



## City of Concord Bicycle Master Plan



November 2010

Prepared by The Central New Hampshire Regional Planning Commission in collaboration with the Bicycle Subcommittee of the Concord Transportation Policy Advisory Committee

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# Executive Summary

This Bicycle Master Plan is intended to direct and guide a wide range of efforts by the City of Concord and the bicycling community to make Concord a more bicycle-friendly community. Intended to be a supplement to the City's Transportation Chapter of the Master Plan 2030, it takes the spirit and intent of the existing Master Plan 2030 and other planning documents to provide more specific direction for improving bicycling conditions in Concord. This plan identifies implementation and action items for the City of Concord, Planning Board, City staff, the Transportation Policy Advisory Committee and its subcommittees, and the bicycling community at large.

Recommendations in the plan include:

- Continually develop a comprehensive bicycle transportation network connecting all of Concord's neighborhoods and major destinations
- Improve bicycling conditions whenever roadwork is being completed, adhering to the City of Concord's Comprehensive Transportation Policy
- Identify and strategically target bicycle specific improvements for implementation where it is needed most, and as opportunities arise
- Improve communication between various parties to ensure bicyclist concerns are properly addressed in all transportation projects and development
- Develop an off-street shared-use path along the Merrimack River to serve both local and regional transportation and recreational purposes
- Support existing organization and further develop programs that encourage safe bicycling

This Plan was developed by the Central New Hampshire Regional Planning Commission (CNHRPC) under direction of the Bicycling Subcommittee of the Concord Transportation Policy Advisory Committee (TPAC-Bicycle), and in collaboration with the City of Concord Planning and Engineering Services Divisions.

Critical to this Plan is visioning and public comment received via public meetings, surveys, and communications through TPAC-Bicycle. This Plan is intended to serve as a guide to TPAC-Bicycle and other groups dedicated to improving bicycling conditions in the City of Concord.

The plan was funded with federal funds through Concord 2020 and supplemented with CNHRPC Unified Planning Work Program (UPWP) funding from the NH Department of Transportation.

# Credits

This Plan was prepared by the Central New Hampshire Regional Planning Commission (CNHRPC) under direction of the Bicycling Subcommittee of the Concord Transportation Policy Advisory Committee (TPAC-Bicycle).

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These community members applied their time, expertise, and local knowledge to the project.

The plan was developed with assistance from and close collaboration with the City of Concord Planning and Engineering Services Divisions.

The project was developed with federal funds through Concord 2020 and supplemented with CNHRPC Unified Planning Work Program (UPWP) funding from the NH Department of Transportation.

# 1

## Introduction

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### 1.1 Purpose and Need

The City of Concord recognizes the importance of bicycling as part of a comprehensive transportation system. The recent formation of Concord's first City-sanctioned bicycle advisory committee, the recent adoption of a bicycle friendly Comprehensive Transportation Policy, the development of this Bicycle Master Plan, and Concord's designation in 2010 by the League of American Bicyclists as a *Bicycle Friendly Community* all serve to illustrate the City's commitment to bicycle transportation.

With multiple bicycle related projects, volunteers and organizations, the need for comprehensive planning is all the greater. This Bicycle Master Plan intends to help harness the positive energy that has been growing on bike related issues. In order to make Concord a more bicycling-friendly community, infrastructure improvements, efforts in education, outreach, and bicycle safety are all important elements.

This Bicycle Master Plan is a supplement to the City's 2030 Master Plan, providing more specific direction regarding plans for improving bicycling conditions in Concord. This Bicycle Master Plan intends to take the spirit and intent of the existing 2030 Master Plan and other planning documents to create a more in-depth and bicycling specific plan, that identifies implementation and action items that will make Concord a more bicycle-friendly community.

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### 1.2 Existing Conditions

Following the creation of the City-wide Transportation Policy Advisory Committee (TPAC) by the Concord City Council and Mayor Jim Bouley, a bicycling subcommittee (TPAC-Bicycle) was formed and met for the first time in June 2008. This committee and various community members have been building momentum for bicycling in Concord with critical support from Concord 2020, help from local bicycle shops and businesses, and help from the Central New Hampshire Regional Planning Commission (CNHRPC) through its transportation planning program, the Program

for Alternative Transportation and Health (PATH), and the Safe Routes to School program. Various events and activities relating to the promotion of bicycling as a healthy, economic, and environmentally friendly form of transportation -- including Green Commute Week, an annual Bicycle Swap, Bike/Walk to School days, production of a bicycle safety video, the development of bicycle sharing programs and establishment of the North-South Bike Route -- have contributed to raising the level of awareness and interest by City officials and the public in bicycling since TPAC-Bicycle was established.

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## **1.3 Existing Plans**

### **Concord 2030 Master Plan**

The Concord Master Plan 2030 describes a general framework for bicycle improvements and calls to incorporate bicycling as part of the transportation system. This Bicycle Master Plan builds on that framework and helps Concord and its residents take a more pro-active approach to meeting the challenges involved in making Concord a more bicycle-friendly community.

The Recreation Chapter of the Concord Master 2030 Plan focuses on parks and recreation facilities, but does not address bicycling as a form of recreation. Providing better recreational bicycling opportunities will help meet the City's recreation goals of facilitating active outdoor recreation for citizens of all backgrounds and ages in each area of the City.

### **Regional Transportation Plans**

The Regional Bicycle and Pedestrian Plan for the Central New Hampshire Region was completed by CNHRPC in 2001. This plan, along with the Regional Transportation Plan adopted in 2008, recognizes the importance of bicycling as part of a complete multimodal transportation system providing more choice in transportation. Both plans call for bicycle planning and implementation at the local level. This Bicycle Master Plan fulfills a major goal for these regional plans. Implementation and action items from this Plan will further realize general goals outlined in all of these documents.

## Existing Infrastructure

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### 2.1 Street Network

Concord's existing street network and layout creates a number of challenges for bicycle transportation. Streets are mostly narrow with limited space for bicycle lanes or shoulders, especially when competing for space with automobile parking. It has been the policy of TPAC and the City to make the most of this limited space with creative engineering and sharing the roadway. One advantage the City has is its traditional "grid" type network that in many cases allows for alternative routes that parallel the main collector roads. These alternatives and connections have been and can be used to calm traffic on selected streets to encourage bike use, while promoting automobile capacity on parallel streets, when appropriate.

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### 2.2 Shared-use Paths

As Concord bicyclists already know, few off-street paved shared-use paths exist in the City. Short segments of path near Silk Farm Road and St. Paul's School leading to Hopkinton, a path over the Merrimack River attached to the I-93 bridge, a short path along I-393 from East Sugarball Rd. connecting to Portsmouth St, a short path under I-393 near Concord's Community College (NHTI), and a short path under the I-93/I-89 interchange just across the City line in Bow complete the City's inventory. These short paved paths create valuable local connections for pedestrians and bicyclists that are much appreciated and used, but by themselves do not make up a significant portion of the bicycling network in Concord.

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### 2.3 Bicycle Routes

During the development of this plan, the North-South Bike Route, Concord's first official signed and marked bicycle route, was approved by City Council in 2009. This route connects from North State Street north of Downtown to the South End near the Bow town line. The North-South Bike Route skirts the downtown area and passes three schools in the Concord School District and passes near Downtown. It connects

with Route 3 where bicycle lanes have been added in places and will be added all the way north to Penacook. When completed, the North-South Bike Route and the Route 3 improvements will create a bicycle-friendly route across Concord from north to south. Other potential bicycle routes connecting various neighborhoods in Concord are discussed later in this Plan.

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## **2.4 Bicycle Lanes**

In 2009, Concord striped the first bicycle lanes in the City on the easterly portion of Clinton Street with signage and some painted bicycle symbols. These lanes have been received well by most Concord bicyclists, and this plan discusses the potential future development of additional bicycle lanes. Bicycle shoulders exist on portions of the Route 3 corridor north of Hillcrest Ave with one small section approaching Sewall's Falls Rd. painted as a bicycle lane.

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## **2.5 Bicycle Parking Facilities**

The city maintains bicycle parking facilities at the city owned properties such as schools, libraries and municipal offices, and also several bike bollards on Main Street and Bicentennial Square. The Bollards are in deteriorating condition, and have some deficiencies including improper orientation to the street and sidewalk causing clearance issues with the sidewalk, street furniture, and other physical obstacles. Bicycle parking issues and recommendations are addressed later in the document.

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## **2.6 Trails and Recreation**

The City of Concord owns and manages open space lands with unpaved trails in various parts of the City. Existing trails are generally destinations for hikers and not interconnected. The trails do not serve destinations for bicyclists and are not intended to be used for "road bicycles".

Mountain bicycling is permitted on all of these trails and the open space land is a recreational resource for Concord residents. There are several locations in the City that are popular mountain biking locations. Some of these trails are maintained by the City while others are more informal trails that may cross over privately owned land.

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## **2.7 Rail Rights of Way**

The City of Concord is the third largest and among the most economically important cities in New Hampshire, and as such, the City has historically been a hub for major transportation routes. During the late nineteenth and early twentieth century, railroads built multiple lines to and through the City. Some of these rail corridors are still active with occasional train service, but many are in various stages of abandonment. These corridors are of particular interest to bicyclists and trail advocates because of their potential suitability for conversion into shared-use paths and non-motorized transportation routes. The City has four rail corridors within its borders and each has varying suitability for trail and non-motorized transportation purposes.

These corridors include the main Trunk Line with active rail running north to south, a parallel “Northern Line” from downtown north to Boscawen on the west side of the Merrimack River, and an abandoned Concord to Claremont line that heads toward the Hopkinton Village of Contoocook, and the abandoned Suncook Branch in the Garvin’s falls area to the Pembroke town line. These corridors are discussed in more detail in the Shared-use Paths chapter.

# 3

## Data Collection

### 3.1 Automobile – Bicycle Crash Data

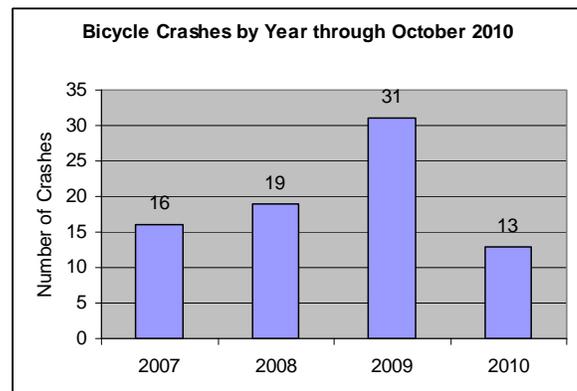
Automobile-bicycle crash data received from the Concord Police Department from the nearly four-year period 2007 through October 2010 showed the following highlights: (more data are available in Appendix J)

- 79 bicycle-automobile crashes (plus one bicycle-pedestrian accident) were reported
- 44 times (63%) the bicyclist was reported at fault
- 25 times (37%) the motorist was reported at fault
- 23 (29%) reported cause of bicyclists riding on the sidewalk
- In 36 of 80 crashes, (45%) the bicyclist wore a helmet
- 82% had non-incapacitating injuries, 10% saw no injuries, and one (1) crash resulted in a fatality (the fatality was not on a public road).

These data clearly demonstrate that both motorists and bicyclists are responsible for bicycle safety. Many of the crashes where the bicyclist was at fault could have been avoided had the bicyclist been following the most basic rules of the road. The most common causes of crashes were from the bicyclist riding on the sidewalk; other common causes with bicyclists at fault included failure to yield, and stop sign/red light violations.

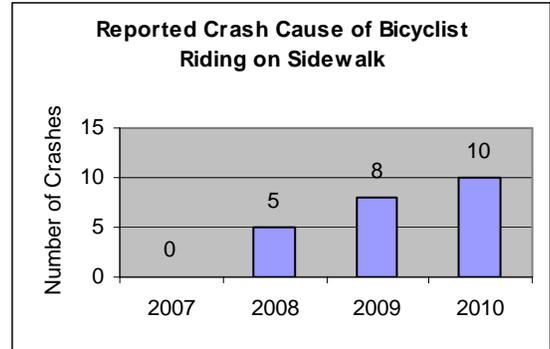
While the data do not specify the causes of the crashes, it is apparent that some of the crashes where the motor vehicle is at fault could have been avoided with better bicycle accommodations.

There were a higher number of crashes in 2009 than any other year by a significant margin, while other years remain fairly steady. 2009 saw a spike in crashes during the months of August, September, and October.



Also, the number of crashes where a cause of the crash was “bicyclist riding on sidewalk” have been increasing dramatically over the time period. This may be caused by a greater awareness and better reporting by police officers of laws pertaining to bicycles on the sidewalk.

A map showing daily automobile traffic volumes on Concord roadways that are considered primary bike routes is enclosed. It stands to reason that roads with higher automobile volumes expose bicyclists to greater potential for conflicts; however traffic volumes are only one consideration in assessing bike safety on a given route.



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### 3.2 Bicycle Count Data

In the summer of 2010 the city’s first bicycle counts were conducted in response to a proposed bridge closure. Bicycle counts were conducted on the Delta Drive bridge over I-93, and on the adjacent shared-use path on one weekday (Wednesday) and one weekend day (Saturday). The count was conducted manually by volunteers. Approximately 150 bicycles crossed the bridge or the path during daylight hours on Wednesday, and close to 50 on Saturday. The disparity of the weekday count versus the weekend count -- three to one -- is thought to be a strong indication of the degree to which the path and the bridge are used by commuting bicyclists. When compared to vehicle traffic counts from the previous year, non-motorized traffic on the bridge accounted for approximately 17% of all trips. The count and report highlighted the importance of the crossing over I-93 and was critical to making a case to provide for bicycle and pedestrian amenities during the closure of the bridge projected for 2012. The full report of the study can be found in Appendix K.

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### 3.3 Bicycle Level of Service

Bicycle Level of Service (BLOS) data have been obtained for areas near middle and elementary schools that are participating in the Safe Routes to School program. This data was useful for local travel plans and identifying areas in need of improvement. Additional BLOS data will be collected in the future.

# 4

## Public Involvement

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### 4.1 TPAC-Bicycle

The idea of a bicycle master plan to supplement the general coverage in the 2030 Master Plan came from the Bicycle Subcommittee of the Transportation Policy Advisory Committee, also known as TPAC- Bicycle. TPAC- Bicycle also served as the steering committee for the development of this Plan. This group is comprised of individuals from a wide spectrum of backgrounds. At monthly meetings, CNHRPC staff shared progress on the plan and held constructive conversations about the direction of the plan and work tasks ahead. TPAC-Bicycle will also form the lead group for implementation of elements of this Plan, working with and through TPAC, the Planning Board, City staff and the City Council.

The Planning Board and other City staff were regularly updated on the efforts of TPAC-Bicycle and were welcomed to participate in all meetings.

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### 4.2 Public Meetings

A critical component of any planning process is active public involvement. Three public meetings were held during the development of the Bicycle Master Plan.

Meeting 1, held on December 7, 2009 was the plan's largest information gathering effort and drew approximately 70 participants. Along with excellent turnout from the general public, representatives from NH Department of Transportation, Bike Walk Alliance of NH, Concord City Council, Planning Board, Planning Division, Engineering Division, and the Conservation Commission were in attendance.



This meeting was the public's opportunity to share its view of bicycling conditions

and needs. After a brief introduction, the group was divided into six “topic tables” where they would discuss a major bicycling related topic.

**Table 1: Route Map-** A blank map of Concord was provided and groups discussed a possible route network and made general comments on the City’s existing street and path network.

**Table 2: Hot Spots-** A blank map of Concord was provided and groups were asked to identify problem areas for bicycling and to explain their experiences. This will help the City identify locations where improvements are desired.

**Table 3: End of Trip Facilities-** This group discussed bicycle parking in the City, bicycle facilities including showers, lockers, and amenities at workplaces, and also discussed connectivity of bicycles and transit.

**Table 4: Safety and Education-** Here attendees discussed bicycle safety concerns in the City and brainstormed ideas for making Concord safer for bicycling. Educating bicyclists and motorists on the rules of the road was a discussion point.

**Table 5: Recreation-** At this table, attendees discussed the recreational bicycling opportunities in Concord, and addressed issues of access to recreational bicycling, trails, shared-use paths, and open space.

**Table 6: Vision and Goals-** Attendees developed vision statements and possible goals for their vision for the City.

After this meeting, the discussion points and findings from each table were summarized and analyzed in order to get a sense of the attendees’ views. Recommendations in Chapter 12 in this Plan are based in large part on input from this meeting. A detailed summary of the findings from each topic table can be found in Appendix B.

Meeting 2, held on April 6, 2010 was a two-way conversation between the working group (TPAC- Bicycle) and approximately 40 members of the public in attendance. TPAC-Bicycle reviewed what was gathered from Meeting 1, explained the progress of the Plan to that point, and shared some of the public’s comments that were already being addressed. There were general discussions on the findings in groups of 10-12 people each. At the second portion of the meeting, the “hot spots” identified in Meeting 1 were graded according to their “overall bicycle friendliness” and their “importance to Concord’s bicycling network.” This information provided valuable community based input for the prioritization of potential improvements in this Master Plan. Detailed results from this meeting can be found in Appendix C.

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### **4.3 Bicycle Parking Survey**

A survey was conducted to help determine the public's needs and wants in regards to bicycle parking. The survey and summary are in Appendix E, and the results are discussed later in the master plan.

# 5

## Vision and Goals

The visioning portion of any master plan is the opportunity to capture and document what people want for the future of their community. Goals, objectives, policies, projects, implementation and priorities all follow the vision.

TPAC-Bicycle and CNHRPC planners have engaged Concord bicyclists of all types and have worked hard to translate City residents' and bicyclists' visions of a bicycle-friendly Concord. The first two public meetings were critical in the development of a vision that reflects a majority of bicyclists' views. At Meeting 1, one of six tables was dedicated to developing a vision and goals. These small groups were conducive to including as many people as possible and allowing for thoughtful discussion. At Meeting 2, one of three tables reviewed draft vision and goal statements that were derived from the Meeting 1's discussion. The result is four vision and goals statements that outline a general bicycle related vision for Concord with specific goals for education, policies, and infrastructure.

The following vision is based in large part on input from the public, through the public meetings, and comprehensive input from TPAC-Bicycle.

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### 5.1 Vision

"Concord will be a community where bicycling is a safe and practical means of transportation and recreation. Bicycling will have equal stature and acceptance as a mode of transportation and will be commonplace for people of all ages and abilities. Bicycling will become part of the culture of Concord through expanded education, public outreach, infrastructure improvements and enabling public policy"

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### 5.2 Goals and Objectives

#### **Education and Awareness Goals:**

The City will develop and use effective bicycling education tools, with an emphasis on children and safety. The City will have improved relationships between bicyclists and non-bicyclists based on mutual respect, understanding, and education.

**Policy Goals:**

The City will be a regional leader with bicycle-friendly policies regarding infrastructure, inclusive transportation planning, and traffic law enforcement.

**Infrastructure Goals:**

The City will work proactively toward addressing the following infrastructure goals:

- Incorporation of bicycle accommodations within all transportation projects
- A safe and easily navigable, marked bike route network
- Additional dedicated bicycle lanes where feasible
- Traffic signals that are responsive to bicycles
- Additional off-street shared-use paths
- Improved bicycle parking and access provided by NH DOT at Park and Ride facilities
- Secure and convenient bike parking
- Bicycle sharing programs
- Navigation aids and wayfinding for bicyclists
- Wash and shower facilities for bicycle commuters through partnership with local organizations

The vision and goals presented here are the basis for the recommendations in the plan.

# 6

## Safety, Education, Outreach, and Encouragement

Making Concord a more bicycle-friendly community requires both improvements in bicycle infrastructure and changes in attitudes and behaviors. It is important for both bicyclists and motorists to understand and follow the rules of the road pertaining to bicycles, and for all to behave in a safe manner. It will require substantial outreach to help people choose to bicycle more often. There are several programs and organizations in Concord that have worked toward this goal of improving bicycle safety and increasing the number of people who choose to travel by bicycle. It will be important to continue and expand these programs since they are an important part of a comprehensive approach to making Concord a more bicycle-friendly community.

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### 6.1 Green Commute Week

The city had celebrated Bike to Work day and later Bike/Walk to work day for several years with a small gathering downtown. The City of Concord expanded on National Bike/Walk to Work Day in 2009 by holding its first Green Commute Week. Held in May, the weeklong event aims to promote, educate, and encourage, the use of transportation modes other than the single occupancy vehicle (SOV) for the health, economic, and environmental benefits that can be realized. The events attract media attention to the cause, bring together people of similar interests, and involves local businesses and stakeholders to actively support all modes of transportation.

The “bicycling” mode of transportation for two years has drawn the most interest by a significant margin. Green Commute Week events, along with other “bike breakfasts”, “Fossil Free Fridays”, and Bike to Work Days of years past have helped grow and galvanize the bicycle commuting community. These events celebrate the activity of bicycling to work, and help encourage both committed and new bicycle



commuters by creating a sense of community and letting them know they are part of something positive.

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## **6.2 Program for Alternative Transportation and Health (PATH)**

The Program for Alternative Transportation and Health (PATH) is a region wide program administered by the Central New Hampshire Regional Planning Commission (CNHRPC) with a main purpose to encourage and increase the mode share of transportation choices other than the single occupancy vehicle (SOV). It aims to “reduce traffic congestion, improve air quality and increase societal emphasis on personal fitness through the creation of services and materials which promote transportation options to the single occupancy vehicle.” Bicycling is one mode of transportation that PATH has actively helped promote in Concord and the Central New Hampshire Region.

Some of PATH’s main work items include coordinating Green Commute Week with various volunteers and organizations since 2009, and continually working with employers and local businesses to encourage green commuting year round. PATH’s work in bicycle safety, education, outreach, and encouragement are critical components of a bicycle friendly community. PATH was initiated by a Federal funding grant through Concord 2020.

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## **6.3 Central New Hampshire Bicycling Coalition**

The Central New Hampshire Bicycling Coalition (CNHBC) is a non-profit bicycling advocacy organization formed in 2010, with a mission to “effectively improve bicycling conditions, safety, parking, and the road network as well as provide education and promotion of bicycling in Concord and surrounding communities.” CNHBC expects to be a partner in implementing this Plan and making Concord more bicycle friendly, and expects to be particularly helpful with private fundraising, safety and education. Individuals that now make up the CNHBC have helped with safety, education, and outreach through bicycle training courses, assisting the needy, fundraising, and building bicycling culture in Concord.

CNHBC is unique in that it is the only organization in Concord dedicated to bicycling that is not connected to government or public funding. As such, it can serve different roles and take unique actions that other groups may not be suited for, particularly fundraising. The bicycle swaps held in 2009 and 2010 have raised thousands of dollars the CNHBC intends to put towards bicycling related projects.

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## **6.4 Safe Routes to School**

Concord has had active Safe Routes to School programs at several of its middle and elementary schools for the past several years. There are plans for a City-wide Safe Routes to School approach in the coming years. These programs help encourage kids to walk or bicycle to school and strive to make bicycling and walking safer for the school children. These programs provide long term benefits since they introduce lifelong safe cycling skills to our youngest citizens.

# 7

## City Policy, Ordinances and Regulations

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### 7.1 Comprehensive Transportation Policy

In 2009, Concord’s Transportation Policy Advisory Committee (TPAC) drafted the City’s first ever Comprehensive Transportation Policy. It was unanimously adopted by the Concord City Council in January of 2010. A key part of this policy is “To design, build and operate (the City’s) roads and streets to safely accommodate all users and modes of transportation – the so called ‘Complete Streets’ initiative.” It further specifies this can be done in part by “Fully integrating bicyclists into the City’s transportation system, via improvements as incidental parts of street building and resurfacing projects as well as separate projects for that specific purpose.”

This clear policy provides direction and leverage in any transportation decision-making that affects bicycling. The policy applies to City staff, private developers, and others. The policy sets the stage for this Plan and will be the foundation of many bicycle infrastructure improvements in the years to come. The Comprehensive Transportation Policy is reproduced in Appendix H.

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### 7.2 Bicycle Improvement Strategy

In some cases, opportunities for bicycle-related improvements have not been realized or maximized simply because bicyclists have not been involved in the project’s development. Concord’s bicycling community has shown interest in infrastructure improvements and how developments and changes to the roadway will affect the routes they ride. TPAC-Bicycle is the designated committee to informally review major developments and roadway projects that may affect bicycling in the City, and this section of the Plan will demonstrate how TPAC-Bicycle can more effectively identify and seize potential opportunities. Several ways for TPAC-Bicycle to be better informed of upcoming projects and potential impacts for bicycling have been identified. These will better allow TPAC-Bicycle to take timely, appropriate action.

The Comprehensive Transportation Policy identifies the following two primary ways in which bicycle related infrastructure improvements are to be made.

1. Bicycle improvements are implemented as incidental parts of street building and resurfacing projects that would be occurring anyway (taking advantage of an opportunity)
2. Projects initiated and funded for the specific purpose of improving bicycling conditions

Given the limited available funding for bicycle-specific infrastructure projects and the high costs of construction, it is likely that most bicycle related improvements will be funded as part of larger projects (Strategy 1 above). An example of this is the bike lanes being constructed on Route 3 as part of a complete streets approach to reconstructing a roadway in need of repairs and improvement. This is an appropriate model for major bicycle improvements at intersections and on corridors. Loudon Road, Manchester Street, and Pleasant Street are candidates for this approach in the future.

The second approach, bicycle specific improvements, can take place to target areas that are of greatest need or where relatively inexpensive changes can make a large difference. An example of this approach is the development of the North-South Bicycle Route. This relatively inexpensive project was funded through a specific grant and was not part of a larger, general purpose road project. A need was identified by TPAC-Bicycle, and a solution was accepted by the City Council. A possible example for the future would be bicycle and pedestrian improvements at an intersection near a school, made possible through the Safe Routes to School program.

In order to identify and realize opportunities for making Concord more bicycle-friendly, procedures for reviewing upcoming projects should be made policy. While a formal review is not necessary or desired, TPAC-Bicycle should be aware of the happenings in Concord that may affect Bicycling. *TPAC-Bicycle should internally review the Capital Improvements Program (CIP), the City and State's Paving Program, the State's roadwork schedule, utility work schedule, and private development applications for subdivision or site plans. This practice will better enable TPAC-Bicycle to identify and take a proactive approach to opportunities or potential problems. After informal review, TPAC-Bicycle should take formal action if deemed pertinent.*

One important reason for developing and maintaining a city-wide bicycle master plan is that it provides a consistent and comprehensive roadmap for bike improvements whenever and wherever transportation infrastructure modifications are considered.

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## 7.2.1 Capital Improvement Program

The Capital Improvement Program (CIP) is relevant to bicycling in that proper review of upcoming projects will allow for bicyclists to be accommodated in the project (Strategy 1 above), and also will allow the opportunity for bicycle-specific projects to be added to the CIP (Strategy 2 above).

*TPAC-Bicycle should formally review the CIP annually, or whenever changes or additions are made.* The purpose is to be sure that any projects in the CIP accommodate bicyclists when appropriate, to capitalize on concurrent roadwork opportunities, and to help the bicycling community add bicycle-specific projects to the CIP when appropriate. The City Council has the ultimate responsibility for the CIP, but TPAC's responsibility is to advise the council on transportation matters. CIP #17, funded by vehicle registration fees, is a potential funding source for bicycle, pedestrian, and streetscapes improvements and is of particular interest to TPAC-Bicycle.

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## 7.2.2 Paving Program Review Procedures

Review of the paving program by TPAC-Bicycle will provide an opportunity for bicyclists to work with the Engineering Division Services and General Services Department to re-think the allocation of space, via lane striping as part of each street, on a case by case basis. It is an opportunity to re-evaluate lane width, add bicycle shoulders, bicycle lanes, or other markings. *TPAC-Bicycle should review the annual paving program with City staff for potential bike related improvements.*

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## 7.2.3 State Maintained Roadways

Concord's Comprehensive Transportation Policy states the City's intent to cooperate with state and regional transportation organizations, including the New Hampshire Department of Transportation (NHDOT). Some of the major transportation routes in Concord are State maintained roadways, and as such, are under the jurisdiction of the NHDOT. *TPAC-Bicycle should actively participate in the public process on NHDOT projects in Concord. In addition, it should regularly review the State's Paving Program, be aware of the State Transportation Improvement Program projects in Concord, and be informed well in advance of any roadwork.* This will allow sufficient time for coordination and cooperation with the NHDOT to ensure that roadwork on State maintained roadways reflects the City's Comprehensive Transportation Policy. The NHDOT Bicycle and Pedestrian Coordinator and Intermodal Facilities Engineer should be an early point of contact for these issues.

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## 7.2.4 Utility Work Review Procedures

Utility work in the City of Concord often requires roadway trenching and re-surfacing, which could provide the same opportunities to restripe the roadway as a repaving project. In some cases there may be opportunities to make even more significant and timely bicycle (or Complete Streets) improvements.

Opportunistically re-building roadways to Complete Streets standards in conjunction with utility work would be much more cost effective and fundable than systematically retrofitting roadways with Complete Streets improvements. Significant improvements could be realized at much lower cost. *TPAC-Bicycle should regularly review the utility work schedule to help identify such opportunities.*

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## 7.2.5 Private Development Review

Given the diverse range of private development projects that occur in Concord, there are a myriad of areas where TPAC-Bicycle could provide input. The type and location of bicycle parking facilities, the potential for adding off-street connections, pathways, and even recreational paths, and opportunities to preserve existing connections or recreational trails could be identified by bicyclists. A procedure for getting input from bicyclists can help accommodate their comments early and avoid conflicts later in the approval process. *Planning and Engineering Division staff should notify TPAC-Bicycle of any specific bicycle related issues it foresees. TPAC-Bicycle should internally conduct an informal bicycle planning review of any flagged site plans and subdivisions, and provide written comments to the Planning or Engineering Divisions for consideration, and determine if future action by the committee is advisable. The City staff representative of TPAC-Bicycle should be a leader in this process.*

Furthermore, this Master Plan will be available to developers so they can understand how their proposed developments would be integrated into the City's bike network.

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## 7.3 Land Use Regulations

The city's land use regulations, including zoning, site plan, and subdivision regulations should be reviewed to ensure the needs of bicycles are accommodated. This can be specifically relevant to bicycle parking. Providing the appropriate locations, types, and number of bicycle parking accommodations can be required in site plan regulations. Regulations could also permit developers to reduce the

required automobile parking if proper bicycle parking is provided. *TPAC-Bicycle should consider using these regulations as a tool to help developers better meet the needs of bicyclists.*

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## 7.4 Responsibilities of TPAC and TPAC-Bicycle

In addition to the education, advocacy, and project-specific work that have been undertaken since its creation, *TPAC-Bicycle should develop a procedure to regularly review the CIP, the Paving Program, Planned State Roadwork in Concord, the utility work schedule, major subdivisions, and major site plans or other site plans that may impact bicycling.* This can be done in a number of ways, including having standardized agendas for each meeting.

In order to help TPAC-Bicycle receive these reports, it is important to have at least one City staff member active on the Committee. *Ideally, a designee from the Engineering and Planning Divisions, and Concord's Bicycle Program Manager should be appointed to TPAC-Bicycle.* In some cases, having a contact liaison for TPAC-Bicycle from other groups will aid in communication. Having a cross-section of representation on the Committee from local residents, City Councilors, City staff, engineers, the Central New Hampshire Regional Planning Commission, and other organizations can help ensure that the Committee has a broad perspective of what is taking place in the City and region.

One of the main duties of TPAC-Bicycle is to update the Bicycle Master Plan on a regular basis. *Additions, updates, and alterations to the plan should be made on a continual basis, with more significant changes, updates, or re-writes every 5 years.*

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## 7.5 Maintenance and Funding

As stated earlier, most bicycle improvement projects will likely need to be implemented as incidental parts of larger City or State projects or private developments.



The bicycling community has been able to raise small but significant amounts of money to go towards bicycle-related projects in the City. In May of 2009, Concord held its first annual Concord Bicycle Swap and raised over \$4,000, and in 2010 raised about \$6,000. The swap was organized by a local bicycle shop and volunteers, and will likely be

organized by Central New Hampshire Bicycle Coalition (CNHBC) in the coming years. This new annual event is anticipated to grow and raise larger amounts of money each year. While these funds will not fund major infrastructure improvements, they can be used to help provide local match monies for larger projects, and provide major funding for smaller projects. *CNHBC should continue and expand its fundraising abilities, and collaborate with TPAC-Bicycle and the City to help track funding needs and opportunities.*

Funding for major bicycle infrastructure projects is primarily available through Transportation Enhancement (TE) grants, which are administered through the New Hampshire Department of Transportation. These funds are distributed through a very competitive process. *TPAC-Bicycle should work with the City Staff to apply for TE funds and other sources of funding that might be available.*

Maintenance and installation of many bicycle amenities often depend highly on the General Services Department. This department typically does not have resources to take on additional tasks and responsibilities. *TPAC-Bicycle should support the General Services Department to ensure proper maintenance of bicycle infrastructure.*

# Infrastructure

Concord residents and area bicyclists have shared with TPAC-Bicycle their views on what is needed and wanted in order to make Concord more bicycle-friendly. City engineers and local planners have also identified several ways to improve bicycling in the City, using engineering and planning concepts and available data. All of this input was synthesized to develop bicycle infrastructure assessments and recommendations. The infrastructure needs fall into the following categories.

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## 8.1 Bicycle Routes and Bicycle Route Planning

All Streets in the City of Concord should accommodate bicycles, and the appropriate bicycle facilities on all roadways should over time be phased in to better meet the ideals of the Comprehensive Transportation Policy. In addition to this approach, Concord should develop a comprehensive bikeway system that will help meet the vision and goals of this plan. The bikeway system would be an interconnected network of on-street bikeways and off street shared-use paths. The network is to provide a higher level of service for bicyclists and encourage bicycle use. Routes on the network should be a priority for strategic bicycle-specific improvements and incidental improvements.

TPAC-Bicycle has developed a map of a comprehensive bicycle network based on transportation needs, planning and engineering principles, and input from public meetings and other feedback. The routes selected are areas deemed most suitable for a bikeway network intended to have a higher level of service for bicycling. The routes were not selected based on the current suitability for cycling.

Within this bicycle network, several corridors are of particular importance, making north to south and east to west connections, and connecting major destinations in the city. These priority routes are as follows:

- The North-South Bike Route spanning from Penacook to the South End leads bicyclists into downtown or through the city using lower traffic streets (South, Spring, Rumford), and continues north on Route 3 to Penacook, where bicycle lanes are currently planned.

- An East-West Bicycle Route to connect the western entrance to Concord and the Concord Hospital area to Downtown. The Pleasant Street approach from the west diverges onto Warren Street at Fruit Street. Pleasant Street east of Fruit Street is classified as a major collector where car traffic is predominant. Warren Street offers bicyclists a route with lower motor vehicle traffic at lower speeds.
- The Loudon Road corridor is a key connector road for the Heights for all forms of transportation, and is the access for many residences and services.
- Clinton Street serves the park and ride lot at I-89 Exit 2 and communities to the west like Bow, Dunbarton, Weare, and bicycles entering from the shared-use path off Silk Farm Road.

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## 8.2 Hot Spot and Corridor Improvements

Attendees at Public Meeting 1 were asked to identify areas of Concord that are particularly troublesome for bicyclists. With pens, markers, and a large poster map, their comments were labeled, then later carefully mapped and their reported deficiencies documented. These “hot spots”, 20 intersections or bridges and 11 corridors, were subsequently discussed then ranked at Public Meeting 2. Scores and results from this process can be found in the Hot Spots Matrix in Appendix A.

The hot spots range widely in character; there are varying levels of opportunity and cost associated with making improvements; and there is a wide range of potential fixes.

Their status as documented trouble spots should be a considering factor when weighing options and alternatives for roadway projects that may affect the hot spot. When minor fixes are possible, TPAC-Bicycle should pursue a solution. The City should implement bicycle improvements as part of road improvement projects.

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## 8.3 Bicycle Parking / End of Trip Facilities

Inadequate, unsecure or unsafe bicycle parking can hinder bicycle use since some bicyclists would opt out of using their bikes for transportation if they feel there is a risk that they will be stolen or be exposed to the weather while they are at their destination. Bicycle parking needs were identified in the following areas.

**Downtown:** Bicycle bollards at numerous sidewalk locations on Main Street sidewalks often go unused. During the public involvement process secure bicycle parking in the parking garages was identified as a partial solution.

**Statehouse Block:** The Farmer's Market is held on summer Saturday mornings Downtown near the State House. In 2009 bicycle racks were placed in front of the State House that provide bike parking for Market patrons. Bicyclists that arrive from State St. would not see these racks, and would not be able to get there as the nearby streets are one-way in the wrong direction. It may also require more time for bicyclists to get accustomed to using the existing racks.

**State Offices:** State Offices are major employment destinations in Concord, as is expected for a state capital. It was felt by many that government facilities should take a leadership role in accommodating bicycling by providing secure bike parking.

**Schools and Library:** Comments at the Bike Master Plan public involvement meetings suggest that the bicycle parking at some schools is not safe or secure.

**McKee Square:** This location in Concord is the site of several neighborhood amenities for the South End. The small park, and the retail and service locations at this site are potential destinations for a typical neighborhood bicycle trip by South End residents; however, bicycle parking facilities are not present in the vicinity.

**Fort Eddy Road:** Bicycle parking facilities are not present in the shopping centers along the corridor. This is a major retail center for the City with multiple grocery stores and it would seem that the businesses would also benefit if bike parking was provided.

**Grocery Stores in General:** It was felt that while bicyclists attempt to run daily errands, suitable places to park bicycles are often lacking. These retail facilities were considered particularly important and therefore should become a priority for TPAC-Bicycle efforts.

#### **City Parks**

Bicycle parking is not accommodated at many city parks. Many city parks are located in neighborhoods with bicycle friendly streets, however there are no bicycle racks for those who wish to bike to the park.

For the Fort Eddy Road, McKee Square, and grocery stores locations mentioned at meetings, the results are not surprising. Currently no formalized bicycle parking in these areas exists and bicyclists must lock their bicycles to other fixed objects. In

other cases, bicycle parking is present but often goes unused, which raises further questions about the proper placement and location of bicycle parking.

Among the lessons learned from Concord bicyclists at Meeting 1 was that any bicycle parking must meet specific needs. There are different needs for short-term parking at retail locations and longer-term parking for when bicycle commuters are at work. These needs must be considered in order to better provide adequate bicycle parking. This will avoid situations where racks that go unused while bicycles are parked at other objects nearby, and situations where there is a perceived lack of bicycle parking when in fact there is not.

For example: The bike bollards downtown have been found to have several deficiencies. Recommendations, including providing 2 points of contact, changing the orientation, and adding or removing bollards in certain locations have been made in the Bike Bollard Study reproduced in Appendix F.

A second example includes the perceived lack of parking at the Farmer's Market. Bicyclists that arrive from State St. would not see the racks in front of the State House at the East entrance to the farmers market. Streets to get there are one-way in the wrong direction, and the only street that heads there is closed for the market. There is also the possibility that it will require more time for bicyclists to get accustomed to using the existing racks.



Bicycle bollards are generally intended for short-term bicycle parking. For bicycle commuters who spend the day at work, or for all-day visits to Downtown, a more secure bicycle parking arrangement may be required. Participants expressed the need for secure bicycle parking in the parking garages Downtown at both public meetings. The bicycle parking survey (see Appendix E) also revealed that the parking would need to be convenient and close to their workplace. Providing long-term bicycle parking in at least one parking garage Downtown is recommended, and the option of accommodations with the YMCA for showers and lockers would make this alternative even more attractive. TPAC-Bicycle could assist the City with the planning of such parking, including consideration of a fee based system, business donations, and partnerships with the YMCA.

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### **8.3.1 Bicycle Parking Survey**

The bicycle parking survey (see attached survey and results summary in Appendix E) highlighted some of the deficiencies with the bollards, and provided insight regarding how to best meet the needs for secure bicycle parking and showers.

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### **8.3.2 Bicycle Parking Design Standards**

Additional measures to improve the quality of bicycle parking and to help ensure its usability include adhering to engineering standards and best practices for bicycle parking, including distance measures, bicycle rack standards, location characteristics and other factors. Each City sponsored bicycle rack location should be planned with these factors in mind, and building owners and private developers should be encouraged or required to meet the same standards. A document from the City of Cambridge Massachusetts showing preferred bicycle parking designs is reproduced in Appendix L. Another source for guidance is the Bicycle Parking Guidelines that the Association of Pedestrian and Bicycle Professionals released 2010.

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## **8.4 Complete Streets Policy and Infrastructure**

The Comprehensive Transportation Policy adopted by the City in January 2010 is a positive, forward-thinking step towards a commitment to ensuring that roadways in Concord will accommodate all users, including bicyclists. Over the years, Concord's streets and roads have been designed and engineered without much thought given to bicycles, leading to many roadways and intersections that are less than bicycle-friendly. Opportunities to improve access and safety for bicyclists, pedestrians and public transportation should be capitalized on.

The Comprehensive Transportation Policy provides services and facilities for bicyclists only if the policy is followed through with action. Its success requires a partnership of both public and private parties, whereby the policy's incorporation into the City's regulations, procedures and standards as well as into developers' plans is necessary for the benefit to be realized. As a standing committee, TPAC-Bicycle should be consulted as roadway projects are planned relative to Complete Streets implementation.

# 9

## Shared-Use Paths

The idea of shared-use paths has grown over the last several years as bicyclists and other active people have visited facilities in other states and experienced what such paths offer. With the recent development of paved rail trails in Manchester, Windham, Nashua, and the Lakes Region, many Concord residents are championing for a signature trail for the Capitol City.

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### 9.1 Merrimack River Greenway Path

In response to the calls for Concord's own shared-use path, the concept of the Merrimack River Greenway Path has been developed, and a feasibility study has been conducted for the project. Merrimack River Greenway Path is envisioned as follows:

#### Purpose and Need:

The Merrimack River Greenway Path is envisioned as a continuous, off-street path, roughly following the Merrimack River in Concord, connecting the eventual terminus of the "Northern Rail Trail" at the Boscawen Town Line to the proposed "Salem to Concord Bikeway" at the Pembroke Town Line. The path is intended to be a 4-season paved facility, meeting the definition of a "shared-use path" given by AASHTO, to serve bicyclists, pedestrians, skiers, snowshoers and other non-motorized users, and to be universally accessible to the extent practicable.

#### Goals:

The intent of the Path is to serve both transportation and recreation purposes, connecting villages, providing access to the Merrimack River and adjacent open space, and providing safe and inviting health and fitness opportunities. The Path will provide river views as well as access to the River when possible, and it will follow a somewhat direct north-south route to facilitate transportation use. It is consistent with the Master Plan 2030 and Concord's Vision for 2020 by connecting neighborhoods and re-connecting Concord to the River.

The Master Plan 2030, Section VI, "Transportation", depicts an off street bike path following the general alignment of the Merrimack River. Section IX, "Recreation" states that bike paths and hiking/walking trails topped the list of a survey of residents' recreation wants in a survey. During the public input phase of this Plan, it

was learned that there is great support for a signature off street bike path of some sort.

In response, with funding from Concord 2020, the engineering consulting firm of Fay, Spofford and Thorndike (FST) was engaged to conduct a study to determine the feasibility and approximate costs of such a trail. A steering committee, comprised of representatives of TPAC-Bicycle, City Planning and Engineering staff and the Conservation Commission, was formed and it developed the above purpose and need statement and participated in several site walks.

It was determined that a bike path, termed a “shared-use path” envisioned by the 2030 Master Plan, Concord residents and the steering committee was feasible and outlined a preferred route and alternative routes. The complete feasibility study can be found as an addendum to this Bicycle Master Plan.

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## 9.2 Other Opportunities for Shared-Use Paths

Along with the Merrimack River Greenway Path, other options for shared-use paths exist in Concord, many of which follow existing or abandoned rail corridors as described in the existing conditions chapter. Below is a more detailed summary of existing conditions and opportunities.

### **Trunk Line**

One corridor is the major north to south “Trunk Line” line in New Hampshire connecting the Massachusetts border in Nashua through the Merrimack Valley and Manchester through Concord, then north through the Lakes Region into the White Mountains. This line enters Concord from the south in Bow, to the west of the Merrimack River and runs northerly to Downtown, then crosses through the Horseshoe Pond area to the east side of the Merrimack River at East Concord, then continues north to the Canterbury town line. This rail right-of-way is owned by Pan Am Railways from Downtown south to Bow, but is owned by the State of New Hampshire north of Downtown. This active line is not likely to be suitable for trail purposes due to ownership and rail use, but the potential for a “rail with trail” arrangement in the future may be possible in some places.

### **Northern Line**

An additional line known as the “Northern Line” runs from Downtown at the main “trunk” line and heads north to Boscawen on the west side of the Merrimack River. This line is owned by Pan Am Railways and is considered “active” from downtown to 0.6 miles north of the Boscawen town line. Although it is considered “active” there have been no freight customers along this route in many years. North of the Concord line in Boscawen, this corridor is inactive and owned by the State of New Hampshire all the way to the City of Lebanon on the Vermont border. This stretch of the corridor has been designated the Northern Rail Trail, of which more than 40

miles have been improved in portions of Grafton and Merrimack Counties with a packed unpaved surface, with additional stretches planned for completion as funds become available. The Northern Line is designated as a portion of the Montreal-Boston High Speed Rail Corridor by the Federal Government, which comes with certain restrictions regarding crossings and fragmentation of the corridor.

Further discussion of corridor and potential alternatives to the use of this right of way as a trail are outlined in the Merrimack River Greenway Path Feasibility Study addendum to this plan.

### **Concord-Claremont Line**

A third right-of-way is an abandoned Concord-Claremont corridor beginning at the Northern Line near Horseshoe Pond and crossing North State Street heading towards Penacook. Portions of this corridor near North State Street have been acquired by the abutting property owners, but Pan Am Railways still owns a continuous piece of approximately 3000 feet from the Pierce Manse area to Smokestack Center. Continuing north, the right of way once paralleled North State Street until just north of Hutchins Street but is now barely visible along the roadside in front of homes and businesses. North of Hutchins Street the line turns westward. Much of this stretch of trail from North State Street to the Hopkinton town line is an active un-improved trail used by hikers, mountain bikers, and snowmobiles on various segments. The City purchased portions of the land on which the trail sits, and other portions are under conservation easement. Still, some of the right-of-way is in private ownership with no formal public access.

The trail crosses the Contoocook River in two places. The bridge is missing at the southern most crossing, but any trail users could bypass this stretch of trail using a short stretch of Bog Road and the bridge at Horse Hill Road. At the northern crossing near the Hopkinton line, a bridge has been installed through the efforts of local snowmobiling clubs. This trail continues to the Hopkinton Village of Contoocook, on to Warner and Lake Sunapee. An extension of a trail on this corridor beyond Concord would require negotiations with property owners.

Opportunities for converting this corridor to a shared-use path exist, but depend primarily on the priorities of the community. It has scenic views, access to the Contoocook River, and a relatively intact rail bed and it is currently in use as a trail. The trail would begin on or near North State Street in a growing neighborhood of moderate population density, but would not connect directly to Downtown. These characteristics make it a desirable route for a shared-use path, but when compared to the Merrimack River Greenway Path, is not a priority for major improvements at this time.

### **Garvin's Falls Line**

The last corridor is a branch of the Trunk Line along the Merrimack River in the Garvin's Falls area, once known as the Suncook Branch. It meets the Trunk Line near the Bow town line, crosses into Bow near the intersection of Hall Street and Route 3A

(by Blue Seal Feeds), and crosses the Merrimack River back into Concord, and parallels the River on its east bank to the Pembroke town line. The bridge abutments and piers across the Merrimack at the Blue Seal Feeds are still in place but the bridge has been removed. Also, at the Soucook River, comprising the Concord/Pembroke town line, there are bridge abutments across this River but no bridge. The right of way is otherwise intact, and much of the route is paralleled by utility lines. The property on which the right-of-way resides is owned by the private electricity utility, Public Service of New Hampshire (PSNH). This stretch is otherwise undeveloped and quite scenic and offers access to the River. This alignment is the recommended route for the Manchester to Concord stretch of the proposed Salem-Concord Bikeway, and a preferred alignment for the proposed Merrimack River Greenway path. South of Concord, the route travels through Suncook Village in Pembroke and Allenstown before re-crossing the river at the Hooksett Town Center. More details on this corridor are available in the Merrimack River Greenway Path Feasibility Study addendum.

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### **9.3 Regional Effort**

To date, trail improvements have been accomplished by various trail advocacy groups in each community, competing for the limited Federal funding. More recently, trail advocacy groups and the regional planning commissions have combined forces to promote and coordinate regional trail initiatives that would result in a planned approach to regional trail development. These planning initiatives dovetail nicely with Concord's plans since the community is situated at a key north-south location within the regional rail-trail network.

# 10

## Recommendations and Implementation

The recommendations that follow are based on the aforementioned discussions and are intended to guide the City as it takes positive steps toward enhancing the bicycling infrastructure, programs, policies and bike culture in the community. In Concord's application and designation as a Bicycle Friendly Community, the League of American Bicyclists (LAB) provided a comprehensive list of recommendations for improvement, reproduced in appendix M. Most recommendations here are repeated or reflected in the LAB list. For additional detail or further insight on any recommendations in this plan, refer to that document.

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### 10.1 Policy

In the past several years the City of Concord has developed several programs and policies that have helped Concord become more bicycle friendly. The development of the Transportation Policy Advisory Committee (TPAC) and its subcommittees, and the adoption of the Comprehensive Transportation Policy can both have a very positive impact on bicycling

#### Short Term Implementation

- Continually review all avenues for all upcoming or potential road work in Concord by developing a standard TPAC-Bicycle agenda that systematically checks for opportunities. The list should include: (TPAC-Bicycle in coordination with City and NHDOT Staff)
  - The CIP
  - The Paving Program
  - The State Transportation Plan
  - The State Paving Program
  - The Utility Work Schedule
  - Private Development
- Continue and improve collaboration and communication with NHDOT officials on DOT work being conducted in Concord to ensure any roadwork sufficiently meets Concord's Comprehensive Transportation Policy
- Improve coordination between entities

- Develop a standard TPAC-Bicycle agenda with regular updates from Planning and Engineering, CNHBC, PATH, SRTS, City Council/PB briefs, NH DOT updates etc.
- Ensure there is broad representation at TPAC and TPAC-Bicycle
  - Improve communication with Police Department
  - Improve communication with/or TPAC membership from Concord Hospital
  - Representation from Engineering and Planning Divisions
- Ensure that all transportation infrastructure that is planned, or being constructed, is consistent with the City of Concord's Comprehensive Transportation Policy

Medium Term Implementation

- Update the Bicycle Master Plan with minor revisions and updated data annually, with major revisions or re-writes every five to ten years. (TPAC-Bicycle)
- Encourage State government offices to take a leadership role in accommodating bicycling and providing end-of-trip facilities. (TPAC-Bicycle, CNHBC)

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## 10.2 Infrastructure

- Make roadway and intersection improvements at all hot spots identified in the plan (see Appendix A) and on the proposed bicycle route network. As stated earlier in the plan, these improvements should be made using the following two strategies:
  1. Bicycle improvements are added or included in roadwork and/or private development occurring anyway (taking advantage of an opportunity, and ensuring roadway projects are consistent with the City's Comprehensive Transportation Policy)
  2. Bicycle improvements are initiated and implemented in bicycle specific projects

The City should be opportunistic when available, and seek creative solutions to tackle specific problems when possible.

Short Term Implementation

- Continue the policy of creative use of narrow roadways (City Staff, TPAC-Bicycle)
- Continue the practice of context sensitive lane striping, where travel lanes can be narrowed to accommodate wider bicycle shoulders when possible (City of Concord)

Medium Term Implementation

- Develop additional bicycle routes similar to the North South Bicycle Route as identified in Chapter 8

Long Term Implementation

- Develop a comprehensive bikeway system that offers a higher level of service for bicycling

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## 10.3 Bicycle Parking

### Short Term Implementation

- Ensure any new bicycle parking in the city of a desirable form. Refer to the Bicycle Parking Guidelines released by the Association of Pedestrian and Bicycle Professionals, or the Cambridge, MA Bicycle Parking Standards document in Appendix L as a reference

### Medium Term Implementation

- Address the need for long term bicycle parking downtown with decisions based on data collected in this document and in the survey, Appendix E (TPAC-Bicycle, CNHBC, City Staff)
  - Develop bicycle parking in one or more parking garage
  - Develop a bicycle cage at an appropriate location downtown, preferably near the YMCA
  - Develop an agreement with the YMCA for a program for renting a bicycle cage, shower use, and locker
- Develop and implement a strategy to improve or replace bicycle bollards on Main Street, based on the findings in the report attached in Appendix F (TPAC-Bicycle, City Staff, CNHBC, Main Street Concord)
  - Add side plates to the bollards to provide two contact points
  - Change the orientation of parked bicycles at bollards as identified in the attached report
  - Add or remove bollards as appropriate
  - Continue to add, edit, and work on the report based on project developments
- Add bicycle parking at McKee Square, on Fort Eddy Road, and at other identified areas requiring parking facilities. (TPAC-Bicycle, CNHBC, City of Concord)
- Encourage or partner with grocery stores on Fort Eddy Road (Shaw's, Hannaford, Market Basket) to acquire funding to add bicycle parking at their locations (CNHBC, TPAC-Bicycle).

### Long Term Implementation

- Plan for improved bicycle parking to be associated with any future reconstruction of Main Street (TPAC-Bicycle, Concord 2020, Main Street Concord)

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## 10.4 Safety and Education

The vision for concord is for bicycling to be a safe and practical activity and transportation choice.

#### Short Term Implementation

- Continue and expand the annual tradition of Green Commute Week (PATH/CNHRPC, NHDOT, CNHBC, City of Concord, Volunteers, TPAC-Bicycle, Local Businesses)
- Regularly collect, review, and map all bicycle related crash data, analyze the data, and develop a strategic plan to reduce the crashes (TPAC-Bicycle in coordination with the Police Department)
- Support the continuation of all safety and education programs including:
  - PATH program (NH DOT, CNHRPC)
  - SRTS (School Districts, CNHRPC, Safe Routes Committees)
  - CNHBC (Everyone)
  - Bike Walk Alliance of NH (TPAC-Bicycle, CNHBC, others)

#### Medium Term Implementation

- Continue and expand bike safety lessons, and bicycle repair classes, especially LAB certified courses as stated in Appendix M (CNHBC, Volunteers, Bicycle Shops, TPAC-Bicycle)
- Develop a bicycle safety program for bicyclists and for motorists. (CNHBC, TPAC-Bicycle)

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## 10.5 Enforcement

Enforcement is a critical component in bicycle safety that Concord should improve on.

#### Short Term Implementation

- Have more contact and coordination between TPAC-Bicycle and the Police Department
- Encourage the Police Department to engage bicyclists more: for example, show up at the beginning of GSW rides to chat
- Ask the Police Department to patrol Loudon Rd/ Fisherville Rd, or other targeted areas to enforce and educate biking on the sidewalk
- Encourage the Police Department to participate at Bicycle events (on bike)

#### Medium Term Implementation

- Increase the visibility of the Police Department bike patrols
- Pursue a grant for reducing distracted driving, allowing officers to stand at intersection and make citations for texting and driving.

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## 10.6 Shared-use Path Development

#### Short Term Implementation

- Develop a stakeholder’s list of all individuals, groups, and businesses that may be interested in developing shared-use paths, or the Merrimack River Greenway Path
- The Steering Committee for the Greenway project should continue to meet, engage others, and develop a specific strategy moving forward
- Research funding opportunities, match money opportunities, and coordinate with the City on which municipal projects will apply for Transportation Enhancement (TE) funding
- Invite regional trails groups (Granite State Rail Trail, Northern Rail Trail, Salem Concord Bikeway, WOW Trail, and others) to TPAC-Bicycle meetings and appoint TPAC-Bicycle members to go to the groups’ meetings to foster awareness and partnership opportunities.

Medium Term Implementation

- Conduct more detailed engineering work for Merrimack River Greenway Path as needed
- Conduct fund raising and apply for grants for funding for path development

Long Term Implementation

- Develop a shared-use path in Concord, as outlined in the Merrimack River Greenway Path addendum
- Continually identify and develop other areas suitable for conversion to shared-use paths as demand warrants

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## 10.7 Maintenance

- Cooperate and support the General Services Department, as maintenance and many other bicycle projects rely heavily on them.
- Street Sweeping- sweep hot spots in the spring during the typical preliminary sweep before the official contract
- Ensure timely snow removal on bicycle shoulders and bike lanes
- Continue to work with the State to maintain the shared-use paths (brush clearing etc.)

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## 10.8 Public Awareness

Short Term Implementation

- Finalize the development of and promote the North-South Bike Route
- Develop social media for bicycling to improve communications, build community, and develop the bicycling culture (CNHBC)
- Form alliances with other groups with common or overlapping goals (health, environment, conservation, etc)

Medium Term Implementation

- Develop bicycle facilities and end-of-trip facilities maps of the Concord area for all types of bicyclists, identifying routes as stated in this Plan.

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## 10.9 General

### Short Term Implementation

- Continue, expand and grow fund raising events (CNHBC, TPAC-Bicycle, Volunteers)
  - Annual Bicycle Swap
  - Support from local businesses
  - Develop a time trial race series
  - Research and develop other creative ideas
- Refer to the LAB recommendations in Appendix M as a supplement to these recommendations.

### Medium Term Implementation

- Seek donations or write a grant application for the development and promotion of bicycle maps and signage for routes and end-of-trip facilities.
- Develop a bike suitability map using local knowledge and BLOS data
- Coordinate with the Trails Committee and the regional mountain biking organization to expand opportunities for mountain biking in Concord. Produce trail maps dedicated to mountain biking and promote the interconnectivity of city-maintain trails.
- Re-apply for Bicycle Friendly Community Status before the current designation expires in 2014. This will be increasingly difficult as the bar is continually being raised. Set goals for which level to achieve. Use the LAB feedback as a guide. The application process and the feedback received are extremely valuable

