

Bicycle and Pedestrian Plan

Chelmsford, Massachusetts

Prepared by
The Chelmsford Bicycle and Pedestrian Advisory Committee (BPAC)

Thursday November 28, 2015

Table of Contents

1. *Executive Summary*
2. *Introduction - Benefits of Improving Bicycling and Walking Access*
 - a. *Complete Streets*
 - b. *Economic Benefits*
 - c. *Environmental Benefits*
 - d. *Health and Social Benefits*
3. *BPAC Mission Statement*
4. *Existing Conditions*
 - a. *Roadways*
 - b. *Pedestrian (sidewalks, crosswalks, etc.)*
 - c. *Bicycle*
 - d. *Community Policies and Education*
 - e. *Public Transportation*
 - f. *By-Laws*
5. *Recommendations (with definitions)*
 - a. *Pedestrian*
 - i. *3 years*
 - ii. *5 years*
 - iii. *8 years*
 - b. *Bicycle*
 - i. *3 years*
 - ii. *5 years*
 - iii. *8 years*
 - c. *Safety and Education*
6. *Action Plan/ Implementation*
7. *Acknowledgements*
8. *Appendices*

Section 1 Executive Summary:

Chelmsford Bicycle and Pedestrian Advisory Committee (BPAC) was formed in 2008 as part of the Chelmsford Master Plan. As in most of the USA, there has been a growing awareness in Chelmsford of the importance of infrastructure that supports walking and bicycling. Many studies continue to show that towns that accommodate pedestrians and bicyclists reap benefits such as an enhanced sense of community, a higher level of physical fitness of its citizens and better air quality.

There are also several economic benefits including higher real estate values and more visits to local businesses.

BPAC was formed to address and analyze issues relating to foot and bicycle traffic and create plans to optimize them for the Town of Chelmsford.

Many people who grew up in Chelmsford in the 60's 70's and even 80's remember a town where children roamed freely, walking and riding their bicycles alone or in groups to get where they needed to go. But changes over the decades such as increased car ownership and increases in commuters who live north of Chelmsford and work south of it, have led to an increase in traffic. Without a network of sidewalks and accommodations to allow bicycles to safely use the road, foot and bicycle traffic fell precipitously. It is the goal of BPAC to make Chelmsford once again a town where all people can travel throughout the town safely without using motorized transportation.

To this point, we have included a recommendations section with specific recommendations for pedestrian and bicycle improvements. These are divided into 3 year, 5 year, and 8 year periods. The year designations are intended to help prioritize the tasks for the town and not to indicate that all of the recommendations will or must be completed in the assigned time period. The recommendations follow the Complete Streets initiative described in Section 2A and are intended to help make Chelmsford a vibrant walking and biking community.

In addition to making plans to improve infrastructure, BPAC also works to educate the public about bicycle and pedestrian safety and to spread the word about the wonderful amenities that already exist in Chelmsford such as the Bruce Freeman Rail Trail. This document details the plans that BPAC is recommending for the next ten years.

Section 2 Introduction:

Benefits of Improving Bicycle and Pedestrian Access in Chelmsford

Cars are the major form of transportation in Chelmsford. Our town's agrarian past led to the development of several small villages rather than one main commercial district. A burst of residential and corporate building in the 1960's and 1970's filled the farmers' fields with homes and businesses. Spread out over 22 square miles, distances between homes, schools

and businesses are often not within easy walking distance from each other, so residents have gotten used to hopping in the car to get from one place to another.

Chelmsford is also uniquely situated at the intersection of two major highways—U.S. Route 3 and Interstate 495—as well as several busy regional routes, making the town a cut-through for drivers avoiding traffic delays on the highways. Although Chelmsford’s population has remained relatively stable over the past two decades, the number of cars on the road has continued to rise. For example, a recent count of motorized traffic on Golden Cove Road showed an increase of 4000 vehicles per day over a similar count done in the 1980’s.

Nevertheless, an interest in walking and biking for pleasure and transportation has begun to blossom, especially since the opening of the Bruce Freeman Rail Trail and the building of many new sidewalks around town. Chelmsford boasts approximately 230 miles of public roads and approximately 53 miles of publicly owned sidewalks. Providing a safe and pleasurable means for pedestrians and bicyclists to use these roadways, alongside cars, trucks and buses, is a challenging, but necessary task. Working towards a more bicycle and pedestrian friendly community will yield economic, environmental, health and social benefits for Chelmsford’s future.

A. Complete Streets

A guiding principle for development of the Chelmsford Bicycle and Pedestrian Plan is conformance with the goals of Complete Streets policies. For a roadway to be considered a “Complete Street,” it should be designed and constructed to provide access by all users – motorists, bicyclists, pedestrians, transit users, and disabled individuals. The concept of Complete Streets is to make it safe and convenient to travel from one point to another, no matter what mode of travel is chosen.

The Complete Streets initiative represents a shift in the engineering of roadway networks from what historically was a primary focus on getting as many cars through the network as fast as possible (at the expense of bicyclists or pedestrians) to a new way of incorporating all modes and trying to find the proper balance to meet the needs of everyone. This concept, when properly applied, will result in communities that are friendlier to bicyclists and pedestrians, creating more livable communities.

The State of Massachusetts was an early innovator in this concept, when it released the Project Development & Design Guide (MassDOT, 2006) before the term “Complete Streets” was even coined. In that guide book, the following principle is to be applied for multimodal consideration, and is reflected in the Chelmsford Master Plan (2010) and in this Chelmsford Bicycle and Pedestrian Plan:

to ensure that the safety and mobility of all users of the transportation system (pedestrians, bicyclists and drivers) are considered equally through all phases of a project so that even the most vulnerable (e.g., children and the elderly) can feel and be

safe within the public right of way. This includes a commitment to full compliance with state and federal accessibility standards for people with disabilities.

Therefore, we are recommending that Town Engineers and the DPW should adopt the Complete Streets model when designing new projects or reconditioning existing streets and sidewalks.

B. The Economic Benefits of Bicycling and Walking

The cost of car ownership continues to rise. The American Automobile Association (AAA) reports as of April 28, 2015 an American family paid an average 58 cents per mile, or \$8,698 per year for every car they own and operate.¹ If Chelmsford residents had the opportunity to reduce the number of miles driven by substituting walking or biking, which are virtually free, the savings would be real and immediate.

Chelmsford's economic future may depend on promoting biking and walking for another reason. "Walkability" has become a new buzz-word in the real estate market especially among younger buyers and empty nesters, which often check out the 'walk score' of a home before purchasing according to ZipRealty.² The scores are given by home address and measure the walking distance to amenities.

"People are clearly willing to pay more for homes that allow them to walk rather than drive," according to a 2012 Brookings Institute report. Biking is part of the picture, too."³ Businesses and communities thrive with vibrant, convenient and safe commercial areas and walkable neighborhoods. Several studies have shown that the pedestrian and bicyclist may spend less per visit to a business district than their car-driving counterpart, but they make more frequent visits and spend more money over the course of a month.⁴

C. The Environmental Benefits of a Bike and Pedestrian Friendly Community

Chelmsford Center and Vinal Square are both well known for traffic congestion. According to the Environmental Protection Agency, "Today, motor vehicles are responsible for nearly one half of smog-forming volatile organic compounds (VOCs), more than half of the nitrogen oxide (NOx) emissions, and about half of the toxic air pollutant emissions in the United States. Motor vehicles now account for 75 percent of carbon monoxide emissions nationwide."⁵ The World Watch Institute reports, "For each mile of car travel reduced by bicycling or walking, one pound of pollutants is kept out of the air."⁶ There are also environmental health aspects to consider. With a car-centric transportation system,

¹ Newsroom.AAA.com

² Walkable Homes: The New Must Have for Homebuyers" Zip Code blog

³ New York Times Sunday Review, May 15 2012

⁴ Bicycling and Walking in the U.S. 2014 Benchmarking Report

⁵ http://www.epa.gov/airquality/peg_caa/carstrucks.html

⁶ <http://www.cdc.gov/obesity/stateprograms/fundedstates/massachusetts.html>

polluted air leads to higher levels of asthma, lung cancer, heart disease, respiratory illness, and premature death (Bell and Cohen, 2009). The most harmful pollutants are emitted within minutes of starting a car, meaning that short trips pollute more per mile and have a bigger impact on our overall health than longer trips (FHWA, 2012). The most recent national health data report that 9% of adults in the U.S. live with asthma (BRFSS, 2010).⁷ The benefits of reducing the number of vehicles in these two important areas of town would significantly improve Chelmsford's air quality.

Despite steps taken to reduce the number of vehicles going through these areas, little progress has been seen. Increasing the safety and viability of walking and biking could help. If residents did errands, visited neighbors or commuted to work by bike, the environmental benefits to the air quality would be immediate.

D. The Health and Social Benefits of Promoting Walking and Bicycling

In Massachusetts, 59% of adults, 14% of teens and 16% of children are overweight, while the rates of obesity are 23%, 11% and 16% respectively.⁸ Chelmsford is not immune to these statistics. Many studies have shown moderate exercise, such as a 2-mile walk or a 4-mile bike ride, several times per week can burn enough calories to reduce an individual's weight and the risk of developing serious diseases such as Type 2 Diabetes, heart disease, breast cancer and Alzheimer's Disease. A few short walks in the sunshine per week can also help with Vitamin D absorption and promote overall good health. For the many people who do not drive due to age, desire, finances or physical disability, having pedestrian and bicycle friendly streets and commercial areas can be the difference between isolation and being an integral part of the community.

Walking and biking with friends and family adds fun, relaxation and a sense of community to peoples' lives. The many psychological benefits of physical exercise include greater self-esteem, reduced stress and pride of accomplishment. Physical activity has also been linked to a reduction in both mild and severe depression.⁹ Recent studies have shown that outdoor exercise has benefits that far outweigh those of exercising inside¹⁰.

Babies in strollers, running children, couples of all ages, and groups of laughing friends are a regular sight on the Bruce Freeman Rail Trail today. There are many economic, health, and social reasons for Chelmsford to work hard to make the rest of our community as pedestrian and bicyclist friendly as possible.

Section 3 BPAC Mission Statement:

⁷ Bicycling and Walking in the U.S. 2014 Benchmarking Report

⁸ <http://www.mass.gov/eohhs/docs/dph/communications/hom-chapter-7.pdf>

⁹ <https://www.appliedsportpsych.org/Resource-Center/health-and-fitness/articles/psych-benefits-of-exercise>

¹⁰ <http://well.blogs.nytimes.com/2013/02/21/the-benefits-of-exercising-outdoors/>

In 2008, the Town Manager proposed to the Board of Selectmen (BOS) the formation of the Chelmsford Bicycle and Pedestrian Advisory Committee (BPAC). The BOS discussed and authorized the formation of the BPAC as a nine-member committee.

As stated in its charter, BPAC's mission is to improve bicycling and pedestrian conditions in the Town of Chelmsford. As such, BPAC will provide guidance to various Town Boards, Departments and Committees on matters affecting bicyclists and pedestrians in the town. It was also tasked with the responsibility of coordinating the maintenance, policing, and enhancements to the Bruce Freeman Rail Trail consistent with the Memorandum of Agreement among the Department of Conservation and Recreation, the Massachusetts Highway Department (now Mass DOT) and the Municipalities of Lowell, Chelmsford, and Westford. The BPAC will also coordinate the planning, design, development, maintenance, policing, and enhancements for any future bicycle and/or pedestrian paths in the Town.

The BPAC mission was defined to work to improve bicycling and pedestrian conditions in the Town, to create a comprehensive view of bicycle and pedestrian related activities with the goal of making Chelmsford a more bicycle and pedestrian friendly community. The committee will facilitate coordination of activities that involve or affect non-motorized transportation in Chelmsford. BPAC works with various Town boards and committees including but not limited to the Commission on Disabilities, Community Development, Conservation Commission, the Police and Fire Departments, the Board of Selectmen and the Historical District Commission. In addition BPAC works with the Town Engineer and the Department of Public Works to address short and long term needs for maintenance and improvements to bicycle and pedestrian facilities in the town. BPAC also makes specific recommendations to the Planning Board (PB) regarding Bicycle and Pedestrian amenities on site plans under review by the Board.

In 2010, the Town of Chelmsford with the assistance of the Northern Middlesex Council of Governments (NMCOG) updated the Master Plan for the entire Town. This document outlined many issues related to roads, intersections, parking, and recreational facilities that affect motorized and non-motorized transportation in the town. The updated Master Plan called for the creation of a comprehensive Bicycle and Pedestrian Plan for the Town. This document would be focused specifically on bicycle and pedestrian issues and be updated on a five year basis. The plan should take into account on-road and off-road facilities, recreational facilities, the Bruce Freeman Rail trail, as well as increasing safety for these users at intersections and crosswalks, installation of bicycle racks, pedestrian crossing signals, installing pavement markings and signage at key locations.

Section 4 Existing Conditions:

A. Roadways

The Town of Chelmsford has over 230 miles of public roadway, of various roadway classifications. The majority of these roads (about 68 percent) are local streets servicing

local neighborhoods, with arterial or collector roadways representing about 28 percent of the total centerline miles, and the remaining 4 percent consisting of highways.

In addition to providing transportation connections for vehicular traffic, this roadway network also provides for transportation for alternative modes of traffic, including bicycle, pedestrian, and public transit. The following section describes the existing transportation network as it relates to pedestrian and bicycle accommodations.

B. Pedestrian

The Town of Chelmsford has been addressing the need for sidewalks in key locations in the town since the late 1970's. The town had a Traffic and Safety Committee looking into pedestrian safety issues during this timeframe. In 1981, a Pedestrian Safety Study, prepared by Edward McCann Associates, placed emphasis on increasing the number of sidewalks near the schools. This was due to school department budget cuts that would result in the loss of some buses provided by the school department resulting in more students having to find alternative methods of transportation, including walking to their school.

In 1996, the Traffic and Safety Committee submitted to the Capital Planning Committee a document named "*Sidewalk Construction: An Update.*" This document subsequently became a default "Sidewalk Plan" for the town, and it focused primarily on the building of sidewalks outward from the schools. The goal was to allow students to safely walk to school from a distance of one-half to one mile from surrounding residential areas. Each year since that point, funds were budgeted for the purpose of constructing additional sidewalks and this effort has continued to the current time. The 1996 Plan has been essentially completed with respect to sidewalks near the schools though some additional construction remains, notably near the Byam School. There is no record that the original plan document has been formally updated, though the sidewalk building effort has continued every year.

With the 2010 update of the Town's Master Plan, in public input sessions there was expressed sentiment that additional sidewalks be constructed in various areas of town. It was recognized that it might not be possible to provide sidewalks in every neighborhood, though there are efforts to construct and maintain them in critical areas such as business districts and near schools where there are higher concentrations of pedestrians. The Master Plan also documents the issues related to snow removal on sidewalks so that they can be safely used during the winter.

The Town continues to allocate funds for sidewalk construction in its capital budget. In recent years the funding has been at \$220,000 per year through FY2015 with the same amount planned for FY2016. Program efforts are focused on building sidewalks further into neighborhoods around the schools and creating loops of sidewalks that make them usable from more neighborhoods around the Chelmsford Center and Vinal Square in North Chelmsford. The current practice is to include both the construction of new sidewalks as well as to repair older sidewalks that have deteriorated and in some cases, become unsafe for use.

The most recent (2010) Sidewalk Plan for the Town of Chelmsford is documented at <http://ma-chelmsford.civicplus.com/documentcenter/view/930>. According to this figure, sidewalks in either good or fair condition are present on all arterial or collector roadways except the following:

- Tyngsboro Road – no sidewalks from Vinal Square to the Tyngsboro line, except for a short stretch near Wellman Avenue.
- Princeton Street – sidewalk in poor condition between North Road and the Lowell line.
- North Road – no sidewalks from Drum Hill rotary to Princeton Street.
- Main Street – no sidewalks along entire length, except a few short stretches, which are in poor condition.
- School Street – no sidewalks from Graniteville St. to Old Westford Rd.
- Old Westford Road – no sidewalks west of Thomas Drive, or between Baldwin Road and Overlook Drive.
- Westford Street – no sidewalks along entire length.
- Littleton Road – no sidewalks, except close to the Center.
- Billerica Road – some sections of sidewalk in poor condition.
- Riverneck Road – no sidewalk, except the section near the bridge over Route 3.
- Turnpike Road – no sidewalks along entire length.
- Acton Road – no sidewalks except for close to the Center, and the segment between Kate’s Corner and Sleigh Road.
- Boston Road – no sidewalks between Mill Road and South Row School, or between Roberts Street and Billerica line.
- Concord Road – no sidewalks along entire length.
- Mill Road – no sidewalks between Raymond Road and office park located about midway between Elizabeth Drive and Vincent Road.
- Parkerville Road – no sidewalks along entire length.
- Maple Road – no sidewalks, except segment between Parkerville Road and Acton Road.
- Proctor Road – no sidewalks along entire length.
- Tuttle Road – no sidewalks along entire length.

As noted in the 2010 Chelmsford Master Plan, the pedestrian connections in the Drum Hill corridor are somewhat lacking. Among the observations made in that document:

- There is a lack of defined pedestrian pathways between parking areas and businesses.
- Existing sidewalks are not properly maintained during the winter and the sidewalk surfaces suffer the effects of frost heaves.

- Sidewalks are not provided along the entire length of the commercial district, and some sidewalks that exist do not meet requirements of the Americans with Disabilities Act (ADA).

Northern Middlesex Council of Governments (NMCOG) recently released its Vinal Square Report, which documented the generally poor condition of sidewalks surrounding the Square. The report found that most of the sidewalks in this neighborhood do not meet ADA requirements.

Other pedestrian deficiencies noted in the Chelmsford Master Plan include:

- Poor sidewalks, not compliant with ADA, at the intersection of Gorham Street and Brick Kiln Road and Carlisle Road.
- Lack of sidewalks along Maple Road and Parkerville Road.
- During winter months, snow is not removed from sidewalks within an acceptable time frame.
- Crosswalks are not re-stripped frequently enough.

Recent sidewalk upgrades have incorporated handicap accessibility improvements, including ADA compliant wheelchair ramps and audible pedestrian tones at traffic signals. Sidewalks and traffic signals that have not been recently upgraded still lack these features for the disabled population.

C. Bicycle

Other than on limited access highways (Interstate 495, Route 3, and the Lowell Connector, as well as the on or off ramps to those facilities), bicycles are permitted to travel on any public roadway in Chelmsford. Bicycles can be accommodated through one of the following methods:

- Shared Use Path – facilities for non-motorized users, physically separated from roadways intended for motorized vehicles. The Bruce Freeman Rail Trail is the shared use path that exists in Chelmsford.
- Bicycle Lanes – portions of the traveled way, adjacent to (but separated by pavement markings) vehicular lanes, designated for bicycle use exclusively. There are currently no bicycle lanes in Chelmsford.
- Shoulder Use – similar to bicycle lanes in that bicycles may travel in the “breakdown” lane, but not designated specifically as bicycle lanes. Several arterial or collector roadways in Chelmsford have shoulders that are adequate for bicycle travel (Tyngsboro Road, Groton Road, Middlesex Street, Princeton Street, Chelmsford Street, and Gorham Street).
- Shared Lanes – use of the normal travel lanes by both motor vehicles and bicycles. Other than those with adequate shoulder widths for bicycle use, the arterial or collector roadways in Chelmsford accommodate bicycle travel by this method.

- Sidewalks – outside of business districts (Chelmsford Center, Vinal Square, Drum Hill corridor, Chelmsford Street corridor), bicycles are permitted to travel on sidewalks in Chelmsford.

The Bruce Freeman Rail Trail (BFRT) which opened in 2009, is a shared use path that originates at the Cross Point Towers in Lowell, bisects Chelmsford (roughly parallel to Chelmsford Street, Littleton Road, and Acton Road), and continues into Westford. The trail currently terminates near the intersection of Route 27 and Route 225 in Westford. The ground-breaking for Phase 2A of the trail took place in June of 2015 with construction started in late summer. This will extend the trail approximately 4.9 miles from its current Westford terminus into the town of Acton.

The BFRT has been very popular with bicyclists since its opening. Recent counts indicate bicycle traffic volumes of approximately 1200 per day, on a Saturday during the fall.

The BFRT crosses several roadways within Chelmsford. The crossing control at most of these intersections involves warning signs on the trail approaches stop signs at the intersection and bicycle crossing warning signs on the roadway approaches. Additional controls consist of the following:

- Golden Cove Road crossing – yellow flashing warning lights are provided on both approaches on Golden Cove Road. These lights flash 24 hours per day, without any detection or activation by trail users. In the fall of 2015, Trail User activated “Rectangular Rapid Flash Beacons” (RRFB’s) were installed at this location to provide additional warning to approaching motorists and enhance cyclist and pedestrian safety.
- Chelmsford Street/Fletcher Street crossings – trail users use the existing pushbuttons to activate the Walk signals at the intersection of Chelmsford Street and Fletcher Street.
- Central Square – trail users use the existing pushbuttons to activate the Walk signals at the intersection of North Road and Littleton Road.

Another aspect of bicycle accommodation is the provision of bicycle parking amenities (bike racks). Currently, bike racks are provided at several of the Town-owned properties (Town Hall, schools, library, etc.). However, there are numerous Town-owned properties that do not provide bike racks, including:

- Municipal parking lot at Vinal Square
- MacKay Branch Library
- Community Education Building (former Westlands School)
- Varney Park
- Southwell Field
- Murphy Field (soccer fields off of Mill Road)
- Highland Field

- Chelmsford Country Club/Golf Course
- North Town Hall
- Chelmsford Forum

Bicycle racks should adhere to the [Guidelines for Bike Rack Styles](#) document found on the Chelmsford Bicycle and Pedestrian Advisory Committee web page.

Bicycle detection is incorporated at many traffic signals in Chelmsford. This feature detects the presence of a bicycle when stopped at a traffic signal. The signal controller is aware that a bicycle is waiting on one approach and will assign the green light to that approach accordingly. When approaching a signaled intersection the detector is typically located in the center of the lane near the stop line. Frequently the bicycle symbols on the pavement are eroded, however these should be re-painted when the intersection is re-stripped.

D. Community Policies and Education

Community education is an essential element of the master plan to provide for an effective and safe bicycle and pedestrian transportation network in the town. All community members need to be involved: bicyclists, pedestrians and motorists. The Chelmsford BPAC currently does this in the following ways:

- Several times a year a committee member writes a column, “Steps and Spokes” which is published in the Chelmsford Independent, a local weekly newspaper. Articles cover educational topics such as bike safety or information about the Bruce Freeman trail, and also tell about experiences while bicycling or walking.
- The committee promotes the Safe Routes to School (SRTS) program. This program led by the state organization MassRIDES, which promotes transportation methods to lead to reduced automotive traffic. SRTS supports and encourages towns to get more children walking and riding their bicycles to school. It includes classroom visits, safety trainings, presentations to parents, organizing themed walk days, and infrastructure improvements. All of the elementary schools have been involved, with South Row School having the greatest involvement. The committee educates and informs town officials as needed about pedestrian and bicyclist needs or problems, relays public input on these topics, and prepares this master plan for the town.
- The committee has scheduled various events to raise public awareness about available infrastructure and safety and to encourage people to take advantage of facilities such as the bike trail.
- Educating town officials as needed to include bicycle and pedestrian considerations in town planning.

E. Public Transportation

A key component in having a successful pedestrian and bicycle network in a town or city is public transportation. The reality is that often there is a need to travel farther than is

practical by walking or bicycling. That is where public transportation can fill in the gap. The transportation network should include intermodal capabilities, allowing a person to easily transfer from one mode of travel to another (i.e. the ability to walk to a bus station, or to bike to a commuter rail station).

There are several possibilities for connecting cycling with public transportation. Lowell Regional Transit buses have been fitted with bicycle racks in front, accommodating two bikes per bus. The Kennedy Transportation Center in Lowell and the North Billerica Train Station both have bicycle parking. By transferring at the Kennedy Transportation Center, travel can extend to points in Littleton, Burlington, Lawrence, Tyngsboro and Dracut, though some of the routes don't extend as far on Saturdays, and the buses don't run on Sundays.

As of this writing, there are several bus routes that serve various areas of Chelmsford. Bus 5 runs a short route from Lowell to points in the Drum Hill area. Bus 15 travels down Littleton Rd. through Westford, ending at IBM in Littleton. Bus 17 serves North Chelmsford including the Senior Center and Drum Hill. Bus 16 travels down Chelmsford St. and turns to Drum Hill. Two buses go to East Chelmsford: Bus 14 runs Brick Kiln Rd. and on to the North Billerica Train Station and Lahey Hospital and Medical Center in Burlington. Bus 13 travels to the North Billerica MBTA train station and continues down Boston Road. Only during the holiday season, there is a route that travels through Vinal Square to shopping centers in Nashua, New Hampshire.

The Bruce Freeman Rail Trail reaches to within two miles of the Kennedy Transportation Terminal in Lowell, connecting with both buses and the commuter train to Boston. Standard bicycles are allowed on the commuter trains on weekends and on designated non-peak hours on weekdays, though not at all on Christmas and Independence Day. Folding bicycles, if folded, are permitted on all trains at all times. Information can be found on MBTA.com for both the commuter rail and connecting buses and subway lines. The most up-to-date information on buses can be found online at LRTA.com and, on trains, MBTA.com.

F. Bylaws

The vast majority of subdivision road development in Chelmsford occurred during a time when sidewalks were not required on either side of the street. Fortunately in most cases vehicular traffic is low enough on the town's subdivision roads such that bicycle and pedestrian safety is satisfactory.

The Town of Chelmsford currently has a limited amount of bylaws addressing the addition of pedestrian and bicycle facilities in the town. There is a parking reduction zoning bylaw (195-18.d) that considers the reduction of parking spaces in trade for bicycle parking. In the case of new development, sidewalks are required on one side of streets and minor roads in all but Residential C districts, where they would be required on both sides.

Most new commercial development in Chelmsford comes in the form of reuse of existing developed land. BPAC recommends the addition of either Zoning Bylaw or Subdivision Rules and Regulations that benefit Chelmsford's pedestrians and bicyclists.

Examples of such bylaw changes would be the following:

- Bicycle parking (bicycle racks) should be required for all new business development or redevelopment of existing properties , or when a substantial addition of parking spaces to existing parking is made.
- One bicycle rack per 20 automotive spaces would be recommended. On properties with multiple commercial tenants bicycle racks should be distributed appropriately across the property.
- 53G mitigation funds are based upon a Planning Board policy, adopted in 2000, that requires a developer to contribute \$100 for every new parking space created... These funds are then used by the town for various traffic and pedestrian improvements.

Section 5 Recommendations:

BPAC recommends that the town adopt a formal public process to determine and prioritize road, sidewalk, and bicycle infrastructure projects. This process should be transparent and seek public input while valuing expert recommendations from the Town Engineer and the Director of the DPW. Transportation Improvement Projects should be included in this process.

A. Pedestrian

Pedestrians need a safe and convenient network of sidewalks, trails, connectors and crosswalks in order to be able to travel throughout town, whether it be out of necessity, exercise, or leisure. Unlike the driver of a car or a bicyclist, the town's pedestrians include every age group and physical ability. Therefore, the importance of building and maintaining a suitable network of sidewalks is vital to the community's well-being.

The BPAC has identified and ranked items and areas for improvement that can greatly assist in meeting the town's pedestrians' needs. These needs have been broken down into categories and ranked in order to better address and track. The ranking is based on a 3, 5, and 8 year time period.

i. Within 3 years

Pavement

- Continue sidewalk along Old Westford Road from Arbutus Avenue to Baldwin Road towards Roberts Field/ Friendship Park
- School Street-continue sidewalk along School Street between Old Westford Road and Graniteville Road

- Groton Road
- Concord Road
- Route 4/ Parkhurst Road. Need additional connecting sidewalks at all corners of this intersection (Manwell Road, Chelmsford Village)

Crosswalk

- Crosswalk needed at Richardson Road and Graniteville Road between Parker School Field and Sully's
- Additional crosswalk at Route 4/ Parkhurst Road
- Alpine Lane-crosswalk needed across Route 110

Signage

- Kate's Corner, South Chelmsford-need cross walk warning signs posted at the crosswalk. There are advanced warning signs however this intersection/ crosswalk needs more visible signage
- Crosswalk signage at Steadman Street and Smith Streets in both directions
- Crosswalk signage on Smith Street at elderly housing complex
- Crosswalk in front of McCarthy School needs flashing signage
- Flashing crosswalk signage-Rapid Rectangular flashing beacon on Old Westford Road at crosswalk from McCarthy School to High School fields indicating school zones
- Crosswalk signage at both middle schools as well as high school for all crosswalks at or near the schools

ii Within 5 years

Pavement

- Add sidewalk on Richardson Road from Edgelawn Avenue to Princeton Street. No sidewalk connecting to 3A
- Add sidewalks on Main Street from School Street to Route 40. Large number of walkers on this route
- Route 4/ North Road- add sidewalk on the east side of Route 4 to Manwell Road. Large number of students come from this neighborhood to the McCarthy School
- School Street-continue sidewalk along School Street between Old Westford Road and Graniteville
- Sidewalks on Westford Street from Old Westford Road into Center
- Concord Road-from Parker Road to Sonora Drive
- Tyngsboro Road-Williamsburg Condominiums to Vinal Square
- Carlisle Street
- Westford Street
- Center Village-being looked at right now. Note: Reference Center Village Master Plan
- 9 Acton Road-crosswalk to Bartlett Park. Note: Reference Center Village Master Plan
- Tyngsboro Road-Williamsburg Condominiums to Vinal Square

Crosswalk

- Crosswalk from Lakeside Avenue to sidewalk on Route 27 near Elm Street. Sight lines/ distance needs to be reviewed.

Signage

- Request School Crosswalk Signs leading up to and at all school crosswalks in town

iii Within 8 years

Pavement

- Route 4-North of Drum Hill Rotary-need sidewalks continued along this stretch to town controlled section. This is a state controlled road and has to be addressed with the state.
- Add sidewalks on Route 110 from Chelmsford Center to Westford Line. This is a state controlled road.
- Route 4/Boston Road-add sidewalks from South Row School to Cambridge Street.
- Add sidewalks on Mill Road from Raymond Road connecting to at least Turnpike Road but preferably to Elizabeth Drive.
- Riverneck Road-sidewalks needed from Billerica Road to Gorham Street.
- Brick Kiln Road-sidewalks needed from Moore Street to Carlisle Street.
- Sidewalks from Alpine Lane towards Walgreen's. Coordinate with Center Village Master Plan.
- Maple Road/ Parkerville Road
- Drum Hill needs sidewalks on both sides of the road along the stretch of roadway from the rotary to the Lowell line

Crosswalk

- none

Signage

- Improve School Zone Signage at Parker and McCarthy Schools.

The above mentioned sidewalk recommendations are not meant to circumvent any existing plans of the DPW. **Existing sidewalks that have been identified as not compliant with ADA standards should be made a top priority. These recommendations are meant to reinforce and encourage the DPW's sidewalk plan with the possibility of recognizing other opportunities to improve the Town's sidewalk network.** The BPAC also encourages the Town to improve its method of communicating any planned improvements so the residents can be aware of just how much good work is being done throughout town. For example, a South Chelmsford resident may be totally unaware that sidewalks are being installed in North Chelmsford or vice versa. A little outreach can go a long way in residents' contentment when they may be wondering "Why isn't anything being done in my neighborhood?"

B. Bicycle

Bicyclists require a safe and convenient network of bicycle accessible road shoulders, bicycle lanes, and shared use paths in order to enable more bicycle use in Chelmsford. As shown in the existing conditions (section 4C) there is no formally planned bicycle infrastructure (other than the Bruce Freeman Rail Trail) currently in Chelmsford. BPAC has and will continue to consult with town entities on providing roads that are more bicycle friendly. When roads are repaved or expanded, the appropriate entity will be consulted in order to provide better access for bicycles. BPAC will also put together information that will act as a guide for making improvements to bicycle travel and safety. BPAC has provided input to the DPW on where to install several donated bicycle racks. BPAC will promote the inclusion of bicycle racks at businesses, town properties, and all new development projects. BPAC is also working with the town to provide better maintenance for the Bruce Freeman Rail Trail (BFRT) as well as plan for more substantial repairs in the future. BPAC will also work with the town to make rail trail crossings of major streets as safe as possible. The Friends of the BFRT continue to provide funding for temporary restrooms placed strategically along the trail. The Friends of the BFRT also provide financial support for maintaining the bicycle fixit station and kiosk at Cushing Place.

BPAC has developed a bicycle map of the safest and most common routes throughout the town to reach popular destinations. We will be working with the town engineer to produce an overlay of the town road map and post it on the Town of Chelmsford website. BPAC will also advise the town on signage specific for cyclists to help navigate throughout the town, in particular to points of interest.

Top Level Destinations:

- Bruce Freeman Rail Trail
- Drum Hill Business District
- Great Brook Farm State Park
- Town Center (Chelmsford)
- Vinal Square

Recreational Points of Interest:

- Cranberry Bog Reservation
- Crooked Spring Reservation
- Deep Brook Reservation
- East School Field
- Heart Pond Beach
- Lime Quarry Reservation

- Red Wing Farm
- Roberts Field
- Russell Mill Town Forest
- Southwell Field
- Walter F. Lewis Community Garden at Sunny Meadow Farm
- Thanksgiving Ground Forest
- Varney Park
- Wright Reservation

The BPAC has identified roadways in Chelmsford for improvement. This list has been created with a priority to provide safe bicycle access to the above destinations and points of interest. Addressing these needs will be crucial in providing convenient bicycle access throughout the town. These needs have been broken down into categories in order to be able to better address and track them. The categories were determined by the existing road width and conditions.

The BPAC in following the categorization plan for pedestrian needs has applied a similar method for bicycle needs. These needs have been broken down into categories and ranked in order to better address and track. The ranking is based on a 3, 5 and 8 year plan.

i Within 3 years

Add Bike Lanes:

- Littleton Road
- Princeton Street

Widen Shoulder:

- Turnpike Road
- Westford Street

Sharrows on the roads:



Example of a Sharrow road marking

- Boston Road
- Golden Cove Road
- Parkhurst Road
- Steadman Street

Add Bike racks

- Replacement of existing worn and unsuitable bike racks.
- Complete installation of existing supply of bicycle racks.

ii Within 5 years

Widen Shoulder:

- Parkerville Road
- Main Street

Add bike route signage:

- Brentwood Road
- Carlisle Street
- Davis Road
- Dunstable Road
- Elm Street
- Graniteville Road
- Parker Road
- Proctor Road
- Smith Street
- Warren Ave

iii Within 8 years

Widen Shoulder:

- School Street
- Concord Road
- Mill Road
- Riverneck Road
- North Road

C. Safety and Education

Improved educational efforts can increase safety for bicyclists and pedestrians and raise public awareness about the possibilities for using bicycles and walking as alternative transportation and recreation. Other issues to highlight are the health benefits of cycling and walking, the reductions in traffic congestion, and the fact bicycle and pedestrian friendly communities are desirable places to live and visit.

The committee is considering ways to improve pedestrian and bicycle education including:

- Expanding the Safe Routes to School Program to include the middle schools.
- Develop interactive events, such as, a bicycle repair workshop or helmet fitting event.
- Organize a bicycle course event for children in a parking lot. This would be run by adults, but the Police Department, as well as, groups such as the Boy Scouts or Girl Scouts could help in the organization. Children would be able to practice using hand signals and negotiating turns and right of way as well as learn bicycle trail etiquette.
- Communication of existing laws and regulations concerning pedestrian and bicycle safety and helmet use.

Section 6: Action Plan/ Implementation:

Below is a list describing measures that BPAC follows and will continue to do so in order to implement this plan. By following these points, we hope to monitor progress towards the goals stated in this plan, as well as, augment the plan as new situations develop throughout town.

- Meet yearly with Chelmsford DPW to monitor and implement Pedestrian and Bicycle recommendations. This meeting will take place prior to the beginning of the construction season.
- Meet yearly with the Town Manager to report on progress and address concerns.
- Maintain an active list of bicycle and pedestrian projects and progress.
- Have an internal yearly progress review and update the plan accordingly.
- Work with MassDOT where applicable (State owned roads or property).
- This is a living document that will be continuously reviewed by BPAC and amended as required.

Section 7 Contributors/ Acknowledgements:

BPAC would like to thank the people below (many who were/are BPAC members) for help in developing this plan. A lot of effort has gone into this plan and it would not have been as complete without their help.

Mike Garvin
Tom Gazda
Mike Koziel
Cynthia McLain
Randall Peterman
Karen Taylor
Heather Blanchette
Shaun Berry
Jennifer Bristol
Ken Van Tassell
Janice Ruell
Jim Kelsey
Melinda Goodick
Carol Grueneich
Bob Schneider
Bob Morse

Brunswick Maine Bicycle and Pedestrian Advisory Committee (for inspiration)

Section 8 Appendices:

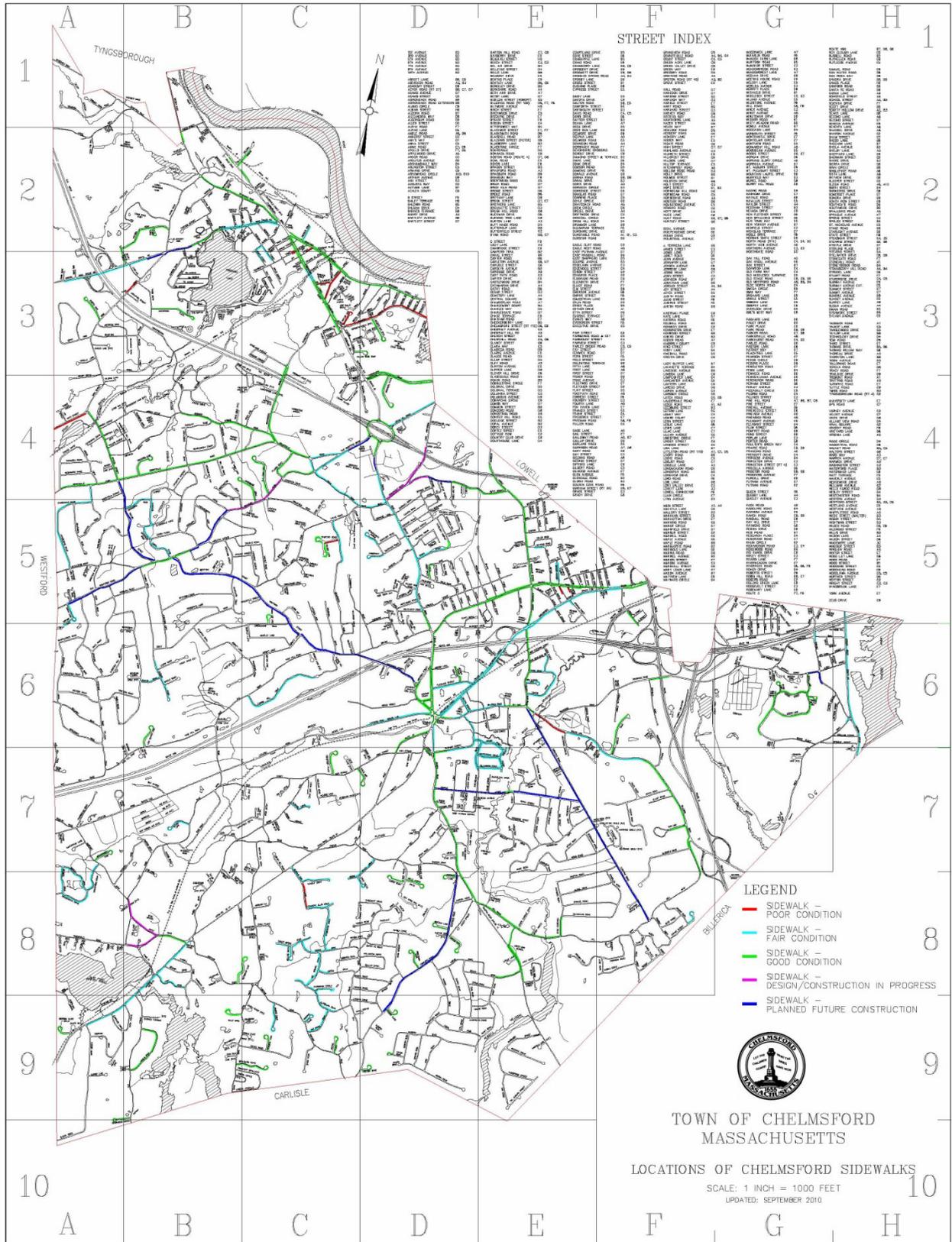
Existing Rights of Way

The following table lists the existing Rights of Way (R-O-W) for each arterial or collector roadway in Chelmsford.

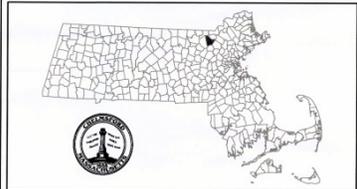
Street	R-O-W
Tyngsborough Road	50'
Groton Road	50'
Middlesex Street	50' – 60'
Princeton Street	50'
North Road	50' (Drum Hill – Littleton Road)
North Road	100' (Drum Hill Rotary – Princeton St)
Main Street	50'
School Street	50'
Graniteville Road	50'
Old Westford road	45' – 50'
Drum Hill Road	50'
Steadman Street	50'
Westford Street	40'
Golden Cove Road	40'
Chelmsford Street	50'
Littleton Road	47.5' – 50'
Billerica Road	Variable
Riverneck Road	40'
Gorham Street	50'
Turnpike Road	40'
Acton Road	45'
Boston Road	40'
Concord Road	40' – 46'
Mill Road	38' – 44'
Parkerville Road	40'
Maple Road	40'
Proctor Road	30'
Tuttle Road	36'

State Controlled Roads in the Town of Chelmsford

- Chelmsford Street – partial (from Dunkin' Donuts to the Lowell Line)
- Gorham Street
- Littleton Road – partial (from the Ginger Ale Plaza to the Westford Line)
- Princeton Street
- Tyngsboro Road
- North Road - partial (from rotary to Princeton Street)



Bicycle Routes for Chelmsford, Massachusetts



The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation. Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

Produced by:
The Northern Middlesex
Council of Governments
40 Church St., Suite 200
Lowell, MA 01852
978-454-8021
NMCOG.org

