Regional Bicycle-Pedestrian Plan Update

September 22, 2008

Final Report
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1 Introduction

In 2007 the Chittenden County Metropolitan Planning Organization (CCMPO) contracted with Wilbur Smith Associates to perform this update to the 2003 Bicycle and Pedestrian Plan. The plan serves as the bicycle and pedestrian component of the metropolitan long-range transportation plan and guides the implementation of an interconnected regional bicycle and pedestrian transportation network in Chittenden County.

The plan is regional in scope. As such, it may not include all the bicycle and pedestrian facilities within each community. Facilities that serve strictly local needs, fill an almost exclusively recreational purpose, or that do not provide regionally important connectivity have been left off the regional network maps.

Pedestrian and bicycle networks are important in and of themselves, but are also critical components of a complete multimodal transportation system that serves all citizens and visitors in Chittenden County. The success of these networks is measured by the degree to which they are integrated with the planning and design of other modes such as bus, train, and automobile, and the degree to which they are used.

This plan is organized into four sections:

  (a) Vision, Goals, and Objectives
  (b) Existing Conditions
  (c) Network & Program Recommendations
  (d) Implementation Plan

The Vision, Goals, and Objectives section is a new addition from the 2003 Plan; it provides a common vision of what the ideal bicycle and pedestrian transportation network should look like, and describes general goals and objectives on how to achieve that vision. The Existing Conditions section documents progress since the 2003 update as well as current planning efforts. The Network & Program Recommendations section identifies where the network should be expanded to provide complete coverage of the county. It also recommends educational and encouragement programs that would bolster use of the network, which was not discussed in the 2003 plan. The Implementation section identifies steps and policies that will mobilize the plan recommendations.
1.1 Why Plan for Bicycle & Pedestrian Facilities?

Bicycle and pedestrian facilities include sidewalks, shared use paths, and on-road bicycle lanes and wide shoulders. These facilities make it possible for pedestrians and cyclists to get from one place to another via a safe and established route. In addition, there are many other benefits that these types of facilities provide, including:

**Transportation Choice:** As conditions for walking and bicycling improve more people may be willing to walk or bike short distances to shopping, school, work, or transit stations. Walking and biking can substitute for short car trips, which can help reduce traffic congestion.

**Economic Vitality:** A significant level of Chittenden County commerce takes place in historic downtowns and village centers. Sidewalks provide the pedestrian infrastructure that directly serves this commercial activity. Making these areas more walkable and bicycle-friendly directly benefits the businesses and the local economy. The quality of the pedestrian and biking environment can also improve tourism.

**Safe Neighborhoods:** Neighborhoods are friendlier and safer if residents and visitors walk and bicycle. Their presence strengthens neighborhood bonds through frequent personal interaction and also helps deter crime. More walking and bicycling can also reduce car trips within these neighborhoods thereby reducing the number of potential car/pedestrian and car/bicyclist conflicts.

**Cleaner Environment:** Changing the modal balance between cars and other modes—especially walking and biking—will benefit air quality by reducing vehicle emissions.

**Energy Efficiency:** Fewer motor vehicle trips means less fuel consumed and more energy conserved.

**Better Health:** Walking and bicycling can be keys to improving health and physical fitness. Regular walking and bicycling reduces the risks of many diseases, relieves stress, and improves mental health.

**Save Money:** Walking and bicycling not only expand travel choice, but when combined with transit, can significantly reduce individual and household transportation expenses.

**Social Equity:** Walking and bicycling expand personal mobility and choice for those who do not or can not drive—typically the young, seniors, the disabled, and those without cars. An improved pedestrian and bicycling system provides independent mobility and accessibility for more of our citizens.
1.2 Why Provide Education & Encouragement Programs?

While the 2003 Plan Update was comprehensive with regards to design considerations and facility recommendations of the regional bicycle and pedestrian network, there was little reference to non-infrastructure programs. New facilities alone are not enough to increase the number of trips made by non-motorized modes such as walking and biking. It is important to balance education and encouragement programs with engineering and infrastructure measures in order to create a successful Bicycle and Pedestrian Plan.

Education & Encouragement programs are designed to raise awareness of non-motorized travelers; connect current and future pedestrians and cyclists to existing resources; educate them about their rights and responsibilities; and encourage residents to walk and bicycle more often. In a culture where the majority of trips are made by automobile, people of all ages need to learn about transportation alternatives and how to use them. They need information about basic walking and bicycling safety; the best routes to walk or bicycle from one place to another; how to commute to work or school via bicycle and manage the necessary gear; how to ensure that children walk or bike to school safely; how to maintain a bicycle; as well as all the health, environmental, and other benefits that walking and bicycling provide to individuals and communities. The public also needs to know that people of various ages, interests, and skill levels can walk or bicycle safely as a mode of transportation.

1.3 Planning & Design Considerations

1.3.1 Types of Bicyclists

Planning for bicyclists involves providing bicycle facilities to meet the needs of bicyclists with various interests, ages, and skill levels. A three-tier classification of bicycle skill levels has been developed that approaches bicyclists primarily from their ability to interact with traffic. This system is used in the latest American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, the de facto standard for bicycle facility planning and design in the United States, and in the Vermont Agency of Transportation (VTrans) Pedestrian and Bicycle Facility Planning and Design Manual, the current standard in Vermont. These classifications include Group A, Advanced Bicyclists; Group B, Basic Bicyclists; and Group C, Child Bicyclists. Table 1.1 describes the characteristics of each group.
Table 1.1: Types of Bicyclists

<table>
<thead>
<tr>
<th>Group</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Advanced Bicyclists</td>
<td>• Adult bicyclists&lt;br&gt;• Very experienced&lt;br&gt;• Require less separation from traffic&lt;br&gt;• Comfortable riding in most traffic conditions&lt;br&gt;• Comfortable mixing with motorized traffic on lower speed and traffic roads&lt;br&gt;• On higher speed traffic roadways they benefit from increased travel lane width (wide curb lanes), bicycle lanes on urban roadways or paved shoulders on rural roadways.&lt;br&gt;• Typically prefer riding on-roads instead of shared use paths because they tend to be more direct&lt;br&gt;• Travel at higher speeds and choose routes to minimize delays and for directness of travel.</td>
</tr>
<tr>
<td>B: Basic Bicyclists</td>
<td>• Adult or teenage bicyclists&lt;br&gt;• Less skilled than Advanced Bicyclists&lt;br&gt;• Less comfortable riding in traffic than Advanced Bicyclists&lt;br&gt;• Prefer roadways with lower traffic volumes and speeds&lt;br&gt;• Prefer greater separation from traffic with designated on-road bicycle facilities or shared use paths</td>
</tr>
<tr>
<td>C: Child Bicyclists</td>
<td>• Least skilled bicyclists&lt;br&gt;• Require bicycle facilities that provide the greatest separation from traffic&lt;br&gt;• Best accommodated on residential neighborhood streets with low traffic volumes and speeds or on shared use paths</td>
</tr>
</tbody>
</table>

1.3.2 Types of Pedestrians

Unlike with bicycle planning, there is no tiered system of categorizing types of pedestrians, according to the VTrans Pedestrian and Bicycle Facility Planning and Design Manual. Everyone of all ages and abilities is a pedestrian for part of their daily trips and therefore have a wide range of needs and characteristics. The needs of most pedestrians should be met by ensuring that sidewalks are wide enough for a person in a wheelchair with a person walking next to them. Additional guidelines for pedestrian facilities are discussed in section 1.3.3.
1.3.3 Facility Design Guidelines

This report discusses two types of bicycle facilities: on-road bicycle facilities and shared use paths. A description of these facilities is provided below.

Types of Bicycle Facilities

Shared Use Paths

The VTrans Pedestrian and Bicycle Facility Planning and Design Manual defines shared use paths as “a facility for pedestrians, bicyclists and other users that is physically separated from motorized vehicular traffic by open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths are typically used by more than one type of user, such as pedestrians, joggers, people in wheelchairs, skaters, bicyclists, cross-country skiers, and where permitted equestrians and snowmobiles.”

The Design Manual acknowledges that there is tremendous variety in paths and users of the paths, which “makes uniform standards elusive.” The Design Manual suggests that planners “consider the needs of all potential user groups when planning and designing a shared use path.”

On-road Facilities

There are several types of facilities that qualify as on-road bicycle facilities:

Bicycle Lane – A bicycle lane or bike lane is a portion of the roadway designated for preferential or exclusive use by bicyclists. It includes both roadway striping, pavement markings and signage to identify the presence of the facility. It should be a one-way facility except under special circumstances. Bike lanes are typically provided in an urban or village setting to provide more delineation between or channelization of vehicular and bicycle traffic. Parking should be banned in bicycle lanes. Another formerly used term for bicycle lane is Class II facility.

Paved Shoulder – A paved shoulder is additional width contiguous to the travel lane delineated by a white 6” wide stripe. Paved shoulders are typically provided on an uncurbed, rural roadway cross-section but may also be provided on an urban, curbed roadway cross-section.
Wide Curb Lane or Wide Outside Lane – A wide curb lane is a bicycle facility where additional width above a standard 11’-12’ travel lane is provided in the travel lane closest to the curb. It is typically an urban or suburban bicycle facility on a curbed roadway but can be a rural roadway without curbing. Bicyclists and motorists share the lane but the additional width allows motorists to pass the bicyclist without changing lanes or crossing over the center line. No special signage or striping is required. Lanes wider than 15’ should not be provided as they may encourage use as two travel lanes by motorists.

Shared Lane – A shared lane provides no additional travel lane width for the bicyclist but can accommodate bicyclists by virtue of lower traffic volumes and speeds. Motorists and bicyclists share the travel lane. No special signage or striping is provided. Ideally, these facilities are 11’-13’ in width. However, most streets and roads in Vermont are considered shared lane facilities.

This Plan identifies Bicycle Routes that are part of the regional network. These Bicycle Routes are grouped into the following categories:

Designated On-Road Facility – These are preferred routes for bicyclists that have been designated for use by signs. These may contain a combination of any or all of the above mentioned bicycle facility types. See map 4.1-A

Common Routes Not Designated – Popular bicycling roadways that might include any or all of the facility types mentioned above but are not specifically designated for bicycle use by either signs or recognized as such by municipal governments. See Map 4.1-A.

Types of Pedestrian Facilities

This Plan focuses on sidewalks and shared use paths for pedestrians but there are other important pedestrian facilities that complement these facilities. They include:

- Pedestrian malls
- Pedestrian trails or paths
- Crosswalks
- Pedestrian signals
- Curb extensions/bulb outs
- Pedestrian refuge islands
- Curb ramps
- Audible pedestrian signals at intersections
In accordance with state law, the VTrans *Pedestrian and Bicycle Facility Planning and Design Manual* states that design for pedestrian facilities in Vermont within downtowns and commercial centers should be in accordance with the standards for signs, signals and pavement markings contained in the *Manual on Uniform Traffic Control Devices (MUTCD)*, and follow the Americans with Disabilities Act Accessible Guidelines (ADAAG). If the recommended guidelines are not possible due to geometric, environmental or other constraints variances may be acceptable, but there must be adequate documentation to justify the variance.

The MUTCD also recognizes that formal pedestrian facilities may be unnecessary in rural areas. Other strategies such as mowing grassy shoulders, providing paved shoulders, controlling dust, and enforcing speed limits may be sufficient.

As with bicyclists, the specific characteristics of pedestrians that will use a facility must be taken into account when selecting the facility and designing it. For instance, in areas with high populations of seniors or school age children it may be desirable for pedestrian signals to provide additional time during the pedestrian phase to cross the street. Areas with high numbers of pedestrians may warrant exclusive pedestrian phases (all traffic stops) rather than the more frequent concurrent pedestrian phases (vehicle traffic is allowed parallel to the pedestrian movement).
2 Vision, Goals, & Objectives

The purpose of the vision statement is to illustrate what the bicycle and pedestrian network will become as the result of actions recommended in this plan. The long-range goals describe general actions that will help accomplish the vision, and the objectives describe additional actions for achieving each goal.

2.1 Vision: Chittenden County Bicycle & Pedestrian System

“Chittenden County residents are healthy and active due in part to the region’s safe, convenient and accessible bicycle and pedestrian network; A network that serves the non-motorized transportation needs of people of all ages and abilities. This network of sidewalks, bicycle lanes, roadway shoulders, and shared-use paths provides mobility between all communities in the County and with other transportation modes. The network provides a link to surrounding Counties, is consistent with VTrans bicycle and pedestrian planning efforts, and enhances the County’s natural environment, community character, and overall quality of life.”

2.2 Long-Range Goals & Objectives

The following six goals provide guiding principles which establish a framework for enhancing Chittenden County’s pedestrian and bicycle system. Following each goal are objectives to be accomplished.

Goal #1: Continue to Build and Enhance the Regional Network of Bicycle and Pedestrian Facilities

- Complete a network of bicycle and pedestrian facilities to create clear connections between all communities in Chittenden County by closing existing gaps in the system
- Modify the existing bicycle and pedestrian network to facilitate improved connectivity
- Construct off-road facilities where appropriate and link them with on-road facilities
- Provide a seamless transportation network that offers access and mobility for all transportation modes (bicycle, pedestrian, transit and motor vehicles), a concept referred to as ‘complete streets’
- Barring prohibitive barriers extend shoulder pavement width on all roads in order to provide safer separation between motor vehicles and bicyclists/pedestrians.
- Use road striping where appropriate to designate adequate shoulder widths for safe bicycling and walking.
Goal #2: Continue to Make Bicycling and Walking Safer Throughout the CCMPO Region
- Improve behavior of cyclists, pedestrians, and motorists through education and enforcement of existing laws
- Improve the skill level of cyclists through training
- Maintain on- and off-road pedestrian and bicycle facilities in good operating condition for their expected use
- Enhance connectivity between different land uses, with direct connections to and within downtowns and village centers
- When identified, address pedestrian and bicycle safety deficiencies in Vermont law as appropriate

Goal #3: Ensure Facilities are Appropriately Planned and Designed
- Design facilities that are appropriate for all users of various ages, interests, and skill levels
- Ensure compliance with Americans with Disability Act (ADA) accessibility guidelines
- Work with the Chittenden County Regional Planning Commission (CCRPC) and municipalities to create a traveling environment that is an inviting, viable alternative to motorized travel by promoting smart land use and development principles
- Install necessary support facilities, such as bike racks, bike lockers, and showers, at appropriate locations
- Update this Plan at least every 5 years
- Develop a Bicycle Level of Service and Pedestrian Level of Service, or other similar appropriate measures, for use throughout the County

Goal #4: Enhance Community and Regional Acceptance of Bicycling and Walking as Transportation Modes
- Work with citizens and municipalities to develop, plan, and implement local pedestrian and bicycle plans, projects, and programs which complement the regional and statewide efforts
- Provide pedestrian and bicycle planning, technical, educational, and financial assistance to local governments
- Fund planning, design and construction of pedestrian and bicycle projects and programs at a sustainable level
- Encourage law enforcement agencies to equitably and more actively enforce the rules for all transportation system users including motor vehicle drivers, bicyclists and pedestrians

Goal #5: Enhance Environmental Protection, Economic Vitality, and Healthy Lifestyle Efforts
- Reduce fuel consumption, congestion, and tailpipe emissions by reducing per capita vehicle miles traveled (VMT) by increasing bicycle and walking trips throughout the region
- Encourage and enhance business development related to bicycle and pedestrian facilities and use
o Increase eco-tourism within the region by promoting travel via bicycle and pedestrian facilities
o Reduce employee expenses related to automobile use through increased bicycling and walking
o Promote bicycling and walking as active transportation modes that improve health and fitness
o Provide information on existing bicycling and walking facilities, trainings, and avenues for greater citizen involvement to the public
o Create a diversified transportation system that better meets the needs of individuals who cannot drive a motor vehicle or choose not to own a vehicle
o Increase the frequency of personal interactions that help create a safer, more connected community and helps deter crime
o Promote sustainable smart growth land use in regional and municipal plans
o Site new schools and public buildings in locations that are easily accessible to children and the general public by walking or bicycling

Goal #6: Educate the Public and the Business Community on the Benefits of Bicycling & Walking
o Encourage more Vermonters to walk and bicycle through programs and actions that promote a sustainable lifestyle, including:
  ▪ Environmental benefits of walking and bicycling vs. driving
  ▪ Positive health outcomes from increased use of bicycling and walking as transportation modes
  ▪ Economic benefits and economic development opportunities from increased bicycle and pedestrian traffic and bicycle tourism
o Encourage employer sponsored programs that advocate bicycling and walking integrated with the use of public transit, highlighting the potential related benefits including:
  ▪ Lower transportation costs
  ▪ Healthier employees
  ▪ Reduced health care costs for employers
  ▪ A reduction in the corporate “carbon footprint”
o Create new, and enhance existing, partnerships with local, regional and state health organizations in an effort to increase physical activity through increased bicycling and walking
3 Existing Conditions

3.1 Progress Since the 2003 Update

The 2003 Update recommended a regional network of shared use and on-road facilities that provide access to the entire county. The recommended network was comprised largely of on-road facilities on major routes throughout the county. It also included several shared use paths located primarily within the Burlington Metropolitan area. Sidewalks were left out of the recommended regional network since they tend to serve local rather than regional needs. The network was designed so that the shared use and on-road facilities would be co-located whenever possible so that the needs of all types of cyclists are met.

In the years since 2003 many municipalities have built or designated new bicycle and pedestrian facilities and/or have proposed new facilities to build or designate in the future. Built facilities are newly constructed facilities and designated facilities have recently had striping or signage added to clearly mark them as a bicycle or pedestrian route. Table 3.1-A summarizes which municipalities have built/designated new facilities since 2003. The facilities include routes that are considered part of the local network, not just the regional network.

Table 3.1-A: Municipalities that Built or Designated New Facilities Since 2003

<table>
<thead>
<tr>
<th>Shared Use</th>
<th>On-Road</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burlington</td>
<td>Burlington</td>
<td>Colchester</td>
</tr>
<tr>
<td>Charlotte</td>
<td>Charlotte</td>
<td>Essex/Essex Junction</td>
</tr>
<tr>
<td>Colchester</td>
<td>Colchester</td>
<td>Hinesburg</td>
</tr>
<tr>
<td>Essex/Essex Junction</td>
<td>Essex/Essex Junction</td>
<td>Jericho</td>
</tr>
<tr>
<td>Hinesburg</td>
<td>Richmond</td>
<td>Milton</td>
</tr>
<tr>
<td>Richmond</td>
<td>Shelburne</td>
<td>Richmonde</td>
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<tr>
<td>Shelburne</td>
<td>South Burlington</td>
<td>Shelburne</td>
</tr>
<tr>
<td>South Burlington</td>
<td>Winooski</td>
<td>South Burlington</td>
</tr>
<tr>
<td>Williston</td>
<td></td>
<td>Underhill</td>
</tr>
<tr>
<td>Winooski</td>
<td></td>
<td>Williston</td>
</tr>
</tbody>
</table>

Table 3.1-B summarizes which municipalities have newly proposed facilities that were not identified in the 2003 Plan. The facilities were reported by each municipality and include routes that would be considered part of a local network, not just the regional network.
Table 3.1-B: Municipalities that have Proposed (but not yet Built or Designated) New Facilities Since 2003

<table>
<thead>
<tr>
<th>Shared Use</th>
<th>On-Road</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>Burlington</td>
<td>Burlington</td>
</tr>
<tr>
<td>Colchester</td>
<td>Charlotte</td>
<td>Charlotte</td>
</tr>
<tr>
<td>Essex/Essex Junction</td>
<td>Colchester</td>
<td>Colchester</td>
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<tr>
<td>Milton</td>
<td>Essex/Essex Junction</td>
<td>Essex/Essex Junction</td>
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<tr>
<td>Shelburne</td>
<td>Richmond</td>
<td>Hinesburg</td>
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<tr>
<td>South Burlington</td>
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<td>Williston</td>
<td>South Burlington</td>
<td>Milton</td>
</tr>
<tr>
<td>Winooski</td>
<td>Winooski</td>
<td>Richmond</td>
</tr>
</tbody>
</table>

A review of projects that were on the CCMPO Transportation Improvement Program (TIP) funding list also revealed significant activity in building and improving bicycle and pedestrian facilities (see 3.1-C and 3.1-D below).

Table 3.1-C: Stand Alone Bike/Pedestrian Projects on the TIP 2002-2008

<table>
<thead>
<tr>
<th>Project Description</th>
<th>2008 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Bike/Pedestrian Plan</td>
<td>Completed</td>
</tr>
<tr>
<td>Flynn Theater Sidewalk/Lighting</td>
<td>Status unknown</td>
</tr>
<tr>
<td>Route 127 Bike Path</td>
<td>Completed</td>
</tr>
<tr>
<td>Intervale Path Improvements</td>
<td>In Process</td>
</tr>
<tr>
<td>Charlotte Recreation Trail</td>
<td>Completed</td>
</tr>
<tr>
<td>Blakely Rd Pedestrian Overpass</td>
<td>Completed</td>
</tr>
<tr>
<td>Exit 16 Pedestrian and Landscape</td>
<td>In Process</td>
</tr>
<tr>
<td>Route 15 Pedestrian Crossing</td>
<td>In Process</td>
</tr>
<tr>
<td>Warner’s Corner Pedestrian Improvements</td>
<td>In Process</td>
</tr>
<tr>
<td>VT Route 15 Bike Path (design/ROW)</td>
<td>Construction/Implementation after FY 2011</td>
</tr>
<tr>
<td>Hinesburg Pathway</td>
<td>Construction/Implementation FY 2008 - 2009</td>
</tr>
<tr>
<td>Route 7 Corridor Sidewalk</td>
<td>In Process</td>
</tr>
<tr>
<td>Jericho/Underhill Sidewalks</td>
<td>Completed</td>
</tr>
<tr>
<td>Safe Routes to Schools</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Regional Recreational Trails</td>
<td>Ongoing</td>
</tr>
<tr>
<td>CCMPO Sidewalk Program</td>
<td>Ongoing</td>
</tr>
<tr>
<td>West Main Street Sidewalks</td>
<td>Completed</td>
</tr>
<tr>
<td>Webster Road Path</td>
<td>In Process</td>
</tr>
<tr>
<td>Tilley Drive Path</td>
<td>In Process</td>
</tr>
<tr>
<td>VT Route 2A multi-use path School Area Pedestrian Improvements</td>
<td>Completed in 2003</td>
</tr>
<tr>
<td>Winooski</td>
<td>In Process</td>
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</tbody>
</table>
### Table 3.1-D: TIP Projects with Bike/Pedestrian Components 2002-2008

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
<th>2008 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Transit Center</td>
<td>Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>North Street Revitalization</td>
<td>Burlington</td>
<td>Completed</td>
</tr>
<tr>
<td>Riverside Ave</td>
<td>Burlington</td>
<td>Completed</td>
</tr>
<tr>
<td>South End Transit Center</td>
<td>Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>Waterfront Improvements</td>
<td>Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>Church Street Improvements</td>
<td>Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>Depot Street Improvements</td>
<td>Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>US 7 Rehabilitation</td>
<td>Charlotte</td>
<td>Planned for 2008</td>
</tr>
<tr>
<td>Lime Kiln Bridge</td>
<td>Colchester/Burlington</td>
<td>Completed</td>
</tr>
<tr>
<td>Campus Road</td>
<td>Colchester</td>
<td>In Process</td>
</tr>
<tr>
<td>Downtown Transportation Improvements</td>
<td>Essex Junction</td>
<td>Completed</td>
</tr>
<tr>
<td>Route 15 Streetscape</td>
<td>Jericho</td>
<td>In Process</td>
</tr>
<tr>
<td>Shelburne Road Reconstruction</td>
<td>Shelburne/Burlington</td>
<td>Completed in 2006</td>
</tr>
<tr>
<td>Airport Drove Extension</td>
<td>South Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>Kennedy Drive Reconstruction</td>
<td>South Burlington</td>
<td>Completed</td>
</tr>
<tr>
<td>Market Street Reconstruction</td>
<td>South Burlington</td>
<td>In Process</td>
</tr>
<tr>
<td>San Remo Drive Streetscape</td>
<td>South Burlington</td>
<td>In Process</td>
</tr>
</tbody>
</table>

Further information was found by gathering lists of additional projects that have been completed since that time (Tables 3.1-E and 3.1-F below) from VTrans and the CCMPO’s Sidewalk Program initiated in 2004.

### Table 3.1-E: VTrans Bicycle and Pedestrian Program Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
<th>Year Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shared Use Paths</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burlington-Colchester Path bridge (560’) and boardwalk (1700’)</td>
<td>Burlington-Colchester</td>
<td>2004</td>
</tr>
<tr>
<td>Burlington Bike Path - Route 127 path</td>
<td>Burlington</td>
<td>2004</td>
</tr>
<tr>
<td>Essex - Old Colchester Rd. Bike Path</td>
<td>Essex</td>
<td>2003</td>
</tr>
<tr>
<td>VT 2A Transportation Path Shimar Dr. - River Cove Rd.</td>
<td>Williston</td>
<td>2003</td>
</tr>
<tr>
<td><strong>Pedestrian Facilities &amp; Sidewalks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essex Town Sidewalk</td>
<td>Essex</td>
<td>2006</td>
</tr>
<tr>
<td>Essex Sidewalk</td>
<td>Essex</td>
<td>2005</td>
</tr>
<tr>
<td>Winooski - Champlain Mill Riverwalk</td>
<td>Winooski</td>
<td>2005</td>
</tr>
</tbody>
</table>
### Table 3.1-E Continued

#### COMPLETED TECHNICAL ASSISTANCE PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path Feasibility Study</td>
<td>Shelburne</td>
<td>2003</td>
</tr>
<tr>
<td>Longmeadow - Webster Rd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pedestrian Facilities &amp; Sidewalks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milton - US RT 7</td>
<td>Milton</td>
<td>2006</td>
</tr>
<tr>
<td>Checkerberry to Colchester Town Line</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### CONSTRUCTION PROJECTS UNDER DEVELOPMENT

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Facilities &amp; Sidewalks</td>
<td></td>
<td>In Process</td>
</tr>
<tr>
<td>Colchester Exit 16</td>
<td>Colchester</td>
<td>In Process</td>
</tr>
<tr>
<td>Pedestrian and Landscape Improvements: Phase I</td>
<td></td>
<td>In Process</td>
</tr>
<tr>
<td>Hinesburg Village Walkway</td>
<td>Hinesburg</td>
<td>In Process</td>
</tr>
<tr>
<td>Hinesburg sidewalk, west side of VT RT 116, south of Charlotte Road to Silver Street *</td>
<td>Hinesburg</td>
<td>In Process</td>
</tr>
<tr>
<td>Milton RT 7 Corridor Community Sidewalk</td>
<td>Milton</td>
<td>In Process</td>
</tr>
</tbody>
</table>

* This project is also tracked under the CCMPO sidewalk program

Current as of January 8, 2008

Source: VT Agency of Transportation

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*Bicycle Lane in South Burlington*
It should be noted that not all of the bicycle and pedestrian improvements listed in the tables above are funded with state and federal funds. Some municipalities including Burlington, South Burlington, Shelburne and Williston have passed bond measures to fund facilities or regularly construct bicycle and pedestrian facilities with local funds.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Year Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>West side of Route 116, Charlotte Road to Mechanicville Road*^</td>
<td>Hinesburg</td>
</tr>
<tr>
<td>VT Route 15 between Sunset Drive &amp; Essex Square Shopping Center (Engineering &amp; design)</td>
<td>Essex</td>
</tr>
<tr>
<td>Mt. Philo Road between Falls Road &amp; Wild Ginger Lane (Engineering &amp; Design)</td>
<td>Shelburne</td>
</tr>
<tr>
<td>Connect existing sidewalks on Flynn Avenue and construct new sidewalk near entrance to Oakledge Park.</td>
<td>Burlington</td>
</tr>
<tr>
<td>US Route 7 LaPlatte River Bridge to Village ^</td>
<td>Shelburne</td>
</tr>
<tr>
<td>US Route 7 Checkerberry Village to Town Center</td>
<td>Milton</td>
</tr>
<tr>
<td>Route 2A near Taft Corners (Engineering &amp; Design)</td>
<td>Williston</td>
</tr>
<tr>
<td>US Route 7 through I-89 Exit 16</td>
<td>Colchester</td>
</tr>
</tbody>
</table>

^ Project has been completed * This project is also tracked in the VTrans program

Source: Chittenden County Metropolitan Planning Organization, 2007

Collectively, these lists show that pedestrian and bicycle planning continues to progress within each municipality. However, many of these projects serve local rather than regional needs; more should be done to enhance the regional network.
3.2 Existing Education & Encouragement Programs

Chittenden County has a series of active supporters and programs which have produced valuable educational materials designed for bicyclists, pedestrians and motorists. Organizations that offer programs include, but are not limited to:

- Local Motion
- Vermont Bicycle & Pedestrian Coalition
- Lake Champlain Bikeways
- The Cross Vermont Trail Association
- Burlington Bicycle Council
- Burlington Walking Work Group
- Fellowship of the Wheel & Bellaship
- Campus Area Transportation Management Association (CATMA)
- Chittenden County Transportation Authority (CCTA)
- Green Mountain Bicycle Club
- University Mall
- Way to Go! Commuter Challenge

These organizations provide a variety of programs including classes on bicycle safety, user maps and guides, trail development, and incentives for pedestrians and bicyclists. See Appendix A for details on specific programs.

A majority of programs identified in the county are for bicyclists. This reflects a lack of pedestrian advocacy groups in the region when compared to bicycle advocacy groups. This is a problem experienced nationwide, not just by Chittenden County. There is an ongoing challenge in organizing pedestrian advocates and creating successful pedestrian programs given the difficulty of getting people to identify themselves as pedestrians. Despite the lack of pedestrian identification and advocacy, the vast majority of trips involve a walking element and it is important to include walking based education and encouragement programs to offer a complete bicycle and pedestrian plan.

In addition to the organizations listed above, local municipalities are lending support through schools, municipal parks and recreation departments, police departments, and recreation committees to promote bicycling and walking. A municipal survey revealed that through Safe Routes to Schools (a program of VTrans coordinated locally by Local Motion), Parks & Recreation and Police Departments, 9 municipalities in the county have programs to teach safe bicycling and walking, and 4 additional municipalities have plans to offer programs in the future. However, municipalities’ primary method of encouraging walking/bicycling as a mode of transportation is through infrastructure development and providing user maps. See Appendix B for the full municipal questionnaire results.
3.3 Existing Enforcement Programs

Enforcement of existing traffic laws for motorists, cyclists, and pedestrians is an important piece in creating safe roadways for all users. Three municipalities reported efforts designed to enforce bicycle rules and responsibilities. The Burlington Police Department enforces moving violations that can put pedestrians and bicyclists at risk. In Essex the Police Department has a summer bike patrol that focuses on areas where children gather. One of the goals of the patrol is to make sure that kids are operating their bicycles properly. South Burlington also has a community service bike patrol during the summer that promotes and teaches bicycle safety on the city’s shared use paths.

In most municipalities within the CCMPO region, enforcement activities are primarily directed at motorists and are typically for common violations such as speeding or improper turns, not for bicycle rules and responsibilities or moving violations by motorists that put cyclists and pedestrians at risk. All Police Departments in Chittenden County should be encouraged to do more enforcement of bicycle and pedestrian rules and laws and enforce those laws equally among motorists, cyclists, and pedestrians.

Enforcement can also be promoted through educational efforts. In 2001 the Vermont Bicycle and Pedestrian Coalition and the Green Mountain Bicycle Club worked with the Department of Motor Vehicles to revamp the Vermont driver’s manual. The rewrite includes more information on rules of the road in regards to bicyclists and pedestrians. However, the driver’s manual only reaches new drivers. Other educational methods are needed to reach drivers who began driving before 2001. Since there is no requirement for continuing driver’s education, public service announcements are an effective way to reach motorists of all ages. Section 4.2 Education and Encouragement Program Recommendation offers a Share the Road Campaign and other public service announcements reminding cyclists and motorists about the rules of the road; and their responsibilities towards the other.

3.4 Status of Existing Bicycle and Pedestrian Planning

3.4.1 Statewide Efforts

Vermont Bicycle and Pedestrian Plan (January 2008)

The Vermont Pedestrian and Bicycle Policy Plan was developed by the Vermont Agency of Transportation (VTrans). The 5-year policy plan highlights the current status of bicycling and walking in the State of Vermont and provides a vision and direction on how it will proceed into the future. The policy plan includes goals, objectives, actions and performance measures as they relate to bicycle and pedestrian facilities and programs. The plan was written to complement the existing Vermont Pedestrian and Bicycle Facility Planning and Design Manual (Design Manual), and serves as an update to the 1998 Vermont Bicycle and Pedestrian Plan.
Significance to This Plan:
The Statewide plan sets the policy framework for the development and implementation of bicycle and pedestrian plans and programs in the State of Vermont.

**VTrans Pedestrian and Bicycle Facility Planning and Design Manual (2002)**
This planning and design guide is an effort by VTrans to provide detailed guidance to communities for the planning, design and implementation of bicycle and pedestrian facilities. Sections of the guide include:

- Planning for Pedestrians and Bicyclists
- Pedestrian Facilities
- On-road Bicycle Facilities
- Shared Use Paths
- Rail-Trails and Rails-with-Trails
- Traffic Calming
- Signs, Pavement Markings and Signals
- Landscaping and Amenities
- Maintenance

Significance to This Plan:
This document provides the definitive comprehensive guidance for the planning and design of bicycle and pedestrian facilities in Vermont. A major focus of the document is tailoring planning and design considerations to the unique characteristics of Vermont.

**The Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets (VTrans)**
This document identifies standards for design of roadways in Vermont and guidelines for local roadways. It emphasizes flexibility in design based on function classification of the roadway (arterial, collector or local) and its design context (urban or rural, environmental considerations, cultural and historic resources).

Significance to This Plan:
This document provides guidance for the inclusion of bicycle and pedestrian facilities during the design of roadways in Vermont. Of particular importance are its discussions of travel lane widths, shoulder widths, shared lane widths and other on-road accommodations for bicyclists and pedestrians. This document identifies mostly minimum standards as they relate to accommodating bicycles on roadways, not desirable or preferred levels of accommodations.
3.4.2 Regional Efforts

Chittenden County Metropolitan Planning Organization (CCMPO) Regional Bicycle & Pedestrian Plan Update (2003)
This is the plan being updated by this document. The 2003 Update built on the Alternative Transportation Path Plan (1993) by the CCMPO, and recommended a regional network of bicycle and sidewalk facilities for the entire County. The 2003 Update also recommended funding levels, implementation strategies, and benchmarks to measure progress.

Significance to this Plan:  
The 2003 Update provides the foundation for this plan. The 2008 Update is an opportunity to identify what strategies from the 2003 plan worked, what strategies need to be adjusted, and how to better measure progress.

Chittenden County Metropolitan Planning Organization (CCMPO) Year 2006 Transportation Survey (2006)
In 2006 the CCMPO conducted a survey of residents and employees in Chittenden County on their opinions about the transportation network, including bicycle and pedestrian facilities.

Findings included that:
• 75% of respondents said it was ‘very important’ or ‘essential’ to provide sidewalks and bicycle facilities.
• Approximately two-thirds of respondents indicated that it is ‘very important’ or ‘essential’ to improve safety of bicycle and pedestrian facilities.
• Three-quarters of residents and employees ‘somewhat’ or ‘strongly’ agreed that, “overall, walking is a pleasant experience in Chittenden County.”
• Almost two-thirds agreed that “overall, traveling by bicycle is a pleasant experience in Chittenden County.”
• 46% of respondents agreed that traveling by bicycle was safe for teenagers and adults.
• 23% agreed that it was safe for children to travel by bicycle.
• More respondents believed that “there are enough separated bike paths and/or bike lanes along roads in my city or town” in 2006 (3 out of 10) than in 2000 (2 out of 10).
• Fewer respondents felt that they lived close enough to walk to work, school and other activities in 2006 (3 out of 10) than in 2000 (4 out of 10).

Significance to this Plan:  
This survey indicates that, for many people, walking and bicycling is a pleasant experience in Chittenden County. It also shows that progress has been made in providing access to bicycle and pedestrian facilities, but there are gains to be made in the public’s perception of how safe it is to use these modes.
Chittenden County Metropolitan Planning Organization (CCMPO) Year 2000 Transportation Survey (2000)

In 2000, the CCMPO undertook a random sample survey of Chittenden County residents to gauge their attitudes and preferences regarding a wide range of transportation issues. The survey asked respondents to identify their priorities for an improved transportation system and future spending for transportation projects. The survey was answered by 328 persons from throughout the County and nearby towns. A variety of survey methods were used including in-person surveys and internet surveys. In-person survey stations were located in Hinesburg, Burlington, Shelburne, South Burlington and Richmond.

Key findings of the survey included:

- Improving bike and walk facilities received the highest overall rating for importance.
- Bike and walk facilities are most in need of improvement of the County’s transportation facilities.
- 78% of the respondents thought providing separated bike paths is important or very important; only 10% thought it is not important or not at all important.
- 79% of the respondents thought providing bike lanes along existing roads is important or very important; only 9% thought it is not important or not at all important.
- 60% of the respondents thought providing bicycle amenities such as bicycle racks, bike shelters and lockers is important or very important; 17% thought it is not important or not at all important.
- 88% of the respondents thought fixing existing sidewalks is important or very important; only 2% thought it is not important or not at all important.
- 74% of the respondents thought encouraging compact development is important or very important; only 7% thought it is not important or not at all important.
- 72% of the respondents thought providing pedestrian amenities such as green strips, benches, trees, and other landscaping is important or very important; only 10% thought this not important or not at all important.

Significance to this Plan:
This survey identifies the importance that the County’s residents place on high quality bicycle and pedestrian facilities for the positive impact they can have on safety and quality of life.

Alternative Transportation Path Plan (1993)
The Alternative Transportation Path Plan (1993) by the CCMPO developed individual alternative transportation path plans for the eight ‘core’ communities of Chittenden County that made up the CCMPO at that time. The communities included were: Burlington, Colchester, Essex Junction, Essex town, Shelburne, South Burlington, Williston and Winooski. From these community plans, a regional network was distilled. The individual plans reflect a citizen and community-driven process.

The Plan discusses paths and facilities in the terminology of Class I, Class II and Class III facilities (which has since been replaced in bicycle planning literature by new terms).
Most all the communities have retained these general labels for their planning but use multiple types of names for these facilities.

Significance to This Plan:
The 1993 plan built upon the Chittenden Greenways Project done in 1991 (described below) to develop comprehensive ‘path’ networks in eight communities. It set regional priorities for projects in the Regional Network. It comprehensively looked at design standards and other issues such as signage. The project identified a large constituency for a pathway network through the community surveys and outreach effort.

**Pedestrian Policy and Sidewalk Plan (September 2000)**
The Pedestrian Policy and Sidewalk Plan is the guiding document in Chittenden County for pedestrian policies and the development of sidewalks and other pedestrian facilities. The plan raises the profile of pedestrian needs in the county and the role of the pedestrian system within an integrated transportation system. It identifies 5 Regional Pedestrian Policies, with accompanying strategies, which include:

- Increase pedestrian mobility
- Improve the safety and comfort of pedestrians
- Provide pedestrian accessibility to all destinations
- Systematically program pedestrian improvements in the Transportation Improvement Program (TIP)
- Encourage pedestrian activity

Thirteen communities were identified with sidewalks within the county, totaling approximately 440 miles of sidewalk. Those without sidewalks were Westford, Bolton, St. George, Charlotte, Huntington and Buels Gore.

The text of the plan concludes with a discussion of “Selection Criteria” that project reviewers will use to prioritize sidewalk construction proposals for TIP funding. These criteria are:

“How will the project …
- Address a community identified sidewalk priority?
- Contribute to an integrated sidewalk system that includes other pedestrian facilities, to increase pedestrian travel?
- Link existing or proposed sidewalk networks, communities and/or residential neighborhoods?
- Connect in a logical manner village/town centers, schools, public buildings, employment sites or other popular trip origins and destinations?
- Be a part of a grid street layout with short blocks in business districts and town centers?
- Address safety and the needs of all non-motorized travelers?
- Provide buffers from moving motor vehicles and delineate, sign, and mark the facilities as appropriate and ensure a secure environment, e.g. consider lighting, increased visibility, open sight lines, and access to police and emergency vehicles?
• Provide street trees and other landscaping to bring a human scale to the street environment?
• Contribute to an equitable geographic distribution of funding for sidewalk projects?
• Maximize opportunities to leverage project funding from a variety of sources?
• Bring an existing sidewalk into compliance with the Americans with Disabilities Act (ADA)?”

An investment plan totaling approximately $14,000,000 in sidewalk needs was identified (not all communities are included in this total). This includes a mixture of sidewalk maintenance and/or new facilities for the communities.

Significance to This Plan:
The Pedestrian Policy and Sidewalk Plan will remain the major pedestrian element of this Plan Update related to sidewalk facilities. The Plan Update will take a comprehensive look at how sidewalks fit in with other pedestrian and transportation needs, especially how shared use paths and other pedestrian facilities are needed to complement the sidewalk system.

**Metropolitan Transportation Plan (MTP) (2005)**
The Metropolitan Transportation Plan (MTP) is the long-range transportation plan for the Chittenden County Metropolitan Planning Organization (CCMPO) through the year 2025. It addresses current problems of congestion, accessibility and mobility and provides the framework for the transportation system of the future. The MTP acknowledges today’s fiscal, political and social realities while extending beyond the status quo to better integrate the disciplines of transportation and land use planning through regional collaboration. The MTP is an update of the 1997 Long Range Transportation Plan.

Significance of This Plan:
The MTP describes the future for a larger transportation system within which the recommendations of this Plan will fit. This Plan Update will comprise the pedestrian and bicycle element of the MTP and shows how bicycle and pedestrian facilities relate to the rest of the transportation system. The MTP looks at the entire transportation system in Chittenden County and sets priorities and recommendations for it.

**Chittenden County Regional Planning Commission (CCRPC) Chittenden County Regional Plan (2006)**
The Chittenden County Regional Plan was developed to “help guide growth and development in Chittenden County.”

This Plan creates a foundation for developing a sustainable future for development. Based on the “planning areas” concept, this Plan uses the strength of Chittenden County's communities by unifying municipal plans under a comprehensive regional umbrella.

The Plan's Metropolitan Planning Areas enable high-density, mixed-use, downtown development where it is desired. The Village Planning Areas’ attributes reflect the
traditional Vermont hamlet, which encourages mixed-uses on a pedestrian scale. These areas will be the focus for development over the next 20 years, and multi-modal transportation infrastructure should be in place to serve new residents and businesses.

Key aspects of the plan for this Regional Bicycle and Pedestrian Plan include:
- Identification of future land uses through Planning Areas — Metropolitan, Village, Transition, Enterprise, and Rural
- The Regional Plan also incorporates the 2005 Metropolitan Transportation Plan by reference.

Significance to This Plan:
This Plan provides the land use and environmental planning context for the future development of bicycle and pedestrian facilities in the County. The Planning Areas are used in this Plan to identify important corridors for bicycle and pedestrian connections. For instance, the ‘Metropolitan’ and ‘Village’ areas may be locations within which to target priorities for sidewalk and path investment and to target for connections between these areas. It includes an inventory of existing and proposed shared use paths and bicycle lanes.

**Chittenden Greenways Project (May 1991)**
This project identifies ‘Community Greenways’ and ‘Conservation Greenways’ throughout Chittenden County. Community Greenways are more relevant to this plan because they are envisioned to be “safe, off-road corridors of open space that connect neighborhoods, schools, parks, work places and community centers via paths and trails.”

Significance to This Plan:
Approximately 200 miles of Community Greenways in 17 communities were identified through a comprehensive outreach effort. Nine distinct routes were identified that connect most areas of the County. A constituency for pathway planning and implementation was identified during the process.

### 3.4.3 Inter-jurisdictional Planning Efforts

Several efforts have been or are currently being planned that involve multiple jurisdictions. The involved municipalities decide which municipality will lead on the project or they may request that the CCMPO acts as project manager. Several inter-jurisdictional projects are already being considered and include:

- **Charlotte to Burlington Shared Use Path/Rail with Trail**—This proposed path runs parallel to the Vermont Railway State-owned rail corridor and would connect Charlotte, Shelburne and South Burlington to the Burlington Bike Path.
- **Winooski River Bridges between Burlington and Winooski**—There are several studies on how to improve existing, or build new, bridges over the Winooski River to provide pedestrian and bicycle connections between the communities.
• Williston to Burlington Waterfront—This is an initiative to provide a shared use pathway connection from Williston to Burlington via South Burlington that would also serve as the western end of the Cross Vermont Trail.
• Island Line Rail Trail—A proposed shared use path and designated route connecting Chittenden County to Grand Isle County and Quebec, Canada.
• US Route 2 Corridor Study—This study resulted in a plan that offers a unified vision for the corridor and recommends bicycle and pedestrian improvements as part of a multimodal approach to improve the operation and enhance safety and aesthetics of the corridor in the study area.
• Vermont Route 15 Corridor Plan—The goal of this Plan is to create a multi-modal transportation improvement plan for Route 15 in Chittenden County. The improvement strategies include recommendations to improve bicycle and pedestrian facilities.
4 Recommendations

4.1 Regional Network Recommendations

An extensive network of sidewalks, shared use paths, and on-road bicycle facilities continues to evolve in the County. Each of these networks is critical to the improved safety and mobility of pedestrians and bicyclists of all capabilities.

In developing a regional network, several considerations are important. To identify appropriate regional networks the following assumptions are made:

- Regional facilities provide safe and convenient access to major activity centers and transportation centers or hubs within the region. Local facilities, in contrast, primarily provide circulation within the broader community, resulting in a finer grained network of facilities.
- High quality connections between Town Centers and growth centers should be the fundamental framework for determining the number of facilities needed. These connections should accommodate bicyclists and pedestrians of all skill levels where practical and feasible. This may be accomplished in a corridor by a shared use path, an on-road bicycle facility, or both.
- The networks should form the basis for priorities for future funding of CCMPO projects and planning.

The most important function of the network is to identify corridors of regional significance from a bicycling and pedestrian perspective. The networks emphasize connections between communities, between major activity centers such as shopping and employment centers, town centers, educational facilities, major regional recreational resources, and to transportation centers.

The Regional On-Road Network
The regional on-road network has grown to incorporate new on-road facilities that have been designated since 2003 and common routes that are not yet designated but are an important part of the regional network. The information was reported by each municipality. In some cases on-road facilities proposed by one municipality were extended into the neighboring municipality to close new gaps in the network created by the recently proposed segments. A few segments, such as Old Stage/Woods Hollow/Brookside Road between Essex and Westford were added to provide more direct routes between municipalities. See Map 4.1-A for the complete network of on-road facilities.

The Regional Shared Use Path Network
The regional shared use path network has grown since the 2003 Update both in terms of sections that were built or designated in the years since 2003, and in the number of newly proposed segments of on-road facilities to increase connections between municipalities. Map 4.1-B shows the complete network of shared use paths. One new component of the shared use path network is the use of a few critical sidewalks and on-road links that connect existing shared use paths, or can serve as link between future shared use paths.
Critical Crossings
Major highways including I-89, I-289, and I-189, rivers, streams, and Lake Champlain all serve as barriers to connecting the regional bicycle and pedestrian network at key critical crossings shown in Map 4.1-C. These are all crossings that should be built and well maintained as part of a comprehensive bicycle and pedestrian network. Table 4.1 below identifies each critical crossing by name and categorizes them by status. The categories are defined as follows:

A: Existing: Few or no vehicular conflicts
B: Existing: Nearby vehicular traffic but relatively safe separation and/or low traffic volumes
C: Existing: Close proximity to high volume vehicular traffic
D: Proposed

Table 4.1: Additional Information to accompany Critical Crossings Map

<table>
<thead>
<tr>
<th>#</th>
<th>NAME</th>
<th>FEATURE CROSSED</th>
<th>LOCATION</th>
<th>CAT.</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US RT 2 Causeway</td>
<td>Lake Champlain</td>
<td>Milton/South Hero</td>
<td>C</td>
<td>Wide shoulders</td>
</tr>
<tr>
<td>2</td>
<td>US RT 2 Bridge</td>
<td>Lamoille River</td>
<td>Colchester/Milton</td>
<td>B</td>
<td>Wide road shoulders continue across span</td>
</tr>
<tr>
<td>3</td>
<td>US RT 2 Exit 17 Overpass</td>
<td>I-89</td>
<td>Colchester</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Heineburg Rd (VT RT 127) Bridge</td>
<td>Winooski River</td>
<td>Burlington/Colchester</td>
<td>B</td>
<td>Includes a separated shared use path on west side</td>
</tr>
<tr>
<td>5</td>
<td>US RTs 2 &amp; 7 Exit 16 Underpass</td>
<td>I-89</td>
<td>Colchester</td>
<td>C</td>
<td>Pedestrian and bicycle improvements are funded but not yet implemented</td>
</tr>
<tr>
<td>6</td>
<td>Island Line Cut</td>
<td>Lake Champlain</td>
<td>South Hero</td>
<td>A</td>
<td>Limited August ferry service in place but seasonal expansion planned and partly funded.</td>
</tr>
<tr>
<td>7</td>
<td>US RTs 2 &amp; 7, Winooski Main St. bridge</td>
<td>Winooski River</td>
<td>Burlington/Winooski</td>
<td>C</td>
<td>2003 Scoping report recommended a stand alone shared use bridge adjacent to this</td>
</tr>
<tr>
<td>8</td>
<td>VT RT 15 Underpass</td>
<td>I-89</td>
<td>Winooski</td>
<td>C</td>
<td>Significant choke point in high traffic volume corridor</td>
</tr>
<tr>
<td>9</td>
<td>Burlington/Colchester Bridge</td>
<td>Winooski River</td>
<td>Burlington/Colchester</td>
<td>A</td>
<td>Island Line shared use path bridge on former railroad bridge abutments</td>
</tr>
<tr>
<td>10</td>
<td>Blue Bridge</td>
<td>Winooski River</td>
<td>Burlington/Winooski</td>
<td>D</td>
<td>Shared use structure in vicinity of existing railroad bridge based on 2003 scoping report recommendation. Solution implementation likely long term</td>
</tr>
<tr>
<td>11</td>
<td>Lime Kiln Bridge</td>
<td>Winooski River</td>
<td>Colchester/South Burlington</td>
<td>B</td>
<td>Recently replaced with sidewalk and expanded shoulder</td>
</tr>
<tr>
<td>12</td>
<td>US RT 2 Williston-road Bridge</td>
<td>I-89, Exit 14</td>
<td>South Burlington</td>
<td>C</td>
<td>Features designated bike lanes and sidewalks but in an area with high traffic volumes and many conflict points</td>
</tr>
<tr>
<td>#</td>
<td>NAME</td>
<td>FEATURE CROSSED</td>
<td>LOCATION</td>
<td>CAT.</td>
<td>COMMENTS</td>
</tr>
<tr>
<td>----</td>
<td>-----------------------------</td>
<td>-----------------</td>
<td>---------------------------</td>
<td>------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>Kimball Ave. Crossing</td>
<td>Muddy Brook</td>
<td>South Burlington/Williston</td>
<td>D</td>
<td>Shared use path adjacent to road based on 2007 scoping report. Implementation expected near term</td>
</tr>
<tr>
<td>15</td>
<td>Spear St. Underpass</td>
<td>I-189</td>
<td>South Burlington</td>
<td>C</td>
<td>Falls within a stretch of poor bike/pedestrian accommodation with shared use path to the north and bike lane to the south.</td>
</tr>
<tr>
<td>16</td>
<td>Dorset St. Underpass</td>
<td>I-89</td>
<td>South Burlington</td>
<td>B</td>
<td>Shared use path on east side</td>
</tr>
<tr>
<td>17</td>
<td>Hinesburg Road Overpass</td>
<td>I-89</td>
<td>South Burlington</td>
<td>C</td>
<td>New bridge under consideration in context of proposed new interchange</td>
</tr>
<tr>
<td>18</td>
<td>US RT 7 Bridge</td>
<td>LaPlatte River</td>
<td>Shelburne</td>
<td>B</td>
<td>Newly constructed road bridge with sidewalks and wide shoulders</td>
</tr>
<tr>
<td>19</td>
<td>Webster Road path bridge</td>
<td>LaPlatte River</td>
<td>Shelburne</td>
<td>D</td>
<td>Proposed shared use path on abutments left from temporary road bridge</td>
</tr>
<tr>
<td>20</td>
<td>Jericho Village Rail Path</td>
<td>Browns River</td>
<td>Jericho</td>
<td>D</td>
<td>Proposed shared use path on former RR alignment. Implementation likely long term</td>
</tr>
<tr>
<td>21</td>
<td>VT RT 2A</td>
<td>Winooski River</td>
<td>Williston/Essex Junction</td>
<td>C</td>
<td>2-3 ft. shoulders both sides</td>
</tr>
<tr>
<td>22</td>
<td>Circ Highway bridge</td>
<td>Winooski River</td>
<td>Williston</td>
<td>D</td>
<td>Proposed vehicle bridge to accommodate pedestrians and bikes. No plans to accommodate bicycles or pedestrians</td>
</tr>
<tr>
<td>23</td>
<td>North Williston-road Bridge</td>
<td>Winooski River</td>
<td>Williston/Essex Junction</td>
<td>B</td>
<td>Recently replaced. Sidewalk on west side</td>
</tr>
<tr>
<td>24</td>
<td>VT RT 2A Underpass</td>
<td>I-89, Exit 12</td>
<td>Williston</td>
<td>C</td>
<td>Discontinuous sidewalk and no shoulders</td>
</tr>
<tr>
<td>25</td>
<td>US RT 2 Richmond Iron Truss</td>
<td>Winooski River</td>
<td>Richmond</td>
<td>C</td>
<td>This bridge is slated for historic rehabilitation and widening</td>
</tr>
<tr>
<td>26</td>
<td>Bridge St. Iron Truss</td>
<td>Winooski River</td>
<td>Richmond</td>
<td>B</td>
<td>This bridge is slated for historic rehabilitation</td>
</tr>
<tr>
<td>27</td>
<td>Jonesville Bridge</td>
<td>Winooski River</td>
<td>Richmond</td>
<td>B</td>
<td>Recently replaced and includes wide shoulders</td>
</tr>
<tr>
<td>28</td>
<td>Williston Bike Path Overpass</td>
<td>Circ. Highway</td>
<td>Williston</td>
<td>D</td>
<td>Designed and scheduled for construction pending resolution of Circ. Highway segments A and B Environmental Impact Statement</td>
</tr>
</tbody>
</table>
4.2 Lower-Cost Facility Improvement Recommendations

Many lower-cost programs can be implemented in the near-term and will have immediate benefits to safety and rates of walking and bicycling. These programs include:

- Schedule the periodic review of signalized intersections where pedestrian signal equipment is located to ensure that it is functioning correctly and that signal heads are working.
- Use higher visibility crosswalks at unsignalized intersections (e.g., ladder style or raised crosswalks). Install advance crosswalk signs that reinforce “State Law: Yield for Pedestrians.”
- Identify opportunities on lower volume suburban and rural roadways to restripe the roadways to add a shoulder or increase the current shoulder width. Restriping should be done in a manner consistent with the design standards established in the Vermont Pedestrian and Bicycle Facility Planning and Design Manual.
- Place Share the Road signs at locations where on-road bicycle facilities end but where bicyclists will continue.
- Test and tune loop detectors at actuated signalized intersections to detect bicyclists.
- Identify locations to install bicycle boxes or advance stop lines for bicyclist at busier intersections. These markings allow bicyclist to start in front of motorists at intersections and to make left turns with less conflict.
- At signalized intersections with higher pedestrian volumes and concurrent pedestrian phasing, identify locations that may benefit from innovative pedestrian phasing such as leading pedestrian signals. Leading pedestrian signals allow pedestrians to begin crossing in advance of vehicle phases and can reduce conflicts between pedestrians and left turning vehicles. See Alternative Treatments for At-Grade Pedestrian Crossings (ITE, 2001) for an in depth description of the benefits and applications of innovative signal timing.
4.3 Supporting Programs for Facilities

4.3.1 Facility Maintenance
Maintaining existing bicycle and pedestrian facilities is critical for the safety of users. There is a lack of resources for maintenance of bicycle and pedestrian infrastructure. This includes operational maintenance such as plowing of sidewalks and shared use paths in winter to make them accessible year-round and sweeping paved shoulders in the early Spring. Other important maintenance needs include repaving, restriping, patching or replacement of paths and sidewalks. There is currently a heavy burden on local funds, generally property taxes, to fund maintenance activities. Increasing funds and diversifying funds (beyond municipal general funds) available for use maintenance was cited during the Plan’s development as an important issue to be resolved.

A working group consisting of representatives of communities should be established to discuss opportunities for improved maintenance of bicycle and pedestrian facilities. This may include discussions related to:

- Available funding sources
- Maintenance methods
- Sharing of resources (equipment, personnel, information)
- Maintenance standards for facilities including frequency of sweeping of roadways and plowing of paths
- Pooled bids for roadway striping and marking for bicycle facilities (e.g., edge lines for paved shoulders or bike lanes, pavement markings such as bike stencils).

4.3.2 Other Initiatives
Other initiatives suggested for action include:

- Develop model ordinances for municipalities sponsored by the CCMPO and CCRPC, focusing on inclusion of bicycle and pedestrian considerations into site planning and impact fees.
- Under the sponsorship of the CCMPO and/or CCRPC, provide greater technical assistance, for local advocacy and planning of bicycle and pedestrian networks and programs and for creating improved development form (e.g., compact, walkable neighborhoods).
- Expand the tie-in with Cultural Heritage programs such as the Lake Champlain Bikeways, Byways, and Basin Programs and potential linkages to bike and rail tours (such as with the Vermonter).
4.4 **Education & Encouragement Program Recommendations**

Chittenden County and the State of Vermont have a series of active supporters and programs which have produced valuable educational materials aimed at bicyclists, pedestrians and motorists alike. In addition to the traditional partners promoting bicycling and walking, local municipalities are lending support through police departments, parks and recreation departments, recreation committees and other programs. With growing rates of asthma and diabetes, state and local health organizations too are playing an ever-increasing role in promoting bicycling and walking programs.

Drawing on the strengths of organizations that already offer programs, this plan recommends the following programs to expand education and encouragement efforts. The recommendations are broken into three categories:

- **Continuing Programs** that should be more widely offered and supported
- **Near-Term Recommendations** to be implemented in 0 to 5 years
- **Long-Term Recommendations** to be implemented 6 or more years in the future

The near and long-term recommendations in this report are not an absolute list. Appendix C has additional program ideas that are not part of the recommendations but could be implemented in the future. CCMPO should also remain open to new ideas developed by the bicycle and pedestrian community.

*Burlington Bikeway*
### 4.4.1 Continuing Programs

**Safe Routes to School**

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th>Parents, schoolchildren, administrators, city planners &amp; engineers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary agency</strong></td>
<td>VTrans, CCMPO, Local Motion, and school districts</td>
</tr>
<tr>
<td><strong>Partners</strong></td>
<td>Parent groups at schools, school neighbors</td>
</tr>
<tr>
<td><strong>Key elements</strong></td>
<td>Bicycle and pedestrian audit of infrastructure at elementary schools. Recommended route maps.</td>
</tr>
<tr>
<td><strong>Time frame</strong></td>
<td>Spring &amp; Fall 2008</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>$$</td>
</tr>
<tr>
<td><strong>Potential funding sources</strong></td>
<td>VTrans Safe Routes to School grant funding; CCMPO SRTS Lite program, local, state or national health grants (e.g., Robert Wood Johnson Active Living by Design grants)</td>
</tr>
<tr>
<td><strong>Sample programs</strong></td>
<td>Portland Safer Routes to School Program: <a href="http://www.trans.ci.portland.or.us/saferoutes/">http://www.trans.ci.portland.or.us/saferoutes/</a></td>
</tr>
</tbody>
</table>

Helping children walk and bicycle to school is good for children’s health and can reduce congestion, traffic dangers and air pollution caused by parents driving children to school. Robust Safe Routes to School programs address all of the “Five E’s” (Engineering, Education, Encouragement, Enforcement, and Evaluation). This program is currently in progress under contract to CCMPO through the efforts of Local Motion with funds from VTrans and FHWA.

All schools participating in SRTS already have a school travel plan in place, and many schools are already working on their second review of their plan. CCMPO should work with Local Motion and Chittenden County school districts to continue to implement this *Education and Enforcement* phase of a Safe Routes to School Program in all county elementary schools.

The first step towards creating a school travel plan is doing a walkabout (also known as a bicycle and pedestrian audit) to assess walking and biking conditions of streets adjacent to elementary schools. Parents, students, neighbors, and city planners and/or traffic engineers should be invited to join in the walkabout. Safety concerns, issues, and ideas should be recorded.

After the bicycle and pedestrian audit is conducted, maps are created for each elementary school showing recommended routes to reach school, along with high-traffic intersections and routes to avoid. These maps should be produced and distributed to students and their families.
As a final step, an initial infrastructure improvement plan should be produced for each elementary school, including cost estimates and a prioritized project list. This infrastructure improvement plan will serve as a blueprint for future investments, and can be used to apply for further grant funding. SRTS is already obligating funds for the phase 2 Infrastructure portion of the program at participating schools.

**Youth Traffic Safety Education**

<table>
<thead>
<tr>
<th>Target</th>
<th>School-age children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO, school districts</td>
</tr>
<tr>
<td>Partners</td>
<td>Parent groups at schools, community volunteers</td>
</tr>
<tr>
<td>Key elements</td>
<td>In-school and/or after-school on-bike skills and in-classroom safety training</td>
</tr>
<tr>
<td>Time frame</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cost</td>
<td>$$$</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>VTrans Safe Routes to School grant funding; local, state or national health grants (e.g., Robert Wood Johnson Active Living by Design grants)</td>
</tr>
</tbody>
</table>
| Sample programs | LAB’s Kids I and Kids II curriculum: [http://www.bikeleague.org/programs/education/courses.php#kids1](http://www.bikeleague.org/programs/education/courses.php#kids1)  
BTA’s Bike Safety Education Program: [http://www.bta4bikes.org/resources/educational.php](http://www.bta4bikes.org/resources/educational.php)  

Nearly every child in America can look forward to in-depth training before receiving a driver’s license. Bicycles are also vehicles that are used on the roads, but most Americans do not receive any training about the rules of the road, how bicycles work, or how to ride a bicycle on the roadway. There is also an opportunity to include safe walking information in the education program which would focus on safe crossing behavior and the importance of visibility.

SRTS already offers a traffic education program for kids as part of its curriculum. This program should continue and be offered to more schools. The curriculum should cover:

- Safe walking activities
- Importance of visibility
- Rules of the road
- Right of way
- Road positioning
- On-bike skills lessons (braking, turning, steering)
CCMPO can assist SRTS with this effort by helping to find funding to support the program. Additionally, a fleet of bicycles could be maintained by a partner organization for use in the bicycling skills section. A common concern with on-bike education programs is that the bikes are often poorly maintained and adjusted and may not be safe for use. A well maintained, dedicated bike fleet could eliminate some of the safety issues and would enable children without bikes to participate in the program as well.

4.4.2 Near-Term Recommendations (Implement in 0 - 5 years)

Chittenden County Walk - Bike Central Website

<table>
<thead>
<tr>
<th>Target</th>
<th>Current and potential cyclists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>Local Motion with coordination from CCMPO</td>
</tr>
<tr>
<td>Partners</td>
<td>CCMPO Pedestrian and Bicycle Committee</td>
</tr>
<tr>
<td>Key elements</td>
<td>Resources, maps and map orders, safety, events, groups</td>
</tr>
<tr>
<td>Time frame</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cost</td>
<td>$ - $$ (depending on design and scope)</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>Low cost; may not require outside funding</td>
</tr>
</tbody>
</table>

Chittenden County currently has numerous resources for bicyclists and pedestrians, and more services and resources are planned for the future. Many current or potential cyclists and pedestrians do not know where to find information about laws, events, maps, tips, and groups. CCMPO could develop a “one-stop shopping” website for non-motorized travelers. A potential name for the website is Chittenden County Walk-Bike Central, though other names could be used.

The Chittenden County Walk-Bike Central website could contain:

- A list of all related groups, including clubs, advocacy groups, and racing teams
- Information about the CCMPO Pedestrian & Bicycle Committee (how to get involved, meeting times and dates, agendas and minutes)
- Information about current projects and how to get involved (e.g., public meetings, comment periods)
- Maps and brochures (links to online maps and brochures, where to find in person, and how to request mailed materials)
- Links to laws and statutes relating to bicycling and walking
- Links to all relevant local jurisdictions and their bike contacts (CCMPO, City of Burlington, Burlington Police Department, Chittenden County Sheriff’s Office, etc.)
- Information about events (walks, rides, classes, volunteer opportunities)
- A list of local bike shops, including phone number and address
- Relevant phone numbers (hotlines for sidewalk issues, pothole repair, parking enforcement, bike rack installation request, etc.)
The website may also feature:
- Events calendar
- Request form for route planning assistance
- Message boards
- Blog featuring stories and news
- Photo galleries from events and submitted by readers
- Popular riding and walking routes
- Basic safety information on how to walk and bicycle
- How to report safety issues that pedestrians, cyclists, and motorists experience or observe

Note that these additional features may increase the cost to set up and maintain the website.

A one-stop website will not be difficult to set up, but it will only be successful if the site is both easy to use and updated regularly. All website content should be reviewed at least annually for accuracy.

The bicycle and pedestrian community can assist in keeping the site up to date. CCMPO should consider adding a standing agenda item for the Bicycle and Pedestrian Advisory Committee to discuss the website in order to hear about new content that should be added or out-of-date content that should be updated or removed.
### Public Service Announcements

<table>
<thead>
<tr>
<th>Target</th>
<th>General public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO</td>
</tr>
<tr>
<td>Partners</td>
<td>Vermont Bicycle and Pedestrian Coalition, Local Motion</td>
</tr>
<tr>
<td>Key elements</td>
<td>Awareness campaign with TV spots</td>
</tr>
<tr>
<td>Time frame</td>
<td>Late spring or early summer, 2009</td>
</tr>
<tr>
<td>Cost</td>
<td>$ - $$ (depending on whether airtime is purchased or donated)</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>Local television stations (for donated airtime), traffic safety foundations and grant programs; hospitals and insurance companies</td>
</tr>
<tr>
<td>Sample programs</td>
<td>Bicycle Transportation Alliance “Decide to Ride” PSAs: <a href="http://www.bta4bikes.org/at_work/decidetoride.php">http://www.bta4bikes.org/at_work/decidetoride.php</a></td>
</tr>
</tbody>
</table>

Public Service Announcements (PSAs) are an important part of creating awareness of bicycling and walking. They are an effective way to reach the general public and reinforce other education and outreach messages.

A well-produced PSA will be memorable and effective, but producing a good PSA from scratch is an expensive effort. In 2006 the Vermont Bicycle and Pedestrian Coalition created and aired a number of PSAs which could be tailored specifically to the Chittenden County area and reused.

The Bicycle Transportation Alliance (Portland, Oregon) has produced six high-quality PSAs that are available for rebroadcast at a reasonable cost. The 30-second spots were produced on film, not video, and cover the following messages:

- "What If?" Encourages viewers to give bicycling and walking a try
- "Look Right, See Right" Reminds drivers to look over their shoulder before changing lanes
- "See and be Seen" Encourages cyclists and pedestrians to use lights and reflective material at night
- "Close Call" Encourages both drivers and cyclists to stop at stop signs
- "Bike Lanes" Reminds drivers that bike lanes are not for vehicle use
- "Wrong Way" Reminds cyclists not to bicycle against traffic

It is recommended that CCMPO air one or more of these PSAs every spring when the weather becomes more favorable to bicycling and walking. Many television stations are willing to donate airtime for public service announcements. This would bring the cost down greatly and should be pursued.
### Share the Road Campaign

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th>Motorists and Cyclists</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary agency</strong></td>
<td>CCMPO Bicycle and Pedestrian Coalition, Local Motion, local cycling clubs and groups</td>
</tr>
<tr>
<td><strong>Partners</strong></td>
<td>Vermont Bicycle and Pedestrian Coalition, Local Motion, local cycling clubs and groups</td>
</tr>
<tr>
<td><strong>Key elements</strong></td>
<td>Awareness campaign with TV spots</td>
</tr>
<tr>
<td><strong>Time frame</strong></td>
<td>Late spring or early summer, 2009</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>$ - $$$ (depending on whether airtime is purchased or donated)</td>
</tr>
<tr>
<td><strong>Potential funding sources</strong></td>
<td>Bike shops (in-kind donations); transit agencies and local news outlets (donated ad space); traffic safety foundations and grant programs; hospitals and insurance companies</td>
</tr>
</tbody>
</table>
| **Sample programs** | Bicycle Coalition of Maine [http://www.bikemaine.org/pr-psa.htm](http://www.bikemaine.org/pr-psa.htm)  

There is often tension between drivers and cyclists because not all drivers understand the rights of cyclists or know how to safely share the road with cyclists, and not all cyclists know the rules of the road. Share the Road Campaigns help motorists and cyclists understand their rights and responsibilities towards the other. These campaigns are carried out primarily through public service announcements, and through informational brochures. Safety tips are given for both cyclists and motorists, and include:

#### For Motorists
- Be alert. Like motorcycles, bicycles are harder to see than autos.
- Don’t honk. This can startle a cyclist and cause him or her to swerve.
- Give bicyclists 3 feet of space when passing and be sure to clear the cyclist before moving back into your lane.
- Cyclists who are not on the extreme right-hand side of the lane are not being careless, but are in fact attempting to avoid hazards that could cause an accident.
- Drivers turning left in front of oncoming cyclists cause a large percentage of car/cycle accidents.
- Overtaking, then making a right turn in front of the cyclist is also a cause of many accidents.

#### For Cyclists
- Always wear a helmet. This is your most important piece of safety gear.
- Be alert. Always be aware that a motorist might not see you.
- Signal your intentions—use hand signals to indicate turns and stops.
- Use a mirror. This allows you to be aware of traffic approaching from behind.
- Follow traffic rules as if you are driving an automobile. Ride with traffic, not against it.
• Ride as near to the right-hand side of the road as practical, while avoiding road hazards that could cause you to swerve into traffic.
• Be predictable. Do not weave in and out of traffic or parked cars.
• As is the case with all slow moving vehicles, according to Vermont law, an operator who is impeding traffic shall pull off the highway at the first opportunity to let traffic pass before proceeding.

As with other recommended public service announcements, it is recommended that CCMPO work with partner agencies such as the Vermont Bicycle and Pedestrian Coalition and Local Motion to develop a PSA directed at motorists and then air it every spring when the weather becomes more favorable to bicycling and walking. The Bicycle Coalition of Maine has separate PSAs for motorists and for cyclists on how to share the road which can be used as examples. Once the PSA is developed, many television stations are willing to donate airtime for public service announcements. This would bring the cost down greatly and should be pursued.
Cyclists often are unaware of resources available to them, and jurisdictions are not sure how to reach these cyclists. The moment a bicyclist purchases a bike is an ideal time to provide them with more information to make cycling easier for them.

CCMPO should develop a removable sticker that lists bike resources and partner with local bike shops to distribute this sticker with every purchased bike. The bike owner can stick the resource sheet on their refrigerator, desk, etc.

The CCMPO “Your Biking Resources” stickers should include:

- The URL of the Chittenden County Walk-Bike Central website
- Instructions on how to request maps and brochures
- Phone numbers for local bicycle coordinators
- Relevant phone numbers (hotlines for pothole repair, parking enforcement, bike rack installation request, etc.)
- If desired, additional stickers may be printed and distributed through other means as well (e.g., at transportation fairs, at public meetings, through local clubs and organizations, etc.).
Visibility Campaign: “Be Safe Be Seen”

<table>
<thead>
<tr>
<th>Target</th>
<th>Cyclists (especially students and low-income bicycle commuters) and pedestrians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>Police Departments, The University of Vermont</td>
</tr>
<tr>
<td>Partners</td>
<td>CCMPO, Local Motion, Green Mountain Bicycle Club, Vermont Bicycle and Pedestrian Coalition</td>
</tr>
<tr>
<td>Key elements</td>
<td>Media outreach, enforcement, bike light and reflective material giveaways or subsidies</td>
</tr>
<tr>
<td>Time frame</td>
<td>Fall, annually</td>
</tr>
<tr>
<td>Cost</td>
<td>$$ - $$$ (depends on scope of program)</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>Bike shops (in-kind donations); transit agencies and local news outlets (donated ad space); traffic safety foundations and grant programs; hospitals and insurance companies</td>
</tr>
</tbody>
</table>

While Vermont state law requires bicyclists to use lights at night, cyclists riding without lights are common in Chittenden County. Many cyclists, especially students, are unaware that lights are required by law, or they have not purchased or repaired lights. Research shows that cyclists who do not use lights at night are at much greater risk of being involved in bike-car crashes. For these reasons, increasing bicycle light usage and improving visibility for pedestrians at night is a top priority for Chittenden County. A successful effort will reduce crash risk for all non-motorized travelers at night or in low-light situations.

Every fall in the Netherlands, as days get shorter, a national “lights on” campaign reminds cyclists to use bicycle lights. This “lights on” campaign focuses several complementary strategies into a short time frame for maximum impact, pairing media messages (ads, posters, radio spots, and TV ads) with police enforcement of ‘fix it’ tickets. In the Washington, DC region, jurisdictions have been giving out free bike lights on popular bike commuting routes each fall, coinciding with the switch from daylight savings to standard time.

A similar visibility campaign is recommended for Chittenden County. This multi-pronged outreach effort should take place every September, as the days are getting shorter and as kids and university students are returning to school.

The Chittenden County Be Safe Be Seen campaign should include the following elements:

- Well-designed graphic ads, to be placed on transit benches, transit vehicles, and local newspapers, as well as around UVM. Ad space may be purchased or donated. Small-format ads can be placed on bike handlebars as well if desired.
• Police enforcement of bike light laws. This enforcement will be most likely to result in behavior change if the cyclist is able to avoid penalty if they obtain a bike light. Ideally, the police would give a warning, explain the law, and then install a bike light on the spot. If this is not possible, the cyclist should receive a "fix it ticket" along with a coupon for a free or discounted light at a local bike shop; once the cyclist shows proof that they have purchased a bike light, their fine will be waived.

• Partnership with local cycling and walking groups to get the word out to their members and partners. These groups can be counted as campaign partners at no cost to them, enhancing the campaign’s credibility and community exposure. Groups should be supplied with key campaign messages to distribute with their constituents along with coupons for free or discounted bike lights and other reflective materials.

• Earned media outreach: CCMPO should distribute media releases with statistics about the importance of using bike lights, relevant legal statutes, and the campaign’s goal, timing, activities, and partners. If possible, a meeting with local media editorial boards should be sought.

Depending on partners, volunteer capacity and interest, the Chittenden County Visibility campaign may also include the following:

• In-school presentations about “being seen,” including giveaways of reflective material and bike lights
• A community bike light parade with prizes
• Discounts on bike lights and reflective gear at local bike shops during September (publicized through the campaign outreach)
• Volunteers stationed at key intersections, trails, and on the UVM campus who thank bicyclists using bike lights and reward them with a small gift
Many cities around the country are implementing “share the path” programs in response to concerns about conflicts between pedestrians and cyclists on shared-use paths. Since Chittenden County is home to numerous popular paths, a Share the Path program will encourage responsible path usage and creates community goodwill around bicycling.

It is recommended that CCMPO partner with Burlington Parks and Recreation to implement a Share the Path campaign. The campaign should include the following steps:

- Develop a simple, clear Share the Path brochure; distribute through local bike shops and wherever bike maps are distributed.

- Host at least one bicycle bell giveaway event on a popular shared-use path. A table should be set up with maps and brochures, and knowledgeable staff should be present to answer questions.

Volunteers and CCMPO/Local Motion staff can partner to hand out bells to cyclists. Signs (e.g., “burma shave” style signs), pavement chalk, and banners should be used to explain the event and give cyclists warning so they can stop and receive a bell. Volunteers should mount the bells on handlebars (BBB EasyFit bells are recommended because installation requires no tools: http://www.bbbparts.com/products/accessories/others/bbb12.htm).

CCMPO should do media outreach before the event; the bell giveaway will be a positive story about bicycling, and will provide good visual opportunities.
UVM Bike Orientation

<table>
<thead>
<tr>
<th>Target</th>
<th>UVM students, especially incoming freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO and UVM</td>
</tr>
<tr>
<td>Partners</td>
<td>UVM Cycling Team and Local Motion</td>
</tr>
<tr>
<td>Key elements</td>
<td>Bicycle safety &amp; promotion orientation for incoming freshmen and returning students. Classes &amp; clinics, materials, social events and rides.</td>
</tr>
<tr>
<td>Time frame</td>
<td>September, annually</td>
</tr>
<tr>
<td>Cost</td>
<td>$$</td>
</tr>
<tr>
<td>Potential funding</td>
<td>UVM parking fees, TDM funding sources</td>
</tr>
<tr>
<td>sources</td>
<td></td>
</tr>
<tr>
<td>Sample programs</td>
<td>Stanford University Bike Program:</td>
</tr>
</tbody>
</table>

University students are ideal candidates for bicycling outreach programs; many students live near campus and may not own a car or choose to drive. CCMPO should partner with The University of Vermont to promote bicycling to students at the beginning of the school year.

The UVM Bike Orientation should include:

- **Bike maps and information** provided to incoming and returning students at the beginning of the year through school information packets
- **Flat clinics, bike legal clinics, and guided rides**, advertised through flyers, email and bulletin boards, and campus newspaper
- **Information tabling** at campus events and prominent locations (e.g., bookstore, quad) during the first few weeks of school
- **A Bikes at UVM web page** with links and more information
- At-cost or low-cost **bike lights** sold at tabling events and through the campus bookstore
- If desired, a “bike buddy” program may be implemented to match current cycling students with interested students. This can be a simple program where bicyclists wear a sticker that says “I bike to UVM, ask me how,” or a more elaborate program that matches bike buddies with interested students who live in their neighborhood for mentoring. A bike buddy program would increase the cost of the program.
### Adult Bicycling Education Classes

<table>
<thead>
<tr>
<th>Target</th>
<th>Current and potential cyclists, UVM students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO and Local Motion, Vermont Bicycle and Pedestrian Coalition</td>
</tr>
<tr>
<td>Partners</td>
<td>UVM, local Parks and Recreation Departments/Recreation Path Committees, Police Departments, LCIs</td>
</tr>
<tr>
<td>Key elements</td>
<td>Bicycle education class covering safety and skills to empower people to confidently use their bikes as transportation.</td>
</tr>
<tr>
<td>Time frame</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cost</td>
<td>$$ - $$$ (depends on scope of program)</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>Transportation Enhancements, Bikes Belong grants</td>
</tr>
</tbody>
</table>
| Sample programs | Washington Area Bicyclist Association Confident City Cycling Class: [http://www.waba.org/events/education.php](http://www.waba.org/events/education.php)  
Bike New York Savvy Cyclist Class: [http://www.bikenewyork.org/education/classes/index.html](http://www.bikenewyork.org/education/classes/index.html) |

Many people are unaware of the vehicle and traffic laws that apply to riding a bicycle. By simply educating riders that riding with traffic (on the right side of the road) is the legal way to ride, it is possible to eliminate a common behavior which causes a significant share of bicycle-car collisions for adult cyclists. The Savvy Cycling and Confident City Cycling Classes address not only the rules of the road and safety tips but they also include a section for on-road riding and on-bike skills practice. The class can be expanded or produced as a series of classes which also cover bicycle commuting. CCMPO should work with Local Motion, the VT Bicycle and Pedestrian Coalition and League of American Bicyclist Cycling Instructors to set up a schedule of classes available to the public throughout the course of the cycling season. The classes should cover a wide range of available time slots to encourage maximum participation. Local businesses may be interested in hosting a session specifically for their employees as part of the Way to Go! Program or Bike to Work Month.

Course Content could include:

- Commuter Training: How to Organize Yourself and Your Belongings for a Pleasant Commute
- Adjusting the bike and helmet for a comfortable fit and performing a safety inspection
- Using your gear system
- Bike handling skills
- Rules of the Road
- Avoiding the Common Causes of Crashes
- Lane Positioning and signaling
- Useful Accessory Equipment
- Basic Bike Maintenance and Repair
### Bike to Work Month

<table>
<thead>
<tr>
<th>Target</th>
<th>Current and potential cyclists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO, Local Motion</td>
</tr>
<tr>
<td>Partners</td>
<td>UVM, CCTA</td>
</tr>
<tr>
<td>Key elements</td>
<td>Publicize Bike to Work Month in May. Offer classes, rides and events. Promote in conjunction with the Way to Go! Commuter Challenge.</td>
</tr>
<tr>
<td>Time frame</td>
<td>May, annually</td>
</tr>
<tr>
<td>Cost</td>
<td>$$ - $$$ (depending on scope and length of program)</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>Local businesses and bike shops (in-kind or cash support); hospitals and insurance companies; City of Burlington</td>
</tr>
</tbody>
</table>

The Vermont Bicycle and Pedestrian Coalition hosts a *Bike to Work Week* in June and the annual Way to Go! Commuter Challenge encourages using alternative transportation. It is recommended that CCMPO work with Local Motion to support activities throughout the month of May, in recognition of National Bike to Work month. CCMPO can support Local Motion in Bike to Work Week activities by becoming an event sponsor, assisting with publicity, tabling, and providing materials (maps, brochures, and resource stickers). CCMPO should take the lead in expanding Bike to Work activities to the full month of May, offering additional commute classes, weekly rides, presentations on bicycling for employees, and raffles or other incentives.

*Organizing a Bike to Work Month can encourage adults to try bicycling as a mode of transportation.*
**Sunday Parkways Program**

<table>
<thead>
<tr>
<th>Target</th>
<th>Current and potential cyclists, runner, walkers and rollerbladers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO, Local Motion</td>
</tr>
<tr>
<td>Partners</td>
<td>Police Departments, Local Parks &amp; Rec. Departments</td>
</tr>
<tr>
<td>Key elements</td>
<td>Safe, car-free roads and good publicity</td>
</tr>
<tr>
<td>Time frame</td>
<td>Monthly from Spring through Fall</td>
</tr>
<tr>
<td>Cost</td>
<td>$ - $$ (depending on the scope and regularity)</td>
</tr>
<tr>
<td>Potential funding</td>
<td>City of Burlington; hospitals and insurance companies; Local</td>
</tr>
<tr>
<td>sources</td>
<td>businesses and bike shops</td>
</tr>
<tr>
<td></td>
<td>Guadalajara’s Via RecreActiva: <a href="http://www.viarecreactiva.com.mx/">http://www.viarecreactiva.com.mx/</a></td>
</tr>
</tbody>
</table>

Sunday Parkways are set aside times on weekends and holidays for traffic-free biking and walking on a network of selected streets. The goal of the program is to create a safe environment to encourage healthy activity. In Bogotá, Columbia, hundreds of thousands of cyclists use Sunday Parkways during the city’s Ciclovia. In Guadalajara, Mexico a similar program is called Via RecreActiva.

Sunday Parkways do not impact motorized traffic flow like other special events, since all cross-traffic flows normally. Participants stop at all traffic signals, so that only the closed street is affected. Often on a divided arterial, the Sunday Parkway uses one half of the roadway and motorized traffic uses the other half. Sunday Parkways provide close-to-home recreational opportunities for all ages and all types of active travel.

It is recommended that CCMPO and Local Motion work together with interested municipal police departments or recreation departments to find one or more Sundays during the summer months when one or more streets in each participating municipality could be closed off and limited to bicycles, pedestrians, and other forms of non-motorized transportation. It could even be a culminating event of Way to Go! Week, or Bike to Work Month.
4.4.3 Long-Term Recommendations (6 or more years in future)

<table>
<thead>
<tr>
<th>UVM Bike Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
</tr>
<tr>
<td><strong>Primary agency</strong></td>
</tr>
<tr>
<td><strong>Partners</strong></td>
</tr>
<tr>
<td><strong>Key elements</strong></td>
</tr>
<tr>
<td><strong>Time frame</strong></td>
</tr>
<tr>
<td><strong>Cost</strong></td>
</tr>
<tr>
<td><strong>Potential funding sources</strong></td>
</tr>
<tr>
<td><strong>Sample programs</strong></td>
</tr>
</tbody>
</table>

The UVM Bike Program should provide:

- Attended bicycle parking
- Bicycle registration services
- Lockers and showers
- Mechanic services
- Tools and repair stands
- The UVM Bike Program may also offer:
  - No Interest Bike Loan
  - Folding bicycle promotion
  - Bicycle message board (e.g., to post bikes for sale)
  - Cycling Links
  - Bike flea market hosted at the beginning of the school year, or other used bicycle resale opportunities
Pilot Smart Trips Program

<table>
<thead>
<tr>
<th>Target</th>
<th>Chittenden County residents who are interested in biking, walking and transit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agency</td>
<td>CCMPO</td>
</tr>
<tr>
<td>Partners</td>
<td>Local Motion, Transit agencies, community volunteers</td>
</tr>
<tr>
<td>Key elements</td>
<td>Outreach to a target geographic area promoting biking, walking and transit usage to residents and employers</td>
</tr>
<tr>
<td>Time frame</td>
<td>Program launch in late spring of selected year</td>
</tr>
<tr>
<td>Cost</td>
<td>$$$</td>
</tr>
<tr>
<td>Potential funding sources</td>
<td>CMAQ (Congestion Mitigation/Air Quality) funds; federal flexible transportation; public transportation funds; hospitals and insurance companies, DOH funding sources; local, state or national health grants (e.g., Robert Wood Johnson Active Living by Design grants)</td>
</tr>
<tr>
<td>Sample programs</td>
<td>Portland Smart Trips program: <a href="http://www.portlandonline.com/transportation/index.cfm?c=ediab">http://www.portlandonline.com/transportation/index.cfm?c=ediab</a></td>
</tr>
</tbody>
</table>

Smart Trips programs (also known as social marketing programs) are encouragement programs based on saturating geographic area with resources to help residents reduce drive-alone trips and increase biking, walking, transit and carpool trips. It can also be used to teach employers how they can encourage their employees to reduce drive-alone trips and increase use of other transportation modes. Smart Trips programs have demonstrated a lasting reduction in drive-alone trips; for example, in Portland, OR, target areas have experienced a 10% reduction in vehicle traffic. Programs offer residents maps, brochures and other printed materials, classes, guided rides and walks, and other tools and programs that make bicycling, walking and transit usage a more inviting travel option compared to drive-alone trips.

Compared to infrastructure improvements, these programs are scalable, flexible, inexpensive, and site-independent. Once the program has been established for a specific geographic target area, it can be run with low start-up costs in other target areas.

This model, however, is unlikely to be successful in areas that have failed to make initial infrastructure investments sufficient to provide a functional bicycling, walking and transit network. It is most effective as an approach that leverages investments in infrastructure, not one that replaces those investments.

One of the strengths of the individualized marketing model is that it reaches every resident and employer with an appealing invitation to participate, but then focuses the bulk of resources on those who identify themselves as interested. The many classes, rides, and activities continue to:

Maps and materials are delivered to interested residents by bike in this Smart Trips program
be publicized and open to all, so residents have multiple opportunities to opt into the program. This focus allows for both broad reach and strategic investment. It is recommended that CCMPO implement a pilot Smart Trips program in a limited geographic area in Chittenden County (to be selected at time of program planning). The program may include any of the following:

- Maps and brochures
- Classes, clinics, workshops
- Guided rides and walks
- Giveaways (coupons, cyclocomputers, etc.)
- Targeted outreach (e.g., Women on Bikes, Senior Strolls)
- Route planning help (bike, walking, or transit)
- The exact program components and budget should be determined at time of program planning.
5 Implementation Plan

5.1 Regional Facilities and Local Facilities

A cornerstone of this plan is the identification of two recommended regional networks: an on-road bicycle facility network and a regional shared use path network. With the exception of a few critical links (described in section 4.1), sidewalks were left out of the recommended regional network since they tend to serve local rather than regional needs. As described in Chapter 4, Recommended Networks, these networks are intended to provide high quality transportation connections to major transportation facilities and systems and connections between existing and future centers. These centers include Metropolitan and Village centers (as identified in the Regional Plan by the Chittenden County RPC, 2001) and major activity and employment centers such as Taft Corners in Williston.

Importantly, the two regional networks provide a regional framework for establishing implementation and funding priorities by the CCMPO and its member communities and agencies. They also identify corridors important to bicycling and walking from a regional perspective.

5.2 Baseline Costs for Bicycle-Pedestrian Facilities

Costs can vary widely depending on the type of bicycle-pedestrian facility being developed and by the standards used (which may be dictated by the funding source), the area (urban, suburban, or rural), and environmental considerations.

The types of facilities considered here include sidewalks, shared use paths, and on-road facilities which include bike lanes and shoulders. Each of these facilities has implications for the level of accommodation they provide to the user, initial costs, and on-going maintenance costs. For example, bicycle lanes have higher initial and on-going costs related to roadway signing and striping. The facilities themselves can be implemented by constructing additional roadway width or by retrofitting existing width to provide additional room for bicycles. This may include reducing the number of travel lanes and/or removing or relocating on street parking.

For shared use paths, costs are also widely variable due to right-of-way acquisitions, standards used, material types, environmental considerations, and potential additional needs such as bridges, boardwalks, trailheads, fencing, railings and signage. Environmental considerations include wetlands, topography, and stream or river crossings.

For sidewalks, costs are variable depending on whether or not it includes a curb and the type of materials used. Pedestrian signals, Americans with Disabilities Act compliant ramps, curb cuts, and crosswalk markings can all add to the cost as well. See Table 5.2 for a list of estimated facility costs.
### Table 5.2: Estimated Typical Facility Development Costs

<table>
<thead>
<tr>
<th>SIDEWALK/CURB CONFIGURATIONS</th>
<th>Cost per linear foot</th>
<th>Cost per mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-foot wide concrete sidewalk with granite curb</td>
<td>$154</td>
<td>$813,120</td>
</tr>
<tr>
<td>5-foot wide concrete sidewalk with concrete curb</td>
<td>$145</td>
<td>$766,656</td>
</tr>
<tr>
<td>5-foot wide concrete sidewalk with no curb</td>
<td>$96</td>
<td>$505,296</td>
</tr>
<tr>
<td>5-foot wide bituminous Sidewalk with granite curb</td>
<td>$117</td>
<td>$615,648</td>
</tr>
<tr>
<td>5-foot wide bituminous Sidewalk with concrete curb</td>
<td>$108</td>
<td>$569,184</td>
</tr>
<tr>
<td>5-foot wide bituminous Sidewalk with no curb</td>
<td>$57</td>
<td>$302,016</td>
</tr>
<tr>
<td>5-foot wide aggregate walk with granite curb</td>
<td>$103</td>
<td>$545,952</td>
</tr>
<tr>
<td>5-foot wide aggregate walk with concrete curb</td>
<td>$95</td>
<td>$499,488</td>
</tr>
<tr>
<td>5-foot wide aggregate walk with no curb</td>
<td>$44</td>
<td>$232,320</td>
</tr>
</tbody>
</table>

**TYPICAL SHARED-USE PATH COSTS**

<table>
<thead>
<tr>
<th>TYPICAL SHARED-USE PATH COSTS</th>
<th>Cost per linear foot</th>
<th>Cost per mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-foot wide bituminous Shared-use path</td>
<td>$128</td>
<td>$673,728</td>
</tr>
<tr>
<td>10-foot wide bituminous Shared-use path</td>
<td>$145</td>
<td>$766,656</td>
</tr>
<tr>
<td>12-foot wide bituminous Shared-use path</td>
<td>$165</td>
<td>$871,200</td>
</tr>
<tr>
<td>8-foot wide aggregate shared-use path</td>
<td>$108</td>
<td>$569,184</td>
</tr>
<tr>
<td>10-foot wide aggregate shared-use path</td>
<td>$122</td>
<td>$644,688</td>
</tr>
<tr>
<td>12-foot wide aggregate shared-use path</td>
<td>$136</td>
<td>$720,192</td>
</tr>
</tbody>
</table>

**BIKE LANE S**

<table>
<thead>
<tr>
<th>BIKE LANE S</th>
<th>Cost per linear foot</th>
<th>Cost per mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike lanes with durable pavement markings and appropriate signs (restriping road, not building new width)</td>
<td>$1.90</td>
<td>$10,000</td>
</tr>
<tr>
<td>Bike lanes with regular painted pavement markings and appropriate signs (restriping road, not building new width)</td>
<td>$0.85</td>
<td>$4,500</td>
</tr>
</tbody>
</table>

**SHOULDER S**

<table>
<thead>
<tr>
<th>SHOULDER S</th>
<th>Cost per linear foot</th>
<th>Cost per mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ Shoulder, Paving existing gravel (cost per side)</td>
<td>$42</td>
<td>$219,200</td>
</tr>
<tr>
<td>4’ Shoulder, New Construction (cost per side)</td>
<td>$285</td>
<td>$1.5 million</td>
</tr>
</tbody>
</table>

**SIGNALS**

<table>
<thead>
<tr>
<th>SIGNALS</th>
<th>Unit Cost</th>
<th>Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessible Pedestrian Signal with audible tone</td>
<td>$650</td>
<td>$1,500 for 8 (full intersection)</td>
</tr>
<tr>
<td>Countdown Timer</td>
<td>$500</td>
<td>$1,500 for 8 (full intersection)</td>
</tr>
<tr>
<td>Bicycle Loop Detector with amplifier for bicycles</td>
<td>$1,200</td>
<td>already included in price</td>
</tr>
<tr>
<td>Bicycle Detection Camera (avoids digging)</td>
<td>$3,000</td>
<td>$2,000 for 4 approaches</td>
</tr>
</tbody>
</table>

**CROSSWALKS**

<table>
<thead>
<tr>
<th>CROSSWALKS</th>
<th>Unit</th>
<th>Cost per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imprinted Crosswalk</td>
<td>S.F.</td>
<td>$15-$20</td>
</tr>
<tr>
<td>Crosswalk Pavement Marking</td>
<td>L.F.</td>
<td>$24</td>
</tr>
</tbody>
</table>

**Notes:**
1) Many of the cost estimates are from the VTrans 2006 Bicycle & Pedestrian Facility Unit Cost Report. The Report provides 5 year averages. This Plan adds 10% to the VTrans estimates to account for inflation, which may be low due to cost fluctuations related to the price of oil. 2) The above costs only include materials and installation. They do not include costs related to right of way acquisition, engineering, project management, or construction inspection. Sources: Wilbur Smith Associates; HighwayTech.com; VTrans 2006 Bicycle & Pedestrian Facility Unit Cost Report.
5.3 **Estimated Costs for the Recommended Network**

Map 4.1-A shows on-road facilities that are designated bicycle routes and common on-road bicycle routes that have not yet been designated. Map 4.1-B identifies existing and proposed shared use paths and a select number of existing sidewalks that are of regional significance because they provide links to on-road and shared use facilities of regional significance. Together, these maps illustrate more than 500 miles of the recommended regional network.

Table 5.3 shows the miles of each type of facility in 2003 compared to 2008. The 2008 figures include facilities and common routes that were identified in 2003 but had still not been built or designated as of December 2007, as well as facilities that were proposed after the 2003 Update was published.

The Table also gives an estimate of how much it would cost to build the proposed shared use facilities or designate common on-road routes. In 2003 it was assumed that it would cost $465,000 per mile to build a shared-use path, and a $350,000 per mile to build an on-road facility. By comparison, in 2008 it is estimated that it would cost $766,600 per mile for a shared use path and $1.5 million per mile for an on-road facility. The 2008 cost estimates are intended to provide an order of magnitude cost for building these facilities as standalone projects—for instance, adding paved shoulders to a road independent of the road’s rehabilitation or reconstruction, and assuming that the shoulders would need to be constructed from scratch.

---

1 There are more than 300 miles of facilities not shown in the regional network maps because they serve local, rather than regional, needs. Most of these facilities are sidewalks.
Table 5.3 Notes: 1) The 2003 data listed in this table is slightly different than what was printed in the original 2003 Update Plan. This table was created using a GIS layer of the regional network provided by the Chittenden County Regional Planning Commission that tracks the status of network segments by type as well as the Plan year of its most recent status. It was also modified to correct minor inaccuracies discovered on the 2003 map such as the incorrect status or location for a network segment. The data compiled in the GIS layer provided by CCRPC is presumed to be more accurate than the data in the 2003 Update and should be used as the baseline for future Plan Updates.

The cost estimates in Table 5.3 for 2008 provide a high-cost scenario. It is likely that at least part of the on-road network could be implemented by paving an existing gravel shoulder, restriping a road to accommodate bike lanes, or posting bicycle route signage which would cost considerably less than building new shoulders. A detailed field review would be required to determine what improvements are necessary on each segment. Additionally, the cost to add an on-road facility can be significantly less if it is added as part of a larger project such as a roadway rehabilitation or reconstruction.

The critical crossings (shown in Map 4.1-C and described in section 4.1) that are proposed but not yet existing would require specific feasibility studies to determine the potential constructions costs.

<table>
<thead>
<tr>
<th>Table 5.3: Regional Network Implementation Status and Potential Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shared Use Paths</strong></td>
</tr>
<tr>
<td>Status</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Existing</td>
</tr>
<tr>
<td>Proposed</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>On-Road Bicycle Facilities</strong></th>
<th><strong>2003</strong></th>
<th><strong>2008</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Miles</td>
<td>Estimate Costs ($)</td>
</tr>
<tr>
<td>Designed</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Common Routes, not Designed</td>
<td>226</td>
<td>79.1</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>79.1</td>
</tr>
</tbody>
</table>

Bicycle Lane in South Burlington
5.4 Funding Sources

There are numerous funding sources that may be used to develop bicycle and pedestrian projects or enhance the bicycle and pedestrian system. Many require matching funds and must be incorporated into longer-range, multi-year programs (such as the CCMPO TIP) and are awarded through a competitive process. See Appendix D for a summary of funding sources currently available for transportation projects in Chittenden County.

This list of sources may change after the current federal transportation bill, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), expires in September of 2009. Until Congress authorizes a new transportation bill, funding for future transportation projects is largely unknown. Nevertheless, project recommendations and actions must be moved forward with the expectation that there will be available funding in the future. Whatever the next transportation bill is, a creative mix of funding coupled with local and county commitment will be required to implement the regional bicycle and pedestrian network. In addition to traditional funding sources there may be special local, state, or federal grant or other funding opportunities available to help implement the recommendations in this Plan. The CCMPO and its partner organizations should be ready to pursue any opportunities that arise.

A review of national experience finds that continual commitment of funds, official staff efforts, and volunteer involvement over the long term are the major factors in areas that are recognized for excellence in their facilities and by the high use of those facilities. For more than 20 years Davis, California and Madison, Wisconsin have been developing extensive bicycle facility networks and as a result have a high percentage of commuting and other transportation trips by bicycle.

5.4.1 Federal Funding

The federal funds that the CCMPO allocates to projects each year come through the State transportation agency, VTrans. There are also State dollars spent in Chittenden County that are programmed by VTrans, but it is a federal requirement that the CCMPO, in cooperation with VTrans and the Chittenden County Transportation Authority (CCTA), approve the spending obligation of federal transportation funds within the County.

Numerous federal funding programs provide opportunities to build or maintain bicycle and pedestrian facilities and programs. The following is a brief summary of funding categories and eligible types of projects and programs through the Federal Highway Administration, Federal Transit Administration and other federal agencies and departments. More detailed information can be obtained at: www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm#App-2. It is important to remember that much of the money that VTrans receives has limitations on the types of projects on which it can be spent, but there is some flexibility to transfer money between funding sources.
Federal Highway Administration

*Interstate Maintenance (IM) funds:* IM funds are targeted at maintaining and improving the Interstate Highway System. These funds are programmed directly by VTrans to maintain/improve the interstate highway system in Vermont. There are no specific funds set aside for bicycle or pedestrian facilities but these funds may be used to improve facilities (for example, sidewalks, widen to provide shoulders or bicycle lanes, pedestrian crossings at interchanges, or overpasses) but only if included in the design of “new features” on an existing interstate. This may have specific applicability along I-89 and the Circumferential Highway at existing and/or future interchanges or overpasses.

*National Highway System (NHS) funds.* The NHS is comprised of “urban and rural roads serving major population centers, major travel destinations, international border crossings, and intermodal transportation facilities. The Interstate System is part of the National Highway System.” A wide range of pedestrian and bicycle facilities are eligible for NHS funds including shared-use paths within interstate highway right-of-way, bicycle lanes, paved shoulders and sidewalk improvements on major arterial roads that are part of the NHS roadways, as well as underpasses/tunnels or overpasses of NHS roadways. State transportation agencies receive NHS money using a formula set by Congress and typically program these funds directly with concurrence from MPOs, where applicable.

NHS funds may have specific applicability to providing a shared use path along or over the Circumferential Highway or I-89, and adding shoulders or bike lanes to NHS non-access limited roads. In Chittenden County, the NHS primarily consists of the Interstate Highway, US RT 7 south, US RT 2 connecting to the airport, and the Circumferential highway.

*Highway Bridge Replacement funds.* These are funds to rehabilitate or replace highway bridges over waterways, other topographical barriers, other highways or railroads. Bicycle accommodations shall be provided on rehabilitated or replaced bridges when bicycles are allowed on the roadway and when it can be done at a reasonable cost. In Vermont this partially funds the Town Highway Bridge Program and the Adaptive Use Bridge Program (described in more detail below).

This program may have specific applicability to provide improved on-road bicycle facilities when bridges are rehabilitated or replaced with federal funds.

*Surface Transportation Program (STP).* This is the largest federal transportation funding source that provides VTrans with the flexibility to build a wide variety of transportation facilities (and non-construction projects), including bicycle-pedestrian projects, on any Federal-aid highway including the national highway system, bridges on any public road and transit facilities.

STP funds may have specific applicability by including improved or new bicycle-pedestrian facilities (on and off road facilities, bicycle parking, planning studies, state and local bicycle and pedestrian coordinator positions, spot improvement programs, sidewalks, crosswalks, bicycle and pedestrian signals, parking and other incidental facilities) as part of roadway reconstruction/rehabilitation/widening and new alignment.
roadways. Other programs such as bicycle maps and bicycle-pedestrian promotion/encouragement programs can be funded with STP money.

Historically VTrans has transferred or “flexed” some of its STP funds for the ‘Bicycle and Pedestrian Program’ (CCMPO, Funding Sources for Transportation Projects, 1999). However, due to the increasing maintenance demands of the existing transportation infrastructure, it will be more difficult to flex money for standalone bicycle and pedestrian projects in the future.

Transportation Enhancements (TE). This is a federally mandated program that includes a 10 percent set-aside of VTrans’ STP funding to be used specifically on projects that ‘enhance’ the transportation system through methods that have not traditionally been included in the design and construction of the transportation system. There are twelve eligible activities, three of which include bicycle-pedestrian transportation: provision of facilities for bicyclists and pedestrians; provision of safety and educational activities for pedestrians and bicyclists; and preservation of abandoned railroad corridors (including the conversion and use thereof for pedestrian or bicycle trails).

Transportation Enhancements has specific applicability by being one of the major funding sources nationally for bicycle or pedestrian projects. Projects using TE funds do not need to be located on the Federal-aid Highway System and may be non-construction activities. This program is currently the primary federal source of pedestrian/bicycle project funding. It requires a 20% non-federal match.

Safety Set-aside. This also is a 10% set-aside of VTrans’ STP funding allotment. The set-aside includes the Railway-Highway Crossing Program and Hazard Elimination Program (HEP). Under the Railway-Highway Crossing program, bicycle safety must be considered when implementing projects. Within the Hazard Elimination Program, bicycle or pedestrian projects can be funded that address a high priority (relative to statewide safety needs) safety problem.

The Safety Set-aside has specific applicability to locations with a high incidence of bicycle and/or pedestrian crashes. VTrans evaluates and funds project proposal locations at the statewide level.

Congestion Mitigation Air Quality (CMAQ) Funds. These funds are for projects that reduce congestion, reduce energy consumption and/or improve air quality. States with areas in non-compliance with air quality regulations receive higher amounts of money. All other states, including Vermont, receive a minimum allotment. Eligible projects must be likely to contribute to the attainment of national ambient air quality standards (or the maintenance of such standards where this status has been reached), and eligible activities include pedestrian and bicycle spot improvement programs, bicycle parking, bicycle racks on buses, sidewalks, trails and promotional programs. Vermont has historically allocated these funds exclusively to transit projects.

Transportation, Community, and System Preservation Program (TCSP). This is a competitive grant program designed to support exemplary or innovative projects that show how transportation projects and plans, community development, and preservation
activities can be integrated to create communities with a higher quality of life. Bicycling, walking and traffic calming projects are eligible activities.

**Recreational Trails Program.** These funds are administered by the Vermont Department of Forests, Parks & Recreation to plan, maintain, restore and construct primarily recreation, not transportation, trail projects. This funding source may be more suitable for implementing local trails and paths. Projects are competitive Statewide and require a 20 percent local match. State funds are also used to fund this program, but if Federal funds are used projects must be included on the CCMPO TIP.

**National Scenic Byways Program.** This program “recognizes roads having outstanding scenic, historic, cultural, natural, recreational and archeological qualities by designating them as National Scenic Byways or All-American Roads” (*FHWA website*). These projects may include sidewalks, crosswalks, paved shoulders or bicycle lanes, shared-use paths, informational signing, bicycle parking and crosswalks.

In 2003, $143,000 in byways funds was granted to the Chittenden County Regional Planning Commission (CCRPC) for the development of interpretive and directional signage in Charlotte, Shelburne, South Burlington, Essex Junction, Winooski, Burlington, Colchester, and Milton. Some of the non-motorized facilities listed in this plan are also identified in the *Chittenden County – Lake Champlain Byways Corridor Management Plan*, which is available through the CCRPC. Over the past three years, $270,000 has gone to wayside exhibits, signage and the development of interpretative materials.

Bicycle and pedestrian-related projects that are affiliated with a National Scenic Byway, All American Road, or State Scenic Byway are eligible for funding.

**High Priority Projects/Demonstration Projects/Congressional Earmarks.** These are transportation projects with a specific earmark for a specific project. They are inserted into the annual federal transportation appropriation.

Earmarks have specific applicability for bicycle-pedestrian projects for which there is broad public and political 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.

Other Bicycle and Pedestrian programs supported with Federal funds include:

**CCMPO Sidewalk Program.** The CCMPO offers competitive grants to municipalities in Chittenden County to fund sidewalk design and construction. A 20 percent local match is required, and in its third year, the program makes available $250,000 annually.

**Safe Routes to School Educational Program.** This VTrans administered program offers competitive grants to participating K-8 schools to offer bike and pedestrian education and outreach. Funds are available biennially and no local match is required. Projects must be included on the CCMPO TIP.
**Safe Routes to School Infrastructure Program.** This VTrans administered program offers competitive grants to participating K-8 schools for bike and pedestrian infrastructure. Funds are available biennially and no local match is required. Projects must be included on the CCMPO TIP.

**Federal Transit Administration**

**Urbanized Area Formula Grants.** These grants to urbanized areas with populations greater than 50,000 are for capital projects that may include “pedestrian and bicycle access to a mass transportation facility” (FHWA website).

### 5.4.2 State Funding

**VTrans Bicycle and Pedestrian Program.** The Bicycle and Pedestrian Program oversees a majority of the pedestrian programs and projects throughout the State. Located in the Local Transportation Facilities (LTF) section of the VTrans Program Development Division, the LTF administers the Transportation Enhancements grant program and transportation projects done by local municipalities with VTrans funds. However, the program is no longer accepting new projects.

**Vermont Downtown Program.** A municipality with a Designated Downtown District may apply to the Downtown Development Board (Department of Housing and Community Affairs) for financial assistance to finance eligible transportation-related capital improvements in support of economic development, within or serving the downtown district. Eligible activities include pedestrian and streetscape improvements.

VTrans funding programs include the following:

**Town Highway Grants.** State funding allocation is provided for Class 1, 2 and 3 highway and bridge improvement, maintenance and construction, and bicycle route fund program.

**Town Highway Class 2 Roadway Program.** This program provides state funds (with a local match) to Class 2 town highways for rehabilitation projects.

**VTrans Municipal Park and Ride Program.** This program provides state funds for developing small municipally-owned and maintained park and ride facilities.

**Town Highway Structures Program.** State funds (with a local match) are available for bridge maintenance, preservation or repair of a structure with a span greater than 6’ on a Class 1, 2 or 3 town highway.
5.4.3 Local Funding
Local matching funds are typically required for the federal and state programs listed above. Other sources of local funds may be:

- General fund revenues programmed into an annual capital improvement program (CIP) that may include an occasional or annual allotment of funds for specific projects or groups of projects including roadway reconstruction/ resurfacing, sidewalks, spot bikeway improvements and paths.
- Local bonds to fund bicycle or pedestrian projects such as paths and sidewalks and are repaid over the life of the bond (e.g., 20 years). South Burlington, Williston, and Shelburne have used bond issues in the past to fund multiple phases of shared use path construction.
- In-kind services such as labor by a public works department or the value of rights-of-way can be used as local match for certain federal funding sources.
- Impact fees, which are charges assessed against development activity that recover some of the cost incurred by local municipalities when they provide public facilities required to serve a new development. This can include sidewalks and bicycle lanes.

5.4.4 Private Funding
Private funds and groups are increasingly being asked to construct and maintain paths, sidewalks and support facilities such as bicycle parking.

- Local developers. Developers may voluntarily or by requirement of municipal ordinances provide sidewalks, paths, bicycle parking, showers/lockers, traffic signal improvements and roadway improvements with bicycle accommodations. South Burlington has been very successful at requiring and encouraging developers to reserve rights-of-way for paths and to construct paths as part of development projects.
- Bicycle-Pedestrian/Trails Groups. Many CCMPO municipalities have active advisory groups that raise money or provide labor for the construction and/or maintenance of bicycle-pedestrian facilities.
- Community service projects. Groups such as the Rotary Club, National Guard or Boy Scouts often ‘adopt’ trail projects as a community service and/or training opportunity and provide either funding or labor/equipment.
- Local Motion ACTIVE Fund. This fund was established by Local Motion in 2008 and is an endowment for walking and bicycling initiatives.
5.5 **Recommended Annual Funding Level for the CCMPO TIP**

The 2003 Plan Update recommended that CCMPO program on the order of 3 percent per year on average over the course of each three year funding cycle for standalone bicycle-pedestrian projects. The 3 percent figure was based on the average estimated amount of total Transportation Improvement Program (TIP) funds that would go to standalone bike and pedestrian projects from 2002 to 2004. These estimates were calculated at the start of the three year period and did not reflect all projects that subsequently had federal funds obligated to them during that period.

A review of Federal obligated funds in the TIP, shown in Table 5.5, suggests that 3 percent is low based on historical trends. The 10-year average for TIP obligated funds going to standalone bicycle and pedestrian projects was actually 6.6 percent. Based on the historic trend in TIP funds obligated to bicycle and pedestrian projects (which closely follow actual expenditures), this Plan recommends that the CCMPO program on the order of 6 to 7 percent per year on average over the course of each three year funding cycle for standalone bicycle-pedestrian projects.

Table 5.5: Federal Funds Obligated to Projects on the CCMPO TIP (FY1998-2007)

<table>
<thead>
<tr>
<th>FY</th>
<th>Federal TIP Obligations for Bicycle &amp; Pedestrian Projects</th>
<th>Total Federal Obligations in the TIP</th>
<th>Percent of Total TIP for Bicycle &amp; Pedestrian Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY98</td>
<td>$150,199</td>
<td>$19,111,196</td>
<td>0.8%</td>
</tr>
<tr>
<td>FY99</td>
<td>$1,036,201</td>
<td>$16,178,793</td>
<td>6.4%</td>
</tr>
<tr>
<td>FY00</td>
<td>$2,242,011</td>
<td>$27,802,561</td>
<td>8.1%</td>
</tr>
<tr>
<td>FY01</td>
<td>$2,365,319</td>
<td>$26,620,082</td>
<td>8.9%</td>
</tr>
<tr>
<td>FY02</td>
<td>$4,108,341</td>
<td>$32,323,171</td>
<td>12.7%</td>
</tr>
<tr>
<td>FY03</td>
<td>$5,204,882</td>
<td>$34,286,901</td>
<td>15.2%</td>
</tr>
<tr>
<td>FY04</td>
<td>$772,509</td>
<td>$47,842,839</td>
<td>1.6%</td>
</tr>
<tr>
<td>FY05</td>
<td>$1,784,111</td>
<td>$49,013,312</td>
<td>3.6%</td>
</tr>
<tr>
<td>FY06</td>
<td>$1,131,588</td>
<td>$31,377,816</td>
<td>3.6%</td>
</tr>
<tr>
<td>FY07</td>
<td>$1,328,819</td>
<td>$25,933,564</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

| 10-Year Average | 6.6% |

Table 5.5 Notes: 1) Figures are Federal funds only and do not include State and/or local match that may be required. 2) Percentages may actually be higher because some projects categorized under *Function and Performance Preservation, Bridge Preservation* and *Capacity* include a bike/pedestrian facility component that is not accounted for in the standalone Bike/Pedestrian category. 3) The percent of obligated funds that went to bicycle and pedestrian projects in fiscal years 2002 and 2003 was exceptionally high due to the construction of the Winooski River Bridge on the Burlington Bike Path. The percent of obligated funds that went to bicycle and pedestrian projects in FY 1998 and 2004 were exceptionally low. If the high and low years are excluded the average is approximately 5.9 percent annually which is close to the recommended level. Since this Plan recommends that a number of critical crossings are built to complete the regional network large projects similar to the Winooski River Bridge will be necessary in the future. For this reason the Plan uses the full 10-year average.

The annual average of funds going to bicycle and pedestrian projects may be higher still if other roadway and bridge improvement projects that include a bicycle-pedestrian component were included. It is difficult to quantify how much of the funding for those projects are specifically set aside for the bicycle-pedestrian component. This data limitation makes it impractical to recommend a percentage of annual funding that should go to projects with bicycle-pedestrian components. Instead, these projects should be recognized and deliberate action should be taken to ensure that they are carried out and the bicycle-pedestrian component is not eliminated.

5.6 Implementation Strategies

Key strategies that will maximize the implementation of the Plan and make the most effective use of transportation funds and opportunities are:

Facility Placement

1. Work to make every street bicycle and pedestrian compatible to the extent practicable, where bicycling and walking are not specifically prohibited.

2. Give highest construction and planning fund priority to inter-municipal on-road and shared-use path projects that overcome barriers, address critical crossing needs and fit into or connect with regional or local systems.

3. Give priority to projects that provide on-road and shared-use path and sidewalk connections between Town Centers, designated Growth Areas, and other regional destinations.

4. Ensure that bicyclists and pedestrians are accommodated in every transportation project such as roadway reconstruction/rehabilitation, bridge rehabilitation/replacement, development of intermodal centers, and design of transit services.

Facility Design

1. Use the VTrans Pedestrian and Bicycle Facility Planning and Design Manual guidelines for projects receiving funding through the CCMPO.

2. Encourage flexibility in the application of design standards and guidelines as long as safety concerns are not compromised.

3. Design with the appropriate level of anticipated demand for the facility and for the skill level of expected users.

4. Design with maintenance and life-cycle costs in mind through material choice and construction methods.


**Education, Encouragement & Enforcement**

1. Develop and implement a multi-faceted approach to education related to bicycle and pedestrian issues, focusing on safe operation and sharing the road.

2. Advocate for the funding and implementation of Education, Encouragement, and Promotion activities.

3. Work with local police departments to encourage the enforcement of motor vehicle laws and laws governing bicyclists and pedestrians.

4. Work with local, regional and statewide partners to improve the accident reporting system related to bicycling and walking.

5. Support the growth and maintenance of Safe Routes to Schools (SRTS) efforts.

6. Create a user-friendly bicycle map of the CCMPO region.

7. Review municipal plans for pedestrian and bicycle content during CCRPC’s local plan review process.

8. Educate local recreation path committees and other interested groups on the content and intent of this plan.

**Funding**

1. Encourage developer funded bicycle and pedestrian accommodations since they are an essential part of all commercial and residential developments/redevelopments.

2. Ensure that full consideration of bicycle-pedestrian facilities is provided in the use of all federal transportation funds by the CCMPO, as required by federal law. This means including these facilities, where practicable and feasible, in all traditional roadway projects.

3. Develop an innovative mix of local funds to implement bicycle and pedestrian facilities.

4. Expand the use of state and federal funding for bicycle and pedestrian projects by publicizing the flexible use of funds for standalone bicycle-pedestrian projects and for including bicycle-pedestrian facilities in traditional road and bridge projects.

5. Maximize the use of private funding through the use of developer exactions, impact fees, or other private fundraising efforts.
6. Program 6 to 7 percent of funds per year in the CCMPO TIP, on a three year average, for standalone bicycle-pedestrian projects.

7. Work to increase the number of funding programs available and diversify existing programs for use in maintaining shared use paths, on-road bicycle facilities and sidewalks through a working group consisting of municipal representatives.

**Measuring Progress**

1. It is recommended that the CCMPO adopt a series of bicycling and pedestrian-related performance measures. Specific data collection efforts should be incorporated into the CCMPO’s annual work plan so that responsibility for obtaining the data will be assigned to appropriate staff.

2. The CCRPC should maintain the GIS database of the regional bicycle and pedestrian network between plan years as the data becomes available. As additional segments of the bicycle and pedestrian network are built or designated they should be entered into the CCRPC’s GIS database as “existing” and be marked with the year they were built or designated.
5.7 **Performance Measures**

Performance measures are tools to monitor progress toward the goals stated in this Plan over time. Performance measures are typically quantitative in nature; baseline information is collected and then the data is tracked through time at specified intervals to monitor progress.

For performance measures to be useful they should:
- Be relevant to the goals stated in this plan
- Be easily understood and measured
- Be measurable from data that has been collected and is available
- Be collected at least every 5 years
- Assign the agency responsible for gathering the data

Fulfilling these criteria will make the performance measures easy to collect and use, and ensure that they are appropriate.

The performance measures recommended in the 2003 Plan Update provided little monitoring capability because they were confusing and responsibility to track the measures was not assigned. Recognizing these difficulties, the performance measures have been refined so that they will be easier to implement. **Table 5.8** summarizes each of the five goals and recommends performance measures that can be used to track progress towards each one. The measures were designed based on data that is already available and performance measures that are used in the VTrans *Vermont Pedestrian and Bicycle Policy Plan*. Table 4 also lists the source of the data and how often the data should be collected. The CCMPO should incorporate these data collection efforts into the organization’s annual work plan so that responsibility for obtaining the data will be assigned to appropriate staff.

It should be recognized that no one performance measure by itself will determine the success of this Plan. The performance measures must be examined together to fully assess progress. For instance, if the total mileage of bicycle and pedestrian facilities were to increase dramatically, but the number of users walking and bicycling remained the same or even declined, that would signify that there is an issue somewhere in the system that needs to be addressed.
Table 5.7: Recommended Performance Measures

<table>
<thead>
<tr>
<th>Goal</th>
<th>Performance Measures</th>
<th>Source and Responsible Party</th>
<th>Data Collection Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1: Continue to Build and Enhance the Regional Network of Bicycle and Pedestrian Facilities</td>
<td>Miles of non-motorized facilities (on-road, shared-use, and sidewalk facilities)</td>
<td>CCMPO - inventory</td>
<td>every 5 years</td>
</tr>
<tr>
<td></td>
<td>Percent of TIP allocated to bicycle/pedestrian projects</td>
<td>CCMPO</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>Percent Change in the number of non-Enhancement and Bicycle and Pedestrian projects that include accommodations for bicyclists and pedestrians</td>
<td>CCMPO</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>Number of connections between Town Centers/Growth Areas (via on-road, shared-use, and sidewalk facilities)</td>
<td>CCMPO - monitoring</td>
<td>biannually</td>
</tr>
<tr>
<td>#2: Continue to Make Bicycling and Walking Safer Throughout the CCMPO Region</td>
<td>Number and severity of police-reported bicycle crashes</td>
<td>Police</td>
<td>biannually</td>
</tr>
<tr>
<td></td>
<td>Number and severity of police-reported pedestrian crashes</td>
<td>Police</td>
<td>biannually</td>
</tr>
<tr>
<td></td>
<td>Total number of students participating in bicycling or walking education and safety programs</td>
<td>Local Motion</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>Number of law enforcement officers receiving bicycle and pedestrian rights and responsibilities training</td>
<td>CCMPO survey</td>
<td>biannually</td>
</tr>
<tr>
<td></td>
<td>Municipal expenditures on bike/pedestrian maintenance activities</td>
<td>Municipalities</td>
<td>biannually</td>
</tr>
<tr>
<td>#3: Ensure Facilities are Appropriately Planned and Designed</td>
<td>Ratio of designated on-road miles (Type A Bicyclist appropriate) to shared-use miles (Type B and C Bicyclist appropriate)</td>
<td>CCMPO - inventory</td>
<td>every 5 years</td>
</tr>
<tr>
<td></td>
<td>Percent of major destinations that are bicycle and pedestrian accessible</td>
<td>Municipalities &amp; CCRPC</td>
<td>every 5 years</td>
</tr>
<tr>
<td>#4: Enhance Community and Regional Acceptance of Bicycling and Walking as Transportation Modes</td>
<td>Share of work commute trips made by walking, bicycling, or 'other modes' out of all work commute trips</td>
<td>American Community Survey*</td>
<td>Annually or biannually</td>
</tr>
<tr>
<td></td>
<td>Change in percent of all workers who commute to work by walking or bicycling</td>
<td>American Community Survey*</td>
<td>biannually</td>
</tr>
<tr>
<td></td>
<td>Number of bicycle boardings on CCTA</td>
<td>CCTA</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>User satisfaction with bicycle/pedestrian facilities</td>
<td>MTP survey</td>
<td>every 5 years</td>
</tr>
<tr>
<td></td>
<td>Changes in walking and bicycling to and from school for Safe Routes to School program participating schools</td>
<td>Local Motion</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>Changes in walking and bicycling participation from Way to Go! Week</td>
<td>CCMPO and Way to Go! partners</td>
<td>annually</td>
</tr>
<tr>
<td></td>
<td>Bicycle and pedestrian use of shared use paths and other bike/pedestrian facilities</td>
<td>CCMPO and VTrans counts</td>
<td>annually</td>
</tr>
<tr>
<td>#5: Enhance Environmental Protection, Economic Vitality, and Healthy Lifestyle Efforts</td>
<td>To measure economic and environmental benefits of investments in pedestrian and bicycle projects and programs, the Vermont Pedestrian and Bicycle Policy Plan states that these indicators would be measured through a special study. It is recommended that CCMPO partner with VTrans on completing this study. Healthy Lifestyles can be tracked through usage numbers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal #6: Educate the Public and the Business Community on the Benefits of Bicycling &amp; Walking</td>
<td>Number of programs listed in the continuing, near-term, and long-term education and encouragement program that have been implemented</td>
<td>Primary agency operating program</td>
<td>annually</td>
</tr>
</tbody>
</table>

* The American Community Survey is performed annually by the US Census Bureau. Detailed data tables are available to show communities how they change year to year. There is data for Chittenden County that could be used to track community indicators in the years between each full Census, the next of which will be completed in 2010.
5.8  Timeline and Funding Priorities

Section 5.3, Estimated Costs for the Recommended Network, estimates that the cost to implement the recommended regional shared use path and on-road bicycle networks is more than $500 million. This total far exceeds the recommended minimum twenty year spending total for standalone bicycle and pedestrian projects. This amount is approximately $40 million at $2 million per year if 6 to 7 percent of the Federal TIP funds are designated for bicycle and pedestrian projects as recommended in this Plan. As discussed previously, a combination of funding and implementation strategies will be needed to construct all these facilities.

The timeline below places emphasis on the near-term. The focus of this time period should be on increasing the effectiveness of existing paths and on-road bicycle facilities by filling gaps in the network.

Near-term (0-5 years)

1. Focus Shared Use Path implementation efforts on filling high priority gaps in the existing shared use path network. Priorities include:
   - Allocating funds for two major river crossings over the Winooski River between Burlington and Winooski.
   - Funding shared use path projects that complete missing sections between existing paths identified in the regional network, including: The Muddy Brook Path between South Burlington and Williston, Champlain Path along the rail corridor from Burlington south to Charlotte, VT RT 15 Corridor path segments linking Essex to Winooski and out to Jericho, and the Cross Vermont Trail segments between Richmond and Williston.

2. Roadway projects will be planned, designed and constructed under the assumption that they will be used by pedestrians and bicyclists (except where specifically prohibited such as on limited access highways).

3. Allocate some portion of planning and TIP funds to safety, education and promotion projects such as Safe Routes to School, pedestrian and bicycle safety, bicycle and pedestrian maps, and signage and roadway marking programs.

4. Continue supporting the CCMPO sidewalk program and increase funding as appropriate.

5. Roadway paving projects on facilities designated as part of this plan’s On-Road network will mark, as appropriate, safe shoulder widths for pedestrians and bicyclists.

6. Implement the highest priority bicycle and pedestrian elements of the Lake Champlain Bikeways program including low cost route improvements, maps and route signage.
7. For the critical crossings identified in this plan, design and implement safe pedestrian and bicycle facilities whenever these are scheduled for repair, rehabilitation or replacement.

**Long-term (6 or more years in future)**

1. Continue to ensure that bicycle and pedestrian components (sidewalks, pedestrian signals, on-road bicycle facilities, paths or reserved rights of way for paths) are included in all roadway and bridge projects, except where prohibited by law.

2. Work outwards from established population and employment centers when prioritizing shared use path projects to ensure that funded projects make regional connections.

3. Continue support and funding of the near term recommendations cited above.
Appendix A

Existing Local Education and Encouragement Providers and Programs
Appendix A: Existing Local Education and Encouragement Providers and Programs

The following is a list of organizations in Vermont and Chittenden County who offer various programs that educate the public about bicycling and walking, and encourage the use of non-motorized transportation modes.

Local Motion (www.localmotion.org)
Local Motion is a membership-driven non-profit organization whose mission is to “promote bicycling, walking, running, inline skating and the facilities that make sure travel safe, easy and fun.” The organization seeks to improve personal health and the local economy by developing regional trails, promoting walkable communities, and fostering active lifestyles. Local Motion programs include:

**Bike Recycle Vermont** – a program that 1) provides refurbished bicycles to resettled refugees and other low-income Vermonters; 2) delivers job skills and bike repair training to adults and children with limited means or physical challenges; and 3) reduces the waste stream by diverting bicycles destined for the landfill and recycling metal and rubber components.

**Safe Routes to School (SRTS)** – a program helping children in participating primary and middle schools (K-8) walk and bike to school: regularly, routinely, and safely. SRTS integrates elements of transportation, economics, health and physical activity, environmental awareness and safety into one program. Local Motion is the contracted regional coordinator for this statewide program overseen by VTrans.

**Trail Finder** – an online interactive resource for maps, directions, and points of interest for trails in Chittenden County. The site includes comments and photos from users. Seventy trails have been mapped already. Municipalities and trail managers can update maps directly on the site. Partners: CCRPC, CCMPO, LC Bikeways, VT Recreation Trails Fund and trail managing entities.

**Close the Gaps** – a campaign to unite town sidewalks, paths and bike lanes into a seamless regional network for walking and bicycling. Local Motion works with community leaders, transportation planners and residents to identify and address gaps in the regional bike/pedestrian system. One component incorporates Google My Maps so that bike commuters can post their routes for others to see and use.

**Causeway Bike Ferry** – Local Motion is developing a passenger ferry service between Colchester Causeway Park and Allen Point in South Hero across a 200’ gap on a former railroad causeway. The ferry currently operates weekends in August on a demonstration basis and by private charter. Infrastructure improvements are planned to enable daily service. This is a specific program of the Close the Gaps effort described above.

**Trailside Center** – a information hub on the Burlington Bike Path. The Trailside Center is open daily through the summer and fall to provide outdoor enthusiasts with
free maps, referrals, safety tips, bike and blade rentals, and advocacy information. Secure bike lockers are available on site.

Other Local Motion activities include:
- An informative website on a variety of topics relevant to non-motorized transportation and advocacy
- Island Line Trail development in neighboring Grand Isle County
- Discounts from local businesses for those using alternative transportation and for Local Motion members
- Partner in the “Way to Go!” Commuter Challenge

Lake Champlain Bikeways ([www.champlainbikeways.org](http://www.champlainbikeways.org))
The mission of Lake Champlain Bikeways is to promote bicycling throughout the Lake Champlain regions of New York, Vermont, and Quebec for the purposes of increasing opportunities for bicycle recreation and transportation, improving the quality of life, enhancing the economic vitality, advocating for sustainable communities, encouraging healthy lifestyles, and raising public awareness and appreciation of inherent scenic, historic, cultural, natural and recreational resources throughout the area.

Lake Champlain Bikeways is primarily a marketing initiative to promote bicycle tourism. They offer route information and accommodation information along the Lake Champlain Bikeway in Vermont, New York, and Quebec. Recently their efforts have included installing signs to promote and demarcate the route. They also produce brochures with bike rides of different lengths and information about destinations along the way, and plan to publish a brochure for Chittenden County in the near future.

Vermont Bicycle & Pedestrian Coalition ([www.vtbikeped.org](http://www.vtbikeped.org)).
The mission of the Vermont Bicycle & Pedestrian Coalition is to promote bicycling and walking in Vermont, emphasizing access, safety, and education.

Some of their activities include:
- Share the Road media campaign aimed at bikers, walkers, drivers, runners (radio PSAs, brochures, stickers, flyers, tabling, etc.)
- A “Bike Driver Checklist” sticker for bicycles that offers clothing and safety tips.
- BikeSmart in local schools promotes “safe bicycling driving” (helmet, bright & tight clothes, ABC bike safety check, and basic rules of the road). The program runs in partnership with VTrans & VT Safe Kids
- Bicycle Safety Fairs that simulate traffic situations for kids to learn bike safety rules. Interest communities contact VBPC for this program
- Outreach to groups such as those over 50, programming targeting that demographic to walk and bicycle, get active again, feel safer, get basic instruction, for example, “Boomer Bike Rides”

Cross Vermont Trail Association ([www.crossvermont.org](http://www.crossvermont.org))
The mission of the Cross Vermont Trail Association is “to assist municipalities, recreation groups, and landowners in the creation and management of a four-season,
multi-use trail across the state of Vermont for public recreation, alternative transportation, and awareness of our natural and cultural heritage.”

Their activities include:

- Developing and posting CVT Route Signage
- Public Outreach and Coordination
- Developing a detailed series of three regional “CVT Trail Guides” covering the Champlain Valley, Central Vermont, and the Upper Valley
- Organizing special events, such as National Trails Day, Group Rides, Volunteer Days to promote the CVT and to increase media attention and support for the trail
- Soliciting members to lead group bike rides

**Burlington Bicycle Council** ([www.burlingtonbikecouncil.org](http://www.burlingtonbikecouncil.org))

The Burlington Bicycle Council is a citizens' advocacy organization working to promote the safe use of bicycles for transportation and recreation in Burlington, Vermont. The Council was created by the City of Burlington's Mayor's Office to serve as an advisory body to the Department of Public Works, representing the bicycling public in planning and developing bicycling facilities such as bike paths and bike lanes in Burlington.”


The Burlington Walking Work Group is an ad hoc group devoted to making Burlington a walkable city.

The group’s goals are to:

- Make Burlington’s streets and sidewalks safer
- Educate and engage residents, public agencies, and officials on the need for a more pedestrian-friendly environment
- Promote walking as a fun, healthy, accessible transportation and recreation alternative
- Ensure that as Burlington grows or changes, it remains a pedestrian-oriented city
- Increase funding for pedestrian planning, projects, and activities
- Make Burlington the most walkable city in the Northeast

Their activities include providing comments on State and local bicycle and pedestrian policies and local transportation projects. They hold monthly meetings, organize walking events, and provide information on pedestrian-related meetings happening around the County.

**Fellowship of the Wheel and Bellaship** ([http://www.fotwheel.org/](http://www.fotwheel.org/))

The mission of Fellowship of the Wheel is to create and maintain mountain biking opportunities in the greater Chittenden County region of Vermont and promote advocacy and leadership in the trail riding community. Bellaship is the women’s society of FOTW and offers resources to female riders of all ages and abilities. They organize rides for women, offer clinics on topics such as bike maintenance and skill building.
Green Mountain Bicycle Club (http://www.thegmbc.com/Advocacy.shtml)
The Green Mountain Bicycle Club is the oldest bicycle club in the State. They coordinate a number of activities for bicycle advocacy and education such as:
- Working with the Vermont Bicycle and Pedestrian Coalition to revamp the state driver’s manual in 2001 to include more information about bicycle safety and awareness
- Maintain a website where people can post suggested bike routes to avoid busy roads
- Organizes group rides of different difficulty levels
- Organized discounts for members at bicycling related stores and service
- Wrote a proposed guide for the State of VT Department of Motor Vehicles and the Vermont Agency of Transportation to use as the official Share the Road guide.

Campus Area Transportation Management Association (CATMA) (www.catma.org/)
CATMA manages the transportation needs of institutions located in Burlington’s Campus District. The Campus District is an area of less than one square mile that is home to the American Red Cross, Champlain College, Fletcher Allen Health Care (FAHC) and the University of Vermont and State Agricultural College UVM). Together these institutions have over 9,000 employees, more than 13,500 enrolled students and more than 700,000 patient visits per year.

CATMA offers numerous programs to help employees of its member institutions use transportation modes other than single occupancy vehicles, including a Bike/Walk Bucks Reward Programs. Eligible participants register to walk or bike between home and work at least 3 days a week for two 4-week blocks. The blocks are tracked on a punch card. Once the punch card is complete participants may choose from a variety of prizes each worth $15.

CATMA also offers free emergency rides home to employees who use alternative modes of transportation to get to and from work, including walkers and cyclists.

Another incentive program is employees can register with CATMA’s RideWorks program to be entered in a monthly prize drawing. Participants must walk, bicycle, or use another alternative transportation mode twice a week to enter.

Chittenden County Transportation Authority (CCTA) (www.cctaride.org/)
CCTA is the only transit authority in the State of Vermont. CCTA’s mission is “to promote and operate safe, convenient, accessible, innovative and sustainable public transportation services in the Chittenden County region that reduce congestion and pollution, encourage transit oriented development and enhance the quality of life for all.” CCTA’s Bikes on the Bus program encourages people to make multi-modal trips using the bus and their bikes. All buses are equipped with easy to use bicycle racks on the front.
ADDITIONAL ORGANIZATIONS

Bicycle Shops
Some bicycle shops offer occasional clinics (such as flat fixing or gear shifting clinics) and/or group rides. Several shops host events and/or rides that are aimed at encouraging women cyclists.

Clubs and Racing Teams
Several clubs have activities aimed at encouraging women riders and young racers. A few of these classes and rides are aimed at inexperienced riders, but most are designed for experienced road riders.
- University of Vermont Cycling Team http://www.uvm.edu/~cycling/
- VT Mountain Bike Association http://www.vmba.org/

OTHER BICYCLE & PEDESTRIAN PROGRAMS

Way to Go! Commuter Challenge
Way to Go! is an annual program encouraging the use of cheaper, healthier, and more earth friendly transportation alternatives through extensive public and business outreach. (www.waytovgvt.org)

The program’s goal is to change trip-making behavior in favor of less polluting and healthier alternatives. It does this by providing information on carpooling, walking, biking, telecommuting, special transportation services through its website and direct outreach to employers. It also gives award incentives to encourage individual participation and an employer competition to recognize organizations/businesses that demonstrate the highest employee participation rates.

The Way to Go! Partners include the Campus Area Transportation Management Association (CATMA) Chittenden County Metropolitan Planning Organization (CCMPO), Chittenden County Transportation Authority (CCTA), Lake Champlain Committee, Local Motion, The Alliance for Climate Action 10% Challenge, and VTrans.

Bicycle Benefits: (www.bicyclebenefits.org)
Bicycle Benefits is a year-round sustainable bicycle program designed to reward individuals and businesses for their commitment to cleaner air, personal health, and use of pedaling energy in order to create more sustainable communities. Participating cyclists are identified by a sticker on their helmet and are rewarded through discounts and incentives from local businesses. There are currently 29 businesses participating in this program in the Burlington area. Other states that have communities participating in Bicycle Benefits are Colorado, Massachusetts, Utah, New York, and British Columbia, Canada.

Walk Smart/Bike Smart (www.healthandlearning.org/new.html)
The Vermont Center for Health and Learning has developed a pedestrian and bicycle safety education program that teaches walking and bicycling safety to children in grades
K-6. It places an emphasis on parental and community involvement in helping to give children the knowledge and skills to walk and bike safely in traffic. The curriculum is divided into two sections: a pedestrian safety program for K-2 and a bicycle safety program for students in grades 2-6. Key concepts and skills are grouped by topic headings and grades. This education component was developed as part of VTrans’ Safe Routes to School Program.

**Mall Walkers** ([www.umallvt.com/mall_walker.html](http://www.umallvt.com/mall_walker.html))

The University Mall in South Burlington, along with the Governor's Council on Fitness, Fletcher Allen Health Care, the United Way of Chittenden County and Champlain Initiative offers the Mall Walker program. The purpose is to promote physical fitness by providing a safe, climate-controlled environment for people to walk in. The mall opens at 6:00 am for walkers Monday through Saturday, and at 7:00 am on Sundays. Optional membership in the Mall Walkers program is free and members receive a packet containing a mileage log/rewards card and a brochure explaining the benefits of walking. Also, as members reach certain walking distance milestones they can get prizes such as mugs and pedometers.

There is also an annual mall walker appreciation day where members can get a complimentary breakfast, free blood pressure screenings, and other health information.


On Saturday May 12, seventy people from the area came together at the Chittenden County Pedestrian Bike Summit 2007. The group shared ideas on ways to improve and established priorities for infrastructure projects that would fill the gaps in the current pedestrian and bicycle network. Other discussion focused on the education and encouragement activities and their relation to the percentage of bicycling trips in the county.

**LAB/LCI Programs** ([www.bikeleague.org/](http://www.bikeleague.org/))

The League of American Bicyclists website lists four LCI instructors in Chittenden County, at least one of whom has taught courses within the past year. Information about upcoming courses is not posted on the Bike League website; interested persons should contact the instructors directly.


Cycling merit badges are a popular goal for many boy scouts in Chittenden County. To earn this badge, scouts must demonstrate knowledge of first aid, basic bicycle maintenance and repair, safe braking, flat repair, road skills and state cycling laws. They must also plan and complete two rides of 10 miles each, two rides of 15 miles each, two rides of 25 miles each, and one 50-mile ride.

Many local Girl Scout troops earn their Rolling Along Interest Award by participating in cycling activities.
Appendix B

Municipal Survey Questionnaire & Results
Appendix B: Municipal Survey Questionnaire & Results

CCMPO Bicycle & Pedestrian Facilities Map Update & Survey

1. Map Update Directions

On the attached map(s) please draw and label:

- **Newly completed** sidewalks, designated bicycle lanes, wide-paved shoulders appropriate for bicycle use and shared-use/recreational paths.
- **Newly proposed** sidewalks, designated bicycle lanes, wide paved shoulders appropriate for bicycle use and shared-use/recreational paths.

2. Survey Questions

(Use additional sheets of paper to answer these questions if necessary)

a. What programs does your community provide to teach citizens (and/or drivers) about pedestrian and bicycle safety?

b. What programs does your community hope to offer in the future to teach citizens (and/or drivers) about pedestrian and bicycle safety?

c. What programs does your community provide to encourage bicycling and walking as a means of transportation (not just for recreation)?

d. What programs does your community hope to offer in the future to encourage citizens to walk and bicycle as a means of transportation (not just for recreation)?

e. Do you have your own digital (GIS) data showing bicycle and pedestrian facilities or do you rely on another agency/group (such as the Chittenden County Regional Planning Commission) for such information? If so, please list the agency/group.

Thank you for taking the time to complete this map update exercise and survey!

Please return map(s) & survey results to the address or e-mail below by November 15, 2007.

SOFlaherty@wilbursmith.com

Sandra O'Flaherty
Planning Analyst
Wilbur Smith Associates
95 St. Paul Street, Ste 210
Burlington, VT 05401
(802) 985-2530 x305
### Appendix B: Municipal Survey Questionnaire & Results

<table>
<thead>
<tr>
<th>TOWN</th>
<th>Existing Programs for Bike/Pedestrian SAFETY</th>
<th>Future Programs for Bike/Pedestrian SAFETY</th>
<th>Existing programs for Biking/Walking as a TRANSPORTATION mode</th>
<th>Future programs for Biking/Walking as a TRANSPORTATION mode</th>
<th>Have own GIS data?</th>
<th>Data from CCRPC?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolton</td>
<td>None currently (formerly had bike safety rodeo, but volunteer left)</td>
<td>None planned</td>
<td>None-given rural, mountainous topography</td>
<td>None planned</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Burlington</td>
<td>Burlington DPW and Burlington Bicycle Council (BBC) run Bike Safe advertisements on city buses in late spring and late summer. DPW and BBC have partnered with Local Motion and other stakeholders to create and distribute coupons for safety gear (helmets, lights, reflective clothing, etc.). Every other year, DPW runs TV and radio PSAs provided by FHWA’s Pedestrian Safety Toolkit and Bike Safe TV ads from the BBC. We have also had success working with the Police Department to encourage enforcement of moving violations that could put bicyclists and pedestrians at risk. We also print and distribute safety materials/brochures at events. Early this year, DPW, the BBC, and Vermont Bicycle and Pedestrian Coalition held a Road I Bike Ed class from the League of American Bicyclists and we hope to make this an annual event. City Departments, the Burlington Walking Work Group, and community stakeholders have held several community walks where safety is discussed, although it is not the primary focus of the walks. None at this time</td>
<td>We offer free bike maps; monthly meetings of the BBC that are open to the public (with free pizza to encourage attendance); monthly meetings of the Burlington Walking Work Group that are open to the public; numerous bike shops offer bike clinics for year-round riding; DPW’s website maintains a list of frequently asked questions that are intended to assist bicyclists, pedestrians, and drivers; all of the above safety programs are intended to encourage people to bike/walk for any trip; a bicycle parking requirement is proposed in the draft Zoning Ordinance, which was intended to provide adequate facilities for bicycle commuters; bicycle parking is installed annually; many businesses participate in the Bicycle Benefits program that offers discounts to bicyclists that present a Benefits sticker on their helmet (this also is a safety feature since cyclists are required to have their helmet to receive the benefit); several schools currently participate and others are interested in the Safe Routes to School program; bicycle lockers are available on the waterfront. Install long-term bike parking downtown; develop a downtown TMA that provides incentives to walk or bike to work and provide assistance w/ incentives for biking &amp; walking; include alternative transportation in education and outreach campaign materials; install more bike lanes and bike facilities to create a complete bike network; develop a proactive work plan for sidewalk improvements such that priority areas for pedestrian travel receive a higher ranking than other areas.</td>
<td>Install long-term bike parking downtown; develop a downtown TMA that provides incentives to walk or bike to work and provide assistance w/ incentives for biking &amp; walking; include alternative transportation in education and outreach campaign materials; install more bike lanes and bike facilities to create a complete bike network; develop a proactive work plan for sidewalk improvements such that priority areas for pedestrian travel receive a higher ranking than other areas.</td>
<td>We do not have our bike or pedestrian facilities in GIS. We occasionally create maps of specific streets or areas where bike and/or pedestrian facilities exist if those areas are part of a larger discussion or part of a project. We do utilize the CCMPO’s mapping.</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>not aware of any but school may provide programs</td>
<td>not aware of any but school may provide programs</td>
<td>not aware of any but school may provide programs</td>
<td>not aware of any but school may provide programs</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Colchester</td>
<td>The Colchester Parks and Recreation Department offers a bike camp in conjunction with the Colchester Police Department during one week in the summer. This camp instructs kids bike safety and etiquette. None at this time</td>
<td>None at this time</td>
<td>None at this time</td>
<td>None at this time</td>
<td>yes, Colchester Planning &amp; Zoning Office</td>
<td></td>
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<tr>
<td>Essex</td>
<td>The Police Department has held Bike Safety and Bike Registration clinics in the past. During the summer the Police Department has a bike patrol that focuses on parks and other public areas where there are kids. One of the goals of the patrols is to make sure that kids are operating their bikes properly. At this time there are no plans to expand the existing programs that are being offered.</td>
<td>There are no specific programs that encourage bicycling as a means of transportation. Part of the development review process is to ensure new development includes bike path/sidewalks or bike lanes. The Parks and Recreation Department has maps of the various bike paths available to those interested</td>
<td>At this time there are no plans to expand the existing programs.</td>
<td>The Town employs a GIS coordinator that develops all the digital maps for the community.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essex Jct</td>
<td>Schools may have programs, municipality does not</td>
<td>Enrollment in SRTS is a goal</td>
<td>Infrastructure maintenance &amp; expansion to support biking/walking and compact mixed-use land use</td>
<td>Participate in Way to GO! Week</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Town</td>
<td>SRTS at Community School (elementary)</td>
<td>Drivers Education classes via Town Recreation Dept.</td>
<td>Nothing additional planned</td>
<td>no specific programs, just lots of efforts to create infrastructure and citizen committees working on walkability issues</td>
<td>None</td>
<td>yes</td>
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<tr>
<td>Hinesburg</td>
<td>~SRTS at Hinesburg Community School (elementary)</td>
<td>~Drivers Education classes via Town Recreation Dept.</td>
<td>Nothing additional planned</td>
<td>no specific programs, just lots of efforts to create infrastructure and citizen committees working on walkability issues</td>
<td>None</td>
<td>yes</td>
</tr>
<tr>
<td>Huntington</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>yes</td>
</tr>
<tr>
<td>Jericho</td>
<td>Pedestrian and bicycle safety is a component of Jericho Elementary School’s Safe Routes to School Program.</td>
<td>see next question response</td>
<td>Jericho is currently encouraging bicycling and walking through transportation infrastructure improvements, including the installation of sidewalks, cross walks, and traffic calming measures in Jericho Comers, construction of sidewalk from the Jericho elementary school entrance to Griswold Street (also in Jericho Comers), and the construction of sidewalks and crosswalks in Jericho Center.</td>
<td>The Planning Commission is currently discussing potential improvements to the informal network of paths connecting Jericho Elementary School to surrounding neighborhoods, with the goal of creating safe pedestrian routes that allow children to access the school without walking on RI 15. The Planning Commission and DRB are also working to acquire easements for future pedestrian connections as part of development review.</td>
<td>Jericho keeps its own GIS data, but also utilizes the services of CCRPC and CCMPO</td>
<td>yes</td>
</tr>
<tr>
<td>Milton</td>
<td>Recreation Dept. will be offering an adult bike riding program and an adult walking group. Both have informational components. The Milton Family Practice is giving bike safety classes and every child a helmet.</td>
<td>None at this time</td>
<td>None at this time</td>
<td>None at this time</td>
<td>Milton keeps its own GIS data, but also utilizes the services of CCRPC and CCMPO</td>
<td>yes</td>
</tr>
<tr>
<td>Richmond</td>
<td>Richmond Police Department bicycle helmet safety program at Richmond Elementary School (annual); recent improvements to signage at crosswalks and annual inspections of signs in these locations; “share the road” signs are installed at various locations; annual appointment of the Richmond Trails Committee to involve interested citizens in gaining support for town projects either through grant application letters of support or funding support. Working with Safe Routes to Schools citizens committee to identify and address bike/pedestrian needs through SRTS School Travel Plan for Richmond and VTrans Enhancement Program, both programs rely on citizen participation to be successful, including public hearings and budget discussions or votes.</td>
<td>Maintaining existing sidewalks in good condition within the village area and trying to increase shoulder widths where possible on regional network routes as projects prepare for construction</td>
<td>Completing projects identified in the School Travel Plan, continue to hold annual walk to school events and support hike for hunger fundraising efforts; continuing to engage the SRTS participants in future educational and planning efforts to encourage walking to schools, monitoring compliance with the new Town Energy Conservation Policy as well as incorporating walk to school/work goals for the community within that policy and providing safe bike/pedestrian access across the Winooski River at Bridge Street.</td>
<td>Richmond keeps its own GIS data, but also utilizes the services of CCRPC and CCMPO</td>
<td>yes</td>
<td>yes</td>
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</tbody>
</table>
South Burlington

Annually the Youth Services Crime Prevention Unit of the South Burlington Police Department and the South Burlington Recreation Department team up to offer and present programming on bike and helmet safety. We include programming for camps that teach formation riding and bicycle laws of the road. The Community Service Bike Patrol that works for us in the summer continues to offer training in this area with announcements and one on one contact in the community. Part of the bike patrol’s role on the path is to promote and teach safety on the path. Our National Night Out displays also reflect this effort.

Enhancement of a bike obstacle course at National Night Out and Community Service Patrols, visits to local senior centers that use our nearby walking and biking paths to encourage use and awareness of safety issues. Also partnering with the schools on “Safe Routes to School” program.

The city offers yearly a Community Service Patrol to monitor the Bike paths for safety and awareness efforts for safe environments of our community bike and recreation paths. Our most recent map update reflects our interest in marking on-road bike lanes on major roads and connections. This was a major undertaking of the committee this past year to identify “transportation corridors” for bike transportation. We’ve also discussed ways we could work better with the business community to help promote this effort. We continue to work with the local DRB to make appropriate recommendations relative to this, and our goal is to have the Planning Commission adopt are revisions to the map as part of the new “Official City Map”. An additional item which comes to mind in regards to the promotion of bicycle and pedestrian options is from the schools. They have a “Walk Your Child to School Day” which I believe is part of a national program. They did it at the Chamberlin School this fall. The fire dept and police dept were present to walk and escort the kids, parents, and school personnel. News media also covered the event to help promote the idea as a gas saving measure as well as to promote wellness.

Ongoing discussion with the Community Recreation Path Committee and the South Burlington Recreation Department is to enhance these and other ideas. Safety and expectation of safety on our bike paths is a primary goal. Continued efforts to work with local businesses to offer bicyclists a discount are being discussed. Also, as our new “City Center” begins to take shape, our committee is very involved in making this a destination place for pedestrians and bicyclists. Part of our involvement in this effort is to assure that reasonable routes and access are provided, and bike racks and storage are readily available.

Programs being planned as part of SRTS as of 10/07:
- Pedestrian education K-2 grade
- Bike education 3-8 grade
- Bike Rodeo
- Traffic Safety Magic Show
- Surveys
- Safety reinforcement/reminders (safety tip of the week, quarterly handouts, etc)
- Non-SRTS event: Safe Walk to School Day

Shelburne

Pedestrian Education K-2nd grades
Bike education 3-8th grades
Surveys
Safe Walk to School Day

Programs being planned as part of SRTS as of 10/07:
- Pedestrian education K-2 grade
- Bike education 3-8th grades
- Bike Rodeo
- Surveys about parent/student attitudes on walking and statistics on travel behavior
- Safe Walk to School Day
- Safety reinforcement/reminders (safety tip of the week, quarterly handouts, etc)
- Non-SRTS event: Safe Walk to School Day

Non-SRTS event: Safe Walk to School Day

Programs being planned as part of SRTS as of 10/07:
- Pedestrian education K-2 grade
- Bike education 3-8 grade
- Bike Rodeo
- Traffic Safety Magic Show
- Surveys
- Safety reinforcement/reminders (safety tip of the week, quarterly handouts, etc)

CCMPO has been extremely helpful in providing maps for our use. All GIS data and information was recently collected by one of our committee members and was forwarded to CCMPO. The new maps with overlays are extremely helpful and will prove most useful with our continued efforts to make connections through the local review process and also provide the user with accurate and useful information, for either recreational riding, or as a transportation route.

Have data and share with CCRPC

yes
<table>
<thead>
<tr>
<th>Town</th>
<th>None at town level. Possibly some as part of driver's education course at the high school</th>
<th>No plans at this time</th>
<th>None at this time</th>
<th>Undecided</th>
<th>no, because we do not have any designated paths at this time</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underhill</td>
<td></td>
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<tr>
<td>Westford</td>
<td>Received a Safe Routes To School grant</td>
<td>Didn't think about it</td>
<td>Nothing other than SRTS</td>
<td>Haven't thought about it</td>
<td>Yes, use some CCRPC data to create the maps</td>
<td>yes</td>
</tr>
</tbody>
</table>

The CCMPO was unable to obtain responses from Saint George, Williston, and Winooski in time for inclusion in this Plan Update.
Appendix C

Additional Education & Encouragement Program Ideas
Appendix C: Additional Education & Encouragement Program Ideas

During the life of this plan, it is possible that community interest will develop in programs beyond the priority programs listed in the document. The following table lists some promising additional programs with links to more information.

<table>
<thead>
<tr>
<th>Description</th>
<th>Link to sample program(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike parking at events</td>
<td><a href="http://www.sfbike.org/?valet">http://www.sfbike.org/?valet</a></td>
</tr>
<tr>
<td>Walking School Buses (stand-alone program or part of SRTS program)</td>
<td><a href="http://www.walkingschoolbus.org/">http://www.walkingschoolbus.org/</a></td>
</tr>
<tr>
<td>Bike Buddy program</td>
<td><a href="http://bicycling.511.org/buddy.htm">http://bicycling.511.org/buddy.htm</a></td>
</tr>
<tr>
<td>Family day/family biking classes</td>
<td><a href="http://www.sfbike.org/?family_day">http://www.sfbike.org/?family_day</a> <a href="http://www.sfbike.org/?freedom">http://www.sfbike.org/?freedom</a></td>
</tr>
<tr>
<td>I Share the Road campaign</td>
<td><a href="http://www.isharetheroad.com/">http://www.isharetheroad.com/</a></td>
</tr>
</tbody>
</table>
Appendix D

Funding Sources for Transportation Projects in Chittenden County
FUNDING SOURCES for TRANSPORTATION PROJECTS

In Chittenden County, Vermont

ACRONYMS

AADT: Average Annual Daily Traffic (vehicles per day)
ANR: Agency of Natural Resources
FEMA: Federal Emergency Management Agency
CCMPO: Chittenden County Metropolitan Planning Organization
DTA: VT Trans District Transportation Administrator
VTrans: VT Trans Local Transportation Facilities Program
EPA: Environmental Protection Agency
SR2S: Safe Routes to School Program
TIP: Transportation Improvement Program
VTrans: Vermont Agency of Transportation

Cat. Program Agency Contact Type Use Funding Source Local Match Eligibility Application Deadline Remarks

Town Highway Grants VTrans Gil Nixbury District E DTA 802-655-1581or 802-524-5306 Annual allocation based on miles of Class 1,2, and 3 roads Highway & bridge improvement, maintenance, construction and bicycle routes State None Class 1,2 and 3 Town Highways None; distribution made quarterly Must complete an annual town plan. May be used to maintain recreation paths.

Town Highway Class 2 Roadway Program VTrans Gil Nixbury District E DTA 802-655-1581 802-524-5306 Grant distributed by the DTA Resurfacing and reconstruction State and Local 10% or 20% if inventory is complete All Class 2 Town Highways March Grant amounts limited to $10,000 per project

Municipal Park and Ride Program VTrans Wayne Davis Local Transportation Facilities Project Supervisor 802-828-5609 Competitive grant Develop small municipality owned and/or maintained park and ride facilities State None required Near state highways July ~$250,000 available statewide

Hazard Mitigation Grant Program FEMA Ray Coffany 802-343-5258 Competitive grant Any project that prevents future loss due to natural disaster Federal 25% Project must be within designated disaster area Varies Must have an approved and adopted mitigation plan to be eligible

Transportation, Community, and System Program FHWA Chris Jolly Planning and Programming Engineer 802-828-4571 Discretionary grant Planning, implementation and research projects Federal, State and Local 20% non-federal match Congestion relief safety Subject to federal appropriations process Application must be submitted by VTrans on behalf of municipality

Better Backroads Program Northern VT Resource Conservation and Development Council Jarrod Becker Northern VT RC&D 802-828-4983 Competitive grant Road inventory and capital budget planning, correction of road related erosion and sediment problems Federal, Local (EPA), State and Local 25% No restrictions Sept.-October Maximum grant is $8,000 for capital budget, $7,000 for erosion correction

Town Highway Bridge Program VTrans Michael Hedges Structures Program Manager 802-828-3877 Managed by VTrans Major rehabilitation or reconstruction Federal, Local and Municipal 10% for replacement; 5% for rehabilitation Usually initiated by VTrans January Must be on Federal and system

Town Highway Structures Program VTrans Gil Nixbury District E DTA 802-655-1581 802-524-5306 Grant distributed by the DTA Bridge maintenance, preservation or repair State and Local 10% or 20% if inventory is complete Any structure with a span >6 feet on a Class 1,2, or 3 town highway January Minimum of $150,000 per project

Adaptive Use Bridge Program VTrans Sue Sroter 802-828-3615 Competitive grant Rehabilitation of historic metal truss bridges for adaptive re-use (steel/pedestrian) Federal, State and Local 20% No restrictions. Subject to site approval by adaptive reuse committee None If federal funds are used, must be on CCMPO TIP

Enhancement Grants VTrans Curtis Johnson Enhancement Coordinator 802-828-5583 Competitive Grant Bikes & Pedestrian facilities, scenic easements, landscaping, many options Federal and Local 20% minimum Projects evaluated relative to Federal criteria May/June Must be on CCMPO TIP

CCMPO Sidewalk Program CCMPO Peter Kealing Senior Transportation Planner 802-660-X14 Competitive Grant Sidewalk design and construction Federal and Local 20% Municipality must be applicant May/Jun $500,000 available for county annually

Safe Routes to School Educational Program VTrans Jan Kaplan Bike/Ped Coordinator 802-828-0509 Competitive Grant Education and outreach Federal None Any K-8 School Varies Must be on CCMPO TIP; funds available bimannually

Safe Routes to School Infrastructure Program VTrans Jan Kaplan Bike/Ped Coordinator 802-828-0509 Competitive Grant Infrastructure Federal None Any K-8 School August Must be on CCMPO TIP; funds available bimannually

Recreation Trails Grant Program Dept. of Forests, Parks and Recreation Sherry Wisne Rec Trails Program Administrator 802-243-3800 Competitive Grant Maintenance, restoration and construction of recreational trails Federal, State and Local 20% Almost any trail project on public or private land February If federal funds are used, must be on CCMPO TIP

CCMPO Transportation Improvement Program CCMPO Christine Fords Senior Transportation Planner 802-660-2013 Annual county-wide program developed in cooperation with VTrans All modes Federal, State, and Local 0 to 20% All projects must be eligible for federal funding Projects submitted in Jan. Adapting in July. As amended as required Projects must also be in the VTrans Capital Program

Local Transportation Facilities Program VTrans Al Naveau LTP Program Manager 802-828-3588 Contract agreement with VTrans allowing municipality to manage projects Preservation, rehabilitation or reconstruction projects Federal, and State and Local 0 to 20% All projects must be eligible for federal funding Ongoing Must have completed scoping

Unified Planning Work Program CCMPO Michele Bonehower CCMPO Executive Director 802-660-2013 Discretionary Any transportation planning project Federal, State and Local 10% to 20% Federally eligible planning activity February Budgeted for ~$2 million per year

State Infrastructure Bank VTrans & Vermont Economic Development Authority 802-828-5627 Loan Any transportation project that is eligible for federal funds Federal, Local and State 20% down Any transportation project that is eligible for federal funds Ongoing Must have revenue source to pay back loan

FUNDING SOURCES for TRANSPORTATION PROJECTS

In Chittenden County, Vermont

ACRONYMS

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Updated August 2008
Appendix E

2008 Sidewalk Network
Appendix F

Public Comments on the Bicycle and Pedestrian Plan Update
Appendix F: Public Comments on the Bicycle & Pedestrian Plan Update

March 13, 2008
CCMPO Bicycle & Pedestrian Plan
First Public Meeting Notes

- Introduction by Peter Keating, CCMPO
- Powerpoint presentation of results from Submission #1 by Jim Donovan and Sandra O’Flaherty. (WSA)
- Comments/Discussion on presentation:
  - Dave Jacobowitz is an LCI instructor and has taught some courses—may want to mention that in report
  - Champlain Bikeways suggested mentioning on-road riding in the vision—bikes acting as vehicles
  - Suggestion to add maintenance to goal #3: fog lines, sweeping debris from shoulders, etc. or at least establish who is responsible to do the maintenance
  - Emphasize connecting existing trails to fill gaps in network, “Close the Gaps” campaigns
  - Comment that road lines need to be better maintained, in-pavement reflectors on bad curves, beef up shoulders, particularly on Dorset St, Williston Rd, and Route 15 and around University and Blue Malls. “Find the biggest inertia points”
  - There should be bicycle access to the circ
  - Ian Stokes—Richmond Trails Cmte—is there sufficient information on usage especially in corridors?
    - Usage from cars, buses, bike and ped could shed light on resource allocation, is money being spent fairly? Would more money in certain areas change usage patterns?
    - Not much data for bike/ped usage, but good information on cars. CCMPO is doing a lot to collect more bike/ped data at intersections and on shared use paths—trying to build the database. The need for more bike/ped usage data is recognized. Currently, more is likely spent per capita on bike, but bike use is low because facilities are not good. As conditions improve, this may change, and perhaps funding would equalize.
  - Green Mountain Bike Club commented that they do more than just racing. They also do advocacy, track miles of people commuting to work and stores by bicycle, and other education efforts
  - Discussion on Roundabouts (in Winooski specifically, but also in general):
    - Lou Bresee brought up the Winooski roundabout, asked if it is ok to ride in it. He thought it was and others agreed
    - Many agreed that the Winooski Bridge is in poor condition, scary to ride on.
    - The fact that the roundabout is on a hill can be a challenge for cyclists, and the steep slope of Colchester Ave hill is dangerous
    - Bicycle lane ends before reaching roundabout, inexperienced bicyclists are unsure what to do.
  - Goal #4 is a central goal, the other goals flow out of it, so make it more central
  - Bill Simonetti—So Burlington—lack of pavement marking and signage or inappropriate signage (ends abruptly etc) doesn’t tell riders what to do, should address this. Need better system and instruction at shared-use intersections with designated turning lanes. Where should cyclists go in these situations?
  - Who are the goals for? Answer: All member communities and the CCMPO itself. They are made to mesh with the Statewide goals.
Consistent signage throughout the county, especially in the Burlington Metro Area would be helpful.

Law enforcement—the driver’s manual was updated with bike/ped rules in 2001, but this only reaches new drivers, not older drivers.

How can enforcement be increased? Enforcing traffic laws in car/bike or car/ped crashes. Reporting these crashes? Underreporting is common. Need to cross reference other sources such as police and ER records. State is trying to do more about this.

Need equal enforcement of traffic laws among both motorists and bike/ped so there is mutual respect.

More bike accidents are caused by poor road conditions than crashes(?) Address this issue through maintenance.

Bike/Ped Coalition has online tool to report bad road conditions

Crosswalks need better enforcement. Cars don’t stop for pedestrians despite signage

What is CCMPO’s role in implementing the recommendations?

How can we implement the most recommendations for the least amount of money? This will be part of the implementation plan.

Could survey municipalities to create an inventory of dangerous locations for bike/ped.

Peter K. facilitated mapping exercise—a few comments received. Consult maps for specific comments.

Comments from the first public meeting were addressed through Submission #2 and the draft Plan Update which was presented at the Final Public Meeting on August 7, 2008.

August 7, 2008
CCMPO Bicycle & Pedestrian Plan
Final Public Meeting Notes and Responses to Comments

The meeting had approximately 15 attendees and was filmed by the local public access channel.

Mr. Keating (CCMPO) provided an introduction and summary of the plan update process. Ms. Sandra O’Flaherty (WSA) conducted a presentation of the plan update, recommendations and next steps.

Questions & Comments from participants:

1) Non-motorized travel is the focus of this document. There should be a section on motorized travel being permitted on regional trails and bicycle lanes (i.e. mopeds, Segway, etc).
   
   Response: This is a valid, but separate issue, and is not within the scope of the bicycle and pedestrian plan.

   Vision Statement – There should be a sentence or two on having “well educated and courteous users”
   
   Response: A second paragraph has been added to the vision statement to include this.

2) Goal 3 should include a statement about the importance of maintaining facilities
   
   Response: Maintenance is included in Goal #2 as a safety issue.

3) Cost Estimates – Maybe a cost range should be shown in the document. The use of 2006 cost estimates with a 10% addition seems low.
   
   Response: The cost estimates in the Plan Update are preliminary order of magnitude cost estimates. These have been calculated in 2006 dollars (the most recent information available) with a 10% addition to account for inflation. These estimates have been created without the benefit of a survey and during times of highly fluctuating raw material costs. Final costs could change significantly based on raw material costs at the time of construction and once the design is refined with the benefit of a survey.
4) Is there any estimate of the benefits realized by creating these enhancements and elements (i.e. tourism value, health, etc)? The routes should be publicized more – a regional map should be published.
Response: The State of Vermont is conducting a study to quantify the economic and environmental benefits of investments in pedestrian and bicycle projects and programs. Local Motion is also studying the economic benefits of the Burlington Bike Path trail and tourism impacts. Creating a regional bicycle map has been added as an implementation strategy under the Education and Encouragement section.

5) Is there an estimate of the mileage in the region that has adequate roadway shoulder width for bicycling? Consider looking at the proportion of adequate vs. inadequate shoulder widths.
Response: The CCMPO is exploring how to create a more robust database on shoulder width on the regional network.

6) Review the language in the plan to see if there can be more of a priority for local (non-state) roads.
Response: This is a regional plan. Local projects should be completed at the local level. The CCMPO is available to advise municipalities on how to build facilities and how to get a discussion for bicycle and pedestrian facilities started within the community.

7) Can tips about how local municipalities can get funding be added? They have a vested interest in getting this work done and should be encouraged to do so. Need to state that in this plan at the state level, the support of the schools and state, from health and safety agencies, is necessary.
Response: Tips on local funding methods are in section 5.4.3.

8) Can the rationale of these improvements be summarized in an appendix through the use of 5 or 6 success stories.
Response: This is beyond the scope of the Plan Update but would be a good marketing tool and may be considered in the future.

9) Concerned about the outer, rural, areas because the existing system, bicycle paths, bike lanes, public transit facilities such as bus shelters, is inadequate to support a significant increase…such as if ridership keeps growing due to gas prices.
Response: The plan addresses this concern generally in Goals #1 and #3 but does not dictate where the improvements specifically should be made.

10) Need to encourage employers to encourage employees to use public transit and bicycles/sidewalks.
Response: The Pilot Smart Trips recommendation in section 4.2.3 has been revised to target businesses as well as residents. This objective is also included in goal #6 and as part of the Way to GO! Commuter Challenge on page 70.

11) Loop Around the Lake Status – There are about 1500 map requests annually. The loop is approximately 300 miles, with 27 theme loops. La Route Verte in Canada is a fantastic example of what can be done.

12) Has VTrans considered placing secure bike storage (lockers) at bus stations and park and ride lots?
Response: Goal #3 has been updated to include bicycle lockers as part of the “necessary support facilities.”

13) Implementation is geared toward the growth centers, which makes sense, but it should also focus on connections to schools, even if they are not in the growth centers.
Response: The third bullet under Section 5.6 Facility Placement has been revised to say “Town Centers, designated Growth Areas, and other regional destinations.”

14) Sidepath law is mentioned in the document – this has been repealed and should be removed.
Response: The Sidepath law was repealed in 2003 and reference to it was removed from the Plan.

15) The CCMPO sidewalk inventory, even if older, should be added to this document as an appendix.
Response: This map was updated as part of this plan and is now included as Appendix E. Data for Burlington sidewalks is unavailable.

16) Is there any funding available to increase attention on the bicycle – automobile relationship?
Response: A Share the Road Campaign has been added to section 4.2.2 to address this issue.

17) Who manages multi-jurisdictional projects? Plan should call for municipalities to figure out the answer to this question.
Response: A sentence has been added in section 3.4.3 to explain that one municipality must agree to be the leader on such projects, or the municipalities may request that CCMPO staff serve as the project lead.

18) Chapin briefly summarized the comments from Local Motion’s 3-page letter. It was noted that the study team has received this and will take it under advisement.

19) In the Town of Underhill, there are popular bicycling areas that have roads in very poor condition. Can the MPO and local groups advocate to the municipal board for the improvement of roadway conditions for bicyclists? All that is needed is 3’ shoulders on all roads and the condition is much safer than what exists now.

Response: This is a local issue and does not fall under the scope of the Plan update. CCMPO does consult with local boards on how to deal with these issues and municipalities are encouraged to seek assistance from the CCMPO.

20) Add more to recommendations on transportation and landuse integration. Eg: Act 250 considers automobile trips generated by a new development, what about bicycle trips generated?

Response: The CCMPO encourages that multimodal transportation needs be considered in all development review processes at both the local and state levels.

21) A follow-up study should be “where is a path needed” and it should focus on three topic areas:
   a. Pathways to schools
   b. Pathways for commuting
   c. Pathways for recreation

Response: Pathways to schools should be considered at the local level through Safe Routes to School and municipalities themselves. Pathways for commuting does apply on a regional level and has been done by the CCMPO. Pathways for recreation should also be done at the local level. CCMPO does consult with local boards on how to deal with these issues and municipalities are encouraged to seek assistance from the CCMPO.
September 9, 2008

4.1-A 2008 Recommended On-Road Facilities
Pedestrian & Bicycle Plan Update

Definitions:
Designated = designated for on-road bicycle travel by sign and/or shoulder striping, or identified on a municipal map.

Common Route Not Designated = Commonly used for on-road bicycle travel, but may not have adequate shoulder or be signed for bicycle travel.

Shared Use Link = In order to convey a continuous network, critical shared use facilities are shown.

Sources:
On-Road Facility - CCRPC, 9/2008
Roads - e911 (2008)
Railroad (2003) - VTrans
Town Boundary (2007) and Water Body (2005) - VCGI
Map created by P. Brangan using ArcGIS 9.3.
In State Plane Coordinate System, NAD 1983.

Disclaimer:
The boundaries of the Planning Areas are approximate. The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.
**4.1-B 2008 Recommended Shared Use Facilities Bicycle & Pedestrian Plan Update**

**Legend**
- **Shared Use Facility**
  - Existing
  - Proposed
  - Sidewalk or On-Road Link*
- **Road Centerline**
- **Proposed Road**
- **Railroad**
- **Water Body**
- **Chittenden County**

*NOTE: In order to convey a continuous network, critical sidewalks and/or on-road facilities are shown.*

Sources:
- Shared Use Facility - CCRPC, 9/2008
- Railriders (2003) - VTans
- Town Boundaries (2007) and Water Body (2005) - VCGI


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September 19, 2008
4.1-C 2008 Regional Network Critical Crossings
Pedestrian & Bicycle Plan Update

Sources:
Critical Crossing - CCRPC, 9/2008
Roads - e911 (2008)
Railroad (2003) - VTrans
Town Boundary (2007) and Water Body (2005) - VCGI
Map created by P. Brangan using ArcGIS 9.3.
All data is in State Plane Coordinate System, NAD 1983.

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Legend
● Existing
○ Proposed
— Road Centerline
— Proposed Road
— Railroad
— Island Line/Causeway

*NOTE: Please See Table for explanation of Critical Crossings.

September 9, 2008
2008 Sidewalks
Pedestrian & Bicycle Plan Update

NOTE: Burlington Sidewalk data is Under Development. What is depicted on this map is only a small portion of the existing sidewalks there.

Legend

<table>
<thead>
<tr>
<th>Sidewalk</th>
<th>Road Centerline</th>
<th>Existing</th>
<th>Proposed Road</th>
<th>Railroad</th>
</tr>
</thead>
</table>

Sources:
Sidewalk - CCRPC, 9/2008
Roads - e911 (2008)
Railroad (2003) - VTrans
Town Boundary (2007) and Water Body (2005) - VCGI

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September 15, 2008