CITY OF CONCORD PEDESTRIAN MASTER PLAN

March 2017

Prepared by the Central New Hampshire Regional Planning Commission under direction from the Pedestrian Subcommittee of the Concord Transportation Advisory Committee and in collaboration with the City of Concord Planning and Engineering Services Divisions.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This Pedestrian Master Plan is intended to direct and guide a wide range of efforts by the City of Concord and others to make Concord a more walk-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 and more detailed concepts for improving walking conditions in Concord. The plan focuses on the Five Es: Engineering and Infrastructure, Education, Encouragement, Enforcement, and Evaluation and Planning.

The plan includes:

- A vision statement, goals and objectives, and an explanation of desired outcomes;
- A "toolkit" of infrastructure options for improving walking conditions;
- Maps of recommended infrastructure projects by neighborhood;
- Recommendations for improving sidewalk snow removal;
- Information and recommendations on various topics covering the five E's; and
- Findings from surveys, public meetings, and other public outreach.

Critical to this plan is visioning and public comment received via public meetings, surveys, and communications through TPAC and its subcommittees.

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

The plan was funded through CNHRPC Unified Planning Work Program (UPWP) funding from the NH Department of Transportation.

CITY OF CONCORD
PEDESTRIAN MASTER PLAN

PURPOSE AND INTRODUCTION

PURPOSE OF DOCUMENT

This plan is intended to guide a wide range of efforts to help the City of Concord achieve its goal of becoming a more walkable community as stated in the Comprehensive Transportation Policy and 2030 Master Plan. Walking is a crucially important and environmentally friendly mode of transportation for short trips, especially Downtown and in Concord's neighborhoods. Walking is also a healthy and fun activity for people of all ages and abilities. Further, walking is an economic tool that enlivens our Main Street and neighborhoods, offers low-cost transportation to those who do not drive, and reduces stresses on roadways and parking.

This plan also recognizes that there are a substantial number of households in Concord that have limited or no access to a personal automobile. For these households, a safe and accessible walking environment is essential to access employment, shopping, schools, and services.

This plan is a supplement to the City's comprehensive master plan, **Master Plan 2030, Concord New Hampshire**. The transportation chapter of the comprehensive master plan lays out a broad vision for a multi-modal transportation system in Concord, of which walking is an important part. This plan mirrors the spirit and intent of the comprehensive master plan, but provides more walk-specific community outreach, and offers more detail as it relates to the needs of walking in Concord.

Over the course of the development of this plan, there were three desired outcomes that many felt could be achieved through improved walking conditions. The most basic was a realization that walking is an important part of a transportation system. With public health being a concern among many residents, there was a recognition that walking was a means to improved public health. Finally, many saw walkability as a means of economic development that fit well with Concord's strengths and opportunities.

DESIRED OUTCOMES:

1. Improved Transportation System: Walking is recognized as an important part of the transportation system. Walking is an efficient mode of transportation for short trips, it provides access to people who do not drive, and it can create flexibility with parking when people can park once and walk to one or more destinations.

2. Improved Public Health: Increased walking is seen as a way to improve public health through increased physical activity. Walking for fun, exercise, and for utilitarian purposes all contribute to healthier lifestyles.

3. Economic Development: Fostering a walkable, livable community is a component of a viable economic development strategy. It can help create vibrant downtowns and neighborhoods, and draw people to local businesses. Walkable environments take advantage of some of Concord's existing unique opportunities including historic structures and a vibrant Main Street.

Coincidentally or not, these goals and desired outcomes, derived from public input, are consistent with best practices for land use and transportation. All recommendations in this plan must be weighed against how well they meet these principles, and will help the City of Concord achieve its desired outcomes.

Comprehensive Transportation Policy

Concord is a "Complete Streets" community, having adopted its Comprehensive Transportation Policy in 2010 and updated in 2015. It states that all roadways and the transportation system as a whole in Concord should be designed, operated, and maintained to serve all transportation users, including motor vehicles, public transportation, bicycling, and walking. This plan offers ideas and solutions to help engineers, policy makers, and others to implement the pedestrian component of this complete streets policy. A copy of the transportation policy can be found in the Appendix.

Figure 1: Participants at a public meeting

Process of Creating the Plan

The Pedestrian Master Plan was an initiative from the Transportation Policy Advisory Committee (TPAC), and more specifically, the Pedestrian subcommittee of TPAC (TPAC-Pedestrian). This group, consisting largely of volunteers, identified the need for a more detailed and comprehensive strategy for improving walking conditions. Part of the strategy was to reach out to the community to hear their input. With assistance from the Central New Hampshire Regional Planning Commission (CNHRPC) and from the City of Concord Planning and Engineering Services Divisions, TPAC-Pedestrian served as the working group that conducted the outreach and developed this plan.

One of two primary sources of public input was a survey conducted by CNHRPC. The survey was distributed digitally and by paper using online services. Links and references to the survey were shared via the City Manager's Newsletter, Penacook Village Association materials, the CNHRPC website, and various media outlets. Detailed findings from the survey can be found in the Appendix.

TPAC-Pedestrian also held two formal public meetings and an informal meet and greet. These meetings were geographically distributed across the community, with a meeting in Penacook with the Penacook Village Association, a meeting held Downtown using space offered by Concord Hospital's Center for Health Promotion, and a meet and greet type format on the Heights during the holiday parade. The formats for each meeting varied slightly, but each contained background information on the purpose of the project, and discussions on specific topics including maintenance and snow removal, sidewalks and infrastructure, trails, and safety. Various maps were available for mark-up and comment, as were images of sidewalks, trails, and streetscapes from Concord and other communities to assist in visioning. More detailed information can be found in the Appendix.

As a committee, TPAC and its subcommittees have continuously been in communication with members of the public regarding transportation issues, and used this experience in addition to the survey and public meetings to craft the plan.

Data regarding pedestrian traffic, motor vehicle traffic, vehicle-pedestrian crash data, and others were also compiled to assist with the plan. Various maps and tables can be found in the Appendix along with other data points found throughout the plan.

GOALS AND OBJECTIVES

Throughout the public input and visioning portion of the planning process, several themes re-emerged regularly. Three of these themes focused on accessibility, safety, and enjoyment.

Safety, and the perception of safety, was frequently mentioned, often referencing personal experiences. The concept of accessibility meant slightly different things to different people, but a common thread was a sense that people should be able to get to where they want to go on foot if they so choose. In some cases this reflected a personal choice or preference for walking, sometimes it was a recognition of the needs of those with limited transportation options, and other times it reflected the needs of seniors and those with special mobility needs. Finally, a frequent theme that was heard was a desire for an enjoyable walking environment. This stemmed partly from a desire to encourage more people to choose to walk, but also expressed a vision of the type of community people want to live in.

These three themes have been identified as community goals:

1. Accessibility: Make Concord a place where people can get to where they want to go on foot, regardless of their ability. This includes the young, old, and people who require personal mobility devices such as wheelchairs. Sidewalks should be maintained for clear passage. Pedestrian connections should be reasonably direct.

2. Safety: Ensure that walking in Concord is safe, and that the walking environment feels safe. Concord should have an aspirational goal for no pedestrian injuries or deaths due to motor-vehicle conflicts. Also recognize that the mere perception of safety impacts people's willingness to walk.

3. Enjoyment: Make walking enjoyable. Elements such as shade trees, benches, buffers from motor vehicle traffic, and a pedestrian oriented environment should be used to enhance the walking experience whenever appropriate. A place that is good for walking is often a pleasant place to be and improves a community's livability.

Additional common themes throughout the visioning process described the reasons why walking is important, and what the outcome of a more walkable community would be. The three often cited outcomes are discussed in more detail in the introduction of this plan. It includes a desire for an improved transportation system and recognizing the role walking plays in Concord's transportation system. It includes a desired outcome of improved public health from the physical activity of walking. And walking is also seen as an important part of an economic development strategy by making Concord a livable place to live and work.

DESIRED OUTCOMES:

1. Improved Transportation System
2. Improved Public Health
3. Economic Development

The principles and outcomes can be more succinctly summarized in this vision statement for walking in Concord:

VISION STATEMENT

"Concord will be a community where walking is a safe, practical, and enjoyable means of transportation and recreation for people of all abilities. Improved walking conditions are a means to a better transportation system, improved public health, and a more vibrant economy."

INFRASTRUCTURE/ENGINEERING

TOOLKIT

This design and engineering "Toolkit" shows examples of best practices and engineering solutions. This toolkit offers a range of potential treatments to address walkability issues across the city. When implementing such treatments, the City should continue to adhere to the most current design guidelines, including the Manual on Uniform Traffic Control Devices (MUTCD), the American Association of State Highway and Transportation Officials (AASHTO), and the National Association of City Transportation Officials (NACTO). The information provided here is far from exhaustive, but should lead toward more research into where and how to best apply these treatments and to think about different approaches to improving walkability.

Sidewalks are the most obvious piece of infrastructure for walking, but not all are created equal. The built environment around the sidewalk has a great influence on the overall walking experience, as does the nature of the sidewalk itself.

DESIRABLE SIDEWALK ELEMENTS FOR A RESIDENTIAL NEIGHBORHOOD

DESIRABLE ELEMENTS:

- → Narrow sidewalks are acceptable with a minimum of 5 feet to allow people to walk side-by side.
- → Street trees of sufficient size and proximity to shade the street and sidewalk.
- → Landscaped strip between street and sidewalk.
- → On-street parking provides a buffer between sidewalk and motor vehicle traffic.
- → Porches and building facades face the street.
- → Landscaping that enhances aesthetics.

EXAMPLES AND RECOMMENDATIONS

- → Many sidewalks with these elements can be found in the neighborhoods west of Main Street and near Penacook Village.
- → Sidewalks in densely settled residential areas across Concord can benefit from such treatments.

DESIRABLE SIDEWALK ELEMENTS FOR A COMMERCIAL CORRIDOR


Image credit: Google Maps

DESIRABLE ELEMENTS:

→ Landscaped buffer between street and sidewalk separate people from motor vehicle traffic.

→ Street trees of sufficient size and proximity to shade the street and sidewalk.

→ Buildings oriented towards the street.

→ Parking located in the rear, or the side if necessary, and screened by landscaping.

→ No parking or motor vehicle access between the sidewalk and the building.

→ Direct sidewalk access to the building entrance.

→ Building is scaled for a pedestrian environment (multi-story, no blank walls).

→ Lighting may be used for pedestrian safety using pedestrian-scale lighting.

EXAMPLES AND RECOMMENDATIONS

→ Areas identified as potentially benefitting from these improvements include portions of the US Route 3 Corridor (Manchester Street, Water Street, South Main Street, North Main Street, Bouton Street, North State Street, Fisherville Road, and Village Street), private development projects along Loudon Road, South Main Street from West Street to Langdon Avenue, and parts of Fort Eddy Road.

DESIRABLE SIDEWALK ELEMENTS FOR AN URBAN CORE

Image credit: McFarland Johnson

DESIRABLE ELEMENTS:

→ Wide sidewalks.

→ Street trees for shade.

→ Street parking provides a buffer for pedestrians.

→ No surface parking lots.

→ A clear “walk zone” along building entrances.

→ A “furniture zone” for benches, planters, bicycle parking, civic art, etc.

→ Space for outdoor seating.

→ Pedestrian oriented and pedestrian scaled buildings.

→ Pedestrian oriented lighting can be used using low blue (3000K or lower) color temperature.

EXAMPLES AND RECOMMENDATIONS

→ North and South Main Street, from Centre Street to Theatre Street, and Village Street in Penacook are existing examples.

→ South Main Street south of Concord Street and North Main Street north of Center Street, as well as Storrs Street, Warren Street, parts of Pleasant Street, other downtown streets, and parts of Village Street in Penacook would benefit from such treatments.

COMMON UNDESIRABLE SIDEWALK ELEMENTS

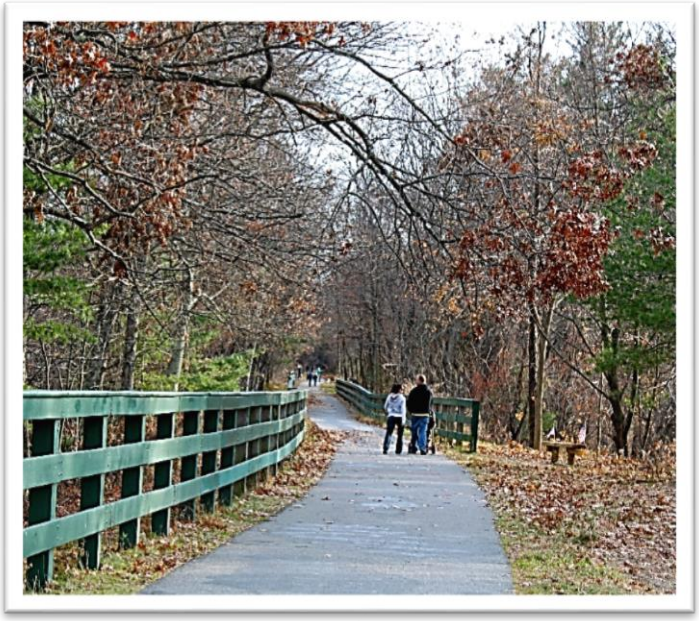
UNDESIRABLE ELEMENTS:

- → Frequent driveways and open curbs break up sidewalk continuity.
- → Cars, signage, or other obstacles blocking the sidewalk.
- → No buffer between heavy traffic and sidewalk.
- → Buildings and signage not oriented or scaled towards the sidewalk; buildings are set too far back.
- → Parking and driveways between the sidewalk and buildings.
- → Lack of street trees or vegetation, or overgrowth of vegetation encroaching on sidewalk.

EXAMPLES AND RECOMMENDATIONS

- → Loudon Road suffers from many of these issues, but some of these problems exist to varying degrees on many Concord sidewalks.
- → Communicate and collaborate with landowners and businesses.
- → Capitalize on opportunities that arise from private developments.
- → Obtain additional right-of-way when needed to accommodate future improvements.
- → Spot improvements can be made using CIP 17 (Sidewalk, Bikeway, and Streetscape Improvements), while larger projects may need a targeted funding source.

SHARED USE PATHS



WHAT THEY ARE:

- → Shared use paths are two-way paths open to bicycles, pedestrians, and other non-motorized users.
- → They are typically 10-12 feet wide.
- → Are often known as bike paths and are often installed as “rail trails.”

EXAMPLES AND RECOMMENDATIONS

- → Examples in Concord include the I-89 path at Silk Farm Road, the I-93 path from East Concord to Delta Drive, and a short path connecting Conant Drive to Abbot-Downing/Conant schools.
- → Potential new paths include the Merrimack River Greenway Trail (CIP 543) and a Rail-Trail conversion from Downtown to Penacook.
- → Install shared use paths to connect places in close proximity but not directly connected by streets.

SIDEPATHS

WHAT THEY ARE:

→ Sidepaths are similar to sidewalks, but wider so they can be used by both bicycles and pedestrians.

→ They parallel streets as a sidewalk would.

→ Serve a dual purpose as a transportation facility and a recreational facility.

EXAMPLES AND RECOMMENDATIONS

→ A short sidepath exists along Bradley Street at the Boys and Girls Club.

→ The proposed Langley Parkway extension (CIP 40) includes a sidepath.

→ Sidepaths may be used to connect sections of the planned Merrimack River Greenway Trail.

INTERSECTION TREATMENTS: ROUNDABOUTS

WHAT THEY ARE:

→ Well-designed roundabouts have safety benefits over traffic signals.

→ Pedestrian crossings are short.

→ Motor vehicle traffic is "calmed" and speeds are slower than at traffic signals.

→ Pedestrians need not wait for a "walk" signal.

→ Opportunities for landscaping.

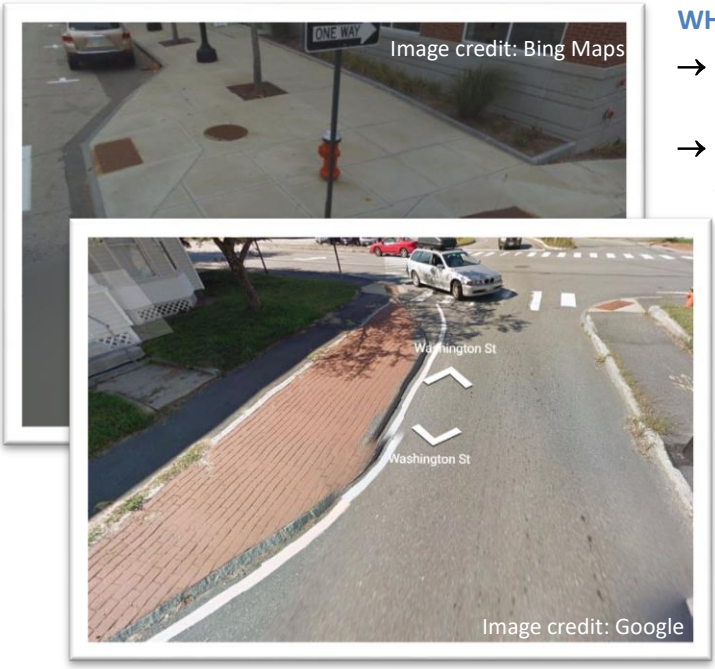
EXAMPLES AND RECOMMENDATIONS

→ Roundabouts in Concord can be found at Center Street and Liberty Street, North State Street and Franklin Street, Village Street and Washington Street, and soon to be at Mountain Road and East Side Drive (near I-93, Exit 16).

→ Roundabouts are specifically identified as potential solutions to problems at McKee Square (Broadway and South Street, CIP 31), and near Concord High School at Pleasant Street and Warren Street.

→ Other planned or potential roundabouts may be constructed at Manor Road and Abbott Road (CIP 582) and Regional Drive and Chenell Drive (CIP 541).

BUMP-OUTS (CURB EXTENSIONS)



WHAT THEY ARE:

→ Bump-outs shorten crossing distances and improve visibility for pedestrians.

→ Bump-outs can serve as traffic calming devices to slow traffic speeds.

EXAMPLES AND RECOMMENDATIONS

→ Bump-outs are a major component of Main Street sidewalks.

→ Bump-outs can address problems in many locations across the city, especially corridors identified as "difficult to cross." These include Broadway, South State Street, Storrs Street, Centre Street, Green Street, South Main Street south of Concord Street, and North Main Street north of Centre Street.

→ They may be particularly appropriate in Safe Routes to School Zones.

→ They present an opportunity for additional sidewalk space, plantings, or shade trees.

REFUGE ISLAND

WHAT THEY ARE:

→ Refuge islands make crossings safer and easier by letting pedestrians cross one direction of traffic at a time.

→ They are suitable treatments for areas with higher traffic volumes or long crossings.

→ They are often located mid-block.

→ They can be angled so pedestrians face oncoming traffic before crossing.

EXAMPLES AND RECOMMENDATIONS

→ Fisherville Road and North State Street north of Penacook Street have refuge islands.

→ Other potential applications include Loudon Road.

CROSSWALKS AND MID-BLOCK CROSSING SIGNALS

Image credit: Bing Maps

WHAT THEY ARE:

→ Crosswalks are designated crossings for pedestrians.

→ The white "zebra stripes" are recommended due to their visibility.

→ Raised crosswalks or crosswalks constructed out of different materials can also calm vehicle speeds and be aesthetically appealing.

→ Mid-block pedestrian signals can be used when warranted by the MUTCD, and other types of beacons may be available where signals are not warranted.

EXAMPLES AND RECOMMENDATIONS

→ Crosswalks can be found city-wide, primarily at intersections.

→ Push-button crossing signals and crosswalks should be installed at all traffic signals where pedestrians may be present.

→ Crosswalks should be provided near all bus stops.

→ Long gaps between crosswalks that require long deviations from the direct route should be avoided.

→ In multi-lane crossings or high traffic volume areas such as Loudon Road, a push button signal may be appropriate.

→ Rectangular Rapid Flashing Beacons (RRFBs) or Pedestrian Hybrid Beacons (PHBs) may be appropriate alternatives for some mid-block crossings.

→ Avoid crossings that present a multi-threat. Multi-threat situations involve a driver stopping in one lane of a multilane road to permit a pedestrian to cross, and an oncoming vehicle, in the same direction, strikes the pedestrian who is crossing in front of the stopped vehicle.

RAISED INTERSECTION

WHAT THEY ARE:

→ Raised intersections act to emphasize pedestrian crossings and calm traffic speeds.

→ Increases pedestrian priority and visibility.

→ They can include various material treatments or visual elements to increase attractiveness or effectiveness.

→ Improves accessibility by raising the street to meet the grade of the sidewalk.

EXAMPLES AND RECOMMENDATIONS

→ Raised intersections can be found at Thorndike Street and Grove Street, and Thorndike Street and Pierce Street.

→ May be suitable in neighborhood areas, especially in Safe Routes to School zones and other areas where traffic calming is desired.

→ Raised intersections in the downtown can have aesthetic benefits and alter the "feel" of the street to be more pedestrian oriented.

ACCESSIBLE TRAFFIC SIGNALS

WHAT THEY ARE:

→ Accessible traffic signals are signals that include accessibility features such as Accessible Pedestrian Stations (APS) signal controls, and Leading Pedestrian Interval (LPI) signal timing controls.

→ APS signal controls include tactical signal call confirmation, as well as programmable voice directions.

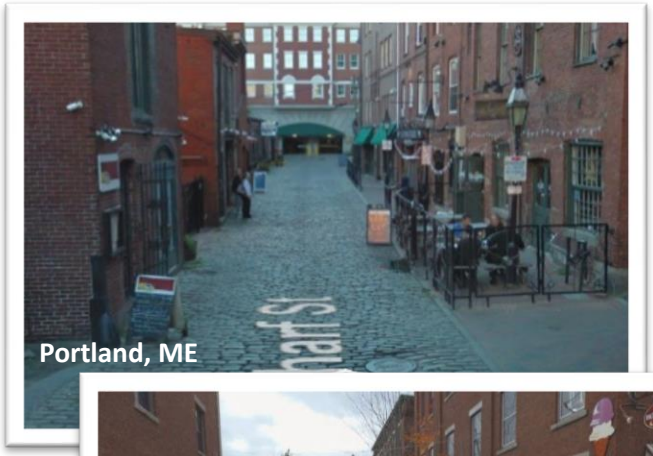
→ LPI crossing controls give pedestrians a walk signal before the traffic signal for a vehicle turns green. This effectively gives pedestrians a head start and increases the chances that a pedestrian will be seen by motorists and improves pedestrian safety.

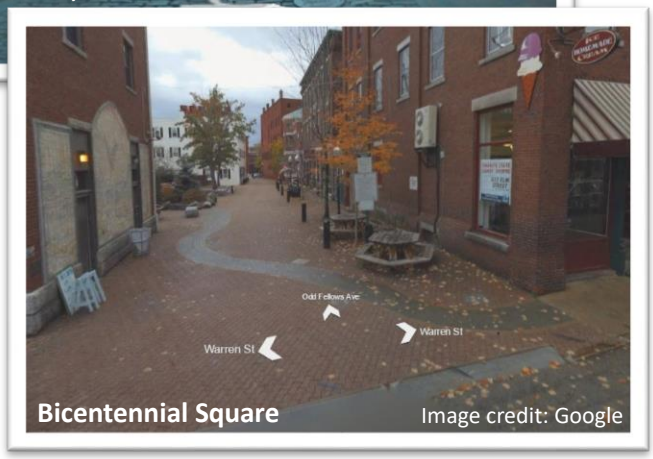
EXAMPLES AND RECOMMENDATIONS

→ LPIs exist at Pleasant Street and Main Street.

→ Are recommended for any location in the City with push button walk signals, with LPI at all locations that are concurrent with a green traffic light.

SHARED STREET OR PEDESTRIAN STREET





WHAT THEY ARE:

→ Shared streets are shared spaces between motor vehicles, pedestrians, and bicycles.

→ The sidewalk and street are typically at the same level.

→ The overall feel of the area puts automobiles on notice that they are "guests" and should yield to pedestrians.

EXAMPLES AND RECOMMENDATIONS

→ Odd Fellows Avenue through Bicentennial Square is a shared street.

→ Warren Street between North Main Street and North State Street was cited as potentially benefitting from shared street elements.

→ Low Avenue (CIP 97) was widely cited as an excellent candidate for such an approach.

→ The image above at left shows Wharf Street in Portland, Maine converted into shared space with restaurants and retail on the back-side of downtown buildings.

Problem Areas

During public meetings and other outreach, participants were asked to identify any areas of Concord they viewed as problematic for walking. This could mean these locations were perceived to be unsafe, unpleasant, or having some other deficiency. In addition to identifying problem areas, some participants identified a need or desire for new facilities, particularly trails and new sidewalks. The Appendix contains a map and spreadsheet showing all locations with a summary of the comments.

Capital Improvement Program

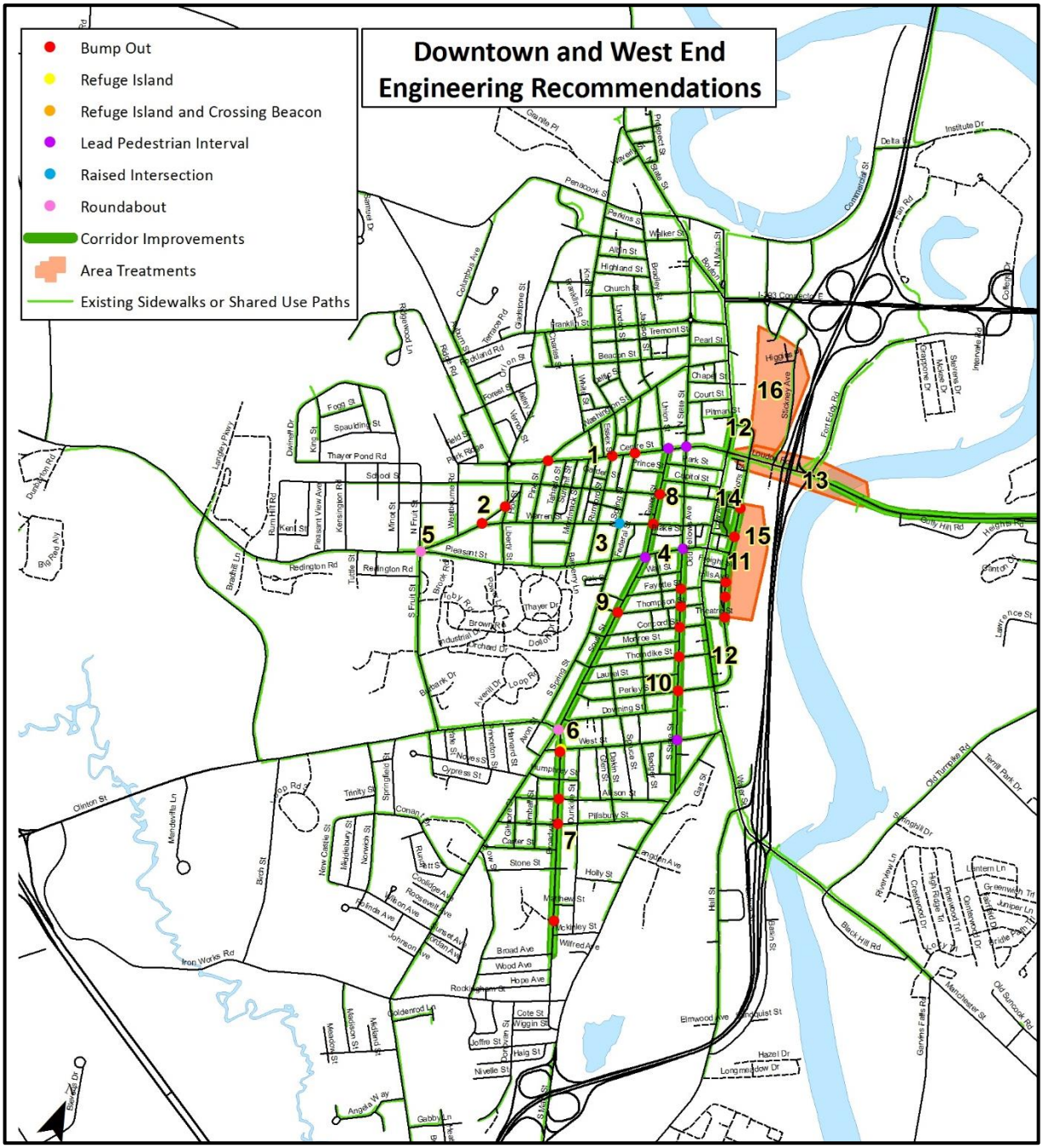
Many of the engineering recommendations and planned sidewalks of this plan can be fulfilled through completion of projects already in the Capital Improvement Program (CIP). While the primary purpose of these CIP projects might be something other than improved walking conditions, Concord should continue to adhere to its Comprehensive Transportation Policy and incorporate walking facilities. A table showing the engineering recommendation projects is included in the Appendix, and lists any relevant CIP projects.

Recommended Infrastructure Improvements

A series of recommended infrastructure improvements is included in this plan. These recommendations are largely based on the needs that were identified through the public outreach. It is recommended that additional studies and neighborhood or street-level outreach should occur before implementing these improvements, especially in the case of new sidewalks.

The engineering recommendations are shown in a series of maps with associated descriptions. Recommendations include "spot improvements" at specific locations. These can be bump-outs, raised intersections, or any of the treatments outlined in the previous section of this plan. Other recommendations call for "corridor improvements," in which a corridor-wide analysis and subsequent improvements are recommended. In these cases, specific "spot" improvements along the corridor should be included as part of the corridor-wide vision and plan. Corridor improvement recommendations may also include applying the treatments as described above. Lastly, recommendations are also made for areas such as school zones or parcels of land where future public or private development is anticipated. These recommendations typically outline preferred forms of development and specific types of connections that should be made.

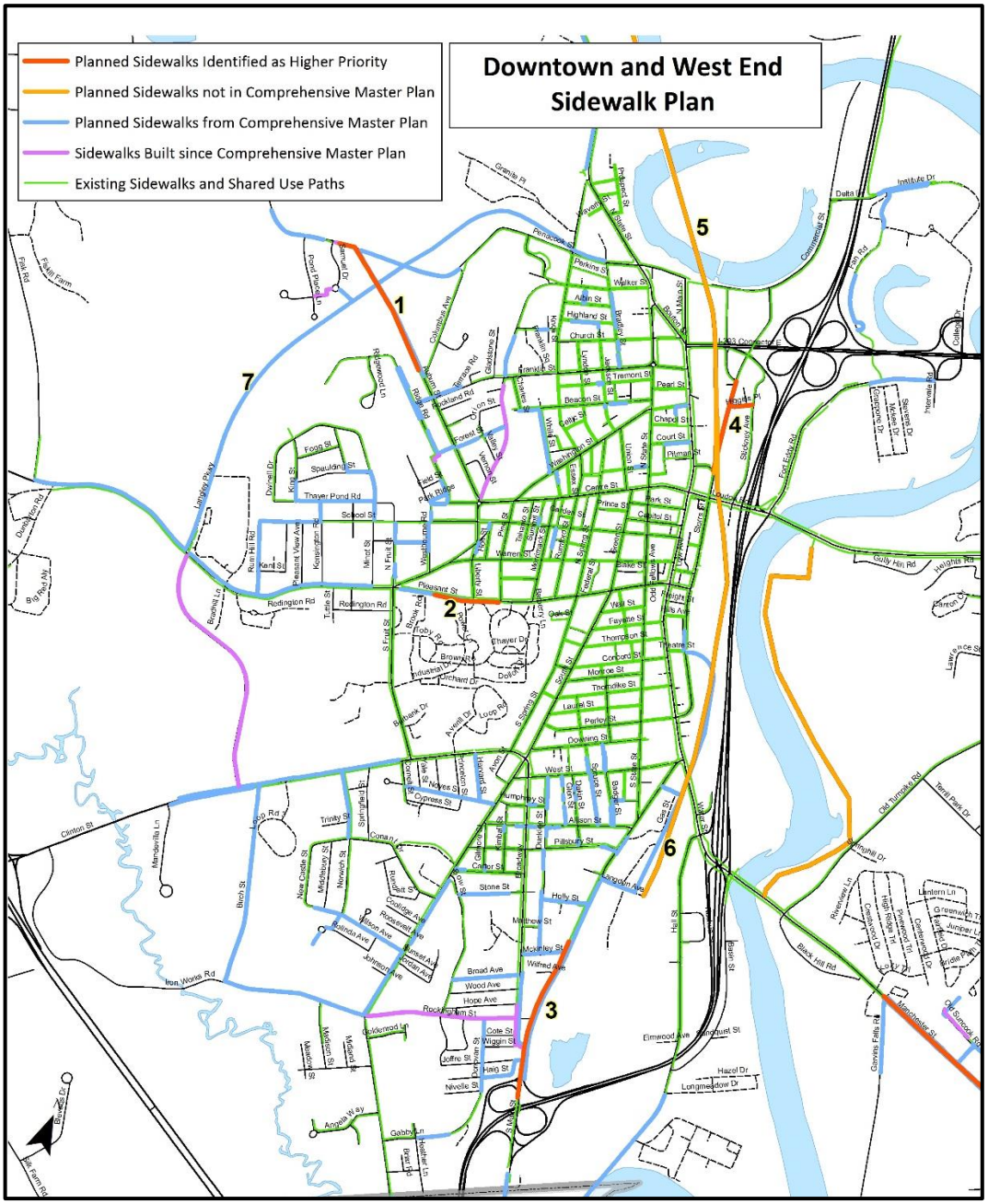
A sidewalk plan is also shown in a series of maps. The basis of the sidewalk plan is the City of Concord's Comprehensive Master Plan completed in 2008. This plan makes additions to the 2008 planned network and highlights sidewalks determined to be of particular importance, but it does not attempt to completely re-draw the 2008 plan.



Downtown and West End Engineering Recommendations

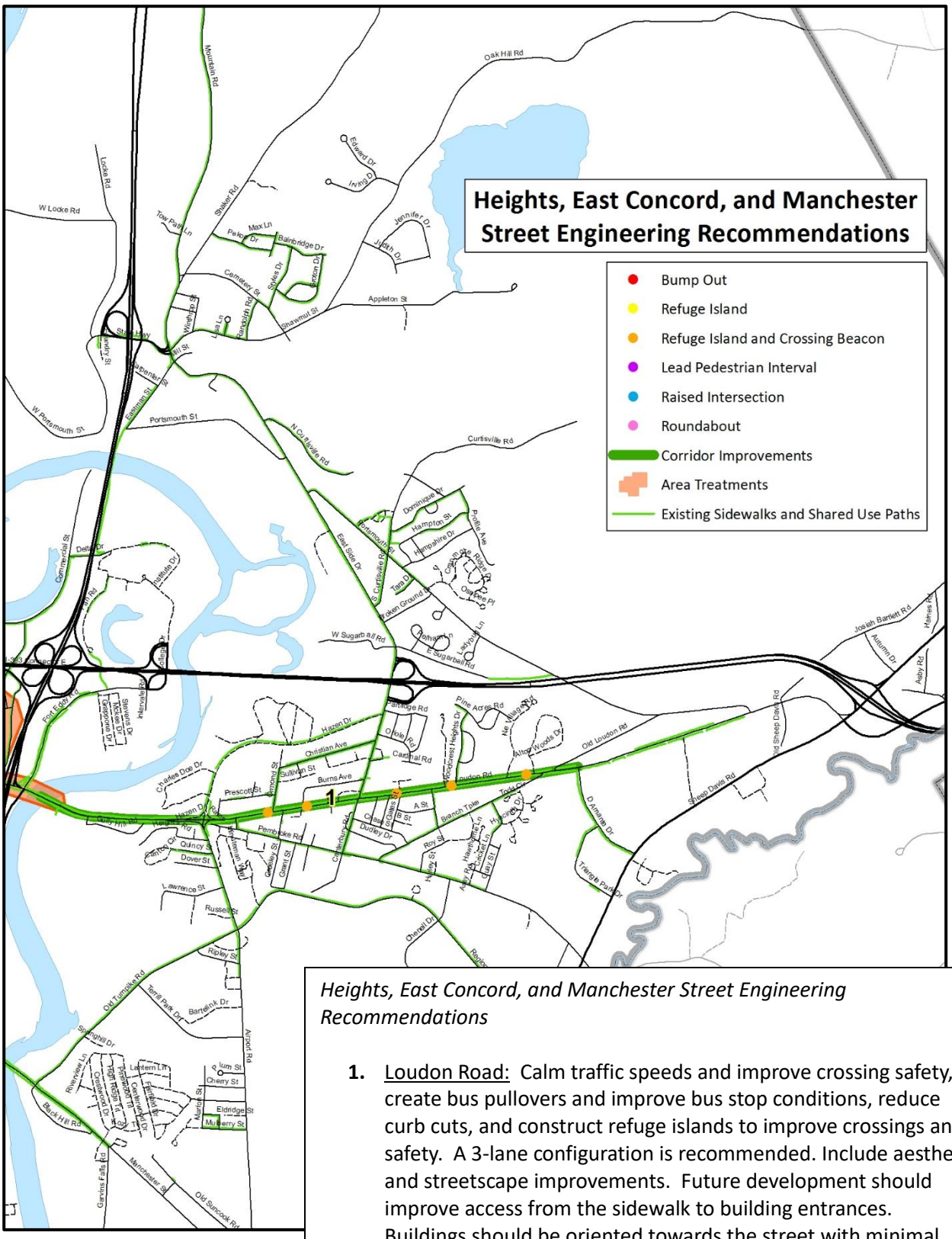
1. Centre Street: Improve crossings, possibly with bump outs at North Spring Street, Rumford Street, Washington Street, and add Accessible Pedestrian Stations (APS) signal controls with Leading Pedestrian Interval (LPI) signal timing controls at Green Street and at North State Street. Coordinate these with Safe Routes to School efforts. Consider reducing wait times for pedestrians at signals.
2. Washington Street and Warren Street from Liberty Street to Concord High School: Introduce traffic calming measures such as bump-outs and intersection geometry changes to improve safety and reduce speeds.
3. Christa McAuliffe Elementary School Zone: Introduce traffic calming measures, possibly bump outs or raised intersections. Coordinate with Safe Routes to School efforts.

4. Pleasant Street and South Street / Green Street intersection and Pleasant Street and State Street intersection: Update signals to include Accessible Pedestrian Stations (APS) and introduce LPI technology to concurrent crossings to improve safety. Concurrent crossings allow vehicles to turn across sidewalks while a WALK signal is showing. The Pleasant Street and State Street intersection is a concurrent crossing with historically high car / pedestrian crash rates.
5. Pleasant Street, Fruit Street, and Warren Street Intersection (CIP 570): Construct a roundabout to improve overall safety and walkability at this intersection. Include aesthetic and streetscape improvements.
6. McKee Square and West Street and Broadway Intersection (CIP 31): Construct a roundabout at McKee Square and improvements to the West Street / Broadway intersection to improve overall safety in the area. Coordinate with Safe Routes to School efforts. Include aesthetic and streetscape improvements.
7. Broadway: Improve crossing conditions for Safe Routes to School and access to Rollins Park, including crossings at Allison Street and Pillsbury Street. Bump-outs and other traffic calming measures can be considered.
8. Green Street: Improve crossing conditions and visibility for pedestrians at several intersections along Green Street. Streetscape and aesthetic enhancements can be included.
9. South Street: Improve crossing conditions and visibility for pedestrians at several intersections along South Street. Include streetscape and aesthetic enhancements.
10. South State Street: Improve crossing conditions and visibility for pedestrians at several intersections along South State Street. Introduce LPI at concurrent walk signals. Include streetscape and aesthetic enhancements. Consider reducing wait times for pedestrians at traffic signals.
11. Storrs Street: Introduce streetscape enhancements, improve crossings, and introduce traffic calming measures to improve safety and enhance the downtown walking experience.
12. North Main Street and South Main Street: Introduce streetscape enhancements and other improvements to complement the work conducted during the Main Street Complete Streets Improvement Project.
13. Loudon Road and Interstate Route 93 Exit 14 and the Loudon Road Bridge: Reconfigure this series of intersections to improve the overall walking environment and increase safety. Separation between the sidewalk and heavy motor vehicle traffic is preferred. A shared use path traversing the area may be warranted. Include aesthetic improvements. Crossing signals should be updated using LPI at any concurrent walk signal. This work would likely need to be part of a major configuration of the highway interchange.
14. Low Avenue: Enhance Low Avenue to incorporate elements of a shared street. Include aesthetic and streetscape improvements.
15. Capital Shopping Plaza: Ensure that any redevelopment of the current strip-mall type land use is designed to be walkable and consistent with existing nearby downtown development. Avoid surface parking lots, include pedestrian oriented buildings at a pedestrian scale, and include streetscape amenities similar to what appears on Main Street. Based on public comment, retaining a walkable supermarket / grocery store is highly desirable. Short term enhancements to improve pedestrian connections between Main St and the retail in this area should be pursued.
16. Storrs Street to Constitution Avenue and Bus Station: Create a new pedestrian connection from Storrs Street to Constitution Ave, and include a connection directly to the transit terminal. Development in this area should be pedestrian oriented and also integrated with nearby downtown areas. In addition, a shared use path connecting to a potential rail trail to the north should be pursued.



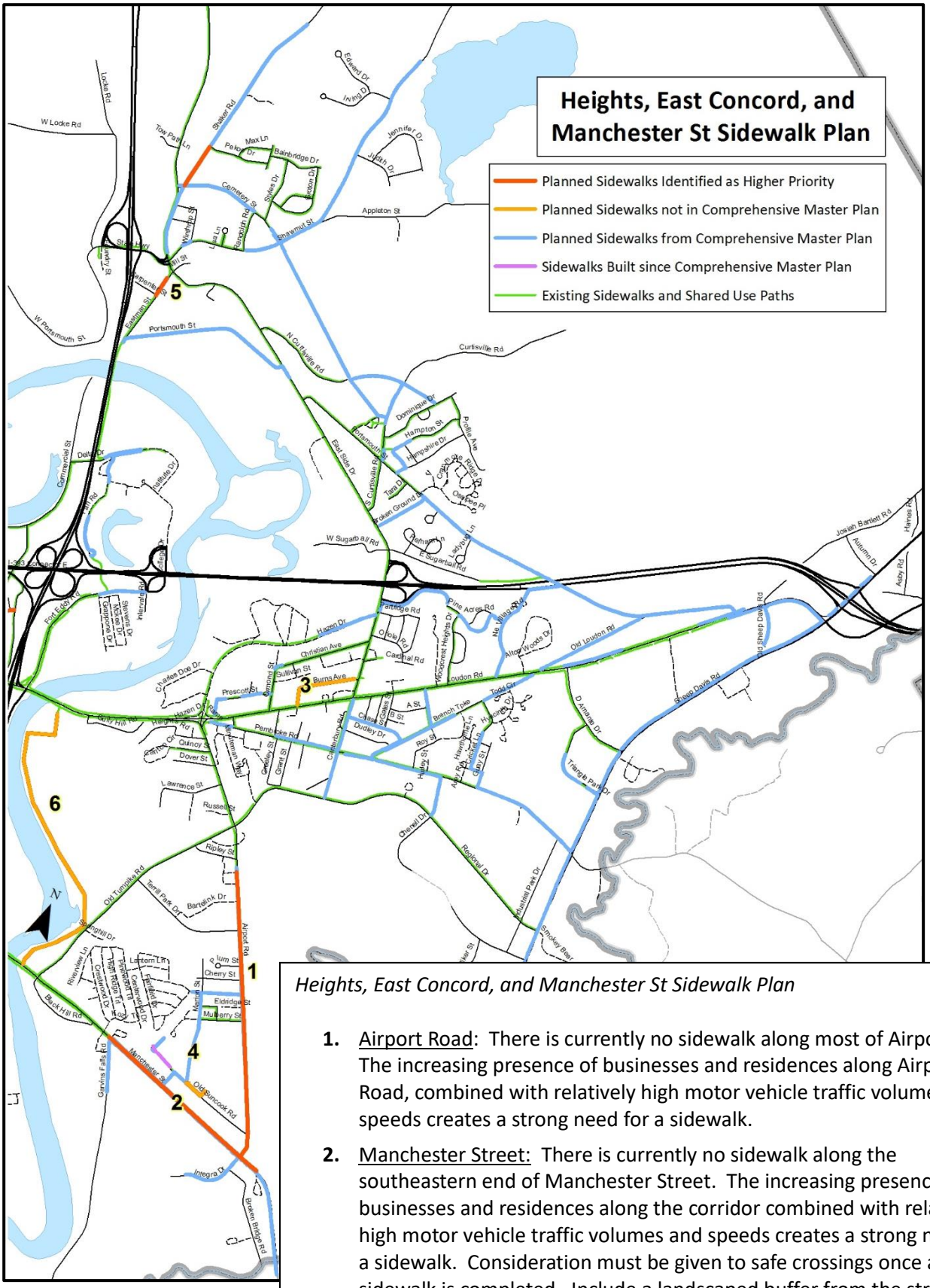
Downtown and West End Sidewalk Plan

1. Auburn Street: Extend the existing sidewalk northerly to Penacook Street.
2. Pleasant Street: Fill the gap in the sidewalk east of Fruit Street near the State Office complex and complete the sidewalk at the Warren Street and Pleasant Street intersection.
3. South Main Street: Fill the gap in the sidewalk from McKinley Street to Broadway.
4. Storrs Street to Constitution Avenue: Construct a new sidewalk or shared use path between the north end of Storrs Street to Constitution Avenue and the Bus Station off Stickney Avenue.
5. Construct a shared use path (Rail Trail) into the Downtown area from Penacook.
6. Construct a shared use path through the downtown area to the South End.
7. Include a sidepath or shared use path as part of the Langley Parkway extension (CIP #40).



Heights, East Concord, and Manchester Street Engineering Recommendations

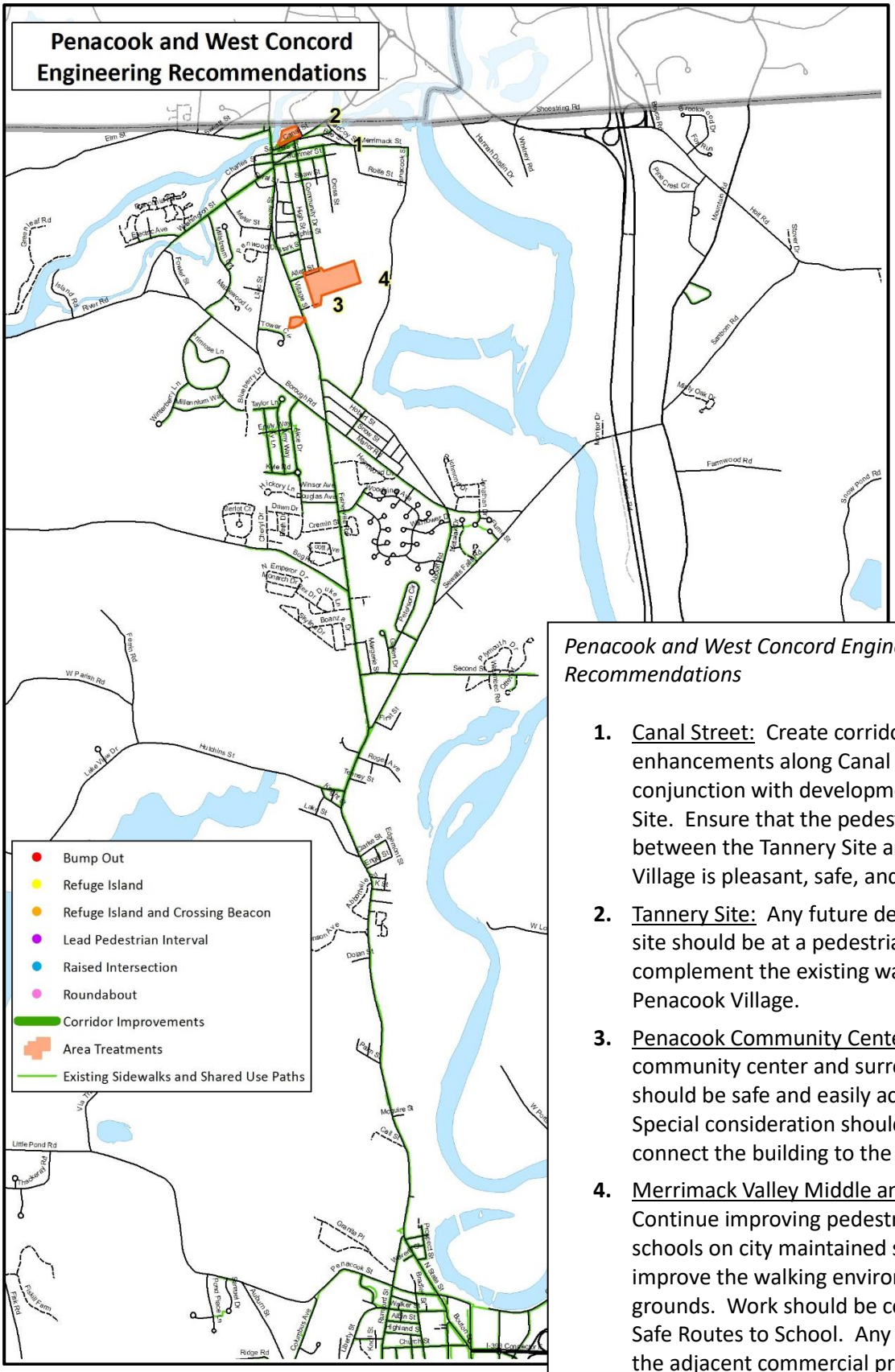
1. Loudon Road: Calm traffic speeds and improve crossing safety, create bus pullovers and improve bus stop conditions, reduce curb cuts, and construct refuge islands to improve crossings and safety. A 3-lane configuration is recommended. Include aesthetic and streetscape improvements. Future development should improve access from the sidewalk to building entrances. Buildings should be oriented towards the street with minimal surface parking along the sidewalk. Improve connections between developments via walkways and pathways.



Heights, East Concord, and Manchester St Sidewalk Plan

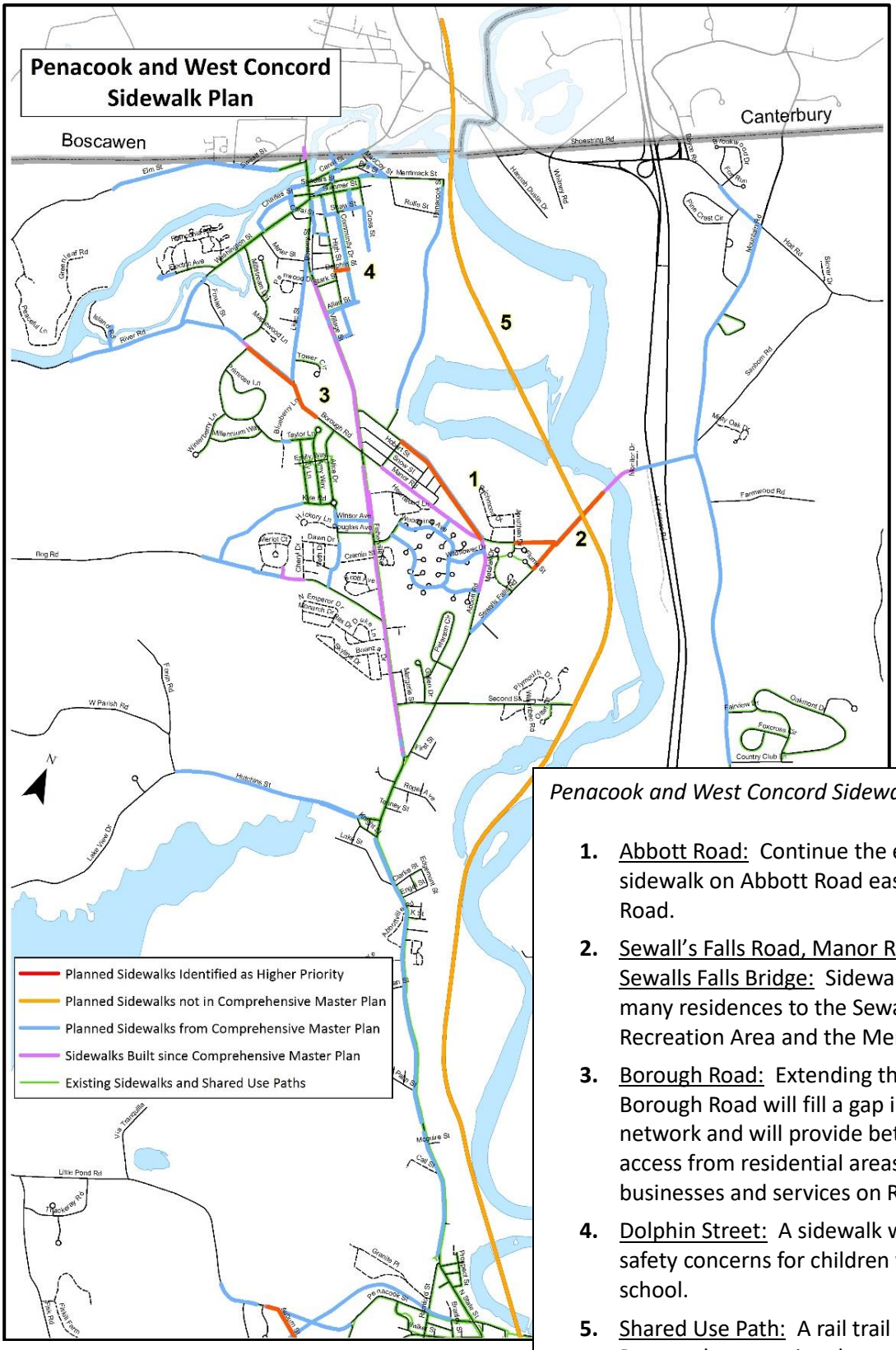
1. Airport Road: There is currently no sidewalk along most of Airport Road. The increasing presence of businesses and residences along Airport Road, combined with relatively high motor vehicle traffic volumes and speeds creates a strong need for a sidewalk.
2. Manchester Street: There is currently no sidewalk along the southeastern end of Manchester Street. The increasing presence of businesses and residences along the corridor combined with relatively high motor vehicle traffic volumes and speeds creates a strong need for a sidewalk. Consideration must be given to safe crossings once a sidewalk is completed. Include a landscaped buffer from the street and shade trees where appropriate.

3. Burns Avenue: There is currently no sidewalk on this street, which is primarily residential, but is also home to The Children's Place and Parent Education Center. Given its walkable proximity to multiple services and destinations, plus the presence of The Children's Place, a sidewalk is appropriate for this street.
4. Sanel Park: Presently there is limited sidewalk access to Sanel Park. Growth and increased use of Sanel Park is anticipated in the coming years. Additional sidewalk is recommended along Old Suncook Road, along the Mulberry Street entrance, and through the park. As park use increases, additional connections to the park from other streets should be considered.
5. Eastman Street: There is no sidewalk on Eastman Street from East Side Drive to Carpenter St near Merrill Park. A sidewalk here would improve pedestrian access to the park, residences, the convenience store, and the rest of East Concord.
6. Merrimack River Greenway Trail: A shared use path along the Merrimack River is recommended to increase access to the river, provide recreational opportunities, and improve access to Terrill Park.



Penacook and West Concord Engineering Recommendations

1. Canal Street: Create corridor and streetscape enhancements along Canal Street in conjunction with development of the Tannery Site. Ensure that the pedestrian connection between the Tannery Site and Penacook Village is pleasant, safe, and accessible.
2. Tannery Site: Any future development at this site should be at a pedestrian scale and complement the existing walkability of Penacook Village.
3. Penacook Community Center Area: The new community center and surrounding area should be safe and easily accessible on foot. Special consideration should be made to connect the building to the sidewalk.
4. Merrimack Valley Middle and High Schools: Continue improving pedestrian access to schools on city maintained streets, and also improve the walking environment on school grounds. Work should be coordinated with Safe Routes to School. Any redevelopment of the adjacent commercial property should enhance the walkability of the area.



Penacook and West Concord Sidewalk Plan

1. Abbott Road: Continue the existing sidewalk on Abbott Road easterly to Manor Road.
2. Sewall's Falls Road, Manor Road, and Sewalls Falls Bridge: Sidewalks will connect many residences to the Sewalls Falls Recreation Area and the Merrimack River.
3. Borough Road: Extending the sidewalk on Borough Road will fill a gap in the sidewalk network and will provide better pedestrian access from residential areas to the businesses and services on Route 3.
4. Dolphin Street: A sidewalk will address safety concerns for children walking to school.
5. Shared Use Path: A rail trail will connect Penacook, recreational areas along the Merrimack River, and downtown, providing an excellent off-street recreation and transportation amenity.

Downtown Sidewalk Layout and Clear Zones

Sidewalks in downtown locations including on and around Main Street and Village Street in Penacook can offer amenities such as outdoor seating, planters, street art, and other street furniture. Such amenities are further described in the "toolkit" section of the plan. These can all enhance the pedestrian environment, but attention needs to be paid to ensure that clear passage is maintained. Best practices call for a 6 or more foot clear zone in busy downtown areas with a minimum of 4 feet. A typical sidewalk cross section may include a distinct furniture zone, a clear pedestrian through zone, and a storefront zone. Such a setup currently exists on Main St, and a similar approach may be appropriate elsewhere downtown as well as in Penacook and locally in neighborhood areas where businesses are present. A clear pedestrian through zone should also be maintained during construction or renovation of properties in and around Main Street. City ordinance and polices should ensure a clear zone is maintained at all times.

Figure 2: Note the furniture zone, through zone, and storefront zone in this section of Main Street

Bump-Outs	Furniture Zone	Through Zone	Storefront Zone
The primary purpose of bump-outs are to shorten the crossing distance for pedestrians, but in a downtown setting, the extra space can be used for street art or other street furniture. More information on bump-outs can be found in the "toolkit" section of this chapter.	The Furniture Zone is the ideal location for benches, planters, and other street furniture. The space acts as a buffer between pedestrians and motor vehicle traffic.	The pedestrian through zone is intended for pedestrian travel and should be clear of furniture, signs, and seating. This enables pedestrians to walk side-by-side, and improves accessibility for wheelchairs and visually impaired.	The storefront zone allows for window shopping, signage, planters, and outdoor seating.

Sidewalk Maintenance and Snow Removal

Sidewalk maintenance and snow removal was discussed at length at public meetings and covered in surveys, and is clearly an important issue to many residents. The level of maintenance and snow removal that goes into Concord's sidewalks is largely dependent on the amount of resources that are dedicated towards it. Current budgets allow for a certain level of service, and a significant improvement in service would require more funding, or diverting funding from current roadway clearing to sidewalk snow removal. Changes in practice and policy will contribute to some improvement in sidewalk conditions, but they alone won't fully address the issues that were identified during public outreach.

The City of Concord has a policy to plow the roadways first, and then begin clearing the approximately 90 miles of sidewalks as soon as snow removal on the roadways has finished. The immediate downtown area including Main Street, has the only sidewalks that are cleared of snow during storms. All other sidewalks are cleared on a priority level basis. Once the snow stops, prioritized safe routes to school zones are cleared, as is a prioritized route to the Friendly Kitchen. While the city does not officially prioritize other routes, it has been the city's practice to clear main arterial routes such as Fisherville Road and Loudon Road before the adjacent neighborhood streets. Public outreach has indicated support for prioritizing the sidewalks on these arterial streets.

Figure 3: During-storm snow removal on Main Street

The current policies and practices for snow and ice removal favor roadway maintenance for motor vehicle travel over all other road users. In adherence to the City's Complete Streets Policy, the City should consider a rebalancing of plowing priorities to improve walking conditions.

During public outreach for this plan, responses regarding winter maintenance were mixed.

Positive Findings:

- There has been a general improvement trend in sidewalk snow removal, especially in Penacook.
- There is continued support for sidewalk snow removal during storms in downtown areas.
- There is continued support for the Safe Routes to School zone priority routes.
- There is agreement in the practice of prioritizing important sidewalk routes along main arterial routes.
- There is continued support for the current practice of storing a sidewalk plow at the firehouse in Penacook to reduce mobilization time.

In Need of Improvement:

- It is not uncommon for important sidewalks to be covered in snow for several days after a storm, especially for late week storms when there is no plowing on weekends or holidays.
- Private plow operations often block sidewalks making snow removal difficult or impossible.
- Push button signals at traffic lights can be difficult to reach due to piled snow and ice.
- In many cases sidewalks are covered with ice or packed snow, even immediately after being plowed.

- Delays in clearing sidewalks create conditions of packed snow and ice that is not easily cleared by plows and can remain in poor condition until warmer weather arrives.
- The I-93 path to East Concord is frequently inaccessible due to snow and is the only direct non-motorized connection from downtown to East Concord.
- Winter access to the Friendly Kitchen and nearby resources is in need of improvement.
- Concord Area Transit (CAT) bus stop locations are frequently inaccessible due to snow and ice.
- Occasional ice and snow blockages, even when most of a sidewalk is clear, create inconveniences and hazards by requiring detours into the roadway, and encourages walking in the street as opposed to the sidewalk.

Many areas of improvement will require additional resources to complete. If additional resources are provided for snow removal, this plan recommends the following:

- Revise the "streets first" plowing priority to include sidewalk snow removal during a storm, especially in priority areas where safety and accessibility may be compromised when sidewalks are blocked by snow. Loudon Road at Exit 14 of Interstate Route 93 has been identified as one such location.
- In certain circumstances, revise the practice of not using overtime to clear sidewalks, especially in priority areas blocked by snow where safety and accessibility are highly compromised, and to ensure safe routes to school zones are clear in time for school opening.
- After snow has been plowed from sidewalks, they should be maintained for safe travel free of ice and residual snow, especially within critical areas.
- Improve snow removal at CAT bus stop locations to ensure access to transit vehicles and bus stops.
- Implement solutions to eliminate problems associated with clearing the I-93 path to East Concord.
- Invest in additional equipment to increase capacity and reliability.

Figure 4: In this photo, snow removed from a storm drain was piled onto the sidewalk in early winter, leaving an icy blockage not easily removed by sidewalk plows. A condition like this can persist through the remainder of the winter.

In other cases, improvements may be made with little or no additional funding:

- Develop practices that may reduce sidewalk blockages when plowing snow from streets, for example, avoid plowing snow from streets onto sidewalks when there are other alternatives.
- Continue or formalize the current practice of prioritizing snow removal on major routes, including,
    - Loudon Road, particularly at the I-93 interchange area, because of safety concerns, high traffic volumes, and accessibility needs.
    - The US Route 3 North corridor from Downtown to Penacook because of safety concerns, high traffic volumes, and accessibility needs.
- While clearing sidewalks near bus stops, equipment operators should ensure that the sidewalk is accessible to and from the bus during boarding and alighting.

- Increase awareness and use of the "report a concern" function on the city's website, which sends information directly to the local road crew foremen.
- Develop and implement performance measures, for example, sidewalks on all collectors and arterials should be cleared of snow and ice within 12 hours of the end of a storm.
- Increase communications with private plow operators to reduce illicit placement of snow onto the sidewalk, and to enforce continued illicit snow placement.
- Develop and implement a safe routes to school zone snow removal priority route for Concord High School.
- Prioritize sidewalk-clearing efforts to maximize walking accessibility.
- Continually re-assess the use of resources to maximize pedestrian access.

Improved snow removal and winter maintenance of sidewalks will improve the "operation" and "maintenance" component of Concord's Comprehensive Transportation Policy. It will ensure that walking can be better integrated into the transportation system, and help the city achieve the goals and objectives inherent to walkable communities.

THE 5 E'S: EDUCATION, ENCOURAGEMENT, ENFORCEMENT, ENGINEERING, and EVALUATION AND PLANNING

THE 5 E'S: EDUCATION

Education is relevant to all segments of the community, starting with Safe Routes to School and educating school children on safe walking, educating community leaders and staff about walkable designs, educating motorists on sharing the road, and sharing with the public the many benefits of walking.

Safe Routes to School

Safe Routes to School is a national program to encourage safe bicycling and walking to school. It does so by using the five E's outlined in this chapter. The program provides long-term benefits as it introduces healthy and safe walking to our youngest citizens. There is always strong public support for the safety of the kids. Other benefits include broad public engagement and reducing traffic and air pollution at schools. It may also disproportionately benefit kids who are most in need by helping to provide a safe way to get to school if their parents are not able to drive them. Concord does not provide bus service to kids within one mile of school. Ironically, many parents drive their kids to school because they feel there is too much traffic to allow their kids to walk to school, creating a vicious cycle. For all of these reasons, an active Safe Routes to School program in Concord is among the most highly recommended activity in this plan.

Figure 5: Photo from Bike/Walk to School Day 2008

Concord was an early adopter of a Safe Routes to School program, which got its start at the now closed Dame School, and has grown to reach every public elementary and middle school in Concord, excluding charter schools.

The work of a Safe Routes to School program is guided by a Safe Routes to School Committee, typically consisting of teachers, school administrators, parents, police officers, public health advocates, other local officials, and volunteers. The bringing together of such a spectrum of the community can advance the cause of safe walking to school. Typical activities of the Safe Routes to School committees can include:

- Conducting surveys and outreach to parents and kids regarding walking and biking to school.
- Conducting road safety audits that closely look at safety issues and infrastructure along walking routes.
- Develop and map official walking routes.
- Assist in identifying priority sidewalk snow removal routes for school kids.
- Collect data on motor vehicle traffic and crashes.
- Provide educational materials and hold educational events for safe walking and bicycling.
- Hold fun activities and events to encourage safe walking to school.
- Coordinate a "walking school bus."
- Identify infrastructure investments to enhance safety.
- Coordinate with local law enforcement on motor vehicle and other enforcement issues.
- Develop a "Travel Plan."

A Travel Plan is a comprehensive strategy to encourage biking and walking to school and to increase safety. A good travel plan incorporates most or all of the items listed above. Much of this work was previously funded by the National Safe Routes to School program under SAFETEA-LU (the federal highway legislation) through start-up grants, funds for developing a travel plan, and even infrastructure improvements. These funds are now competitively available as part of the Transportation Alternatives Program (TAP) described elsewhere in this plan.

Figure 6: Photo from Bike/Walk to School Day 2008

Safe Routes to School activities in Concord vary by school and by year. Besides funding, the primary limitation to the level of activity and engagement is typically the number of dedicated people willing to serve on the committee and volunteer their time and expertise. If Concord is to have an active and more effective Safe Routes to School committee, it is imperative to seek and retain volunteers and have better participation from parents, teachers, school officials, and local officials.

Training for City staff, boards, and committees

Education does not apply only to children, but can also refer to professional training for City staff and other officials. There are various education outlets for professionals to be kept up to date on trends and best practices.

Licensed civil engineers and certified planners are required to have continuing education in order to maintain their licenses or certifications. Pedestrian related training topics are plentiful and should be utilized. Law enforcement personnel should also receive ongoing training on issues of traffic safety, and rights and responsibilities as they relate to pedestrians.

Outreach to Employers

Many employers in Concord may see value in increased walking by their employees. The benefits may include improved health and physical activity, it may increase worker productivity, it can express the institutions' environmental interests, and it may build community within their organization. Walking to work may also free up parking for visitors or customers or enable remote parking. Several Concord employers, including some State offices, have participated in "Transportation Demand Management" (TDM) programs that include walking as an efficient transportation mode for short trips. CommuteSmart New Hampshire, discussed further under Encouragement, is an example of a TDM type program that can help deliver this outreach and education.

Pop-Up Demonstration Projects

Sometimes the best way to communicate an idea is to let people experience it for themselves. Pop-up demonstration projects might include parklets or temporary complete streets reconfigurations. These activities can help demonstrate the effects of rebalancing a landscape that has been identified as overly car-centric. They are also a good way to engage the community on issues of livability, walkability, and can be helpful when devising a vision for the future of their neighborhood.

Figure 7: "Rethinking Marlboro Street", Keene NH 2015

THE 5 E'S: ENCOURAGEMENT

Encouragement refers to programs, events, or policies to get people out on foot and collaboratively improve the walkability and livability of a community. Encouragement activities in Concord may include Safe Routes to School activities, bike walk to work day events, or materials to encourage visitors to explore the downtown.

Safe Routes to School

The Safe Routes to School program, described in more detail in the EDUCATION section, is one of the most important outlets for encouragement. While the emphasis for Safe Routes to School is often on safety, encouraging kids to walk for the health and environmental benefits are also important elements. Safe Routes to School is a great way to engage the community on walking and increasing physical activity, instead of depending solely on cars. This can also focus attention on neighborhood / residential areas of Concord, whereas many other encouragement activities are often centered on downtown.

Walk-Friendly America Designation

Similar to the League of American Bicyclists' Bicycle Friendly Community designation, Walk Friendly Communities is a national recognition program to encourage communities to commit to improving walking environments. Striving for such designations can be an encouraging factor, as well as an educational factor. The application process and the feedback received after submitting an application provide valuable insight on where the City should be guiding efforts to improve walking conditions. This can also be used as an economic development tool to promote the quality of life in Concord. Concord applied for this designation in 2011 and received an "honorable mention" designation. It is recommended that the city apply again and strive for a bronze level designation or higher.

Signage for Pedestrians

Many communities across the country have added signage in their neighborhoods and downtowns to encourage walking. The signage typically points out walking times or distances to various destinations. This can serve to remind people of the many destinations within walking distance, and that walking is an option. The Main Street Complete Streets project has included signage of this type. Expanded use of such signage on the edges of downtown or in neighborhoods may be a good fit for Concord.

Organize Walks and Walking Groups

For the past few years, the City has held a Mayor's Walk to promote active living and to get people out on foot and exploring downtown Concord. This type of activity is a great way to bring people into downtown, engage the public, and to encourage walking. Expanding on these types of actives is recommended.

There are also several informal walking and running groups that meet in Concord. Some are associated with private businesses, while others are associated with a senior center or groups of friends.

Bike/Walk to Work Day Events

Typically held the third Friday in May, Bike/Walk to Work Day is a nationwide activity where people are encouraged to bicycle or walk to work. Bike/Walk to School Day is a similar event for schools on the first Wednesday of May. Concord has participated in such activities in the past by making announcements, organizing group walks or bike rides, and by holding small events to celebrate bicycling and walking to work or school. These activities have little or no cost and are a great way to get people involved at the start of the warm-weather season.

CommuteSmart New Hampshire

The mission of CommuteSmart Central NH is to improve transportation mobility options of all residents and employees. The organization, led by the Regional Planning Commissions, reaches out to employers and individuals to help reduce single-occupancy vehicle traffic (driving a car alone). CommuteSmart can be used to help promote and spread awareness of walk-related events and activities taking place in Concord. Tools such as the trip logger allows participants to track their mileage and economic/environmental benefits of their walking trips. Achieving some of the goals of CommuteSmart NH can help improve walking conditions and livability.

Street Events and Car Free Events

Closing a street for events, festivals, and other gatherings can be a good way to get people out on foot. These events can attract people who may not typically visit the area on foot. Concord already has a number of such events including Market Days, Halloween Howl, and Midnight Merriment. Neighborhood block parties also occur on occasion, which helps get neighbors out on the street and in contact with each other. Such events should be encouraged and expanded.

The 5 E's: Enforcement

Enforcement involves improving compliance with traffic laws and regulations for both motorists and pedestrians.

Crash Reporting

Concord's current practice of reviewing motor vehicle/pedestrian crashes at the Traffic Operations Committee is an excellent practice that helps Police and Engineering keep track of trends and identify solutions to problem areas. The associated data collection is also an important tool for analysis and to track changes. Potential improvements could include a more accessible, usable database.

Safe Routes to School

Law enforcement should continue to participate in Safe Routes to School activities and continue to have a presence at school arrival and departure times. Law enforcement is a critical component of pedestrian safety.

Traffic Violations

The community should continue to work with law enforcement to enforce traffic laws, especially for infractions that affect the safety and comfort of pedestrians as well as community livability. Distracted driving is a serious concern for the safety of pedestrians, and distracted driving laws should be enforced. Law enforcement can partner with others in educational campaigns to discourage distracted driving.

The 5 E's: Engineering

Engineering refers to infrastructure and maintenance related projects that help create safe, convenient, and enjoyable places to walk. This major component to the Pedestrian Master Plan is the focus of Chapter 3.

The 5 E's: Evaluation and Planning

Evaluation and Planning refers to assessing the impacts of policies already in place with regard to walking. It also means developing a vision and a plan for the future. This Pedestrian Master Plan is a prime example of evaluation and planning.

Pedestrian Master Plan

This plan is the foundation for evaluation and planning for a more walkable Concord. It is a resource and guide for planners and community leaders to help assist their decision making. The plan should be revisited and updated as needed or at least every 10 years.

Land Use Planning

When planning for pedestrians it is easy to focus solely on sidewalks, streetscapes, and pathways, that other considerations may be overlooked. A high quality walking environment has limited value if there are no nearby destinations to walk to. For this reason, land use decisions have an enormous impact on the walkability of a community. Land use density, as well as an appropriate mix of land uses such as retail, services, employment, residences, etc., are equally important to a walkable community as the infrastructure itself. Even the best walking infrastructure will go underutilized if land uses are overly segregated or sprawling.

Site Plan Regulations, the Review Process, and Zoning

A good land use plan is often implemented through a number of smaller developments and incremental alterations over a long period of time. Many of these changes occur through site plans and subdivisions that are guided by the city's site plan regulations and zoning ordinances. It is critical that these regulations enable or ensure that any growth and redevelopment create livable and walkable environments and improve walking conditions in the area. The rules and regulations themselves are important, as are the process that development plans go through on their way to approval.

Pedestrian Counting

Concord began counting bicycle and pedestrian traffic in 2012 and has one of the most robust databases in the State of New Hampshire. Despite being a leader, there is still relatively little comprehensive date for the whole community. Transportation agencies have been monitoring motorized traffic for many years in order to analyze patterns, identify deficiencies in the transportation system, evaluate the impacts of projects, and inform future design, planning, and maintenance decisions. Without good data, such studies are of limited use. It is recommended that the existing counting programs in Concord continue to expand in size, scope, and sophistication. The data should be used to develop new models, tools, and metrics. The data that is collected should be routinely used to supplement land use and transportation related decisions. Traffic count data from Concord can be found in the Appendix.

CONCLUSION

The Main Street Complete Streets project demonstrates that fully integrating walking into our community can help Concord reach multiple goals. In designing Main Street from the perspective of a pedestrian outward, the community now has a more beautiful, accessible, and vibrant downtown that is the heart of the community.

This plan outlines the many factors towards creating a walkable community, which as the Main Street project demonstrates, go far beyond merely providing sidewalks. In order to meet their full potential, vibrant, walkable communities require walk-friendly decisions regarding infrastructure, maintenance, land use planning, programs, policies, and an overall vision of what we want our community to be. Public outreach has shown that a focus on accessibility, safety, and enjoyment of walking conditions should be of particular emphasis. This multi-discipline approach will help Concord achieve its goals of an improved transportation system, better public health, and an improved economy.

CITY OF CONCORD
PEDESTRIAN MASTER PLAN

MAPS AND APPENDICES

Engineering Recommendations

Location	Program	Accessibility	Safety	Enjoyment	Description	Treatments
Pleasant/Warren/Fruit St	CIP 570	High	High	Med	Proposed roundabout to replace existing signals. Potential for ADA compliance, improved crossings, better Pleasant St access, improved safety, and placemaking/livability benefits. Located near High School and Memorial Field.	Roundabout, streetscapes
McKee Square, Broadway and West	CIP 31	Med	High	High	Safety issues exist at these locations for all road users. Opportunity for ADA compliance, placemaking/livability. Located at a neighborhood center area and Safe Routes to School route.	Roundabout, streetscapes, potential refuge island, bump-outs
Loudon Rd Safety Improvements	CIP 19	High	High	High	Often cited as a problem area for walking. Various enhancements including a 3-lane option would improve safety and walkability and better balance the needs of all road users. Additional streetscape enhancements could bring additional benefits.	Road Diet, Refuge Island, crossing beacon, streetscapes
Storrs St Extension North	CIP18	High	High	High	There is currently no direct pedestrian access from Storrs St near Downtown to the Commercial St area. A new connection would improve access, eliminate a major (real and perceived) safety concern, and open vacant land to pedestrian oriented development.	New "commercial corridor" type roadway. Possible shared us path or sidepath.
393, Bouton Main	I-93 Bow Concord	Med	Med	Med	This location is not especially friendly to pedestrians due to the size of the intersection and the very high traffic volumes. This intersection should be evaluated as part of the I-93 Bow-Concord project.	
Exit 14 Area	I-93 Bow Concord	Med	High	High	Among the most cited locations in Concord for pedestrian related concerns, sidewalks here have little or no separation from very heavy traffic. Poor balance between the needs of pedestrians and other road users at this important connector between Downtown and the Heights.	Multiple
Broadway	Neighborhood Safety (CIP 380) or Sidewalk Streetscape (CIP 17)	Low	High	Med	Difficulty crossing Broadway was often cited in visioning sessions and survey. In the middle of the South End neighborhood, Safe Routes to School and safe access to Rollins Park are important to the neighborhood.	Bump-outs, general traffic calming, streetscapes
Low Avenue	CIP 97	Low	Med	High	Low Avenue, a back alley behind Main St buildings, is primarily used for parking and deliveries. Potential exists for enhancements that could enable retail or other uses at the rear of Main St buildings in this pedestrian oriented environment. May accompany private development.	Shared street, aesthetic improvements
General Corridor Improvements (Broadway, Green, South, State, Storrs, Canal, parts of Main)	Neighborhood Safety (CIP 380) or Sidewalk Streetscape (CIP 17), new CIP item, or SRTS	Med	Med	Med	Several corridors were noted as having deficiencies. Many had locations that were difficult to cross, some had aesthetic issues, others had speed or traffic concerns. A corridor analysis of these roadways may fine-tune specific solutions beyond the spot treatments listed in this plan.	Bump-outs, general traffic calming, streetscapes, Lead Pedestrian Interval
Various Spot Treatments (bump-outs, crossings, raised intersections etc)	Neighborhood Safety (CIP 380) or Sidewalk Streetscape (CIP 17), new CIP item, or SRTS	Med	Med	Med	Spot improvments can be made at specific locations that have been identified as in need of improvement. In some cases, a corridor-wide analysis and approach may be preferable to spot treatments.	Bump-outs, crossings, raised intersections, refuge islands, general traffic calming, streetscapes, Lead Pedestrian Interval

Non-Infrastructure Recommendations

Category	Recommendation	Implementers	Accessibility	Safety	Enjoyment	Comments	Timeframe
Engineering	Apply a Complete Streets approach to snow removal and sidewalk maintenance	City Council, General Services	High	High	Med	Better snow removal and winter maintenance can increase safety and accessibility. This may require increasing or adjusting the snow removal budget. See	Short to Mid
Engineering	Work with private plow operators to reduce the illigal plowing of snow onto sidewalks, and enforce repeat offenders.	General Services, Police Department, Residents via "Report A Concern"	Med	Med	Med	The illicit banking of snow onto sidewalks from private lots and driveways impedes the ability for General Services to clear sidewalks	Ongoing
Education, Encouragement, Evaluation, Enforcement	Expand participation in the Citywide Safe Routes to School program with participation from all elementary and middle schools in the City.	City staff, school administrators, teachers, parents, Regional Planning Commission	High	High	Med	Safe Routes to School can cover all 5 "E's", Education, Encouragement, Evaluation, Enforcement, and Engineering.	Short to Mid
Education	Provide trainings for City staff, boards, and committees	City leadership, City Staff, various City boards	Med	Med	Med	Best practices continue to evolve and sometimes the details can be nuanced. Education will help everyone stay ahead.	Ongoing
Education	Have Pop-Up Demonstration Projects on City streets and sidewalks	TPAC and TPAC subcommittees, Advocacy groups	Med	Med	High	Temporary demonstration projects can help people envision complete streets implementation.	Ongoing
Education	Reach out to Employers to engage them in walking activities and smart commuting	CNHRPC through Transportation Demand Management activities, business leaders	Low	Low	Med	Helps achieve desired outcomes of improved public health through physical activity and strong economy through vibrant work environments.	Ongoing
Encouragement, Education	Apply for Walk Friendly America Designation with a goal for achieving a bronze or better award.	TPAC and TPAC subcommittees, City Staff	Med	Med	Med	The application process and the feedback received are both informative. The designation provides motivation and encouragement.	Every 4 years
Encouragement, Education	Install signage for pedestrians showing destinations and distances to encourage more walking and advertise walking as a transportation choice.	TPAC and TPAC subcommittees, Planning and Engineering Divisions	Low	Low	Med	Sometimes it may not occur to people that walking is a viable way to get around. These signs can help.	Short
Encouragement	Organize walks and walking groups	Various health and wellness organizations, community leaders	Low	Low	High	Getting more people out on foot will help improve conditions and improve public health.	Ongoing
Encouragement	Hold Bike-Walk to Work day events on Bike-Walk to Work day and at other times.	TPAC subcommittees, CNHRPC, State Offices, Employers	Low	Low	Med	Encouraging people to make trips by foot instead of by car can have multiple benefits to everyone.	Annually
Encouragement	Continue the CommuteSmart NH program or similar Transportation Demand Management (TDM) activities.	CNHRPC, local employers, NH Department of Transportation	Low	Low	Med	Encouraging people to make trips by foot instead of by car can have multiple benefits to everyone.	Ongoing

Encouragement	Hold street events and car free events.	Intown Concord, other community organizations	Med	Low	High	Events such as Market Days and Halloween Howl are a great way to get people out of their cars on in town on their feet.	Ongoing
Enforcement, Evaluation	Continue monitoring and evaluating motor vehicle/pedestrian crashes, identify solutions, and record data.	Police Department, Traffic Operations Committee, NH Department of Transportation	Med	High	Med	This is a critical component to ensuring that walking is a safe activity.	Ongoing
Enforcement	Enforce traffic laws with an eye toward safety.	Police Department	Low	High	Med	Distracted driving is a relatively new threat that needs to be addressed, in addition to speeding, DWI, stop violations etc.	Ongoing
Enforcement	Continue the Police Department practice of reporting crashes and discussing them at Traffic Ops. Committee, create a more accessible database.	Police Department, Engineering, Traffic Operations Committee	Low	High	Low	Concord keeps excellent, detailed reports on collisions, however improvments could be made in database management to improve the ability for analysis.	Mid
Evaluation and Planning	Adopt a Pedestrian Master Plan and update every 10 years or less.	TPAC and TPAC subcommittees, Planning Board, Planning and Engineering Divisions	High	High	High	A plan is essential to helping guide progress and envision the future.	Mid
Evaluation and Planning	Ensure land use plans and decisions incorporate the needs of walking.	Planning Board, Planning Division, Engineering Division	Med	Med	High	A high quality walking environment means more than just sidewalks!	Ongoing
Evaluation and Planning	Review zoning, site plan, subdivision, or other regulations and ordinances to ensure they enable and encourage walkable environments.	Planning Board, Planning Division, Engineering Division	Med	Med	High	The City can use these tools ensure that private development enhances the walking environment to the extent possible.	Mid
Evaluation and Planning	Continue to conduct bicycle and pedestrian counts, improve the dataset, and regularly incorporate the date into plans and studies.	TPAC and TPAC subcommittees, CNHRPC, Planning and Engineering Divisions	Med	Med	Med	Good data can better inform decisions. Concord is a statewide leader in bicycle and pedestrian counting.	Ongoing every May, September, and as needed

Public Input Map Comments

Number	Location	Comments	Meeting	Category
1	Main and Center/Loudon Rd	Waiting time is too long, crossing time is short, Cars too fast	Penacook, Survey	Difficult Crossing
2	Main and Pleasant	Long wait to cross, illegal right turns on red (old), Cars turn while you have a walk signal (new)	Penacook, Survey, General Outreach	Difficult Crossing
3	Center and Green	Long wait time to cross	Penacook, Survey	Difficult Crossing
4	Loudon Rd and Hazen/Airport	Difficult to Cross, especially N to S	Penacook	Difficult Crossing
5	Conant Dr Crosswalk	Unusual crosswalk - no sidewalk on opposite side	Downtown	Difficult Crossing
6	Conant Dr and Rundlett St	No Crosswalk, important for school kids	Downtown	Difficult Crossing
7	Pleasant Fruit Warren St	Pedestrian crossings should be better, the corner between Warren and Pleasant is bad, overall neds ped imp	Downtown, Survey	Difficult Crossing
8	Warren and N Spring	Snow removal problems on SW corner	Downtown	Snow Removal or Maintena*
9	Main St plaza at Phenix Hall	Put Handrails on steps	Survey	other
10	West and Broadway	Unsafe Crossing	Survey	Difficult Crossing
11	Grange at Hobart and Welsh	Turn into community park etc.	Survey	Aesthetics/enjoyment
12	393, Bouton, Main	Not Pedestrian Friendly	Survey	Multiple
13	Sewall's Falls parkig	Poor snow removal means difficult winter access to trails	Survey	Snow Removal or Maintena*
14	Sewall's Falls parkig	Poor snow removal means difficult winter access to trails	Survey	Snow Removal or Maintena*
15	Mountain Rd, East Side Dr, exit 16	Not Pedestrian Friendly	Survey	Multiple
16	Center and State	Make more Pedestrian Friendly, long wait times to cross	Survey, General Outreach	Multiple
17	School and Green	General improvements	Survey	Difficult Crossing
18	Manchester St at Exit 13	Unpleasant for walking due to traffic/noise	Survey	Aesthetics/enjoyment
19	McKee Square	Long wait times to cross	Survey	Difficult Crossing
20	Center and Washington	Difficult/unsafe crossing	Survey	Difficult Crossing
21	S Main, Water, West St	Intersection near Vinnie's Pizza is poor, especially crosswalk across west st	Survey	Difficult Crossing
22	Legislative Parking Garage	Remove Parking garage to show stone building and make better for walking	Survey	Aesthetics/enjoyment
23	Broadway	Broadway is difficult to cross, especially school kids at school times, Broadway is unsafe in the Morning	Downtown, Survey	Difficult Crossing
24	South Main	Hard to cross	Survey	Difficult Crossing
25	S State St	Difficulty crossing, blind spots	Survey	Difficult Crossing
26	Storrs St	Difficulty Crossing/blind spots	Survey	Difficult Crossing
27	N State in West Concord	Difficult crossings	Survey	Difficult Crossing
28	Loudon Rd	Unpleasant walking , add shade trees, snow removal is important, hard to cross (Keach Park kids!)	Downtown, General Outreach	Multiple
29	Ft Eddy Rd	Unpleasant walking conditions, no buffer between heavy traffic	Downtown	Multiple
30	Storrs to Constitution	Pedestrian connection needed	Penacook	New Facility
31	Pleasant St near State Offices	Gap in Sidewalk, need sidewalk	Penacook	New Facility
32	Woodlawn Cemetery	Use Woodlawn Cemetery for kids to walk to school	Penacook	New Facility
33	Borough Rd	New Sidewalk, fill the gap	Penacook, Survey	New Facility
34	Manor Rd and Sewalls Falls Rd	Add Sidewalk	Survey	New Facility
35	Sewall's Falls Rd	New sidewalk from Manor Rd area to Sewall's Falls Rec area and bridge, speed/traffic concerns when bridge	Penacook	New Facility
36	Rail Trail	Rail Trail or other Trail from Penacook to Downtown	Penacook, Downtown, General Outreach	New Facility
37	S Main St near exit 12	Add sidewalk along S Main to fill in gap N of exit 12	Penacook	New Facility
38		Add Sidewalk	Penacook	New Facility
39	93 crossing at LL Beans	Consider adding another ped crossing under 93 in this area	Downtown	New Facility
40	Manchester St	No sidewalk	Downtown	New Facility
41	Mountain Rd	There should be a sidewalk on both sides of Mountain Rd	Survey	New Facility
42	Mountain Rd	There should be a sidewalk on both sides of Mountain Rd	Survey	New Facility
43	Country Club Ln	There should be sidewalks on Country Club Rd to connect to Mtn Rd, plus a crosswalk	Survey	New Facility
44	Burns Ave	A sidewalk on Burns Ave would be nice	Survey	New Facility
45	Mountain Rd	Continued sidewalk on Mtn Rd	Survey	New Facility

46	Eastman St	Needs sidewalk	Survey	New Facility
47	Merrimack River near downtown	Bike Paths on River near downtown	Survey, General Outreach	New Facility
48	Railroad Tracks	Clean up railroad tracks for a bike path near downtown	Survey	New Facility
49	Near Mullbury St	More Sidewalks	Survey	New Facility
50	Airport Rd	More Sidewalk	Survey	New Facility
51	Abbot Rd	More sidewalks	Survey	New Facility
52	Manor Rd	More Sidewalk	Survey	New Facility
53	Bog Rd	Unsafe walking due to fast cars and no sidewalk	Survey	New Facility
54	Airport Rd	Bad for walking, need sidewalk	Survey	New Facility
55	Auburn St	Sidewalk needed	Survey	New Facility
56	Dolphin St	Sidewalk needed, school kid safety issues	Survey	New Facility
57	Penacook St Penacook	Speeding, safety concerns, lack of shoulder or sidewalk	Survey	New Facility
58	Canal St North Side	Vegetation overhanging the sidewalk	Penacook	Snow Removal or Maintena*
59	South Storrs St	Snow removal problems/drainage	Downtown	Snow Removal or Maintena*
60	Warren St near Main	Winter maintenance is poor due to narrowness	Downtown	Snow Removal or Maintena*
61	Mountain Rd	Poor winter maintenance, not walkable in winter	Survey	Snow Removal or Maintena*
62	Canal St	Vegetation blocking sidewalk	Survey	Snow Removal or Maintena*
63	Clinton St	Not Pedestrian Friendly, Poor snow removal	Survey	Snow Removal or Maintena*
64	Washington St	Sidewalks Blocked by Snow in winter	Survey	Snow Removal or Maintena*
65	Shawmut Street	Vegetation grown into sidwalk	Survey	Snow Removal or Maintena*
66	S Fruit St	Poor snow removal	Survey	Snow Removal or Maintena*
67	South St	Snow removal problems, intermittant poor sidewalk conditions	Survey	Snow Removal or Maintena*
68	End of 393 at N Main	No snow removal	General outreach	Snow Removal or Maintena*
69	Liberty Washington Warren	Speeding traffic, vegetation onto sidewalk	Downtown	Speed or traffic problems
70	Center and Washington	Speeding turning traffic, difficult/unsafe crossing	Downtown	Speed or traffic problems
71	Village St N of Meter	Speeding traffic	Penacook	Speed or traffic problems
72	Exit 14 and Loudon Rd Bridge	No buffer between sidewalk and heavy traffic, unpleasant conditions, snow removal important, disconnecte	Penacook, Downtown, Heights, Survey, Gener	Multiple
73	Tannery Site	Should be a walkable area, walk-to destinations like farmers market, library etc.	Penacook	Multiple
74	Penacook Community Center	Community Center should be walkable	Penacook, Survey	New Facility
75	Storrs St to Constitution	Safety Concerns/crime, no access, bad in winter	Downtown, General Outreach	New Facility
76	Train Station	Rebuild Train Station, clean up railroad tracks area, more ped friendly in this area	Survey	Multiple
77	Whites Park	Paths are difficult for stroller, improve path conditions	Survey	Snow Removal or Maintena*
78	NHTI Campus	Visually Unappealing for walking	Survey	Aesthetics/enjoyment
79	Beaver Meadow School	Poor snow removal around Beaver Meadow School	Survey	Snow Removal or Maintena*
80	Pembroke Rd and Canterbury Rd	Speeding traffic and rolling stops at stop sign	Heights	Speed or traffic problems
81	Green Street	Hard to cross, parked cars block view of peds in crosswalk, too many crosswalks?	General outreach	Difficult Crossing
82	Main and Thorndike Bumpout	Dark, lonely, empty, bump out is hard for cars to see and may be vulnerable to being hit	General outreach	Aesthetics/enjoyment
	Bus stops citywide (not mapped)	Many bus stops are blocked due to snow and ice, sometimes even if the nearby sidewalk is clear	General outreach	Snow Removal or Maintena*

Concord Pedestrian Master Plan
Public Input Map

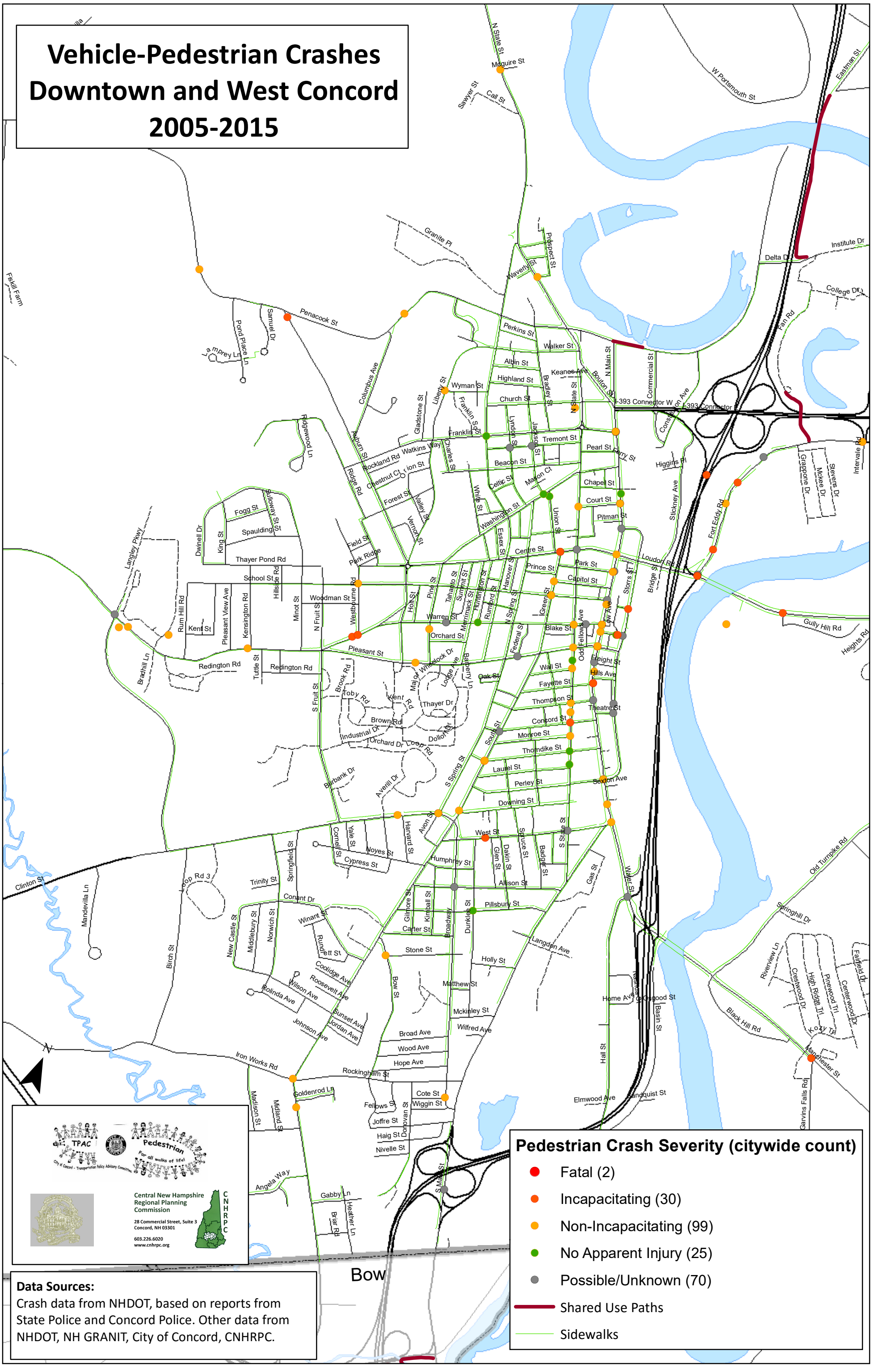
Color Coded by Category

- Multiple Issues
- Speed or Traffic Problems
- Difficult Crossing
- New Facility Requested
- Snow Removal or Maintenance
- Aesthetics/Enjoyment

This map displays any location-specific comments on walking conditions that were recieved duirng public meetings and through the survey.

Each location is numbered to correspond with a spreadsheet located in the appendix.

Vehicle-Pedestrian Crashes Downtown and West Concord 2005-2015



TPAC — Pedestrian — For all walks of life!
City of Concord – Transportation Policy Advisory Committee

Central New Hampshire Regional Planning Commission
28 Commercial Street, Suite 3
Concord, NH 03301
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www.cnhrpc.org
CNHRPC

Pedestrian Crash Severity (citywide count)

- Fatal (2)
- Incapacitating (30)
- Non-Incapacitating (99)
- No Apparent Injury (25)
- Possible/Unknown (70)
- Shared Use Paths
- Sidewalks

Data Sources:
Crash data from NHDOT, based on reports from State Police and Concord Police. Other data from NHDOT, NH GRANIT, City of Concord, CNHRPC.

Vehicle-Pedestrian Collisions Heights, East Concord, and Manchester St 2005-2015

Data Sources:
Crash data from NHDOT, based on reports from State Police and Concord Police. Placment of crash locations are approximated. Some locations may have multiple crashes that may overlap. Other data from NHDOT, NH GRANIT, City of Concord, CNHRPC.

Pedestrian Crash Severity (citywide count)

- Fatal (2)
- Incapacitating (30)
- Non-Incapacitating (99)
- No Apparent Injury (25)
- Possible/Unknown (70)
- Existing Shared Use Paths
- Existing Sidewalks

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Vehicle-Pedestrian Collisions
Penacook and West Concord
2005-2015

Boscawen

Canterbury

Pedestrian Crash Severity (citywide count)

- Fatal (2)
- Incapacitating (30)
- Non-Incapacitating (99)
- No Apparent Injury (25)
- Possible/Unknown (70)
- Shared Use Paths
- Sidewalks

Data Sources:
Crash data from NHDOT, based on reports from State Police and Concord Police. Other data from NHDOT, NH GRANIT, City of Concord, CNHRPC.

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PEDESTRIAN MASTER PLAN
2016
CITY OF CONCORD

Sidewalk Plan Map

About This Map:
The City's current comprehensive master plan, "Master Plan 2030" adopted in 2008, includes a sidewalk plan map. This Pedestrian Master Plan sought input on that sidewalk plan, but did not attempt to redraw it.

This map displays planned sidewalks from the 2030 Master Plan, and highlights sidewalks that have been completed since the Master Plan was published. During outreach and research for this Pedestrian Plan, any sidewalks that were identified as being of higher priority are also highlighted. Additions to the planned sidewalk map are also shown.

This plan focused on the neighborhood scale, but did not conduct outreach on a street by street basis. Before advancing any new sidewalk projects, street by street outreach is reccommended. Individual propery owner needs and concerns must be carefully weighted against the needs of the neighborhood and City at large.

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Data Sources: NH GRANIT, City of Concord, CNHRPC

Planned Sidewalks

- Planned Sidewalks Identified as Higher Priority
- Planned Sidewalks not in Comprehensive Master Plan
- Planned Sidewalks from Comprehensive Master Plan
- Sidewalks Built since Comprehensive Master Plan
- Existing Sidewalks

PEDESTRIAN MASTER PLAN
2016
CITY OF CONCORD
Public Transportation and Bus Stops

Concord Area Transit:
Concord Area Transit offers fixed route bus service in Concord via three separate routes every non-holiday weekday. This map shows bus stop boarding data collected during a 3-day count in 2015.

Bus Station/Intercity Transit Center

Bus Stop Boardings Daily Average

- 0-3
- 4-6
- 7-20
- 21-80
- 81-160
- Intercity Bus Terminal
- Bus Routes
- Sidewalks
- Shared Use Paths

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Data Sources: NH GRANIT, City of Concord, CNHRPC

PEDESTRIAN MASTER PLAN
2016
CITY OF CONCORD

RECOMMENDED TREATMENTS

About This Map:
Through research and public outreach, this plan has identified problem areas for pedestrians. This map provides recommendations for infrastructure that will help address the problems identified.

Spot treatments refer to localized, specific improvements. Corridor Improvements refers to taking a corridor approach to specific issues, including ease of crossing, traffic calming, and aesthetics. Area treatments refers to improving the overall pedestrian environment of an area. Strategies may include improving connections, developing at a pedestrian scale, aesthetics, and overal pedestrian oriented land uses.

More information on these treatments can be found in the "recommended infrastructure"section of the plan.

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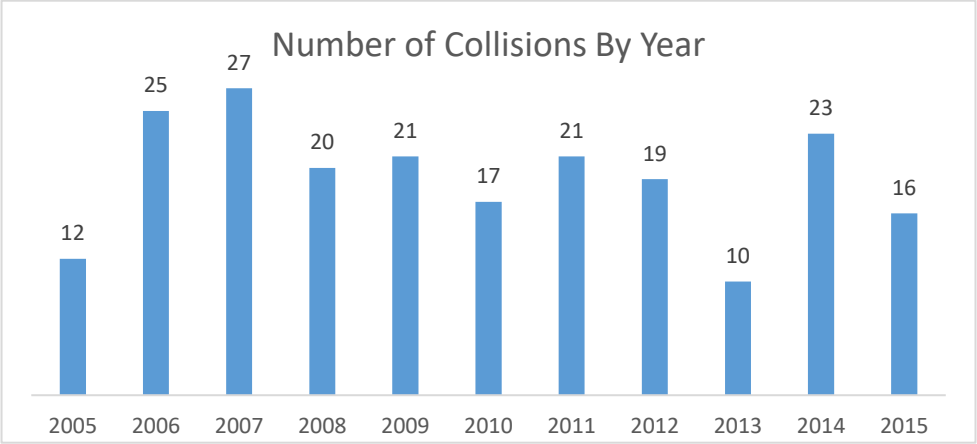
Data Sources: NH GRANIT, City of Concord, CNHRPC

Spot Treatments
- Bump Out
- Refuge Island
- Refuge Island and Crossing Beacon
- Lead Pedestrian Interval
- Raised Intersection
- Roundabout

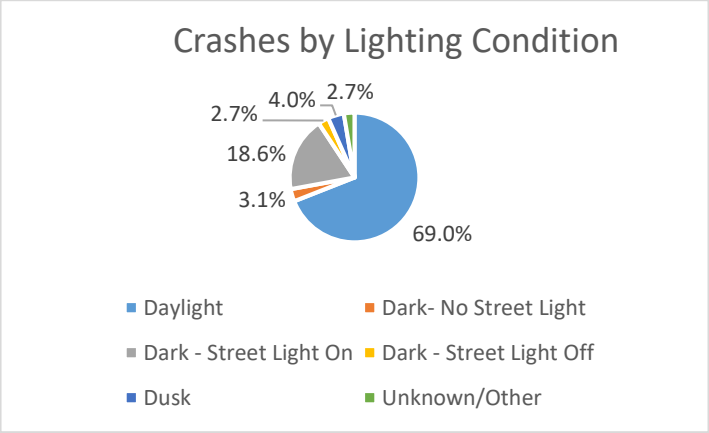
- Existing Sidewalks
- Corridor Improvements
- Area Treatments

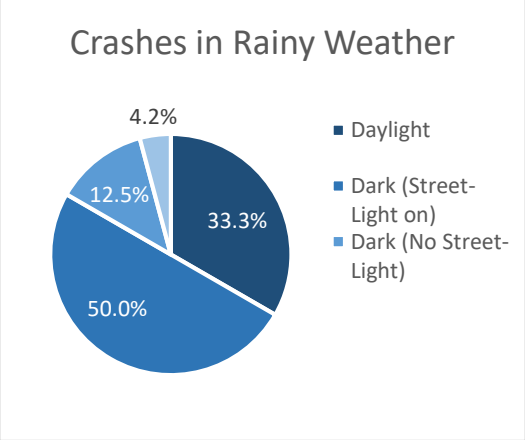
Pedestrian-Vehicle Crashes 2005-2015

This appendix contains an overview and analysis of vehicle-pedestrian collisions from 2005 to 2015. This data originates from police reports that are forwarded to the State for processing. This selection of visuals attempts to paint a picture of where and how collisions occur. This is an important component of improving safety. When infrastructure improvements are made that may affect pedestrian safety, a closer analysis of the nearby area should be made to investigate how to improve pedestrian safety. These figures can also help identify other factors that may affect safety, such as driver behavior, enforcement, lighting, private development, winter maintenance, etc.

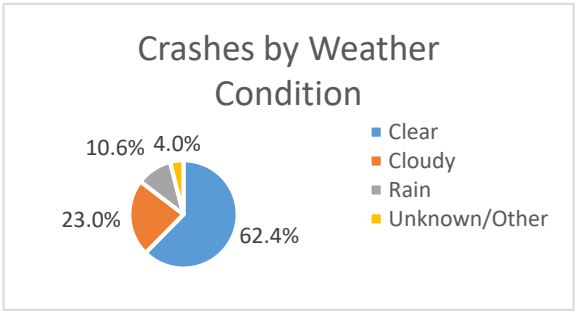


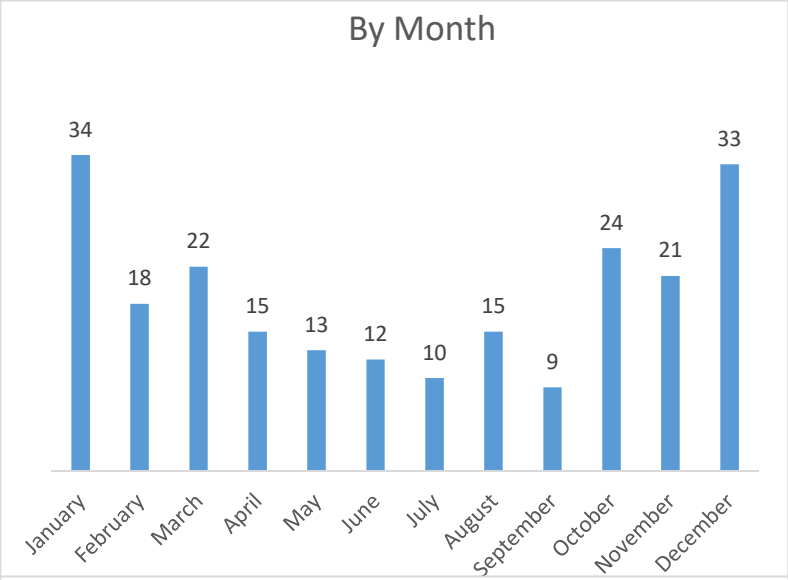
The number of collisions has varied little over the past 10 years, with perhaps a slight overall decrease.

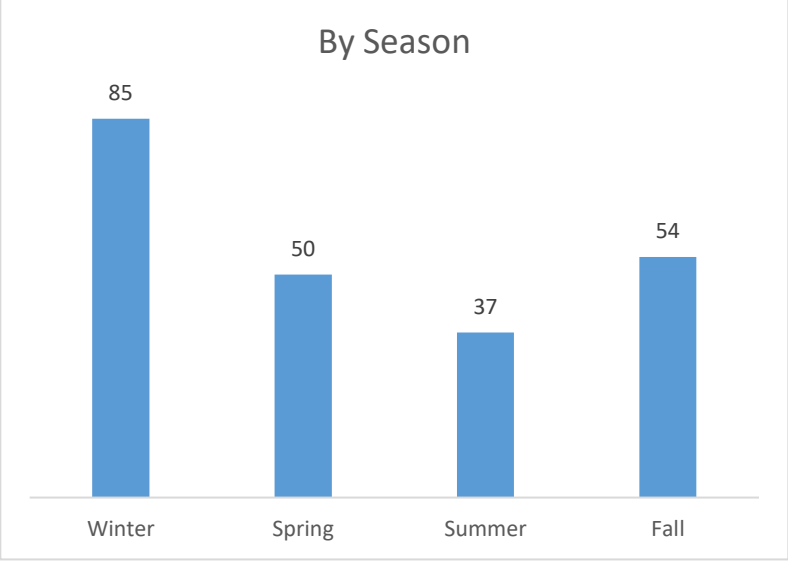




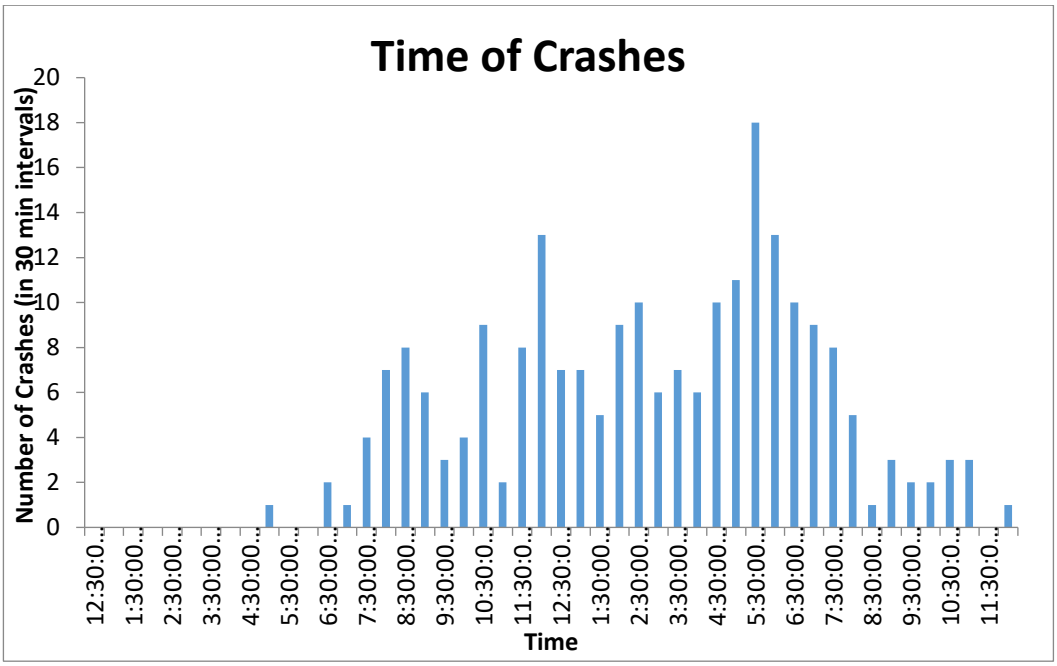
Most collisions occur in good weather, and during the daylight hours, but crashes in rainy weather become much more common at night. This data is not detailed enough to evaluate whether street lighting is correlated with collisions. During rainy weather, there are much more collisions at night then during the day. This suggests the risk of collisions with pedestrians is increased during these times.



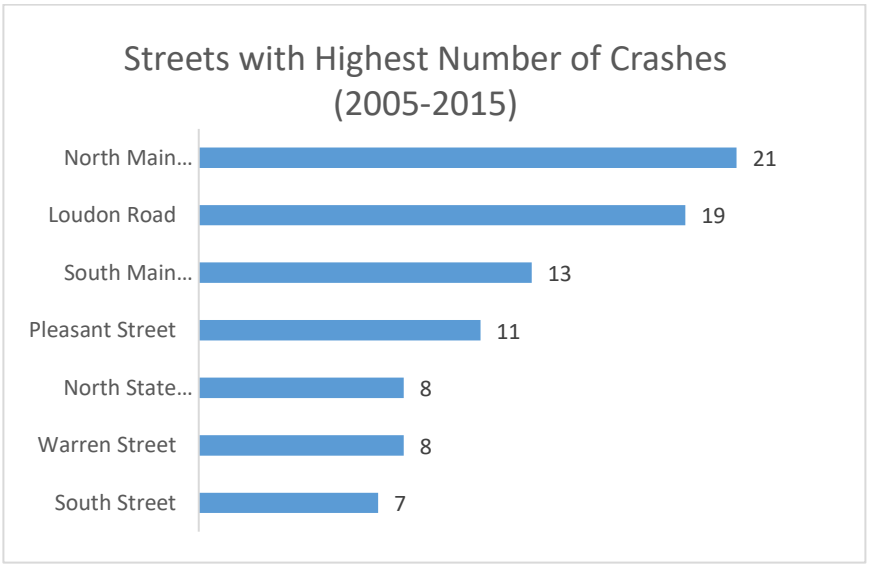




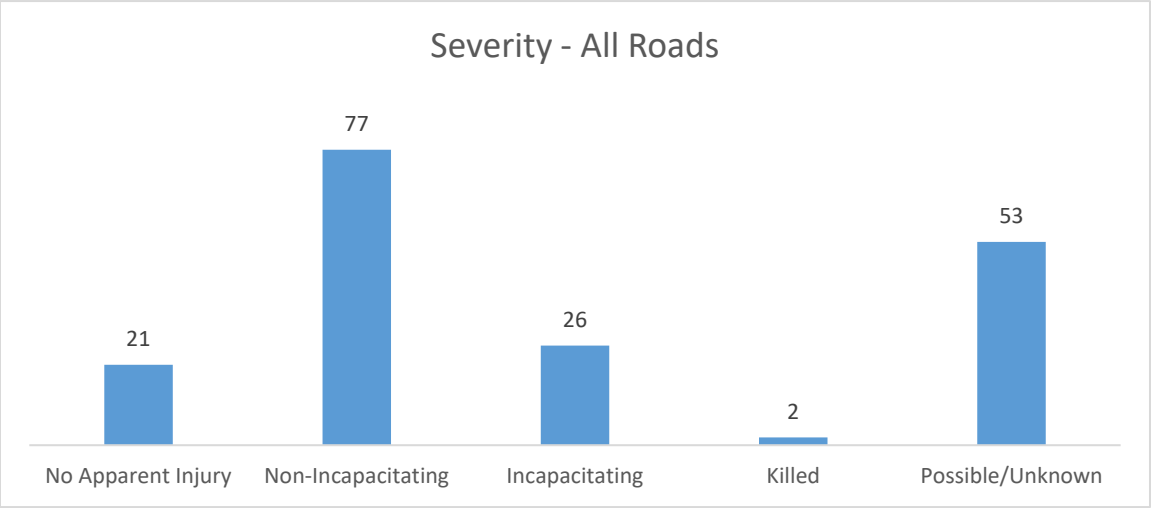
The months of December and January have the highest number of collisions. It is possible that increased nighttime hours might be contributing, as the days are much shorter in the early winter. This is especially pronounced when considering there is more pedestrian activity during the warm weather months than during the winter. It also may be possible that sidewalk conditions may be contributing to the higher rates of collisions in the winter. Snow piles may reduce visibility, and icy/snowy sidewalk conditions may entice people to walk in the street versus the sidewalk. A more detailed analysis would be required to determine with more certainty the causes for the increased collisions during winter months.



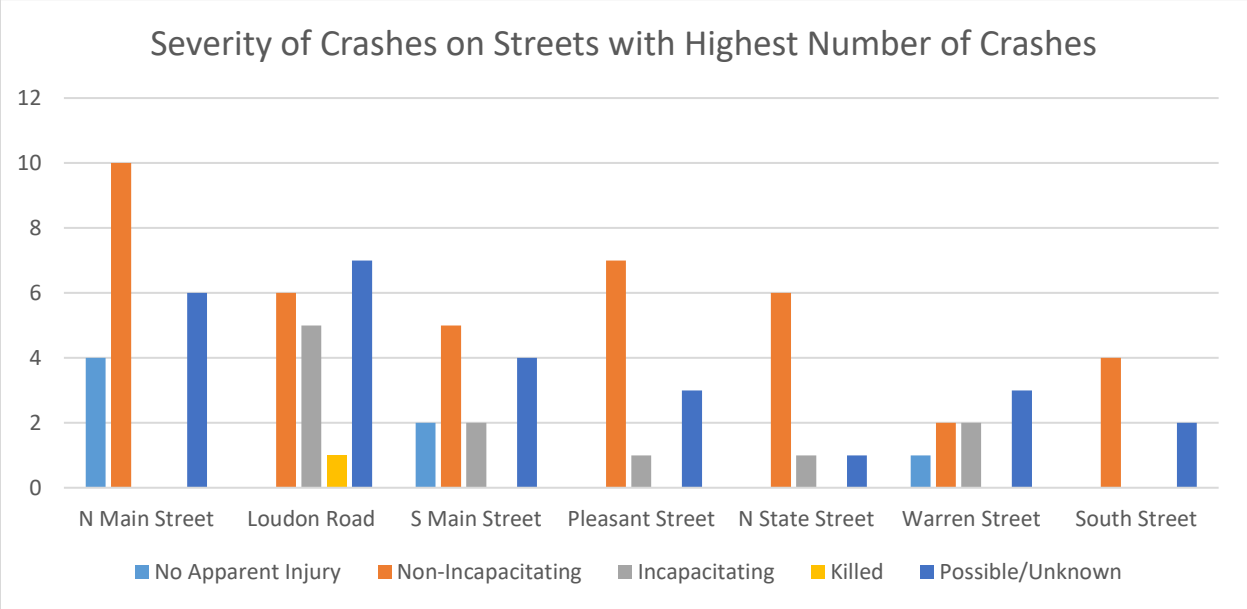
This table shows pedestrian collisions by time of day, broken by half an hour. Collisions peak in the evening, with secondary peaks in the morning and mid-day. The temporal distributing of pedestrian and motor vehicle traffic likely contributes to this pattern.



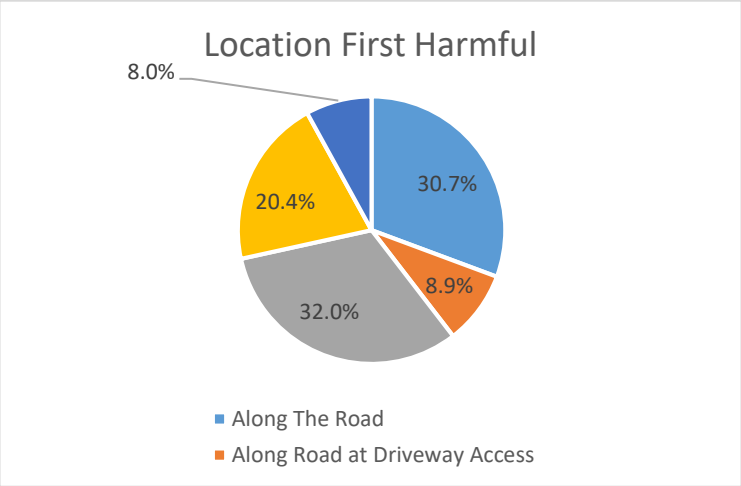
North Main Street had the highest number of collisions over the 10 year period, likely in part due to the high number of pedestrian activity there. Loudon Rd also has a high amount of pedestrian traffic, though not as much as North or South Main Street. It is also relatively long, and in an environment that is not oriented towards pedestrians. South Main sees a lot of pedestrian traffic, and is relatively long. The presence of Warren and South streets on this list may come as a surprise. This selection excludes collisions that occur in parking lots or driveways.



It appears that most collisions with pedestrians involve an injury, with a relatively small portion reporting no apparent injury. Fatalities are relatively rare, but have occurred. Research has shown that the rates of injuries and fatalities increases dramatically with increased motor vehicle speeds. Collisions that took place in driveways or parking lots are not included in this table.



This chart breaks down severity for the streets with the highest number of collisions. Note that N Main Street has a high proportion of "no apparent injury" and a low percentage (none) of incapacitating or fatal crashes reported. This is likely due to the relatively low speeds that are typical of most of the street. Collisions appear to be most severe on Loudon Rd, where prevailing motor vehicle speeds are higher and the environment is much more car-oriented. This chart does not include collisions that took place in parking lots or private driveways.



This chart breaks crashes down by where the crash is located (or where it began). Most crashes are located at intersections, with a good number also located along the road. A substantial number (about 30%) of crashes take place in parking lots and private drives, indicating that the Planning Board should consider pedestrian safety and access during the site plan process, as should site plan regulations.

Finally, when reviewing City of Concord Police Department crash reports, it appears that a large portion of collisions involve an error by both the driver and the pedestrian. The combined effects of these errors resulted in a collision. It is important for both motor vehicle operators as well as pedestrians to exercise good judgment and due care.