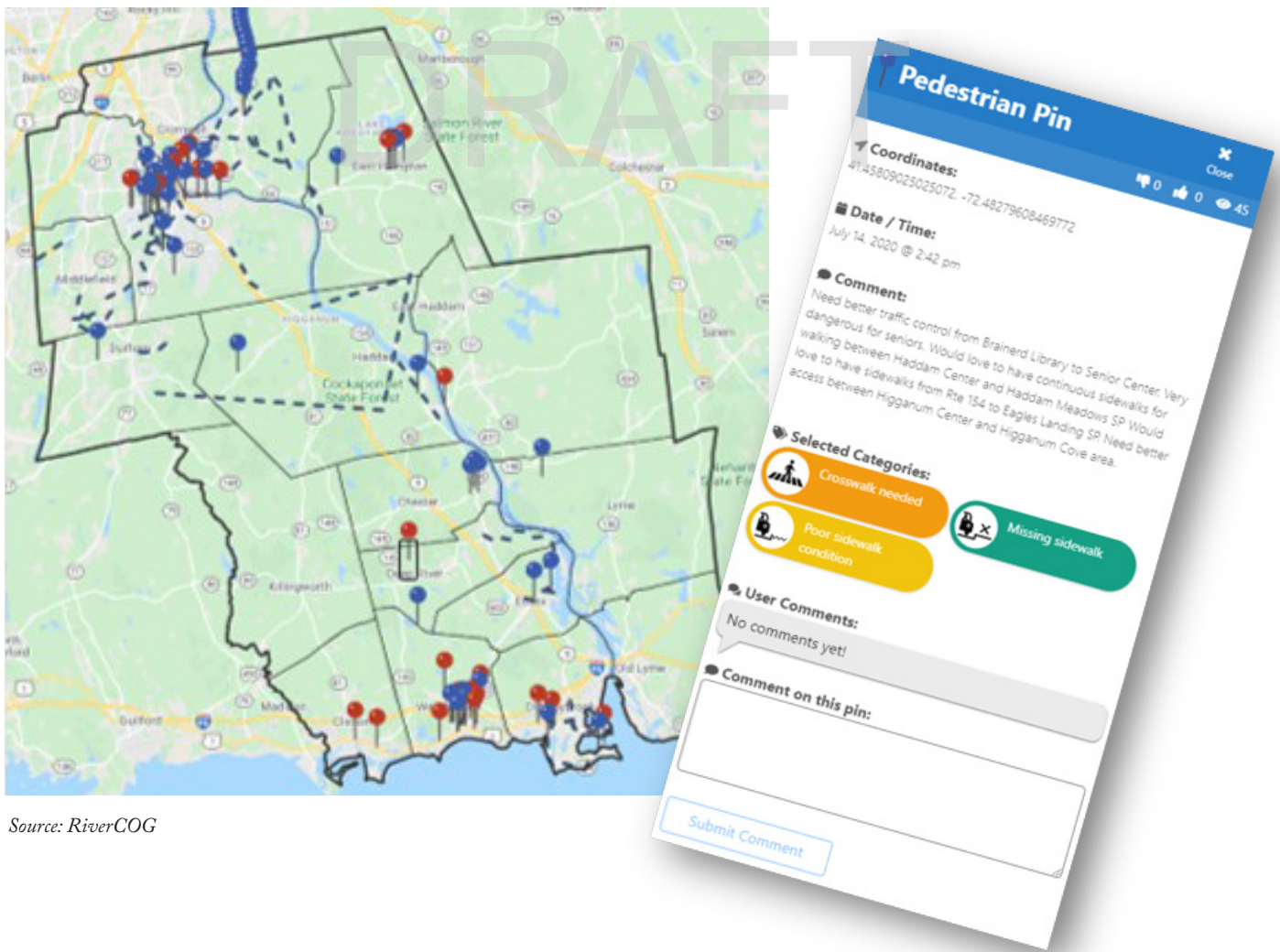


Facebook advertisements created to promote the online mapping tool.
Source: FHI Studio, RiverCOG, Joe Gaylor Photography

Sample Comments

- “Crossing the Arrigoni Bridge from Middletown to Portland on the south sidewalk is treacherous once you get to Portland. The sidewalks do not align for bicyclists, and it’s treacherous for pedestrians too.”
- “Rt 154 is a very popular bicycle route with narrow shoulders for riders.”
- “Rt 1 lacks a sufficient shoulder for bicycles considering the amount of traffic, speed, and intersections. Especially from Rt 166 to Mill Rock Rd E in Old Saybrook.”
- “Main Street in Clinton really has no shoulder for bicycles and is dangerous with intersections and traffic volumes.”
- “This section of a designated bike route is heavily used by cyclists, but it has a narrow paved shoulder in some places. Many people consider it too dangerous.”
- “As a runner who uses the Airline Trail regularly I find this to be an inconvenient crossing due to local car traffic. A cross walk would be helpful, a crosswalk with a pedestrian light would be better and a foot bridge connecting the trail across main street would be ideal so that those traveling beyond the village center don’t have to stop unless they’d like to or need to.”
- “Main Street in Middletown is perceived as extremely dangerous for cyclists, and bikes are prohibited from using the sidewalks on Main Street. Diagonal parking is one problem. It is a wide street but there is no provision here for bicyclists. People use the sidewalks anyway.”
- “Route 66 from the intersection with Route 17A needs a bike lane as traffic is too fast for bicycles”

Figure 3: Online Mapping Tool



Source: RiverCOG

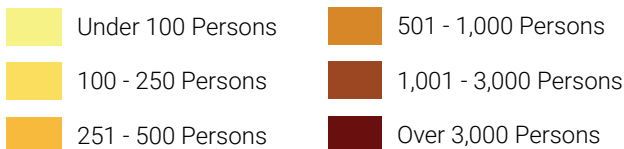
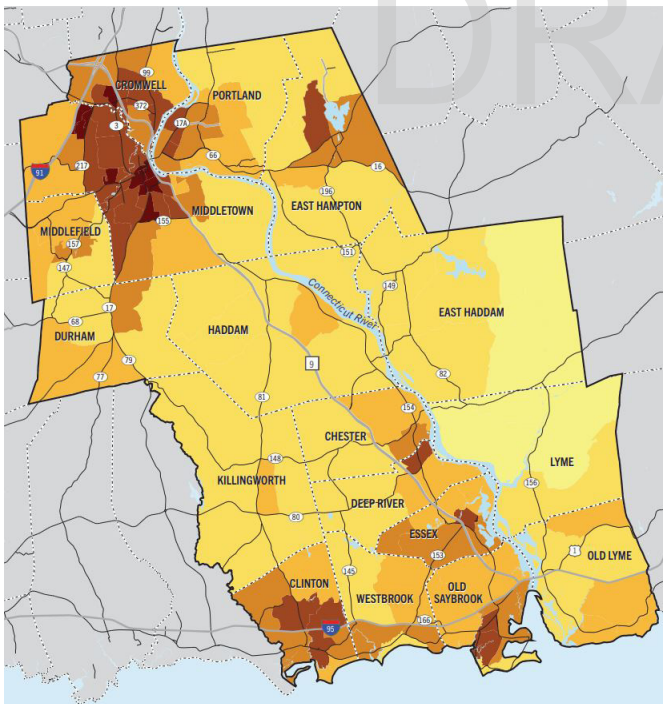
CRASH ANALYSIS

Bicycle and pedestrian safety throughout the LCRV Region has been highlighted in the Region's Metropolitan Transportation Plan (MTP) as well as in the municipal POCD's as a primary concern and consideration within all of the municipalities for any improvement project. To address this, a thorough analysis of bicycle and pedestrian crashes was conducted and is described in this section.

Based on data retrieved from the Connecticut Crash Data Repository (CTCDR) for the three-year period between January 2017 and December 2019, there were a total of 159 crashes involving either bicyclists or pedestrians in the LCRV Region. Of these crashes, 42 involved bicyclists and 117 involved pedestrians.

Crashes were concentrated in urbanized areas of the Region such as Middletown, Cromwell, and along the shoreline communities of Old Saybrook, Westbrook, and Clinton. These are the municipalities with the highest average traffic volumes on their roadways as well as the municipalities with the greatest population densities. See Table 1 and Figure 6.

Figure 4: Population Density Per Square Mile



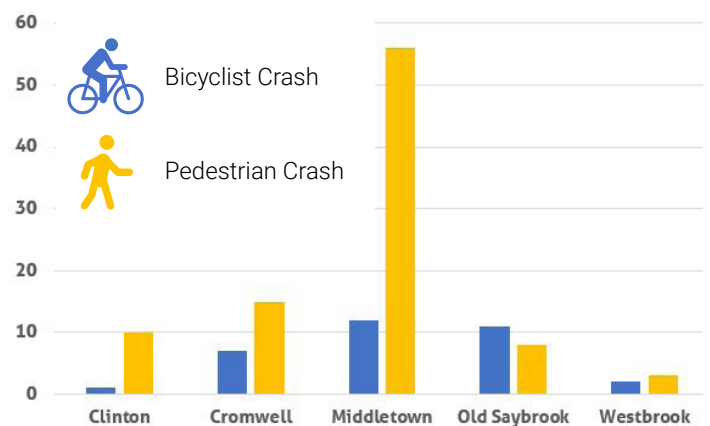
Source: U.S. Census Bureau, American Community Survey 2019 5- Year Estimates

Table 1: Crashes by Municipality

| Municipality | Bicyclist Crash | Pedestrian Crash |
|--------------------------|-----------------|------------------|
| Chester | 0 | 1 |
| Clinton | 1 | 10 |
| Cromwell | 7 | 15 |
| Deep River | 2 | 0 |
| Durham | 2 | 1 |
| East Haddam | 0 | 0 |
| East Hampton | 1 | 5 |
| Essex | 1 | 0 |
| Haddam | 0 | 1 |
| Killingworth | 0 | 2 |
| Lyme | 0 | 0 |
| Middlefield | 1 | 3 |
| Middletown | 12 | 56 |
| Old Lyme | 1 | 5 |
| Old Saybrook | 11 | 8 |
| Portland | 1 | 3 |
| Westbrook | 2 | 3 |
| LCRV Region Total | 42 | 113 |

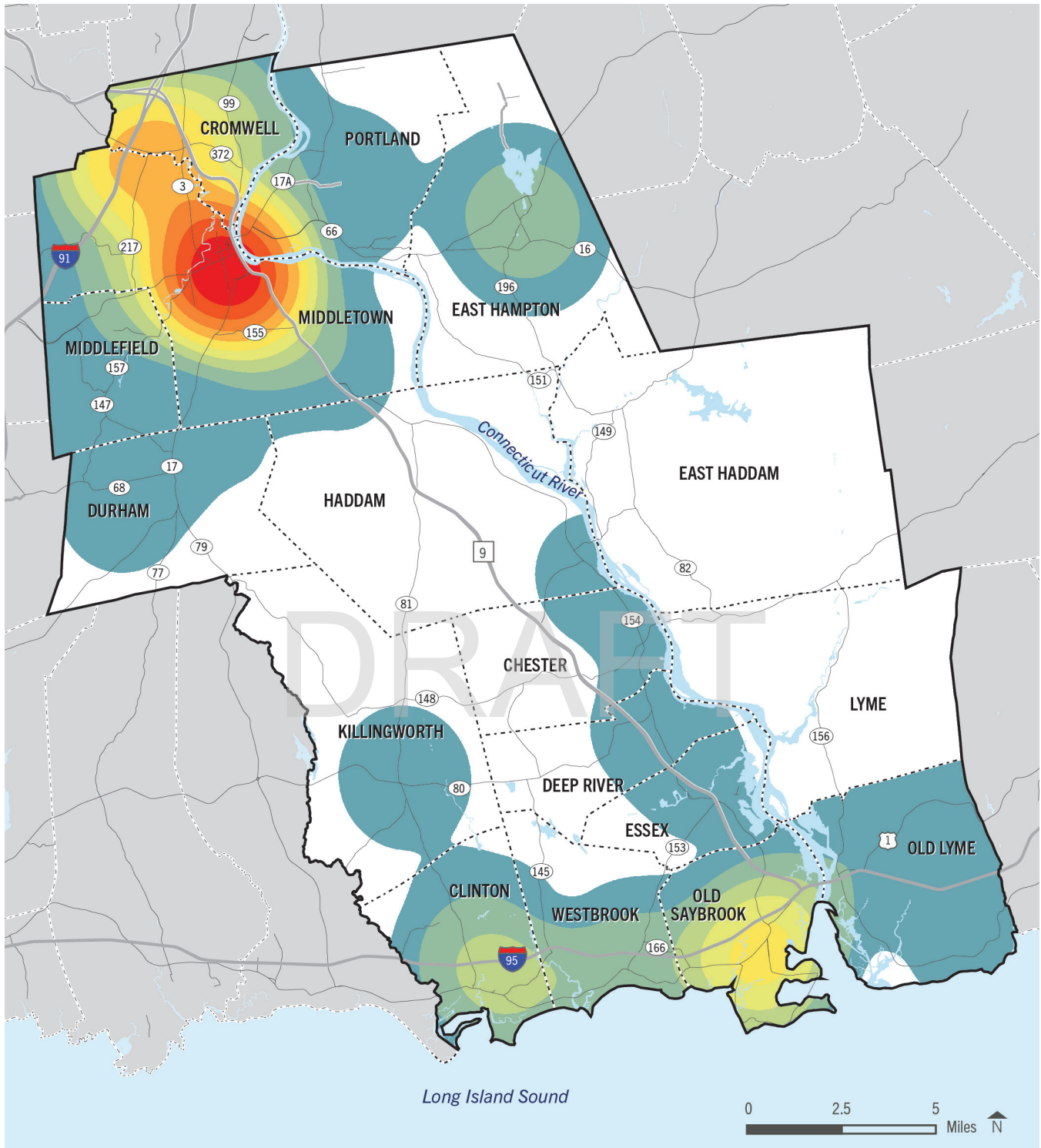
Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

Figure 5: Top 5 Crash Locations by Municipality

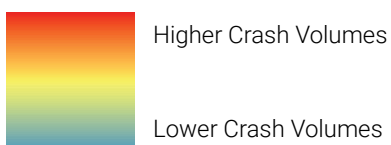


Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

Figure 6: Crash Hot Spots



Crash Volumes



Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

Crash Type and Severity

There were a total of 42 crashes involving bicyclists in the LCRV Region between 2017 and 2019. Most of these crashes were minor injury/ possible injury crashes or property damage only. There was one fatal injury crash involving a cyclist in Westbrook in 2019. See Table 2 for bicycle crash severities by manner of impact.

There were 113 crashes involving pedestrians in the Region during the same time period. Again, most of the crashes were classified as minor injury/ possible injury crashes or property damage only. There were three fatal injury crashes involving pedestrians during the three year analysis period. These fatal crashes occurred in Clinton, Old Saybrook, and Old Lyme. See Figure 7.

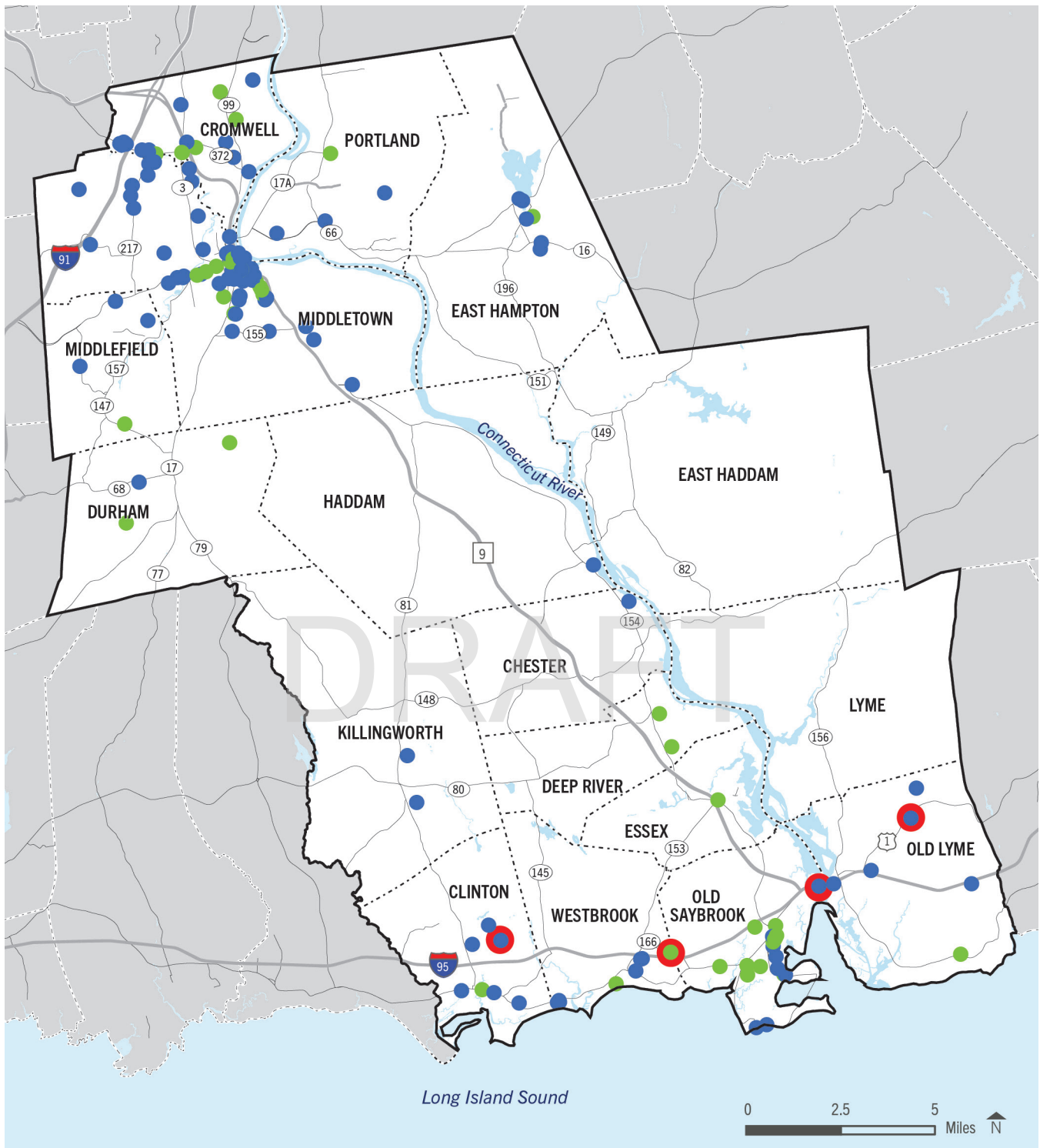
| Table 2: Crashes Involving Bicyclists | | | | | | |
|--|---------------------|-----------------------|---------------------|------------------------|-----------------------------|--------------|
| Crash Severity | | | | | | |
| Manner of Impact | Fatal Injury | Serious Injury | Minor Injury | Possible Injury | Property Damage Only | Total |
| Angle | | 1 | 1 | | | 2 |
| Sideswipe, Same Direction | | | | | 1 | 1 |
| Other | 1 | 1 | 23 | 10 | 4 | 39 |
| LCRV Region Total | 1 | 2 | 24 | 10 | 5 | 42 |

Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

| Table 3: Crashes Involving Pedestrians | | | | | | |
|---|---------------------|-----------------------|---------------------|------------------------|-----------------------------|--------------|
| Crash Severity | | | | | | |
| Manner of Impact | Fatal Injury | Serious Injury | Minor Injury | Possible Injury | Property Damage Only | Total |
| Front to Front | | | 5 | 1 | 1 | 7 |
| Sideswipe | | | | | 1 | 1 |
| Other | 3 | 19 | 49 | 25 | 9 | 105 |
| LCRV Region Total | 3 | 19 | 54 | 26 | 15 | 113 |

Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

Figure 7: Crashes by Type



Crash Type

- Pedestrian Crash
- Bicyclist Crash
- Fatality

Source: CT DOT Crash Data Repository, 2017 - 2019. <https://www.ctcrash.uconn.edu/>

REVIEW OF STRAVA DATA FINDINGS

About Strava

As part of this bicycle and pedestrian master plan, RiverCOG partnered with Strava Metro to review data related to bicyclist and pedestrian activity in the LCRV. Strava provides quantitative data that shows where people are walking and biking in the Region. Not all trips are accounted for, as users of Strava self select by logging in their trips, so people not utilizing the Strava app are not counted. Despite this limitation, Strava is able to provide a telling snapshot of desire lines where people are currently traveling. The following is a summary of findings from the Strava analysis.

Bicyclist Trends

Cyclist throughout the Region are getting out most frequently for weekend (Saturday and Sunday) trips in the morning hours. This is consistent throughout the Region. Peak hours tend to be in the mornings between 7 AM and 9 AM, as well as an evening peak around 6 PM on the weekends. Popular bike routes tend to be along the longer State roadways such as Route 154 between Old Saybrook and as far north as Middletown, Route 156 in Old Lyme and Lyme and Route 82 in Haddam and East Haddam. Where alternatives to the busier State roadways exist, such as parallel routes on quieter roadways, cyclist tend to prefer those routes instead. In Clinton, Liberty Street, which runs north to south parallel to Route 81, was preferred over the busier State route. Some roadways in the Region, such as Route 1 between Old Saybrook and Clinton, do not have such similar parallel routes, making finding alternative routes a challenge. Despite heavy traffic volumes, Route 1 is still a popular cyclist route.

Mountain bike ridership along the Region's trails such as the Airline Trail in East Haddam and Portland and trails within Cockaponset State Forest were utilized throughout the week. Weekend morning ridership that was prevalent on roadway routes was not on trails.

Pedestrian Trends

Pedestrian activity is highest near village centers and downtown areas throughout the Region. These nodes, such as Downtown Essex, Middletown, and Downtown Clinton tend to have destinations such as coffee shops, stores, and restaurants. In addition to providing destinations, village centers often provide sidewalks and other pedestrian amenities that make walking more appealing. Pedestrian activity was steady throughout the week. The higher weekend volumes that were prevalent for the bicycle trips were not as evident when reviewing walking trips.

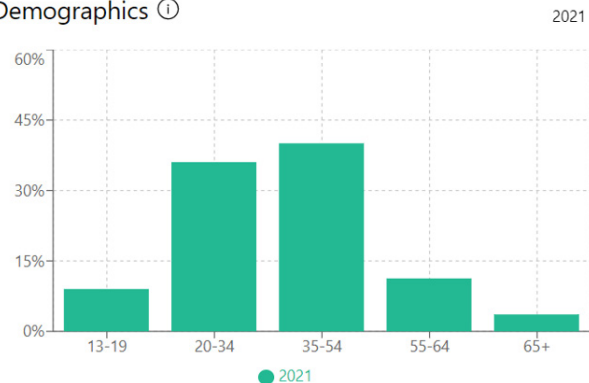
2020 and 2021 Findings

Bicycle and pedestrian activity throughout the LCRV was higher in 2020 than it was for the same period in 2021. This is likely attributed to the COVID-19 Pandemic, where more people may have felt safer exercising outside than inside in a gym. Trail usage also spiked in 2020 as a result of the pandemic.

There were very few commuter trips reported through Strava as a share of total trips. Additionally, a larger share of trips were logged by visitors to the Region compared to local residents, with most of these trips being recreational in nature.

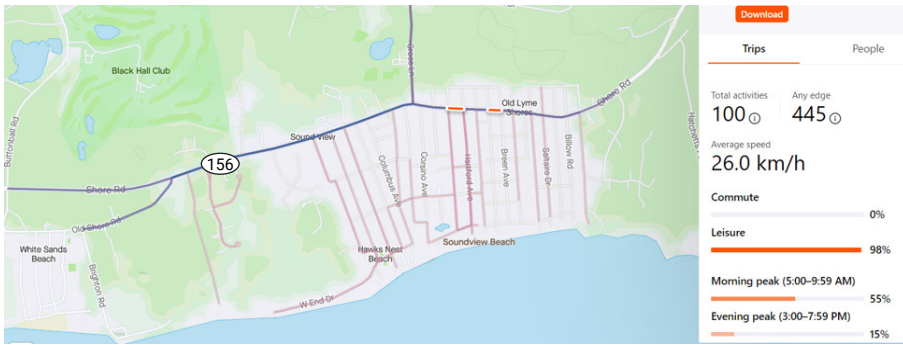
As of October 2021, more locals have logged trips into Strava than in 2020. The most widely reported age ranges for trips was for the 20-34 year age range and 35-54 year age range.

Demographics ①

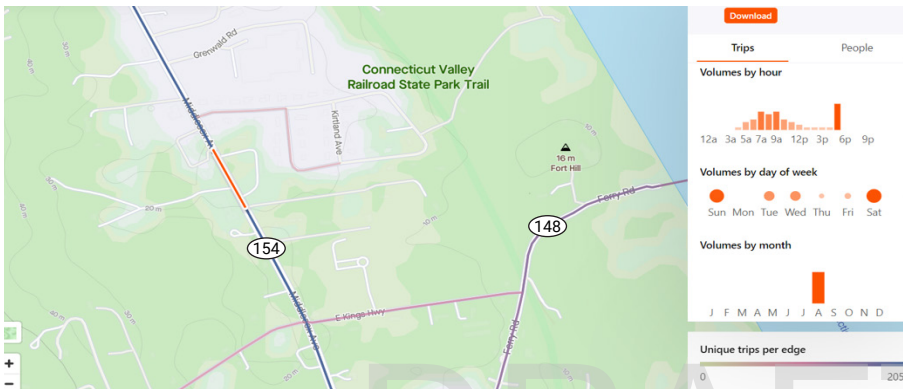


Age Pyramid for Strava users
Source: Strava Metro, 2021

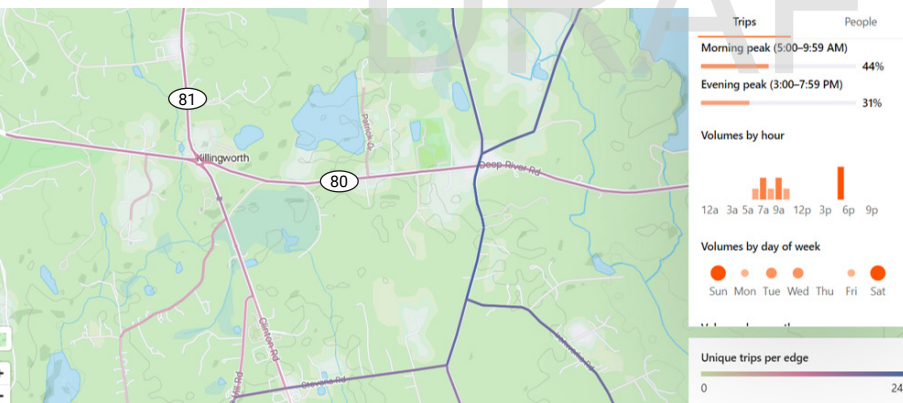
Bicycle Rider Snapshot



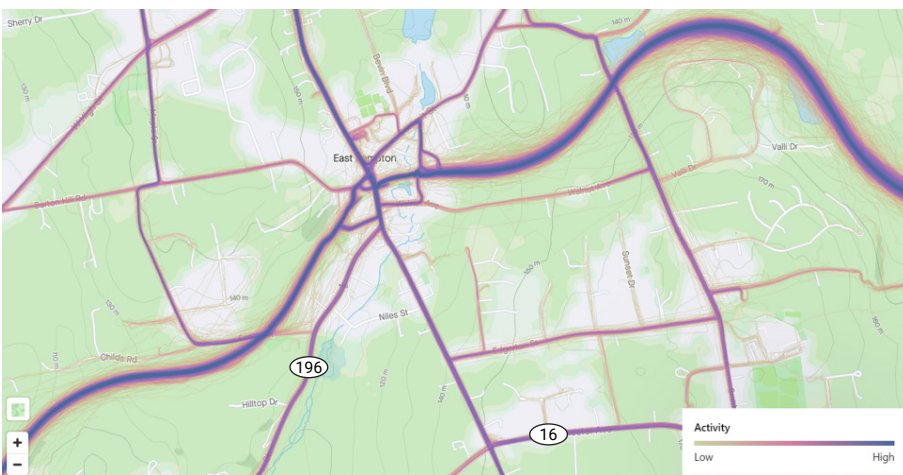
Riders opting for longer trips tend to use State roadways during weekend morning hours. Scenic locations such as Shore Road (Route 156) in Old Lyme are popular routes for cyclist.



Route 154 between Old Saybrook and Middletown is heavily traveled by bicyclists. The roadway provides scenic views of the Connecticut River and passes through some of the LCRV's town centers such as Deep River, Tylerville and Higgau.



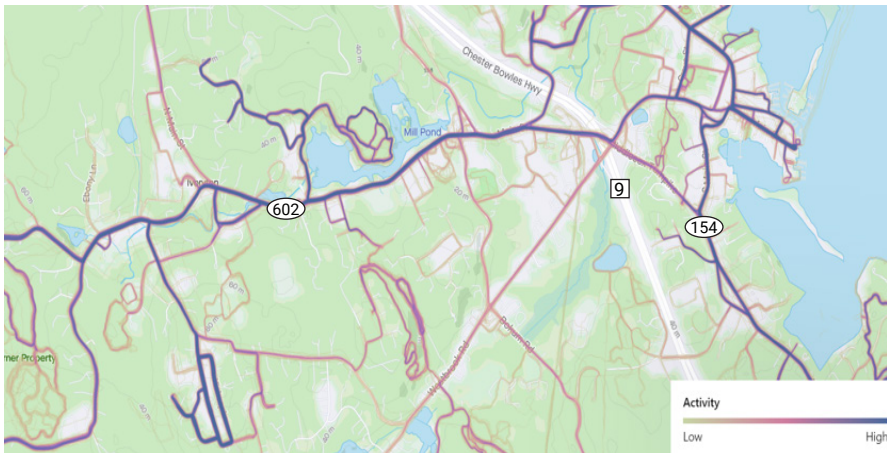
Where alternative parallel routes exist, riders tend to favor less busy local roadways over more heavily trafficked State roads. In the Killingworth example to the left, ridership is heaviest on Roast Meat Hill Road which runs north to south, parallel to Route 81. Annual daily traffic counts from 2019 at these locations show over 10,000 vehicles per day on Route 81 and 1,500 on Roast Meat Hill.¹



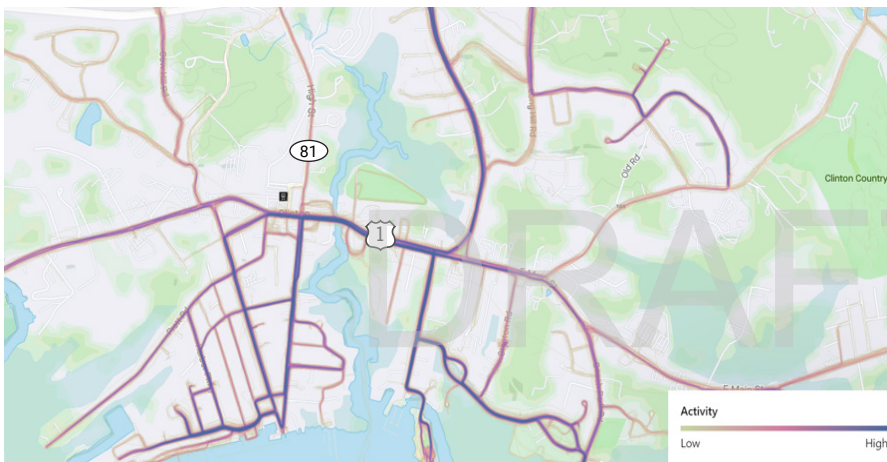
Where there are dedicated off-road facilities, the user profile shows that people are using the facilities throughout the week compared with the high weekend volumes on popular on-road routes. Time of day varied as well, the high morning peak of ridership in the earlier hours before traffic volumes get high, was not prevalent on off-road routes. The map at left displays the high volumes on the Air Line Trail, as well as elevated volumes to get to access points of the trail.

¹ CT DOT Traffic Monitoring Station Viewer.. AADT 2019. https://portal.ct.gov/DOT/PP_SysInfo/Traffic-Monitoring

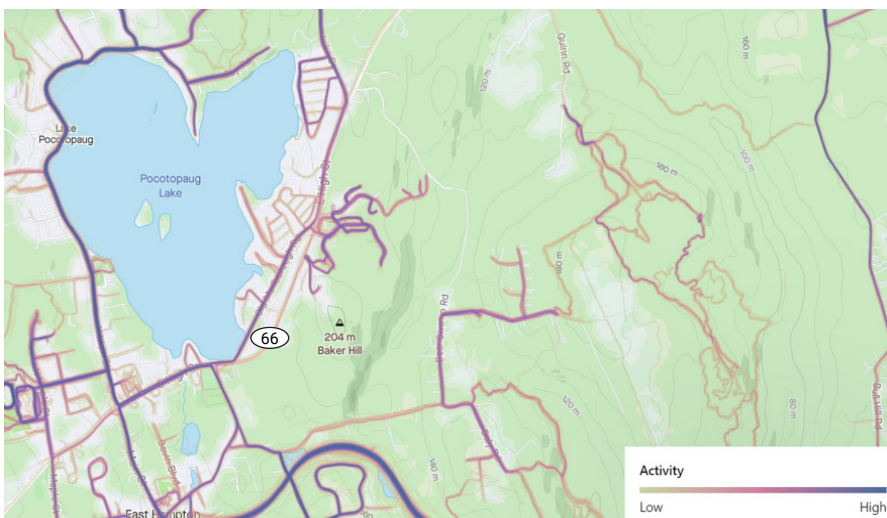
Pedestrian Snapshot



In Essex, high pedestrian volumes are prevalent along Route 154 and Route 602 connecting the three villages. Sidewalk improvements and installations are underway in these locations to connect the Town's three villages.



In Clinton, pedestrians are utilizing Liberty Street to bypass Route 81 where the traffic volumes are higher. High pedestrian volumes are most prevalent in the Downtown area and commercial areas with sidewalks. Pedestrian trips to beaches and marina areas along the Long Island Sound are also very common. This is true for LCRV's other shoreline communities of Old Lyme, Old Saybrook and Westbrook.



Pedestrian activity near the LCRV's natural resources is common. Walkers and hikers use the Region's open spaces and scenic resources such as State forests and Land Trust properties. The map to the left shows high pedestrian activity around Lake Pocotopaug in East Hampton, one of the Region's many environmental assets.

REVIEW OF STREETLIGHT DATA FINDINGS

About Streetlight

Streetlight is a location-based data analysis service (LBS) that provides valuable origin and destination information for discrete geographic zones (user identified). The planning team focused on ten representative zones throughout the Region to conduct the analysis. These zones were selected based on their locations related to commercial areas, destinations, and transit amenities such as train stations and bus stops. Zones were analyzed to focus on the shorter trips (under two miles) where mode shifts to bicycling and walking may occur if adequate facilities are provided for. Highlights from the ten zones analyzed are provided on the following pages. Figure 8 displays a map of Streetlight zone locations.

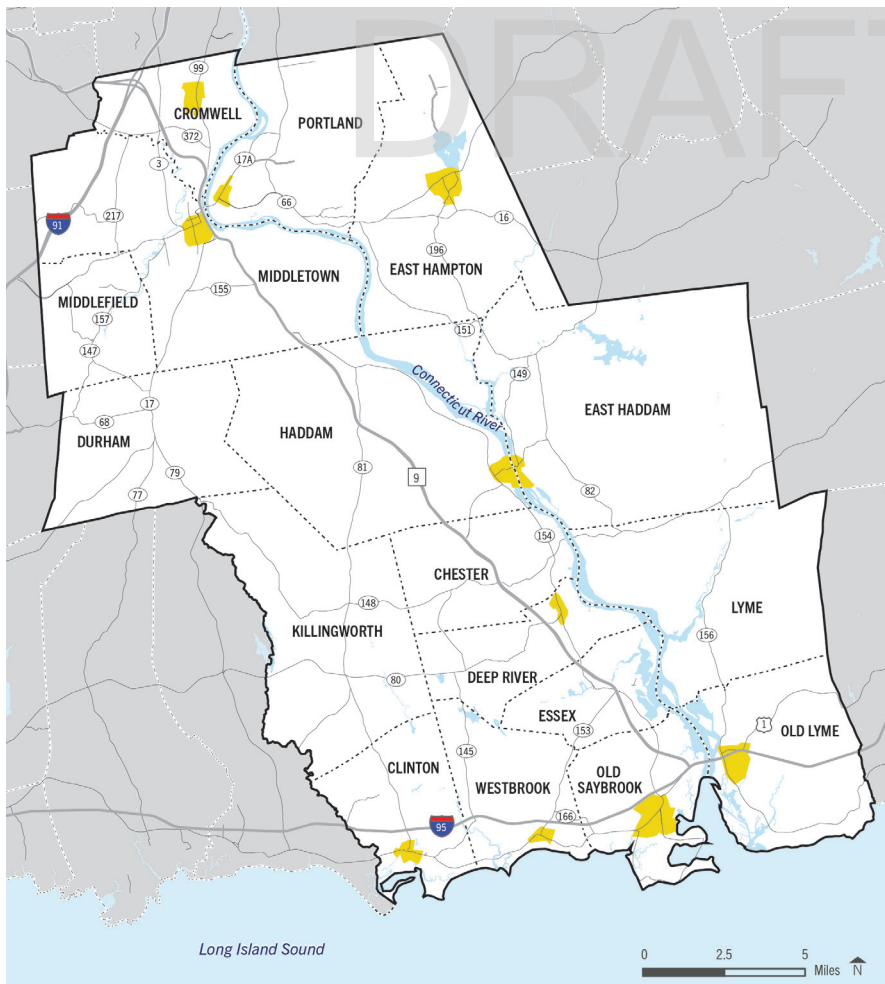
The zones are as follows:

- Cromwell - vicinity of Main Street and Court Street
- Middletown - vicinity of Downtown and Wesleyan
- Portland - vicinity of Main Street
- East Hampton - vicinity of Main Street and Lake Pocotopaug
- Haddam/East Haddam - vicinity of Tylerville and Route 82/ Downtown East Haddam
- Deep River - vicinity of Main Street
- Clinton - vicinity of Train Station and Town Center
- Westbrook - vicinity of Train Station and Town Center
- Old Saybrook - vicinity of Train Station and Town Center
- Old Lyme - vicinity of Halls Road commercial area and Town Center

Data was collected for the months of March, April, September, and October in 2019. Data is collected from location records from smart phones and navigation devices in connected cars and trucks. Appendix A provides summary data. For more information about Streetlight data, please see their website:

<https://www.streetlightdata.com/our-data/>

Figure 8: Streetlight Analysis Zones



Findings

Table 4 displays the percentage of each type of trip traveling into each zone from less than two miles away. As expected, nearly all pedestrian trips within the zones are less than two miles in length. These trips are generally less than forty minutes in duration and are comprised of recreational and destination based trips.

Of note, is the high percentages of bicycle trips that are under two miles in some of the zones. In Deep River, approximately eighty-nine percent of bicycle trips into the study area zone where originating from less than two miles away. Seventy-two percent of trips in Old Saybrook and sixty-four percent of trips in Old Lyme originate from less than two miles away. In Middletown's Downtown/Wesleyan zone, approximately two-thirds (64%) of trips are less than two miles in length. These numbers highlight the need to improve upon bicycle and pedestrian facilities to make them safer and more accessible to all users. Short trips tend to be for utilitarian purposes instead of recreational in nature. Short trips can be walkable if people feel safe and comfortable.

Across the ten zones, approximately 25% to 35% of all vehicle trips are under two miles. In the Haddam/ East Haddam zone and the Old Lyme zone these shares are slightly lower (16% and 15%) which could be due to the rural character of those communities and longer distances between destinations. These shorter vehicle trips highlight an opportunity for a mode shift away from personal vehicles. If high quality facilities and networks are provided, drivers may choose to walk or bicycle to a destination rather than drive. Facilities also make it more desirable for drivers to park once and walk to multiple destinations rather than driving to each individual business.

Table 4: Share of Trips Under Two Miles

| Zone Municipality | Pedestrian | Bicycle | All Vehicles |
|---------------------|------------|---------|--------------|
| Cromwell | 98% | 50% | 30% |
| Middletown | 98% | 64% | 34% |
| Portland | 97% | 20% | 29% |
| East Hampton | 98% | 34% | 31% |
| Haddam/ East Haddam | 99% | 20% | 16% |
| Deep River | 98% | 89% | 25% |
| Clinton | 98% | 52% | 31% |
| Westbrook | 97% | 50% | 23% |
| Old Saybrook | 99% | 72% | 28% |
| Old Lyme | 98% | 60% | 15% |



Bicycle Commuter
Source: San Francisco Bicycle Coalition

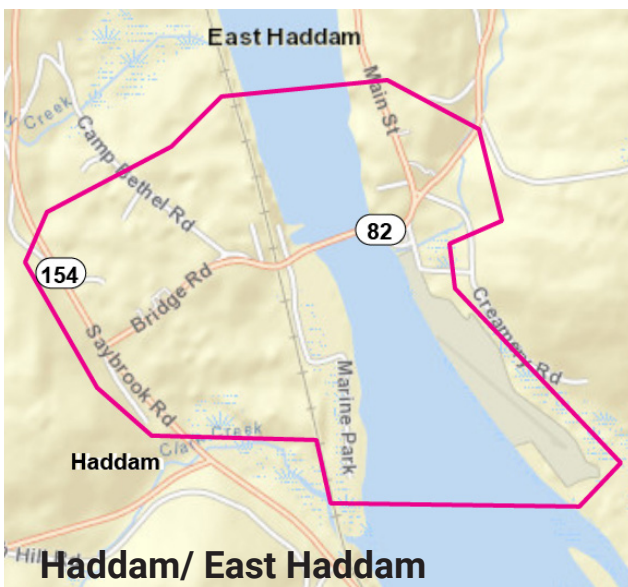
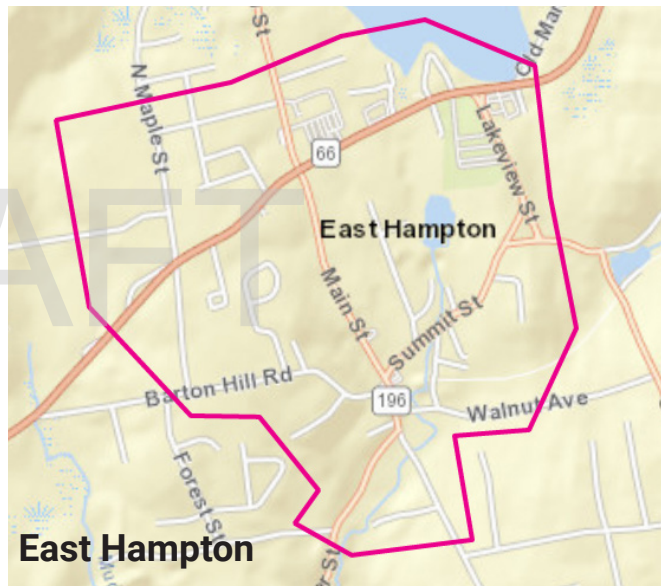
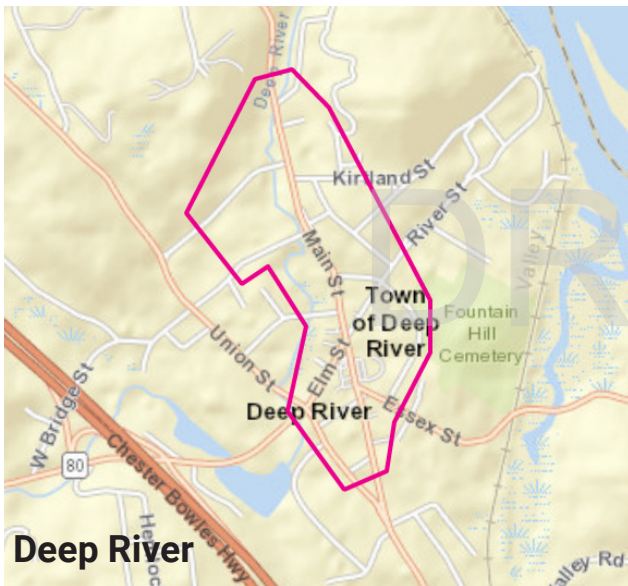
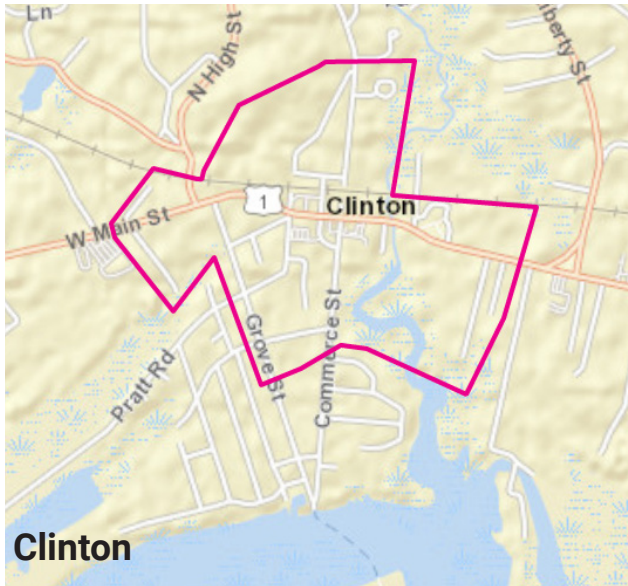
Table 5 displays the share of trips from home to work per zone. Across the zones, between 17% (Old Saybrook) and 37% (Cromwell) of pedestrian trips into each zone are travel to work based trips. Bicycle work trips are fewer, with between 0 trips (Westbrook) to 16% (Old Saybrook) of trips into each zone. All vehicle work trips across the ten zones range from 10% (Haddam/East Haddam) to 25% (Old Lyme).

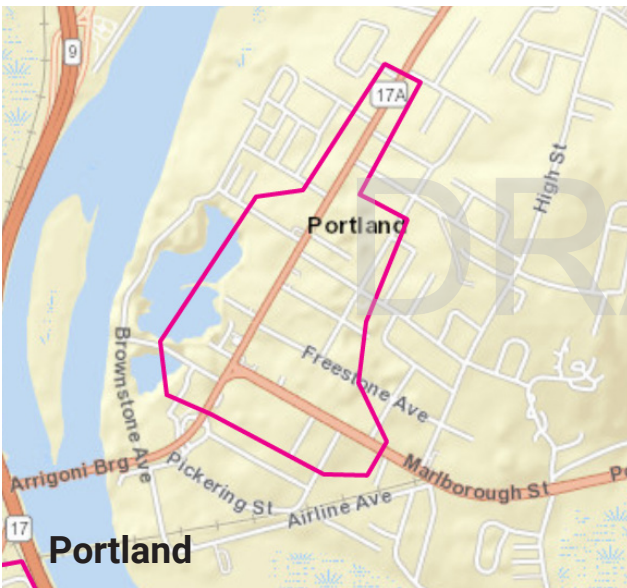
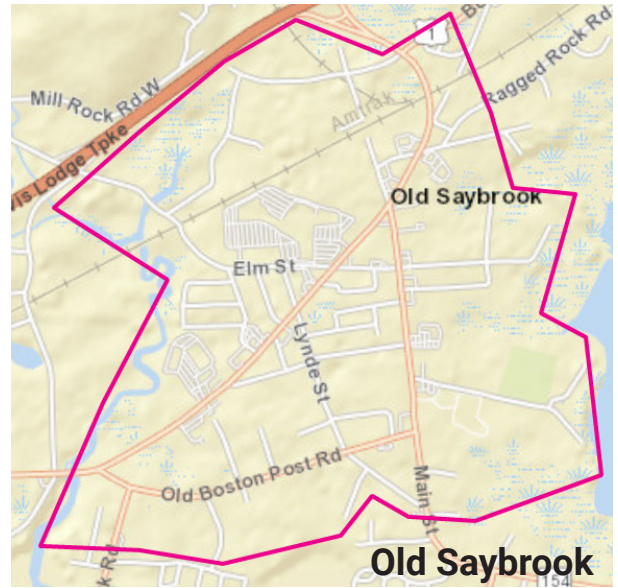
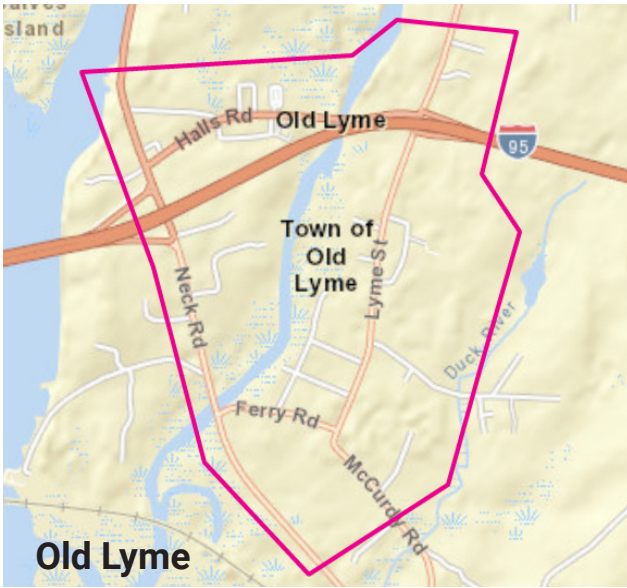
Table 6 displays the share of each mode of trip traveling into each zone that has a non-work destination. Across the zones, between 11% (Old Lyme) and 36% (Deep River) percent of pedestrian trips are non-work based trips. Bicycle non-work trips range between 10% (Haddam/East Haddam) to 34% (East Hampton) of trips. All vehicle non-work trips range from between 32% (Old Lyme) to 47% (Cromwell).

| Table 5: Share of Home to Work Trips in Zone | | | |
|---|-------------------|----------------|---------------------|
| Zone Municipality | Pedestrian | Bicycle | All Vehicles |
| Cromwell | 37% | 14% | 24% |
| Middletown | 33% | 11% | 20% |
| Portland | 35% | 10% | 18% |
| East Hampton | 31% | 10% | 19% |
| Haddam/ East Haddam | 32% | 3% | 10% |
| Deep River | 22% | 6% | 14% |
| Clinton | 30% | 13% | 13% |
| Westbrook | 24% | 0% | 15% |
| Old Saybrook | 17% | 16% | 12% |
| Old Lyme | 29% | 7% | 25% |

| Table 6: Share of Home to Non-Work Destination Trips per Zone | | | |
|--|-------------------|----------------|---------------------|
| Zone Municipality | Pedestrian | Bicycle | All Vehicles |
| Cromwell | 13% | 31% | 47% |
| Middletown | 22% | 31% | 40% |
| Portland | 34% | 26% | 45% |
| East Hampton | 24% | 34% | 45% |
| Haddam/ East Haddam | 16% | 10% | 41% |
| Deep River | 36% | 26% | 41% |
| Clinton | 29% | 31% | 44% |
| Westbrook | 29% | 29% | 39% |
| Old Saybrook | 19% | 23% | 38% |
| Old Lyme | 11% | 19% | 32% |

Figure 9: Zones





SUSTAINABLE CT FELLOWS

RiverCOG had two Sustainable CT Fellows intern with their organization for the summer of 2021. The interns conducted a walkability audit of the Region, which included site visits to high crash locations identified by FHI Studio. Photos were taken of areas of interest for each town, and their findings were summarized in a final report which is included in Appendix D.

General Notes

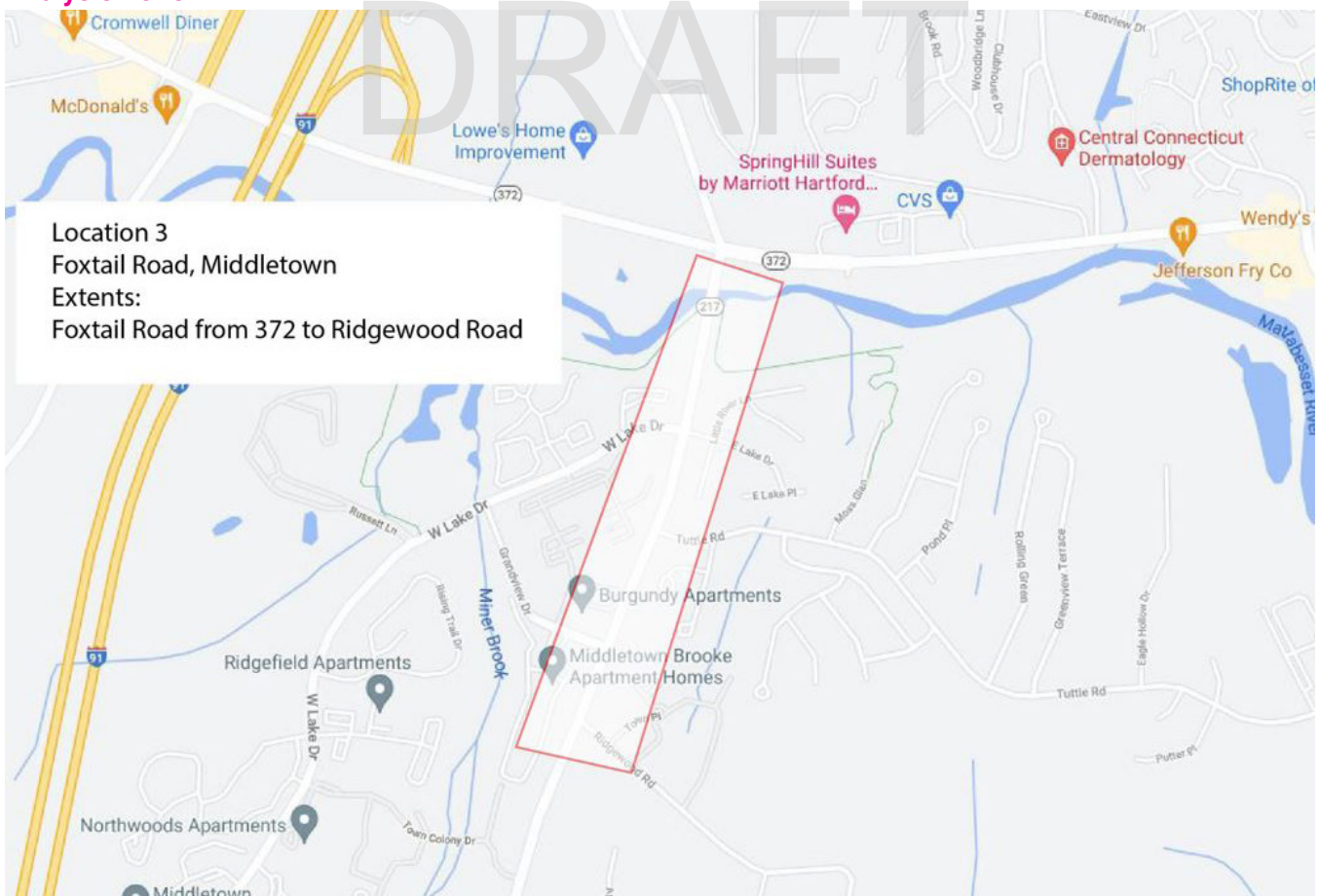
There were a minimal number of flashing pedestrian lights, which is something that should be considered on many main roads where drivers tend to speed or not be aware of certain crosswalks. Many drivers were observed failing to stop for pedestrians at unsignalized crosswalks. Crossings at signalized intersections were preferable. There were also many areas that had pedestrian signal crossing buttons (actuators) but lacked corresponding crosswalk markings on the roadway.

Many sidewalks were observed to be overgrown with vegetation or in disrepair, making it difficult for individuals who use wheelchairs and strollers. Recently constructed or reconstructed sidewalks were observed.

Many roadway shoulders were found to be insufficiently wide to accommodate bicyclists. Additionally, bike routes were mostly in-lane or not specified of its location. There are bike route signs throughout the Region, but nothing clearly designating where bicyclists should ride. Signage is generally abundant, and is particularly helpful for those not from the area who are not using maps.

In certain town centers, there were minimal access points, especially in Centerbrook and the Clinton Outlets. Sidewalks begin or end at inconvenient locations and do not make the town center accessible for pedestrians. Locations in the Region that better accommodate bicyclists and pedestrians include Chester's town center, Middletown's Main Street strip, and Essex Village.

Figure 10: Sample Sustainable CT Fellow Analysis Zone



Location in Middletown noted to have elevated pedestrian and bicyclist crash volumes
Source: CT DOTCrash Data Repository 2017- 2019, FHI Studio

MUNICIPAL OVERVIEWS

The following highlights provide an overview of accomplishments, issues and concerns, and opportunities that each of the LCRV municipalities identified related to bicycle and pedestrian planning efforts. A review of each community’s Plan of Conservation and Development (POCD) was conducted to inform this section. Additionally, representatives from each municipality were asked to complete a brief survey to provide an overview of progress and goals in their town’s.

Other resources utilized to inform this section include RiverCOG’s *Regional Metropolitan Transportation Plan 2019-2045*, CTDOT’s *Connecticut Active Transportation Plan* and RiverCOG’s *Regional Transportation Safety Plan, December 2021*. Additionally, some municipalities have developed other initiatives and plans that relate to bicycle and pedestrian planning, such as the RSAs through CTDOT’s Community Connectivity Program. Where applicable, these plans have also been summarized in the following pages.

The municipalities in the LCRV Region recognize the many benefits of providing facilities for bicyclists and pedestrians for both their residents and visitors. Safety was identified as a primary benefit and consideration across all these communities. However, their unique characters have led to distinct wishes regarding the types of bicycle and pedestrian improvements that should be made in their respective towns or cities and are highlighted in the following pages.

Figure 11: Regional Highway Network

Transportation Network

- Interstate Highways
- State Highways
- US Routes
- State Routes

Source: CT Department of Transportation



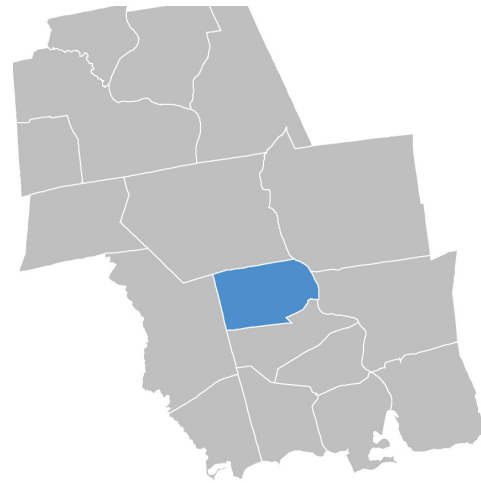
CHESTER

The Town of Chester is located on the west side of the Connecticut River, north of the shoreline. Chester is one of the region's riverside communities, with recreational destination amenities such as marinas and restaurants. Downtown Chester is a regional destination for dining, shopping and entertainment. The Norma Terris Theater, a second stage for Goodspeed Musicals (Haddam) attracts visitors from across the New England Region.

Chester is a small rural town in the center of the LCRV Region. The Town's main roadways are CT-9, CT-82, CT-145, CT-148, and CT-154. These roadways provide access to points throughout the region. The Chester-Hadlyme Ferry is a seasonal vehicular ferry that connects Route 148 in Chester to Route 148 in Hadlyme.

Land uses in Chester consist of a mix of local businesses and restaurants, residential neighborhoods, industrial businesses, and wooded areas and open space.

Chester had a population of 4,234 in 2019¹ and a population density of 265 persons per square mile. 1.5% of workers age 16 and over did not have access to a vehicle. Approximately 1.7% of workers utilized public transportation and 3.5% walked to work, while 0% bicycled to work. Nearly 14% of Chester's workers work from home. The majority of workers (75%) drove alone to work.² Public transportation in Chester includes 9 Town Transit (two routes have stops in Chester). The CT Transit Express bus to Middletown and Hartford stops at the commuter parking lot in Chester.



Recent Accomplishments

During 2020, Chester completed a redesign and rehabilitation project in the center of Downtown which included new, wider sidewalks connecting to other recently widened sidewalks in the Downtown. Crosswalks were realigned and new signage was installed.

The Town is in the process of planning for the repair of other sidewalks in various areas of town. There is a walking trail and boardwalk project currently in the design and planning process. The trail project would traverse along Chester Creek and would connect North Quarter Park to the Downtown.

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.

Issues and Concerns

Many of Chester's streets are narrow and winding. Visibility can be difficult and vehicles often travel at high speeds. Despite this, many cyclists and pedestrians are observed on Chester's roadways. Many of the residential neighborhoods in close proximity to the Downtown lack sidewalks.

Many of Chester's roads are state roadways. The development of multimodal accommodations on State roadways in the town has been challenging as it requires coordination with the State.

Sidewalk connectivity issues exist, particularly along Route 148 (Water Street/Ferry Road) between the Town center and the Connecticut River. The Town, which has a sizable number of bicyclists, is concerned about bicyclists failing to follow the rules of the road. The Watch for Me CT campaign could be a potential education resource, to help promote a message of responsibility for drivers, pedestrians, and bicyclists to share the road safely.

Opportunities

One of the goals of Chester's 2019 POCD is to "Increase pedestrian, bicycle, and transit connectivity throughout the region to enhance the quality of life, enable active lifestyles, and promote natural resource appreciation." However, Chester is served by a limited number of pedestrian and bicycle routes. Providing safe and convenient connections to these routes is a community priority.³

- Opportunities exist to improve connectivity that include:
- Connect the Village with other nearby assets.
- Enhance connections to active recreational areas, including State forests and parks, the Connecticut River, Cedar Lake, Chester Elementary School, North Quarter Park, and potential pedestrian access to Deep River should be considered.
- Ensure that bridge and road projects consider the need for safe pedestrian and bicycle access.
- Improve connections to Town-owned facilities.
- Work regionally to encourage the promotion of safe bike routes and signage.
- Connect the towns along the CT river via a blue-greenway in partnership with the Essex Steam Train and private landowners.

DRAFT

3. Town of Chester Plan of Conservation and Development, 2019.



*Sidewalk enhancement project in Downtown Chester
Source: FHI Studio*



*ADA compliant crossing as part of the sidewalk enhancement project in
Downtown Chester. Source: FHI Studio*

CLINTON

Clinton is located along the Long Island Sound, to the east of the Connecticut River. Clinton is one of the region's shoreline communities, with multiple beach communities and a variety of coastal amenities such as marinas, outdoor restaurants and recreation. Home to the Clinton Crossing outlet mall, Clinton is a regional shopping destination.

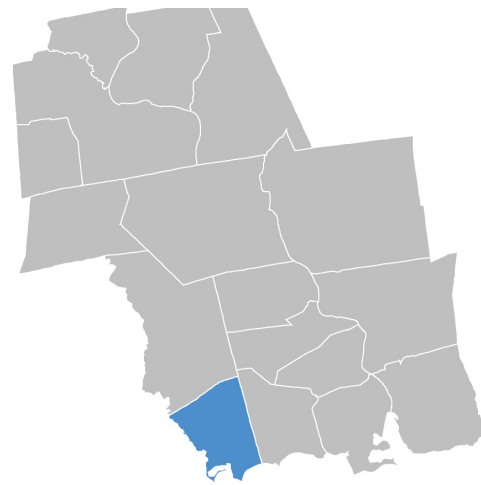
Clinton is a rural/suburban town bordered by Killingworth to the north, Westbrook to the east, Madison to the west, and Long Island Sound to the south. The Town's main roadways are I-95, US-1, CT-81, and CT-145. The Shore Line East Train Station is located in Clinton and other transit connections exist via the 9 Town Transit which has two routes that stop in Clinton. Route #1 travels along US-1 and connects Clinton with Madison to the west and Westbrook to the east. Route #5 connects Clinton to points north such as Middletown along CT-81.

Land uses in Clinton consist of a mix of "big box" commercial retail (Stop and Shop, Ocean State Job Lot), local businesses and restaurants, residential neighborhoods, beach communities, and wooded areas and open space. Clinton's Town Center stretches along its Main Street, which is also Route 1. Main Street is adjacent to the Clinton train station and is in close proximity to many residential neighborhoods and coastal amenities. Clinton's attractions include the Clinton Crossing Outlets, Chamard Vineyards, and Clinton Town Beach to name a few.

Clinton had a population of 12,944 in 2019¹, and a population density of 794 persons per square mile. Of workers above age 16, 2.3% do not have access to a vehicle. Approximately 2.7% of workers utilized public transportation, 2.9% walked to work and 0.5% bicycled to work. Nearly 4% of Clinton's workers worked from home. The majority of workers (83%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

The Clinton Bike and Pedestrian Alliance has been working to improve the bicycle and pedestrian network in town via a Greenway Blueway that connects the Downtown with scenic coastal areas of Clinton. Approximately half of this trail has been completed. Three other bike routes have been established that would connect the Downtown with points north such as the high school, Clinton Crossing, and residential neighborhoods.

The Clinton Bike and Pedestrian Alliance has been working on a train-to-trail tourism campaign to promote connections between the train station, destination points in town and the town trail. In the future, the Bike and Pedestrian Alliance hopes to connect to the Shoreline Greenway Trail in Madison via a bicycle and pedestrian bridge over the Hammonasset River.

A sidewalk project on East Main Street in Clinton's downtown is in the final design stages. Additionally, concepts for safety improvements on Long Hill Road are in initial stages.

The Route 81 Corridor Study was completed in 2019. The purpose of the Study was to proactively plan for current and long-range intermodal travel, economic development, and quality-of-life along Route 81. Opportunities for multimodal transportation along the corridor such as sidewalks and bike lanes were addressed as part of the Study.

Sidewalks were installed on the east side of Route 81 that connect the Clinton High School to the existing sidewalk network on Route 81 that extends between the Clinton Crossing Outlets, Henry Cater Hull Library and Downtown.

Issues and Concerns

Pedestrian and bicyclist safety is a major concern, particularly along Route 1 (East Main Street) and Route 145 (Old Post Road) to the Westbrook Town Line.



Bicyclist waiting for the 9 Town Transit Bus in Downtown Clinton
Source: FHI Studio

Opportunities

There is a strong desire for sidewalk improvements and connections along Route 1. Providing connections both east and west along the shoreline throughout Clinton and to the neighboring Town's of Westbrook and Madison is a priority. Further connectivity north between the high school and residential areas is also desired.

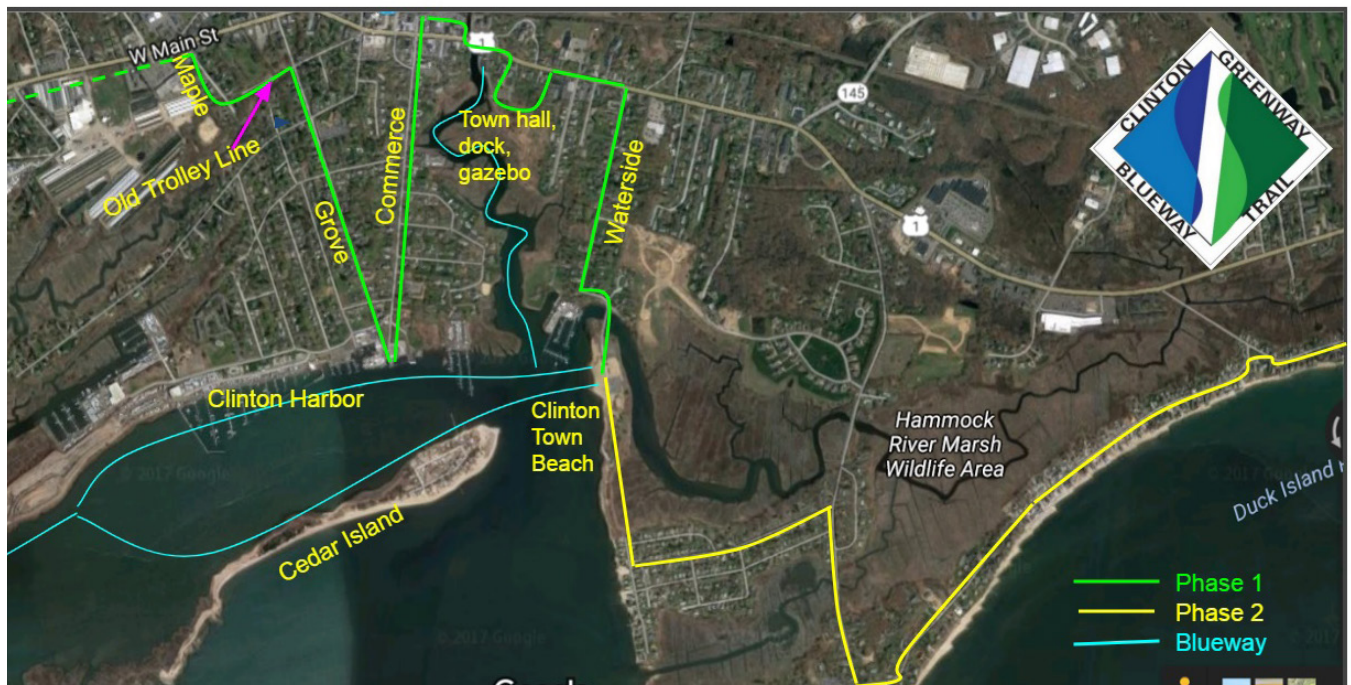
Additionally, as noted in Clinton's 2015 POCD, the Town should assess and consider implementing recommendations of RiverCOG's Route 1 Corridor Study. These include:

- Ensure any redevelopment of Route 1 includes consideration of bicycle and pedestrian facilities as mandated by the State's Complete Streets Policy.
- Consider an access management plan for commercial properties on the east end of Route 1.



Sidewalk installation on Route 81 near the High School
Source: FHI Studio

Figure 12: Clinton Greenway Blueway Trail



Clinton Greenway Blueway Trail Map
Source: Clinton Bicycle and Pedestrian Alliance

CROMWELL

Cromwell is a rural/suburban town bordered by Rocky Hill to the north, Glastonbury and Portland to the east, Berlin to the west, and Middletown to the south. Cromwell's main roadways are I-91, CT-3, CT-9, CT-99, CT-372, and CT-524. Middletown Area Transit (MAT) provides Fixed Route, ADA Dial-A-Ride and Rural Transportation to parts of Cromwell.

Cultural and natural resource assets in Cromwell include River Highlands State Park adjacent to the Connecticut River, Cromwell's Main Street Historic District, and the Connecticut River State Wildlife Area.

Land uses in Cromwell include a variety of small commercial business on Main Street such as a retail stores, banks, and restaurants and more large scale commercial business located on Route 3 and other areas of the community.

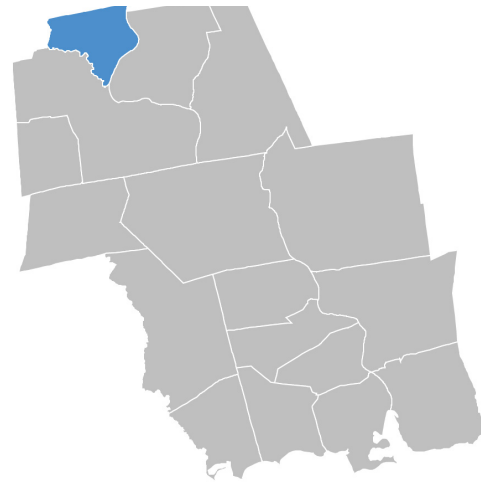
Cromwell had a population of 13,910 in 2019¹, and a population density of 1,122 persons per square mile. 1.8% of workers age 16 and over did not have access to a vehicle. Approximately 0.4% of workers utilized public transportation and 0.9% walked to work. Nobody bicycled to work and approximately 3.5% of workers worked from home. The majority of workers (86.5%) drove alone to work.²



*Non-bicycle friendly grainage grate identified during the 2016 RSA
Source: Main Street (Route 99) Road Safety Audit*

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

A Road Safety Audit (RSA) was completed in Cromwell in 2016 that included a study area on Route 99 in the vicinity of Geer Street and Main Street.³

The Community Connectivity Grant Program (CCGP) awarded funding for sidewalks at the north end of CT-99 (Main Street) to connect to the various schools, particularly Cromwell Middle School and Woodside Intermediate School. In addition to this funding, the Planning and Zoning Commission continues to seek funding for additional sidewalks.

Additional sidewalks have been added along Willowbrook Road, as part of a roadway improvement project using Surface Transportation Program (STP) funding. The Town has also used Local Transportation Capital Improvement Program (LOTICIP) funding to widen Coles Road to accommodate bicycle travel.

3 Main Street (Route 99) between Sunset Drive and Geer Street; Geer Street between Main Street and Woodside Road; and Court Street between Main Street and Woodside Road Road Safety Audit, Connecticut Department of Transportation, Community Connectivity Program, September 6th, 2016. Report by AECOM.

<https://portal.ct.gov/-/media/DOT/Community-Connectivity/RSA-Reports/Cromwell-RSA-Report.pdf>

Issues and Concerns

As noted in the RSA, three schools are located in close proximity to one another. These include the Edna C. Stevens Elementary School, the Woodside Intermediate School and the Cromwell Middle School. Limited pedestrian facilities near these schools make it challenging for children in the surrounding neighborhoods to walk to school.

Route 372 (West Street/Berlin Road) from Route 3 (Shunpike Road) to the Cromwell-Berlin Town Line has intermittent sidewalks. Where sidewalks are not available, pedestrians walk in the shoulder or grass adjacent to the roadway. The Town would like to close the sidewalk gaps to improve pedestrian mobility for this active corridor, which connects residential and commercial areas.

Opportunities

A Transportation Alternatives proposal for the Middletown Newfield/North End Trail Connector (trail project) was submitted but may not get funded at this time. Opportunities exist to pursue this in the future.

Main Street has wide shoulders which could be used for bicycle accommodation.

Cromwell does not have a sidewalk plan, but the Town should consider developing a plan to close crucial gaps in the sidewalk network.

Many catch basin grates are not bicycle friendly. Cromwell should consider upgrading to bicycle friendly versions when pavement projects are in planning stages.

Figure 12: Road Safety Audit Study Area



*2016 Road Safety Audit Study Area
Source: Main Street (Route 99) Road Safety Audit*

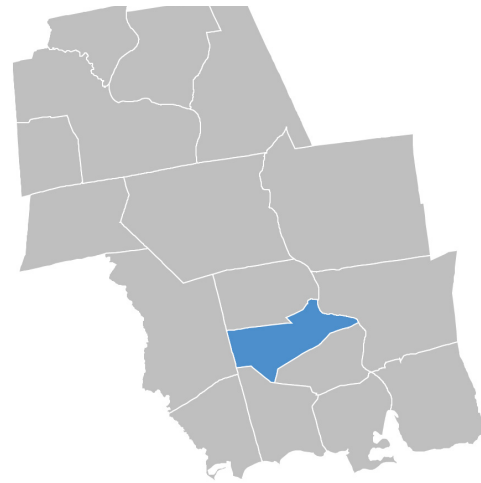
DEEP RIVER

The Town of Deep River is located on the west side of the Connecticut River, north of the shoreline. Deep River is one of the region's riverside communities, with recreational destination amenities such as marinas and the Essex Steam Train and riverboat stop located at Deep River Landing.

Deep River's transportation network includes State Highway Route 9, and State Routes 154, 145, 602, and 80.

Once known as the "Queen of the Valley", Deep River has a rich industrial past rooted in the piano key manufacturing business and the Piano Works factory. Factory worker homes were built in close proximity to the Downtown, creating a dense pattern on residential development that is still prevalent today. Most of the residential neighborhoods in the Downtown are connected by sidewalks. Land uses in Deep River consist of a mix of local businesses and restaurants, residential neighborhoods, industrial businesses, and wooded areas and open space.

Deep River had a population of 4,480 in 2019¹, and a population density of 329 persons per square mile. Roughly 0.5% of workers age 16 and over did not have access to a vehicle. Approximately 1.3% of workers utilized public transportation, 3.4% walked to work and 0.3% bicycled to work. Approximately 3.1% of Deep River's workers worked from home. The majority of workers (84%) drove alone to work.² Public transportation in Deep River includes 9 Town Transit (two routes have stops in Deep River). The CTTransit Express bus to Middletown and Hartford stops in the neighboring Towns of Essex and Chester.



Recent Accomplishments

A sidewalk expansion project is planned that will extend the existing sidewalk on River Street (currently ends at River Lane) down to the Deep River Landing. This location is a regional destination as it is a stop for the Essex Steam Train and Riverboat. The completion of this sidewalk network will provide a pedestrian link between the Connecticut River and Downtown.



*Location of sidewalk extension project planned for River Street
Source: FHI Studio*

¹ U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

² U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.

Issues and Concerns

Speeding, particularly in the downtown has been a concern for many residents. Route 154 (Main Street) runs directly through Deep River's commercial business center. Deep River Elementary School students who reside on the neighboring streets are often walk between the school and the various businesses and the downtown (ice cream shop, coffee shop, Town Library). The safety of students and residents is a priority for the Town. There is a crosswalk on Main Street, but due to the presence of vehicles parked on street, drivers often do not see pedestrians attempting to cross until they are well into the roadway.

Speeding on Route 80 and 145 is also a concern. Posted speeds are as high as 50 mph on the State Roadways and shoulders tend to be narrow. Vegetation encroachment limits visibility of riders in many locations. Despite high vehicular speeds, these roadways are common cyclist routes that connects Deep River to Killingworth, Chester and points further west and north.



Sidewalk and on-street parking lane in Downtown Deep River
Source: FHI Studio

Opportunities

Opportunities exist to enhance the bicycle and pedestrian network in Deep River, these include:

- Install dynamic speed feedback signs along CT-80 and 154 to discourage speeding
- Restrict on-street parking within the vicinity of midblock pedestrian crossings to enhance visibility.
- Consider the implementation of rectangular rapid flashing beacons (RRFBs) or pedestrian hybrid beacons (PHBs) in the village center.



Narrow shoulders on Route 80 in Deep River
Source: Google Maps



Crossing with sidewalk bump-out on Route 154 in Deep River
Source: FHI Studio

DURHAM

Durham is a rural, agricultural community bordered by Middlefield and Middletown to the north, Haddam to the east, Wallingford to the west, and North Branford, Guilford, Madison, and Killingworth to the south. The Town's main roadways are CT-17, CT- 68, CT-77, CT-79, CT-147, and CT-157. Known regionally for its fair, Durham attracts thousands of visitors annually for the event. Other attractions in Durham include Millers Pond State Park, Tri-Mountain State Park (Durham and Wallingford) and the New England Scenic Trail that runs through Durham. The New England Scenic Trail is a federally designated 215-mile long blue blazed hiking trail from Long Island Sound to the New Hampshire border.

Land uses in Durham include a mix of commercial and industrial, residential, and open space uses. State Route 17 runs through the center of Durham and this area is where the majority of Durham's pedestrian infrastructure is located.

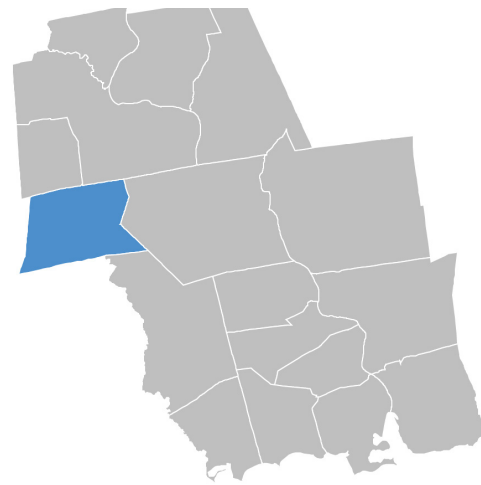
Durham had a population of 7,221 in 2019¹, and a population density of 306 persons per square mile. 1.1% of workers age 16 and over did not have access to a vehicle. Approximately 1.9% of workers utilized public transportation and approximately 10.3% worked from home. Nobody walked or bicycled to work. The majority of workers (76.4%) drove alone to work.² Safety for cyclists and pedestrians sharing the roads with vehicles is a concern for the Town. Historically, prioritization of vehicular roadway use has been dominant. Durham residents are primarily dependent upon the automobile for transportation.

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



*Bike Lanes recently installed on Main Street
Source: Durham Complete Streets Committee, 2021*



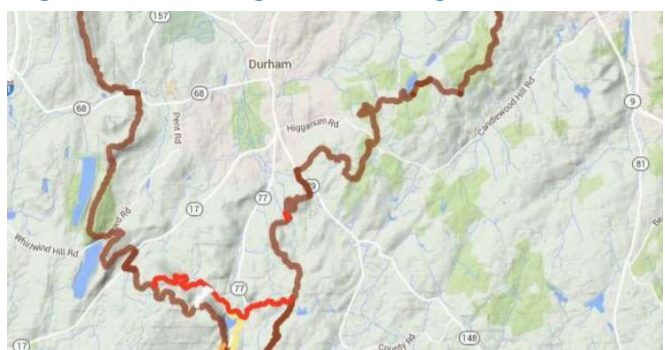
Recent Accomplishments

The Town of Durham Board of Selectman adopted a Complete Streets Resolution on July 23, 2018 and formed a Complete Streets group in town. This local Complete Street group studied the potential addition of sharrows to Pickett Lane and Maiden Lane, which are in the vicinity of multiple schools.

A bike lane with safety signage is planned to run along the Main Street portion of Route 17 from the junction of Route 147 to the junction of Route 79. The Town is also enhancing a much-traveled pedestrian loop that includes a portion of Main Street, Haddam Quarter Road to Brick Lane, to Maiden Lane, to Pickett Lane and back to Main Street with wider, striped shoulders, safety signage and crosswalks. A sharrowed bike lane, expected to be completed in 2023 is planned that will connect with Middletown's Millbrook Road sharrowed bike lane. Shoulder widening has been completed on Higganum Road to increase safety for pedestrians, bicyclist, and drivers.

Preliminary design is underway for a sidewalk project on Route 17, north of the downtown. Sidewalks along the western side of Main Street (Route 17) are near completion.

Figure 13: New England Trail Alignment



*New England Scenic Trail route through Durham
Source: Town of Durham Plan of Conservation and Development, 2016*

Issues and Concerns

Durham has many scenic, rural roads with narrow shoulders. Vehicles often travel at high speeds along these roadways. Multi-use paths separated from the road are preferred, but the costs associated with these types of facilities are high.

There are crosswalks on Route 17 which is Durham's Main Street. Vehicles traveling at high speeds often do not stop for pedestrians attempting to cross. Main Street is home to Durham's Historic District, and sidewalks exist in this area. The high speed of traffic outside of commuting hours is problematic, as it creates difficulties in entering and exiting residential driveways and presents hazards at all crosswalks for pedestrians. There is extensive use of the sidewalks throughout the day, evening, and weekends. This activity is a positive element and enhances the character of Durham's Main Street. However, the sidewalks themselves are in disrepair and not continuous throughout the historic corridor.³

³ Town of Durham Plan of Conservation and Development, 2016. https://www.townofdurhamct.org/filestorage/28562/27548/28085/16272/PoCD_Approved_-_Effective_Date_8-1-2016.pdf



Narrow shoulder on Route 17 in Durham
Source: VN Engineers, RiverCOG

Opportunities

The opportunity to connect to off-road bikeways is important. The Durham Complete Streets Group would like to connect Durham and Middlefield (they share a school district) with a bikeway so students can bicycle to school. Also, Middlefield could connect to the train corridor running from New Haven to Hartford for bicycle commuting.

As stated in Durham's 2016 POCD, the Town should advocate for bicycle-friendly accommodations being considered in design and for implementation where state and local roads are planned for reconstruction or improvement. Support of bike friendly shared roadways, bike lanes, wide shoulder lanes, shoulder bikeways, signed bicycle routes, off-road multi-use paths, trails, and greenway corridors for bicycle and pedestrian use should be a priority for recreational, personal business, and commuting purposes.



Sidewalks in Durham's Historic District
Source: FHI Studio

EAST HADDAM

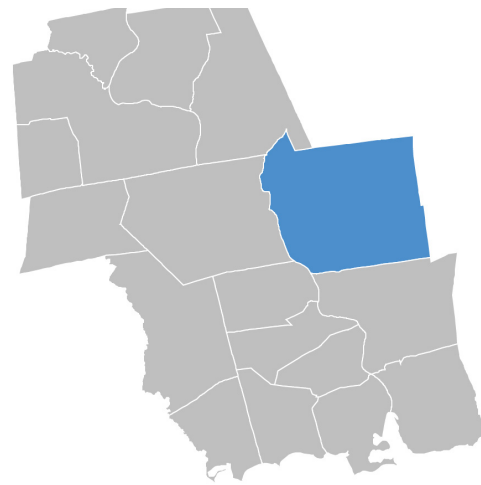
East Haddam is located along the Connecticut River and is a Regional tourist destination due to the Goodspeed Opera House, which holds approximately 400 performances each season, and attracts roughly 130,000 patrons to the Connecticut River Valley. In addition to the Opera House, East Haddam is home to many open space and cultural assets. These include Gillette's Castle State Park, Devil's Hopyard State Park, Salmon River State Forest, Brainard Homestead State Park, and the Machimoodus State Forest. Land uses in East Haddam include a mix of limited commercial and industrial, residential, and open space uses. State Route 82 runs through the center of East Haddam Village and this area is where the majority of East Haddam's pedestrian infrastructure is located.

A rural community, East Haddam is bordered by East Hampton and Colchester to the north, Salem and Colchester to the east, Haddam to the west, and Lyme to the south. The Town's main roadways are CT-82, CT-149, CT-151, CT-156, CT-431, and CT-434. The Chester-Hadlyme Ferry is a seasonal vehicular ferry that connects Route 148 in Hadlyme to Route 148 in Chester, crossing the Connecticut River. The East Haddam Swing Bridge (Route 82) and the Hadlyme Ferry are two of the few ways to cross the Connecticut River between Hartford and I-95. These routes serve as the primary means of travel between Haddam and East Haddam. 9 Town Transit provides limited service across Route 82 between Haddam and East Haddam, providing connections to Middletown to the north and Old Saybrook to the south. The Goodspeed Airport is a privately owned, low intensity airport located in Town.

East Haddam had a population of 9,007 in 2019¹, and a population density of 166 persons per square mile. 0.6% of workers age 16 and over did not have access to a vehicle. Approximately 0.4% of workers utilized public transportation and 0.6% walked to work. Nobody bicycled to work and approximately 10.7% worked from home. The majority of workers (81%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

A pedestrian sidewalk is planned for the south side of the East Haddam/Haddam Swing bridge that will connect East Haddam's pedestrian network to points on the west side of the Connecticut River. This project will be part of the Connecticut DOT's Swing Bridge Rehabilitation Project that is expected to begin in Spring 2022.

Sidewalk improvements in the Moodus Village section of East Haddam have been ongoing. Additional phases of this multi-phase sidewalk improvement program could be completed as funding becomes available.



East Haddam/Haddam Swing Bridge
Source: RiverCOG

Issues and Concerns

The Goodspeed Opera House is major pedestrian generator for the Town, but limited pedestrian safety and access to the Village is an issue identified in the Town's 2019 POCD. Improvements and expansion of the sidewalk and crosswalk network in and around the Village is desired.

Bicyclists often ride through town especially along Route 82 (Town Street/Norwich Road/Main Street/Bridge Road), Route 434 (Mount Parnassus Road/Hopyard Road), Route 151 (Plains Road/Town Street), and Tater Hill Road. Narrow right-of-ways and limited shoulders are a concern for cyclists along these roadways. The Town should develop plans for pedestrian and bicycle connections along Routes 149 and 151 to enhance connections between the Moodus section of Town and public facilities outside of the Village.

Opportunities

Long term reconstruction projects on state roads in East Haddam should consider the installation of bike lanes. As stated in the Town's 2019 POCD, "Walking and biking options are becoming increasingly popular modes of transportation for residents and visitors alike. Improving infrastructure for these modes can improve mobility issues relating to parking, congestion, and safety and create a more sustainable longterm transportation network, especially in the village centers and near tourist destinations." East Haddam recognizes the need to improve and expand upon its existing transportation networks and provide additional modes of transportation.³

Goals identified in the POCD include:

- Provide a safe, efficient, and compatible transportation system for all Users.
- Continue with streetscape and pedestrian improvements to improve connections to surrounding neighborhoods and recreational areas.

³ Town of East Haddam POCD, 2019. [https://www.easthaddam.org/media/Plan%20of%20Conservation%20and%20Development/2019%20POCD%20-%20Final%20\(web\).pdf](https://www.easthaddam.org/media/Plan%20of%20Conservation%20and%20Development/2019%20POCD%20-%20Final%20(web).pdf)



Pedestrian crossing in the Center of East Haddam
Source: FHI Studio

EAST HAMPTON

East Hampton is a rural town located on the east side of the Connecticut River, bordered by Glastonbury to the north, Marlborough and Colchester to the east, Portland and Middletown to the west, and Haddam and East Haddam to the south. It includes the boroughs of Cobalt, Middle Haddam, and Lake Pocotopaug. The Town's main roadways are CT-16, CT-66, CT-151, CT-196, and CT-439.

Cultural and natural resource assets in East Hampton include the Air Line State Park Trail, Hurd State Park, and the Salmon River State Forest.

Land uses in East Hampton include a variety of commercial business located in its boroughs well as industrial, agricultural, residential and open space uses. Bordered by the Connecticut River to the east, East Hampton is home to marinas and riverfront uses. Lake Pocotopaug is a large lake encompassing over 500 acres in East Hampton. The lake is surrounded by numerous homes. Most are year-round residences, although some summer cottages are located there.

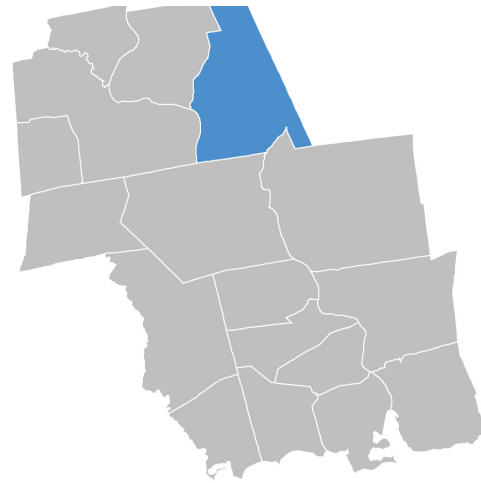
East Hampton has a rich manufacturing past. Once known as "Belltown USA"¹ there were once over thirty bell manufacturers throughout the Town's history. Evidence of this manufacturing past is visible today, as many of the Town's factory and mill buildings still exist. Some of these properties have been adapted as office and mix use buildings, while others remain in very states of repair.

East Hampton had a population of 12,827 in 2019², and a population density of 360 persons per square mile. 1.0% of workers age 16 and over did not have access to a vehicle. 0.5% of East Hampton's workers utilized public transportation and 0.6% walked to work, while none bicycled to work. Approximately 5.7% of workers worked from home. The majority of workers (89%) drove alone to work.³

1 Town of East Hampton 2016 Plan of Conservation and Development. <https://www.easthamptonct.gov/sites/g/files/vyhlf3066/f/uploads/2016pocdfinal.pdf>

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

3 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

An extension of Air Line Trail into Portland has been completed. Located on an abandoned rail line bed, this trail stretches across eastern Connecticut from Thompson to East Hampton. The trail draws walkers, hikers, horseback riders and bicyclists from across the state. Wayfinding signage has been installed throughout East Hampton's commercial zone along Route 66 and the Village Center, as well as near the Lake providing guidance to the Air Line Trail.

The Portland/East Hampton Route 66 Corridor Study was recently completed. The Study was aimed at developing a comprehensive transportation improvement plan for Route 66 in Portland and East Hampton.

The Town is also currently working on a downtown revitalization plan focused on bicycle and pedestrian improvements in the commercial core. Sidewalk concepts are also underway for a portion of Smith Street that would connect the existing sidewalks on the west side of Smith Street, to the Air Line Trail.



Wayfinding signage installed to promote and direct access to the Air Line Trail
Source: East Hampton POCD, 2016

Issues and Concerns

Traffic speed on many of East Hampton's main routes such as Route 66 is challenging for bicyclists and pedestrians. There is a lack of crosswalks in key areas such as around many of the Town's shopping plazas and commercial areas.

In commercial areas, the prevalence of driveway curb cuts creates conflicts for both cyclist and pedestrians.

Concepts to connect the Air Line Trail across the Connecticut River and west to the Farmington Canal Trail exist, but gaps in the network, particularly through wetland areas can be very costly.

Figure 14: Village Center Concept Plan



*Concept plan for sidewalks and streetscape improvements in the Village Center
Source: East Hampton POCD, 2016*

Opportunities

The Air Line Trail is a great backbone with the potential for spurs to commercial and residential areas. Open space linkages and connections between resources and the Air Line Trail is an opportunity for the Town.

Bike lanes up to and around Lake Pocotopaug and throughout commercial areas in the Boroughs would be beneficial. This would help to enhance the nodes and could generate economic benefits for the town. Recreational tourism between the Air Line Trail, Lake Pocotopaug and the Boroughs is an opportunity for the Town.

Coordinated streetscape elements such as lighting, benches, trash receptacles, and tree grates should be considered. These elements can create an attractive, comfortable pedestrian environment and add significantly to community character and sense of place. Enhancing pedestrian access throughout all of the villages will add to community character and quality of life by reducing dependence on motor vehicles as well as promoting a healthier, more convenient environment for residents and tourists.⁴

⁴ Town of East Hampton Plan of Conservation and Development, 2016



*Entrance to the Air Line Trail
Source: New London Day, 2019*

ESSEX

The Town of Essex is located on the west side of the Connecticut River, north of the shoreline. Essex is one of the region's riverside communities, with recreational destination amenities such as marinas, outdoor restaurants and the Connecticut River Museum. The Essex Steam Train, a regional tourism destination provides a variety of excursions such as rail bike adventures, train and riverboat rides, and dinner train excursions. The Ivoryton Playhouse is a regional attraction that is known for being the first self-supporting summer theater in the Nation, opening in 1930. Essex has a vivid history in shipbuilding and the ivory trade. The Comstock-Cheney Factory, in Ivoryton, and the dense residential development surrounding it is a relic of this industrial past.

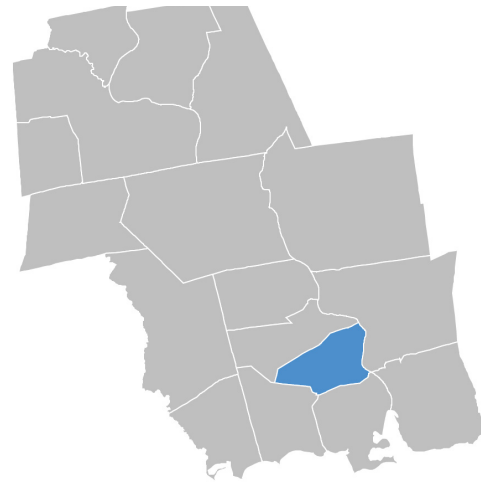
Essex's transportation network includes State Highway Route 9, and State Routes 154 and 153. These arterial roadways provide access to points north and west in the region.

Land use in Essex consists of a mix of local businesses and restaurants, residential neighborhoods, industrial areas, and wooded areas and open space. Essex is comprised of three distinct villages; Essex, Centerbrook, and Ivoryton. These villages are connected by State Route 154 and 602.

Essex had a population of 6,604 in 2019¹, and a population density of 560 persons per square mile. 1.6% of workers age 16 and over did not have access to a vehicle. Almost 4% of workers utilized public transportation and 2.5% walked to work. No workers bicycled to work and approximately 6% of workers work from home. The majority of workers (80%) drove alone to work.² Public transportation in Essex includes 9 Town Transit (two routes have stops in Essex), and the CTTransit Express to Middletown and Hartford.

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

Essex is nearing completion on a continuous sidewalk network that will extend from Bushy Hill Road in Ivoryton through the three historic villages of Essex, all the way to the Connecticut River.

Over the last five years, the Town installed sidewalks in several locations to close gaps and increase connectivity. The Community Connectivity Grants Program (CCGP) has provided funding, which allowed for the addition of sidewalks near 76 Main Street, Essex Village, and Champlin Square.



*Intersection crossing upgrades in Centerbrook
Source: FHI Studio*

Issues and Concerns

Funding is limited for sidewalk projects in the region. This presents challenges to enhancing the network.

The most common bike routes in town are along Route 154 (Middlesex Avenue/Deep River Road/Main Street) and River Road which are windy roadways. Vehicles often travel at high speeds along these routes.



Opportunities

Essex's 2015 POCD states the goal to "enhance multi-modal transportation connections and expand appropriate public infrastructure within and between villages and hubs, and improve Essex's connection to surrounding communities."³

Essex has made strides in achieving this goal, but opportunities exist to further connect the villages and development nodes through enhanced bicycle and pedestrian infrastructure.

The Town would like to continue to improve sidewalk connectivity, focusing on the following locations:

- CT-604 (Westbrook Road) between CT-154/604 (Main Street) and
- CT-153 (Plains Road).
- River Road/North Main Street north of Mill Road.
- CT-153 (Plains Road) between Bokum Road and CT-9 (Chester Bowles Highway).

³ Town of Essex Plan of Conservation and Development, 2015.



Recently installed sidewalks and crossing at Champlin Square in Essex Village. (Both images)
Source: FHI Studio

HADDAM

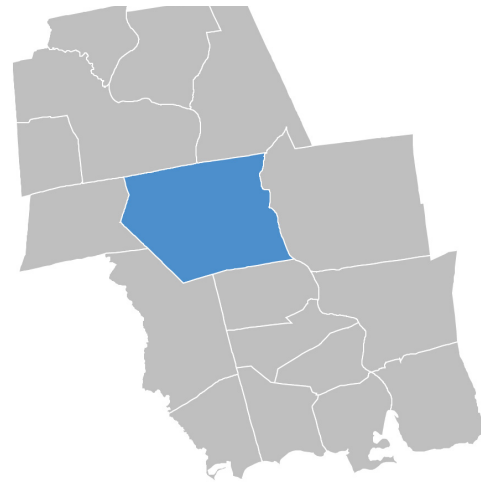
Haddam is a riverfront town bordered by Middletown and East Hampton to the north, East Haddam to the east, Durham and Killingworth to the west, and Killingworth and Chester to the south. The Town's main roadways are CT-9, CT-81, CT-82, CT-151, and CT-154. Haddam is the only town along the Connecticut River that has populations living on both its sides. As such, the river has a significant impact on daily life for Haddam's residents. 9 Town Transit provides two routes to Haddam. These include the Middletown to Old Saybrook route via Route 154 and the Madison to Middletown route via Route 81.

Land uses in Haddam include a mix of residential, commercial, industrial and marinas connected to the Connecticut River. Haddam has three village centers; Higganum, Tylerville, and Haddam Center. There are many historic buildings located throughout the villages. Haddam's attractions include cultural and open space resources such as Eagle Landing State Park, Haddam Meadows State Park, and Cockaponsett State Forest to name a few. The Essex Steam Train and Riverboat operates a riverboat excursion on the Connecticut River, stopping at Eagle Landing State Park.

Haddam had a population of 8,227 in 2019¹, and a population density of 187 persons per square mile. 1.1% of workers age 16 and over did not have access to a vehicle. Approximately 2.0% of workers utilized public transportation and 0.7% walked to work. No one bicycled to work but approximately 5.3% of workers worked from home. The majority of workers (83.8%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

Sidewalks will be installed on Route 82 from Route 154 to the railroad tracks. The design is already underway and will provide sidewalks from the railroad tracks to the East Haddam /Haddam Swing Bridge, which connects Haddam to East Haddam. A sidewalk is also planned for the south side of the East Haddam/Haddam Swing Bridge. The towns of Haddam and East Haddam are working together on a joint task force that will promote area attractions and tourism. As noted in the Community Connectivity Application, the swing bridge connecting Haddam and East Haddam is the epicenter for all pedestrian traffic between the towns.

A Road Safety Audit was completed along a portion of Route 82 in 2016. This laid out opportunities to improve bicycle and pedestrian safety and connectivity in the Town.

Plans to connect Higganum Center to surrounding natural resources such as the New England Scenic Trail are in the planning stages. The New England Scenic Trail is a federally designated 215-mile long blue blazed hiking trail from Long Island Sound to the New Hampshire border. Trail usage is expected to increase over time with the federal designation and by improving access to Higganum Center. This could benefit existing businesses, as has been the case along other National scenic trails.

A concept for shoulder widening work is in initial stages for Candlewood Hill Road. This is a popular bicycle and pedestrian route that provides access to the Higganum Reservoir State Park.

Haddam Bridge Road (Route 82) between Route 154 and East Haddam Road Safety Audit, August 9th, 2016. Report by AECOM. Source: <https://portal.ct.gov/-/media/DOT/Community-Connectivity/RSA-Reports/Haddam-RSA-Report.pdf>

Issues and Concerns

Speeding is the main deterrent in town for safe walking and bicycling not just on Route 82 (Bridge Road), but also on Route 154 (Saybrook Road), which is a high-traveled corridor for avid bicyclists. Although planned, there are currently no pedestrian crossing facilities over Route 82, but pedestrians still use the bridge to cross the Connecticut River. Pedestrians are prohibited on the bridge, but there is no signage to indicate this. Additionally, when there is not enough parking during popular events in East Haddam, people will park at Eagle Landing State Park and walk across bridge. Pedestrians also use the bridge to walk to the grocery store in Haddam.

There are a significant number (approximately 200+ per day) of trailer and box trucks that travel through the Route 154 and 82 corridor. Heavy truck traffic is a deterrent for bicyclist and pedestrians, particularly where bicycle and pedestrian facilities are lacking.

Crosswalks are needed to make connections to the Eagle Landing State Park and the waterfront. The Saybrook at Haddam assisted living community, located on Route 154, north of the intersection with Route 82 could benefit from enhanced pedestrian facilities.



Painted crosswalk in Higganum section of Haddam
Source: VN Engineers, RiverCOG

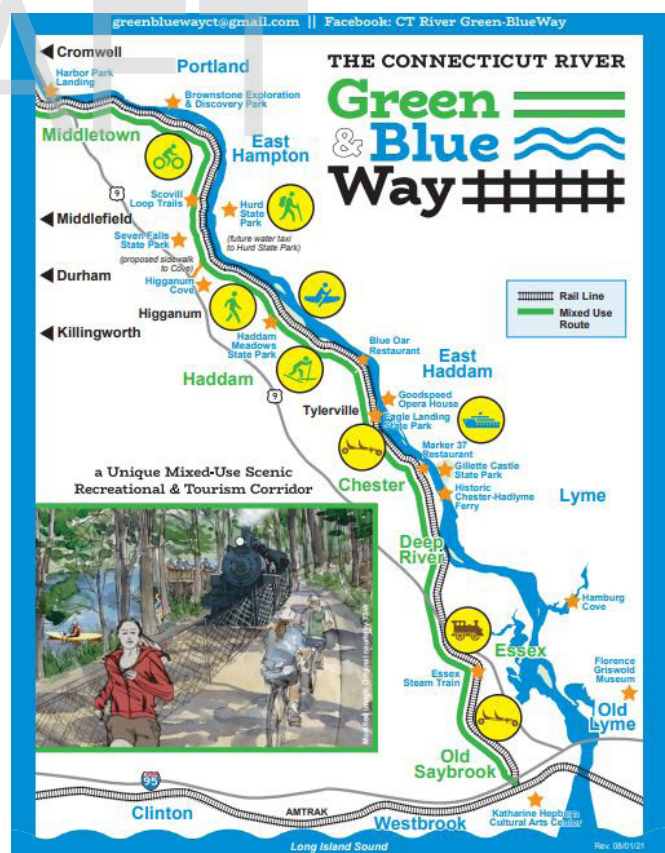
Opportunities

Bicycle amenities such as a bike path or lane should be established on Saybrook Road (Route 154). This roadway is a popular route connecting Middletown to the shoreline.

Opportunities exist to explore the Connecticut River Green-Blue Way project which aims to establish a mixed-use recreational and tourism corridor on Route 154. Higganum Center could be promoted as an outdoor recreation center with links to Cockaponsett State Forest, the Valley Railroad, the New England Scenic Trail and Swan Hill, and the Higganum Reservoir.

The Town should pursue opportunities to connect Higganum Center with the surrounding natural resources. In the Higganum Connections document, six focus areas were discussed which can be designed and constructed individually with the goal of eventually creating loops around the center.

The Town should consider pursuing recommendations laid out in the 2016 Road Safety Audit



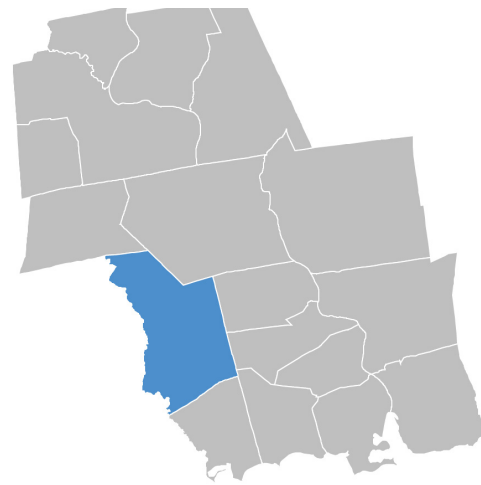
The Connecticut River Green and Blue Way Concept Plan
Source: Maurice Adams

KILLINGWORTH

Killingworth is a rural town bordered by Durham and Haddam to the north, Chester, Deep River, and Westbrook to the east, Clinton and Madison to the south, and Madison to the west. The Town's main roadways are CT-79, CT-80, CT-81, and CT-148. 9 Town Transit provides one route that serves Killingworth along Route 81, connecting to Clinton in the south and up to Middletown in the north .

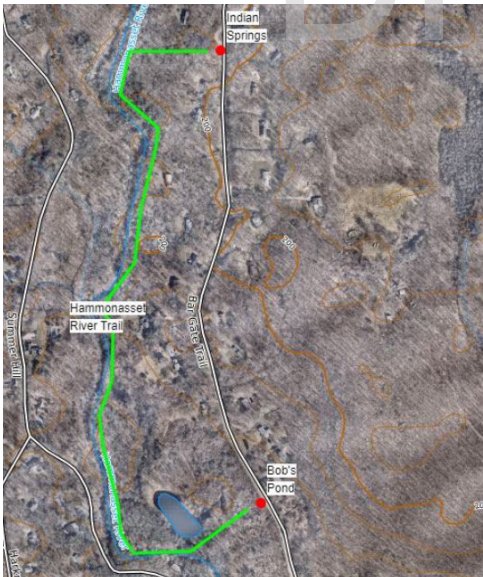
Killingworth's small town center is located along Route 81, south of Route 80. Land uses in Killingworth include primarily residential, limited commercial, and open space. Killingworth's attractions include open space resources such as Chatfield Hollow State Park and many Killingworth Land Conservation Trust properties including Parmalee Farm and the Hammonasset River Trail.

Killingworth had a population of 6,392 in 2019¹, and a population density of 181 persons per square mile. Approximately all workers age 16 and over have access to a vehicle. Approximately 0.4% of workers utilized public transportation and 0.9% walked to work. No one bicycled to work but approximately 6.8% of workers worked from home. The majority of workers (83.8%) drove alone to work.²



Recent Accomplishments

An ADA accessible walking and biking path was recently completed in Sheldon Park. The pathway created a paved, multi-use circuit within the park and provided a wheelchair accessible fishing platform to the pond at the rear corner of the park. An adult exercise court with several pieces of exercise equipment was also installed.



Hammonasset River Trail route
Source: Killingworth Land Conservation Trust



Route 148 in Killingworth
Source: VN Engineers, RiverCOG

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.

Issues and Concerns

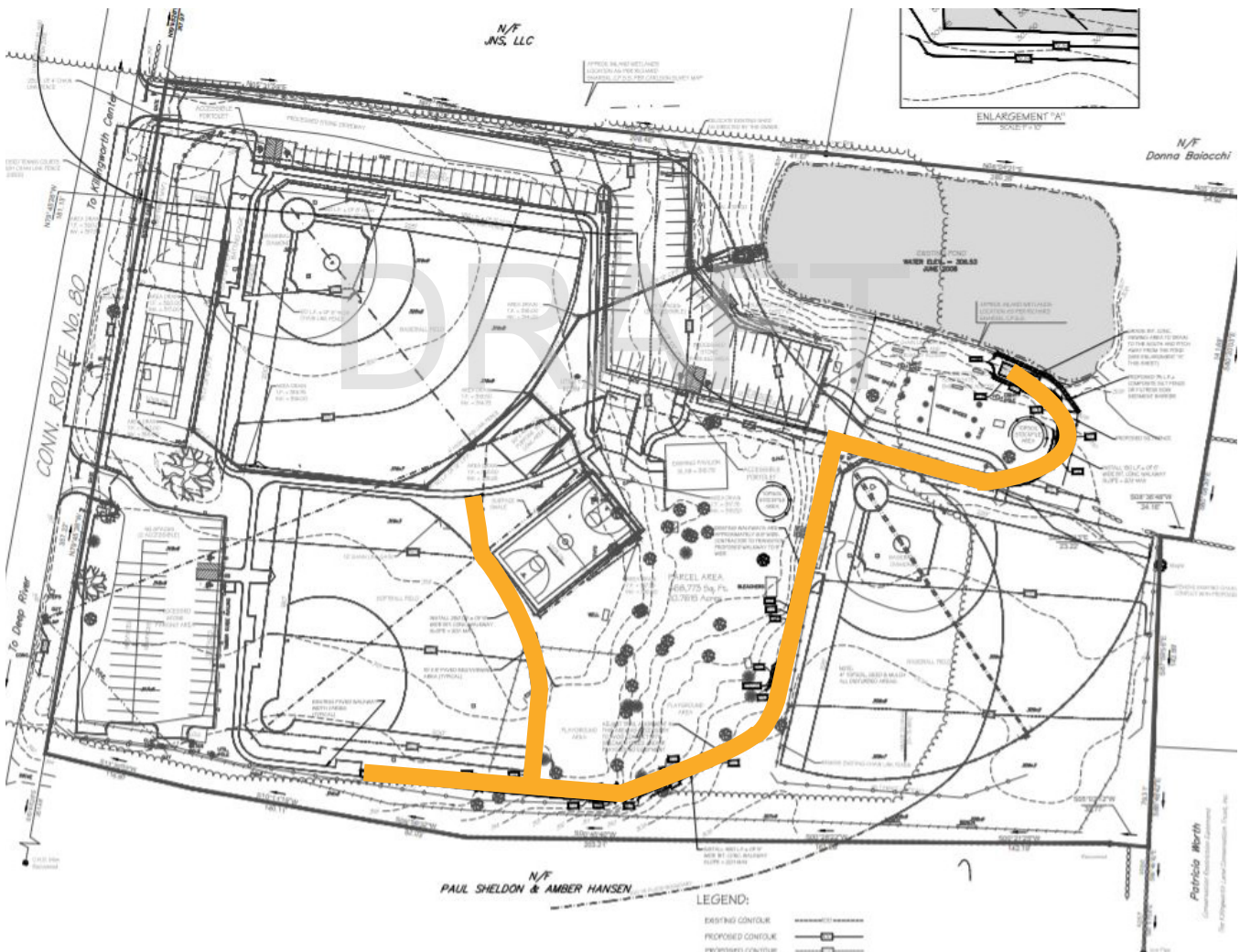
Killingworth's town roads are generally too narrow and windy to allow for a bike lane. Pedestrians have expressed concerns due to high traffic speeds. There are no sidewalks in Town. Killingworth lacks sidewalks due to rural character of the Town.

The three state roads that traverse the town are too heavily traveled, and the speeds are too high, to provide bike lanes without widening them. Route 148 is a common bicycle route in Town, but it has narrow shoulders and many blind corners. Vehicular speeds are also high.

Opportunities

The Killingworth Land Conservation Trust and the Killingworth Park & Recreation Commission have been exploring the creation of a walking/riding trail between Parmelee Farm, which is located on the east side of Route 81 near the intersection with Route 148, and Sheldon Park, located on Route 80, east of Route 81. Other opportunities exist to continue the trail across Route 80 and parallel to Route 81 south of Route 80, which is Killingworth's small commercial district. Ultimately, such a trail could connect to trails in Clinton, providing access to the shoreline.

Figure 15: Sheldon Park Site Plan



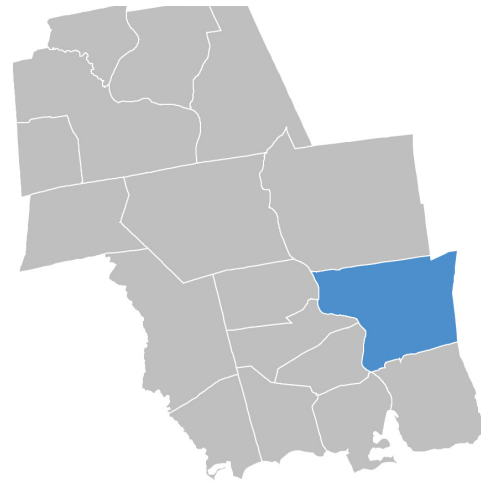
*Site Plan for the recently completed walking and biking path recently completed at Sheldon Park in Killingworth
Source: Town of Killingworth*

LYME

Lyme is a rural town bordered by East Haddam and Salem to the north, East Lyme to the east, the Connecticut River to the west, and Old Lyme to the south. The Town's main roadways are CT-82, CT-148, CT-156, and CT-431.

Land uses in Lyme are primarily residential with limited businesses and marine services connected to the Connecticut River and Hamburg Cove. Lyme's municipal center is located on Route 156 and include the Lyme Consolidated School, Lyme Public Library and the Lyme Town Hall. Lyme's attractions include the many farms and open space resources such as Selden Neck State Park, Lords Cove Wildlife Area, and Hamburg Cove.

Lyme had a population of 2,499 in 2019¹, and a population density of 80 persons per square mile. 1.1% of workers age 16 and over did not have access to a vehicle. Approximately 3.7% of workers utilized public transportation and 1.8% walked to work. 0.3% bicycled to work and 13.5% worked from home. The majority of workers (80%) drove alone to work.²



Recent Accomplishments

The Tour de Lyme is an annual charity cycling event that is organized by the Lyme Land Trust. It provides routes for road and mountain bicyclists. Routes have been designed to connect to various Lyme Land Trust properties along Lyme's rural and scenic roadways.

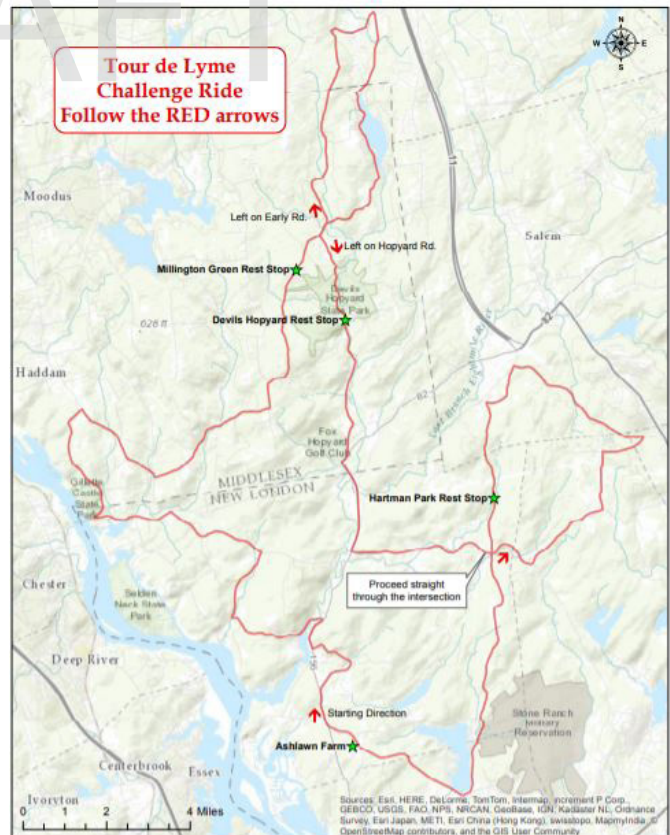


Tour de Lyme Trail Ride
Source: *Tour de Lyme*, <https://www.tourdelyme.org/>

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.

Figure 16: Tour de Lyme Route



Tour de Lyme Challenge Ride Map
Source: *Tour de Lyme*, <https://www.tourdelyme.org/>

Issues and Concerns

The Town noted that there are few pedestrians on State roads, but high pedestrian volumes on local roads. There are no sidewalks in town and the roadways are narrow, neither of which are conducive to pedestrian traffic.

There are avid bicyclists in Town, and Lyme is a regional cycling destination, despite there being no bike lanes. Picturesque, scenic roadways in Lyme provide rural views and attract bicyclists from across the Region. Roadways such as Route 156 and 82 are winding with narrow shoulders. Speeding on state and local roads is challenging for bicyclist and pedestrians.

Opportunities

The Town of Lyme should consider the installation of sidewalks along corridors with high pedestrian volumes. These include residential neighborhoods that provide access to Lyme's many natural and open space resources.



Tour de Lyme Family Ride
Source: *Tour de Lyme*, <https://www.tourdelyme.org/>

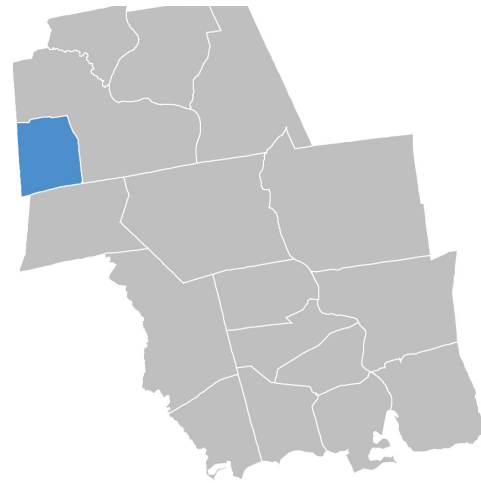
MIDDLEFIELD

Middlefield is a small, rural community bordered by Middletown to the north and east, Meriden and Wallingford to the west, and Wallingford and Durham to the south. The Town's main routes are CT-66, CT-147, and CT-157.

Cultural and natural resource assets in Middlefield include the Metacomet Ridge, Coginchaug River, Wadsworth Falls State Park, Lake Beseck, Power Ridge Ski Area, and Lyman Orchards.

Land uses in Middlefield consists of a mix of commercial and industrial, residential, agricultural and open space uses.

Middlefield had a population of 4,381 in 2019¹, and a population density of 345 persons per square mile. Approximately 0.4% of workers age 16 and over do not have access to a vehicle. None of Middlefield's workers utilized public transportation or bicycled to work, but approximately 0.7% walked to work. 4.0% of workers worked from home. The majority of workers (90%) drove alone to work.²



Recent Accomplishments

Middlefield completed a town center plan in the vicinity of CT-157 (Main Street) and Jackson Hill Road and is identifying potential connectivity opportunities in the area.

Bicyclist activity is higher than pedestrian activity in Middlefield. Jackson Hill Road between Route 66 (Meriden Road) and Cedar Street is a safety concern due to high bicycle ridership, coupled with the narrow roadway cross section.

Bicyclists travel on Jackson Hill Road to connect to Lyman Orchards, Durham, and the shoreline. The Town is considering applying for LOTCIP funds to make improvements, including adding shoulders, on Jackson Hill Road.

DRAFT

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Wide signalized intersection on Route 66 in Middlefield
Source: VN Engineers, RiverCOG



Commercial area on Jackson Hill Road (Route 157)
Source: Google Maps

Issues and Concerns

There are currently no sidewalks in Middlefield, and the Town did not receive money from a recent Connecticut Community Connectivity Grant Program (CCGP) application. Pedestrian crossings were updated by CTDOT with signage and pavement markings, which were installed at parks and several schools.

Speeding is a concern, particularly along State Routes 147 and 157.

Opportunities

Middlefield's 2017 POCD stated the following transportation policies³.

- Promote energy-efficient transportation alternatives to the single occupancy vehicle, such as ridesharing, mass transportation, bicycling, walking and integrate them into the traffic system.
- Support of bike-friendly shared roadways, bike lanes, wide shoulder lanes, shoulder bikeways, signed bicycle routes, off road multi-use paths, trails and greenway corridors for bicycle and pedestrian use should be a priority for recreational, personal, business and commuting purposes.
- Promote education and enforcement to promote bicycle and pedestrian safety.

³ Town of Middlefield Plan of Conservation and Development, 2017



Scenic Roadway in Middlefield
Source: RiverCOG

MIDDLETOWN

The City of Middletown is the LCRV's largest municipality. Located in the central part of the state, it is bordered by Berlin, Cromwell, and Portland to the north, East Hampton to the east, Berlin, Meriden, and Middlefield to the west, and Middlefield, Durham, and Haddam to the south. The Connecticut River comprises Middletown's eastward boundary. The City's main Roadways are I-91, CT-3, CT-9, CT-17, CT-66, CT-154, CT-155, CT-157, CT-147, CT-217, and CT-410. CT Route 9 at Middletown's eastern border disconnects the City from the Connecticut River, but studies are underway to redevelop the riverfront and provide a stronger connection to the river. Middletown Area Transit (MAT) provides fixed route, ADA Dial-A-Ride and Rural Transportation Middletown and the surrounding communities.

Middletown contains a variety of cultural and open space amenities. These include Wesleyan University, Wadsworth Fall's State Park, and the Kid City Children's Museum to name a few. As the Region's City, Middletown also contains Middlesex Hospital, which is the main hospital serving the LCRV region.

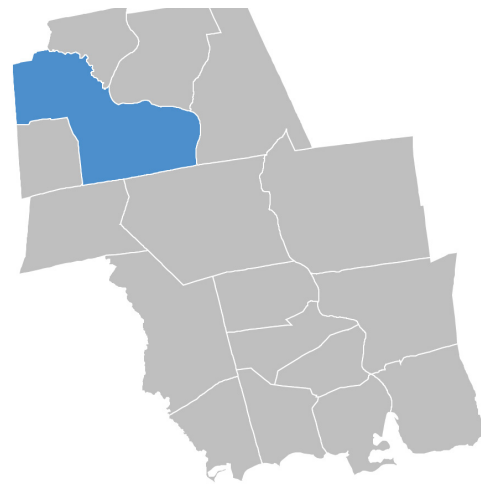
Land uses in Middletown include a mix of commercial, single family and multi-family residential, office, and industrial uses typically found in a smaller City. The City is a major employment center for residents of the LCRV region.

Middletown is home to the West Lake Area Bikeway which is an over two mile long trail for both commuting and recreational usage. The Mattabessett Trolley Trail is another of Middletown's paved multi-use pathways that provides view along the south bank of the Mattabessett River and connects to the West Lake Area Bikeway.

Middletown had a population of 46,511 in 2019¹, and a population density of 1,134 persons per square mile. 3.2% of workers age 16 and over did not have access to a vehicle. Approximately 1.8% of workers utilized public transportation and 7.1% walked to work. 0.2% of workers bicycled to work and approximately 5.1% of workers worked from home. The majority of workers (77.4%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

New crosswalks are being installed at the intersection of Route 66 and Route 3. The City stated that there are pedestrian connectivity concerns along eastbound CT-66 (Washington Street), as a result of lacking sidewalks.

Spring Street has recently been converted to one-way eastbound between Prospect Street and Rome Avenue, allowing for bike lanes in both directions. This accommodates bicyclists coming across the Arrigoni Bridge from Portland and reduces motor vehicle traffic passing Macdonough Elementary School on Spring St. where many students walk to school.

Various sidewalk and pedestrian improvement projects have been constructed or are in design for Middletown. These include sidewalks along West Lake Drive, widening and sharrows along a portion of Millbrook Road. Sidewalk improvements and signalizations are in the final design stages for Saybrook Road (Route 154).

CT DOT has completed installation of pedestrian bump out, medians, and signal timing upgrades to intersections along Main Street. Pedestrian improvements have also been completed at St. John's Square. Improvements in the Portland Street area such as closing Miller Street from Route 9 are in the design stages.



*Painted pedestrian crossing on Main Street in Middletown
Source: Middletown Press*

Issues and Concerns

Main Street in downtown Middletown has a high number of both vehicular and pedestrian crashes, with significant amounts of pedestrian jaywalking. The vehicular traffic volume is high, though speeding is not an issue because of the congestion associated with multiple signalized intersections. The City stated that bump outs along Main Street have been well received.

Speeding is a concern in Middletown, particularly along the CT-Route 66 corridor between CT-3 and Main Street.



West Lake Trail, Middletown
Source: RiverCOG

Opportunities

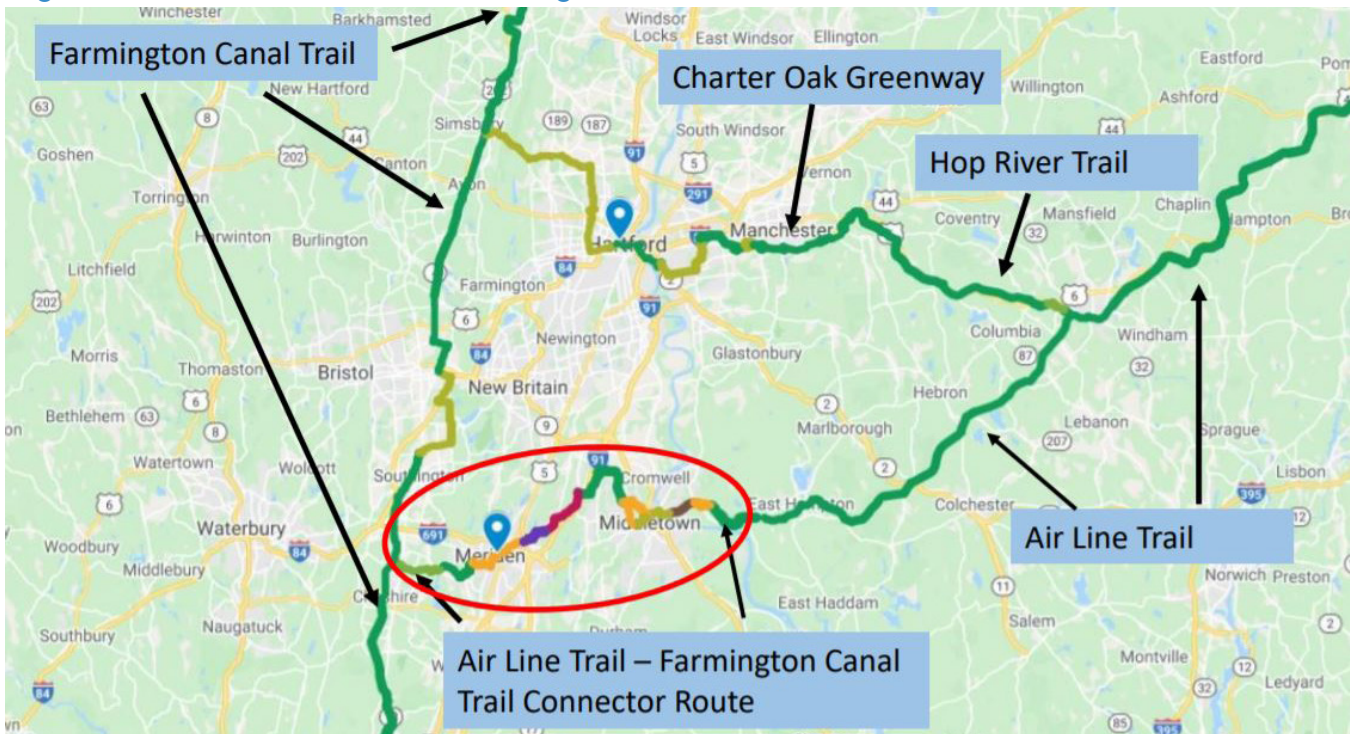
A Transportation Alternatives proposal for the Middletown Newfield/North End Trail Connector (a trail project) was submitted by the City, but may not get funded at this time. Opportunities exist to pursue this in the future.

The Connecticut Active Transportation Plan's Statewide Bicycle Planning Network identifies routes that bicyclists can use to travel throughout the State. Tier II improvements are identified along the length of Route 154 between Middletown and Old Saybrook. Opportunities exist and should be pursued to extend these improvements north on Route 154 between Aircraft Road and Randolph Road in Middletown.

Additionally, concepts connecting the Air Line Trail with the Farmington Canal Trail to the west would include a network through Middletown. Once completed, this 23-mile connection would provide a central Connecticut loop trail in throughout the middle of the State that would connect to other trails and would provide access to various nodes and destinations such as schools, cultural resources and transportation resources such as CT Rail Stations in Hartford and Meriden.

DRAFT

Figure 17: Potential Air Line Trail- Farmington Canal Trail Connector Route



Potential Air Line Trail - Farmington Canal Trail Connector Route through Middletown
Source: RiverCOG, John Hall, The Jonah Center for Earth and Art

OLD LYME

Old Lyme is located along the Long Island Sound, to the east of the Connecticut River. Old Lyme is one of the region's shoreline communities, with multiple beach communities and a variety of coastal amenities such as marinas, outdoor restaurants and recreation. Many seasonal residents reside or vacation in the beach communities in Old Lyme during the summer months.

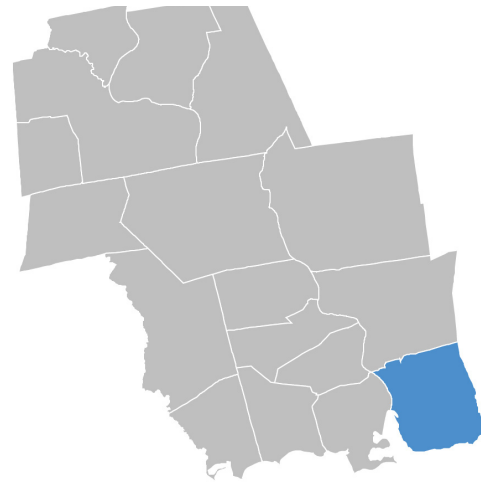
A coastal town, Old Lyme is bordered by Lyme to the north, East Lyme to the east, Old Saybrook to west separated by the Connecticut River, and the Long Island Sound to the south. The Town's main roadways are I-95, US-1, and CT-156. Transit connections exist via the 9 Town Transit which has one route that stops in Old Lyme. Route #3 travels along US-1 and I-95 and connects to Old Lyme to Old Saybrook and New London further east.

Land uses in Old Lyme include a mix of local retail, offices and restaurants, residential neighborhoods, beach communities, and wooded areas and open space. Old Lyme's Town Center stretches along Lyme Street, connecting to Route 1 and Route 156 via Ferry Road. Old Lyme's attractions include the Lyme Art Association, the Florence Griswold Museum and the Lyme Academy of Fine Arts. Ferry Landing State Park, the Lieutenant River, Rogers Lake, and the Great Island Wildlife Area/Roger Tory Peterson Natural Area Preserve and Silvio O. Conte National Fish and Wildlife Refuge are just a few of Old Lyme's natural resource assets.

Old Lyme had a population of 7,396 in 2019¹, and a population density of 320 persons per square mile. 0.4% of workers age 16 and over did not have access to a vehicle. Approximately 2.4% of workers utilized public transportation and 1.6% walked to work. 0.4% bicycled to work and 8.4% worked from home. The majority of workers (82%) drove alone to work.²

¹ U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

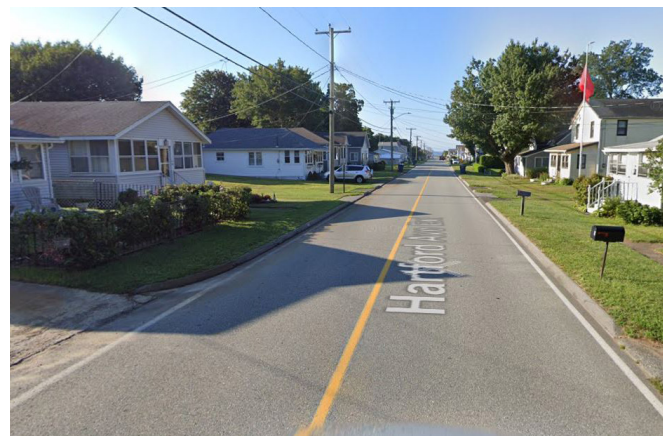
² U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

The Town of Old Lyme is a popular destination for bicyclists. CTDOT is in the process of installing bike lanes on CT-156 (Shore Road) from Cross Lane to I-95.

The Town has made progress in expanding sidewalk connectivity in the Sound View Beach Area. A Community Connectivity Grant Program-funded sidewalk project was recently completed on the northern half of Hartford Avenue from Bocce Lane to Route 156. The project is a vital element of Old Lyme's ongoing efforts to improve pedestrian, bicycle, and vehicular safety in the Sound View Beach/Route 156 area. Sidewalks will also be installed on the north side of CT-156 from the Old Lyme Police Station westward to Cross Lane.



*Area of Hartford Avenue where sidewalks were recently installed (before photo showing narrow shoulder)
Source: Google Maps*

Issues and Concerns

Limited sidewalks and inadequate pedestrian crossings are a concern for the Town, particularly in the Halls Road segment of Route 1. Old Lyme's commercial center is located in this area, which includes the Town's highest traffic volumes and the majority (three) of its signalized intersections. This section of Route 1 is frequently used as a cut-through to avoid I-95 traffic congestion when roadwork, crashes, or other occurrences cause delays.

Route 156, spanning from the Baldwin Bridge (I-95) southward to the Sound View Beach area is a challenging area for bicyclist. The wide roadway cross section or right-of-way and posted speed limit of 40 mph contribute to high vehicular speeds.

Route 156, north of I-95 is a scenic roadway. Cyclist often use this route to travel to points north such as Lyme and Hadlyme. High vehicular speeds and blind corners can be challenging for bicyclists.



*Crosswalks and sidewalks in Sound View area
Source: Google Maps*



*Shore Road (Route 156)
Source: Google Maps.*

Opportunities

The Town is currently in the process of developing a master plan for Halls Road. The master plan will include a sidewalk and streetscape plan for the commercial area.

A transportation alternatives grant was used to acquire funding for the sidewalk and streetscape project on Hartford Avenue in the Sound View Beach Area. A component of this work included sharrows that were recommended for Route 156 in this area. Although sharrows were not installed under the grant, opportunities exist to pursue the sharrow installation in the future.

Old Lyme's 2020 Open Space Plan stresses the importance of greenways, or a linkage of open space and preserved and into a continuous chain of forest, pasture and watercourses to provide natural drainage ways, protect animal habitats, and create interconnected hiking and biking trails.³ Opportunities exist to acquire and expand open space connections and linkages.

3 Town of Old Lyme 2020 Open Space Plan Update.
https://www.oldlyme-ct.gov/sites/g/files/vyhlf3616/f/uploads/2020_open_space_plan.pdf



*Recently installed sharrows on Hartford Avenue in Soundview
Source: RiverCOG*

OLD SAYBROOK

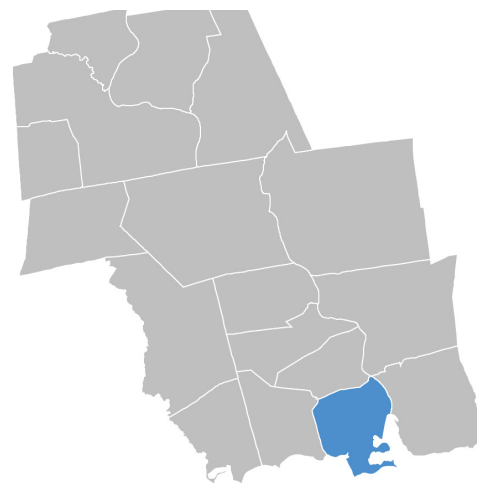
The Town of Old Saybrook is located in the southern end of the RiverCOG Region, where the Connecticut River meets the Long Island Sound. Old Saybrook is one of the region's seaside communities, with multiple beaches and a variety of coastal amenities such as marinas, outdoor restaurants and recreation. Old Saybrook's transportation network includes Interstate 95, US Route 1, State Highway Route 9, and the Shoreline East and Amtrak train station. Old Saybrook is accessible to the surrounding region and this connectivity has aided the town in becoming one of the commercial nodes in the RiverCOG region.

Land uses in Old Saybrook consist of a mix of "big box" commercial retail (Walmart, Tractor Supply, etc.), local businesses and restaurants, residential neighborhoods, beach communities, and wooded areas and open space. Old Saybrook's Town Center stretches along its Main Street, which is adjacent to Route 1 and connects to the train station and terminates at the mouth of the Connecticut River at Saybrook Point. Old Saybrook's attractions include the Kate Theater, Harvey's Beach, and the Preserve Forest (also in parts of Essex and Westbrook).

Old Saybrook had a population of 10,090 in 2019¹, and a population density of 673 per square mile. 3.6% of workers age 16 and over did not have access to a vehicle. Almost 2% of workers utilized public transportation and 3.3% walked to work, while none bicycled to work. Nearly 6% of workers worked from home. The majority of workers (83%) drove alone to work.² Public transportation in Old Saybrook includes 9 Town Transit (four routes have stops in Old Saybrook), CTTransit Express to Hartford, and Shore Line East and Amtrak service.

¹ U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

² U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

Old Saybrook has a goal to promote greater walkability throughout the town and, along with Essex and Middletown, is one of the only municipalities in the region who have completed a bicycle and pedestrian plan (2006).

In Old Saybrook's Plan of Conservation and Development, there is an acknowledgment of the car-centric nature of the town, with a priority to engage in "transit-enhanced development" in and around the Amtrak train station.³ Old Saybrook has the largest transit-oriented apartment complex in the region, which is located adjacent to the train station, Town Center, and commercial core. In *A Strategic Plan for Old Saybrook's Thriving Local Economy, 2020*, accessible transportation that provides a variety of reliable, safe, cost-effective, and efficient mobility options for people to use to get to work, school, shop and recreate is highlighted as an economic development goal. Strategies to achieve this goal include; to champion aesthetically landscaped complete streets and connections, to support Transit-Oriented Development (TOD), and to encourage smart commuting and alternative transportation options for visitors.

Old Saybrook is making ongoing progress towards a continuous sidewalk along Route 1. Recently completed was the Pond Road to Lynde Road section. The Town recently received a nearly \$600k Community Connectivity Program grant for sidewalk improvements in the Elm Street area near the Town Center. Sidewalk improvements are in the planning stages for from Old Post Road to the Westbrook border.

³ LCRV Bicycle and Pedestrian Plan

Issues and Concerns

Limited space within the road right-of-way in certain locations along Boston Post Road (Route 1) present challenges to improving the bicycle and pedestrian network in Old Saybrook. Despite wide roadway cross sections, shoulders widths drop to as narrow as under a foot in some locations. Additionally, due to the commercial character along much of Route 1, multiple curb cuts for business entrances and exits create conflict points between pedestrians, cyclists and vehicles. Environmental constraints exist in some low lying locations particularly along the beach roads. Wetlands, slopes, flooding, erosion and stormwater runoff issues can be barriers to enhancing the bicycle and pedestrian network.

Old Saybrook's 2013 Transportation POCD update cites the goal of improving traffic circulation and safety for vehicles, pedestrians, and bicyclists throughout town, with special focus on Main Street and the entire Village Center, and the use of enforcement to optimize crosswalk safety. However there is a lack of consensus on how to accommodate bicycle and pedestrian facilities on congested roadways within the Town. Limited funding for roadway projects is an ongoing challenge as well.⁴

⁴ Town of Old Saybrook Plan of Conservation and Development Update, Transportation, 2013.



Narrow shoulders and many curb cuts present challenges to the bicycle and pedestrian network
Source: FHI Studio

Opportunities

Looking ahead, opportunities exist to expand bicycle and pedestrian amenities in Old Saybrook. These opportunities include:

- TOD/Town Center bike/ped improvements to support economic development and more affordable housing development;
- Connect the train station via pedestrian bridge to the north/business park area;
- Develop a regional bikeway along the railroad spur that leads from the train station to the Preserve, Essex and beyond;
- Explore the possibility of a walkway over the CT River along the current railroad bridge or enhance access over Baldwin Bridge into Old Lyme;
- Provide bike/ped access from Town Center/train station to an improved Route 1/Ferry Rd./Essex Rd./Middlesex Tpk. loop, and to an improved Route 154/causeway/Great Hammock Rd. loop;
- Establish a bike/ped lane along Schoolhouse Rd. to provide a safer connection between Route 1 and the Schoolhouse Rd. neighborhood/Town Park.

The towns in the LCRV with Shoreline East service, like Clinton, Westbrook, and Old Saybrook could benefit from dockless bikeshare. Because these towns rely on tourism and focus on the identity of the town, increasing bike riding in general, as a means to be mobile, should be a priority.⁵

⁵ LCRV Bicycle and Pedestrian Plan



Wide crosswalk at intersection of Route 154, Route 1 and Mill Rock Road East
Source: FHI Studio

PORTLAND

Portland is bordered by Glastonbury to the north, East Hampton to the east, Cromwell and Middletown to the west, separated by the Connecticut River, and Middletown to the south, also separated by the Connecticut River. The Town's main roadways are CT-17, CT-17A, and CT-66. The Arrigoni Bridge crosses the Connecticut River and connects Portland via Route 66 with Middletown and points west. Middletown Area Transit (MAT) provides Fixed Route, ADA Dial-A-Ride and Rural Transportation to parts of Portland.

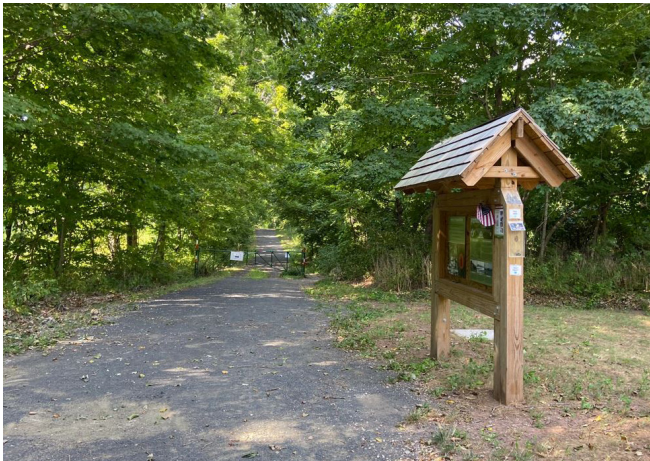
Cultural and natural resource assets in Portland include the Air Line State Park Trail, Meshomasic State Forest, Brownstone Adventure Sports, Park, and the Arrigoni Winery to name a few.

Land uses in Cromwell include a variety of small commercial business on Marlborough Street as well as industrial, agricultural, residential and open space uses. Bordered by the Connecticut River to the west, Portland also is home to marinas and riverfront uses.

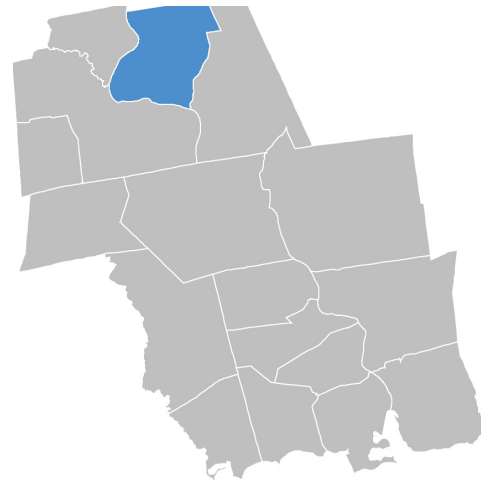
Portland had a population of 9,322 in 2019¹, and a population density of 398 persons per square mile. 0.7% of workers age 16 and over did not have access to a vehicle. None of Portland's workers utilized public transportation or bicycled to work. 0.4% walked to work and approximately 8.5% of workers worked from home. The majority of workers (83.6%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Trailhead and wayfinding signage for the Air Line Trail
Source: RiverCOG



Recent Accomplishments

Portland has an extensive network of sidewalks in the Village Center area connecting Main Street with surrounding local streets as well as the Arrigoni Bridge. To further improve pedestrian amenities, Portland installed tactile warning strips at several crosswalks along Main Street and Marlborough Street. On Main Street, at the Marlborough Street intersection, the snow shelf has been constructed of concrete pavers, and decorative lights were installed.³

Portland has a Complete Streets Policy and has established bike routes with street signage in place as a component of this Plan.

Recent studies in Portland include the Portland Route 17A Road Safety audit and the Portland/East Hampton, Route 66 Corridor Study that was aimed at developing a comprehensive transportation improvement plan for Route 66 in Portland and East Hampton.

3 Portland Main Street (Route 17A) Road Safety Audit, Connecticut Department of Transportation, Community Connectivity Program, June 8th, 2016. Report by AECOM. <https://portal.ct.gov/-/media/DOT/Community-Connectivity/RSA-Reports/Portland-RSA-Report.pdf>

Issues and Concerns

Portland's main roadways are State roads and there is limited local control making it challenging to make infrastructure improvements

Although there are sidewalks on both sides of the Arrigoni Bridge, Portland has expressed concerns regarding pedestrian and cyclist safety. When traveling towards Main Street from the Arrigoni Bridge, the existing pedestrian crosswalk has poor sight lines due to the curve and slope of Lower Main Street. As a result, pedestrians and bicyclists waiting at this crosswalk have difficulty seeing vehicles approaching this crosswalk.

Portland indicated that their biking community is growing; however, local groups prefer not to use Main Street because it does not feel like a bike-friendly environment due to speeds and traffic volumes



*Pedestrians crossing near the Arrigoni Bridge
Source: Portland Road Safety Audit, 2016*

Opportunities

Portland has done much to promote biking and hiking, including expansion of the Air Line Trail. The communities along the trail should work together to promote these amenities.

Traffic calming measures should be implemented to slow traffic on Main Street and pedestrian improvements should be considered near the approach to the Arrigoni Bridge. There is a Complete Streets group in Town, comprised of residents only, though the fire department, police department, and CTDOT personnel review and assist the group in an unofficial capacity. Recently, this group established a family-friendly bike route within the town center area.

Opportunities exist to expand the Air Line trail west across the Connecticut River, creating a connection to the Farmington Canal Trail. This linkage would create a Central Connecticut Loop trail and would help to close existing gaps in the network.



*Decorative pavers and lighting installed as part of the streetscape improvements on Main Street
Source: Portland Road Safety Audit, 2016*

Figure 18: Route 66 Roadway Improvements



*Roadway improvements identified for Route 66 in the vicinity of the Main Street intersection
Source: RiverCOG, Tighe and Bond, Route 66 Corridor Study*

WESTBROOK

Westbrook is located along the Long Island Sound, to the east of Old Saybrook and the Connecticut River. Westbrook is one of the region's shoreline communities, with multiple beach communities and a variety of coastal amenities such as marinas, outdoor restaurants and recreation. Many seasonal residents reside in the beach communities in Westbrook. Home to Westbrook Outlets, Westbrook is a regional shopping destination.

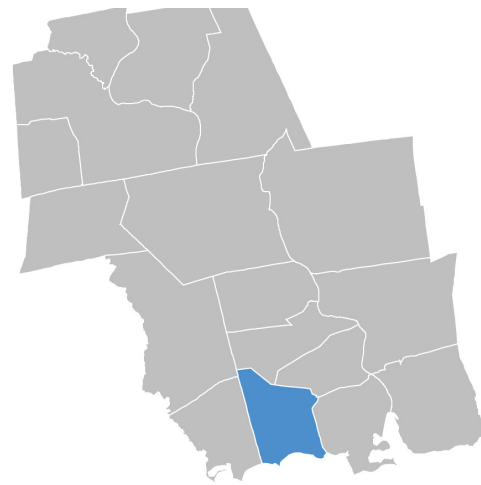
Westbrook is bordered by Deep River and Essex to the north, Old Saybrook to the east, Clinton and Killingworth to the west, and the Long Island Sound to the south. The Town's main roadways include I-95, US-1, CT-145, CT-153, CT-166, and CT-625. There is a Shore Line East Train Station located in Westbrook and other transit connections exist via the 9 Town Transit which has one route that stops in Westbrook. Route #1 travels along US-1 and connects to Clinton and Old Saybrook.

Land uses in Westbrook include a mix of commercial retail, marinas and boat service businesses, car dealerships, other local retail and restaurants, residential neighborhoods, beach communities, and wooded areas and open space. Westbrook's Town Center stretches along Boston Post Road (Route 1). The Westbrook Train Station and the Westbrook Outlets are located in close proximity to the Town Center. Westbrook's attractions include Water's Edge Resort and Spa, Westbrook Outlets and Marquee Cinemas, the Stuart B. McKinney National Wildlife Refuge, the Menunketesuck Greenway, and Westbrook Town Beach.

Westbrook had a population of 6,903 in 2019¹, and a population density of 440 persons per square mile. 1.0% of workers age 16 and over did not have access to a vehicle. Approximately 2.8% of workers utilized public transportation and 0.5% walked to work while no workers bicycled to work. Nearly 7.6% of workers worked from home. The majority of workers (85%) drove alone to work.²

1 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table DP05, ACS Demographics

2 U.S. Census Bureau (2019). 2015-2019 American Community Survey 5-year Estimate. Table S0801, Commuting Characteristics by Sex.



Recent Accomplishments

In 2019, Westbrook completed a Sidewalk and Pedestrian Plan. The Plan laid out a network to improve the sidewalk accommodations at specific location in Town such as the Town Center and other locations along Route 1. The Plan was intended to guide municipal efforts aimed at:

- Maintaining and enhancing the current sidewalk network,
- Strategically closing existing gaps in the sidewalk system,
- Enhancing the overall quality of life in the community.³

Pursuant to the 2019 Sidewalk and Pedestrian Plan, the Town has completed sidewalks in Westbrook Town Center, on the west side of Essex Road and the southerly side of Boston Post Road.

In 2020, the Town used STEAP Grant funding to design sidewalks along US-1 between Bellstone Avenue and Osprey Circle.

3 Westbrook Sidewalk and Pedestrian Plan, August 2019. <https://westbrookct.us/DocumentCenter/View/3008/Sidewalk-Plan-Adopted-081219>

Issues and Concerns

Speeding is a concern, particularly along State Routes 145 and 153. These are roadways often utilized by bicyclists. Additionally, speeding is a common issue in the beach neighborhoods where pedestrian traffic is prevalent. Additional police presence is often needed in these areas to limit speeding.

The interstate and the railroad tracks create bottlenecks in the Town's transportation network. These bottlenecks are often narrow and flood-prone. The Town has expressed the desire for assistance in engineering solutions for these bottlenecks.



Opportunities

Westbrook continues to look for opportunities to fill holes in the sidewalk network. Ensuring that the infrastructure connects destinations and nodes and matches what people are already doing is important to the Town.

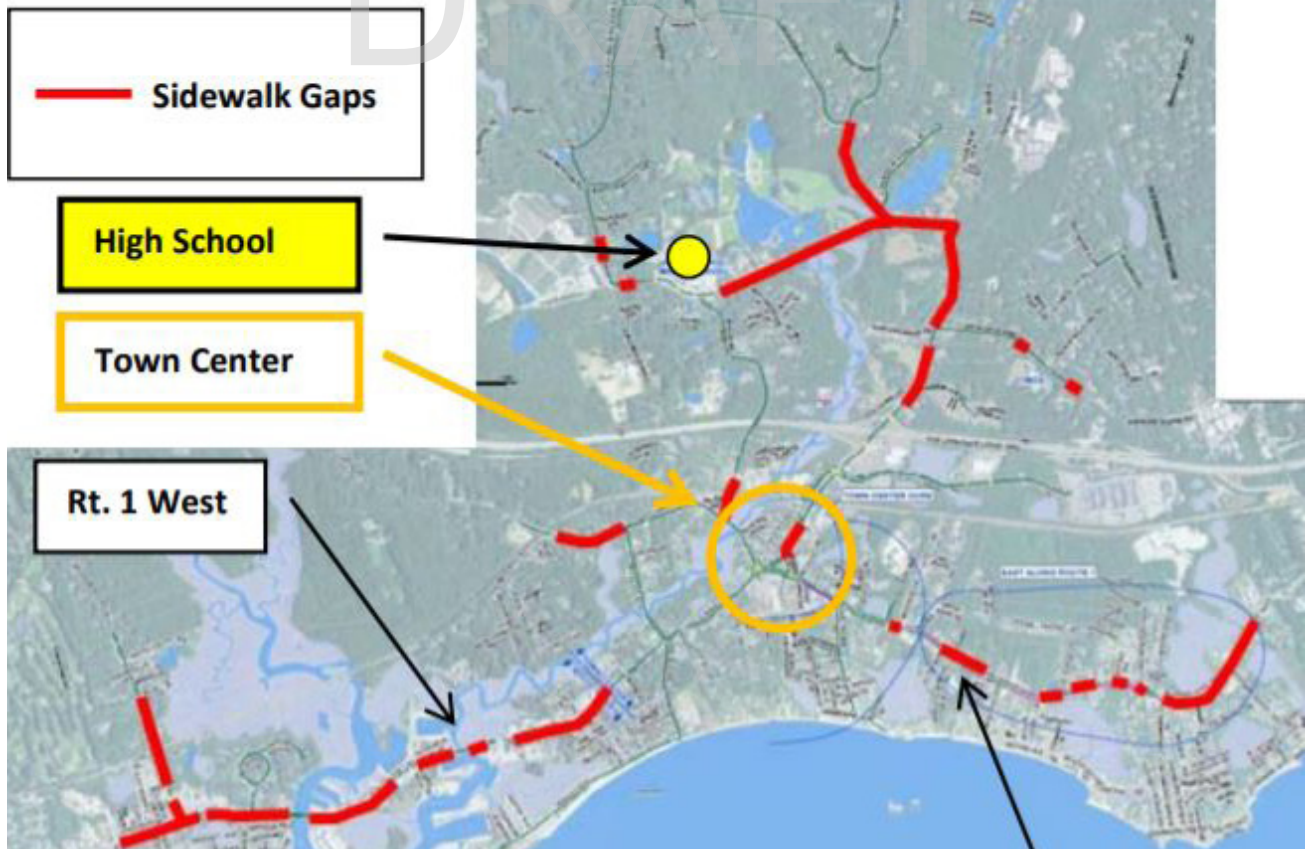
Sidewalk and bicycle connections to the Train Station are an important opportunity to the Town. Existing gaps in the network between the station and Town Center exist. Implementation of the Sidewalk and Pedestrian Plan is a priority for the Town.

Extension of the Shoreline Greenway through Westbrook from Menunketesuck Greenway at Clinton town line to Old Saybrook is a municipal priority for the Town.⁴

*Narrow shoulders along Route 153 in Westbrook
Source: VN Engineers, RiverCOG*

⁴ Lower Connecticut River Valley Council of Governments Regional Metropolitan Transportation Plan, 2019.

Figure 19: Sidewalk Network



*Gaps in Westbrook's sidewalk network
Source: Westbrook Sidewalk and Pedestrian Plan, 2019*

Page Intentionally Left Blank

DRAFT

DESIGN GUIDELINES

FACILITY SELECTION GUIDE

This section is provided to highlight potential facilities that could be beneficial in enhancing the LCRV Region's bicycle and pedestrian networks. Guidance is provided that explains the context in which each of these facility types may be appropriate. Several factors should be considered when selecting appropriate pedestrian or bicycle facilities for a street or roadway corridor. The primary factors include traffic speed and volume, but also include anticipated usership, roadway geometry, adjacent land uses, and existing and planned bicycle facilities in proximity to the corridor for which bicycle facilities are considered.

The selection of a pedestrian or bicycle facility for a corridor should seek to maximize the safety and comfort of pedestrians bicyclists while maintaining the safe and effective operation of other modes of travel along that corridor. As such, the selection of appropriate bicycle facilities is not a "one size fits all" approach; facilities should be selected in response to the unique characteristics of that corridor. In some contexts, the provision of pedestrian or bicycle facilities may not be feasible given operational impacts, physical constraints, or construction cost.

The guidance provided in this section is based upon the best practices of transportation departments from states and municipalities across the country and from guidance documents from the National Association of City Transportation Officials (NACTO) the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA).



Sidewalk

Sidewalks provide people with space to travel within the public right-of-way separated from motor vehicles and on-road bicycles. Sidewalks facilitate pedestrian movement and enhance connectivity.



Pedestrian Lane

A pedestrian lane is a designated space on the roadway for exclusive use of pedestrians. Pedestrian lanes provide a stable surface off of the roadway for pedestrians to use when sidewalks or sidepaths are deemed impractical or otherwise not desired.



Shared Roadway

Shared roadways allow bicyclists and motor vehicles to use the same roadway space without any separate lane designations. Shared roadways are typically delineated by “sharrow” pavement markings and accompanying signage.



Bike Lane

Bike lanes designate an exclusive space on the roadway for bicycle travel, which is signified by pavement markings, striping, and signage. Bike lanes are typically located between a motor vehicle travel lane and the curb, road edge, or parking lane.



Buffered Bike Lane

Buffered bicycle lanes are conventional striped bike lanes with a painted or textured pavement buffer space that is used to separate the bike lane from the adjacent motor vehicle lane and/or parking lane.



Separated Bike Lane

Separated Bike Lanes (also known as cycle tracks or protected bike lanes) are bicycle lanes that are physically separated from motor vehicle traffic. Separated bike lanes can be designed for one-way or two-way travel and can be at street level, at sidewalk level, or at an intermediate level between the two.



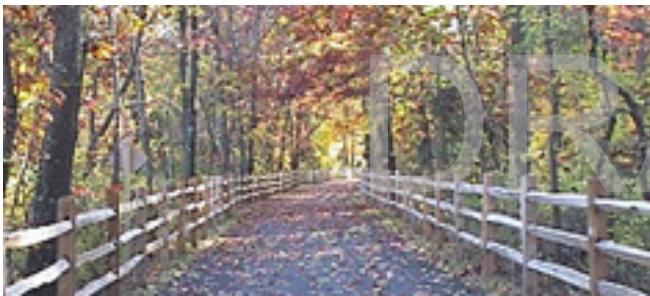
Advisory Shoulder

Advisory shoulder lanes create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement marking and optional pavement color.



Sidepath

Sidepaths provide a separated facility for the shared use of bicyclists and pedestrians. Like sidewalks, these facilities are physically separated from motor vehicles by a curb, open space, or barrier. These facilities are adjacent to the roadway and are typically located within the right-of-way.



Shared-Use Path/ Greenway Trail

A shared-use pathway or greenway trail is a facility that is shared by bicyclists and pedestrians. These facilities are recreational in nature and often travel through open space areas and along natural features such as riverfronts. While similar in design and function to a sidepath, shared-use pathways, are not typically located adjacent to a roadway.

Data Collection and Application

The selection of appropriate bicycle facilities is incumbent upon the collection and application of data relevant to the corridor. This includes the following:

- ▲ **Traffic Volume:** Average Daily Traffic (ADT) or Annual Average Daily Traffic (AADT) data should be collected or referenced prior to the selection of bicycle facilities for a corridor. Historical data can be used for planning purposes, but the collection of current data is recommended. Traffic volume data should be collected at multiple locations for corridors which have segments that vary significantly in traffic patterns or roadway geometry.
- ▲ **Traffic Speed:** 85th percentile traffic speeds should be used in the selection of appropriate bicycle facilities. Posted speed limits may be used as a proxy if speed data is unavailable, but the collection of data is recommended. When posted speed limits are used, the 85th percentile speed should be estimated by adding 5 mph to the posted speed limit to account for the tendency of 85th percentile speeds to be several mph above posted speed limits. Traffic speed data should be collected at multiple locations for corridors that have segments that vary significantly in traffic characteristics or roadway geometry.
- ▲ **Roadway Conditions:** Information regarding roadway conditions is necessary to inform facility selection. Necessary information includes right-of-way lines and width, roadway width, pavement markings, traffic and queuing behavior, parking lane location, utility structures, and topography.
- ▲ **Land Use:** Adjacent land use data should be collected and used to inform bicycle facility selection. Planned developments with potential access along the corridor should be considered in facility selection.
- ▲ **Bicycle Network:** The existing bicycle network approaching, connecting to, or intersecting the corridor should be considered in bicycle facility selection. Planned bicycle facilities and local bicycle plans should be referenced and considered.

Facility Selection

Several factors should be considered when determining the appropriate bicycle facility for a roadway corridor. While the primary factors are motor vehicle traffic speeds and volumes, other factors such as the right-of-way width, adjacent land uses, utility infrastructure, and construction costs inform the selection of appropriate bicycle facilities. Given these factors and constraints, a range of facility types are recommended for use based upon the following:

Recommended Facilities

Recommended facilities are the recommended facility type given conditions specific to that corridor.

Acceptable Facilities

Acceptable facilities are acceptable for application where physical conditions, cost of construction, and/or property constraints do not allow for implementation of the recommended facility type.

Provisional Allowances

Facilities may be allowed providing improvements associated with the installation of the bicycle facility is expected to bring traffic speed conditions within an acceptable range.

Recommended Facilities

A recommended facility is the most appropriate facility type based upon traffic volume and speed. Recommended facility classifications do not account for other factors such as anticipated usership, roadway conditions, construction costs, and maintenance requirements.

User preference may differ from the recommended facility type. Bicyclists generally prefer off-street “low stress” facilities which may, or may not, be appropriate to the context or feasible for implementation. The selection of appropriate facilities should balance planning and engineering considerations with user expectations and preferences.

Table 7 identifies recommended bicycle facility types based upon average daily traffic volume (ADT) and 85th percentile traffic speeds.

Acceptable Facilities

Acceptable facilities are applied where physical conditions, cost of construction, right-of-way constraints, and/or other factors do not allow for implementation of the recommended facility type.

The acceptable traffic volume and speed range is higher for acceptable on-street facilities compared to recommended on-street facilities. The range of acceptable conditions is, however, lower for acceptable off-street facilities when compared to recommended off-street facilities.

Table 8 at right identifies acceptable bicycle facility types based upon average daily traffic volume (ADT) and 85th percentile traffic speeds.

| Table 7: Recommended Facilities | | |
|---------------------------------|-----------------|-----------------------|
| Facility | ADT | 85th Percentile Speed |
| Sidewalk | 400 ADT or more | 10 mph or higher |
| Pedestrian Lane | 2,000 or less | 20 mph or less |
| Shared Roadway | 5,000 or less | 30 mph or less |
| Bike Lane | 10,000 or less | 35 mph or less |
| Buffered Bike Lane | 10,000 - 20,000 | 31 - 40 mph |
| Separated Bike Lane | 20,000 or more | 36 mph or higher |
| Advisory Shoulder Lane | 3,000 or less | 25 mph or less |
| Sidepath | 15,000 or more | 31 mph or higher |
| Shared-Use Path/ Greenway | All conditions | All conditions |

| Table 8: Acceptable Facilities | | |
|--------------------------------|----------------|-----------------------|
| Facility | ADT | 85th Percentile Speed |
| Sidewalk | All conditions | All conditions |
| Pedestrian Lane | 6,000 or less | 30 mph or less |
| Shared Roadway | 10,000 or less | 35 mph or less |
| Bike Lane | 15,000 or less | 40 mph or less |
| Buffered Bike Lane | 25,000 or less | 45 mph or less |
| Separated Bike Lane | All conditions | All conditions |
| Advisory Shoulder Lane | 6,000 or less | 35 mph or less |
| Sidepath | All conditions | All conditions |
| Shared-Use Path/ Greenway | All conditions | All conditions |

Sidewalk

Description

Paved sidewalks are “pedestrian lanes” that provide people with space to travel within the public right-of-way separated from motor vehicles and on-road bicycles. Sidewalks facilitate pedestrian movement and access and enhance connectivity. Sidewalks activate streets socially and economically, particularly in downtown areas. Safe, accessible, and well-maintained sidewalks have been found to enhance general public health and maximize social capital. Superior sidewalk design can encourage walking by making it more attractive.

Application & Design Guidance

Sidewalks provide places for people to walk, run, and play, and can serve as both recreational and transportation corridors. Continuous and accessible sidewalk networks improve mobility for all pedestrians and are particularly important for pedestrians with disabilities. They provide access for all types of pedestrian travel to commercial and residential areas, to schools as well as work, parks, shopping areas, transit stops and other destinations.

Where feasibly, sidewalks should be part of all new and renovated development. Streets that do not have sidewalks, particularly those on routes where children walk or bicycle to school, should be identified and assessed to determine if retrofitting these streets with sidewalks is appropriate. Where feasible, sidewalks should be provided on both sides of the street. A sidewalk on only one side forces pedestrians to either walk in the street or cross the street twice to get to the side with a sidewalk and back again.

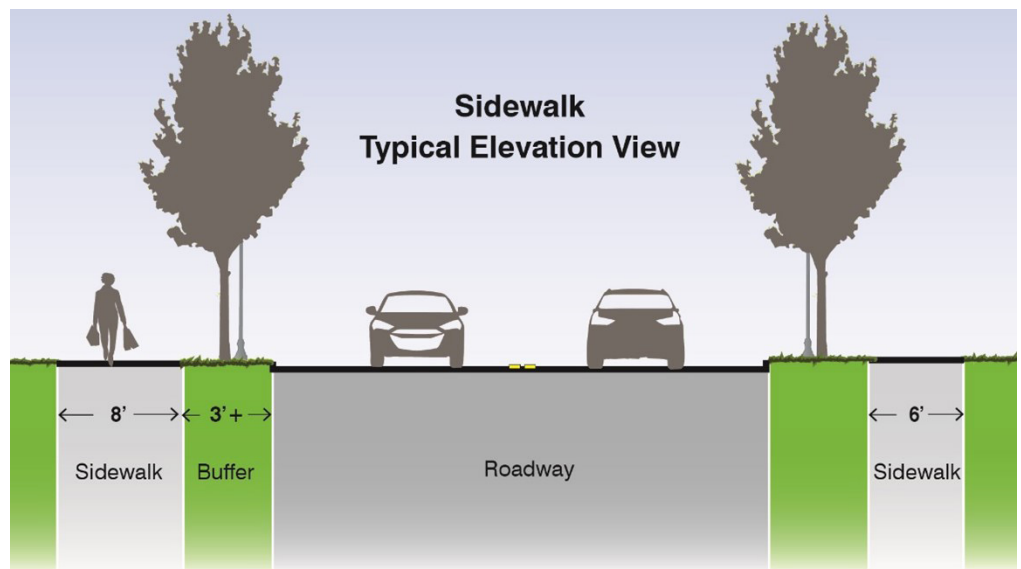
Standards

Sidewalks have a desired minimum through zone of 6 feet and an absolute minimum of 5 feet. Where a sidewalk is directly adjacent to moving traffic, the desired minimum is 8 feet, providing a minimum 2-foot buffer for street furniture and utilities.¹ They should have a level, hard surface and be separated from motor vehicle traffic by a curb, buffer or curb with buffer.

Sidewalk design should, where feasible, exceed the bare minimums in both width and amenities. Pedestrians and businesses thrive where sidewalks have been designed at an appropriate scale, with sufficient lighting, shade, and street-level activity. These considerations are especially important for streets with higher traffic speeds and volumes, where pedestrians may otherwise feel unsafe and avoid walking.

¹ National Association of City Transportation Officials, NACTO. Urban Street Design Guide

| Sidewalk Application Guidance | | |
|-------------------------------|-------------|------------------|
| Traffic Volume | Recommended | 400 ADT or more |
| | Acceptable | All Conditions |
| 85th Percentile Speeds | Recommended | 10 mph or higher |
| | Acceptable | All Conditions |



Elevation view of a 6 foot and an 8-foot-wide sidewalk

Pedestrian Lane

Description

A pedestrian lane is a pedestrian facility that may be appropriate on roads with low to moderate speeds and volumes. A pedestrian lane is a designated space on the roadway for exclusive use of pedestrians. The lane may be on one or both sides of the roadway and can fill gaps between important destinations in a community¹.

Pedestrian lanes provide a stable surface off of the roadway for pedestrians to use when sidewalks or sidepaths are deemed impractical or otherwise not desired. They require minimal roadside infrastructure and no impacts to stormwater management if existing pavement is used.

Application & Design Guidance

Pedestrian lanes are appropriate for streets with low to moderate traffic volumes. The recommended application range for pedestrian lanes is on local or collector roadways that see under 2,000 vehicles per day and with motor vehicle operating speeds under 20 miles per hour. Pedestrian lanes also have been shown to be acceptable on roadways with volumes as high as 6,000 vehicles per day with operating speeds under 30 miles per hour. They are best utilized in built up areas to provide a dedicated space for pedestrians. Walk in the street or cross the street twice to get to the side with a sidewalk and back again.

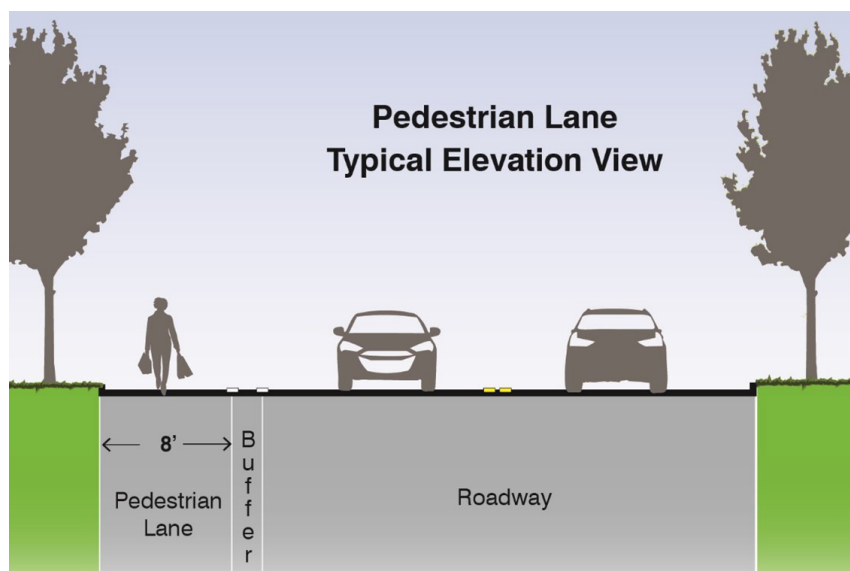
¹ Small Town and Rural Design Guide. Facilities for Walking and Biking.

*Photo: Pedestrian lane in Duck, NC
Source: ITRE Bike and Ped Flickr*

Standards

Pedestrian lanes should be designed to support and promote side-by-side walking within the lane. Because of the lack of physical separation, additional width beyond this should be included for added comfort. An 8-foot width is preferred, and a 5-foot width is the minimum to allow for side-by-side walking and maneuverability by users of mobility devices. The surface of pedestrian access routes shall be firm, stable, and slip resistant and the grade should not exceed that of the adjacent street.

| Pedestrian Lane Application Guidance | | |
|--------------------------------------|-------------|-----------|
| Traffic Volume | Recommended | 2,000 ADT |
| | Acceptable | 6,000 ADT |
| 85th Percentile Speeds | Recommended | 0-20 mph |
| | Acceptable | 0-30 mph |



Elevation view of an 8 foot pedestrian lane with buffer

Shared Roadway

Description

Shared roadways allow bicyclists and motor vehicles to use the same roadway space without separate lane designations. Motorists have a greater awareness of, and are more likely to yield to, bicyclists on shared roadways when compared to roadways that lack bicycle accommodations. Shared roadways should be used where the provision of dedicated bike lanes or other dedicated bicycle facilities is not feasible due to geometric or right-of-way constraints. Shared roadways are suitable for use on State and local roadways where the conditions conform with the standards provided in this section.

One of the limitations of shared roadways is that they are susceptible to bicycle and vehicular conflicts because of the lack of designated space and/or separation between bicyclists and motorists. As such, the application of shared roadways should be sensitive to conditions such as lane and roadway width, on-street parking, and traffic volume and speed.

On a shared roadway, bicyclists can position themselves where they feel safest and most comfortable. While bicyclists often prefer the right edge of the shared lane, they may also opt to ride in the middle of the shared lane to discourage passing vehicles from attempting to pass within the lane.

Shared roadways can be a valuable tool in developing a bicycle network and providing strategic connections between corridors with dedicated bicycle facilities. Shared roadway pavement markings and accompanying signage provide cyclists with wayfinding assistance and promote awareness of the presence of bicyclists in the roadway environment.

Application & Design Guidance

Shared roadways are suitable for corridors with low to moderate traffic volume and speeds. Table 1 at right provides the recommended and acceptable traffic volume and speed ranges for the application of shared roadways.

Design Guidance

Wide (13-15 foot) shared lanes are preferred over narrower lanes as they afford greater separation between motorists and bicyclists and require less encroachment of motor vehicles into adjacent traffic lanes when passing bicyclists. Bicycle lanes are recommended instead of shared lanes where traffic lanes are continuously wider than 15 feet.

Narrow (less than 13 feet) shared lanes should only be used in lower traffic volume and speed conditions. Lower volume roadways afford greater gaps in traffic to allow for encroachment of motor vehicles into adjacent traffic lanes when passing bicyclists. Lower speed conditions are generally preferred for narrow shared lanes.

| Shared Roadway Application Guidance | | |
|-------------------------------------|--------------|--------------------|
| Traffic Volume | Recommended | 5,000 ADT or less |
| | Acceptable | 10,000 ADT or less |
| 85th Percentile Speeds | Recommended | 25 mph or less |
| | Acceptable | 30 mph or less |
| | Provisional* | 31 - 35 mph |

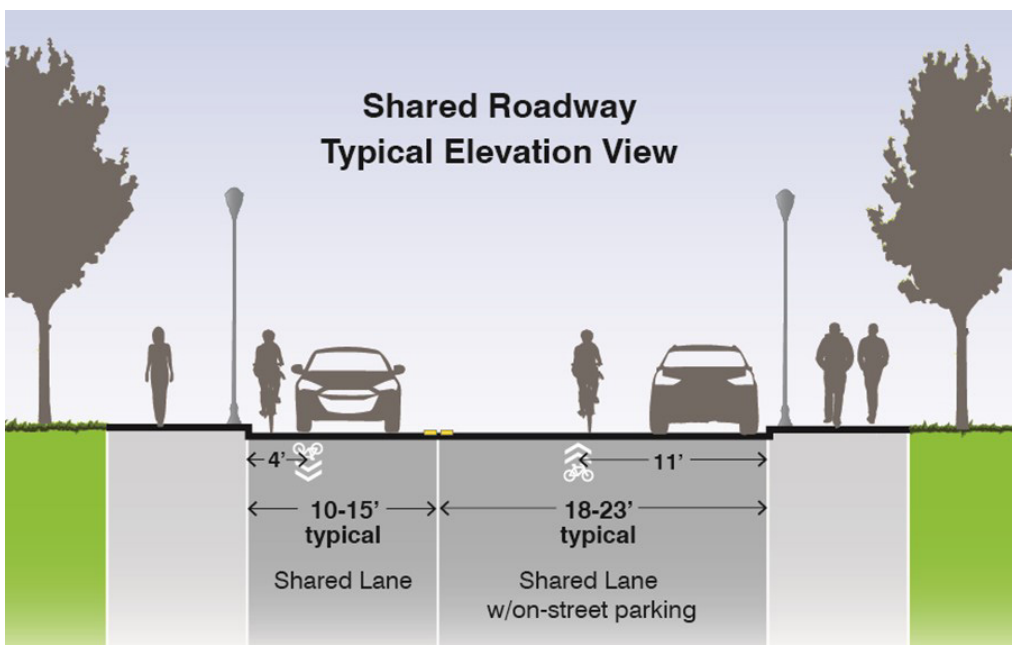
*Requires the planned reduction of traffic speeds to acceptable levels.

Photo: Shared roadway in Seattle, Washington
Source: FLICKR



| Recommended Shared Roadway Width (No on-street parking) | | |
|--|----------------------------------|-------------|
| Recommended Shared Lane Width (inclusive of shoulder) | Maximum 85th Percentile Speed | Maximum ADT |
| 10 - 12 Feet | 25 mph | 5,000 |
| 13 - 15 Feet | 30 mph | 10,000 |
| No center line: 20 -31 feet (edge of pavement to edge of pavement, bi-directional traffic) | 30 mph | 6,000 |

| Recommended Shared Roadway Width (on-street parking) | | |
|---|----------------------------------|-------------|
| Recommended Shared Lane Width (inclusive of shoulder) | Maximum 85th Percentile Speed | Maximum ADT |
| 18 - 20 Feet | 25 mph | 5,000 |
| 21 - 23 Feet | 30 mph | 10,000 |
| No center line, parking one side: 28-39 feet (edge of pavement to edge of pavement, bi-directional traffic) | 30 mph | 6,000 |
| No center line, parking both sides: 36-47 feet (edge of pavement to edge of pavement, bi-directional traffic) | 30 mph | 6,000 |



Elevation view of a shared roadway with on-street parking

Bike Lane

Description

Bike lanes designate an exclusive space on the roadway for bicycle travel, which is signified by pavement markings and signage. Bike lanes are typically located between a motor vehicle travel lane and the curb, road edge, or parking lane. Bike lanes are used for one-way travel in the same direction as the adjacent traffic lane.

Bike lanes provide separation between bicyclists and traffic and require minimal roadway space which allows for their inclusion via traffic lane width reductions, removal of traffic lanes, and/or removal of on-street parking lanes. Bike lanes may be provided in isolated segments as climbing lanes. Climbing lanes are placed on the uphill direction of a steep roadway grade to provide bicyclists space to ride without slowing down vehicular traffic.

Bike lanes may not be suitable for all users; some bicyclists, especially those with less experience, may not feel comfortable riding without physical separation from traffic.

Application & Design Guidance

Bike lanes are suitable for corridors with low to moderate traffic volume and speeds.

Standards

Bike lanes should be between 4 and 6 feet wide. Selection of a bike lane width is based upon edge of roadway conditions, traffic volume, and traffic speed.

The maximum bike lane width is 6 feet to prevent its use as a parking lane. Buffered bike lanes should be used where the bicycle operating space is greater than 6 feet.

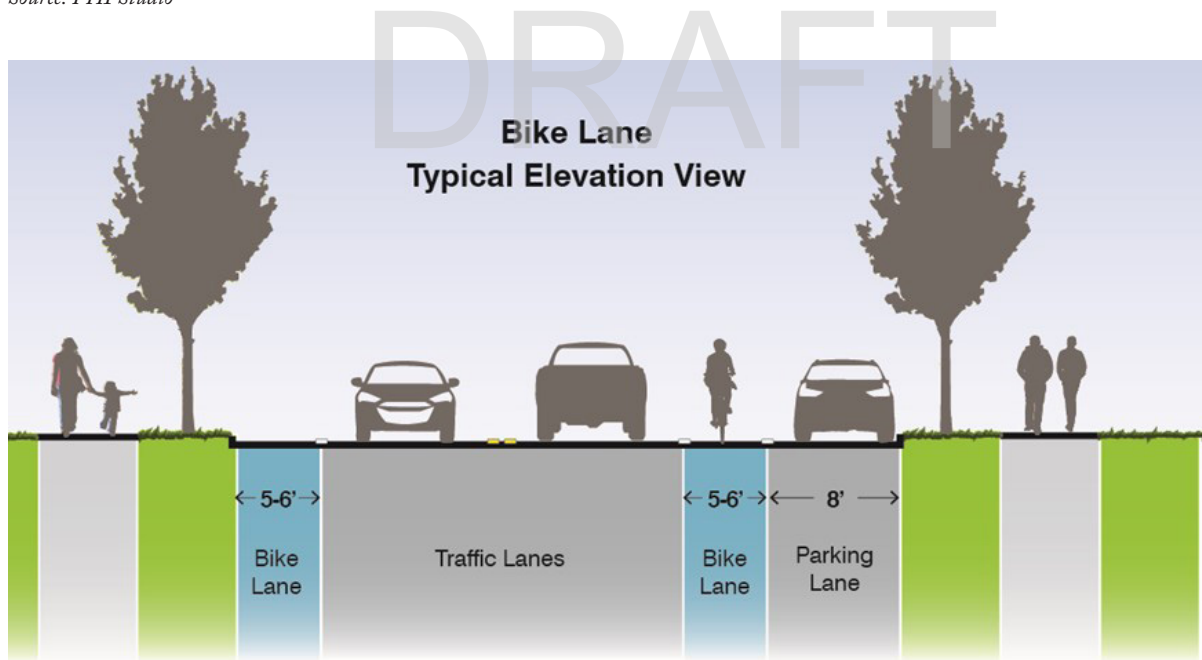
| Bike Lane Application Guidance | | |
|--------------------------------|--------------|--------------------|
| Traffic Volume | Recommended | 10,000 ADT or less |
| | Acceptable | 15,000 ADT or less |
| 85th Percentile Speeds | Recommended | 35 mph or less |
| | Acceptable | 40 mph or less |
| | Provisional* | 41 – 45 mph |

*Requires the planned reduction of traffic speeds to acceptable levels.

| Bike Lane Width Selection Guide | | | | |
|---------------------------------|-----------------------------|-------------------------------|-------------|---|
| Bike Lane Width | Adjacent Traffic Lane Width | Maximum 85th Percentile Speed | Maximum ADT | Notes |
| 4 Feet* | 10 feet | 30 mph | 7,500 | *Only for use at edge of roadway where no curb is present |
| | 11 feet | 30 mph | 10,000 | |
| 5 Feet | 10 feet | 30 mph | 10,000 | |
| | 11+ feet | 35 mph | 12,500 | |
| 6 Feet | 10 feet | 35 mph | 12,500 | |
| | 11+ feet | 40 mph | 15,000 | |



Bike lane in Simsbury, CT
 Source: FHI Studio



Elevation view of a 5-6 foot bike lane with on-street parking on one side

Buffered Bike Lane

Description

Buffered bike lanes are located on the roadway and include a flush painted, colored, or textured buffer space that is used to separate the bike lane from the adjacent traffic or parking lane. Buffered bike lanes provide an improved level of comfort for the bicyclist above that provided by a standard bike lane by providing more space between bicyclists and motorists and more space for bicyclists to pass one another without encroaching into a traffic lane. Buffered bike lanes should be used where traffic volume and/or speed require additional separation between bicyclists and motor vehicles so as to improve bicyclist safety and comfort. Buffered bike lanes are typically paired, one-way facilities but may also take the form of two-way facilities located on one side of the roadway.

One of the challenges of incorporating buffered bike lanes is the additional roadway space needed to accommodate the buffer space. Buffered bike lanes, while providing additional separation between bicyclists and motor vehicles, do not provide the physical protection and separation associated with facilities such as separated bike lanes. Buffered bike lanes may require additional maintenance when compared to a standard bike lane because of the need to maintain the buffer striping or surface treatment. A benefit of buffered bike lanes compared to separated bike lanes is that they cost less to construct and do not require specialized equipment for sweeping or winter maintenance.

Application & Design Guidance

Buffered bike lanes are suitable for corridors with low to high traffic volume and speeds.

Standards

Width

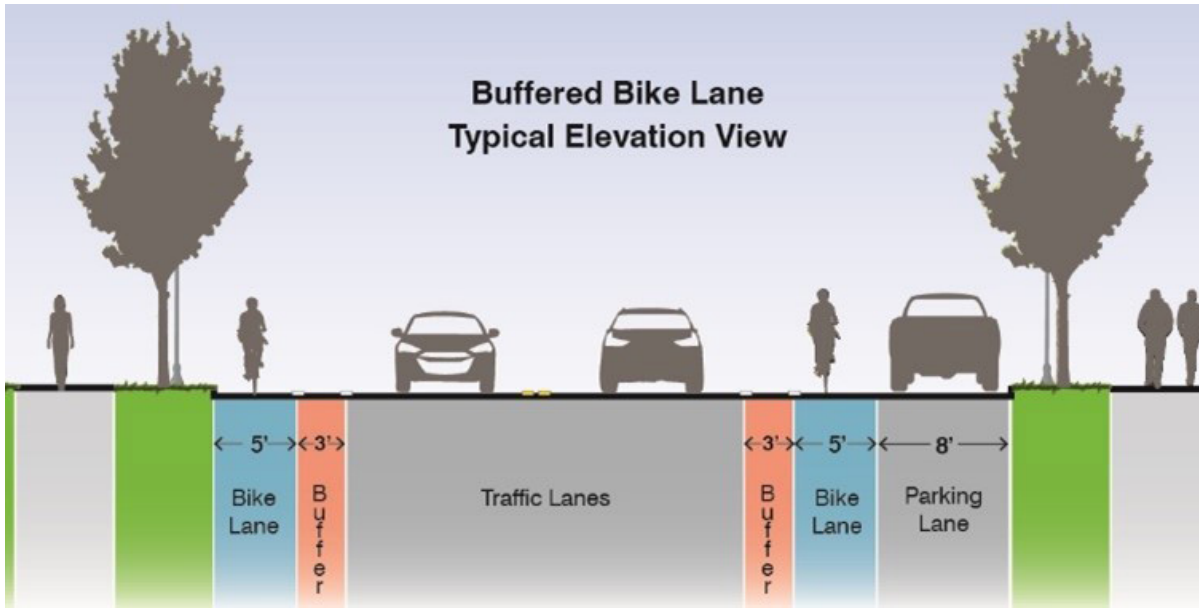
- Bike lanes should be between 4 feet wide if buffered on both sides and 5 feet wide if buffered on one side.
- Bike lanes should include parking lane side buffers when located adjacent to parking lanes in areas of high parking turnover such as metered spaces, time-limited spaces, and retail areas.
- Where a buffer is provided on the left (driver) side of a parking lane, the combined width of the parking lane and parking lane buffer should be no less than 9 feet so as to minimize door zone conflicts.
- When the buffered bike lane is placed between a parking lane and traffic lane, the combined width of the parking lane, bike lane, and traffic side bike lane buffer should be no less than 15 feet.

Buffer

- Buffers should be a minimum of 2 feet wide, but 3 feet is preferable. Appropriate buffer width should be determined based upon adjacent traffic lane width, traffic speed, and traffic volume.
- Rumble strips may be used within the buffer and should be placed at the traffic side edge of the buffer when used.
- Traffic delineator posts, spaced 10 to 40 feet apart, may be used within the buffer and should be placed in the center of the buffer when used. Where the buffer separates on-street parking from a bike lane located on the right (passenger) side of the parking lane, posts should be spaced 10 feet apart.



*Photo: Buffered bike lane in West Hartford
Source: FHI Studio*



Elevation view of a 5 foot bike lane with 3 foot buffer and on-street parking on one side

| Buffered Bike Lane Application Guidance | | |
|---|--------------|-------------------------------|
| Traffic Volume | Recommended | 10,000-20,000 ADT |
| | Acceptable | 0-10,000 or 20,000-25,000 ADT |
| 85th Percentile Speeds | Recommended | 31-40 mph |
| | Acceptable | 0-30 mph or 41-45 mph |
| | Provisional* | More than 45 mph |

*Requires the planned reduction of traffic speeds to acceptable levels.

| Traffic Side Buffer Width Selection Guidance | | | |
|--|-----------------------------|-------------------------------|-------------|
| Traffic Side Buffer Width | Adjacent Traffic Lane Width | Maximum 85th Percentile Speed | Maximum ADT |
| 2 feet | 10 feet | 40 mph | 15,000 |
| | 11 feet | 42.5 mph | 20,000 |
| 3 Feet | 10 feet | 42.5 mph | 20,000 |
| | 11+ feet | 45 mph | 25,000 |

Separated Bike Lane

Description

Separated bike lanes are physically separated from motor vehicle traffic. Physical separation can be provided by grade separation or by physical barriers such as curbs, guardrails, bollards, or other traffic barrier systems. Separated bike lanes can be designed for one-way or two-way travel and can be at roadway or sidewalk level.

Separated bike lanes are preferred by less experienced bicyclists and bicyclists of all ages because of the physical separation from traffic. While separated bike lanes improve safety and comfort along a corridor, the physical separation does not resolve conflicts with turning motor vehicles at intersections and driveways. Special treatment is therefore required at intersections to maintain safety. Separated bike lanes usually require bicycle specific traffic signals at signalized intersections or require bicyclists to use a pedestrian crossing signal phase to assist with intersection crossings.

Two-way separated bike lanes located on one side of the roadway may be a desirable facility where the opposite side of the roadway experiences significant turning movements such as at a highway interchange. Two-way separated bike lanes are most appropriately located along the side of a roadway that is not frequently interrupted by driveways or intersections.

Paired (a one-way lane on each side of the road) one-way separated bike lanes are generally preferable to two-way separated bike lanes as they present less conflict at intersections and driveways due to the lack of contraflow traffic. Paired one-way facilities may, however, require more space than a two-way separated bike lane.

Application & Design Guidance

Separated bike lanes are most suitable to corridors with high traffic volume and higher traffic speeds.

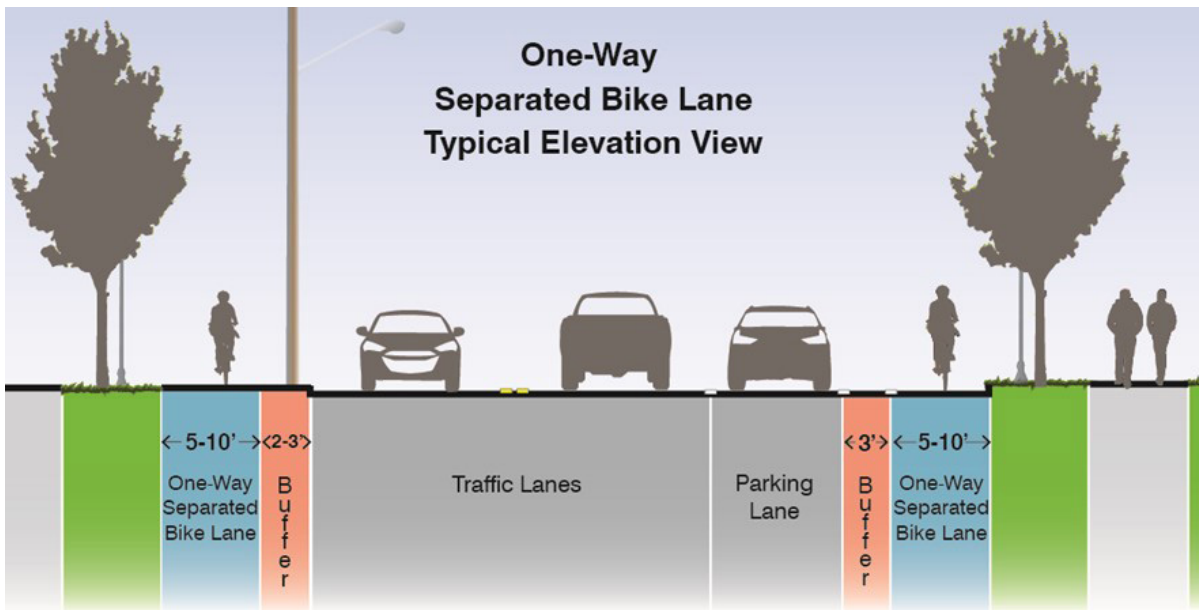
Standards

The recommended separated bike lane width is established by the projected peak hour bike traffic. See tables at right.

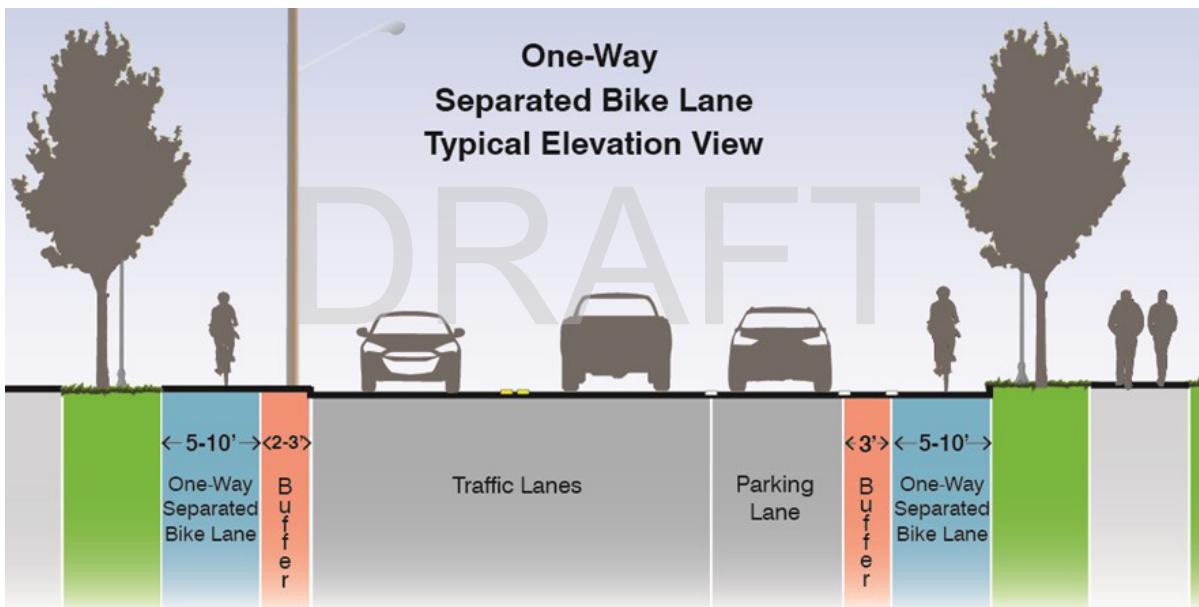
| Separated Bike Lane Application Guidance | | |
|--|-------------|--------------------|
| Traffic Volume | Recommended | 20,000 ADT or more |
| | Acceptable | 20,000 ADT or less |
| 85th Percentile Speeds | Recommended | 36 mph or more |
| | Acceptable | 35 mph or less |

| One-Way Separated Bike Lane Width | | |
|--|---------------|-------------------|
| Bikes per Peak Hour | Minimum Width | Recommended Width |
| <100 | 5 feet* | 6 feet |
| 100-250 | 6 feet | 7 feet |
| >250 | 7 feet | 8 feet |
| *6 feet is the minimum width where the bike lane is constrained on both sides by curbs or other vertical barriers. | | |

| Two-Way Separated Bike Lane Width | | |
|---|---------------|-------------------|
| Bikes per Peak Hour | Minimum Width | Recommended Width |
| <200 | 8 feet* | 10 feet |
| 200-500 | 9 feet | 11 feet |
| >500 | 10 feet | 12 feet |
| *10 feet is the minimum width where the bike lane is constrained on both sides by curbs or other vertical barriers. | | |



Elevation view of a 5 foot bike lane with 3 foot buffer and on-street parking on one side



Elevation view of a 5 foot bike lane with 3 foot buffer and on-street parking on one side



*Two-way Separated Bike Lane at Sidewalk Level, Hartford
Source: FHI Studio*

Page Intentionally Left Blank

DRAFT

Advisory Shoulder Lane

Description

Advisory shoulder lanes create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement marking and optional pavement color. Motorists may only enter the shoulder when no bicyclists are present and must overtake these users with caution due to potential oncoming traffic.

Note: Advisory shoulders are a new treatment type in the United States and no performance data has yet been collected to compare to a substantial body of international experience. In order to install advisory shoulders, an approved Request to Experiment is required as detailed in Section 1A.10 of the MUTCD. FHWA is also accepting requests for experimentation with a similar treatment called “dashed bicycle lanes.”

Application & Design Guidance

Advisory lanes are appropriate for streets with low to moderate traffic volumes. The recommended application range for advisory lanes is on collector roadways that see under 3,000 vehicles per day and with motor vehicle operating speeds under 25 miles per hour. Advisory lanes also have been shown to work on roadways with volumes as high as 6,000 vehicles per day with operating speeds under 35 miles per hour. They are best utilized between, and within built up areas with bicycle and pedestrian demand and limited available paved roadway surfaces.

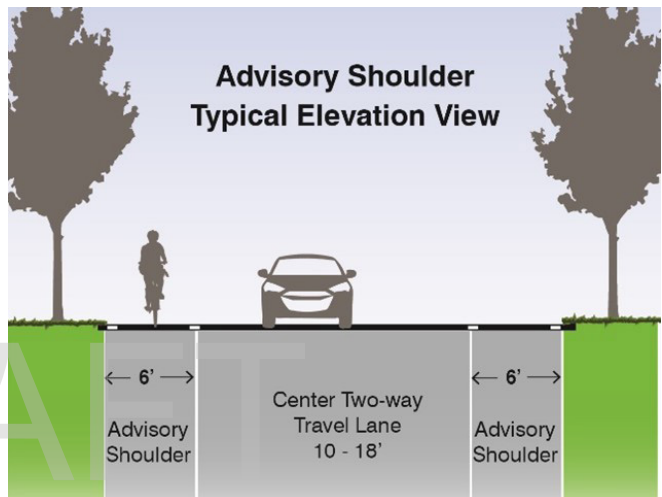
Standards

Unlike a conventional shoulder, an advisory shoulder is a part of the traveled way, and it is expected that vehicles will regularly encounter meeting or passing situations where driving in the advisory shoulder is necessary and safe.

The advisory shoulder space is a visually distinct area on the edge of the roadway, offering a prioritized space for people to bicycle and walk.

The preferred width of the advisory shoulder space is 6 ft (2.0 m). Absolute minimum width is 4 ft (1.2 m) when no curb and gutter is present.

| Advisory Shoulder Lanes Application Guidance | | |
|--|-------------|-----------|
| Traffic Volume | Recommended | 3,000 ADT |
| | Acceptable | 6,000 ADT |
| 85th Percentile Speeds | Recommended | 0-25 mph |
| | Acceptable | 0-35 mph |



Elevation view of a 6 foot advisory shoulder lane



Advisory shoulder in Burlington, Vermont
Source: Alta Planning

Sidepath

Description

Sidepaths provide a separated facility for the exclusive use of bicycles and pedestrians. Sidepaths are physically separated from motor vehicles by open space, a curb or a barrier and run adjacent to the roadway. They differ from separated bike lanes in that they are used by both bicyclists and pedestrians. Sidepaths often connect recreational pathways and are commonly found along the edge of parks and water features. Sidepaths may also be used to close gaps in a bicycle network created by features such as a highway interchange.

Sidepaths provide significant flexibility in accommodating bicyclists because the facility can be used by both pedestrians and bicyclists in lieu of a sidewalk and on-street bicycle lanes. A sidepath would likely be used along a corridor where a two-way separated bike lane may be desirable, but where physical or right-of-way constraints do not allow for the provision of a sidewalk and separated bike lane.

Sidepaths can create conflicts when they are located alongside a roadway with multiple driveways or frequent intersections. Turning motor vehicles do not expect fast moving traffic and two-way traffic alongside the roadway and might turn right or left in front of a cyclist.

Application & Design Guidance

Sidepaths are most suitable to corridors with high traffic volume and moderate to high traffic speeds.

| Sidepath Application Guidance | | |
|-------------------------------|-------------|--------------------|
| Traffic Volume | Recommended | 15,000 ADT or more |
| | Acceptable | 15,000 ADT or less |
| 85th Percentile Speeds | Recommended | 31 mph or more |
| | Acceptable | 30 mph or less |

Standards

Width

- The recommended shared use path width is established by the projected peak hour bike and pedestrian traffic. See tables below.

Grade

- Sidepaths may be at roadway grade or at sidewalk grade.
- The horizontal alignment and grade of sidepaths is primarily established by the adjacent roadway. Attempts should be made to maintain ADA compliance with respect to grade.

Buffer

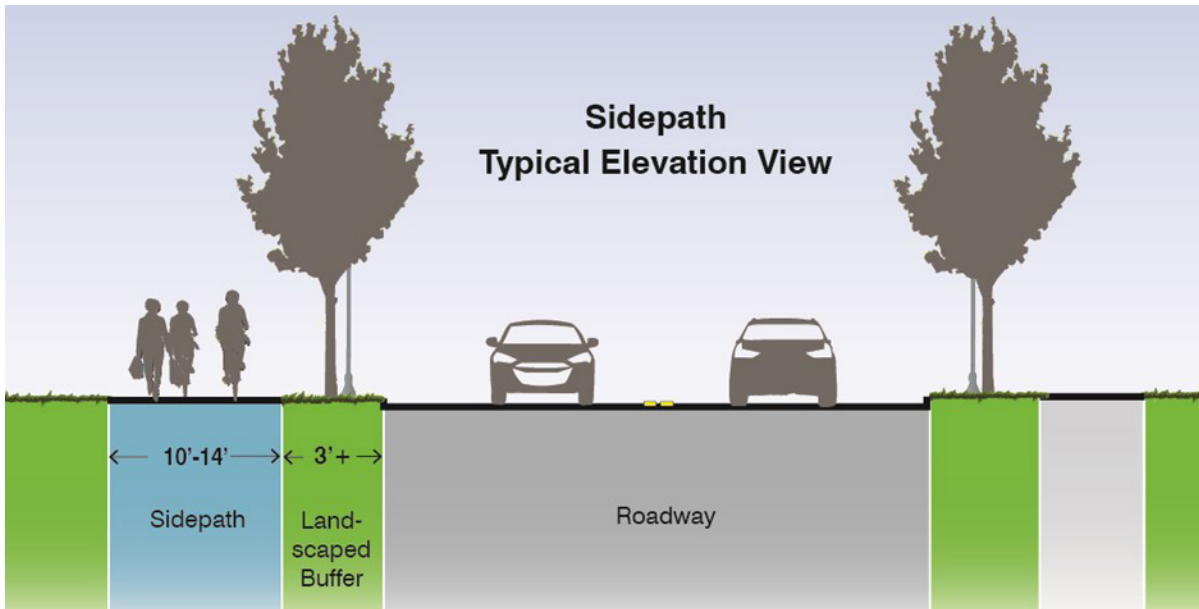
- The minimum recommended distance (buffer) between the roadway and sidepath is 2 feet. A buffer area of 3 feet or more should be provided adjacent to a parking lane. The preferred separation is a minimum of 6 feet to allow sufficient space for landscaping, utility structures, signage, and snow storage.

Driveway and Roadway Crossings

- Sidepaths should maintain grade across unsignalized driveway crossings.
- Crosswalk markings should be applied to all roadway crossings, signalized driveways, and driveways of major traffic generators.

Pavement Markings

- A single yellow 4" wide centerline may be applied on curves or in high bicycle traffic areas. The line may be solid or dashed.
- Standard white pedestrian continental style crosswalk markings should be applied where required. The crosswalk should match or exceed the width of the approaching sidepath.



Elevation view of a 10-14 foot sidepath with landscape buffer



*Farmington Canal Trail Sidepath, RT 10 in Simsbury
Source: FHI Studio*

Shared-Use Path/ Greenway Trail

Description

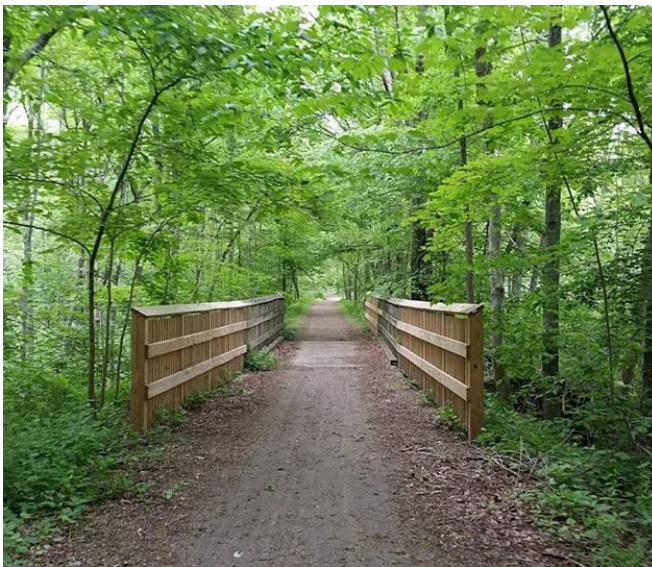
Shared-Use paths or greenway trails, similar to sidepaths, provide a separated facility for the exclusive use of bicycles and pedestrians. Shared-Use pathways differ from separated bike lanes in that they are used by a range of users including bicyclists, pedestrians and skaters. Shared-Use paths are typically recreational in nature but can also be effective facilities for transportation. They are removed from the roadway for both pedestrian and bicyclist use, usually running thru nature or open space.

Shared-Use paths are typically physically separated from the roadway by a significant distance and have few roadway crossings. Shared-Use paths often travel through open space areas and along natural features such as rivers and waterbodies. Shared-Use pathways are also often developed along former rail corridors and may travel along the rear of residential, commercial, and industrial properties.

Application & Design Guidance

Path Surface

- Asphalt or concrete path surfaces are preferred.
- Crushed stone surfaces may be appropriate on rural paths where the intended use of the path is primarily recreational.
- A crushed stone shoulder may be provided along the edge of the path to accommodate users that prefer an unpaved surface. When provided for this purpose, the minimum recommended width is 3 feet. This area does not contribute to the required minimum width of the pathway.



*Air Line Trail in East Hampton
Source: Save the Sound, Brian Gay*

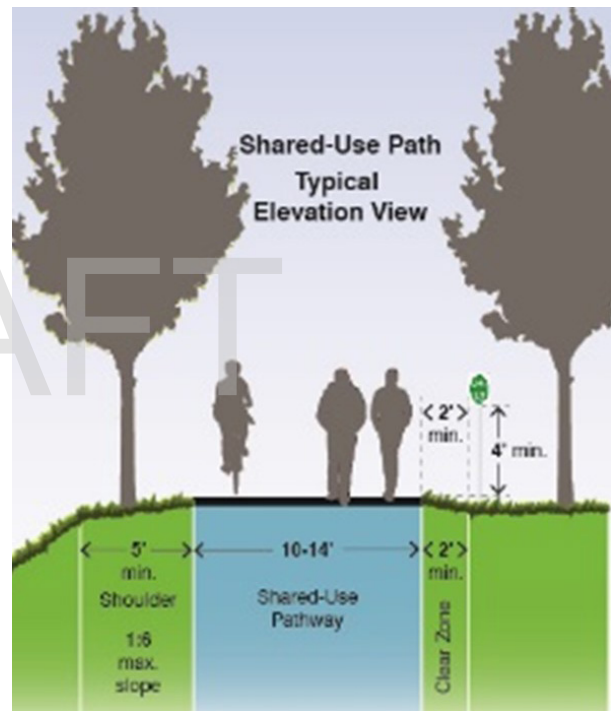
Standards

Width

- The recommended shared-use path width is established by the projected peak hour bike and pedestrian traffic. See tables below.

Grade

- Grades less than 0.5% should be avoided as they are not efficient in conveying surface drainage.
- Grades should be limited to 5% or less, which is comfortable for users and is ADA compliant.
- Additional width (2 feet) should be provided to the path in areas of sustained (1,000 linear feet or more) grades of 5% or more to provide more separation between users due to higher downhill bicyclists speeds.



Elevation view of a 10-14 foot Shared-Use Path

Facility User Typologies Matrix

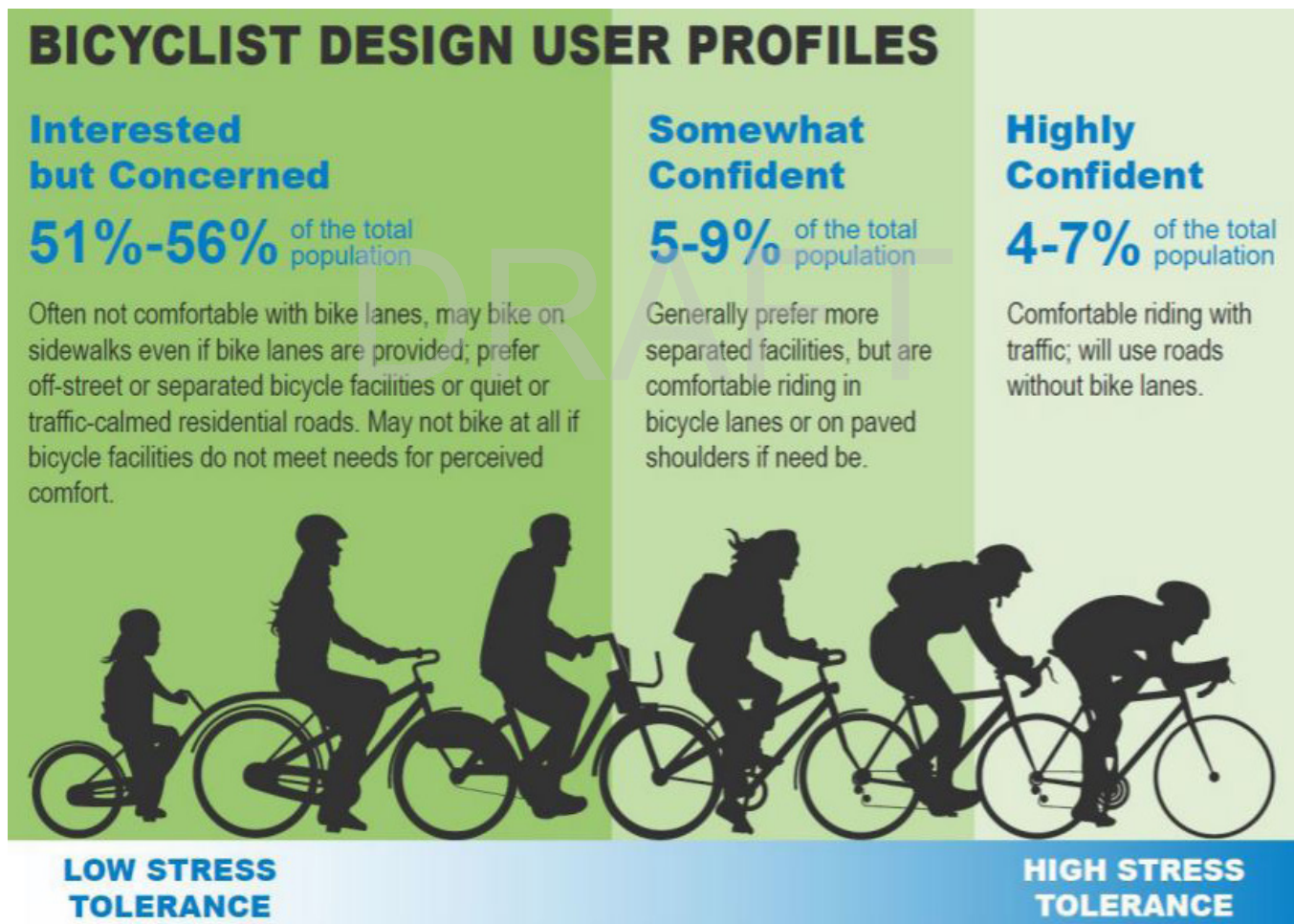
User Types

Understanding the characteristics of different types of bicyclists helps to inform bicycle facility selection. Factors used to determine user types are comfort level, bicycling skill and experience, age, and trip purpose. People may not fit a single user profile. For example, a commuter bicyclist who is comfortable riding in the road shoulder or bicycle lane when alone may prefer to bicycle on a quiet residential street or shared use path when traveling with children.¹

When selecting appropriate bicycle facilities, the targeted user profile is important when determining appropriate facilities for a given context. Of adults who are interested in cycling, research has identified three types of user profiles.² The three types include the highly confident bicyclist, the somewhat confident bicyclist, and the interested but concerned bicyclist. These user profiles are often distinguished through their tolerance for "traffic stress" which includes elements such as vehicle speeds, traffic volumes, and conflict points with vehicles such as intersections. User profiles are discussed in further detail on the following pages.

¹ Bicyclist Design User Profiles. FHWA Facility Selection Guide.

² Revisiting the Four Types of Cyclists. In Transportation Research Record 2587. TRB, National Research Council, Washington DC, 2016.



Bicyclist Design User Profiles
Source: FHWA Facility Selection Guide

Highly Confident Bicyclist

Highly Confident Bicyclists prefer direct routes and do not avoid operating in mixed traffic, even on roads with higher vehicle speeds and traffic volumes. Many also enjoy bicycle facilities that are separated from traffic, although they may avoid facilities which they believe are overcrowded with pedestrians of other slower moving bicyclists.

Somewhat Confident Bicyclist

Somewhat Confident Bicyclists are comfortable on most types of bicycle facilities. They have a lower tolerance for traffic stress than the Highly Confident Bicyclist and generally prefer low-volume residential streets and striped or separated bike lanes on major roadways. They are typically willing to tolerate higher levels of traffic stress for short distances to complete trips to destinations or to avoid out-of-direction travel.

Interested but Concerned Bicyclist

Interested but Concerned Bicyclists are the largest group identified and have the lowest tolerance for traffic stress. Cyclists who fit in this category tend to avoid bicycling except where they have access to separated facilities or very low-volume streets with safe roadway crossings. To maximize the potential for bicycling as a viable transportation option, it is important to design bicycle facilities to meet the needs of those cyclists who fall within the Interested but Concerned Bicyclist category.

Table 9 displays preferred facility types for the three types of cyclists discussed above.

| Table 9: Facility User Matrix of Options | | | | | | | |
|--|----------------|-----------|--------------------|---------------------|------------------------|----------|---------------------------|
| | Shared Roadway | Bike Lane | Buffered Bike Lane | Separated Bike Lane | Advisory Shoulder Lane | Sidepath | Shared-Use Path/ Greenway |
| Highly Confident Bicyclist | | | | | | | |
| Somewhat Confident Bicyclist | | | | | | | |
| Interested but Concerned Bicyclist | | | | | | | |

Target Design User

All Ages and Abilities Users

To achieve growth in bicycling, facility design needs to meet the needs of a broader set of potential bicyclists. Many existing bicycle facility designs exclude most people who might otherwise ride, traditionally favoring very confident riders, who tend to be adult men. When selecting a bikeway design strategy, identify potential design users in keeping with both network goals and the potential to broaden the bicycling user base of a specific street.¹

Highly Confident Bicyclists throughout the LCRV Region are riding and will continue to do so. This Plan is targeted at establishing networks and facilities that may promote ridership of the less confident or causal bicyclists. Creating safe and inviting routes and an equitable network of amenities that are accessible to users across the Region is a goal of this Plan. For the purpose of this Plan and as generally recommended², the bicycle facility network has been designed to serve bicyclists of all ages and abilities, which includes both Highly Confident and Somewhat Confident Bicyclists.

1 National Association of City Transportation Officials, NACTO. Urban Street Design Guide

2 Bicyclist Design User Profiles. FHWA Facility Selection Guide.

Children

School-age children face unique risks because they are smaller and less visible from the driver's seat than adults. They often have less ability to detect risks or navigate conflicts with vehicles.



Seniors

People aged 65 and over are the fastest growing population group in the US, and the only group with a growing number of car-free households. Seniors can make more trips and have increased mobility if safe riding networks are available.



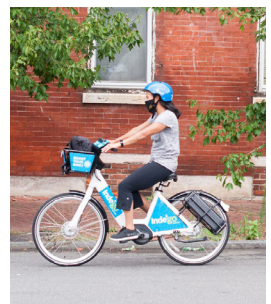
Women

Women are consistently under-represented as a share of total bicyclists, but the share of women riding increases in correlation to better riding facilities. Safety in numbers has additional significance for female bicyclists.



Bike Share Riders

Riders often use bike share to link to other transit, or make one-way trips. Bike share users range widely in stress tolerance, but overwhelmingly prefer to ride in high-quality facilities. All Ages & Abilities networks are essential to bike share system viability.



People of Color

While Black and Hispanic bicyclists make up a rapidly growing segment of the riding population, a recent study found that fewer than 20% of adult Black and Hispanic bicyclists and non-bicyclists feel comfortable in conventional bicycle lanes.



Low-Income Riders

Low-income bicyclists rely extensively on bicycles for basic transportation needs like getting to work. In addition, basic infrastructure is often deficient in low-income neighborhoods, exacerbating safety concerns.



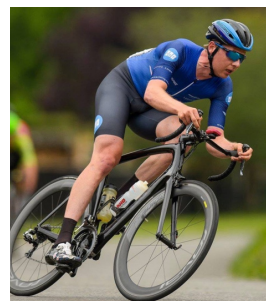
People with Disabilities

People with disabilities may use adaptive bicycles including tricycles and recumbent handcycles, which often operate at lower speeds, are lower to the ground, or have a wider envelope than other bicycles.



Confident Cyclists

Confident cyclists are very experienced and comfortable riding in mixed motor vehicle traffic conditions are also accommodated by, and often prefer, All Ages & Abilities facilities, though they may still choose to ride in mixed traffic.



All Ages and Abilities Bike Facilities Are¹

Safe

More people will bicycle if they have safe places to ride, and more riders mean safer streets. Better bicycle facilities are directly correlated with increased safety for people walking and driving as well.

Comfortable

Bikeways that provide comfortable, low-stress bicycling conditions can achieve widespread growth in mode share. Among adults in the US, only 6–10% of people generally feel comfortable riding in mixed traffic or painted bike lanes. However, nearly two-thirds of the adult population may be interested in riding more often, given better places to ride, and as many as 81% of those would ride in protected bike lanes. Bikeways that eliminate stress will attract traditionally under-represented bicyclists, including women, children, and seniors.²

Equitable

High-quality bikeways expand opportunities to ride and encourage safe riding. Poor or inadequate infrastructure, which has disproportionately impacted low-income communities and communities of color, forces people bicycling to choose between feeling safe and following the rules of the road, and induces wrong-way and sidewalk riding. Where street design provides safe places to ride and manages motor vehicle driver behavior, unsafe bicycling decisions disappear, making ordinary riding safe and legal and reaching more riders. By providing safe, convenient, and connected pedestrian and bicycle facilities, the community can ensure that all citizens have access to a viable mode of transportation

Environmental and Health and Wellness Benefits

Climate Change and Air Quality Considerations

One of the largest contributors of greenhouse gas emissions in the US is the transportation sector. Providing active transportation options such as walking, bicycling, and transit can decrease motor vehicle usage and dependency on nonrenewable resources, reducing greenhouse gas emissions and air pollution. Integrating considerations for environmental impacts when planning for pedestrian and bicycle infrastructure can also help reduce stormwater and mitigate flooding.

Climate change and environmental impacts are intrinsically linked to broader concerns related to health and equity. The people who suffer the most burden of climate change or environmental impacts usually contribute the least greenhouse gas emissions, and current mitigation strategies in transportation, such as access to goods and services via low-carbon transportation, walking, or biking tend to be more readily available in higher-income areas.³

Health and Wellness

Walking and biking are easy ways for people to get physical activity, which can improve an individual's physical health and fitness. Research shows walkable communities correlate with improved health. Greater intersection density, greater street connectivity, and fewer lanes on major roads—features of walkable communities—correlate with a reduction in obesity, diabetes, high blood pressure, and heart disease rates.⁴

1 National Association of City Transportation Officials, NACTO. Urban Street Design Guide

2 National Association of City Transportation Officials, NACTO. Urban Bikeway Design Guide. Designing for All Ages and Abilities

3 Pedestrian and Bicycle Information Center, Environment Facts and Figures.

4 "Mixed Land Use and Walkability: Variations in Land Use Measures and Relationships with BMI, Overweight, and Obesity." Health & Place, 2009

The Environmental Protection Agency (EPA) estimates that typical passenger vehicle emits about 4.7 metric tons of carbon dioxide per year. Your feet and bike, on the other hand, emit a total of zero metric tons of carbon dioxide per year!



Maintenance Recommendations

Sidewalks

Sidewalks require specialized equipment for maintenance. During the winter, a pick-up truck or mid-sized tractor equipped with a plow or sweeper and de-icing equipment can be used to clear snow. During winters with heavy snowfall, the path can be cleared to a reduced width since the expected number of users is lower during the winter. Maintenance practices involving Sidewalks can be categorized into three main groups: temporary; short term measures; and longer term measures lasting many years (in some situations even over ten years). Temporary measures are made just to reduce tripping hazards and last less than a year. Short term measures typically last one to five years and are intended to extend the life of the sidewalk segment until it is replaced. Long term measures include sidewalks replacement. When sidewalks are replaced as part of a street project, the work may be considered higher order than simple maintenance, thus falling under the definition of alterations under the ADA.¹

Pedestrian Lane

Pedestrian lanes are on road facilities and should be maintained as roadways are maintained, including winter maintenance. They require minimal roadside infrastructure and do not impact stormwater management if existing pavement is used.

Shared Roadway

Shared roadways can be maintained using the conventional processes for roadway maintenance, including winter maintenance. Consideration should be given to increasing sweeping in the fall and spring, as sand, broken glass, and other debris tends to accumulate along the edges of the roadway where bicyclists are most likely to ride.

Bike Lane

Bike lanes can be maintained using the conventional processes for roadway maintenance, including winter maintenance. Where bike lanes are introduced on a roadway, consideration should be given to increasing sweeping in the fall and spring, as sand, broken glass, and other debris tends to accumulate along the edges of the roadway.

Buffered Bike Lane

Buffered bike lanes can be maintained using the conventional processes for roadway maintenance, including winter maintenance. Where buffered bike lanes are introduced on a roadway, consideration should be given to increasing sweeping in the fall and spring, as sand, broken glass, and other debris tends to accumulate along the edges of the roadway. Utilization of traffic delineator posts may complicate bike lane and bike buffer maintenance and may require specialized equipment for street sweeping and winter maintenance.

Separated Bike Lane

Separated bike lanes may require specialized equipment for snow clearing and regular sweeping.

Advisory Shoulder Lane

Advisory Shoulder Lanes are on road facilities and should be maintained as roadways are maintained, including winter maintenance. They require minimal roadside infrastructure and do not impact stormwater management if existing pavement is used. Fall clearing of debris should be completed regularly as debris tends to accumulate along the edges of the roadway.

¹ Federal Highway Administration, A Guide for Maintaining Pedestrian Facilities for Enhanced Safety”

Maintenance Recommendations

Sidepath

Sidepaths require specialized equipment for maintenance including equipment typically used for sidewalk maintenance. During the winter, a pick-up truck or mid-sized tractor equipped with a plow or sweeper and de-icing equipment can be used to clear snow. During winters with heavy snowfall, the path can be cleared to a reduced width since the expected number of users is lower during the winter. Overgrowth trimming should be conducted regularly to ensure visibility and no obstructions.

Shared-Use Path/ Greenway Trail

Shared use paths/ Greenway trails require specialized equipment for maintenance including equipment typically used for sidewalk maintenance. During the winter, a pick-up truck or mid-sized tractor equipped with a plow or sweeper and de-icing equipment can be used to clear snow. During winters with heavy snowfall, the path can be cleared to a reduced width since the expected number of users is lower during the winter. Overgrowth trimming should be conducted regularly to ensure visibility and no obstructions.



Bridge on Westlake Trail in Middletown in need of repairs
Source: RiverCOG



Air Line Trail with Fall foliage, East Hampton
Source: Chatam Historical Society, East Hampton

SIGNAGE GUIDELINES

The following section provides a general overview of appropriate signage for each of the facility types discussed on the previous pages. These guidelines were generated from the *The Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), a publication of the Federal Highway Administration (FHWA).

Sidewalks

Sidewalk Signage

No signs are required on sidewalk installation. Signs may be used to enhance the awareness of crosswalk locations, to remind drivers of the obligation to yield to crossing pedestrians, such as the R10-15 sign shown at right. Signs can also be used to alert pedestrians to walk facing traffic.

Sidewalk Markings

No roadway markings are required on sidewalk installation. At intersections, stop lines, yield lines, and crosswalks may be used to clarify pedestrian crosswalk area.

Intersections

Legal crosswalks often exist at all intersections, whether they are marked or not. A crosswalk at an intersection is defined as the extension of the sidewalk across the intersection.

Marked Crosswalks

Marked crosswalks are at intersections or midblock crossings based on engineering judgment. They are not to be used indiscriminately.

- The minimum width for a marked crosswalk is 6 ft
- For improved visibility, the preferred crosswalk marking pattern at uncontrolled and midblock locations is the high-visibility "continental" crosswalk marking.
- Minor crossings of local streets may be unmarked.

Unmarked Crosswalks

Lane markings, stop lines, yield lines, or other traffic control markings should be placed outside of the unmarked crosswalk area. The only way a crosswalk can exist at a midblock location is if it is marked.



*R10-15 sign for use at potential right turn conflict locations
Source: Rural Design Guide*



*Signage in Madison, CT directing pedestrians to "walk left"
Source: FHI Studio*

Pedestrian Lane

Pedestrian Lane Signage

Pedestrian Warning Sign (W11-2) paired with an “ON ROADWAY” legend plaque may be used to indicate to drivers to expect pedestrians within the paved road surface.¹

Pedestrian Lane Markings

Separate a pedestrian lane from the adjacent travel lanes with some form of longitudinal marking.

Use a double white line for extra emphasis and to discourage motor vehicle encroachment.

- If additional comfort is desired, mark a buffer to increase separation between pedestrians and motor vehicles.

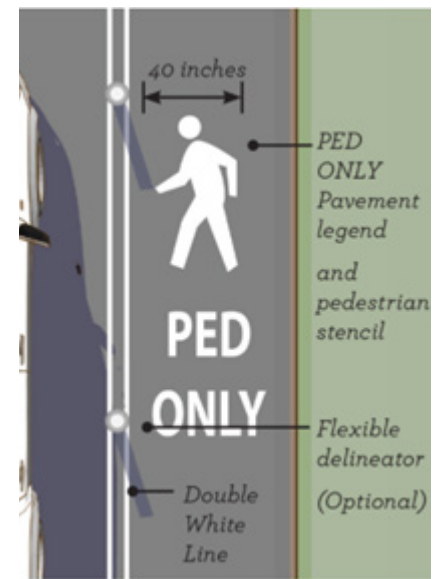
Shared Roadway

Shared Roadway Signage

- “Bikes May Use Full Lane” (MUTCD R4-11) signage should be placed along the shared roadway corridor to inform motorists of the presence of bicyclists and their right to occupy the full traffic lane if conditions require. Recommended size is 24”.
- A “STATE LAW” header panel should be provided above the R4-11 sign as per MUTCD Section 2A.15.C. to enhance the conspicuity of the sign.
- Signs should be placed at the beginning of a shared roadway and following signalized intersections.

Shared Roadway Pavement Markings

- Shared lane markings (sharrows) are required.
- Sharrows should be 3’-4” wide by 9’-4” long.
- Sharrow centerline should be placed at least 11 feet from the face of the curb where on-street parking is present, and 4 feet from the face of the curb where no on-street parking is present.
- Sharrows should be placed immediately after an intersection and spaced at intervals no greater than 250 feet.



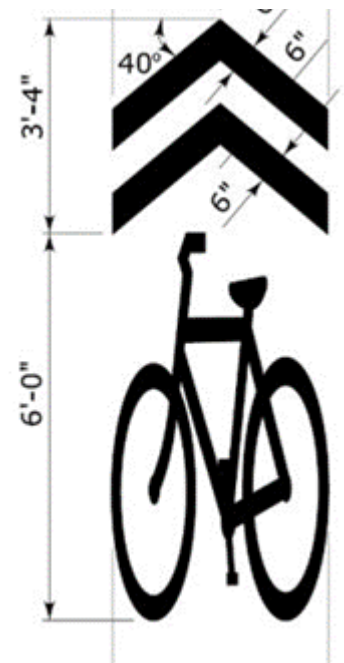
Above: A W11-2 warning sign may be paired with a legend plaque to inform road users that shared use by pedestrians and/or bicyclists might occur.

Left: PED ONLY legend marking and/or Pedestrian symbol marking to identify the pedestrian lane to all users.
Source: Rural Design Guide



Above: Shared Roadway Signage Assembly: MUTCD R4-11 with “State Law” Header Panel

Right: Sharrow pavement marking
Source: Manual on Uniform Traffic Control Devices, MUTCD



¹ Rural Design Guide Standards, <https://ruraldesignguide.com/physically-separated/pedestrian-lane>

Bike Lane

Bike Lane Signage

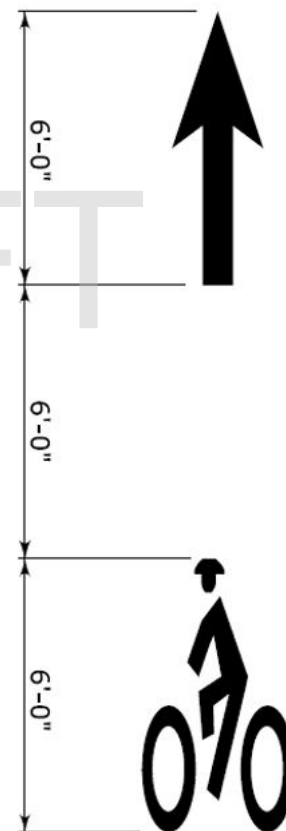
- Bike lane signage (MUTCD R3-17) is not required but may be used at the beginning of a bike lane or immediately following a signalized intersection.
- “Bike Lane Ahead” and “Bike Lane Ends” signage is not necessary.
- Recommended sign size is 24”x18”.

Bike Lane Pavement Markings

- A solid white lane marking (4 or 6 inches wide) should be used to separate the bike lane from the motor vehicle travel lane.
- Bike lane lines should be dotted at turning lanes, bus stops, and at approaches to intersections. A 6 inch wide dotted bike lane line (2 foot line, 6 foot gap) should be used. Bike lanes can also be dotted at bus stops or bus pullouts and across unsignalized intersecting streets and major driveways. Bike lane lines should remain solid (not dotted) at unsignalized driveways and alleys.
- Pavement markings should include bike lane symbols to define the bike lane. Symbol pavement markings should be placed immediately after an intersection (within 6 feet of the bike lane line beginning) and spaced at intervals no greater than 500 feet. Preformed thermoplastic pavement markings are preferred over the use of painted stencils due to durability of thermoplastic markings.
- Green pavement color is authorized by FHWA official ruling 9(09)-86(l) Chromaticity Requirements for Green Colored Pavement. Pavement color may be used to enhance the visibility of a bike lane in locations with high traffic volumes, large numbers of turning movements, or where bike lanes cross traffic lanes.



*Above: Bike Lane Sign
(MUTCD R3-17)*



Above: Bike Lane Symbol Pavement Marking

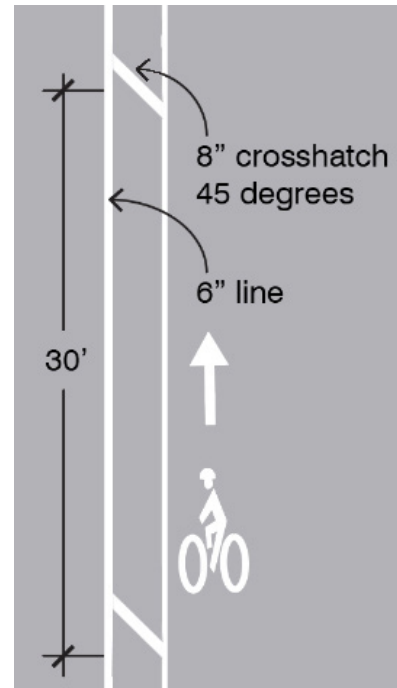
Buffered Bike Lane

Buffered Bike Lane Signage

- Signage should be provided in accordance with design guidance for Bike Lanes.

Buffered Bike Lane Pavement Markings

- Pavement markings should be provided as per Bike Lane design guidance.
- The buffer area should be marked with two solid white lines with interior diagonal cross hatching or colored or textured pavement.
- Pavement marking buffers should be comprised of a 6 inch solid white stripe on the traffic lane side and a 4 or 6 inch solid white stripe on the bike lane side. An 8 inch, 45 degree, white diagonal cross hatch should be applied and spaced 30 feet apart.



Above: Bike Buffer Pavement Marking

Separated Bike Lane

Separated Bike Lane Signage

- Standard bike lane signage is not required to delineate the bike lane.
- MUTCD R9-7 signage may be considered for use where a separated bike lane is at grade with, and directly adjacent to, a sidewalk.
- Unsignalized intersections should include signage such as MUTCD R10-15 and R1-5a to warn both motorists and bicyclists of crossing traffic.
- The MUTCD R10-24 sign should be used at signalized intersections that require bicyclists to use a pedestrian actuated signal.

Separated Bike Lane Pavement Markings

- A single white or yellow 4" wide centerline should be applied to two-way facilities. The line may be solid or dashed.
- When placed directly adjacent to a sidewalk of the same pavement material, a 4" wide white stripe should be applied at the edge of the bike lane, adjacent to the sidewalk.
- Bike lane symbol pavement markings should be placed immediately after an intersection and spaced at intervals no greater than 500 feet.
- Bike lane symbol pavement markings should be placed in the center of each bike lane.

Right: Signs for Use with Separated Bike Lanes



MUTCD R9-7



MUTCD R10-15



MUTCD R1-5a



MUTCD R10-24

Sidepath

Sidepath Signage

- An 18" W11-15 bike/pedestrian sign may be used at the entrance of sidepaths following an intersection to notify users of the expected shared use of the pathway.
- Unsignalized intersections should include signage such as MUTCD R10-15 and R1-5a to warn both motorists and bicyclists of crossing traffic.
- The MUTCD R10-24 sign should be used at signalized intersections that require bicyclists to use a pedestrian actuated signal.

Sidepath Pavement Markings

- A single yellow 4" wide centerline may be applied on curves or in high bicycle traffic areas. The line may be solid or dashed.
- Standard white pedestrian continental style crosswalk markings should be applied where required. The crosswalk should match or exceed the width of the approaching sidepath.



MUTCD W11-15



MUTCD R10-15



MUTCD R1-5a



MUTCD R10-24

Left: Signs for Use with Sidepaths

Shared Use Path/ Greenway Trail

Shared Use Signage

- A 4 inch solid yellow line may be used to separate the two directions of travel where passing is not permitted.
- A 4 inch dotted yellow line (3-foot segment/9-foot gap) may be used where passing is permitted.
- Yellow pavement markings should be used at the location of obstructions in the center of the path, including vertical elements intended to physically prevent unauthorized motor vehicles from entering the path.

Shared Use Pavement Markings

- Signs should be located a minimum of 2 feet from the edge of pathway.
- Signs should be a minimum of 4 feet above surface of pathway (to avoid bicyclists' hands and handlebars from colliding with sign).

Shared Use Surface Material

- Asphalt or concrete path surfaces are preferred.
- Crushed stone surfaces may be appropriate on rural paths where the intended use of the path is primarily recreational.
- A crushed stone shoulder may be provided along the edge of the path to accommodate users that prefer an unpaved surface. When provided for this purpose, the minimum recommended width is 3 feet. This area does not contribute to the required minimum width of the pathway.

INFRASTRUCTURE AND AMENITIES

The following treatments are examples of infrastructure and amenities that can be utilized depending on right-of-way dimensions, traffic volumes, and community goals relative to bicycle and pedestrian accommodations. Existing land uses, aesthetics, historical considerations, and environmental quality all are factors which influence what types of amenities and features are appropriate at a given location. Improvements are presented below to showcase a range of amenities that may be beneficial to increase safety and mobility for the Region's roadways.

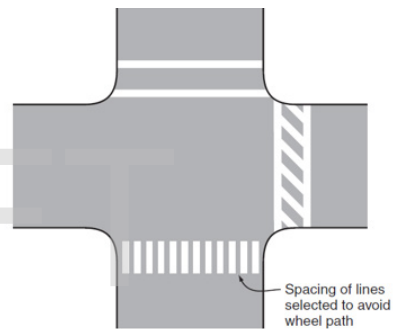
Speed Humps

- Encourages the motorist to travel at a slow speed.
- Typically 3 inches in height and 12 feet in length and placed along the vehicle travel path axis.



Crosswalks

- Continental crosswalks are already standard at many crossings, but some crossings do not have any markings. Continental crosswalks provide the most visibility for crosswalks.



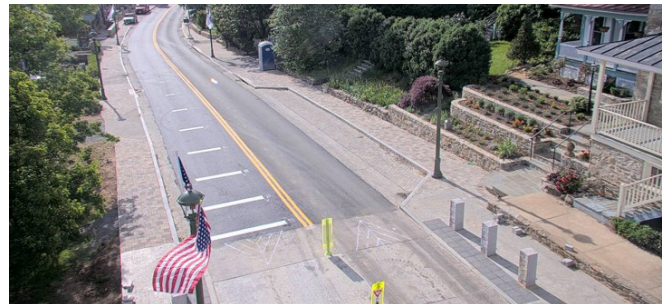
RRFB and Hawk Lights

- Rectangular Rapid Flashing Beacons (RRFB) provide enhanced visibility of crosswalks, but are not a regulatory signal.
- High Intensity Activated Crosswalk (HAWK) provides a red signal for oncoming motorists.



Raised Crosswalk

- Improves pedestrian safety by causing motorist speeds to decrease at the crossing.
- Typically between 3 and 6 inches above street level. It is common for a raised crosswalk to be level with the street curb. Height increases the visibility of a pedestrian in a crosswalk to a motorist.



Corner Extension/Bulbout

- A curb extension is a horizontal extension of the sidewalk into the street resulting in a narrower roadway and a shorter crosswalks.
- Slows automobile turning speeds, shortens pedestrian crossing distance, and increases pedestrian visibility



Median Island

- Raised island located along a street centerline.
- Narrows the travel lanes at that location. Visual appearance of narrowed lanes encourages a motorist to slow



Median Island with Protected Crossing

- Raise island wide enough to allow pedestrian to cross in two-stages



On-street Parking

- On-street parking can narrow roadway travel lanes by adding friction to traffic flow.
- Parking can provide buffer for pedestrian zones



Benches

- Benches provide pedestrians with a place to rest during trips. They are often utilized in heavily traveled areas such as commercial destinations, at bus stop locations, and at scenic vistas. Benches can be incorporated and designed as part of the overall streetscape design of an area.



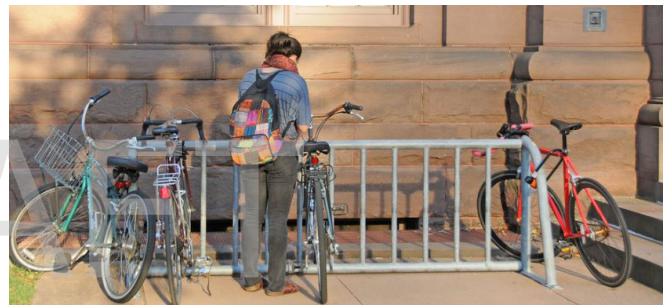
Bus Shelters

- Bus shelters provide protection from the elements for transit users waiting to catch their bus. Shelters usually include benches and can be designed to reflect the overall streetscape design of an area.



Bicycle Parking

- Convenient bicycle parking provides cyclists with a safe, designated location in which to store their bike when going to a destination point. Bicycle racks should be incorporated into the bicycle network at key points such as town centers and recreational areas to encourage ridership. Covered bicycle storage should be provided for at the Region's train stations, schools, and commercial areas.



Lighting

- Pedestrian scale lighting can enhance the comfort and facilitates for pedestrians. Lighting can be part of the overall design of a streetscape and can include holiday decorations such as flags, wreaths, and other banners.



Signage and Wayfinding

- Wayfinding design combines signage and map design, symbols, color, and typography to navigate people through a space. Wayfinding design provides the visual cues to help guide people to their destinations with ease.



RECOMMENDATIONS

OVERVIEW

Location Based Recommendations

The following recommendations were informed from a combination of priorities identified in the Municipal Overviews section of the Plan, discussions with the Plan's Steering Committee, and previous public engagement to support the Plan. Previous plans and studies and region-wide crash data also influenced the recommendations. Five distinct types of recommendations were identified that include:

- Village District Recommendations
- Beach Community Recommendations
- Regional Shared-Use Paths and Greenway Trail Connections
- State Route Commercial Node Recommendations
- Policy Recommendations

Recommendations were crafted to support the vision and goals of this Plan. Regional context and design recommendations for each location based recommendation are provided on the following pages.

Goals of the Plan

1 *The LCRV provides safe and inviting routes used by cyclists and pedestrians. They are assets that improve regional connectivity, promote public health, and are economic drivers.*

2 *The LCRV has an equitable network of bicycle and pedestrian amenities that are accessible to users across the Region.*

3 *The LCRV Region provides bicycle and pedestrian facilities that connect village centers and nodes as well as the open space resources that are so valued across the Region.*



*Durham Bicycle Lanes, Installed in 2021
Source: Durham Complete Streets Committee, Martin Anderson*

Village Center Recommendations

Context

Village centers and vibrant downtowns contribute to the identity of the Region. In many locations throughout the Region, municipal government offices, libraries, and schools contribute to the downtown environment and sense of place. Commercial, restaurant, and religious uses are often common land uses in the “village districts” across the region. Villages such as Essex, Durham, and East Haddam exemplify these types of locations. Larger commercial areas such as Old Saybrook, Cromwell, and the City of Middletown have many destinations that could be better served with enhanced bicycle and pedestrian accommodations. Clinton, Westbrook, and Old Saybrook have train stations within their downtowns which would also benefit from additional bicycle and pedestrian infrastructure.

Recommendations

Many of the Region’s village centers and downtowns contain pedestrian infrastructure such as sidewalks and crosswalks. Opportunities exist across the Region to fill in gaps in these networks and improve on existing facilities, with placemaking goals in mind. Expanding these facilities outward to connect to residential neighborhoods and provide connections to other destinations is also a goal of the village district recommendations. The Region’s more rural communities of Killingworth and Lyme contain no pedestrian or bicycle amenities. These communities are home to many open space and trail resources that are widely used and attract visitors from across the Region. Opportunities exist to further promote these resources through signage and wayfinding, parking, and maintenance plans. See Figure 20, Village District recommendations include:

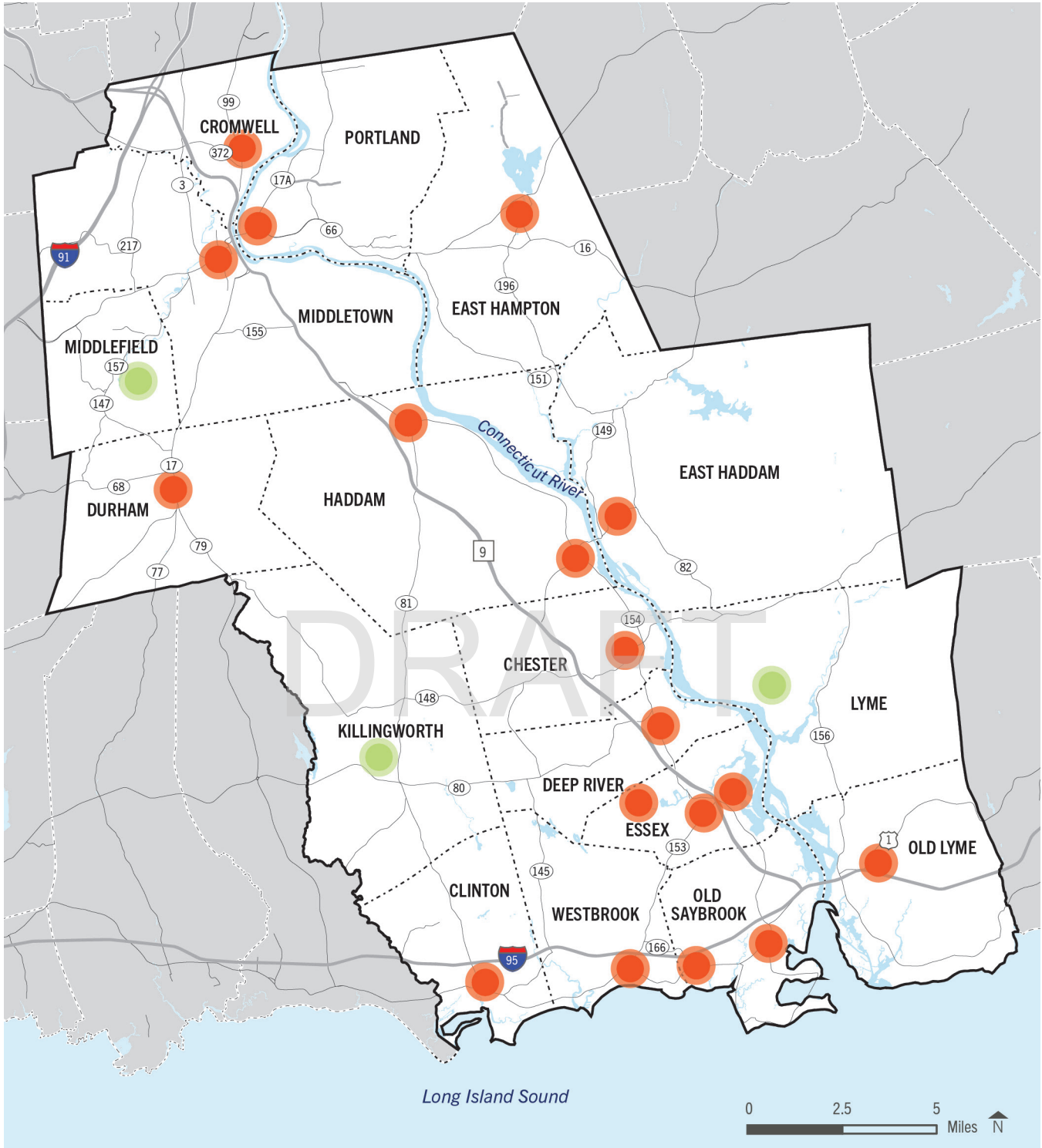
- Encourage municipalities to complete individual bicycle and pedestrian plans and or sidewalk plans.
- Encourage bicycle and pedestrian links between neighborhoods, employment centers, schools, parks and other destinations.
- Explore opportunities to apply for CTDOT’s Community Connectivity Program’s Road Safety Audits.
- Encourage multi-modal transportation and integrate bicycle and pedestrian facilities with other transportation modes, particularly transit. Ensure that these facilities are compliant with Americans with Disabilities (ADA) Standards.
- Look for ways to enhance pedestrian connections and amenities through additional facilities, sidewalk maintenance and improvements, crosswalk expansion, lighting, wayfinding, etc.
- Further promote open space and trail resources; provide parking, maintenance, wayfinding, and branding and marketing where appropriate.
- Encourage the installation of bicycle racks in village centers and major recreational areas across the Region.



**Potential for Pedestrian
Amenity Improvements
in Downtown Durham**

*Students crossing Main Street in Durham at the end of a school day
Source: FHI Studio*

Figure 20: Village Center Recommendations



Village Center Nodes

- Village Center Nodes
- Open Space/ Recreation Nodes

Source: RiverCOG, FHI Studio

Beach Community Recommendations

Context

The Region's scenic resources such as its beach neighborhood and lake communities are home to high numbers of year-round and seasonal residents. Beach neighborhoods in Old Lyme, Old Saybrook, Westbrook, and Clinton swell in volume during the summer months. Lake communities such as those around Lake Beseck in Middlefield and Lake Pocotopaug in East Hampton also experience a higher population during the summer. Traffic volumes and speeds tend to be lower in these beach neighborhoods and the volume of pedestrians and leisure bicyclists tend to be high. Parents carting children down to the beach and teenagers on beach cruisers are common. Opportunities exist to improve safety in these beach neighborhoods.

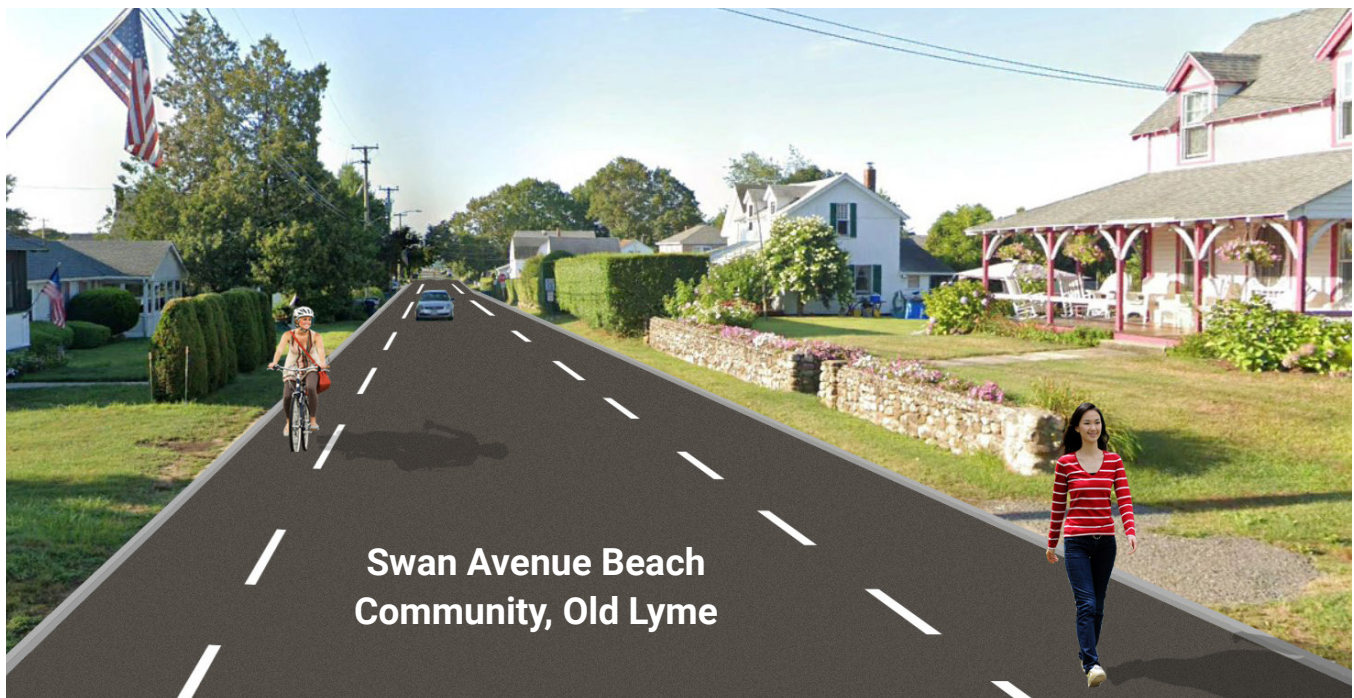
Recommendations

An Advisory Shoulder is proposed for the primary beach roads throughout the Region's beach neighborhoods, due to the high volume of non-motorized users. Centerlines along these roads should be removed in order to encourage vehicles to yield to pedestrians and cyclists. Edge lines could be painted along the shoulder to direct cyclists and pedestrians towards the shoulders and motor vehicles towards the center of the roadway. The design intent of the advisory shoulder is that the street is shared by all users and a single mode of transportation does not take priority. Advisory shoulders could act as a traffic calming measure, that could increase the safety of the Region's beach roads.

Advisory shoulders create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement marking and optional pavement color.¹ To designate these areas, it is recommended that road signs be placed at critical locations along the route to make drivers and pedestrians aware of the shared use of the street. See Figure 21. Beach Community recommendations include:

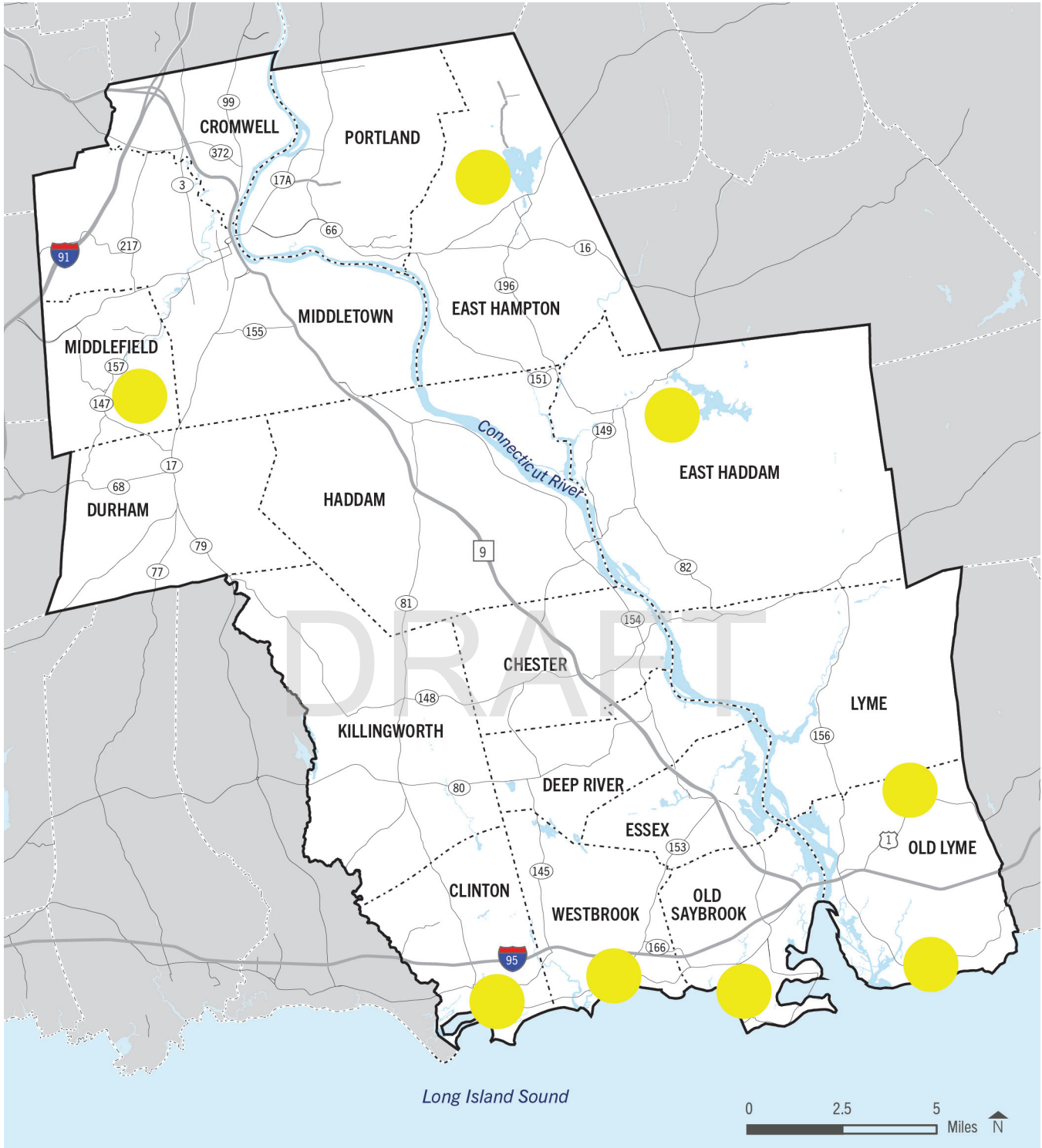
- Explore opportunities to re-stripe primary beach roads with advisory shoulders (traditional shoulders appropriate on roads at least 28' wide).
- Ensure speed limits in beach communities are signed for under 15 miles per hour. Consider the use of "Your Speed Signs" at locations where vehicle speeds are an issue.
- Consider the use of speed humps at locations where vehicle speeds are an issue.
- Provide signage directing pedestrians to walk facing traffic.

¹ Small Town and Rural Design Guide. <https://ruraldesignguide.com/mixed-traffic/advisory-shoulder>



*Rendering of potential advisory shoulder along Swan Avenue in Old Lyme
Source: FHI Studio*

Figure 21: Beach Community Recommendations



Beach Communities

- Beach Community Locations*

* Inland communities include Lake Neighborhoods such as Rogers Lake, Bashan Lake, Lake Pocotopaug, and Lake Beseck

Source: RiverCOG, FHI Studio

Regional Connections - Shared-Use Paths, Greenways and Trail Recommendations

Context

The Region's open space and trail resources are some of the key factors that make the Region such a desirable place to live as well as visit. Facilities such as the Air Line Trail, the Menunketesuck-Cockaponset Regional Greenway, Eight Mile River Greenway, and the Cockaponset State Forest attract residents and visitors from across the Region. The Region's system of trails are found in state parks and forests, town-owned lands, and land trust properties. Extensive mountain biking trails and multi-use trails are also present in the Region. Two important multi-use trails in Middletown include the Westlake Area Bikeway and the Mattabeset Trolley Trail. The New England Trail, another Regional resource, extends through Middletown, Middlefield, Durham, and Haddam.

Recommendations

Greenways are linear open space networks that can serve conservation, recreation, or multimodal transportation purposes. Opportunities exist to expand Regional Greenways. Clinton is working on an eastern extension of the Shore Line Greenway from its current terminus at Hammonasset Beach State Park to the center of town. Portland is currently working to extend the Air Line Trail to the Connecticut River and the Brownstone Exploration & Discovery Park. RiverCOG, Jonah Center for Earth and Art, and East Hampton, Portland, Middletown, Meriden, and Cheshire are working on a connection between the Air Line Trail in East Hampton and Portland to the Farmington Canal Trail in Cheshire. This connection would allow for the creation of a 112 miles loop trail connecting central Connecticut with the East Coast Greenway. East Hampton is working to close the gap between East Hampton's section of Air Line Trail and Portland. Supporting and promoting these efforts will enhance multimodal connections across the Region, while contributing to recreation and tourism projects. Figure 22 displays Regional Greenway connections. Greenways and trail recommendations include:

- Support efforts to connect the Air Line Trail and Farmington Canal Trail.
- Extend the Shore Line Greenway from Hammonasset Beach to Clinton and points further east where feasible.
- Support bicycle-based tourism.
- Improve and expand Greenways to improve connections to the Region's parks and open space resources.
- Support and expand existing trail networks and improve trail head amenities.
- Connect public parks to trails and pathways and other pedestrian or bicycle networks where feasible to provide linkages and connectivity between recreational uses.
- Where feasible, ensure that these facilities are compliant with Americans with Disabilities (ADA) Standards.



Branding and Wayfinding Signage on the Air Line Trail
Source: CT DEEP

Figure 22: Regional Connections Recommendations- Shared-Use Paths, Greenways and Trails



Regional Greenways and Trails

- Proposed Regional Greenway Connections
- Existing Regional Greenway

Source: RiverCOG, FHI Studio

Regional Connections - Shared-Use Paths, Greenways and Trail Recommendations

Recommendations Continued

Air Line Trail Connector Route

The Jonah Center for Earth and Art and RiverCOG collaborated to apply for a grant to study a connector route between Middletown and Meriden that would connect Connecticut's two longest multi-use trails, the Air Line Trail and the Farmington Canal Trail. In February 2022, CT DOT awarded a grant of \$350,000 to study the route, with particular focus on the 5.5 miles between Smith Street in Middletown and North Broad Street in Meriden, and Newfield Street in Middletown.

Of the 23 miles between the western terminus of the Air Line Trail in Portland and the Farmington Canal Heritage Trail in Cheshire, approximately 8.5 miles already exists in the form of shorter trail segments along the way. Another 8.6 miles has been planned or is in the process of being planned. That leaves about 5.5 miles in need of a routing study. The project was recognized in state law in 2019 as the Air Line Trail – Farmington Canal Trail (ALT-FCT) Connector.

The ALT-FCT Connector, when completed, will use off-road trails for about 16 miles, and about 7 miles of on-road bike routes – provided that some sections of the Air Line Trail railroad bed and some parcels that include the old Middletown-Meriden trolley line can be utilized. Completion of the ALT-FCT Connector would result in completion of a 111-mile Central Connecticut Loop Trail, which is shown in Figure 23.¹

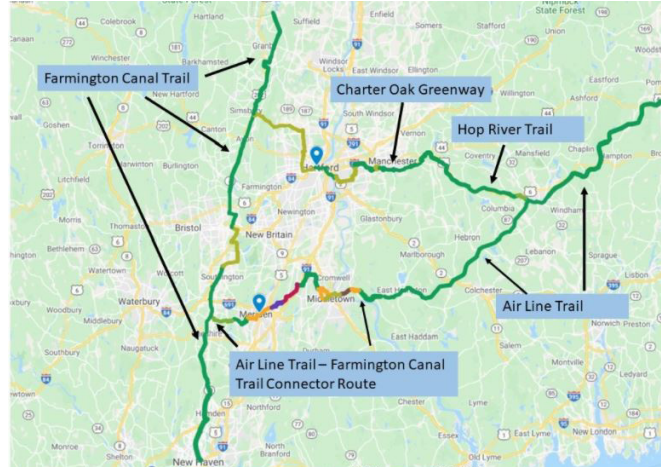
Middletown to Cromwell Multi-use Connector Trail

There is an existing access road that runs between the rail line and Route 9 in Middletown, extending into Cromwell. See Figure 24. The total distance of the access road is nearly one mile in length, and is complete except for a short distance crossing the Mattabesset River where the rail bridge exists. Creating a multi-use trail in this location would provide a much needed connection for cyclists wishing to ride between Downtown Middletown and Cromwell. Currently, the only way in which to bicycle from Middletown into Cromwell is to use Newfield Street. Newfield Street is a heavily traveled State Route that sees traffic volumes as high as 16,500 vehicles per day.² Many commercial businesses and signalized intersections are located on Newfield Street. A multi-use trail along the access road between Route 9 and the rail line would provide access for bicyclist in this area, potentially encouraging riders who currently may feel unsafe riding between Middletown and Cromwell.

Proposed Middletown–Cromwell Multi-use Connector Trail Route
 Source: The Jonah Center for Earth and Art

1 The Jonah Center for Earth and Art, <https://thejonahcenter.org/?p=3754>
 2 CT DOT Traffic Monitoring Count Data, 2019 data. https://portal.ct.gov/DOT/PP_SysInfo/Traffic-Monitoring

Figure 23: Air Line Trail – Farmington Canal Trail Connector Route



Proposed Air Line Trail – Farmington Canal Trail Connector Route
 Source: The Jonah Center for Earth and Art

Figure 24: Potential Middletown- Cromwell Multi-use Connector Trail Alignment



Connections to the Shoreline Greenway Trail and Clinton's Greenway Blueway Trail

The Clinton Bike and Pedestrian Alliance has been working to improve the bicycle and pedestrian network in town via a Greenway Blueway that connects the Downtown with scenic coastal areas of Clinton. Approximately half of this trail has been completed. In 2019 the Clinton Greenway Blueway Trail was designated as a Connecticut Designated Greenway by the Connecticut Greenway Council.³

In the future, the Bike and Pedestrian Alliance hopes to connect to the Shoreline Greenway Trail in Madison via a bicycle and pedestrian bridge over the Hammonasset River.

Connecticut River Green & Blue Way

The Green & Blue Way is a concept that would create an almost 30-mile mixed-use scenic, recreational, and tourism corridor stretching from Middletown to Old Saybrook utilizing the existing railroad property owned by the state that runs along the Connecticut River. Along that corridor would be on/off ramps leading to local attractions in each town and to water activities on the river.⁴

Goals and highlights of the Green & Blue Way include:

Leverages the region's unique and plentiful attractions, providing stimulating new recreation and economic opportunities

- Connect towns from Middletown to Old Saybrook
- Accessible via railroad, paths, highways, transit and the Connecticut River
- Capitalizes on the Connecticut

River's designation as America's first and only National Blueway

- Serves as a marketing brand umbrella—linking existing and future businesses, attractions and events—attracting more people, for longer visits



**a Unique Mixed-Use Scenic
Recreational & Tourism Corridor**

*Flyer imagery for the Connecticut
River Green and Blueway
Source: Maurice Adams*



*Bridge over Cream Pot Road constructed as part of the Clinton Greenway Blueway Trail network
Source: Bike and Pedestrian Alliance of Clinton*



³ Bike and Pedestrian Alliance of Clinton
⁴ Green & Blue Way, Haddam Bulletin Article, July 2020.

State Route Commercial Node Recommendations

Context

The LCRV Region is served by a network of State roadways that link its municipalities to other areas of Connecticut. Route 1, which spans the shoreline communities of Clinton, Westbrook, Old Saybrook, and Old Lyme is very auto-centric in nature, with varying lane configurations and high traffic volumes. Route 17 connects Durham and Middletown to points north and south and is home to commercial clusters of development. Route 66, spanning across Portland and Middletown, is very commercial in nature and sees high traffic volumes. Route 154 connects the shoreline communities north to Middletown, spanning across Old Saybrook, Essex, Deep River, Chester, Haddam, and Middletown.

Recommendations

Opportunities exist to improve bicycle and pedestrian facilities on some of the Region's main routes and commercial destinations. Focused on busy commercial centers along State Routes 1, 17, 66 and 154, State Route Commercial Node recommendations seek to improve and provide bicycle and pedestrian facilities that make these commercial hubs safer, encouraging an increase in both utilitarian and recreational trips. These major State Routes were highlighted in the LCRV Region's Metropolitan Transportation Plan (2019). The locations highlighted in Figure 25 are the core commercial zones along these State Routes. For many of these locations, Streetlight Data revealed that there are many shorter trips (under 2 miles) that are taking place in these zones. Making these locations bicycle and pedestrian friendly is a strategy to encourage modal shifts away from vehicle trips, which will improve congestion, provide public health benefits, provide quality of life benefits, and provide environmental benefits. See Figure 25.

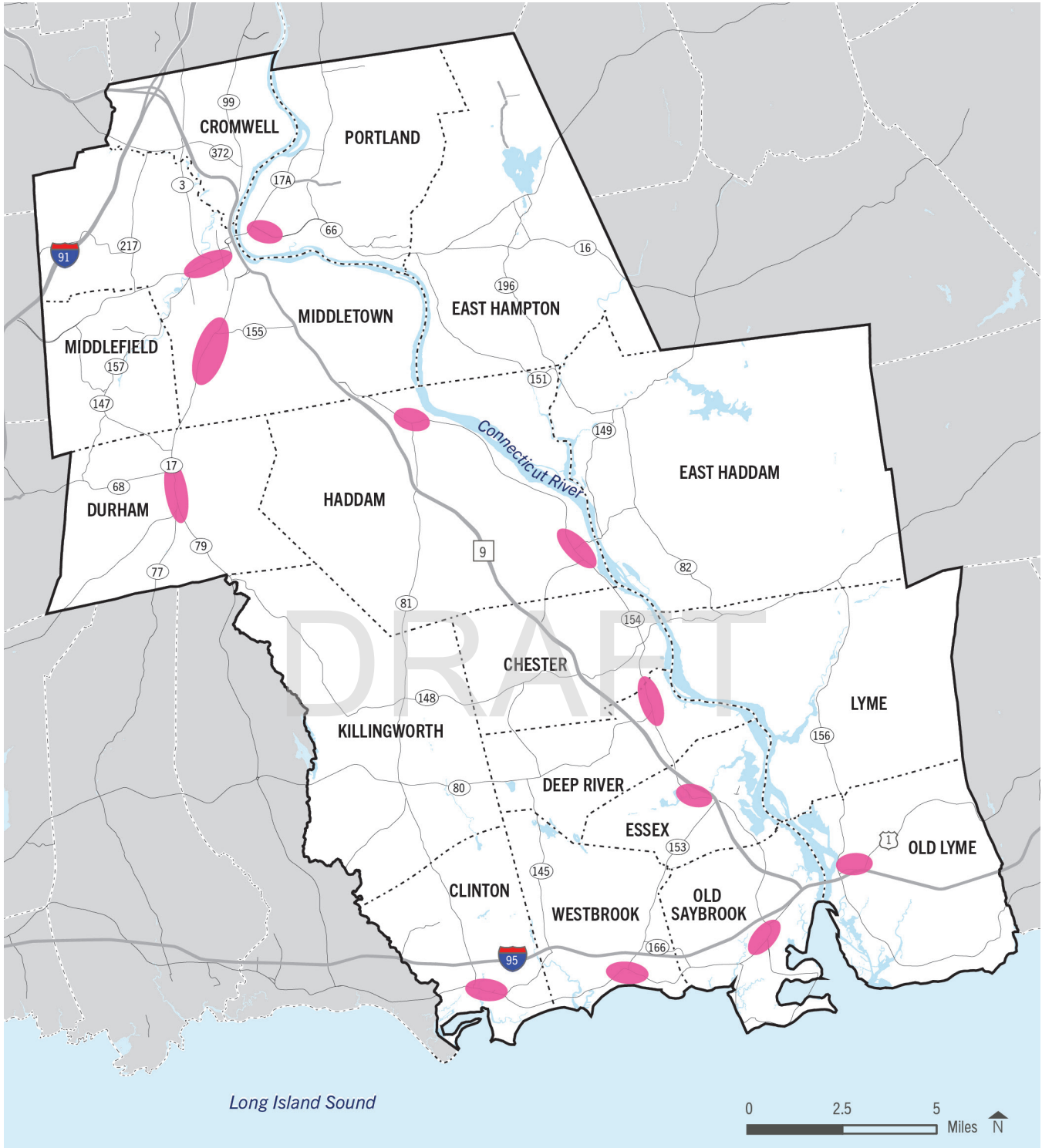
State Route Commercial Node recommendations include:

- Pursue funding and assistance for Complete Streets planning for sidewalk planning and construction, with the regional goal of linking dense population clusters within the towns.
- Improve walkability by encouraging pedestrian-oriented design of public and private projects in areas where higher levels of pedestrian activity are present or desired.
- Encourage bicycle links between neighborhoods, employment centers, schools, parks and other destinations.
- Develop a bikeway network that is continuous, closes gaps in the existing system, improves safety and serves important destinations.
- Ensure that facilities are compliant with Americans with Disabilities (ADA) Standards.




*Missing crosswalk and ADA Ramp on Route 1 in Clinton
Source: FHI Studio*

Figure 25: Regional Connections- Commercial Node Recommendations



Commercial Nodes

 Commercial Nodes on Routes 1, 17, 66 and 154

Source: RiverCOG, FHI Studio

Table 10: Recommendations by Municipality

| Municipality | Village Center Recommendations | Beach Community Recommendations | Regional Connections Shared-Use Path, Greenways and Trail Recommendations | State Route Commercial Node Recommendations |
|--------------|---|---|---|--|
| Chester | <ul style="list-style-type: none"> Connect the Village with other nearby assets through the use of sidewalks, shared roadways, and advisory shoulders Consider creating a Bicycle and Pedestrian Plan | | <ul style="list-style-type: none"> Enhance connections to active recreational areas Connect the towns along the CT river via a blue-greenway | <ul style="list-style-type: none"> Pursue potential pedestrian access along Route 154 to Deep River via sidewalk connections Pursue opportunities to conduct an RSA |
| Clinton | <ul style="list-style-type: none"> Provide sidewalk connections between residential neighborhoods and the downtown and the train station Consider creating a Bicycle and Pedestrian Plan | <ul style="list-style-type: none"> Explore opportunities to re-stripe primary beach roads with advisory shoulders or sharrows Consider the use of speed humps at locations where vehicle speeds are an issue. | <ul style="list-style-type: none"> Work with the Clinton Bicycle and Pedestrian alliance to move forward the Clinton Blueway Trail and connections to the Shoreline Greenway | <ul style="list-style-type: none"> Ensure that redevelopment on Route 1 includes consideration of bicycle and pedestrian facilities such as sidewalks and bike lanes Incorporate access management on Route 1 where feasible Pursue opportunities to conduct an RSA |
| Cromwell | <ul style="list-style-type: none"> Consider installing bicycle lanes on Main Street where road shoulders are wide Consider creating a sidewalk plan to help close gaps in the network | | <ul style="list-style-type: none"> Pursue funding for the creation of the Middletown Newfield/ North End Trail Connector | <ul style="list-style-type: none"> Incorporate access management where feasible Install sidewalks near the three schools to connect to surrounding residential neighborhoods Close sidewalk gaps along Route 372 |
| Deep River | <ul style="list-style-type: none"> Consider creating a Bicycle and Pedestrian Plan Expand the sidewalk network throughout residential neighborhoods in the village | | <ul style="list-style-type: none"> Enhance connections to active recreational areas | <ul style="list-style-type: none"> Pursue pedestrian access along Route 154 to Chester via sidewalk connections Purse opportunities to conduct an RSA Install speed feedback signs along CT-80 and 154 to discourage speeding |

Table 10: Recommendations by Municipality

| Municipality | Village Center Recommendations | Beach Community Recommendations | Regional Connections Shared-Use Path, Greenways and Trail Recommendations | State Route Commercial Node Recommendations |
|--------------|---|---|---|--|
| Durham | <ul style="list-style-type: none"> Expand sidewalk network to residential neighborhoods and schools near the downtown Consider streetscape enhancements along Main Street (Route 17) | | <ul style="list-style-type: none"> Support bike friendly shared roadways, bike lanes, wide shoulder lanes, shoulder bikeways, signed bicycle routes, off road multi-use paths, trails, and greenway corridors for bicycle and pedestrian use | <ul style="list-style-type: none"> Advocate for bicycle facilities such as bike lanes and shared roadways when state and local roads are planned for reconstruction or improvement |
| East Haddam | <ul style="list-style-type: none"> Expand sidewalk network to residential neighborhoods near the villages Pursue opportunities to conduct an RSA | <ul style="list-style-type: none"> Explore opportunities to re-stripe roads around Bashan Lake with advisory shoulders and sharrows | <ul style="list-style-type: none"> Enhance connections to active recreational areas | <ul style="list-style-type: none"> Consider expanding shoulders and installing bike lanes on Routes 82, 434, and 151 Develop plans for pedestrian and bicycle connections along Routes 149 and 151 |
| East Hampton | <ul style="list-style-type: none"> Expand sidewalk network to residential neighborhoods and near the villages Consider creating a Bicycle and Pedestrian Plan Streetscape projects | <ul style="list-style-type: none"> Explore opportunities to re-stripe roads around Lake Pocotapaug with advisory shoulders Consider Bike lanes up to and around Lake Pocotapaug and throughout commercial areas in the Boroughs | <ul style="list-style-type: none"> Capitalize on recreational tourism between the Air Line Trail, Lake Pocotapaug and the Boroughs | <ul style="list-style-type: none"> Incorporate access management where feasible on Route 66 Improve sidewalk network and add crosswalks in commercial areas |
| Essex | <ul style="list-style-type: none"> Expand sidewalk network to residential neighborhoods and near the villages | | <ul style="list-style-type: none"> Enhance connections to active recreational areas | <ul style="list-style-type: none"> Sidewalk connectivity on Routes 604 and 153 |
| Haddam | <ul style="list-style-type: none"> Create sidewalk network in Tylerville to connect to East Haddam Connect Higganum Center to surrounding natural resources | | <ul style="list-style-type: none"> Pursue shoulder widening and bike lanes on Candlewood Hill Road to connect to Higganum Reservoir State Park Pursue the Connecticut River Green and Blue Way project | <ul style="list-style-type: none"> Bicycle amenities on Saybrook Road (Route 154) connecting up to Middletown to Route 155 |

Table 10: Recommendations by Municipality

| Municipality | Village Center Recommendations | Beach Community Recommendations | Regional Connections Shared-Use Path, Greenways and Trail Recommendations | State Route Commercial Node Recommendations |
|--------------|--|--|---|--|
| Killingworth | | | <ul style="list-style-type: none"> Enhance connections to active recreational areas Pursue trail connection between Parmelee Farm and Sheldon Park | <ul style="list-style-type: none"> Consider expanding shoulders when state roads are planned for reconstruction or improvement |
| Lyme | <ul style="list-style-type: none"> Consider installing sidewalks in areas with high pedestrian volumes | | <ul style="list-style-type: none"> Enhance connections to active recreational areas | <ul style="list-style-type: none"> Consider expanding shoulders when state roads are planned for reconstruction or improvement |
| Middlefield | <ul style="list-style-type: none"> Support bike-friendly shared roadways, bike lanes, wide shoulder lanes, shoulder bikeways, signed bicycle routes | <ul style="list-style-type: none"> Explore opportunities to re-stripe roads around Lake Beseck with advisory shoulders and sharrows | <ul style="list-style-type: none"> Pursue opportunities for multi-use paths, trails and greenways Enhance connections to active recreational areas | <ul style="list-style-type: none"> Pursue opportunities to conduct an RSA |
| Middletown | <ul style="list-style-type: none"> Pursue opportunities to move forward recommendations laid out in the City of Middletown Complete Streets Initiative Master Plan Facilitating safe bicycling within the downtown area and connect to neighboring communities | | <ul style="list-style-type: none"> Pursue funding for the creation of the Middletown Newfield/ North End Trail Connector Enhance connections to active recreational areas Support expansion of the Air Line Trail through Middletown | <ul style="list-style-type: none"> Incorporate access management where feasible Pursue opportunities to conduct an RSA Consider installing corner bump outs, raised medians and other traffic calming elements Provide on-road link on Route 154 (Saybrook Road) between Aircraft Road that connects Saybrook Road north to Randolph Road. |

Table 10: Recommendations by Municipality

| Municipality | Village Center Recommendations | Beach Community Recommendations | Regional Connections Shared-Use Path, Greenways and Trail Recommendations | State Route Commercial Node Recommendations |
|--------------|---|---|--|---|
| Old Lyme | <ul style="list-style-type: none"> Consider creating a Bicycle and Pedestrian Plan Expand sidewalk network in the downtown to residential neighborhoods to provide connections to the High School | <ul style="list-style-type: none"> Explore opportunities to re-stripe primary beach roads with advisory shoulders or sharrowes Consider the use of speed humps at locations where vehicle speeds are an issue | <ul style="list-style-type: none"> Enhance connections to active recreational areas Acquire and expand open space connections and linkages | <ul style="list-style-type: none"> Pursue opportunities to conduct an RSA Create a sidewalk and street scape plan for Halls Road (Route 1) |
| Old Saybrook | <ul style="list-style-type: none"> TOD/Town Center bike and pedestrian improvements to support economic development and more affordable housing development Consider installing RRFB or HAWK lighting on Main Street to optimize crosswalk safety | <ul style="list-style-type: none"> Explore opportunities to re-stripe primary beach roads with advisory shoulders or sharrowes Consider the use of speed humps at locations where vehicle speeds are an issue | <ul style="list-style-type: none"> Develop a regional bikeway along the railroad spur that leads from the train station to the Preserve, Essex and beyond Explore the possibility of a walkway over the CT River along the current railroad bridge or enhance access over Baldwin Bridge into Old Lyme | <ul style="list-style-type: none"> Continue to close gaps in the sidewalk network on Route 1 Incorporate access management where feasible Pursue opportunities to conduct an RSA |
| Portland | <ul style="list-style-type: none"> Traffic calming measures should be implemented to slow traffic on Main Street Pedestrian improvements should be considered near the approach to the Arrigoni Bridge | | <ul style="list-style-type: none"> Enhance connections to active recreational areas Expand the Air Line trail west across the Connecticut River, creating a connection to the Farmington Canal Trail | <ul style="list-style-type: none"> Incorporate access management where feasible on Route 66 Advocate for bicycle facilities such as bike lanes and shared roadways when state and local roads are planned for reconstruction or improvement |
| Westbrook | <ul style="list-style-type: none"> Improve pedestrian access between the train station and the Downtown Strategically close existing gaps in the sidewalk system | <ul style="list-style-type: none"> Explore opportunities to re-stripe primary beach roads with advisory shoulders or sharrowes Consider the use of speed humps at locations where vehicle speeds are an issue | <ul style="list-style-type: none"> Enhance connections to active recreational areas | <ul style="list-style-type: none"> Incorporate access management where feasible on Route 1 Pursue opportunities to conduct an RSA |

Policy Recommendations

Context

Policy recommendations set fourth guidelines for decision making and implementation of resources. Policies the LCRV Region could consider are as follows:

Complete Streets Policy

Complete Streets are streets designed to be safely accessible to all users, including motorists, pedestrians, bicyclists, and transit users of all ages and abilities. RiverCOG could continue to work with the Region's municipalities to implement Complete Streets elements where possible, allowing the Region's transportation system to become more multi-modal and inclusive of all users.

Actions

Action to advance policy recommendations include:

- Encourage educational programs such as Safe Routes to School and rules of the road training for bicyclists and pedestrians.
- Commit to conducting bicycle and pedestrian counts throughout the Region as feasible.
- Assist municipalities in applying for CTDOT's Road Safety Audit program as warranted.
- Conduct an ADA-Compliance facility assessment.
- Support bicycle and pedestrian advocacy groups across the Region.

ADA-Compliant Facility Assessment

Pedestrian facilities should be accessible to all users. The LCRV Region's municipalities are older and as such, include a wide range of sidewalk facilities that are not uniformly accessible. An inventory of facility compliance with ADA design guidelines could be developed.

Examples of what to include in the assessment include the existence of tactile warning strips and curb ramps at all locations where a crosswalk connects to a sidewalk. Following the completion of the assessment, an action plan could be developed to prioritize and implement necessary improvements.



Sidewalk with tactile warning strips on Route 1 in Old Saybrook
Source: FHII Studio

Health and Wellness Policy

Bicycling and walking provide people with a way to stay physically active and promote good health. Both activities increase heart and cardiovascular health and provide resistance to obesity related health problems. Mental well-being has also been shown to improve as a result of physical activity. Studies have shown that activities such as bicycling and walking promote mental health and can help people overcome and prevent depression and anxiety. The LCRV Region could adopt a health and wellness policy to promote the health and wellness benefits of bicycling and walking.

Bicycle and Pedestrian Counts

To understand which areas may be prioritized for bicycle and pedestrian improvements, it is important to have an idea of travel patterns throughout the Region. Data on these types of movements allows for an understanding of the levels of impact various improvements may have. Data collection over time provides a measure of progress by providing quantitative benchmarks.

It is recommended that the RiverCOG and interested municipalities initiate a program to collect data on bicycle and pedestrian counts on an annual basis, if possible. It is anticipated that annual counts would require volunteers to assist in the count process.

Counts could be taken at the locations and corridors highlighted in the Plan. Interested municipalities could work together with RiverCOG staff to develop a standard methodology to conduct the counts. Volunteers would be provided training on how the counts should be taken and recorded. The data could then be summarized and made available to the public on RiverCOG's website.



Volunteer counting bicyclists and pedestrians for the National Bicycle and Pedestrian Documentation Project, <https://www.bikepeddocumentation.org/>
Source: The Durango Herald, <https://www.durangoherald.com/articles/durango-starts-pedestrian-and-cyclist-count/>

Road Safety Audits (RSA) Conducted Through Connecticut's Community Connectivity Program

CTDOT's Community Connectivity Program provides towns and cities across the State assistance to conduct RSA's at important bicycle and pedestrian corridors and intersections. An RSA is a process that identifies safety issues and countermeasures to help improve safety and reduce vehicle crashes. An RSA is an innovative tool that documents factors that can help or hinder safe bike/ped travel. Some of these factors include, but are not limited to: shoulder width; sidewalk width/condition; pavement markings; traffic volume; on-road parking locations; presence of bicycle lanes; traffic signalization; topography; drainage; and sightlines.

RSA's identify bicycle and pedestrian needs, and develop recommendations to improve conditions. Typically there are low-cost recommendations that can be implemented in the short term, and higher-cost recommendations that can be done over the longer term. Upon completion of the RSA, each participating municipality is provided with a report detailing the documented safety concerns, RSA results and individualized short-term and long-term recommendations for safety improvements.

Interested municipalities could work with RiverCOG staff to apply for an RSA in their community. An application process is required, but once approved, the RSA is conducted at no cost to the town.¹



*Discussion during a RSA recently conducted in Litchfield, CT
Source: FHI Studio*

¹ CTDOT, Community Connectivity Program, Road Safety Audits. <https://portal.ct.gov/DOI/News-from-the-Connecticut-Department-of-Transportation/2016/Community-Connectivity-Program--Road-Safety-Audits-Announced>

Bicycle and Pedestrian Advocacy Groups

The LCRV Region is fortunate to have a robust network of passionate bicycle and pedestrian advocacy Groups such as the Clinton Bike and Pedestrian Alliance, Durham's Complete Streets Group, and Middletown's Complete Streets Committee to name a few. Whenever possible, RiverCOG and the LCRV Region should continue to promote and advance the mission and goals of these groups through assistance with grant applications, data collection, and local awareness promotion.



Ribbon-Cutting Ceremony for the Portland Air Line Trail Source: The Jonah Center for Earth and Art. <https://thejonahcenter.org/>

Bicycle and Pedestrian Infrastructure as a Transportation Option

Regional job centers, in the areas such as Middletown, Cromwell, Clinton, and Old Saybrook, should be accommodating to bicycles and pedestrians, considering the high volume of people who travel there daily. By providing appropriate bike and pedestrian accommodations to such job centers, people might more likely walk or bike to work if their situation was conducive to doing so. Additionally, workers may choose to walk to lunch, patronizing local businesses instead of driving if options allowed. This could allow for increased development and a feeling of a greater sense of place. By providing high quality bicycle and pedestrian facilities in these areas, commuters may shift to biking or walking.

Multi-modal facilities are attractive to millennials, who may believe that the ability to be mobile is compelling, viewing the personal vehicle as not necessary for all transit needs. With a car, there is the hassle of paying for gas, paying for parking, and general maintenance. Bicycle and pedestrian amenities and high-quality public space nodes that are well connected can attract millennials to the Region. This is also the case with non-millennials as well. Parents of elementary age students may feel more comfortable allowing their children to bike or walk to school if sidewalks, crosswalks, or bicycle facilities are provided for. Investments in quality public spaces as well as bike and pedestrian accommodations can also be beneficial for older residents too. Older residents may feel safer walking on deliberately designed pedestrian ways. Sidewalks and bicycle infrastructure may provide mobility options to residents who do not drive or have access to a personal vehicle.

Policy Recommendations

Education and Training

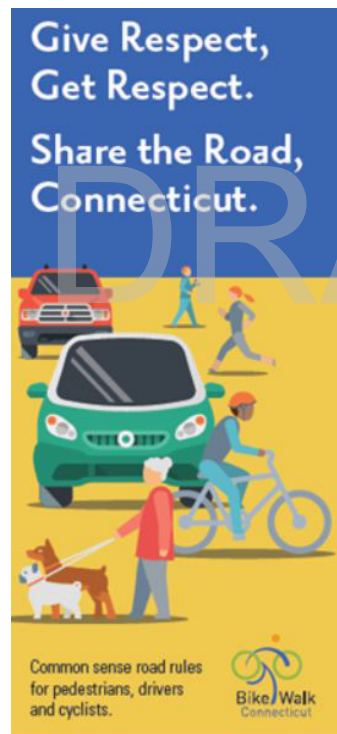
Education and training are critical strategies for increasing and improving walking and bicycling throughout the LCRV Region. Middletown has begun a 4th grade bicycle education program and other communities across the State have been incorporating such programs into their curriculum. Specific steps to expand education and training include:

- Regional coordination of messaging and information.
- Programs targeted to reach specific groups such as children and seniors.
- Public safety campaigns that address safety issues in a community or regionally.
- Messaging that highlights the environmental and health benefits of walking and bicycling.

The following programs provide resources and greater detail about education programs and enforcement:

- [Share the Road CT](#)
- [BikeWalkCT](#)
- [WatchforMe CT](#)
- [Safe Routes to School](#)

*Road Rules Safety Brochure
Source: Bike Walk Connecticut*



*Elementary School students walking home with aid from a crossing guard
Source: FHI Studio*

Bicycle and Pedestrian Connections to Transit

The LCRV Region is fortunate to be served by a variety of transit services such as CT Transit, Middletown Area Transit (MAT), 9 Town Transit (9TT), and Shore Line East (SLE) Commuter Rail. CT Transit's Route 55 provides service between Hartford and Middletown via the Silas Deane Highway with stops in Wethersfield, Rocky Hill and Cromwell. CT Transit Routes 906 and 921 provide commuter service into Hartford during weekdays.* Both MAT and 9TT provide fixed routes as well as paratransit and Dial-A-Ride service.

In June 2019 the CTRail Hartford Line opened. Although there are no stops within the LCRV Region, Middletown Area Transit has begun service between Middletown and Meriden Station, where residents can catch a train going between New Haven and Springfield, MA. This is significant, considering many people from Middletown work in Meriden and many who live in the LCRV Region, work in places like New Haven or Hartford. This links the importance of multimodal transit and how people can use bikes to get to a bus shelter or station and be able to then board a bus and vice versa. Stations need to have proper bicycle facilities and accommodations in order to make people feel safe to use bikes on the last mile/first mile stages of their trips. It should also be noted that bikes can be attached to the bus bike racks and brought on Middletown Area Transit, CTTransit, and 9 Town Transit buses.

Ensuring that the LCRV Region's transit system is well connected to bicycle and pedestrian infrastructure across the Region should be a priority. This includes ensuring that the Region's train stations (Clinton, Westbrook, Old Saybrook) and multiple bus routes are served by sidewalks, crosswalks, and bicycle amenities such as bike racks and infrastructure. Any future rail services should accommodate bicycles and covered bicycle storage should be provided for at the Region's train stations.

**Note: at this time, due to low ridership associated with the pandemic, CT Transit Route 921 between Old Saybrook, Middletown, and Hartford has been suspended*



*Passenger loading her bicycle on a 9 Town Transit Bus
Source: Estuarytransit.org*

IMPLEMENTATION

OVERVIEW

Implementation Summary

This Bicycle and Pedestrian Master Plan provides an essential step to improving safety and accessibility. Some projects outlined in this plan will require significant coordination, capital planning, multiple funding sources, and sustained community and political leadership.

The following implementation summary organizes the Plan's recommendations based on type in a format that makes the items easy to reference. The summary also provides columns that reference the recommendations based on length in a phased approach such as; short-term, medium-term, and long-term projects. It is anticipated that policy recommendations could be enacted in the near to short-term.

Short-term Recommendations

These are improvements that are simpler and could be completed on a quick timeline. These recommendations are low-cost alternatives such as striping and signage. These recommendations generally do not require extensive engineering or construction costs. These projects are defined as those that may be complete within two years.

>2 Years

Medium-term Recommendations

These are improvements that may require more substantial engineering than those generally included as short-term recommendations. These may require establishment of funding in capital improvement plans, or a dedicated funding item. However, these recommendations are generally simpler than long-term recommendations and generally do not include right-of-way acquisition etc. These projects are defined as those that may be completed in two-to-five years.

2 - 5 Years



RiverCOG Staff and others discussing the Statewide Bicycle Planning Network
Source: FHI Studio

Long-term Recommendations

These are improvements that require substantial study and engineering. These recommendations generally require significant funding for implementation and may require several years of planning to budget. These projects are defined as those recommendations that may take five years or longer to complete

5+ Years

Table 11: Implementation by Length

| <p>Type of Recommendation</p> | <p>Short-term >2 Years</p> | <p>Medium-term 2 - 5 Years</p> |
|---|--|---|
| <p>Village Center Recommendations</p> | <ul style="list-style-type: none"> • Encourage municipalities to complete individual bicycle and pedestrian plans and or sidewalk plans. 1+2 • Explore opportunities to apply for CTDOT's Community Connectivity Program's Road Safety Audits. 1+2 • Further promote open space and trail resources; provide parking, maintenance, wayfinding, and branding and marketing where appropriate. 1+3 | <ul style="list-style-type: none"> • Encourage bicycle and pedestrian links between neighborhoods, employment centers, schools, parks and other destinations. 3 • Look for ways to enhance pedestrian connections and amenities through additional facilities, sidewalk maintenance and improvements, crosswalk expansion, lighting, wayfinding, etc. 1+3 |
| <p>Beach Community Recommendations</p> | <ul style="list-style-type: none"> • Consider the use of speed humps at locations where vehicle speeds are an issue. 1 • Provide signage directing pedestrians to walk facing traffic. 1+3 | <ul style="list-style-type: none"> • Explore opportunities to re-stripe primary beach roads with advisory shoulders (traditional shoulders appropriate on roads at least 28' wide). 1 |
| <p>Regional Connections Shared-Use Path, Greenways and Trail Recommendations</p> | <ul style="list-style-type: none"> • Support bicycle-based tourism. 1 • Support and expand existing trail networks and improve trail head amenities. 3 • Connect public parks to trails and pathways and other pedestrian or bicycle networks where feasible to provide linkages and connectivity between recreational uses. 1+3 | <ul style="list-style-type: none"> • Support efforts to connect the Air Line Trail and Farmington Canal Trail. 1+3 • Extend the Shore Line Greenway from Hammonasset Beach to Clinton and points further east where feasible. 1+3 |
| <p>State Route Commercial Node Recommendations</p> | <ul style="list-style-type: none"> • Pursue funding and assistance for Complete Streets planning for sidewalk planning and construction, with the regional goal of linking dense population clusters within the towns. 3 • Encourage bicycle links between neighborhoods, employment centers, schools, parks and other destinations. 1+3 | <ul style="list-style-type: none"> • Improve walkability by encouraging pedestrian-oriented design of public and private projects in areas where higher levels of pedestrian activity are present or desired. 3 |

Table 11: Implementation by Length

| Type of Recommendation | Long-term 5+ Years | Goal(s) Achieved |
|---|---|---|
| <p>Village Center Recommendations</p> | <ul style="list-style-type: none"> Encourage multi-modal transportation and integrate bicycle and pedestrian facilities with other transportation modes, particularly transit. Ensure that these facilities are compliant with Americans with Disabilities (ADA) Standards. 1+2 | <p>1 2 3</p> |
| <p>Beach Community Recommendations</p> | <ul style="list-style-type: none"> Ensure speed limits in beach communities are signed for under 15 miles per hour. Consider the use of “Your Speed Signs” at locations where vehicle speeds are an issue. 1+3 Ensure that facilities are compliant with Americans with Disabilities (ADA) Standards. 2 | <p>1 2 3</p> |
| <p>Regional Connections Shared-Use Path, Greenways and Trail Recommendations</p> | <ul style="list-style-type: none"> Improve and expand Greenways to improve connections to the Region’s parks and open space resources. 3 Where feasible, ensure that these facilities are compliant with Americans with Disabilities (ADA) Standards. 2 | <p>1 2 3</p> |
| <p>State Route Commercial Node Recommendations</p> | <ul style="list-style-type: none"> Develop a bikeway network that is continuous, closes gaps in the existing system, improves safety and serves important destinations. 1 Ensure that facilities are compliant with Americans with Disabilities (ADA) Standards. 2 | <p>1 2 3</p> |

Funding

Overview

The following funding sources should be considered with moving the recommendations forward. These include: ^{1 2}:

Community Connectivity Grant Program (CCGP)

Funds: Bicycle and pedestrian safety projects

Purpose: The goal of the Community Connectivity Grant Program is to make conditions safer and more accommodating for pedestrians and bicyclists, thereby encouraging more people to use these healthy and environmentally sustainable modes of travel. Making these improvements will make Connecticut's community centers more attractive places to live and work. The CCGP was developed to provide funding for targeted infrastructure improvements that are commonly identified through RSA's, or other transportation planning initiatives. The purpose of the CCGP is to provide funding directly to Municipalities to perform smaller scale infrastructure improvements that are aligned with the overall program goal.

Department of Energy and Environmental Protection (DEEP) Recreational Trails

Funds: Bicycle, pedestrian, horseback, and recreational vehicle projects

Purpose: This program is administered through the Connecticut DEEP. Funds can be used for projects, such as new trail construction, maintenance and restoration of existing trails, acquisition of land, or easements for a trail. Note: There is currently no funding available for this program.

Local Capital Improvement Program (LoCIP)

Funds: Bicycle and pedestrian projects, roadway projects

Purpose: This program provides financial assistance to municipalities for eligible projects in the form of annual entitlement grants funded with State general obligation bonds. LoCIP grants can fund road construction, renovation and repair, sidewalk and pavement improvements, bridges, and bikeway and greenway establishment.

Transportation Alternatives (TA) Set-Aside Program

Funds: Bicycle and pedestrian safety projects

Purpose: Provides federal funding, half administered through the State and half administered through Regional Planning Organizations for surface transportation projects in categories that are not typically eligible for funding under other federal sources. Bicycle and pedestrian projects have typically been targeted for these funds.

Local Transportation Capital Improvement Program (LOTICIP)

Funds: Bicycle, pedestrian, transit, and bridge projects

Purpose: The purpose of the LOTICIP is to provide State monies to urbanized area municipal governments in lieu of Federal funds otherwise available through the Federal transportation legislation. Regional Planning Organizations are responsible for soliciting and selecting projects and administering the program. Eligible projects include reconstruction, pavement rehabilitation, sidewalks, and multi-use trails.

Safe Routes to School Programs (SRTS)*

Promotes: Bicycle and pedestrian safety projects near schools

Purpose: Safe Routes to School (SRTS) is an approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school. Nationally, 10%–14% of car trips during morning rush hour are for school travel. SRTS initiatives improve safety and levels of physical activity for students. SRTS programs can be implemented by a department of transportation, metropolitan planning organization, local government, school district, or even a school. Extensive resources are available through a national center, including an SRTS Guide, parent surveys and student tallies, and simple strategies, such as the walking school bus, that schools can use to support bicycling and walking.

**Note: This is a program, not a dedicated funding source*

Small Towns Economic Assistance Program (STEAP)

Funds: Bicycle and pedestrian projects, roadway projects

Purpose: STEAP funds are issued by the State Bond Commission and can be used for capital projects, which are new construction, expansion, renovation or replacement of existing facilities. The funding is directed towards small towns.

1 CTDOT, Community Connectivity Program, Road Safety Audits. <https://portal.ct.gov/DOT/News-from-the-Connecticut-Department-of-Transportation/2016/Community-Connectivity-Program--Road-Safety-Audits-Announced>

2 RiverCOG Regional Transportation Safety Plan, December 2021

Cost Estimates

Overview

The following cost estimates are provided as general guidelines when estimating cost involved with the bicycle and pedestrian infrastructure improvements that are discussed in this Plan. Actual costs would vary based on a variety of factors including but not limited to; date of planning and construction, size (length) of facility, contractor, etc. These should only serve as a general estimate for planning purposes.

| Facility Type | Cost Per Linear Foot |
|----------------------------------|----------------------|
| Sidewalk | \$12.50* |
| Pedestrian Lane | \$5 |
| Shared Roadway | \$2.50 - \$5 |
| Bike Lane | \$10 |
| Buffered Bike Lane | \$20 |
| Separated Bike Lane | \$150 - \$200 |
| Advisory Shoulder Lane | \$10 |
| Sidepath | \$100 |
| Shared-Use Path/ Greenway Trails | \$150 - \$200 |

*Per square foot approximately



Rectangular Rapid Flashing Beacon recently installed in Essex
 Note: crosswalk had not yet been striped at time of photo taken January 2022
 Source: FHI Studio

| Facility Type | Cost Per Installation |
|---|-----------------------|
| Crosswalk at non-signalized intersection | \$20,000 |
| Crosswalk at existing signalized intersection | \$60,000 |
| Mid-block Crosswalk | \$100,000 |

Crosswalk at non-signalized intersection

Elements

Curb ramps, crosswalk, and crosswalk signage needed to accommodate road crossing

Crosswalk at existing signalized intersection

Elements

Curb ramps, crosswalk, Pedestrian Signal Heads and Actuator needed at existing signalized intersection

Mid-block Crosswalk

Elements

Curb ramps, crosswalk, and crosswalk signage needed to accommodate road crossing, Pedestrian actuated signal and pedestrian refuge island

Page Intentionally Left Blank

DRAFT

APPENDIX

The following files are included in this Appendix

- Page: 121 **A** Streetlight Analysis
- Page: 125 **B** RiverCOG Placemaking Executive Summary
- Page: 155 **C** Bicycle and Pedestrian Municipal Survey Results - Summer 2020
- Page: 165 **D** Bike Pedestrian Audit Report - Sustainable CT Fellows- Summer 2021
- Page: 175 **E** Public Involvement Summary

Page Intentionally Left Blank

DRAFT

A. Streetlight Analysis

| | | Cromwell | Middletown |
|---------------------------------|------------|----------|------------|
| StreetLight Index | Pedestrian | 2236 | 9098 |
| | Bicycle | 7 | 257 |
| Trip Purpose - Home-Based Work | Pedestrian | 37% | 33% |
| | Bicycle | 14% | 11% |
| | All Veh. | 24% | 20% |
| Trip Purpose - Home-Based Other | Pedestrian | 13% | 22% |
| | Bicycle | 31% | 31% |
| | All Veh. | 47% | 40% |
| Trip Purpose - Non Home-Based | Pedestrian | 50% | 44% |
| | Bicycle | 55% | 58% |
| | All Veh. | 29% | 41% |
| % Hispanic | Pedestrian | 6% | 12% |
| | Bicycle | 6% | 11% |
| | All Veh. | 6% | 10% |
| Household Income Under \$20k | Pedestrian | 8% | 26% |
| | Bicycle | 9% | 24% |
| | All Veh. | 9% | 19% |
| Household Income Under \$50k | Pedestrian | 26% | 52% |
| | Bicycle | 26% | 53% |
| | All Veh. | 26% | 43% |
| Trips Under 1 Mile | Pedestrian | 84% | 89% |
| | Bicycle | 19% | 44% |
| | All Veh. | 9% | 15% |
| Trips Under 2 Miles | Pedestrian | 98% | 98% |
| | Bicycle | 50% | 64% |
| | All Veh. | 30% | 34% |

| | | Portland | East Hampton | Haddam | Deep River |
|---------------------------------|------------|----------|--------------|--------|------------|
| StreetLight Index | Pedestrian | 2372 | 4167 | 909 | 1747 |
| | Bicycle | 23 | 65 | 40 | 9 |
| Trip Purpose - Home-Based Work | Pedestrian | 35% | 31% | 32% | 22% |
| | Bicycle | 10% | 10% | 3% | 6% |
| | All Veh. | 18% | 19% | 10% | 14% |
| Trip Purpose - Home-Based Other | Pedestrian | 34% | 24% | 16% | 36% |
| | Bicycle | 26% | 34% | 10% | 26% |
| | All Veh. | 45% | 45% | 41% | 41% |
| Trip Purpose - Non Home-Based | Pedestrian | 32% | 45% | 52% | 43% |
| | Bicycle | 64% | 56% | 88% | 68% |
| | All Veh. | 37% | 36% | 49% | 45% |
| % Hispanic | Pedestrian | 5% | 4% | 5% | 14% |
| | Bicycle | 10% | 5% | 5% | 4% |
| | All Veh. | 6% | 3% | 4% | 5% |
| Household Income Under \$20k | Pedestrian | 13% | 10% | 6% | 14% |
| | Bicycle | 14% | 10% | 11% | 12% |
| | All Veh. | 11% | 8% | 7% | 9% |
| Household Income Under \$50k | Pedestrian | 34% | 30% | 30% | 46% |
| | Bicycle | 41% | 31% | 34% | 39% |
| | All Veh. | 32% | 27% | 29% | 33% |
| Trips Under 1 Mile | Pedestrian | 80% | 86% | 92% | 90% |
| | Bicycle | 13% | 13% | 14% | 65% |
| | All Veh. | 12% | 11% | 8% | 13% |
| Trips Under 2 Miles | Pedestrian | 97% | 98% | 99% | 98% |
| | Bicycle | 20% | 34% | 20% | 89% |
| | All Veh. | 29% | 31% | 16% | 25% |

| | | Clinton | Westbrook | Old Saybrook | Old Lyme |
|---------------------------------|------------|---------|-----------|--------------|----------|
| StreetLight Index | Pedestrian | 1270 | 763 | 8489 | 2125 |
| | Bicycle | 31 | 8 | 103 | 10 |
| Trip Purpose - Home-Based Work | Pedestrian | 30% | 24% | 17% | 29% |
| | Bicycle | 13% | 0% | 16% | 7% |
| | All Veh. | 13% | 15% | 12% | 25% |
| Trip Purpose - Home-Based Other | Pedestrian | 29% | 29% | 19% | 11% |
| | Bicycle | 31% | 29% | 23% | 19% |
| | All Veh. | 44% | 39% | 38% | 32% |
| Trip Purpose - Non Home-Based | Pedestrian | 40% | 47% | 64% | 60% |
| | Bicycle | 56% | 71% | 62% | 74% |
| | All Veh. | 43% | 46% | 50% | 44% |
| % Hispanic | Pedestrian | 8% | 6% | 7% | 10% |
| | Bicycle | 6% | 5% | 7% | 5% |
| | All Veh. | 6% | 6% | 5% | 4% |
| Household Income Under \$20k | Pedestrian | 13% | 17% | 11% | 9% |
| | Bicycle | 9% | 13% | 10% | 10% |
| | All Veh. | 9% | 13% | 9% | 7% |
| Household Income Under \$50k | Pedestrian | 38% | 48% | 35% | 31% |
| | Bicycle | 34% | 43% | 34% | 28% |
| | All Veh. | 32% | 36% | 31% | 27% |
| Trips Under 1 Mile | Pedestrian | 84% | 84% | 88% | 93% |
| | Bicycle | 26% | 44% | 55% | 41% |
| | All Veh. | 11% | 9% | 13% | 6% |
| Trips Under 2 Miles | Pedestrian | 98% | 97% | 99% | 98% |
| | Bicycle | 52% | 50% | 72% | 60% |
| | All Veh. | 31% | 23% | 28% | 15% |

Page Intentionally Left Blank

DRAFT

B. RiverCOG Placemaking Executive Summary

Lower Connecticut River Valley *Placemaking* Regional Bicycle and Pedestrian Plan

Executive Summary and Project Scope

This *Lower Connecticut River Valley Regional Bicycle and Pedestrian Placemaking Plan* is the framework to plan improved bike and pedestrian accommodations and facilities throughout the Lower Connecticut River Valley (LCRV).

This report will be centered around the goal of “placemaking.” According to the *Project for Public Spaces*, an organization aimed at helping people, municipalities and other civic institutions create and sustain public spaces, “...**Placemaking** inspires people to collectively reimagine and reinvent public spaces as the heart of every community. Strengthening the connection between people and the places they share, Placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, Placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution. With community-based participation at its center, an effective Placemaking process capitalizes on a local community's assets, inspiration, and potential, and it results in the creation of quality public spaces that contribute to people's health, happiness, and well being.”¹

Far too often in the state and throughout the region, the building of public infrastructure focuses on providing accommodations for cars and making it attractive to utilize an automobile, all while putting second, facilitating access to other modes of transportation, be it biking, public transit, or walking. The question then becomes how best to facilitate access to public transit, biking, and walking in this mostly rural and suburban region where a car seems like the only viable option? The answer is to make the entry to alternative modes of transportation easy and accessible to where people live and destinations where people want to be. Biking, walking, and public transit supports a public realm that is vibrant and human scaled. These modes of transit are becoming increasingly attractive and have been linked to economic development, attracting younger people, and fostering private investment.

This report is the first comprehensive bike and pedestrian plan for the region, which encompasses the intersection of placemaking and non-motorized transit. The following report relies upon the region's seventeen municipal Plans of Conservation and Development (POCD) and contextualizes economic trends in the region, as laid out in the 2016 *GrowSmart* Report, which discusses the regional economic growth strategy. This report will also rely on two project reports: the *Placemaking Plan for the Middletown Riverfront* and the *Valley Railroad State Park Scenic Corridor Study*. These two studies show examples of potential placemaking focused on bike and pedestrian facilities. This report will be used in the development of the *new Regional*

¹ Project for Public Spaces, *What is Placemaking?*, <https://www.pps.org/category/placemaking>.

Long Range Transportation Plan and Regional Plan of Conservation and Development, both of which will be released in 2019.

The scope of the report will focus on placemaking through low-impact / low-cost solutions, also known as *Light, Quicker, and Cheaper* to improve access for people walking and bicycling the LCRV. This report will focus on potential bike and pedestrian placemaking projects in Middletown, Haddam, and East Hampton based on the *Lighter, Quicker and Cheaper* approach. *Lighter, Quicker, and Cheaper* methodology presents inexpensive, short term pilot solutions that promotes greater civic involvement responsibility and innovation, while making streets more attractive and safer for walking and bicycling. The process of LQC is a highly decentralized process, where citizens of their own accord innovate solutions to form better places within their communities alongside support from local municipalities. According to the Project for Public Spaces' *Placemaking Plan for the Middletown Riverfront*, "*Lighter, Quicker, cheaper*" (LQC) describes a moderate cost, high-impact framework for short-term, experimental interventions. LQC experiments allow for lower risk and lower cost improvements to become the launching pad for a larger, long-term plan. These experiments capitalize on the creative energy of the community to generate new uses, test ideas, and build a new image for places in transition."² Although this report does focus on the intersection of LQC and placemaking, this report also advocates and shows already existing plans by citizen groups and organizations whose main missions relate to the work of bike/ped accessibility within the LCRV.

Context of Existing Conditions

The LCRV has a high quality of life supported by the natural environmental, small New England towns, and community attributes, such as good schools and attractive downtowns. This environment has attracted people who could work and live anywhere, to live in the LCRV. Because many jobs in the country can be done through the cloud and or without the need to be at an office, people in the LCRV are choosing where they live in the region not based on their job, but on the quality of life a place or community provides, amongst other considerations. According to the *GrowSmart* report, "Many of these jobs exist because people want to live in the region and are in jobs that can be done from anywhere."³ Some of the jobs that are included in the "Lifestyle Economy" are those in: Finance and Insurance, Real Estate, Rental, and Leasing, Professional, Scientific, and technical services. With this type of lifestyle economy and a region that provides high quality public schools, exceptional outdoor recreation, and the small New England town feel, there is a real draw to the region. It is important to acknowledge, however, that the "Lifestyle Economy" participant most likely relies on a car to be able to get around, considering the single-occupancy commuting rate in Connecticut is around 80% and the people the "Lifestyle Economy" attracts are those with the ability to afford a car.⁴ Yet, despite this fact, a considerable amount of car owners care for bike/ped priorities, such as hiking, walking, and biking trails. One such example is the East Hampton entrance to the Air Line Trail, where people park their cars in parking lot and then start on the trail. This is not a contradiction, but merely a

² Project for Public Spaces, *A Placemaking Plan for the Middletown Riverfront Final Report*, January 2014, http://www.middletownplanning.com/documents/pps_middletown_ct_report.pdf.

³ Ninigret Partners, *Grow Smart: Regional Economic Growth Strategy Final Report*, January 2016, https://www.rivercog.org/Documents/GrowSMART_FinalReport_020416.pdf, 23.

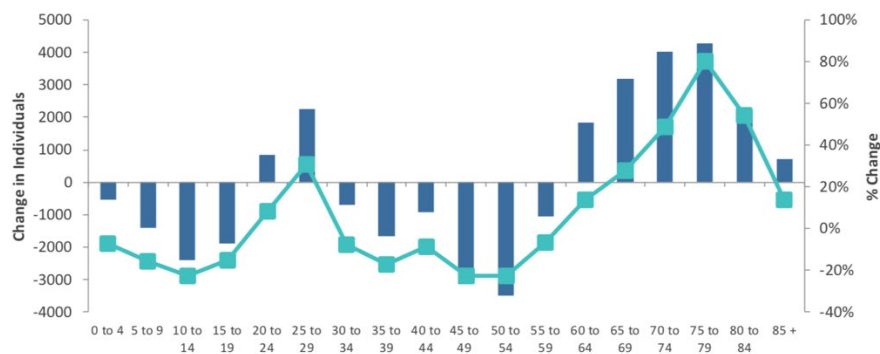
⁴ CT Data commuting rate (find on that website)

stark reality and complexity, where those with cars also have an affinity for bike/ped options. This being said, it is important not just to cater to the car-owners of the LCRV, but also to a younger population, many of whom don't have cars.

Although settled in the 17th, 18th, and 19th centuries, the LCRV, like most of the country, has a significant amount of post-World War Two suburban sprawl, which is oriented to the needs of cars not people. In many of the towns' POCDs, there is mention of an excessive amount of retailstrip shopping centers and the increase of chain stores. The towns' are explicit in their efforts to preserve their small town character and are hesitant to expand or promote suburban shopping centers. The development of shopping centers is, in a sense, place-less, as well as interchangeable with similar strip mall developments elsewhere in the country. A wide theme across the towns' POCDs is to cultivate a unique *sense of place* and reinstall town character. For example, in East Hampton, there is an effort to regulate big box stores and to improve wayfinding signs. These are efforts the town is conducting to make East Hampton more of a place that is not only defined by traditional suburban built development.⁵

The LCRV has an aging regional population with a declining number of adults between the ages of 25-59 year-olds. According to U.S. Census data between 2000 and 2010, the age group of 30-34-year olds and 35-39 year-olds declined by 2.5% and 3% respectively between 2000 and 2010. During the same time period, the age cohorts of 55-59 year-olds and 60-64 year-olds rose by 2% and 2.6% respectively.⁶ This shows that the region is aging and that fewer young people are migrating into the LCRV. In addition, the median age of the LCRV in 2000 was 38.8 years, in 2010, 43 years and in 2016, the median age of the region was at 45.1 years. Since the median age is rising in the LCRV, the bike/ped priorities should represent this demographic marker. At the same time, this gives us the opportunity to design futures that could cater to younger populations, again, many of whom don't have cars.

FIGURE 2
Age Projections for Lower Connecticut River Valley Planning Area



7 Source: UCONN 2030 Population Projections

⁵ East Hampton POCD

⁶ Age Cohort Changes (Excel sheets in the end? drive)

⁷ Age Data (Excel sheets in the end drive)

Figure 1. 2030 Age Projections for the Lower Connecticut River Valley

According to the *Grow Smart* report, people who work in the LCRV, live mostly in the more densely populated areas of Middletown, Cromwell, Deep River, and in pockets along the shoreline. The region’s residents work mostly in Middletown and outside of the region around Hartford and New Haven. In the context of those who live in the region, the report suggests that people have been moving closer to job centers. With this, there are simultaneous socioeconomic trends in the region, including a population in the region moving closer to job centers, while also having Self-Employed workers as the largest industry sector in the region. People are living here because of what the region has to offer, and it is important to accommodate both workers and residents within the region with bike and pedestrian facilities.

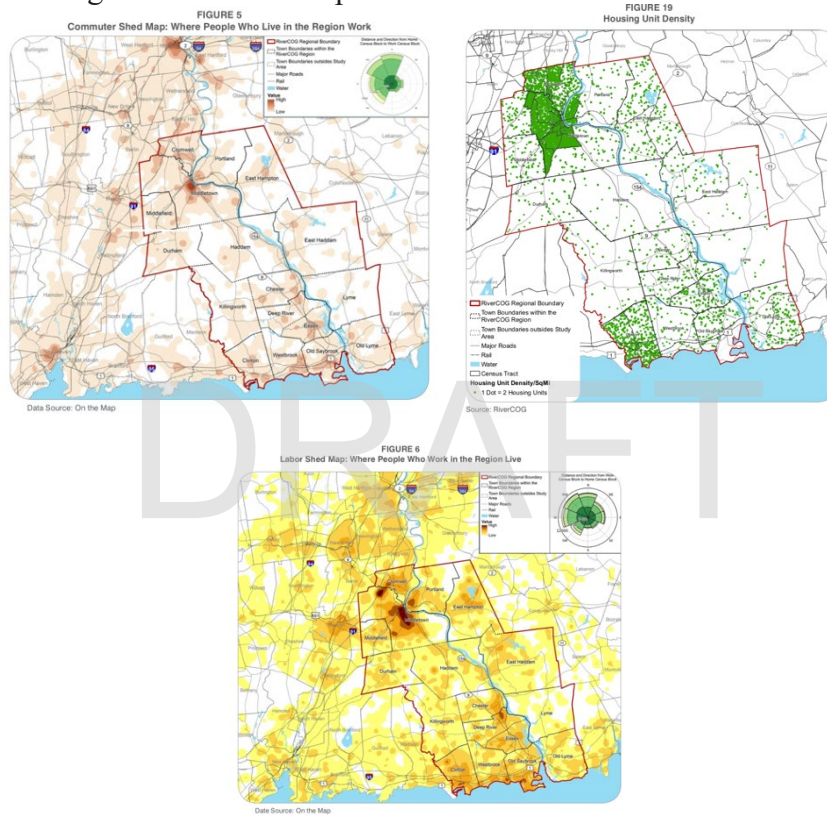


Figure 2. Three Maps: Where People Who Work in the Region Live and Where People Who Live in the Region Work. The bottom map shows *Housing Unit Density*.

Regional job centers, in the areas of Middletown and Cromwell, should be accommodating to bicycles and pedestrians, considering the high volume of people who travel there daily. By having the appropriate bike and pedestrian accommodations in such job centers, people might more likely walk to lunch, instead of drive, which could allow for increased development and a feeling of a greater sense of place.

However, the building of new bike and pedestrian facilities, such as bike lanes or sidewalk bump-outs are quite costly. This will be a challenge for many towns throughout the LCRV,

which is why this report is encouraging the LQC methodology of low-cost and low-impact changes. What this really means is community-inspired change, made possible with creativity and a small amount of resources. For example, the community could temporarily paint bike lanes on the street or take up parking spots and put in food trucks or other types of pop-up stands.

Many people in the LCRV bike on the road and street networks, even though there are few marked bicycle routes, inadequate shoulders, and a lack of awareness in drivers of how to share the road with cyclists, such as the state law requiring drivers to provide at least three feet of space when passing.⁸ Such solutions like placing shared lane signs or icons along roads and streets can be done by the towns and state cheaply, with potentially great effect in improved safety and overall comfort of cyclists. Bicycling is popular in the region not because of any special bicycle amenities, but because of the attractiveness of our natural environment.⁹ However, we can do better. For example, even though there may be bike racks in front of schools, such as the Clinton High School, there are no bike lanes on the road for bicyclists to use. In the case of the major university in the region, Wesleyan University, there are a high number of students who bike, yet there is no road infrastructure that accommodates those bikes.

Going Forward

How do we design pedestrian ways, along with bike lanes, that provide connections to quality public space nodes?

To attract more people to the LCRV, the increase of **quality public space nodes** is imperative to the success of the LCRV. What is meant by *node* is that it is a transfer point with the ability to easily connect to other nodes through public transit as well as bicycle and pedestrian accommodations and facilities. So, what makes a public place a place where people want to be? According to the Project for Public Spaces, good public spaces should consist of four tenants, including *Access and Linkages*, meaning a space should be easy to get to and get through, while being accessible by all modes of transit, including non-motorized transit, like walking and biking. *Sociability* means when a space is conducive for people to see and “hang out” with friends as well as a comfortable space to interact with strangers. *Uses and Activity* means there is something to do that gives people a reason to show up to the place and then to return. And then *Comfort and Image* means whether the space presents itself well--from safety, cleanliness, and the availability of places to sit.¹⁰ And public space does not necessarily mean the building of a new multi-million dollar public square, but in the context of this report, using LQC to build spaces, or pop-up markets or farmers markets or other types of citizen-oriented placemaking projects.

⁸ CT statute

⁹ Grow Smart Report

¹⁰ What Makes a Successful Space, the Project for Public Spaces

The answer to why the increase of quality public space nodes can attract millennials or younger professionals is complex. The ability to be mobile is quite compelling for millennials, along with the idea that a car is not necessary for all transit needs. With a car, there is the hassle of paying for gas, paying for parking, general maintenance--the costs can add up. By having public space nodes that can be easily connected through bikes paths and quality streetscape, the transaction cost of walking or biking goes down. This is also the case with non-millennials as well.

Investments in quality public spaces as well as bike and pedestrian accommodations can also be beneficial for older residents too. Not only would older residents feel safer walking on deliberately designed pedestrian ways, but it gives something for people to do, instead of stay on their block the entire day—for example.

Many of the outdoor recreational activities, such as the Air Line Trail, are siloed from quality public spaces or nodes and are not connected to other public spaces through non-motorized transit options, such as biking or walking. You need a car to connect the two. By not having to use a car to move from one node to the next is an important step in order to foster greater recreation and placemaking opportunities. By connecting places where people want to be without needing a car, older residents and those who want to spend more time outdoors being active, will enjoy their time more. This will also allow young residents the ability to move around without the need of a car and gives them opportunities to “hang out” in places other than home or in commercial strip malls. Such “hang out” areas could be concerts or food truck events, where after, people could walk to other nodes and public spaces.

Bike Share and Rail

Lime Bike, a dockless bike share startup, launched bikes throughout Hartford, CT in the summer of 2018 and is the beginning of dockless bike sharing in Connecticut. The business model of dockless bike-share is that there is no cost to the municipality and the company charges the user of the bicycle \$1/hour. Users need a smartphone to scan a code in order to unlock the bike and then subsequently pay for the time with a credit card on file.

For purposes of transit equity, those without a credit card and or those who have low-income status can join *Lime Access*, which gives a 95% discount on Lime Bike trips and allows users to pay by cash at a *PayNearMe* location and then get a code to unlock the bike via cell phone. Other bike share companies do have cards that can be loaded with money, in the case someone does not have a credit card—users would tap the card against the unlocking device. Dockless bikeshare is convenient because people, when done riding, could leave the bike wherever they choose and are not confined to drop-off locations or bike docks, as seen in cities like New York or Chicago.¹¹ Additionally the bikeshare users are also not liable for any bicycle maintenance or theft.

¹¹ <http://www.courant.com/community/hartford/hc-news-bike-limebike-20180606-story.html>

During the spring semester at Wesleyan University in Middletown, the college undertook a trial with Spin Bike, a dockless bike share company, which put 300 bikes all over Wesleyan's campus. The issue, however, was that there was no coordination with the city of Middletown, nor were there proper bike infrastructure and accommodations around Middletown. There are no bike lanes on the street and no bike lanes on Wesleyan's campus. Without proper bike facilities and coordination with the city, the prospect and effectiveness of bike share is diminished, in addition to the fact that it would be harder to attract users to use the system. This being said, Spin Bike notified users at Wesleyan that the company was pulling out of the trial because they are going to focus operations on electric scooters in more lucrative markets.

Despite the fact that dockless bikeshare companies are private entities, they can allow municipalities to be nimbler with limited resources. Municipalities can do something as simple as paint on the sidewalk boxes showing people where to park bikes after use. This idea of LQC should be how this plan in the LCRV be implemented and eventually solidified. Here are some examples:

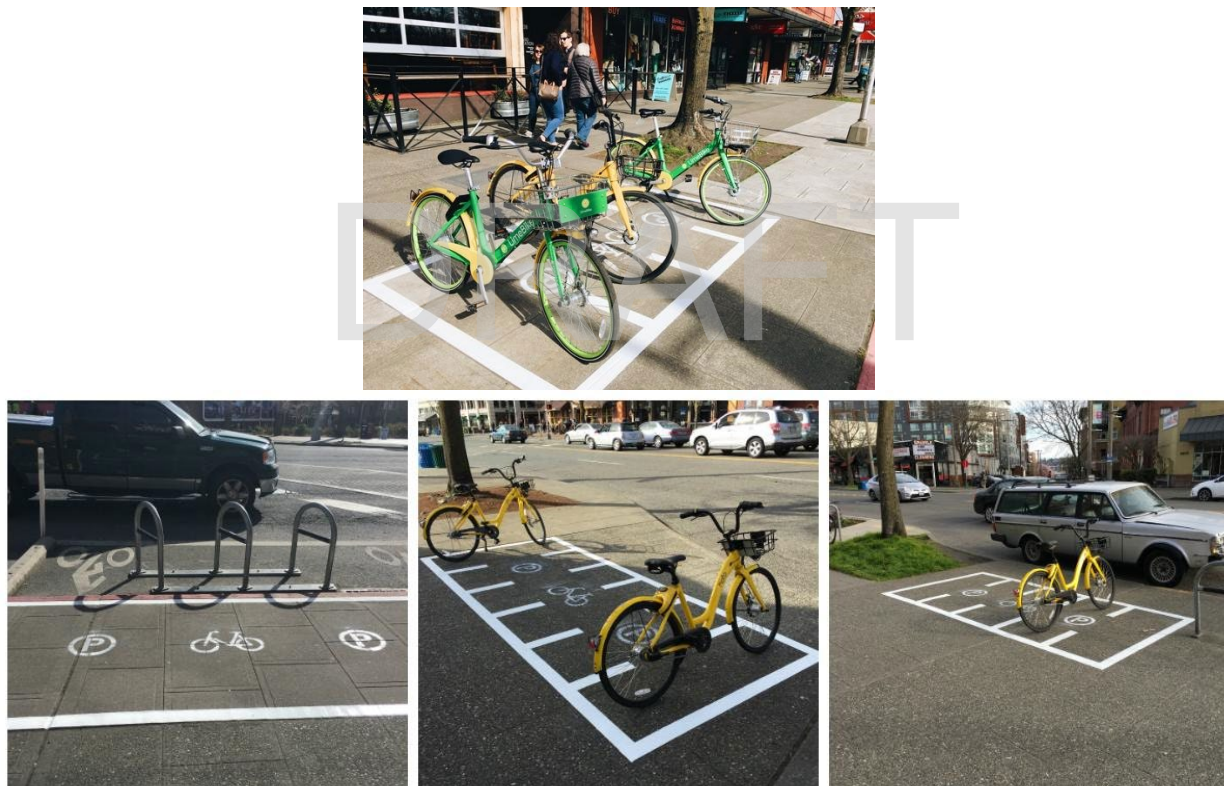


Figure 3: Four Pictures of LQC for Dockless Bikeshare

The towns in the LCRV with Shoreline East service, like Clinton, Westbrook, and Old Saybrook could benefit from dockless bikeshare. Because these towns rely on tourism and focus on the identity of the town, increasing bike riding in general, as a means to be mobile, should be a priority. There are also traditional bike rental businesses in towns along the shoreline. A consequence of bringing bike share to the region though is the potential decline in business for traditional bike rental firms.

Just this past June, the CTRail Hartford Line opened. Although there are no stops within the LCRV, Middletown Area Transit will begin full day service in the fall between Middletown and Meriden Station, where residents could catch the train going between New Haven and Springfield, MA. This is significant, considering many people from Middletown work in Meriden and many who live in the LCRV, work in places like New Haven or Hartford. Although this does not directly related to placemaking and bike and pedestrian accommodations, it does link the importance of multimodal transit and how people can use bikes to get to a bus shelter or station and be able to then hop on a bus and vice versa. The stations need to have proper bike facilities and accommodations in order to make people feel safe to use bikes on the last mile/first mile stages of their trips. It should also be noted that bikes can be attached to the bus bike racks and brought on Middletown Area Transit, CTTransit, and 9 Town Transit buses.

Complete Streets, Parking and Bike Lanes in Middletown

In 2014, the Connecticut Department of Transportation released a Complete Streets policy statement saying that “Complete Streets shall be defined as...a means to provide safe access for all users by providing a comprehensive, integrated, connected multi-modal network of transportation options.”¹²

Because Middletown is the only city in the region, bike and pedestrian accommodations should be an obvious undertaking. Just this past March CTDOT had public meetings and released their CEPA scope for Sidewalk Bump-Outs on Main Street and for Saint John’s Square and Main Street Intersection Improvements. This was all part of a wider CEPA scope for the highly controversial Removal of Traffic Signals on Route 9. The two pictures below show what such bump-outs will look like. Because of the significant investment DOT is putting into making more complete streets in Middletown, why not add to the project and envision bike lanes on Main Street. Bump-outs essentially makes crossing the streets shorter by extending the sidewalk and making the road more narrow on which cars to drive.



Figure 4: Complete Streets and Bump-Out Models in Middletown

The parking situation on Main Street is complex. What’s even more so is adding in bike lanes. The issue becomes that because on-street parking is diagonal, there may not be enough room to

¹² CTDOT Policy Statement

add a bike lane. However, because the parking spaces are so large, there may be a way to make it work. The pictures below show how much room there is, but also show how space can become an obstacle on different street intersections along Main Street. There is also the safety concern with cars backing-out as opposed to the ideally safer version of backing into a parking spot. A remedy to safely include bike lanes on Main Street could be a bike lane that is perpendicular to the end of the parking lane or a bike lane that is parallel to the sidewalk. Even a city like Middletown is still heavily car-centered and the bike facilities are minimal. There has not been LQC actions in Middletown, but it could be quite beneficial for greater decentralized city planning and community actions.



Figure 5: Three Pictures of Potential Space for a Bike Lane along Main Street

An example of a Main Street LQC placemaking action may be to do a pop-up of chairs and tables by taking up of a couple of parking spots. There is an example of this in New Haven, which is shown in the picture below. Something as simple as this could be quite interesting and spur greater civic innovation. It could only be a temporary installation of sorts, but it shows the possibility of what city government and what ordinary citizens can accomplish. This being said, LQC can also be a government planning methodology too, yet this is often not seen as frequent. Although I'm not providing any context to the below photo, it can be assumed that the city of New Haven and other organizations were most likely a part in having this table and chair butt-out be made possible for the public.



Figure 6: An Example of LQC--Taking up Parking Spots

A good example of LQC is by an organization called *Better Block*, which, “educates, equips, and empowers communities and their leaders to reshape and reactivate built environments to promote the growth of healthy and vibrant neighborhoods.”¹³ *Better Block* gives agency to residents and fosters placemaking and the ability to build and create and give greater meaning to their built environment through democratic and community organization design. This organization played a large role in the thinking that went into this regional plan.

Complete Streets, Parking and Bike Lanes in Old Saybrook

In Old Saybrook’s Plan of Conservation and Development, there is an acknowledgement of the car centric nature of the town, with a priority to engage in “transit-enhanced development” in and around the Amtrak and Shoreline East train station. Old Saybrook also has the goal to promote greater walkability throughout the town. The Town Green is a large part of the arts and culture in Old Saybrook and just one mile from the train station on Main Street. Main Street itself has inward diagonal parking, where cars need to back out in order to continue on driving. There is, however, substantial room between where cars park and the car lanes, where a bike lane could be installed. This idea is all part of the complete streets methodology and greater connectivity through bike and pedestrian accommodations.

By adding another mode of non-motorized transit along Main Street, it can achieve Old Saybrook’s goals outlined in their POCD regarding transit-enhanced development, the image of a small New England town, and the promotion of Old Saybrook as a hub for local artists, music, dance programs, art galleries, restaurants, and museums—to name a few. If tourism is important to Old Saybrook, then helping to make the streets more bike friendly and pedestrian friendly will help lift the profile of a town that already has so much to offer. With significant traffic along Main Street in the summertime, giving people the option to bike will alleviate congestion and make the town less car-centered. boasts

The first image below shows the example of the train station and the town green as quality public space nodes that can be connected by complete streets and a comprehensive bike path. The

¹³ <http://betterblock.org/services/>

second image in the first row shows the opportunity for a bike path, if cars park by backing into the space. The first image in the second row then shows the amount of space there is to have a bike lane on Main Street. A prudent solution is to use methods of LQC to test out the viability of a bike lane. This can be a project for the local high school students to become more civically engaged.



Figure 7: Images Connecting the Old Saybrook Train Station to the Town Green via Bike Path-- Connecting Public Spaces and Nodes

A large concern for municipalities is spending large sums of money for infrastructure projects— if towns or cities are going to spend, they will do so knowing that every single box is checked off, which can take a very long time. But if citizens are the ones who organize LQC solutions, then the costs will be less expensive and people will see progress of some kind being made

In-Depth Examples of Quality Public Space Nodes

The LCRV has an abundance of old factory buildings and brownfield sites that provide opportunities for redevelopment. Some examples are in Haddam along the Valley Railroad and others are in East Hampton and in Middletown. The region’s old factories were bustling during the 19th century when Connecticut was one of the most industrious states in the nation. Steamboats on the Connecticut River and the building of railroads throughout the state made shipping materials and finished manufactured goods easy. Because of the eventual decline of rail and manufacturing, many old factory buildings still stand and can be used for greater placemaking abilities and greater pedestrianized activities, such as pop-up markets/commerce and areas for recreation, and opportunities for startup small businesses. The sites that are of interest are listed below:

- Former Remington Rand Factory- 180 Johnson Street in Middletown
- The Old Trolley Barn in Middletown
- The Multi-Use Trail (Valley Railroad) in Haddam
- Riverfront Redevelopment in Middletown

- East Hampton Old Factory Buildings (CT-196)

This section of the report proposes specific enhancements for sites of *quality public space nodes* in towns within the LCRV. What is further meant by *nodes* is the ability to connect potential quality public spaces by enhancing pedestrian and bike facilities. One example of this is Valley Railroad Corridor Study in Haddam and then the Project for Public Spaces (PPS) Riverfront Development Study in Middletown. Although the development for these projects will be long-term, there are ways to start now. The LQC approach can allow for greater community input and participation in the process and allows for communities to take agency over the design process.

The goal is to develop and design pedestrian facilities around such developments and then begin to connect nodes to one another. For example, connecting the Middletown locations through a distinct bike lane from 180 Johnson>>Old Trolley Barn>>Riverfront entry via Union Street.

Middletown Riverfront

In 2014, the Project for Public Spaces (PPS), a consulting firm that specializes in placemaking, was hired by the City of Middletown to draw up a plan for the future of Middletown’s waterfront. For Middletown, like many other towns/cities in the LCRV, the waterfront is vital for economic well-being and for supporting the LCRV “lifestyle.”

The PPS Plan mentions Harbor Park as the first potential for LQC actions. Although this is off the road, this is still a pedestrian place within Middletown. Full development with permanent changes does not have to occur in order for the space to be functional. Food trucks can park by the Harbor Park and there can be pop-up stores or community events that take place. Currently though, the space is used for certain events throughout the year, such as the July 4th fireworks and community barbeques. The primary goal of the report is to find ways to activate the waterfront and have different nodes along the riverfront where development could take place. An example of this, as shown below, is with the Waterworks, the former wastewater treatment facility being decommissioned. According to the report,

*“The Waterworks would become a spectacular example of adaptive reuse of industrial facilities for public, recreational and cultural purposes borrowing from the best precedents in Europe and beyond... the Waste treatment plant features a number of structures located in the floodplain that, if fully demolished, could never be replaced. Instead of demolishing all buildings and water treatment tanks, we propose to preserve, adapt and remodel existing buildings and some of the tanks. While the primary treatment tanks may be too polluted for retrofitting, as many as possible of the remaining tanks should be preserved and adapted for new recreational uses, such as swimming and wave pools, scuba diving, skateboarding ramps and bowls, climbing walls, high ropes courses, etc.”*¹⁴

A significant portion of the plan focuses on repurposing old infrastructure or empty land into places of community gathering and recreation. Although the implementation of a report like this might not happen for decades to come, it does give a blueprint, based on community input, for

¹⁴ PPS report, 34

what people in Middletown would like to see on their riverfront. The report will be attached to the appendix to provide a greater frame of reference.



Figure 8: Concept for the Riverfront and Waterworks Node

Former Remington Rand Factory - 180 Johnson Street

In Middletown on North Main Street, past St. Johns Church, the area has an old industrial character with a number of abandoned factory buildings. The area also has substantial residential homes as well as the tracks for the Middletown railroad cluster owned by Genesee and Wyoming Railroad.. The former Remington Rand typewriter factory at 180 Johnson Street is owned by the City of Middletown and is being redeveloped. Parts of the building are being rented out by two beer breweries and one cider brewery. In addition, there is a solar panel company, a cross-fit studio, and a t-shirt design company.



Figure 9: Images of the Former Remington Rand Factory

This area is separated from the bustle of Main Street but has a lot of potential for commerce and as a gathering space. The lot is surrounding the building (an extended parking lot), is empty, providing an opportunity for pop-ups or festivals. The cider brewery has hosted tastings and some food trucks show up to cater the event. The cidery is just three months old and there is significant potential for other businesses to move in. Remington Rand can be a place or gathering point with the ability to have outdoor events and makeshift pop-ups.

The Remington Rand building and the North End neighborhood is quite easy to bike to from Main Street. The issue becomes safety related. The exit and entrance on to and from the Aragoni Bridge over the Connecticut River and access to the Route 9 expressway, is just south of the start of North Main Street and the entrance to the North End neighborhood. This busy intersection is not conducive or safe for bike riding or pedestrian crossings.

Below is a birds-eye view of the intersections of North Main and St. Johns Square, which conveys the amount of traffic moving at any given time. The other picture is of the ground view looking at North Main Street.



Figure 10: The Intersections of North Main Street and St. Johns Square

The Remington Rand building and the surrounding property is attractive because of the proximity of three breweries, a high tech company, and public water sewers which can support dense development. Elsewhere in the region, like along the shoreline, the lack of public water and wastewater infrastructure severely limits development opportunities.

DRAFT

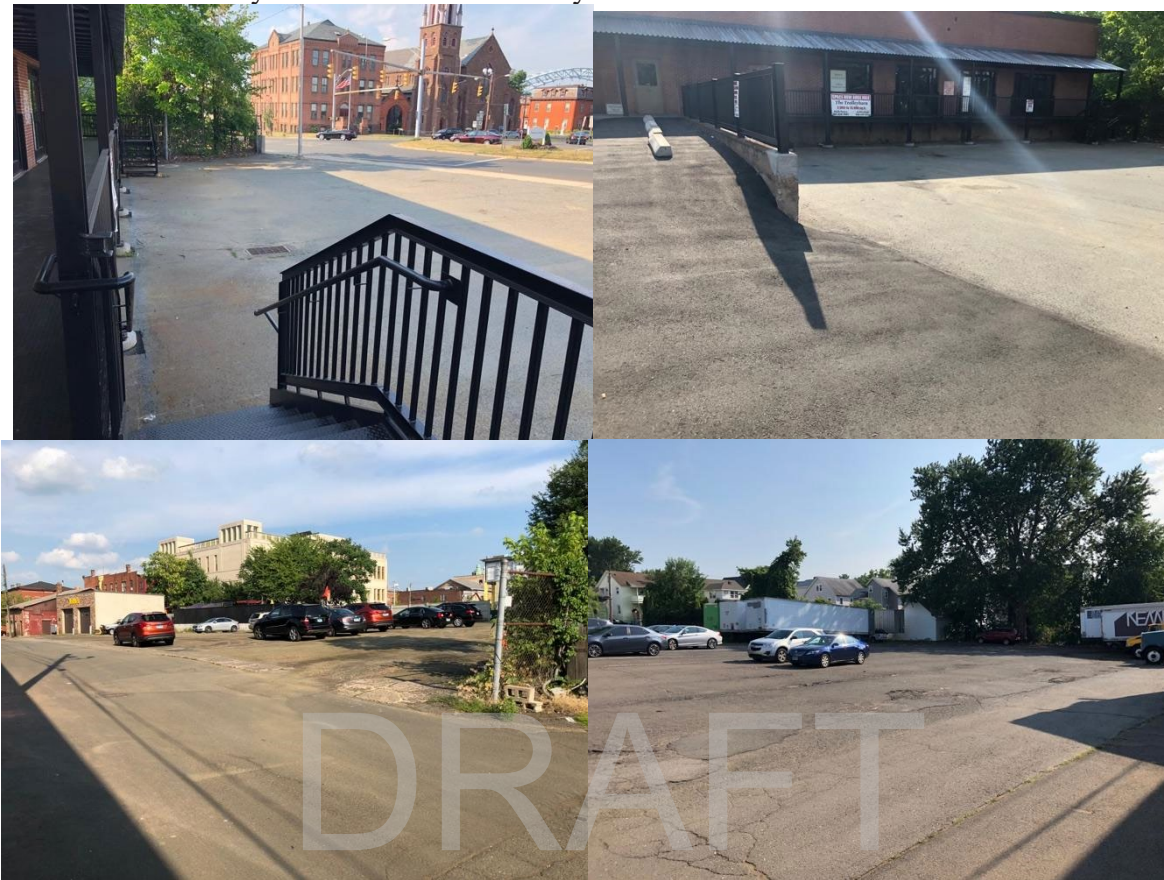
Old Trolley Barn

In Middletown, right at the very northern end of Main Street, is the currently vacant Old Trolley Barn, where trolleys back in the early to mid-20th century ran throughout the city. The barn was where, of course, the trollies were kept. Adjacent to the barn is a city public parking lot and a private parking lot owned by the same owner as the Trolley Barn. As of September, a new coffee shop is opening up on the side of the building facing the city public lot. The property has the potential to become a successful public space and not another commercial store that already lines most of Main Street.. The larger goal would be to connect the Trolley Barn to 180 Johnson Street and create that corridor with a bike lane. But just like with the previous two projects outlined, having community buy in and agency over the design process will be key if any of these projects will be successful.

The inclusion of marginalized communities in the North End of Middletown is imperative, considering the North End has been a historically marginalized neighborhood.

The pictures below are of the Old Trolley Barn. The first and second picture of the first-row show pictures of the front of the barn along with the loading bay. The second row shows the

pictures of the parking lots. The first picture shows the city owned the lot and the second one shows the lot owned by the owners of the trolley barn.



The overall poverty rate in Middletown is around 11.5%¹⁵ but in the North End neighborhood the rate is XX%. There is a concentration of poverty, including a large number of children and single mothers living in poverty. The neighborhood doesn't not have any parks or recreational facilities for these residents, and lower income families are less likely to be able to afford summer or after-school activities for their kids. There is a clear need for a community center in the North End to provide recreation, but also support to the residents. The YMCA on Union Street could also be a partner, but their location on the southern end of Main Street reduces its ability to connect with the North End community.

One project that could be a beneficial pedestrian node could be the renovation of the outdoor basketball court on North Main Street across the street from Saint John's Church. The court unfortunately does not resemble a basketball court; the hoops are unrecognizable and there is no paint on the pavement. A renovation would not only provide a public park and "hang-out" spot for Middletown youth, but it could help North End youth reclaim agency in development of their built environment. Not only that, but this node could be a connector of 180 Johnson Street and the Old Trolley Barn. At the moment, the land is owned by St. Johns Church. If a collaborative

¹⁵ <https://datausa.io/profile/geo/middletown-ct/> and the Working Cities Challenge

project were to take place around the redesigning of this court, youth will take ownership of the project and space. The report is not saying this should happen, but underscores how nodes can be created—by taking into account economic, social and environmental community concerns, pedestrian nodes can become tools for organizing and fostering greater civic engagement.





The image above shows the nodes within Middletown where there can be significant impact. With all the sites in Middletown being nodes of interest, the city has a greater incentive to improve bicycle and pedestrian facilities and accommodations so people can travel easily from one node to the next by foot or bike.

Valley Railroad Multi-Use Trail in Haddam

This section is based on the *Valley Railroad State Park Scenic Corridor Study*

The proposed Valley Railroad multi-use trail is made up of segments and nodes of interest, egress and entry; the nodes act as focal points along the trail that can be developed through LQC or by more permanent infrastructure improvements. The nodes along the proposed trail are: *Eagle Landing State Park and Goodspeed Station, Haddam Meadows State Park, Higganum Cove, North Scovil Loop Trail at Hubbard Brook, and the Pratt and Whitney Pier behind the Engine Center.*

This proposed Valley Railroad trail is not only conceived as a facility for walking and bicycling, but also for conservation and economic development within the area of the trail. The Valley Railroad is still a functioning railroad, operated as a scenic tourist train by the Valley Railroad Company. The CT Department of Energy and Environmental Protection (DEEP) has leased the right of way to the railroad company since 1971, but owns the underlying property, which is the Connecticut Valley Railroad State Park. The tourist train is operated as the Essex Steam Train, and the service operates between Old Saybrook and the Tylerville section of Haddam. The Valley Railroad Multi-Use Trail study starts at this point where at the time service ended. The study area goes from Tylerville up north until the Pratt and Whitney plant in Middletown. Because the Valley Railroad still has a lease on the right of way, it is still a question of whether the railroad company would allow for a multi-use trail, considering that the Valley Railroad Company has the rights to repair the tracks and run service. The map below shows the segmentation of the trail property.



Map of the study area

At the *Eagles Landing State Park and Goodspeed Station* node, there is a lot of opportunity to apply LQC in Eagle Landing State Park and to spur development in the area in and around Tylerville Village.



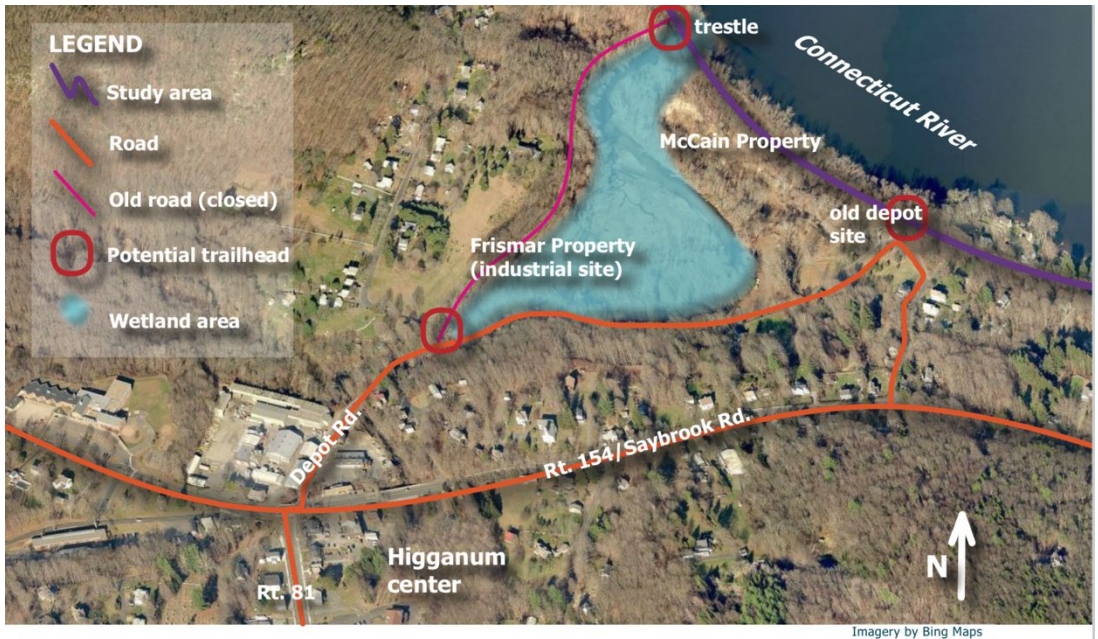
The pictures below show pictures of Goodspeed Station and of *Eagle Landing State Park*. The picture at the bottom of the row shows a long-distance view of Eagle Landing State Park; nothing currently is there except trucks of some kind, which belong to the state and an empty lot.

DRAFT



The *Higganum Cove* node includes the old depot site, the McCahin property and the Frismar industrial site property, all of which can be developed. In Haddam's Plan of Conservation and

Development, there is discussion of designing “makerspaces” as a new form of manufacturing through 3D printing and other forms of construction.¹⁶



The two above images show the corridor at present and then what it could become. There are many options of how to develop the trail—this is just one. There is also the option to put a trail beside the tracks. The full report will be attached to the appendix.

East Hampton Old Factory Buildings (CT-196)

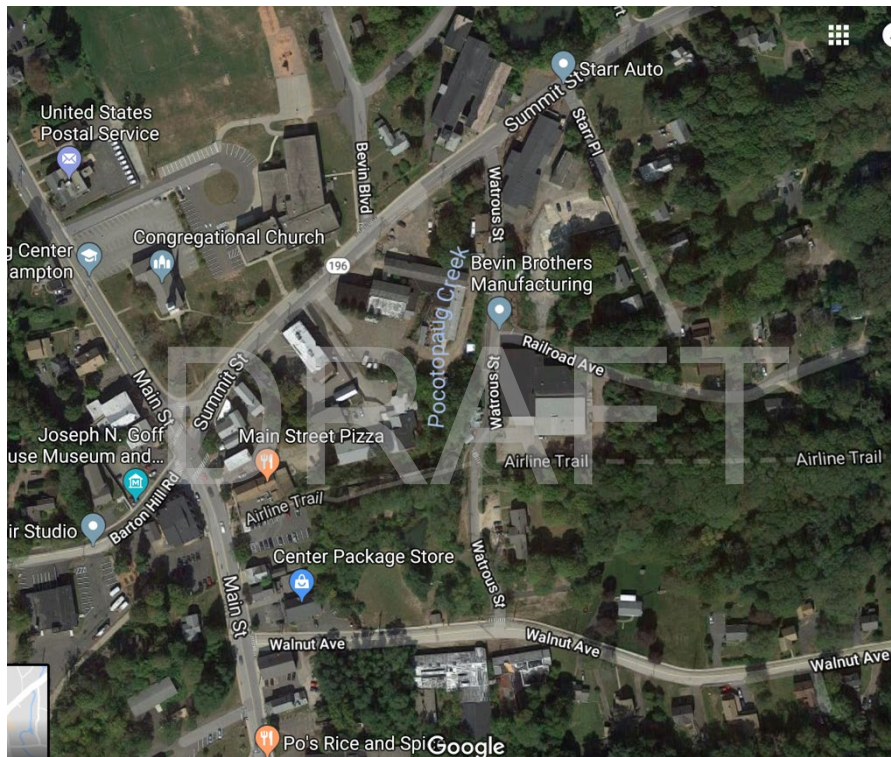
Like the Haddam POCD, the East Hampton POCD also calls for the development of “incubator” or “maker” spaces as a way to grow the local economy.¹⁷ The reuse of abandoned mill buildings

¹⁶ Haddam’s POCD, 8.

¹⁷ East Hampton POCD (pg #??)

and other industrial sites presents an opportunity for new manufacturing activities in the 21st century. These sites could connect to the AirLine Trail in East Hampton, making them more attractive for redevelopment and reuse. On East Hampton's Main Street, there is an entrance to the trail with parking available. The vacant industrial buildings are nearby, on Summit Street off Main Street. However, just like Haddam, East Hampton does not have sufficient sewage systems to handle many uses.

The "pin" covering "Summit St" on the upper right section of the map is where many of the industrial buildings are located. The map also shows where the airline trail begins and shows the parking available on Waltrous Street. East Hampton has lots of potential to become a large pedestrian node with the current expansion of the Air Line trail westward toward Portland.



The above pictures are pictures of the industrial buildings in East Hampton on Summit Street. The bottom two pictures on the previous page show abandoned industrial sites that could be transformed. The industrial buildings in East Hampton are not all abandoned. Further down Summit Street, closer to Main Street, there is one building, part of which has been renovated to house a law firm. The law firm store front is shown below.



There is another building of interest in East Hampton is *Epoch Arts*, which is a non-profit/community organization and arts center for youth. Their website makes the statement that “we wish to make changes in ourselves and within our community, for the greater good of all...”¹⁸ Epoch Arts has an Arts Department, Film Department, Theater Department, and the beginnings of a Make Space. This creative hub can be a node within East Hampton, which could easily connect to the Air Line Trail via bike route along Main Street. There is the possibility of putting a shared bike route on the road along Route 196, which parallels Epoch Arts and leads to Main Street.



The first picture below shows the shoulder heading towards Main Street from Epoch Arts on Route 196. The middle picture shows where the shoulder ends and the last picture to the right shows the road heading toward Main Street. On Main Street there is no shoulder, so for bike infrastructure there can only be shared-roadway signage on the road. Because this road is

¹⁸ <http://www.epocharts.org/about>

significantly frequented, safety concerns make be an issue if bikes are highly frequented. For pedestrians, there are sidewalks on Route 196 and then on Main Street, which makes it easy for people to walk between Epoch Arts and Main Street. This being said, the streetscape can be improved to make the walk more appealing for people as well as by completing streets, signaling that this walkway is a frequented trail or a route commonly taken by pedestrians.

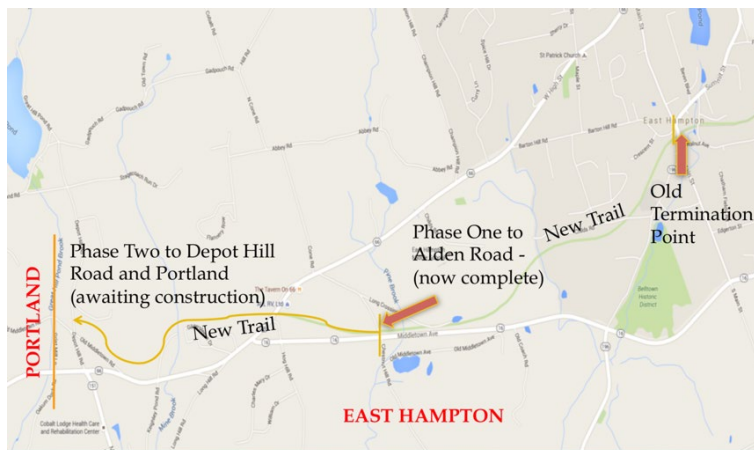


DRAFT

The Air Line State Park trail goes from Portland to East Hampton to Willimantic and then goes into Massachusetts. The segment that will be discussed in the report is the proposed section going into Middletown and the trail between East Hampton and Portland. The airline trail is a multi-use trail that is heavily used in the region and has many points of interest. One of them is in East Hampton, where the trail cuts off. Below is the picture of the start of the trail in East Hampton heading east, which is adjacent to a small parking lot. It is easy to find the parking lot and trail because of effective wayfinding, as seen in the picture below.

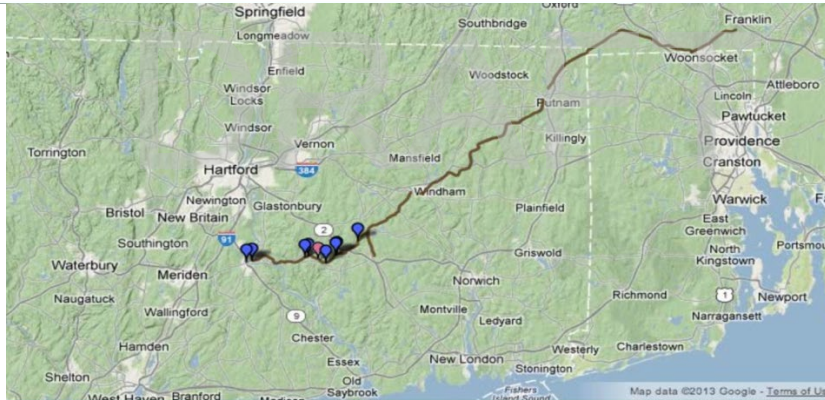
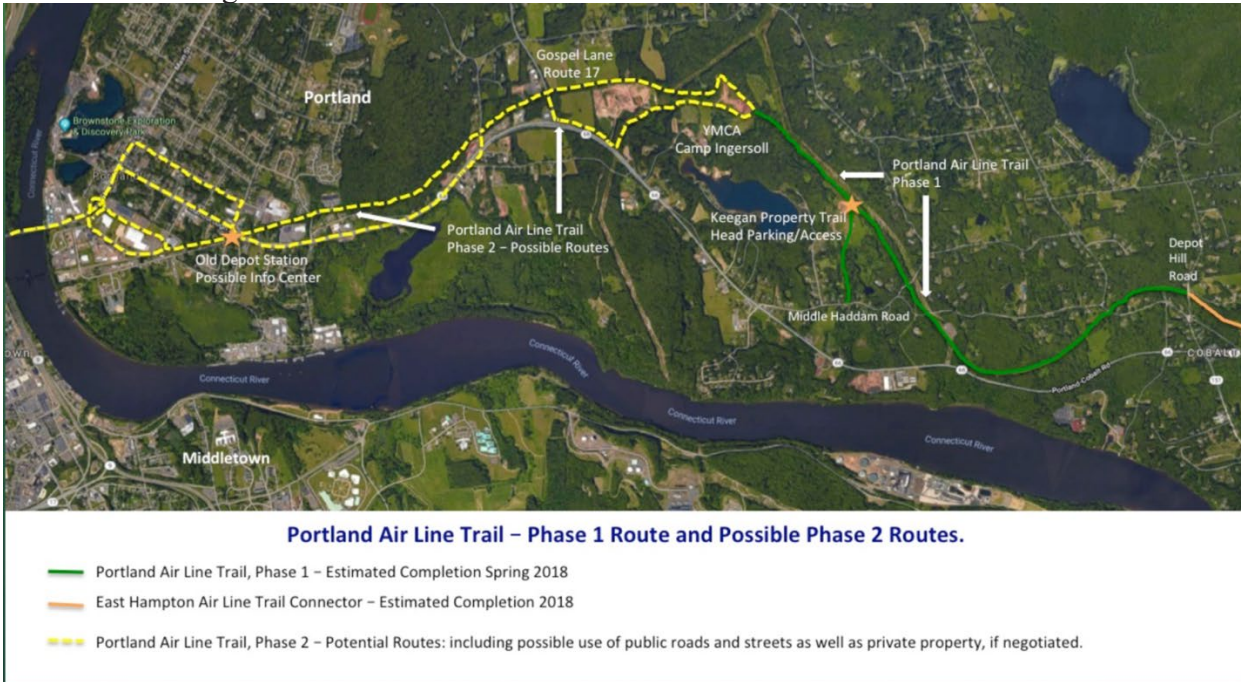


The westward entrance of trail continues on Aldens Crossing toward Portland almost perpendicular to Middletown Avenue. The next section of trail, which is still awaiting construction, will continue to Depot Hill Road in Portland. The image below shows the progress of the Air Line Trail construction.



The next picture below shows the future of the Air Line Trail, with the green section completed in the Spring of 2018 and the yellow dotted section are proposed versions of trail routes that could be constructed in the future. As the trail gets closer to Portland, there is substantial private property, making connecting the sections of trail in the towns more challenging. It is recommended to develop around the Air Line Trail and, just like the Valley Railroad Trail, find nodes or areas of interest where development can take advantage of the trail. Much of the work

on the restoration and development of the Air Line Trail was by the Jonah Center, an environmental organization based in Middletown.¹⁹



The map above shows the entirety of the Air Line Trail

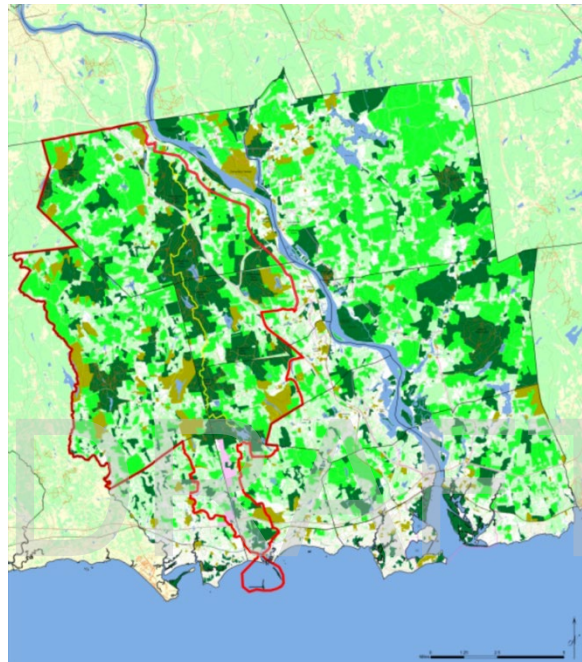
The LCRV also has a network of other multi-use trails, such as the Westlake Area Bikeway and the Mattabesett Trolley Trail in Middletown.^{20 21} The Westlake Trail is 2.2 miles and located in a residential/commercial area near the new FedEx distribution hub. The trail is paved, eight feet wide and separated from the road by a grass buffer area. The Mattabesett Trail was recently expanded in 2014 and now spans around 4 miles. It goes around the residential area and provides scenic views and access to the Mattabesett River. These trails, although beneficial for people within the communities the lack of proximity to destinations or connections makes use of these trails oriented towards recreational purposes.

¹⁹ http://thejonahcenter.org/?page_id=441

²⁰ <http://www.ct.gov/dot/LIB/dot/documents/dbikes/092.pdf>

²¹ <http://www.ct.gov/dot/LIB/dot/documents/dbikes/090.pdf>

Also, in the LCRV, there are many greenways, including the Menunketesuck-Cockaponset Regional Greenway and the Quinimay Trail, Eight Mile River Greenway, Old Lyme Greenway, and the Connecticut River Gateway Conservation Zone Greenway. Such greenways are long distance hiking trails or areas of environmental concern, rather than transportation corridors. The image below shows the Menunketesuck-Cockaponset Regional Greenway, which covers a significant portion of the LCRV. Here is a list to the different Connecticut greenways: <http://www.ct.gov/deep/cwp/view.asp?a=2707&q=323852> Such greenways could be also used as pedestrian facilities to connect communities, in addition to environmental and conservation benefits..



The East Coast Greenway is also a system that tries to integrate greenway trails throughout the east coast as well as in Connecticut. As seen on the map, there are many gaps in the greenway, which many organizations are trying to remediate. The Air Line Trail is reflected on the map with the end of the trail in Willimantic. The map also reflects *off-road* and *on-road* sections of the Greenway.²² A goal of such greenway trails is to provide a safe facility for walking and bicycling that connects communities and destinations. . In rural areas the use of a greenway trails will be more recreational in nature. Integrated transit networks are important to allow people access to recreational use of the greenways, as well as the ability to bring bicycles on transit extends the reach of transit.

²² <https://www.greenway.org/states/connecticut>



Page Intentionally Left Blank

DRAFT

C. Bicycle and Pedestrian Municipal Survey Results - Summer 2020

RiverCOG Bicycle and Pedestrian Plan

Report

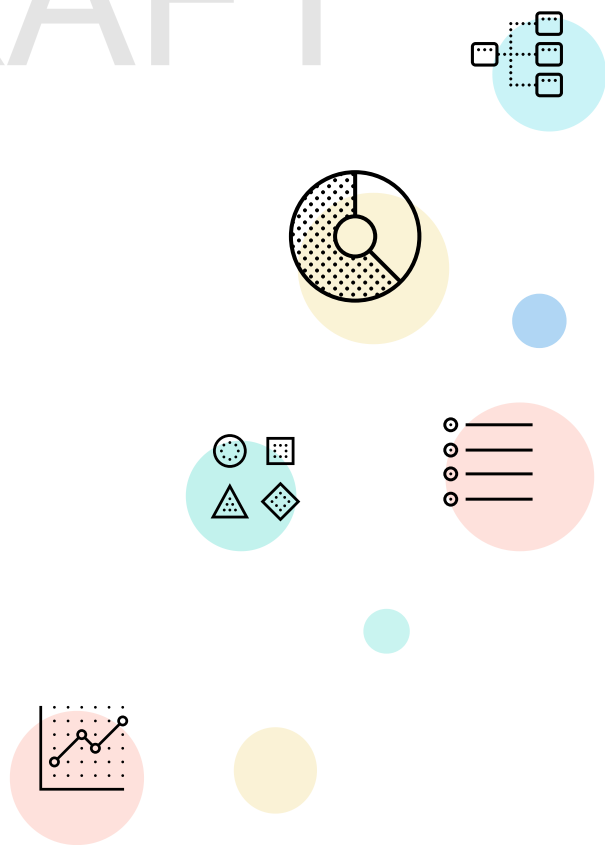
Explore the data behind your survey responses. Gain a better perspective of your survey data and uncover insights for further planning.

 Visited **113**  Started **13**

 Avg. Time to Complete **9m 41s**  Completed **13**

 Completion Rate **100.00%**

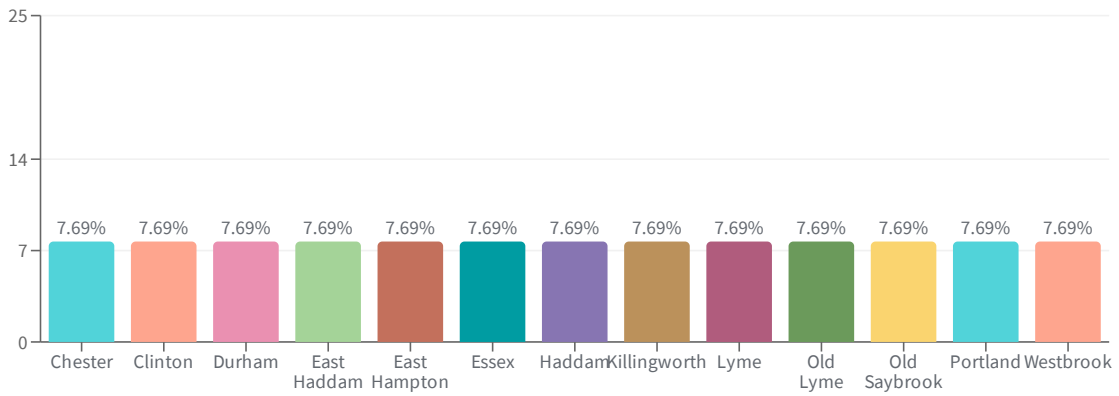
DRAFT



QUESTION 01 | DROPDOWN

Which Municipality in the Region Do You Represent?

Answered: **13** Skipped: **0**




DRAFT

| ANSWER CHOICES ▾ | RESPONSES ▾ | RESPONSE PERCENTAGE ▾ |
|------------------|-------------|-----------------------|
| Chester | 1 | 7.69% |
| Clinton | 1 | 7.69% |
| Durham | 1 | 7.69% |
| East Haddam | 1 | 7.69% |
| East Hampton | 1 | 7.69% |
| Essex | 1 | 7.69% |
| Haddam | 1 | 7.69% |
| Killingworth | 1 | 7.69% |
| Lyme | 1 | 7.69% |
| Old Lyme | 1 | 7.69% |
| Old Saybrook | 1 | 7.69% |

Page 2/11

| ANSWER CHOICES ▾ | RESPONSES ▾ | RESPONSE PERCENTAGE ▾ |
|------------------|-------------|-----------------------|
| | 1 | 7.69% |
| Portland | | |
| Westbrook | 1 | 7.69% |

Made with  SurveySparrow

DRAFT

QUESTION 02 | TEXT

Please share any recent accomplishments that your municipality has achieved related to bicycle and pedestrian planning or infrastructure. Anything you would like us to highlight in the Plan!

Answered: **13** Skipped: **0**

Anonymous

8 Days ago

Extension of Air Line Trail toward Portland
Currently working on a downtown revitalization plan focused on bike/ped improvements

Anonymous

9 Days ago

Essex is nearing completion on a continuous sidewalk network that will extend from Bushy Hill Road in Ivoryton through the three historic villages of Essex all the way to the Connecticut River.

We have also received a federal grant that will extend sidewalks up from the end of North Main Street up River Road to Heritage Cove.

Anonymous

1 Month ago

Old Saybrook is making ongoing progress towards a continuous sidewalk along Route 1. Recently completed the Pond Rd. to Lynde Rd. section, recently received a nearly \$600k Community Connectivity Program grant for sidewalk improvements in the Elm St. area near the Town Center, and currently planning improvements from Old Post Rd. to the Westbrook border.

Anonymous

1 Month ago

During 2020, Chester completed a redesign and rehabilitation project in the center of downtown which included new, wider sidewalks connecting to other recently r widened walkways. Crosswalks were moved and new signage installed. We are in the process of planning for repair of other existing sidewalks in various areas of town. Long term, there is a walking trail/boardwalk project along Chester Creek in the process of being designed and funded connect our main park to our downtown area

Anonymous

1 Month ago

In our Sound View area: New sidewalk on upper part of Hartford Ave. and a sidewalk along Route 156 between Cross La. and the Police Building

Anonymous

1 Month ago

Pursuant to our 2019 Sidewalk and Pedestrian Plan, we have completed sidewalks in Westbrook Town Center, on the west side of Essex Road and the southerly side of Boston Post Road.

Anonymous

2 Months ago

The most recent accomplishment was a short accessible walking/biking path in Sheldon Park, which created a paved, relatively flat circuit, a paved, wheelchair accessible fishing platform, and an adult exercise court with several pieces of equipment.

Anonymous

2 Months ago

We are creating a striped, sharrowed bike lane with safety signage along the Main Street portion of Route 17 from the junction of Route 147 to the junction of Route 79. We are completing sidewalks along the western side of Main Street. We are enhancing a much-traveled pedestrian loop that includes a portion of Main Street, Haddam Quarter Rd to Brick Lane, to Maiden Lane, to Pickett Lane and back to Main Street with wider, striped shoulders, safety signage and crosswalks. The Pickett Lane portion is being planned in coordination with RSD13. We are planning a sharrowed bike lane to be completed in FY22-23 to connect with Middletown's Milbrook Rd. sharrowed bike lane.

Anonymous

2 Months ago

Portland has a Complete Streets Plan and has established bike routes with street signage in place.

Anonymous

2 Months ago

Finally convinced the CT DOT to put the walkway on the EH/H Swing Bridge

Anonymous

2 Months ago

Half the town trail has been completed, three other bike routes have been established, we're working on a train-to-trail tourism campaign, and we expect to connect to the Shoreline Greenway with a bike/ped bridge over the Hammonasset River.

Anonymous

2 Months ago

new Sidewalks designed for Haddam Center, sidewalks on bridge road to railroad, pedestrian walkway on swing bridge. plan to connect higganum center to surrounding natural resources

Anonymous

2 Months ago

None

Made with  SurveySparrow

QUESTION 03 | TEXT

Please share any issues or concerns you have regarding bicycle and pedestrian planning or infrastructure in your municipality or the Region.

Answered: **12** Skipped: **1**

Anonymous

8 Days ago

Completing Air Line Trail through the wetland area is a high cost project
Traffic speeds
Lack of crosswalks in key areas

Anonymous

9 Days ago

Funding is limited for sidewalk projects in the region.

Anonymous

1 Month ago

Difficulties related to limited space, environmental constraints, lack of consensus on how to accommodate bikes/peds, funding.

Anonymous

1 Month ago

Streets are narrow and winding, visibility difficult, and cars travel much too fast. Difficult to plan for sharing the main roads with bikes or walkers. Most of the through roads are state roads and the coordination process has been cumbersome

Anonymous

1 Month ago

Route 156 from the Baldwin Bridge to the Sound View area - some very challenging areas for bicycles to "share the road". Halls Rd. (Rte. 1) - limited sidewalks and inadequate pedestrian crossings.

Anonymous

1 Month ago

The interstate and the railroad tracks create bottlenecks that can be narrow or flood-prone. Assistance in engineering solutions to these areas would be appreciated.

Anonymous

2 Months ago

Killingworth's town roads are generally too narrow and windy to allow for a bike lane, and pedestrians are threatened by the speed of traffic. We have no sidewalks in town. The three state roads that traverse the town are too heavily traveled, and the speeds are too high, to allow bike lanes without widening them.

Anonymous

2 Months ago

Safety for cyclists and pedestrians sharing the roads. Best and safest non-vehicular travel requires separate multi-use travelways. Costs associated with engineering and crosswalk safety signals are a concern. Historic prioritization of vehicular road use.

Anonymous

2 Months ago

Portland's main roadways are state roads and there is no local control.

Anonymous

2 Months ago

Greatest use is on State Highways that have limited ROW areas to create bicycle lanes.

Anonymous

2 Months ago


Route 1 here is very dangerous and we'd very much like DOT's help living up to the Route 1 corridor study suggestions on the west side of town.

Anonymous

2 Months ago

bike path or lane and other amenities should be established on Saybrook Road, popular route from middletown to shoreline

DRAFT

Made with  SurveySparrow

QUESTION 04 | TEXT

What opportunities do you see in your municipality or the Region related to bicycle and pedestrian infrastructure?
What ideas do you have?

Answered: **12** Skipped: **1**

Anonymous

8 Days ago

Air Line Trail is a great backbone with the potential for spurs to commercial and residential areas. Bike lanes up to and around Lake Pocotopaug and throughout commercial area would be beneficial.

Anonymous

9 Days ago

To continue to connect the villages and development hubs of Essex via bike and pedestrian infrastructure.

Anonymous

1 Month ago

TOD/Town Center bike/ped improvements to support economic development and more affordable housing development;
Connect the OS train station via pedestrian bridge to the north/business park area;
Develop a regional bikeway along the RR spur that leads from the OS train station to the Preserve, Essex and beyond;
Explore the possibility of a walkway over the CT River along the current RR bridge or enhance access over Baldwin Bridge into Old Lyme;
Provide bike/ped access from Town Center/OS train station to an improved Route 1/Ferry Rd./Essex Rd./Middlesex Tpk. loop, and to an improved Route 154/causeway/Great Hammock Rd. loop;
Establish a bike/ped lane along Schoolhouse Rd. to provide a safer connection between Route 1 and the Schoolhouse Rd. neighborhood/Town Park.

Anonymous

1 Month ago

Connect the towns along the CT river via a blu-greenway in partnership with the Essex Steam Train and private landowners.

Anonymous

1 Month ago

We are developing a Master Plan for Halls Rd. (Rte. 1).

Anonymous

1 Month ago

We are trying to fill in holes in our sidewalk network. Making sure that the infrastructure connects actual destinations and matches what people are already doing is important.

Anonymous

2 Months ago

The Killingworth Land Conservation Trust and the Killingworth Park & Recreation Commission have been exploring the creation of a walking/riding trail between Parmelee Farm, which on the east side of Route 81 near the intersection with Route 148, and Sheldon Park, which is on Route 80 east of Route 81. A not-impossible dream is to continue the trail across Route 80 and parallel to Route 81 south of Route 80, which is our small commercial district. Ultimately, such a trail could be connected to trails in Clinton leading all the way down to the shoreline.

Anonymous

2 Months ago

The opportunity to connect to off-road bikeways is important. We would like to connect Durham and Middlefield (with their shared school district) with a bikeway so students could ride to school. Also, Middlefield could connect to the train corridor running from New Haven to Hartford for bicycle commuting.

Anonymous

2 Months ago

Portland has done much to promote biking and hiking, including expansion of the Air Line Trail. I would like to see communities work together to promote these amenities.

Anonymous

2 Months ago

Long term reconstruction projects on state roads need to include ROW expansion and the creation of a bike lane, even if it is only on one side of the road.

Anonymous

2 Months ago

We see connection both east and west on the shore and hope to see connectivity north and to the CT River.

Anonymous

2 Months ago

Green-Blue Way, Saybrook Road bike corridor, establish higganum center as outdoor recreation center with links to state forest, railroad, swan hill, new england scenic trail, higganum reservoir

Made with  SurveySparrow

QUESTION 05 | UPLOAD

Do you have any files, documents, plans, or designs you would like to share with us related to bicycle and pedestrian planning and infrastructure? If so, please use the Upload button below to share with us.

Answered: **4** Skipped: **0**

| RESPONDENT | RESPONSE | SUBMISSION TIME |
|------------|--|-----------------|
| Anonymous | FINAL DRAFT Sidewalk Plan.pdf | 1 Month ago |
| Anonymous | Sidewalk Plan Adopted 081219.pdf | 1 Month ago |
| Anonymous | map_google.jpg | 2 Months ago |
| Anonymous | Higganum Connections DRAFT.pdf | 2 Months ago |

D. Bike Pedestrian Audit Report - Sustainable CT Fellows- Summer 2021

Lower CT River Valley Council of Government
Bike Pedestrian Audit Report
Sustainable CT Fellows
Summer of 2021

Overview

Over the past month and a half, we drove through and walked all of the town centers and their surrounding areas within the region. We took note of elements of these centers in terms of safety for bikers and pedestrians, as well as the atmosphere/environment of the town centers. In the BikePed OneDrive, you will find pictures along with descriptions and locations of each area.

General Notes (locations will be specified in the report below, or in the pictures):

We saw minimal flashing pedestrian lights, which is something that should be considered on many main roads where drivers tend to speed or not be aware of certain crosswalks. As pedestrians that walked through many towns, we chose not to cross many crosswalks out of safety concerns, and went out of our way to cross at crosswalks with stop lights. There were also many areas that had crosswalk buttons, but did not specifically mark a crosswalk on the road.

A concern of ours was that certain sidewalks were becoming overgrown or worn down, making it difficult for individuals who use wheelchairs and strollers. Many sidewalks were either recently redone, or in poor condition. In terms of concerns for bikers, shoulders were barely wide enough for bikers and had no bike path designation. Additionally, bike routes were mostly in-lane or not specified of its location. We found that there would be a bike lane sign but nothing clearly designating where it was safe to ride. Signage was generally abundant, and is particularly helpful for those not from the area who are not using maps.

In certain town centers, there were minimal access points, especially in Centerbrook and the Clinton Outlets. Sidewalks began or ended at inconvenient locations and do not make the town center accessible for pedestrians. Models for a town center that encapsulates safety as well as the atmosphere of a town center include Chester's town center, Middletown's Main Street strip, and Essex Village.

Town Center Evaluations

Chester

- **Is there a reason people would walk in the town center? Yes.**
 - *Atmosphere:*
 - Was the most organized and safe-feeling town center
 - Felt like a town center in terms of small, local businesses instead of a commercial district
 - Relatively busier town center with many cars filling up the on-street parking

- Wayfind to Maple St Parking Lot was extremely helpful, especially as non-locals, we would not have known where to park without those signs
 - There were many wayfinding signs, but the sign directing towards the town center was a lawn poster board (would not have found the center unless specifically searching for it)
 - Many pedestrians throughout the center, more pedestrians than car traffic
 - In our experience, there were no cars speeding which did not institute concern for a crosswalk traffic light
 - Community board map was incredibly helpful in terms of locating important spots in Chester
- *Conditions:*
 - Benches and bike racks were clearly visible and spaced throughout the town center
 - The roundabout was great for circulation of traffic compared to a stop light since the town center is relatively small. Otherwise, a light would have created congested traffic
 - No visible bus stops within the town center, but the community board map designated them within the public parking lot
 - The bus shelter was not directly within the town center, but it was accessible by walking
 - Under the impression that sidewalks were redone, so they were in great condition
 - They had several street lights spaced out along the sidewalks

Clinton

- **Is there a reason people would walk in the town center? No, as there really is no designated center beyond perhaps the Clinton Outlets.**
 - *Atmosphere:*
 - Did not entirely feel like a town center as it was mainly shopping areas with sidewalks
 - Good wayfinding and signage for Public Parking
 - *Conditions:*
 - Plenty crosswalk signs among the Main road, along with warnings for upcoming pedestrian crossings
 - Sidewalks in good condition as they seemed relatively new with curb cuts
 - 2-3 benches and garbage cans on what seemed to be the town green
 - Easily accessible bus shelter by walking near CVS, convenient for those who come to the area to shop
 - Shoulder wide enough for individual bikers

Cromwell

- **Is there a reason people would walk in the town center? No.**
- *Atmosphere:*
 - The town center was more of a commercial district with corporations such as fast food joints and major department stores.
 - The businesses were spread out onto two streets
 - Felt unsafe walking across a busy road as some cars were not cautious about pedestrians crossing
 - More car friendly than it was for bikers or pedestrians as there was a lack of signage for biker and pedestrian safety
 - Unsafe-feeling intersections for pedestrians, bikers, and cars
- *Conditions:*
 - There were crosswalk buttons and stop lights with no designated path on the street
 - Very minimal efficient crosswalks
 - Sidewalks were in decent condition but many were discontinuous
 - Lacked signage for pedestrians and bikers
 - There was a lot of new road construction

Deep River

- **Is there a reason people would walk in the town center? Yes, it definitely has more of a town center atmosphere than other towns in the region.**
- *Atmosphere:*
 - The town center had various places to visit such as small businesses, larger stores, a town green, and the Town Hall located on the same road
 - Most of the town center provided services focused around health and well-being
 - Cars were speeding and felt unsafe walking the crosswalks where there were not designated pedestrian crossing signs
 - Upon entering the town center, were were no visible signs for public parking
 - Benches and trash cans on the town green
- *Conditions:*
 - Plenty of street lights located on the sidewalks
 - Bus shelter in the middle of the town center, very visible and accessible
 - Sidewalks were in good condition as well as curb cuts
 - Enough space for multiple people to walk together as well as room for wagons, strollers, etc.
 - For the pedestrian crosswalks, there was no countdown or sound to know when the cars' stop light had turned green.
 - Potentially unsafe for pedestrians

Durham

- **Is there a reason people would walk in the town center? No.**
- *Atmosphere:*
 - The town center lacked reasoning to visit as it was mostly farmlands and orchards. Nothing stood out for tourists
 - Biker and pedestrian friendly when near restaurants and other shopping centers due to the crosswalk lights. However, the town centers were more laid out to be efficient to travel by car
 - Town Hall was isolated from the rest of the town center, making it difficult to reach if not by car
- *Conditions:*
 - One of the few town centers that had designated bike lanes with both signs as well as painted on roads
 - The lanes were quite narrow
 - Newly painted crosswalks
 - Had few sidewalks which were distant from road traffic

East Haddam

- **Is there a reason people would walk in the town center? No, not unless one is travelling to the Goodspeed Opera House.**
- *Atmosphere:*
 - Heavier car than pedestrian traffic with a lot of speeding
 - The only important attraction on the Main St is the Opera House, meaning that when there are not events, the atmosphere is unlike a town center
- *Conditions:*
 - A lot of signage which directed towards attractions and nearby towns
 - There are ample crosswalks near the Opera House and plenty of signage for pedestrian crossing
 - Public parking near the site which can be missed easily due to minimal parking signs
 - Sidewalks were in good condition with curb cuts wide enough for multiple people to walk together or for cyclists
 - Narrow shoulders on roads
 - Not many street lights

East Hampton

- **Is there a reason people would walk in the town center? From our experience, no, however, it seems we did not pass/walk through the East Hampton Village.**

- *Conditions:*
 - No sidewalks in shopping center
 - Few crosswalks with pedestrian crossing signs
 - Great wayfinding as seen in pictures, gives directions to specific parts of the town
 - Sidewalks were mostly level with the road and had curb cuts to most buildings, wide paths
 - Wide shoulders on the roads

Essex

- **Is there a reason people would walk in the town center? Yes, Essex Village, as it is near the CT River Museum, has small businesses and is near the river in general. The atmosphere is most like a town center. Ivoryton and Centerbrook both have the appeal of a town center, but the shops are more dispersed and are more car friendly.**
- The sidewalks are all new
- Essex had a lot of “Bike Road” signs, which means that cars should be biker friendly, yet there were no designated shoulders, where drivers may not realize that they have to share the roads

ESSEX VILLAGE:

- As previously mentioned, Essex Village caters towards the pedestrians, with a Stop Sign that clearly labels the crosswalk. There is street parking with a good amount of designated crosswalks. The roundabout is particularly efficient when it comes to traffic
 - If one went to visit Essex, Essex Village would be preferred over the other two villages
- More attractions and shops for tourists
- One lane is blocked off by on-street parking

CENTERBROOK:

- has a bus shelter which was easily noticeable and a sign that indicated public parking
- Large intersection that has a crosswalk button, but no street designation (on the intersection of Middlesex Ave and West Ave)
- Centerbrook seems to be a more commercial area (besides the tourist attraction of the Steam Train), as it has gas stations and businesses
- Safer crosswalks and plenty of signage for surrounding towns
 - Wide sidewalks and newly paved
- Signage for public parking

IVORYTON:

- Clearly visible crosswalks near the main restaurant in Ivoryton, there were not many spots of attraction in Ivoryton (other than the Ivoryton Playhouse) for pedestrians

Haddam

- **Is there a reason people would walk in the town center? No, a few businesses, but no other important attractions**
- *Atmosphere:*
 - Aside from the businesses, the historical area (Higganum) can be specified as a town center, as there are bike racks and benches dispersed
 - The areas are biker and pedestrian friendly, but do not have the town center “atmosphere” compared to other towns we have evaluated
- *Conditions:*
 - One great attribute in Haddam was a pedestrian crosswalk warning sign with flashing lights. This was an aspect that most of the towns we evaluated did not have and wish that they did
 - Street parking was available
 - Sidewalks were further from traffic which makes pedestrians feel safer
 - Great sidewalk conditions in most areas
 - Benches and bike racks only found at library or on the green
 - Spacious shoulders on the roads
 - Plenty of street lights
 - Some signage directing to attractions and districts

Killingworth

- **Is there a reason people would walk in the town center? No, there are minimal attractions or areas to visit for tourists.**
- *Atmosphere:*
 - Minimal areas for shopping and no designated town center
- *Conditions:*
 - Narrow shoulders, but there were pedestrian signs for crosswalks

Lyme

- **Is there a reason people would walk in the town center? No, the town is more catered towards cars than pedestrians.**
- *Atmosphere:*
 - Town center catered more to the cars than the pedestrians
 - The Lyme Historical District was not documented in pictures, but has potential to become more biker/pedestrian friendly in order to be more like a town center
- *Conditions:*
 - Very narrow shoulders on Hamburg Rd for the shopping center
 - No or minimal sidewalks present throughout town
 - Few crosswalks and pedestrian signage

Middlefield

- **Is there a reason people would walk in the town center? No, as there are minimal businesses/restaurants in what is considered to be the town center.**
- *Atmosphere:*
 - No appealing attractions or stores to attract tourists (drive through town)
- *Conditions:*
 - No crosswalks near the small shopping area
 - There was a crosswalk button on Meriden Rd but no crosswalk, sidewalk/place to stand, or sign to cross.
 - No sidewalks and narrow shoulders

Middletown

- **Is there a reason people would walk in the city center? Yes, absolutely. It was extremely organized with all the important amenities that a center should include.**
- *Atmosphere:*
 - Generally an extremely busy area with a lot of traffic-- the time we evaluated the area had little to no traffic, so we did not experience
 - In certain areas surrounding the city center, Middletown had “Downtown Guide” and “Public Parking” guide signs
 - Unsafe intersections, especially towards the Arrigoni Bridge entering Portland due to construction and heavy traffic on Main St
 - On certain side streets off of Main St, cars would block pedestrian crosswalks and pedestrians would maneuver around the cars to cross (Alsop Ave in photo)
- *Conditions:*
 - Plenty of crosswalks with visible signs
 - The crosswalks at stop lights had pedestrian traffic lights at each corner instead of one universal post that everyone has to abide by
 - Bike routes were mostly “in-lane.” There was some bike lanes printed on the road on Main St
 - Large sidewalks that make room for plenty pedestrians, level with the road with curb cuts
 - Faded crosswalk on Church St and Main St
 - Plenty of benches by bus stops
 - Poor sidewalk conditions on Guarino Dr
 - Speed humps on Main St to regulate speeding
 - Bike racks on Main St

Old Lyme

- **Is there a reason people would walk in the town center? No, the town and its centers are catered more towards cars than it is for pedestrians**

- *Atmosphere:*
 - Old Lyme Shopping Center is really small and not accessible for pedestrians as there are no sidewalks or crosswalks to get to stores
 - Would not feel safe walking unless on Lyme street where there are more pedestrian crosswalks, signage and sidewalks.
 - Signage found on Halls Rd for districts and nearby towns
 - The sign after exiting the highway was especially helpful in going towards the shopping center as well as towards Lyme
- *Conditions*
 - Lack of sidewalks and crosswalks
 - Very narrow shoulders on most roads except for Lyme St
 - The sidewalks were distant from the road with curb cuts, though it seemed some sidewalks were only present on bridges
 - Sidewalks on Ferry Rd in poorer condition

Old Saybrook

- **Is there a reason people would walk in the town center? Yes, there are various shops, restaurants and services available with many sidewalks and crosswalks available for pedestrians. However, there is a lot of speeding that makes pedestrians feel unsafe or wary for crossing**
- *Atmosphere:*
 - A lot of speeding, found speeding monitors on Main St
 - Plenty of wayfinding and signage for nearby services and towns
 - Lack of public parking signs (or hardly visible)
 - Mostly heavy car traffic except for Main St where there are more pedestrian activity
- *Conditions*
 - Wide sidewalks on most roads with curb cuts
 - Sidewalks on Boston Post Rd seem worn down or need some maintenance
 - Main St in good condition
 - Narrow shoulders on most roads
 - Main St had widened shoulders, as well as many crosswalks with pedestrian signs
 - Crosswalks at most intersections with a button and sign
 - Mill Rock Rd only had the crossing button and no sign or place to stand
 - Crosswalk on Main St with no pedestrian traffic light. Should have flashing lights or some mechanism for speeding drivers to know there is a pedestrian crossing
 - Main St had many on-street parking
 - had a shoulder for cars to pull in and back out without affecting traffic, which indirectly affects pedestrians and bikers

- Few benches on Main St

Portland

- **Is there a reason people would walk in the town center? Not really, the town center was small and had several nearby parks but lacked a variety of stores. Also really dense traffic near bridge and seemingly unsafe**
- *Atmosphere:*
 - Felt safe walking on the sidewalks because they were not near cars
 - If the sidewalks were near traffic, then it is more unsafe because there was a lot of speeding
 - Not a pedestrian heavy town center
 - Signage for attractions such as Brownstone Quarries, parks, and districts
- *Conditions*
 - Relatively newly paved sidewalks deep into the street, with the exception of a few curb cuts
 - Good margin curb cuts for bikers and pedestrians
 - Crosswalks had signage/lights with new (yet limited) benches and trash cans
 - Had several designated public parking lots, as well as some on-street parking available
 - Several “pedestrian crossing ahead” signs
 - Spaced out street lighting

Westbrook

- **Is there a reason people would walk in the town center? Yes, the town center is rather small but has the atmosphere of a typical town center**
- *Atmosphere:*
 - More car activity than pedestrian
- *Conditions*
 - Had signage for additional parking spaces along with available on-street parking
 - Good sidewalk conditions and wide enough, with curb cuts
 - Poorer sidewalk conditions on Boston Post Rd, but away from traffic
 - Benches were scattered along the sidewalks for accessibility
 - Bus shelters were easy to find and within the town center
 - Crosswalks were located at many intersections with crosswalk signage and plenty of space to stand away from traffic while waiting
 - Few crosswalks were faded
 - Fork in the road on Essex Rd had crosswalks and pedestrian signs on each side

Page Intentionally Left Blank

DRAFT

E. Public Involvement Summary

LCRV Region Bicycle and Pedestrian Master Plan

Public Involvement Summary

The following summary highlights the public involvement initiatives that were conducted as part of the creation of the LCRV Region's Bicycle and Pedestrian Master Plan. Initially intended to be completed in 2020, the creation of the Plan was belated due to impacts from the COVID-19 Global Pandemic. Despite restrictions related to the pandemic, outreach to the Region's communities remained at the forefront of this planning process, as highlighted below.

Online Mapping Tool

RiverCOG launched an online bike-ped mapping tool in 2020. The mapping tool allowed users to provide location-based feedback in a user-friendly, anonymous way. Input provided directly influenced the goals and recommendations of the Plan.

Facebook advertisements were created to promote the online mapping tool, as shown in the image at right. The online mapping tool was active between the months of July and August 2020. During this time period, over 100 comments were entered related to the Region's bicycle and pedestrian network. Participants were able to provide distinct location-based comments. Many of the comments received described challenging crossing points, sidewalk conditions, and traffic considerations such as speeding and heavy traffic.



Facebook advertisements created to promote the online mapping tool.

Source: FHI Studio, RiverCOG, Joe Gaylor Photography

Municipal Survey

The planning process also included a municipal survey that provided an overview of accomplishments, issues and concerns, and opportunities that each of the LCRV municipalities identified related to bicycle and pedestrian planning efforts. Representatives from each municipality were asked to complete a brief online survey to provide an overview of progress and goals in their town's. Information gathered from this process directly influenced the Municipal Overview's section of the Plan as well as the location-based recommendations provided for each Municipality in the Region.

Steering Committee Meetings

A Steering Committee was formed to guide this planning process. The committee included members from bicycle and pedestrian advocacy groups throughout the Region as well as RiverCOG Staff. The committee was involved throughout the planning process and weighed in heavily on both the vision and goals of the Plan as well as recommendations. Four Steering Committee meetings were conducted with the group at key milestones over the course of the development of the Plan. Meetings were held on 02/01/22, 12/07/21, 09/15/21, and 06/15/21.

Public Meeting

A public meeting was held on February 1st, 2021. The meeting and link to the Draft Plan were advertised on RiverCOG's website, and informational flyers were distributed to the Region's municipalities. At this meeting, the Draft Plan was presented, and attendees were encouraged to ask questions and provide comment. Additionally, attendees were encouraged to provide written or verbal comments to RiverCOG Staff throughout the month of February.

Regional Planning Commission Meeting

A presentation of the Draft Plan was presented during the February 28th Regional Planning Commission (RPC) meeting. Members of the commission were asked to review the Draft Plan prior to the meeting. Comments and questions were answered during the Meeting. The Bicycle and Pedestrian Master Plan was on the 01/24/22, 09/27/21 and 06/30/21 RPC agendas for discussion.

Presentation to the COG/MPO Board

It is anticipated that a presentation of the Final Plan will be presented at the March 23rd Council of Government's Board meeting. Comments will be incorporated into the Plan prior to and at this time. The Bicycle and Pedestrian Master Plan was on the 02/23/22, 01/26/22, 12/08/21, 10/27/21, 09/22/21, and 07/28/21 MPO agendas for discussion.