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## II. VISION, GOALS, & ACTION STRATEGIES

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This chapter presents the vision, goals, and action strategies for bicycle and pedestrian planning in Connecticut. This vision and goals will be used by CTDOT over the coming years to guide bicycle and pedestrian planning initiatives in the state. CTDOT clearly recognizes the contribution of non-motorized travel (e.g. bicycling and walking) as essential components of the state transportation system, for both mobility and health benefits. CTDOT is committed to providing accommodations for all users of the state transportation system, including non-motorized modes, and will incorporate such provisions in all transportation initiatives whenever possible, considering need and feasibility, funding availability, environmental constraints, municipal and public input. CTDOT will strive to achieve the vision and goals presented in this Plan to the fullest extent possible.

### Vision

The vision was developed early in the planning process by CTDOT with input from the Steering Committee and general public. The vision for bicycle and pedestrian planning in Connecticut is:

*To encourage and promote bicycling and walking throughout Connecticut by providing for the safe, convenient, and enjoyable use of these modes of transportation.*

*Any person will be able to walk, bicycle, or use other types of nonmotorized transportation modes safely and conveniently throughout the State. A network of on-road facilities and multiuse trails will connect towns, regions, and Connecticut to neighboring states. Specifically, residential areas, employment centers, shopping areas, transit centers, recreation and cultural attractions, and schools will accommodate the walking and bicycling needs of users,*

*both within the development and to nearby destinations.*

### Goals and Action Strategies

After the overall vision was developed, CTDOT and the Steering Committee worked closely to identify goals and action strategies that can best implement the vision. Table 4 identifies the goals and action strategies identified to implement the vision. In addition, potential implementation options are identified for each action strategy. The implementation options are specific courses of action, or recommendations, that CTDOT and others can take to achieve the action strategies, goals, and vision. Any number and/or combination of the implementation options could be utilized to build toward the overall vision of the Plan. This list is not all inclusive, as other mechanisms not listed may be used to achieve the vision of the Plan. In addition, programs and practices may currently be underway, at CTDOT and at other agencies, which meet the vision and goals outlined in this chapter.

**Table 4: Goals, Action Strategies, and Implementation Options**

<b>GOAL 1 - Develop and maintain a safe, efficient, accessible, and convenient pedestrian and bicycle system that allows users to travel safely and comfortably.</b>		
<b>Action Strategy</b>		<b>Implementation Options</b>
<b>1.1</b>	Develop and construct new, expanded, or upgraded bicycle and pedestrian facilities as part of road and transit facility construction, reconstruction, or maintenance projects.	<ul style="list-style-type: none"> <li>• Include bicycle and pedestrian measures in CTDOT Performance Metrics Report</li> <li>• Review and maintain a Department sidewalk policy that supports the development of pedestrian facilities, including revisiting local sidewalk match requirements</li> <li>• Update / clarify the design review checklist to ensure the CTDOT Bicycle and Pedestrian coordinator is involved in process</li> <li>• Coordinate further with CTDOT Design staff and CTDOT Maintenance staff</li> <li>• Provide early notification to municipalities of maintenance/restriping schedules (as this is the best time to incorporate bicycle and pedestrian facilities)</li> <li>• Establish a funding target for bicycle and pedestrian improvements</li> </ul>
<b>1.2</b>	Maintain sidewalks, on-road bicycle facilities, and multi-use trails in a safe condition.	<ul style="list-style-type: none"> <li>• Coordinate with CTDOT Maintenance staff</li> <li>• Consider Memorandum of Understanding agreements with local jurisdictions</li> <li>• Establish scheduling protocol</li> </ul>
<b>1.3</b>	Designate an overall network of on-road bicycle facilities that accommodates the needs of commuting, recreational, touring, and utility bicyclists of all ages and abilities.	<ul style="list-style-type: none"> <li>• Conduct an inventory of all bicycle facilities</li> <li>• Designate overall network</li> <li>• Provide signage on network</li> <li>• Conduct regular route field reviews</li> <li>• Identify missing links and projects that can enhance the overall network.</li> <li>• Provide early notification to municipalities of maintenance/restriping schedules (as this is the best time to incorporate bicycle and pedestrian facilities)</li> <li>• Establish on-line, interactive resource for most current Bike Map and bicycle and pedestrian related amenities, programs, etc.</li> <li>• Establish a funding target for bicycle and pedestrian improvements</li> </ul>
<b>1.4</b>	Evaluate and implement opportunities to widen paved shoulders, and install route markers, pavement markings, and uniform signing on bicycle routes.	<ul style="list-style-type: none"> <li>• Review AASHTO standards and innovative approaches</li> <li>• Utilize design toolbox</li> <li>• Provide signage on network</li> <li>• Coordinate with CTDOT Design and CTDOT Maintenance staff to provide training on bicycle and pedestrian Plan Updates and protocol</li> </ul>

1.5	Develop and expand the network of multi-use trails.	<ul style="list-style-type: none"> <li>• Coordinate with a Statewide Bicycle and Pedestrian Advisory Committee</li> <li>• Coordinate with regional planning agencies and local jurisdictions</li> <li>• Coordinate with CT DEP and the CT Recreational Trails Program</li> <li>• Coordinate with statewide user / advocacy groups</li> <li>• Establish a funding target, from sources other than Recreational Trails Program, for multi-use trails</li> </ul>
1.6	Promote flexibility in design strategies to incorporate best practices and innovative funding, design, and construction solutions.	<ul style="list-style-type: none"> <li>• Review ASHTO standards and innovative approaches</li> <li>• Utilize design toolbox</li> <li>• Coordinate with CTDOT Design and CTDOT Maintenance staff to provide training on bicycle and pedestrian Plan Updates and protocol</li> <li>• Coordinate with regional planning agencies and local jurisdictions</li> </ul>
1.7	Review and maintain the Statewide Bicycle and Pedestrian Plan and Map so that they remain relevant and up-to-date.	<ul style="list-style-type: none"> <li>• Coordinate regular meetings of Statewide Bicycle and Pedestrian Advisory Committee</li> <li>• Conduct regular route field reviews</li> <li>• Provide regular updates to Plan and Map</li> <li>• Establish on-line, interactive resource for most current Bike Map and bicycle and pedestrian related amenities, programs, etc.</li> <li>• Monitor website visitors / requests for materials.</li> <li>• Consider the development of regional maps</li> <li>• Coordinate with other state agencies to maintain relevancy</li> </ul>
1.8	Establish a Statewide Bicycle Advisory Committee that meets regularly to address ongoing issues and Plan and Map relevance.	<ul style="list-style-type: none"> <li>• Coordinate regular meetings of Statewide Bicycle and Pedestrian Advisory Committee</li> <li>• Include representatives of other various CTDOT departmental staff, state agencies, Regional Planning Agencies, local jurisdictions, and user / advocacy groups</li> </ul>

**GOAL 2 - Integrate and connect the pedestrian and bicycle system with other transportation systems (roads, rail, bus, etc).**

Action Strategy	Implementation Options
2.1	<p>Provide pedestrian and bicycle connections and address gaps near intermodal facilities to enable the public to safely access these facilities.</p> <ul style="list-style-type: none"> <li>• Conduct site audit at state owned intermodal and Park &amp; Ride facilities</li> <li>• Develop program to increase bicycle and pedestrian related amenities at intermodal and Park &amp; Ride facilities</li> <li>• Increase signage of bicycle and pedestrian amenities at intermodal and Park &amp; Ride facilities</li> <li>• Coordinate with CT Transit and other transit service providers</li> <li>• Coordinate with regional planning agencies and local jurisdictions</li> </ul>

2.2	Provide sufficient bicycle storage facilities (racks and/ or lockers) to accommodate the demand at state operated transit stations and Park & Ride lots.	<ul style="list-style-type: none"> <li>• Encourage installation at non-state operated facilities</li> <li>• Provide CTDOT supported designs to operators of facilities</li> <li>• Provide information resources, including on-line, on available amenities</li> <li>• Consider public-private partnerships for facilities</li> </ul>
2.3	Provide accommodations for seamless bicycle travel on all buses and trains	<ul style="list-style-type: none"> <li>• Coordinate with bus and rail transit service providers</li> <li>• Conduct site audit at state owned intermodal and Park &amp; Ride facilities</li> <li>• Develop program to increase bicycle and pedestrian related amenities at intermodal and Park &amp; Ride facilities</li> <li>• Increase signage of bicycle and pedestrian amenities at intermodal and Park &amp; Ride facilities</li> <li>• Establish education program for users</li> </ul>
2.4	Encourage through the Department representative, the State Traffic Commission to address pedestrian and bicycle access and egress as well as bicycle storage opportunities in their certification process.	<ul style="list-style-type: none"> <li>• Evaluate opportunities to recognize potential trip reduction credits</li> <li>• Consider public-private partnerships for facilities</li> </ul>

**GOAL 3 - Support and encourage pedestrian and bicycle connections between neighborhoods, commercial areas, employment centers, schools, state and municipal parks, and other destinations serving the community.**

Action Strategy	Implementation Options	
3.1	Encourage local municipalities to make community destinations and recreation facilities accessible and convenient for use by all ages and skill levels of pedestrians and bicyclists.	<ul style="list-style-type: none"> <li>• Develop statewide route network plan</li> <li>• Utilize design toolbox</li> <li>• Continue to fund training initiatives for regional and municipal officials (e.g. training by UConn T<sup>2</sup> Institute)</li> <li>• Support other education programs</li> </ul>
3.2	Encourage future developments to consider existing and possible future pedestrian and bicycle connections to employment areas, schools, parks, transit areas, and commercial areas.	<ul style="list-style-type: none"> <li>• Work with STC to increase awareness of bicycle and pedestrian issues</li> <li>• Continue to assess modal split options and opportunities to encourage bicycle and pedestrian trip credits during STC review</li> <li>• Consider public-private partnerships for facilities</li> </ul>
3.3	Coordinate with the Office of Policy and Management's State Plan of Conservation and Development.	<ul style="list-style-type: none"> <li>• On-going coordination by CTDOT Bicycle and Pedestrian Coordinator</li> <li>• Include Office of Policy and Management representative on Advisory Committee</li> </ul>

**GOAL 4 - Encourage and support pedestrian and bicycle safety (Note: These action strategies are recommend for consideration on state owned roadways and recommended for support on local roads).**

Action Strategy		Implementation Options
<b>4.1</b>	Investigate opportunities and implement available methods to monitor and analyze vehicle-pedestrian, vehicle-bicycle, bicycle-pedestrian, and bicycle-only crash data for on- and off-road locations.	<ul style="list-style-type: none"> <li>• Complete annual review and audit of pedestrian and bicycle accident safety issues</li> <li>• Work with State and Municipal Police to further enhance accident reporting information</li> <li>• Research obtaining non motor vehicle-related crash information from such sources as hospitals and clinics</li> <li>• Educate bicyclists and pedestrians on reporting of all crashes, and their location and causes</li> </ul>
<b>4.2</b>	Develop and implement improvements and mitigation strategies to reduce vehicle-bicycle crashes and vehicle-pedestrian crashes on state roads.	<ul style="list-style-type: none"> <li>• Utilize design toolbox</li> <li>• Develop Share the Road campaign and safety information, including signage</li> <li>• Coordinate with CT DMV on educational material related to bicycle and pedestrian awareness</li> <li>• Educate bicyclists and pedestrians on reporting of all crashes, and their locations and causes</li> <li>• Develop a "Report and Issue" page on the bicycle and pedestrian website</li> <li>• Coordinate with CTDOT Maintenance and Engineering Design staff</li> </ul>
<b>4.3</b>	Implement roadway design features on state roads, where appropriate, to reduce traffic speeds and create more pedestrian and bicycle-friendly facilities that minimize vehicle, bicycle, and pedestrian conflicts.	<ul style="list-style-type: none"> <li>• Review AASHTO standards and innovative approaches</li> <li>• Coordinate further with CTDOT Design staff</li> <li>• Update / clarify the design review checklist to ensure the CTDOT Bicycle and Pedestrian coordinator is involved in process</li> </ul>

**GOAL 5 - Develop and implement educational programs to ensure that transportation facilities will be used safely and responsibly.**

Action Strategy		Implementation Options
<b>5.1</b>	Identify available and develop education programs to improve the skills of all bicyclists, regardless of age and ability.	<ul style="list-style-type: none"> <li>• Develop Share the Road campaign and safety information, including signage</li> <li>• Coordinate with CT League of American Bicyclist Certified Instructors to assist in bicycle education efforts</li> </ul>

<p><b>5.2</b></p>	<p>Develop and provide educational materials for motorists, bicyclists, equestrians, and walkers to 1) improve their understanding of the rules of the road and applicable traffic, bicycle, and pedestrian laws, 2) improve driver awareness of bicyclists, equestrians, and pedestrians, and 3) encourage pedestrians to use available pedestrian safety devices and features (e.g. control signals, crosswalks).</p>	<ul style="list-style-type: none"> <li>• Coordinate with CT DMV on educational material related to bicycle, pedestrian and equestrian awareness</li> <li>• Develop Share the Road campaign and safety information, including signage</li> <li>• Coordinate with advocacy groups and law enforcement to promote and enforce safe practices</li> </ul>
<p><b>5.3</b></p>	<p>Make available the Connecticut Bicycle Map and education and information materials dedicated to informing the public of the availability and safe use of bicycle and pedestrian facilities throughout the State.</p>	<ul style="list-style-type: none"> <li>• Establish on-line, interactive resource for most current Bike Map and bicycle and pedestrian related amenities, programs, etc</li> <li>• Coordinate with Advisory Committee, advocacy groups, regional planning agencies, local governments, and other state agencies to assist in distribution of materials</li> </ul>
<p><b>5.4</b></p>	<p>Develop and implement a promotional and advertisement campaign to encourage increased usage of bicycling and walking.</p>	<ul style="list-style-type: none"> <li>• Review media options</li> <li>• Review and utilize applicable innovative strategies and best practices</li> </ul>

**GOAL 6 - Provide financial and technical support and seek to utilize all available funding for the development and construction of bicycle and pedestrian facilities throughout Connecticut, within CTDOT's available resources and consistent with federal program initiatives.**

Action Strategy		Implementation Options
<p><b>6.1</b></p>	<p>Review the statewide practice on providing non-federal match for bicycle and pedestrian improvements.</p>	<ul style="list-style-type: none"> <li>• Review and update policy regularly</li> <li>• Review and utilize applicable innovative strategies and best practices</li> </ul>
<p><b>6.2</b></p>	<p>Allocate and support the use of federal aid program funds from all programs that are eligible to be used for bikeway, trail, and walkway projects, within the transportation program priorities.</p>	<ul style="list-style-type: none"> <li>• Develop a more formal funding tracking mechanism and provide announcements of funding opportunities for bicycle and pedestrian projects</li> <li>• Develop training resources on submitting for bicycle and pedestrian funding opportunities</li> </ul>

6.3	Evaluate streamlining the project scoping, design, and review processes within CT-DOT to maximize project efficiency and value.	<ul style="list-style-type: none"> <li>• Develop Working Committee with CT DEP, regional agencies, and municipalities on design and review process</li> <li>• Coordinate with CT DEP on streamlining the permitting process</li> <li>• Review and utilize applicable innovative strategies and best practices</li> </ul>
6.4	Provide technical assistance to local towns and regional planning organizations in the development and advancement of bikeway, trail, and walkway plans and projects.	<ul style="list-style-type: none"> <li>• Develop statewide route network plan</li> <li>• Develop a training manual on the project development process</li> <li>• Develop a pro-active information clearinghouse to inform regional agencies and municipalities of upcoming projects</li> <li>• Develop formal coordination program with CTDOT Bicycle and Pedestrian Coordinator for coordination on projects with regional agencies and municipalities</li> </ul>
6.5	Coordinate and facilitate multi-town, regional or inter-regional bikeway, trail, and walkway projects to expedite project development, design, and construction, and ensure consistency and interconnectivity of the system.	<ul style="list-style-type: none"> <li>• Develop a pro-active information clearinghouse to inform regional agencies and municipalities to upcoming projects</li> <li>• Develop formal coordination program with CTDOT Bicycle and Pedestrian Coordinator for coordination on projects with regional agencies and municipalities</li> </ul>
6.6	Evaluate opportunities for and implement non-traditional sources of funding and innovative financing techniques for bicycle and pedestrian facilities.	<ul style="list-style-type: none"> <li>• Review benchmark study and case studies to develop a clearinghouse of information on non-traditional funding sources</li> </ul>
6.7	Provide nonmotorized transportation training for CTDOT staff, consultants, and other transportation professionals on pedestrian and bicycle facility design and planning.	<ul style="list-style-type: none"> <li>• Continue to fund training initiatives for regional and municipal officials (e.g. recent training by UConn T<sup>2</sup> Institute)</li> <li>• Utilize design toolbox</li> </ul>

**GOAL 7 - Contribute to public health by providing safe and attractive opportunities for walking and bicycling.**

Action Strategy	Implementation Options
7.1	<p>Support programs and policies that allow residents and visitors to make walking and bicycling viable means of travel.</p> <ul style="list-style-type: none"> <li>• Develop Share the Road campaign and safety information, including signage</li> <li>• Coordinate with CT DMV on educational material related to bicycle and pedestrian awareness</li> <li>• Establish on-line, interactive resource for most current Bike Map and bicycle and pedestrian related amenities, programs, etc</li> </ul>

<p><b>7.2</b></p>	<p>Collaborate with the CT DEP and Connecticut Department of Public Health on developing bikeway, trail, and walkway projects and programs to enhance public health and encourage all to walk or bicycle more.</p>	<ul style="list-style-type: none"> <li>• Include representatives of other various state agencies on the Statewide Bicycle and Pedestrian Advisory Committee</li> <li>• Develop statewide route network plan</li> </ul>
<p><b>7.3</b></p>	<p>Continue Safe Routes to School programs that encourage more students to walk or bicycle school and seek opportunities to incorporate identified Safe Routes infrastructure needs into larger transportation projects.</p>	<ul style="list-style-type: none"> <li>• Include other CTDOT staff on the Statewide Bicycle and Pedestrian Advisory Committee</li> <li>• Develop statewide route network plan</li> <li>• Establish a funding target for bicycle and pedestrian improvements</li> </ul>

**Table 7: Aggregate Estimate of Existing Daily Bicycling Activity in Connecticut**

Variable	Figure	Calculations
<b>Employed Adults, 16 Years and Older</b>		
a. Study Area Population <sup>(1)</sup>	3,504,809	
b. Employed Persons <sup>(2)</sup>	1,764,288	
c. Bicycle Commute Percentage <sup>(2)</sup>	1.3%	
d. Bicycle Commuters	23,641	(b*c)
e. Work-at-Home Percentage <sup>(2)</sup>	3.4%	
f. Work-at-Home Bicycle Commuters <sup>(3)</sup>	29,993	[(b*e)/2]
<b>School Children</b>		
g. Population, ages 6-14 <sup>(4)</sup>	684,000	
h. Estimated School Bicycle Commute Share <sup>(5)</sup>	2%	
i. School Bicycle Commuters	13,680	(g*h)
<b>College Students</b>		
j. Full-Time College Students <sup>(6)</sup>	249,000	
k. Bicycle Commute Percentage <sup>(7)</sup>	10%	
l. College Bicycle Commuters	24,900	(j*k)
<b>Work and School Commute Trips Sub-Total</b>		
m. Daily Commuters Sub-Total	92,214	(d+f+i+l)
n. Daily Commute Trips Sub-Total	184,428	(m*2)
<b>Other Utilitarian and Discretionary Trips</b>		
o. Ratio of "Other" Trips in Relation to Commute Trips <sup>(8)</sup>	2.73	ratio
p. Estimated Non-Commute Trips	503,488	(n*o)
<b>Total Estimated Bicycle Trips</b>	<b>687,916</b>	(n+p)

Notes: Census data collected from 2006 American Community Survey for the State of Connecticut.

(1) 2006 American Community Survey.

(2) 2006 American Community Survey.

(3) Assumes 50% of population working at home makes at least 1 daily bicycle trip.

(4) 2006 American Community Survey.

(5) Estimated share of school children who commute by bicycle, as of 2000 (source: National Safe Routes to School Surveys, 2003).

(6) 2006 American Community Survey.

(7) Review of bicycle commute share in 7 university communities (source: National Bicycling & Walking Study, FHWA, Case Study #1, 1995).

(8) 27% of all trips are commute trips (source: National Household Transportation Survey, 2001).

## Benefits Analysis

A variety of models were used to quantify the benefits of bicycle and pedestrian facilities. The models estimated the positive air quality, public health, transportation, and recreation benefits associated with existing and future bicycle travel in Connecticut.

### Air Quality Benefits

Non-motorized travel directly and indirectly (through access to transit) reduces vehicle trips, vehicle miles traveled and auto emissions. The variables used as model inputs include population, employed persons, and commute mode share were used for this analysis. In terms of daily bicycle and walking trips, assumptions regarding the proportion of persons working at home and traveling by transit reflect those used in the demand model. Other inputs included data regarding college student and school children commuting patterns.

Additional assumptions were used to estimate the number of reduced vehicle trips and vehicle miles traveled, as well as vehicle emissions reductions. These assumptions are derived from previous applications of this model over the past five years and have included diverse communities across the country from California to New York. In terms of reducing vehicle trips, it was assumed that roughly 73 percent of walking or bicycle trips would directly replace vehicle trips for adults and college students. For school children, the reduction was assumed to be about 53 percent. To estimate the reduction of existing and future vehicle miles traveled, a bicycle roundtrip distance of eight miles was used for adults and college students, and one mile was used for school children. These distance assumptions are used in various non-motorized benefits models and are derived from the National Bicycle and Walking Study. The vehicle emissions reduction estimates also incorporate calculations commonly used in other models, and are identified in the footnotes of Tables 8 and 9.

Estimating future benefits required additional assumptions regarding Connecticut's population and anticipated commuting patterns. According to the ACS data, approximately 1,764,288 people were employed in Connecticut in 2006. The most recent Census data indicates a loss of workforce population between 1990 and 2000, which corresponds to 1.6 percent decrease. The future workforce population of 1,736,059 was used to reflect current overall population growth trends and the number of school age children and college students was kept constant. In terms of commuting patterns, the bicycling and walking mode shares were increased by approximately 0.2 percent to address anticipated higher use generated by the addition of new non-motorized facilities and enhancements to the existing system. The estimated proportions of residents working from home and taking transit were also increased by 0.2 percent.

Tables 8 and 9 summarize existing (2006) and potential future air quality improvements associated with walking and biking in Connecticut. Bicycling and walking currently remove over 312,000 weekday vehicle trips, thus eliminating nearly 750,000 vehicle miles traveled. The combined modes also prevent nearly 435,000 tons of vehicle emissions from entering the ambient air each weekday. Walkway and bikeway network enhancements are expected to generate more bicycling in the future. This growth is expected to improve air quality by further reducing the number of vehicle trips, vehicle miles traveled, and associated vehicle emissions.

How quickly these air quality improvements are achieved depends upon a number of factors, including the cost of gasoline, economic indices and how quickly the recommendations of this Plan are implemented. Some communities in the U.S. have achieved their projected air quality benefits within a year of implementing a Plan. However, based on the pace of typical project implementation in the northeast, five years is a reasonable timeframe to achieve the projected future air quality benefits.

**Table 8: Existing and Potential Future Air Quality Benefits from Increased Walking**

Vehicle Travel Reductions	Existing	Future
Reduced Vehicle Trips per Weekday <sup>(1)</sup>	248,110	252,681
Reduced Vehicle Trips per Year <sup>(2)</sup>	64,756,665	65,949,728
Reduced VMT per Weekday <sup>(3)</sup>	269,818	274,796
Reduced VMT per Year <sup>(2)</sup>	70,422,434	71,721,644
Vehicle Emissions Reductions	Existing	Future
Reduced PM <sub>10</sub> (tons per weekday) <sup>(4)</sup>	4,965	5,056
Reduced NO <sub>x</sub> (tons per weekday) <sup>(5)</sup>	134,585	137,068
Reduced ROG (tons per weekday) <sup>(6)</sup>	19,589	19,950
Reduced CO <sub>2</sub> (tons per weekday) <sup>(8)</sup>	115	117
Reduced PM <sub>10</sub> (tons per year) <sup>(7)</sup>	1,295,773	1,319,678
Reduced NO <sub>x</sub> (tons per year) <sup>(7)</sup>	35,126,710	35,774,756
Reduced ROG (tons per year) <sup>(7)</sup>	5,112,669	5,206,991
Reduced CO <sub>2</sub> (tons per year) <sup>(8)</sup>	29,930	30,482

**Table 9: Existing and Potential Future Air Quality Benefits from Increased Biking**

Vehicle Travel Reductions	Existing	Future
Reduced Vehicle Trips per Weekday <sup>(1)</sup>	64,580	67,704
Reduced Vehicle Trips per Year <sup>(2)</sup>	16,855,505	17,670,739
Reduced VMT per Weekday <sup>(3)</sup>	465,891	485,804
Reduced VMT per Year <sup>(2)</sup>	121,597,560	126,794,781
Vehicle Emissions Reductions	Existing	Future
Reduced PM <sub>10</sub> (tons per weekday) <sup>(4)</sup>	8,572	8,939
Reduced NO <sub>x</sub> (tons per weekday) <sup>(5)</sup>	232,386	242,319
Reduced ROG (tons per weekday) <sup>(6)</sup>	33,824	35,269
Reduced CO <sub>2</sub> (tons per weekday) <sup>(8)</sup>	198	206
Reduced PM <sub>10</sub> (tons per year) <sup>(7)</sup>	2,237,395	2,333,024
Reduced NO <sub>x</sub> (tons per year) <sup>(7)</sup>	60,652,863	63,245,237
Reduced ROG (tons per year) <sup>(7)</sup>	8,827,983	9,205,301
Reduced CO <sub>2</sub> (tons per year) <sup>(8)</sup>	51,679	53,888

Note: VMT means Vehicle Miles Traveled

(1) Assumes 73% of bicycle trips replace vehicle trips for adults/college students; 53% reduction for school children.

(2) Weekday trip reduction multiplied by 261 weekdays per year.

(3) Assumes average round trip of 8 miles for adults/college students; 1 mile for school children.

(4) PM<sub>10</sub> reduction of 0.0184 tons per mile.

(5) NO<sub>x</sub> reduction of 0.4988 tons per mile.

(6) ROG reduction of 0.0726 tons per mile.

(7) Weekday emission reduction multiplied by 261 weekdays per year.

(8) CO<sub>2</sub> reduction of 0.000425 tons per mile

It should be noted that this model only addresses commute-related trips. This model does not account for air quality improvements associated with recreational non-motorized travel. Quantifying the benefits of recreational travel could further improve the air quality benefits of bicycling.

### Other Benefits

Walking and bicycling generate benefits beyond air quality improvements. Non-motorized transportation can also serve recreational purposes, enhance mobility, and improve health. The "*BikeCost*" model, made available by the National Pedestrian and Bicycle Information Center, quantifies these benefits and provides a starting point for identifying the potential cost savings of improving Connecticut's bikeway network.

Several modeling assumptions should be discussed. First, the *BikeCost* model is project-specific, requiring specific information regarding project type, facility length and year of construction. Because the *BikeCost* model focuses on specific urban areas, Hartford, Connecticut was selected as the trial city. The model is based on a 100-mile network of on-street bike lanes, with an expected 2017 "mid year" of construction. The model also requires other inputs obtainable from

the 2000 U.S. Census, including bicycle commute mode share, average population density and average household size.

Based on the variables described above, the *BikeCost* model estimates annual recreational, mobility and health benefits. The benefits were quantified based on a combination of research from previous studies as well as other factors (identified in the footnotes of Table 7).

Table 10 summarizes the estimated benefits of an enhanced bikeway system in Hartford. Except for mobility benefits, the model outputs are represented on an aggregate basis. Potential annual recreational benefits range from a low estimate of about \$212,000 to a high estimate of almost \$4 million. Annual health benefits range from about \$10,000 to almost \$90,000. Mobility benefits were estimated on a per-trip, daily and annual basis. The roughly \$3 per-trip benefit of an expanded network could translate to an annual benefit of close to \$75,000. Decreased auto usage could also generate monetary benefits. As Connecticut is generally urban in character, it is important to remember that these numbers are based on a single city and the overall benefits to the state would be expected to be much higher.

**Table 10: Estimated Aggregate Annual Benefits of an Enhanced Bikeway Network-Hartford**

Recreational Benefits <sup>(1)</sup>	Low Estimate	Mid Estimate	High Estimate
	\$212,512	\$2,464,022	\$3,713,370
Mobility Benefits <sup>(2)</sup>	Per-Trip	Daily	Annually
	\$3.60	\$319	\$74,972
Health Benefits <sup>(3)</sup>	Low Estimate	Mid Estimate	High Estimate
	\$10,002	\$88,959	\$88,959

Source: Benefit-Cost Analysis of Bicycle Facilities ("*BikeCost*") Model, Pedestrian and Bicycle Information Center.

- (1) Recreational benefit estimated at \$10 per hour (based on previous studies). Assumes one hour of recreation per adult. \$10 value multiplied by the number of new cyclists minus the number of new commuters. This value multiplied by 365 days to estimate annual benefit.
- (2) Assumes an hourly time value of \$12. This value multiplied by 20.38 minutes (the amount of extra time bicycle commuters are willing to travel on an off-street path). Per-trip benefit then multiplied by the daily number of existing and induced commuters. This value then doubled to account for roundtrips, to reach daily mobility benefit. Daily benefit then multiplied by 50 weeks per year and 5 days per week.
- (3) Annual per-capita cost savings from physical activity of \$128 based on previous studies. This value then multiplied by total number of new cyclists.

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## IV. POLICIES AND PRACTICES

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Creating a safe and inviting travel environment for bicycles, pedestrians, and equestrians requires attention to more than just the physical infrastructure, such as sidewalks and bike paths. Efforts must be directed to the non-infrastructure related tasks such as creating laws, agency policies, and initiatives to foster an environment that is truly walkable and bikable. One effective strategy is to give all travelers (pedestrians, bicyclists, equestrians, and motorists) a basic knowledge of bicycling and walking safety and etiquette. This comes by way of laws that establish the “rules of the road” as well as policies and initiatives that educate travelers on those laws and how to travel safely on shared facilities. Another objective of these policies and initiatives is to promote walking and biking as means of transportation. The purpose of this chapter is to review existing laws, agency policies, and other initiatives that encourage or impede bicycling and walking in the State of Connecticut, and recommend initiatives for improvement.

### Laws, Policies, and Initiatives

#### Connecticut Laws

There are a number of state laws that relate to bicyclists, pedestrians, and equestrians. These laws inform how they should behave when traveling. Such laws include helmet laws, crossing laws, and bicycle positioning laws.

When all user groups, pedestrians, bicyclists, and motorists, follow existing regulations they can co-exist safely. There are laws that state how motorists must behave when traveling near bicyclists, pedestrians, and equestrians. For example, existing legislation requires motorists to provide a minimum of three feet passing and stopping before the sidewalk area when emerging from driveways and alleys. In addition, legislation was

passed in 2008 requiring motorists to allow a minimum of 3 feet of separation when passing a cyclist. These laws are intended to improve the safety of the bicyclist and pedestrian encouraging travelers to make greater use of these modes of transportation.

A number of bicycle, pedestrian, and equestrian related state laws:

#### **Bicyclist rights and responsibilities (Section 14-286a):**

- Bicyclists traveling on roadways have same rights and responsibilities as motorists.
- Bicyclists traveling on sidewalks and in/along crosswalks have the same rights and responsibilities as pedestrians.
- Parents may not authorize children to violate statutes related to bicycle travel.

#### **Operation of bicycles (Section 14-286b):**

- Bicyclists must ride as near to the right as practicable on roadways, except when turning left, passing pedestrians, parked vehicles, and obstructions.
- Bicyclists may not ride two abreast on roadways, except on paths or parts of roadways set aside for the exclusive use of bicycles.
- Bicyclists may not attach themselves to moving motor vehicles.
- Carrying large packages, bundles, and passengers is restricted. One hand must remain on the handlebars when bicycling.

- **Left and right turns (Section 14-28c):**
- Bicyclists must use hand or mechanical signals to communicate with other travelers.
- Signals need not be given continuously.

**Helmet use (Section 14-286d):**

- Bicyclists aged 15 and under must wear protective headgear.

**Bicyclist use of helper motors (Section 14-286):**

- Bicyclists must have a valid driver's license to use a helper motor, though special permits may be granted.
- Travel speed cannot exceed 30 miles per hour.
- Bicycles with helper motors cannot be driven on sidewalks, limited access highways, or turnpikes.

**Lights, reflectors, and brakes on bicycles (Section 14-288):**

- During nighttime and times of low visibility, bicyclists must utilize a front light visible from 500 feet, a rear red reflector or light visible from 600 feet, and reflective material on bike visible from 600 feet on side.
- Bicycles must have a brake which can stop within 25 feet when traveling at 10 miles per hour.

**Local jurisdiction regulations (Section 14-289):**

- Local jurisdictions, remaining consistent with Sections 14-286 and 14-288, may regulate bicycle uses in their jurisdiction.

**Motorists passing bicyclists:**

- Motorists overtaking / passing a bicyclist must allow a minimum of three feet separation (Sec. 14-232 Sec. 13).
- Motorists overtaking / passing a bicyclist in the same direction may not make a right turn, unless it can be done safely without impeding the travel of the bicyclist (Sec. 14-242a).

**Pedestrian and roadway crossings:**

- Pedestrians must adhere to pedestrian control signals where they exist at intersections. Pedestrians shall not cross the highway against a red or "Stop" signal or at unmarked locations. A pedestrian starting across the highway on a "Walk" signal or on any such crosswalk or on a green or "Go" signal shall have the right of way over all vehicles, including those making turns (Sec. 14-300).
- Special pedestrian street or sidewalk markings should be provided in areas with high proportions of elderly persons (Sec. 14-300a).
- Motorists must yield to pedestrians at the entrance to, or in, marked and unmarked crosswalks (Sec.14-300b and Sec.14-300c).
- Pedestrians may not cross an intersection diagonally unless directed by pedestrian signal or officer (Sec. 14-300b).
- Pedestrians may not cross between adjacent intersections with traffic or pedestrian-control signals except within a marked crosswalk (Sec. 14-300b).
- Pedestrians in a crosswalk shall travel whenever practicable in the right half of the crosswalk (Sec. 14-300b).

- Vehicle operators must exercise due care to pedestrians and provide audible signals when passing them (Sec. 14-300d).
- Vehicle operators must stop at least 10 feet from a crossing when directed to do so by a school crossing guard (Section 14-300f).
- Motorists emerging from an alley, driveway, or building must stop prior to driving onto the sidewalk area extending across any alleyway or driveway to yield the right-of-way to any pedestrian (Sec 14-247a).

#### **Bicyclists on state highways:**

- The State Traffic Commission shall adopt regulations, in cooperation and agreement with local traffic authorities, governing the use of state highways, and the operation of vehicles including but not limited to motor vehicles and bicycles (Sec.14-298).

#### **Including bicycle and pedestrian in highway planning (Section 13a-57b):**

- The Transportation Commissioner shall, whenever possible, encourage the inclusion of areas for bicycles and pedestrians when creating the layout of a state highway or relocating a state highway.

#### **Riding with animals on highways (Sec. 14-293a):**

- Any person who rides any horse or other animal upon a public highway shall conform to the rules of Chapter 293 and 249, unless such provisions clearly do not apply from the language or context.

#### **Motor vehicles passing equestrians (Sec. 14-293b):**

- Approaching motor vehicle operators must reduce speed appropriately or stop, if necessary, to avoid endangering the equestrian or frightening or striking the horse. A statement concerning such responsibilities is included in the 2008 Motor Vehicle Driver Manual.
- **Federal and State Agency Policies and Initiatives**

Policies of the federal and state government have the potential either to encourage or discourage the public choice to utilize non-motorized transportation. Some of these policies and initiatives are examined below. All are state policies, except for the SRTS program, which is a federally funded program.

#### **Connecticut Department of Transportation**

##### *State Traffic Commission*

The State Traffic Commission (STC) follows a specific application process for proposed developments that could be major traffic generators on state highways. Any development that includes two hundred or more parking spaces, or a gross floor area of 100,000 square feet or more, must complete the certificate of application process. The purpose of the process is to gauge the development's impact on the surrounding transportation system and also take the internal site circulation into consideration. Specifically, the STC process requires information on how the use of bicycling and walking by employees and/or patrons has been considered, especially in terms of the development's internal circulation and parking.

### ***Surface Transportation Program (STP) - Urban Sidewalk Guidelines***

This federal funding has guidelines, established by CTDOT, that outline using STP-Urban funds for the construction of new sidewalks. These funds can be used for a new sidewalk where none has existed or where a new segment of walkway is needed to fill the gap between two existing walkways. These funds cannot be used to replace an existing sidewalk due to its age. CTDOT typically does not provide state match for new sidewalks under this program.

### **Safe Routes to Schools**

SRTS is a federal program, introduced in SAF-EAEA-LU (2005), that promotes walking and bicycling to school for students in kindergarten through eighth grade. In Connecticut, the SRTS program is administered by CTDOT and provides funding for school based projects in the areas of encouragement, education, engineering, enforcement, and evaluation. These pedestrian and bicycle safety projects are often organized and supported at the local level. While the program provides funds to municipalities through a competitive process, CTDOT requires that schools complete a SRTS Plan. A SRTS Plan outlines obstacles to walking and bicycling as well as its improvement needs for a school.

The program receives approximately \$1-3 million per year and a typical grant to a municipality or school is about \$250,000 - \$300,000.

### **Metro North Commuter Rail**

Metro North Rail provides daily commuter rail service through the shoreline towns of southwestern Connecticut between Grand Central Station in New York City and New Haven, Connecticut, with additional branchline service to New Canaan, Waterbury and Danbury. There are a number of policies that govern traveling on trains with bicycles. First and foremost, travelers who wish to bring their bicycles onto Metro North trains must have a permit; bicycle permits cost \$5 and are good

for life. Folding bicycles do not need a permit, but must be folded while boarding, exiting, and being stored on a train. Second, there are a number of schedule and occupancy restrictions, which are summarized below:

#### ***Schedule Restrictions:***

- Bicycles are not permitted on trains scheduled to depart from Grand Central Terminal during peak hours (between 7 AM and 9 AM, 3 PM and 8:15 PM).
- Bicycles are not permitted on trains scheduled to arrive in Grand Central Terminal during peak hours (between 5 AM and 10 AM, 4 PM and 8 PM) and on certain days before and after holidays.
- Bicycles are not permitted on trains on New Year's Eve, New Year's Day, St. Patrick's Day, Mother's Day, Eve of Rosh Hashanah, Eve of Yom Kippur, Eve of Thanksgiving, Thanksgiving Day, Christmas Eve, Christmas Day, and certain days before and after holidays.

#### ***Occupancy Restrictions:***

- Two bicycles are allowed per car with a maximum of four bicycles per train on weekdays.
- Eight is the maximum number of bicycles allowed on trains is eight on weekends.

The most current version of the Metro North rules for traveling with bicycles on trains are available at <http://www.mta.info/mnr/html/getaways/bikerule.htm>. Governor Rell has also requested the new M-8 trains to be purchased for Metro North include space for bicycles.

### **Shoreline East Commuter Rail**

Passengers are permitted to bring bicycles on board Shore Line East trains between Old Say-

brook and New Haven only. Passengers are required to safely carry bicycles on and off the trains and safely store bicycles on board with front tires removed. Bicycle groups of 5 or more passengers are required to provide one week prior notification of their travel plans to CDOT Rail Operations at (203) 789-6955.

### **Amtrak Rail Service**

There are a number of options for traveling with bicycles on Amtrak trains. These include:

- *Storing bicycles onboard in bike racks* - On some Amtrak trains, passengers can roll their bikes up to the train and secure it in a bike rack, unboxed. Availability of this service varies widely from train to train, and station to station. The passenger must reserve space for bicycles when reserving their ticket. A \$5 to \$10 fee is charged for reserving a space in the bike rack.
- *Checking bicycles as checked baggage in a box or other secure container* – Passengers can bring bicycles on Amtrak as checked baggage between all cities where checked baggage services are offered. However, not all stations or trains have checked baggage service, and that baggage service may not be available every day.
- *Checking bicycles as checked baggage secured by tie-down equipment, not in a box* - Some trains have tie-down equipment in the baggage car or other areas designated for checked baggage. Where such equipment is available, passengers can check their bikes without a box or other container. This space is limited, and must be reserved for a fee.
- *Bringing folding bicycles onboard as carry-on baggage* - Folding bicycles may be brought aboard passenger cars as carry-on baggage. Only true folding bicycles

(bicycles specifically designed to fold up into a compact assembly) are acceptable. Generally, these bikes have frame latches allowing the frame to be collapsed, and small wheels. Regular bikes of any size, with or without wheels, are not considered folding bikes, and may not be stored as folding bikes aboard trains.

To determine how to best transport a bicycle on Amtrak, passengers can call 1-800-USA-RAIL (1-800-872-7245) for assistance. The most current version of the Amtrak rules for traveling with bicycles on trains are available at

[http://www.amtrak.com/servlet/ContentServer?cid=1080080554487&pagename=Amtrak%2Fam2Copy%2FSimple\\_Copy\\_Page&c=am2Copy](http://www.amtrak.com/servlet/ContentServer?cid=1080080554487&pagename=Amtrak%2Fam2Copy%2FSimple_Copy_Page&c=am2Copy).

### **Department of Public Health**

In 1985, the Connecticut Department of Public Health, along with the Connecticut Commission on Children, created the Connecticut Childhood Obesity Council to establish state priorities for combating childhood obesity and coordinating statewide initiatives. In November 2008, the Council held a forum in Hartford, Connecticut to discuss strategies to reduce childhood obesity. At the forum, the importance of government at all levels to provide coordinated leadership for the prevention of obesity in children and youth was recognized. Also, the value of continued research and program efforts, with a focus on behavioral research and community-based intervention was emphasized. The following specific strategies have proven to be effective:

- Providing healthier foods to children at school
- Improving the availability of healthy foods at home
- **Increasing the frequency, intensity, and duration of physical activity at school**

- **Improve access to safe places where children can play**
- Limit time watching television, using the computer, or playing video games.

Additional recommended programs include the CT DEP's No Child Left Inside Program as well as New York City's menu labeling requirements and removal of trans fats from restaurant foods.

### **Office of Responsible Growth/Office of Policy and Management**

The Office of Responsible Growth was established by State Executive Order 15 to coordinate state efforts to revitalize cities, preserve the unique charm of the state and build livable, economically strong communities while protecting natural resources for the enjoyment of future generations. The Office of Responsible Growth is housed within the Connecticut Office of Policy and Management. Responsibilities of the Office of Responsible Growth include preparing the State Plan of Conservation and Development every five years, as well as reviewing state plans, projects, and bonding requests to ensure that they are consistent with the State Plan. One of the six growth management principles in the State Plan of Conservation and Development is to concentrate development around transportation nodes and along major transportation corridors to support the viability of transportation options. This principle is extremely important for creating and maintaining walkable and bikable communities.

### **Department of Environmental Protection**

The Department of Environmental Protection is responsible for maintenance of the state parks and forests as well as many of the state's recreational trails. An annual grant program makes money available to towns and regions with eligible trail projects which expand the state's network of multi-use trails or improve existing trails.

Connecticut's Greenways Council, whose members are appointed by the Governor, meets monthly

to discuss ongoing concerns such as legislative approval for new projects, existing trail maintenance, how to better meet the recreational needs of pedestrians, cyclists and equestrians, and project funding as well as other relevant issues.

*No Child Left Inside* is an initiative of Governor M. Jodi Rell and is coordinated by CT DEP. The purpose of the program is to encourage families throughout the state to utilize all of the recreational resources and outdoor activities available in Connecticut's state parks, forests and waterways. The program features events such as family hikes and wildlife education, tracking, and observation with instruction from wildlife biologists and other outdoor professionals who attend and teach at the events, held at various state parks and wildlife management areas. All initiatives are either free of charge or require a minimal cost.

One component of the *No Child Left Inside* program is The Great Park Pursuit, which is designed to market the overall *No Child Left Inside* program as well as introduce families to State Parks and Forests. The Great Park Pursuit is a multi-week game that takes families on an interactive tour of parks and forests across the state. The game allows families to experience different parks and participate in a wide variety of activities tied to either recreational offerings or historical significance found in the park system. The Great Park Pursuit has had much success, more than doubling its enrollment in three years, from 400 families in 2006 to over 900 families in 2008. More information on this program is available at <http://www.nochildleftinside.org/programs/>.

The Department's *Connecticut Recreational Trails Plan*, a requirement for federal recreational trail funding, outlines a number of goals and objectives in place to preserve, enhance, and develop trails and access for a wide variety of uses including bicycling and walking/hiking. Specifically, the Plan calls for the continuity and linkage of trail systems around the state as well as the development of recreational areas for all trail users in the state.

## Design Standards for Facilities in Connecticut

The CTDOT Highway Design Manual was revised in 2003 and contains design standards for streets and highways. It includes design standards for on-road and off-road bikeways that mirror the guidelines set forth in the American Association of State Highway and Transportation Officials (AASHTO) *Guide for Development of Bicycle Facilities*, released in 1999. AASHTO's Guide, or "Green Book," is designed to provide information on the development of facilities to enhance and encourage safe bicycle travel, and illustrates how to accommodate bicycle traffic in most riding environments, including roadways and shared use paths.

AASHTO also developed the *Guide for the Planning, Design, and Operation of Pedestrian Facilities* in 2004. The guide focuses on identifying effective and appropriate measures for accommodating pedestrians on various public rights-of-way. This guide is also a good resource on the effect that land use planning and site design have on pedestrian mobility.

In addition, CTDOT utilizes the 1989 Federal Highway Administration (FHWA) publication, "Planning, Design, and Maintenance of Pedestrian Facilities" when designing pedestrian facilities. This handbook provides information on pedestrian facilities that can serve the needs of planners and engineers in the majority of cases. Where additional in-depth information is required; the handbook identifies other relevant publications in which the information can be obtained.

The above referenced documents provide CTDOT general guidance when designing facilities. They are not considered strict standards, but rather present sound guidelines that will be valuable in attaining good design sensitive to the needs of pedestrians, bicyclists, and other highway users. More innovative design strategies that can be used in various cases are available in Appendix F.

## Internal and External Agency Coordination

At CTDOT, one full-time staff person spends 50 percent of his time on bicycle and pedestrian issues. This time is spent internally with other CTDOT offices and externally with other state agencies, RPOs, local governments, and interest groups to ensure that bicyclists and pedestrians are considered when planning transportation facilities. The Bicycle and Pedestrian Coordinator position is currently located within the Bureau of Policy and Planning at CTDOT.

According to the FHWA, the typical duties of a state Bicycle and Pedestrian Coordinator are as follows:

- A. Plan and manage new programs in the areas of non-motorized accommodations, safety, educational materials, enforcement materials, courses, and recreation.
- B. Assist in development of State and MPO level bicycle and pedestrian facility plans.
- C. Develop safety and promotional information through printed materials, videos, TV spots, press releases, interviews, and promotional activities.
- D. Develop guidelines to assist all metropolitan areas in developing a comprehensive pedestrian/bicycle plan and provide assistance to local jurisdictions in the development of plans and programs.
- E. Develop (or prepare) printed materials such as quarterly newsletters, maps showing bicycle and pedestrian routes, safety information, and answer inquiries from citizens.

- F. Arrange for special displays and events, including conferences, workshops, and other public and technical information presentations.
- G. Develop (if necessary), review, and update State's Comprehensive Bicycle and Pedestrian Transportation Plan.
- H. Serve as principal contact with Federal, state and local agencies, the press, citizen organizations, and individuals on matters relating to bicycles and pedestrians.
- I. Coordinate and maintain budget and forecast budgetary needs.
- J. Review projects for conformity with design standards and the state's comprehensive plan as it relates to bicycle and pedestrian facilities.
- K. Identify legislative requirements and recommend appropriate changes in state law to facilitate maximum utilization of the bicycle and pedestrian modes for transportation purposes.
- L. Maintain current knowledge of sources of funding for program. Work with appropriate offices to fully integrate bicycle and pedestrian projects in programming decisions.
- M. Serve as bicycle and pedestrian advisory committee member (if applicable).
- N. Develop priorities for special studies in areas such as:
  - 1. cause of accidents
  - 2. locations of accidents
  - 3. effectiveness of new facility designs

- 4. needs analysis
- 5. barrier removal analysis
- 6. origin and destination surveys

- O. Monitor pedestrian and bicycle use, provide recommendations for system improvement and develop usage data.

The needs of bicyclists and pedestrians are considered by CTDOT planning and highway and facility design and engineering offices when developing projects for roadway and transit facilities. The project development process includes an assessment of bicycle and pedestrian travel within the study area / project corridor. The first review of bicycle and pedestrian needs occurs in the initial planning phase. In engineering design, the assessment is again reviewed through a checklist of bicycle and pedestrian travel generators. Examples of generators include parks, schools, libraries, and churches. If any generators are identified in the study corridor/project area, a determination of the need for accommodating bicycles and pedestrians, should be coordinated with interested stakeholders. The assessment also includes a checklist of organizations with which coordination is required. Finally, there is detailed list of questions related to bicycle and pedestrian travel in the project area. The questions are intended to provide information on relevant issues such as the presence of secondary roads that bicyclists and pedestrians could use, or whether there is a bicycle or pedestrian crash history in the project area. The checklist also facilitates coordination with the responsible RPO and local municipality where the project is being proposed. Appendix G includes the most current required assessment of bicycle and pedestrian travel with the study area / project corridor.

In addition, the bicycle and pedestrian coordinator serves as the principal contact with Federal, state and local agencies, the press, citizen organizations, and individuals on matters relating to bicycles and pedestrians. Typical responsibilities of the state bicycle and pedestrian coordinator

include assisting in the development of state, regional, and local bicycle and pedestrian plans and programs; serve as bicycle and pedestrian advisory committee member; and plan and manage new programs in the areas of non-motorized accommodations, safety, educational materials, enforcement materials, courses, and recreation.

### **Safe Routes to School (SRTS) Program**

CTDOT has a full-time SRTS Coordinator that implements the statewide SRTS program. The SRTS Coordinator is in addition to the existing State DOT Bicycle and Pedestrian Coordinator position, and must be dedicated to SRTS coordination activities. Typical duties of the state SRTS coordinator include:

- Schedules, attends, monitors and oversees the Safe Routes to School grant,
- Monitors and approves program budget, and
- Ensures compliance with federal and state regulations.

## **Recommendations**

The Plan includes the following recommendations and selected implementation options from Chapter III. Goals 1, 2, 3, and 7 have several policy and practice related implementation options.

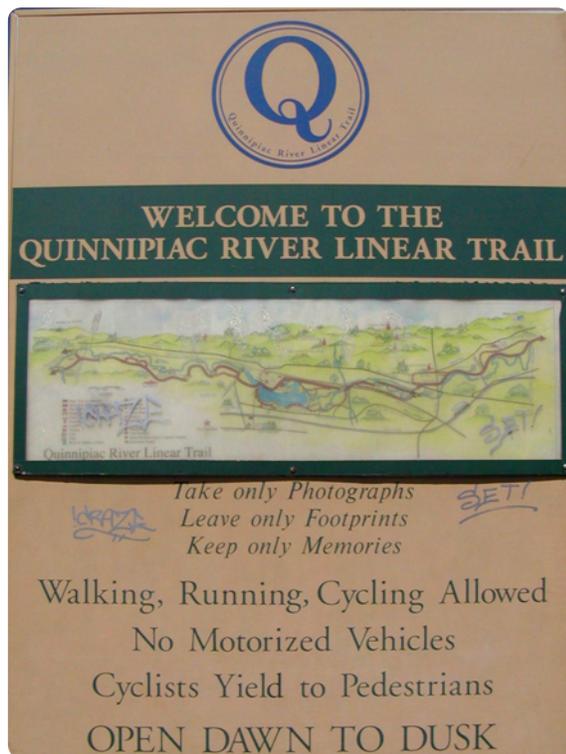
The implementation options listed below can be utilized individually or in combination with one another. This list is not exhaustive, of bicycle- and pedestrian-friendly policies and practices, to move towards the overall vision of the Plan. Some recommended implementation options include:

1. Include bicycle and pedestrian measures in CTDOT Performance Metrics Report – This report, completed in January 2009, outlines performance measures for improving roadway safety and reducing fatalities. Bicycle and

pedestrian related performance measures, which were not included in the report, should be added to the report. Such measures may include:

- Miles of bicycle lanes in the state
- Miles of signed bicycle routes
- Pedestrian and bicyclist accident rates
- Inventory of available bicycle parking facilities.
- Percentage of commuters biking or walking to work.

2. Review and maintain a Department sidewalk policy that supports the development of pedestrian facilities, including revisiting local sidewalk match requirements - A significant obstacle to sidewalk improvements is the non-federal share, or local match for the right of way and construction that the locals must produce. Currently, CTDOT does not replace existing sidewalks and provides sidewalks on state bridges when warranted. However, where sidewalks do not previously exist, CTDOT does not provide local matching dollars for Federal projects. This contribution normally amounts to 20 percent of the project cost, and is often a barrier to the construction of needed sidewalks in town centers and other commercial areas. To the extent that they are available, state funds should be utilized to match funds on sidewalk construction. This policy could be connected to the Complete Streets Policy to further encourage and accommodate the development of the sidewalk network. Additionally, CTDOT may consider counting local in-kind services as matching funds. Many municipalities have expressed an interest and resources to provide design and/or construction services for the sidewalks as an offset to local dollars.



**Model Project Coordination: Quinnipiac River Linear Trail – Phase 2, Wallingford, CT**

Phase 2 of the Quinnipiac Linear Trail was an undeveloped a 900-foot span of trail at the intersection of the Wilbur Cross Parkway and the Quinnipiac River in Wallingford, CT. In this span, the trail needed to cross the Wilbur Cross Parkway to follow the Quinnipiac River. At this location, the Parkway was situated on fill (on a hill) and building a bridge over this was not feasible. ConnDOT suggested constructing a tunnel under the Parkway. In addition, ConnDOT required that the construction not disrupt vehicular traffic flow on the Parkway.

The Town of Wallingford and their consultants began early on continuous coordination with a number of groups to ensure that their trail would be constructed. The team coordinated with ConnDOT to ensure that the tunnel, a 10' X 14' box culvert, was built to ConnDOT's specification and installed with minimal construction traffic impacts. In addition, the team coordinated with DEP to utilize the tunnel as flood relief during times of high river flow. Finally, the team met early with the state police to coordinate and staff vehicular travel through the construction site.

Construction was scheduled for three consecutive weekends in October 2005 when Parkways volumes were lowest and there were no events at the Oakdale Theater. There were no complications and construction was completed early, in only two of the three allotted October weekends.

The Town of Wallingford attributes the project's great success to their persistence at completing the work, early coordination with all affected parties, and selection of competent design and construction firms. For more information on this project, please contact John Thompson, Town of Wallingford Engineer at 203-294-2035.

3. Improve the Bicycle and Pedestrian Needs Review phase of the project design process – The present Bicycle and Pedestrian Needs Checklist should be examined and redesigned, if necessary, to insure that it is as inclusive as possible. In addition, the new project development process should be examined and re-structured if necessary to ensure the full participation and timely review of the CTDOT Bicycle and Pedestrian coordinator in the development of new projects which have the potential to benefit cyclists and pedestrians
4. Improve the training of CTDOT Design staff and CTDOT Maintenance staff – Encourage the participation of designers and maintainers in state-of-the-art bicycle facility design classes in collaboration with the University of Connecticut and other educational institutions.
5. Provide early notification to municipalities of maintenance/restriping schedules – This information would allow the local governments an opportunity to provide input regarding their needs and support for accommodation measures such as restriping to include bicycle lanes and other relevant markings.
6. Review AASHTO standards and innovative approaches - CTDOT should consider implementing best practices and other standards and innovative approaches. CTDOT should conduct a detailed review of standards as well as other state and town innovative strategies and best practices. Program administrators of those strategies should be contacted with questions on implementation. Additional benchmarking reviews with other states could be conducted to ensure CTDOT is continuing advancing its innovative practices.
7. Utilize the state-of the-art design toolbox - CTDOT should review the state-of-the-art design toolbox (see Appendix F) to fully identify those strategies in the toolbox that are applicable to projects in Connecticut.
8. Maintain a regular schedule of meetings of the Statewide Bicycle and Pedestrian Advisory Committee – Regularly scheduled meetings would serve to keep interested stakeholders informed regarding planning and implementation of measures intended to improve bicycle and pedestrian accommodation and safety by CTDOT and other relevant state agency and local government developments and initiatives.
9. Coordinate directly with regional planning agencies and local jurisdictions, state agencies, and statewide user / advocacy groups - CTDOT may consider coordination, in addition to the regularly schedule Advisory Committee meetings, with the above listed groups on bicycle and pedestrian related issues, including to expand and enhance the multiuse trail system.
10. Consider Memorandum of Understanding agreements with local jurisdictions. These could cover such things as sidewalk / multiuse path maintenance or even maintenance scheduling protocol. Currently, responsibility for many bicycle facilities and local sidewalk issues is still uncertain, a formal MOU on the issue of maintenance could help ensure maintenance is planned for, funded and undertaken in a coordinated manner.

11. Develop a program to increase bicycle and pedestrian related amenities at intermodal and Park & Ride facilities – Adding amenities such as bicycle parking racks can make multimodal travel easier and more seamless. Quarterly or annual counts of bicycle rack usage should be undertaken to identify current demand and help to ensure facilities are designed properly to meet demand.
12. Coordinate with bus and rail transit service providers - During the Plan outreach process, the public expressed that the MetroNorth schedule and occupancy restrictions are an impediment to bicyclists wishing to commute by bicycle. A particular difficulty is the peak hour restrictions. Many residents and commuters in Southwest Connecticut have a strong desire to carry their bicycles with them on the train, and fewer travel restrictions for cyclists wishing to use bus and rail would increase opportunities for the use of bikes to commute to work and accomplish other necessary trips during the day.
13. Expand education programs for non-motorized transportation users – A program could be set up to assist travelers with traveling with bicycles on trains and buses. The program could include information resources, including on-line, on available amenities.
14. Encourage installation of bicycle parking at private employment and retail facilities – This could be articulated through the Advisory Committee or encouraged in the STC review process or the design review process.
15. Provide CTDOT supported designs to operators of facilities – CTDOT can share its supported designs as well as the updated design toolbox, located in Appendix F with other operators of facilities.
16. Evaluate opportunities to recognize potential trip reduction credits – CT-DOT should encourage the STC to address pedestrian and bicycle access and egress as well as bicycle storage opportunities in their certification process. Additionally, further review of trip reduction credits for bicycling and walking should be considered. Such credits would help to further Connecticut's Smart Growth programs
17. Consider public-private partnerships for facilities – In order to insure that all available resources are utilized, CTDOT should attempt to optimize the pool of available funding through consideration of alternative and more innovative ways to pay for the construction and maintenance of sidewalks, multi-use trails, bicycle paths, and other facilities used for non-motorized transportation. For example, BikeStation in California has worked to provide bicycle parking and bicycle related services at transit centers. These membership based facilities provide secure bicycle parking at transit centers in partnership with local municipalities and transit operators. In addition, trail construction costs can be shared with private property owners.
18. Continue to fund training initiatives for regional and municipal officials (e.g. training by UConn T<sup>2</sup>Institute) - CT-DOT should continue to offer appropriate training sessions to its staff, consultants, advocacy groups, and other interested individuals on pedestrian and bicycle design and planning to enable these professionals to develop their skills to better accommodate these modes.

19. Coordinate more closely with the State Traffic Commission to address and resolve bicycle and pedestrian issues

- The STC process currently requires information on pedestrian and bicycle circulation within proposed development sites only. The Steering Committee and regional and local governments have expressed that the effect of the development on the outside bicycle and pedestrian system should also be documented as part of this process. For example, the impact on cyclists and pedestrians of adding a turn lane to a roadway to accommodate traffic turning into the proposed development should be evaluated.

20. Insure full representation of all relevant state agencies on the Statewide Bicycle and Pedestrian Advisory Committee – Providing full coordination

with the staff from other state agencies will ensure that CTDOT stays current with ongoing policies and programs and capitalizes on opportunities to benefit bicycle and pedestrian transportation. For example, a representative of OPM should be included to support their Responsible Growth Initiatives and a representative of DEP to stay current on the Recreational Trails Program and other relevant programs.

21. Include all relevant CTDOT offices and divisions on the Statewide Bicycle and Pedestrian Advisory Committee – This

will ensure the maximum participation and coordination by all CTDOT staff with a stake in bicycle and pedestrian issues, especially maintenance and design. The knowledge and understanding of these concerns will be enhanced throughout the Department as well.

#### Equipment Sharing: WINCOG Regional Sharing of Trail Maintenance Equipment, Windham, CT

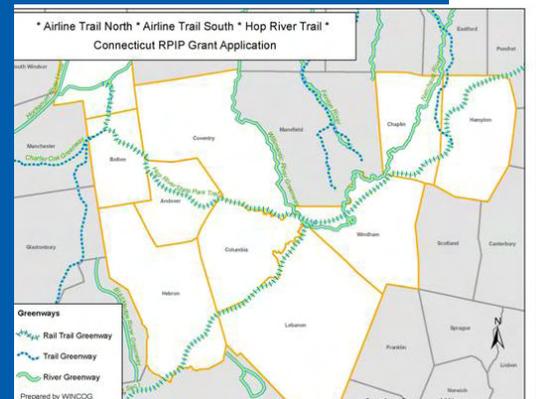
Six WINCOG municipalities (Chaplin, Columbia, Coventry, Hampton, Lebanon and Windham) and four CRCOG municipalities (Andover, Bolton, Vernon and Hebron) jointly applied for funding to share several pieces of trail maintenance equipment. A small excavator and a multi-use tractor with several attachments were to be shared by the public works departments of the 10 towns.

WINCOG wrote the grant proposal for the Regional Performance Incentive Program funding, offered through CT Office of Policy and Management. The equipment purchase was funded in Spring 2008 and implemented in Fall 2008.

The equipment will assist in maintaining 47 miles of unpaved Rail Trails in Eastern CT, including portions of the East Coast Greenway. In addition, the Hop River State Park Trail, the Airline Trail-North and South, and the Valley Falls Trail into Vernon will be maintained with the purchased equipment. The towns will create a sharing agreement regarding maintenance, upkeep, and storage of the trail equipment to be shared.

Overall, the agreement created a better bond amongst the towns and opened the door for other equipment type sharing in the region.

For more information on this agreement, please contact Mark N. Paquette, Executive Director, Windham Region Council of Governments at 860-456-2221 or [director@wincog.org](mailto:director@wincog.org).



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# V. BICYCLE AND PEDESTRIAN SAFETY

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## Bicycling and Walking Safely in Connecticut

Bicycle and pedestrian safety is an important topic in Connecticut. A recent heightened awareness of safety issues, coupled with the growth of bicycling and walking activity, has led to recent enactments of new legislation related to safety. In 2008, legislation was passed, the so-called “3-foot passing law,” requiring that motorists overtaking a cyclist on a public roadway must allow a minimum of three feet of separation between the cyclist and the overtaking vehicle. As this Plan is being developed there are an additional number of new potential regulations related to safety currently being considered by the Connecticut legislature.

The public perception of pedestrian and bicycle safety can have either a positive or a negative effect on those currently considering undertaking such activity. News of injuries and even deaths of bicyclists and pedestrians can establish perceptions that such activities may not be safe, and seriously discourage the public from engaging in these activities. To address the issue of safety, CTDOT has included safety in the vision, goals, and action strategies of this Plan update. The vision of the Plan is “to encourage and promote bicycling and walking throughout Connecticut by providing for the safe, convenient, and enjoyable use of these modes of transportation. Further, any person will be able to walk, bicycle, or use other types of nonmotorized transportation modes safely and conveniently throughout the State.” Specifically, Goal Four addresses bicycle and pedestrian safety and outlines action strategies to improve them through better monitoring of crash data and mitigation of crashes. Better understanding of the causes of crashes leads to more effective design countermeasures to improve bicycle and pedestrian safety. Improving

safety will ultimately encourage more people to walk and bicycle as a means of transportation

CTDOT's *Highway Safety Plan* reports that there were 4,784 pedestrian fatalities and 770 bicycle fatalities in 2006 in the United States. This is 11.2 percent and 1.8 percent of the total highway fatalities respectively. While the percentage of pedestrian fatalities has steadily decreased from 19.8 percent in the 1960s, the percentage of bicycle fatalities has been consistently between one and two percent since 1960. In Connecticut, there were five bicyclist fatalities (0.6 percent of national bicycle total) and 38 pedestrian fatalities (0.7 percent of the national pedestrian total) in 2005.

## Crash Data

This section includes information on motor vehicle crashes that involve pedestrians and bicyclists for years 2005 through 2007. CTDOT collects and monitors crash data on an annual basis for all roadway classes (Interstate, U.S. Route, State Highway, and local owned and maintained).

While crash data is an important tool for researching problem areas, there are limitations to the data that one should consider. Only crashes that are reported to the police are included in this data. Typically, only crashes involving motor vehicles, and those having fatalities, injuries, or property damage, are reported. Crashes involving bicycles-only or bicycles and pedestrians, as well as those that do not have fatalities, injuries, or property damage, are not typically reported to the police. The police are responsible for filing the crash reports, which are then entered into the statewide crash database. Another limitation of the data is that property damage only crashes on local roads are not reported for years 2005 and 2006. Year 2007 was the first reporting year

for crashes on local roads that involved property damage only.

### Crashes Involving Pedestrians

There were 79,563 crashes reported on all roadways in Connecticut in 2005. Of these, 1,096 (1.4 percent) crashes involved pedestrians. The statewide total crash number dropped to 71,724 in 2006, with 1,066 (1.5 percent) of the crashes involving pedestrians. In 2007, there were 112,785 crashes reported statewide, and 1,275 (1.1 percent) of the crashes involved pedestrians. Table 11 displays statewide pedestrian crash totals by crash type.

In Connecticut, approximately two to four percent of crashes that involve pedestrians result in

fatalities. Approximately 90 to 95 percent of all crashes that involve pedestrians result in injuries, most often to the pedestrian.

The largest percentage of pedestrian crashes for all years occurred on local roads (60 percent and greater). The smallest percentage of crashes for all years occurred on Interstate highways (less than 2.2 percent). Table 12 displays pedestrian crash totals by road class for the 2005 – 2007 three-year period.

Figure 3 displays pedestrian crash locations on Interstates, U.S. Routes, and state roads (local road crashes not included) for years 2005 and 2006. Figure 4 displays concentrations of the pedestrian crashes for years 2005 and 2006. Pedestrian crashes are disproportionately high in the

**Table 11: Statewide Pedestrian Crash Totals by Crash Type**

	2005	2005 (%)	2006	2006 (%)	2007	2007 (%)
Fatal Crashes Involving Pedestrians	35	3.2%	38	3.6%	30	2.4%
Injury Crashes Involving Pedestrians	1,041	95.0%	1,008	94.6%	1,164	91.3%
Property Damage Only Crashes Involving Pedestrians	20	1.8%	20	1.9%	81	6.4%
<b>Total:</b>	<b>1,096</b>		<b>1,066</b>		<b>1,275</b>	

**Table 12: Statewide Pedestrian Crash Totals by Road Class**

	2005	2005 (%)	2006	2006 (%)	2007	2007 (%)
Interstate	23	2.1%	16	1.5%	20	1.6%
U.S. Route	99	9.0%	131	12.3%	141	11.1%
State Route	282	25.7%	279	26.2%	280	22.0%
Local Road	692	63.1%	640	60.0%	834	65.4%
<b>Total:</b>	<b>1,096</b>		<b>1,066</b>		<b>1,275</b>	

more urbanized areas of the state where large numbers of users (pedestrians, bicyclists, and motorists) are all utilizing the same facilities. The cities of Bridgeport, Hartford, New Haven, Stamford, and Waterbury have the highest number of pedestrian crashes (more than 70 in any one year of the 2005-2007 period). Almost 45 percent of all crashes that involve pedestrians occurred in these five cities over the three year period.

Suburban areas in Connecticut receive the next greatest proportion of crashes. The towns of Bristol, Danbury, East Hartford, Greenwich, Hamden, Meriden, Middletown, Milford, New Britain, New London, Norwalk, Norwich, West Hartford, and West Haven have all had a minimum of 20 crashes in any one year of the 2005-2007 period. Twenty-nine percent of all crashes occurred in these 14 towns over the three-year period. Appendix H presents a town by town summary of pedestrian crashes for years 2005-2007.

### **Crashes Involving Bicyclists**

There were 79,563 crashes reported on all roadways in Connecticut in 2005. Of these, 692 (0.9 percent) crashes involved bicyclists. The statewide total crash number dropped to 71,724 in 2006, with 645 (0.9 percent) of the crashes involving bicyclists. In 2007, there were 112,785 crashes reported statewide, and 829 (0.7 percent) of the crashes involved bicyclists. Table 13 displays statewide bicycle crash totals by crash type.

In Connecticut, crashes that involve bicyclists are fatal in less than one percent of instances. Approximately 80 to 93 percent of all crashes that involve bicyclists result in injuries, often to the bicyclist.

The largest percentage of bicycle crashes for all years occurred on local roads (52 percent and greater). The smallest percentage of crashes for all years occurred on Interstate highways (less than one percent), where bicyclists are legally not allowed. Table 14 displays bicycle crash to-

totals by road class for the 2005 – 2007 three-year period.

The age of the bicycle crash victims is reported for crashes. In the 2005-2007 three year period, the largest percentage of victims were age 10-19 years. The second highest percentage of victims was aged 20-29. In all three years, 83 – 85 percent of the bicyclists involved in crashes were male. Figure 5 displays bicycle crash age information.

Like pedestrian occurrences, bicycle crashes are disproportionately high in the more urbanized areas of the state where large numbers of users (pedestrians, bicyclists, and motorists) are all utilizing the same facilities. Typically, the most populated and urbanized towns have the highest number of bicycle crashes. The cities of Bridgeport, Hartford, and New Haven have the highest number of bicycle crashes (more than 50 in any one year of the 2005-2007 period). Twenty four percent of all crashes that involve bicyclists occurred in these three cities over the three year period.

Other urban and suburban areas in Connecticut that had the next greatest proportion of crashes include Bristol, Danbury, Manchester, Meriden, New Britain, Norwalk, Stamford, Waterbury, and West Haven. These municipalities have all had a minimum of 20 crashes in any single year of the 2005-2007 period. Almost 27 percent of all crashes occurred in these 9 municipalities over the three-year period. Appendix I presents a town by town summary of bicycle crashes for years 2005-2007.

### **Education Programs**

Education programs assist in the development of knowledge and skills related to the travel needs of bicyclists and pedestrians. Many people are unaware of their rights and responsibilities as bicyclists, pedestrians, equestrians, and motorists sharing the same roadways. There are a number of education programs established in Connecticut to promote the safety of bicyclists and pedestri-

Figure 3: Crashes that Involve Pedestrians on State Highways (2005-2006)

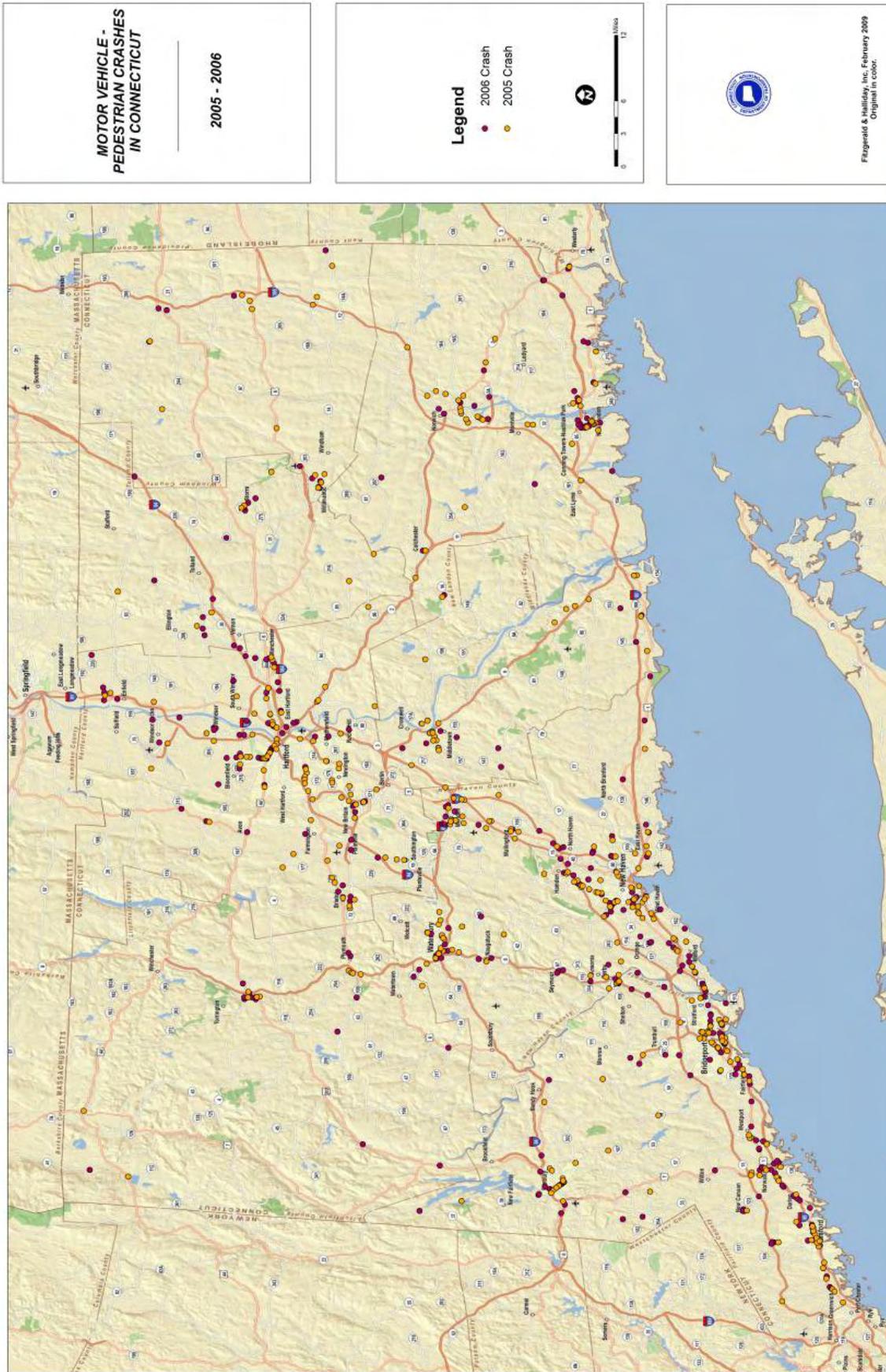
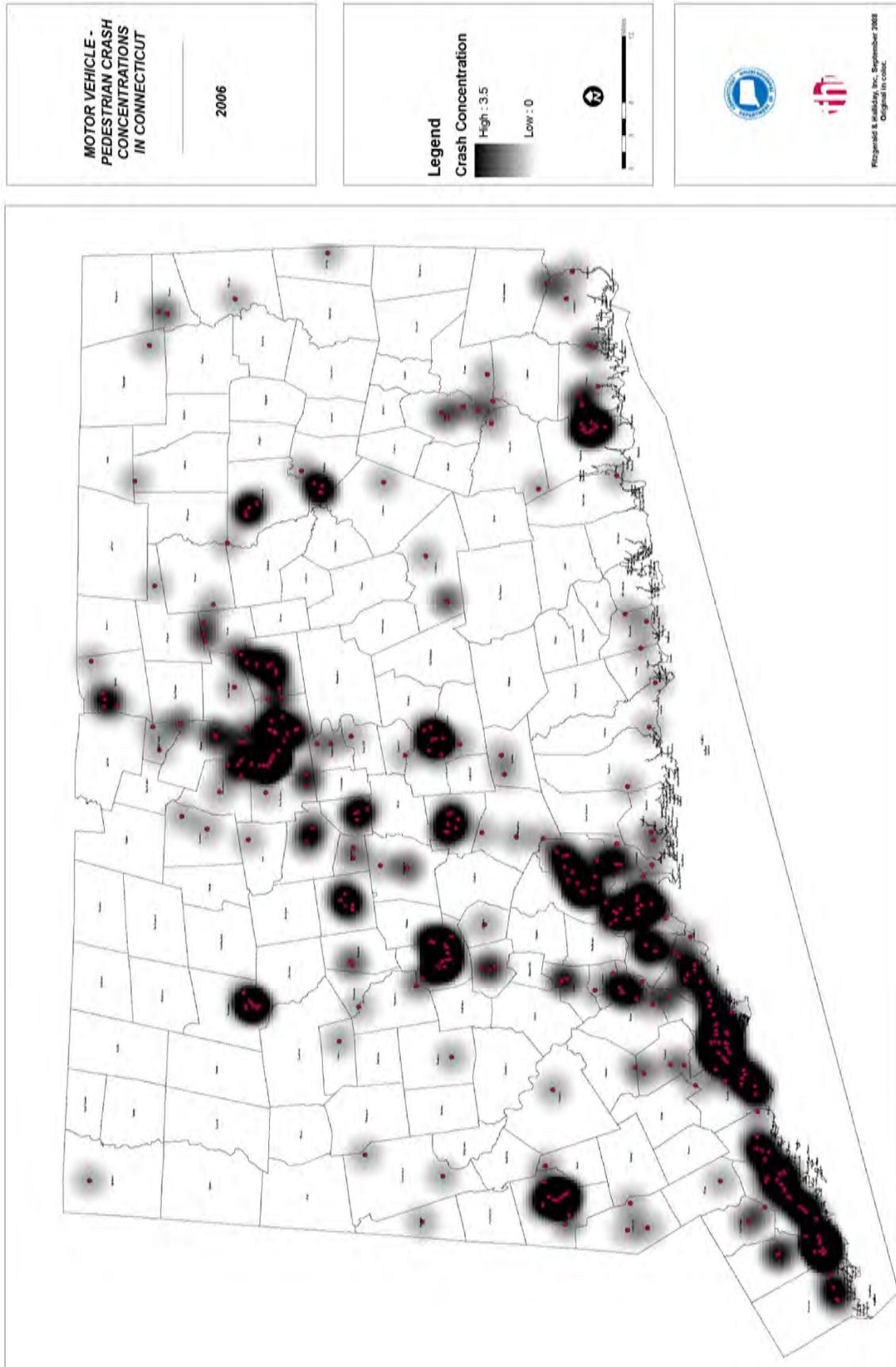


Figure 4: Concentrations Crashes that Involve Pedestrians on State Highways (2005-2006)



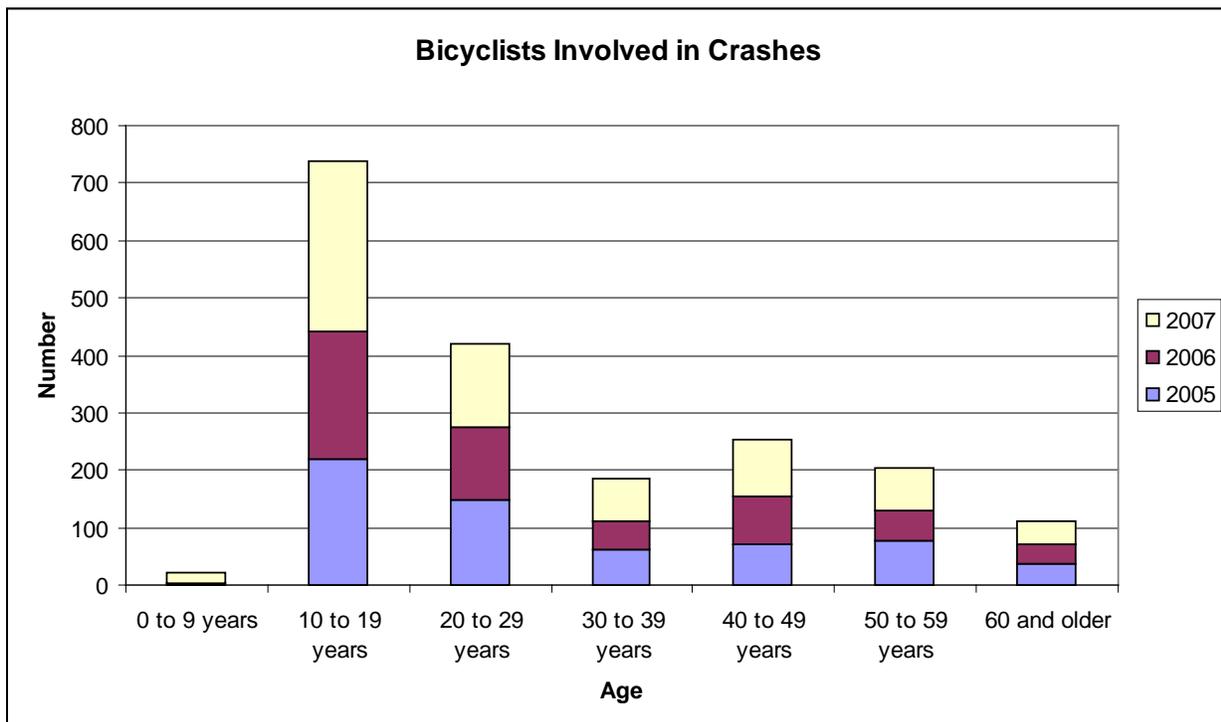
**Table 13: Statewide Bicycle Crash Totals by Crash Type**

	2005	2005 (%)	2006	2006 (%)	2007	2007 (%)
Fatal Crashes Involving Bicyclists	3	0.4%	5	0.8%	5	0.6%
Injury Crashes Involving Bicyclists	645	93.2%	580	89.9%	662	79.9%
Property Damage Only Crashes Involving Bicyclists	44	6.4%	60	9.3%	162	19.5%
<b>Total:</b>	<b>692</b>		<b>645</b>		<b>829</b>	

**Table 14: Statewide Bicycle Crash Totals by Road Class**

	2005	2005 (%)	2006	2006 (%)	2007	2007 (%)
Interstate	4	0.6%	4	0.6%	6	0.7%
U.S. Route	79	11.4%	91	14.1%	95	11.5%
State Route	219	31.6%	213	33.0%	227	27.4%
Local Road	390	56.4%	337	52.2%	501	60.4%
<b>Total:</b>	<b>692</b>		<b>645</b>		<b>829</b>	

**Figure 5: Statewide Crash by Bicyclists Age**



ans. Several existing education programs are described below:

### **Safe Routes to Schools (SRTS)**

SRTS, discussed in Chapter Four, is a federal program that promotes walking and bicycling to school for students in kindergarten through eighth grade. In Connecticut, the SRTS program is administered by CTDOT and provides funding for education, as well as encouragement, engineering, enforcement, and evaluation activities. Examples of education activities that can be supported with SRTS funds include:

- Teaching children about pedestrian, bicycle, and personal safety.
- Educating children and parents about the health and environmental benefits of walking to school.
- Educating drivers about safe drop off and pick up practices.
- Educating neighbors about safe walking and biking environments.
- Creating awareness of the benefits and goals of SRTS.

Municipalities and schools are selected through a competitive process to receive SRTS funds.

### **Safety Awareness Campaign**

The *2009 Master Transportation Plan*, developed by CTDOT, outlines a pilot safety awareness campaign initiative. This campaign was launched in May - July 2009 and emphasizes the need for motorists, bicyclists, pedestrians and equestrians to share transportation facilities safely and is one of the measures required by the 3-foot passing law passed in 2008. The chief components of the safety awareness campaign pilot include bus-mounted sign boards and radio announcements focusing on a "sharetheroadct" web site for related information.

### **CT Technology Transfer Center Training**

In the spring of 2008, the CT Technology Transfer Center, with funding from FHWA and CTDOT, conducted a series of three trainings workshops across the state covering topics relating to designing bicycle and pedestrian facilities in Connecticut. The two-day course was held in Norwalk, Farmington, and Storrs. Advance notice and an invitation to register were e-mailed to municipal engineers and planning, RPO staff, and CTDOT design and planning staff. Ninety-two attendees participated in the trainings, with the largest percentage, 53 percent of the participants, from local and regional governments. The next largest percentage of attendees (38 percent) was from CTDOT.

The design workshop training syllabus included the following topics:

- Bicyclist and pedestrian user characteristics
- Engineering tools for intersection and sidewalk design as well as multi use paths
- Design standards including access for different physical abilities (ADA and seniors)

The training contained real life national, regional, and state examples to attach meaning and enhance the learning of the participants. Countermeasures to address problem areas were interconnected with the broader issues of connectivity, livability, and municipal policies and risk management considerations. There was also a discussion on funding opportunities and their corresponding requirements.

The workshops provided an opportunity for different segments of the transportation community to come together in a collaborative environment and learn about common challenges faced by planners and engineers addressing the issues relating to designing these facilities

## **CT Department of Motor Vehicles**

In 2008, the *Connecticut's Drivers Manual* was revised to include expanded language to educate motorists on sharing the road safely with bicyclists and pedestrians. This new language was spearheaded by the Bicycle and Pedestrian Stakeholders Group that convened as part of the *Strategic Highway Plan*. The language states the following:

*“Under Connecticut law, a bicycle is considered a vehicle with the same rights and responsibilities as cars and other vehicles on the road. Drivers should expect to see bicyclists on the road, riding with traffic. A bicyclist may use the left lane when turning.*

*When a road is too narrow for cars and bikes to ride side-by-side, the bicyclist will “take the travel lane” which means riding in or near the center of the lane. A major problem for drivers is the ability to see bicyclists, especially at night. Sometimes they may be in the blind spot of your vehicle. When you approach a bicyclist, keep on the lookout and slow down. Learn to recognize situations and obstacles which may be hazardous to cyclists, such as potholes, drain grates and narrow bridges or roadways. Give them adequate space to maneuver. To avoid conflict, drivers of motor vehicles need to know the rules:*

- *Do not drive or park in a bicycle lane. You may cross a bicycle lane, such as when turning or when entering or leaving an alley, private road, or driveway.*
- *Fines are doubled for failure to yield right-of-way to a bicyclist.*
- *You must yield to bicyclists in a bicycle lane or on a sidewalk, before you turn across the lane or sidewalk.*
- *Do not crowd bicyclists. Wait for a clear stretch of road before passing a bicyclist who is moving slower than your motor vehicle in a lane too narrow to share. Remember, the bicycle is a slow-moving vehicle and this may require you to slow down. The greater the speed difference between you and a bicyclist, the more room you should allow when passing.*
- *Do not honk at a bicyclist, unless you have good cause to warn the rider. The loud noise could startle the rider. There may be a good reason for the bicyclist to be riding in the travel lane, such as roadway hazards not visible to motorists.*
- *When turning left at an intersection, yield to oncoming bicyclists just as you would yield to oncoming motorists.*
- *Do not pass bicycles if you will be making a right turn. Always assume bicyclists are traveling through unless they signal otherwise. Children on bicycles are often unpredictable – they cannot see things out of the corner of their eyes as well as adults, so they may not see you even when they glance back before pulling out in front of you. They also have trouble judging the speed and distance of oncoming vehicles. They believe adults will look out for them, and lack a sense of danger.”*

This recently added language to the Connecticut Driver's Manual is beneficial to bicyclists and especially aimed at educating and instilling safe habits in new drivers who may have limited experience at sharing the road with non-motorized vehicles.

### **Central Connecticut Bicycle Alliance**

In 2008, CCBA and CRCOG collaborated with REI of West Hartford to provide League of American Bicyclists League Certified Instructors (LCI) training and certification to 14 students. CCBA and

REI subsidized the training and certification of the instructors with the intent to establish a formal bicycle education program in Central Connecticut that will be administered by CCBA. Beginning in 2009, the 14 newly certified LCIs will begin providing bicycle education classes to employees, commuters, students, and other interested bicyclists. Such classes include traffic safety, commuting, and children's biking safety. This League of American Bicyclists program is the only comprehensive bicycle program operating in the United States. In addition, many states and locales have adopted this program as the foundation of their bicycle education.

## Recommendations

The following recommendations are selected implementation options from Chapter III. These implementation options are specific courses of action that CTDOT and others can take to achieve safer bicycle and pedestrian travel. All of the goals in the Plan have implementation options that are policy and practice related. However, Goals 4 and 5 have the largest concentration of safety related implementation options.

Any number and /or combination of the listed implementation options could be utilized. This list is not all inclusive, as other mechanisms not listed may be used to achieve safer bicycle and pedestrian travel, and thus move towards the overall vision of the Plan. Some recommended implementation options include:

1. Complete an annual review and audit of pedestrian and bicycle accident safety issues – CTDOT should review the accident reports filed by the responding police departments for accuracy and completeness, particularly as they relate to the causes of crashes. This can be done as part of the *Strategic Highway Safety Plan* development. In addition, a list of the most common bicycle and pedestrian crash locations should be assembled. Causes of the
- crashes should be analyzed using appropriate software, such as the PBCAT model, and the most effective countermeasures to mitigate the causes at those locations considered. Additional detail is available from FHWA's Bike-Safe website <http://www.bicyclinginfo.org/bikesafe/> and PedSafe website <http://www.walkinginfo.org/pedsafe/> and handbooks. South Central Connecticut Regional Council of Governments (SCRCOG) completed such an analysis in their 2007 *Bicycle and Pedestrian Plan*.
2. Work with State and Municipal Police to improve and enhance accident reporting information – After completing the annual review, CTDOT should coordinate with the State and Municipal Police to determine ways to improve the accuracy and completeness of the reporting of bicycle and pedestrian crashes.
3. Research the obtaining of non motor vehicle-related crash information from such sources as hospitals and clinics – CTDOT should first research if hospital emergency rooms and clinic identify visits as being bicycle or pedestrian crash related. A 1999 FHWA research effort showed that, overall, 70 percent of the reported bicycle injury events and 64 percent of the reported pedestrian injury events did not involve a motor vehicle. In addition, 31 percent of the bicyclists and 53 percent of the pedestrians were injured in non-roadway locations. For pedestrian only events, 24% occurred in roadways, 51% on sidewalks, and 14% in parking lots. Parking lots were especially hazardous to pedestrians in icy weather conditions. For bicyclist-only events, 54% occurred in roadways, 21% on sidewalks, 9% on trails or other off-road paths, and only 2%

in parking lots. In contrast, 88% of pedestrian-motor vehicle and 92% of bicycle-motor vehicle events occurred in the roadway. Further development of an accident database could help to identify and focus safety improvement needs on the state's roadways.

4. Utilize the design toolbox, located in Appendix E - CTDOT should review the design toolbox in Appendix F and assess if strategies in the toolbox could be applicable to projects in Connecticut.
5. Develop a "Share the Road" campaign and safety information - This campaign, which began in May 2009, aims to develop and provide educational materials for motorists, bicyclists, equestrians and walkers. Its purpose is to 1) improve their understanding of the rules of the road and applicable traffic, bicycle, equestrian and pedestrian laws, 2) improve driver awareness of bicyclists, equestrians and pedestrians, and 3) encourage pedestrians to use available pedestrian safety devices and features (e.g. control signals, crosswalks). This media campaign could include such things as radio and television ads, signage, and printed handouts (e.g. bumper stickers, pens, etc).
6. Coordinate with CT DMV on educational material related to bicycle and pedestrian awareness - Including bicycle and pedestrian safety information in the CT Drivers Manual is a monumental first step of coordination between the two agencies. The next step would be to get CT DMV on board with CTDOT education effort. For example, CT DMV could assist in the distribution of Share the Road campaign paraphernalia. In addition, every driver license

test could include one bicycle or pedestrian question.

7. Educate bicyclists and pedestrians on reporting of all crashes, and their locations and causes - During the outreach process, the study team learned that it would be beneficial if all bicycle and pedestrian crashes (not just ones that involve motor vehicles) were reported and kept in a central database. This could allow CTDOT to design the most effective countermeasures at the most needed locations to improve safety. One way to educate cyclists to do this could be through advertising and media. For example, future versions of the Statewide Bicycle Map could promote the "Report an Issue" website, where bicyclists and pedestrians can report these crashes.
8. Developing a "Report and Issue" page on the bicycle and pedestrian website - This page would be a location where bicyclists and pedestrians could report crashes that do not involve motor vehicles as well as other unsafe biking and walking locations.
9. Coordinate with CTDOT Maintenance staff - Working with the Division of Maintenance would be to insure that lane striping guidelines are consistently applied to provide cyclists, where possible, with adequate room outside the travel lane.
10. Review AASHTO standards and innovative approaches - CTDOT should consider implementing best practices and innovative approaches, many of which were identified in the benchmarking component of this Plan update. CTDOT should conduct a detailed review of standards as well as other state and town innovative strategies and best practices. Program administrators of

those strategies should be contacted with questions on implementation.

11. Coordinate further with CTDOT Design staff - One reason to do this could be to provide training on bicycle and pedestrian Plan updates and protocol. This can also be accomplished through the design review checklist process, described in next recommendation. Bicycle and pedestrian design continue to evolve, and CTDOT design staff should stay on top of new developments.
12. Update and clarify the design review checklist to ensure the CTDOT Bicycle and Pedestrian coordinator is involved in process – Project preliminary engineering could be more effective if the Bicycle and Pedestrian Coordinator was involved in reviewing designs for roadway design features to create more pedestrian and bicycle-friendly facilities that minimize vehicle, bicycle, and pedestrian conflicts.
13. Coordinating with advocacy groups and law enforcement to promote and enforce safe practices – CTDOT should continue to coordinate with advocacy groups and law enforcement to assist in promoting safe practices. For example, other organizations will often willingly provide handouts or other information for the Share the Road campaign or the Bicycle and Pedestrian website, including the “Report an Issue” page.
14. Coordinate with CCBA and CT League of American Bicyclist LCIs to assist in or expand their bicycle education efforts – CTDOT should support the educational programs of CCBA and the League of American Bicyclists. The Department’s website should be used to advertise class schedules and availability.

### Education Campaign: Street Smarts, New Haven, CT

Street Smarts, an intermodal community education campaign, was initiated by the City of New Haven in the summer of 2008. It is a major civic effort to reduce the number and severity of road crashes in New Haven through a direct appeal to all users of an intermodal environment of motorists, pedestrians, and cyclists. An organized community-wide campaign kick-off event occurred on October 19, 2008 at Edgewood Park. New Haven Mayor John DeStefano, Jr. and community leaders attended the kick-off event. Activities at the event included:

- **Music by the Shellye Vaslauskas Experience**
- **Performance by the Connecticut Roller Girls**
- **Bicycle safety instruction**
- **Sidewalk chalk drawing**
- **Free bicycle helmets for kids from Yale-New Haven Hospital Trauma Injury Prevention**
- **Plenty of giveaways!**

An advisory committee was formed after the kick off event and includes representatives from:

- **Yale University**
- **Yale New Haven Hospital**
- **Yale Medical School Traffic Safety Committee**
- **Downtown/Wooster Sq. Management Team**
- **City of New Haven**
- **New Haven Board of Aldermen**
- **New Haven Safe Streets Coalition**
- **Elm City Cycling**

In addition, a public relations firm was employed and design assistance was funded by Yale University. Fund raising continues. Major financial partners include:

- **City of New Haven**
- **Yale University**
- **New Haven Parking Authority**
- **William Graustein**

**Street Smarts go beyond simply obeying the traffic regulations or driving below the speed limit. Street Smarts call for attentiveness at all times, patience with others, and a willingness to share the road. Drivers are encouraged to sign the "smart driver" pledge. Materials for distribution include water bottles, car magnets, tri-folds, and other materials with the clearly identifiable Street Smarts logo.**

As of 2009, the Street Smarts campaign is ongoing with early positive feedback. Approximately 1 million impressions realized to date through media, direct outreach, and commitments to the New Haven "smart driver" program. For more information on this campaign, please contact Jim Travers, City of New Haven at (203) 946-8077.



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# VI. BICYCLE AND PEDESTRIAN FACILITIES

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## Existing and Programmed Bicycle and Pedestrian Facilities

Since the passage of the Intermodal Surface Transportation Efficiency Act in 1991 there has been an increase statewide in the percentage of funding that is allocated to bicycle and pedestrian facilities. This priority has continued with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. This increase in funding is described further in Chapter VIII. This new national focus, combined with a strong local constituency, has put what were previously merely ideas for facilities, on the ground. Such facilities include the Farmington Canal Heritage Trail, the Airline Trail in the Windham area, the statewide East Coast Greenway, and more recently the Shoreline East Greenway. Like most bicycle and pedestrian facilities nationwide, Connecticut's facilities are often constructed in phases and only partially complete, with the completion of the facility dependent upon availability of funding. The DEP's CT Recreational Trails Plan includes information on the trail system, priority projects, and an overall listing of the available greenway and trails maps.

The chief parameters which determine the significance of a bicycle facility to the state's overall non-motorized infrastructure network are length and accessibility. The bicycle and pedestrian facilities that are considered to have statewide significance are displayed in Figure 6.

The State Transportation Improvement Program (STIP) is a five-year program that lists the transportation-related projects that are expected receive all federal and state transportation funds in Connecticut. There are also a number of projects that are included for funding in the 2007 STIP. The list is updated on a monthly basis and can be

accessed at <http://www.ct.gov/dot/lib/dot/documents/dpolicy/stip/2007stipprojects.pdf>.

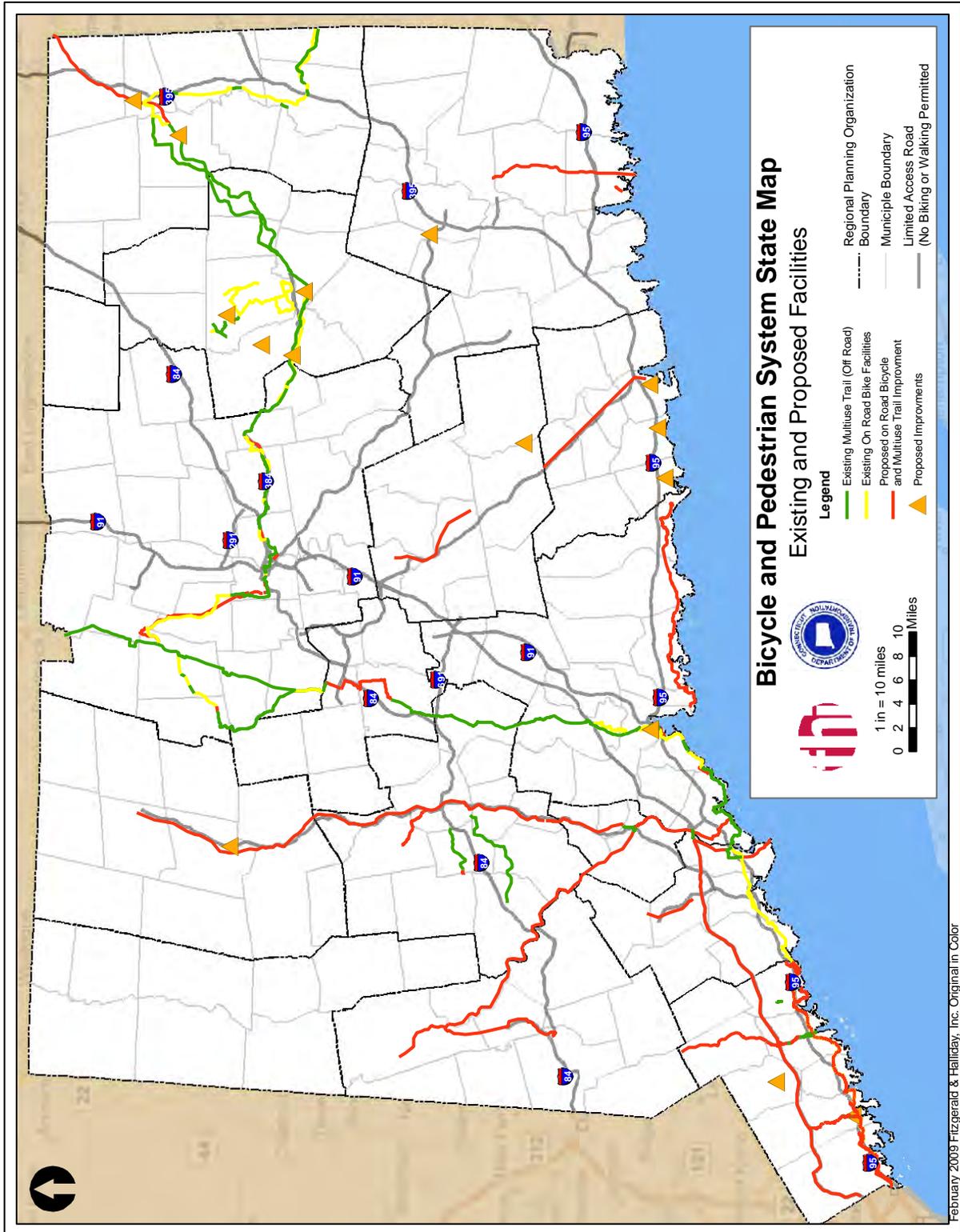
## Regional Bicycle and Pedestrian Plans

All RPO transportation plans specify bicycle and pedestrian improvements that are desired by the RPOs. In addition, representatives of each region have identified their most critical needs for bicycle and pedestrian improvements during the outreach process associated with the development of this plan. Many of the desired improvements are regional or statewide. For example, a number of RPOs cite a cross-state, multi-use trail network as their most desired improvement. This section lists the top bicycle and pedestrian improvements for each region. These improvements are considered items of statewide significance and are included in Figures 6 and Appendix J and described below.

### CCRPA

- Complete the Farmington Canal Heritage Trail and East Coast Greenway in Burlington, Plainville, and Southington.
- Develop and designate a local bicycle/multi-use network in the region and connect it to networks in adjoining regions.
- Study the potential of a cross-region trail linking urban centers with current and future greenways and multiuse trails.
- Support and implement complete/livable streets and streetscape improvement policies and projects.
- Incorporate pedestrians and cyclists into transportation planning and ensure

Figure 6: Bicycle and Pedestrian System State Map



that, whenever appropriate and possible, transportation projects benefit them.

### **COGCNV**

Complete the Naugatuck River Greenway. So far, only walking paths in Naugatuck and Beacon Falls, have been constructed along the proposed alignment. There is \$4 million allocated for the construction of future sections in Waterbury. Portions of the greenway may be on-road or for walking only.

- Design and build Steele Brook greenway in Watertown with a future connection to the Naugatuck River Greenway.
- Complete Middlebury Greenway / Trolley Line extension to Woodbury.
- Extend Farmington Canal Heritage Trail in Cheshire to Southington town line.
- Complete various pedestrian improvements in community centers, including a pedestrian connection between Brass Mill Center and Downtown, as well as a connection to the intermodal center.
- Improve bicycle facilities and integration with transit, including bicycle parking at train stations, in community centers, and other key locations.

### **CRCOG**

- Complete the Farmington Canal Heritage Trail through the region. From Farmington north to the Massachusetts border, the trail should be complete by the end of 2009. Design and construction are needed for the segment from Meadow Road in Farmington south to the Plainville town line.
- Complete the East Coast Greenway in the Region. Several segments require completion: short segment of the Hop

River Trail in Andover (drainage, grading, placing stone dust); Charter Oak Greenway link from Hop River trail in Bolton to current terminus in Manchester (some design work is complete, some construction funding is in place); Charter Oak Greenway from current terminus in East Hartford to downtown Hartford (some design work is complete, some construction funding is in place); link from Hartford to the Farmington Canal Heritage Trail, utilizing the North Branch of the Park River corridor, the Griffin rail corridor, and a Tariffville connector Trail, to link with the proposed canal trail in Simsbury (design and construction needed).

- Complete the Farmington River trail link between Farmington and the Route 4 underpass and the Burlington town line. This will enable cyclists to avoid Route 4, and make use of the bike path underpass of Route 4.
- The region has identified an on road bicycle network in its latest Pedestrian/Bicycle Plan. Improvements to this network are needed to insure bikeability throughout the region.
- Pedestrian improvements are needed throughout the region, with particular needs on busy commercial arterials (Berlin Turnpike, Route 75 near the airport, Day Hill Road, Route 44).

### **CRERPA**

- Study and construct a north-south bike route that will connect areas within the region and connect the region to Hartford. This agency will consider both on-road and/or off-road facilities.
- Improve pedestrian and bicycle routes between towns and improve access to transit.

- Expand and enhance the crosswalks in the region.

### **GBRPA**

- Complete the Housatonic Railroad Trail (also known as the Pequonnock Valley Greenway) from downtown Bridgeport to the Monroe-Newtown town line by constructing the approximate five mile section from the Pequonnock Valley in Trumbull to the end of the Berkshire Spur Trail in Bridgeport.
- Develop the Housatonic River Greenway in Stratford from Stratford Point to Roosevelt Forest, with connections to Milford over the Sikorsky Memorial Bridge (Merritt Parkway).
- Install and provide user amenities along the trail network, including route and mileage markers, information kiosks and rest areas.
- Conduct a feasibility study for a Merritt Parkway Trail.
- Designate a regional on-road bicycle route network.
- Implement a comprehensive pedestrian safety program that repairs and maintains all pedestrian facilities (crosswalks, sidewalks, pedestrian signals, signs) in a state of good repair, installs pedestrian actuated controls with countdown indicators and audible warnings, and provides good and accessible pedestrian access and paths to and from transit stops.

### **HVCEO**

- Complete the Still River Multiuse Trail, in Danbury, Brookfield, and New Milford. Some sections have been constructed, and much of the remainder of the trail

has been funded, however, a few of gaps remain.

- Complete the Housatonic Valley River Trail, a proposed multi-use trail along the Housatonic River, that would be aligned parallel to a canoe/kayak trail.
- Erect signs along bike routes that are marked on the Statewide Bicycle Map.
- Improve pedestrian access around town centers.

### **LHCEO**

- Widen state road shoulders to four feet where possible while repaving or restriping state roads.
- Provide pedestrian enhancements in Torrington. The city needs additional and wider sidewalks, traffic calming, etc.
- Complete the Naugatuck River Greenway, including pedestrian improvements from Stillwater Pond to Thomaston Dam. A study was recently completed from Stillwater Pond to Route 118.
- Harwinton has proposed a pedestrian trail south of Route 118 along east side of Naugatuck River.
- Complete a rail trail from Torrington to Winsted.
- Complete a rail trail from Litchfield to Bantam. This project had funding allocated in the 1990s, though right-of-way issues has halted the process.

### **Midstate RPA**

- Study and complete a bicycle connection between Middletown and Cromwell along Route 9 and the Connecticut River. This route could connect, or be a part of, the

future cross state route from Hartford Old Saybrook.

- Construct a sidewalk for bicycles and pedestrians on the East Haddam – Haddam Bridge.

### **Northeastern CT Council of Governments**

- Complete the East Coast Greenway in the region (Moosup Valley Trail to Quinebaug River Trail to Airline Trail North).
- Construct the proposed trailhead kiosk / visitor's center at Route 169 and Airline Trail North. This would improve pedestrian crossing of Route 169.
- Complete the existing rail trail that extends south from Massachusetts into Thompson.
- Close the gap between the Airline North and the Thompson section of Airline Trail.
- Complete the Quinebaug Trail north of Putnam towards Webster, MA.
- Complete pedestrian improvements in Putnam.
- Improve signage to various destinations and to trails, including better on- and off-road signage.

### **Northwestern CT Council of Governments**

- Sign bike routes that are marked on the Statewide Bicycle Map.
- Improve pedestrian mobility and circulation in the village centers (Cornwall, Canaan, Salisbury, Kent, Sharon, etc.). Sidewalk construction and traffic calming are necessary measures on state roads in the village centers.

### **SCRCOG**

- Consider designating Route 34 as a regional bicycle connector.
- Complete the Shoreline Greenway Trail. There are local, state, and federal funds allocated for route identification and design.
- Complete the East Coast Greenway. Currently in early planning stages to determine a contiguous off-road route that connects into the Farmington Canal Heritage Trail .
- Complete the Farmington Canal Heritage Trail connection in New Haven to Union Station and Long Wharf. This project is currently in final planning stages.
- Complete bicycle and pedestrian improvements around Union Station, in New Haven.

### **SCCOG**

- Construct the proposed mixed-use bicycle and pedestrian facility in the proposed Route 11 right-of-way.
- Complete a Route 117 multi-use facility from Bluff Point in Groton to Preston.
- Complete the Thomas Road bike lane in Groton (near airport).
- Reconstruct the Old Route 32 Bridge across the Yantic River in Yantic (either as a pedestrian bridge or as an STC requirement for redevelopment of the area). This would provide a connection across the Route 2/32 interchange.
- Improve signage and striping necessary for on-road bicycling.

## **SWRPA**

- Complete the Merritt Parkway Trail. The demonstration trail between CT 137 (High Ridge Road) and Newfield Avenue is the top priority.
- Complete the Norwalk River Valley Trail to the Norwalk/Wilton town line. One section has been completed from the Maritime Center to Union Park in Norwalk. It would intersect the Merritt Parkway Trail at the rebuilt Route 7/Route 15 interchange. This interchange is being reconstructed by CTDOT in order to provide an expressway connection between the two highways, and, if possible to improve bicycle and pedestrian access to intersecting trails. The trail has the support of the City of Norwalk.
- Complete the SWRPA Regional Bicycle and Pedestrian Plan.
- Develop a regional marked route system. Identify and sign three east-west bicycle routes: 1) East Coast Greenway on-road and Route 1 (major surface route through densely populated area with many destinations), 2) Merritt Parkway Trail, and 3) one on-road route further north from Weston to Greenwich. Identify and sign north-south bicycle routes: 1) Route 7 and/or Route 53, 2) Route 137 and/or Route 104, and 3) Route 106.
- Improve bicycle and pedestrian access and integration with transit. This includes sidewalks, bike routes markings to and around various stations; bicycle parking at all train stations, etc.
- Improve bicycle and pedestrian safety on Route 1 through markings and delineations or other measures.

- Develop a policy to narrow the lanes when re-striping to slow traffic and provide a safer place for bicycle and pedestrians. Apply this policy to certain classifications (such as minor arterials or collectors), considered as “context-sensitive design”.
- Implement sharrows and bike boxes.
- Complete the Mill River corridor in Stamford, extending up Route 137 with bike lanes or shoulders.
- Complete a pedestrian connection between South End of Stamford / Stamford Station and the Mill River / Downtown area.
- Improve pedestrian mobility, through more sidewalk development (e.g. New Canaan).
- Complete the East-West Path as proposed in the Town of Greenwich’s Bicycle Master Plan.

## **VCOG**

- Consider designating Route 34 as a regional east – west bicycle connector, connecting Derby to New Haven.
- Complete the Naugatuck River Greenway – Derby, Ansonia, Seymour (connection to Beacon Falls, and COGCNV).
- Complete the Housatonic River Greenway – west side in Shelton (connection to Stratford, GBRPA), east side in Derby (connection to Orange, SCRCOG).

## **WINCOG**

- Complete Airline Trail through Lebanon and link it to Charter Oak Greenway.

- Complete trail connection between the Hop River Trail in Columbia and Airline Trail in Willimantic.
- Complete walkway/streetscape improvements within and adjacent to Storrs Center Project.
- Complete Coventry Town Center connecting streetscapes.
- Complete resurfacing of EastCoast Greenway Trail in Coventry, Columbia, Chaplin and Hampton.
- Complete bicycle and pedestrian improvements in Willimantic.

## Statewide Bicycle Network

As part of the Plan and Map update process, the Steering Committee and CTDOT identified a series of cross-state bicycle routes. These roadways are direct routes that can be used to travel across longer distances across and through the state. Roadways are assigned even numbers if they generally travel east-to-west and odd numbers if they generally travel north-to-south. Figure 7 identifies the suggested cross state routes in Connecticut. Appendix K includes turn-by-turn directions for cross-state routes.

The Steering Committee and CTDOT suggest potential state bicycle routes. It is important to note that many of these routes could benefit from additional improvements such as shoulder widening, addition of bicycle lanes, and signage. As identified in the 2009 Statewide Bicycle Map, many segments on these routes have less suitable classifications, based on shoulder width and Average Daily Traffic (ADT). ADT is defined as the average number of vehicles passing a specific point, in both directions, in a 24-hour period. The designation of official state bicycle routes is an important step towards improving safety and mobility for cyclists. Such routes, when designated, should be prioritized for improvements.

## Connecticut Bicycle Map

CTDOT collaborated with the Steering Committee assigned to assist with development of this plan, to institute numerous changes to the way information is displayed on the new Statewide Bicycle Map. The 2003 map included recommended routes, cross state routes, loop rides, and routes not recommended for cyclists. However, no detailed information regarding the criteria used to select and designate these routes was available. As a result, map users could gain little insight into the data reviewed or the decision-making beyond those designations.

In the 2009 Statewide Bicycle Map, CTDOT determined to show more information regarding state roadways. A system was adopted assigning each segment of state roadway one of five classifications, called bicycle suitability, based on ADT (Average Daily Traffic) and shoulder width. Generally, the suitability increases with wider shoulders, and lower traffic volumes. Presenting roadway information this way, rather than assigning recommended routes, allows each individual map user to select a route which is suited to his or her particular bicycling preferences and comfort level. Tables 15 through 17 display the suitability matrix and the breakdown of roads in each classification.

**Table 15: Roadway Suitability Matrix**

ADT	Shoulder Width (ft)			
	0	1-3	3-6	>6
<2,500	A1	A2	A3	A4
2,500 to 5,000	B1	B2	B3	B4
5,000 to 7,500	C1	C2	C3	C4
7,500 to 10,000	D1	D2	D3	D4
>10,000	E1	E2	E3	E4

ADT: average daily traffic volume on a roadway per day.

Suitability review of state roadways:  
Number of miles.

**Table 16: Miles of Roadway per Category**

ADT	Shoulder Width (ft)			
	<2	2 - 3	3 - 6	>6
<2,500	210.7	303.0	46.5	17.0
2,500 to 5,000	155.1	354.8	67.6	52.7
5,000 to 7,500	82.8	287.3	90.4	57.1
7,500 to 10,000	36.8	210.2	94.5	75.1
>10,000	176.2	790.4	290.7	342.4

**Table 17: Summary Miles per Class**

Class	Miles
Less suitable	661.5
	1,287.9
	740.0
	803.4
More suitable	248.2

Information regarding the 2009 Statewide Bicycle Map can be obtained by contacting the CTDOT Bicycle and Pedestrian Coordinator at via [www.ctbikeped.org](http://www.ctbikeped.org).

## Recommendations

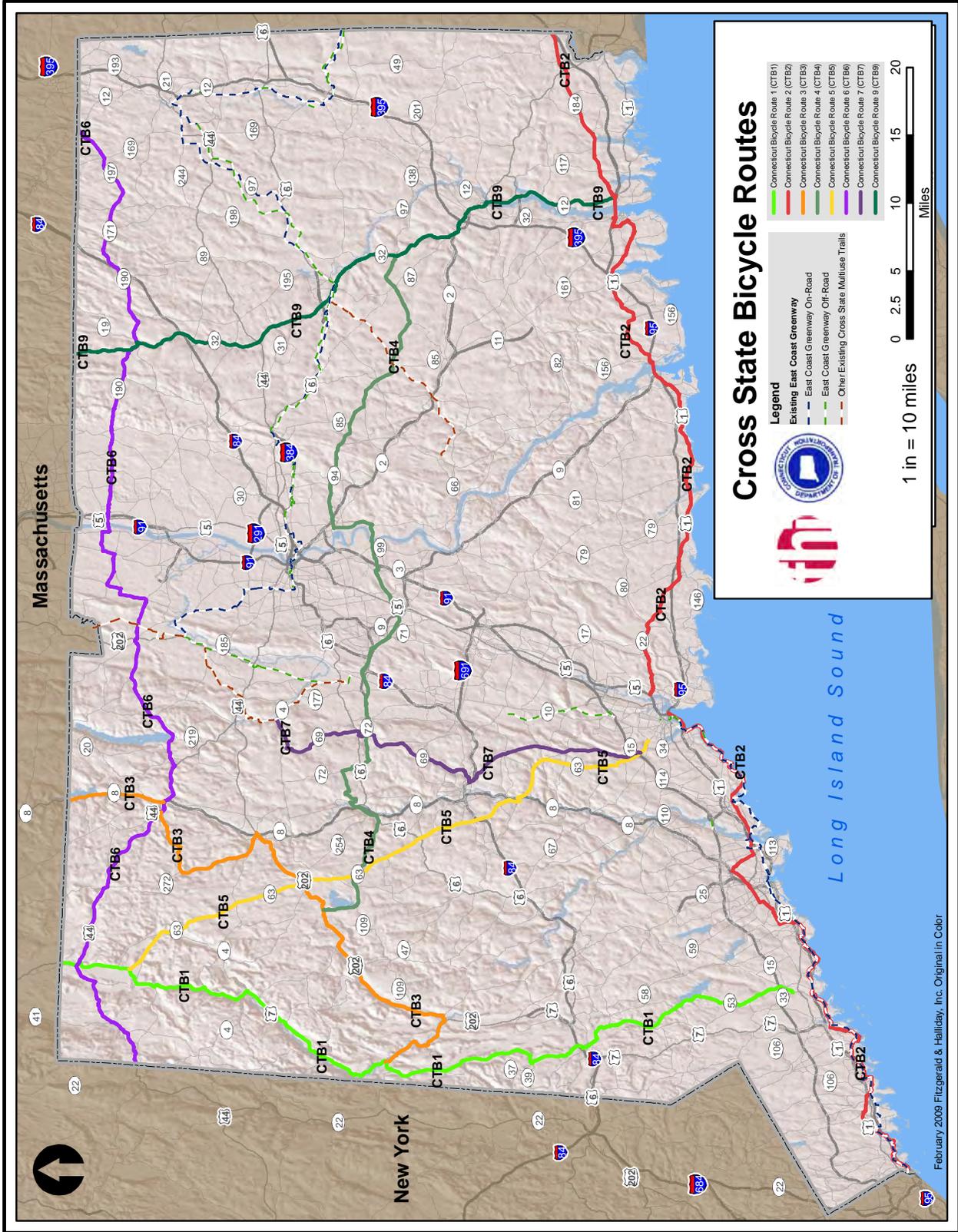
These recommendations are selected implementation options from Chapter III. These implementation options are specific courses of action that CTDOT and others can take to achieve more bicycle- and pedestrian-friendly facilities. All of the goals in the Plan have implementation options that are facilities related. However, Goals 1, 2, 3, and 7 have the largest concentration of facilities related implementation options.

Any number and /or combination of the listed implementation options could be utilized. This list is

not all inclusive, as other mechanisms not listed may be used to achieve more bicycle- and pedestrian-friendly facilities, and thus move towards the overall vision of the Plan. Some recommended implementation options include:

1. Conduct an inventory of all bicycle facilities – CTDOT should conduct a regular inventory of all bicycle facilities, including signage, bike lanes, and bicycle racks. This can be done through local and regional coordination as well as site visits, as needed.
2. Designate overall network – Once CTDOT has an inventory of all bicycle facilities, they can determine which routes should be designated in a state-wide bicycle network. The first step of identifying an overall network has begun in this Plan through the designation of the cross state routes.
3. Develop statewide route network plan – This will include the identification missing links between network facilities and prioritizing them for improvements and expand state routes to link additional on-road and off-road multi-use facilities.
4. Provide signage on network – On-street signage should be installed on the overall network.”
5. Conduct regular route field reviews – Regular field reviews, or site inventories, should be completed to ensure that routes are well maintained for bicycle use.
6. Establish on-line, interactive resource for most current Bike Map and bicycle and pedestrian related amenities, programs, etc. – This should be a permanent webpage linked to CTDOT’s website. It should include the “Report an Issue” page described in the Chapter VII recommendations.

Figure 7: Cross State Bicycle Routes



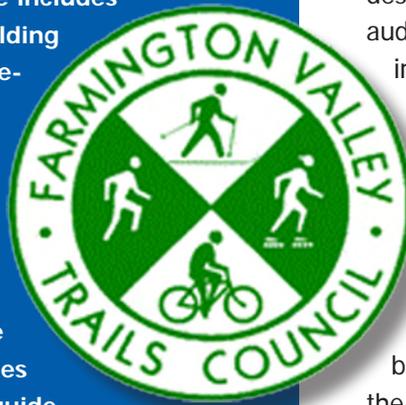
### Trial Guide, Farmington to Suffield, CT

The Farmington Canal Heritage Trail & Farmington River Trail Guide, released in December 2008, by the Farmington Valley Trails Council, is a spiral bound, 22-page guide with 11 fold-out maps for the Farmington Canal Heritage Trail and the Farmington River Trail. The guide includes trail information similar to their folding trail map, but adding more mapping detail, historic and cultural information, lodging, food and useful commercial sites for visitors to the trail system.

The production of the guide was a multi-agency effort. A number of different groups came together to utilize their existing knowledge and resources to reduce the cost of producing the guide.

The Farmington Valley Trail Council provided the base data, much of which was in their existing folding maps, in addition to the written text and photographs for the guide. The Simsbury Main Street Partnership applied for the funding for graphic design and printing of the first 4,000 copies of the guide through a Preserve America grant, for which Simsbury was eligible because of its status as a Main Street Partnership town. The Farmington Valley Visitors Association handled the coordination of the proposal/bid development to develop the maps and other content of the guide.

Because of the efforts of the various groups, the production and printing of the first 4,000 copies amounted to \$30,000. Distribution of these free guides began in early spring 2009. Beginning in summer 2011, after the initial 4,000 copies are distributed, the guide can be printed and sold with the assistance of paid advertisements. The guide is the first of its kind to be produced in this manner in New England. For more information, please contact Farmington Valley Trail Council President Bruce Donald at rbd14@comcast.net.



7. Conduct site audit at state owned intermodal and Park & Ride facilities – A site audit, during active working hours, will allow CTDOT to identify area that merit bicycle and pedestrian improvements. A site audit can best show if there is inadequate parking or unsafe conditions. Are pedestrians congregating in unsafe areas? Are bicycles being locked to signs, illustrating the need for more storage? Or are there so few pedestrians and bicyclists that moving the storage facilities to another location makes sense?
8. Increase signage of bicycle and pedestrian amenities at intermodal and Park & Ride facilities - Any additional amenities can make multimodal travel easier and more seamless.
9. Continue to assess modal split options and opportunities to encourage bicycle and pedestrian trip credits during STC review -- CTDOT should encourage the STC to address pedestrian and bicycle access and egress as well as bicycle storage opportunities in their certification process. This can assist in encouraging pedestrian and bicycle connections between neighborhoods, commercial areas, employment centers, schools, state and municipal parks.

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# VII. BICYCLE AND PEDESTRIAN FUNDING

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Federal funding for bicycle and pedestrian programs increase significantly with the passage of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. ISTEA created the Transportation Enhancements Program, and also required that DOTs adopt a more collaborative, multimodal paradigm. Many of ISTEA's provisions have been carried forth in subsequent federal transportation laws, including SAFETEA-LU (2005). Reviews existing bicycle and pedestrian project and program funding, as well as innovative strategies and recommendations for improvement.

## Review of Current Funding Program

On August 10, 2005, SAFETEA-LU was signed into law, guaranteeing \$224.1 billion in funding nationally for highways, highway safety, and public transportation. SAFETEA-LU also includes several categories of federal transportation funding for bicycle, pedestrian, and streetscape projects. The following is a summary of the funding sources available and currently programmed in the STIP for bicycle and pedestrian projects throughout the state.

- Surface Transportation Program (STP)
  - The STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the construction of bicycle facilities and pedestrian walkways on land adjacent to any highway on the National Highway System (NHS). Additionally, NHS funds can be spent on non-motorized projects within Interstate corridors.
- Congressional Earmark - Earmarks have specific applicability for bicycle-

pedestrian projects for which there is political and/or public support. They are generally more expensive projects that would burden typical funding sources. Projects most likely to be included are bridge projects with bicycle-pedestrian accommodations, bridges for paths, long distance rail trail projects, or high profile path projects.

- SRTS - Federal sponsorship and funding of the Safe Routes to School program began with SAFETEA-LU in 2005. This new program enables and encourages kindergarten through eighth grade school children to walk and bicycle to school. Both infrastructure-related and behavioral projects are geared toward providing a safe, appealing environment for walking and biking that will improve the quality of children's lives and support national health objectives by reducing traffic, fuel consumption, and air pollution in the vicinity of schools. To be eligible for funding under this program, project infrastructure improvements must relate directly to a specific school and comprise a minimum of 70% to a maximum of 90% of project total. The remainder is available for the non-infrastructure components, including education, encouragement, and enforcement.
- Transportation, Community, and System Preservation - This is a comprehensive program designed to address the relationships among transportation, community, and system preservation plans and practices. Bicycle- and pedestrian-related projects funded under this program include transit-oriented/compact development plans, traffic calming, increasing

access to jobs and services, minimizing adverse impacts on the environment while improving the overall efficiency of the transportation system.

- Transportation Enhancement – SAFETEA-LU requires that 10 percent of the funding made available to each state under the STP be utilized for activities defined as Transportation Enhancement Activities (TEAs). Of the twelve defined TEAs, the following are specifically bicycle and pedestrian related:
  - Provision of facilities for pedestrians and bicycles;
  - Provision of safety and educational activities for pedestrians and bicyclists; and
  - Preservation of abandoned railway corridors (including the conversion and use of the corridors for pedestrian or bicycle trails).
- Congestion Mitigation and Air Quality (CMAQ) – Under SAFETEA-LU, funds may be used for bicycle and pedestrian activities, including
  - Constructing bicycle and pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips
  - Non-construction outreach related to safe bicycle use
  - Funding State bicycle/pedestrian coordinator positions for promoting and facilitating nonmotorized transportation modes through public education, safety programs, etc. This is limited to one full-time position per state.

- Safety - The Highway Safety Improvement Program provides funding to States for projects that correct or improve a hazardous road location or feature or otherwise address a highway safety problem. The legislation lists as examples of many projects eligible for this funding, improvements for pedestrian and bicycle safety, and installation and maintenance of signs at pedestrian and bicycle crossings and school zones. Hazard elimination projects are 90 percent federally funded.
- High Priority Projects - The High Priority Projects program provides designated funding for specific projects identified in SAFETEA-LU. A total of 5,091 projects are identified as high-priority, approximately 40 of which are related to bicycle and pedestrian projects within the State of Connecticut. Additionally, High Priority Projects are often congressional designations of funding that occur during the six year authorization (e.g. ISTEA, SAFETEA-LU).

Table 18 displays the funding amounts that the State of Connecticut has programmed in each of these programs for bicycle- and pedestrian-related projects in the 2007-2010 STIP.

The total 2007-2010 STIP budget (highway projects only) is \$1.9 billion. Pedestrian- and bicycle-related projects represent a little more than three percent of the total STIP budget. It should also be noted, however, that Table 18 does not represent all bicycle and pedestrian projects programmed within the State. Additional pedestrian and bicycle facilities, not specifically identified within the STIP, are also constructed as part of highway and roadway projects.

## Innovative Funding Sources

In light of the current national economic situation and its affect on state and government revenues, there is a greater need than ever to develop innovative strategies to fund bicycle and pedestrian projects. With SAFETEA-LU set to expire at the end of 2009 and the Highway Trust Fund running dangerously low on funds, the debate has already begun on reauthorization of federal transportation legislation. Based on the amount of time it has historically taken to get new legislation passed and the amount of money designated for pedestrian- and bicycle-related projects, CTDOT and regional and local agencies may consider evaluating new and innovative funding sources and/or strategies for these projects. The following are examples of innovative funding strategies currently being used in other states:

### 1. Oregon Mandated 1% Law -

Oregon Revised Statute 366.514 requires Oregon Department of Transportation (ODOT), cities and counties to include "bikeways and walkways" on all road construction and reconstruction projects. The 1971 law also requires ODOT, cities, and counties to spend reasonable amounts of their share of the state highway fund (state gas tax and vehicle registration fees) on needed pedestrian and bicyclist facilities. A "reasonable amount" is open to interpretation, and the statute specifies that ODOT, cities, and counties must spend no less than one percent of their share of the state highway fund on such facilities. ODOT has to spend the one percent minimum each year, but cities and counties can carry the 1 per cent share over a ten-year period to allow it to accumulate (a small jurisdiction may not do a road project every year, and one percent may represent too small a sum to do anything with).

### 2. Dedicated Funding for Bicycle and Pedestrian Projects, New Jersey –

The State of New Jersey has dedicated approximately \$57.5 million of state funds towards pedestrian safety in an effort to reduce the growing pedestrian fatality rate within the state.

### 3. Local Improvement Districts:

**Portland, Oregon** - The Portland Office of Transportation has used Local Improvement Districts (LIDs) to fund numerous pedestrian-related streetscape improvements. Before an LID can be established, the City of Portland polls area property owners improvements needed. Once the consensus is established, the City works with property owners to develop an assessment method, which may include square footage, linear footage, equivalent dwelling unit or a combination of methods. The City then designs, engineers, and manages the construction of the project, but does not actually build the project. LID's can be used to improve streets, build sidewalks and install storm water management systems. LID's are typically business districts, but can also be residential.

### 4. Marchaselli Program Funds for

**Local Match: New York State** - In 2008, New York State Governor Patterson signed a new law which includes bicycle and pedestrian paths within the types of construction and improvement projects (e.g., bridge, roadway, and highway projects) of the Department of Transportation which are eligible for Marchaselli funds. These funds can be used for the local 20 percent match for federal funding projects and the law specifies that such eligibility does not restrict the use of other funds for design, construction, or land acquisition for bicycle paths or pedestrian paths.

**Table 18: Pedestrian and Bicycle Allocation by Funding Source: 2007-2010 STIP**

Funding Program	Amount	% of Total
Surface Transportation Program	\$203,000	0%
Congressional Earmark	\$3,912,000	6%
Safe Routes to School	\$1,391,000	2%
Transportation, Community, and System Preservation	\$2,188,000	4%
Enhancement	\$17,653,499	29%
High Priority Projects	\$36,102,000	59%
<b>Total</b>	<b>\$61,449,499</b>	<b>100%</b>

Source: CTDOT, September 2008

**5. East Coast Greenway Adopt-a-Mile Program: Maine to Florida**

- As part of its effort to complete a 3,000-mile, off-road route from Maine to Florida, the East Coast Greenway Alliance offers sponsors the opportunity to adopt a mile of the trail. Every donor is recognized on kiosks in each state along the Greenway. This same strategy could be applied in Connecticut for local trail projects in need of funding. The sale of individual paving stones or the naming rights to a trail are other options with the same concept.

**6. Dedicated Sales Tax Revenue:**

**Mammoth, California** – Because of its recognition as a world-renowned year-round resort, the City of Mammoth, California introduced a half-cent sales tax measures that would raise and secure a stable funding source for development and maintenance of local trails, parks, and recreation. "Measure R" was placed on the ballot in June, 2008 and received the necessary two-thirds majority to pass. The measure increased the local sales tax by half a

percent. By law, this increased revenue can only be used for the planning, construction, operation, and maintenance of the recreational infrastructure of Mammoth Lakes. The City Council estimates that the tax will bring in close to \$1.1 million per year. The measure specifically forbids local representatives from cutting existing funding to local parks and recreation.

**7. Moving Violation Surcharge:**

**Portland, Oregon** - The City of Portland's pedestrian education and encouragement programs are housed in the Community and School Safety Traffic Partnership within the Office of Transportation. Partners in the effort include the Portland Police Bureau, neighborhoods, pedestrian and bicycle advocates, schools, courts, Portland State University, health professionals, and senior advocates. The program focuses on reducing driver error, and increasing the awareness of pedestrian and bicycle safety and safe routes to school. It is funded through an annual increase in traffic fine revenues, which in Oregon are collected by the state

and transferred to each jurisdiction. Portland receives \$1 million in traffic fine revenues annually and dedicates a portion of those funds to bicycle and pedestrian safety campaigns.

## Recommendations

Based on the information presented above regarding potential transportation funding shortfalls and the limited funding at the state level for transportation initiatives, including pedestrian- and bicycle-related projects, it is prudent for CTDOT to seek to find alternative and more innovative ways to pay for the construction and maintenance of sidewalks, multi-use trails, bicycle paths, and other facilities used for non-motorized transportation.

The recommendations outlined below are selected implementation options from Chapter III. These implementation options are specific courses of action that CTDOT and others can take to achieve more bicycle- and pedestrian-friendly policies and practices. Goals 1, 3, and 6 have the largest concentration of funded related implementation options. Any number and /or combination of the listed implementation options could be utilized. This list is not all inclusive, as other mechanisms not listed may be used to achieve more bicycle- and pedestrian funding, and thus move towards the overall vision of the Plan.

Recommended implementation options include:

1. Review current sidewalk policy and suggest improvements, including reducing local match requirements - The Steering Committee and regional and municipal governments have articulated that the biggest obstacle to bicycle and pedestrian improvements is the non-federal share (20 percent) match for the right of way and construction that local government must produce. This issue is often the reason needed facilities in town centers and other

commercial areas are not constructed. When available state funds are a viable resource that should be utilized to match funds on sidewalk construction as encouraged by the Complete Streets Policy to further the development of the bicycle and pedestrian network.

2. Establish a funding target for bicycle and pedestrian improvements – Similar to the state of Oregon, CTDOT may consider needs to identify a specific amount of money within annual budgets that would be used solely for the purposes of constructing new or upgrading existing bicycle and pedestrian facilities. This money may come from a variety of sources and could be applied to roadway, bridge, maintenance or construction projects including sidewalks, bicycle paths, and other facilities that could safely be used for non-motorized transportation. In terms of federal funding, it may also be appropriate for CTDOT to evaluate the use of STP and CMAQ funds for bicycle and pedestrian projects, especially in the more urban and populated areas of the state that are struggling to meet federal air quality standards.
3. Establish a funding target, to augment the Recreational Trails Program, for multi-use trails - A first step to achieving this goal would be to conduct a research study/evaluation of how other states across the country are paying for the development and construction of these facilities. There may be several additional sources of state and federal funding that could be applied to multi-use trail.
4. Continue to fund training initiatives for regional and municipal officials (e.g. training by UConn T<sup>2</sup>-Institute) – CTDOT should continue to offer appropri-

ate training sessions to its staff, consultants, advocacy groups, and other interested individuals on pedestrian and bicycle design and planning to enable these professionals to develop their skills to better accommodate these modes. An ongoing need for this training exists due to staff turnover and the need for education on updated planning and design concepts. Federal CMAQ funds could be used to promote education and encouragement projects that would shift short-distance motor vehicle trips to bicycle and walking trips.

5. Review and utilize applicable innovative strategies and best practices – Through a detailed review of other state, as well as town, innovative strategies and best practices, CTDOT could model after other successful programs, and continue to benchmark themselves against other state processes and programs. Program administrators of those strategies should be contacted with questions on implementation. CTDOT should consider allowing the use of non-traditional sources of funding for the local or non-federal share of the project. Towns could design or construct sections of trails using town forces and use the value of the work as local match.
6. Develop a more formal funding tracking mechanism and provide announcements of funding opportunities for bicycle and pedestrian projects - CTDOT should develop an accessible database of all funding that has been allocated for bicycle and pedestrian projects so that staff can more easily track where the money was spent and on which projects. Additionally, CTDOT should send an email notification, letters, or post announcements on its website so that cities and town around

the state know what funds are available, what the funds can be spent on, and when they will be released.

7. Establish a funding target for bicycle and pedestrian improvements near schools – CTDOT should could base its annual target on existing infrastructure and planning/outreach programs that are on-going and those that may be needed near schools. CTDOT needs could evaluate to determine whether there has been sufficient funding in past years to meet program goals. Again, CTDOT should look at what other states are doing to incorporate Safe Routes to School into larger maintenance and construction projects. For example, in New Jersey and Vermont the Safe Routes to School Program is integrated with the Bicycle and Pedestrian Programs within those states.
8. Staffing funding – CTDOT should consider increasing its staff allocation to bicycle and pedestrian planning. If possible, a sufficient increase in funding would ensure that one full-time staff person is solely devoted to bicycle and pedestrian issues. This would also reinforce and support implementation of the recommendations contained within this plan.

**Public / Private Funding Partnership: Housatonic Railroad Trail (Pequonnock/Housatonic Railway Greenway), Greater Bridgeport Regional Planning Agency, CT**

The Greater Bridgeport Regional Planning Agency has been actively working with the city of Bridgeport and towns of Monroe and Trumbull to plan, design, and develop a multi-use trail that will extend from downtown Bridgeport to the Monroe-Newtown town line, a distance of over 16 miles. Three sections have been completed:

- **Bridgeport from the intersection of Stratford Avenue, Fairfield Avenue and Water Street near the Bridgeport train station to North Avenue (US Route 1).**
- **Monroe from Doc Silverstone Drive in Wolfe Park to the Newtown town line.**
- **Trumbull from Tait Road, through the Pequonnock Valley State Park and Old Mine Park to the Monroe town line.**

No trail currently exists from the Monroe-Trumbull town line to Wolfe Park in Monroe. The planned alignment passes through a large parcel owned by a developer of an office park. The developer – John Kimball – indicated a willingness to work with the town on creating a public-private partnership. This partnership extended beyond the office park development to include the entire “gap” section from the town line to the existing trail that starts in Wolfe Park.

The innovative funding efforts to complete the design and construction of this section included the following:

- **Design – A combination of state and private funds were used to pay for the design of this section. The town used a state grant provided by the legislature and through the DEP to fund the design of the section from the office park to and through Wolfe Park. The developer agreed to fund the design of the trail through his parcel.**
- **Right-of-Way – The developer donated a defined, permanent 25-foot easement to the town of Monroe with the right to build and maintain a multi-use trail through the Canterbury Square development. The value of the easement was appraised at \$62,000. No other private property was needed to be acquired for the trail. From the private development the planned alignment first passes through DEP-owned land and then through the Monroe’s public works facility. The DEP has agreed to allow the trail to enter and pass through its property.**
- **Construction – Kimball Land Holdings, LLC agreed to construct the trail through the Canterbury Square parcel at no cost to the town of Monroe. Subsequently, they also committed to**



**building the next section to Wolfe Park. Work includes excavating and grading, labor, material and equipment. The estimated value of the work is \$453,000.**

In January 2006, an Innovative Financing plan was developed and approved by FHWA that provided for the value of that work to be used as a credit for the local match of federal aid funds to be used for a different phase of the project. In this way, the private work was able to leverage federal dollars instead of merely reducing the cost of the project. In addition, the Innovative Financing plan regarded the entire trail as a larger, single project as opposed to several, smaller separate projects. This allowed the non-traditional credit to be applied to work to be completed in Trumbull and Bridgeport even though it was attributable to work completed in Monroe.

For more information on this project, please contact Mark Nielsen, Executive Director

Greater Bridgeport Regional Planning Agency, 525 Water Street, Suite 1, Bridgeport, CT 06604.



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# APPENDIX A: STEERING COMMITTEE MEMBERS

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Tim Gaffey, CTDOT

David Balzer, CTDOT

Paul Okeefe, CTDOT

Joanna Juskowiak, CTDOT

Peter LaBouliere, CTDOT

Sharon Okoye, CTDOT

Ronald Cormier, CTDOT

Laurie Giannotti, CT Department of  
Environmental Protection

Eugene Nichols, CT. Department of Public Health

Gary St. Amand, CT. Department of Public  
Health

Leslie Lewis, Connecticut Forest and Park  
Association

Mary McCarthy, University of Connecticut

Sandy Fry, Capitol Region Council of  
Governments

Ken Shooshan-Stoller, Central Connecticut  
Regional Planning Agency

Alex Karman, Southwestern Regional Planning  
Agency

Jonathan Chew, Housatonic Valley Council of  
Elected Officials

Dan McGuinness, Northwestern Connecticut  
Council of Governments

Richard Lynn, Litchfield Hills Council of Elected  
Officials

Sam Gold, Council of Governments of the  
Central Naugatuck Valley

David Elder, Valley Council of Government

Mark Nielsen, Greater Bridgeport RPA

Judy Gott, South Central Regional Council of  
Government

Robert Haramut, Midstate Regional Planning  
Agency

Jean Davies, CT River Estuary Regional Planning  
Agency

Janice Ehlemeyer, CT River Estuary Regional  
Planning Agency

Dick Guggenheim, Southeastern Council of  
Governments

Mark Paquette, Windham Region Council of  
Governments

John Filchak, Northeastern Council of  
Governments

Robert White, Unaffiliated (Stafford/Union)

Charlie Beristain, Central CT Bicycle Alliance

Chris Squires, Connecticut Bicycle Coalition

William O'Neill, East Coast Greenway Alliance

Eric Weiss, East Coast Greenway Alliance

Ray Rauth, Sound Cyclists

Thomas Harned, Elm City Cycling

Leigh Johnson, CT Culture and Tourism

Eloise Powell, FHWA Division Office

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# APPENDIX B: LIST OF PUBLIC INVOLVEMENT MEETINGS

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## 1. Steering Committee Meetings

- *Meeting #1 - April 29, 2008* – This meeting included a discussion of key scope tasks, the project schedule, as well as a small group visioning exercise.
- *Meeting #2 - June 17, 2008* – This meeting included agreement on a Plan Vision, as well as a review and discussion of ongoing data collection efforts.
- *Meeting #3 - September 23, 2008* – This meeting included a review and comment of the results of the benchmarking study, proposed goals and action strategies, and bicycle suitability map, as well as a discussion on the upcoming public meetings.
- *Meeting #4 - December 16, 2008*. This meeting included a review and comment on the revised goals and action strategies, discussed the CTDOT design review process, and had a special visit from members of the CT Horse Council who provided information on sharing roads and trails with equestrians.

## 2. Bicycle Map Subcommittee Meetings

- *Meeting #1 – June 10, 2008* - This meeting provided an overview of the Bicycle Map scope requirements and a general discussion of items to be included in the revised map.
- *Meeting #2 – September 11, 2008* – This meeting included a presentation of the first draft of the bicycle suitability map.

- *Meeting #3 – December 9, 2008* – This meeting included a discussion of the revised suitability as well as a first draft of the back of the map panels.
- *Meeting #4 - April 17, 2009* meeting to discuss the final modification of the Map prior to public review.

## 3. Public Meetings

There were two series of public meetings held at various locations across the state. Each series consisted of four meetings that addressed the same topics.

- Public Meeting #1 – October 1, 2008, Bristol, CT
- Public Meeting #2 – October 2, 2008, Willimantic, CT
- Public Meeting #3 – October 6, 2008, New Haven, CT
- Public Meeting #4 – October 7, 2008, Stamford, CT
- Public Meeting #5 – June 24, 2009, Norwich, CT
- Public Meeting #6 – June 25, 2009, Torrington, CT
- Public Meeting #7 – June 29, 2009, West Hartford, CT
- Public Meeting #8 – June 30, 2009, Fairfield, CT

These meetings included a presentation and discussion of the preliminary data collection efforts, benchmarking study, draft goals and action strategies, and draft bicycle suitability map.

#### **4. Regional Planning Agency / Local Government Meetings**

These meetings were conducted to hear the concerns and desires of the Regional Planning Agencies / local governments for the Plan and Map revisions. The following is a list of each meeting attending and the date of the meeting.

- *Capitol Region Council of Governments – June 27, 2008*
- *Central Connecticut Regional Planning Agency – June 24, 2008*
- *Connecticut River Estuary Regional Planning Agency – June 23, 2008*
- *Council of Governments of the Central Naugatuck Valley – July 3, 2008*
- *Greater Bridgeport Regional Planning Agency – June 26, 2008*
- *Housatonic Valley Council of Elected Officials – July 16, 2008*
- *Litchfield Hills Council of Elected Officials – July 9, 2008*
- *Midstate Regional Planning Agency – June 25, 2008*
- *Northeastern Connecticut Council of Governments – July 10, 2008*
- *Northwestern Connecticut Council of Governments – July 8, 2008*
- *South Central Regional Council of Governments – June 19, 2008*

- *Southeastern Connecticut Council of Governments – July 10, 2008*
- *South Western Connecticut Regional Planning Agency – June 26, 2008*
- *Valley Council of Governments – June 25, 2008*
- *Windham Region Council of Governments – July 2, 2008*
- *City of New Haven – November 13, 2008*

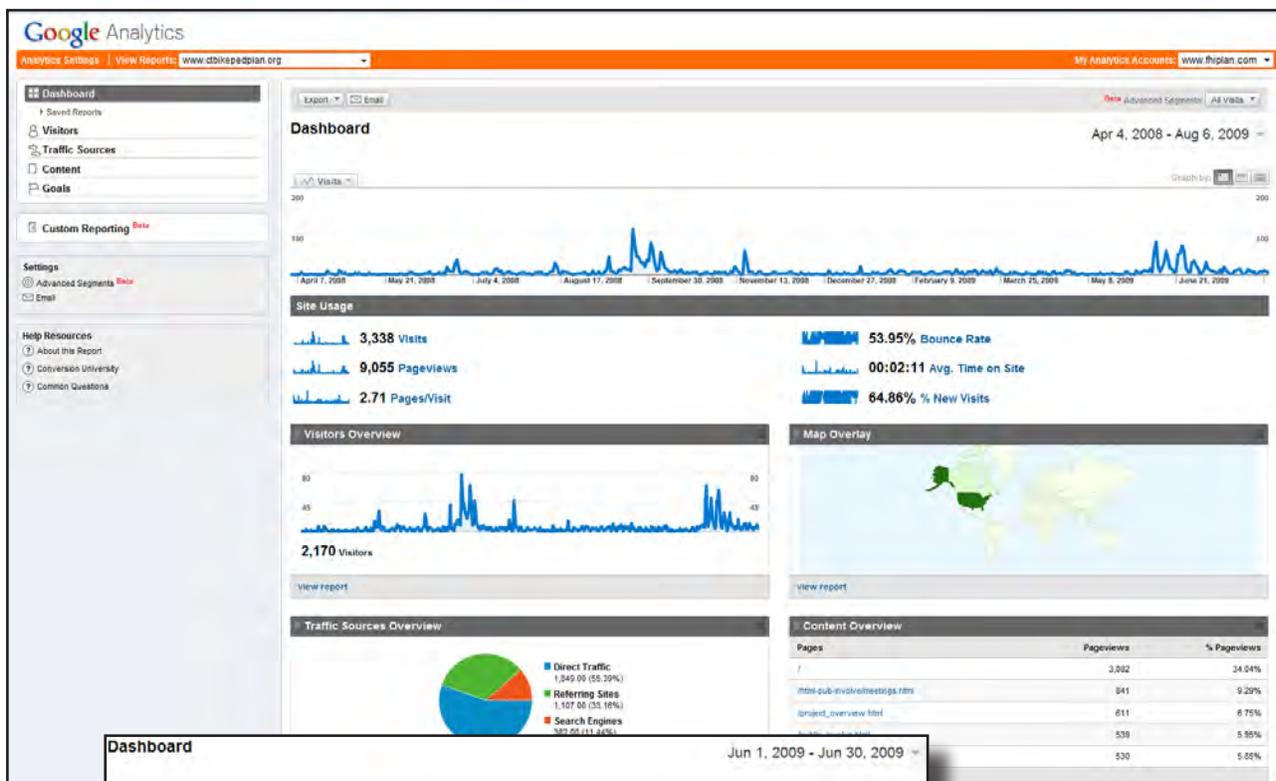
#### **5. Advocacy / Special Interest Group Meetings**

These meetings were conducted to hear the concerns and desires of the advocacy and special interest groups for the Plan and Map revisions. The following is a list of each meeting attending and the date of the meeting.

- *Farmington Valley Trail Council – August 11, 2008*
- *CT Greenways Council – September 8, 2008*
- *Central CT Bicycle Alliance – September 17, 2008*
- *Elm City Cycling – October 14, 2008*
- *Regional Plan Association / CT Bicycle Coalition – November 6, 2008*

# APPENDIX C: PUBLIC INFORMATION MATERIALS

Appendix C displays the Public Information materials, such as newsletters and press releases, generated in support of the project effort. Below is a chart developed from Google Analytics showing activity at the website from April 4, 2008 until August 6, 2009 (inset map reflects June 2009 activity).





**in this issue:**

Purpose of the Plan and Map update  
**PAGE 2**

How the public can get involved  
**PAGE 3**

First meeting of the project Steering Committee  
**PAGE 3**

# Connecticut Statewide Bicycle & Pedestrian Plan and Map Update

Spring 2008

Connecticut Department  
of Transportation

## *Plan Details*

The final product of the Plan Update will be a document which presents policies, guidelines, and needs. It will be available in both printed and digital formats. The Plan Update will also include development of statewide bicycle and pedestrian vision and goals. The Connecticut Department of Transportation (ConnDOT) bicycle and pedestrian policies will be updated based upon the vision and goals. The plan will include a bicycle and pedestrian benefit analysis as well as facility design guidelines. Finally, federal, state, and local funding opportunities will be considered in the Plan.

The final product of the Map Update will be a hard copy as well as electronic version accessible online. The Bicycle Map Update will include information to assist bicyclists traveling in and through Connecticut.

## **update underway**

The Statewide Bicycle and Pedestrian Transportation Plan and Map Update has begun! This project has two components: updating the 1999 Statewide Bicycle and Pedestrian Transportation Plan and updating the Statewide Bicycle Map.

Updating the 1999 Statewide Bicycle and Pedestrian Transportation Plan will involve reviewing the 1999 plan and policies and updating them as needed to be current with new regulations, infrastructure, and Connecticut residents' needs. The final product of the Plan Update will be a report available in both printed and digital formats.



The second part of the project is updating the Statewide Bicycle Map. The existing map was completed in 2002 and will be revised to display changes in Connecticut's bicycling infrastructure. The final product of the Map Update will be a hard copy as well as electronic version accessible on-line. The updated map will include information to assist bicyclists traveling in and through Connecticut.

The process began in January 2008 and will take approximately 18 months.

Statewide Bicycle and Pedestrian Transportation Plan and Map Update

## why now?

The existing Statewide Bicycle and Pedestrian Transportation Plan and Map were last updated in 1999 and 2002, respectively.

Since then, a new federal transportation law was enacted in 2005. Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users has a number of revised guidelines and funding sources. These should be reflected in a new updated Plan and Map.

In addition, ConnDOT would like to ensure that the Plan and Map stay current with the needs and desires of Connecticut residents who travel by foot and bicycle.

## project schedule

TASK	2008				2009		
	Winter	Spring	Summer	Fall	Winter	Spring	Summer
Data Collection	→						
Policy Development			→			→	
Plan Update				→			→
Bike Map Update	→					→	
Steering Committee Meetings (6)	*		*	*	*	*	*
Public Meetings (2 rounds of four)			**	**		**	**
Fact Sheets / Newsletters	■		■	■		■	■

*Who is working on the update?*

### consultant team

The consultant team is lead by Fitzgerald & Halliday, Inc. (FHI) of Hartford, Connecticut. Other members of the consultant team include Vanasse Hangen Brustlin, Inc. (VHB), Alta Transportation Consulting, and Didona Associates. The specific areas of focus of each of the team members include:

- FHI – General team oversight, data collection, mapping, public outreach, plan assembly
- VHB – Facility design guidelines
- Alta Transportation Consulting – Benchmarking review, bicycle and pedestrian benefit analysis
- Didona Associates – Data collection, public outreach



## getting involved

One of the main goals of the Plan and Map Update is to involve the public at the highest level and make the process as transparent as possible.

Throughout the study process, there will be a number of efforts made to ensure that the final products represent the needs and desires of Connecticut residents, corresponding agencies, and ConnDOT.

Members of the public are encouraged to review project happenings on the project website at:

**[www.ctbikepedplan.org](http://www.ctbikepedplan.org)**.

There, one can submit a comment by filling out the comments form on "Contact Us."

Members of the public can also contact David Balzer, ConnDOT Bicycle and Pedestrian Coordinator via email at:

**[david.balzer@po.state.ct.us](mailto:david.balzer@po.state.ct.us)**

or phone at (860) 462-1062. In addition, all are encouraged to participate in one or more of the project's eight planned public meetings, scheduled in Fall 2008 and Spring 2009.



Steering Committee Meeting, April 2008

## What's out there?

One of the first tasks of the Bicycle and Pedestrian Transportation Plan Update is to determine the contents to include in the update. Are the topics that ConnDOT covered in the 1999 Plan sufficient? Are some of these topics irrelevant? Should other issues be explored? ConnDOT wanted to explore what some of the other states who have Statewide Bicycle and Pedestrian Plans have covered in their efforts. The results may surprise you, or not, but

you can go to the project website to see what others around the country are doing... Check out a comparison of the inclusions of various statewide bicycle and pedestrian plans at **[http://ctbikepedplan.org/documents/Plan\\_comparison\\_table.pdf](http://ctbikepedplan.org/documents/Plan_comparison_table.pdf)**.

## steering committee

The Steering Committee was established to advise ConnDOT and the consultant team on preparing the Plan and Map Updates. The committee meets at periodic intervals during the project and will provide expertise on local and regional issues, deficiencies in the statewide bicycle and pedestrian network, and an assessment of improvement and enhancement alternatives. All major elements to be included in the Plan and Map will be reviewed and commented on by the Steering Committee. The Steering Committee consists of representatives from the state's regional planning agencies and bicycle and pedestrian advocacy groups as well as the state Department of Environmental Protection and Department of Public Health.

The committee's first meeting was held in April 2008. At this meeting, the members not only learned the basics of the project scope and schedule, but also provided valuable input on the existing vision in the 1999 Plan and what the new vision should include. In addition, a number of the Steering Committee members volunteered to spend additional time guiding the CT Statewide Bicycle Map Update over the coming months. Thanks to the Steering Committee or all your time and effort!

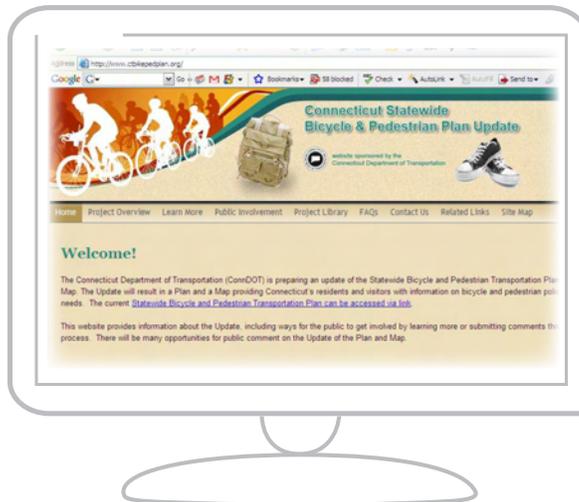


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Newington, CT 06131-7546

*For more information...*

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Or contact the ConnDOT Bicycle  
and Pedestrian Coordinator at:  
**[david.balzer@po.state.ct.us](mailto:david.balzer@po.state.ct.us)**  
**(860) 462-1062**





**in this issue:**

Bicycle suitability analysis & mapping	2nd meeting of the project Steering Committee	Review of benchmarks from other states
<b>PAGE 2</b>	<b>PAGE 3</b>	<b>PAGE 3</b>

# Connecticut Statewide Bicycle & Pedestrian Plan and Map Update

Fall 2008  
Connecticut Department  
of Transportation

## *Project update*

The Statewide Bicycle and Pedestrian Transportation Plan and Map Update is well underway! Work began first on the Plan Update, with the Steering Committee providing a substantial contribution on the components to be included in the 2009 Plan. The Map Update work began shortly thereafter, in June 2008. At that time, a dedicated group of Steering Committee members met for the first time to discuss the needs and desires for the Statewide Bicycle Map Update.

Over the summer, ConnDOT and the consultant team, led by Fitzgerald & Halliday, Inc. of Hartford, CT, has been collecting data and conducting analyses for the Plan and Map Update. The results of these will be presented to the public at the October public meetings.

## get involved!

Four public meetings are scheduled in October 2008 to introduce the update process and showcase preliminary data and findings. The meetings will be an opportunity for the public to obtain information and provide input on the 2009 Plan and Map development early in the process. The meetings are scheduled for:

- Wednesday, October 1, 2008 from 5:30 PM – 7:30 PM at Bristol Public Library, 5 High Street, Bristol, CT
- Thursday, October 2, 2008 from 5:30 PM – 7:30 PM at J. Eugene Smith Library, Johnson Community Room, Second Floor, Eastern CT State University, 83 Windham Street, Willimantic, CT
- Monday, October 6, 2008 from 5:30 – 7:30 PM at New Haven Free Public Library, 133 Elm Street, New Haven, CT
- Tuesday, October 7, 2008 from 5:30 -8:30 PM at Stamford Government Center, 888 Washington Boulevard, Stamford, CT



All meetings will have the same content and format. Each will begin at 5:30 PM with an informal interactive open house session. A brief presentation will begin at 6:30 PM, followed by a question and answer period. We hope to see you at one of the meetings!

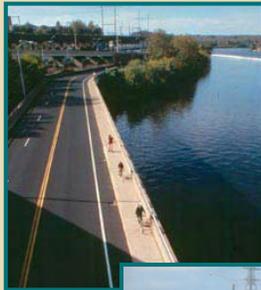
Statewide Bicycle and Pedestrian Transportation Plan and Map Update

## bicycle suitability analysis

One comment that we have repeatedly heard during our outreach is that the existing Bicycle Map simply does not provide enough information on the designated routes. Bicyclists want to know more about a roadway facility before riding it. For example, users would like to know more about shoulder and/or lane width, grade, traffic volumes, choke points, and other roadway conditions.

This type of information can be clearly displayed on a Bicycle Map, and the study team is exploring what would be most useful and the tools to do this. One tool that is being explored is a bicycle suitability analysis. Bicycle suitability is a measurement of perceived comfort that bicyclists may feel on a particular roadway. It can incorporate a variety of such factors as traffic speeds, traffic volumes, lane width, shoulder width, pavement conditions, and others. For instance, a roadway with an eight foot shoulder and 300 vehicle trips per day may be more suitable for bicyclists than a roadway with a two foot shoulder and 1,000 vehicle trips per day. Some define suitability as a level of service, A – F, with A being the best score and F being the worst score. Suitability can also be defined more

simply, as a range of Most Suitable to Least Suitable. The study team is in the process of developing a preliminary suitability analysis on its statewide roadways. At this time, the analysis incorporates shoulder width and traffic volumes. Other suitability factors may be incorporated as necessary. This analysis will be presented to the Bicycle Map Subcommittee, the Steering Committee, and at the public meetings in early-Fall. We look forward to a lively discussion and a greatly improved Statewide Bicycle Map.



sample suitability map



## steering committee update

The Steering Committee was established to advise ConnDOT and the consultant team on preparing the Plan and Map Updates.

The committee provides expertise on local and regional issues, deficiencies in the statewide bicycle and pedestrian network, and an assessment of improvement and enhancement alternatives.



Steering Committee meeting and group bike ride, June 2008

All major elements to be included in the Plan and Map are reviewed and commented on by the Steering Committee. The Steering Committee consists of representatives from the state's regional planning agencies and bicycle and pedestrian advocacy groups as well as the state Department of Environmental Protection and Department of Public Health.

The committee's second meeting was held in June 2008. At this meeting, the members provided valuable input on the goals and objectives for the 2009 Plan. As a result, there will be goals

and action strategies, with general implementation timeframes, in the Plan Update. In addition, a number of the Steering Committee members met at a designated location and biked to the Hartford Union Station meeting location. Check out the following link, <http://ctbikepedplan.org/html-proj-lib/bikeride.html>, for more information and pictures from the ride. Thanks to the Steering Committee for all your time and effort. We look forward to working with you again at our third meeting, scheduled in September 2008.

## Benchmarking Review

Part of the Statewide Bicycle and Pedestrian Plan Update includes conducting a benchmarking review of comparable states to assess bicycle and pedestrian planning efforts of other states.

The review recently concluded with ConnDOT and the consultant team participating in interviews with state staff from Massachusetts, New Jersey, New York, Rhode Island, Vermont, Wisconsin, and Oregon during the month of August. The interviews were with the bicycle and pedestrian coordinators within the state departments of transportation.

Three of the states, Oregon, Wisconsin, and New Jersey, are considered to be leaders in bicycle and pedestrian planning. The other four states, New York, Massachusetts, Vermont, and Rhode Island, are neighboring states.

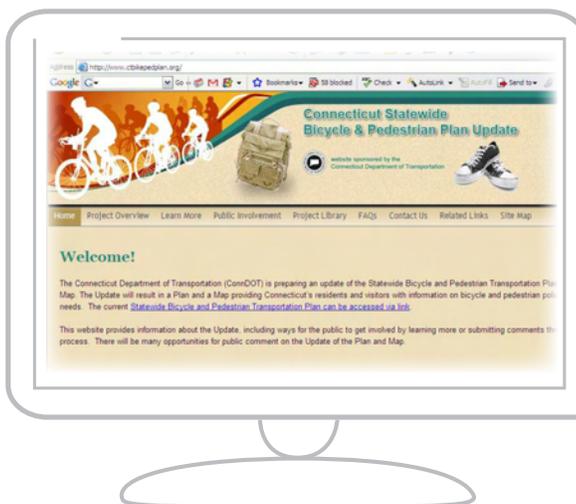


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*For more information...*

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Or contact the ConnDOT Bicycle  
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**(860) 462-1062**





**in this issue:**

Bicycle and  
Pedestrian  
Plan Update

Sample  
Bicycle Map  
Graphics

Website  
Update

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# Connecticut Statewide Bicycle & Pedestrian Plan and Map Update

Spring 2009  
Connecticut Department  
of Transportation

## Project Review

Work began on the Plan Update in early 2008, with the Steering Committee providing a substantial contribution on the goals and action strategies to be included in the 2009 Plan. The Statewide Bicycle Map Update work began shortly thereafter, in June 2008. At that time, a dedicated group of Steering Committee members met for the first time to discuss the needs and desires for the Statewide Bicycle Map Update. Throughout the summer and fall of 2008, CTDOT and the consultant team, led by Fitzgerald & Halliday, Inc. of Hartford, CT, collected data and conducted analyses for the updates. The results of these were presented to the public at the October public meetings.

Since the fall public meetings, the study team has combined its early data collection and utilized the input from the committees and public to construct a Draft Bicycle and Pedestrian Transportation Plan and a Draft Statewide Bicycle Map. The Draft Plan and Map can be viewed at [www.ctbikepedplan.org](http://www.ctbikepedplan.org).

## get involved!

The Statewide Bicycle and Pedestrian Transportation Plan and Map Update is moving along with a goal of completing the Plan and Map updates early this summer. We are excited to announce the DRAFT Plan and Map are now available for review and comment at [www.ctbikepedplan.org](http://www.ctbikepedplan.org).

Four public meetings are scheduled in June 2009 to provide information on the Plan and Map development process. The meetings will be an opportunity for the public to review and comment on the Draft Bicycle and Pedestrian Transportation Plan and Draft Statewide Bicycle Map. All meetings will have the same content and format. Each will begin at 6:00 PM with an informal interactive open house session. A brief presentation will begin at 6:30 PM, followed by a question and answer period. We hope to see you at one of the meetings!

Public meeting Fall 2008



The meetings are scheduled for:

- **Wednesday, June 24, 2009** from 6:00 PM – 8:00 PM at Southeastern CT Council of Governments, 5 Connecticut Avenue, Norwich, CT
- **Thursday, June 25, 2009** from 6:00 PM – 8:00 PM at Litchfield County Cooperative Extension Center, 843 University Drive, Torrington, CT
- **Monday, June 29, 2009** from 6:00 – 8:00 PM at Elmwood Community Center, Auditorium, 1106 New Britain Ave, West Hartford, CT
- **Tuesday, June 30, 2009** from 6:00 – 8:00 PM at Fairfield Public Library, Rotary Room, 1080 Old Post Road, Fairfield, CT

After the public meetings, the Plan will be finalized and presented to CTDOT for adoption in Summer 2009.

Statewide Bicycle and Pedestrian Transportation Plan and Map Update

## bicycle and pedestrian plan recommendations

One of the initial tasks in the Plan development was to capture the overall vision for biking and walking in Connecticut. After the Plan vision was developed in 2008, CTDOT and the Steering Committee worked closely to identify goals and action strategies that could best implement that vision. In addition, potential implementation options were identified for each action strategy.

### example

**Plan Vision:**

To encourage and promote bicycling and walking throughout Connecticut by providing for the safe, convenient, and enjoyable use of these modes of transportation.

Any person will be able to walk, bicycle, or use other types of nonmotorized transportation modes safely and conveniently throughout the State. A network of on-road facilities and multiuse trails will connect towns, regions, and Connecticut to neighboring states. Specifically, residential areas, employment centers, shopping areas, transit centers, recreation and cultural attractions, and schools will accommodate the walking and bicycling needs of users, both within the development and to nearby destinations.

**Sample Goal:**

Encourage and support pedestrian and bicycle safety.

**Sample Action Strategy:**

Develop and implement improvements and mitigation strategies to reduce vehicle-bicycle crashes and vehicle-pedestrian crashes on state roads.

**Sample Implementation Options (2):**

1. Educate bicyclists and pedestrians on reporting of all crashes, and their locations and causes – During the outreach process, the study team learned that it would be beneficial if all bicycle and pedestrian

*The implementation options are specific courses of action, or recommendations, that CTDOT and others can take to achieve the action strategies, goals, and vision.*

Any number and/or combination of the implementation options could be utilized to build toward the overall vision of the Plan. The implementation options, or recommendations, identified in the Draft Plan are not meant to be all inclusive, as other mechanisms that are not listed may be used to achieve the vision of the Plan. In addition, programs and practices may currently be underway, at CTDOT and at other agencies, which meet the vision and goals of the Plan.

crashes (not just ones that involve motor vehicles) were reported and kept in a central database. This could allow CTDOT to design the most effective countermeasures at the most needed locations to improve safety. One way to educate cyclists to do this could be through advertising and media. For example, future versions of the Statewide Bicycle Map could promote the “Report an Issue” website, where bicyclists and pedestrians can report these crashes.

2. Developing a “Report and Issue” page on the bicycle and pedestrian website – This page would be a location where bicyclists and pedestrians could report crashes that do not involve motor vehicles as well as other unsafe biking and walking locations.

## statewide bicycle map update

The second project newsletter (Fall 2008) described the new approach that is being taken on the front of the bicycle map. Instead of recommending a variety of routes for bicycling, the 2009 Map includes a suitability analysis of all state maintained roadways.

Bicycle suitability is a measurement of perceived comfort that bicyclists may feel on a particular roadway. Suitability analyses can include a variety of factors, and this analysis incorporates shoulder width and traffic volumes.



Sample suitability map

The back of the Statewide Bicycle Map will include a variety of new information and approaches to displaying information as well. One comment that we have repeatedly heard during our outreach is that the back of the map does not provide enough information that bicyclists need to ride in Connecticut. Much of the previous map's information, such as airport information, was not beneficial to a potential cyclist or a cyclist out riding. The new back side of the map includes such information as commuter tips, transit rules and restrictions for bicyclists, and tips when encountering horses on trails and roads.

In addition, the representation of information is quite different in the 2009 Map. For example, the "Rules of the Road" information now includes graphics; hopefully, readers will read and retain this crucial information first!

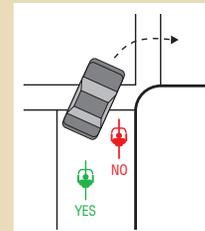
### Sample Map Graphics

#### Riding with traffic



#### Wearing a helmet

#### Approaching intersections



#### Bicycle maintenance



#### Yielding to pedestrians





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**[david.balzer@po.state.ct.us](mailto:david.balzer@po.state.ct.us)**  
**(860) 594-2141**

## website update!

Based on evaluation of the existing webpage and the expected changes in the 2009 Plan and Map, CTDOT has identified the need to develop a website to provide a on-line access to an interactive statewide bicycle map and current information on bicycle and walking in Connecticut. The new website will include such information as:

- On-line bike map
- "Report an Issue" page
- Library of biking and walking information such as:
  - » PDF version bike map and statewide bicycle plan,
  - » Cue sheets of statewide routes
  - » GPS coordinate information of state routes
- Links to related biking and walking information

**Press Release - July 29, 2008**

**Public Meetings Scheduled Statewide Bicycle and Pedestrian Plan and Map Update**

Newington, CT – The Connecticut Department of Transportation (ConnDOT) will conduct four public meetings to present information and gather input on the Statewide Bicycle and Pedestrian Plan and Map Update. The purpose of these meetings is to introduce the public to the update process as well as showcase data and preliminary findings.

This is an opportunity for the general public to obtain information and share their thoughts on the Plan and Map development early in the process. The study team will be available to gather resident and traveler input on desired components of the 2009 Plan and Map.

The public meetings will be held on the following dates:

- **Wednesday, October 1, 2008** from 5:30 – 7:30 PM at Bristol Public Library, 5 High Street, Bristol, Connecticut
- **Thursday, October 2, 2008** from 5:30 – 7:30 PM at J. Eugene Smith Library, Johnson Community Room, Second Floor, Eastern CT State University, 83 Windham Street, Willimantic, Connecticut
- **Monday, October 6, 2008** from 5:30 – 7:30 PM at New Haven Free Public Library, 133 Elm Street, New Haven, CT
- **Tuesday, October 7, 2008** from 5:30 -8:30 PM at Stamford Government Center, 888 Washington Boulevard, Stamford, CT

All meetings will have the same content and format. Each will begin at 5:30 PM with an informal interactive open house session. A brief presentation will begin at 6:30 PM, followed by a discussion period. ConnDOT and members of the study team, led by Fitzgerald & Halliday, Inc. of Hartford, Connecticut, will be available at each meeting to discuss the Update and answer questions.

Directions and parking information for the four public meeting locations are available at <http://ctbikepedplan.org/html-pub-involve/meetings.html>. Additional information on the Plan and Map Update can be obtained on the project website at <http://ctbikepedplan.org>. Other questions or comments may be directed to Mr. **David Balzer**, ConnDOT Bicycle and Pedestrian Coordinator, via email at [david.balzer@po.state.ct.us](mailto:david.balzer@po.state.ct.us) or phone at (860) 462-1062.

**Press Release - May 21, 2009****Public Meetings Scheduled Statewide Bicycle and Pedestrian Plan and Map Update**

Newington, CT – The Connecticut Department of Transportation (CTDOT) will conduct four public meetings to present information and gather input on the Statewide Bicycle and Pedestrian Plan and Map Update. The meetings will be an opportunity for the public to review and comment on the Draft Bicycle and Pedestrian Transportation Plan and Draft Statewide Bicycle Map. The study team will be available at all meetings to gather resident and traveler input on the components of the 2009 Plan and Map. After the public meetings, the Plan will be finalized and presented to CTDOT for adoption in the summer of 2009.

The public meetings will be held on the following dates:

- **Wednesday, June 24, 2009** from 6:00 PM – 8:00 PM at Southeastern CT Council of Governments, 5 Connecticut Avenue, Norwich, CT
- **Thursday, June 25, 2009** from 6:00 PM – 8:00 PM at Litchfield County Cooperative Extension Center, 843 University Drive, Torrington, CT
- **Monday, June 29, 2009** from 6:00 – 8:00 PM at Elmwood Community Center, Auditorium, 1106 New Britain Ave, West Hartford, CT
- **Tuesday, June 30, 2009** from 6:00 - 8:00 PM at Fairfield Public Library, Rotary Room, 1080 Old Post Road, Fairfield, CT

All meetings will have the same content and format. Each will begin at 6:00 PM with an informal interactive open house session. A brief presentation will begin at 6:45 PM, followed by a discussion period. CTDOT and members of the study team, led by Fitzgerald & Halliday, Inc. of Hartford, Connecticut, will be available at each meeting to discuss the Update and answer questions.

Directions and parking information for the four public meeting locations are available at <http://ctbikepedplan.org/html-pub-involve/meetings.html>.

Additional information and the DRAFT Plan and Map are now available for review and comment at [www.ctbikepedplan.org](http://www.ctbikepedplan.org). Other questions or comments may be directed to **Mr. David Balzer**, CTDOT Bicycle and Pedestrian Coordinator, via email at [david.balzer@po.state.ct.us](mailto:david.balzer@po.state.ct.us) or phone at (860) 594-2141.

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# APPENDIX D: PUBLIC MEETINGS

## SUMMARY OF COMMENTS

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### **CT Statewide Bicycle and Pedestrian Plan Update**

#### **Public Meeting Series 1**

**October 2008**

5:30 PM

Bristol, Willimantic, New Haven, Stamford

#### **Summary Plan Comments:**

- The language in the goals and action strategies should be more proactive.
- There were concerns about what the 1999 Plan accomplished. Were there goals outlined in this that could be measured? There were questions about measuring the success and implementing the Plan Update. There should be quantifiable performance measures.
- There were concerns about public health. Goal 7 appears to be an afterthought, when it should have more emphasis.
- ConnDOT should work with the state's universities on the education and encouragement aspects of the vision and goals.
- There should be better, and more, 'share the road' education. In addition, there should be more information on the driver's license test on this.
- There were concerns about equestrian access and safety on roadways, especially where state roads are utilized to connect various trails and trail systems.
- Bicycles must be allowed on trains during peak hours.
- More and better parking for bicycles is needed at train stations.

- There was a comment supporting bicycle parking at state parks and ferry terminals.
- There were concerns about the danger of bicycling around the Route 44 / Route 84 interchange in Bolton.
- There was a concern that the plan largely focuses on bicyclists, and pedestrians should not be forgotten.
- Villages and town centers need traffic calming mechanisms and this should be noted in the Plan Update.
- There were concerns about sidewalk maintenance. If a sidewalk is within the ConnDOT right-of-way, ConnDOT should maintain it.
- There should be visibility of how funds that are funneled through ConnDOT are spent. Specifically, there were questions and concerns about enhancement funds.
- There were questions about the State Transportation Improvement Program funding process. How can a member of the public find out what projects are in the planning and construction process? In addition, who should an advocate first talk with to recommend improvements?
- There is a need for signage. In particular, there were concerns with the length of time required for towns or other organizations, in particular the East Coast Greenway, to obtain a permit to post share the road or other bicycle signage on state roadways.
- There was a concern that towns simply plan what bicycle and pedestrian improvements they want in their own towns, with little concern about connectivity with neighboring towns. Regional Planning Agencies should focus on regional connectivity.
- There should be a full time bicycle and pedestrian coordinator at ConnDOT.
- A summary of public comments should be included in the project report.

### **Summary Map Comments:**

- There should be four bicycle maps instead of one statewide map. These maps should be of the following areas: Greenwich to New Haven corridor, New Haven to Springfield MA corridor, the area east of the New Haven to Springfield MA corridor, and the area west of the New Haven to Springfield MA corridor.
- There were concerns with the usage of the term "suitability" on the bicycle map. Specifically, there were attendees who did not like the term "unsuitable", because all bicyclists are allowed on all roads, and this might lead cyclists to think they are not allowed on these roads. In addition, perhaps developing a range based on "desirability", or activity intensity level, is better than the term suitable. Could support a number range as well.
- Vehicular speeds and grades should be accounted for in the bicycle suitability map.

- There was a question about the bicycle mapping effort and making it available online. The goal is for the statewide bicycle map to be transferable to Google or some other web viewing program.
- There was a question about off-road facilities and whether they would be identified in the Bicycle Map.
- There were concerns that the Draft Bicycle Map largely has an urban focus. There should be more of a rural focus.



## **CT Statewide Bicycle and Pedestrian Plan Update**

### **Public Meeting Series 2**

**June 2009**

6:00 – 8:00 PM

Norwich, Torrington, West Hartford, Fairfield

#### **Summary Plan Comments (Verbal):**

- There was a suggestion that the Plan should focus on commuter and utilitarian trips, more than recreational trips.
- There were questions about the upcoming schedule.
- There were questions about the Safe Routes to School program and whether this Plan would include guidelines for the Safe Routes to School program.
- There was a suggestion for the “Report an Issue” page on the website that CTDOT should offer detailed directions of how to fill it out with suggested typical issues (e.g. falling tree, driver speeds, etc.). The website should also let the user know who will be reading it and what they plan to do with the information.
- There were questions and comments about the need for bicycle storage on transit, at stations, and at destinations such as employment. Various storage options were dis-

cussed. In addition, there was a question about what the Plan recommended for bicycle parking at public facilities.

- There was a comment that it is unsafe to walk along Route 202 in Torrington, and that Route 202 needs sidewalks.
- There was general support for the recommendation for CTDOT to coordinate early with municipalities on roadway restriping and maintenance schedules.
- There was a question on how the public can track implementation of the Plan.
- There was a request for CTDOT to post information about all upcoming planning studies on a page on the CTDOT website.
- There was a request to make the bicycle and pedestrian design checklists, once complete, accessible to the public.
- There was a request to include the CT Horse Council in the list of advocacy groups (that the study team coordinated with) in the development of the Plan.
- There was a request to include the term “equestrians” in the second paragraph of the vision.
- There was a comment that the needs of non-motorized users are listed in the vision of the plan, but not in the recommendations. Recommendations, such as berms and other shoulder treatments, could make roads more equestrian friendly. In addition, crashes involving equestrians should be highlighted in the Plan.
- There was a question about how many full-time staff members work at CTDOT on issues related to Bicycle and Pedestrian Planning.
- There was a comment that there are problems with trees and roots on Connecticut multi-use trails.
- There was a question about the difference between state plans, regional plans, and local plans. How should locals move forward with this plan and desired improvements?
- There was a question whether the Plan prioritized on-road vs. off-road improvements.
- There was a question whether the state prioritized statewide or local improvements.
- There was a question about how best to track bicycle commute trips.
- There was a concern about lighting on multi-use trails.
- It was stated that the Oregon funding minimum comes from a gas tax.
- There was a concern about safety and the mix of vehicles on different roads.

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- It was noted that there is little discussion of gasoline and greenhouse gas emissions in the Plan.
  - It was suggested that "Goal 7" be expanded to also include air quality and quality of life statements.
  - There was a suggestion to clarify and simplify the benefits discussion on page 34, and that the Plan needs a more simple formula that the public understands (e.g. every \$1 spent on bike trails saves the taxpayers a certain, identifiable amount in taxes).
  - There was a comment expressing appreciation for the study team's efforts to include equestrians in the Plan and Map.
  - A comment indicated that there are problems with bicyclists riding on sidewalks, including police on bikes, and cited the need to educate on this and to make clearer distinction between bicycle and pedestrian improvements.
  - There was a suggestion to put better signage on the trails listing rules and etiquette for trail use.
  - There was a question about whether the concept of road diets was included in the Plan.
  - There was a suggestion, for Goal 1.4, to include shifting striping to create wider shoulders in the Plan since a road diet is preferable, and less expensive, to other improvements.
  - There was a suggestion to require riders to register their bicycles. Police departments should be involved in this.
  - A comment stated that bicycling and walking on the Post Road is a challenge due to the narrow width and busy traffic.
  - There was a question whether any bicycle projects are going to be funded with stimulus funds.
  - There was a reminder that the Port Jefferson Ferry has free bicycle access; one only has to pay for one's own ticket.
  - There was a comment supporting the use of green painted bicycle lanes.
  - There was a concern expressed about the difficulty of finishing a segment of the Housatonic Trail in Newtown due to major challenges to using one parcel of land.
  - There was a suggestion to contact and try to coordinate events with colleges and schools during Bike Safety Week.

- There was a suggestion to make a recommendation encouraging impervious surfaces in the Plan.
- There was considerable discussion about roundabouts including the suggestions to include guidelines for pedestrian and bicycle access and egress on them. It was noted that blind persons have a very hard time crossing roundabouts.
- There was a suggestion to recommend counting bicycle trips on scenic roads.
- There was a suggestion to recommend a guaranteed ride home (similar to the one offered by the rideshare groups) for bicycle riders.
- There was a request to add a copy of the Statewide Bicycle Map to the Plan.

**Summary Map Comments (Verbal):**

- There was a comment that steep slopes should be shown on the Statewide Bicycle Map.
- There was a suggestion to reference the bike map in the DMV manual.
- There was praise for the mapping effort (both on-line and hard copy).
- There was much discussion about the on-line mapping effort. While most generally supported the use of Google for the interactive map, there was a concern that CTDOT wouldn't be able to sustain the web mapping effort. There was a question about the online map and the features that it would offer. Specifically, would the online version of the map include information and options for bicycling on local roads? Would local officials be asked for suitability data for their roadways?
- There was a question about how the cross-state routes were chosen and validated. The attendees made a suggestion to speak to local groups about cross-state routes, as they probably know much about the roads.
- There was a suggestion to add the "3-foot" law to the back of the map.
- There was a suggestion to include incorrect driver behavior on the back of the map.
- There was a comment that the state parks / facilities on the back of the map are inaccurate. More parks allow horse riding than noted here. The CT Horse Council will provide the team with a corrected list.
- There was a question about including the Adventure Cycling East Coast Trail on the on-line interactive map.
- There was a question about how users would be able to identify the surface of multi-use trails from the hard copy map.

- Road names should be included on the map where possible.
- The Route 11 greenway needs to be included on the map.
- The Still River Greenway needs to be added to the LHCEO regional map.
- There was a request to label individual trails and bike routes on the regional maps.
- The titles of the regional maps need to be rephrased, as they are priority maps rather than system maps.

### **Summary Written Comments:**

- Land use and transportation should be integrated and planned together. It would be great to get the DOT, State, and local municipalities to plan together so we can have livable cities and smart growth. Sprawl should be discouraged and smart, mixed-use communities encouraged. Funding for all transportation projects should be at a level playing field (80%-20% match for all).
- Strengthen "smart growth" concepts; we need widespread coordination among agencies and governments, this is more than just DOT, STC, OPM presence on Advisory Committee.
- Smart growth seems well-suited for the level of regional government. Suggest greater coordination with regional COGs. Regions are a good blend of large enough areas to connect different areas, but small enough to know what is going on because often, timing during project development is very important.
- Use rail corridors for multi-use pathways as part of developing networks.
- Broaden health goal to include environment, climate, children, and education.
- How many full-time employees are at CTDOT working on this Plan?
- Praise and caution – Pleased with hybrid map (paper and on-line version). Great tool. Caution regarding the on-line map and its sustainability, including time to update.
- Google on-line map is good idea.
- What is the connection to state roadways/regional?
- Questioned on-road priorities vs. off-road priorities.
- Trail-crossing (Route 111 in Trumbull) needs crosswalk with signal.
- Good presentation, thanks. In terms of our largest city, Bridgeport, there is a somewhat unique issue of very poor quality roads. There are giant potholes, glass, debris, etc. There are also the usual traffic issues.

- Provide model zoning code for municipalities who want to improve walkability and bikability.
- DOT should really invest in making Route 1 pedestrian friendly! Many intersections need better crosswalks and flashing pedestrian signals, for example. Some sections need sidewalks. It is not safe to walk on the Post Road.
- SB 735 and Plan need to take into consideration all users when planning complete streets, including older and disabled populations. Building a truly complete street makes fiscal sense, allowing people to be more independent.
- Related to Goal #2 – Integrate and connect the New Haven Railroad Station sidewalk system to the VA Medical Center. Not many people do or will walk this route. One has to walk in the street and around puddles. For much of the 2+ miles of this route, there is no sidewalk.

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# APPENDIX E: BENCHMARKING ANALYSIS

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## Purpose

As part of the Connecticut Statewide Bicycle and Pedestrian Transportation Plan Update, a detailed benchmarking analysis was completed for seven states. The purpose of this analysis was to review how Connecticut compared when planning, prioritizing, and funding bicycle and pedestrian programs and improvements. The process examined bicycle and pedestrian plans, policies, maps, funding mechanisms, and design guidelines in four neighboring states and three state-of-the-art states. The four neighboring states included Massachusetts, New York, Vermont, and Rhode Island. The three state-of-the-art states reviewed were New Jersey, Wisconsin, and Oregon. The selected states represent a mix of locations around the U.S, and include large states and small states, as well as a combination of very aggressive and more modest programs.

New York, Massachusetts, Vermont, and Rhode Island were all selected because of their proximity to Connecticut and because each state program has its own unique elements. Massachusetts recently updated its design manual which has since become a model document for “Complete Streets” style development, which promotes bicycling and walking. New York has had an extensive statewide bicycle route network for over a decade, which could serve as a good model for Connecticut. Rhode Island has focused on the development of a statewide system of multi-use paths, while Vermont places their emphasis on local projects which will enhance quality of life.

Of the state-of-the-art states, Oregon has been a leader in bicycle and pedestrian planning for a number of decades. The Oregon Bicycle and Pedestrian Plan is over 20 years old and still continues to be cited as a model for other states developing bicycle and pedestrian plans. Wisconsin

has separate plans for bicycles and pedestrians and has developed a strong regional approach to planning. New Jersey recently established a dedicated fund to improve pedestrian safety across the state. This appendix describes each states’ program and responses to the survey questions, which were prepared with assistance from the Steering Committee in April 2008.

## Benchmarking States

Massachusetts: The Commonwealth is currently updating its Statewide Bicycle Plan, providing current information for the Connecticut Plan Update. The Massachusetts Bicycle Transportation Program is located in the Executive Office of Transportation, and is presented to the public as both a Bicycle Transportation and a Pedestrian Transportation Program. <http://www.eot.state.ma.us/BikeIndex>

New Jersey: New Jersey has had an ongoing policy of creating bicycle and pedestrian compatible roadways, and a multi-year funding program for improvements. The state is roughly similar in size and demographics to Connecticut, and shares a similar relationship to the New York City Metro region. New Jersey Department of Transportation (NJDOT) promotes safety information and recreational opportunities for bicyclists and is responsible for the planning and design of bicycle facilities on New Jersey highways. NJDOT offers engineering guidelines, a Master Plan for roadways that are compatible with bicyclists and walkers, a bicycle/pedestrian facilities database, planning and design guidelines and a resource center for statewide projects. <http://www.nj.gov/transportation/commuter/bike/resources.shtm>

New York: New York State Department of Transportation (NYSDOT) has developed a statewide bicycle route system, and has had a bicycle/pe-

destrian policy since the mid 1990's. The 1996 State Bicycle/Pedestrian plan was developed through an interagency, public-private task force. The NYSDOT program is managed cooperatively via NYSDOT's regional offices and MPOs. The NYSDOT bicycle/pedestrian website includes maps, design guidelines and links to related agencies, ADA guidelines, state funding programs and non-profit organizations.

<https://www.nysdot.gov/portal/page/portal/divisions/operating/opdm/local-programs-bureau/biking>

Oregon: Oregon has been a leader in bicycle and pedestrian policy and planning for the past three decades. The state first issued a bicycle and pedestrian plan in 1984 and the updated 1995 document has served as model plan for other states. The state's largest city, Portland, has been a testing ground for innovative new treatments which has pushed the city's bicycle mode share to one of the highest in the country. The Oregon Department of Transportation (ODOT) established the Bicycle/Pedestrian Program as a full division, with visible status on the agency's organizational chart. <http://www.oregon.gov/ODOT/HWY/BIKEPED/>

Rhode Island: The State of Rhode Island has developed a statewide system of bikeways with an emphasis on shared-use paths. The Rhode Island Department of Transportation (RIDOT) provides a central website at '[BikeRI.gov](http://BikeRI.gov)' that provides information, maps, intermodal connections, construction project updates and safety programs. Although Rhode Island is smaller than Connecticut, its program organization and approach represent a model with both similarities and differences for CT from within the New England region. <http://www.dot.ri.gov/bikeri/>

Vermont: Vermont places a significant emphasis on quality of life and tourism in its bicycle/pedestrian program. Their website says "It's hard to imagine a better environment for biking. Vermont's varied terrain and beautiful rural scenery provides opportunities for road touring and mountain biking and accommodates bicyclists

of all abilities." The Local Transportation Facilities Program is responsible for the development of Enhancement projects, bicycle and pedestrian facilities, Park-n-Rides, Scenic Byways, and local projects. The majority of the projects have a high degree of local focus and for the most part, development and construction is managed by local municipalities. <http://www.aot.state.vt.us/Bicycle.htm>

Wisconsin: Wisconsin presents its bicycle and pedestrian programs in parallel, and has developed separate plans for each mode. The Statewide Pedestrian Policy Plan is a 20 year plan that considers pedestrian needs and concerns and provides recommendations to address them; the State Bicycle Plan was created "to help communities and individuals develop bicycle-friendly facilities throughout the state." All 14 metropolitan areas in Wisconsin also have their own bicycle and pedestrian plans. <http://www.dot.wisconsin.gov/modes/bicycles.htm>

## **Policy / Benchmarking Summary Responses**

The following descriptions are a summary of the responses to the survey questions that were submitted to each State Bicycle/Pedestrian Coordinator to assess key policies and benchmarks to provide a context for developing the CT State Bicycle/Pedestrian plan update. The questions are based in part on a prototype for the League of American Bicyclists' new "Bicycle Friendly States" initiative. The responses were collected from a pre-formatted written document along with follow-up conversations to address residual questions.

### **1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

The overwhelming theme of the policy statements is that bicycling and walking are viable modes of transportation which should be safely accommodated. New Jersey and Vermont have particularly well developed policy statements and Oregon's Revised Statute 366.514 provides de-

tailed language and requirements for the accommodation of bicyclists and pedestrians. Neither Rhode Island nor Wisconsin has a free standing bicycle and pedestrian policy.

**2. Do you also have a Complete Streets policy? (Please provide copy)**

Oregon's state law "requires that when a roadway is constructed or reconstructed, bikeways and walkways be provided." Massachusetts recently redesigned their Highway Design Manual and it has become a model example for Complete Streets language. Although there are recommendations for bicycle and pedestrian planning in the other policy statements, none of the states have an explicit Complete Streets Policy.

**3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

Most of the states have a sidewalk policy as part of their Highway Design Manual which outlines design specifics and exceptions to the policy. Although Wisconsin does not have a formal policy they encourage sidewalk construction for a 10 percent local match providing that the community agrees to maintain the sidewalks. New York State law allows the NYSDOT to install sidewalks over municipal objections where there are overriding pedestrian safety concerns.

**4. Does your policy cover only State Department of Transportation (DOT) or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. (Check all that apply))**

The standard response to question four was that the policies only apply to the DOT. Wisconsin did further stipulate that if their policy also applies to projects on the local system where federal funds are used.

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues: American with Disabilities Act (ADA), health, safety, energy, environment (check all that apply)**

In a few responses, there was mention of ADA or safety connections but for the most part, the DOT policies did not seem to have a strong connection to considerations outside of transportation.

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

Most states responded that external approval was not required for policy adoption internal to DOT. Interestingly, RIDOT initiated a general law as part of their policy adoption in 1997 in cooperation with the Narragansett Bay Wheelmen, the local cycling club.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/Pedestrian Advisory Council or Task Force**

Many of the states indicated that there was an active Bicycle and Pedestrian Advisory Council that was in place to support the policy. Although Rhode Island does not have an advisory council, the RIDOT Bicycle Coordinator does meet regularly with advocacy groups such as the Greenways Alliance of Rhode Island and the Providence Bicycle Coalition.

**8. How do you communicate your policy to key stakeholders and the public?**

Online resources, media relations and outreach to advocacy groups were the most common answers to Question Eight. Vermont DOT has offered technical sessions to consultants and local municipalities.

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

“Commissioner adoption” was a common answer although there was mention of the Bicycle and Pedestrian Advisory Council and the Bicycle-Pedestrian Coordinator in the cases of New York State and

Vermont. In Oregon, the law which jump-started their bicycle and pedestrian planning process was introduced by a state legislator.

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

Nearly all of the states interviewed have developed their own bicycle and pedestrian design guidelines. RIDOT has no additional guidelines and refers to the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*. Both Vermont and New Jersey affirmatively answered the internal training question and most states indicated that there is a review process in place to insure that bicycle and pedestrian amenities are included.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

Massachusetts: One full time employee

New Jersey: Five full time employees

New York: One full time Bicycle/Pedestrian Coordinator, One full time Pedestrian Specialist, and each region has a part-time bicycle/pedestrian coordinator

Oregon: Three full time employees

Rhode Island: one full time VT employee, one full time Bicycle/Pedestrian Program Manager, one full time SR2S Coordinator, one full time Transportation Enhancements Program Manager (approx. 50% bicycle/pedestrian)

Wisconsin: Two full time employees

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

The document is a stand alone plan in any of the states that do have a bicycle/pedestrian plan. Massachusetts and Wisconsin noted that they have both a bicycle and a pedestrian plan.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

Yes, every state except one with a plan indicated that performance measures and regional tasks are included as part of the overall mission. Oregon indicated that they did not have a plan that covers these measures but included the caveat that most bicycle and pedestrian projects are built in conjunction with routine highway projects.

**14. Is your plan updated on a regular basis?**

Most plans are not updated on a regular basis. New Jersey stated that it would like to update it every five years although it seems like 10 years is roughly the average time between plan updates. Vermont also stated that it strives for a five-year update cycle.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

In New Jersey and Vermont the SRTS is integrated with the Bicycle and Pedestrian Program. In New York and Oregon the two programs are not formally linked although technical assistance is shared between the two. The Recreational Trails Program was not directly linked to the Bicycle and Pedestrian Program in any of the responding states.

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

New Jersey and Oregon are the only two states interviewed that have dedicated funding sources. New Jersey has approximately \$57.5 million dedicated solely to pedestrian safety. Oregon has a minimum one percent that the state, cities, and counties must spend on bicycle and pedestrian facilities.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

- a. Congestion Mitigation and Air Quality (CMAQ)
- b. Surface Transportation, not including Transportation Enhancements
- c. Transportation Enhancements
- d. Highway Safety Improvement Program (HSIP)

The percentages varied widely in this question and a number of respondents indicated that they did not know what the breakdown was. For those that did respond, the Transportation Enhancements program was the highest funding category.

Rhode Island appeared to have the most balanced distribution between the categories and also included "High Priority Projects" and "Public Lands Highway" programs as other funding sources.

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

New Jersey is the only state that indicated that it does not have a state bicycle map. Wisconsin has produced a series of regional maps which cover the state and New York has a number of state bicycle route maps which are available in print and on-line. Oregon and Rhode Island have state maps, both of which are available on-line. Massachusetts and Vermont do not have a state map but have regional bicycle and trail maps.

## Connecticut Policy / Benchmarking Survey Response and Comparison:

The following section is a comparison of Connecticut's responses to the survey questions contrasted with those of the benchmarking states. Connecticut's responses are included in italics while the comparison and recommendation information is in bold.

### 1. What is your state's current bicycle/pedestrian policy? (Please provide copy)

The following is the Vision which is stated in the Department's present Bicycle and Pedestrian Transportation Plan (1999):

To enhance the bicycling and walking environment throughout Connecticut by providing for the safe, convenient and enjoyable use of these modes of transportation in an effort to meet the public's demand for improved mobility and a better quality of life. Any Connecticut resident will be able to walk, bicycle, or use other type of non-motorized transportation mode safely and conveniently from his or her home to any destination in the State. From any town, residents will be able to follow multiuse trails that are connected to other towns in the region, to other regions, and to neighboring States. Employment centers, shopping areas, bus and train centers, recreation and cultural attractions, and schools will accommodate the walking and bicycling needs of employees, customers, residents, both within the development and to nearby destinations.

*The existing Connecticut policy adequately addresses safety and mobility issues to a wide range of destinations and the role they play in quality of life assessments. The focus on multi-use trails should be expanded to include on-road facilities and the target users shouldn't be limited solely to Connecticut residents.*

### 2. Do you also have a Complete Streets policy? (Please provide copy)

No.

*To encourage the effective implementation of the policies and goals outlined in the Bicycle and Pedestrian Plan Update, CT DOT should consider outlining an internal Complete Streets Policy which dictates that, "all projects are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street." The policy would add greater weight to the existing bicycle and pedestrian efforts and could be further supported by updates to the Highway Design Manual, similar to those included in Massachusetts's Updated Highway Design Manual.*

### 3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?

Yes: Connecticut Department of Transportation Policy Statement

Policy No: Highways 19

Subject: Policy on Sidewalks

#### A. State Roads

##### 1. Sidewalk Already Exists

If a roadway is to be reconstructed with State or State and Federal funds and the project will disturb an existing sidewalk, the reconstruction of the sidewalk, in kind, will be included in the reconstruction project.

##### 2. Bridges

When the State is constructing or reconstructing a bridge in an area where side-

walks exist or are likely to exist, sidewalks will be included in the bridge project.

### 3. Sidewalks Do Not Currently Exist

#### a. Federal Funds are Involved

When the State is reconstructing or constructing a State road in an area where the local community can demonstrate, in accordance with generally accepted AASHTO standards, that a sidewalk is warranted; and the community will enter into an agreement with the State to provide funding for the full nonfederal share of the cost associated with designing and constructing a sidewalk, including associated right-of-way and utility costs; and the municipality will enter into an agreement with the State in perpetuity, clearly stating that the municipality is fully responsible for all liability, maintenance, and snow and ice removal; then sidewalks within the limits of the construction project will be included in the project. Under this provision of the policy, no exclusive sidewalk projects will be considered, except under the STP-U program as provided under the STP-Urban Pavement Rehabilitation/Sidewalk Guidelines.

#### b. 100 Percent State Funds

Under the same conditions as Section 3a, sidewalks may be included in State road projects. The only change being that the community would be responsible for 100 percent of the cost of the sidewalk design and construction, including associated rights-of-way and utility portions of the project.

### B. Local Roads

When an improvement is being made to a local roadway with federal aid funds, sidewalk improvements may be included within the limits of the project if they satisfy generally accepted AASHTO standards and warrants, and the local communities will enter into an agreement to provide the financial resources for the full nonfederal share of the design and construction, including associated rights-of-way and utility costs of such sidewalks. Where no federal funds are involved, the State will not participate in the construction of any sidewalk.

*Connecticut's sidewalk policy is fairly comprehensive with respect to the bounds of what the DOT will and will not provide and what conditions need to be met. This policy could be connected to the Complete Streets Policy to further encourage the development of the sidewalk network and the state should consider providing state funds to accommodate that development. AASHTO clearly states, "Sidewalks are integral parts of city streets... because pedestrians are the lifeblood of our urban areas..."*

#### **4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

The policy relates only to CTDOT. However, for the past several years, the Department's Office of Public Transportation has been working with CT Transit to place bicycle racks on transit buses in most of the major transit districts in the state.

*Connecticut's policy, like those of the reviewed benchmarking states, is somewhat limited with its outreach and connection to other organizations and agencies. Although the benchmarking states did not offer a good model for such a connection, this could provide an opportunity for Connecticut to be a leader in linking transportation choices with health outcomes. The Depart-*

ConnDOT Bicycle and Pedestrian Plan Update								
	State							
Benchmarking Question	CT	MA	NJ	NY	OR	RI	VT	WI
Question #1 Current Bicycle & Pedestrian Policy	Please see comprehensive response from the surveys							
Question #2 Complete Streets Policy	No	Yes - Highway Design Manual	No	No	Yes	No	No	See Response
Question #3 Sidewalk Policy	Yes	Yes	No	Yes	Yes	No	No	No
Question #4 Interagency Cooperation	No	No	No	No	Yes	No Answer	No	No
Question #5 Linked to Other Statewide Policy Issues	ADA & Others	No	No	No	No	No Answer	No	ADA & Safety
Question #6 Policy Adoption Requires Legislative Action	No	No	No	No	Depends	Yes	No	No
Question #7 Processes to Support Policy	Advisory Committee	Advisory Committee	Advisory Committee	Advisory Committee	Advisory Committee	Advocacy Outreach	Bike/Ped Coordinator	State Bike Council
Question #8 Communication with Public Stakeholders	Website	Advisory Committee	Public Notice	Website	Multiple Means	Media Releases & Website	Technical Sessions & Website	Yes
Question #9 Policy Adoption	Office of Intermodal Planning	DOT Commissioner	DOT Commissioner	1994, Modified 1996	See Response	Legislative Action	Secretary of Trans.	Not Applicable
Question #10 State Bike/Ped Guidelines	No	Highway Design Manual	Yes	Yes	Yes	No	Yes	Yes
Question #11 Staff Numbers	2, including SR2S Coord.	1	5	2	3	1	2, including SR2S Coord.	2
Question #12 Stand Alone Bike/Ped Plan	Yes	Yes	Yes	Yes	Yes	Not Applicable	Yes	Yes, Bike Plan & Ped. Plan
Question #13 Performance Measures	No	No	Yes	Yes	No	Not Applicable	Yes	Yes
Question #14 Plan Update Schedule	Yes	Last updated 1998	No	No	Currently Being Updated	Not Applicable	5 Years	Yes
Question #15 Connection with SR2S & Rec. Trails Program	Collaboration	No Answer	Yes SR2S	Not formally	Technical Assistance	Technical Review	Yes SR2S	No Answer
Question #16 Dedicated Funding Source	DEP Rec. Trail Program	No	\$57.5 Million Ped. Safety	No	Minimum Spending %	No	No	No
Question #17 Funding Percentages	TE: 90%	No Answer	No Answer	TE: 90%	TE: 70-80%	TE: 10%	TE: 50%	TE: 75%
Question #18 Statewide Bicycle Map	Yes	No	No	3 Routes	Yes	Yes	No	Yes

*ment of Health should be invited to help develop healthy activity levels which can be correlated to transportation choices. Walking and bicycling would be a key indicator to the healthy transportation statistics and this could be enacted as one of the leading goals of the updated Bicycle and Pedestrian Plan.*

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

Yes. All new sidewalk construction is ADA compliant. The CTDOT Bicycle and Pedestrian coordinator collaborates with representatives of other state agencies, including the Department of Public Health, Department of Environmental Protection, and Office of Public Safety to protect the health, well-being and safety of all users of the state's transportation system.

*In response to this question, Connecticut may be ahead of the curve with respect to the other benchmarking states. ADA compliance should be a given at this point but if the Bicycle & Pedestrian Coordinator is actively collaborating with Public Health, Environmental Protection and Public Safety, Connecticut may be well on its way to achieving the goals recommended in the prior question. These existing partnerships should continue to be developed as Connecticut works to become a leader in healthy transportation assessment.*

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

Isn't the policy for all DOTs that accept federal funds (i.e. all DOTs) summarized by the FHWA Guidance of April 4, 2007? This states, in part, that "SAFETEA-LU confirms and continues the principle that the safe accommodation of nonmotorized users shall be considered during the planning, development, and construction of all Federal-aid transportation projects and programs. To varying extents, bicyclists and pedestrians will be

present on all highways and transportation facilities where they are permitted and it is clearly the intent of SAFETEA-LU that all new and improved transportation facilities be planned, designed, and constructed with this fact in mind."

Beyond this, I believe (I'm neither a lawyer nor a legislator) that the agency Commissioner decides whether to accept all agency draft transportation plans and their stated policies, without legislative approval or additional approval from outside the agency.

*For most states, policy adoption is usually done internally without too much input or pressure from the state legislature. If CTDOT is committed to implementing the changes recommended in the updated Bicycle and Pedestrian Plan then it should be able to handle any new policies internally. If that effort falls short, there may be a role for the legislature to play to encourage more bicycle and pedestrian friendly policies within the state.*

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/Pedestrian Advisory Council or Task Force**

The state Highway Design Manual includes a checklist of bicycle accommodation warrants as well as the current design guidelines from the AASHTO Green Book (Manual for the Design of Bicycle Facilities, 1999). In 2005, the CTDOT established a Bicycle and Pedestrian Advisory Committee representing the interests of stakeholders throughout the state, which meets periodically as needed.

*Most of the states indicated that there was a bicycle and pedestrian advisory committee in place. Connecticut established their committee in 2005 but indicated that it meets only periodically. It is recommended that the committee have a regularly scheduled meeting whether it is monthly, quarterly or semi-annual. Without a regularly scheduled meeting it is too easy for the committee to fall prey to apathy and disuse. This*

*is exactly what happened to New York's advisory committee and it has taken nearly ten years to get it up and running again.*

**8. How do you communicate your policy to key stakeholders and the public?**

A digital copy of the present Bicycle and Pedestrian Transportation Plan is posted on the Department's website.

*Although a digital copy of the existing Bicycle and Pedestrian Plan is available on the website, it is not easy to locate. It also seems that there are no available printed copies of the plan available internally or to the public. The updated Bicycle and Pedestrian Plan should be more available to the cycling public and copies should be distributed to the cycling groups and regional planning agencies around the state. An active advisory committee can also help to communicate policies and updated information to interested stakeholders.*

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

The Plan was prepared by the CTDOT Office of Intermodal Planning in 1999. I believe the principals have retired from state service.

*In the majority of the states reviewed, policy initiation was accomplished through adoption by the Commissioner. In some cases there was support from the bicycle and pedestrian advisory committee. In Connecticut's case, the Office of Intermodal Planning was actively involved but the historical connection to the people involved in that process has been lost.*

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard**

**review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

The states facility design guidelines essentially recapitulate the AASHTO Green Book design guidelines. There is no formal educational process. However, last summer, the Department funded a Bicycle Facility Design workshop which was developed and presented by the University of Connecticut. Department staff engaged in design and engineering may attend other relevant classes, courses or workshops. The Department's Highway Design manual includes a checklist of bicycle accommodation warrants which must be completed by the design engineer and retained as part of the project file.

*Nearly all of the states interviewed have developed their own bicycle and pedestrian design guidelines. It appears that there is an opportunity for CTDOT to develop a more comprehensive and forward-thinking manual which could include design and engineering tools to better establish Complete Streets style development. Massachusetts recently updated their manual to include better accommodation of pedestrians and bicyclists and that could be used as model.*

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

There is a Bicycle and Pedestrian Coordinator and a Safe Routes to School Program Coordinator.

*Every state interviewed indicated that they had at least one full time person committed to bicycle and pedestrian efforts. Some of the states also had individual staff for bicycling and walking respectively. In Connecticut, the Bicycle and Pedestrian Coordinator is not a full time position and that should be upgraded if the state is going to fully pursue the goals highlighted in the updated Bicycle and Pedestrian Plan.*

**12. Do you have a stand alone bicycle/ pedestrian plan or is it integrated into an overall state transportation plan?**

It is specific to bicycle and pedestrian, as referenced in Item One, above.

*The document is a stand alone plan in any of the states that do have a bicycle and pedestrian plan. Two of the states indicated that they have both a bicycle and a pedestrian plan. Connecticut is taking the right step in updating the Bicycle and Pedestrian Plan and it should be regularly updated every five or ten years.*

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

No, one of the biggest deficits we have identified with regard to the current plan is a lack of specific performance measures. We hope to correct this in the new plan. The regional information in the plan consisted of regional plans which were provided by the state's regional planning agencies and then reprinted verbatim within the state plan.

*Every benchmarking state except one indicated that performance measures and regional tasks are included as part of the overall mission. The existing Connecticut Bicycle and Pedestrian Plan is noticeably lacking in specific performance measures and they should definitely be included in the updated plan.*

**14. Is your plan updated on a regular basis?**

Yes, that is the intention. The present update process began several years ago but was delayed by a lack of available funding.

*Historically speaking, most of the plans of the benchmarking states have not been updated on*

*a regular basis. The respondents did, however, indicate that it would be beneficial to have a regular update cycle of five or ten years. CTDOT should plan to regularly update and review the Bicycle and Pedestrian Plan, with specific attention paid to whether or not the performance measures and goals are being met.*

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

The Bicycle and Pedestrian Coordinator attends the monthly meetings of the state's Greenway Council, which is chaired by the Department of Environmental Protection's Recreational Trails Program Manager. The Department's Bicycle and Pedestrian Coordinator and the Safe Routes to School Coordinator seek to avail themselves of opportunities to collaborate together in the reinforcement of the goals and policies of both programs.

*Most of the benchmarking states indicated that there is a connection between the Bicycle and Pedestrian Program and the Safe Routes to School Program. In some states the Safe Routes to School Program is housed within the Bicycle and Pedestrian Program whereas in other states, the connection is more informal but present nonetheless. The Recreational Trails Program was not directly linked to the Bicycle and Pedestrian Program in any of the benchmarking states. The Connecticut Bicycle and Pedestrian Coordinator should continue to maintain a high level of communication with the Safe Routes to School Coordinator since the two positions have similar goals in common. It would also be worthwhile to include the staff and goals of the Recreational Trails Program into the long range planning efforts of the Bicycle and Pedestrian Program.*

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and**

**pedestrian projects? If yes, how much funding is available?**

There is the DEP Recreational Trail Program funding and there are annual Greenways Committee Grant awards.

*Oregon and New Jersey were the stand-out benchmarking states with regard to dedicated funding sources. Oregon has been directing one to two percent of transportation funds to bicycle and pedestrian projects for the past few decades. New Jersey has dedicated approximately \$57.5 million dollars to pedestrian safety to combat the growing pedestrian fatality rate in the state. CTDOT could follow the lead of both states by providing dedicated funding sources to both engineering and education programs.*

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

- a. Congestion Mitigation and Air Quality (CMAQ)**
- b. Surface Transportation, not including Transportation Enhancements**
- c. Transportation Enhancements**
- d. Highway Safety Improvement Program (HSIP)**

a) CMAQ funding is not used by the Department for bicycling projects (0%)

b) STP urban funds may not be used for bicycling projects, but may be used for the local match for sidewalks.

c) I believe about 90% of the Transportation Enhancement funding goes to bicycle projects (mainly multi-use trails).

d) I don't know what HSIP is.

*Connecticut, like most of the states reviewed, is receiving the vast majority of their bicycle and pedestrian funds from the Transportation Enhancements Program. It would be worthwhile for the Bicycle and Pedestrian Program to tap into CMAQ funds, especially in the more populated urban areas that are struggling to meet air quality standards. The funds can be used to promote education and encouragement projects that would shift short-distance motor vehicle trips to bicycle and walking trips. The HSIP money could be used to address safety issues in areas where there are high bicycle and pedestrian collision rates.*

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

Yes, there is a statewide bicycle map available both in print and on-line. The present map indicates recommended bicycle routes by colored highlighting. A suitability rating system is being considered for the new map which is being developed.

*Connecticut's statewide bicycle map is currently being reviewed as part of the Bicycle and Pedestrian Plan update. The state could incorporate some of the elements from the benchmarking states maps to better enhance the existing map and make it more user-friendly. New York's maps include specific routes and topography information for each of the routes. It might also be worthwhile to develop more regional maps in conjunction with the regional planning commissions to show a higher level of detail.*

**19. Is there anything else that you would like to add?**

There are numerous obstacles to the development of a complete bicycle network in Connecticut. Many of Connecticut's existing roadways are

narrow, with poor sight lines, and cannot be significantly improved without purchasing additional width (right-of-way), which is expensive. The vast majority of the state's commuters drive to work, and maintaining roads for use of these motorists remains a priority for the Department. One recent accommodation which has been accomplished by the Department is the placement of bicycle racks on transit buses in most of the major transit districts in the state.

**Conclusions:**

Connecticut is not too far behind the other states when it comes to bicycle and pedestrian planning. However, each state benchmarked in this analysis is doing something slightly better that Connecticut can learn about and perhaps model after. An adoption of a Complete Streets policy and the inclusion of such measures in the Highway Design Manual would be a significant first step to more comprehensive bicycle and pedestrian planning. CTDOT could include more specific performance measures in the updated Bicycle and Pedestrian Plan with a minimum dedicated funding source to insure that the performance measures are met.

In addition, there are opportunities for improved interagency cooperation. Transportation performance measures could be linked to health and safety and environmental measures and increased bicycling and walking can help to achieve both of those goals. The Bicycle and Pedestrian Plan could be updated on a regular basis to insure that performance measures are being met and updated. This current round of updates presents CTDOT with the opportunity to take a significant step forward to become a leader in bicycle and pedestrian accommodation.

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## Survey Responses by State

### Massachusetts:

#### 1. What is your state's current bicycle/pedestrian policy? (Please provide copy)

The 1998 Plan's vision statement reads: "The vision of the Statewide Bicycle Transportation Plan is recognition of bicycling as a viable means of transportation and reasonable accommodation of the needs of bicyclists in policies, programs, and projects. Greater recognition and the accommodation of the needs of bicyclists will lead to a more balanced transportation system with greater modal choice and improvements in bicycle safety. Such actions will enhance the environment and quality of life in the Commonwealth, and improve personal mobility.

#### 2. Do you also have a Complete Streets policy? (Please provide copy)

Yes. The Massachusetts Highway Design Guidelines was recently updated to better integrate modes and gives cities and towns more control over design decisions.

([http://www.vhb.com/mhdGuide/mhd\\_Guide-Book.asp](http://www.vhb.com/mhdGuide/mhd_Guide-Book.asp))

"Multimodal Consideration — to ensure that the safety and mobility of all users of the transportation system (pedestrians, bicyclists and drivers) are considered equally through all phases of a project so that even the most vulnerable (e.g. children and the elderly) can feel and be safe within the public right of way. This includes a commitment to full compliance with state and federal accessibility standards for people with disabilities."

#### 3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?

From the Massachusetts Pedestrian Plan: On locally-owned roads, it is the responsibility of the municipality to ensure sufficient right-of-way and that easements exist to accommodate all uses, including accessible sidewalks. On state highways in developed areas, MassHighway will make every effort to accommodate all uses, including accessible sidewalks, where municipalities agree to be responsible for maintenance. MassHighway will not take right-of-way specifically to provide sidewalks without community support.

#### 4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)

Only Massachusetts Highway Department.

#### 5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)

Not really.

#### 6. Does your policy adoption process require legislative action or approval outside of DOT?

No

#### 7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force

Bicycle/pedestrian Advisory Council

#### 8. How do you communicate your policy to key stakeholders and the public?

Bicycle/pedestrian Advisory Council, cooperation with MassBike, media releases

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

One per the BFS application

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

Stand alone bicycle and pedestrian plans.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

**14. Is your plan updated on a regular basis?**

The last plan was completed in 1998.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

- a. Congestion Mitigation and Air Quality (CMAQ)
- b. Surface Transportation, not including Transportation Enhancements
- c. Transportation Enhancements
- d. Highway Safety Improvement Program (HSIP)

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

While there is not a comprehensive state bicycle map, MassHighway has worked closely with the Massachusetts Office of Travel and Tourism to develop maps and brochures geared to bicycle travel.

**19. Is there anything else that you would like to add?**

New Jersey:

**1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

I. PURPOSE

To outline Department Policy in regard to addressing bicycle and pedestrian travel in the planning, design, construction and operation of transportation facilities funded or processed by NJDOT, and the development and implementation of transportation programs.

II. DEFINITIONS

N.A.

### III. POLICY

Bicycling and walking are viable and important travel modes and offer untapped potential for meeting transportation needs and providing recreational and health benefits. Provisions for bicycling and walking are important and necessary elements of comprehensive solutions to transportation problems and needs. Opportunities should be actively sought to address transportation needs and deficiencies through the provision of bicycle and pedestrian accommodations. These modes can also supplement transit use and replace motor vehicle trips by serving short trips.

It is the Department's policy to provide non-motorized travel options by routinely integrating bicycling and walking into transportation systems and promoting bicycling and walking as a preferred choice for short trips.

Bicycle and pedestrian issues will be routinely addressed as part of the activities of all units of the Department. Basic research and data gathering efforts should include data collection and analysis for the non-motorized modes. Beginning at the earliest stage of needs analyses and problem definition, and continuing through the entire project development process, bicycle and pedestrian travel needs shall be incorporated in the planning, scoping, design, construction and management of all transportation projects and programs funded or processed by the NJDOT.

Transportation facilities are to be designed and constructed, and maintained to accommodate use by bicycle and pedestrian traffic. Additionally, independent projects will be initiated to address bicycle and pedestrian access and safety needs or opportunities and correct deficiencies in the transportation system which inhibits the use of these modes. Where needs or opportunities are identified, roadway improvements, bikeways, walkways or other facilities intended to encourage or support travel by bicycle or walking should be designed and constructed.

#### **2. Do you also have a Complete Streets policy? (Please provide copy)**

No

#### **3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

We do not have a policy, but for now follow AASHTO guidelines for installation of sidewalks. We are completing a chapter in our Roadway Design Manual that is specific to pedestrian accommodations.

#### **4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

Only NJDOT

#### **5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

Not really.

#### **6. Does your policy adoption process require legislative action or approval outside of DOT?**

No

#### **7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

Besides the policy the department issues an Administrative Directive to enforce the policy. We do also have a Bicycle and Pedestrian Advisory Council who support the overall Bicycle/pedestrian program.

**8. How do you communicate your policy to key stakeholders and the public?**

The best way I can explain it is that the public/stakeholders get to see bicycle/pedestrian projects get completed, or that the bicycle/pedestrian piece to a capital project stays IN the project.

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

Commissioner adoption.

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

We completed our own guidelines back in 1995. However, we are currently integrated bicycle, pedestrian and traffic calming into our Roadway Design Manual. We are constantly training our planning and design staff on these issues.

To answer the last question, yes--bicycle & pedestrian staff are part of the scoping process--the department policy is clear that all projects must be screened for possible bicycle & pedestrian accommodations.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

We have a staff of five who are dedicated full time to the issues.

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

We have a stand alone plan.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

Yes

**14. Is your plan updated on a regular basis?**

Not really.....we would like to update it every five years.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

The Safe Routes to School Program is part of the Bicycle/Pedestrian Program. The RTP is located within the Department of Environmental Protection, but the funds for the program come through the NJDOT capital program.

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

Yes, approx 57.5 million of state dollars is dedicated solely to pedestrian safety.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

- a. Congestion Mitigation and Air Quality (CMAQ)
- b. Surface Transportation, not including Transportation Enhancements
- c. Transportation Enhancements

## d. Highway Safety Improvement Program (HSIP)

I am not really sure of the answer to these questions.

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

No, we do not have a state map.

**19. Is there anything else that you would like to add?**

**New York State:**

**1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

A copy of the Department's Bicycle and Pedestrian Policy may be obtained from the web site listed below.

<https://www.nysdot.gov/portal/page/portal/divisions/operating/opdm/local-programs-bureau/biking>

**2. Do you also have a Complete Streets policy? (Please provide copy)**

No.

**3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

Engineering Instruction (EI) 97-002 permits the NYSDOT to install sidewalk over municipal objection where there is determined to be overriding pedestrian safety condition.

EI 04-011 requires project designers to use a Pedestrian Checklist to conduct an assessment

of the land use surrounding each NYSDOT sponsored project (where applicable) for the presence of pedestrian activity. A YES indicated that a sidewalk should be constructed unless exceptional circumstances (cost, scarcity of use, or prohibited by law).

**4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

NYSDOT only.

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

No

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

No. Approval is only required by the Department's Commissioner.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

The NYSDOT Bicycle and Pedestrian Policy is supported by the Department and the NYS Bicycle and Pedestrian Advisory Council.

**8. How do you communicate your policy to key stakeholders and the public?**

The policy is available to the general public by viewing the 1997 New York State Bicycle and Pedestrian Plan. The Plan may be viewed or downloaded on line on the NYS DOT Department's website [www.nysdot.gov](http://www.nysdot.gov).

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

The Department Bicycle and Pedestrian Policy was initially developed in 1994 and later modified in 1996 to coincide with the release of the New York State Bicycle and Pedestrian Plan 1997. The key leaders in the process were Jeff Olson, NYSDOT Bicycle and Pedestrian Coordinator (1993 – 1998) and the New York State Bicycle and Pedestrian Advisory Council (1993 – 1997).

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

NYSDOT has developed separate bicycle and pedestrian design guidance for its professional engineering and planning staffs. This information is located in the Department's Highway Design Manual, Chapter 17, Bicycle Facility Design, and Chapter 18, Pedestrian Facility Design.

The Department of Transportation has developed Engineering Instruction (EI) 04-11 which provides a Pedestrian Checklist which must be completed by the project designer and regional bicycle and pedestrian coordinator.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

NYSDOT has dedicated: one full time Bicycle and Pedestrian Coordinator, one full time Pedestrian Specialist, and each NYSDOT region has been allotted one bicycle and pedestrian coordinator on a part time (10%) basis.

**12. Do you have a stand alone bicycle/ pedestrian plan or is it integrated into an overall state transportation plan?**

The 1997 New York State Bicycle and Pedestrian Plan was a stand-alone document. The 2006 NYSDOT Transportation Plan integrated bicycling and walking as a component of a broader state-wide transportation ideal.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

Yes. A copy of the 1997 New York State Bicycle and Pedestrian Plan may be downloaded at:

<https://www.nysdot.gov/portal/page/portal/divisions/operating/opdm/local-programs-bureau/biking>

**14. Is your plan updated on a regular basis?**

No. There were discussions to update the 1997 NYS Bicycle and Pedestrian Plan with the Department's 2006 Transportation Master Plan update, but no new Plan was authorized.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

The State Bicycle and Pedestrian Section has no official role in the development of program guidance or the selection of candidate projects under the Safe Route to School and Recreational Trails Programs. However, the Bicycle and Pedestrian Program is routinely invited to comment on any program guidance and selection criteria updates for both programs.

**16. Does the state have any dedicated funding sources, in addition to federal**

**programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

No.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

a. Congestion Mitigation and Air Quality (CMAQ)  
N/A

b. Surface Transportation, not including Transportation Enhancements N/A

c. Transportation Enhancements 90%

d. Highway Safety Improvement Program (HSIP)  
N/A

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

Yes, The Department has maps for its three major bicycle routes, 5, 9 & 17. The Department has also produced the Hudson Valley Bikeway and Trailway Map, and the Long Island Bicycle Map is due to be published in summer 2008.

**19. Is there anything else that you would like to add?**

The first is that the Department is completing the signing of new State Bicycle Routes 11, 14, 19, 20 and 25. The last section of these routes is expected to be signed by end of this summer. These new bicycle routes will:

- Increase by almost 1,000 miles the total number of signed long distance bicycle routes across New York State.

- And, will provide a link with existing bicycle routes in New Jersey, Pennsylvania and the Province of Quebec.

Secondly, the Department is developing a 511 system statewide. It which will be a free, one-stop, all-encompassing phone and web service offering information on transportation services and conditions throughout the State. It is scheduled to be implemented by the end of 2008. It is going operate 24 hours a day, seven days a week. Besides information for motorists, this web site will also offer information on cycling in the State. Information will include:

- All on-road and off-road bicycle facilities. The user will be able to view the state bicycle routes and can then "Zoom In" to view local shared use pathways and trails.
- It will also include information on trail head locations, links to bus and rail schedules and real-time highway information construction and road closures.

**Oregon:**

**1. What is your state's current bicycle/ pedestrian policy? (Please provide copy)**

Oregon has a number of policies and laws governing the provision of bicycle and pedestrian facilities. Oregon Revised Statute (ORS) 366.514 <http://www.leg.state.or.us/ors/366.html>

(State law) requires Oregon Department of Transportation (ODOT), cities and counties to include "bikeways and walkways" on all road construction and reconstruction projects, with three exceptions:

1. If adding these provisions would make the road unsafe;
2. If there is no need or probable use; or

3. If the costs would be excessively disproportionate to need or probable use.

The law also requires ODOT, cities and counties to spend reasonable amounts of their share of the state highway fund (state gas tax and vehicle registration fees) in providing pedestrian and bicyclist facilities, as needed.

A “reasonable amount” is open to translation, so the statute specifies that ODOT, cities and counties must spend no less than one percent of their share of the state highway fund on such facilities. ODOT has to spend the one percent minimum each year, but cities and counties can carry that over a ten-year period (a small jurisdiction may not do a road project every year, and one percent may represent too small a sum to do anything with).

So the basics are: provide a system for pedestrians and bicyclists, create roads that accommodate bicyclists and pedestrians, and spend a reasonable amount of the highway fund to do so.

Some other points:

1. Since a 1980 constitutional amendment, highway funds can only be spent within a highway, road or street right-of-way, meaning that paths in parks or on abandoned railroad tracks cannot be built using state highway funds. This sorely limits the money available for off street infrastructure – often the type most supported by the citizenry.
2. The primary objective is to ensure that the correct facilities get included on road construction and reconstruction projects - sidewalks on virtually all urban roads and streets, and bike lanes and/or simple paved shoulders on most high level roads or streets, urban or rural.
3. Most streets with low-moderate traffic function fine for bicyclists as “shared roadways,” with no special provisions.

4. Most paved shoulders are provided for the benefit of motorists, and are **not** “bicycle facilities.” ODOT therefore does not count the cost of shoulders toward the 1% minimum. Paved shoulders in urban areas can be striped as bike lanes, at almost no additional cost.
5. About 90 percent of the highway funds ODOT expends on pedestrian and bicycle facilities go towards sidewalks.

Also, the [Oregon Transportation Plan](#)

<http://www.oregon.gov/ODOT/TD/TP/docs/or-transplanupdate/2007/OTPvol1.pdf>

Policy 1A requires a “balanced” approach to transportation, “A balanced transportation system is one that provides transportation options...reduce reliance on the single occupant automobile...”

Policy 2B Urban Accessibility: “It is the policy of the State of Oregon to define minimum levels of service and assure balanced, multimodal accessibility to existing and new development within urban areas to achieve the state goal of compact, highly livable urban areas.”

The [Oregon Bicycle and Pedestrian Plan](#) is an adopted modal plan of the Oregon Transportation Plan. It outlines the policy and technical requirements to accommodate bicycling and walking.

Finally the [Oregon Administrative Rule 12](#) governs the planning of transportation facilities in Oregon and requires that cities, counties and the state plan for bicycling and walking. ([http://arcweb.sos.state.or.us/rules/OARS\\_600/OAR\\_660/660\\_012.html](http://arcweb.sos.state.or.us/rules/OARS_600/OAR_660/660_012.html))

## **2. Do you also have a Complete Streets policy? (Please provide copy)**

Sort of: ORS 366.514 requires that when a roadway is constructed or reconstructed bikeways and walkways be provided.

Also, the [Highway Design Manual](#)

[http://egov.oregon.gov/ODOT/HWY/ENGSER-VICES/hwy\\_manuals.shtml](http://egov.oregon.gov/ODOT/HWY/ENGSER-VICES/hwy_manuals.shtml)

Outlines the design specifics, based on roadway classification. Departures from the requirements of the HDM require a signed design exception. On urban, non-expressway, roadways, sidewalks and bike lanes are required, per the HDM.

**3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

Yes – the HDM, see above response.

**4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

ORS 366.514 applies to any agency spending state highway funds – effectively DOT's across the state. The Transportation Planning Rule 12 also applies to all agencies. The Highway Design Manual, Oregon Transportation Plan and Oregon Bicycle and Pedestrian Plan apply to ODOT only.

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

It's related and complimentary to the Transportation Planning Rule 12, but not directly linked. ORS 366.514 came 1<sup>st</sup> and thus stands alone; subsequent policies have built upon it. I know that the State, thru the Governor's office and other state agencies, has adopted policies to promote and support bicycling and walking, but I am not personally familiar with them.

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

Depends – internal policies, like the Highway Design Manual, do not require outside action or approval. Changes to the TPR 12 would and of course any changes to an ORS require legislative action.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

ORS 366.112 Established the Oregon Bicycle Committee, later expanded to the Oregon Bicycle and Pedestrian Advisory Committee. This Governor appointed, 8-member, volunteer committee advises the Oregon Transportation Commission on matters pertaining to bicycling and walking.

**8. How do you communicate your policy to key stakeholders and the public?**

Any way we can: publications, meetings, web sites, media, press releases, public events, committees, advocacy groups, outside agency outreach, educational classes, etc. We publish a number of bicycle maps, the Oregon Bicycle and Pedestrian Plan and the Oregon Bicyclist's Manual.

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

Bob Stathos – Republican legislator from Jacksonville Oregon sponsored and passed 366.514.

Of course, Oregon's land use laws and progressive transportation policies were proposed, supported, and sustained by numerous Oregonians for more than 40 years, since the Oregon Trail really. I could not name them all. The Bicycle Transportation Alliance has begun to serve an increasingly important role in the statewide transportation policy arena, though it got a relatively late start in

the early '90's. The first bicycle transportation facility bond measure was passed in Benton County in 1980 and provided \$2 million dollars for bicycle paths. The City of Eugene adopted pro bike/walk policies in the early 1970's.

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

See previous discussion on the Highway Design Manual, etc. All ODOT project construction plans are reviewed by the Pedestrian and Bicycle Program staff. We are also tapped to sit on any number of agency policy and leadership committees and groups, to represent bicycling and walking interests.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

Three full time on bicycle/pedestrian alone, though there must be hundreds or thousands (including maintenance crews) that have a partial role in supporting bicycling and walking.

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

Yes – see question one.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

No – we have good planning and design policies and standards, so most facilities are built in conjunction with routine highway projects. We do not have a strategic plan for provision of bicycling and walking facilities, which I think we need. We are currently inventorying bicycle facilities and sidewalks in urban areas on state highways. One of the outcomes of this inventory will be (I hope) a more strategic approach to providing for bicycling and walking.

**14. Is your plan updated on a regular basis?**

The Oregon Bicycle and Pedestrian plan is currently being update, for the first time since 1995.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

The Pedestrian/Bicycle Program has provided technical assistance the SRTS program. We are otherwise unrelated.

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

See discussion about ORS 366.514, we currently spend about \$6 million per year from the state highway fund and an equal amount from federal transportation funds on biking and walking facilities. You can find detailed expenditure reporting in our annual report: [http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/2006\\_Program\\_Report.pdf](http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/2006_Program_Report.pdf)

(2006 is the latest report; the 2007 report is still pending.)

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

I don't know the answer to this question and I'm afraid that I don't have time to research at the moment.

- a. Congestion Mitigation and Air Quality (CMAQ)
- b. Surface Transportation, not including Transportation Enhancements
- c. Transportation Enhancements 70 – 80%
- d. Highway Safety Improvement Program (HSIP)

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

Yes, and it's being updated to GIS format in the next two years.

<http://www.oregon.gov/ODOT/HWY/BIKEPED/maps.shtml>

**19. Is there anything else that you would like to add?**

In Oregon the bicycle is a legal vehicle, with all the rights and responsibilities assigned to any other vehicle, with exceptions based on operating characteristics. This legal status has enormous positive consequences: it is very difficult to ban bicycles from any stretch of roadway, bicyclists have legal standing to use the public right of way, and bicyclists have legal standing to use the travel lanes. Professionals up and down the transportation ladder – design, construction, enforcement, policy, regulatory etc., must act if not in the direct interest of bicyclists, at least with the knowledge that the bicycle is a legal vehicle and as such is best accounted for in their respective

work. It also gives advocates very solid ground on which to stand. Here's the law:

**814.400 Application of vehicle laws to bicycles.** (1) Every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle concerning operating on highways, vehicle equipment and abandoned vehicles, except:

(a) Those provisions which by their very nature can have no application.

(b) When otherwise specifically provided under the vehicle code.

(2) Subject to the provisions of subsection (1) of this section:

(a) A bicycle is a vehicle for purposes of the vehicle code; and

(b) When the term "vehicle" is used the term shall be deemed to be applicable to bicycles.

(3) The provisions of the vehicle code relating to the operation of bicycles do not relieve a bicyclist or motorist from the duty to exercise due care. [1983 c.338 §697; 1985 c.16 §335].

Finally – Oregon's policies are not complete. The funding stream, while generous by national standards, falls far short of the levels required to provide a complete bikeway network. Bicycle transportation is tolerated in many areas of the state, but not quite embraced. Transportation and land use polices acknowledge bicycling (and walking), but often allow things that are counter to a true fostering of a progressive transportation network. All that said – things in Oregon are quite good for bicyclists. And none of this would be real if it weren't for the many dedicated bicyclists who have attended meetings, hearings, joined boards and commissions and run for office. It is bicyclists advocating for bicycling that has created the favorable conditions we have in Oregon.

**Rhode Island:**

**1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

RIDOT does not have a formal written bicycle/pedestrian policy/document; we just do it, using a pro-active planning process [www.planning.ri.gov/transportation](http://www.planning.ri.gov/transportation) and sound engineering judgment. [www.dot.ri.gov/engineering](http://www.dot.ri.gov/engineering)

**2. Do you also have a Complete Streets policy? (Please provide copy)**

No.

**3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

No, sidewalk's on RIDOT owned/maintained roadways are installed as part of roadway re-construction (3R) and under ADA sidewalk improvement projects subject to available funding and priority in STIP: <http://www.planning.ri.gov/transportation/amendedreport.pdf>

**4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

No answer

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

No answer

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

RIDOT initiated this Rhode Island General Law in 1997:

<http://www.rilin.state.ri.us/Statutes/TITLE31/31-18/31-18-21.HTM> in cooperation with the Narragansett Bay Wheelmen [www.nbwclub.org](http://www.nbwclub.org) under the administration of former RIDOT Director William D. Ankner, Ph.D.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

RIDOT Bicycle Coordinator attends regular meetings of the following statewide advocacy groups:

- Greenways Alliance of RI <http://www.rigreenways.org>
- Narragansett Bay Wheelmen: [www.nbwclub.org](http://www.nbwclub.org)
- Providence Bicycle Coalition: <http://bikeprovidence.org/why-commute-by-bicycle>

**8. How do you communicate your policy to key stakeholders and the public?**

Media Releases, meetings with advocacy groups and Bike Rhode Island web site: [www.dot.state.ri.us/bikeri](http://www.dot.state.ri.us/bikeri).

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

Referencing question six – former RIDOT Director Bill Ankner was instrumental in supporting this 1997 legislation, he was very supportive of inter-modal transportation.

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

RIDOT design engineers generally refer to the AASHTO Guide to the Development Facilities for roadway and bikeway design treatment.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

One full time employee

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

N/A

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

N/A

**14. Is your plan updated on a regular basis?**

N/A

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

RI SRTS Program is administered by the Office of Statewide Planning Programs <http://www.planning.ri.gov/transportation/srts/srts.htm> with RIDOT providing design technical reviews.

<http://www.planning.ri.gov/transportation/srts/srts.htm> with RIDOT providing design technical reviews.

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

No state dedicated funding sources.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

a. Congestion Mitigation and Air Quality (CMAQ) 15%

b. Surface Transportation, not including Transportation Enhancements 25%

c. Transportation Enhancements 10%

d. Highway Safety Improvement Program (HSIP)

HPP (High Priority Projects- federal funding) 25%

PLH (Public Lands Highway) – 25%

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

RIDOT's bicycle map is available for on-line viewing: [www.dot.state.ri.us/bikeri](http://www.dot.state.ri.us/bikeri)

**19. Is there anything else that you would like to add?**

RIDOT has committed significant federal and state funding resources to bicycle projects for the past 20+ years, before the advent of the first comprehensive federal transportation bill ISTEA was

enacted in 1991. The STIP has continually funded and prioritized bikeway projects with the support of the state Transportation Advisory Committee.

**Vermont:**

**1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

The recently adopted pedestrian/bicycle policy plan can be found at the following link:

<http://www.aot.state.vt.us/planning/PBPP.htm>

Also, in our VTrans Pedestrian/Bicycle Design Manual, you will find:

*VTrans Pedestrian Policy:*

Whereas,

- Everyone is a pedestrian;
- Walking is a part of every trip;
- Pedestrian travel is to be expected on all highways except where prohibited by state law; and
- Pedestrian travel is an integral part of the Agency's transportation program.

VTrans is committed to assuming a leadership role in promoting pedestrian improvement to:

- Encourage more walking;
- Reduce the number of pedestrian-motor vehicle crashes and injuries;
- Better address walking as a mode of transportation for all residents and visitors;
- Contribute to the U.S. Department of Transportation goal by helping to double the percentage of walking in the U.S.; and
- Contribute to national health objectives by providing opportunities for walking as a matter of lifestyle through the creation of pedestrian-friendly facilities, compact growth centers and active community environments.

To achieve these goals, VTrans will:

- Address pedestrian issues in all transportation plans developed with state or federal funds;
- Incorporate pedestrian facilities in all transportation projects and programs, where applicable.
- Ensure safe routes of travel for all pedestrians;
- Promote a connected network of pedestrian facilities in compact villages and urban centers;
- Enhance pedestrian mobility and safety in rural areas;
- Reinforce a sense of neighborhood and community with transportation designs that encourage pedestrian use;
- Encourage land use and transportation development that accommodate pedestrians;
- Enhance intermodal access for individuals with impaired mobility;
- Maintain the transportation system so pedestrian use is maximized;
- Define jurisdictional roles for providing and maintaining pedestrian facilities;
- Encourage towns and villages to use these guidelines in local planning and development; and
- Promote pedestrian safety initiatives and public awareness of the benefits that can be derived from walking.
- Improve data collection and evaluation techniques of existing and proposed facilities.

*VTrans Bicycle Policy:*

Whereas:

- Bicyclists have the same mobility needs as every other user of the transportation system and use the highway system as their primary means of access to jobs, services and recreational activities;

- To varying extent, bicycles will be used on all highways except where prohibited by state law; and
- Bicycle travel is an integral part of the Agency's transportation program.

VTrans is committed to assuming a leadership role in promoting bicycle improvements to:

- Encourage more bicycling;
- Reduce the number of bicycle-motor vehicle crashes and injuries;
- Better accommodate those who are dependent upon bicycling as their primary mode of transportation;
- Contribute to the U.S. Department of Transportation goal by helping to double the percentage of total trips made by bicycle in the U.S.; and
- Contribute to national health objectives of providing opportunities for bicycling as a matter of lifestyle through the creation of bicycle-friendly facilities, compact growth centers and active community environments.

To achieve these goals, VTrans will:

- Address bicycling issues in all long range transportation plans developed with state or federal funds;
- Incorporate bicycle facilities in the implementation of all transportation projects and programs, where applicable.
- Design, construct and maintain all streets and highways where bicyclists are permitted under the assumption that they will be used by bicyclists;
- Promote a connected network of bicycle facilities in compact villages and urban centers;
- Enhance bicyclists' mobility and safety in rural areas;
- Reinforce a sense of neighborhood and community with transportation designs that encourage bicycle use;
- Encourage land use and transportation development that accommodate bicyclists;

- Define jurisdictional roles for the provision of bicycle facilities;
- Define jurisdictional roles for the maintenance of bicycle facilities so bicycle use is maximized;
- Encourage towns and villages to use these guidelines in local planning and development; and
- Promote bicycle safety initiatives and public awareness of the benefits that can be derived from bicycling.
- Promote improved data collection and evaluation techniques of existing and proposed facilities.

Although neither was adopted as a policy with formal recognition.

## **2. Do you also have a Complete Streets policy? (Please provide copy)**

No.

## **3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

No. Again, our Pedestrian/Bicycle design manual has guidance on this, but it is not a formal policy.

### **Table 3-4.**

#### Recommended Walkway Locations:

- Commercial centers and downtowns both sides of all streets.
- Major residential streets preferably on both sides.
- Local residential streets preferably on both sides, but at least one side.
- Low-density residential (1-4 units/ac) preferably on both sides, but at least one side with appropriate shoulder on other side.
- Rural residential (less than 1 unit/ac) preferably on one side with appropriate

shoulder on other side, but at least a shoulder on both sides.

Adapted from Design and Safety of Pedestrian Facilities, Institute of Transportation Engineers.

**4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

Our policy would only cover the DOT, although we sometimes offer testimony on development going through the state's Act 250 land use permitting process. We might suggest sidewalks as part of that process.

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

Not especially.

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

No. The exception would be if we were adopting administrative rules, which requires legislative action. Or if we were trying to change statute, of course.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

State Bicycle/pedestrian Program Manager (i.e. Coordinator)

**8. How do you communicate your policy to key stakeholders and the public?**

We have done technical sessions to consultants and municipalities. Documents are available on the Agency web site. We have done some out-

reach through state and regional bicycle/pedestrian advocacy organizations.

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

For the bicycle/pedestrian policy plan, it was initiated by the bicycle/pedestrian coordinator in cooperation with the planning division. Those two entities, with a diverse steering committee were the leaders in the process. It was reviewed by DOT executive staff (all the division directors) before approval ultimately by the Secretary of Transportation. There was an extensive public involvement process during the development of the plan.

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must undergo to identify opportunities for bicycle and pedestrian amenities?**

Yes. The aforementioned VTrans Pedestrian/Bicycle Design Manual which can be found at <http://www.aot.state.vt.us/progdev/Documents/LTF/FinalPedestrianAndBicycleFacility/PedBikeTOC.html>. We have done some in-reach, but need to do it again and on an ongoing basis to account for turnover, lack of use, etc. The Bicycle/Pedestrian Coordinator reviews all pavement management plans for pedestrian/bicycle needs. The Bicycle/Pedestrian Coordinator is a member of the Project Definition Team which reviews large (\$) projects. There is not a standard process to review all roads and bridge projects, but it something we have considered and may try to work towards in the next year or so.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

Tough question. One full time Bicycle/Pedestrian Program Manager. One full time SRTS Coordinator. One full time TE Program Manager (approximately 50% bicycle/pedestrian projects). Seven-eight project managers and supervisors working with communities at least part time to implement locally managed bicycle/pedestrian and Transportation Enhancement projects.

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

Stand-alone Bicycle/Pedestrian Policy Plan.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

Yes. Performance measures are included. Regional/local and other level tasks are identified. See plan link in Question One.

**14. Is your plan updated on a regular basis?**

Yes. We strive for the typical five-year update cycle.

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

SRTS is within the bicycle/pedestrian program and the coordinator is overseen by the Bicycle/Pedestrian Coordinator. Recreational Trails is administered out of the state department of Forests, Parks and Recreational with input from DOT staff on project selection.

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and**

**pedestrian projects? If yes, how much funding is available?**

No.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

a. Congestion Mitigation and Air Quality (CMAQ) – 0 – all goes to Public Transit in VT

b. Surface Transportation, not including Transportation Enhancements – At this point, no new STP funds spent on standalone bicycle/pedestrian projects. See the attached report about expenditures on shoulders, sidewalks and other bicycle/pedestrian features as part of other programs. For a number of years, ending in 2005, we had a standalone STP funded bicycle/pedestrian program that solicited approximately \$2M in projects each year. Many of those projects are still in the pipeline, but no new ones are solicited at this time.

c. Transportation Enhancements – roughly 50%

d. HSIP -0

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths? (Please provide a copy)**

None produced by the state. Various regional bicycle maps exist. See <http://www.vermontvacation.com/recreation/biking.asp> for more info.

**19. Is there anything else that you would like to add?**

**Wisconsin:**

**1. What is your state's current bicycle/pedestrian policy? (Please provide copy)**

Oddly, we do not have a free-standing policy. We have integrated aspects of the Federal Highway Administration (FHWA) policy in our Facilities Development Manual, but so many things are scattered about in different resources.

**2. Do you also have a Complete Streets policy? (Please provide copy)**

This also goes back to Question One. We following the FHWA Mainstreaming policy, which incidentally has been used as a component to some of the complete streets policy statements I have read recently.

**3. Does the agency have a specific sidewalk policy which determines the installation of sidewalks along highways or other rural roadways?**

Again, we don't have a strongly stated policy statement and for sidewalks, we can't. We have a very favorable cost share arrangement – we pay for about 90 percent of new sidewalks on our jobs, BUT maintenance is the responsibility of the cities/villages. We need an agreement from them that they will maintain the sidewalks. If they don't want the sidewalks, they can refuse to sign the agreement, and we have lost of our leverage. The vast majority of communities are happy to accept our terms.

**4. Does your policy cover only State DOT or are other agencies included? (Transit providers, parks & recreation agency, education, health department, etc. List all that apply)**

Our policies and practices generally only apply to our jobs or to jobs on the local system where federal funds are used.

**5. Is your bicycle/pedestrian policy linked to other statewide policy issues? (ADA, health, safety, energy, environment, etc. List all that apply)**

Our pedestrian policies are inherently linked to ADA. All of our policies are linked in some way to safety.

**6. Does your policy adoption process require legislative action or approval outside of DOT?**

No outside approval at this point.

**7. What administrative or organizational processes are in place to support the policy? i.e.: State Bicycle/pedestrian Advisory Council or Task Force**

We have a state bicycle council that is pushing for a more formal complete streets policy or law.

**8. How do you communicate your policy to key stakeholders and the public?**

Yes, we always try to communicate our policies and practices to stakeholders, many times, not well enough.

**9. How did your policy get initiated and adopted? Who were the key leaders in the process?**

No

**10. Has the state developed its own bicycle and pedestrian guidelines in addition to the national guidelines? Is there an internal education process to inform the design, operations and engineering staff about routine bicycle and pedestrian accommodations? Is there a standard review process that all projects must un-**

**dergo to identify opportunities for bicycle and pedestrian amenities?**

Yes, we have our own bicycle guide. There is not on-going education process. Yes, there is a standard review process on our state highways.

**11. How many of your staff are committed full or part time to bicycle/pedestrian efforts?**

Two

**12. Do you have a stand alone bicycle/pedestrian plan or is it integrated into an overall state transportation plan?**

We have two stand-alone plans.

**13. Does the plan include specific performance measures and/or a project lists to help measure progress toward implementation of the plan? Does the plan include regional and local level tasks? (Please provide copy)**

Yes, includes performance measures.

**14. Is your plan updated on a regular basis?**

Yes

**15. How are the state's Safe Routes to School and Recreational Trails Programs linked with the bicycle and pedestrian programs?**

**16. Does the state have any dedicated funding sources, in addition to federal programs for bicycle, or bicycle and pedestrian projects? If yes, how much funding is available?**

No dedicated state funds.

**17. What percentage of the following federal funding programs is typically spent on bicycling projects?**

a. Congestion Mitigation and Air Quality (CMAQ) 25%

b. Surface Transportation, not including Transportation Enhancements?

c. Transportation Enhancements 75%

d. Highway Safety Improvement Program (HSIP) – less than 5%

**18. Is there a statewide bicycle map or other resource that is available to the public? If so, does the map include suitability ratings, or information on conditions that impact bicycling like traffic volume and shoulder widths?**

Yes, there is a map. Yes, see <http://www.dot.wisconsin.gov/travel/bike-foot/countymaps.htm>.

**19. Is there anything else that you would like to add?**

**League of American Bicyclists' Bicycle Friendly State Rankings**

The League of American Bicyclists has announced the first annual ranking of Bicycle Friendly States, scoring all 50 states on more than 70 factors. The states were scored on responses to a questionnaire evaluating their commitment to bicycling and covering 6 key areas: legislation; policies and programs; infrastructure; education and encouragement; evaluation and planning; and enforcement.

Connecticut's State Rank was 42 out of 50. The League cited in its reasons for the ranking that Connecticut's carbon reduction plan includes bicycling, but there is currently no state funding for bicycle education programs and no state bicycle map.\*

The overall 2008 State Rankings are listed below with benchmarking states highlighted:

1 Washington	26 Louisiana
2 <b>Wisconsin</b>	27 <b>Rhode Island</b>
3 Arizona	28 Missouri
4 <b>Oregon</b>	29 Kentucky
5 Minnesota	30 Texas
6 Maine	31 Delaware
7 California	32 Ohio
8 Illinois	33 Nebraska
9 <b>New Jersey</b>	34 <b>New York</b>
10 New Hampshire	35 Maryland
11 Utah	36 Tennessee
12 Michigan	37 Idaho
13 North Carolina	38 Pennsylvania
14 Hawaii	39 Arkansas
15 South Carolina	40 Alaska
16 <b>Massachusetts</b>	41 South Dakota
17 <b>Vermont</b>	42 <b>Connecticut</b>
18 Wyoming	43 Oklahoma
19 Nevada	44 Montana
20 Florida	45 New Mexico
21 Iowa	46 North Dakota
22 Colorado	47 Mississippi
23 Virginia	48 Alabama
24 Indiana	49 Georgia
25 Kansas	50 West Virginia

\* As noted, Connecticut has supported and participated in bicycle and pedestrian education programs, and publishes a state bicycle map. The map is available on the CTDOT website and paper copies are distributed.

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# APPENDIX F: DESIGN GUIDELINE TOOLBOX

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Connecticut Statewide Bicycle and Pedestrian Plan

# Bicycle and Pedestrian Design Toolbox



## Connecticut Statewide Bicycle and Pedestrian Plan



### Bicycle Facility Description

1.1

#### SHARED ROADWAY

- ⌘ A shared roadway accommodates both motor vehicle and bicycle traffic by allowing them to share a lane on the roadway.
- ⌘ Shared roadways are not specifically marked for bicycle use. The various modes of travel share the route.
- ⌘ Shared roadways are the most common type of bicycle facility in use today.

#### SIGNED SHARED ROADWAY

- ⌘ A shared use road that includes pavement markings and/or signage that indicates the various facilities on the roadway, proper usage of the roadway by each user and directional signage specific to bicycle travel
- ⌘ Provide continuity to other bicycle facilities as well as designates preferred routes through high demand corridors

#### BICYCLE LANE

- ⌘ Designate a portion of the roadway for preferential use by bicyclists.
- ⌘ Establish with appropriate signage along streets in corridors where there is significant demand and where there are distinct needs that can be served by bike lanes
- ⌘ Provide for more predictable movements by bicyclists and motor vehicles
- ⌘ Help to increase total capacity of highways that carry mixed traffic
- ⌘ Accommodate bicyclists where insufficient space exists for comfortable cycling

#### SHARED USE PATH

- ⌘ Serve corridors not served by streets or where wide utility or former railroad rights of way exist
- ⌘ Separated from motor vehicle traffic by an open space or barrier
- ⌘ Should offer opportunities not provided by the road system
- ⌘ Used by bicyclists, pedestrians, skateboarders, the handicapped and others, including occasional motor vehicle traffic for emergencies and maintenance

Connecticut Statewide Bicycle and Pedestrian Plan



Bicycle Facility/Design Measure Chart

1.2

SHARED ROADWAYS	SIGNED SHARED ROADWAYS	BICYCLE LANES	SHARED USE PATHS
⌘ Paved Shoulder – 1.3.A	⌘ Paved Shoulder – 1.3.A	⌘ Bike Lane – 1.3.D	⌘ Drainage Grates & Utility Manholes – 1.3.I
⌘ Shoulder Bike Lane – 1.3.B	⌘ Shoulder Bike Lane – 1.3.B	⌘ Combination Lane – 1.3.E	⌘ Signalization – 1.3.J
⌘ Wide Curb Lane – 1.3.C	⌘ Wide Curb Lane – 1.3.C	⌘ Grade Separation: Overpass – 1.3.G	⌘ Signage – 1.3.P
⌘ Grade Separation: Overpass – 1.3.G	⌘ Bicycle Boulevard – 1.3.F	⌘ Grade Separation: Underpass – 1.3.H	⌘ Pavement Treatment – 2.2.A
⌘ Grade Separation: Underpass – 1.3.H	⌘ Grade Separation: Overpass – 1.3.G	⌘ Drainage Grates & Utility Manholes – 1.3.I	⌘ Intersection Treatments – 2.2.B
⌘ Drainage Grates & Utility Manholes – 1.3.I	⌘ Grade Separation: Underpass – 1.3.H	⌘ Signalization – 1.3.N	
⌘ On Street Parking – 1.3.N	⌘ Drainage Grates and Utility Manholes – 1.3.I	⌘ Pavement Markings – 1.3.K	
⌘ Pavement Surface – 1.3.O	⌘ Signalization – 1.3.J	⌘ Bike Box – 1.3.L	
	⌘ On Street Parking – 1.3.N	⌘ Bicycle Parking – 1.3.M	
	⌘ Pavement Surface – 1.3.O	⌘ On Street Parking – 1.3.N	
	⌘ Signage – 1.3.P	⌘ Pavement Surface – 1.3.O	
		⌘ Signage – 1.3.P	

## Connecticut Statewide Bicycle and Pedestrian Plan



### Paved Shoulders

1.3.A

#### Purpose

- ⌘ Create travel facilities for bicycles.
- ⌘ Create separated space for bicyclists.
- ⌘ Reduce or prevent conflicts with bicyclists overtaking motor vehicles in narrow, congested areas.
- ⌘ Added benefit: extends service life of road by providing better edge protection, provides breakdown area for motor vehicles.

#### Where to use

- ⌘ Rural roads
- ⌘ Shared roads

#### Guidelines

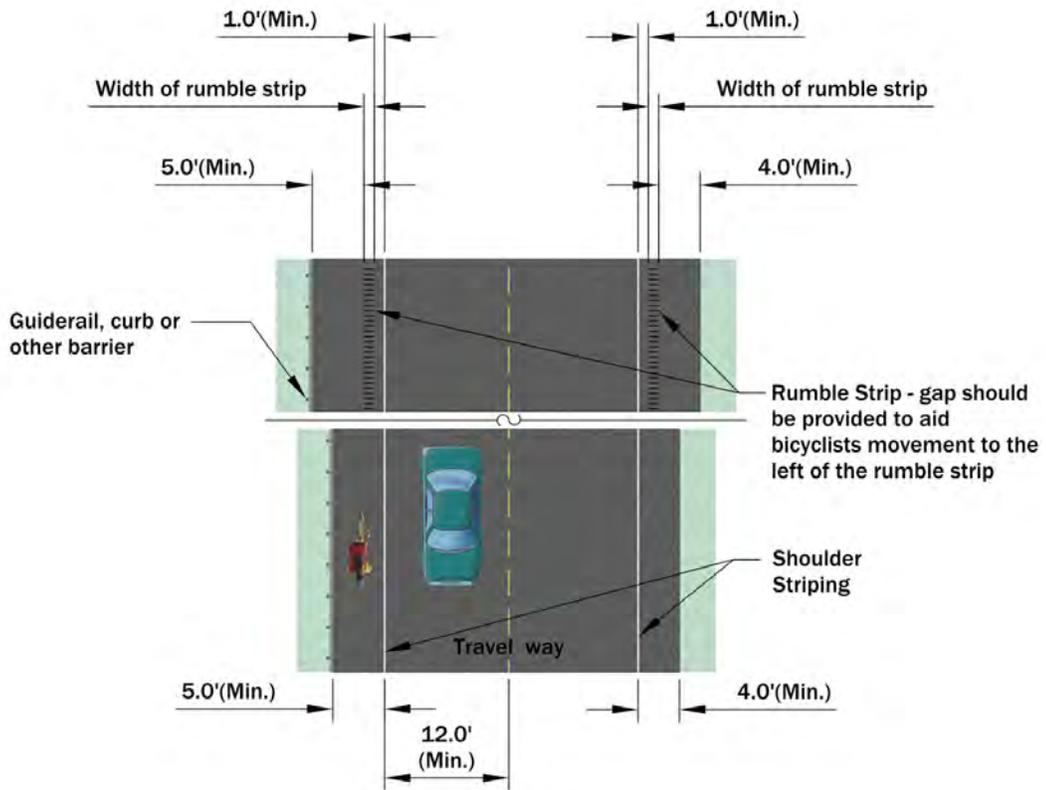
- ⌘ 4 foot wide minimum exclusive of gutter pan unless pan width is 4 foot or greater.
- ⌘ 5 foot wide minimum recommended from face of guide rail, curb, or other hard barrier.
- ⌘ Increase widths if heavy bicycle use anticipated or if vehicle speeds exceed 50 mph or percentage of trucks, buses and recreation vehicles is high or if static obstructions exist on right side of road.
- ⌘ Shoulder must be paved.
- ⌘ Not recommended if rumble strips or raised pavement markings present in shoulder unless 1 foot minimum clear path between rumble strip and travel way.
- ⌘ Not designed as a separate bike lane - just a shoulder.
- ⌘ A gap should be provided to allow bicyclists to move to the left of the rumble strip to avoid debris, other shoulder users or for turning purposes. Exact width and interval to be determined by local or state regulations. Some states recommend gap widths to be 10 feet to 12 feet and intervals ranging from 28 feet to 48 feet or 10 foot wide gaps with 10 foot intervals.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Paved Shoulders

1.3.A



[www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan_Burden)

## Connecticut Statewide Bicycle and Pedestrian Plan



### Shoulder Bicycle Lane

1.3.B

#### Purpose

- ⌚ Create travel facilities for bicycles.
- ⌚ Create separate space for bicyclists.
- ⌚ Reduce or prevent conflicts with bicyclists overtaking motor vehicles in narrow, congested areas.
- ⌚ Added benefit: extends service life of road by providing better edge protection, provides breakdown area for motor vehicles.

#### Where to use

- ⌚ Shared roadways
- ⌚ Suburban roads

#### Guidelines

- ⌚ 4 foot wide minimum exclusive of gutter pan unless pan width is 4 foot wide or greater.
- ⌚ 5 foot wide minimum recommended from face of guide rail, curb, or other hard barrier.
- ⌚ Increase widths if heavy bicycle use anticipated or if vehicle speeds exceed 50 mph or percentage of trucks, buses and recreation vehicles is high or if static obstructions exist on right side of road.
- ⌚ Shoulder must be paved.
- ⌚ Not recommended if rumble strips or raised pavement markings present in shoulder unless 1 foot minimum clear path between rumble strip and travel way or 5 foot to adjacent guide rail, curb or obstacle.
- ⌚ Not designated as a separate bike lane - just a shoulder.
- ⌚ Use standard pavement symbols (see 1.3.K for information) to inform motorists and bicyclists of the presence of a bicycles on he road.
- ⌚ A gap should be provided to allow bicyclists to move to the left of the rumble strip to avoid debris, other shoulder users or for turning purposes. Exact width and interval to be determined by local or state regulations. Some states recommend gap widths to be 10 feet to 12 feet and intervals ranging from 28 feet to 48 feet or 10 foot wide gaps with 10 foot intervals.
- ⌚ To increase awareness for vehicles and bicycles consideration should be given to changing the shoulder lane line from solid to dashed before right turn intersections. Reference the AASHTO Guide for the Development of Bicycle Facilities.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Shoulder Bicycle Lane

1.3.B



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael King



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Bob Boyce



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### Wide Curb Lane

1.3.C

#### Purpose

- ⌘ Create on street, travel facilities for bicyclists.
- ⌘ Create lane wide enough so motor vehicles and bicycles can share lane with adequate room for overtaking.
- ⌘ Encourages bicyclists to behave more like vehicles and leads to more correct positioning at intersections.

#### Where to use

- ⌘ Suburban roads
- ⌘ Urban roads
- ⌘ Areas where truck traffic does not exceed 5% of total motor vehicle traffic.
- ⌘ Preferred where shoulders are not present.

#### Guidelines

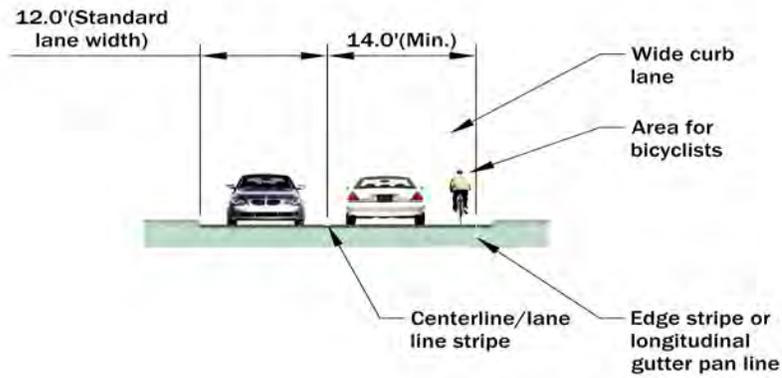
- ⌘ 14 foot minimum usable lane width, from edge stripe to lane stripe or from longitudinal joint of gutter pan to lane stripe.
- ⌘ On roads with steep grades, increase width to 15 foot if possible however, do not increase width continuously along roadway as this may encourage two motor vehicles in one lane.
- ⌘ If more than 15 foot of pavement width exists, consider striping a bike lane or shoulder (See 1.3.D and 1.3.K).
- ⌘ Education of users may be needed as wide curb lanes are not marked as bike lanes and many users may not realize they are there.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Wide Curb Lane

1.3.C



[www.pedbikeimages.org/Austin Brown](http://www.pedbikeimages.org/Austin Brown)

## Connecticut Statewide Bicycle and Pedestrian Plan



### Bike Lane

1.3.D

#### Purpose

- ⌘ Create on-street separated travel facilities for bicyclists.
- ⌘ Provide space for vehicles to safely overtake bicyclists.
- ⌘ Reduce or prevent problems associated with bicyclists overtaking vehicles in congested or narrow streets.
- ⌘ To encourage lower motor vehicle speed by narrowing available lanes.

#### Where to use

- ⌘ Suburban roads
- ⌘ Urban roads

#### Guidelines

- ⌘ Bike lanes should be one way facilities carrying bicyclists in the same direction as adjacent traffic and located on the right side of the travel lane.
- ⌘ Bike lanes generally should be installed in both directions of the roadway. Bike lanes installed on only one side of the roadway may encourage riding in the wrong direction. Depending on the situation an alternate route may need to be considered.
- ⌘ In some instances, on one way roads, the bike lane may be installed on the left side of the travel lane if this provides better safety to the bicyclist.
- ⌘ Bike Lane Widths:
  - Road with no curb and gutter - 4 foot wide minimum.
  - Road with guiderail, curb or other barrier - 5 foot wide minimum
  - Road with parking - 5 foot wide minimum, placed between parking and travel lane.
  - Road with parking but no parking stripe or stall - shared parking/bicycle space 11 foot wide minimum without curbs, 12 foot with curbs.
  - NOTE: If parking volumes are substantial or turnover is high then increase above widths by 1 -2 feet.
- ⌘ Obstructions:
  - Do not install drain inlets or covers within space that is 32" - 40" from curb face. Pavement should be smooth in this space. If these structures exist, increase width of bike lane to account for bicyclists swerving.
- ⌘ Bike lanes in outlying areas with no parking or curbs should be located within the limits of the paved shoulder at the outside edge. Width to be 5 foot but may be 4 foot minimum if area beyond shoulder provides additional room for maneuvering. Increase width beyond 5 foot if substantial truck traffic is present or vehicle speeds exceed 50 mph.
- ⌘ Railroad crossings should be as close to 90 degrees as possible. (See [http://www.oregon.gov/odot/hwy/bikeped/docs/bp\\_plan\\_2\\_ii](http://www.oregon.gov/odot/hwy/bikeped/docs/bp_plan_2_ii), PDF for more information on railroad crossings).

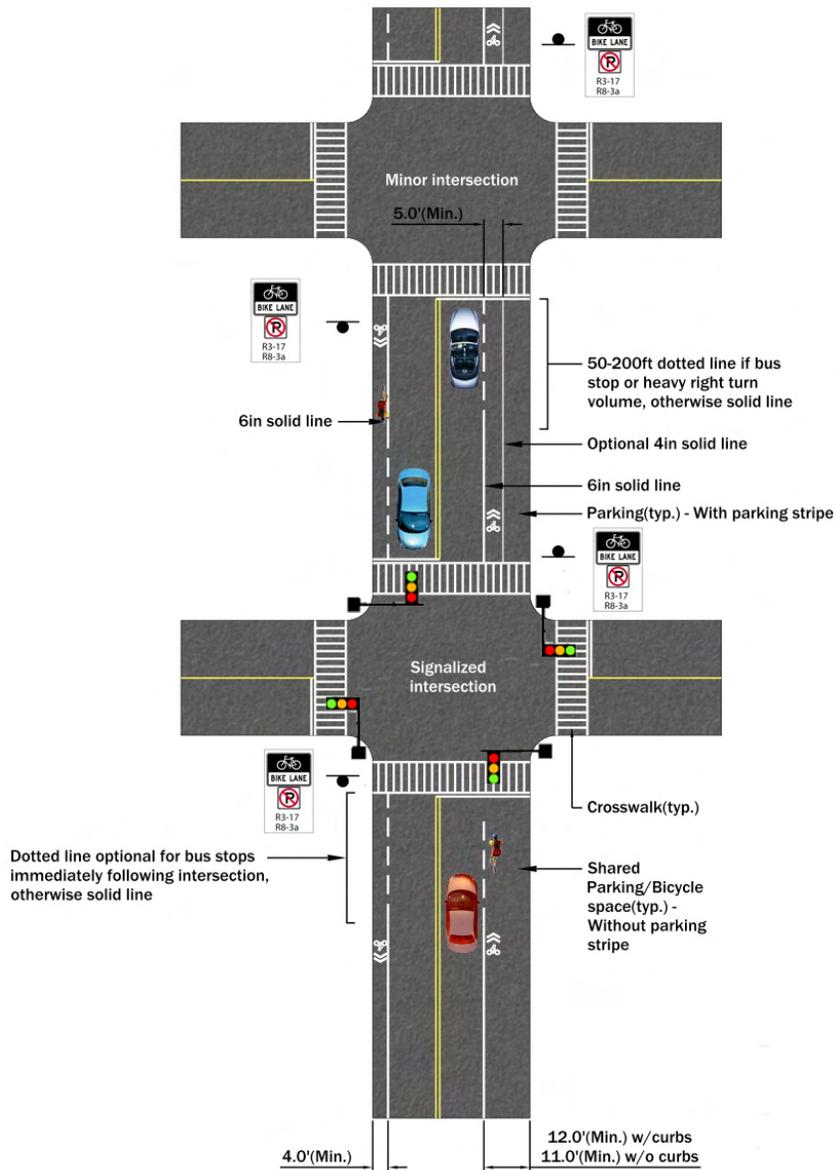
# Connecticut Statewide Bicycle and Pedestrian Plan



## Bike Lane

1.3.D

### Typical pavement markings for bike lane on a two way street



AASHTO guide for the development of bicycle facilities 1999 pg.26

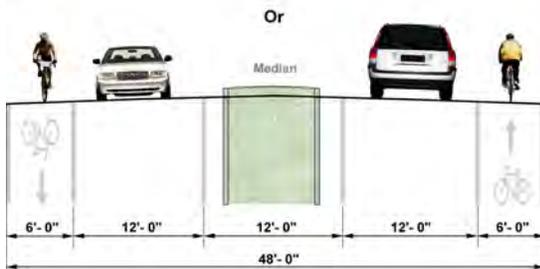
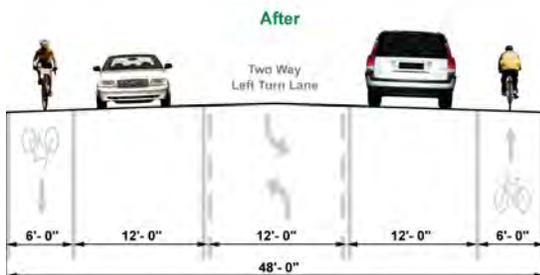
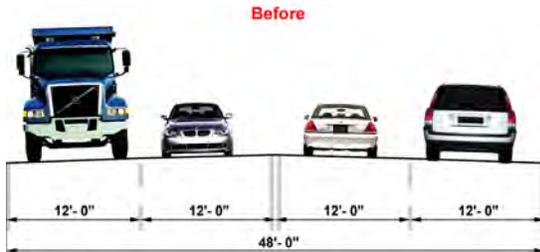
# Connecticut Statewide Bicycle and Pedestrian Plan



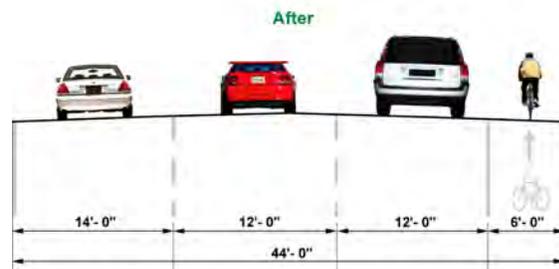
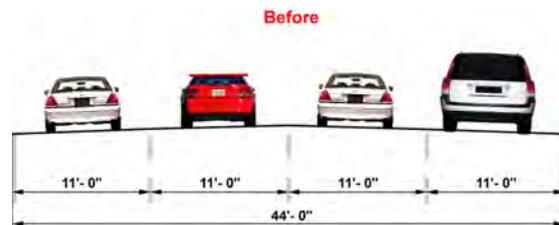
## Bike Lane

1.3.D

### Travel lane cross sections



Travel Lanes Reduced from 4 to 2 Lanes  
with Center Median/Turn Lane



Travel Lanes Reduced from 4 to 3 Lanes - One Way

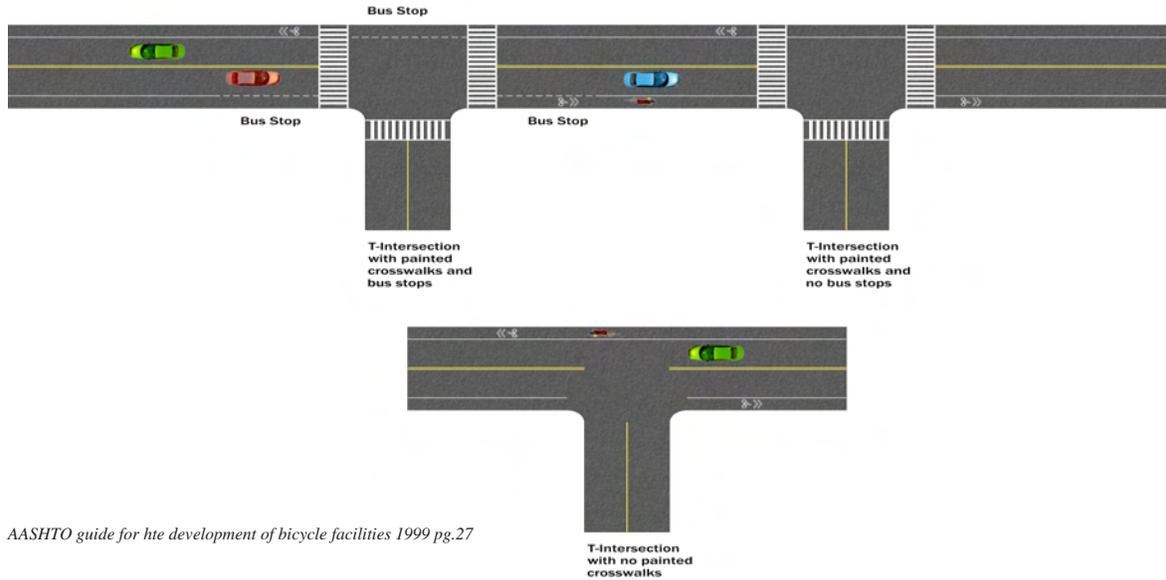
# Connecticut Statewide Bicycle and Pedestrian Plan



## Bike Lane

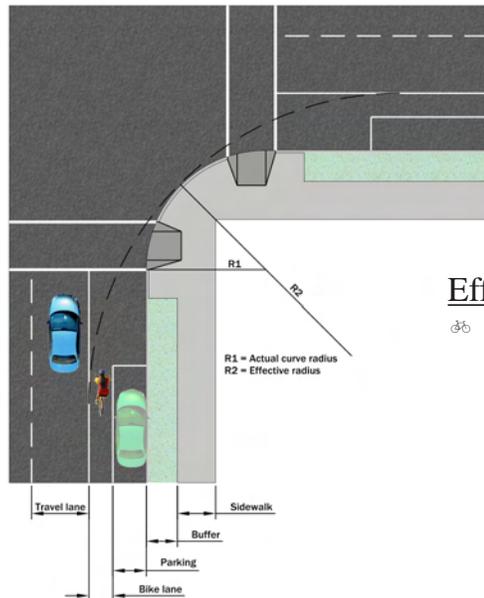
1.3.D

### Bike lane pavement markings at T-Intersections



AASHTO guide for the development of bicycle facilities 1999 pg.27

### Bike Lane - Effective Radius



### Effective radius

🚲 The effective radius is the radius needed for vehicles to safely navigate the turn without hopping the curb or veering into the adjacent lane. While a smaller curb radius decreases vehicle speed, therefore increasing bicycle safety, consideration must be given to the safety of both the vehicle and the bicycle.

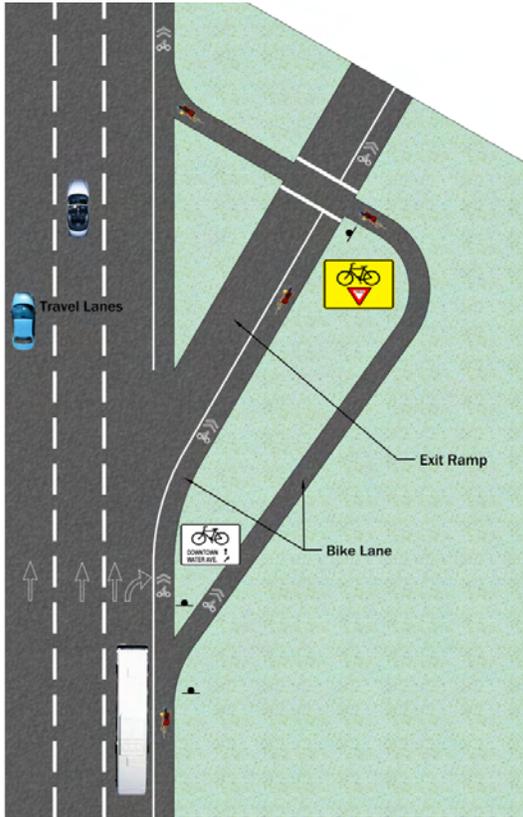
# Connecticut Statewide Bicycle and Pedestrian Plan



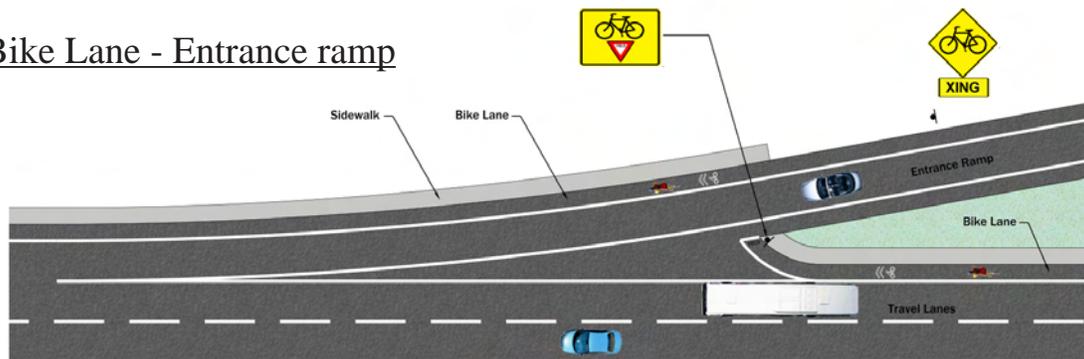
## Bike Lane

1.3.D

### Bike Lane - Exit ramp



### Bike Lane - Entrance ramp



AASHTO guide for the development of bicycle facilities 1999 pg.63

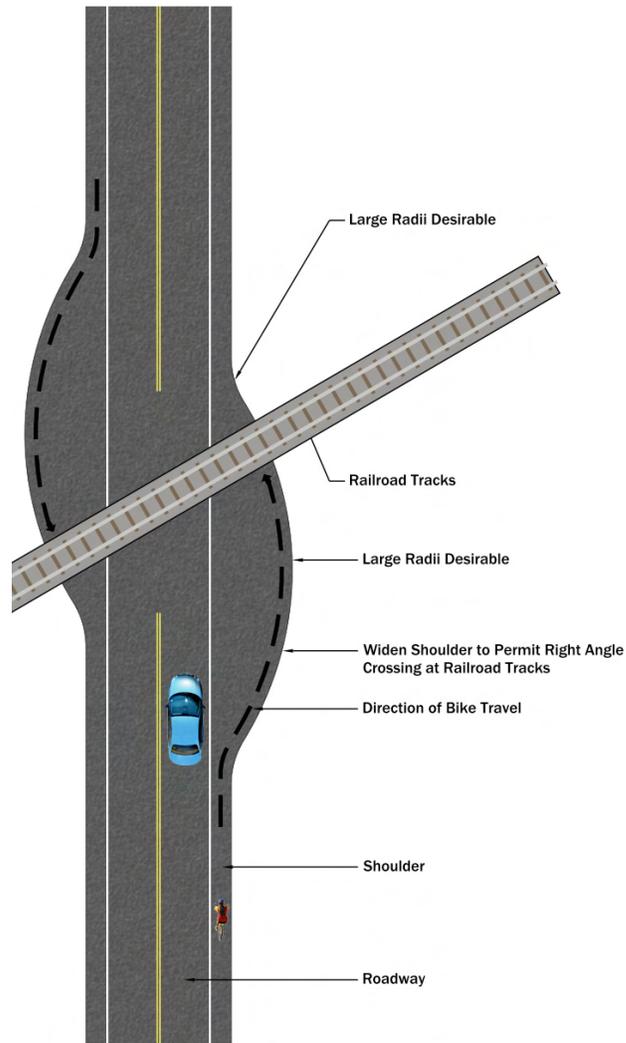
# Connecticut Statewide Bicycle and Pedestrian Plan



## Bike Lane

1.3.D

### Bike Lane - Railroad crossing



## Connecticut Statewide Bicycle and Pedestrian Plan



### Combination Lanes

1.3.E

#### Purpose

- ⌘ To create a separated space for bicyclists in combination with other modes of travel (buses, motor vehicles turning right) in areas where a dedicated bicycle lane is not feasible.

#### Where to use

- ⌘ Urban roads
- ⌘ Suburban roads
- ⌘ Transit centers

#### Guidelines

- ⌘ Appropriate width to be determined based on anticipated users. Refer to Federal Highway Administration BIKESAFE: Bicycle Countermeasure Selection System manual.
- ⌘ Provide appropriate signage based on anticipated users and desired traffic movement. Examples include: “Bicycles, Buses and Right Turns Only”.
- ⌘ Amount of vehicular uses to be analyzed to determine if combination lanes are warranted. If use is too low then combination lane will become an additional peak hour traffic lane.

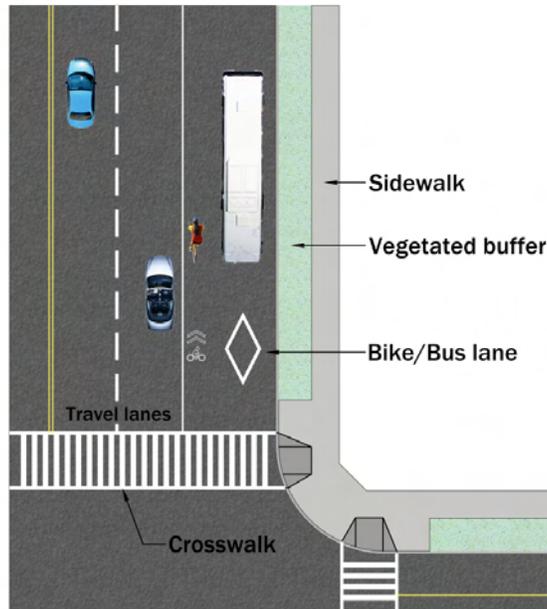
# Connecticut Statewide Bicycle and Pedestrian Plan



## Combination Lanes

1.3.E

### Bike/bus lane



### Bike/parking lane



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

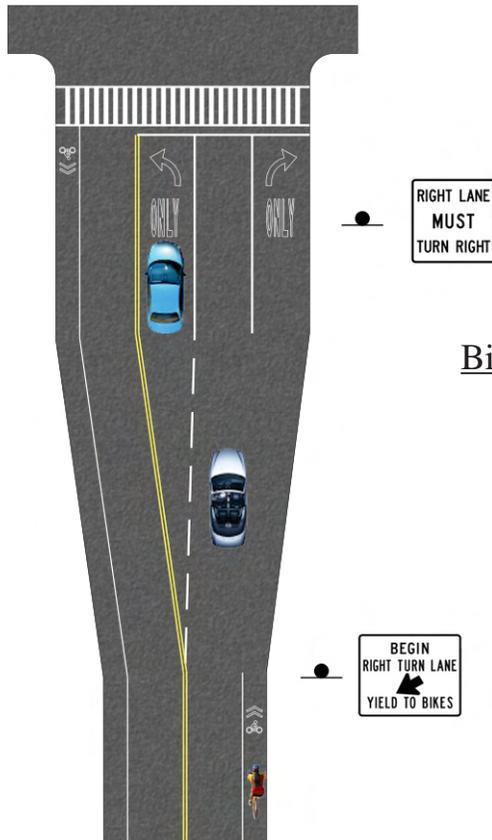
# Connecticut Statewide Bicycle and Pedestrian Plan



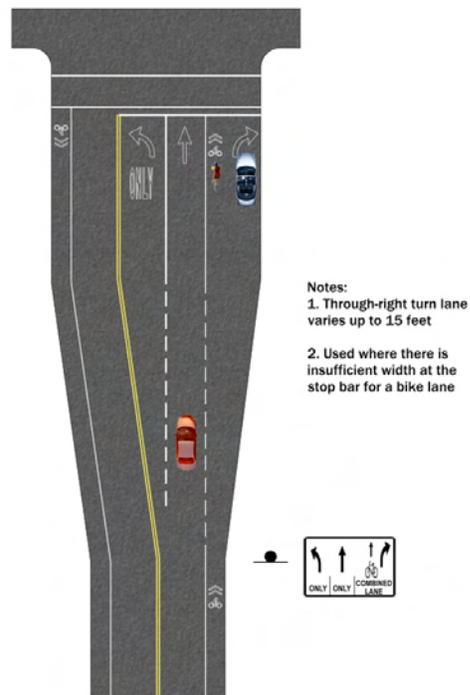
## Combination Lanes

1.3.E

### Bike lane approaching an intersection with throat widening



### Bike lane approaching right turn only lane



- Notes:
1. Through-right turn lane varies up to 15 feet
  2. Used where there is insufficient width at the stop bar for a bike lane

AASHTO guide for the development of bicycle facilities 1999 pg.30

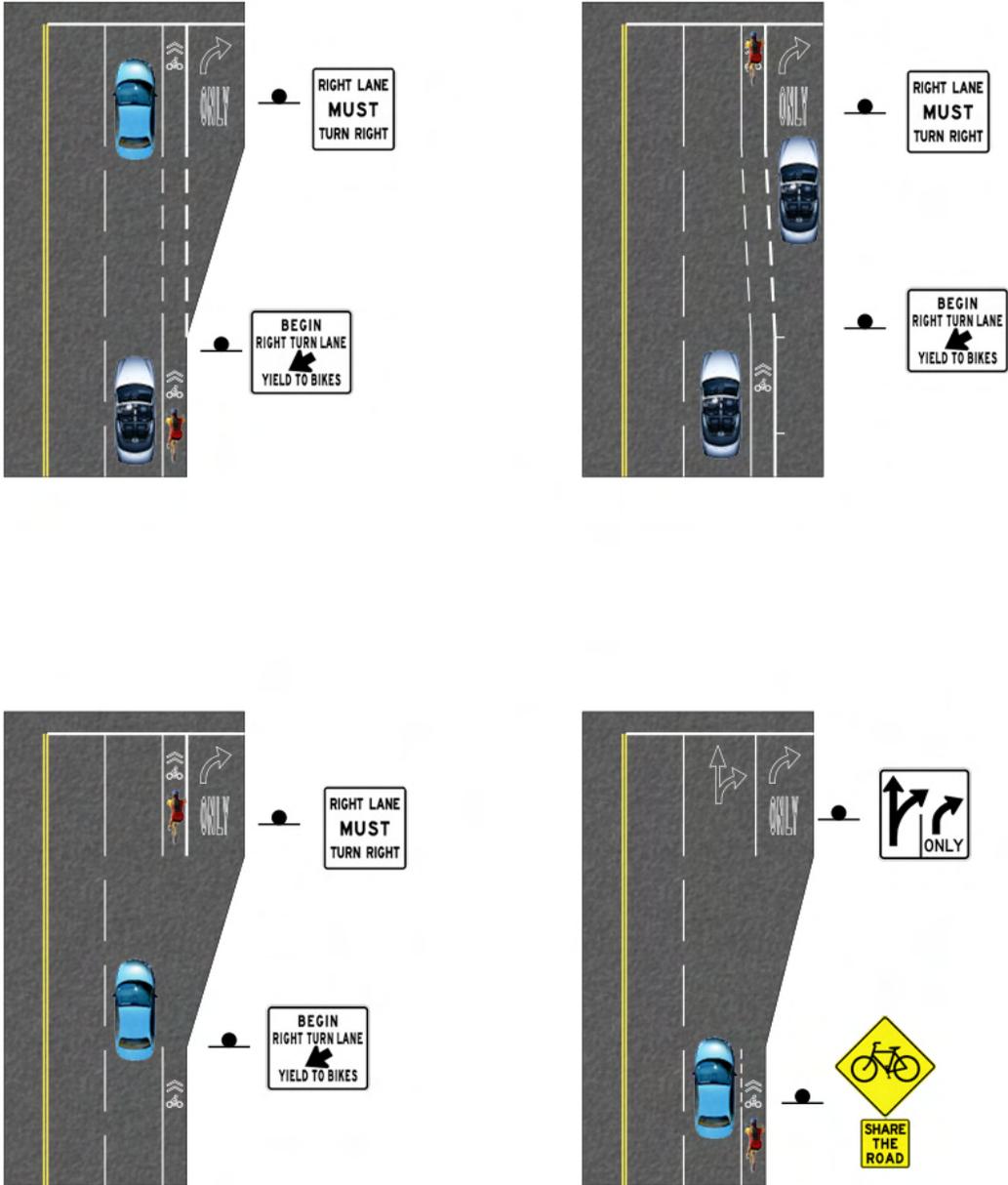
# Connecticut Statewide Bicycle and Pedestrian Plan



## Combination Lanes

1.3.E

### Bike lanes approaching right-turn only lanes



AASHTO guide for the development of bicycle facilities 1999 pg.29

## Connecticut Statewide Bicycle and Pedestrian Plan



### Bicycle Boulevard

1.3.F

#### Purpose

- ⌘ To create a shared roadway that is optimized for bicycle use in order to improve safety and circulation.

#### Where to use

- ⌘ Local or low volume connector streets
- ⌘ Suburban roads
- ⌘ Urban roads

#### Guidelines

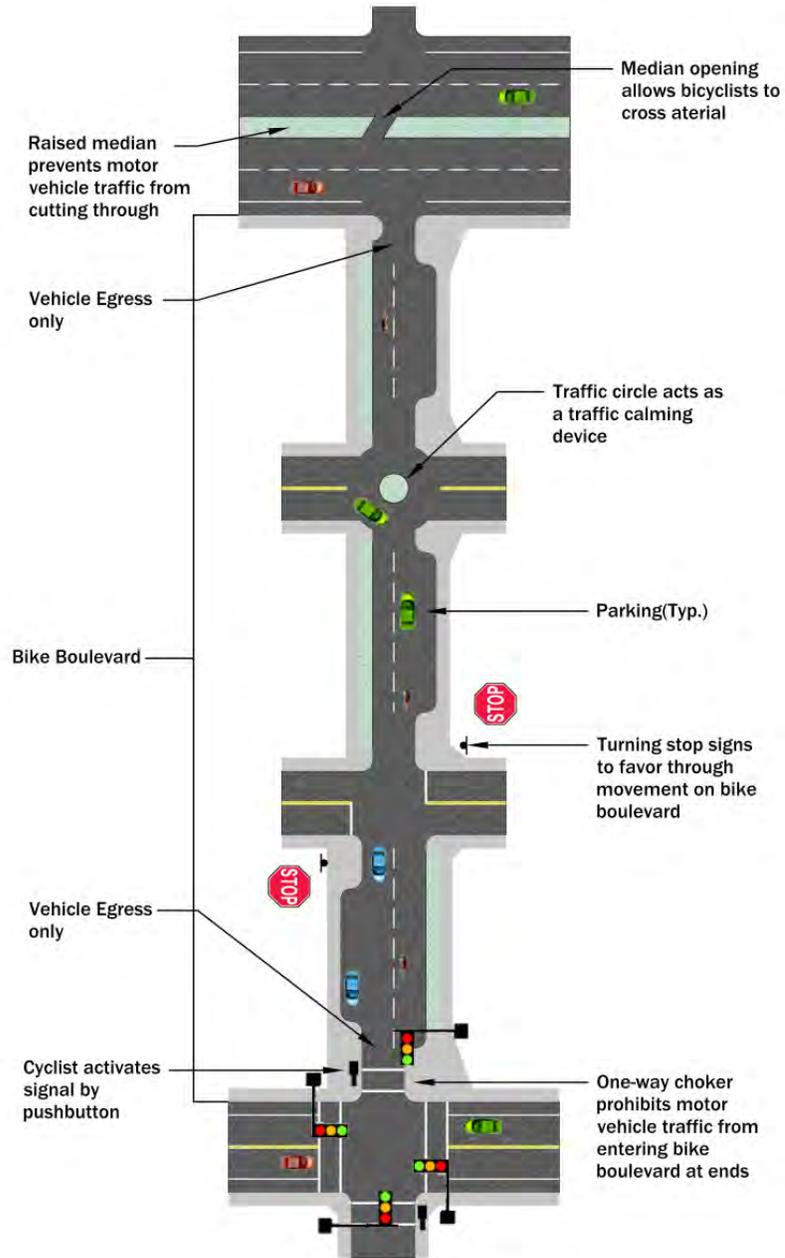
- ⌘ Bicycle boulevard should be designed to give bicyclists the right of way.
- ⌘ Bicycle boulevard should be designed as a through street for bicycles with minimal number of stops.
- ⌘ Use traffic calming techniques to reduce motor vehicle speeds. Be sure traffic calming does not impede bicyclists or emergency vehicles.
- ⌘ Pavement markings and appropriate signage should be used to warn motor vehicles that they are sharing road with bikes.
- ⌘ Lane widths will vary from 5' - 12' depending on whether it is a dedicated bicycle lane or shared lane.
- ⌘ Consider creating rain gardens and biofilters in medians and islands for improved aesthetics and storm-water management.
- ⌘ Bicycle boulevard should be visually unique in relation to surrounding streets. This will provide for a more enjoyable ride and set the boulevard apart from adjacent typical streets.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Bicycle Boulevard

1.3.F



## Connecticut Statewide Bicycle and Pedestrian Plan



### Grade Separation - Overpass

1.3.G

#### Purpose

- ⌘ Provide continuity of access for bicyclists across barriers.
- ⌘ Provide a safe separated area for bicyclists on existing or proposed bridges

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#### Where to use

- ⌘ Routes that must cross unsurpassable barriers (ie: river, major highway, etc.)

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#### Guidelines

- ⌘ As a minimum, dimensions should be as per section 1.3.D “Bike Lanes”.
- ⌘ Provide extra buffer space above the requirements in section 1.3.D, as necessary to account for “shy distance” from railings or adjacent traffic. Typically extra buffer space is 2 feet or more.
- ⌘ Clear space to overhead spans or obstructions should be 10 foot minimum.
- ⌘ Height of railings or barriers to protect bicyclists should be 4.5 feet minimum.
- ⌘ Provide sidewalk access for bicyclists on bridges only if traffic volumes and/or speeds are high, the bridge is long or there is insufficient roadway space to safely accommodate bicyclists.
- ⌘ If sidewalk access on overpass is desired for bicyclists then provide bicycle safe ramps for access to sidewalk.

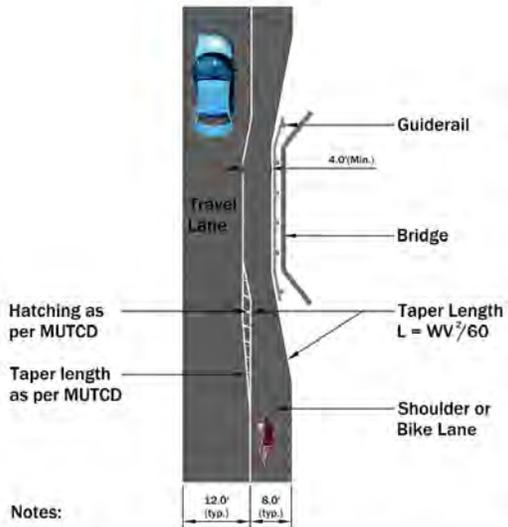
# Connecticut Statewide Bicycle and Pedestrian Plan



## Grade Separation - Overpass

1.3.G

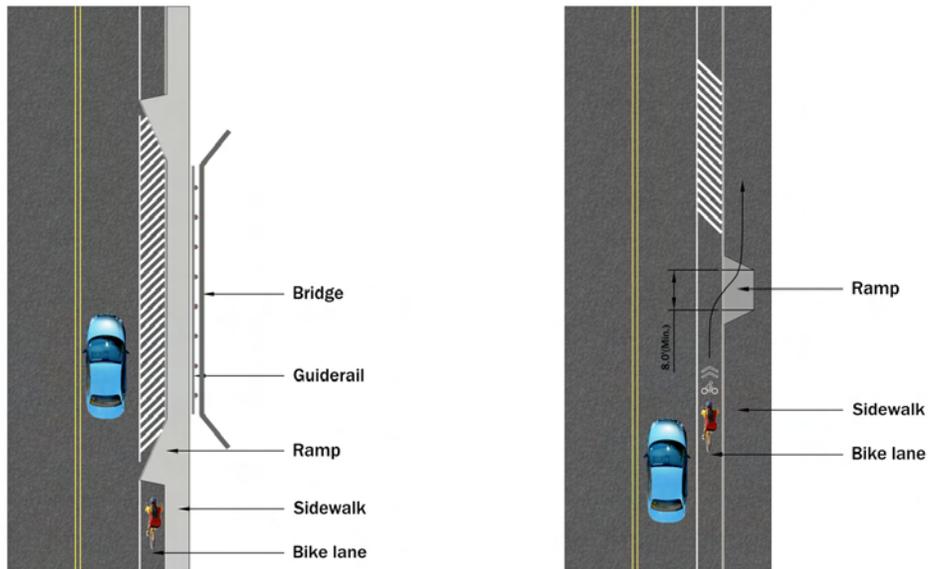
### Lane narrowing



**Notes:**

To obtain the minimum width to accommodate cyclists (4 feet) it may be necessary to narrow the travel lane(s) or median. It is preferable to narrow all lanes rather than simply the right hand lane

### Ramp - Bike lane to sidewalk



## Connecticut Statewide Bicycle and Pedestrian Plan



### Grade Separation(Bicycle) - Underpass

1.3.H

#### Purpose

- ⌘ Provide continuity of access for bicyclists across barriers.
- ⌘ Provide a safe, separated area for bicyclists riding in tunnels or underpasses.

#### Where to use

- ⌘ Existing or proposed tunnels that prevent impediment to free movement across unsurpassable barriers (ie: freeways, railways, etc.)

#### Guidelines

- ⌘ As a minimum, dimensions should be as per section 1.3.D “Bike Lanes”.
- ⌘ Provide 2 foot or more of extra buffer space, above requirements of section 1.3.D, as necessary to account for “shy distance” from walls or other barriers.
- ⌘ Clear space to overhead structures should be 10 foot minimum.
- ⌘ Provide adequate lighting for security as well as viewing the road surface.
- ⌘ Avoid hidden recesses and dark areas for increased security.
- ⌘ Provide warnings to motorists that bicyclists are in tunnel such as bicyclist activated, flashing warning signs.
- ⌘ When possible keep underpasses short as bicyclists prefer to see the end of the tunnel prior to entering.
- ⌘ Air quality should be considered from bicyclists perspectives and addressed as required to maintain an acceptable level.
- ⌘ Diversion of water away from tunnel, adequate drainage and non-slip surfaces are necessary to prevent water from becoming a hazard.

# Connecticut Statewide Bicycle and Pedestrian Plan

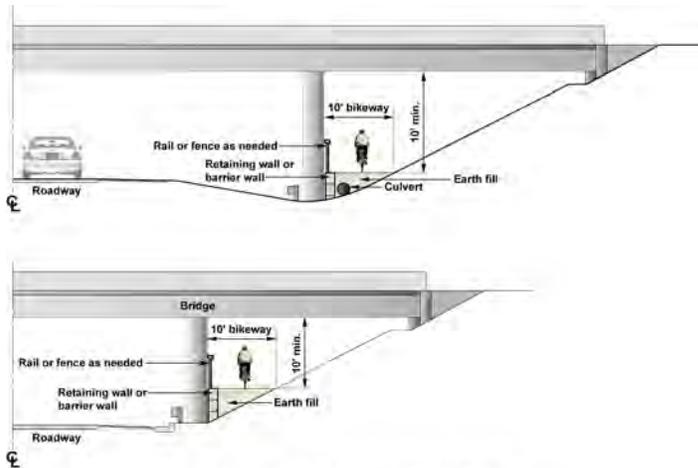


## Grade Separation(Bicycle) - Underpass

1.3.H



Bicycle and Pedestrian Accommodation at Underpasses and Tunnels



Bikeways under Existing Bridges



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### Drainage Grates/Utility Manholes

1.3.I

#### Purpose

- ☺ Stormwater management
- ☺ Provide access to utilities for maintenance.

---

#### Where to use

- ☺ Drainage grates and utility manholes installed as required for stormwater management and utility maintenance.

---

#### Guidelines

- ☺ **Drainage Grates**
  - ☺ Where possible, use curb inlets in place of surface grates.
  - ☺ If curb inlets are not possible, use bicycle safe grates or locate grates in areas outside of bike lanes or bicycle use areas.
  - ☺ Temporary measure to use non-bicycle safe grates is to weld steel cross straps or bars to grate to create 4 inch maximum openings, center to center.
- ☺ **Utility Manholes**
  - ☺ Locate new utility manholes outside of bike lanes or bicycle use areas
  - ☺ If existing manholes are in bicycle use area and can not be moved, be sure that manholes and frames are bicycle safe and flush with adjacent pavement.

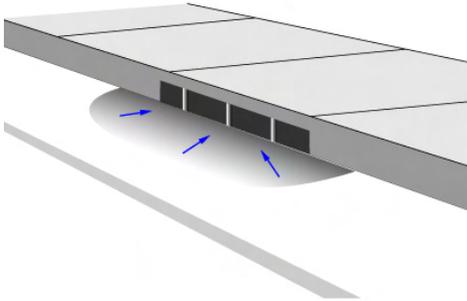
# Connecticut Statewide Bicycle and Pedestrian Plan



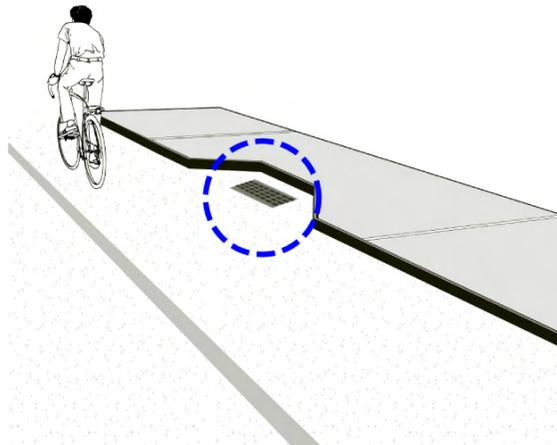
## Drainage Grates/Utility Manholes

1.3.I

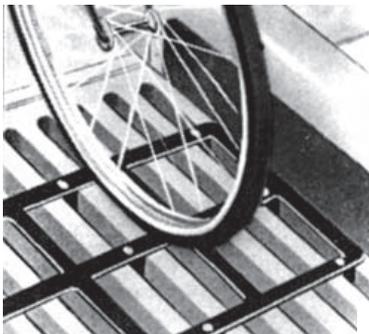
### Inlet flush in the curb face



### Offset drainage structure



### Bike safe drainage grates



## Connecticut Statewide Bicycle and Pedestrian Plan



### Signalization

1.3.J

#### Purpose

- ⌘ To improve safety and access for bicyclists.
- ⌘ To provide intervals in traffic stream to allow bicyclists to cross streets safely.
- ⌘ Accommodate bicycle and motor vehicle traffic in dense urban areas.

#### Where to use

- ⌘ Roadway intersections used by motor vehicles and bicyclists.

#### Guidelines

- ⌘ Time downtown urban traffic signals for speeds of 12-16 mph, which allows bicycles to ride with vehicular traffic.
- ⌘ In areas of high bicycle traffic, use bicycle signals to reduce conflicts with vehicular traffic. The bicycle signal provides a separate phase for bicycles and pedestrians to cross the street.
- ⌘ Install bicycle activated detectors in pavement or video detectors to activate bicycle signal. Use pavement markings to direct bicyclists to optimum location to trip signal.
- ⌘ Install pedestrian/bicyclist activated buttons to activate bicycle signal. Install buttons so bicyclists do not have to dismount or lean to activate.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Signalization

1.3.J



[www.pedbikeimages.org/Brad Crawford](http://www.pedbikeimages.org/Brad_Crawford)



[www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan_Burden)



AASHTO guide for the development of bicycle facilities 1999 pg.66



[www.pedbikeimages.org/ryan Snyder](http://www.pedbikeimages.org/ryan_Snyder)



[www.pedbikeimages.org/Michael Cynecki](http://www.pedbikeimages.org/Michael_Cynecki)

## Connecticut Statewide Bicycle and Pedestrian Plan



### Pavement Markings

1.3.K

#### Purpose

- ☞ Indicates presence of a bike lane, traffic lane shared by motor vehicles and bicycles, provides information about turning and crossing movements, indicate specialized bicycle facilities.

#### Where to use

- ☞ As required.

#### Guidelines

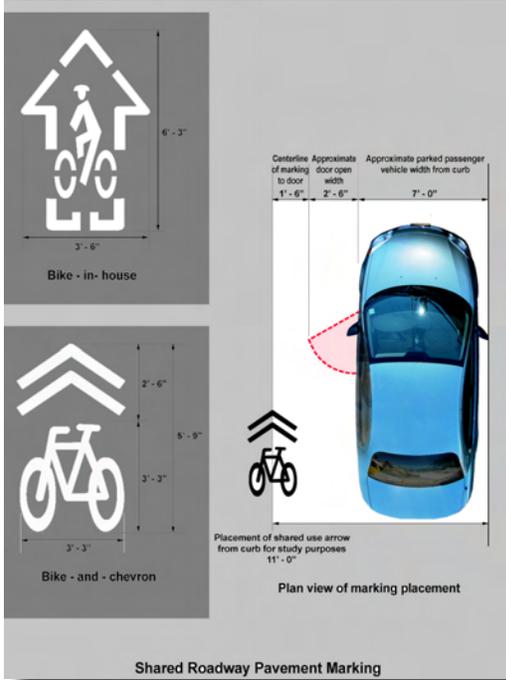
- ☞ All markings are to be white and reflectorized. All markings should be durable and non-skid.
- ☞ Place markings away from bus and truck traffic and away from driveways to increase longevity.
- ☞ Bike lane symbols should be placed on far side of each intersection. Additional markings may be placed on long, uninterrupted sections of road.
- ☞ Refer to Manual on Uniform Traffic Control Devices(MUTCD) 2003 Revisions 1 and 2 Incorporated for guidelines.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Pavement Markings

1.3.K



[www.pedbikeimages.org/Michael King](http://www.pedbikeimages.org/Michael King)



[www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan Burden)



[www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan Burden)

## Connecticut Statewide Bicycle and Pedestrian Plan



### Bike Box

1.3.L

#### Purpose

- ☞ To prevent crashes between bicyclists going straight and vehicles turning right.
- ☞ Increase visibility and awareness of bicyclists.

#### Where to use

- ☞ Roadway intersections both signalized and non-signalized.

#### Guidelines

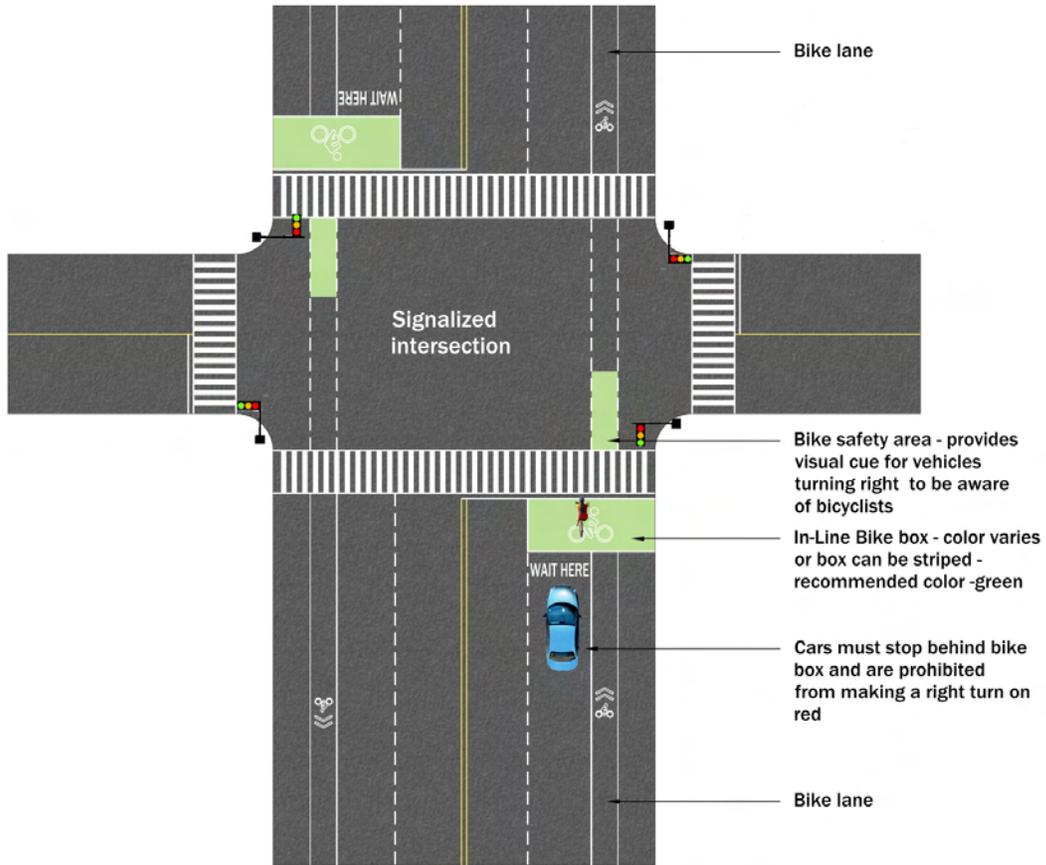
- ☞ **Cross Street Bike Box**
  - ☞ Is placed in street after crosswalk.
  - ☞ Is applicable only to left turns.
  - ☞ Facilitates two point left turn by placing bicyclist ahead of the stop line and to the left of right turning vehicular traffic.
- ☞ **In-line Bike Box**
  - ☞ Is located before the crosswalk but after an advanced stop line.
  - ☞ Is frequently implemented along with a bike lane so bicyclists have a designated space in which to place themselves ahead of stopped vehicular traffic, thereby increasing their visibility.
  - ☞ Prohibits right turn on red for vehicles.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Bike Box

1.3.L



## Connecticut Statewide Bicycle and Pedestrian Plan



### Bicycle Parking

1.3.M

#### Purpose

- ☺ To promote greater use of bicycles by providing convenient and secure bicycle parking at destinations.

#### Where to use

- ☺ Destination locations
- ☺ Transit centers
- ☺ Downtown shopping districts
- ☺ Public buildings

#### Guidelines

- ☺ Perform a user survey and/or assess where bicycles are currently parking illegally due to lack of facilities to determine appropriate bicycle parking locations.
- ☺ Bicycle parking locations should be in highly visible locations for security and ease of use.
- ☺ Bicycle parking areas should be convenient to building entries and street access but out of major pedestrian ways.
- ☺ Provide site lighting for safe night time use.
- ☺ Protect bicycle parking areas from weather when possible. Building overhangs and covered walkways are some possibilities.
- ☺ Separate bicycle parking areas from roads and vehicle parking areas with space and physical barriers to deter theft and minimize conflicts with vehicles.
- ☺ Short term parking can be provided with hitching post type structures. Long term parking can be provided with bicycle lockers.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Bicycle Parking

1.3.M



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael King



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Bicycle shelter



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Bicycle lockers



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### On-Street Parking

1.3.N

#### Purpose

- ⌘ To provide vehicular parking adjacent to bicycling facilities that will be safe for bicyclists and convenient for motor vehicle users.

#### Where to use

- ⌘ Urban roads
- ⌘ Bicycle boulevards
- ⌘ Shared use roads

#### Guidelines

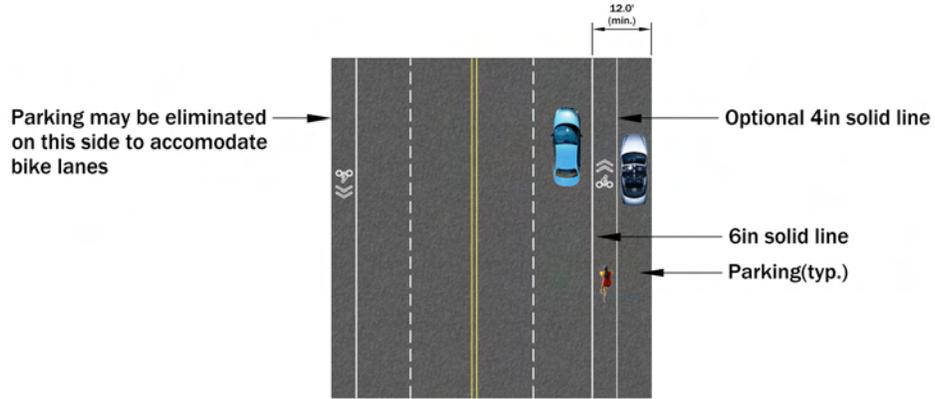
- ⌘ Provide minimum of 12 foot wide combined bicycle travel way and parking space to minimize issues with opening doors, vehicles entering/leaving spaces and extended mirrors.
- ⌘ Parallel parking is the preferred arrangement for bicycle routes.
- ⌘ Elimination of parking on one side of road will provide available road space for bicycles.

# Connecticut Statewide Bicycle and Pedestrian Plan



## On-Street parking

1.3.N



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



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[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### Pavement Surface of Bicycle Lanes

1.3.O

#### Purpose

- 🚲 Provide bicyclists with a smooth, stable and safe surface to ride on.

---

#### Where to use

- 🚲 All situations

---

#### Guidelines

- 🚲 Preferred surface is hard, all weather surface such as asphalt or concrete.
- 🚲 Concrete surface paths should have broom finish surfaces.
- 🚲 Maintain drain grates and manholes level with adjacent pavement. Drain grates to be bicycle safe, manholes to be non-skid. Where possible, install grates and manholes away from main route of travel.
- 🚲 Install reflective raised markers and rumble strips outside of the bicyclists travel way.
- 🚲 Perform regular maintenance checks on travel way to identify hazards, warn users and promptly repair.
- 🚲 Institute regular sweeping of travel way.
- 🚲 When repairing pavement due to construction consideration should be given to repairing the entire width of the bicycle travelway rather than a smaller narrow strip that is parallel to the bicycle travel way which could result in a hazard to bicyclist if the pavement is uneven.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Pavement Surface of Bicycle Lanes

1.3.O



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[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael King



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael King



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael Cynecki

## Connecticut Statewide Bicycle and Pedestrian Plan



### Signage

1.3.P

#### Purpose

- ⌘ To provide warning and regulatory messages, directional information and increase motorists awareness of bicyclists on road.

#### Where to use

- ⌘ Shared roadways
- ⌘ Intersections

#### Guidelines

- ⌘ Signs can improve safety and ease of use if used correctly. Avoid overuse and sign clutter which tends to distract and results in non-compliance.
- ⌘ On streets with considerable bicycle through traffic, consider eliminating or reducing “right on red turns” to improve safety and traffic flow.
- ⌘ Use “share the road” signs to alert motorists to the presence of bicyclists and that they have the legal right to use the road.
- ⌘ Refer to the Manual on Uniform Traffic Control Devices(MUTCD) 2003, revisions 1 and 2 Incorporated for guidelines.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Signage - Examples

1.3.P



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[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/ITE pedestrian Bicycle Council

## Connecticut Statewide Bicycle and Pedestrian Plan



### Pedestrian Facility Description

1.4

#### PEDESTRIAN FACILITY DESIGN

Pedestrian facilities are separated areas specifically for pedestrian use. Pedestrian facilities must be of an adequate size and having a smooth, stable surface adequate for pedestrians to easily travel between destinations. People walk for many reasons health, enjoyment of the outdoors, to get to school or work and to run errands are just a few reasons for people to walk to their destination.

One of the many responsibilities of government is to provide these pedestrian facilities for the use of its citizens and visitors. By providing convenient, safe and accessible pedestrian facilities the public agency is encouraging healthy lifestyles, environmental responsibility and creating a way for people to interact with each other. Increased community pride, a more active downtown area and fewer motor vehicles on the road are just a few of the benefits of a well thought out pedestrian facility plan. Additional but secondary benefits are traffic calming, additional or new gathering areas, increased demand for services and retail stores which will lead to increased tax revenue, reduction of blighted and unused areas in town and an increase in visitors to the area. All in all, improving pedestrian facilities is a win-win situation for everyone.

# Connecticut Statewide Bicycle and Pedestrian Plan



[www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan_Burden)(All photos on this page)

## Connecticut Statewide Bicycle and Pedestrian Plan



### Sidewalk Design

1.6.A

#### Purpose

- ☺ To improve pedestrian safety by providing appropriate facilities for walking within the public right of way.

#### Where to use

- ☺ Urban roads
- ☺ Suburban roads
- ☺ Rural Roads

#### Guidelines

- ☺ Sidewalks must be firm, stable and slip resistant.
- ☺ New sidewalks and sidewalks being repaired should conform to ADA compliant standards.
- ☺ Sidewalks are typically paved (concrete, asphalt, etc) however, crushed stone or gravel may be used if stable.
- ☺ Sidewalks should be 5 feet wide minimum, wider in areas near schools, transit stops or other areas with high concentration of pedestrians.
- ☺ Provide a buffer zone 4'-6' wide between sidewalks and the street. Buffer zone can be a bicycle lane, row of parked cars, planted strip, rain garden or street furniture zone.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Sidewalk Design

1.6.A

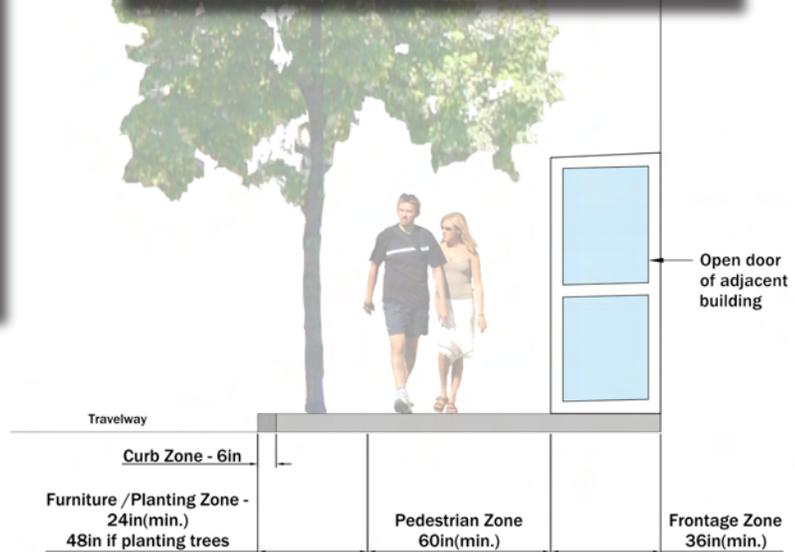


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*www.pedbikeimages.org/Dan Burden*



*www.pedbikeimages.org/Dan Burden*



## Connecticut Statewide Bicycle and Pedestrian Plan



### Curb Extensions/Neckdowns/Bulbouts

1.6.B

#### Purpose

- ⌘ To increase the safety of pedestrians and motorists at intersections by shortening the crossing distance, increasing visibility and reducing motor vehicle speed. Will encourage pedestrians to cross at designated locations and prevent vehicles from parking on the corner.

#### Where to use

- ⌘ Urban roads
- ⌘ Suburban roads

#### Guidelines

- ⌘ Only use curb extensions where on street parking exists.
- ⌘ Curb extensions must not encroach on travel lanes, shoulders or bicycle lanes.
- ⌘ Curb extensions should not extend more than 6 feet from the curb.
- ⌘ Be sure to consider turning radius of larger vehicles in design.
- ⌘ Curb extensions can provide space for rain gardens, street furniture and curb ramps. Ensure that nothing obstructs sight lines of pedestrians or vehicles.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Curb Extensions/Neckdowns/Bulbouts

1.6.B



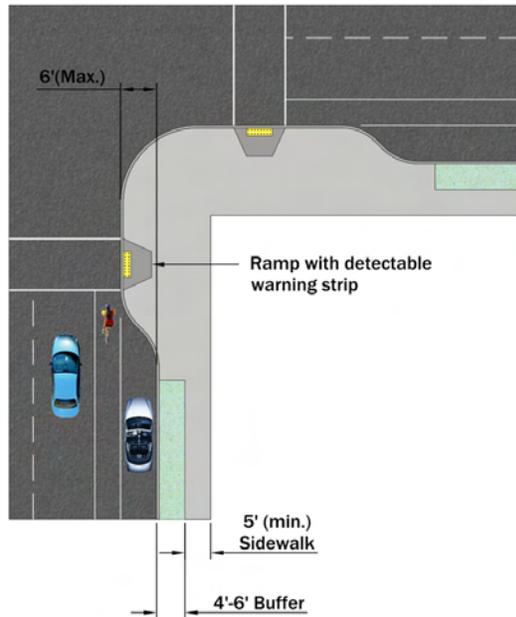
[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Michael King



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



## Connecticut Statewide Bicycle and Pedestrian Plan



### Curb Ramps/Landings

1.6.C

#### Purpose

- ⌘ To provide handicap accessible routes at street crossings.

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#### Where to use

- ⌘ All intersections and mid-block crossings
- ⌘ Downtown areas
- ⌘ Transit centers and stops
- ⌘ Schools
- ⌘ Parks

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#### Guidelines

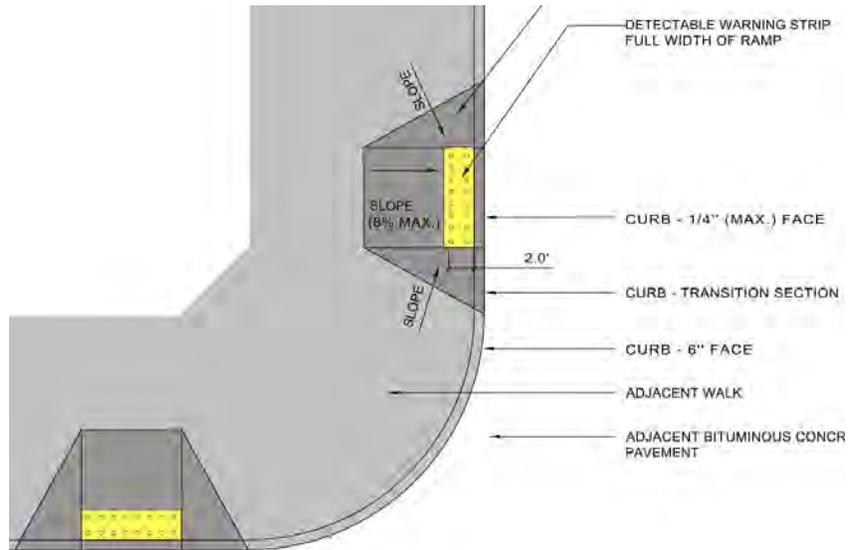
- ⌘ Curb ramps must be 36 inches wide (minimum) with a maximum slope of 1:12 or 8.3%
- ⌘ Side flares to have maximum slope of 1:10 or 10%
- ⌘ Install tactile warning pads at all ramps as required.
- ⌘ Separate curb ramps should be installed for each crosswalk, instead of one ramp at the corner.
- ⌘ Review current Americans With Disability Act requirements for additional information.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Curb Ramps/Landings

1.6.C



TYPICAL CURB RAMP INSTALLATION  
NOT TO SCALE



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[www.pedbikeimages.org](http://www.pedbikeimages.org)/Carl Sundstrom

## Connecticut Statewide Bicycle and Pedestrian Plan



### Raised Median/Refuge Island

1.6.D

#### Purpose

- ⌚ Provide a place of refuge for pedestrians crossing a street. Manage vehicular traffic by encouraging slower speeds and providing left hand turning pockets at desired locations. Excellent locations for landscaping and alternative stormwater management practices.

#### Where to use

- ⌚ High volume/high speed roads

#### Guidelines

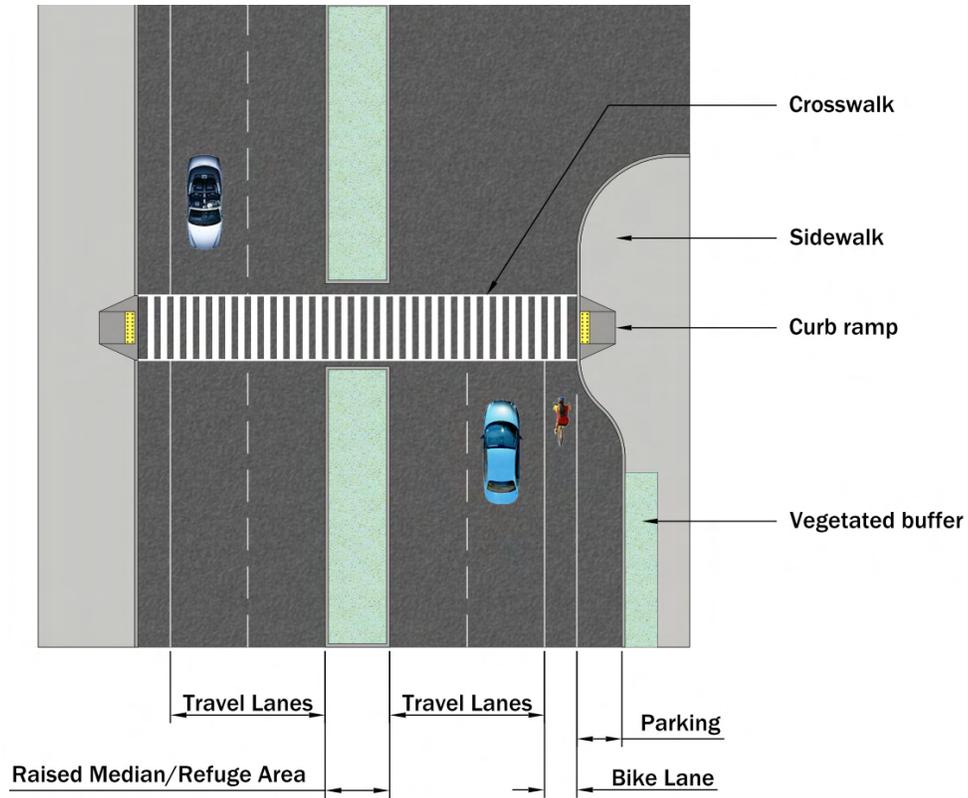
- ⌚ Provide adequate and appropriate left turn pockets so that motorists do not move to inappropriate routes (residential areas, etc).
- ⌚ Ensure landscaping does not obstruct view of motorists or pedestrians.
- ⌚ Provide curb ramps where necessary.
- ⌚ Use medians as bio-filter and rain garden locations to aid in treating runoff from roadway.
- ⌚ Use of Belgian Block or granite curbing and decorative lighting, where permitted, will add to the character of the street and works particularly well in downtown areas.
- ⌚ Median refuge areas may either be cut through the median or curb ramps may be installed on either side of the median at the crosswalk.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Raised Median/Refuge Island

1.6.D



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## Connecticut Statewide Bicycle and Pedestrian Plan



### Crosswalk Treatment

1.6.E

#### Purpose

- ⌘ Indicate preferred crossing locations for pedestrians and warn motorists to expect pedestrian crossings.

#### Where to use

- ⌘ In convenient locations for pedestrians or preferred routes
- ⌘ Intersections
- ⌘ Mid-block crossings

#### Guidelines

- ⌘ Crosswalks are most effective when used with other measures such as curb extensions, raised medians, roadway narrowing, traffic signals, etc.
- ⌘ Crosswalks should be enhanced with additional measures when:
  - Speed limit exceeds 40 mph.
  - On a roadway with 4 or more lanes without a crossing island or raised median that has an ADT of 12,000 or greater.
- ⌘ Enhancements may include but are not limited to plantings, bollards, decorative lighting, trees, etc. Ensure that enhancements do not block sight lines.
- ⌘ Locate bus stops on far side of crosswalk to maintain line of sight for pedestrian and motorists.
- ⌘ When using marked crosswalk on uncontrolled multi-lane roads, consider installing a stop bar 30 feet ahead of crosswalk with a “Stop Here for Crosswalk” sign.
- ⌘ Place crosswalks to include any curb ramps.
- ⌘ Consider decorative techniques for crosswalks such as stamped asphalt, pavers or stamped concrete with a reflective outline on both sides of the decorative pavement. Ensure that chosen material is smooth, non-slippery and visually contrasting or reflective. Review proposed technique with appropriate governing agency prior to use.
- ⌘ Typical crosswalk width is 10'-19'.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Crosswalk Treatment

1.6.E



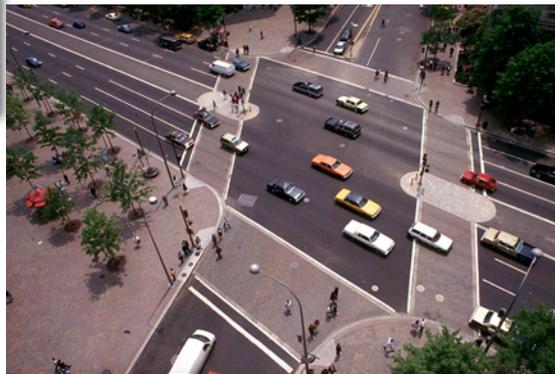
*www.pedbikeimages.org/Dan Burden*



*www.pedbikeimages.org/ITE Pedestrian Bicycle Council*



*www.pedbikeimages.org/Dan Burden*



*www.pedbikeimages.org/Dan Burden*

## Connecticut Statewide Bicycle and Pedestrian Plan



### Raised Pedestrian Crossing

1.6.F

#### Purpose

- ⌘ Enhance pedestrian safety and movement by reducing vehicle speeds.

#### Where to use

- ⌘ Intersections of streets that are not major bus or emergency vehicle routes.
- ⌘ Mid-block crossings
- ⌘ Not for use on high traffic/high speed roads, steep grades or on sharp curves.

#### Guidelines

- ⌘ Finished grade of road pavement is raised to elevation of sidewalk to give priority to pedestrian and eliminate need for curb ramps.
- ⌘ Road pavement 'ramps' up to elevated section at each approach.
- ⌘ Install detectable warnings to mark boundary of road and sidewalk for pedestrians.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Raised Pedestrian Crossing

1.6.F



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*www.pedbikeimages.org/Dan Burden*



*www.pedbikeimages.org/ITE Pedestrian Bicycle Council*



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## Connecticut Statewide Bicycle and Pedestrian Plan



### Pedestrian Signal

1.6.G

#### Purpose

- ⌘ Alerts pedestrians to the appropriate times to cross the street as well as provides for a pedestrian clearing interval.

#### Where to use

- ⌘ All locations with traffic signals when warranted by the Manual on Uniform Traffic Control Devices(MUTCD) 2003, revisions 1 and 2, Incorporated.

#### Guidelines

- ⌘ Use of the international pedestrian symbol is preferred to “Walk/Don’t Walk”.
- ⌘ Install signals in locations that are visible to pedestrians for entire time in crosswalk.
- ⌘ When supplementing signal with an audible message, consider the noise effect on the surrounding area.
- ⌘ Install pedestrian push buttons within easy reach of all pedestrians. Refer to “Americans With Disability Act” guidelines for additional information.
- ⌘ When possible provide one walk interval for each cycle.
- ⌘ In areas of high pedestrian volumes, as determined by a traffic engineer, consider the use of a “pedestrian scramble” or “exclusive pedestrian signal/phase” which provides an exclusive pedestrian crossing phase with no conflicting vehicle traffic.
- ⌘ Fixed-time signal operation is preferred for ease of pedestrian service.
- ⌘ Use of a “leading pedestrian interval” (LPI) gives the pedestrian several seconds lead time before the motor vehicles are given a green light, increasing safety by making the pedestrian more visible.
- ⌘ Other signal options are the High Intensity Activated crossWalk(HAWK) system which is controlled by the pedestrian and controls the signal light and an Accessible Pedestrian Signal(APS) which provides pedestrian information in a non visual form such as audible tones, verbal messages and/or vibrating surfaces.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Pedestrian Signal

1.6.G



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*www.pedbikeimages.org/ITE Pedestrian Bicycle Council*



*www.pedbikeimages.org/Robert Schneider*

## Connecticut Statewide Bicycle and Pedestrian Plan



### Grade Separation(Pedestrian)-Overpass/Underpass

1.6.H

#### Purpose

- ⌘ Provide pedestrian crossing, separate from motor vehicle traffic, when no other facility is available.

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#### Where to use

- ⌘ Over/Under high speed/high volume roads, railroad tracks or natural barriers

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#### Guidelines

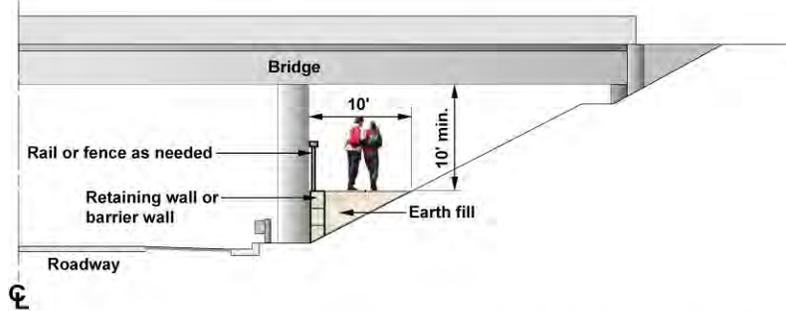
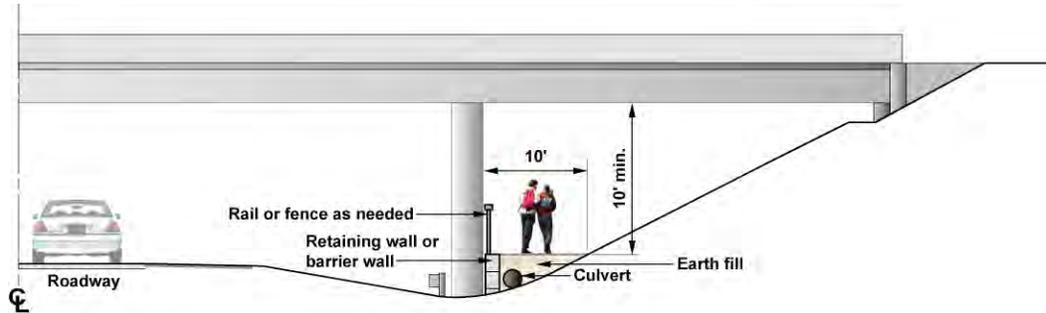
- ⌘ Use as a measure of last resort. Typically very high cost and visually obtrusive.
- ⌘ Pedestrians will not use if a more direct route is available.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Grade Separation(Pedestrian)-Overpass/Underpass

1.6.H



### Bikeways under Existing Bridges



Bicycle and Pedestrian Accommodation at Underpasses and Tunnels

## Connecticut Statewide Bicycle and Pedestrian Plan



### Shared-Use Pathway Description

2.1

Shared use paths provide safe, convenient access to pathways for recreation, commuting and exercise for a number of different users. Bicyclists, pedestrians, skaters, joggers, maintenance and emergency service vehicles are all possible users of a shared use path. This variety of users calls for a pragmatic design of the pathway so that it is large enough and strong enough to handle the various uses that are certain to take place on a shared use trail. In order to maximize its use, a shared use path must be connected to the street network and local destinations as well as take advantage of the natural beauty of the area. A shared use path will never take the place of on-street facilities as it will not have the access to these destinations that on-street facilities will.

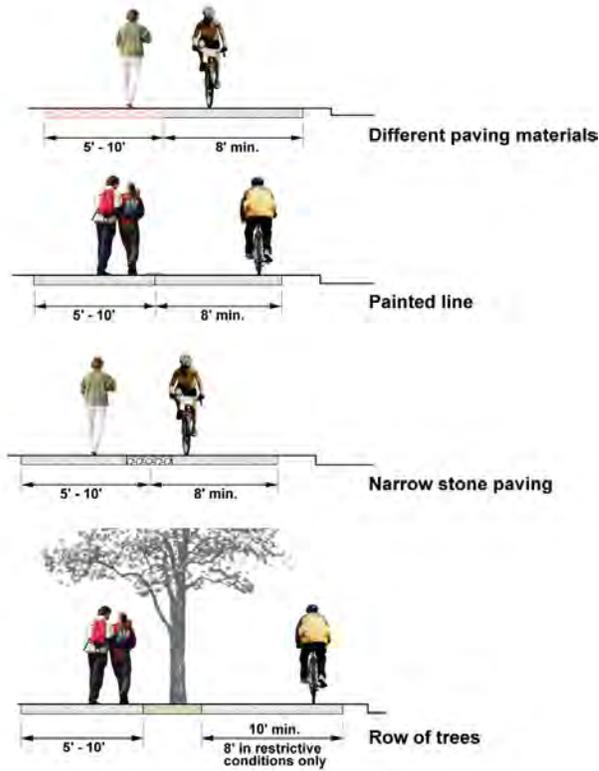
Along with good design practices, an education program may be necessary to promote correct usage of the shared use path and good behavior when sharing the path with diverse users. Appropriate signage and handouts at trail heads can go a long way towards educating the public. Intersection design is one of the biggest challenges when designing a shared use path and one must carefully plan for safe crossings of highways, railroads and other shared use paths.

While many bicyclists will always gravitate towards on street facilities based on their skill level and desired destination, novice bicyclists, hikers and those looking for a more serene trip will appreciate the calmer atmosphere, larger buffers to vehicular traffic and scenic views that are prevalent with shared use pathways.

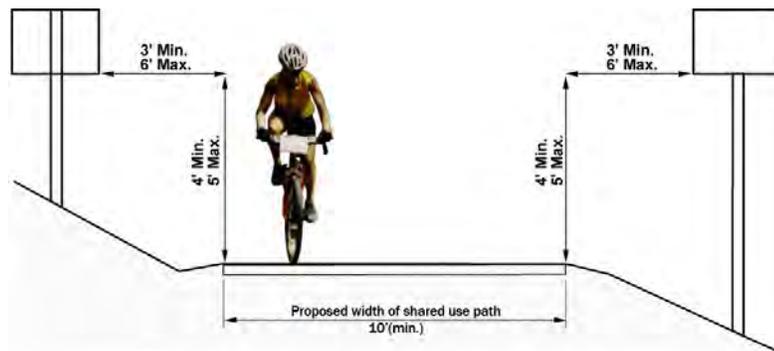
# Connecticut Statewide Bicycle and Pedestrian Plan



## Shared Use Paths



Typical Path Cross Sections for Pedestrian and Bicycle Traffic Separation



Typical Shared Use Path Cross Section with Sign Placement

AASHTO guide for the development of bicycle facilities 1999 pg.35

## Connecticut Statewide Bicycle and Pedestrian Plan



### Pavement Treatment of Shared Use Paths

2.2.A

#### Purpose

- ⌘ Provide a safe, stable surface of adequate size to accommodate the intended users of the path.

#### Where to use

- ⌘ Shared use path
- ⌘ Areas where off road recreational or community opportunities are desired
- ⌘ To connect destinations that are inaccessible for bicyclists via the regular road network

#### Guidelines

- ⌘ Surface should be hard, stable, non-slip material such as asphalt or concrete. Stabilized gravel is acceptable but not preferred.
- ⌘ Design shared use paths for occasional emergency vehicle or maintenance vehicle use. A minimum width of 10 feet will provide additional maneuvering room for bicyclists and lessens edge damage to pavement. - increase to 12 feet or more in areas of heavy use or mixed uses.
- ⌘ For maximum use, path should be connected to the street network designations.
- ⌘ Paths should be designed for bi-directional movement.
- ⌘ When designing pavement cross-section, include occasional use of path by maintenance vehicles and emergency vehicles.
- ⌘ Unpaved shared use paths should have a paved apron installed that extends 3 feet minimum from the edge of intersecting road.
- ⌘ Crushed aggregate and stabilized earth paths will provide a lower level of surface however, construction costs are typically less.
- ⌘ Advantages of a crushed aggregate path are that skaters are discouraged and bicycle speeds are lower making multi-use paths more comfortable for other users.

## Connecticut Statewide Bicycle and Pedestrian Plan



### Pavement Treatment of Shared Use Paths

2.2.A

#### Bituminous Concrete



*www.pedbikeimages.org/Dan Burden*

#### Stabilized gravel



*Stabilizersolutions.com*

#### Concrete



*www.pedbikeimages.org/Dan Burden*

## Connecticut Statewide Bicycle and Pedestrian Plan



### Intersection Treatments

2.2.B

#### Purpose

- 🚲 Facilitate safe crossing of roadways and other corridors by shared use paths.

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#### Where to use

- 🚲 Intersections of shared use paths with roadways, etc

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#### Guidelines

- 🚲 Design shared use paths with the fewest number of intersections possible
- 🚲 All intersections should be clearly marked, with signs or pavement markings, to indicate to all users who has the right of way. Use of pavement lights and/or overhead warning lights can also be implemented to warn users.
- 🚲 Where shared use paths intersect with roads, install bollards or medians to prohibit unauthorized vehicles from accessing the shared use path. Provide for maintenance and emergency vehicle access.
- 🚲 Refer to sections 1.3 and 1.6 of this toolbox for additional information regarding roadway crossings.

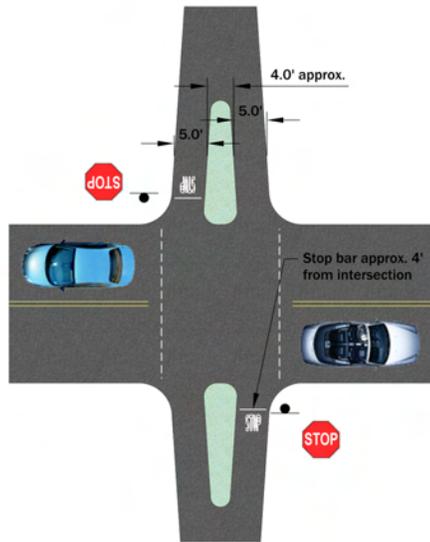
Connecticut Statewide Bicycle and Pedestrian Plan



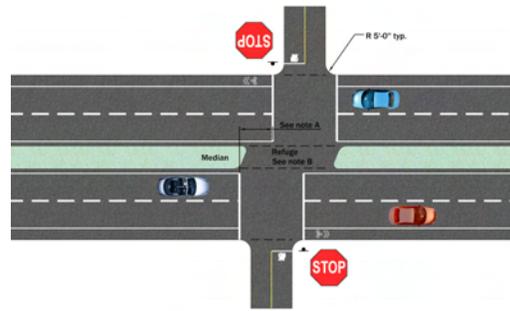
Intersection Treatments

2.2.B

Shared use path

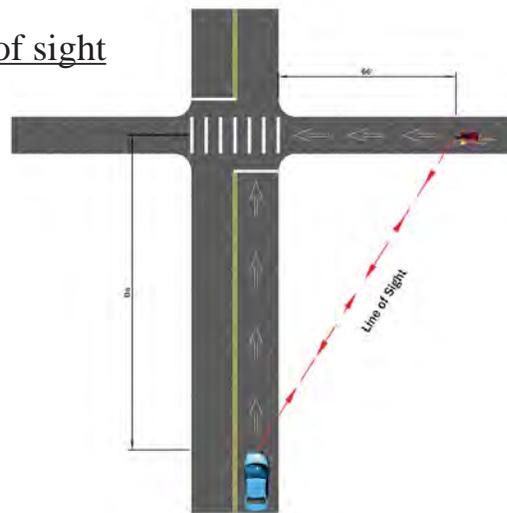


Shared use path - Angled refuge



- Notes:
1. Offset distance should be equal or greater than the width of path. Minimum offset to 1/2 of path
  2. Refuge should be raised for drainage purposes and be ADA compliant

Shared use path -Line of sight



Speed(mph) of Automobile	31	37	43	50	56	62	68
Distance(Da) in feet	131	164	197	230	246	279	295

## Connecticut Statewide Bicycle and Pedestrian Plan



### Transit Stop Treatments

3.1.A

#### Purpose

- ⌘ To increase the options available to bicyclists and provide access to more destinations while also promoting the use of mass transit.

#### Where to use

- ⌘ Urban areas
- ⌘ Suburban commuter hubs
- ⌘ Mass transit stations

#### Guidelines

- ⌘ Equip public buses with front mounted bicycle racks.
- ⌘ Institute policy to allow bicyclists to bring bicycle on bus when not crowded if no rack is available.
- ⌘ Provide specialized cars on rail transit equipped with interior bike racks.
- ⌘ Institute policy to allow bicyclists on all rail cars on weekends and off-peak times.
- ⌘ Direct routes to transit centers for bicyclists should be provided.
- ⌘ Transit centers should have adequate amount of bike parking facilities such as bike racks or lockers.
- ⌘ Conduct user surveys to determine demand for need.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Transit Stop Treatments

3.1.B



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### Lighting

3.2.A

#### Purpose

- ⌘ Illuminate road or multi-use trail in order to enhance the security and safety of all users.

#### Where to use

- ⌘ Urban areas
- ⌘ Suburban areas
- ⌘ Rural areas
- ⌘ Intersections
- ⌘ Commuter routes
- ⌘ Intersections with multi-use trails
- ⌘ Underpass/tunnel

#### Guidelines

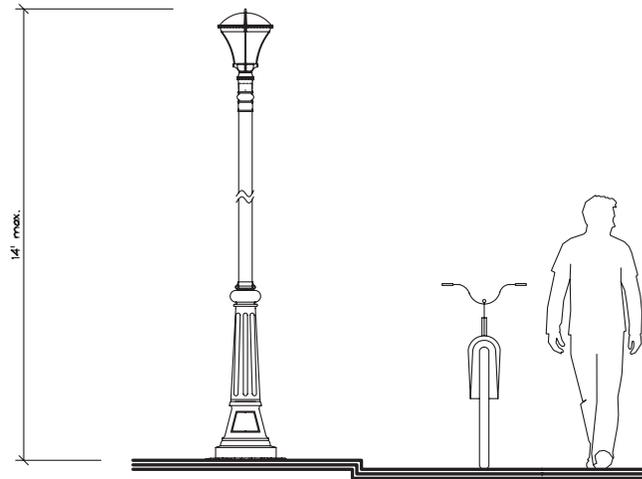
- ⌘ All new lighting should be dark sky compliant.
- ⌘ Average maintained horizontal illumination levels should be 5 LUX to 22 LUX depending on site conditions.
- ⌘ Luminaires and light poles should be at a scale appropriate for pedestrian use.
- ⌘ Design lighting layout to avoid hot spots and maintain an even illumination.
- ⌘ Wide roadways should have lighting installed on both sides to be most effective.
- ⌘ Where available, lighting can be installed in medians to light wide roadways. Medians can also be constructed as bio swales or rain gardens to enhance aesthetics and stormwater management opportunities.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Lighting

3.2.B



○ **STREET-LEVEL PEDESTRIAN LIGHTING**  
NOT TO SCALE



## Connecticut Statewide Bicycle and Pedestrian Plan



### Street Furniture

3.3.A

#### Purpose

- ☺ Enhance the pedestrian environment and increase community spirit by enlivening downtown areas.

#### Where to use

- ☺ Transit centers
- ☺ Plazas
- ☺ Downtown areas

#### Guidelines

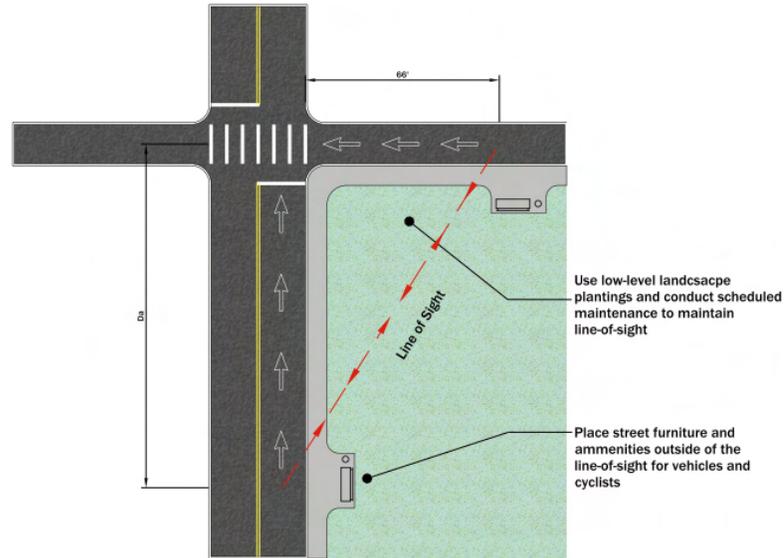
- ☺ Choose good quality furniture for longer life and less maintenance as well as to increase pride in the community.
- ☺ Place furniture out of main walkway route, curb ramps and sight lines. Refer to section 1.6.A for additional information.
- ☺ Consider requirements of the handicapped. Verify adequacy of clearances and detectability of protruding items for the visually impaired.
- ☺ Encourage store fronts at street level to add to the interest.
- ☺ Determine a theme for the overall design of the streetscape and its furniture in order to create a unified, identifiable look.
- ☺ Create a maintenance plan and budget for maintenance costs.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Street Furniture

## 3.3.B



Speed(mph) of Automobile	31	37	43	50	56	62	68
Distance(Da) in feet	131	164	197	230	246	279	295



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Carl Sundstrum

## Connecticut Statewide Bicycle and Pedestrian Plan



### Driveway Improvements

3.4.A

#### Purpose

- ⌚ To increase safety by reducing conflicts between those users entering or leaving a corridor and those traveling along the corridor.

#### Where to use

- ⌚ Intersection of bicyclist paths and vehicular driveways.

#### Guidelines

- ⌚ Maximize visibility for motorists by using 90 degree intersections and maintaining a clear sight triangle at intersection.
- ⌚ Reduce vehicle speed when exiting and entering driveway through use of 90 degree intersection.
- ⌚ Where present, carry finished grade of sidewalks across driveways to reinforce that pedestrians have right of way and to provide through movement of pedestrians.
- ⌚ Provide curb cuts with adequate flare to allow bicyclists to turn in without entering opposing lane.
- ⌚ Commercial or public driveways may benefit from use of stop bars, stop signs, etc and avoid creating visual clutter as distraction.
- ⌚ Restrict movement to right in-right-only to reduce number of conflicts.
- ⌚ Control left turns and u-turns with non-traversable islands. Islands can be installed as rain gardens to improve aesthetics and stormwater management. Be sure to maintain adequate sight lines.

# Connecticut Statewide Bicycle and Pedestrian Plan



## Driveway Improvements

3.4.B



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden



[www.pedbikeimages.org](http://www.pedbikeimages.org)/Dan Burden

## Connecticut Statewide Bicycle and Pedestrian Plan



### Equestrian Trails

3.5.A

#### Purpose

- ⌘ Provide a safe, stable surface of adequate size to accommodate the intended users of the path.

#### Where to use

- ⌘ To provide trails for horse riders
- ⌘ Multi use trails where horse back riding is desired

#### Guidelines

- ⌘ Single or multiple loop trails are acceptable
- ⌘ Day use trails should be 5 - 25 miles in length
- ⌘ Clear width: Light use, one way - 8' min  
Heavy use, two way - 12' min.
- ⌘ Clear height: 10'-12' min
- ⌘ Tread width: Light use, one way - 2'-4'  
Heavy use, two way - 5'-6'
- ⌘ Surface: Natural surface preferred. Bituminous or concrete not recommended  
Use wood chips for poor or erodible soils
- ⌘ Grade: 0%-10% desired  
10% max if grade is sustained for long distance  
20% max if grade shorter than 50 yards  
4% max on outslopes
- ⌘ Sight distance: Not critical for equestrian trails  
Provide 50'-100' sight distance if trail is two way or a shared use trail  
Warn riders 100'-200' prior to road crossings
- ⌘ Water crossings: Water crossings should be kept to a minimum  
Bridges to be 8' wide min. with a 5 ton capacity min.  
Ford points should be at slow moving water, 24" depth max. with a stable sand or gravel base
- ⌘ Parking areas: Provide space for trailers and hitching posts
- ⌘ Camping areas: Provide corrals and water sources for horses

# Connecticut Statewide Bicycle and Pedestrian Plan



## Equestrian Trails

3.5.B



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# APPENDIX G: PROJECT ASSESSMENT OF BICYCLE AND PEDESTRIAN TRAVEL

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## Checklist For Bicycle And Pedestrian Travel Generators In Study Corridor/Project Vi- cinity

Generators	YES	NO	TBD	Generators	YES	NO	TBD
Residential Areas (R)				Shopping Centers (M)			
Parks (P)				Hospitals/ Clinics (H)			
Recreational Areas (P)				Employment Centers (E)			
Churches (C)				Government Offices (G)			
Schools (S)				Local Businesses (B)			
Libraries (L)				Industrial Plants (I)			
Existing Bicycle Trails (BP)				Public Transportation Facilities (T)			
Planned Bicycle Trails (PBP)				Other ( ) (O)			
Existing Sidewalks (SW)							

A map should accompany this checklist to illustrate (labeling the generator symbol) the respective generators.

If any of the generators listed above are identified in the study corridor/project area, a determination of the need for, the planning of, and design of bicycle and pedestrian facilities, should be coordinated with interested stakeholders. Documentation of coordination should be retained on file. The following is a checklist of possible stakeholder organizations that should be contacted.

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**Checklist Of Organizations And Public Coordination**

Organization	YES	NA	TBD	Organizations	YES	NA	TBD
Regional Planning Organization				CT Department of Public Health			
Local Municipalities				Connecticut Bicycle Coalition			
CT Department of Environmental Protection				Local Community Groups			
ConnDOT Bureau of Public Transportation				Local Businesses			
ConnDOT Bicycle/Pedestrian Coordinator				Other ( )			

A bicycle and pedestrian assessment should be conducted. The following questionnaire can be used to complete the assessment:

**Bicycle and Pedestrian Travel Assessment Questionnaire**

Project Number(s): \_\_\_\_\_ Date Prepared: \_\_\_\_\_  
 Study Area(s): \_\_\_\_\_  
 Route(s): \_\_\_\_\_ Prepared by: \_\_\_\_\_  
 Planning Region(s): \_\_\_\_\_  
 Municipality(s): \_\_\_\_\_

1. Is all or any portion of the project located on a road identified in the ConnDOT, or affected Regional Planning Organization, or Municipal Bicycle Plan?
2. Is there a history of bicycle or pedestrian accidents/incidents in the project area?
3. Where would bicyclists and/or pedestrians cross the study area/project?
4. Where would bicyclists and/or pedestrians need to travel parallel to the study area/project?
  - a. Does the project provide unique or primary access (see Note 1):
    1. Across a river, highway corridor or other natural and/or man-made barrier?
    2. Into or out of a residential or commercial development?
    3. Between communities or other likely significant destinations – such as a university campus or recreation facility?
  - b. Is there any secondary road(s) parallel to the project that could reasonably be used by bicyclists and/or pedestrians as alternates to access these destinations (see Note 2)?

If so, how far from the corridor are these roads? (A key consideration with parallel roads is whether there are significant destinations located on the project corridor that bicyclists or pedestrians would need to access.)

5. Do local government entities or other organizations have plans for bicycle facilities or generators, such as school, park or recreational area that could affect this project or generate additional travel in the study/project corridor?

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# APPENDIX H: TOWN BY TOWN SUMMARY OF PEDESTRIAN CRASHES, 2005-2007

Town	2005	2006	2007
Andover	0	0	0
Ansonia	2	5	1
Ashford	0	1	0
Avon	0	1	0
Barkhamsted	0	0	1
Beacon Falls	0	1	1
Berlin	2	0	1
Bethany	0	0	0
Bethel	1	4	7
Bethlehem	0	0	0
Bloomfield	3	5	5
Bolton	0	0	0
Bozrah	1	0	0
Branford	7	5	8
Bridgeport	113	99	136
Bridgewater	0	0	0
Bristol	14	20	16
Brookfield	1	0	3
Brooklyn	2	0	1
Burlington	0	0	1
Canaan	0	0	0
Canterbury	0	1	0
Canton	1	0	2
Chapin	1	0	0
Cheshire	1	2	3
Chester	1	0	0
Clinton	1	2	0
Colchester	3	2	3
Colebrook	0	0	0
Columbia	0	0	0
Cornwall	1	0	0
Coventry	0	0	1
Cromwell	0	1	0
Danbury	31	37	39
Darien	5	9	5
Deep River	2	0	1
Derby	4	3	3
Durham	0	2	2
Eastford	0	0	0
East Granby	1	0	0
East Haddam	0	1	0
East Hampton	2	1	2

Town	2005	2006	2007
East Hartford	18	20	22
East Haven	6	7	4
East Lyme	1	1	0
Easton	1	1	1
East Windsor	2	1	0
Ellington	1	1	1
Enfield	6	8	11
Essex	1	1	0
Fairfield	14	12	14
Farmington	5	5	4
Franklin	0	0	0
Gastonbury	8	4	2
Goshen	0	0	0
Granby	0	1	2
Greenwich	19	18	35
Griswold	1	0	1
Groton	7	9	6
Guilford	1	1	3
Haddam	0	0	1
Hamden	20	14	21
Hampton	0	0	0
Hartford	124	107	144
Hartland	0	0	0
Harwinton	0	0	0
Hebron	2	0	0
Kent	0	0	0
Killingly	3	1	3
Killingworth	1	0	0
Lebanon	0	1	0
Ledyard	1	3	3
Lisbon	0	0	0
Litchfield	2	0	1
Lyme	0	0	0
Madison	0	4	1
Manchester	8	14	18
Mansfield	5	5	5
Marlborough	2	0	0
Meriden	20	18	25
Middlebury	0	0	0
Middlefield	0	0	1
Middletown	24	21	15
Milford	19	21	29

Town	2005	2006	2007
Monroe	1	1	2
Montville	3	2	4
Morris	0	1	0
Naugatuck	6	8	1
New Britain	45	28	43
New Canaan	4	4	4
New Fairfield	1	1	0
New Hartford	1	0	0
New Haven	117	94	132
Newington	8	1	6
New London	19	23	22
New Milford	3	4	6
Newtown	3	4	1
Norfolk	0	0	0
North Branford	0	1	1
North Canaan	1	0	0
North Haven	2	12	5
North Stonington	0	2	0
Norwalk	26	36	43
Norwich	22	9	19
Old Lyme	0	0	0
Old Saybrook	3	0	0
Orange	0	3	3
Oxford	0	2	0
Plainfield	2	0	3
Plainville	2	2	1
Plymouth	0	2	0
Promfret	0	0	0
Portland	2	2	0
Preston	2	2	1
Prospect	1	2	2
Putnam	0	2	3
Redding	1	1	0
Ridgefield	1	4	1
Rocky Hill	1	1	2
Roxbury	0	0	0
Salem	1	0	0
Salisbury	1	1	2
Scotland	0	1	0
Seymour	1	4	4
Sharon	0	0	2
Shelton	6	7	5
Sherman	0	1	0
Simsbury	2	2	2
Somer	0	0	0
Southbury	2	1	1
Southington	6	5	3
South Windsor	3	3	2
Sprague	0	0	0
Stafford	1	1	2
Stamford	72	61	70

Town	2005	2006	2007
Sterling	1	1	0
Stonington	2	4	3
Stratford	13	18	19
Suffield	0	0	1
Thomaston	4	2	0
Tolland	1	0	1
Torrington	7	13	7
Trumbull	4	6	3
Union	0	0	0
Vernon	1	6	5
Voluntown	0	0	0
Wallingford	9	7	9
Warren	0	0	0
Washington	0	1	0
Waterbury	67	90	102
Waterford	5	0	3
Watertown	1	3	2
Westbrook	1	3	2
West Hartford	23	10	20
West Haven	25	19	37
Weston	0	0	2
Westport	5	8	13
Wethersfield	9	2	6
Willington	0	0	0
Wilton	1	2	1
Winchester	1	2	3
Windham	11	8	8
Windsor	5	8	5
Windsor Locks	2	4	4
Wolcott	0	2	1
Woodbridge	1	1	1
Woodbury	1	1	1
<b>Total:</b>	<b>1,094</b>	<b>1,063</b>	<b>1,272</b>

# APPENDIX I: TOWN BY TOWN SUMMARY OF BICYCLE CRASHES, 2005-2007

Town	2005	2006	2007
Andover	0	0	0
Ansonia	1	0	2
Ashford	0	0	0
Avon	2	1	0
Barkhamsted	0	0	0
Beacon Falls	1	0	1
Berlin	2	0	1
Bethany	0	1	1
Bethel	0	2	4
Bethlehem	0	0	0
Bloomfield	5	2	3
Bolton	0	1	2
Bozrah	1	0	0
Branford	4	5	10
Bridgeport	53	51	74
Bridgewater	0	0	0
Bristol	13	15	20
Brookfield	1	1	0
Brooklyn	0	0	1
Burlington	1	1	0
Canaan	0	0	0
Canterbury	0	0	0
Canton	2	2	0
Chapin	0	0	0
Cheshire	2	1	3
Chester	0	0	0
Clinton	0	5	1
Colchester	2	0	0
Colebrook	0	0	0
Columbia	0	0	1
Cornwall	0	0	0
Coventry	0	0	0
Cromwell	2	2	2
Danbury	20	16	16
Darien	4	5	3
Deep River	1	0	1
Derby	1	3	2
Durham	1	1	3
Eastford	0	0	0
East Granby	0	0	0
East Haddam	1	0	0
East Hampton	1	0	2

Town	2005	2006	2007
East Hartford	13	13	13
East Haven	4	2	5
East Lyme	2	2	1
Easton	2	0	2
East Windsor	5	4	0
Ellington	0	0	1
Enfield	13	13	8
Essex	3	1	1
Fairfield	5	11	12
Farmington	4	2	3
Franklin	0	0	0
Glastonbury	4	7	9
Goshen	0	0	0
Granby	0	0	1
Greenwich	7	11	14
Griswold	0	0	0
Groton	9	10	7
Guilford	3	3	2
Haddam	0	0	0
Hamden	11	15	13
Hampton	0	0	0
Hartford	35	36	52
Hartland	0	0	0
Harwinton	0	1	0
Hebron	0	0	2
Kent	0	1	1
Killingly	0	4	5
Killingworth	0	0	0
Lebanon	1	0	0
Ledyard	3	3	2
Lisbon	0	0	0
Litchfield	1	0	1
Lyme	0	0	0
Madison	1	0	0
Manchester	25	20	23
Mansfield	2	2	1
Marlborough	0	2	1
Meriden	26	19	19
Middlebury	0	0	0
Middlefield	0	0	0
Middletown	10	7	13
Milford	13	11	11

Town	2005	2006	2007
Monroe	2	0	1
Montville	3	2	0
Morris	0	0	0
Naugatuck	0	5	4
New Britain	20	23	29
New Canaan	1	3	3
New Fairfield	0	1	0
New Hartford	0	0	0
New Haven	76	52	92
Newington	7	5	5
New London	9	10	9
New Milford	2	1	5
Newtown	1	4	0
Norfolk	0	0	0
North Branford	0	3	0
North Canaan	1	0	0
North Haven	7	4	8
North Stonington	0	0	1
Norwalk	23	11	15
Norwich	12	10	16
Old Lyme	0	0	0
Old Saybrook	6	3	4
Orange	0	1	0
Oxford	1	1	0
Plainfield	3	1	1
Plainville	9	6	5
Plymouth	0	2	3
Promfret	0	0	0
Portland	0	1	0
Preston	1	1	0
Prospect	1	0	1
Putnam	0	1	3
Redding	0	0	1
Ridgefield	3	3	2
Rocky Hill	2	2	3
Roxbury	0	0	0
Salem	0	0	0
Salisbury	0	0	0
Scotland	0	0	0
Seymour	0	3	3
Sharon	0	1	1
Shelton	3	1	2
Sherman	2	0	0
Simsbury	5	1	10
Somer	4	1	0
Southbury	1	1	2
Southington	5	8	9
South Windsor	1	4	1
Sprague	2	0	1
Stafford	2	1	5
Stamford	29	20	32

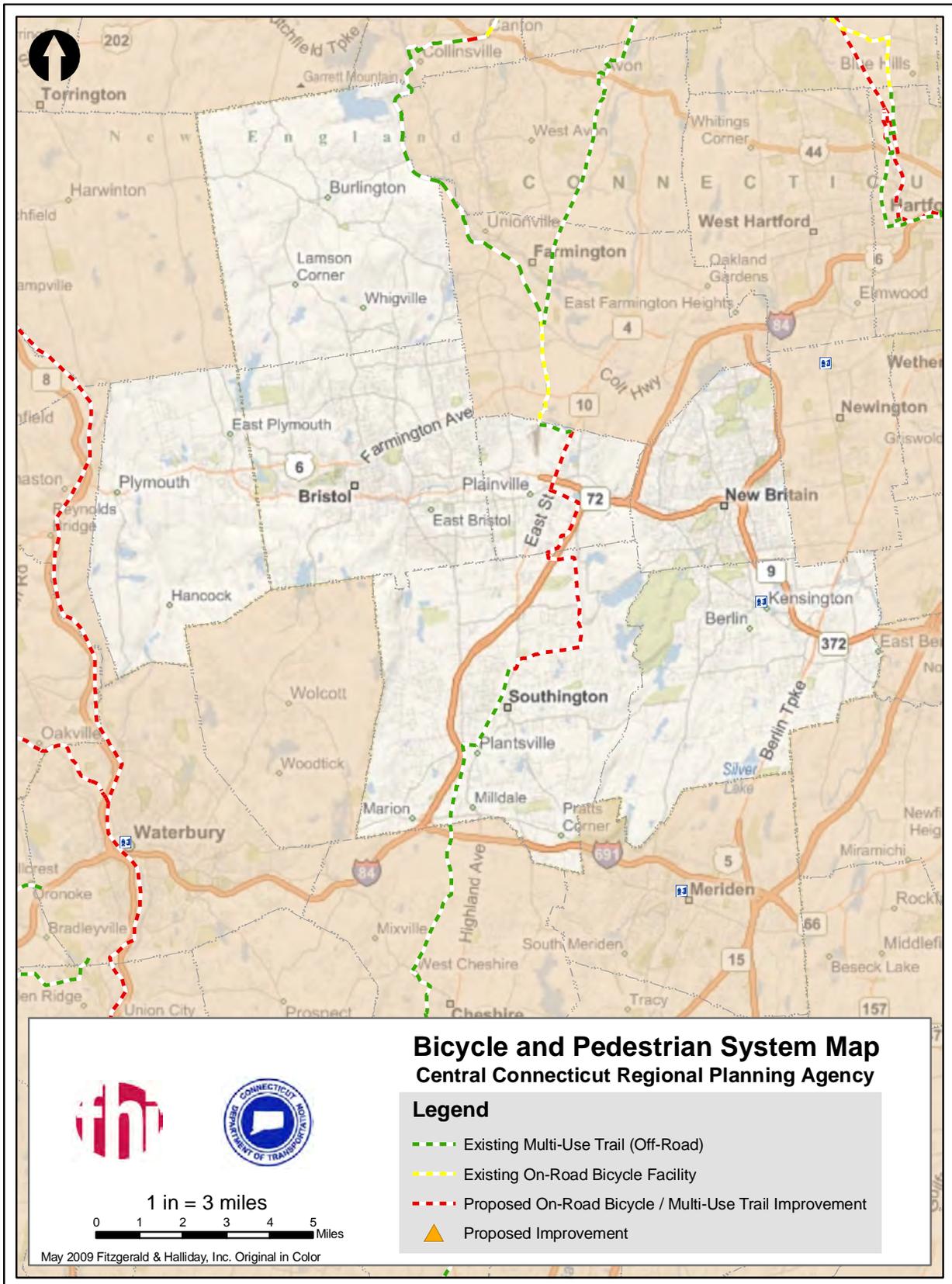
Town	2005	2006	2007
Sterling	0	0	0
Stonington	3	2	6
Stratford	12	17	16
Suffield	2	1	0
Thomaston	1	2	1
Tolland	1	0	0
Torrington	12	10	16
Trumbull	3	2	5
Union	0	0	0
Vernon	3	2	7
Voluntown	0	1	0
Wallingford	3	6	3
Warren	0	0	0
Washington	0	0	0
Waterbury	25	27	25
Waterford	3	1	7
Watertown	1	2	1
Westbrook	1	0	1
West Hartford	11	10	10
West Haven	17	21	28
Weston	0	0	0
Westport	6	4	9
Wethersfield	2	1	5
Willington	0	0	0
Wilton	3	0	2
Winchester	2	8	4
Windham	2	8	13
Windsor	4	3	10
Windsor Locks	3	3	5
Wolcott	2	1	1
Woodbridge	3	1	0
Woodbury	0	0	0
Woodstock	0	0	1
<b>Total:</b>	<b>692</b>	<b>645</b>	<b>829</b>

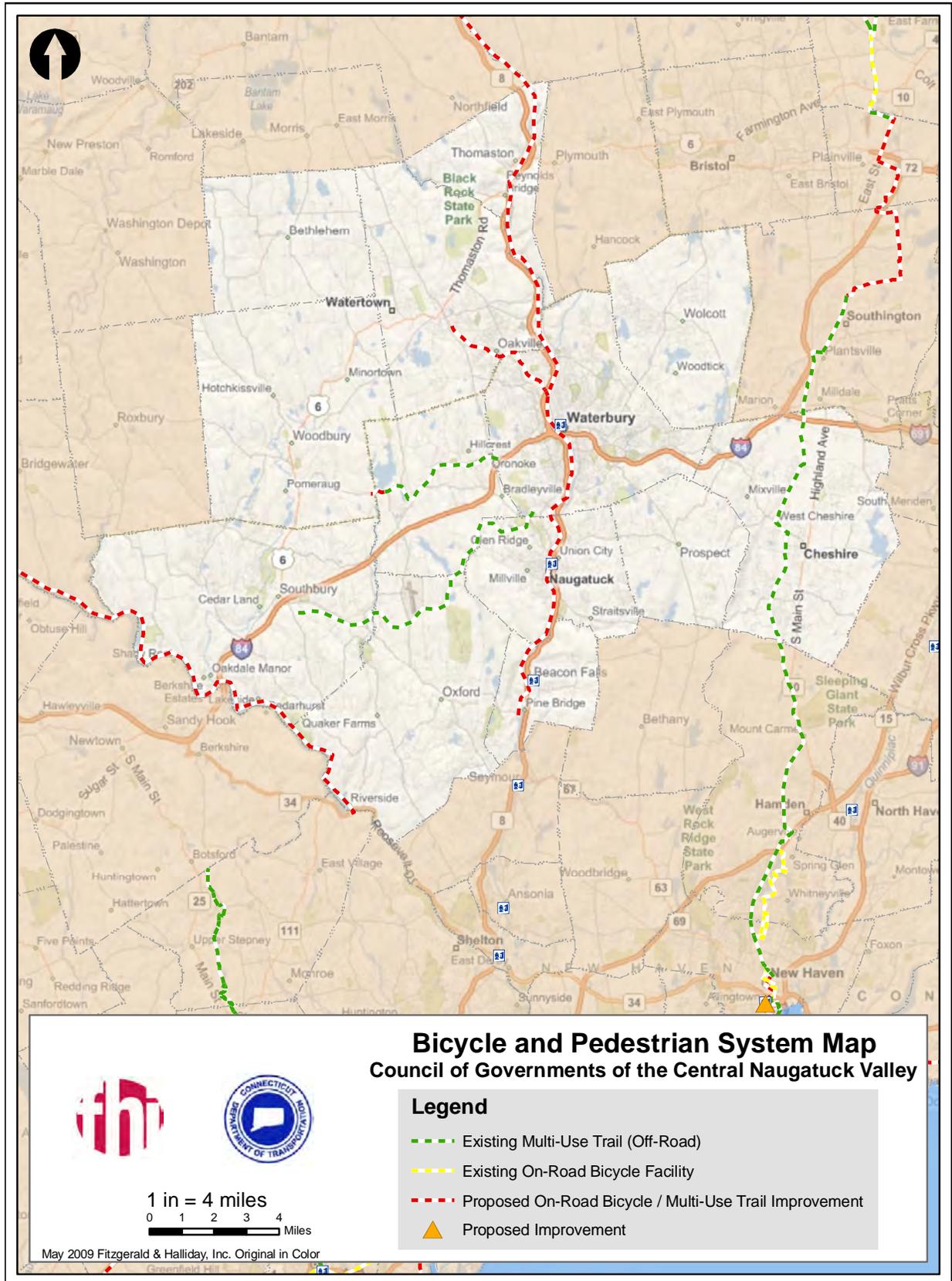
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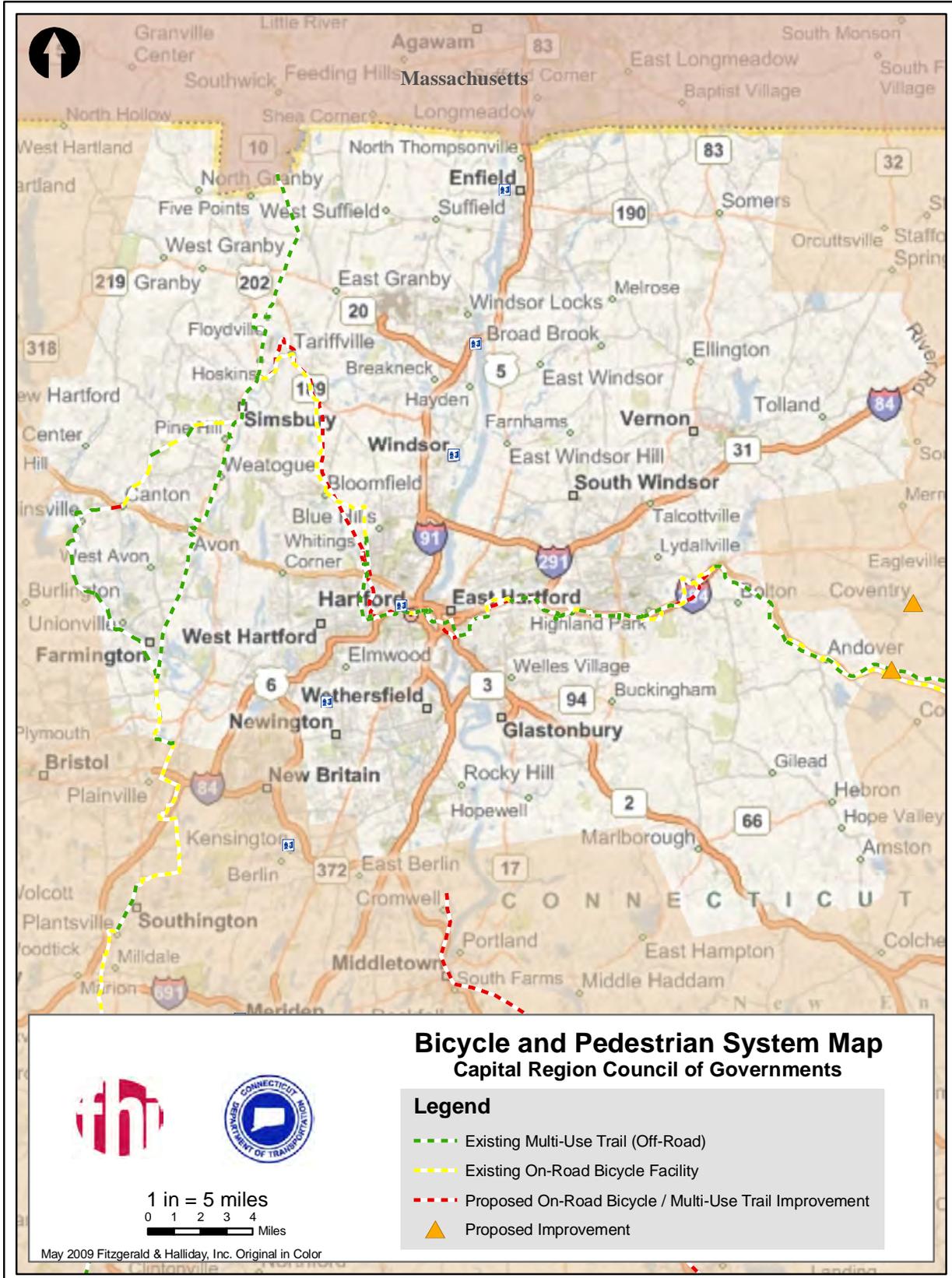
# APPENDIX J: REGIONAL BICYCLE AND PEDESTRIAN PLAN MAPS

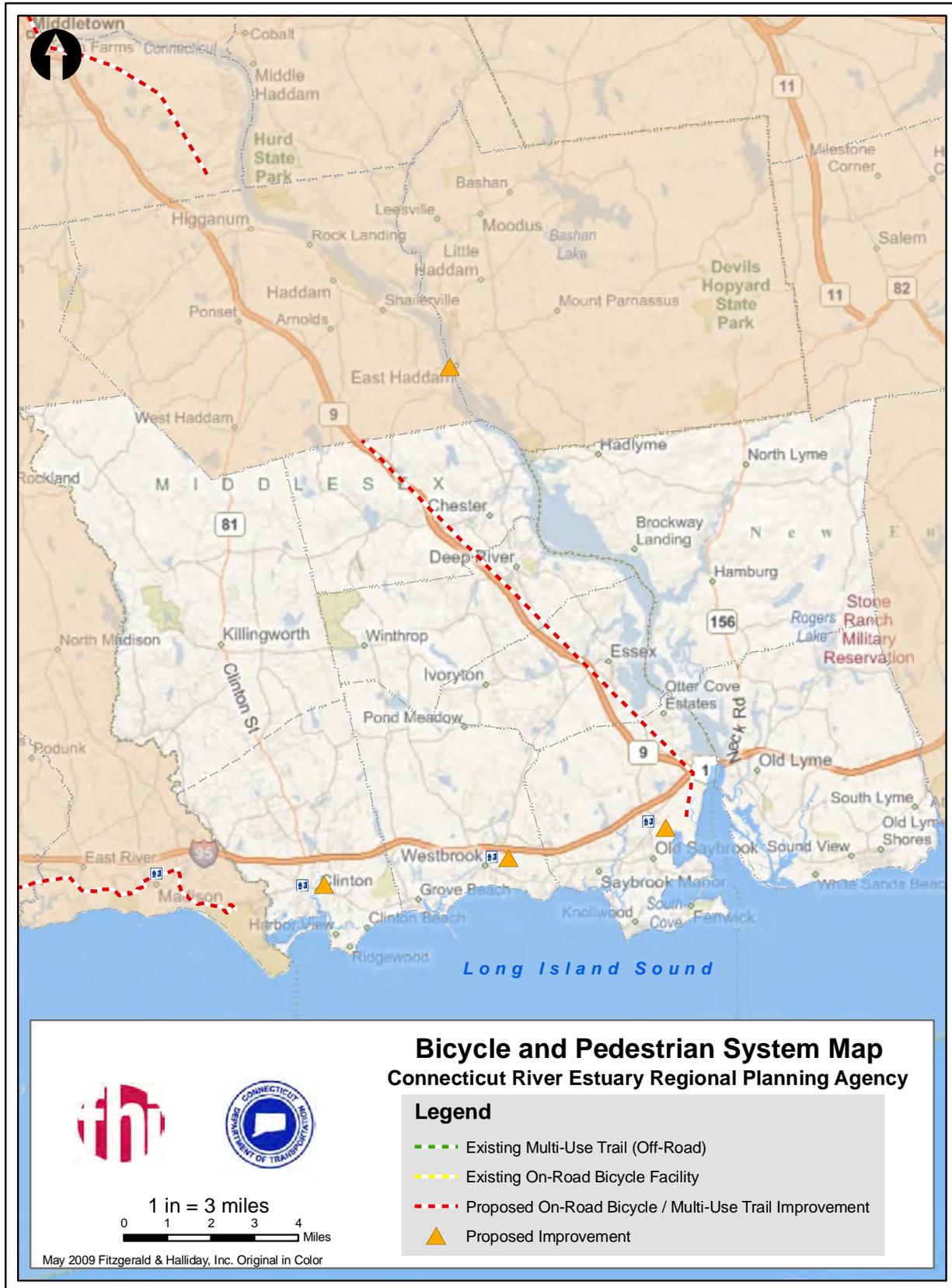
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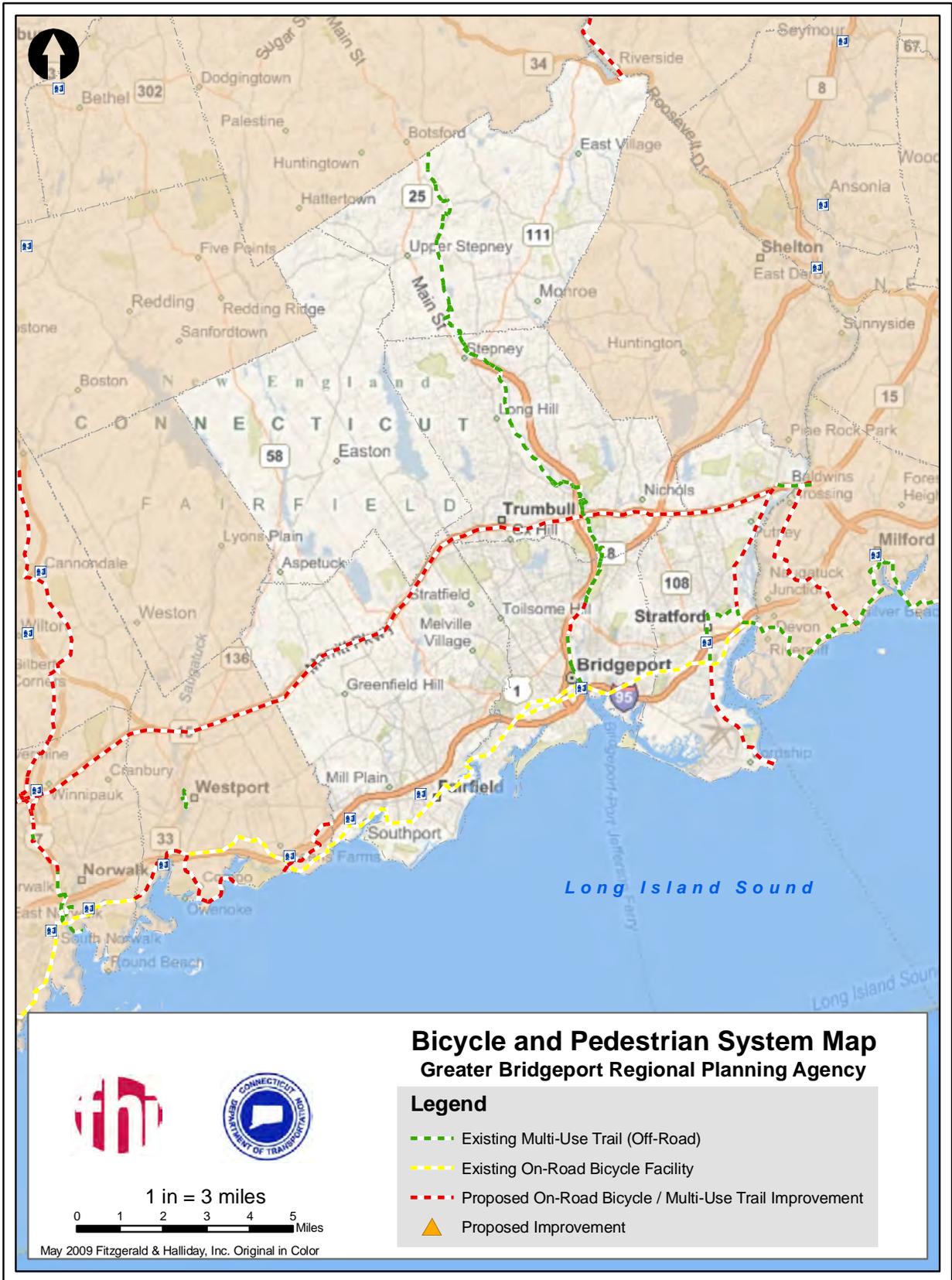
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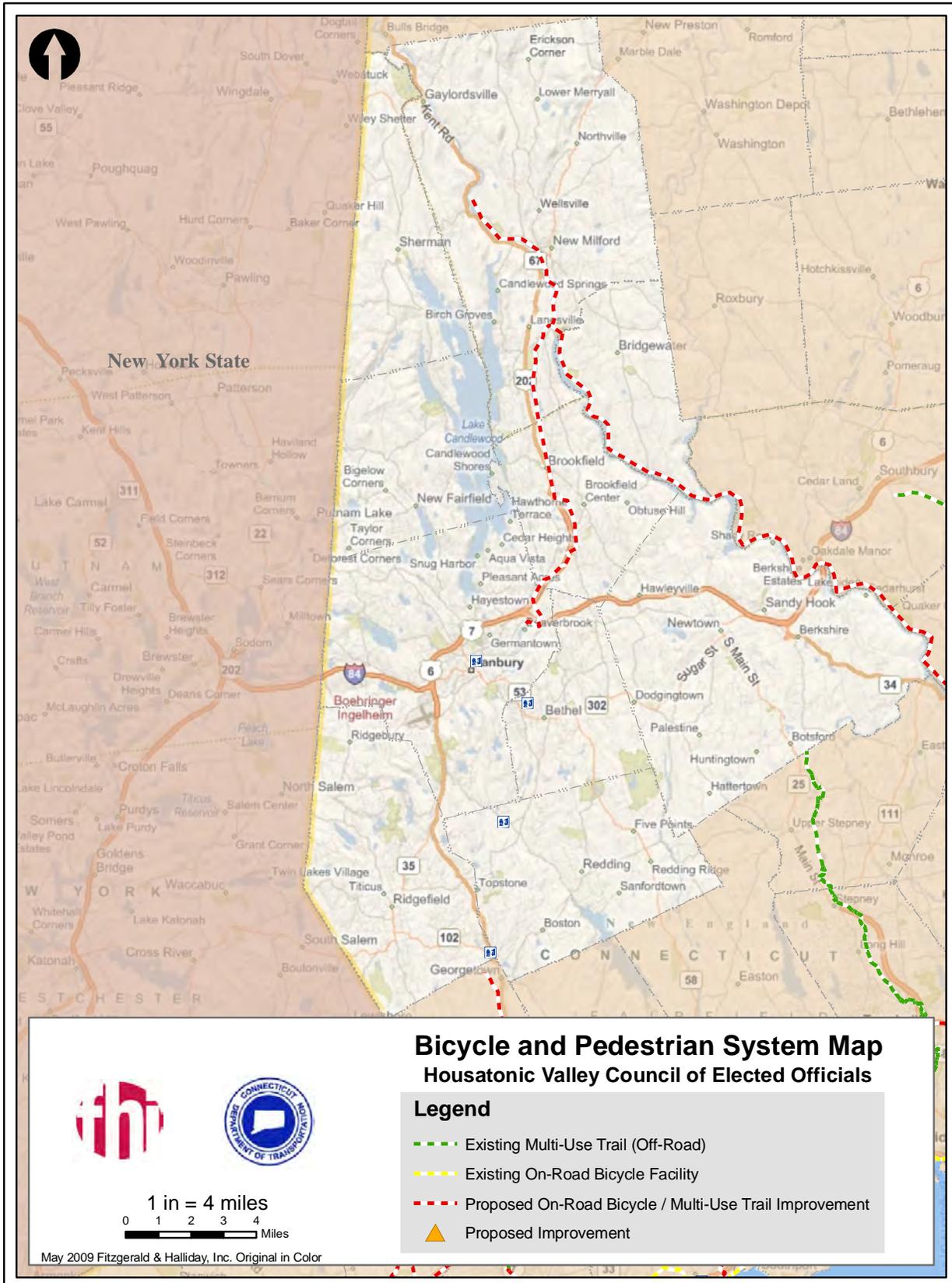


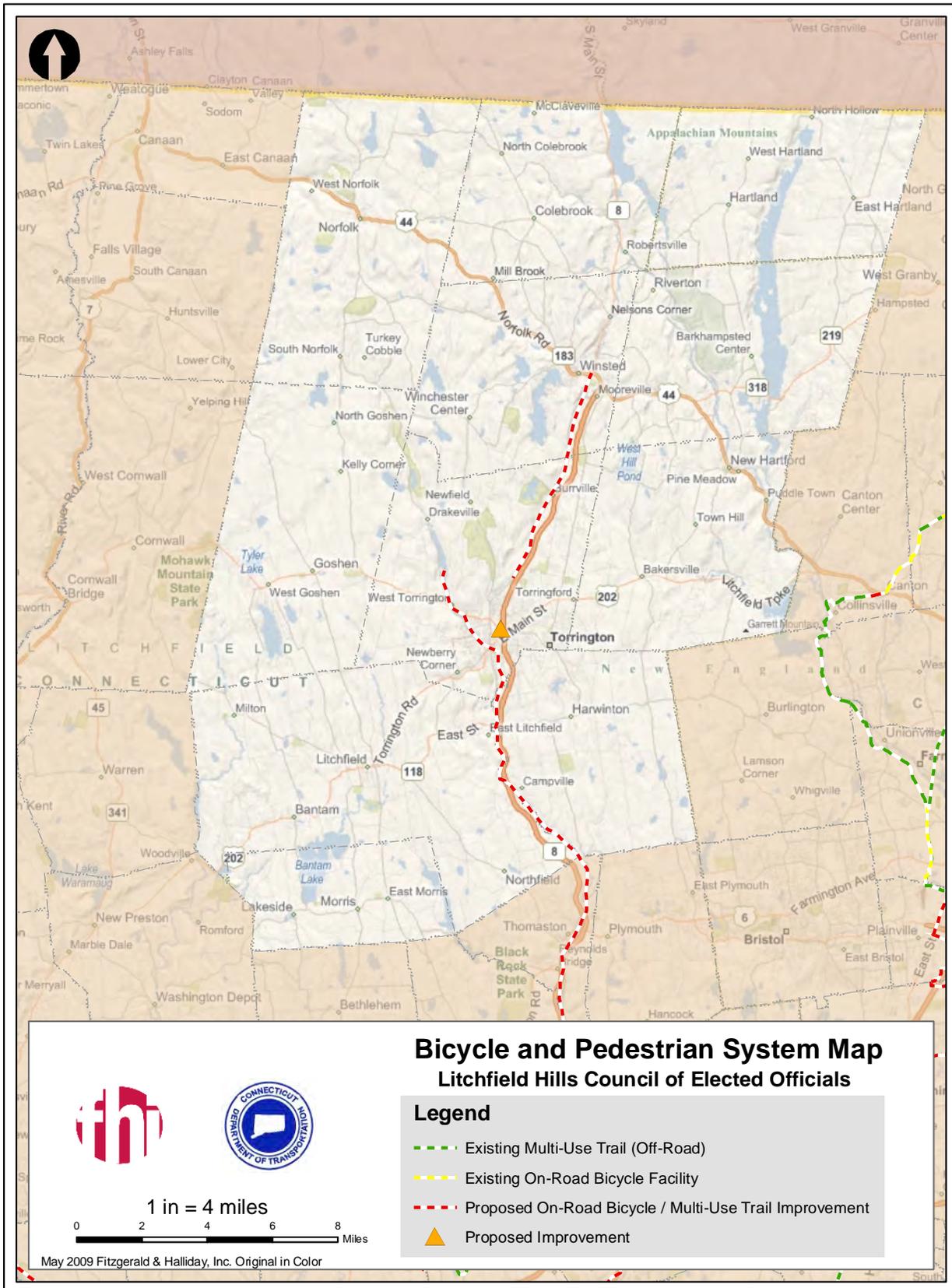


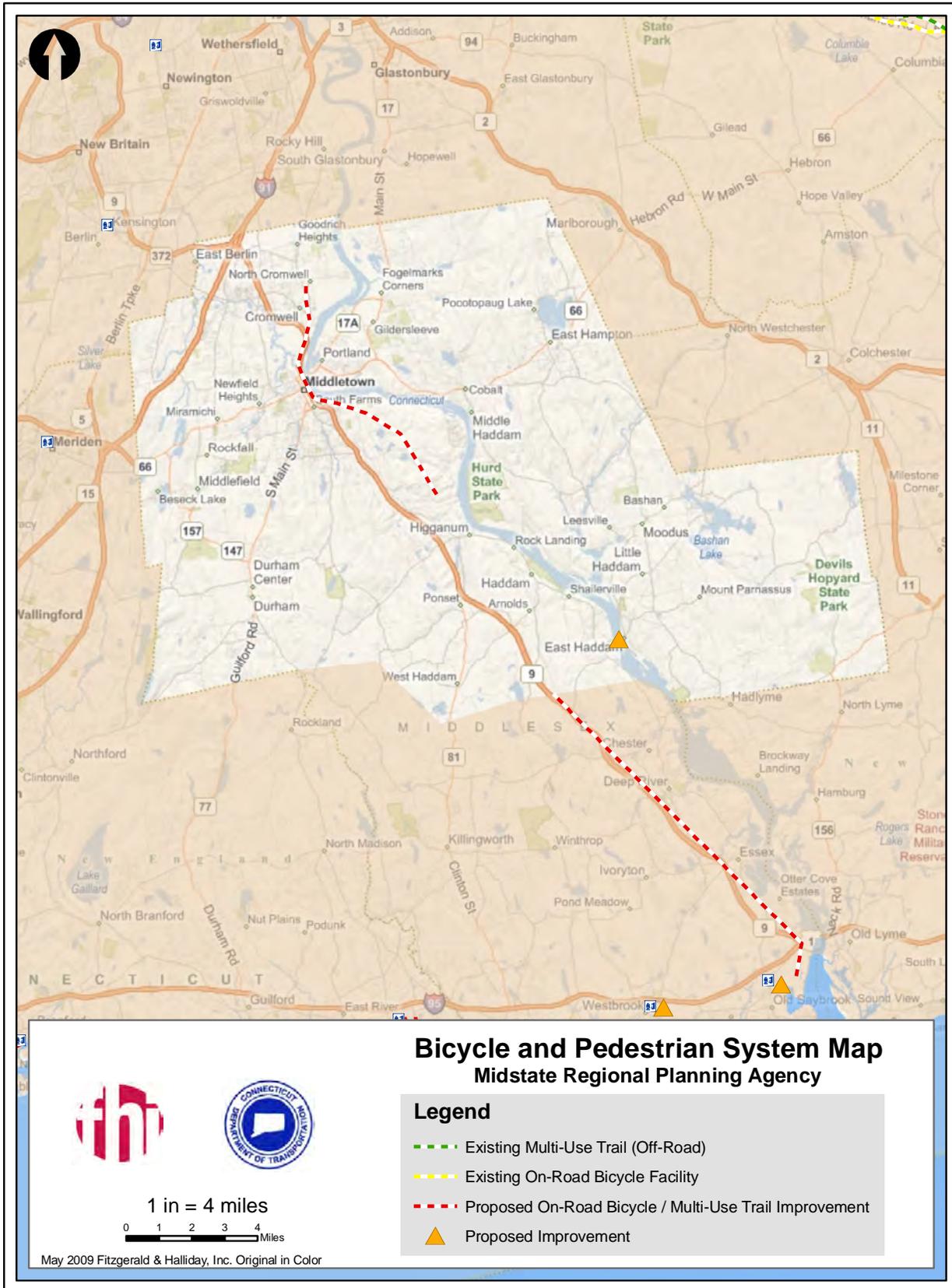


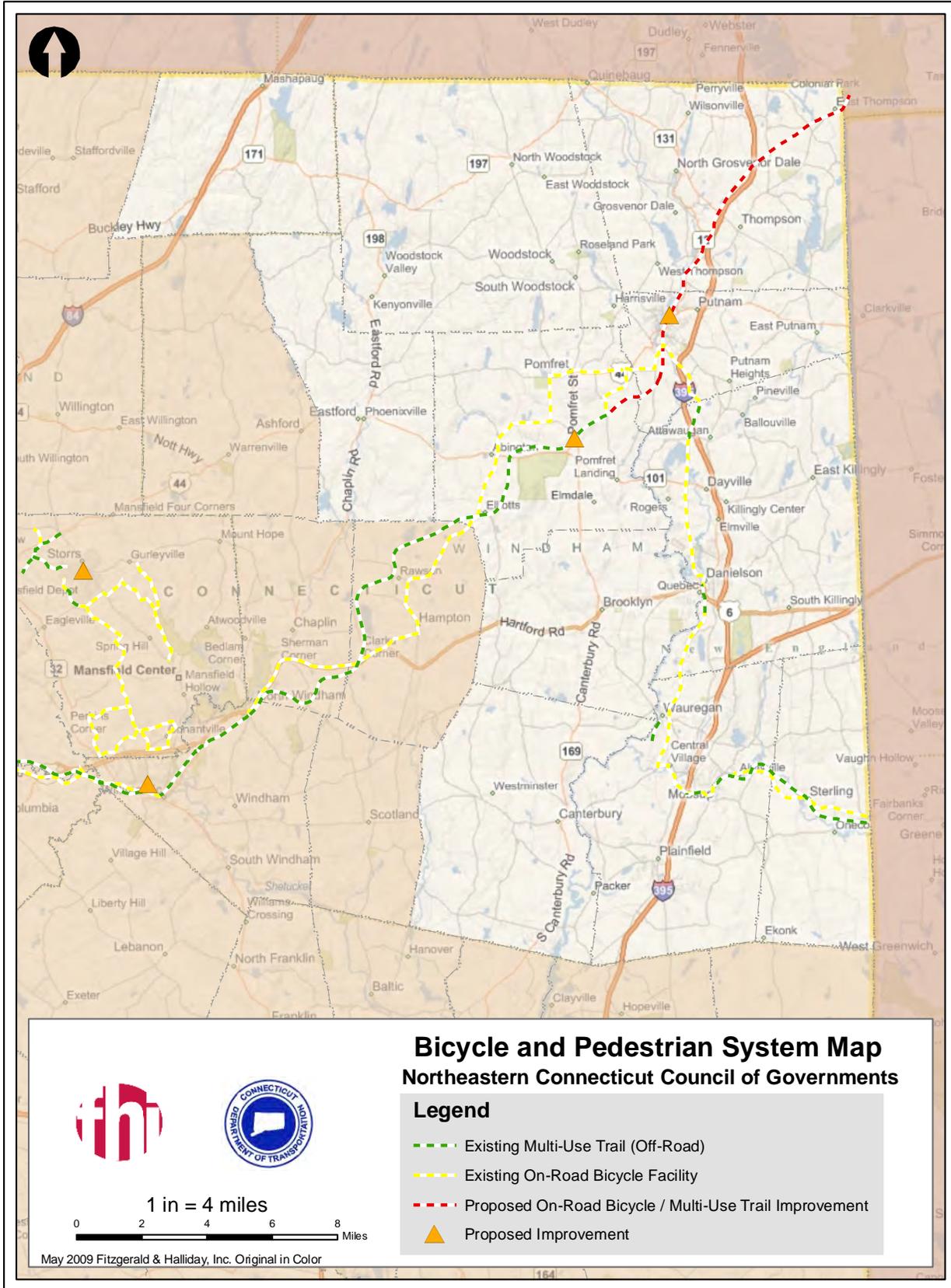


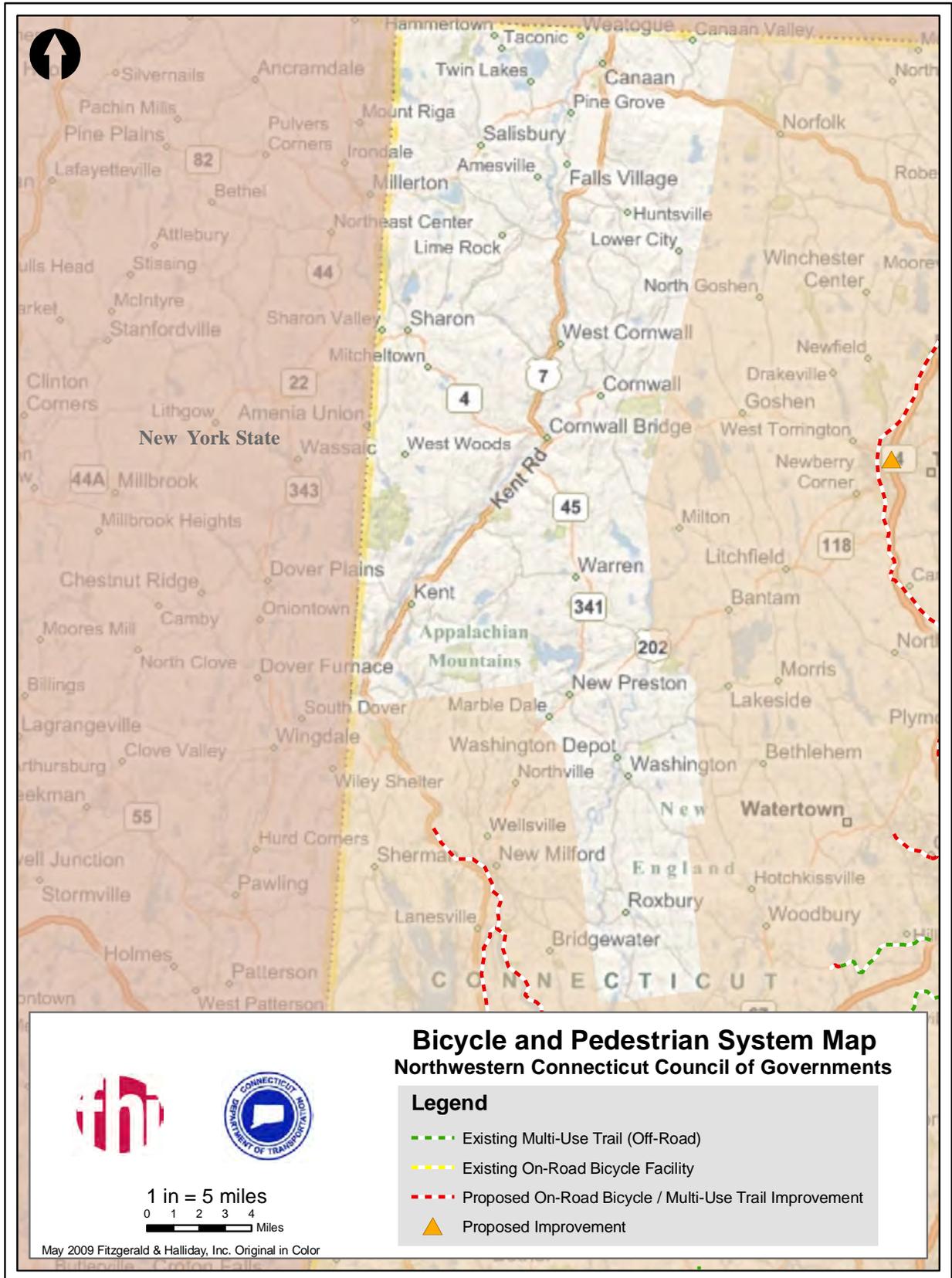


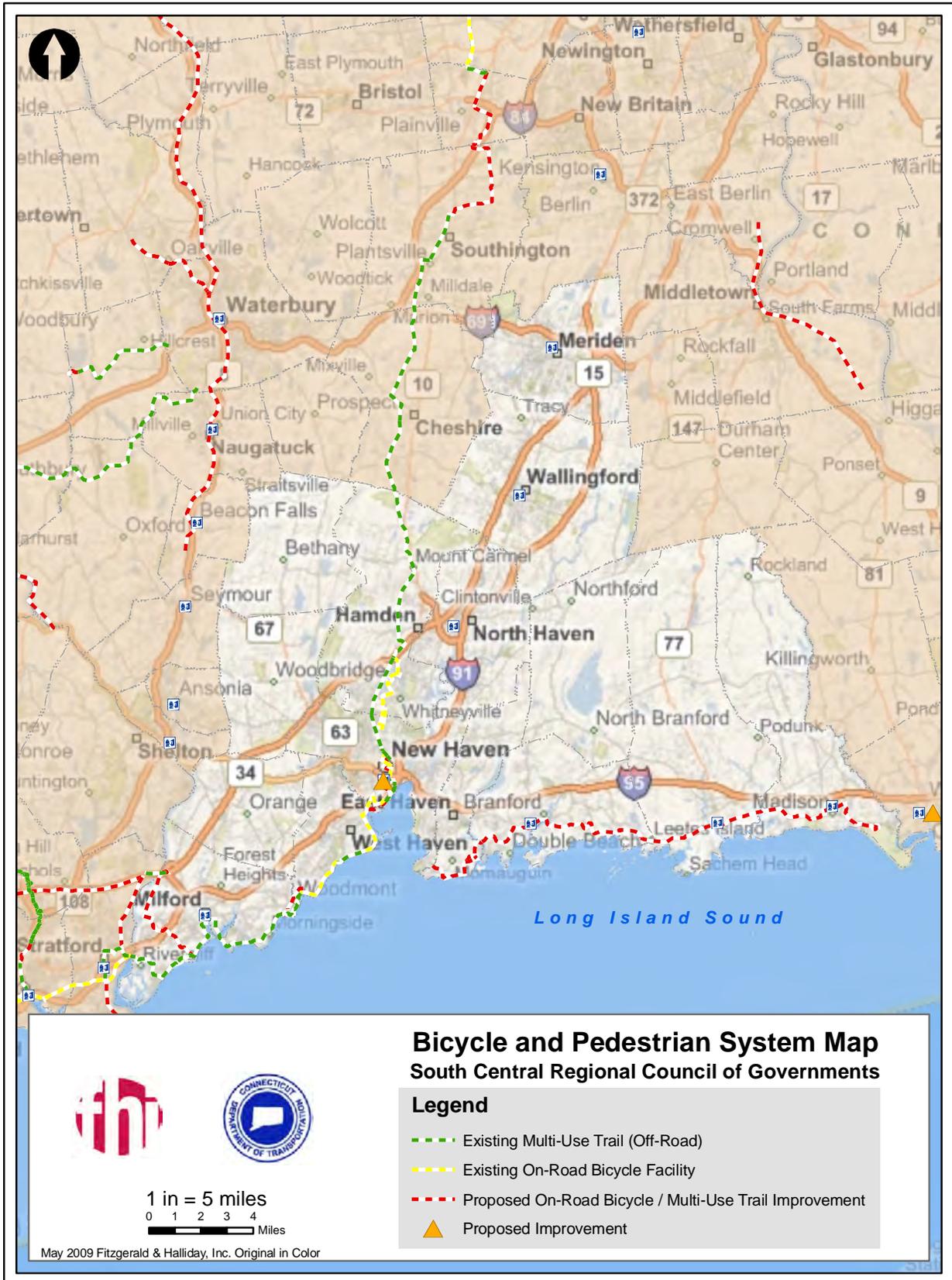


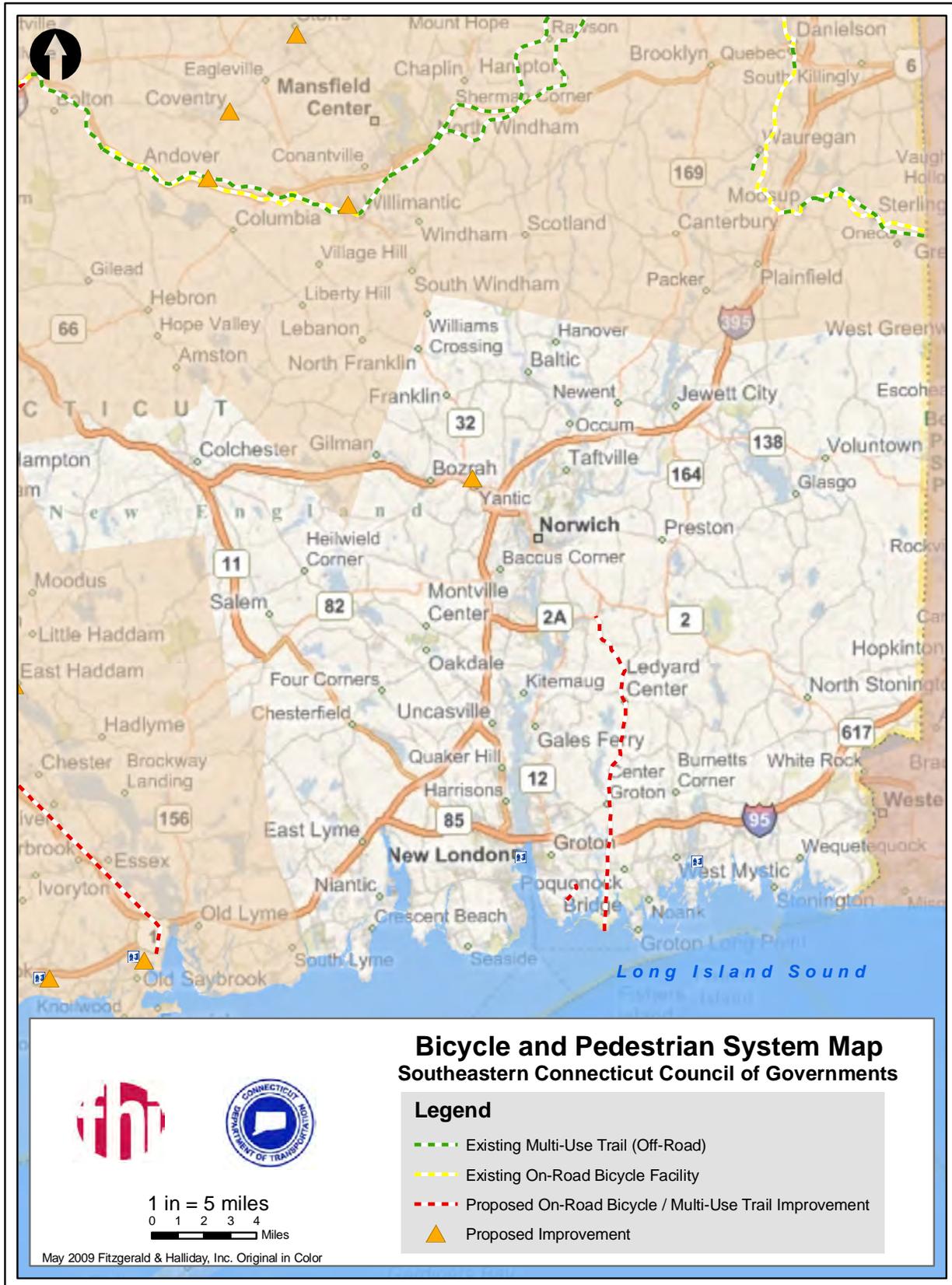


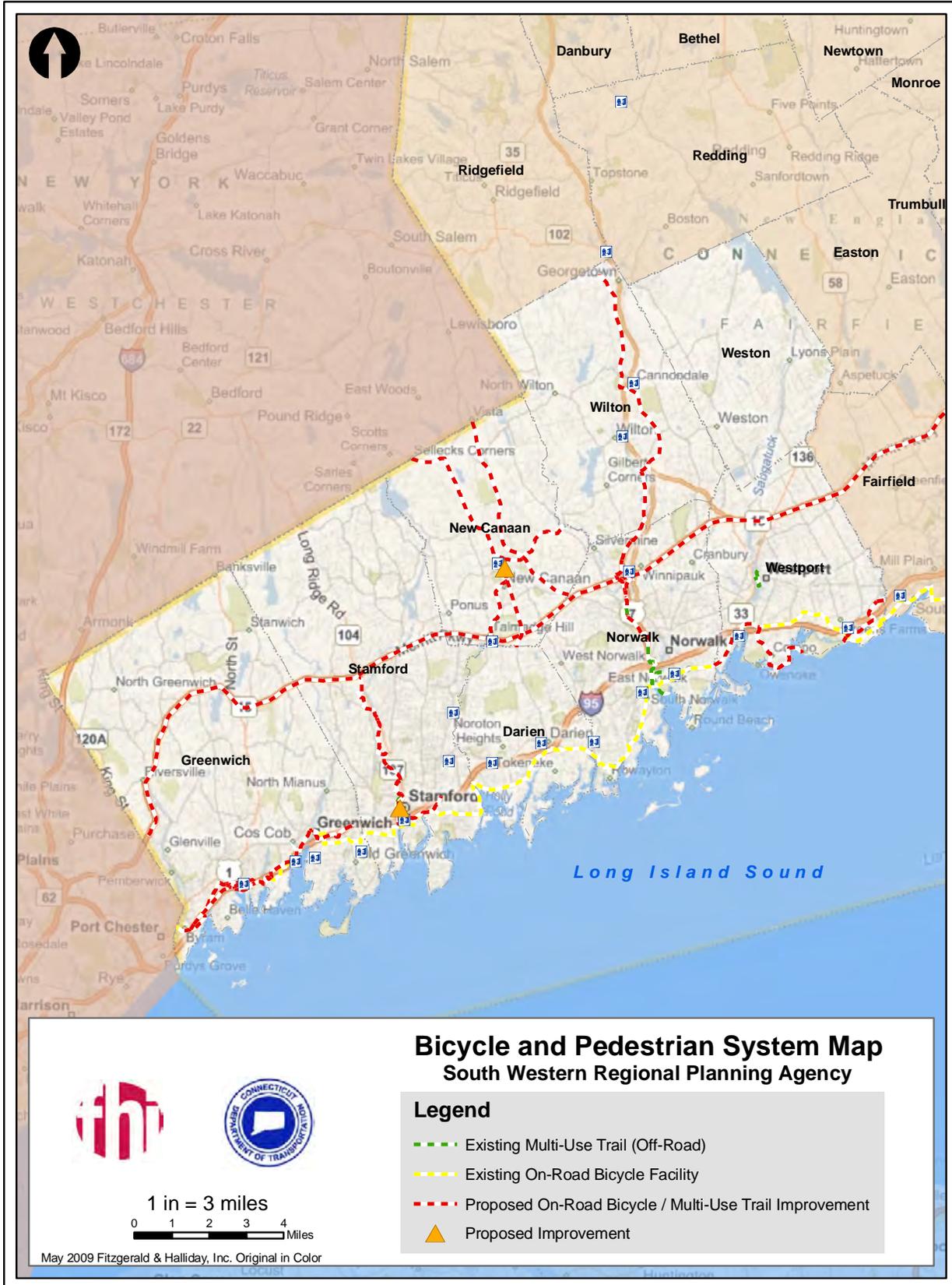


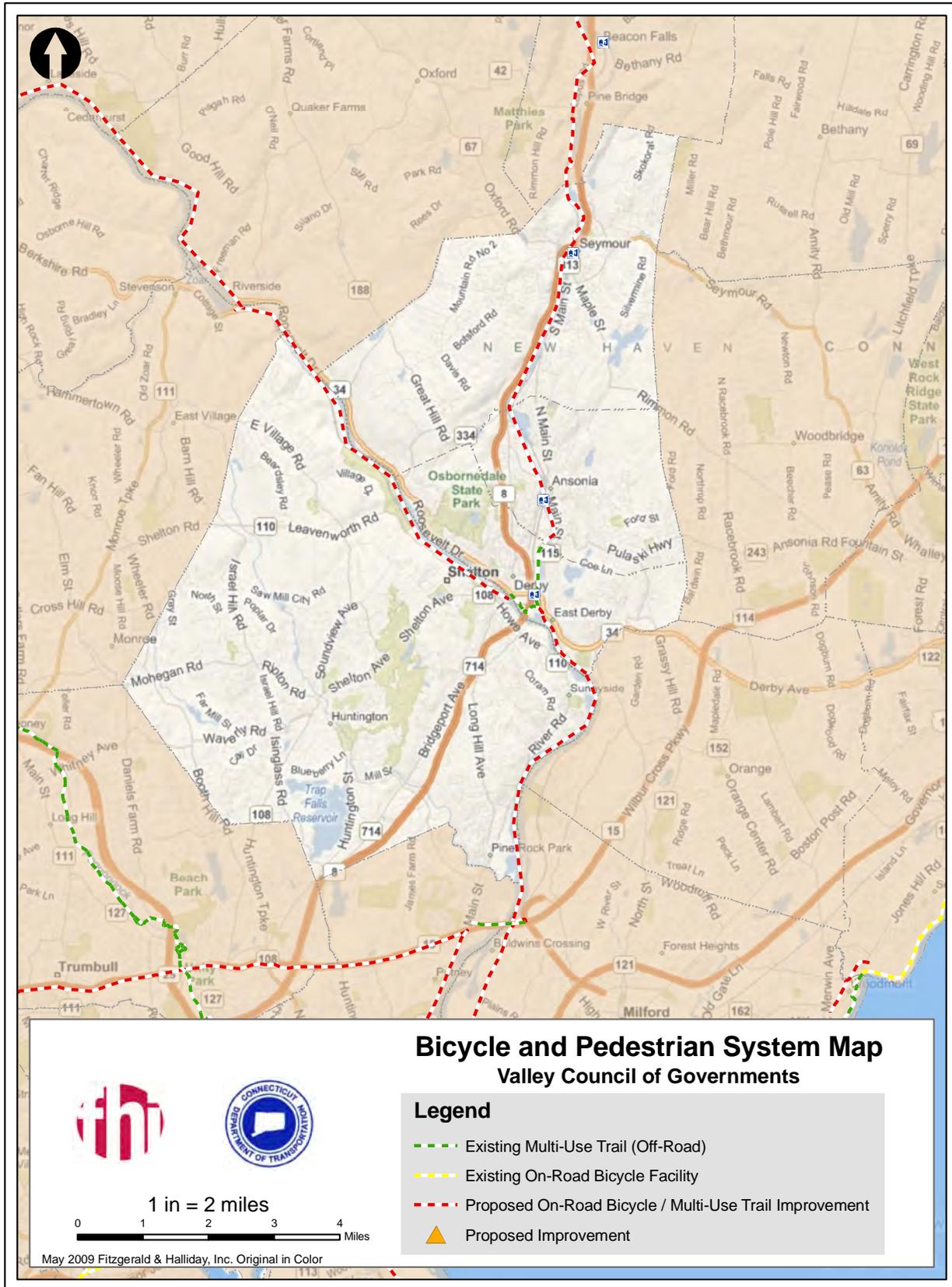


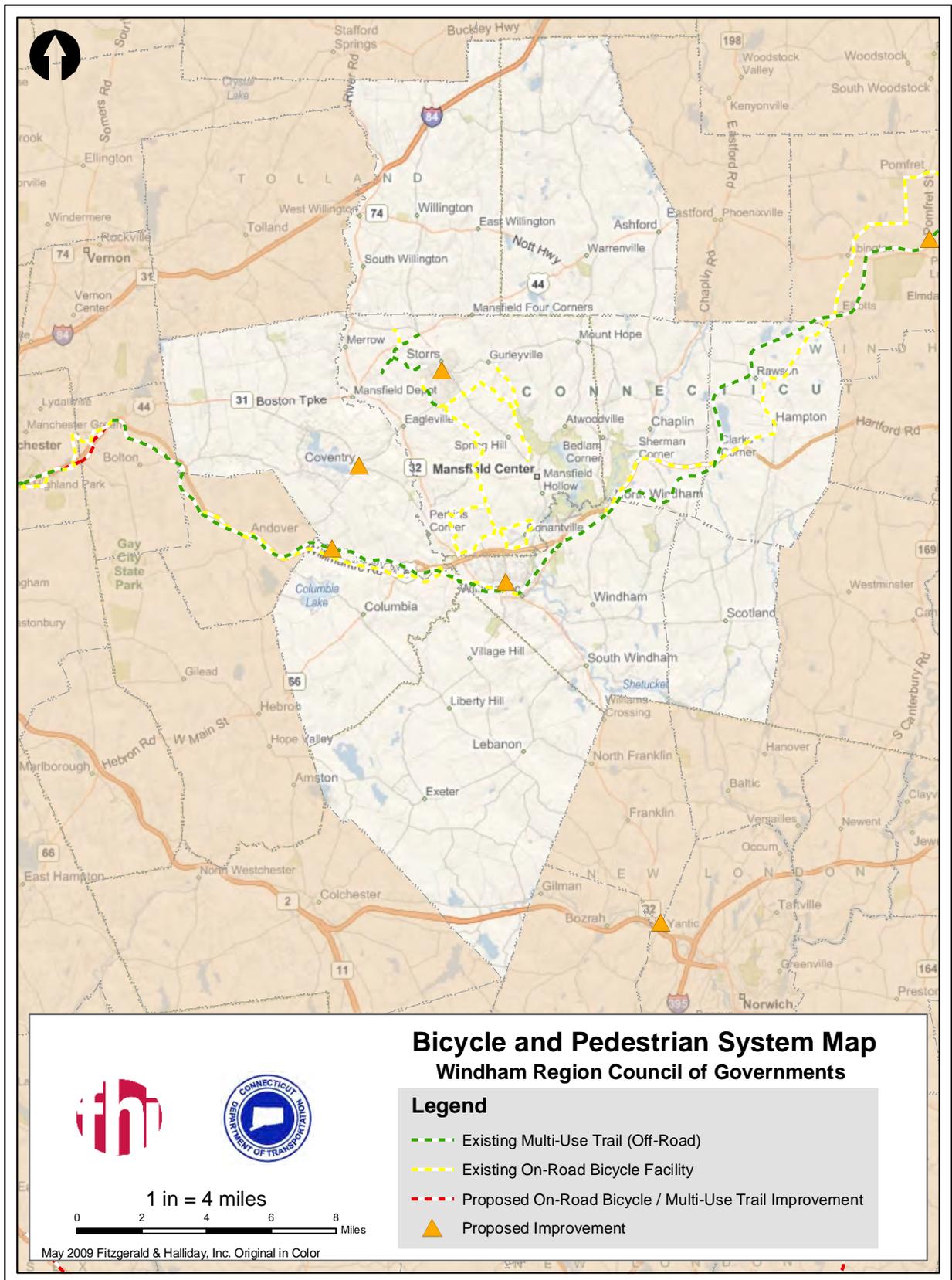












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# APPENDIX K: CROSS STATE ROUTE TURN-BY-TURN DIRECTIONS

Turn-by-turn directions for cross state bicycle routes are included below. The portion of CT Bicycle Route #2 is not included in this section.

## **CT Bicycle Route #1:**

1.	Head north on Canal St/ CT-57 toward Guilder Ln, continue to follow CT-57	4.9 mi
2.	Continue on CT-53/Newtown Turnpike	5.7 mi
3.	Turn left at CT-53/Glen Rd, continue to follow CT-53	10.6 mi
4.	Turn right at CT-37/North St/ Route 37, continue to follow CT-37	5.1 mi
5.	Turn right at CT-39	9.2 mi
6.	Turn left at CT-39/ Gaylordsville Rd/Route 39 N	4.4 mi
7.	Turn right at CT-55/Route 55 E/Webatuck Rd, continue to follow CT-55/Webatuck Rd	1.1 mi
8.	Turn left at Kent Rd/US-7, continue to follow US-7	32.0 mi
9.	Turn left at Main St/US-44/ US-7	0.3 mi
10.	Turn right at Railroad St/US-7	0.3 mi
11.	Turn left at Bragg St	13 ft
<b>Total Route Distance = 75 Miles</b>		

## **CT Bicycle Route #3:**

1.	Head south on Kent Rd/US-7 toward Church Rd/Gaylord Rd	7.1 mi
2.	Turn left at Bridge St/US-202	0.5 mi
3.	Turn left at East St/US-202, continue to follow US-202	18.8 mi
4.	Turn left at Torrington Rd/ US-202, continue to follow US-202	5.5 mi
5.	Turn left at Litchfield Turnpike/N Main St/US-202	325 ft
6.	Turn right at Litchfield Turnpike/E Main St/US-202	0.6 mi
7.	Turn left at Christopher Rd	338 ft
8.	Turn left at CT-4/E Elm St, continue to follow CT-4	2.8 mi
9.	Turn right at University Dr	1.7 mi
10.	Continue straight onto Brandy Hill Rd	0.5 mi
11.	Turn left at CT-272/Norfolk Rd, continue to follow CT-272	3.5 mi
12.	Turn right at CT-263/Hall Meadow Ln, continue to follow CT-263	1.8 mi
13.	Turn right at CT-263/West Rd	0.5 mi
14.	Turn left at CT-263/ Winchester Rd	3.3 mi
15.	Slight right at CT-263/W Lake St	0.3 mi
16.	Turn left at CT-263/Lake St	0.4 mi
17.	Turn right at CT-183/Main St/ US-44	1.0 mi
18.	Turn left at CT-8/Park Pl, continue to follow CT-8	8.3 mi
<b>Total Route Distance = 56.6 Miles</b>		

**CT Bicycle Route #5:**

1.	Head south on CT-63/Huntsville South Canaan Rd/Route 63 toward CT-126/Route 126, continue to follow CT-63	11.2 mi
2.	At the traffic circle, take the 2nd exit onto CT-63/Old Middle St, continue to follow CT-63	6.2 mi
3.	Turn left at CT-63/East St/US-202	240 ft
4.	Turn right at CT-63/S Plains Rd/South St, continue to follow CT-63	12.0 mi
5.	Slight right at CT-63/Straits Turnpike, continue to follow CT-63	7.4 mi
6.	Turn left at CT-63/Water St	167 ft
7.	Turn right at N Church St/CT-63	0.3 mi
8.	Turn left at Maple St	0.2 mi
9.	Turn right at S Main St	0.1 mi
10.	Slight left to stay on S Main St	0.8 mi
11.	Continue on CT-63/New Haven Rd, continue to follow CT-63	13.4 mi
<b>Total Route Distance = 51.9 Miles</b>		

**CT Bicycle Route #7:**

1.	Head south on CT-69/West St toward Orchard St, continue to follow CT-69	8.9 mi
2.	Turn left at CT-69/Stillson Rd, continue to follow CT-69	2.1 mi
3.	Turn left at CT-69/Hamilton Ave	0.9 mi
4.	Continue on Prospect Rd	3.1 mi
5.	Continue on Bethany Rd/CT-69/New Haven Rd, continue to follow CT-69	11.2 mi
6.	CT-69 turns slightly right and becomes Litchfield Turnpike	0.6 mi
<b>Total Route Distance = 26.7 Miles</b>		

**CT Bicycle Route #9:**

1.	Head south on CT-32/Monson Rd toward State Line Rd, continue to follow CT-32	26.0 mi
2.	Turn right at CT-32/South St	0.1 mi
3.	Turn left at CT-32/Pleasant St, continue to follow CT-32	12.5 mi
4.	Continue on Old Willimantic Rd/W Town St, continue to follow W Town St	1.6 mi
5.	Turn right at Town St	0.5 mi
6.	Slight right at Washington St	1.5 mi
7.	Continue on Chelsea Harbor Dr/CT-2	0.3 mi
8.	Turn right at Water St	351 ft
9.	Turn right at CT-12/Laurel Hill Ave, continue to follow CT-12	11.9 mi
<b>Total Route Distance = 54.6 Miles</b>		

**CT Bicycle Route #2B:**

1.	Head southwest on CT-184/New London Turnpike/Providence New London Turnpike toward Boom Bridge Rd	3.3 mi
2.	At Providence New London Turnpike, take the 2nd exit and stay on CT-184/New London Turnpike/Providence New London Turnpike, continue to follow CT-184	12.0 mi
3.	Take the ramp onto I-95 S	1.1 mi
4.	Take exit 84S-N-E for State Hwy 32 toward New London/Norwich	0.8 mi
5.	Keep right at the fork to continue toward Williams St	138 ft
6.	Take exit 84E to merge onto Williams St	1.1 mi
7.	Turn right at Broad St	0.7 mi
8.	Turn left at Coleman St/Coleman St/US-1	1.2 mi
9.	Turn right at Bank St/US-1, continue to follow US-1	14.4 mi

10.	Turn right at Halls Rd/Main St/US-1	0.7 mi
11.	Turn left at CT-156/Neck Rd/US-1	85 ft
12.	Merge onto I-95 S/US-1 S via the ramp to New Haven/US-1 S	0.9 mi
13.	Take exit 69 for State Hwy 9 N toward Essex/Hartford	0.2 mi
14.	Keep right at the fork to continue toward Essex Rd	0.2 mi
15.	Turn left at Essex Rd	0.1 mi
16.	Turn left at Floral Park Rd	0.1 mi
17.	Turn left at Spring Arbor Rd/Springbrook Rd/Spring Brook Rd NO 1	0.9 mi
18.	Slight right at Boston Post Rd/US-1	0.6 mi
19.	Turn left at Boston Post Rd/CT-154/US-1, continue to follow US-1	21.7 mi
20.	Turn right at CT-22/Notch Hill Rd	1.7 mi
21.	Turn left at CT-22/CT-80/Foxon Rd, continue to follow CT-80/Foxon Rd	6.2 mi
22.	Slight right at CT-80/Foxon Blvd, continue to follow CT-80	1.0 mi
23.	Slight left at Ferry St	364 ft
24.	Turn left to merge onto I-91 N toward Hartford	0.7 mi
25.	Take exit 8 for State Hwy 80/State Hwy 17/Middletown Ave toward N Branford	0.1 mi
26.	Keep right at the fork	0.1 mi
<b>Total Route Distance = 70 Miles</b>		

**CT Bicycle Route #4:**

1.	Head northwest on CT-207/Pond Rd toward CT-207/Exeter Rd, continue to follow CT-207	11.0 mi
2.	Turn right at Church St/CT-85, continue to follow CT-85	6.5 mi
3.	Continue on CT-94/Gilead St, continue to follow CT-94	9.1 mi
4.	Continue on Hebron Ave	0.5 mi
5.	Turn left at Main St	2.0 mi
6.	Turn right at CT-17	1.4 mi
7.	Turn right at CT-160/Water St, continue to follow CT-160	1.3 mi
8.	Take the Glastonbury-Rocky Hill Fry ferry to Wethersfield	0.2 mi
9.	Continue straight onto CT-160/Ferry Ln, continue to follow CT-160	2.7 mi
10.	Turn right at Cromwell Ave/CT-160/CT-3	0.2 mi
11.	Turn left at CT-160/New Britain Ave, continue to follow CT-160	3.2 mi
12.	Continue on Deming Rd	0.9 mi
13.	Turn left at Christian Ln	0.6 mi
14.	Continue on Porters Pass	0.3 mi
15.	Turn right at CT-372/Farmington Ave	1.8 mi
16.	Turn right at CT-372/High Rd	430 ft
17.	Turn left at CT-372/CT-571, continue to follow CT-372	1.7 mi
18.	Turn left at CT-372/W Main St, continue to follow CT-372	4.4 mi
19.	Continue on CT-72/Forestville Ave, continue to follow CT-72	0.6 mi
20.	Turn right at CT-72/E Main St, continue to follow CT-72	220 ft
21.	Turn left at Broad St/CT-72	1.3 mi
22.	Turn left at CT-229/CT-72/King St	315 ft
23.	Turn right at CT-72/Riverside Ave	1.1 mi

24.	Turn left at CT-72/Main St, continue to follow CT-72	5.2 mi
25.	Turn left at Preston Rd	1.8 mi
26.	Turn right at Schroback Rd	0.4 mi
27.	Turn left at North St	1.2 mi
28.	Turn right at Blakeman Rd/ Plymouth Rd, continue to follow Blakeman Rd	0.8 mi
29.	Sharp left at CT-222/Hill Rd/ Route 222	0.6 mi
30.	Turn left at CT-222/N Main St/Route 222, continue to follow N Main St	2.1 mi
31.	Continue on CT-254/Route 254/ Route 6/US-6/Waterbury Rd	0.2 mi
32.	Turn right at CT-109/Pine Hill Rd/Route 109/Route 6/US-6, continue to follow CT-109	8.9 mi
33.	Turn right at Bantam Lake Rd/CT-209	2.9 mi
<b>Total Route Distance = 75.2 Miles</b>		

**CT Bicycle Route #6:**

1.	Head west on CT-197/Old Turnpike Rd/Route 197 toward Walker Rd, continue to follow CT-197	13.2 mi
2.	Turn left at CT-190	8.9 mi
3.	Turn left at CT-190/River Rd	95 ft
4.	Turn right at CT-190/CT-32/ Main St, continue to follow CT-190	17.0 mi
5.	Turn right at CT-159/CT-190/ East St N	0.6 mi
6.	Turn left at CT-190/Thompsonville Rd	1.1 mi
7.	Turn left at CT-190/Mapleton Ave	0.6 mi
8.	Turn left at CT-190/CT-75/N Main St	1.0 mi
9.	Turn right at CT-168/Mountain Rd	2.8 mi
10.	Turn left at CT-187/S Grand St, continue to follow CT-187	1.6 mi
11.	Slight left at CT-187/Sheldon St, continue to follow CT-187	2.4 mi
12.	Turn right at CT-20/Turkey Hills Rd, continue to follow CT-20	3.6 mi
13.	Slight left at CT-189/CT-20/N Granby Rd, continue to follow CT-20	3.5 mi
14.	Turn left at Barkhamsted Rd/ CT-219, continue to follow CT-219	3.8 mi
15.	Turn left at CT-179/CT-219/E Hartland Rd, continue to follow CT-219/E Hartland Rd	2.5 mi
16.	Slight right at CT-318/Saville Dam Rd	1.7 mi
17.	Turn left at CT-181/CT-318/ Pleasant Valley Rd, continue to follow CT-318	1.4 mi
18.	Turn right at New Hartford Rd/US-44, continue to follow US-44	20.8 mi
<b>Total Route Distance = 86.6 Miles</b>		